

vRealize Suite Lifecycle Manager 8.0.1 Installation, Upgrade, and Management

VMware vRealize Suite Lifecycle Manager 8.0.1

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

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

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Contents

vRealize Suite Lifecycle Manager Installation, Upgrade, and Management 7

1 Installing and Configuring vRealize Suite Lifecycle Manager 8

System Requirements	10
vRealize Suite Lifecycle Manager Ports	11
Downloading vRealize Easy Installer	12
Access vRealize Easy Installer	12
Install vRealize Suite Lifecycle Manager Using vRealize Easy Installer	14
Install and Configure Products	16
Log In to vRealize Suite Lifecycle Manager	17
Migration of 2.x Version to vRealize Suite Lifecycle Manager 8.x	18
Install and Configure vRealize Automation 8.0 Using Easy Installer	20
Upgrade vRealize Suite Lifecycle Manager 8.0	20
Support for Additional Product Versions	21
Configuring vRealize Suite Lifecycle Manager Settings	22
Configure Your System	22
Working with Product Support	25
Configure Product Binaries	25
Patching for Products through vRealize Suite Lifecycle Manager	27
Register with My VMware	28
Servers and Protocols	30
Configure NTP Servers	30
Configure DNS Servers	31
Data Source Using SNMP Configurations for vRealize Network Insight	31
User Management With VMware Identity Manager	32
Manage Your Directory in User Management	33
Configuring User Attribute Definition	34
Assign User Roles with User Management	35
Add Active Directory Over LDAP	35
Add Active Directory with Integrated Windows Authentication	38
Deployment of VMware Identity Manager	41
Generate Certificate Within Locker	41
Configure License Within Locker	43
Configure Your Password Within Locker	44
Add a Data Center to vRealize Suite Lifecycle Manager	44
Assign a User Role in vCenter Server	45
Add a vCenter Server to a vRealize Suite Lifecycle Manager Data Center	46
Replace Certificate for vRealize Suite Lifecycle Manager	47

2 Creating an Environment 49

Create a New Private Cloud Environment Using the Installation Wizard	50
Configure Environment Settings for a New Private Cloud	52
Install vRealize Suite Products	53
Accept EULA and License Selection	54
Configure Infrastructure Details	54
Configure Certificate Details	55
Configure Network Details	56
Configure Product Details	57
Configure Private Cloud Environment Details	64
Configure vRealize Suite Products for Installation	68
Confirm Environment and Installation Settings	71
Import an Existing Environment using Installation Wizard	71
Import vRealize Business for Cloud Environment	72
Import vRealize Automation Environment	73
Import vRealize Network Insight Environment	74
Import vRealize Operations Manager Environment	75
Import vRealize Log Insight Environment	75
Create a Private Cloud Environment Using a Configuration File	76

3 Managing Private Cloud Environments 78

Accessing Lifecycle Operations	78
Lifecycle Manager with a Dashboard	78
Add a Product to an Existing Private Cloud Environment	79
Add a Data Source to an Existing Private Cloud Environment	80
Data Operations Supported by vRealize Network Insight	80
Import Data sources in vRealize Suite Lifecycle Manager	80
Scale-Out VMware Identity Manager	81
Scheduled Health Check	82
Scale-Out vRealize Suite Products	82
Export a Private Cloud Environment Configuration File	84
Download Private Cloud Product Logs	85
Delete an Environment	85
Managing vRealize Suite Products in a Private Cloud	86
Create a Product Snapshot	87
Inventory Sync in vRealize Suite Lifecycle Manager	88
Change your Password for vRealize Products	88
Upgrade a vRealize Suite Product	89
Delete a Product from an Environment	99
Replace Certificate for vRealize Suite Lifecycle Manager Products	100
Replace License for any Product	100

Configure Health Monitoring for the vRealize Suite Management Stack	101
Health Status in vRealize Suite Lifecycle Manager	102
View the SDDC Health Overview Dashboard in VMware vRealize Operations Manager	103
Enable or Disable Health Check for Products in vRealize Suite Lifecycle Manager	103
Adding and Managing Content from Marketplace	104
Getting Started with Marketplace	104
Find and Download Content from Marketplace	105
View and Upgrade Downloaded Marketplace Content	106
Install a Downloaded Marketplace Content	106
Delete Content Downloaded from the Marketplace	107

4 Content Lifecycle Management 108

Working with Content Endpoints	110
Add a vRealize Orchestrator Content Endpoint	111
Add a vRealize Automation Content Endpoint	113
Add a Source Control Endpoint	114
Add a vCenter Server Content Endpoint	115
Add a vRealize Operations Manager Endpoint	117
Delete a Content Endpoint	118
Edit a Content Endpoint	119
Managing Content	119
Add Content	121
Delete Multiple Content	123
Working with Captured Content	123
Content Actions	123
Content Types Available for Products	124
Searching Content	126
Test Content	126
Source Control with vRealize Suite Lifecycle Manager Content Lifecycle Management	129
Deploy a Content Package	135
Multi Release of Content Package	136
Delete a Content Package	138
Access Source Control	138
Managing Source Control Server Endpoints	138
Add a Source Control Server Endpoint	139
Delete a Source Control Server Endpoint	140
Working with Content Settings	140
Working with Content Pipelines	141
Configure Pipeline Stub	142
Content Pipeline Settings	143

5 Request Status 146

6 Notifications in vRealize Suite Lifecycle Manager 147

7 Troubleshooting vRealize Suite Lifecycle Manager 148

Unexpectedly Large vRealize Operations Manager Virtual Machine Fails to Power On Due to Resource Limitations 149

Environment Deployment Fails During vRealize Log Insight Clustering and VMware Identity Manager Registration 149

Wrong IP Details During vRealize Suite Lifecycle Manager Deployment 150

Binary Mappings Are Not Populated 150

Content Capture Fails with Secure Field 150

Fix Errors Using Log Files 151

Blueprint Capture Fails 151

Component Profile Deployment Fails 152

vRealize Suite Lifecycle Manager Installation, Upgrade, and Management

vRealize Suite Lifecycle Manager Installation and Management provides instructions for installing VMware vRealize Suite Lifecycle Manager and using vRealize Suite Lifecycle Manager to install and manage products in the vRealize Suite.

Intended Audience

This information is intended for anyone who wants to use vRealize Suite Lifecycle Manager to deploy and manage the vRealize Suite of products to monitor and manage a software-defined data center (SDDC). The information is written for experienced virtual machine administrators who are familiar with enterprise management applications and data center operations.

Installing and Configuring vRealize Suite Lifecycle Manager

1

vRealize Suite Lifecycle Manager provides a single installation and management platform for most of the products in the vRealize Suite.

- [System Requirements](#)

Systems that run vRealize Suite Lifecycle Manager must meet specific hardware and operating system requirements.

- [Downloading vRealize Easy Installer](#)

To deploy standalone vRealize Automation, download the executable file from the My VMware download page.

- [Install vRealize Suite Lifecycle Manager Using vRealize Easy Installer](#)

Before you install vRealize Automation you must define the vCenter Server details, resource location to deploy your appliance, and specify resources and then access vRealize Suite Lifecycle Manager.

- [Install and Configure Products](#)

You can deploy and configure vRealize Suite Lifecycle Manager using the Easy Installer when a deployment is completed.

- [Log In to vRealize Suite Lifecycle Manager](#)

Log in to the vRealize Suite Lifecycle Manager UI to create and manage cloud environments with vRealize Suite Lifecycle Manager.

- [Migration of 2.x Version to vRealize Suite Lifecycle Manager 8.x](#)

You can migrate the earlier versions of Lifecycle Manager to the latest versions.

- [Install and Configure vRealize Automation 8.0 Using Easy Installer](#)

The vRealize Easy Installer provides you with a functionality to install vRealize Automation 8.0 with minimum steps.

- [Upgrade vRealize Suite Lifecycle Manager 8.0](#)

You can check for and install updates to the vRealize Suite Lifecycle Manager appliance.

- [Configuring vRealize Suite Lifecycle Manager Settings](#)

You can access the Lifecycle Operations from the My Service dashboard in the 8.0 version. You can modify the settings for vRealize Suite Lifecycle Manager, such as passwords, and SSH settings in Lifecycle Operations.

- [Working with Product Support](#)

After configuring your vRealize Suite Lifecycle Manager system information, you can check and apply updates or patches that are available in your existing environment.

- [Servers and Protocols](#)

You can provide more information on configuring your appliance by defining the required servers and protocols.

- [User Management With VMware Identity Manager](#)

In User or Identity Management, you can map users present in VMware Identity Manager to roles available in vRealize Suite Lifecycle Manager. Configuring VMware Identity Manager is a mandatory process before you install any suite products. If you have not installed when installing vRealize Suite Lifecycle Manager, you will still be prompted to configure and then proceed.

- [Generate Certificate Within Locker](#)

You can generate a new certificate for products that are deployed in vRealize Suite Lifecycle Manager.

- [Configure License Within Locker](#)

Locker is an application like Lifecycle Manager which helps to manage the Certificate, Passwords, and Licenses from single pane. You can configure licenses at the locker level.

- [Configure Your Password Within Locker](#)

Locker in vRealize Suite Lifecycle Manager 8.0 stores all the passwords that are used across the vRealize Suite Lifecycle Manager. You have to add the passwords for Adding vCenter, Product Deployments, Products Import, My VMware, Product Password Update. You can configure a password at the locker level. Where ever the password field is coming in UI, it will be from the locker.

- [Add a Data Center to vRealize Suite Lifecycle Manager](#)

You can add a data center to vRealize Suite Lifecycle Manager to back up your private cloud environments.

- [Assign a User Role in vCenter Server](#)

Create a user role in the vSphere Web Client with privileges that are required for vRealize Suite Lifecycle Manager. The same role can be assigned to the user who can add a vCenter Server in vRealize Suite Lifecycle Manager.

- [Replace Certificate for vRealize Suite Lifecycle Manager](#)

If you use the custom certificate for vRealize Suite Lifecycle Manager instead of default self-signed certificate, you replace the vRealize Suite Lifecycle Manager certificate.

System Requirements

Systems that run vRealize Suite Lifecycle Manager must meet specific hardware and operating system requirements.

Minimum Software Requirements

Verify that the system where you run vRealize Suite Lifecycle Manager meets the following minimum software requirements.

- vCenter Server 6.0
- ESXi version 6.0

Minimum Hardware Requirements

Verify that the system where you run vRealize Suite Lifecycle Manager meets the following minimum software requirements.

- 6 GB memory
- 48 GB storage - Thick Provision

Supported vRealize Products for Greenfield Installation and Upgrade

vRealize Suite Lifecycle Manager supports the following vRealize products and product versions.

Product	Supported Versions
vRealize Automation	7.6.0 and 8.0.1
vRealize Business for Cloud	7.5.0 and 7.6.0
vRealize Operations Manager	7.5.0 and 8.0.1
vRealize Log Insight	4.8.0 and 8.0.0
VMware Identity Manager	3.3.1
vRealize Network Insight	4.2.0 and 5.0.0

For more information about vRealize Suite, see [vRealize Suite Overview](#). You can onboard a supported vRealize product version which supports import in vRealize Suite Lifecycle Manager, and then can upgrade the same to a supported product versions by vRealize Suite Lifecycle Manager.

Supported vRealize Versions for Imported Products in vRealize Suite Lifecycle Manager

vRealize Suite Lifecycle Manager supports the following vRealize products and product versions.

Product	Supported Versions
vRealize Automation	7.2, 7.3.0, 7.3.1, 7.4, 7.5.0, 7.6.0, 8.0.0 and 8.0.1
vRealize Business for Cloud	7.2, 7.3.0, 7.3.1, 7.4, 7.5.0 and 7.6.0

Product	Supported Versions
vRealize Operations Manager	6.3, 6.4, 6.5.0, 6.6.0, 6.6.1, 6.7.0, 7.0.0, 7.5.0, 8.0.0 and 8.0.1
vRealize Log Insight	4.5.1, 4.6.0, 4.6.1, 4.7.0, 4.7.1, 4.8.0 and 8.0.0
VMware Identity Manager	New installation of 8.0 supports 3.3.1 (green or brown field). Only Lifecycle Manager migrated setups will be supporting older version.
vRealize Network Insight	3.7.0, 3.8.0, 3.9.0, 4.0, 4.1, 4.1.1, 4.2.0 and 5.0.0

For the product interoperability, see [Interoperability Matrix](#). For more information about vRealize Suite, see [vRealize Suite Overview](#).

Supported Browser

- Google Chrome
- Internet Explorer
- Mozilla Firefox

vRealize Suite Lifecycle Manager Ports

This section provides a list of ports used by vRealize Suite Lifecycle Manager for product and integration communication.

Table 1-1. Required Upstream Ports and Endpoint Services

Service	TCP Port	URL
My VMware	443	https://apigw.vmware.com
Solutions Exchange	443	https://marketplace.vmware.com
Updates	443	https://vapp-updates.vmware.com
Compatibility	443	https://simsservice.vmware.com
Patch and policy refresh repository	443	https://vrealize-updates.vmware.com

My VMware API Host Names	Market Place API Host Names	Market Place API Host URLs
apigw.vmware.com	marketplace.vmware.com	https://marketplace.vmware.com/service/api/
download2.vmware.com	drd6c1w7be.execute-api.us-west-1.amazonaws.com	https://drd6c1w7be.execute-api.us-west-1.amazonaws.com/prod/api
download3.vmware.com	(* .amazonaws.com)	
*.akamaiedge.net		

Table 1-2. Requires Ports for Product and Integration Communications

Product or Integration	TCP Port Number
vRealize Automation Appliance	5480, 443, 22
vRealize Automation IaaS Server Nodes	443
vRealize Automation Proxy	443
vRealize Business for Cloud Server/Collector Appliances	5480, 443, 22

Table 1-2. Requires Ports for Product and Integration Communications (continued)

Product or Integration	TCP Port Number
vRealize Operations Manager Analytics Cluster Appliances	443, 22
vRealize Operations Manager Remote Collector Appliances	443, 22
vRealize Log Insight Appliances	443, 9543, 16520, 22
vRealize Network Insight	443, 22
Identity Manager Appliances	8443, 443, 9999, 9898, 9000, 9694 (Use these for a cluster)
vRealize Orchestrator Appliances	<ul style="list-style-type: none"> ■ 8281 - vRealize Orchestrator 7.x version only. ■ 443 - Starting with vRealize Orchestrator 8.x.
vCenter Server Instances	443
ESXi Host Instances	443
Content Management Host (GitLab)	443

Note For vRealize Suite Lifecycle Manager 8.x and later, ICMP protocol must be enabled between vRealize Suite Lifecycle Manager and products that are being managed.

Note For more information on ports, see *vRealize Suite Lifecycle Manager 8.x Security Hardening Guide* and [VMware Ports and Protocol](#) tool.

Downloading vRealize Easy Installer

To deploy standalone vRealize Automation, download the executable file from the My VMware download page.

Access vRealize Easy Installer

You can access vRealize Easy Installer after you download the executable file from My VMware download page to access the installer file.

Prerequisites

Verify that you have downloaded the ISO file.

Procedure

- 1 After you download the file, mount the `vra-lcm-installer.iso` file.
- 2 Browse to the folder `vrlcm-ui-installer` inside the CD-ROM.
- 3 The folder contains three sub-folder for three operating systems. Based on your operating system, browse to the corresponding operating system folder inside `vrlcm-ui-installer` folder.

4 Click the installer file in the folder.

Operating System	File Path
Windows	lcm-installer\vr lcm-ui-installer\win32
Linux	a Login to Linux VM. b Run <code>apt-get install p7zip-full</code> . c Run <code>7z x vra-lcm-installer.iso</code> . d Run <code>chmod +x vr lcm-ui-installer/lin64/installer</code> e Run <code>apt install libnss3</code> (required only if libnss3 component is not installed.) f Run <code>vr lcm-ui-installer/lin64/installer</code> .
Mac	vr lcm-ui-installer/mac/Installer

The vRealize Easy Installer UI is specific to the operating system. Ensure that you are using the valid UI folder path to launch the installer.

Install and Configure vRealize Identity Manager

You can install a new instance of vRealize Identity Manager or import an existing instance when you are configuring the vRealize Easy Installer.

Prerequisites

Verify that you have a static IP address before you begin your configuration.

Procedure

- 1 To install a new instance, select **Install new vIDM**.
- 2 Enter the required text boxes under **Virtual Machine Name**, **IP Address**, **Hostname**, and **Default Configuration Admin**.

Note The vRealize Easy Installer creates the Default Configuration Admin user as a local user in vRealize Identity Manager and the same user is used to integrate products with vRealize Identity Manager. The easy installer allows only vRealize Identity Manager 3.3.1. Ensure that vRealize Identity Manager is upgraded to 3.3.1 before performing an install or import through the installer.

3 To import an existing instance, select **Import Existing vIDM**.

- a Enter the **Hostname, Admin Password, System Admin Password, SSH User Password, Root Password, Default Configuration Admin, and Default Configuration Password**.
- b Select the **Sync group members to the Directory when user want to sync group member** while adding a group for the global configuration of vRealize Identity Manager.

Note vRealize Identity Manager will not be in the form factor if the scenarios are one of the following:

- If it is a single node with version 3.3.1 and has external postgres or sql server.
 - vRealize Identity Manager 3.3.1 cluster with an external MSSQL database.
-

Note If the vRealize Identity Manager version is less than 3.3.1 and if the conditions are met:

- Single/Cluster setup having external Database (Postgres/sqlserver)
- Consists of windows/external connectors

Upgrade support from older vRealize Identity Manager to latest is only available if they conform to vRealize Suite Lifecycle Manager supported form-factor. Else you can upgrade outside vRealize Suite Lifecycle Manager . Once upgraded, it can any-time be reimported by triggering Inventory Sync in vRealize Suite Lifecycle Manager 8.0.

4 Click **Next**.

If you cannot deploy vRealize Suite Lifecycle Manager vRealize Identity Manager or vRealize Automation in VMC vCenter Server using vRealize Easy Installer, then use the vCenter Server that has an administrator privilege to deploy products.

Install vRealize Suite Lifecycle Manager Using vRealize Easy Installer

Before you install vRealize Automation you must define the vCenter Server details, resource location to deploy your appliance, and specify resources and then access vRealize Suite Lifecycle Manage.

Prerequisites

Verify that you have the configuration details for:

- vCenter Server details
- Network of vRealize Automation and vRealize Suite Lifecycle Manage
- Lifecycle VA deployment
- vRealize Identity Manager Greenfield or brownfield deployment

Procedure

- 1 Click **Install** on the **vRealize Easy Installer** window.
- 2 Click **Next** after reading the introduction.
- 3 Accept the License Agreement and click **Next**.
- 4 Read the **Customer Experience Improvement Program** and select the checkbox to join the program.
- 5 To specify vCenter Server details.
 - a Enter the **vCenter Server Hostname**.
 - b Enter the **HTTPs Port** number.
 - c Enter the **vCenter Server Username** and **Password**.
- 6 Click **Next** and you are prompted with a Certificate Warning, click **Yes** to proceed.
- 7 You must specify a location to deploy virtual appliances.
 - a Expand the vCenter Server tree.
 - b Expand to any data center and map your deployment to a specific VM folder.
- 8 Specify a resource cluster.
 - a Expand the data center tree to an appropriate resource location and click **Next**.
- 9 Store your deployment, allocate a datastore and click **Next**.
- 10 Set-up **Network** and **Password configuration**, enter the required fields, and click **Next**.
 - a Enter the **NTP Server** for the appliance and click **Next**.

The network configurations provided for all products are a one time entry for your configuration settings. The password provided is also common for all products and you don't need to enter the password again while you are installing the products.

Password should have minimum one upper case, one lower case, one number and one special character. Special characters can be !@#\$%^&*() but colon(:) is not supported in the password for all the supported suite products.

- 11 Set up vRealize Suite Lifecycle Manager configuration settings.
 - a Enter a **Virtual Machine Name**, **IP Address**, and **Hostname**.
 - b Click **Next**.

You can use the vRealize Easy Installer

to either import an existing vRealize Identity Manager into vRealize Suite Lifecycle Manager or to deploy a new instance vRealize Identity Manager.

If using vRealize Identity Manager for a new vRealize Identity Manager installation, only vRealize Identity Manager 3.3.1 is allowed.

This is a mandatory step for a vRealize Suite Lifecycle Manager deployment.

vRealize Automation installation is optional. vRealize Automation can be deployed in a standard or a cluster mode. Standard supports a single node vRealize Automation and cluster mode supports 3 node vRealize Automation installation.

- 12 Review the summary page that contains the vRealize Suite Lifecycle Manager , vRealize Identity Manager, and vRealize Automation installation details.

What to do next

For more information on assigning user access and roles, see [Assign a User Role in vCenter Server](#) .You can now start installing vRealize Identity Manager.

Install and Configure Products

You can deploy and configure vRealize Suite Lifecycle Manager using the Easy Installer when a deployment is completed.

Lifecycle Manager can be installed and configured using the Easy Installer. You can refer to the *Installing vRealize Automation using Easy Installer* for more information.

Prerequisites

- Verify if a vCenter Server is available for deploying Lifecycle Manager and products.
- A static IPv4 with accurate FQDN is used for a Lifecycle Manager deployment.
- To prevent unwanted internal ports outside after vRealize Suite Lifecycle Manager Virtual appliance reboot, login to vRealize Suite Lifecycle Manager Virtual appliance through SSH and run the command `rm -rf /etc/bootstrap/everyboot.d/10-start-services`, after deploying vRealize Suite Lifecycle Manager Virtual appliance from easy installer.

Procedure

- 1 Deploy Lifecycle Manager using Easy Installer.

Note By default, you can find:

- default_datacenter
 - default_vCenter
 - globalenvironment. (VMware Identity Manager)
 - vRealize Automation environment (Based on product selection)
 - VMware Identity Manager and vRealize Automation passwords in locker
 - Source mapping for vRealize Automation and VMware Identity Manager
-

- 2 To deploy a new product, after you log in vRealize Suite Lifecycle Manager, click **Lifecycle Operations** on the **Dashboard - My Services**.
- 3 Click **Datacenter** and navigate to **ADD DATACENTER**.

- 4 Add a **vCenter Server** to the Data Center.
- 5 Create a valid certificate in the vRealize Suite Lifecycle Manager **Locker**.
- 6 Add the required license keys for future use in vRealize Suite Lifecycle Manager Locker.
- 7 Extend the Lifecycle Manager appliance disk space to accommodate product binaries and other necessary components to be used in future.
- 8 (Optional) Configure the proxy settings in Lifecycle Manager for an internal network connectivity.

Log In to vRealize Suite Lifecycle Manager

Log in to the vRealize Suite Lifecycle Manager UI to create and manage cloud environments with vRealize Suite Lifecycle Manager.

Prerequisites

Deploy the vRealize Suite Lifecycle Manager appliance.

Procedure

- 1 Use a supported Web browser (Chrome, IE or Mozilla FireFox) to connect to your vRealize Suite Lifecycle Manager appliance by using the appliance's IP address or host name.

`https://IP address/vr lcm`

Note You can also access vRealize Suite Lifecycle Manager using the URL `https://IP address`. The URL `http://IP address` does not successfully redirect to vRealize Suite Lifecycle Manager.

- 2 Enter the administrator user name.

`admin@local`

- 3 Enter the default administrator password.

Admin password will be the default password given in the Easy installer while deploying vRealize Suite Lifecycle Manager.

- 4 Click **Log In**.

What to do next

If you are logging in to vRealize Suite Lifecycle Manager for the first time, set the vRealize Suite Lifecycle Manager root password. If you want to reset the password, go to **Settings** tab to make the change.

Configure a new administrator password and other vRealize Suite Lifecycle Manager settings, such as SSH settings.

Migration of 2.x Version to vRealize Suite Lifecycle Manager 8.x

You can migrate the earlier versions of Lifecycle Manager to the latest versions.

VMware Identity Manager supports the legacy vRealize Suite Lifecycle Manager versions 2.0, and 2.1. The migration also requires inputs like legacy vRealize Suite Lifecycle Manager hostname, user name, password, and SSH Password.

Prerequisites

- Verify that you have vRealize Suite Lifecycle Manager 2.0 version or later.
- Legacy vRealize Suite Lifecycle Manager must have SSH enabled for the root user.

Procedure

- 1 From the **Easy Installer** wizard, click **Migrate**.
- 2 Enter the vCenter details where the new vRealize Suite Lifecycle Manager 8.1 is installed.
- 3 Select the data center in the **vCenter Server**, **Compute Resource**, and **Storage**.
- 4 Enter the network configuration details.
- 5 In the **Password configuration**, enter the password which can be set to the vRealize Suite Lifecycle Manager root and admin password.
- 6 If you want to deploy Identity Manager, then enter the password for **admin**, **sshuser**, and **root credential**.
- 7 Enter the vRealize Suite Lifecycle Manager 8.1 **VMname**, **Hostname**, and the **IP details**.
- 8 Enter the legacy vRealize Suite Lifecycle Manager **Hostname**, **Username**, and **Password**.

9 Select New Identity Manager Installation or Import Existing Identity Manager.

If you have selected to install New Identity Manager, then it is deployed in the same vCenter Server mentioned in step 2. If you import an existing Identity manager, verify that the identity manager is already registered in the vRealize Suite Lifecycle Manager legacy VM and identity manager SSH is enabled for the root user.

Note A new installation of vRealize Suite Lifecycle Manager 8.1 supports only VMware Identity Manager 3.3.1. The earlier versions of VMware Identity Manager will be supported only for an existing vRealize Suite Lifecycle Manager instance that is being migrated to vRealize Suite Lifecycle Manager 8.1. Upgrade support from earlier VMware Identity Manager version to the latest is only available if they conform to the vRealize Suite Lifecycle Manager supported criteria. Any earlier versions of vRealize Suite Lifecycle Manager 8.1, allows only single instance of VMware Identity Manager to be deployed with the embedded connector and embedded postgresql database. Upgrade of VMware Identity Manager within vRealize Suite Lifecycle Manager 8.1 to the latest versions will be supported if it conforms to the mentioned criteria. Else the upgrade has to be performed outside vRealize Suite Lifecycle Manager. After you upgrade, it can any time be reimported by triggering Inventory Sync in vRealize Suite Lifecycle Manager 8.1.

10 Click Submit.

11 When the migration is successful, click the vRealize Suite Lifecycle Manager URL or the migration request to view the progress by logging in with `admin@local` with the password given in step 5.

12 All the environments with data centers, vCenter Servers, Settings (such as NTP, DNS, and so on), content endpoints that are managed by older Lifecycle Manager are migrated and the environments are imported to the latest version.

Results

As part of migration, create a global environment based on installation or import when you import legacy vRealize Suite Lifecycle Manager VMware Identity Manager to vRealize Suite Lifecycle Manager 8.1. If there is a failure in the global environment, it can be due to the missing ssh user password in the legacy vRealize Suite Lifecycle Manager. Enter the SSH password details by selecting the correct password on retry and submit the changes to create a global environment. Once a global environment is created, you can resume the migration operation.

With migration you can create environments, settings, certificate and so on. You can check the status of migration on the Request status.

Note If you import an existing VMware Identity Manager and if the admin password is different from the SSH user for the VMware Identity Manager, then the global environment request fails. In this case, add the SSH password in the locker app manually and retry the request with this password.

Install and Configure vRealize Automation 8.0 Using Easy Installer

The vRealize Easy Installer provides you with a functionality to install vRealize Automation 8.0 with minimum steps.

The installer provides you with minimal or a clustered deployment options before you start your vRealize Automation configuration. Manual installation of vRealize Automation through OVA or ISO is not supported.

Prerequisites

Note The master node is now referred to as the primary node.

Verify that you have the primary vRealize Automation credentials before installing vRealize Automation. vRealize Automation 8.0 requires an external VMware Identity Manager 3.3.1 or later.

Procedure

- 1 Enter the vRealize Automation **Environment Name**.
- 2 Under vRealize Automation license, enter the License Key.
- 3 After configuring your VMware Identity Manager settings, you can opt to install vRealize Automation.
- 4 For a standard deployment with a primary node, enter the **Virtual Machine Name, IP Address**, and **FQDN Hostname** of vRealize Automation. Skip to Step 6.
- 5 For a cluster deployment with three nodes, enter the **Load Balancer IP address** and **Hostname**.
- 6 For a cluster deployment, create a primary node by using step 3 as a guideline.
- 7 For a cluster deployment, create secondary nodes, enter the required text boxes, and proceed.
- 8 Click **Next**.
- 9 Read the Summary page with the entered data and click **Submit**.

After submitting your details, the installer takes about 30 minutes to install the Lifecycle Manager, copy binaries and then start the installation process.

Upgrade vRealize Suite Lifecycle Manager 8.0

You can check for and install updates to the vRealize Suite Lifecycle Manager appliance.

Upgrade is supported from vRealize Suite Lifecycle Manager 8.0 and later versions. You can also upgrade vRealize Suite Lifecycle Manager by using an ISO file to install the upgrade. Latencies have been validated with 350 ms with a bandwidth of 1.5MB/s for vRealize Suite small suite deployment and upgrade.

Prerequisites

- Verify that you meet the system requirements. See [System Requirements](#).
- Take a snapshot of the vRealize Suite Lifecycle Manager virtual appliance. If you encounter any problems during upgrade, you can revert to this snapshot.
- Verify that no critical tasks are currently in progress in vRealize Suite Lifecycle Manager. The upgrade process stops and starts vRealize Suite Lifecycle Manager services and reboots the vRealize Suite Lifecycle Manager virtual appliance, which might corrupt in-progress tasks.

Procedure

- 1 From the My services dashboard, click **Lifecycle Operations** and click **Settings**.
- 2 Click **System Upgrade**.

vRealize Suite Lifecycle Manager displays the name, version number, and vendor of the current vRealize Suite Lifecycle Manager appliance.

- 3 Select the repository type for vRealize Suite Lifecycle Manager updates.

Option	Description
Check Online	You can check if the upgrades are available online. To use this option, the vRealize Suite Lifecycle Manager virtual appliance must have access to vapp-updates.vmware.com.
URL	Enter your repository URL for updates. To use this option, extract the ISO containing the upgrade files to a private repository. Do not use a private repository that requires authentication for a file access.
CD-ROM	You can update the vRealize Suite Lifecycle Manager Appliance from an ISO file that the appliance reads from the virtual CD-ROM drive.

- 4 Click **CHECK FOR UPGRADE**.

After few minutes, vRealize Suite Lifecycle Manager displays a message indicating whether there are updates available.

- 5 Select the upgrades to install, and click **INSTALL UPGRADES**.
- 6 After a few minutes, login to the vRealize Suite Lifecycle Manager UI and check for the upgrade successful message in the **Settings > System Upgrade**.

On an upgrade completion, vRealize Suite Lifecycle Manager displays the message upgrade completion message. If you do not see this message, wait for a few minutes and refresh the UI.

Support for Additional Product Versions

This section covers information about enabling applicable product versions for the vRealize Suite products while you are updating the LCM appliance. You can add additional Policy support and enhance the new product versions and add patches to vRealize Suite Lifecycle Manager as and when applicable.

With the check version feature, you can check the latest available product versions even without web connectivity. The table with the versions of the product of each vRealize Suite is pre-populated wherein the data is fetched from the VMware source.

If the selected upgraded product version does not work, then navigate to the downloaded product file with a file extension .pspak. Upload the file and validate the same using Chrome or Internet Explorer.

Configuring vRealize Suite Lifecycle Manager Settings

You can access the Lifecycle Operations from the My Service dashboard in the 8.0 version. You can modify the settings for vRealize Suite Lifecycle Manager, such as passwords, and SSH settings in Lifecycle Operations.

The first time you view the settings page, you must provide data for all available settings to save any settings. Only a user admin has access to the System Admin Applications. The system administration contains the applications:

- System Details
- Logs
- System Patches
- Product Support Pack
- System Upgrade
- Time Settings
- Change Password
- Proxy
- Servers and Accounts
- [Configure Your System](#)

You can configure your system before you install an vRealize Suite Lifecycle Manager appliance.

Configure Your System

You can configure your system before you install an vRealize Suite Lifecycle Manager appliance.

Procedure

- 1 From the My services dashboard, click Lifecycle Operations and click **Settings**.
- 2 To extend the disk space for vRealize Suite Lifecycle Manager, navigate to **System Details**, click **Extend Storage**.
 - a Enter the **vCenter Host Name**, **User Name**, and **Password** for the first time.
 - b Enter the Disk Size in GB and click **Extend**.

You cannot edit the Network Information fields.

3 To reboot the server, click **Reboot System**.

- a To schedule a weekly server restart, toggle the **Schedule a restart** and select the day of the week, and time for the weekly restart.

4 Click **Save**.

Enable or Disable SSH on vRealize Suite Lifecycle Manager

You can enable SSH for troubleshooting purposes.

As a best practice, disable SSH in a production environment, and activate it only to troubleshoot problems that you cannot resolve by other means. Leave it enabled only while needed for a specific purpose and in accordance with your organization's security policies. If content management is enabled, then SSH is enabled automatically and it cannot be disabled. Force disablement of SSH causes failure of Content Lifecycle Management functionality.

Procedure

- 1** From the vRealize Suite Lifecycle Manager dashboard, click Lifecycle Operations and click **Settings**.
- 2** Click **System Details**, under Network Information, enter the **Host Name**, **IP Address**, **IP Address Type**, **Netmask** and **Gateway fields**.
- 3** Enter the **Preferred DNS** and **Alternate DNS address**.

Note SSH is enabled by default.

4 Click **SAVE**.

Work with vRealize Suite Lifecycle Manager Logs

You can configure the vRealize Suite Lifecycle Manager log files and download log files for troubleshooting purposes.

Starting with vRealize Suite Lifecycle Manager 8.0.0 and later, vRealize Suite Lifecycle Manager logs are entered in `vmware_vr lcm.log` and `/blackstone-spring.log`.

Generate Log Bundle in vRealize Suite Lifecycle Manager

You can configure the level of information vRealize Suite Lifecycle Manager collects in log files and the number of log files for vRealize Suite Lifecycle Manager.

Procedure

- 1** Click **Settings** and navigate to **System Administration > Logs**.
- 2** Click **Generate Log Bundle**.

3 To download logs, click **Download Logs**.

The download status is displayed on the Request tab.

Note For vRealize Suite Lifecycle Manager 8.0.0, the relevant logs for the Lifecycle Manager appliance are found in `/var/log/vr1cm/vmware_vr1cm.log`- Contains server and engine logs. `/var/log/vr1cm/blackstone-spring.log` - Contains log for the Content Management.

Configure Log Insight Agent

vRealize Suite Lifecycle Manager 8.0.0 and later supports vRealize Log Insight for log analysis. The content pack in vRealize Log Insight for vRealize Suite Lifecycle Manager is supported with version 8.0.1(Patch 1) and later. vRealize Log Insight agent is pre-installed on the vRealize Suite Lifecycle Manager virtual appliance. You can configure the vRealize Suite Lifecycle Manager appliance to forward `cfapi` or system logs, and events to the vRealize Log Insight instance. To use the vRealize Suite Lifecycle Manager content pack dashboards and widgets, the configuration should be done on `cfapi` only.

Prerequisites

Verify that you already have the vRealize Log Insight server details before you set the properties of the Log Insight agent.

Procedure

- 1 Log into the vRealize Suite Lifecycle Manager virtual appliance.
 - a Open a Web browser and go to `https://vRSLCMIP/vr1cm` and log in with your user credentials.
 - b Click to Lifecycle Operations and from the **Home** page, click **Settings > Logs**.
 - c Update the following parameters in the vRealize Suite Lifecycle Manager UI section and save your changes.

```
[server]
hostname= vRealize Log Insight hostname proto=cfapi port=9000 SSL=no
```

Or

```
hostname=vRealize Log Insight hostname proto=cfapi port=9543 SSL=yes
```

Or

```
hostname=vRealize Log Insight hostname proto=syslog port=514
Certificates Acceptance Rule
Accept Any and Accept Any Trusted
```


2 Configure the Linux Agent Group on the Log Insight Administration UI .

- a Open a Web browser and go to *https://vRealize Log Insight hostname/IP*.
- b Log in with the credentials - **Setting Value User name** as admin and **Password** as vrli_admin_password.
- c Click the configuration drop-down menu icon and select **Administration**.

Note The content pack is not pre-installed in vRealize Log Insight. You must install the pack by downloading it from the marketplace and then configure the agents.

- d Under **Management**, click **Agents**.
- e From the drop-down menu on the top, select **vRealize Lifecycle Management 8.0.1** from the **Available Templates** section.
- f Click **Copy Template**.
- g After copying the template provide vRealize Suite Lifecycle Manager Ipv4 or FQDN, and save the configuration.
- h Once the configuration is complete, the vRealize Suite Lifecycle Manager events or logs start to flow in vRealize Log Insight and the relevant widgets displays the data.

Setting your vRealize Suite Lifecycle Manager Time

You can configure time settings and add NTP server or use a host time for vRealize Suite Lifecycle Manager.

- 1 To change the time settings, navigate to My services dashboard, click **Lifecycle Operations** and click **Settings**.
- 2 Click **Time Settings**.
- 3 For Applicable Time Sync Mode, select **Use Time Server (NTP)** or **Use Host Time**.
 - a To add a server, click **Add New Server** and enter the name, and FQDN address of the server.
 - b To edit, click the edit icon on the list of NTP servers. You cannot edit the FQDN/ IP Address, you can only edit the name of the NTP server.

For more information on adding NTP server, see [Configure NTP Servers](#).

Working with Product Support

After configuring your vRealize Suite Lifecycle Manager system information, you can check and apply updates or patches that are available in your existing environment.

Configure Product Binaries

You can select a Product Binary to use each vRealize Suite product.

You can download binaries outside of Lifecycle Manager and make them available on the NFS path.

Prerequisites

To use a Product Binary downloaded from My VMware, verify that you have registered with My VMware and registered My VMware services with vRealize Suite Lifecycle Manager. See [Register with My VMware](#).

Procedure

- 1 From the My services, navigate to Lifecycle Operations.
- 2 Click **Settings** and navigate to **Binary Mapping > Product Binaries**.
- 3 Click **Add Binaries**.
- 4 Select the Location type.
 - Local - You can map the binaries to the vRealize Suite Lifecycle Manager locally downloaded copy.
 - NFS - You can map to a downloaded product binary with products dependent on the product binary location.
 - My VMware Downloads - You can map to product binary downloaded from My VMware.
 - Windows ISO - You can map ISO binary which is required for Windows deployment from Lifecycle Manager.

Note The automatic product OVA mappings are mapped based on the check sum of the binary files. When you select all the OVA files in the NFS share and try to map the product binaries, then it takes long time to map and the data disk might fill faster. For more information, see KB article [56362](#). NFS represents the local where the OVA files are copied in the NFS shared drive, user should provide the NFS location in the format, NFS-IP:<nfs hostname/ip>:<folder path>/x/y/z.

For example, 10.11.12.134:/path/to/folder.

- 5 Enter the location of the Product Binary to use in the **Base Location** text box, and click **Discover**.
- 6 To provide Windows ISO, select the location type as **Windows ISO** and enter the **Windows ISO Mapping Details**.

- 7 Select the Product Binary file from the **Product Binary** list.

Note By default, all the My VMware downloads from vRealize Suite are automatically mapped with no user intervention. If you have already downloaded the product binaries using vRealize Suite My VMware integration but the mapping does not exist in the list under Product Binary then you can select My VMware Downloads option under Add Product Binaries window. To manually copy the OVA files from the vRealize Suite virtual appliance, you can select **Local** option from the Add Product Binaries window and provide the location that is residing within vRealize Suite appliance itself. For either of the scenarios, when you click **Discover**, the relevant binaries is listed in the table within the window.

- 8 Click **Add**.
- 9 With vRealize Suite Lifecycle Manager 2.0 and later, you can also view the list of **Patches** available for Products.
 - a Click **Check Patches Online**.
 - b To upload patches, click **UPLOAD**.

Note You can now delete the unsupported product binaries which are not in use. To delete the binaries, click **Delete Unsupported Binaries**, select the binaries, and then click **Delete All**.

Patching for Products through vRealize Suite Lifecycle Manager

You can discover and download available patches for supported products within vRealize Suite Lifecycle Manager.

You can perform following actions using patches from the notifications icon:

- You can view product deployments that have the patches.
- You can view patch logs.
- You can view patch application status.

Install a Patch for Products Through vRealize Suite Lifecycle Manager

You can view and click the related patch from the Notification service. You are then directed to the environment page where you can view a detailed set of information pertaining to all the patches.

Procedure

- 1 Click Lifecycle Operations, navigate to **Settings > Binary Mappings**.
- 2 Click **Product Patch Binaries**.
- 3 To upload patches, click **Upload Patches** and select a patch file.
- 4 To check if there are patches available on the internet, click **CHECK PATCHES ONLINE**.
- 5 Trigger patch install from product card in environment page.

- 6 Select the patch from the list of downloaded patches.

The patches must be downloaded from the Product Binaries page. Only the downloaded patches are listed here.

- 7 Click **Next**.

- 8 **Review and Install** the available patch and click **Finish**.

The patch install request progress can be tracked under **Requests**.

- 9 To view the history of patches, click **Patches > History**.

- 10 To view patches history from Environment Card, click **Patch History**

The vRealize Log Insight product patch history has no content even when the vRLI patches are applied successfully. This is caused due to the minor version bump of vRealize Log Insight after the patch is installed. For example, if patch 1 is applied for vRealize Log Insight 4.6.0, then the vRealize Log Insight version is changed to vRealize Log Insight 4.6.1, and the product card is updated to 4.6.1 and no patch history is visible. Installing patch on vRealize Suite Lifecycle Manager is only supported from the following versions of products.

- vRealize Automation 7.5 and later.
- vRealize Operations Manager 7.0 and later.
- vRealize Business for Cloud 7.5 and later.
- vRealize Log Insight 4.7 and later.
- vRealize Network Insight 3.9 and later.

Register with My VMware

You can register with My VMware to access licenses, download product binaries and consume Marketplace content.

Enter your My VMware user name and password to enable vRealize Suite Lifecycle Manager to download product Binary through My VMware. You can also enter using the proxy server under My VMware Settings. Configuring My VMware Settings is optional if you do not have internet connectivity.

Prerequisites

Verify the account details being entered has the following entitlements.

- vRealize Suite 2017 or 2018 or vCloud Suite 2017 or 2018 entitlement with download and view license permissions to download vRealize Suite products.
- vRealize Network Insight or NSX Data Center Enterprise Plus entitlement with download and view license permissions to download vRealize Network Insight.

The configured My VMware user must have permissions to download and view licenses. The vRealize Suite Lifecycle Manager 2.0 contains the product support pack for vRealize Network Insight 4.6.2 and 4.7.1. For more information, see KB article [60237](#). Download the support pack from the *VMware Solution Marketplace*.

Procedure

- 1 Navigate to **Servers and Accounts**, click **My VMware**.
- 2 Click **ADD MY VMWARE ACCOUNT**.
- 3 Enter your My VMware user name and password, and click **Submit**.

After registration, you can download all the required binaries.

Note To download Product Binary, click the download arrow under **Actions** for the Product Binary to download. If your network requires proxy settings to access external Websites, you can provide those details in the Configure Proxy section. For more information on configuring proxy settings, see [Configure Your Proxy Settings](#).

Configure Your Proxy Settings

If you are using a proxy server in your network, you must configure the proxy server in vRealize Suite Lifecycle Manager.

Normal Proxy (with or without Credential) as well as Proxy with AD configuration, are supported by vRealize Suite Lifecycle Manager as of now.

Prerequisites

You must have installed and configured a proxy server in your network before using it in vRealize Suite Lifecycle Manager and the proxy server IP should have a host name that is resolvable from vRealize Suite Lifecycle Manager appliance console.

Note If the proxy server does not have a resolvable host name then the procedure to add proxy fails.

Procedure

- 1 Navigate to Lifecycle Operations and click **Settings**.
- 2 Click **Proxy**.
- 3 Toggle **Configure Proxy** to use a proxy server for vRealize Suite Lifecycle Manager, or deselect it to remove an existing proxy server.

vRealize Suite Lifecycle Manager does not save proxy server settings when you disable proxy.

- 4 If you are enabling proxy, enter the **Server**, **Port**, **User name**, and **Credential**.

5 Click **Save**.

If vRealize Suite Lifecycle Manager is already configured to use a proxy server, those proxy details are displayed.

Servers and Protocols

You can provide more information on configuring your appliance by defining the required servers and protocols.

Configure NTP Servers

Add the NTP servers in vRealize Suite Lifecycle Manager so that they can be referred while deploying vRealize Suite products. The NTP servers added in vRealize Suite Lifecycle Manager are not used by the vRealize Suite Lifecycle Manager appliance itself, they are also used as input to vRealize Suite product deployment schema.

Prerequisites

Verify that the NTP servers are functioning.

Procedure

- 1 Navigate to Lifecycle Operations dashboard and navigate to **Settings > NTP Servers**.
- 2 To add an NTP server, click **Add NTP Server**.
- 3 Enter a valid **Name** and **FQDN/ IP Address** of the NTP server.
- 4 Click **ADD**.

Configure NTP Settings Post Deployment

vRealize Suite Lifecycle Manager currently does not allow you to configure NTP settings for the virtual appliance during the OVA deployment. This section covers information on accurate time synchronization with the infrastructure and the suite products it deploys and manages.

Prerequisites

Verify that the SSH service on the vRealize Suite Lifecycle Manager appliance is enabled.

Procedure

- 1 Log in to vRealize Suite Lifecycle Manager by using the Secure Shell (SSH) client.
 - a Open an SSH connection to the FQDN or IP address of the virtual appliance.
 - b Log in using following credentials, with **Setting** as value, **User Name** as root and **Password** as vrs lcm_root_password.

- 2 Configure the NTP source for the virtual appliance.
 - a Open the `/etc/systemd/timesyncd.conf` file to edit, such as `vi`.
 - b Remove the comment for the NTP configuration, add the NTP settings, and save the changes. For example, `NTP=ntp.sfo01.rainpole.local ntp.lax01.rainpole.local`
- 3 Enable the `systemd-timesyncd` service and verify the status.
 - a Run the `timedatectl set-ntp true` command to enable the network time synchronization.
 - b Run the `systemctl restart systemd-timesyncd` to enable the NTP synchronization
 - c Run the `timedatectl status` to verify the status of the service.
- 4 Logout of the session by typing **Logout**.

Configure DNS Servers

Configure your DNS servers for configuring vRealize Suite Lifecycle Manager appliance to resolve Host names and IPs from the domain name server.

Prerequisites

Verify that you have an existing DNS servers.

Procedure

- 1 On the My Services dashboard, click **Lifecycle Operations**.
- 2 Click **Settings** and navigate to **Servers and Protocols > DNS**.
- 3 Click **Add DNS Server**
- 4 Enter a **DNS Server Name** and **IP Address** .
- 5 Click **Add**.

Data Source Using SNMP Configurations for vRealize Network Insight

The vRealize Suite Lifecycle Manager 1.3 supports vRealize Network Insight. vRealize Network Insight consists of data sources and are recognized by the LCM appliance.

You can record SNMP configurations, that are relevant to vRealize Network Insight. Click **Add Configuration** to add SNMP for both 2c and 3 SNMP type. The configured SNMP is then used while you are adding vRealize Network Insight data source for Routers and Switches.

Note From vRealize Network Insight 4.0 and later, a new brick size is introduced in vRealize Suite Lifecycle Manager, extra large for both platform and collector node. When you have three nodes in a clustered environment, the brick size should be extra large. All platform nodes in a clustered environment should be of same brick size either large or extra large. But you cannot have both large and extra large in the same cluster.

If a clustered environment is deployed with large brick size and if you want to add one more platform nodes, then you have to manually increase the CPU and the RAM size from vCenter server. You can then import the environment and scale out with an extra large brick size.

Add SNMP Configuration

You can add the SNMP configuration.

Procedure

- 1 Navigate to a **Lifecycle Operations** dashboard and navigate to **Settings > SNMP**.
- 2 Click **Add Configuration**.
- 3 To select the **SNMP Version**, select **v2C** or **v3**.
 - a If you have selected v3, enter the **Username** and **Context Name**.
 - b When you select the Authentication type, you are then prompted to enter to the **Auth Password** and **Privacy Type**.
- 4 Click **Add**.

User Management With VMware Identity Manager

In User or Identity Management, you can map users present in VMware Identity Manager to roles available in vRealize Suite Lifecycle Manager. Configuring VMware Identity Manager is a mandatory process before you install any suite products. If you have not installed when installing vRealize Suite Lifecycle Manager, you will still be prompted to configure and then proceed.

Deployment of an identity manager through vRealize Suite Lifecycle Manager is through a single node with an Internal PostgreSQL database embedded in the appliance and does not support an external database like Microsoft SQL. vRealize Suite Lifecycle Manager supports scale-out of the VMware Identity Manager. For more information, see [Scale-Out VMware Identity Manager](#).

After you deploy a global environment successfully, under User Management Service you can view.

- Directory Management
- User Management

Following are the available roles.

- LCM Cloud Admin
- Content Developer
- Content Release Manager

Even though LCM Cloud Admin has access to the Lifecycle Operations service, only a few services in Settings tab like **NTP Server Setting**, **SNMP**, **DNS**, **My VMware**, and **Binary Mapping** are accessed. Only **LCM Admin**, the `admin@local` has the privilege to access all the settings in the Lifecycle Operations service. The default `admin@local` user is the only application admin who can access the **User Management** service, where **Directory Management** and **Identity Management** are handled.

Note With migration from earlier versions of vRealize Suite Lifecycle Manager to vRealize Suite Lifecycle Manager 8.0, the LCM Admin and LCM Cloud Admin roles are converged into LCM Cloud Admin. So all users who were part of LCM Admin in previous versions of vRealize Suite Lifecycle Manager will now become LCM Cloud Admin in vRealize Suite Lifecycle Manager 8.0.

Adding VMware Identity Manager is an optional step and by configuring VMware Identity Manager with single sign-on across vRealize Suite Lifecycle Manager and products can be achieved.

Note When VMware Identity Manager is used with vRealize Suite Lifecycle Manager, only **Active Directory over LDAP** and **Active Directory with IWA** are used to sync users and groups to the VMware Identity Manager service. Active Directory over LDAP and Active Directory with IWA are the only supported directory integration.

Manage Your Directory in User Management

With Directory Management, you can integrate your enterprise directory with VMware Identity Manager to sync users and groups to the VMware Identity Manager service. Starting from vRealize Suite Lifecycle Manager 8.0, you can create, read, update, and delete directories on VMware Identity Manager. Any updates made in the directory configuration from vRealize Suite Lifecycle Manager 8.0, the same are reflected in the VMware Identity Manager.

Options available under the directory management.

- **Directories** - You can create and manage Active Directories on vRealize Suite Lifecycle Manager. You can create one or more directories and sync them with their enterprise directories. With view directory, you can check sync logs and sync alerts apart from showing basic directory metadata. The directory edit allows an update for the mapped attributes, user, and group DNs. You can delete a directory configuration from vRealize Suite Lifecycle Manager.

- **User Attribute Definitions** - The user attributes lists the default user attributes that sync in the directory and you can add other attributes that you can map to Active Directory attributes.

Note Directory Management is managed by the default vRealize Suite Lifecycle Manager admin user - admin@local. Directory Management will be available in vRealize Suite Lifecycle Manager 8.0 only if the VMware Identity Manager version available in the global environment is higher than or equal 3.3.0.

Supported Directories

- Active Directory over LDAP - If you plan to connect to a single Active Directory domain environment create this directory type
- Active Directory, Integrated Windows Authentication - Create this directory type if you plan to connect to a multi-domain or multi-forest Active Directory environment.
- Secure LDAP

To configure your enterprise directory, you perform the following tasks.

- Create a directory of the same type as your enterprise directory and specify the connection details.
- Map the VMware Identity Manager attributes to attributes used in your Active Directory or LDAP directory.
- Specify the users and groups to sync.
- Sync users and groups.

After you integrate your enterprise directory and perform the initial sync, you can update the configuration and resync at any time.

Configuring User Attribute Definition

When you set up the directory to sync with Active Directory, specify the user attributes. Before setting up the directory, you can specify which default attributes are required and if needed, additional attributes can be added to map the Active Directory attributes.

Changing the default attributes from a required to non-required and marking an attribute to be required can be done only if there are no directories created. Once the directories are created and synced, they cannot be changed. You can mark the required and non-required attributes before adding any directory in the directories page. When you add new custom attributes after the directories are created, to map them you have to edit the directory and update the directory attribute mapping. The change will be effective when the directory gets synced to Active Directory next time.

Assign User Roles with User Management

You can map a user Role against both users and groups present in VMware Identity Manager. On the User Management page the user or a group can be selected and a mapping can be edited. You can delete a role mapping, if required. If a group is assigned a role and if you are part of the group and you log in to vRealize Suite Lifecycle Manager, you can take the same roles that that group. If you have individual mapping, then it would be consolidation of user role and the roles assigned towards the group.

Procedure

- 1 Click **User Management** on the My Services dashboard.
- 2 On the left side of the Directory Management page, click **User Management**.
- 3 To add a user or a group, click **+ADD USER/GROUP**.
- 4 To select a user from the populated list in the table, enter an existing user or a group and click **Next**.

If a user or a group already has a mapping then a warning appears and you are then asked to edit the role mapping rather create again.

- 5 Select a role for the newly created user and click **Next**.
- 6 Read the summary and click **Submit**.

Add Active Directory Over LDAP

You can create this directory type when you plan to connect to a single Active Directory domain environment. For the Active Directory over an LDAP directory type, the connector binds to the Active Directory using a simple bind authentication.

Prerequisites

- List the Active Directory groups and users to sync from Active Directory.
- Verify that you have specified the required default attributes and add additional attributes on the User Attributes definition.
- Verify that you have the required user credentials to add a directory.

Procedure

- 1 Click **Add Active Directory Over LDAP**.

2 On the **Directory Detail** tab:

Fields	Description
Directory Information	Enter a valid Directory Name.
Directory Sync and Authentication	<p>Select the connector to sync with Active Directory. Connector is a VMware Identity Managerservice component that synchronizes users and group data between Active Directory and VMware Identity Manager service.</p> <p>When used as an identity provider, it also authenticates users. Each VMware Identity Manager appliance node contains a default connector component. When required a dedicated connector can also be deployed through a global environment scale-out.</p>
Authentication Enabled	<p>If you want the connector to perform authentication, select Yes. You can indicate whether the selected connector also performs authentication. If you are using a third-party identity provider to authenticate users, click No.</p>
Directory Search Attribute	Select an account attribute from the drop-down menu that contains a user name.
Server Location	<p>Select Directory supports DNS Service Location check box.</p> <ul style="list-style-type: none"> ■ If your Active Directory requires access over SSL/TLS, select the Directory requires all connections to use STARTTLS or SSL check box in the Certificates section, and copy and paste the domain controllers Intermediate (if used) and Root CA certificates into the SSL Certificate text box. Enter the Intermediate CA certificate first, then the Root CA certificate. Ensure that each certificate is in the PEM format and includes the BEGIN CERTIFICATE and END CERTIFICATE lines. If the domain controllers have certificates from multiple Intermediate and Root Certificate Authorities, enter all the Intermediate-Root CA certificate chains, one after another. If your Active Directory requires access over SSL/TLS and you do not provide the certificates, you cannot create the directory. ■ If you do not want to use DNS Service Location, verify that the Directory supports DNS Service Location check box is not selected and enter the Active Directory server host name and port number.

Fields	Description
Certificates	If your Active Directory requires access over SSL/TLS, select the Directory requires all connections to use SSL check box in the Certificates section and copy and paste the domain controller's Intermediate (if used) and Root CA certificate into the SSL Certificate text box. Enter the Intermediate CA certificate first, then the Root CA certificate. Ensure that the certificate is in the PEM format and includes the BEGIN CERTIFICATE and END CERTIFICATE lines. If your Active Directory requires access over SSL/TLS and you do not provide the certificate, you cannot create the directory.
Bind User Details	<ul style="list-style-type: none"> ■ Base DN - Enter the DN to start account searches. For example, OU=myUnit,DC=myCorp,DC=com. The Base DN is used for authentication. Only users under the Base DN can authenticate. Ensure that the group DNs and user DNs that you specify later for sync fall under this Base DN. ■ Bind User DN - Enter the account details. For example, CN=binduser,OU=myUnit,DC=myCorp,DC=com. Use a Bind user account with a non-expiring password. ■ Bind Password: Click Test Connection to verify that the directory can connect to your Active Directory.

3 Click **Create and Next**.

For Active Directory over LDAP, the domains are listed with a check mark.

4 On the **Domain Selection Detail** tab, select the domain and click **Next**.

5 To map the directory attribute to the Active Directory, on the **Map Attribute** tab, select the required attribute and click **Save and Next**.

6 On the **Group Selection** tab, to sync from Active Directory to the VMware Identity Manager directory specify the Group DN details and click **Next**.

You can also select all the active directory groups that are already available in the list to sync to the directory.

- To select groups click **Add Group Distinguished Name**, and specify one or more group DNs. Select the groups under them. Specify group DNs that are under the Base DN that you entered in the "Base DN" text box in the Add Directory page. If a group DN is outside the Base DN, users from that DN will be synced but will not be able to log in.
- Click **Find Groups**. The **Actions** column lists the number of groups found in the DN. To select all the groups in the DN, click **Select All**, or click the number and select the specific groups to sync. When you sync a group, any users that do not have Domain Users as their primary group in Active Directory are not synced.
- Select the **Sync Nested Group Members** option.

7 On the **User Selection** tab, enter the User DN details and click **Next**.

Suite administrators is a user name in the Active Directory who acts as an Admin user for the deployed suite products, Logs, and AD table.

8 Select the **Sync Nested Group Members** option and enter the **Suite Administrators**.

When this option is enabled, all the users that belong directly to the group you select and all the users that belong to the nested groups under it are synced when the group is entitled. Note that the nested groups are not synced; only the users that belong to the nested groups are synced. In the VMware Identity Manager directory, these users will be members of the parent group that you selected for sync. If the “Sync nested group members” option is disabled, when you specify a group to sync, all the users that belong directly to that group are synced. Users that belong to nested groups under it are not synced. Disabling this option is useful for large Active Directory configurations where traversing a group tree is resource and time intensive. If you disable this option, ensure that you select all the groups whose users you want to sync.

- 9 Click **Save and Next**. In **User Selection** page, click **Add User** and specify the users DN's to sync. Specify user DN's that are under the Base DN that you entered in the Base DN text box in the Add Directory page. If a user DN is outside the Base DN, users from that DN will be synced but will not be able to log in. Click **Save and Next**.
- 10 Review the **Dry Run Check** tab, read the summary, click **Sync and Complete** to start the sync to the directory. The connection to Active Directory will be established and users and group names are synced from the Active Directory to the VMware Identity Manager directory.
- 11 Click **Submit**.
- 12 To edit, click the **Edit** icon on the specific active directory in the list of active directories. Any information added is appended to the configuration on VMware Identity Manager. However, any removal through editing only removes the configuration from the vRealize Suite Lifecycle Manager inventory and not from the VMware Identity Manager.
- 13 To delete, click the **Delete** icon on the specific active directory in the list of active directories. The delete action deletes the active directory only from the vRealize Suite Lifecycle Manager inventory and not from VMware Identity Manager.

Add Active Directory with Integrated Windows Authentication

You can create this directory type when you plan to connect to a multi-domain Active Directory environment. The connector binds to Active Directory using Integrated Windows Authentication.

Prerequisites

Verify that you have the required user credentials to add a directory.

Procedure

- 1 Click **Add Active Directory Over IWA**.

2 On the **Directory Detail** tab:

Fields	Description
Directory Information	Enter a valid Directory Name.
Directory Sync and Authentication	Select the connector to sync with Active Directory. Connector is a VMware Identity Manager service component that synchronizes users and group data between Active Directory and VMware Identity Manager service. It authenticates users. Each VMware Identity Manager appliance node contains a default connector component. If necessary, a dedicated connector can also be deployed through a global environment scale-out.
Authentication Enabled	You can indicate whether the selected connector also performs authentication. If you are using a third-party identity provider to authenticate users, click No .
Directory Search Attribute	Select a search attribute from the drop-down menu.
Certificates	<ul style="list-style-type: none"> ■ If your Active Directory requires access over SSL/TLS, select the Directory requires all connections to use STARTTLS check box in the Certificates section, and copy and paste the domain controllers Intermediate (if used) and Root CA certificates into the SSL Certificate text box. Enter the Intermediate CA certificate first, then the Root CA certificate. Ensure that each certificate is in the PEM format and includes the BEGIN CERTIFICATE and END CERTIFICATE lines. If the domain controllers have certificates from multiple Intermediate and Root Certificate Authorities, enter all the Intermediate-Root CA certificate chains, one after the other. If your Active Directory requires access over SSL/TLS and you do not provide the certificates, you cannot create the directory.
Join Domain Details	Enter the Domain Name, Domain Admin user name, and Domain Password.
Bind User Details	<ul style="list-style-type: none"> ■ Enter the Bind Username and Bind Password of the bind user who has permission to query users and groups for the required domains. Enter the user name as sAMAccountName@domain, where domain is the fully qualified domain name. Using a Bind user account with a non-expiring password

3 Click **Create and Next**.

You can select the domains that should be associated with the Active Directory connection.

4 On the **Domain Selection Detail** tab, select the domain and click **Submit and Next**.

The Active Directory with IWA populates the list of domains and you can select or edit the domains as required.

5 To verify that the VMware Identity Manager directory attribute names are mapped to the correct Active Directory attributes, on the **Map Attribute** tab, select the required attribute and click **Submit and Next**.

- 6 On the **Group Selection** tab, specify the Group DN details and click **Next**.

To select groups, click **Add Group Distinguished Name**, and specify one or more group DNs and select the groups under them. Specify group DNs that are under the Base DN that you entered in the Base DN text box in the Add Directory section. If a group DN is outside the Base DN, users from that DN will be synced but you cannot log in.

When you sync a group, any users that do not have Domain Users as their primary group in Active Directory are not synced.

- a Select the **Sync Nested Group Members** option.

- 7 On the **User Selection** tab, enter the User DN details and click **Next**.

Note When this option is enabled, all the users that belong directly to the group you select and all the users that belong to nested groups under it are synced when the group is entitled. Note that the nested groups are not synced; only the users that belong to the nested groups are synced. In the VMware Identity Manager directory, these users are members of the parent group that you selected for sync. If the **Sync nested group members** option is disabled, when you specify a group to sync, all the users that belong directly to that group are synced. Users that belong to nested groups under it are not synced. Disabling this option is useful for large Active Directory configurations where traversing a group tree is resource and time intensive. If you disable this option, ensure that you select all the groups whose users you want to sync.

Suite administrators is a user name in the Active Directory who acts as an Admin user for the deployed suite products, Logs, and AD table.

- 8 On the **Dry Run Check** tab, read the Summary.
- 9 Click **Sync and Complete** to start the sync to the directory. The connection to Active Directory will be established and users and group names are synced from the Active Directory to the VMware Identity Manager directory.
- 10 Click **Submit**.
- 11 To edit, click the **Edit** icon on the specific active directory in the list of active directories. Any information added, gets appended to the configuration on VMware Identity Manager. However, if remove through editing you can only remove the configuration from the vRealize Suite Lifecycle Manager inventory and not from the VMware Identity Manager.
- 12 To delete, click the **Delete** icon on the specific active directory in the list of active directories. You can delete the active directory only from vRealize Suite Lifecycle Manager inventory and not from VMware Identity Manager.

Deployment of VMware Identity Manager

You can install a new instance of VMware Identity Manager or import an existing instance when you are configuring the vRealize Easy Installer.

Note Without installing or importing a VMware Identity Manager, you cannot access any other environment from Lifecycle Manager.

Prerequisites

Verify that you have a static IP address and Active Directory details before you begin your configuration.

Procedure

- 1 To install a new instance, select the **Install new vIDM**.
 - a Enter the required fields under **Virtual Machine Name**, **IP Address**, **Hostname** and **Default Configuration Admin**.
- 2 To import an existing instance, select **Import Existing vIDM**.
 - a Enter the **Hostname**, **Admin Password**, **System Admin Password**, **SSH User Password**, **Root Password**, **Default Configuration Admin** and **Default Configuration Admin Password**.

Note This is a local user that you create on the default tenant in VMware Identity Manager and provide the admin access in the default tenant. The same user is used for all product integration with VMware Identity Manager and the admin role will be assigned in the corresponding product. For example, when vRealize Automation 8.0 is getting registered with vIDM, this default configuration user will be made the org admin and given appropriate roles. Once vRA 8.0 is deployed this will be the initial user to log in with. With other products when they are integrated with vIDM, the same user will be assigned admin role in the product. More of SSO use-case where the default configuration admin will have access to all products deployed.

- 3 Click **Next**.

Generate Certificate Within Locker

You can generate a new certificate for products that are deployed in vRealize Suite Lifecycle Manager.

Note For migration from vRealize Suite Lifecycle Manager 1.3 and earlier, the global certificate will not be migrated to locker automatically. However, you can add the older certificate manually in Locker, if required. This populates the older certificate data from the environment's Infrastructure properties.

Prerequisites

- Certificates that are about to expire in less than 15 days cannot be imported.
- To manage the certificate for an imported environment, add the certificate in the vRealize Suite Lifecycle Manager and perform inventory sync so that the certificate is mapped to the imported environment, after which replace certificate and scale-out wizards will be aware of the existing certificate.

Procedure

- 1 To add a certificate, navigate to **Lifecycle Manager > Locker**.
- 2 You can either select Generate Certificate or Import Certificate.

Option	Description
Generate CSR	<ol style="list-style-type: none"> a Enter the required text boxes. See Step 3 for the text box descriptions. b Enter the FQDN or IP Address. <p>Note Generate CSR downloads a PEM file. This file can be taken to the certificate authority for signing and can be made as a trusted certificate. You can use the CSR option to sign the certificate authority to make it as a trusted certificate after you download the PEM file.</p>
Import Certificate	<ol style="list-style-type: none"> a Enter a valid certificate name. b In the Passphrase text box, type <Cert-Password> (if applicable). c Click Browse File and browse to the saved PEM file. d When you upload a PEM file, the private key and certificate chain details are populated automatically. e Enter the private key and certificate chain details manually. f Click Import. <p>The requirements for PEM file are:</p> <ul style="list-style-type: none"> ■ Both certificate chain and key must be in the same file. ■ The PEM file that are imported can have 2048 bits key or 4096 bits key. ■ If the PEM file certificate is encrypted then the passphrase must be provided while importing the certificate into vRealize Suite Lifecycle Manager.
Generate	<ol style="list-style-type: none"> a Enter the required text boxes. b Select the length of the key. c Enter a valid domain name. d Enter the IP address in which you are assigning the certificate.

- 3 Click **Generate**.
- 4 You can click the certificate from the inventory to view the details and its associated environments with their products.
- 5 To download or replace the certificate, click the vertical ellipses on the certificate.

Results

vRealize Suite Lifecycle Manager generates a new certificate for the specific domain provided by the user.

Configure License Within Locker

Locker is an application like Lifecycle Manager which helps to manage the Certificate, Passwords, and Licenses from single pane. You can configure licenses at the locker level.

Prerequisites

Verify that a license is already available.

Procedure

- 1 Navigate to the **Lifecycle Operations** dashboard, click **Locker**.
- 2 On the left, click the **License** icon.
- 3 To add a license, click **ADD**.
- 4 Enter the alias in the **License Alias** text box.
- 5 Enter the **License Key** and click **Validate**.
- 6 After you validate the accuracy of the license, click **Add**.
- 7 To replace an existing license, click any license from the license table.
 - a Click the vertical ellipses and click **Replace**.
 - b Read the current license summary and click **Next**.
 - c Select an environment from the references table and click **Next**.
 - d Select a license from the drop-down menu and click **Finish**.
- 8 To delete a license, click the vertical ellipses and click **Delete**.
 - a If the Lifecycle Manager is having one or more My VMware accounts configured, then the corresponding license keys are automatically synced. To sync licenses from My VMware account, click REFRESH. However, if you have manually added the same license key to the locker then the corresponding entry from My VMware account cannot be captured.
 - b When any product is imported into vRealize Suite Lifecycle Manager, the license keys present in the product is also captured and stored in the Locker under Licenses. If the same license key is already present, then it cannot be imported.
 - c License keys can be applied to products managed by vRealize Suite Lifecycle Manager from **Home > Environments** under Lifecycle Operations. Select a product from any Lifecycle Operations managed environment, click the horizontal ellipses on the product name and select **Add License**, and follow the steps.

- d If any product is associated to a license in vRealize Suite Lifecycle Manager then the license entry cannot be deleted from the locker.
- e vRealize Suite Lifecycle Manager does not restrict applying multiple licenses to any product, however, the product behavior does allow to set only one license key as active at anytime.
- f License deletion from vRealize Suite Lifecycle Manager locker does not remove the license key from the product itself.

Configure Your Password Within Locker

Locker in vRealize Suite Lifecycle Manager 8.0 stores all the passwords that are used across the vRealize Suite Lifecycle Manager. You have to add the passwords for Adding vCenter, Product Deployments, Products Import, My VMware, Product Password Update. You can configure a password at the locker level. Where ever the password field is coming in UI, it will be from the locker.

Procedure

- 1 Navigate to Lifecycle Operations, on My Services dashboard, click **Locker**.
- 2 On the left panel, click on the key icon.
- 3 To add a Password, click **ADD**.
- 4 Enter the **Password Alias** and **Password**.
- 5 Re-Enter the Password to confirm and enter **Password Description**, and a valid **User Name**.

Note The username field is mandatory for adding the vCenter into vRealize Suite Lifecycle Manager.

- 6 Click **Add**.

Add a Data Center to vRealize Suite Lifecycle Manager

You can add a data center to vRealize Suite Lifecycle Manager to back up your private cloud environments.

Procedure

- 1 On the left pane, click **Data Centers** and click **Manage Data Centers**.
You can see all the data centers with its products that are associated with them. You can also click the product icons that directs you to the view details page of that particular product.
- 2 Click **+ Add Data Center**.
- 3 Enter the **Data Center Name** and provide a **Location** even if the location is not available in the drop-down menu.

- 4 Click **ADD**.
- 5 To delete a datacenter, select the delete icon.

Note If there is any INITIATED, IN PROGRESS or COMPLETED requests for an environment, then you cannot delete a data center. If it has a FAILED request, or request related to vCenter, such requests are archived.

What to do next

Add a vCenter to the data center. See [Add a vCenter to a Data Center](#).

Assign a User Role in vCenter Server

Create a user role in the vSphere Web Client with privileges that are required for vRealize Suite Lifecycle Manager. The same role can be assigned to the user who can add a vCenter Server in vRealize Suite Lifecycle Manager.

Prerequisites

Verify that you have administrative privileges to add a role to a user or a user group. You must have administrative privileges to use vCenter Server.

Procedure

- 1 Log in to vCenter Server by using the vSphere Web Client.
- 2 On the home page of vSphere Web Client, click **Roles** under Administration.
- 3 Create a role for all system interactions between vRealize Suite Lifecycle Manager and vCenter Server.
- 4 Clone **Read-only** and provide a name to the role.

- 5 In the **Create Role** dialog box, configure the role using the following configuration settings, and click **Next**.

Setting	Value
Role Name	vRealize Suite Lifecycle Manager
Privilege	<ul style="list-style-type: none"> ■ Datastore <ul style="list-style-type: none"> ■ You can select All privileges. ■ Host.Local <ul style="list-style-type: none"> ■ Operations- Add Host to vCenter ■ Operations - Create Virtual Machine ■ Operations - Delete Virtual Machine ■ Operations - Reconfigure Virtual Machine ■ Inventory - Modify - Cluster ■ Network <ul style="list-style-type: none"> ■ Assign Network ■ Resource <ul style="list-style-type: none"> ■ Assign vApp to Resource Pool ■ Assign Virtual Machine to Resource Pool ■ vApp <ul style="list-style-type: none"> ■ You can select All privileges. ■ Virtual Machines <ul style="list-style-type: none"> ■ You can select All privileges. ■ Content Library <ul style="list-style-type: none"> ■ You can select All privileges.

This role inherits the System Anonymous, System View, and System Read privileges.

Note You should have permissions to create a content library. Content library uses a datastore to store all templates, so you require permission to access, read, and write on the same datastore. Therefore, all privileges under datastore and content library are needed.

- 6 Provide a name to the new role and click **Finish**.
- 7 Select **Global Permissions** under the Administration and click **Manage**.
- 8 To add permissions, click the plus sign.
- 9 Select the user and role that you have created, and click **OK**.

Add a vCenter Server to a vRealize Suite Lifecycle Manager Data Center

Add a vCenter Server to a Data Center before using that vCenter Server to create a private cloud environment.

Prerequisites

Ensure that you have the vCenter Server fully qualified domain name, user name, and password.

Procedure

- 1** On the left pane, click **Data Centers**.
- 2** On the **Data Centers** page, click **Manage Datacenters**.
 - a Click **+ Add vCenter**.
 - b Enter the **Name** in the form of a fully qualified domain name.
 - c Type the location and click **Add**.
- 3** On the **Data centers** page, select **Manage vCenter Servers** tab.
 - a Select a newly added or an existing datacenter from the drop-down menu.
- 4** Enter the **User Name** and **Password** for the vCenter server.
 Either an administrator or a user with administrator role can use vCenter 6.7.
- 5** Select the **vCenter Type**.
 - **Management:** All VMware SDDC Suite products are managed by this vCenter type.
 - **Workload:** All the payload or business related VMs are managed by this vCenter type.
 - **Consolidated Management and Workload:** Is a vCenter type, where both VMware SDDC Suite products and payload VMs are managed together.

vCenter Type selection is currently used only for classification; the setting has no associated product functionality.
- 6** To import vCenter Servers, select Data Center location from the drop-down menu, click **Import**.
 - a Select the .CSV file and click **Import**. You can upload only one file at a time for a bulk import of VCs in a selected datacenter.
 - b Click **Submit**.

What to do next

Go to the **Requests** page to see the status of this request. When the status is **Completed**, you can use this vCenter Server to create environments.

Replace Certificate for vRealize Suite Lifecycle Manager

If you use the custom certificate for vRealize Suite Lifecycle Manager instead of default self-signed certificate, you replace the vRealize Suite Lifecycle Manager certificate.

Prerequisites

- A X509 PEM base-64 encoded certificate and private key. Make sure the private key is not encrypted.
- A machine with an SSH access to vRealize Suite Lifecycle Manager, and software such as PuTTY and an SCP software such as WinSCP installed on it.

Procedure

- 1 Rename the certificate to `server.crt` and private key to `server.key`.
- 2 Open a Secure Shell connection vRealize Suite Lifecycle Manager appliance as root user.
- 3 Copy the certificate files `server.crt` and `server.key` to the `/opt/vmware/vlcm/cert` folder. You can use an SCP software like WinSCP on Windows. Make sure to backup the original files before copying.
- 4 After copying the certificates, restart the vRealize Suite Lifecycle Manager proxy services to update the appliance certificate.
 - a Restart the system services by executing the following command in the SSH session:
`systemctl restart nginx.`
 - b Check the status of the system services by executing the following command in the SSH session: `systemctl status nginx.`
- 5 After restarting the services, verify that the certificate is updated on the appliance, open a browser and go to `https://<lcm-server-host>`.
- 6 Verify that you see the new certificate in the browser.

Creating an Environment

2

You can create an environment and install vRealize Suite products.

You can use vRealize Suite Lifecycle Manager to install the following vRealize Suite products and versions.

Product Name	Versions
vRealize Automation	7.6 and 8.0
vRealize Orchestrator	All versions embedded with supported vRealize Automation versions are supported.
vRealize Business for Cloud	7.5.0 and 7.6.0
vRealize Operations Manager	7.5.0 and 8.0.0
vRealize Log Insight	4.8.0 and 8.0.0
vRealize Network Insight	4.2.0 and 5.0.0 Install the vRealize Suite Lifecycle Manager product support pack 3 for vRealize Network Insight 4.1.0, 4.1.1 and 4.2.0 by downloading the .pspk file from <i>VMware Solution Exchange</i> .
VMware Identity Manager	3.3.1

For more information on installing vRealize Suite Lifecycle Manager and installing vRealize Suite products, see:

- [Chapter 1 Installing and Configuring vRealize Suite Lifecycle Manager](#)
- [Install suite products](#)

The latency has been validated with 350ms with a bandwidth of 1.5MB/s for vRealize Suite small suite deployment and upgrade.

This chapter includes the following topics:

- [Create a New Private Cloud Environment Using the Installation Wizard](#)
- [Import an Existing Environment using Installation Wizard](#)
- [Create a Private Cloud Environment Using a Configuration File](#)

Create a New Private Cloud Environment Using the Installation Wizard

You can use the installation wizard to create a private cloud environment and install vRealize Suite products.

Prerequisites

- Configure Product Binaries for the products to install. See [Configure Product Binaries](#).
- Ensure that you have added a vCenter server to the data center with valid credentials and the request is complete.
- Generate a single SAN certificate with host names for each product to install from the Certificate tab in the UI.
- Verify that your system meets the hardware and software requirements for each of the vRealize Suite products you want to install. See the following product documentation for system requirements.
 - [vRealize Automation documentation](#)
 - [vRealize Business for Cloud documentation](#)
 - [vRealize Operations Manager documentation](#)
 - [vRealize Log Insight documentation](#)
- vRealize Automation Salt Stack Config (formerly known as Salt Stack Enterprise) is introduced as a part of vRealize Automation 8.3.0. Salt Stack Config (SSC) is a single node setup, which does not support multiple node setup or vertical scale up options. Prior to installing Salt Stack Config, ensure that vRealize Automation 8.3.0 is installed. After vRealize Automation 8.3.0 is installed, if multiple tenancy is not enabled, the Salt Stack instance associates with the base tenant of vRealize Automation. When multi-tenancy is enabled in vRealize Automation, Salt Stack Config associates with the newly added tenants, and then proceeds with the installation. When the tenants of vRealize Automation are imported, the Salt Stack Config instances which are associated with the tenants of vRealize Automation are also imported.
- If you are installing vRealize Automation, you must meet the following additional prerequisites.
 - Configure the vRealize Automation load balancer. See [vRealize Automation Load Balancing](#).
 - Disable the second member of each pool in the vRealize Automation load balancer. You can re-enable these members after installation is complete.
 - The cloud administrator has added all IaaS nodes and the Windows database server to the domain.
 - The Windows database server and IaaS meet all vRealize Automation prerequisites. See *IaaS Windows Servers*.

Add the domain user as part of **User Rights Assignment** under **Local Security Policies** for **Log on as a Service** and **Log on as a batch job**.

- The domain user has added the SQL server to the domain.
- Add the domain user as part of the SQL DB user Logins list with the sysadmin privilege.
- Install latest JRE (Java 1.8 or later) and create a JAVA_HOME environment variable on all Windows nodes.
- Install Microsoft .NET Framework 3.5.
- Install Microsoft .NET Framework 4.5.2 or later.
 - A copy of .NET is available from any vRealize Automation appliance: <https://vrealize-automation-appliance-fqdn:5480/installer/>

If you use Internet Explorer for the download, verify that Enhanced Security Configuration is disabled. Navigate to `res://iesetup.dll/SoftAdmin.htm` on the Windows server.
- Set **User Access Control** settings to **Never Notify** on both Windows and database server virtual machines.
- Take a snapshot of the database machine and all Windows IaaS machines after configuration and before triggering the deployment in vRealize Suite Lifecycle Manager.
- Configure one NSX Edge as Active and one as Passive for the Windows machine. For detailed information on how to configure the NSX Load Balancer, see [Load Balancing the Cloud Management Platform in Region A](#).
- On all of the windows IaaS machines used in vRealize Automation deployment, log in to windows machine at least once as a domain user. If you do not login at least once to the IaaS machines, then the following error appears:

Private key is invalid: Error occurred while decoding private key. The computer must be trusted for delegation and the current user must be configured to allow delegation.

- Ensure that the IaaS nodes do not have any vRealize Automation components already installed. Follow the steps in the KB article [58871](#) to uninstall any vRealize Automation components in the IaaS node.
- Update the registry key on both Windows and database server virtual machines.
 - 1 Use the default PowerShell and run the following command as administrator on all Windows and database server virtual machines: `Set-ItemProperty -Path "HKLM:\Software\Microsoft\Windows\CurrentVersion\Policies\System" -Name "EnableLUA" -Value "0"`
 - 2 Reboot the Windows virtual machine.

- Verify that the TLS 1.0 and 1.1 values are not present in the IaaS Windows machine registry path `HKLM \SYSTEM\CurrentControlSet\Control\SecurityProviders\SCHANNEL\Protocols`.
- Alternatively, vRealize Automation install precheck provides a script, which can be executed in all Windows and database server to perform the above operations.
- If you are importing an existing vRealize Operations Manager installation, set a root password for that installation.

Procedure

1 [Configure Environment Settings for a New Private Cloud](#)

Configure environment settings, such as name, password, and data center for a private cloud environment.

2 [Install vRealize Suite Products](#)

Select which vRealize Suite products to install in the private cloud environment.

3 [Accept EULA and License Selection](#)

Accept the VMware end-user license agreement and enter the license key.

4 [Configure Infrastructure Details](#)

You can configure the infrastructure details when you create an environment.

5 [Configure Certificate Details](#)

To create an environment you can use the existing certificate.

6 [Configure Network Details](#)

You can configure an environment by establishing a network connection within an environment.

7 [Configure Product Details](#)

You can view and configure the products that were selected environment creation.

8 [Configure Private Cloud Environment Details](#)

Configure vCenter server, cluster, network, datastore, and certificate details for a new private cloud environment.

9 [Configure vRealize Suite Products for Installation](#)

Configure the product details for each vRealize Suite product that you are installing in the private cloud environment.

10 [Confirm Environment and Installation Settings](#)

Verify that the environment and installation settings are accurate.

Configure Environment Settings for a New Private Cloud

Configure environment settings, such as name, password, and data center for a private cloud environment.

Procedure

- 1 Log in to vRealize Suite Lifecycle Manager as an administrator and click **Create Environment**.

- 2 In **Environment Name**, enter a descriptive name for the new private cloud environment.

This name must be unique among environments on this instance of vRealize Suite Lifecycle Manager.

- 3 Enter a **Default Admin Password** and Confirm the Password.

The default password must be a minimum of eight characters.

Note The default password is not applied to vRealize Business for Cloud application password if vRealize Business for Cloud is deployed in a standalone mode. In standalone mode, vRealize Business for Cloud application credentials remain as admin/admin. To integrate vRealize Business for Cloud with vRealize Automation, add vRealize Automation to the private cloud environment before or at the same time you add vRealize Business for Cloud.

- 4 From **Data Center**, select an existing data center for this environment, or click + to add a data center to vRealize Suite Lifecycle Manager.

For information on adding a data center, see [Add a Data Center to vRealize Suite Lifecycle Manager](#).

- 5 (Optional) Select **Join the VMware Customer Experience Program** to join CEIP for this environment.

This product participates in the VMware Customer Experience Program (CEIP). Details regarding the data collected through CEIP and the purposes for which it is used by VMware are set forth at the Trust & Assurance Center at <http://www.vmware.com/trustvmware/ceip.html>.

- 6 Click **Next**.

Install vRealize Suite Products

Select which vRealize Suite products to install in the private cloud environment.

Prerequisites

Verify that you have a data center and environment credentials already created.

Procedure

- 1 Select whether to install vRealize Suite products by product.

- a Select which individual vRealize Suite products to add to the private cloud environment and whether to do a new install of each product or import an existing installation of the product. For each new install, select the product **Version** and **Size** to deploy.

- 2 Click **Next**.

Accept EULA and License Selection

Accept the VMware end-user license agreement and enter the license key.

Procedure

- 1 Read the end-user license agreement, select **I agree to the terms and conditions**, and click **Next**.
- 2 Under the license section,
 - a To select the license keys from the locker, click **Select** to open the list of licenses which are applicable to the selected products and versions. If not, select all the keys available from the listing.
 - b Click **Add**, to add a new license key to the locker from within the installation flow.
 - c Click **Validate** to validate the license. If multiple license keys are available for a product then this action will suggest to choose one per product selected for the deployment.

You can now view the applicable license keys in the table. The next step will not be enabled until all the products deployed are having appropriate license selected for them.

Note Valid standalone product licenses or vRealize Suite licenses or a combination of both is allowed for product deployment in vRealize Suite Lifecycle Manager. License validation does not check the functionality allowed by the licenses themselves. Therefore, select the license key considering the combination of products being deployed and their inter connectivity.

Configure Infrastructure Details

You can configure the infrastructure details when you create an environment.

Prerequisites

If the selected data center does not have a vCenter Server associated with it, then you must add a vCenter Server.

Procedure

- 1 Select a vCenter Server from the drop-down menu.

Note There should be at least one vCenter Server associated with a data center.

- 2 Select a **Cluster**.
- 3 When you click **Select a Folder**, all the folders that are associated in the vCenter Server are listed.

If the folders are not displayed, then refresh the vCenter data collection from the vRealize Suite Lifecycle Manager settings page.

4 To deploy your VM, click **Select a Resource Pool**.

All the resource pools that are associated with the selected cluster are listed.

Note You can select a resource pool to deploy your VM. Both folder and resource pool selection are optional. If you do not specify any resource pool, the VM is deployed in the default (root) resource pool of the selected cluster. If you do not specify the folder details for both vCenter Server and resource pool, the deployment of the VM is saved in the default (root) VM folder of the data center inside the vCenter.

5 Select the required **Network**, **DataStore**, and **Disk Format**.

Note vRealize Operations Manager deployment fails when you provide incorrect infrastructure details such as wrong DNS or gateway details without running a pre-check while you create an environment flow. If the deployment fails, you might not see the correct cause of deployment failure using the error or code message that appears in vRealize Suite Lifecycle Manager UI, and you cannot proceed further with that deployment. As a result, you might have to delete the Environment card from vRealize Suite Lifecycle Manager with all the products or nodes that were deployed as part of that environment. You can run Pre-check so that Infrastructure-related issues are detected and can be corrected before triggering the deployment.

6 With Lifecycle Manager 8.0, to integrate with VMware Identity Manager, select **Integrate with Identity Manager** toggle button.

Note The default configuration admin given while installing VMware Identity Manager (global environment) will be made the admin for the product as well while integrating with VMware Identity Manager.

VMware Identity Manager acts as an identity provider and manages SSO for the vRealize Suite products and vRealize Suite Lifecycle Manager when integrated with vRealize Suite Lifecycle Manager. SSO provides a single set of credentials to access all vRealize Suite applications and vRealize Suite Lifecycle Manager. With SSO, you are only required to log in once, and then you can seamlessly access all vRealize Suite applications.

7 Click **Finish**.

8 To configure the **Network** details, click **Next**.

Configure Certificate Details

To create an environment you can use the existing certificate.

Prerequisites

Verify that the imported or created certificate has all the IP addresses and domain or host names added.

Procedure

- 1 Under the **Certificate Details**, select the **Certificate** from the drop-down menu.

If you want to provide certificate details at product level, you can specify the certificate at the product properties of each product. The action can override the certificates that are selected at the infrastructure level.

- 2 To create a certificate, click the plus sign.

In the **Add Certificate** window, enter the required details.

Fields	Description
Certificate Name	Enter a valid certificate name.
Common Name	To identify the certificate, enter a common name.
Organization	Enter the Organization name.
Organizational Unit	Enter the Organization Unit.
Country Code	Enter a country code which must be in two characters only.
Locality	Enter your locality.
State	Enter the State.
Key Length	Select the length of the key. You can select 2048 or 4096 bits.
Domain Name	Enter a valid domain name.
IP Address	Enter the IP address in which you are assigning the certificate.

- 3 Click **Generate**.
- 4 To import an existing certificate, select **Import Certificate** option.

Fields	Description
Certificate Name	Enter a valid certificate name.
Select File	<ol style="list-style-type: none"> 1 Click Choose File. 2 Browse to the saved PEM file.
Passphrase	Enter the Passphrase field, type <Cert- Password> (if applicable).
Enter Private Key	When you upload a PEM file, the private key details are populated automatically.
Enter Certificate Chain	When you upload a PEM file, the certificate details are populated automatically.

- 5 Click **Import**.
- 6 Click **Next**.

Configure Network Details

You can configure an environment by establishing a network connection within an environment.

Prerequisites

- Static IP address set is required for any product deployment from vRealize Suite Lifecycle Manager. This is applicable for starting from vRealize Suite Lifecycle Manager 1.0 and above.
- Verify that you have Domain Name mapped for the IP addresses used for deployed.

Procedure

- 1 Under the **Network Details** page, enter the **Default Gateway** address.
- 2 Enter the **Netmask** IP address.
- 3 Enter the **Domain Name** and **Domain Search Path**.
- 4 The DNS Servers are automatically selected.
- 5 Click **Next**.
- 6 Select the required Time sync mode:

Option	Description
Use Time Server (NTP)	When you select the NTP Server, you have to select the assigned time server from the NTP list. If an NTP server is not added, then to add one, click Global Settings . You are then directed to the Settings page to add an NTP server. For more information, see Configure NTP Servers .
Use Host Time	When you select the Host time, then the environment proceeds with the system time.

- 7 After you have added NTP servers, you can click **Select Servers** to add an NTP at an Infrastructure level.
- 8 Select the NTP servers from the list and you can reorder the NTP servers based on the precedence by clicking the arrows.

When you select a vRealize Suite product, you can configure using these Time servers for the selected component.

Configure Product Details

You can view and configure the products that were selected environment creation.

Procedure

- ◆ Under the **Product Details**, select the products for a new installation.

Product	Function
vRealize Automation	<p>a To monitor health of vRealize Automation, select the Monitor with vROps check box.</p> <p>b To manage the workload using load balancer and reclaim unused resources from the resource pool, select the Workload Placement and Reclamation check box.</p> <hr/> <p>Note This is only available for a new installation where in vRealize Operations Manager monitors health of vRealize Automation. Inter-product configuration is not supported for an existing environment.</p> <p>If vRealize Operations Manager is not present, then you can integrate the products outside of LCM.</p> <p>Cross-product integration for vRealize Automation with vRealize Operations Manager is not applicable for an import of vRealize Automation. And is only applicable if there is a new installation of vRealize Automation.</p> <p>You can also perform a cross product configuration where vRealize Automation is the only case where vRealize Operations Manager is already part of an environment or vRealize Automation is getting deployed along with Import or New Install of vRealize Operations Manager. For subsequent fabric group additions, fabric group admin roles should be assigned to configuration@vspherelocal user for vRealize Operations Manager to retrieve fabric group related information.</p> <hr/> <p>Note You can perform a cross product integration only when vRealize Operations Manager is already deployed in an environment where you can newly install vRealize Automation. You can also select vRealize Operations Manager Import or New install along with a new installation of vRealize Automation.</p> <hr/> <p>c Enter the Windows Username, and Password.</p> <p>d Select the Product Certificate from the drop-down menu.</p> <p>e You can select the component level certificate by toggling the Component Level Certificate. Select the required IaaS Manager Certificate, IaaS Web Certificate, and Cafe Certificate as required from the drop-down menus.</p> <p>f Select the Applicable Time Sync mode.</p> <p>g Select the Time Server (NTP). For more information, see Configure NTP Servers.</p> <p>h If you want to configure cluster virtual IPs, then select the Yes or No options. If you select yes, the load balancer is connected to the individual product and then configure the vRA Appliance, IaaS Web, and IaaS Manager manually.</p> <p>i As a cloud admin, you can configure a template, click Yes, and from the Configure Windows box, select the required windows template and its associated spec. When you select Yes, the Window box section appears. If no is selected, then vRealize Suite Lifecycle Manager will not deploy new Windows VMs for IaaS components.</p>

Product	Function
	<p>j (Optional) Click Anti-Affinity / Affinity Rule check box to create host rules in the vCenter for the deployed VM's.</p> <p>Note For more information on configuring IaaS components, see Deploy Windows VMs for vRealize Automation Installation.</p>
vRealize Business for Cloud	<p>a Under Product Properties section, enter the VM Name, Hostname, and IP Address.</p>
vRealize Log Insight	<p>a Select the node size from the drop-down menu.</p> <p>b Under Integrated Load Balance Configuration, if you select the Configure Cluster Virtual IPs, enter the FQDN and Virtual IP Address.</p> <p>c To add more node, click ADD NODE.</p> <p>d Select the Applicable Time Sync Mode.</p> <p>e Under components, enter the vRLI primary node details.</p> <p>f (Optional) Click Anti-Affinity / Affinity Rule check box to create host rules in the vCenter for the deployed VM's.</p> <p>g (Optional) Click Add Components to configure additional settings.</p> <p>h Enter the required fields.</p>
vRealize Operations Manager	<p>a Under the Product Properties, select the node size from the drop-down menu.</p> <p>b Select the Applicable Time Sync Mode.</p> <p>c Under components, enter the primary node details.</p> <p>d (Optional) Click Anti-Affinity / Affinity Rule check box to create host rules in the vCenter for the deployed VM's.</p>
vRealize Network Insight	<p>a Under the Product Properties, select the node size from the drop-down menu.</p> <p>b Select the Applicable Time Sync Mode.</p> <p>c Under components, enter the vrni platform and vrni collector details.</p> <p>d (Optional) Click Anti-Affinity / Affinity Rule check box to create host rules in the vCenter for the deployed VM's.</p>

Deploy Windows VMs for vRealize Automation Installation

With vRealize Suite Lifecycle Manager 2.0 onwards, you can install or deploy IaaS windows of a vRealize Automation deployment without having to provision it before trying to create an environment with vRealize Automation in vRealize Suite Lifecycle Manager.

The pre-check run ensures the system requirements are met, while the Windows OS template (one or more for specific IaaS component) itself is provided by any user.

- You can deploy IaaS components with a minimum number of steps.
- IaaS component deployments are part of vRealize Automation deployment.
- Pre-validations on the IaaS components should try to fix the issues wherever possible and when an issue is automatically handled you can fix from the UI.

Procedure

- 1 Enter the **Windows Username**, and **Password**.
- 2 Select the **Applicable Time Sync mode**.
- 3 Select the **Time Server (NTP)**. For more information, see [Configure NTP Servers](#).
- 4 As cloud admin you can deploy Windows VMs that are required for vRealize Automation installation, using vRealize Suite Lifecycle Manager installation wizard. Click **Yes** on the **Configure Windows box** under **Product properties** to deploy windows VMS with vRealize Automation.

When you select **Yes**, the Window box appears under the **Components** section. If you select no, then vRealize Suite Lifecycle Manager will not deploy new Windows VMs for IaaS components.

Windows VMs can be selectively deployed for specific components too. Select the option to deploy Windows VMs under product properties and enter False on the **Configure Windows for IAAS** field under the advanced property of the component for which Windows VM deployment is not desired.

If any component needs to be deployed with a specific template and customization spec, then select the option to deploy Windows VMs under the product properties. Provide the template and spec and access the advanced property of the component and provide details under the section **Windows IAAS Deployment**. For example:

- a Configure Windows for IAAS: true
- b Use ISO: false
- c Windows Template Name : mytemplate
- d ISO File Name
- e Use Customization Spec: true
- f Template Customization Specification: mycustomspec

where 'mytemplate', 'mycustomspec' already exists in the vCenter where the component is being deployed.

- 5 To **Configure Cluster Virtual IPs**, select the **Yes** or **No** options.

If you select yes, then appropriate load balancer details for **vRA Appliance**, **IaaS Web**, and **IaaS Manager** should be provided.

Note vRealize Suite Lifecycle Manager does not create the load balancers. Appropriate load balancers should be pre-created and only their details should be entered in vRealize Suite Lifecycle Manager during deployment.

- 6 For deploying IaaS VMs, you can either select **ISO** or **Template**.

When you select ISO, map a valid windows ISO image along with a correct license key in vRealize Suite Lifecycle Manager. For more information on ISO mapping, see [ISO Mapping in vRealize Suite Lifecycle Manager](#).

Note When you select **Template** as an option for IaaS, you are asked to select a template from a pre-populated list. The templates in the list are collected from the vCenter specified at the in **Infrastructure Details** section. For more details on usage of templates, see [Templates and Custom Specification in vCenter Server](#). During data collection in Lifecycle manager, you can collect all the templates on the ESXi host in the cluster to which you have access. Templates residing on the other hosts or cluster levels are not collected.

- 7 For a customization specification, select **Existing Spec** or **User Input**. An existing spec provides an option to select a spec from the vCenter Server. For a user input, enter the fields manually. The entries for user input are not saved but will be applied for the current deployment of vRealize Automation.
- 8 Enter the details required for each of the Components. For each components advanced property can be accessed to override details provided in the **Windows Box** section.
- 9 Click **Next** to continue to **PreCheck Details** section.

Before proceeding with precheck, see [Best Practices](#).

ISO Mapping in vRealize Suite Lifecycle Manager

Using ISO image you need to map or register the ISO image to deploy any VM from vRealize Suite Lifecycle Manager.

Prerequisites

ISO image should be imported in vRealize Suite Lifecycle Manager appliance under a sub-directory of /data. If the storage space is low, then extend the storage from the Settings page.

Procedure

- 1 Navigate to **Home > Settings Product Binaries**.
- 2 Click **ADD BINARIES** button and select **Windows ISO** from the **Add Product Binaries** dialogue box.
- 3 Provide the absolute path for the ISO image location against the field **Base Location** and click **DISCOVER**.
- 4 Under the **Windows ISO Mapping Details** section, select the ISO image name that are pre-populated after a successful discovery from base location.

Note Only a single ISO image can be selected at a time for mapping and one image cannot be mapped more than once, even if the subsequent details provided are different per attempt.

- 5 Select the OS version from the pre-populated list.
- 6 Enter a valid license key. Enter a valid password for the Administrator login to the VMS deployed using this ISO.
- 7 The image name is auto-populated and cannot be edited. Only the image names which are applicable for a vRealize Automation installation are available.

The image name is generated as per the [article](#).

- 8 Click **SUBMIT** to initiate the mapping process.

Templates and Custom Specification in vCenter Server

To deploy IaaS VM using templates, you need to ensure certain pre-requisites are met. vRealize Suite Lifecycle Manager uses existing VM templates and customization spec for IaaS deployment.

Things to remember

- Templates should be local to vCenter Server where the IaaS VMs are installed. Templates present in the content library are not considered for an IaaS installation. Only the templates that are present in the vCenter inventory are considered by vRealize Suite Lifecycle Manager.
- The template should have all the necessary configurations that include policies, firewall settings and so on. Also, the process does not configure policies, firewall rules, Antivirus, or any other software pre bundled in the VM template or ISO. As a workaround, configure the appropriate services in the template to have them functional after first boot of the deployed VMs. Once the VALIDATE & DEPLOY reports run, you can access the console of the deployed VM and configure the required policies in the respective VM as per requirement.
- The template should have VMware tools installed and the version should not be less than that present in the ESXi hosts present in the vCenter clusters considered for an IaaS installation.
- For a template used for a deployment of IaaS database VM, appropriate version the database software should be installed and respective services should be enabled.
- User can select an existing Customization Specification present in the vCenter for an IaaS deployment. The custom-spec should be provided with correct details with valid settings for the selected network and domain. For example, if an IaaS VM is expected to obtain static IP residing on a vLAN with ID 'X' then the custom specification must have the gateway, subnet mask and DNS servers for 'X' in the custom-spec.

Note If the database is installed with a custom port, then the template for the DB should have the port and corresponding instance configured before an IaaS installation. Alternate way is to deploy the database VM using template and configure the port, and instance before submitting the vRA deployment request from LCM.

Installation of IaaS VMs Using ISO

If vRealize Automation is deployed on a development or test environment then IaaS VMs can be deployed using valid windows ISO image. For ISO based deployments, LCM does not deploy IaaS

database machine. LCM UI will not restrict but the submitted request will always discard the deployment of DB.

Requirements for Installation

- For an IaaS VM deployment with ISO Images from vRealize Suite Lifecycle Manager, vCenter version should be 6.5 or later.
- The vCenter Server where IaaS VMs are deployed, should be registered with vRealize Suite Lifecycle Manager, and the user credential used for the registration should have administrative capability for vCenter content libraries.
- VMware Tools ISO should be available in each of the ESXi (at the location `/vmimages /tools-isoimages`) which belongs to the cluster where IaaS VMs are to be deployed.
- The network configurations, including load-balancers should be in place in vCenter Server for consumption of the deployed VMs. vRealize Suite Lifecycle Manager cannot perform any network configuration in vCenter Server for an IaaS VM deployment.

Points to Remember

- IaaS deployment from LCM (using ISO) uploads the ISO to a vCenter content library named - LCM-LOCAL-ISO-LIB. This content library is created automatically by vRealize Suite Lifecycle Manager.
- Once VALIDATE & DEPLOY is clicked in vRealize Suite Lifecycle Manager UI, the ISO images selected for the IaaS installation are uploaded to the content library mentioned. The uploaded ISO image name is same as that found in the entry under the column ISO Binary in the table ISO Binaries under Product Binaries. vRealize Suite Lifecycle Manager uploads ISO binary by this name in the vCenter content library mentioned earlier. If for a given ISO, an entry with the same name exists, then the upload task is ignored.
- The templates and ISO images used for an IaaS deployment, should be valid and working. Also, the Windows license keys used for ISO mapping, vCenter Customization Specification and other relevant places should be valid. Corrupt or wrong template or ISO leads to failure for the overall IaaS deployment task in vRealize Suite Lifecycle Manager.
- IaaS installation from vRealize Suite Lifecycle Manager using ISO supports a default locale as per the ISO image. User-specific input is not supported.
- When LCM uploads the ISO deployment to a vCenter content library named - LCM-LOCAL-ISO-LIB, after an ISO is mapped in Lifecycle Manager, note the entry under the column ISO Binary in the ISO Binaries table. If Lifecycle Manager uploads ISO binary by the same name in the vCenter content library mentioned earlier then such uploads are ignored.

Delete the ISO file manually from content library LCM-LOCAL-ISO-LIB.

Best Practices

You can follow the listed practices when you are installing IaaS VMs using vRealize Suite Lifecycle Manager.

Windows Template

- Windows update, if pre-configured in the templates used for a IaaS deployment, can lead to failure. Turn off the Windows update in the templates or create the template after performing recent most applicable update of the OS.
- Have unique names for the templates in a vCenter inventory. If for a given vCenter, there are templates that do not have a unique name, then it is difficult to identify the correct one from LCM installation UI.

Windows ISO Image

- You can use the ISO-based deployments of IaaS for development and test environments.
- If an ISO-based IaaS deployment is used, then IaaS database VM should be pre-deployed. Deployment of database VM using ISO is not supported in vRealize Suite Lifecycle Manager.
- If an existing customization specification is being used for an IaaS deployment, then ensure that all the inputs for the custom spec are consistent and correct. Also, ensure that a valid NIC configuration with subnet details is present in the customization specification details.
- IaaS installation from LCM does not support use of **Run Once Commands** in a customization specification. Also, the process does not configure policies, firewall rules, Antivirus, or any other software pre-bundled in the VM template or ISO. As a work-around, configure the appropriate services in the template to have them functional after first start of the deployed VMs. After you validate and deploy reports successfully, you can access the console of the deployed VMs and configure the required policies in the respective VM as per requirement.

Configure Private Cloud Environment Details

Configure vCenter server, cluster, network, datastore, and certificate details for a new private cloud environment.

Procedure

- 1 Enter the details of the vCenter server where you are installing the vRealize Suite and the names of the cluster, network, and datastore to use for this environment.

The vCenter server name must be in the form of a fully qualified domain name.

- 2 Select the disk file format, and click **Next**.

Option	Description
Thin	Use for evaluation and testing.
Thick	Use for production environments.

- 3 Enter the default gateway, domain, domain search path, DNS server, and netmask details for the environment, and click **Next**.
- 4 Enter the key passphrase and private key.

- 5 Enter certificate chain for the SAN certificate to import or select the **Generated Certificate** option, and click **Next**.

For information on generating a SAN certificate, see [Generate Certificate Within Locker](#).

- 6 Enter the product details for each of the vRealize Suite products that you have selected to install by providing its Windows hostname and IP Address.
- 7 Click the **PRE-CHECK** to run and validate the properties for each of the vRealize Suite products.

Note If the Pre-Check fails, then you are required to check the recommendations and fix the issues of the selected product and run the pre-check again.

- 8 Read the Summary and click **Submit**.

Pre-Check Validation

Based on the pre-check validation you can change your input anytime in the previous steps and run the pre-validation check again.

How does Pre-Check Validation Work?

When you click the **Run Pre-Check** button, a report is generated indicating whether the pre-validation is in PASS or FAIL state. Therefore, based on the report you can modify your inputs given in the previous steps and click the **RE - RUN PRE CHECK** button. The report contains the following information:

- Status of the Check
- Check Name
- Component/Resource against which the current check is run.
- Result description about the check execution
- Recommendation, if there is FAILURE or WARNING

The report also generates color coded status:

- GREEN SYMBOL - PASSED
- RED SYMBOL - FAILED
- YELLOW SYMBOL - WARNING
- GREEN FIXED SYMBOL - REMEDIATED & FIXED

You cannot go further unless the pre-validation run is successfully complete. The pre-validation request progress can be tracked in the **Request** tab through a request that gets created with a name `VALIDATE_CREATE_ENVIRONMENT`. Once the pre-validation is run and the **NEXT** button is enabled, you can **SUBMIT** the request for deployment. When you are submitting, you can skip the pre-validation. By default, this flag is enabled. This verifies pre-validations are anyway run before deployment is triggered. If you want to skip this, then you can deselect the flag and then click submit. Pre-validations check does not run again before the deployment begins.

If you click **Submit** with the pre-validation flag enabled, a request by name `VALIDATE_AND_CREATE_ENVIRONMENT` is created. If you click **SUBMIT** only by deselecting the pre-validation flag, a request by name `CREATE_ENVIRONMENT` is created. You can track the progress of pre-validation requests in the Request tab that vRealize Suite Lifecycle Manager provides Out of the box. Before you run a pre-check on vRealize Automation, verify all the IaaS component VMs are communicating with Lifecycle Manager appliance. After you enable pre-check and submit the create environment, if the pre-check fails then user can resume the wizard from the Request page with a request state as `PRE_VALIDATION_FAILED`. From the report, if the failure is due to the wrong IaaS credential then rerunning pre-check on updating the windows password in the Product details page still results in the wrong IaaS credential. To fix this, update the Windows password in the product details page at each node level and rerun the Pre-Check.

If the `VALIDATE_AND_CREATE_ENVIRONMENT` request fails with a status `PRE-VALIDATION-FAILED`, then you can validate your inputs by clicking the icon under the action tab. This directs you to the wizard where you can modify your inputs and run **PRE CHECK** or click **SUBMIT** for deployment. Once the deployment is complete, you can see the last run pre-validation report. This option is available from the environment page in the **Manage Environments** page. You can also view the last run report under **View Last Pre Check Result** under **Environment**.

Note Pre-Check in LCM does not take extended storage into account. This means if the extended storage option is used to deploy vRealize Operations Manager nodes using vRealize Suite Lifecycle Manager, then the precheck might succeed but the actual deployment can still fail due to insufficient disk space. For more information, see KB article [56365](#).

Only **Automate checks** is automated to run a manual pre-requisite for vRealize Suite in vRealize Suite Lifecycle Manager 1.2. You can **DOWNLOAD SCRIPT** and run on all the windows machine. The zip contains a Readme file, which explains how to run the script. This step is mandatory if you have selected vRealize Automation as one of the products during an environment creation.

vRealize Suite Lifecycle Manager Agent

The vRealize Suite Lifecycle Manager agent is used for running pre-validations on the IaaS windows servers even before any of the vRealize Automation components are installed. The vRealize Suite Lifecycle Manager agent runs as a windows service. It registers the windows server as an identified node with the vRealize Suite Lifecycle Manager appliance. Every windows server is registered as a node in vRealize Suite Lifecycle Manager.

When the user initiates pre-validation, the LCM agent gets deployed and bootstrapped on all the windows servers along with some configuration metadata. The agent binaries are kept at a default folder C:\Program Files (x86)\VMware\LCMAgent\ in the windows machine.

Once the agent binaries are pushed a service is started with a name vRealize Suite Lifecycle Manager Agent Service pointing to the binaries which ultimately starts the agent. The agent works pull-based, where it polls in vRealize Suite Lifecycle Manager appliance to see if there are any commands tagged for the current node to be executed. After receiving a command, the agent updates back the command on every status change and finally updates the result after completion. The agent service is stopped after a complete pre-validation.

Uninstall vRealize Suite Lifecycle Manager agent

As every Windows server used for pre-check is registered uniquely, to use the same server on a different instance of the vRealize Suite Lifecycle Manager appliance, the agent has to be uninstalled. To see steps to uninstall, see [KB 58871](#).

Replace the Certificate of the Management Site for vRealize Automation

You can replace the SSL certificate of the management site service if your certificate expires or if you are using a self-signed certificate and your company security policy requires you to use its SSL certificates. You secure the management site service on port 5480.

Prerequisites

- New certificates must be in PEM format and the private key cannot be encrypted. By default, the vRealize Automation appliance management site SSL certificate and private key are stored in a PEM file located at `/opt/vmware/etc/lighttpd/server.pem`.

Procedure

- 1 Log in by using the appliance console or SSH.
- 2 Back up your current certificate file.

```
cp /opt/vmware/etc/lighttpd/server.pem /opt/vmware/etc/lighttpd/server.pem-bak
```

- 3 Copy the new certificate to your appliance by replacing the content of the file `/opt/vmware/etc/lighttpd/server.pem` with the new certificate information.
- 4 Run the following command to restart the lighttpd server.


```
service vami-lighttpd restart
```
- 5 Run the following command to restart the haproxy service.


```
service haproxy restart
```

- 6 Log in to the management console and validate that the certificate is replaced. You might need to restart your browser.

Note By default, vRealize Log Insight installs a self-signed SSL certificate on the virtual appliance. vRealize Suite Lifecycle Manager generates custom certificates for products during environment creation, but custom certificate generation fails for vRealize Log Insight. For more information, see KB article [55705](#).

Configure vRealize Suite Products for Installation

Configure the product details for each vRealize Suite product that you are installing in the private cloud environment.

Configuration tabs appear only for the products you selected to install. You can access advanced properties if you want to update the advanced configurations like adding different vCenter, enabling or disabling the registration with VMware Identity Manager and so on.

Procedure

- 1 Click the **vRealize Automation** check box to configure installation details for vRealize Automation.
 - a If you select 7.x, enter the user name and password for the Windows Server vRealize Automation uses.
The Windows user must have administrator rights.
 - b Enter the fully qualified domain name in the form and the IP address for the vRealize Automation appliance.
For more information about the vRealize Automation appliance, see the [vRealize Automation Appliance](#) and KB article [55706](#).
 - c Enter the names in the form of fully qualified domain names and IP addresses for the Infrastructure as a Service (IaaS) Web and Management servers.
For more information about IaaS, see [Infrastructure as a Service](#).
 - d (Optional) To add an additional component, click the plus sign to **Add components** and select the type of component to add.
 - e Enter the host name in the form of a fully qualified domain name and IP address for each component.

Windows machines that host the Model Manager Web service, Manager Service, and Microsoft SQL Server database must be able to resolve each other by Windows Internet Name Service (WINS) name. To authenticate vRealize Automation through an external VMware Identity Manager, you can either click the vRealize Automation application icon in the VMware Identity Manager catalog or manually logging in to vRealize Automation through the tenant URL. If the authentication fails, then the following error is displayed: Identity Manager encountered an error. Contact your admin and provide information displayed below.

- f If the database instance is an existing one or it is on a non-default port, include the port number in an instance specification from the **Advanced Properties**. If the database instance is a new one and default instance is expected, then provide hostname of the DB VM only. If the database already exists and no changes needed then from the **Advanced Properties**, you can provide the database name.

Note The Microsoft SQL default port number is 1443. During the installation of vRealize Automation, the first Web node task might fail after the vRealize Automation management agent is installed. This is caused by either a database installation failure or a connection timeout.

- g If you select 8.x, enter the fully qualified domain name in the form and the IP address for the vRealize Automation appliance.
- h Enter the host name in the form of a fully qualified domain name and IP address for each component.

For vRealize Automation 7.x, there are three types of deployments which includes small, medium, and large. For vRealize Automation 8.x includes Standard and Cluster.

- 2 Click the **vRealize Business for Cloud** check box to configure installation details for vRealize Business for Cloud.
 - a Select the **Currency** to use from the drop-down menu.
 - b (Optional) To add an additional component, click the plus sign to **Add components** and select the type of component to add.
 - c Enter the host name in the form of a fully qualified domain name and the IP address for each component.

If vRealize Automation is not present in the environment and is not getting deployed along with vRealize Business for Cloud, then specify the **Deploy Standalone vRealize Business for Cloud** property to true in **Advanced Properties**. If VMware Identity Manager is present in vRealize Suite Lifecycle Manager, then vRealize Business for Cloud will be registered with vIDM automatically.

There is only one deployment type with the Standard node cluster in vRealize Business for Cloud.

- 3 Click the **vRealize Operations** check box to configure installation details for vRealize Operations Manager.
 - a Enter the NTP server address.
 - b (Optional) Click the plus sign to **Add components** and then select the type of component.

- c Enter the host name in the form of a fully qualified domain name and the IP address for each component.
- d Select the **Node Count** or **Node Size** for **vRealize Operations** deployment. **vRealize Operations** recommends that the number of analytic nodes available for a selection, depends on the selected node size.

The default type of deployment for vRealize Operations Manager is a node size and node count.

- 4 Click the **vRealize Log Insight** check box to configure installation details for vRealize Log Insight.
 - a (Optional) Click the plus sign to **Add components** and select the type of component to add.
 - b Enter the host name in the form of a fully qualified domain name and the IP address for each component.
 - c If you are adding cluster virtual IPS, optionally enter load balancer settings.
 - d Click **Components + icon**, to add and enable any of the configuration during the deployment.

The deployment type available for vRealize Log Insight is Standalone and Cluster.

- 5 Click the **vRealize Network Insight** check box to configure installation details for vRealize Network Insight.
 - a (Optional) Click the plus sign to **Add components** and select the type of component to add.
 - b Select the License key if registered in My VMware or enter the License key manually.
 - c Enter the Infrastructure details and select the NTP servers.
 - d Enter the Network and Certificate details.
 - e Under the Product Details, click **Add** component to add a vRealize Network Insight platform or a collector. This option is dependant on what type of vRealize Network Insight you are selecting initially. If you have selected a cluster of vRealize Network Insight, then you can have two platforms and one collector by default.

The deployment type available for vRealize Network Insight is Standard and Cluster.

- 6 Click **Next**.

Points to remember while Configuring vRealize Automation

You might encounter a few issues while performing vRealize Automation 8.0 scale-out, deployment, replace certificate, and import brownfield.

- When the vRealize Automation 8.x replace certificate fails intermittently at initialize cluster after replacing the certificate, retry the failed vRealize Automation 8.0 replace certificate.

- vRealize Automation 8.0 HA replace certificate fails at the initial cluster after replacing the certificate, when SAN certificate has additional hostnames. At this instance, replace the vRealize Automation HA certificate with SAN certificate which has the required hostnames like vRealize Automation Load Balancer hostname and three vRealize Automation hostnames.
- When vRealize Automation 8.0 scale out fails at initialize cluster due to liquibase locks then click the retry option in the failed vRealize Automation 8.0 scale out request to retry the initialize cluster step.
- Verify if the SAN certificate is used instead of wild card certificate for vRealize Automation 8.0 deployment.
- Verify to provide all four hostname including 3 vRealize Automation nodes hostname and vRealize Automation Load Balancer hostname in the SAN certificate when the custom certificate is used.

Confirm Environment and Installation Settings

Verify that the environment and installation settings are accurate.

Procedure

- 1 Verify that the listed environment and installation settings are accurate.
- 2 (Optional) Click **Back** or click the relevant page in the navigation pane to change any settings.
- 3 (Optional) Click **Export** to export a configuration file with all the product and user data for this private cloud.

You can use the exported configuration file to create a private cloud. See [Create a Private Cloud Environment Using a Configuration File](#). Modify the exported configuration file as required before using it create another private cloud. The Private and primary key is not included in the exported config file while deploying an exported file. You need to manually insert those keys.

Update/modify the exported configuration file as required before using it create another private cloud.

- 4 Click **Finish**.

vRealize Suite Lifecycle Manager creates the private cloud environment and begins installing the selected vRealize Suite products in the background.

What to do next

To monitor product installation progress, click **Home**. Installation progress appears under **Recent Requests**.

Import an Existing Environment using Installation Wizard

You can use the installation wizard to import an existing private cloud environment for a vRealize Suite product.

Prerequisites

- Verify that you have an existing vRealize Suite instance.
- Verify that you have an existing datacenter.
- Verify that you have created or imported a certificate.

Note Certificate is not required for importing an existing environment, however, it is required when you select both Import and new install in one flow while creating an environment.

Procedure

- 1 Log in to vRealize Suite Lifecycle Manager as an LCM Admin or LCM Cloud Admin and click **Create Environment**.
- 2 After entering the environment data fields, under each of the required vRealize Suite product, select **Import** and click the required vRealize Suite product checkbox on the top of the suite product name.
- 3 Click **Next**.
- 4 In the launched Install wizard, under **Products Details** page, update the details and select all the vCenters where all product components are installed.

If you select a combination of import and install for two or more products while creating an environment, then enter the details as a new Install of product. If you are opting for an organic growth by adding another product after creating an Environment with **New Install** or combination of **Import** and **New Install**, then the details in Install wizard is already pre-populated. You can go ahead and click **Next**. If you are opting for an organic growth by adding another product after creating an Environment with **Import** only, then the details in Install Wizard are not be pre-populated. As you have never provided those details while creating the environment.

After you import a product for a scale out, you need to add a certificate. To manage a certificate you need to add the certificate from the settings tab and then import during scale out.

- 5 Read the summary and click **Submit**.

Import vRealize Business for Cloud Environment

You can import an instance of vRealize Business for Cloud into vRealize Suite Lifecycle Manager.

Prerequisites

Verify that you have the required IP credentials.

Procedure

- 1 After creating an environment on the **Create Environment**, on the products card, select vRealize Business for Cloud check box.

- 2 Select **Import** and click **Next**.
- 3 Enter the vRealize Business for Cloud **FQDN** and **Root Password**.
- 4 Import a standalone version of vRealize Business for Cloud, select **Is vRB Standalone** check box.
 - a Select a vCenter Server instance under **vCenter Servers** drop-down menu.
- 5 If you have enabled VMware Identity Manager, then select **Is vIDM Enabled** check box.
 - a Enter the VMware Identity Manager **Host name**, **Admin User Name** and **Admin Password**.
- 6 Select a vCenter Server instance under **vCenter Servers** drop-down menu.
- 7 Click **Next** and read the summary.
- 8 Click **Submit** to import.

Import vRealize Automation Environment

You can import an existing instance of vRealize Automation.

To import the vRealize Automation 8.0 brownfield environment, verify that the VMware Identity Manager present in vRealize Suite Lifecycle Manager is same as the VMware Identity Manager registered with vRealize Automation. Ensure to use the same configuration admin user for both VMware Identity Manager and vRealize Automation in vRealize Suite Lifecycle Manager.

Prerequisites

Verify that you have the required IP credentials.

Procedure

- 1 After creating an environment on the Create Environment page, on the products card, select vRealize Automation check box.
- 2 Click **Import** and click **Next**.
- 3 Under Products Details, enter the required fields to configure the vRealize Automation properties, select the **Import** version.
- 4 If you have selected 8.x
 - a Provide the Primary node Hostname.
 - b Select **Primary Node root Password**.
 - c Select the **vCenter Server** where product nodes are residing. For more information on configuring vRealize Automation, see [Points to remember while Configuring vRealize Automation](#).
- 5 If you have selected 7.x
 - a Select a vCenter Server instance under vCenter Server.
 - b Click **Next** and read the summary.

When importing vRealize Automation, you have to enter specific details regarding the vRealize Automation and application. Default Tenant Administrator Password is one such input. The default tenant is set to `vsphere.local` and it is non-editable, you might find it blocked if in case the `vsphere.local` tenant is not configured in your vRealize Automation setup. The cause for this is mainly because you may have opted against configuring out of the box sample content during installation. You must enter the password for the system administrator against the field **Default Tenant Administrator Password** and then proceed with the import.

- 6 Click **Submit**.

Import vRealize Network Insight Environment

You can import an existing environment of vRealize Network Insight.

Prerequisites

Verify that there is an instance of vRealize Network Insight along with its user credentials available.

Procedure

- 1 After creating an **Create Environment** page, on the products card, select the vRealize Network Insight check box.

- 2 Click **Import** and click **Next**.

- 3 On the Product Details page, enter the **VRNI Admin user name**.

All authorization token and csrf tokens are generated using admin user name and password.

- 4 Enter the **Console Password** and **Support Password**.

With console user and support user credentials, you can run vRealize Network Insight specific commands and debug your environment.

Note Support password of all nodes must be same. Although, import of VRNI can be successful but future operations like upgrade precheck, upgrade, password update, clustering fails. You have to change the support password of all nodes to one single password. Similarly, console passwords of all nodes must be same. However, console and support password can be same across all nodes.

- 5 Enter the **VRNI Admin Password** and **Platform IP** address.
- 6 Select the vCenter Server Instance from the drop-down menu and click **Next**.
- 7 Review the Request Summary and click **Submit**.

Example: Example for Console and Support Password

In a 2 Node cluster

- Platform: support password=VMware! consoleuser password=Test@123

- Collector: support password=VMware1! consoleuser password=Test@123

In a 3 Node cluster with 1 collector

- Platform1: support password=VMware1! consoleuser password=Test@123
- Platform2: support password=VMware1! consoleuser password=Test@123
- Platform3: support password=VMware1! consoleuser password=Test@123
- Collector: support password=VMware1! consoleuser password=Test@123

Import vRealize Operations Manager Environment

You can import an instance of vRealize Operations Manager into vRealize Suite Lifecycle Manager.

Prerequisites

Verify that you have the required IP credentials.

Procedure

- 1 After creating an environment on the Create Environment page, on the products card, select vRealize Operations Manager check box.
- 2 Select **Import** and click **Next**.
- 3 Enter the vRealize Operations Manager, **Master Node IP Address**, **Root**, and **Admin Password**.
- 4 Select a vCenter Server instance under **vCenter Servers**.
- 5 Click **Next** and read the summary.
- 6 Click **Submit** to import.

Note If you are importing an existing vRealize Operations Manager installation, then SSH should be enabled for all the vRealize Operations Manager nodes and set root passwords in all nodes.

Import vRealize Log Insight Environment

You can import an instance of vRealize Log Insight into vRealize Suite Lifecycle Manager.

Prerequisites

Verify that you have the required IP credentials.

Procedure

- 1 After creating an environment on the Create Environment page, on the products card, select vRealize Log Insight check box.
- 2 Select **Import** and click **Next**.

- 3 Enter the vRealize Log Insight **Master Node FQDN**, **Root**, and **Admin Password**.
- 4 Select a vCenter Server instance under **vCenter Servers**.
- 5 Click **Next** and read the summary.
- 6 Click **Submit** to import.

Create a Private Cloud Environment Using a Configuration File

You can create a private cloud environment using a product configuration file.

Know more about [Private Cloud](#), before you configure your environment. When you are creating an environment using a JSON spec or API, for all the password fields, if the Locker ID of the password is used, you need to make sure that this password is the one generated using locker. To do this, navigate to **Locker > passwords**, copy the Password ID and use in the spec. For plain text password no action is required.

Prerequisites

- Configure OVA settings for the products to install. See [Configure Product Binaries](#).
- Ensure that you have added a vCenter to the data center with valid credentials and the request has completed.
- In the configuration file, change `encoded:true` to `encoded:false`, and ensure that all passwords in the configuration file appear in plain text.

Procedure

- 1 Log in to vRealize Suite Lifecycle Manager as administrator and click **Create Environment**.
- 2 From **Data Center**, select an existing data center for this environment, or click **+** to add a data center to vRealize Suite Lifecycle Manager.

For information on adding a data center, see [Add a Data Center to vRealize Suite Lifecycle Manager](#).

- 3 (Optional) Select **Join the VMware Customer Experience Program** to join CEIP for this environment.

This product participates in the VMware Customer Experience Program (CEIP). Details regarding the data collected through CEIP and the purposes for which it is used by VMware are set forth at the Trust & Assurance Center at <http://www.vmware.com/trustvmware/ceip.html>.

- 4 Click **Use Configuration file** toggle feature.

- 5 Paste the text of the product configuration JSON file into the **Product Config JSON** text box, and click **Next**.

You can download the configuration file from the summary page to create a JSON file for the product or the solution with the latest inputs that were provided while configuring the environment.

The create installation wizard is launched and the JSON data is populated. You can validate the data before you click submit. For more information on getting sample JSON file, see KB article [2151908](#).

Note If the JSON file contains encrypted passwords, then you have to convert them to plain text and set the paramater encoded to false in the JSON file.

What to do next

To monitor product installation progress, click the **Home** button. vRealize Suite Lifecycle Manager displays installation progress for the environment under **Recent Requests** and on the **Requests** tab.

Managing Private Cloud Environments

3

You can manage data centers, vCenters, and vRealize Suite products in your private cloud environments.

This chapter includes the following topics:

- [Accessing Lifecycle Operations](#)
- [Lifecycle Manager with a Dashboard](#)
- [Add a Product to an Existing Private Cloud Environment](#)
- [Add a Data Source to an Existing Private Cloud Environment](#)
- [Scale-Out VMware Identity Manager](#)
- [Scale-Out vRealize Suite Products](#)
- [Export a Private Cloud Environment Configuration File](#)
- [Download Private Cloud Product Logs](#)
- [Delete an Environment](#)
- [Managing vRealize Suite Products in a Private Cloud](#)
- [Configure Health Monitoring for the vRealize Suite Management Stack](#)
- [Adding and Managing Content from Marketplace](#)

Accessing Lifecycle Operations

To start using Lifecycle Manager, access Lifecycle Operations on the Dashboard.

Lifecycle Manager with a Dashboard

The vRealize Suite Lifecycle Manager 8.0 includes a new dashboard which acts as a single pane of glass comprising of all the functionality as applications.

The dashboard consists of the applications:

Lifecycle Operations

Use this application on the dashboard to access the vRealize Suite Lifecycle Manager to manage the Day 0 to Day N operations of the vRealize Suite Products, including vRealize Network Insight.

Locker

Use this application to manage certificates, and licenses. You can create and import certificate including CSR. You can also validate the certificates before applying or replacing the certificates.

User Management

You can add and configure an active directory to be new VMware Identity Manager deployed using Easy installer.

Marketplace

Use the vRealize Suite Lifecycle Manager to add and manage content from Marketplace.

Content Management

You can use this application to access the Content lifecycle in vRealize Suite Lifecycle Manager to manage software-defined data center (SDDC) content, including capturing, testing, and release to various environments, and source control capabilities through GitLab or bit bucket integration. With Lifecycle Manager 8.0, you can capture multiple contents from a source control and check in those contents to another source-control or even a different branch.

Add a Product to an Existing Private Cloud Environment

If you want to change your environment, you can add a product to an existing environment.

Organic growth allows you to import an existing vRealize Suite product to an existing environment or to trigger a fresh deployment of the product to add to an existing environment.

An environment can contain only one instance of each supported vRealize Suite product.

Prerequisites

Have an existing private cloud environment in vRealize Suite Lifecycle Manager that does not already contain all of the supported vRealize Suite products.

Procedure

- 1 Click **Manage Environments**.
- 2 Click the ellipsis (...) for the environment, and select **Add Products** to perform organic growth.
- 3 Select the products to add and enter the necessary configuration information.

Add a Data Source to an Existing Private Cloud Environment

You can add a data source to your environment to collect network information.

Prerequisites

Have an existing vRealize Network Insight instance in vRealize Suite Lifecycle Manager.

Procedure

- 1 Click **Manage Environments**.
- 2 Click the ellipsis (...) for the environment, and select **Add Data Source**.
- 3 You can select the required vCenter, NSX and related Switches.
- 4 **Submit Request**.

Data Operations Supported by vRealize Network Insight

You can add all types of data sources that are supported by vRealize Network Insight.

Data Source	Description
VMware vCenter	You can enter the vCenter related information in the provided fields along with the proxy details.
VMware NSX Manager	You can enter the NSX Manager related information in the provided fields along with the proxy details.
Routers and Switches	You can enter the SNMP configuration details in the provided fields by clicking the Advanced Settings . For more information on adding SNMP configuration, see Data Source Using SNMP Configurations for vRealize Network Insight .
Note You can add similar data sources to the vRealize Network Insight that are specific to its respective products or functionalities.	

Import Data sources in vRealize Suite Lifecycle Manager

You can import data sources in bulk into vRealize Network Insight through vRealize Suite Lifecycle Manager. This feature is helpful when the same SNMP or other configurations have to be used for multiple switches. The common configurations along with other variable parameters such as IP address need to be imported in vRealize Suite Lifecycle Manager and provisioned into vRealize Network Insight. With vRealize Suite Lifecycle Manager 2.0, you can import data sources along with an import of a vRealize Network Insight instance.

Prerequisites

Verify that you have an existing vRealize Network Insight instance.

Procedure

- 1 From a vRealize Network Insight environment card, right click on the vertical ellipses and select **Data Source > Bulk Import**.

After import of product for a scale-out, you need to add certificate. To manage certificate, the same certificate needs to be added from the Settings tab. For more information on adding components, see [Scale-Out vRealize Suite Products](#).

- 2 Select CSV or JSON format to import the data sources in a defined report format.
- 3 Click **Choose File** and select the JSON file, and click **Next**.
- 4 Click **Submit Request**.

To view the request status, view them on the Request page.

- 5 To update the CSV file in the required format, click **Download Template**.

Scale-Out VMware Identity Manager

You can increase the HA option in VMware Identity Manager by having one or three nodes to manage VMware Identity Manager.

- Ensure to take snapshots of VMware Identity Manager nodes before you perform scale-out operations. VMware Identity Manager cluster is always three node including an existing node.
- Verify that there is a certificate already added in the locker and also perform the replace certificate on the standalone VMware Identity Manager node. The certificate should also have SAN entries of all the three nodes or wild-card certificate.

Prerequisites

For a VMware Identity Manager cluster and replace certificate actions, ensure to take a snapshot of the VMware Identity Manager nodes.

Procedure

- 1 Navigate to **Environments**, on the environment page, click **Add Component**.
- 2 Enter the **Infrastructure** details and click **Next**.
- 3 Enter the **Network** details and click **Next**.
- 4 On the Product Properties, the certificate details are auto-populated.
- 5 On the components section, click **Secondary** for the scale-out.
- 6 Enter the load balancer Host name.

7 Enter a delegate IP address.

Note The delegate IP address is used internally as a proxy to postgres master (primary) and it should be free or an available IP address. This is not same as the one used to load-balance the application.

- a To add a windows connector to an existing VMware Identity Manager, on the Components, select **Windows Connector**.
- b Add **Windows VM name** as in **vCenter**, **Host Name**, **User name**, and **Password**.
- c Provide a user-defined windows connector name.

8 Click and run the pre-check.

9 Click **Submit**.

Scheduled Health Check

Once VMware Identity Manager is clustered through, a scheduled health check is registered. This scheduled check runs every hour and might pop-up a notification on the overall postgres cluster health status.

There are various checks that are important from a postgres cluster perspective that requires attention.

- 1 VMware Identity Manager nodes reachability from vRealize Suite Lifecycle Manager.
- 2 DelegateIP assignment to any of the cluster nodes.
- 3 Postgres primary node existence.
- 4 Postgres nodes having replication delay.
- 5 Postgres nodes being marked as down in the cluster.
- 6 Pgpool primary node existence.
- 7 Pgpool running on all nodes.

All the above checks are captured and appropriate description messages are displayed in the notification that pops-ups with a message like `vIDM postgres cluster health status is critical`. For more information on the steps, see the KB article [75080](#).

If all the checks are validated, vRealize Suite Lifecycle Manager gives a notification with a message as `vIDM postgres cluster health status is ok` that provides a healthy cluster status. On a Day-2 operation, you can also click the Trigger Cluster Health on the Global Environment for VMware Identity Manager in addition to scheduling the health check on an hourly basis. For more information on trigger cluster health, see [#unique_88](#).

Scale-Out vRealize Suite Products

You can add components to your product to configure a multi node setup to form a cluster.

Prerequisites

vRealize Suite Lifecycle Manager does not allow you to add a component of a product until the certificate mapping for that product is created in the locker. When you replace the vRealize Automation certificate using the new certificate added to locker, the new certificate contains additional host entries for new components which should be added as part of scale-out. After you import or create a certificate in the locker, apply this certificate in the product, only then the additional components will be visible in the product.

To map the certificate for the product in the locker, import the product certificate in the locker and trigger the inventory sync for that product. This creates a reference for that product with the certificate in the locker. This is applicable for an import scenario.

Verify that the certificate is replaced in the product where the certificate contains all the product components host names including the Load Balancer host name and a new additional component host names that are added is also specified. For more information on replacing certificates, see [Replace Certificate for vRealize Suite Lifecycle Manager Products](#). For more information on load balance, see [vRealize Automation Load Balancing](#).

Procedure

- 1 On the environment card, select a product, click the vertical ellipses, and select **Add Component**.

For an imported environment, manually enter the text boxes for the selected product.

Note At times, scaling out patched products from vRealize Suite Lifecycle Manager might fail. This is because joining the cluster fails due to version mismatch in the product appliances. You can download and use the OVA corresponding to the patch. When you click Add Component, a warning message appears indicating whether the OVA required to scale out the patched product is available or not in the vRealize Suite Lifecycle Manager. The required OVA bundle can be downloaded from My VMware Portal into the vRealize Suite Lifecycle Manager appliance and mapped. You can download and map the patched product binaries. For more information on how to download the patch product binaries, see [#unique_90](#).

- 2 Under the **Infra** details, select the required **vCenter Server**, **Cluster**, **Network**, **Datastore**, and **Disk Format** from the drop-down menus.
- 3 Select the **Applicable Time Sync** mode and click **Next**.
- 4 Under the **Network** details, if the environment is a newly created, then the text boxes are auto-populated. If the environment is imported, you have to manually enter the text boxes.
- 5 Click **Next**.
- 6 Select the **Applicable Time Sync Mode** and under the components section, select the node.

The advanced setting provides more information on configuring the selected node in a cluster. For an imported environment in 2.0 where a product is scaled out, ensure that the

provided certificate is primary-node certificate, as the pre-check matches the primary node certificate. For environments from older vRealize Suite Lifecycle Manager versions, you can add the older certificate during a scale-out by clicking **Add** button. This populates the older certificate data from the environment's Infrastructure properties.

- 7 Under **Component > Product properties**, select the required text boxes.

The field in this section varies for different products.

Product Name	Components
vRealize Automation 7.x	<ul style="list-style-type: none"> ■ vra-server-secondary ■ iaas-web ■ iaas-manager-passive ■ iaas-dem-orchestrator ■ iaas-dem-worker ■ proxy-agent-vmware
vRealize Automation 8.x	secondary
vRealize Operations Manager	<ul style="list-style-type: none"> ■ Data ■ Remote Collector
vRealize Business for Cloud	VRB-Collector
vRealize Log Insight	VRLI-Worker
vRealize Network Insight	<ul style="list-style-type: none"> ■ vRNI-Platform ■ vRNI-Collector

- 8 Enter the required text boxes and click **Next**, and run **Precheck**.
- 9 Read the summary and click **Submit**.

Export a Private Cloud Environment Configuration File

You can export a private cloud environment configuration file to reuse a deployment's configuration for future environment deployments.

If any data source is added in vRealize Network Insight environment, exporting of config file of this environment will have data source details. The config file can be used to create new vRealize Network Insight environment and data sources will be added automatically.

Procedure

- 1 Click **Manage Environments**.
- 2 Click the ellipsis (...) for the environment, and select **Export Configuration**.
- 3 Select the configuration file type to export from **Simple** or **Advance**, based on your requirement

- 4 Click **Save File** and click **OK**.

Earlier, the export configuration file feature was available at the LCM environment level. Starting with vRealize Suite Lifecycle Manager 1.3, you can export the configuration file at the product level also for the selected product.

The configuration file is downloaded to your browser's default download location.

What to do next

Use the configuration file to create new private cloud environments. See [Create a Private Cloud Environment Using a Configuration File](#).

Download Private Cloud Product Logs

You can download product log file bundles to share with VMware support.

Procedure

- 1 Click **Manage Environments**.
- 2 Click the ellipsis (...) for the environment, and select **Download Logs**.

Note When you click download logs on the Manage Environments page in vRealize Suite Lifecycle Manager, the link to download the support bundle does not appear. For more information, see KB article [55744](#).

Results

Downloaded logs are stored `/data/support-bundle` inside vRealize Suite LCM appliance.

Delete an Environment

You can delete an existing environment from vRealize Suite Lifecycle Manager.

In vRealize Suite Lifecycle Manager 1.1 onwards, you can delete the environment and not individual products. You cannot select a specific product within an environment to delete.

You can delete both successful and failed environment deployments. You can delete environments that are failed to deploy. From vRealize Suite Lifecycle Manager 1.2 onwards, you can delete an initiated environment as well.

Procedure

- 1 Click **Manage Environments** to delete a successfully installed environment, or delete a failed environment deployment listed under **Recent Requests** in Home page.
- 2 Click the three dots in the upper right corner of the environment tile, and select **Delete Environment**.

- 3 (Optional) Select **Delete related virtual machines from vCenter** to delete all virtual machines associated with this environment from vCenter server.

If you do not select this option, all virtual machines associated with this environment remain in vCenter after the environment is deleted from vRealize Suite Lifecycle Manager.

- 4 (Optional) Select **Delete related Windows machines** to delete Windows machines associated with vRealize Automation this environment.

This option is available only if you choose to delete all related virtual machines from vCenter. Ensure to confirm this action before you proceed.

- 5 Select **Delete related virtual machines from vCenter** to delete virtual machines associated with the environment.

This option is available only if you have virtual machine associated with an environment in vCenter server. If selected, then virtual machines associated to the environment is also deleted from the vCenter server. If it is not selected, then only the record of this environment is deleted from the LCM inventory.

- 6 Click **DELETE**.

- 7 If you chose to delete virtual machines associate with the environment, verify that the list of virtual machines to delete is correct, and click **CONFIRM DELETE**.

IaaS virtual machine names do not appear in this list.

Note If the delete operation fails, an option is enabled in the environment card "Delete environment from vRealize Suite Lifecycle Manager". This action deletes the environment from vRealize Suite Lifecycle Manager and you can delete the VMs manually from the vCenter server. For brownfield import, if you fail to add a vCenter list, then delete environment confirmation dialog box does not show the VM list in that particular vCenter and you have to clean them up manually. For an organic growth, the environment card from the recent activity home page is not deleted or dimmed.

- 8 Click **CLOSE**.

Results

The environment is removed from vRealize Suite Lifecycle Manager.

What to do next

You can view the progress of the delete operation on the **Requests** page.

Managing vRealize Suite Products in a Private Cloud

You can use VMware vRealize Suite Lifecycle Manager to upgrade and patch vRealize Suite products and to download product logs.

■ [Create a Product Snapshot](#)

Create a snapshot of a product to save product state at a particular point in time.

- [Inventory Sync in vRealize Suite Lifecycle Manager](#)

If you have updated any configuration outside of vRealize Suite Lifecycle Manager, then the products managed from vRealize Suite Lifecycle Manager will be out of sync. To update the configuration, you have to trigger inventory to sync.

- [Change your Password for vRealize Products](#)

You can change the password for the installed vRealize products. There are different types of password change options available on the Product Details page.

- [Upgrade a vRealize Suite Product](#)

You can use vRealize Suite Lifecycle Manager to upgrade vRealize Suite product installations.

- [Delete a Product from an Environment](#)

You can delete a product instance from a Lifecycle Manager environment.

- [Replace Certificate for vRealize Suite Lifecycle Manager Products](#)

You can replace your existing certificates for products within the vRealize Suite Lifecycle Manager.

- [Replace License for any Product](#)

You can configure and replace license changes to vRealize Automation through the vRealize Suite Lifecycle Manager UI where you can access the product details on the environment card.

Create a Product Snapshot

Create a snapshot of a product to save product state at a particular point in time.

This procedure does not apply to snapshots of vRealize Automation database virtual machines. Snapshots of vRealize Automation database virtual machines must be taken manually rather than through vRealize Suite Lifecycle Manager.

Procedure

- 1 Click **Manage Environments**.
- 2 Click **VIEW DETAILS**.
- 3 Click the ellipses icon next to the name of the product to snapshot and select **Create Snapshot**.

Note Day 2 operations that depend on vCenter Server, such as creating a snapshot, might fail if the guest tools are not running or if the IP address/Hostname is not visible in vCenter Server. vRealize Operations Manager setup is not accessible after reverting the snapshot of vRealize Operations Manager as the vRealize Operations Manager cluster can be inconsistent state. For more information, see KB article [56560](#).

Results

vRealize Suite Lifecycle Manager saves state and configuration details for the product's virtual appliance. For more information, see KB article [56361](#).

What to do next

After you take a product snapshot, you can revert the product virtual appliance to the state of the snapshot.

Inventory Sync in vRealize Suite Lifecycle Manager

If you have updated any configuration outside of vRealize Suite Lifecycle Manager, then the products managed from vRealize Suite Lifecycle Manager will be out of sync. To update the configuration, you have to trigger inventory to sync.

If the product upgraded outside or if there is any failure in vRealize Automation or vRealize Operations Manager, inventory sync updates the correct primary node in vRealize Suite Lifecycle Manager.

If any components of products are added or deleted outside of vRealize Suite Lifecycle Manager, inventory sync is used to update them. If a product password changed outside can be updated in vRealize Suite Lifecycle Manager by syncing it with the inventory, but the request eventually fails. However, you can provide the right password when you retry.

To change the root password of vRealize Operations Manager, then you have to create a root password in the Locker and use the same to replace the vRealize Operations Manager root password through vRealize Suite Lifecycle Manager. You need not change the root password in the vRealize Operations Manager.

Also, if you modify the password directly in the application, for example, vRealize Operations Manager then you should run the inventory sync of the product in vRealize Suite Lifecycle Manager so that the modified passwords are synchronized with vRealize Suite Lifecycle Manager again. This action prompts you to provide the modified passwords during an inventory sync.

You can sync your inventories for each product and for all the products across all environments.

- Instead of navigating into each product to synchronize your inventories, you can click the horizontal ellipses on the product card and click **Trigger Inventory Sync**.
- If there are multiple environments and there are multiple products within an environment, you can click the **Trigger Inventory Sync** on the Environment page. This triggers the inventory sync on all the products in all environments.
- You can click the **View Details** of the product and then click the **Trigger Inventory Sync**. This would trigger the inventory sync for the required product alone.

Change your Password for vRealize Products

You can change the password for the installed vRealize products. There are different types of password change options available on the Product Details page.

To change the password, on the product card environment, click **View Details > Change Password**.

The following table shows the different password change option available on the product details page.

Type of Password Change	vRealize Product Name
Admin Password Change	■ vRealize Automation
	■ vRealize Operations Manager
	■ vRealize Network Insight
	■ vRealize Log Insight
	■ VMware Identity Manager
Root Password Change	■ vRealize Automation
	■ vRealize Operations Manager
	■ vRealize Business for Cloud
	■ vRealize Log Insight
	■ VMware Identity Manager
Support Password Change	■ vRealize Network Insight
Console User Password Change	■ vRealize Network Insight
SSH User Password Change	VMware Identity Manager

Upgrade a vRealize Suite Product

You can use vRealize Suite Lifecycle Manager to upgrade vRealize Suite product installations.

When a deployment request is saved in vRealize Suite Lifecycle Manager 1.1 and the same request is resumed after upgrading vRealize Suite Lifecycle Manager to 1.2, vRealize Automation 7.3 products details page items does not load. For more information, see KB article [56369](#). When a vRealize Suite Lifecycle Manager upgrade is triggered, the screen stays at Maintenance mode and **Home** page never comes up. After an upgrade, there can be some errors in the content from the marketplace. The content might contain few request that prevents the service to start. vRealize Suite Lifecycle Manager UI displays a maintenance mode message and the Home page is not displayed. In this scenario, restart the xenon server. If the issue still persists, delete the error request and restart xenon.

Prerequisites

Verify that the vRealize Suite product to upgrade is part of a vRealize Suite Lifecycle Manager private cloud environment, and take a snapshot of the product that you can revert to in the event that something goes wrong with the upgrade. See [Create a Product Snapshot](#).

If you are upgrading vRealize Automation, ensure that the following additional prerequisites are met:

- The vRealize Automation management agent and all IaaS Windows nodes are running.
- The second member in the vRealize Automation load balancer is disabled.

Procedure

- 1 Click **Manage Environments**.
- 2 Click **VIEW DETAILS** for the environment the product to upgrade is part of.
- 3 Click the ellipses (...) icon next to the name of the product to upgrade and select **Upgrade** from the drop-down menu.
- 4 Choose a product version to upgrade to.
- 5 If you are upgrading vRealize Automation or vRealize Business for Cloud, choose whether to upgrade from the **Default** repository, the **vRealize Suite Lifecycle Manager Repository**, or a manually-entered **Repository URL**.
- 6 If you are upgrading vRealize Log Insight or vRealize Operations Manager, choose whether to upgrade from the **vRealize Suite Lifecycle Manager Repository**, or a manually-entered **Repository URL**.
- 7 Click **Upgrade**.

If you have upgraded a vRealize Suite product outside of vRealize Suite Lifecycle Manager, then vRealize Suite Lifecycle Manager will not reflect the latest product version or the latest data of the upgraded product. At such instances you have to delete the vRealize Suite product (the product which is already upgraded to the newer version outside LCM) from vRealize Suite Lifecycle Manager only, and then re-import the same product again so that vRealize Suite Lifecycle Manager will fetch the latest state of the given product along with its newer version.

What to do next

You can view the progress of the upgrade on the **Requests** tab.

Upgrade VMware Identity Manager

Upgrade support from earlier versions of VMware Identity Manager to latest is only available if they conform to vRealize Suite Lifecycle Manager supported form-factor. Otherwise, the upgrade has to be performed outside vRealize Suite Lifecycle Manager. After upgrade, it can anytime be reimported by triggering Inventory Sync in vRealize Suite Lifecycle Manager 8.0. For more information, see *Installing vRealize Automation with Easy Installer*.

Before you start the upgrade to 3.3.1, see VMware Identity Manager upgrade steps [here](#).

Prerequisites

Verify that you have taken a snapshot of VMware Identity Manager nodes.

Procedure

- 1 Navigate to Environments, on the environment page, click **Upgrade**.

- 2 Under the Product details section, you can select the following repository type.

Option	Description
Repository URL	When you select this option, you can manually add the local upgrade file location in the Lifecycle virtual appliance.
vRealize Suite Lifecycle Repository	When you select this option, you can enter the upgrade path available after mapping the binaries through LCM.
VMware Repository	Select this option and select the version. The upgrade is performed using the online source.

- 3 Click and run the pre-check.

- 4 Click **Submit**.

Upgrade Existing Products Using Pre-Upgrade Checker

You can trigger a pre-validation check from the product UI before upgrading an existing product within an environment. You can evaluate product upgrades and allow upgrade operation later. You can also validate the product compatibility matrix should be validated.

For more information on upgrade vRealize Suite products, see [Upgrade a vRealize Suite Product](#).

Prerequisites

Verify that you already have an existing vRealize Suite product in your environment.

Procedure

- 1 Right click the vertical ellipses of an existing vRealize Suite product and select an upgrade.

The compatibility matrix information is loaded with new, compatible and incompatible versions with product that needs to be upgraded.

- 2 Under the Product details section, you can select the following repository type.

Option	Description
VMware Repository	When you select this option, the latest versions of the vRealize Suite products are displayed in the Compatibility Matrix table. You can see this option only on vRealize Automation and vRealize Business for Cloud. Although, the compatibility matrix information is populated at the Suite product level, there can be a possibility for that latest versions might not be available at vRealize Suite Lifecycle Manager. However, with the Check Available Version , you can get only the latest version number with the associated build number.
Repository URL	When you select this option, you can manually add the local upgrade file location in LCM virtual appliance.
vRealize Suite Lifecycle Repository	When you select this option, you can select the upgrade path available after mapping the binaries through LCM.

Note Only vRealize Operations Manager upgrade consists of the **Run Assessment** feature. The run assessment checks for the vRealize Operations Manager upgrade readiness. It is not mandatory for the Run assessment to be passed, you can still go ahead with the upgrade. The compatibility matrix information is populated as per the selected version of the vRealize Operations Manager under the Product Version drop-down menu.

- 3 Click **Next** and click **Run Pre-check**.

Once the precheck validation is completed, you can then download the report to view the checks and validation status.

Note If you want to run the Precheck again after evaluating the discrepancies, you can select the **Re-Run Pre Check**. Pre-Check can also be performed using on **Submit** toggle button.

- 4 Click **Next** and click **Submit**.

- 5 If an vRealize Automation IaaS components upgrade fails

- Revert all the Infrastructure components back to the snapshot "post-upgrade VA snapshot".
- Revert the MS SQL database back to the pre-upgraded state.
- Click **Retry** from vRealize Suite Lifecycle Manager and set **Upgrade IaaS Using CLI** to **True**.
- Click **Submit**.

Update vRealize Operations Manager

You can trigger a pre-validation check from the product UI before upgrading vRealize Operations Manager within an environment. You can evaluate vRealize Operations Manager upgrades and allow upgrade operation later. You can also validate the product compatibility matrix should be validated.

Prerequisites

Verify that there is an older or an existing version of vRealize Operations Manager instance in the Manage Environments.

Procedure

- 1 Right click the vertical ellipses of an existing vRealize Operations Manager product and select an **Upgrade**.

The compatibility matrix information is loaded with new, compatible and incompatible versions with product that needs to be upgraded.

- 2 Under the Product details section, you can select the following repository type.

Option	Description
Repository URL	When you select this option, you can manually add the local upgrade file location in Lifecycle virtual appliance.
vRealize Suite Lifecycle Repository	When you select this option, you can enter the upgrade path available after mapping the binaries through LCM.

- 3 Click **Next**.
- 4 Click **RUN PRECHECK** to execute the File format and **Version support from LCM**.

Once the precheck validation is completed, you can then download the report to view the checks and validation status.

Note If you want to run the Precheck again after evaluating the discrepancies, you can select the **Re-Run Pre Check**. Pre-Check can also be performed using on **Submit** toggle button.

If the OS Admin Password for vRealize Operations Manager expires, vRealize Operations Manager upgrade Precheck fails while check in even if the admin account is locked or not. You can change the admin password for the vRealize Operations Manager within vRealize Suite Lifecycle Manager UI, and then click Precheck for vRealize Operations Manager again. You can also change the vRealize Operations Manager admin password outside vRealize Suite Lifecycle Manager directly in vRealize Operations Manager, then run an inventory sync for the selected vRealize Operations Manager instance in the vRealize Suite Lifecycle Manager UI. Click run upgrade Precheck for vRealize Operations Manager again.

Update vRealize Automation 7.x

You can trigger a pre-validation check from the product UI before upgrading vRealize Automation within an environment. You can evaluate vRealize Automation upgrades and allow upgrade operation later. You can also validate the product compatibility matrix should be validated.

Prerequisites

Verify that there is an older or an existing version of vRealize Automation instance in the Manage Environments.

Procedure

- 1 Right click the vertical ellipses of an existing vRealize Automation product and select an **Upgrade**.

The compatibility matrix information is loaded with new, compatible and incompatible versions with product that needs to be upgraded.

- 2 Select the **IAAS Snapshot After VA Upgrade** checkbox.

If an IaaS component fails after vRealize Automation then you can revert to the post upgrade VA snapshot.

- 3 Under the Product details section, you can select the following repository type.

Option	Description
Repository URL	When you select this option, you can manually add the local upgrade file location in Lifecycle virtual appliance.
VMware Repository	When you select this option, the latest versions of the vRealize Suite products are displayed in the Compatibility Matrix table. You can see this option only on vRealize Automation. Although, the compatibility matrix information is populated at the Suite product level, there can be a possibility for that latest versions might not be available at vRealize Suite Lifecycle Manager. However, with the Check Available Version , you can get only the latest version number with the associated build number.
vRealize Suite Lifecycle Repository	When you select this option, you can select the upgrade path available after mapping the binaries through LCM.

- 4 Click **RUN PRECHECK** to execute.

Once the precheck validation is completed, you can then download the report to view the checks and validation status.

Note If you want to run the Precheck again after evaluating the discrepancies, you can select the **Re-Run Pre Check**. Pre-Check can also be performed using on **Submit** toggle button.

- 5 Click **Next** and read the summary before you click **Submit**.

Upgrade vRealize Automation 8.0 with vRealize Suite Lifecycle Manager

You can upgrade vRealize Automation in vRealize Suite Lifecycle Manager.

Prerequisites

- Verify that you have an installed version of vRealize Automation 8.0.

- Perform the binary mapping of the vRealize Automation upgrade ISO from Local, myvmware or NFS share. For more information on binary mapping, see [Configure Product Binaries](#).

Procedure

- 1 On the Lifecycle Operations page, click **Manage Environments**.

- 2 Navigate to a vRealize Automation instance.

- 3 Click **View Details** and click **Upgrade**.

A pop-up menu is appears to alert you to perform an inventory sync.

- 4 Click **Trigger Inventory Sync** of the product before you upgrade.

Note At times, there can be a drift or a change in the environment outside of Lifecycle Manager and for Lifecycle Manager to be aware of the current state of the system, the inventory requires to be up-to-date.

a If the product inventory is already synced and up-to-date, then click **Proceed Upgrade**.

- 5 To select the **Repository Type**, you can either select **vRealize Suite LCM Repository**, only if you have mapped the ISO Binary map, or you can select the **Repository URL** with a private upgrade Repository URL.

- 6 After the inventory is synced, select the vRealize Automation version to 8.0.1.

- 7 If you selected the Repository URL, enter the unauthenticated URL, and then click **Next**.

- 8 Click **Pre-Check**.

Pre-check validates the following criteria:

- SSH enabled - Verifies that SSH for the root user is enabled.
- Version check - Verifies if the target version selected for upgrade is compatible with the current vRealize Automation version.
- Disk space on root and data partition - Verifies if the required amount of free disk space is available in the root and data partition.
- vCenter property existence check - Verifies if the vCenter details are present as part of each node in the Lifecycle Manager inventory. Since a snapshot is taken during the upgrade process, it is important to have the right vCenter details within the Lifecycle Manager inventory.
- vRealize Automation VMs managed object reference ID retrieval check - Verifies if the managed object reference ID of the VM can be retrieved from the details available in the Lifecycle Manager inventory. This is required as you perform snapshot-related operations on the VMs, finding the VM using the same.

- 9 Click **Next** and **Submit**.

You can navigate to the Request Details page to view the progress of the upgrade status.

Upgrade Functionality of vRealize Automation

There are three stages in the upgrade process of vRealize Automation within vRealize Suite Lifecycle Manager.

Stages of Upgrade	Description
Upgrade Preparation	The preparation phase verifies that the system is healthy and shuts down services to make sure that all data is persisted.
Snapshot of all of the VMs for an automatic recovery	Snapshots are taken for faster recovery of failures. vRealize Suite Lifecycle Manager then shuts down the VMs, takes a snapshot, turns the power on, and continues to the next phase.
Upgrade Execution	Execute the upgrade.

At certain unexpected or failure scenarios, the vRealize Suite Lifecycle Manager upgrade workflow gives user decision points to either complete the upgrade successfully or revert to the stage before upgrade.

- The upgrade process starts with a status check task that verifies the current state of the VA. If the system already has an upgrade request due to a previous upgrade attempts, then vRealize Suite Lifecycle Manager provides you with an option to clean the older states and start a new upgrade. You can see the status task failing with a retry parameter similar to 'cancelAndStartAfresh'. Setting this retry parameter to true cleans up older states and automatically retriggers the upgrade again.
- If unexpected failures occur during the prepare phase, you are provided with an option to either cancel the whole upgrade process and start new if a failure can never be corrected or if the unexpected failure is fixed manually, you can proceed to the next phase in the upgrade workflow. The status check done after the prepare failure provide you with two retry parameters that help you decide which option to choose. If you set 'cancelAndStartAfresh' to 'true', the upgrade process is cancelled and returns the machine to the state before the upgrade. If you set 'proceedNext' to 'true', the vRealize Suite Lifecycle Manager upgrade workflow proceeds to the next state with an assumption that you fixed the prepare issue outside.
- The upgrade workflow consists of VM level operations like taking, reverting, deleting a snapshot and VM Shutdown, power ON, and so on. If there was failure, these operations includes a **Skip** option which can be used if the RETRY option in the vRealize Suite Lifecycle Manager does not help and when you manually perform the same operation directly on the vCenter Server.
- The final phase of the upgrade can be successful or success with warnings or a fatal state.
 - Success with warnings indicates that the upgrade has completed successfully, but a minor error is detected. You can check the errors and rectify them. You can set the 'succeedUpgradeRequest' retry parameter to 'true' which will succeed and complete the vRealize Suite Lifecycle Manager upgrade workflow.

- If there is fatal error, you can decide if you want to revert the snapshot and retry the upgrade or cancel the whole upgrade process. This reverts and deletes the snapshot, and cancels the current upgrade request and moves the system to a state before the upgrade started.
 - For a fatal error, you can see the status task after the upgrade failure with retry parameters similar to 'revertSnapshotNRetryUpgrade' and 'cancelUpgradeNRevertBack'. If you set 'revertSnapshotNRetryUpgrade' to 'true', then it can revert the snapshot and retry the upgrade again.
 - If you set 'cancelUpgradeNRevertBack' to 'true', you can cancel the upgrade process, which can revert and delete the snapshot and cancel the current upgrade request and move the system to a state before the upgrade started.

Note

- The vRealize Suite Lifecycle Manager upgrade workflow does not support removing the snapshots if there was a successful upgrade. You hold the snapshots or remove it manually from the vCenter Server if necessary.
 - If you Cancel the upgrade process after a failure post prepare or upgrade phase, the vRealize Suite Lifecycle Manager workflow post cleaning up the upgrade request in vRealize Automation ends up in an aborted state. This indicates that the upgrade workflow from vRealize Suite Lifecycle Manager was aborted. In such situations, retrigger an upgrade from the product actions under **Manager Environment** page.
-

Update vRealize Network Insight

You can trigger a pre-validation check from the product UI before upgrading vRealize Network Insight within an environment. You can evaluate vRealize Network Insight upgrades and allow upgrade operation later. You can also validate the product compatibility matrix should be validated.

Procedure

- 1 Right click the vertical ellipses of an existing vRealize Network Insight product and select an **Upgrade**.

The compatibility matrix information is loaded with new, compatible and incompatible versions with product that needs to be upgraded.

- 2 Under the Product details section, you can select the following repository type.

Option	Description
Repository URL	When you select this option, you can manually add the local upgrade file location in Lifecycle virtual appliance.
vRealize Suite Lifecycle Repository	When you select this option, you can enter the upgrade path available after mapping the binaries through LCM.

- 3 Click **Next**.

- Click **RUN PRECHECK** to execute the File format and **Version support from LCM**.

Once the precheck validation is completed, you can then download the report to view the checks and validation status. `

Note If you want to run the Precheck again after evaluating the discrepancies, you can select the **Re-Run Pre Check**. Pre-Check can also be performed using on **Submit** toggle button.

Update vRealize Log Insight

You can trigger a pre-validation check from the product UI before upgrading vRealize Log Insight within an environment. You can evaluate vRealize Log Insight upgrades and allow upgrade operation later. You can also validate the product compatibility matrix should be validated.

Prerequisites

Verify that there is an older or an existing version of vRealize Log Insight instance in the Manage Environments.

Procedure

- Right click the vertical ellipses of an existing vRealize Log Insight product and select an **Upgrade**.

The compatibility matrix information is loaded with new, compatible and incompatible versions with product that needs to be upgraded.

- Under the Product details section, you can select the following repository type.

Option	Description
Repository URL	When you select this option, you can manually add the local upgrade file location in Lifecycle virtual appliance.
vRealize Suite Lifecycle Repository	When you select this option, you can select the upgrade path available after mapping the binaries through LCM.

- Click **Next**.
- Click **RUN PRECHECK**.

Once the precheck validation is completed, you can then download the report to view the checks and validation status. `

Note If you want to run the Precheck again after evaluating the discrepancies, you can select the **Re-Run Pre Check**. Pre-Check can also be performed using on **Submit** toggle button.

Update vRealize Business For Cloud

Prerequisites

Procedure

- 1 Right click the vertical ellipses of an existing vRealize Network Insight product and select an **Upgrade**.

The compatibility matrix information is loaded with new, compatible and incompatible versions with product that needs to be upgraded.

- 2 Under the Product details section, you can select the following repository type.

Option	Description
Repository URL	When you select this option, you can manually add the local upgrade file location in Lifecycle virtual appliance.
vRealize Suite Lifecycle Repository	When you select this option, you can enter the upgrade path available after mapping the binaries through LCM.

- 3 Click **Next**.
- 4 Click **RUN PRECHECK** to execute the File format and **Version support from LCM**.

Once the precheck validation is completed, you can then download the report to view the checks and validation status.

Note If you want to run the Precheck again after evaluating the discrepancies, you can select the **Re-Run Pre Check**. Pre-Check can also be performed using on **Submit** toggle button.

Results

Example:

What to do next

Delete a Product from an Environment

You can delete a product instance from a Lifecycle Manager environment.

You can delete a product deployment from a vCenter Server. The Lifecycle Manager can delete Product Integration in a given environment for the selected product, if it is done within Lifecycle Manager while deploying products.

In case of an environment where products are imported, Lifecycle Manager does not gather information about an existing product integration within products. Therefore, you can manually remove the product integration while deleting products.

Prerequisites

Verify that there is a product existing in an environment.

Procedure

- 1 From the Environment home page, select any product instance and right-click on the vertical ellipses.
- 2 Click **Delete Product**.

Note When there are products that are internally integrated within a product, then verify the integrations before deleting the product. However, Lifecycle Manager cannot remove the external integrations in the products.

- 3 To delete all associated VMs from vCenter Server for the selected product, select the **Delete associated VMs** check box.
- 4 If you want to delete windows machines, then select **Delete associated Windows Machines** check box and click **Delete**.

Before you delete associated VMs from the vCenter Server on the **Delete Product** window, review the list of VMs and then click **Confirm Delete**.

Results

The selected suite product and its associated VMs from an environment are deleted.

Replace Certificate for vRealize Suite Lifecycle Manager Products

You can replace your existing certificates for products within the vRealize Suite Lifecycle Manager.

For replacing a vRealize Suite Lifecycle Manager VAMI/VA certificate, see [Replace Certificate for vRealize Suite Lifecycle Manager](#) .

Prerequisites

Verify that a product has an existing certificate.

Procedure

- 1 From the Environment page, select a product card and click on the vertical ellipses.
- 2 Click **Replace Certificate**.
- 3 From the **Current Certificate**, select a **Product** or a **Component** level certificate for an vRealize Automation from the drop-down menu and click **Next**.
- 4 Select a certificate and review the certificate summary, and click **Next**.
- 5 To validate the certificate information, click **RUN PRECHECK** and click **Finish**.
- 6 Go to the **Requests** page to see the status of this request.

Replace License for any Product

You can configure and replace license changes to vRealize Automation through the vRealize Suite Lifecycle Manager UI where you can access the product details on the environment card.

Prerequisites

Verify that you have the vRealize Automation instance in vRealize Suite Lifecycle Manager.

Procedure

- 1 Log in to vRealize Suite Lifecycle Manager UI.
- 2 Add License in the locker and browse to the Environment tab.

Note For information on adding license, see [Configure License Within Locker](#).

- 3 Click **View Details** on the product environment tab.
- 4 Select the **Add License** from product options (...) icon.
- 5 Click **Next** and select the required License added to Locker.
- 6 Click **Finish** to replace the License of the product.

The replace License request can be tracked in the vRealize Suite Lifecycle Manager Requests tab.

What to do next

For more information on configuring the license, see [Configure License Within Locker](#).

Configure Health Monitoring for the vRealize Suite Management Stack

When vRealize Operations Manager is part of your environment, you can retrieve and display the health status of vRealize Suite products in vRealize Suite Lifecycle Manager.

Health status information in vRealize Suite Lifecycle Manager is available only for vRealize Suite Lifecycle Manager supported products: vRealize Automation, vRealize Operations Manager, vRealize Log Insight, and vRealize Business for Cloud.

Prerequisites

Verify that you have a private cloud environment that contains VMware vRealize Operations Manager. For information on adding to an existing environment, see [Add a Product to an Existing Cloud Environment](#). For information on creating an environment, see [Creating a Private Cloud Environment](#).

- [Health Status in vRealize Suite Lifecycle Manager](#)
vRealize Suite Lifecycle Manager displays private cloud environment health for the environment as a whole and at the individual product level.
- [View the SDDC Health Overview Dashboard in VMware vRealize Operations Manager](#)
With vRealize Suite Lifecycle Manager, you can view detailed health status in vRealize Operations Manager.

■ [Enable or Disable Health Check for Products in vRealize Suite Lifecycle Manager](#)

Procedure

- 1 Configure vRealize Operations Manager with the VMware SDDC Management Health Solution Management Pack. See [VMware SDDC Management Health Solution microsite](#) on the VMware Solution Exchange.

- 2 Configure adapter instances for vRealize Log Insight, vRealize Business for Cloud, and vRealize Automation in vRealize Operations Manager.

For information on configuring adapters in vRealize Operations Manager, see the following topics:

- [Configuring vRealize Log Insight with vRealize Operations Manager](#)
- [Configure the vRealize Business for Cloud Adapter](#)
- [Configure vRealize Automation](#)

- 3 If you have an instance of vRealize Automation in your environment, install End Point Operations Management agents on all nodes on vRealize Automation applications and on any new node added to the vRealize Automation cluster later.

See [End Point Operations Management Agent Installation and Deployment](#) .

Results

vRealize Suite Lifecycle Manager displays the health status of the vRealize Suite management stack as provided by VMware SDDC Management Health Solution Management Pack.

vRealize Suite Lifecycle Manager retrieves health status information from one instance of vRealize Operations Manager in a given private cloud environment. The health displayed applies only to the vRealize Suite products configured in the target vRealize Operations Manager instance within the private cloud environment. Do not configure additional vRealize Suite products from other private cloud environments in the same instance of vRealize Operations Manager.

What to do next

View the health status of vRealize Suite in vRealize Suite Lifecycle Manager. See [Health Status in vRealize Suite Lifecycle Manager](#).

Health Status in vRealize Suite Lifecycle Manager

vRealize Suite Lifecycle Manager displays private cloud environment health for the environment as a whole and at the individual product level.

Health Status By Color

To enable or disable health at environment level, click the vertical ellipses in the environment card. The following table presents a color-coded guide to help you determine the health status of your private cloud environment.

Color	Status
Gray	<p>A gray status indicates one of the following scenarios:</p> <ul style="list-style-type: none"> ■ vRealize Operations Manager is not part of your private cloud environment. ■ vRealize Operations Manager is not configured with VMware SDDC Management Health Solution Management Pack. ■ An error occurred while determining private cloud environment health. ■ Health information is not yet available.
Green	vRealize Operations Manager is reporting health as Green, as per its policies, for all configured products.
Yellow	vRealize Operations Manager is reporting health as Yellow, as per its policies, for at least one configured product.
Red	vRealize Operations Manager is reporting health as Orange or Red, as per its policies, for at least one configured product.

Health status in vRealize Suite Lifecycle Manager continues to display these colors, even when you only partially configure vRealize Suite products in vRealize Operations Manager. vRealize Suite Lifecycle Manager does not attempt to determine health status of vRealize Suite products that are not configured in the private cloud environment.

View the SDDC Health Overview Dashboard in VMware vRealize Operations Manager

With vRealize Suite Lifecycle Manager, you can view detailed health status in vRealize Operations Manager.

Prerequisites

Verify that you have a valid VMware vRealize Operations Manager credentials or have VMware Identity Manager configured.

Note For SDDC management pack 4.0, there is no requirement of installing End point agents for vRealize Automation 7.4 and IaaS node.

Procedure

- 1 In vRealize Suite Lifecycle Manager, click the health status for the private cloud environment to open the SDDC Health Overview Dashboard for the environment in VMware vRealize Operations Manager.
- 2 In vRealize Suite Lifecycle Manager, click the health status for an individual product to open the summary page for that product in VMware vRealize Operations Manager. For more information, see the *VMware Marketplace*.

Enable or Disable Health Check for Products in vRealize Suite Lifecycle Manager

You can enable the health check option to check the health of an existing environment. You can use this option on a scenario when you want to evaluate vRealize Suite Lifecycle Manager environment with vRealize Operations Management Suite is installed along with SDDC MP. This health check is only available on the vRealize Operations Manager instance with a SDDC Management pack to monitor the health of the entire system.

This option first checks whether there is an environment to run at first place. Once the health checks run, it checks if there is a SDDC management health solution available and then verifies the last status of the health solution. A health check runs periodically at a scheduled interval. When you want to avoid resource usage in development environments or production environments, you might want to disable a health check.

Once the health check is disabled, the environment health is not evaluated anymore. A message is displayed on the environment card, suggesting the user to enable health check to monitor the health of environment. When a health check has run, you can see the current status of the environment. If the status is ok and the data is fetched, then you can view a message on the card as Health OK.

Adding and Managing Content from Marketplace

You can use vRealize Suite Lifecycle Manager to add and manage content from Marketplace.

Marketplace contains content plugins for vRealize Orchestrator, including vRealize Automation blueprints and OVAs, vRealize Operations Manager management packs, and vRealize Log Insight content packs, that you can download and deploy in your vRealize Suite environments.

Getting Started with Marketplace

Provide My VMware credentials and sync Marketplace metadata to begin using Marketplace in vRealize Suite Lifecycle Manager.

Prerequisites

- Verify that the vRealize Suite Lifecycle Manager virtual appliance is connected to the Internet.
- Verify that you have entered your My VMware credentials in vRealize Suite Lifecycle Manager.

Procedure

- 1 On the My Services dashboard, click **Marketplace**.
- 2 If you do not have My VMware details configured, then, click the **myvmware** link.
 - a On the Settings page of **My VMware**, click **ADD MY VMWARE ACCOUNT**
 - b Enter the **User name** and select the **Password**.
 - c Click **Validate** and **Add**.

- 3 Click the **Refresh Content from Marketplace** button.

You can also click the **Sync Content**, if you are syncing marketplace for the first time.

Results

After a few minutes, available content appears on the **Marketplace** tab.

What to do next

Search for and download content from Marketplace. See [Find and Download Content from Marketplace](#).

Find and Download Content from Marketplace

You can use vRealize Suite Lifecycle Manager to search for and download content from Marketplace.

vRealize Suite Lifecycle Manager 1.3 supports vRealize Automation 7.4, OVA installation. Each OVA are in GBs in Marketplace. If you want to download more OVAs from Marketplace then increase the data folder size to avoid the Disk Full alert. OVAs in Marketplace have large file size. It is recommended to extend the storage from the system settings page, if multiple OVAs are downloaded and to avoid disk storage alert.

Prerequisites

Verify that you have performed an initial Marketplace sync to load Marketplace content. See [Getting Started with Marketplace](#).

Procedure

- 1 Click **VMware Marketplace** and click the **All** tab.
vRealize Suite Lifecycle Manager displays all content available for vRealize Suite in Marketplace.
- 2 (Optional) To filter the list of available content by search terms, enter search terms into the **Search** text box.
- 3 (Optional) To filter the list of available content by product, publisher, or technology, click **Filter** and select the appropriate filters.
- 4 Click **View Details** for to learn more about the downloadable content, including what products and version the content is compatible with, user ratings for the content, and a list of related content.
- 5 Click **Download** to download the content to vRealize Suite Lifecycle Manager.

Results

Downloaded content appears on the **Download** tab of the **Marketplace** page.

What to do next

Install the content you downloaded. See [Install Downloaded Marketplace Content](#).

View and Upgrade Downloaded Marketplace Content

You can view details about content previously downloaded from Marketplace, including version number and last updated date.

Procedure

- 1 Click **Marketplace** and click the **Available** tab.

vRealize Suite Lifecycle Manager displays all content downloaded to vRealize Suite Lifecycle Manager from Marketplace.

- 2 If there is an update available for content, you can download a newer version of the content.

- a Mouseover the notification icon in the upper left corner of the content tile to verify that there is an available update.

If there are no notifications for the content, the notification icon does not appear.

If there is a newer version of the content available, vRealize Suite Lifecycle Manager displays the message **New version updates are available for the app**.

- b Click the three dots on the upper right corner of the content tile, and select **Upgrade**.
- c To download, select a version, and click **Continue**.

If you are upgrading a vRealize Automation blueprint, vRealize Orchestrator plugin, or vRealize Log Insight content pack, or upgrading a VMware vRealize Operations Manager management pack with a newer version, the previous content is overwritten with upgraded content. If you attempt to update a VMware vRealize Operations Manager management pack with the same version that is already installed, the update fails.

- 3 Click **View Details** to view information about the content, including related content and the date the content was last modified.

Install a Downloaded Marketplace Content

You can install content downloaded from Marketplace.

Prerequisites

- Download the content to install from Marketplace. See [Find and Download Content from Marketplace](#).
- Verify that the environment which you are installing have the entitlement matching the entitlement which the content supports.

Procedure

- 1 Click **Marketplace** and click the **Available** tab.

vRealize Suite Lifecycle Manager displays all content that has been downloaded to vRealize Suite Lifecycle Manager from Marketplace.

- 2 Click the three dots in the upper right corner of the tile for the content to install, and click **Install**.
- 3 Select the data center and environment to install the content, if you are installing a blueprint or OVA in an vRA, and click **Next**.

vRealize Automation and vRealize Operations Management Suite contents are tagged with license entitlements.

- 4 After selecting a data center and environment, select the tenant in which the content needs to be installed and click **Submit**.

What to do next

You can track installation progress on the **Requests** page.

Delete Content Downloaded from the Marketplace

You can delete content that you downloaded from Marketplace. However, this does not remove the content from the environments in which it is installed through vRealize Suite Lifecycle Manager.

Procedure

- 1 Click **Marketplace** and click the **Download** tab.
- 2 Click the vertical dots in the upper right corner of the tile for to delete and click **Delete**.
- 3 Click **Yes**.

Results

The content is deleted from vRealize Suite Lifecycle Manager and no longer appears under downloaded content on the **Marketplace** page.

Content Lifecycle Management

4

Content lifecycle management in vRealize Suite Lifecycle Manager provides a way for release managers and content developers to manage software-defined data center (SDDC) content, including capturing, testing, and release to various environments, and source control capabilities through different source control endpoints that includes both GitLab and Bitbucket. Content Developers are not allowed to set Release policy on end-points only Release Managers can set policies.

Migration of contents or versions are not supported from an older instance to vRealize Suite Lifecycle Manager 8.0. The latest content version can be either source control or deploy to an endpoint before moving to vRealize Suite Lifecycle Manager 8.0. So that the same content can be re-captured from the endpoint in the new instance.

Migration of endpoints and content settings are supported:

- All the endpoints are migrated along with source control user tokens.
- Tags associated with the endpoints are migrated to new instance.
- Pipeline stub configurations are migrated.

Note LCM cloud admin will only be able to perform the content management operation. When the cloud admin user gets an additional role of release manager or content developer, the cloud admin can only view the content management app inside the LCM. But the cloud admin does not have permission to view other apps. Whereas, a Release manager and a content developer user can view the content management app. As a workaround, you can perform all the cloud admin operations using cloud admin role only and do not provide additional permission or role mapping.

You can use content lifecycle management to dispense with the time-consuming and error-prone manual processes required to manage software-defined content. Supported content includes entities from

- vRealize Automation 7.2 and later (vRealize Automation 8.0 is not supported as an endpoint) .
- vRealize Orchestrator 7.x and later. (vRealize Orchestrator8.0 is not supported as an endpoint).
- VMware vSphere 6.0 and later.
- vRealize Operations Manager 6.6.1+ and later.

- Source Control servers:
 - GitLab: All latest versions upto 11.6.5
 - Bitbucket Server 6.5.1
 - Bitbucket Cloud: All latest versions

Content lifecycle management in vRealize Suite Lifecycle Manager is similar to content lifecycle management with the vRealize Code Stream Management Pack for DevOps, with the following differences.

- Content lifecycle management is deployed as part of vRealize Suite Lifecycle Manager on a single appliance. It has a new user interface and is tightly integrated with vRealize Suite Lifecycle Manager core services.
- Updated Pipeline services: Advanced capability to manage content to work with source control to support multi-developer use case.

If there are dependencies between captured content packages, all the dependencies will be captured as first class objects in LCM. Each content version will show all its dependencies associated to it. For example, if avRealize Automation Composite Blueprint has a dependency on Property-Definition, there are two items in the content catalog, one for each content package. With independent version control for each content package, you can edit, capture, and release dependencies independently so that the content is never stale. vRealize Automation allows to define multiple named value sets within the Size and Image component profile types. You can add one or more of the value sets to machine components in a blueprint. We cannot deploy or release Automation-Component Profiles in vRealize Suite Lifecycle Manager to a target end-point if the corresponding value set already exists on the end-point.

- [Working with Content Endpoints](#)

A content endpoint is an infrastructure endpoint in the software-defined data center (SDDC), such as an instance of vRealize Automation, that is targeted for the capture, test, and release of managed content

- [Managing Content](#)

Content is a collection of files that contains definitions that represent software defined services.

- [Access Source Control](#)

Only a release manager can add a source control access, where in the source control can be GitLab or Bitbucket. With this privilege, a release manager can select the GitLab type, Bitbucket and enter the gitLab server name. You can supply multiple server names and then use the git lab personal access token and assign it to the source control server.

- [Managing Source Control Server Endpoints](#)

Before you can check in or check out content, a vRealize Suite Lifecycle Manager must add a GitLab or Bitbucket source control server to the system.

- [Working with Content Settings](#)

You can add source control server endpoint, vCenter publisher, pipeline extensibility and developer restrictions in Content Settings.

- [Working with Content Pipelines](#)

Pipeline stubs are used to support the pipeline extensibility use case in content-management. The pipeline process can be extended by adding a custom logic in pre or post stages of capture, test, or deploy. The custom logic can be created as a vRealize Orchestrator workflow, which can then be mapped to a pre or post stub. Pre and Post stubs are executed before and after, respectively for a given stage.

- [Content Pipeline Settings](#)

Starting with vRealize Suite Lifecycle Manager 8.0, there are only Content Pipelines and Capture pipeline are supported. In the Content Pipelines section, under the Pipelines tab, the status of the last 24 pipeline executions can be seen in the Content_Pipeline card. Each of the content pipeline executions when selected, shows the associated Capture pipelines, if any, in the Capture pipeline card. The execution representations, the colored dot in the pipeline card, can be selected to view a detailed breakdown of the various stages of the selected execution. The Content pipeline execution can contain a maximum of nine stages in the order of execution. However, the actual execution has the stages which are relevant to the execution.

Working with Content Endpoints

A content endpoint is an infrastructure endpoint in the software-defined data center (SDDC), such as an instance of vRealize Automation, that is targeted for the capture, test, and release of managed content

You add a content endpoint to an environment to capture, test, deploy or check-in software-defined content in the form of a content package. A content package is a file that contains definitions for software-defined services, such as blueprints, templates, workflows, and so on. Each content endpoint can support more than one type of content package. For example, a vRealize Automation content endpoint can support both composite blueprints and software.

You use content endpoints to perform the following actions:

- Capture one or more content packages.
- Test one or more content packages in a staging environment.
- Release one or more tested content packages to a production environment.
- [Add a vRealize Orchestrator Content Endpoint](#)

A vRealize Orchestrator endpoint is required to create vRealize Automation endpoints and to capture content.

- [Add a vRealize Automation Content Endpoint](#)

To capture, test, deploy, or check-in a content package, add a content endpoint to an environment.

- [Add a Source Control Endpoint](#)

A source control endpoint represents a project (repository) and a source control server.

- [Add a vCenter Server Content Endpoint](#)

Add a content endpoint to an environment to capture, test, deploy, or check-in a content package.

- [Add a vRealize Operations Manager Endpoint](#)

Add a vRealize Operations Manager content endpoint to capture, test, deploy, or check-in a content package.

- [Delete a Content Endpoint](#)

You can delete an existing content endpoint.

- [Edit a Content Endpoint](#)

You can edit the settings of an existing content endpoint.

Add a vRealize Orchestrator Content Endpoint

A vRealize Orchestrator endpoint is required to create vRealize Automation endpoints and to capture content.

Prerequisites

If you are using this vRealize Orchestrator endpoint for unit testing, verify that the vRealize Orchestrator instance has been configured as a unit test server.

Procedure

- 1 On the My Services Dashboard, click **Content Management**.
- 2 Under **Endpoints**, click **NEW ENDPOINT**.
- 3 Click **vRealize Orchestrator**.

For an Orchestrator content, you can capture workflows, configuration elements, and actions individually or in a folder where they reside.

Note If a folder is captured, a temporary content name starting with [FOLDER] is displayed. You can start a Content Pipeline to capture all content, this is then added to the vRealize Orchestrator Package provided as input.

4 Enter the information for the vRealize Orchestrator content endpoint.

- a In the **Name** text box, enter a unique name for the endpoint.
- b In the **Tags** text box, enter tags associated with the endpoint.

Using tags allow you to deploy content to multiple endpoints at the same time. When you deploy content, you can select a tag instead of individual content endpoint names, and the content deploys to all endpoints that have that tag.

To add multiple tags, press **Enter** after you enter each tag.

- c In the **Server FQDN/IP** field, enter the fully qualified server name, IP address, or host name for the content endpoint server.

If the vRealize Orchestrator instance is not embedded in vRealize Automation, include the port number in the server FQDN/IP. Typically the port number is 8281. The port number 8281 is required for vRealize Orchestrator 7.x versions. For vRealize Orchestrator 8.x and above, the port is not required.

vRO-Server-FQDN:Port

- d Enter a user name and password to use to access this content endpoint.

5 Press **TEST CONNECTION** to test the connection to the content endpoint.

If the connection test fails, verify that the information you entered for the content endpoint is correct and try again.

6 Select **vRO Package**.

The vRealize Orchestrator package can be captured from an endpoint and is associated with the content endpoint. Mark the version as Production ready. Selection of a vRO package is a post deployment capability that imports the package once any other content has been deployed allowing maintained localized or regional settings.

- Ignore modules when listing content: A comma-separated list of vRealize Orchestrator Actions or modules that are excluded when listing from an endpoint to reduce the number. With Lifecycle Manager 8.0, any module or folder with or without any dependencies can be excluded while capturing or listing the content. However, for Orchestrator-package these modules or folders are not ignored. Lifecycle manager validates the content dependencies available in the source endpoint while capturing with dependencies. This depends on the policy specified on the endpoints.
- Ignore Workflows in these folders: A comma-separated list of vRealize Orchestrator Workflow folders that are excluded when listing from an endpoint to reduce the number.
- A vRO package name cannot contain special characters and can cause issues when you capture, release or check-in a content. If you have a vRO package name with a space in between the name, then the space is converted to an underscore (_) during a capture and fails during a test and deploy.

- 7 Select the appropriate policies for the content endpoint, and click **Next**.

Policy	Description
Mark as a source content endpoint to capture content	Allows you to capture content from this endpoint and mark them as a source content.
Allow Unit tests to run on this content endpoint	Allows content to be tested on this endpoint and acts as a unit test server where vRealize Orchestrator workflows test content is placed.
Mark as Production content endpoint	Allows you to deploy content to production.
Source Control Enabled	Allows you to enable if you plan to check in or check out content to or from the vRO endpoint. Enabling source control is a best practice when working with multiple users or vRealize Orchestrator Endpoints in which the same content is worked on. This policy prevents non source-controlled versions be deployed to this endpoint, so that all git commit codes are maintained against this server.

- 8 Verify that the content endpoint details are correct, and click **Submit**.

Add a vRealize Automation Content Endpoint

To capture, test, deploy, or check-in a content package, add a content endpoint to an environment.

Prerequisites

Verify that you have added at least one vRealize Automation endpoint.

Note If the vRealize Orchestrator is embedded, then there is no need of a separate instance of vRealize Orchestrator endpoint. vRealize Orchestrator endpoint creation is needed only if you are using an external vRealize Orchestrator endpoint for vRealize Automation.

Procedure

- 1 On the My Services Dashboard, click **Content Management**.
- 2 Under **Endpoints**, click **NEW ENDPOINT**
- 3 Click **Automation**.
- 4 Enter the information for the vRealize Automation content endpoint.
 - a In the **Name** field, enter a unique name for the endpoint.
This can be a server name or any name.
 - b Select the product version of the endpoint from the **Endpoint Version** drop-down menu.

- c In the **Tags** field, enter tags associated with the endpoint.

With tags, you can deploy content to multiple endpoints at the same time. When you deploy content, you can select a tag instead of individual content endpoint names, and the content deploys to all endpoints that have that tag.

To add multiple tags, press **Enter** after you enter each tag.

- d In the **Sever FQDN/IP** field, enter the fully qualified server name, IP address, or host name for the content endpoint server.
- e Enter a tenant name, user name, and password to use to access this content endpoint.
- f Select an external or embedded vRealize Orchestrator endpoint to associate from the **vRO Server Endpoint** drop-down menu.

When selecting a user account for exporting or importing content into vRealize Suite Lifecycle Manager, ensure that the account has ALL Roles selected. The **Secure Export Consumer** role allows LCM to export passwords which can be imported into alternate vRA endpoints.

- 5 Press **TEST CONNECTION** to test the connection to the content endpoint.

If the connection test fails, verify that the information you entered for the content endpoint is correct and try again.

- 6 Click **Next**.

- 7 Select the appropriate policies for the content endpoint, and click **Next**.

Policy	Description
Allow capturing content packages from this endpoint	Allows you to capture content from this endpoint.
Allow testing content packages on this endpoint	Allows content to be tested on this endpoint and acts as a unit test server where vRealize Orchestrator a workflows test content.
Allow releasing content packages to this endpoint	Allows you to deploy content to production.

- 8 Verify that the content endpoint details are correct, and click **Submit**.

Add a Source Control Endpoint

A source control endpoint represents a project (repository) and a source control server.

You can have any number of source control repositories and branches added to vRealize Suite Lifecycle Manager. Adding a source control branch allows you to check in and check out SDDC content.

Prerequisites

- Verify that a vRealize Suite Lifecycle Manager administrator has added a system source control server under Content Settings.

- Verify that a developer has entered the GitLab access token to the source control server so that they can check-in and check-out content.

Procedure

- 1 On the My Services Dashboard, click **Content Management**.
- 2 Under **Endpoints**, click **NEW ENDPOINT**
- 3 Click **Source Control**.
- 4 Select the configured **Bitbucket server, cloud**, or **Gitlab**.
- 5 Enter the information for the Source Control content endpoint.
 - a In the **Name** field, enter a unique name for the endpoint.
 - b Enter a **Tag** name.
 - c Enter the **Branch** and **Repository Name** to use for the content endpoint in the following format: For GitLab, enter *group_name/repository_name*, Bitbucket server, enter *project_name/repository_name* and for Bitbucket cloud, enter *repository_name*

Note In bitbucket cloud, you can only create a repository and use the repository name. The source control endpoint with a repository needs to be initialized with any file. Gitlab and bitbucket cloud already have a provision to add the file but the bit bucket server does not. With Lifecycle Manager 2.1, cluster and elastic search instance for multi developer story is not supported for bitbucket server.

- 6 Click **Test Connection** and click **Next**.
- 7 Select the appropriate policies for this content endpoint, and click **Next**.

Policy	Description
Enable code review	Allows a manual review between developers. vRealize Suite Lifecycle Manager content lifecycle management creates a branch with the changes that require a code review. A code reviewer can accept or reject the merge request into the branch.

- 8 Verify that the content endpoint details are correct, and click **Submit**.

Add a vCenter Server Content Endpoint

Add a content endpoint to an environment to capture, test, deploy, or check-in a content package.

Prerequisites

Verify that you have added at least one vCenter endpoint in the **Content Settings > vSphere Template Repository** .

Procedure

1 On the My Services Dashboard, click **Content Management**.

2 Under **Endpoints**, click **NEW ENDPOINT**

3 Click **vCenter Server**.

4 Enter the information for the vCenter content endpoint.

a In the **Name** text box, enter a unique name for the endpoint.

b In the **Tags** text box, enter tags associated with the endpoint.

Using tags allow you to deploy a content to multiple endpoints at the same time. When you deploy a content, you can select a tag instead of individual content endpoint names, and the content deploys to all endpoints that have that tag. To add multiple tags, press Enter after you enter each tag.

5 In the Server FQDN/IP text box, enter the fully qualified server name, IP address, or host name for the content endpoint server.

6 To access the endpoint, enter the **User name** and **Password**.

7 Click **Test Connection** and click **Next**.

8 Select the appropriate policies for the content endpoint, and click **Next**.

Policy	Description
Allow content to be captured from this endpoint	Allows you to capture content from this endpoint and mark them as a source content.
Allow unit tests to be run on this endpoint	Allows content to be tested on this endpoint and acts as a unit test server where a vCenter test content is placed.
Mark as Production Endpoint	Allows you to deploy content to production. When you select this check box to mark as a release endpoint, only then Enable vCenter Template support is enabled.
Source-controlled Content only	Allows deployment of content to an Endpoint that comes only from a Source Control branch. Where in the customization specification needed has to be code reviewed and checked in prior before releasing to vCenter Server. This setting is not used for vSphere templates as they are not checked in to the Source Control. The templates have versions in a vSphere Content Library.
Enable vCenter Template Support	When you enable this option, you are prompted with more fields. The vCenter details page stores information of where the template is deployed to, in each vCenter Server. During the release process, the templates are retrieved from the local Content Library and turned into a Virtual Machine Template.

9 Click **Next** and provide the vCenter sever details.

10 Click **Next**.

11 To import an existing data center, click **Import LCM Data center**.

vCenter Server settings can be added to an LCM data center, once vCenter data collection is completed this endpoint is seen when importing from LCM and reduces the time to fill in the form as all the properties have been collected. Except the Virtual Machine folder path that is provides in the format /Templates/MyTemplates/ is not imported.

Once the endpoint is created, it validates if the configuration is correct. It can connect through API and that the configuration of the local subscriber details is setup to point to the publisher as defined in Content Settings/vSphere Template Repository. If there is a problem, then the endpoint is disabled and an error is displayed when you cover of the warning.

Add a vRealize Operations Manager Endpoint

Add a vRealize Operations Manager content endpoint to capture, test, deploy, or check-in a content package.

Prerequisites

- Verify that the SSH user account is configured.
- Verify all vRealize Operations Manager instances contain the same management packs installed and the required adapter instances configured.
- Dashboards that are configured to refer specific objects, for example, vCenter VM, Host or Datastore are not used on the release endpoint until they are manually edited to update the reference to a specific object.

Note Some content may not release between different versions of vRealize Operations Manager where a content from 6.6 to 6.7, some content types may fail.

Procedure

- 1 On the My Services Dashboard, click **Content Management**.
- 2 Under **Endpoints**, click **NEW ENDPOINT**
- 3 Click **vRealize Operations**.
- 4 Enter the information for the vRealize Operations Manager content endpoint.
 - a In the **Name** field, enter a unique name for the endpoint.
 - b Enter a tag name so that endpoint can use them to test or capture.
 - c Enter the **Server FQDN/IP** address.
 - d Enter the **Username** and **Password**.

- e Enter the **SSH Username** and **SSH Password**.
 - f Click **Test Connection** and once the connection is established, click **Next**. For more information on creating an SSH user on the vRealize Operations Manager instance, see [Create an SSH User in vRealize Operations Manager](#).
- 5 Under the **Policy Settings**, select the required options to capture, test, or mark as production.
 - 6 Verify that the content endpoint details are correct, and click **Submit**.

Create an SSH User in vRealize Operations Manager

You can create a vRealize Operations Manager end-point in vRealize Suite Lifecycle Manager Content Management end-point.

- 1 When you are selecting a Root as an SSH user from the content endpoint, create a user on the vRealize Operations Manager appliance. The user must have a SSH access and belong to the user group root and with a valid home directory.
- 2 Log into the vRealize Operations Manager appliance as a root user and create user on the vRealize Operations Manager appliance using below command. `useradd sshuser`.
- 3 Configure user groups for the created user - `usermod -G root,wheel sshuser`
- 4 Configure the correct home directory for the user:

```
mkdir /home/sshuser"
"chown sshuser /home/sshuser"
```

- 5 Set the password to `passwd sshuser`.
- 6 Enable the password with sudo capabilities.

Run command visudo

```
sshuser ALL = NOPASSWD: /usr/lib/vmware-vcopsuite/python/bin/python /usr/lib/vmware-vcops/tools/opscli/ops-cli.py *
sshuser ALL = NOPASSWD: /bin/rm -rf /tmp/*
sshuser ALL = NOPASSWD: /bin/mv /tmp/*
```

Note Use OPS-CLI for most of the vRealize Operations Manager contents to export or import a content capture or release in vRealize Suite Lifecycle Manager.

Delete a Content Endpoint

You can delete an existing content endpoint.

Procedure

- 1 On the My Services Dashboard, click **Content Management**.
- 2 Under **Endpoints**, click the vertical ellipses to the left of the endpoint, and select **Delete**.

You have to manually delete the endpoint.

- 3 Click **OK**.

Edit a Content Endpoint

You can edit the settings of an existing content endpoint.

All content endpoint values can be edited apart from the name, which is used across various logs.

Note When vRealize Suite Lifecycle Manager deploys a vRA instance or a vRA instance is imported into vRealize Suite Lifecycle Manager, then content management services imports Content endpoints (per tenant) automatically through a data collection process. By default, all policies are disabled so you must edit the endpoint and assign appropriate content policies. Only certain set of users can edit a content endpoint, for more information on roles, see [Content Actions](#).

Procedure

- 1 On the My Services Dashboard, click **Content Management**.
- 2 Under **Endpoints**, click the vertical ellipses to the left of the endpoint, and select **Edit**.
- 3 Edit the endpoint details you want to change, and click **Next**.
- 4 Edit the endpoint policy settings you want to change, and click **Next**.
- 5 Verify that the content endpoint details are correct, and click **Submit**.

Managing Content

Content is a collection of files that contains definitions that represent software defined services.

After you add a content endpoint to one or more environments, you can manage the software-defined content that each environment contains. You can use vRealize Suite Lifecycle Manager to perform the following operations on content:

- Capture content from an endpoint
- Deploy to test and run unit tests
- Check-in content
- Release content to production

For example, a YAML file for a vRealize Automation blueprint or an XML file for a vRealize Orchestrator workflow. Content is linked together so that when you capture a vRealize Automation blueprint, all dependencies are also displayed in the content catalog, and they can each have their own versions. vRealize Suite Lifecycle Manager displays dependency information within each content version. The / Characters cannot be used in the name for Topology or Text ResourceKind Metrics as the export fails.

vRealize Suite Lifecycle Manager does not support an Azure machine in content management for testing and releasing content. XaaS blueprint "Azure Machine" is shipped by default with vRealize Automation. However, transfer of XaaS blueprint between vRealize Automation environments is not supported.

Content Issues that you might encounter

- When transferring a customization spec between vCenter servers the password fields cannot be decrypted by the target. This causes deployments that depend on custom specs with passwords to fail. You can manually enter the correct value in the Administrator password field after customization spec is deployed by the Lifecycle Manager pipeline.
- When a symptom definition is setup with REGEX or NOT_REGEX, the import fails using the vRealize Operations Manager APIs with the following error.
Error releasing Operations-Symptom message= "Invalid request... #1 violations found.", "validationFailures": [{"failureMessage": "Message Event Condition field 'operator' must be either EQ or CONTAINS."} If a symptom uses REGEX, the content needs to be imported manually through Lifecycle Manager UI.
- Content release from different versions of vRealize Operations Manager may fail. For example, content from 6.6 to 6.7 some content types may fail.
- When transferring a customization spec between vCenter servers, the password fields cannot be decrypted by the target. This causes deployments that depend on custom specs with passwords to fail. You can manually enter the correct value in the Administrator password field after customization spec is deployed by the Lifecycle Manager pipeline.
- [Add Content](#)
 You can add content from an existing content endpoint.
- [Delete Multiple Content](#)
 With vRealize Suite Lifecycle Manager 8.0, you can delete multiple content items and content versions. The multi delete feature can delete all the versions related to the selected content item.
- [Working with Captured Content](#)
 You can capture a new version of an existing content package.
- [Content Actions](#)
 After you capture a content, you can perform and view the activity of a content.
- [Content Types Available for Products](#)
 The content packages available for each endpoint are displayed in the following tables.
- [Searching Content](#)
 You can search an existing content based on certain defined entries within the UI.
- [Test Content](#)
 You can test content to ensure it is ready for release.

- [Source Control with vRealize Suite Lifecycle Manager Content Lifecycle Management](#)

vRealize Suite Lifecycle Manager content lifecycle management integrates natively into a defined GitLab and Bitbucket branch endpoint to provide source control for content.

- [Deploy a Content Package](#)

Deploy a content package when it is ready for a production environment.

- [Multi Release of Content Package](#)

vRealize Suite Lifecycle Manager 8.0 content management allows the bulk release of content spanning different types where vSphere, vRealize Operations Manager, and vRealize Automation are deployed in one request. It provides an advanced filter option on the content type that is established from a specific content endpoint.

- [Delete a Content Package](#)

You can delete a content package from all endpoints when you no longer need the content package.

Add Content

You can add content from an existing content endpoint.

Prerequisites

Verify that you have added a content endpoint.

Procedure

- 1 On the My Services Dashboard, click **Content Management**.

- 2 Under **Content**, click **ADD CONTENT**.

If a version has already been captured, a content can be added either with the **Add Content** button or with an inline capture.

- 3 Select test or deploy the content package in addition to capturing it, and click **PROCEED**.

- 4 Enter the capture details for the content package.

- a From the **Select Capture Endpoint** drop-down menu, you can either select one or multiple content types to capture content.

- b Enter a tag name and select **Include all dependencies** to capture any dependencies associated with the content.

You can search for content by tag within the UI/API.

- c Enter the **vRO Package Name**. Any spaces in the name are replaced with an _ underscore character and a vRO package name.

The vRO Package Name is applicable only for vRealize Orchestrator or vRealize Automation content having some vRealize Orchestrator dependencies. The field is used for managing vRealize Orchestrator contents in an efficient way. If you provide any new name, then all the vRealize Orchestrator contents will be merged to one package. If you select an existing name from the drop-down menu, then a new version of the package will be created and merges all vRealize Orchestrator contents to the version. If there exists a package version already from that endpoint, the new version will have old contents in the previous version with new contents. This helps you to work incrementally on vRealize Orchestrator contents.

If the vRealize Orchestrator package is not captured prior from a given content endpoint, then a new version is created but the content might not be the same as the previous version. Deploy the added vRealize Orchestrator package to the vRealize Orchestrator content endpoint first to append the content. If you do not enter any package name, then the name of the vRealize Orchestrator package matches to the content that is captured with an added "-vro" as part of the name. All the discovered and captured vRealize Orchestrator content, including individual workflows in the content files, appears in the vRealize Orchestrator package that is created.

- d If the content is ready for production, select **Mark this version as production ready**.
- e Enter a description for this content version in the **Comments** field.
- f Click **Next**.

Note When you list the content for the first time for an endpoint, the UI retrieves the content from the endpoint. However, once you have captured then the content is cached and an auto refresh of content list runs in the background every 30 minutes. You can select the **Get latest content** option to retrieve the content in between this time.

5 Enter test details for the content endpoint.

This option appears only if you chose to test the content package.

- a Select one or more content endpoints to specify the environments to run tests on.
- b Select **Deploy Content** to deploy the content in the endpoint before running tests.
- c Select **Stop test deployment on first failure** to stop the test deployment when it encounters an error.
- d Select **Run unit tests** to run available unit tests on the content.
- e Select **Stop unit tests on first failure** to stop testing if any unit test fails.
- f Select a server to run unit tests on from the **Select a Unit Test Server** drop-down menu.

You must have a vRealize Orchestrator test package imported to use a unit test server.

- g Click **Next**.

6 Enter the check-in details for the content package.

This option appears only if you chose to check-in the content package.

- a Select one or more content endpoints from the **Select Release Endpoints** drop-down menu to specify the production environments where the system releases the content.

7 Click **SUBMIT**.

If you have selected a single content capture, then you can view a single content pipeline. If you have selected multiple content capture, then you can see the individual capture pipelines triggered for each of the content.

Delete Multiple Content

With vRealize Suite Lifecycle Manager 8.0, you can delete multiple content items and content versions. The multi delete feature can delete all the versions related to the selected content item.

Prerequisites

Verify that you have a content item already available in the content list.

Procedure

- 1** On the My Services dashboard, click **Content Management**.
- 2** Under Content, select the content item on the check box.
- 3** Click **Actions** and select **Delete**.

When you delete the content item, the associated content versions are also deleted. If there is more than one content item, then you can select all and click delete. You can perform the multi-delete operation for upto 15 content items.

Working with Captured Content

You can capture a new version of an existing content package.

Procedure

- 1** On the My Services Dashboard, click **Content Management**.
- 2** Under **Content**, click the name of the content package to capture and click **CAPTURE**.
- 3** From the **Select Capture Endpoint** drop-down menu, select the content endpoint to capture from.
- 4** Select **Include all dependencies** to capture any dependencies associated with the content.
- 5** If the content is ready for production, select **Mark this version as production ready**.
- 6** Enter a description for this content version in the **Comments** field, and click **CAPTURE**.

Content Actions

After you capture a content, you can perform and view the activity of a content.

Deploying a Content

Content Settings	Role	Expected Behavior
Content version is production ready	Release Manager	You can view only production endpoints.
Content version is production ready	Developer	You can test endpoints that have the Test policy set, and it cannot include the Production policy.
Content version is NOT marked as production ready	Release Manager Developer	You can view the test endpoints that have the Test policy set.
Content version is NOT marked as SourceControlled	Release Manager Developer	You can view the content endpoints that do not have the Source Control policy set on the content endpoint.
Content version is marked as SourceControlled	Release Manager Developer	All the content endpoints are displayed based on other conditions in this table.

Managing Tags

Tags can be managed at a given version to navigate content within the UI. These tags can be useful as a grouping mechanism when future capability of releasing all content by tag is supported.

Content Types Available for Products

The content packages available for each endpoint are displayed in the following tables.

Content Types

Table 4-1. vSphere Content Endpoint

Type	Value	Description
vSphere-CustomSpecification	vSphere vCenter 6.0+	Captures guest operating system settings saved in a specification that you can apply when cloning virtual machines or deploying from templates.
vSphere-Template	vSphere vCenter 6.0 +	Captures template to deploy virtual machines in the vCenter Server inventory.

Table 4-2. vRealize Automation Content Endpoint

Type	Value	Description
Automation- CompositeBlueprint	vRealize Automation version 7.0+	Captures a vRealize Automation composite blueprint to deploy virtual machines managed by vRealize Automation.
Automation- Componentprofile	vRealize Automation version 7.0+	Captures a vRealize Automation component profile .
Automation- PropertyDefinition	vRealize Automation version 7.0+	Captures a vRealize Automation property definition for specifying custom properties.
Automation-PropertyGroup	vRealize Automation version 7.0+	Captures a vRealize Automation property group to group custom properties.

Table 4-2. vRealize Automation Content Endpoint (continued)

Type	Value	Description
Automation-ResourceAction	vRealize Automation version 7.0+	Captures a vRealize Automation resource actions.
Automation-Software	vRealize Automation version 7.0+	Captures vRealize Automation software component settings that govern how middleware or applications are installed, configured, and uninstalled.
Automation-Subscription	vRealize Automation version 7.0+	Captures vRealize Automation subscription events that are triggered using the event broker. Captures the configured event and dependent workflows.
Automation-XaaSBlueprint	vRealize Automation version 7.0+	Captures vRealize Automation XaaS blueprints.
Automation-CustomForm	vRealize Automation version 7.4+	Captures vRealize Automation Customer form.
Automation-ResourceType	vRealize Automation version 7.2+	Captures vRealize Automation Resource Types.
Automation-ResourceMap	vRealize Automation version 7.2+	Captures vRealize Automation Resource Maps.

Table 4-3. vRealize Operations Manager Content Endpoint

Type	Value	Description
Operations Alert	vRealize Operations Manager 6.6.1+	Captures vRealize Operations alerts containing symptom definitions and recommendations that are used to evaluate conditions and generate alerts.
Operations-Dashboard	vRealize Operations Manager 6.6.1+	Captures vRealize Operations alerts dashboard data used to determine the nature and timeframe of existing and potential issues.
Operations-Report	vRealize Operations Manager 6.6.1+	Captures vRealize Operations report templates
Operations-SuperMetric	vRealize Operations Manager 6.6.1+	Integrates vRealize Operations super metric data definition that is used to track combinations of metrics. After releasing Super Metrics, assigning the one or more object types and enabling the super metric in policies are still required. All vRealize Operations package types also support .Super Metrics, which means dashboards, alerts, vIEWS, and metric configurations automatically point to the correct super metric at the time of release.
Operations- TextWidgetContent	vRealize Operations Manager 6.6.1+	Reads text from a Web page or text file. You specify the URL of the Web page or the name of the text file when you configure the Text widget.
Operations- TopoWidgetConfig	vRealize Operations Manager 6.6.1+	Captures the structure of the topography around a specific resource, including parent and child resources.

Table 4-3. vRealize Operations Manager Content Endpoint (continued)

Type	Value	Description
Operations-View	vRealize Operations Manager 6.6.1+	Captures vRealize Operations views that help you to interpret metrics, properties, and policies of various monitored objects.
Operations-ResourceKindMetricConfig	vRealize Operations Manager 6.6.1+	Captures vRealize Operations metric configurations for particular adapter and object types so that the supported widgets are populated based on the configured metrics and selected object type.
Operations-Symptoms	vRealize Operations Manager 6.6.1+	Captures the operation symptoms.

Table 4-4. vRealize Orchestrator Content Endpoint

Type	Value	Description
Orchestrator-Action	vRealize Orchestrator version 7.0+	Captures a vRealize Orchestrator action.
Orchestrator-ConfigurationElement	vRealize Orchestrator version 7.0+	Captures a vRealize Orchestrator configuration element.
Orchestrator-Package	vRealize Orchestrator version 7.0+	Captures a vRealize Orchestrator package.
Orchestrator-Workflow	vRealize Orchestrator version 7.0+	Captures a vRealize Orchestrator workflow.

Searching Content

You can search an existing content based on certain defined entries within the UI.

- Content dependencies and dependency files can be seen by clicking the version and looking at the DEPENDENCIES tab.
- By clicking each file, you can download it from the content repository within vRealize Suite Lifecycle Manager.

Test Content

You can test content to ensure it is ready for release.

Prerequisites

Verify that the content package has been added to vRealize Suite Lifecycle Manager.

Procedure

- 1 On the My Services Dashboard, click **Content Management**.
- 2 Under **Content**, click the name of the content package to capture.
- 3 Click the three horizontal dots to the right of the version to test, and select **Test**.

- 4 Select one or more content endpoints to specify the environments to run tests on.
- 5 Select **Deploy Content** to deploy the content in the endpoint before running tests.
- 6 Select **Stop test deployment on first failure** to stop the test deployment as soon as it encounters an error.
- 7 Select **Run unit tests** to run available unit tests on the content.
- 8 Select **Stop unit tests on first failure** to stop testing if any unit test fails.
- 9 Select **Include all dependencies** to include all dependencies associated with the content package in the tests.
- 10 Select **Release Latest Dependencies** to release the latest versions of the dependencies associated with the content package.
- 11 Select a server to run unit tests on from the **Select a Unit Test Server** drop-down menu, and click **PROCEED**.

Performing Unit Tests

When you create a content endpoint, you can select **supportTest** policy to enable the system to run unit tests after deploying a content to the test environment.

There are two servers here:

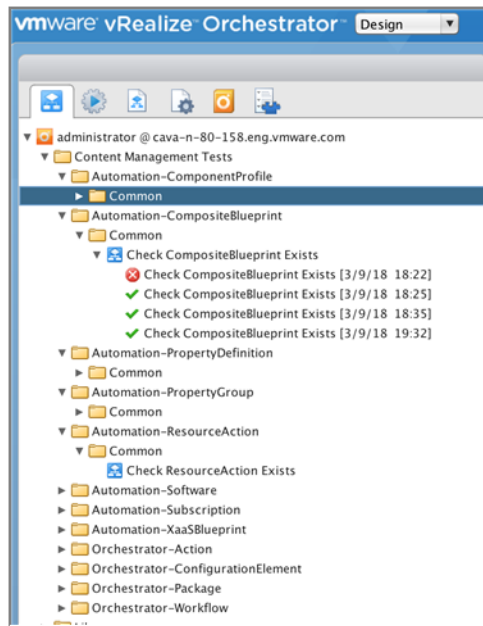
- Unit test server
- Test endpoint

The server is a staging environment in which you can deploy the contents and run unit tests against the deployed contents to the environment.

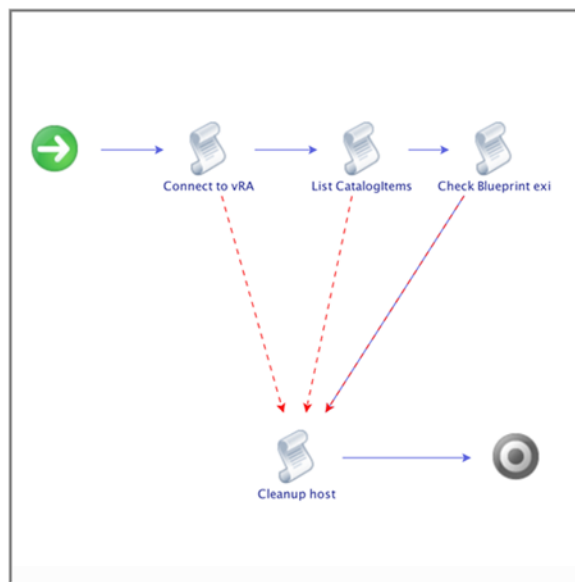
Unit Test Server

The test server is a vRO server, where you can run your unit tests against a deployed content in a test endpoint. Whenever you set an orchestrator endpoint as a test endpoint, it tests the vRealize Orchestrator package and is deployed automatically to this endpoint allowing unit or integration tests. There are some basic tests already present in the package and you can extend the tests in the unit test server as well.

Menu options for Unit Test Server



Sample Unit Test Flow



Common Tests

All tests under the PackageType Common folder are run.

If you go to the unit test server (vRO), under the **Content Management Tests**, you can view separate folders for all content types. For each content type folder, there is a **common** folder present where you see all the common workflows that are run for a given content type.

Package Specific Tests

Specific tests can be run per content name as well. For example, if an Automation-XaaSBlueprint content called "Add AD User" requests a unit test called "Add AD User - Test 1" can be created, which can connect to a given Content endpoint, and run the XaaS Blueprint and wait to see if it was successful. The format of tests is:

<content name – test name> and under the <Content-Type> folder.

Whenever you select the unit server while testing content, the new unit tests is also run based on the content type against the deployed content in a test endpoint.

The following lists the overall functionality of unit tests:

- Common unit tests workflows can be written under **common** folder per content type
- Unit test workflow for a given content can be written under <Content Type> and name the workflow as <Content name> – <Tests name>.
- If there is a test failure, then the test displays an error from a workflow.
- Checks the available inputs to test a workflow

Sample Workflows

You can refer to the existing unit workflows available in their vRealize Orchestrator (policy set to test). Navigate to a common folder in vRealize Orchestrator, **Workflows > Content Management Tests > Content Type > Common**.

Input properties available for a unit test workflow that is provided by the platform.

Property Name	Description
version	Version of content being tested.
testEndpointLink	The content endpoint link within the repository.
tenant	The tenant being connected to.
packageVersionLink	The version link to the repository.
packageType	Type of Content. Automation-CompositeBlueprint.
packageName	Content Name
packageId	Content Unique Identifier in the repository.
endpointUser	The username of the endpoint being tested against.
endpointServer	The server name of the endpoint being tested against.
endpointPassword	The password (SecureString) of the endpoint being tested against.

Source Control with vRealize Suite Lifecycle Manager Content Lifecycle Management

vRealize Suite Lifecycle Manager content lifecycle management integrates natively into a defined GitLab and Bitbucket branch endpoint to provide source control for content.

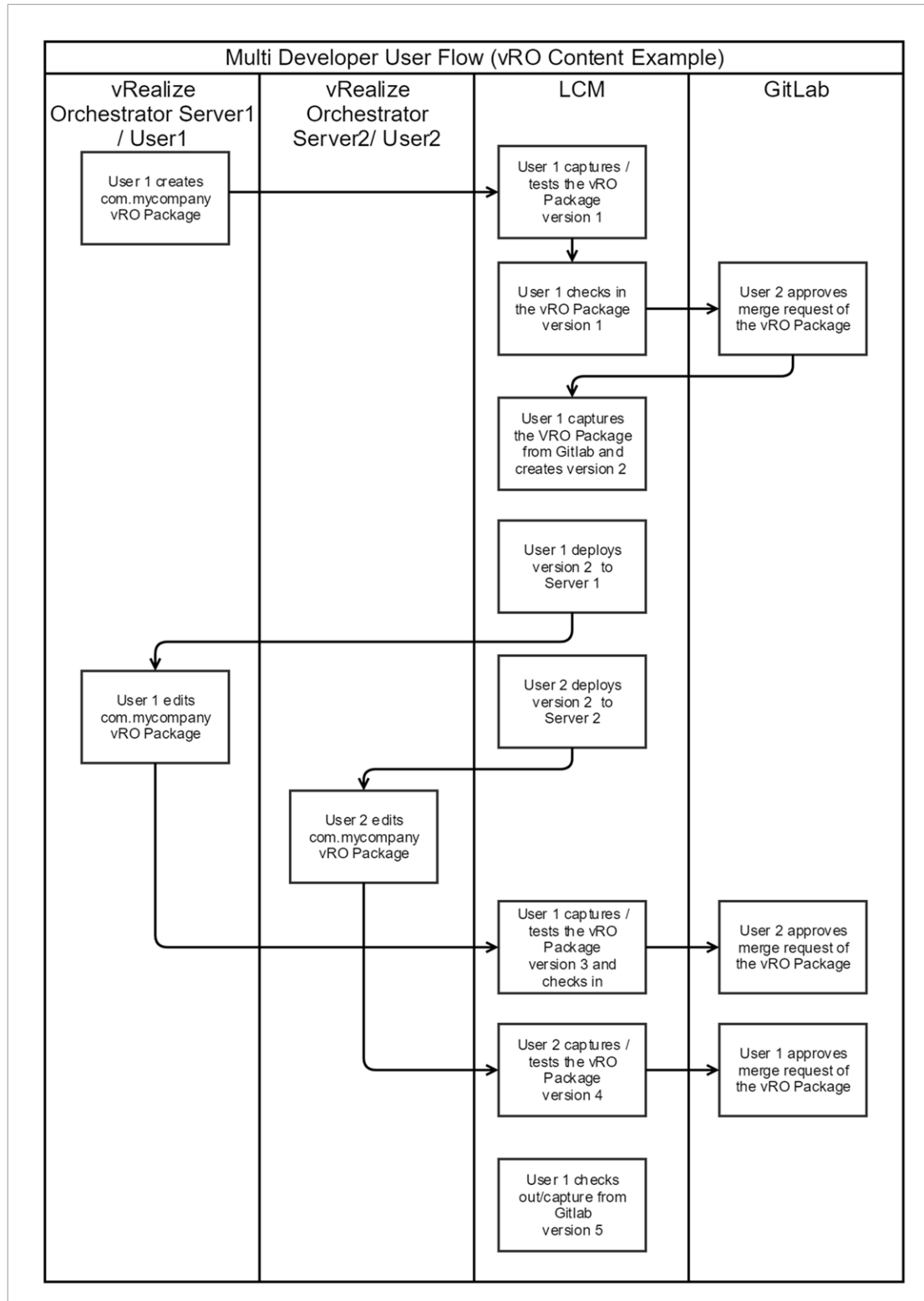
You can store content in both the vRealize Suite Lifecycle Manager version-controlled repository and a GitLab or Bitbucket branch. This allows developers to work together to check in and check out content, and to code review changes prior to deploying to test or production environments.

vRealize Suite Lifecycle Manager stores all source control commit hashes for the purpose of check in, so the correct state of content is known. This enables multi-developer support, which reduces the risk of overwriting content and reduces the number of merge conflicts that can occur.

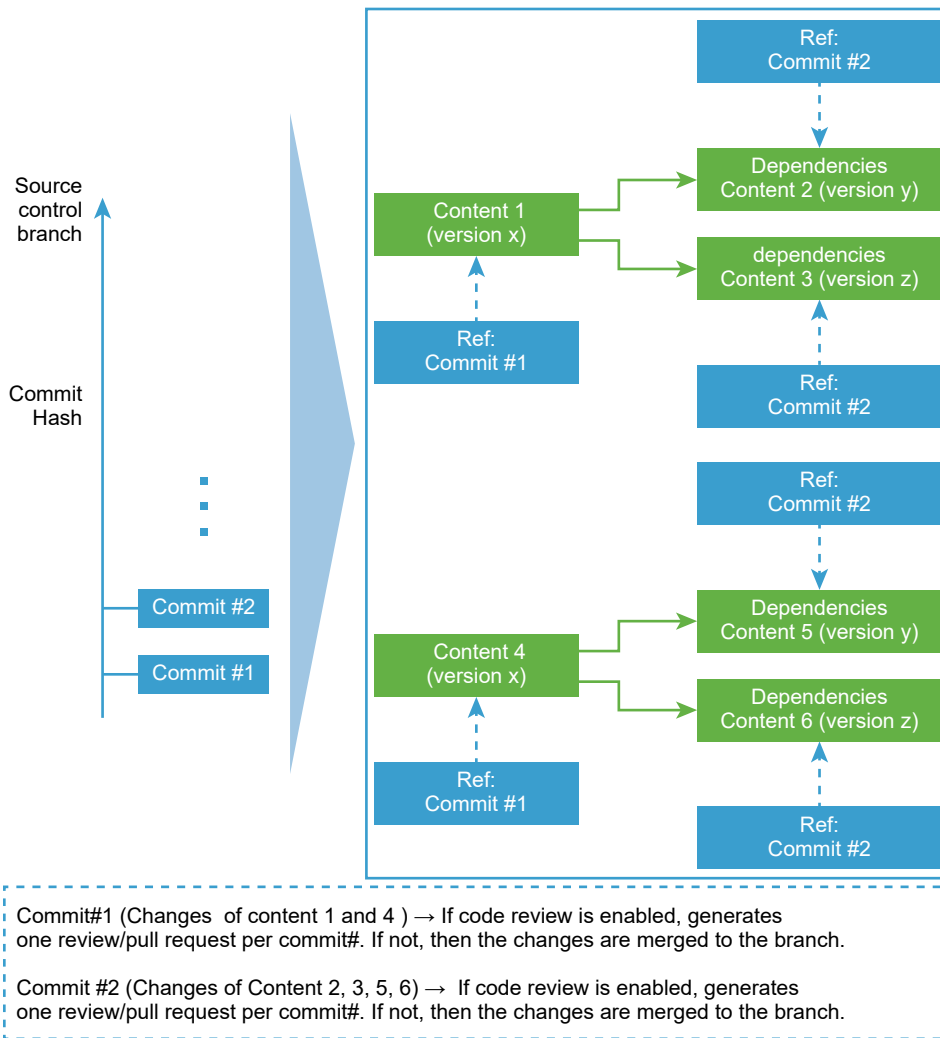
To use source control in vRealize Suite Lifecycle Manager, you must meet the following prerequisites:

- Verify that you have a GitLab or Bitbucket server. If you do not have an existing GitLab server, you can use the Gitlab-CE free docker container.
- Verify that at least one vRealize Suite Lifecycle Manager user has access to GitLab or Bitbucket.
- Create a branch in GitLab and apply the necessary permissions in GitLab for other developers to check in and check out content to the branch.
- The GitLab user must create an access token in GitLab and store the token against the GitLab instance under vRealize Suite Lifecycle Manager **Content Settings**.

It is a best practice when each time the content is checked in to source control, and new version should be checked out and deployed to a content endpoint. This saves the latest changes from other developers (effective rebase of the content) and also communicates to the vRealize Suite Lifecycle Manager content services which GIT Commit Hash is deployed to which content per endpoint. However, when you are capturing content from GitLab server, the checkout works if you are using the GitLab version 11.6.5 or earlier. The checkout fails if you are using GitLab version higher than 11.6.5.



Contents referring to multiple commit hashes



Check in Content to a Source Control Endpoint

You can check-in the previously captured content to a source control endpoint.

Prerequisites

Verify that you have added a source control endpoint to vRealize Suite Lifecycle Manager. See [Source Control with vRealize Suite Lifecycle Manager Content Lifecycle Management](#) for source control requirements.

Procedure

- 1 On the My Services Dashboard, click **Content Management**.
- 2 Under **Content**, click the name of the content package to capture.
- 3 Click the name of the content package to test.
- 4 Click the three vertical dots to the right of the version to check in, and select **Checkin**.

- 5 Select a content endpoint to check the content package in to.
- 6 Select **Include all dependencies** to include all dependencies associated with the content package in the check-in.
- 7 Add a descriptive comment in the **Comment** field, and click **CHECK IN**.

Note Adding a check-in comment is mandatory.

When checking in a vRO package, there is an optional capability to merge with an existing vRO package that exists in the source control. This ensures that all files that are captured are checked into the path of the selected package (ultimately merged). If you do not see the package, then **Select the Source Control Endpoint > Orchestrator-Package type**, refresh the cache and check- in to view the vRO package in which it needs to be merged. You have the following new features added when you check in an Orchestrator package:

- You can merge a custom orchestrator-package from an endpoint to an uber package version in LCM.
- The ability to merge a custom Orchestrator-package directly to an uber package in GitLab.
- You can release a subset of contents from an Orchestrator-package while deploying to an endpoint.
- As part of the dependency management, you can remove dependency from a content version.

For a vRealize Automation content check-in, you can merge directly on GitLab. You can check out without dependency or check out with dependency, where you can perform the following:

- You can remove the package dependency from the latest version. For example, if you have performed a vRealize Automation content check in with dependency and enabled the option to merge the dependent Orchestrator-Package to an uber package directly on GitLab. When you check-out the same Automation content with dependency from a source control.
-

Results

If a code review is disabled on the source control branch, the content is auto merged.

What to do next

If a code review is enabled on the source control branch, you or another code reviewer must check the content in to GitLab manually after the code review is complete. After you check the content into GitLab, capture the latest content version from the source control server in vRealize Suite Lifecycle Manager.

If you are continuing to develop on your content endpoint, capture the latest content version from source control and deploy it to your development content endpoint. This updates the content endpoint so that the content is in sync with the source control and subsequent check-ins are valid.

You can view the check in status in the **Activity Log**.

Check Out Content from a Source Control Endpoint

After a content is checked in to a source control endpoint, you can check out the content and deploy it to a content endpoint. When the content is checked out from Source Control, the content is marked with the Git Hash Code for reference.

Prerequisites

Verify that the content has been checked in to the source control endpoint. See [Check in Content to a Source Control Endpoint](#).

Procedure

- 1 On the My Services Dashboard, click **Content Management**.
- 2 Under **Content**, click **ADD CONTENT**.

Note You can check out the content inline as well.

- 3 Choose whether to test or deploy the content package in addition to capturing it, and click **PROCEED**.
- 4 Enter the capture details for the content package.
 - a From the **Select Capture Endpoint** drop-down menu, select the source control endpoint to capture content from.
 - b Select **Get the latest content** to retrieve the latest content dependencies rather than the dependencies the content was initially captured with.
 - c Select the content type and content to capture.
 - d Select **Include all dependencies** to capture any dependencies associated with the content.

Dependencies are stored in vRealize Suite Lifecycle Manager, not the source control endpoint.
 - e If the content is ready for production, select **Mark this version as production ready**.
 - f Enter a description for this content version in the **Comments** field.
 - g Click **Next**.

5 Enter test details for the content endpoint.

This option appears only if you selected to test the content package.

- a Select one or more content endpoints to specify the environments to run tests on.
- b Select **Deploy Content** to deploy the content in the endpoint before running tests.
- c Select **Stop test deployment on first failure** to stop the test deployment as soon as it encounters an error.
- d Select **Run unit tests** to run available unit tests on the content.
- e Select **Stop unit tests on first failure** to stop testing if any unit test fails.
- f Select a server to run unit tests on from the **Select a Unit Test Server** drop-down menu.
You must have a vRealize Orchestrator test package imported to use a unit test server.
- g Click **Next**.

6 Enter deployment details for the content package.

This option appears only if you chose to test the content package.

- a Select one or more content endpoints from the **Select Release Endpoints** drop-down menu to specify the production environments where the system releases the content.
- b Select **Stop release deployment on first failure** to stop deployment as soon as the system encounters a failure.
- c Enter a comment that explains why the content is being released in the **Release Comment** field as writing comments are mandatory.

7 Click **SUBMIT**.**Results**

vRealize Suite Lifecycle Manager captures the content from the source control endpoint and creates a new version of the content in the content catalog. This version is marked **SourceControl Enabled**, which tells vRealize Suite Lifecycle Manager the state of the content when deploying to a content endpoint so the content is checked in against the right point in time.

What to do next

If you are using source control and have multiple capture content endpoints, only deploy content from the content catalog is marked **SourceControl Enabled**. This communicates the state of the content when deploying to a content endpoint so the content is checked in against the right point in time.

Deploy a Content Package

Deploy a content package when it is ready for a production environment.

Prerequisites

- Verify that the production environment has been added as a content endpoint.

- Verify that the content is ready for a production environment.

Procedure

- 1 On the My Services Dashboard, click **Content Management**.
- 2 Click **Content** and click the name of the content package to deploy.
- 3 Click **DEPLOY** for the version to deploy.
- 4 Select one or more content endpoints from the **Select Release Endpoints** drop-down menu to specify the production environments where the system releases the content.
- 5 Select **Stop release deployment on first failure** to stop a deployment as soon as the system encounters a failure.
- 6 Select **Include all dependencies** to deploy all dependencies associated with the content package.
- 7 Select **Release Latest Dependencies** to release the latest versions of the dependencies associated with the content package.
- 8 Enter a comment that explains why the content is being released in the **Release Comment** field, and click **PROCEED**.

Multi Release of Content Package

vRealize Suite Lifecycle Manager 8.0 content management allows the bulk release of content spanning different types where vSphere, vRealize Operations Manager, and vRealize Automation are deployed in one request. It provides an advanced filter option on the content type that is established from a specific content endpoint.

Multi contents are selected as part of a multi release request. Failure to deploy one of the selected contents, will not roll back deployed contents which are part of that request.

Procedure

- 1 On the My Services Dashboard, click **Content Management**.
- 2 Under **Content**, select **Content Item**.
- 3 Expand the **Filter Applied** tree.

- 4 Under the Content Filter section, you can filter by a single tag or multiple tags, Type, Endpoint, and Policy to get to a subset of the content you want to view and deploy.

Filter Type	Description
Content Filters	<p>This section lists the content filters.</p> <ul style="list-style-type: none"> ■ Production Ready ■ Development Content ■ Tested ■ Source Controlled ■ Dependencies Captured
Content Types	This section lists the Content category based on the content type.
Content Endpoints	This section lists all the associated Content Endpoints.

- 5 After you select a content filter, you can add a tag and then click **Apply**.

A tag is associated when a content is created. A tag-based filter is useful when you want to search. However, you can still add the tag even after creating content. You can also manage bulk tags for all content and older versions.

- 6 To save your filters, click **Save**.

Developers can only view their filters and release managers can view all other RM filters. The saved filters can be edited or deleted.

After you set the content filters, the default content view changes to **Content Version**. When you provide a filter, you can locate a specific version of the content, for example, Production Ready Content with a specific tag and of a specific set of content types. For example, display only vSphere templates, vRealize Operations Manager dashboards and vRealize Automation Blueprints.

- 7 To deploy the content to a release endpoint, follow the wizard.

- 8 Click **Actions** and select **Checkin**.

Note With Lifecycle Manager 8, you can now check-in multiple content after filtering and selecting contents. When you are performing a multi-capture, test and release, verify that all the capture is successful because if one of the content capture fails, the entire content pipeline is marked as failed. Based on multi-capture pipeline failure, you cannot move to the next step of testing and releasing a pipeline.

- 9 To check in multiple content.

- a Select an **Endpoint repository**.
- b if you want to capture all the dependencies, select **Include all Dependencies** and merge the vRO package, if required.
- c Click **Check-in**.

10 Select an appropriate endpoint to each type of content appears.

Note Orchestrator endpoints are assumed by their parent automation instance. If there are standalone Orchestrator endpoints configured, then you can also deploy them.

Delete a Content Package

You can delete a content package from all endpoints when you no longer need the content package.

This operation cannot be undone.

Prerequisites

- Verify that one or more content endpoints are added.
- Verify that the content package is present in the deployment.

Procedure

- 1 On the My Services Dashboard, click **Content Management**.
- 2 Click **Content** and click the name of the content package to delete.
- 3 Click the three horizontal dots to the right of the version and select **Delete**.
- 4 Click **OK**.

For the changes to appear on the UI, refresh the page.

Access Source Control

Only a release manager can add a source control access, where in the source control can be GitLab or Bitbucket. With this privilege, a release manager can select the GitLab type, Bitbucket and enter the gitLab server name. You can supply multiple server names and then use the git lab personal access token and assign it to the source control server.

By enabling access source control, you can add an endpoint for a source control. For information on adding a source control, see [Add a Source Control Server Endpoint](#). Release manager can add a source control server. But any developer logged-in to vRealize Suite Lifecycle Manager has to associate their token to the server to access the source control server.

Managing Source Control Server Endpoints

Before you can check in or check out content, a vRealize Suite Lifecycle Manager must add a GitLab or Bitbucket source control server to the system.

- [Add a Source Control Server Endpoint](#)

To add a source control server to the system, add a source control server endpoint.

■ Delete a Source Control Server Endpoint

You can delete a source control server endpoint that is no longer in use.

Add a Source Control Server Endpoint

To add a source control server to the system, add a source control server endpoint.

When you disable the file editor option then the bitbucket API (PUT/POST) does not work for an admin or a developer. Either do not include the below property (feature.file.editor) in the property files or if this is included then ensure that the property is set to true.

Location: <base_directory>\Atlassian\ApplicationData\Bitbucket\shared
\bitbucket.properties

Properties: feature.file.editor=true

Prerequisites

- Verify that you have a Bitbucket and GitLab instance (GitLab Community Edition/Enterprise Editions version 10.5.6+) and is supported for this version of vRealize Suite Lifecycle Manager.
- Log in to GitLab or Bitbucket and generate an access token for your user with all scopes enabled. Copy and save this one-time token from GitLab.
- Log in to GitLab or Bitbucket and verify you have group, project and branch created in GitLab before adding it as a source control endpoint.

Procedure

- 1 On the My Services Dashboard, click **Content Management**.
- 2 Click **Content Settings**.
- 3 On the **Source Control Access** tab, click **ADD SOURCE CONTROL SERVER**.
- 4 Select the **Source Control Type**.

Note With vRealize Suite Lifecycle Manager 8.0, you can now select Bitbucket Server or Bitbucket Cloud.

- 5 Enter the IP address or fully qualified domain name of the server, and click **SUBMIT**.

vRealize Suite Lifecycle Manager uses https scheme for any Source Control APIs by default. If you have not enabled https on the GitLab instance, then specify http://<ip address>:<port> in the source control server under the content settings page to change the scheme. When you create source control endpoint, the repository needs to be specified in <GroupName>/<ProjectName> form. Whenever multiple developers are working on the bitbucket repository then the performance is slow in the bitbucket enterprise version. Therefore, you can use at least 4vCPU machine of bitbucket.

- 6 Click the pencil icon for the source control server.

- 7 Enter your GitLab access token in the **ACCESS KEY** field, and click **SUBMIT**.

An access token is a unique identity for a user to perform check-in or check-out to track the GitLab API. To create a access token for Gitlab, access the gitlab.eng.vmware.com and create a token name. For Bitbucket Server and Cloud, browse to bitbucket.org.com and navigate to App Passwords to create a password with full permissions.

Delete a Source Control Server Endpoint

You can delete a source control server endpoint that is no longer in use.

Prerequisites

Verify that the source control server endpoint is not being used by any content endpoints.

Procedure

- 1 On the My Services Dashboard, click **Content Management**.
- 2 Click **Content Settings**.
- 3 On the **Source Control Access** tab, click the trash icon for the source control server endpoint to delete.
- 4 Click **OK**.

Working with Content Settings

You can add source control server endpoint, vCenter publisher, pipeline extensibility and developer restrictions in Content Settings.

Source Control Access

To add a source control endpoint, provide a server for that source control from GitLab. For more information, see [Add a Source Control Server Endpoint](#).

Note You can add multiple server names for a source control server endpoint and only GitLab source control is supported for this version.

vSphere Template Repository

Starting with vRealize Suite Lifecycle Manager 1.3 and later, you can capture content from vSphere vCenter Server, the vSphere Template Repository is a Content Library within a designated vCenter instance that will store all the templates that are captured in which they can be managed from LCM. A best practice is to have this vCenter instance close to where the

templates would typically be captured, that is a development vCenter for template authoring. You can go back to Endpoints and select vCenter to add as your endpoint. For more information, see [Add a vCenter Server Content Endpoint](#). The model for the Content Library Configuration is the following:

- 1 Create the Content Library (Publisher): The vSphere Template Repository points to a Content Library that is set up for publishing. For more details on how to setup a publisher Content Library, see [vCenter Documentation](#).
- 2 Create Content Library Subscribers: Each vCenter server that opts for a template support requires a Content Library to be configured which will Subscribe to the Published Library configured in Step 1. The following settings are required:

Setting	Description
Automatic Synchronization	You can enable this setting for automatic synchronization of the template metadata.
Subscription URL	This URL contains details about the publishers <code>lib.json</code> file. This will be available when you create a publisher in Step 1.
Authentication Disabled	Disabled
Library content	<ul style="list-style-type: none"> ■ Download all library immediately - If you don't select this option then vCenter will download ALL virtual machine templates. ■ Download library content only when needed - Only the metadata is downloaded (not the disks). vRealize Suite Lifecycle Manager instructs on demand and as requested to download the associated disks

Developer Restrictions

Content tags are useful for a variety of reasons, to locate content within the UI, that is when you find all content with "BugFix-Task-1" tag or can be used for custom business logic during the release pipeline.

An example of this may be custom business logic implemented by a release manager - Don't Deploy Content to Endpoint B unless the Content has been deployed to Endpoint A, first this requires a custom pipeline/workflow to be implemented. If this rule is to be bypassed, for example, for Release Managers to push Content straight to Endpoint B then a tag could be applied to the content. This tag should only be added by a Release Manager and not a Developer.

Working with Content Pipelines

Pipeline stubs are used to support the pipeline extensibility use case in content-management. The pipeline process can be extended by adding a custom logic in pre or post stages of capture, test, or deploy. The custom logic can be created as a vRealize Orchestrator workflow, which can then be mapped to a pre or post stub. Pre and Post stubs are executed before and after, respectively for a given stage.

The content pipeline supports the pre or post stubs:

- Pre-Capture

- Post-Capture
- Pre-Test
- Post-Test
- Pre-Release
- Post-Release

Each pipeline is made up of various **Stages**, each stage then can have various **Tasks**. Tasks can be either parallel or sequential based on your custom business logic.

Content pipeline runs pre-stub and post-stub based on run in the background flag. If it is enabled, then a call is not a synchronized call and the content pipeline does not wait for the status of the stub. Similarly, if it is disabled, then the call is a synchronized call and content pipeline does wait for the status of the stub. It takes more time as compared to a disabled background process.

Note At a time, only 15 content pipelines can run at a time. Some parameters are empty in Lifecycle Manager 8.0 on pipelines stubs. If you still want to use the pipelines, then use the `packageVersionLink` to retrieve the package version details like `packageName`, `packageType`, and so on. And you can also perform similar operation using pre and post-test stubs.

Configure Pipeline Stub

Pipeline stubs can be executed in a synchronous or an asynchronous manner. When running a stub in an asynchronous manner other pipeline stages are executed without waiting for the custom logic to complete. For instance, a Pre-Capture configured to run asynchronously executes in parallel with the Capture stage. However, a Post-Capture stage's execution is triggered only after the Capture stage is executed, but can be made to run in parallel with the next scheduled stage such as pre-test.

To associate a tag to a vRealize Orchestrator workflow, the global custom tag name of workflow and value can either be manually edited to include `vRSLCM_CUSTOM` or the `'/Library/Tagging/Tag'` workflow can also be used for the tagging. Migration of pre and post stubs are not supported.

Prerequisites

Ensure that all the Orchestrator endpoints whose workflows are to be used in the pre or post stubs are added in vRealize Suite Lifecycle Manager and that the workflows which are to be used in the stubs are tagged with `vRSLCM_CUSTOM` keyword.

Procedure

- 1 On the **Content Settings**, click the **Edit** pencil icon.
The **Configure Pipeline Stub** appears.
- 2 The **Name and Execute Pipeline** condition appears by default.
- 3 Select Run in background if the stub is to be executed in an asynchronous manner.

4 Select the **Orchestrator Endpoint** from the drop-down menu.

5 Select a **Orchestrator Workflow** and click **Submit**.

Only workflows that are tagged as vRSLCM_CUSTOM is shown in this list.

6 Select the **Input Param Configuration** and click **Submit**.

Content Pipeline Settings

Starting with vRealize Suite Lifecycle Manager 8.0, there are only Content Pipelines and Capture pipeline are supported. In the Content Pipelines section, under the Pipelines tab, the status of the last 24 pipeline executions can be seen in the Content_Pipeline card. Each of the content pipeline executions when selected, shows the associated Capture pipelines, if any, in the Capture pipeline card. The execution representations, the colored dot in the pipeline card, can be selected to view a detailed breakdown of the various stages of the selected execution. The Content pipeline execution can contain a maximum of nine stages in the order of execution. However, the actual execution has the stages which are relevant to the execution.

Pipeline Stubs

The pipeline stubs display the status of each action whenever a content is captured. The content pipeline has the following status types whenever a content is run.

- Pre-Capture
- Capture
- Post- Capture
- Pre-Test
- Test
- Post-Test
- Pre-Deploy/Checkin
- Deploy/Check-in
- Post-Deploy/Check-In

In the last three stages, the term Check-in is used if the content is released to a source control endpoint such as Git or BitBucket else the term deploy is used. By default, the pre or post stages are disabled and should be configured before they can be used in an execution. The configuration and various modes of execution for pre or post stages, also called pre or post stubs, are covered under the configure pipeline stubs section. The capture pipeline will always have a single stage, that is Capture. The corresponding details of the pre or post capture can be viewed in the associated content pipeline, also referred as the parent pipeline.

The Executions tab lists all the content and capture pipeline executions. The list shows the status, time taken, executed by and time of the request for each of the executions. This list can be filtered by the type of pipeline and execution status.

Each pipeline consists up of various Stages, each stage then can have various Tasks. Tasks can be either parallel or sequential based on your custom business logic. After selecting an action that you want to perform on a content, a content capture can list various types of status related to such an action. Each of the content settings is related to the view displayed on the Content Pipeline page.

Note At a time by default, only 15 content pipelines can run and at most six simultaneous captures for each of vRealize Automation, vRealize Operations Manager, and vRealize Orchestrator source control content categories. For vSphere, only one capture is executed at a point in time.

Execute Pipeline Conditions:

- 1 **EXECUTE_ON_SUCCESS** - The stub is executed only if the corresponding stage executes successfully. For example, Post-Capture if configured to EXECUTE_ON_SUCCESS executes only if the Capture stage is executed successfully.
- 2 **EXECUTE_ON_FAILURE** -The stub is executed only if the corresponding stage execution fails. For example, Post-Capture if configured to EXECUTE_ON_FAILURE executes only if the Capture stage is execution fails.
- 3 **EXECUTE_ON_SUCCESS_AND_FAILURE** - The stub is executed irrespective of whether the corresponding stage execution passes or fails. For example, Post-Capture if configured to EXECUTE_ON_SUCCESS_AND_FAILURE executes in both cases, whether Capture stage execution passes or fails.

Inputs Parameters

The pre or post stubs support the mentioned list of parameters, the values of which can be passed to the respective vRealize Orchestrator workflow as inputs. The value of these inputs depends on the content (been captured/tested/deployed) of the pipeline execution for which the pre or post routines are executed. Currently, all the parameters are of the type 'String'. Therefore, the input parameters configured for the corresponding workflow in vRealize Orchestrator should be necessarily of type 'String'. A mismatch between the type of parameters results in an execution failure for the pipeline. For more information on configuration, see [Configure Pipeline Stub](#).

Post-Deploy-Pipeline	Pre-Deploy-Pipeline	Post-Test-Pipeline	Pre-Test-Pipeline	Post-Capture-Pipeline	Pre-Capture-Pipeline
expiryInDays, taskGroupDN and taskDetail	expiryInDays, taskGroupDN and taskDetail	expiryInDays, taskGroupDN and taskDetail	expiryInDays, taskGroupDN and taskDetail	expiryInDays, taskGroupDN and taskDetail	expiryInDays, taskGroupDN and taskDetail
■ contentName	■ contentName	■ contentEndp oint	■ contentName	■ contentName	■ contentName
■ contentEndpoi nt	■ contentEndp oint	■ ContentId	■ contentEndp oint	■ contentEndp oint	■ contentEndpoi nt
■ ContentId	■ ContentId	■ contentName	■ ContentId	■ ContentId	■ ContentId
■ contentType	■ contentType	■ contentType	■ contentType	■ contentType	■ contentType
■ ContentVersio nID	■ ContentVersi onID	■ ContentVersi onID	■ ContentVersi onID	■ ContentVersi onID	■ ContentVersio nID
■ requestid	■ requestid	■ requestid	■ requestid	■ requestid	■ requestid
■ requestnumbe r	■ requestnumb er	■ requestnumb er	■ requestnumb er	■ requestnumb er	■ requestnumbe r
■ status	■ requestedby	■ requestedby	■ requestedby	■ requestedby	■ requestedby
■ requestedby	■ useridentity	■ useridentity	■ useridentity	■ useridentity	■ useridentity
■ useridentity				■ status	

Request Status

5

The request page displays the overall status of a product and environment.

The request page displays information on various request types that run on an environment. The request type displays the status as In Progress, Completed or Failed.

Notifications in vRealize Suite Lifecycle Manager

6

With vRealize Suite Lifecycle Manager 2.0 and later, you can view the available updates for the products in the environment and overall health vRealize Suite Lifecycle Manager under notifications.

To view notifications, navigate to **Home Page** and click **Bell** icon.

The notification features provides the following information:

Updates for Products in Environment

- Availability of product upgrade offline using a product support pack.

- Online patch availability

Updates for vRealize Suite Lifecycle Manager

- vRealize Suite Lifecycle Manager online upgrade

- vRealize Suite Lifecycle Manager Online patch

- Product Support Pack updates

You can view the overall health notifications for vRealize Suite Lifecycle Manager products and environment. To list all the notifications, click on the **View** List icon on the right corner of the **Notification** window.

Note vRealize Suite Lifecycle Manager should be connected to internet to get notifications from online source.

Troubleshooting vRealize Suite Lifecycle Manager

7

vRealize Suite Lifecycle Manager troubleshooting topics provide solutions to problems you might experience installing and managing vRealize Suite with vRealize Suite Lifecycle Manager.

- [Unexpectedly Large vRealize Operations Manager Virtual Machine Fails to Power On Due to Resource Limitations](#)

Large vRealize Operations Manager virtual machines fails to power on due to resource limitations.

- [Environment Deployment Fails During vRealize Log Insight Clustering and VMware Identity Manager Registration](#)

Environment deployment fails during the Adding vIDM user as vRLI Super Admin task while running vRLI Clustering and vIDM Registration.

- [Wrong IP Details During vRealize Suite Lifecycle Manager Deployment](#)

If you have given an incorrect IP address or if you want to upgrade an existing IP address during vRealize Suite Lifecycle Manager deployment, follow the steps provided in this section.

- [Binary Mappings Are Not Populated](#)

Even if the requests for each product binary are marked as completed, the binary mappings are not populated.

- [Content Capture Fails with Secure Field](#)

A vRealize Automation content with a secure field corrupts the field on the target environment on successful deploy.

- [Fix Errors Using Log Files](#)

vRealize Suite Lifecycle Manager log files are present under the following locations for trouble shooting any issues.

- [Blueprint Capture Fails](#)

The captured blueprint fails after the property group is deleted.

- [Component Profile Deployment Fails](#)

When the component profiles are released to vRealize Automation, the values for the text boxes "Clone from" and "Clone from snapshot" are not assigned automatically.

Unexpectedly Large vRealize Operations Manager Virtual Machine Fails to Power On Due to Resource Limitations

Large vRealize Operations Manager virtual machines fails to power on due to resource limitations.

Problem

When you deploy vRealize Operations Manager in vRealize Suite Lifecycle Manager, by selecting node size as large and if you have budgeted resources for a different size virtual machine, the virtual machine might fail to power on due to resource limitations.

Cause

vRealize Operations Manager deployment size set in vRealize Suite Lifecycle Manager is based on the number of virtual machines, catalog items, concurrent provisions, and other workload metrics for your vRealize Operations Manager environment. Virtual machine size is unrelated to deployment size.

Solution

vRealize Operations Manager virtual machines deployed from vRealize Suite Lifecycle Manager have a large (16 vCPU and 48 GB RAM) virtual machine size, if deployed with large size, and require sufficient vCPU and RAM to power on successfully.

Environment Deployment Fails During vRealize Log Insight Clustering and VMware Identity Manager Registration

Environment deployment fails during the Adding vIDM user as vRLI Super Admin task while running vRLI Clustering and vIDM Registration.

Problem

Even after you multiple deployment operation, environment deployment fails during the Adding vIDM user as vRLI Super Admin task while running vRLI Clustering and vIDM Registration.

The following error message appears in the logs:

```
{"errorMessage":"Unable to retrieve information about this user from VMware Identity Manager.", "errorCode":"RBAC_USERS_ERROR", "errorDetails": {"errorCode":"com.vmware.loginsight.api.errors.rbac.invalid_vidm_user"}}
```

Solution

- 1 Add the VMware Identity Manager Suite Administrator user to vRealize Log Insight by using the vRealize Log Insight UI.
See [Create a New User Account in vRealize Log Insight](#).
- 2 Remove the VMware Identity Manager Suite Administrator user from vRealize Log Insight by using the vRealize Log Insight UI.

- 3 Retry the environment deployment in vRealize Suite Lifecycle Manager.

Wrong IP Details During vRealize Suite Lifecycle Manager Deployment

If you have given an incorrect IP address or if you want to upgrade an existing IP address during vRealize Suite Lifecycle Manager deployment, follow the steps provided in this section.

Cause

If you have given an incorrect IP address while deploying vRealize Suite Lifecycle Manager.

Solution

- 1 SSH to vRealize Suite Lifecycle Manager appliance using root user.
- 2 Update the IP address using the below command:

```
vami_set_network <interface> (STATICV4|STATICV4+DHCPV6|STATICV4+AUTOV6) <ipv4_addr>
<netmask> <gatewayv4> For example: /opt/vmware/share/vami/vami_set_network eth0 STATICV4
192.168.1.150 255.255.255.0 192.168.1.1
```

Binary Mappings Are Not Populated

Even if the requests for each product binary are marked as completed, the binary mappings are not populated.

Problem

When you navigate from **Home > Settings > Product Binaries**, the corresponding request is marked as COMPLETED in the **Requests** page but the binary mappings are not populated.

Cause

The checksum for the target product binary cannot be same as the one published by VMware.

Solution

- ◆ Ensure that the binaries are not corrupted or modified and their SHA256 checksum is the same as mentioned in MyVMware portal.

Content Capture Fails with Secure Field

A vRealize Automation content with a secure field corrupts the field on the target environment on successful deploy.

Cause

In vRealize Suite Lifecycle Manager 8.0, the secure field is captured as encrypted from the source environment and the value cannot be decrypted when deployed.

Solution

- ◆ After you successfully deploy, login to the target vRealize Automation and manually update the secure fields in the content.

Fix Errors Using Log Files

vRealize Suite Lifecycle Manager log files are present under the following locations for trouble shooting any issues.

Solution

- 1 For vRealize Suite Lifecycle Manager 1.1 or older version, service Layer logs are present in the location `/opt/vmware/vlcm/logs/` and the file format is `xenon*.log`, the active log file is `xenon.0.log`. For vRealize Suite Lifecycle Manager 1.2 or later, this log is available at `/var/log/vlcm` and log file name is `vr lcm-xserver.log`
- 2 For vRealize Suite Lifecycle Manager 1.1 or earlier version, engine logs are present in the location `/var/log/vlcm/` and the current log filename is `catalina.out`. For vRealize Suite Lifecycle Manager 1.2 or later, this log is available at `/var/log/vlcm` and log file name is `vr lcm-server.log`

Note To upgrade from 1.0 or 1.1–1.3, the old LCM service layers log present at the location `/opt/vmware/vlcm/logs/` are in the name `console.log`, and the new service layer logs are in the file format `xenon*.log`.

Blueprint Capture Fails

The captured blueprint fails after the property group is deleted.

Problem

When a composite blueprint of vRealize Automation have references to any properties like Property Definition or Property Groups, and if those properties are deleted from the vRealize Automation then the Blueprint has to be updated in the vRealize Automation or else the capture in Lifecycle Manager fails.

Solution

- 1 Edit the Blueprint.
- 2 Click the **Setting** icon next to blueprint name at the top.
- 3 Click the **Properties** tab (select **custom properties** tab if any properties were added previously) and select **OK**.
- 4 Select each of the components in the blueprint and select the **Properties** tab. (select the **custom properties** tab if any properties were added previously).
- 5 Click **Save**.

6 Click **Finish**.

Component Profile Deployment Fails

When the component profiles are released to vRealize Automation, the values for the text boxes "Clone from" and "Clone from snapshot" are not assigned automatically.

Problem

When deploying an "Image Component Profile" the "Clone From" value of the component profile is stripped. The "Clone From" text boxes are empty on the target system.

Solution

- ◆ You can manually edit the component profile and the respective values from the drop-down menu.

Note When you capture and release a component profile of vRealize Automation using vRealize Suite Lifecycle Manager, the name of component profile should start with "ValueSet".
