Micro-Segmentation Use Case Deployment Using vRealize Suite Lifecycle Manager

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VMware Validated Design 4.2

VMware Validated Design for Micro-Segmentation 4.2

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About Micro-Segmentation Use Case Deployment Using vRealize Suite Lifecycle Manager

Micro-Segmentation Use Case Deployment by Using vRealize Suite Lifecycle Manager provides an alternative method of deploying and configuring a VMware Validated Design use case by using VMware vRealize Suite Lifecycle Manager. You can use vRealize Suite Lifecycle Manager to deploy three common use cases: IT Automating IT, Intelligent Operations, and Micro-segmentation.

This guide helps you deploy and configure the products for each use case and provides step-by-step instructions for the following tasks:

- Deployment and configuration of the vRealize Suite Lifecycle Manager appliance
- Pre-deployment tasks for products utilized by the use case
- Deployment of the products utilized by the use case using vRealize Suite Lifecycle Manager
- Post-deployment tasks for products utilized the use case

Note This guide does not include instructions for deploying the VMware Validated Design for Software-Defined Data Center foundation products. See the *Deployment for Region A* document in the VMware Validated Design for the Software-Defined Data Center documentation.

Intended Audience

The Micro-Segmentation *Use Case Deployment by Using vRealize Suite Lifecycle Manager* document is for cloud architects, infrastructure administrators, and cloud administrators who are familiar with VMware Validated Design for Software-Defined Data Center and want to use vRealize Suite Lifecycle Manager to deploy VMware Validated Design use cases.

vRealize Suite Lifecycle Manager Overview

vRealize Suite Lifecycle Manager automates the deployment, patching, and upgrade of the vRealize Suite solutions, resulting in simplified operational experience for customers.

Overview

vRealize Suite Lifecycle Manager automates the lifecycle management of the vRealize Suite through both a web-based management application and an API, freeing you to focus on business-critical initiatives and improving time to value, reliability, and consistency.

The vRealize Suite Lifecycle Manager solution supports the deployment, patching, and upgrade of following VMware vRealize Suite products:

- VMware vRealize Automation (with Embedded vRealize Orchestrator)
- VMware vRealize Business for Cloud
- VMware vRealize Operations Manager
- VMware vRealize Log Insight

Deployment Model

vRealize Suite Lifecycle Manager is available as a self-contained virtual appliance shipped as an OVA (Open Virtual Appliance) image for a seamless deployment experience within an on-premises, vSphere-based, private cloud platform. You access vRealize Suite Lifecycle Manager as a web-based application through a local user or VMware Identity Manager single sign-on integration.

Once deployed, the appliance is registered with one or more vCenter Server instances where an administrator can automate the following operations for the lifecycle management of the vRealize Suite.

- Management of a vRealize Suite Product Repository (Installation and Upgrade Media)
- Create Environments with Solution or Product-based Structures (Greenfield)
- Ingest Existing vRealize Suite-based Environments (Brownfield)
- Analysis of Configuration Drift within Environments
- Scale-out of Environments
- Upgrade of Environments

vRealize Suite Lifecycle Manager Solution Path Installation Methods and Deployment Types

Using vRealize Suite Lifecycle Manager, you create an environment with a prescriptive solution path configuration for the SDDC through an installation wizard or a configuration file.

Installation Methods

vRealize Suite Lifecycle Manager provides two installation methods for an environment creation:

- Installation Wizard
- JSON Configuration File

When creating a new environment using the installation wizard, you provide a target datacenter, an environment type, and an environment name. When creating a new environment using the configuration file, you provide a target datacenter, an environment type, an environment name, as well as a properly formatted product JSON configuration file.

Deployment Types

vRealize Suite Lifecycle Manager provides two options to create install vRealize Suite components:

- Product Path – as the default option in vRealize Suite Lifecycle Manager, you select the individual vRealize Suite products you would like to include in an SDDC. The product path allows you to perform a new greenfield installation or to import an existing brownfield installation of the vRealize Suite components. For a greenfield deployment, you select the product version and size to install for each component.
- Solution Path – you use the solution path for a new greenfield installation of use case-based components in an SDDC. The solution path based deployment allows vRealize Suite Lifecycle Manager to install and configure a specific set of vRealize Suite products suited for a VMware Validated Design use case. Within each solution path, you can view the specific products and product versions included in the selected use case.

The Solution Paths included in vRealize Suite Lifecycle Manager are:

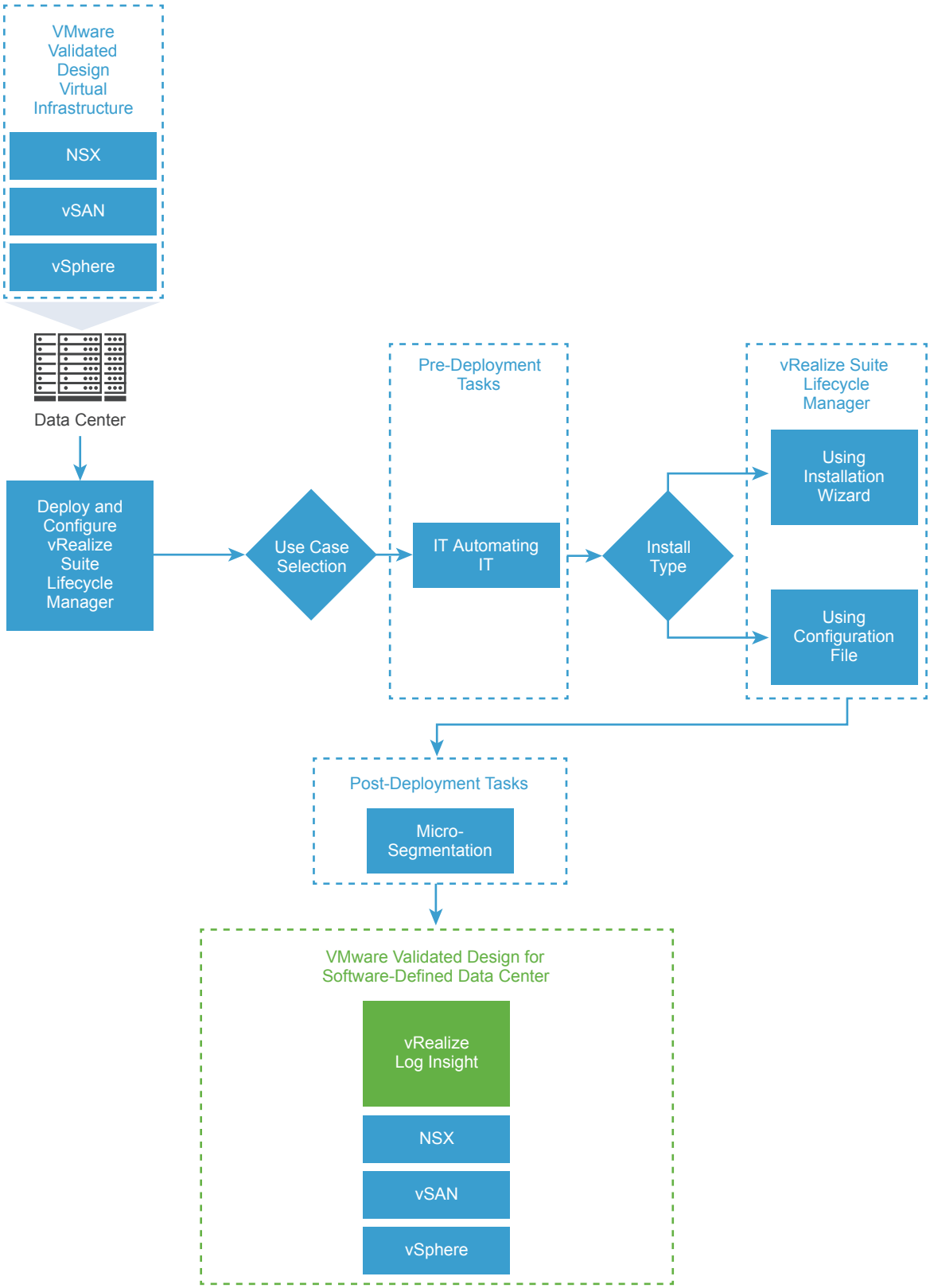
1. IT Automating IT – Enables automation and simplification of workload provisioning tasks of production-ready infrastructure and applications in the SDDC.
2. Intelligent Operations – Enables proactive identification and remediation of performance, capacity, and configuration issues in the SDDC.
3. Micro-segmentation – Enables distributed firewall and isolation policies to create better network security in the SDDC.

Micro-Segmentation Solution Path

1

To deploy the Micro-segmentation use case, you perform pre-deployment tasks that include installing the VMware Validated Design Software-Defined Data Center Virtual Infrastructure Layer. You deploy the vRealize Suite products needed by this solution path using the vRealize Suite Lifecycle Manager installation wizard or JSON configuration file. Afterwhich, you can configure security groups and perform other micro-segmentation tasks.

Figure 1-1. vRealize Suite Lifecycle Manager Solution Path for Micro-segmentation



Procedure

1 As your basis, you deploy the virtual infrastructure, as discussed in *Deployment for Region A*.

   a Install and Configure ESXi Hosts in Region A

   b Deploy and Configure the Platform Services Controller and vCenter Server Components in Region A

   c Deploy and Configure the NSX Instance for the Management Cluster in Region A

   d Deploy and Configure the Shared Edge and Compute Cluster Components in Region A

   e Deploy and Configure Shared Edge and Compute Cluster NSX Instance in Region A

   In the *Deployment for Region A* guide, each task is for Region A. Because this is a single-region deployment, we use the Region A task.

2 Perform pre-deployment tasks for vRealize Suite Lifecycle Manager appliance.

   See Chapter 2 Before You Deploy vRealize Suite Lifecycle Manager.

3 Deploy the vRealize Suite Lifecycle Manager appliance, upload the OVA file for your use case, and complete certificate setup.

   See Chapter 3 Deploy and Configure the vRealize Suite Lifecycle Manager Appliance.

4 Perform pre-deployment tasks for vRealize Log Insight.

   See Prerequisites for Deploying vRealize Log Insight for Micro-Segmentation.

   Note No other pre-deployment tasks are required for this use case.

5 Deploy the required products for the Micro-segmentation use case by running the vRealize Suite Lifecycle Manager installation wizard or using the JSON configuration file.

   - Deploy the Micro-Segmentation Use Case with the vRealize Suite Lifecycle Manager Installation Wizard.
   - Deploy the Micro-Segmentation Use Case with a vRealize Suite Lifecycle Manager JSON Configuration File.

6 Perform post-deployment tasks for vRealize Log Insight.

   See Chapter 6 Post-Deployment Tasks for vRealize Log Insight.

   Note No other post-deployment tasks are required for this use case.

7 Set up Micro-segmentation in your environment. See the VMware NSX documentation for details.

Before You Deploy vRealize Suite Lifecycle Manager 2

Before you deploy vRealize Suite Lifecycle Manager, you configure a least privledge service account for the Management vCenter Server instance, enable additional distributed firewall configurations to the existing VMware Validated Design for Software-Defined Data Center virtual infrastructure layer, establish a My VMware account, and generate a certificate for the vRealize Suite Lifecycle Manager appliance.

1 Configure User Access in vSphere for Integration with vRealize Suite Lifecycle Manager

   Configure an operations service account with the required permissions to enable vRealize Suite Lifecycle Manager to deploy and manage the Software-Defined Data Center (SDDC) solutions on the Management vCenter Server.

2 Hostname and IP Address for vRealize Suite Lifecycle Manager

   Before deploying and configuring vRealize Suite Lifecycle Manager in this VMware Validated Design, allocate a hostname and IP address for the appliance.

3 Distributed Firewall Configuration for vRealize Suite Lifecycle Manager

   Configuring a distributed firewall for use with your SDDC increases the security level of your environment by allowing only the network traffic that is required for the SDDC to run. In this design, additional policies are defined that allow access to vRealize Suite Lifecycle Manager.

4 My VMware Account for vRealize Suite Lifecycle Manager

   You can register vRealize Suite Lifecycle Manager to access vRealize Suite product licenses and download product OVAs to the repository.

5 Create a Certificate for the vRealize Suite Lifecycle Manager Appliance

   Use the VMware Validated Design Certificate Generation Utility (CertGenVVD) to generate certificates that are signed by the Microsoft certificate authority (MSCA) for vRealize Suite Lifecycle Manager.

Configure User Access in vSphere for Integration with vRealize Suite Lifecycle Manager

Configure an operations service account with the required permissions to enable vRealize Suite Lifecycle Manager to deploy and manage the Software-Defined Data Center (SDDC) solutions on the Management vCenter Server.

Active Directory User Service Account for vRealize Suite Lifecycle Manager

A service account provides non-interactive and non-human access to services and APIs to the components of the SDDC. You must create a service account for vRealize Suite Lifecycle Manager to deploy and manage the life cycle of vRealize Suite components in the SDDC.

Note A service account is a standard Active Directory account that you configure with a non expiring password that cannot be changed by the account itself.

The vRealize Suite Lifecycle Manager service account is used in a one-directional fashion to enable secure application-to-application communication to the Management vCenter Server instance. A custom role ensures that the service account has the least required permissions for authentication, data collection, and life cycle management operations.

You associate the `svc–vrslcm–vsphere` service account in the Active Directory with a custom vRealize Suite Lifecycle Manager user role that has specific privileges. You assign the user to the vCenter Server instance in the inventory.

Table 2-1. Application-to-Application Service Account for vRealize Suite Lifecycle Manager

Username	Source	Destination	Description	Required Role
svc-vrslcm-vsphere	vRealize Suite Lifecycle Manager	Management vCenter Server	A service account for deploying and managing the life cycle of vRealize Suite components on the Software-Defined Data Center management cluster.	vRealize Suite Lifecycle Manager User (Custom)

Define a User Role in vSphere for vRealize Suite Lifecycle Manager

Create a user role in the vSphere Web Client with the required privileges for vRealize Suite Lifecycle Manager.

Procedure

1 Log in to vCenter Server by using the vSphere Web Client.

   a Open a Web browser and go to **`https://sfo01m01vc01.sfo01.rainpole.local/vsphere-client`**.

   b Log in using the following credentials.

Setting	Value
User name	administrator@vsphere.local
Password	*vsphere_admin_password*

2 On the **Home** page, under **Administration**, click **Roles**.

3 Create a role for all application-to-application interactions between vRealize Suite Lifecycle Manager and vSphere.

   a On the **Roles** page, click the **Create Role action** icon.

   b In the **Create Role** dialog box, configure the role using the following configuration settings, and click **OK**.

Setting	Value
Role Name	vRealize Suite Lifecycle Manager User
Privilege	■ **Datastore.Allocate Space** ■ **Datastore.Browse Datastore** ■ **Datastore.Update Virtual Machine Files** ■ **Host.Local.Operations.Add Host to vCenter** ■ **Host.Local.Operations.Create Virtual Machine** ■ **Host.Local.Operations.Delete Virtual Machine** ■ **Host.Local.Operations.Reconfigure Virtual Machine** ■ **Network.Assign Network** ■ **Resource.Assign vApp to Resource Pool** ■ **Resource.Assign Virtual Machine to Resource Pool** ■ **vApp.*** (All privileges.) ■ **Virtual Machine.*** (All privileges.)

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

4 The Management vCenter Server propagates the role to the other linked vCenter Server instances.

Configure User Privileges in vSphere for Integration with vRealize Suite Lifecycle Manager

Assign permissions to the operations service account to deploy and manage SDDC components on the Management vCenter Server with vRealize Suite Lifecycle Manager.

- The svc-vrslcm-vsphere user has the required privileges established for the Management vCenter Server.

Procedure

1 Log in to vCenter Server by using the vSphere Web Client.

   a Open a Web browser and go to **`https://sfo01m01vc01.sfo01.rainpole.local/vsphere-client`**.

   b Log in using the following credentials.

Setting	Value
User name	administrator@vsphere.local
Password	*vsphere_admin_password*

2 Assign permissions to the service account according to its roles.

   a From the **Home** menu, select **Host and Clusters**.

   b In the Navigator, select **sfo01m01vc01.sfo01.rainpole.local**.

   c Navigate to **Permissions > Add permission**.

   d In the **Add Permission** dialog box, click **Add** to associate a user or a group with a role.

   e In the **Select Users/Groups** dialog box, from the **Domain** drop-down menu, select **rainpole.local**, in the filter box type **`svc-vrslcm-vsphere`**, and press Enter.

   f From the list of users and groups, select **svc-vrslcm-vsphere**, click **Add**, and click **OK**.

   g In the **Add Permission** dialog box, from the **Assigned Role** drop-down menu, select **vRealize Suite Lifecycle Manager User**, ensure that **Propogate to children** is selected, and click **OK**.

Hostname and IP Address for vRealize Suite Lifecycle Manager

Before deploying and configuring vRealize Suite Lifecycle Manager in this VMware Validated Design, allocate a hostname and IP address for the appliance.

Allocate a hostname and IP address for each component. Configure both forward and reverse DNS records with the designated fully qualified domain name (FQDN) and IP address.

Table 2-2. Hostname and IP Address for vRealize Suite Lifecycle Manager Appliance

Component	IP Address	DNS A Record	Create DNS PTR Record
vRealize Suite Lifecycle Manager Appliance	192.168.11.20	vrs01lcm01.rainpole.loca	Yes

Distributed Firewall Configuration for vRealize Suite Lifecycle Manager

Configuring a distributed firewall for use with your SDDC increases the security level of your environment by allowing only the network traffic that is required for the SDDC to run. In this design, additional policies are defined that allow access to vRealize Suite Lifecycle Manager.

You define additional explicit policies for the distributed firewall, which allow communication between vRealize Suite Lifecycle Manager and the necessary SDDC components.

Create IP Set for vRealize Suite Lifecycle Manager

Create an IP set for the vRealize Suite Lifecycle Manager appliance in the management cluster. You use the IP set later to create a security group for use with the additional distributed firewall rules established for vRealize Suite Lifecycle Manager.

A single IP set is added to support vRealize Suite Lifecycle Manager.

Table 2-3. IP Set for vRealize Suite Lifecycle Manager

Name	IP Addresses
vRealize Suite Lifecycle Manager	*vRealize-Suite-Lifecycle-Manager_IP's*

Prerequisites

Before configuring the additional distributed firewall policies for vRealize Suite Lifecycle Manager, ensure that the distributed firewall configuration for the management cluster is in place as defined in the VMware Validated Design for Software-Defined Data Center. See *Deployment for Region A*.

Procedure

1 Log in to vCenter Server by using the vSphere Web Client.

   a Open a Web browser and go to **`https://sfo01m01vc01.sfo01.rainpole.local/vsphere-client`**.

   b Log in using the following credentials.

Setting	Value
User name	administrator@vsphere.local
Password	*vsphere_admin_password*

2 Create the IP set for vRealize Suite Lifecycle Manager.

   a In the **Navigator**, click **Networking & Security**.

   b Click **NSX Managers** and select the **172.16.11.65** instance.

   c Click **Manage**, click **Grouping Objects**, and click **IP Sets**.

d Click the **Add** icon.

e In the **New IP Set** dialog box, configure the values for the IP set that you are adding and click **OK**.

For all IP sets that you configure, select the **Mark this object for Universal Synchronization** check box.

Setting	Value
Name	vRealize Suite Lifecycle Manager
IP Addresses	192.168.11.20
Mark this object for Universal Synchronization	Selected

Create Security Group for vRealize Suite Lifecycle Manager

Create security groups for use in configuring firewall rules for the groups of applications in the SDDC.

A security group is a collection of assets (or objects) from your vSphere inventory that you group together.

You perform this procedure multiple times to configure all the necessary security groups. In addition, you create the VMware Appliances and Windows Servers groups from the security groups you add in the previous repetitions of this procedure.

Table 2-4. Security Group for vRealize Suite Lifecycle Manager

Name	Object Type	Selected Object
vRealize Suite Lifecycle Manager	IP Sets	vRealize Suite Lifecycle Manager
VMware Appliances	Security Groups	vRealize Suite Lifecycle Manager

Prerequisites

An IP set for the vRealize Suite Lifecycle Manager appliance is created.

Procedure

1 Log in to vCenter Server by using the vSphere Web Client.

a Open a Web browser and go to **`https://sfo01m01vc01.sfo01.rainpole.local/vsphere-client`**.

b Log in using the following credentials.

Setting	Value
User name	administrator@vsphere.local
Password	*vsphere_admin_password*

2 In the **Navigator**, click **Networking & Security** and click **NSX Managers**.

3 Select the **172.16.11.65** NSX Manger instance, and click the **Manage** tab.

4 Click **Grouping Objects**, select **Security Group**, and click the **Add new Security Group** icon.

   The **Add Security Group** wizard appears.

5 On the **Name and description** page, enter `vRealize Suite Lifecycle Manager` in the **Name** text box, select the **Mark this object for Universal Synchronization** check box, and click **Next**.

   For all security groups that you configure, select the **Mark this object for Universal Synchronization** check box.

6 On the **Select objects to include** page, select **IP Sets** from the **Object Type** drop-down menu, select **vRealize Suite Lifecycle Manager** from the list of available objects, click the **Add** button, and click **Next**.

7 On the **Ready to Complete** page, verify the configuration values that you entered and click **Finish**.

8 In **Security Group**, select the group label **VMware Appliances** and click the **Edit Security Group** icon.

   The **Edit Security Group** wizard appears.

9 On the **Name and description** page, click **Next**.

10 On the **Select objects to include** page, select **Security Group** from the **Object Type** drop-down menu, select **vRealize Suite Lifecycle Manager** from the list of available objects, click the **Add** button, and click **Next**.

11 On the **Ready to Complete** page, verify the configuration values that you entered and click **Finish**.

Add Distributed Firewall Rule for vRealize Suite Lifecycle Manager

A firewall rule consists of a section to segregate the firewall rules and the rule itself, which defines what network traffic is blocked or allowed.

You create firewall rules that allow administrators to connect to the different VMware solutions, rules to allow user access to the vRealize Automation portal, and to provide external connectivity to the SDDC.

Prerequisites

- The IP sets, security groups, and distributed firewall rules from the VMware Validated Design for Software-Defined Data Center foundation are implemented.
- The IP set for vRealize Suite Lifecycle Manager is created.
- The Security Group for vRealize Suite Lifecycle Manager is created.

Procedure

1 Log in to vCenter Server by using the vSphere Web Client.

   a Open a Web browser and go to **`https://sfo01m01vc01.sfo01.rainpole.local/vsphere-client`**.

   b Log in using the following credentials.

Setting	Value
User name	administrator@vsphere.local
Password	*vsphere_admin_password*

2 Create a distributed firewall rule to allow administrative access to the vRealize Suite Lifecycle Manager user.

Name	Source	Destination	Service / Port
Allow vRSLCM to Admins	Administrators	vRealize Suite Lifecycle Manager	HTTPS

   a In the **VMware Management Services** section, click **Add rule**.

   b In the **Name** cell, click the **Edit** icon to change the rule name to **`Allow vRSLCM to Admins`**.

   c Click the **Edit** icon in the **Source** column, change the **Object Type** to **Security Groups**, add **Administrators** to the **Selected Objects** list, and click **OK**.

   d Click the **Edit** icon in the **Destination** column, change the **Object Type** to **Security Groups**, add **VMware Appliances** and **Update Manager Download Service** to the **Selected Objects** list, and click **OK**.

   e Click the **Edit** icon in the **Service** column, enter **HTTPS** in the filter, add **HTTPS** to the **Selected Objects** list, and click **OK**.

   f Click **Publish Changes**.

My VMware Account for vRealize Suite Lifecycle Manager

You can register vRealize Suite Lifecycle Manager to access vRealize Suite product licenses and download product OVAs to the repository.

Note Using the My VMware integration allows you to download vRealize Suite product OVAs to the vRealize Suite Lifecycle Manager appliance and is the recommended path to simplify, automate, and organize the repository. If your organization must restrict outbound traffic from the management components of the SDDC, you can download the vRealize Suite product OVAs from My VMware and upload them to the vRealize Suite Lifecycle Manager repository.

My VMware provides an integrated, self-service, account-based interface focused on simplifying and streamlining your online product license and support management experience. It allows you to:

- View and manage product licenses and support details by account.

- Get help and file support requests.
- View and manage evaluations.
- View orders and support contract details.
- Create folders to better organize license keys.
- Manage user rights and permissions for license key management and support details.
- Request a renewal quote for support contracts.

Learn more about My VMware or visit https://my.vmware.com.

vRealize Suite Lifecycle Manager registers an account with My VMware to download the product OVAs to its repository. You can select an available license key from a product entitlement during an environment creation.

You can structure the folders, user, and permissions in a My VMware entitlement account in any way that best serves the asset management and operations support needs of your business. The minimum requirements and permissions include:

- A folder with a vRealize Suite product entitlement.
  - View License Keys & User Permissions
  - Download Products

To register vRealize Suite with My VMware, invite a designated user to the entitlement account and limit the folder level permissions for the user.

- Refer to KB 2070555 for details on inviting a user to a My VMware account.
- Refer to KB 2006977 for details on assigning user permissions in a My VMware account.

Table 2-5. vRealize Suite Lifecycle Manager User Product Entitlement Example

First Name	Last Name	User Email	Minimum Folder Permissions	Folder	Product Entitlement in Folder
`vRealize Suite Lifecycle Manager User`	`at Rainpole`	`vvd-vrslcm@rainpole.local`	■ **View License Keys & User Permissions** ■ **Download Products**	■ **Home** folder or ■ Child folder	vRealze Suite

Create a Certificate for the vRealize Suite Lifecycle Manager Appliance

Use the VMware Validated Design Certificate Generation Utility (CertGenVVD) to generate certificates that are signed by the Microsoft certificate authority (MSCA) for vRealize Suite Lifecycle Manager.

For information about the VMware Validated Design Certificate Generation Utility, see VMware Knowledge Base article 2146215 and the *VMware Validated Design Planning and Preparation*.

Prerequisites

- Provide a Windows Server 2012 host that is part of the sfo01.rainpole.local domain.
- Install a Certificate Authority server on the rainpole.local domain.

Procedure

1. Log in to a Windows host that has access to your data center.
2. Download the `CertGenVVD-`*`version`*`.zip` file of the Certificate Generation Utility from VMware Knowledge Base article 2146215 on the Windows host where you connect to the data center and extract the ZIP file to the `C:` drive.
3. In the `C:\CertGenVVD-`*`version`* folder, open the `default.txt` file in a text editor.
4. Verify that following properties are configured.

```
ORG=Rainpole Inc.
OU=Rainpole.local
LOC=SFO
ST=CA
CC=US
CN=VMware_VVD
keysize=2048
```

5. Delete all files in the `C:\CertGenVVD-`*`version`*`\ConfigFiles` folder
6. In the `C:\CertGenVVD-`*`version`*`\ConfigFiles` folder, create a text file named vrs01lcm01.txt with the following content.

   For example, the configuration files for the vRealize Suite Lifecycle Manager instance must contain the following properties:

   vrslcm.txt

```
[CERT]
NAME=default
ORG=default
OU=default
LOC=SFO
ST=default
CC=default
CN=vrs01lcm01.rainpole.local
keysize=default
[SAN]
vrs01lcm01
vrs01lcm01.rainpole.local
```

7. Open a Windows PowerShell prompt and navigate to the `CertGenVVD` folder.

```
cd C:\CertGenVVD-version
```

8 Grant permissions to run third-party PowerShell scripts.

```
Set-ExecutionPolicy Unrestricted
```

9 Validate if you can run the utility using the configuration on the host and verify if VMware is included in the printed CA template policy.

```
.\CertgenVVD-version.ps1 -validate
```

10 Generate MSCA-signed certificates.

```
.\CertGenVVD-version.ps1 -MSCASigned -attrib 'CertificateTemplate:VMware'
```

11 In the `C:\CertGenVVD-version` folder, verify that the utility created the `SignedByMSCACerts` subfolder.

Deploy and Configure the vRealize Suite Lifecycle Manager Appliance

3

In this section, you deploy the vRealize Suite Lifecycle Manager appliance, configure the common settings, replace the appliance certificate, generate a certificate for solution path deployments, configure the OVA sources, and download solutions content from the VMware Marketplace.

Procedure

1 Deploy the vRealize Suite Lifecycle Manager Appliance

   The vRealize Suite Lifecycle Manager appliance is deployed on an existing VMware Validated Design for the Software-Defined Data Center environment. As part of the appliance deployment, you specify storage, networking, and other key appliance attributes.

2 Configure the vRealize Suite Lifecycle Manager Appliance

   In the vRealize Suite Lifecycle Manager user interface, you configure the common settings, replace the appliance certificate, generate a certificate for solution path deployments, configure the OVA sources, and download solutions content from the VMware Marketplace.

3 Register vRealize Suite Lifecycle Manager with My VMware

   You can integrate vRealize Suite Lifecycle Manager directly with a My VMware account to access vRealize Suite licenses within an entitlement account and manage the download of product OVAs for install, patch, and upgrade. The My VMware account registration is also used to download content from the VMware Marketplace.

4 OVA Configuration in vRealize Suite Lifecycle Manager

   vRealize Suite Lifecycle Manager provides two methods to retrieve and store product OVAs for install, patch, and upgrade of the vRealize Suite components.

5 Add a Data Center to vRealize Suite Lifecycle Manager

   Before you can create an environment for a solution path deployment, you must add a data center in using vRealize Suite Lifecycle Manager and associate the Management vCenter Server instance.

Deploy the vRealize Suite Lifecycle Manager Appliance

The vRealize Suite Lifecycle Manager appliance is deployed on an existing VMware Validated Design for the Software-Defined Data Center environment. As part of the appliance deployment, you specify storage, networking, and other key appliance attributes.

Prerequisites

Before deploying the vRealize Suite Lifecycle Manager appliance, you must complete deployment of the foundation Software-Defined Data Center.

Note This guide refers to SDDC components based on the VMware Validated Design for Software-Defined Data Center. See Virtual Infrastructure Deployment in the *Deployment for Region A* document at https://docs.vmware.com/en/VMware-Validated-Design/4.2/com.vmware.vvd.sddc-deploya.doc/GUID-657DB777-D919-4C23-BA5E-B98D8A91CA8B.html.

Procedure

1 Log in to vCenter Server by using the vSphere Web Client.

   a Open a Web browser and go to **`https://sfo01m01vc01.sfo01.rainpole.local/vsphere-client`**.

   b Log in using the following credentials.

Setting	Value
User name	administrator@vsphere.local
Password	*vsphere_admin_password*

2 From the **Home** menu, select **Global Inventory Lists > vCenter Servers**.

3 Right-click **sfo01m01vc01.sfo01.rainpole.local** and select **Deploy OVF Template**.

4 On the **Select template** page, select **Local file**, browse to the location of the vRealize Suite Lifecycle Manager OVA file, and click **Next**.

5 On the **Select name and location** page, enter the following information, and click **Next**.

Setting	Value
Name	vrs01lcm01
Select a folder or datacenter	sfo01-m01fd-mgmt

6 On the **Select a resource** page, select **sfo01-m01-mgmt01** and click **Next**.

7 On the **Review details** page, review the virtual appliance details, such as product, version, download size, and size on disk, and then click **Next**.

8 On the **Accept license agreements** page, read and accept the End User License Agreement, and click **Next**.

9 On the **Select storage** page, select the datastore.

   a From the **Select virtual disk format** drop-down menu, select **Thin Provision**.

   b From the **VM storage policy** drop-down menu, select **vSAN Default Storage Policy**.

   c From the datastore table, select the **sfo01-m01-vsan01** vSAN datastore and click **Next**.

10 On the **Select networks** page, select the distributed port group that ends with `Mgmt-xRegion01-VXLAN` from the **Destination Network** drop-down menu and click **Next**.

11 On the **Customize template** page, configure the following values and click **Next**.

Option	Value
Hostname	vrs01lcm01.rainpole.local
Join the VMware Customer Experience Improvement Program	Selected
Common Name	vrs01lcm01.rainpole.local
Country Code	US
Organization Name	Rainpole
Organization Unit	Rainpole
Default Gateway	192.168.11.1
Domain Name	rainpole.local
Domain Name Servers	172.16.11.4,172.16.11.5
Domain Name Path	rainpole.local,sfo01.rainpole.local
Network 1 IP Address	192.168.11.20
Network 1 Netmask	255.255.255.0

12 On the **Ready to complete** page, click **Finish** and wait for process to complete.

13 Power on vRealize Suite Lifecycle Manager appliance.

a From the **Home** menu, select **Hosts and Clusters** .

b Expand the sfo01m01vc01.sfo01.rainpole.local tree, select the **vrs01lcm01** virtual machine, and click **Power on**.

Configure the vRealize Suite Lifecycle Manager Appliance

In the vRealize Suite Lifecycle Manager user interface, you configure the common settings, replace the appliance certificate, generate a certificate for solution path deployments, configure the OVA sources, and download solutions content from the VMware Marketplace.

Set Common Configuration Settings in vRealize Suite Lifecycle Manager

After the deployment of the vRealize Suite Lifecycle Manager appliance, you perform an initial login and set common configuration settings, such as the appliance passwords, the configuration drift interval, enablement of SSH, and joining the VMware Customer Experience Improvement Program.

Prerequisites

Complete the deployment of the vRealize Suite Lifecycle Manager appliance on a VMware Validated Design for Software-Defined Data Center foundation environment.

Procedure

1 Open a browser and go to **`https://vrs01lcm01.rainpole.local/vrlcm`**.

2 Log in using the following credentials.

Setting	Value
User name	admin@localhost
Password (default)	vmware

3 On **Choose a new LCM Appliance Password** page, enter a new password, click **Update Password**, and close the **Welcome** dialog box.

Note During initial login to the vRealize Suite Lifecycle Manager, you must change the default appliance password.

The password must be at least 8 characters long and contain at least one lowercase, uppercase, numeric, and special character.

4 On the **Navigator** pane, click **Settings**.

5 Under **Settings**, click **Common Configuration** and enter the following values.

Option	Value
Root Password	*vrslcm_root_password*
Confirm Root Password	*vrslcm_root_password*
Admin Password	*vrslcm_admin_password*
Confirm Admin Password	*vrslcm_admin_password*
SSH User Password	*vrslcm_ssh_password*
Confirm SSH User Password	*vrlscm_ssh_password*
Configuration Drift Interval	24 (default)
Restart Server	Deselected (default)
SSH Service Enabled	Selected (default)
Join the VMware Customer Experience Improvement Program	Selected (default)

6 Click **Save**.

The administrative user is logged out and returned to the vRealize Suite Lifecycle Manager login screen, where the updated password for **admin@localhost** is used.

Generate Certificate for vRealize Suite Lifecycle Manager Environments

Before deploying a product or solution path with vRealize Suite Lifecycle Manager, you generate a self-signed certificate that is used during an installation wizard or configuration file based deployment.

Procedure

1. Open a browser and go to **`https://vrs01lcm01.rainpole.local/vrlcm`**.
2. Log in using the following credentials.

Setting	Value
User name	admin@localhost
Password (default)	*vrlscm_admin_password*

3. On the **Navigator** pane, click **Settings**.
4. Under **Settings**, click the **Generate Certificates** tab, enter the following values, and click **Generate Certificate**. A dialogue appears with the message `Certificate generate request triggered successfully.`

Option	Value
Enter Organization Name	Rainpole
Enter Organizational Unit	Rainpole
Enter Domain Name	rainpole.local
Enter Locality	San Francisco
Enter State	California
Enter Country Code	US
Enter Passphrase	*vrlscm_generated_certificate_passphrase*

5. On the **Navigator**, click **Requests** and validate that `ACTION#GENERATE_CERTIFICATE` displays `COMPLETED`.
6. Under **Settings**, click the **Generate Certificates** tab and click **View Certificate**.
7. (Optional) In the **View Certificate**, copy and save the text output of the **Private Key** and **Certificate Chain**.

   Step 7 is only required if you are using the configuration file option to deploy products using vRealize Lifecycle Manager.

Replace Certificate on the vRealize Suite Lifecycle Manager Appliance

To establish a trusted connection to vRealize Suite Lifecycle Manager, you replace the SSL certificate on the appliance with a custom certificate that is signed by a certificate authority available on the parent Active Directory or on the intermediate Active Directory. See *Certificate Replacement* guide for additional information.

Table 3-1. Certificate Files for vRealize Suite Lifecycle Manager

vRealize Suite Lifecycle Manager Appliance	Certificate File Name
vrs01lcm01.rainpole.local	■ vrs01lcm01.2.chain.pem ■ vrs01lcm01-orig.key

Prerequisites

- A certificate signed by a certificate authority, generated using VMware Validated Design Certificate Generation Utility (CertGenVVD).
- A host with an SSH terminal access software such as PuTTY and an SCP software such as WinSCP installed.

Procedure

1 Rename the certificates generated using the VMware Validated Design Certificate Generation Utility for vrs01lcm01.rainpole.local.

Original Certificate File Name	New Certificate File Name
vrs01lcm01.2.chain.pem	server.crt
vrs01lcm01-orig.key	server.key

2 Open a Secure Shell connection to the vRealize Suite Lifecycle Manager appliance

   a Open an SSH connection to vrs01lcm01.rainpole.local.

   b Log in using the following credentials.

Setting	Value
Username	root
Password	*vrslcm_root_password*

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.

4 After copying the certificates, restart the vRealize Suite Lifecycle Manager services to update the appliance certificate.

   a Restart the system services by executing the following command in the SSH session:

```
systemctl restart vlcm-xserver
```

   b Check the status of the system services by executing the following command in the SSH session:

```
systemctl status vlcm-xserver
```

5 After restarting the services, verify that the certificate is updated on the appliance.
   a Open a browser and go to **`https://vrs01lcm01.rainpole.local/vrlcm`**.
   b Verify that you see the new certificate in the browser.

Configure NTP on the vRealize Suite Lifecycle Manager Appliance

Configuring NTP on the vRealize Suite Lifecycle Manager appliance.

Prerequisites

Verify that the vRealize Suite Lifecycle Manager appliance is deployed, with SSH enabled and an SSH user password set.

Procedure

1 Connect to the vRealize Suite Lifecycle Manager appliance.
   a Open a terminal and SSH to **`vrs01lcm01.rainpole.local`**.
   b Log in using following credentials:

Setting	Value
Username	root
Password	*vrslcm_root_password*

2 Configure the NTP source for the vRealize Suite Lifecycle Manager appliance.
   a Open `/etc/systemd/timesync.conf` in `vi` editor.

   ```
   # vi /etc/systemd/timesyncd.conf
   ```

   b Uncomment the **NTP** configuration and add **`ntp.sfo01.rainpole.local`**.

   ```
   NTP=ntp.sfo01.rainpole.local
   ```

3 Enable the **`systemd-timesyncd`** service and verify the status.
   a At the prompt, enter **`timedatectl set-ntp true`** to start the service
   b Next, enter **`timedatectl status`** to verify the state of the service
4 Logout of the session by typing **`logout`**.

Configure the Proxy Settings for vRealize Suite Lifecycle Manager

(Optional) You configure a proxy server for the vRealize Suite Lifecycle Manager appliance if your organization restricts outbound access. vRealize Suite Lifecycle Manager requires outbound access to communicate with My VMware for product OVAs and licenses, Marketplace content, and appliance updates.

Procedure

1 Open a browser and go to **`https://vrs01lcm01.rainpole.local/vrlcm`**.

2 Log in using the following credentials.

Setting	Value
User name	admin@localhost
Password (default)	vrslcm_admin_*password*

3 On the **Navigator** pane, click **Settings**.

4 Under **Settings**, click the **Proxy** tab, enter the following values, and click **Save**.

Option	Value
Enable / Disable Proxy	Selected
HTTP Proxy Server	*proxy_server_fqdn_or_ip* (for example, proxy.rainpole.local)
Proxy Port	*proxy_server_port* (for example, 3128)
Proxy Username	*proxy_server_username*
Proxy Password	*proxy_server_password*

Update the VMware Validated Design Solution Path Policies on the vRealize Suite Lifecycle Manager Appliance

Before you can deploy the Micro-Segmentation use case, you must update the solution path policies on the vRealize Suite Lifecycle Manager appliance.

Prerequisites

The vRealize Suite Lifecycle Manager Appliance must be deployed.

Procedure

1 Connect to the vRealize Suite Lifecycle Manager appliance.

   a Open a terminal and SSH to **`vrs01lcm01.rainpole.local`**.

   b Log in using following credentials:

Setting	Value
Username	root
Password	*vrslcm_root_password*

2 Update the VMware Validate Design solution path policies on the vRealize Suite Lifecycle Manager appliance.

a Open `/var/lib/vlcm/policy/vvd.json` in `vi` editor.

```
# vi /var/lib/vlcm/policy/vvd.json
```

b Delete the contents of the file and replace with the following policy configurations:

```
{
    "vvds": [
        {
            "version": "4.1",
            "sizes": [
                "small",
                "smallha",
                "medium",
                "large"
            ],
            "solutions": [
                {
                    "id": "itait",
                    "name": "IT Automating IT",
                    "iconSrc": "images/IT_automating_IT.png",
                    "products": [
                        {
                            "id": "vra",
                            "iconSrc": "images/vRA_icon.png",
                            "name": "vRealize Automation",
                            "version": "7.3.0"
                        },
                        {
                            "id": "vrbc",
                            "iconSrc": "images/vrb.jpeg",
                            "name": "vRealize Business for Cloud",
                            "version": "7.3.0"
                        },
                        {
                            "id": "vrops",
                            "iconSrc": "images/vrops.png",
                            "name": "vRealize Operations Manager",
                            "version": "6.6.1"
                        },
                        {
                            "id": "vrli",
                            "iconSrc": "images/vrli.png",
                            "name": "vRealize Log Insight",
                            "version": "4.5.0"
                        }
                    ],
                    "description": "Enable automation and simplification of workload
provisioning tasks of production-ready infrastructure and applications across multi-cloud
environments.",
                    "detailsHref": "http://www.vmware.com/info?id=1427"
                },
```

```
                {
                    "id": "micseg",
                    "name": "Micro-Segmentation",
                    "iconSrc": "images/microsegmentation.png",
                    "products": [
                        {
                            "id": "vrli",
                            "iconSrc": "images/vrli.png",
                            "name": "vRealize Log Insight",
                            "version": "4.5.0"
                        }
                    ],
                    "description": "Enable distribution of firewall and isolation policies to
create better network security built inside the data center.",
                    "detailsHref": "http://www.vmware.com/info?id=1426"
                },
                {
                    "id": "intelligentops",
                    "name": "Intelligent Operations",
                    "iconSrc": "images/microsegmentation.png",
                    "products": [
                        {
                            "id": "vrops",
                            "iconSrc": "images/vrops.png",
                            "name": "vRealize Operations Manager",
                            "version": "6.6.1"
                        },
                        {
                            "id": "vrli",
                            "iconSrc": "images/vrli.png",
                            "name": "vRealize Log Insight",
                            "version": "4.5.0"
                        }
                    ],
                    "description": "Enabling proactive identification and remediation of
performance, capacity, and configuration issues of the infrastructure.",
                    "detailsHref": "http://www.vmware.com/info?id=1428"
                }
            ]
        },
        {
            "version": "4.2",
            "sizes": [
                "small",
                "smallha",
                "medium",
                "large"
            ],
            "solutions": [
                {
                    "id": "itait",
                    "name": "IT Automating IT",
                    "iconSrc": "images/IT_automating_IT.png",
                    "products": [
                        {
```

```
                            "id": "vra",
                            "iconSrc": "images/vRA_icon.png",
                            "name": "vRealize Automation",
                            "version": "7.3.0"
                        },
                        {
                            "id": "vrbc",
                            "iconSrc": "images/vrb.jpeg",
                            "name": "vRealize Business for Cloud",
                            "version": "7.3.1"
                        },
                        {
                            "id": "vrops",
                            "iconSrc": "images/vrops.png",
                            "name": "vRealize Operations Manager",
                            "version": "6.6.1"
                        },
                        {
                            "id": "vrli",
                            "iconSrc": "images/vrli.png",
                            "name": "vRealize Log Insight",
                            "version": "4.5.1"
                        }
                    ],
                    "description": "Enable automation and simplification of workload
provisioning tasks of production-ready infrastructure and applications across multi-cloud
environments.",
                    "detailsHref": "http://www.vmware.com/info?id=1427"
                },
                {
                    "id": "micseg",
                    "name": "Micro-Segmentation",
                    "iconSrc": "images/microsegmentation.png",
                    "products": [
                        {
                            "id": "vrli",
                            "iconSrc": "images/vrli.png",
                            "name": "vRealize Log Insight",
                            "version": "4.5.1"
                        }
                    ],
                    "description": "Enable distribution of firewall and isolation policies to
create better network security built inside the data center.",
                    "detailsHref": "http://www.vmware.com/info?id=1426"
                },
                {
                    "id": "intelligentops",
                    "name": "Intelligent Operations",
                    "iconSrc": "images/microsegmentation.png",
                    "products": [
                        {
                            "id": "vrops",
                            "iconSrc": "images/vrops.png",
                            "name": "vRealize Operations Manager",
                            "version": "6.6.1"
```

```
                        },
                        {
                            "id": "vrli",
                            "iconSrc": "images/vrli.png",
                            "name": "vRealize Log Insight",
                            "version": "4.5.1"
                        }
                    ],
                    "description": "Enabling proactive identification and remediation of
performance, capacity, and configuration issues of the infrastructure.",
                    "detailsHref": "http://www.vmware.com/info?id=1428"
                }
            ]
        }
    ]
}
```

3 Save the contents of the updated policy configuration and exit `vi` editor.

`:wq!`

4 Logout of the SSH session by typing **`logout`**.

`# logout`

Register vRealize Suite Lifecycle Manager with My VMware

You can integrate vRealize Suite Lifecycle Manager directly with a My VMware account to access vRealize Suite licenses within an entitlement account and manage the download of product OVAs for install, patch, and upgrade. The My VMware account registration is also used to download content from the VMware Marketplace.

Prerequisites

Before registering vRealize Suite Lifecycle Manager with My VMware, ensure that you have created a My VMware account with permissions to view licenses and download products from your entitlement account.

Procedure

1 Open a browser and go to **`https://vrs01lcm01.rainpole.local/vrlcm`**.

2 Log in using the following credentials.

Setting	Value
Username	admin@localhost
Password	*vrslcm_admin_username*

3 On the **Navigator** pane, click **Settings**

4 Under **Settings**, click the **My VMware** tab, enter your My VMware credentials, and click **Submit**.

   vRealize Suite Lifecycle Manager is successfully registered with My VMware if the `Service registered with My VMware credentials provided.` message appears.

5 When the **Download OVA** dialogue appears prompting to start a content download, select **No** to close the action.

OVA Configuration in vRealize Suite Lifecycle Manager

vRealize Suite Lifecycle Manager provides two methods to retrieve and store product OVAs for install, patch, and upgrade of the vRealize Suite components.

Download Product OVAs to vRealize Suite Lifecycle Manager with My VMware

You can integrate vRealize Suite Lifecycle Manager directly with a My VMware account to access vRealize Suite entitlements. You can download all or select product OVAs for install, patch, and upgrade.

Note Using the My VMware integration to download vRealize Suite product OVAs to the vRealize Suite Lifecycle Manager appliance is the recommended path to simplify, automate, and organize the repository. If your organization must restrict outbound traffic from the management components of the Software-Defined Data Center, as an alternative you can upload vRealize Suite product OVAs to the vRealize Suite Lifecycle Manager appliance directly.

Prerequisites

- vRealize Suite Lifecycle Manager has been registered with My VMware.
- The registered My VMware account has product entitlement to the vRealize Suite.
- If your organization requires the use of an HTTP Proxy, ensure that it has been enabled.

Procedure

1 Log in to the vRealize Suite Lifecycle Manager user interface.

   a Open a browser and go to **`https://vrs01lcm01.rainpole.local/vrlcm`**.

   b Log in using following credentials:

Setting	Value
Username	admin@localhost
Password	*vrslcm_admin_password*

2 Click **Settings** and click **OVA Configuration**.

3 In the **Select a source location or download from My VMware** section, select **My VMware**.

4 At the bottom of the **OVA Configuration** page, enable **Auto Refresh**.

5 For each product and version in the Micro-Segmentation solution path, click the **Download** icon from the **Actions** column.

Solution Path	Product Name	Product Version
Micro-segmentation	vRealize Log Insight	Refer to the Release Notes

6 When downloading, the **Download Status** column changes to an `INPROGRESS` status. Monitor the **Download Status** column as each product transitions from `INPROGRESS` to `COMPLETED`. Due to the size of each product download for install, patch, and upgrade, the process can take some time to complete.

Upload Product OVAs to vRealize Suite Lifecycle Manager

Before you can trigger a solution path deployment for Micro-Segmentation by using vRealize Suite Lifecycle Manager, you download product OVAs and create mappings between each product and the associated OVA.

Note Using the My VMware integration to download vRealize Suite product OVAs to the vRealize Suite Lifecycle Manager appliance path simplifies, automates, and organizes the repository. If your organization restricts outbound traffic from the management components of the Software-Defined Data Center, as an alternative you can upload the vRealize Suite product OVAs to the vRealize Suite Lifecycle Manager appliance directly.

Prerequisites

Verify that the vRealize Suite Lifecycle Manager appliance is deployed, SSH is enabled and an SSH user password is set.

Procedure

1 Download the product OVAs for the Micro-Segmentation solution path.

Solution Path	Product Name	Product Version	Product OVA
Micro-segmentation	vRealize Log Insight	Refer to the Release Notes	vRealize Log Insight `.ova` file

2 Create a directory on the vRealize Suite Lifecycle Manager appliance for product OVAs.

a Open an SSH connection to **`vrs01lcm01.rainpole.local`**.

b Log in using the following credentials:

Setting	Value
Username	root
Password	*vrslcm_root_password*

c Create the `/data/binaries/OVA` directory, and exit.

3 Upload the product OVAs to the vRealize Suite Lifecycle Manager appliance.

   a Open an SCP client and connect to **`vrs01lcm01.rainpole.local`**.

   b Log in using following credentials:

Setting	Value
Username	root
Password	*vrslcm_root_password*

   c Upload the product `.ova` files to the `/data/binaries/OVA` directory and exit.

4 Log in to the vRealize Suite Lifecycle Manager Web interface.

   a Open Web a browser and go to **`https://vrs01lcm01.rainpole.local/vrlcm`**.

   b Log in using the following credentials:

Setting	Value
User name	admin@localhost
Password	*vrslcm_admin_password*

5 Click **Settings** and click **OVA Configuration**.

6 Enter the following parameter to identify the source type and click **Get**.

Option	Value
Select OVA source location or Download OVA from My VMware	Source Location
Select Location Type	Local
Base Location	`/data/binaries/OVA`

7 Create a mapping to associate each OVA file with the solution path in Step 1 and for each product click **Save**.

   For example, if a solution path includes vRealize Log Insight simply add product information.

Option	Value
Product Name	vRealize Log Insight
Product Version	Select Version - Refer to Release Notes
Product Binary Type	Install
Product Binary	vRealize Log Insight `.ova` file

8 Repeat the process for each product OVA required by the Micro-Segmentation solution path.

Add a Data Center to vRealize Suite Lifecycle Manager

Before you can create an environment for a solution path deployment, you must add a data center in using vRealize Suite Lifecycle Manager and associate the Management vCenter Server instance.

Prerequisites

Ensure the operations service account svc-vrslcm-vsphere for the integration between vRealize Suite Lifecycle Manager and vSphere is:

- added to the Management vCenter Server.
- assigned the custom vRealize Suite Lifecycle Manager User role.

Procedure

1 Log in to the vRealize Suite Lifecycle Manager Web interface.

   a Open a browser and go to **`https://vrs01lcm01.rainpole.local/vrlcm`**.

   b Log in using following credentials:

Setting	Value
Username	admin@localhost
Password	*vrslcm_admin_password*

2 In the **Navigator**, click **Manage Data Centers** and click **Add Data Center**.

3 In the **Add Data Center** dialog box, enter the following information and click **Add**.

Setting	Value
Name	sfo01-m01dc
Location	San Francisco, California, US

4 Add the vCenter Server.

   a Click **Manage vCenter Servers**.

   b In the *Select Data Center*, click the drop-down menu and select sfo01-m01dc.

   c Click **Add vCenter Server**.

   d Enter the following vCenter Server information and click **Submit**.

Setting	Value
Host Name	sfo01m01vc01.sfo01.rainpole.local
User Name	svc-vrslcm-vsphere@rainpole.local
Password	*svc-vrslcm-vsphere_password*
vCenter Server Type	Management

5 In the **Navigator**, click **Requests** and validate that `VC_DATA_COLLECTION` for the vCenter Server shows `COMPLETED`.

Pre-Deployment Tasks for the Micro-Segmentation Use Case

4

Before deploying the Micro-Segmentation use case, perform the following pre-deployment tasks.

1 Generate Certificates for the Micro-Segmentation Solution Path

   Use the VMware Validated Design Certificate Generation Utility (CertGenVVD) to generate certificates that are signed by the Microsoft certificate authority (MSCA) for all life cycle products with a single operation.

2 Prerequisites for Deploying vRealize Log Insight for Micro-Segmentation

Generate Certificates for the Micro-Segmentation Solution Path

Use the VMware Validated Design Certificate Generation Utility (CertGenVVD) to generate certificates that are signed by the Microsoft certificate authority (MSCA) for all life cycle products with a single operation.

For information about the VMware Validated Design Certificate Generation Utility, see VMware Knowledge Base article 2146215 and the *VMware Validated Design Planning and Preparation*.

Prerequisites

- Provide a Window Server 2012 host that is part of the sfo01.rainpole.local domain.
- Install a Certificate Authority server on the rainpole.local domain.

Procedure

1 Log in to a Windows host that has access to your data center.

2 Download the `CertGenVVD-`*`version`*`.zip` file of the Certificate Generation Utility from VMware Knowledge Base article 2146215 on the Windows host where you connect to the data center and extract the ZIP file to the `C:` drive.

3 In the `C:\CertGenVVD-`*`version`* folder, open the `default.txt` file in a text editor.

4 Verify that following properties are configured.

```
ORG=Rainpole Inc.
OU=Rainpole.local
LOC=SFO
ST=CA
CC=US
CN=VMware_VVD
keysize=2048
```

5 Verify that the `C:\CertGenVVD-version\ConfigFiles` folder contains only following files.

Table 4-1. Certificate Configuration Files for the Micro-segmentation Solution Path

Host Name or Service		Configuration Files
Operations Management Layer		
vRealize Log Insight	■ sfo01vrli01.sfo01.rainpole.local ■ sfo01vrli01a.sfo01.rainpole.local ■ sfo01vrli01b.sfo01.rainpole.local ■ sfo01vrli01c.sfo01.rainpole.local	vrli.sfo01.txt

6 Verify that each configuration file includes FQDNs and host names in the dedicated sections.

7 Open a Windows PowerShell prompt and navigate to the `CertGenVVD` folder.

```
cd C:\CertGenVVD-version
```

8 Grant permissions to run third-party PowerShell scripts.

```
Set-ExecutionPolicy Unrestricted
```

9 Validate if you can run the utility using the configuration on the host and verify if VMware is included in the printed CA template policy.

```
.\CertgenVVD-version.ps1 -validate
```

10 Generate MSCA-signed certificates.

```
.\CertGenVVD-version.ps1 -MSCASigned -attrib 'CertificateTemplate:VMware'
```

11 In the `C:\CertGenVVD-version` folder, verify that the utility created the `SignedByMSCACerts` sub-folder.

Prerequisites for Deploying vRealize Log Insight for Micro-Segmentation

Before you use vRealize Suite Lifecycle Manager to deploy vRealize Log Insight, verify that your environment satisfies the requirements for this deployment.

IP Addresses and Host Names

Verify that static IP addresses and FQDNs for vRealize Log Insight are available in the region-specific application virtual network.

For the application virtual network, allocate three static IP addresses for the vRealize Log Insight nodes and one IP address for the integrated load balancer. Map host names to the IP addresses in DNS.

Table 4-2. Application Virtual Network Names for vRealize Log Insight

vRealize Log Insight Component	Application Virtual Network
Analytics Cluster Nodes	Mgmt-RegionA01-VXLAN

Note Region A must be routable via the vSphere management network.

Table 4-3. IP Addresses and Host Names for vRealize Log Insight for Micro-Segmentation

Role	IP Address	FQDN
Integrated load balancer VIP address	192.168.31.10	sfo01vrli01.sfo01.rainpole.local
Master node	192.168.31.11	sfo01vrli01a.sfo01.rainpole.local
Worker node 1	192.168.31.12	sfo01vrli01b.sfo01.rainpole.local
Worker node 2	192.168.31.13	sfo01vrli01c.sfo01.rainpole.local
Default gateway	192.168.31.1	-
DNS server	■ 172.16.11.5 ■ 172.16.11.4	-
Subnet mask	255.255.255.0	-
NTP servers	■ 172.16.11.251 ■ 172.16.11.252	■ ntp.sfo01.rainpole.local

Deployment Prerequisites

Verify that your environment satisfies the following prerequisites for deploying vRealize Log Insight.

Prerequisite	Value
Storage	■ Virtual disk provisioning. ■ Thin ■ Required storage per node ■ Initial storage for node deployment: 510 GB ■ Required storage for cluster archiving ■ Initial storage for archiving: 400 GB
Software Features	■ Verify that the vCenter Server instances are operational. ■ Verify that the vSphere cluster has DRS and HA enabled. ■ Verify that the NSX Manager instances are operational. ■ Verify that vRealize Operations Manager is operational. ■ Verify that the application virtual network is available. ■ Verify that the Postman application is installed. ■ Verify the following NFS datastore requirements: ■ Create an NFS share of 400 GB and export it as `/V2D_vRLI_MgmtA_400GB`. ■ Verify that the NFS server supports NFS v3. ■ Verify that the NFS partition allows read and write operations for guest accounts. ■ Verify that the mount does not require authentication. ■ Verify that the NFS share is directly accessible to vRealize Log Insight ■ If using a Windows NFS server, allow unmapped user Unix access (by UID/GID).
Installation Package	Download the `.ova` file of the vRealize Log Insight virtual appliance on the machine where you use the vSphere Web Client.
License	Obtain a license that covers the use of vRealize Log Insight.
Active Directory	Verify that you have a parent and child Active Directory domain controllers configured with the role-specific SDDC users and groups for the `rainpole.local` domain.
Certificate Authority	Configure the Active Directory domain controller as a certificate authority for the environment.
E-mail account	Provide an email account to send vRealize Log Insight notifications.

Deployment Paths for the Micro-Segmentation Use Case with vRealize Suite Lifecycle Manager

5

vRealize Suite Lifecycle Manager provides two paths for deploying the Micro-Segmentation use case.

You can deploy the Micro-Segmentation use case using either of the following methods.

- **Using Installation Wizard**: You can use the installation wizard to deploy the vRealize Suite products for the use case by entering each configuration parameter in the vRealize Suite Lifecycle Manager user interface.
- **Using Configuration File**: You can use the JSON configuration file to deploy the vRealize Suite products for the use case to provide a pre-built configuration to vRealize Suite Lifecycle Manager.

This chapter includes the following topics:

Deploy the Micro-Segmentation Use Case with the vRealize Suite Lifecycle Manager Installation Wizard

You can deploy all components required for the Micro-Segmentation use case by using the installation wizard in vRealize Suite Lifecycle Manager.

The installation wizard will prompt you for information about your deployment such as name, location, licensing, virtual machine names, IP addresses, and more.

Prerequisites

Deploy and configure the vRealize Suite Lifecycle Manager virtual appliance and perform pre-deployment tasks.

Create the Environment for Micro-Segmentation with the Installation Wizard

When you deploy the Micro-Segmentation use case by using the vRealize Suite Lifecycle Manager web interface, you first create a new environment. As part of the task, you input parameters such as the administrator email, network and storage information, and other environment information that is required for the deployment.

Prerequisites

vRealize Suite Lifecycle Manager deployed and product OVA sources configured for the Micro-segmentation use case.

Procedure

1 Login to vRealize Suite Lifecycle Manager

   a Open a Web browser and go to **`https://vrs01lcm01.rainpole.local/vrlcm`**.

   b Log in using following credentials.

Setting	Value
User name	admin@localhost
Password	*vrslcm_admin_password*

2 To start a new deployment, on the **Home** page, click **Create Environment**.

3 In the **Select Installation Type** window, click **Using Installation Wizard**.

4 On the **Create New Environment** page, enter the following information and click the **Solutions** tab.

Setting	Value
Data Center	sfo01-m01dc
Environment Type	Production
Environment NameIt	Micro-Segmentation
Administrator Email	**`default_deployment_administrator_ email`**
Default Password	**`default_admin_password`**
Confirm Default Password	**`default_admin_password`**
Customer Experience Improvement Program	Selected

5 On the **Solutions** tab, select **VVD Version 4.2** from the drop-down menu.

6 Select the check box for Micro-Segmentation and click **Create Environment**.

7 On the **End User License Agreement** page, read the EULA, check **I agree to the terms and conditions**, and click **Next**.

8 On the **License Details** page, add or select the vRealize Suite license.

   a From the drop-down menu provided through the My VMware product entitlement, select **Select vRealize Suite License**, select the license, and click **Next**.

   b Or select **Add vRealize Suite License**, provide the vRealize Suite License key, and click **Next**.

9 On the **Infrastructure Details** page, enter the following information, and click **Next**.

Setting	Value
Select vCenter Server	sfo01m01vc01.sfo01.rainpole.local
Select Cluster	sfo01-m01-mgmt01 (sfo01-m01dc)
Select Network	Distributed port group that ends with `Mgmt-xRegion01-VXLAN`
Select Datastore	sfo01-m01-vsan01
Select Disk Format	Thin

10 On the **Network Details** page, enter the following information and click **Next**.

Setting	Value
Default Gateway	192.168.11.1
Domain Name	rainpole.local
Domain Search Path	rainpole.local,sfo01.rainpole.local
Domain Name Server	172.16.11.4,172.16.11.5
Netmask	255.255.255.0

11 On the **Certificate Details** page, select **Use Generated Certificate** and click **Next**.

12 Specify information for each product that is part of this use case:

   a Configure vRealize Log Insight with vRealize Suite Lifecycle Manager

13 On the **Summary** page, click **Pre-Validate Configuration**, wait for the `Validation successful` message, and click **Submit** to start the deployment.

What to do next

Monitor the deployment of the Micro-Segmentation use case by using the vRealize Suite Lifecycle Manager web interface.

Configure vRealize Log Insight with vRealize Suite Lifecycle Manager

You configure deployment details for vRealize Log Insight in the vRealize Suite Lifecycle Manager installation wizard.

Procedure

1 On the **Product Details** page, select the **vRealize Log Insight** tab.

2 Enter the following information for **Product Properties**.

Option	Value
Configure Cluster Virtual IPs	Selected
FQDN	sfo01vrli01.sfo01.rainpole.local
Virtual IP Address	192.168.31.10

3 Select the **vrli-master** VM and click the **Advanced Settings** icon.

4 On **Advanced Configuration for vrli-master** page, enter following information and click **Done**.

Option	Value
vCenter Host	sfo01m01vc01.sfo01.rainpole.local
vCenter Cluster Name	sfo01-m01-mgmt01 (sfo01-m01dc)
VM Network	Distributed port group that ends with `Mgmt-RegionA01-VXLAN`
Hostname	sfo01vrli01a.sfo01.rainpole.local
IP Address	192.168.31.11
Domain	sfo01.rainpole.local
VM Name	sfo01vrli01a
Gateway	192.168.31.1
Deploy Option	**`medium`**

5 Select the **vrli-worker-01** VM and click the **Advanced Settings** icon.

6 On **Advanced Configuration for vrli-worker-01** page, enter the following information and click **Done**.

Option	Value
vCenter Host	sfo01m01vc01.sfo01.rainpole.local
IP Address	192.168.31.12
vCenter Cluster Name	sfo01-m01-mgmt01 (sfo01-m01dc)
VM Network	Distributed port group that ends with `Mgmt-RegionA01-VXLAN`
Hostname	sfo01vrli01b.sfo01.rainpole.local
Domain	sfo01.rainpole.local
VM Name	sfo01vrli01b
Gateway	192.168.31.1
Deploy Option	**`medium`**

7 Select the **vrli-worker-02** VM and click the **Advanced Settings** icon.

8 On **Advanced Configuration for vrli-worker-02** page, enter the following information and click **Done**.

Option	Value
vCenter Host	sfo01m01vc01.sfo01.rainpole.local
IP Address	192.168.31.13
vCenter Cluster Name	sfo01-m01-mgmt01 (sfo01-m01dc)
VM Network	Distributed port group that ends with `Mgmt-RegionA01-VXLAN`
Hostname	sfo01vrli01c.sfo01.rainpole.local
Domain	sfo01.rainpole.local
VM Name	sfo01vrli01c
Gateway	192.168.31.1
Deploy Option	**`medium`**

9 Click **Next** and review the configuration details on the **Summary** page.

10 Click **Submit** to create the environment.

Monitor the Deployment for Micro-Segmentation in vRealize Suite Lifecycle Manager

You can monitor the status of the Micro-Segmentation deployment in the vRealize Suite Lifecycle Manager user interface.

Procedure

1 Login to vRealize Suite Lifecycle Manager

   a Open a Web browser and go to **`https://vrs01lcm01.rainpole.local/vrlcm`**.

   b Log in using following credentials.

Setting	Value
User name	admin@localhost
Password	*vrslcm_admin_password*

2 In the **Navigator**, click **Requests** and validate that `CREATE_ENVIRONMENT` for `Environment Name:`Micro-Segmentation in the **Request Info** is `INPROGRESS`. It can take a moment for the process to progress from `SUBMITTED` to `INPROGRESS` state.

3 Select the `INPROGRESS` for `Environment Name:`Micro-Segmentation in the **Request Info** column.

4 In **Requests** page, monitor the steps of the deployment graph until the request is marked as `COMPLETED`.

Deploy the Micro-Segmentation Use Case with a vRealize Suite Lifecycle Manager JSON Configuration File

You can deploy all components required for the Micro-Segmentation use case by providing a JSON configuration file in vRealize Suite Lifecycle Manager.

The process prompts you for information about your deployment such as name, location, password, and the JSON configuration file.

Create the Environment for Micro-Segmentation with a JSON Configuration File

You can deploy the products that are used by the Micro-Segmentation use case by importing a JSON configuration file into vRealize Suite Lifecycle Manager.

Prerequisites

Deploy and configure the vRealize Suite Lifecycle Manager virtual appliance and perform pre-deployment tasks.

Procedure

1 Login to vRealize Suite Lifecycle Manager

   a Open a Web browser and go to **`https://vrs01lcm01.rainpole.local/vrlcm`**.

   b Log in using following credentials.

Setting	Value
User name	admin@localhost
Password	*vrslcm_admin_password*

2 On the **Home** page, click **Create Environment**.

3 In **Select Installation Type** dialog, click **Using Configuration File**.

4 On the **Data Center and Environment** page, enter the following information.

Setting	Value
Data Center	sfo01-m01dc
Environment Type	Production
Environment Name	Micro-Segmentation
Administrator Email	*default_deployment_administrator_email*
Default Password	*default_deployment_password*
Confirm Default Password	*default_deployment_password*
Customer Experience Improvement Program	Selected

5 On the **Product Config JSON** section, copy and paste the example JSON configuration file below.

Note You are responsible for reviewing and supplying the license, certificate, keyphrases, portgroups, and key information.

6 Click **Create Environment**.

Example: Example JSON Configuration File for Micro-Segmentation

```
{
  "infrastructure": {
    "properties": {
      "acceptEULA": true,
      "diskFormat": "Thin",
      "license": "xxxxx-xxxxx-xxxxx-xxxxxx-xxxxx",
      "vcUsername": "svc-vrslcm-vsphere@rainpole.local",
      "vcPassword": "vsphere_admin_password",
      "vcHostname": "sfo01m01vc01.sfo01.rainpole.local",
      "clusterName": "sfo01-dc#sfo01-m01-mgmt01",
      "datastoreName": "sfo01-m01-vsan01",
      "vmNetwork": "dvPortgroup ending with Mgmt-RegionA01-VXLAN",
      "netmask": "255.255.255.0",
      "gateway": "192.168.31.1",
      "dnsServers": "172.16.11.4,172.16.11.5",
      "domain": "sfo01.rainpole.local",
      "searchpath": "rainpole.local,sfo01.rainpole.local",
      "masterCertificateChain": "-----BEGIN CERTIFICATE-----\n\n-----END CERTIFICATE-----",
      "masterPrivateKey": "-----BEGIN RSA PRIVATE KEY-----\n\n-----END RSA PRIVATE KEY-----",
      "masterKeyPassphrase": "master_key_passphrase",
      "certificateChain": "-----BEGIN CERTIFICATE-----\n\n-----END CERTIFICATE-----",
      "privateKey": "-----BEGIN RSA PRIVATE KEY-----\n\n-----END RSA PRIVATE KEY-----",
      "keyPassphrase": "key_passphrase"
    }
  },
  "encoded": false,
  "products": [
    {
      "id": "vrli",
      "version": "4.5.1",
      "clusterVIP": [],
      "properties": {
        "vrliClusterVips": "192.168.31.10#sfo01vrli01.sfo01.rainpole.local"
      },
      "nodes": [
        {
          "type": "vrli-master",
          "properties": {
            "vrliAdminEmail": "admin@rainpole.local",
            "vrliLicenseKey": "xxxxx-xxxxx-xxxxx-xxxxxx-xxxxx",
            "name": "sfo01vrli01a",
            "ipAddress": "192.168.31.11",
            "hostname": "sfo01vrli01a.sfo01.rainpole.local"
          }
```

```
        },
        {
          "type": "vrli-worker",
          "properties": {
            "name": "sfo01vrli01b",
            "ipAddress": "192.168.31.12",
            "hostname": "sfo01vrli01b.sfo01.rainpole.local"
          }
        },
        {
          "type": "vrli-worker",
          "properties": {
            "name": "sfo01vrli01c",
            "ipAddress": "192.168.31.13",
            "hostname": "sfo01vrli01c.sfo01.rainpole.local"
          }
        }
      ],
      "contents": []
    }
  ]
}
```

Monitor the Deployment for Micro-Segmentation in vRealize Suite Lifecycle Manager

You can monitor the status of the Micro-Segmentation deployment in the vRealize Suite Lifecycle Manager user interface.

Procedure

1 Login to vRealize Suite Lifecycle Manager

   a Open a Web browser and go to **`https://vrs01lcm01.rainpole.local/vrlcm`**.

   b Log in using following credentials.

Setting	Value
User name	admin@localhost
Password	*vrslcm_admin_password*

2 In the **Navigator**, click **Requests** and validate that `CREATE_ENVIRONMENT` for `Environment Name:`Micro-Segmentation in the **Request Info** is `INPROGRESS`. It can take a moment for the process to progress from `SUBMITTED` to `INPROGRESS` state.

3 Select the `INPROGRESS` for `Environment Name:`Micro-Segmentation in the **Request Info** column.

4 In **Requests** page, monitor the steps of the deployment graph until the request is marked as `COMPLETED`.

Post-Deployment Tasks for vRealize Log Insight

6

After you deploy vRealize Log Insight with vRealize Suite Lifecycle Manager, you perform post-deployment tasks to complete the configuration.

1 Move vRealize Log Insight Cluster Nodes to a Virtual Machine Folder

Use the vSphere Web Client to move the vRealize Log Insight cluster nodes to a virtual machine folder for organization and ease of management.

2 Configure a DRS Anti-Affinity Rule for vRealize Log Insight for Micro-Segmentation

To protect the vRealize Log Insight cluster from a host-level failure, configure vSphere DRS to run the worker virtual appliances on different hosts in the cluster.

3 Configure the vRealize Log Insight Master node

Configure the general properties of the vRealize Log Insight Master Node.

4 Enable Active Directory Support for vRealize Log Insight for Micro-Segmentation

To use service accounts in vRealize Log Insight that are maintained centrally and are inline with the other solutions in the SDDC, enable Active Directory support.

5 Replace the Certificate of vRealize Log Insight for Micro-Segmentation

Update the certificate chain of vRealize Log Insight to use a trusted non-default certificate after deployment or to replace a certificate that is soon to expire. In this way, connection to the vRealize Log Insight user interface remains trusted.

6 Connect vRealize Log Insight to the vSphere Environment for Micro-Segmentation

Start collecting log information about the ESXi and vCenter Server instances in the SDDC.

7 Connect vRealize Log Insight to the NSX Instances for Micro-Segmentation

Install and configure the vRealize Log Insight Content Pack for NSX for vSphere for log visualization and alerting of the NSX for vSphere real-time operation. You can use the NSX-vSphere dashboards to monitor logs about installation and configuration, and about virtual networking services.

8 Install the vRealize Log Insight Content Pack for Linux for Micro-Segmentation

Install the content pack for Linux to add dashboards for viewing log information in vRealize Log Insight from the operating system of the management virtual appliances in the region.

9 Configure a Log Insight Agent Group for the Management Virtual Appliances for Micro-Segmentation

After you install the content pack for Linux, configure an agent group to apply common settings to the agents on the appliances in the region.

10 Configure Log Retention and Archiving for Micro-Segmentation

Set log retention to one week and archive logs for 90 days according to the *VMware Validated Design Architecture and Design* documentation.

Move vRealize Log Insight Cluster Nodes to a Virtual Machine Folder

Use the vSphere Web Client to move the vRealize Log Insight cluster nodes to a virtual machine folder for organization and ease of management.

vRealize Suite Lifecycle Manager deploys three vRealize Log Insight nodes - one master node and two worker nodes. You move them to a single VM folder to simplify management.

Procedure

- Log in to vCenter Server by using the vSphere Web Client.
  a Open a Web browser and go to `https://sfo01m01vc01.sfo01.rainpole.local/vsphere-client`.
  b Log in using the following credentials.

Setting	Value
User name	administrator@vsphere.local
Password	*vsphere_admin_password*

- From the Home menu, select **VMs and Templates**.
- Navigate to the **sfo01m01vc01.sfo01.rainpole.local** vCenter Server and **sfo01-m01dc** data center.
- Create a new VM and Template folder named **sfo01-m01fd-vrli**.
- Move the vRealize Log Insight cluster VMs.
  a Select the virtual machines **sfo01vrli01a**, **sfo01vrli01b**, and **sfo01vrli01c**.
  b Right click and select **Move to...** and select **sfo01-m01fd-vrli** under **VM Folders**.
  c Click **OK**.

Configure a DRS Anti-Affinity Rule for vRealize Log Insight for Micro-Segmentation

To protect the vRealize Log Insight cluster from a host-level failure, configure vSphere DRS to run the worker virtual appliances on different hosts in the cluster.

Procedure

1 Log in to vCenter Server by using the vSphere Web Client.

   a Open a Web browser and go to **`https://sfo01m01vc01.sfo01.rainpole.local/vsphere-client`**.

   b Log in using the following credentials.

Setting	Value
User name	administrator@vsphere.local
Password	*vsphere_admin_password*

2 Navigate to the sfo01m01vc01.sfo01.rainpole.local vCenter Server object, and under the sfo01-m01dc data center object select the **sfo01-m01-mgmt01** cluster.

3 On the **Configure** tab, select **VM/Host Rules**.

4 In the **VM/Host Rules** list, click **Add** above the rules list, add a new anti-affinity rule using the following details, and click **OK**.

Rule Attribute	Value
Name	anti-affinity-rule-vrli
Enable rule	Yes
Type	Separate Virtual Machines
Members	■ sfo01vrli01a ■ sfo01vrli01b ■ sfo01vrli01c

Configure the vRealize Log Insight Master node

Configure the general properties of the vRealize Log Insight Master Node.

vRealize Suite Lifecycle Manager performs the deployment for you, but you have to perform additional configuration.

Prerequisites

You need information about the email server for sending notifications from vRealize Log Insight. Contact your system administrator for details about the email server.

Procedure

1 Log in to the vRealize Log Insight user interface.

a Open a Web browser and go to **`https://sfo01vrli01a.sfo01.rainpole.local`**.

b Log in using the following credentials.

Setting	Value
User name	admin
Password	*vrli_admin_password*

2 Click the configuration drop-down menu icon and select **Administration**.

3 Under **Configuration**, click **General**, enter the following settings and click **Save**.

Setting	Value
Email System Notifications to	*email_address_to_receive_system_notifications*
Send HTTP Post System Notifications To	https://sfo01vrli01.sfo01.rainpole.local

4 Under **Configuration** page, click **SMTP**, specify the properties of an SMTP server to enable outgoing alerts and system notification emails, and to test the email notification.

a Set the connection setting for the SMTP server that will send the email messages from vRealize Log Insight.

SMTP Option	Description
SMTP Server	FQDN of the SMTP server
Port	Server port for SMTP requests
SSL (SMTPS)	Sets whether encryption should be enabled for the SMTP transport option connection.
STARTTLS Encryption	Enable or disable the STARTTLS encryption.
Sender	Address that appears as the sender of the email.
Username	User name on the SMTP server
Password	Password for the SMTP server you specified in Username

b To verify that the SMTP configuration is correct, type a valid email address and click **Send Test Email**.

vRealize Log Insight sends a test email to the address that you provided.

c Click **Save**.

Enable Active Directory Support for vRealize Log Insight for Micro-Segmentation

To use service accounts in vRealize Log Insight that are maintained centrally and are inline with the other solutions in the SDDC, enable Active Directory support.

Procedure

1 Log in to the vRealize Log Insight user interface.

   a Open a Web browser and go to **`https://sfo01vrli01.sfo01.rainpole.local`**.

   b Log in using the following credentials.

Setting	Value
User name	admin
Password	*vrli_admin_password*

2 From the Administration page, under **Configuration**, click **Authentication**.

3 On the **Authentication Configuration** page, select the **Active Directory** tab.

4 Slide the toggle button to enable the support for Active Directory and configure the Active Directory settings.

   a Configure the Active Directory connection settings according to the details from your IT administrator.

Setting	Value
Enable Active Directory support	Selected
Default Domain	rainpole.local
Domain Controller(s)	dc01rpl.rainpole.local
User Name	svc-vrli
Password	*svc_vrli_password*
Connection Type	Standard
Require SSL	Yes or No according to the instructions from the IT administrator

   b Click **Test Connection** to verify the connection, and click **Save**.

Replace the Certificate of vRealize Log Insight for Micro-Segmentation

Update the certificate chain of vRealize Log Insight to use a trusted non-default certificate after deployment or to replace a certificate that is soon to expire. In this way, connection to the vRealize Log Insight user interface remains trusted.

Procedure

1 Log in to the vRealize Log Insight user interface.

   a Open a Web browser and go to **`https://sfo01vrli01.sfo01.rainpole.local`**.

   b Log in using the following credentials.

Setting	Value
User name	admin
Password	*vrli_admin_password*

2 In the vRealize Log Insight user interface, click the configuration drop-down menu icon and select **Administration**.

3 Under **Configuration**, click **SSL**.

4 On the **SSL Configuration** page, next to **New Certificate File (PEM format)** click **Choose File**, browse to the location of the PEM file on your computer, and click **Save**.

Certificate Generation Option	Certificate File
Using the CertGenVVD tool	vrli.sfo01.2.chain.pem

   The certificate is uploaded to vRealize Log Insight.

5 Open a Web browser and go to **`https://sfo01vrli01.sfo01.rainpole.local`**

   A warning message that the connection is not trusted appears.

6 To review the certificate, click the padlock in the address bar of the browser, and verify that **Subject Alternative Name** contains the names of the vRealize Log Insight cluster nodes.

7 Import the certificate in your Web browser.

   For example, in Google Chrome under the HTTPS/TLS settings click **Manage certificates**, and in the **Certificates** dialog box import `vrli-chain.pem`.

   You can also use Certificate Manager on Windows or Keychain Access on MAC OS X.

Connect vRealize Log Insight to the vSphere Environment for Micro-Segmentation

Start collecting log information about the ESXi and vCenter Server instances in the SDDC.

Configure User Privileges in vSphere for Integration with vRealize Log Insight for Micro-Segmentation

Assign global permissions to the service account svc-vrli-vsphere to collect log information from the vCenter Server instances and ESXi hosts with vRealize Log Insight. The svc-vrli-vsphere user account is dedicated to collecting log information from vCenter Server and ESXi.

Procedure

1 Log in to vCenter Server by using the vSphere Web Client.

   a Open a Web browser and go to **`https://sfo01m01vc01.sfo01.rainpole.local/vsphere-client`**.

   b Log in using the following credentials.

Setting	Value
User name	administrator@vsphere.local
Password	*vsphere_admin_password*

2 From the **Home** menu, select **Administration**.

3 Under **Access Control**, click **Roles**.

4 Create a role for vRealize Log Insight.

   a From **Roles provider** drop-down menu, select sfo01m01vc01.sfo01.rainpole.local

   b Select **Read-only** and click the **Clone role action** icon.

   You clone the Read-only role because it includes the **System.Anonymous**, **System.View**, and **System.Read** privileges. vRealize Log Insight requires those privileges for accessing log information related to the vCenter Server instances.

   c In the **Clone Role Read-only** dialog box, complete the configuration of the role and click **OK**.

Setting	Description
Role name	Log Insight User
Privilege	■ **Host.Configuration.Advanced settings** ■ **Host.Configuration.Change settings** ■ **Host.Configuration.Network configuration** ■ **Host.Configuration.Security profile and firewall**

   These host privileges allow vRealize Log Insight to configure the syslog service on the ESXi hosts.

   The Log Insight User role is propagated to other linked vCenter Server instances.

5 Assign global permissions to the svc-vrli-vsphere@rainpole.local service account.

   a In the vSphere Web Client, select **Administration** from the **Home** menu and click **Global Permissions** under **Access Control**.

   b On the **Manage** tab, click **Add Permission**.

   c In the **Global Permissions Root - Add Permission** dialog box, click **Add** to associate a user or a group with a role.

   d In the **Select Users/Groups** dialog box, from the **Domain** drop-down menu, select **rainpole.local**, in the filter box type **`svc`**, and press Enter.

e From the list of users and groups, select the **svc-vrli-vsphere** user, click **Add**, and click **OK**.

f In the **Add Permission** dialog box, from the **Assigned Role** drop-down menu, select **Log Insight User**, select **Propagate to children**, and click **OK**.

The global permissions of the svc-vrli-vsphere@rainpole.local user propagate to all vCenter Server instances.

Connect vRealize Log Insight to vSphere for Micro-Segmentation

After you configure the svc-vrli-vsphere Active Directory user with the vSphere privileges that are required for retrieving log information from the vCenter Server instances and ESXi hosts, connect vRealize Log Insight to vSphere in the vRealize Log Insight user interface.

Procedure

1 Log in to the vRealize Log Insight user interface.

a Open a Web browser and go to **`https://sfo01vrli01.sfo01.rainpole.local`**.

b Log in using the following credentials.

Setting	Value
User name	admin
Password	*vrli_admin_password*

2 Click the configuration drop-down menu icon and select **Administration**.

3 Under **Integration**, click **vSphere**.

4 In the **vCenter Servers** pane, enter the connection settings for the vCenter Server instances in the region.

   a Enter the host name, user credentials, and collection options for the vCenter Server instances, and click **Test Connection**.

vCenter Server Option	Value
Hostname	■ sfo01m01vc01.sfo01.rainpole.local for Management vCenter Server ■ sfo01w01vc01.sfo01.rainpole.local for Compute vCenter Server
Username	svc-vrli-vsphere@rainpole.local
Password	*svc-vrli-vsphere_user_password*
Collect vCenter Server events, tasks and alarms	Selected
Configure ESXi hosts to send logs to Log Insight	Selected

   b Click **Advanced Options** and examine the list of ESXi hosts that are connected to the vCenter Server instance to verify that you connect to the correct vCenter Server.

   c In the **Advanced Options** configuration window, select **Configure all ESXi hosts**, select **UDP** under **Syslog protocol**, and click **OK**.

5 Click **Add vCenter Server** to add a new settings form and repeat the steps to add the settings for the second vCenter Server instance in Region A.

6 Click **Save**.

   A progress dialog box appears.

7 Click **OK** in the confirmation dialog box that appears after vRealize Log Insight contacts the vCenter Server instances.

You see the vSphere dashboards under the **VMware - vSphere** content pack dashboard category.

Configure vCenter Server to Forward Log Events to vRealize Log Insight for Micro-Segmentation

Configure vCenter Server and Platform Services Controller appliances to forward system logs and events to the vRealize Log Insight. You can then view and analyze all syslog information in the vRealize Log Insight Web interface.

You configure the following vCenter Server and Platform Services Controller instances:

Appliance Type	Appliance Management Interface URL
vCenter Server instances	https://sfo01m01vc01.sfo01.rainpole.local:5480
	https://sfo01w01vc01.sfo01.rainpole.local:5480
Platform Services Controller instances	https://sfo01m01psc01.sfo01.rainpole.local:5480
	https://sfo01w01psc01.sfo01.rainpole.local:5480

Procedure

1 Redirect the log events from the vCenter Server Appliance to vRealize Log Insight.

a Open a Web browser and go to **`https://sfo01m01vc01.sfo01.rainpole.local:5480`**.

b Log in using the following credentials.

Setting	Value
User name	root
Password	*vc_root_password*

c In the **Navigator**, click **Syslog Configuration**.

d On the **Syslog Configuration** page, click **Edit**, configure the following settings, and click **OK**.

Setting	Value
Common Log Level	*
Remote Syslog Host	sfo01vrli01.sfo01.rainpole.local
Remote Syslog Port	514
Remote Syslog Protocol	UDP

e Repeat the steps for the other appliances.

2 Verify that the appliances are forwarding their syslog traffic to vRealize Log Insight.

a Open a Web browser and go to **`https://sfo01vrli01.sfo01.rainpole.local`**.

b Log in using the following credentials.

Setting	Value
User name	admin
Password	*vrli_admin_password*

c In the vRealize Log Insight user interface, click **Dashboards** and select **VMware - vSphere** under **Content Pack Dashboards**.

d Verify that the vCenter Server nodes are presented on the **All vSphere events by hostname** widget of the **General Overview** dashboard.

Update the Host Profiles with Syslog Settings for Micro-Segmentation

To have a consistent logging configuration across all ESXi hosts, update the host profile in each cluster to accommodate the syslog settings for connection to vRealize Log Insight.

Procedure

1 Log in to vCenter Server by using the vSphere Web Client.

   a Open a Web browser and go to **`https://sfo01m01vc01.sfo01.rainpole.local/vsphere-client`**.

   b Log in using the following credentials.

Setting	Value
User name	administrator@vsphere.local
Password	*vsphere_admin_password*

2 Update the host profile for the management cluster.

   a From the vSphere Web Client **Home** menu, select **Home**.

   b In the **Navigator**, click **Policies and Profiles** and click **Host Profiles**.

   c Right-click **sfo01-m01hp-mgmt01** and select **Copy Settings from Host**.

   d Select **sfo01m01esx01.sfo01.rainpole.local** and click **OK**.

3 Verify that the syslog host settings have been updated.

   a On the **Host Profiles** page in the **Navigator**, click **sfo01-m01hp-mgmt01**.

   b On the **Configure** tab, click **Settings**.

   c In **Filter** search box, enter **`Syslog.global.logHost`**.

   d Select the **Syslog.global.logHost** entry from the results list and verify that value of the option is `udp://sfo01vrli01.sfo01.rainpole.local:514`

4 Verify the compliance of the hosts in the management cluster.

   a From the vSphere Web Client **Home** menu, select **Hosts and Clusters**.

   b Click the **sfo01-m01hp-mgmt01** cluster, click the **Monitor** tab, and click **Profile Compliance**.

   c Click the **Check Compliance Now** button.

   d Verify that all hosts are compliant with the attached profile.

5 Repeat the procedure with a host in the shared edge and compute cluster.

Connect vRealize Log Insight to the NSX Instances for Micro-Segmentation

Install and configure the vRealize Log Insight Content Pack for NSX for vSphere for log visualization and alerting of the NSX for vSphere real-time operation. You can use the NSX-vSphere dashboards to monitor logs about installation and configuration, and about virtual networking services.

Install the vRealize Log Insight Content Pack for NSX for vSphere for Micro-Segmentation

Install the content pack for NSX for vSphere to add the dashboards for viewing log information in vRealize Log Insight.

Procedure

1 Log in to the vRealize Log Insight user interface.

   a Open a Web browser and go to **`https://sfo01vrli01.sfo01.rainpole.local`**.

   b Log in using the following credentials.

Setting	Value
User name	admin
Password	*vrli_admin_password*

2 In the vRealize Log Insight user interface, click the configuration drop-down menu icon and select **Content Packs**.

3 Under **Content Pack Marketplace**, select **Marketplace**.

4 In the list of content packs, locate the **VMware - NSX-vSphere** content pack and click its icon.

5 In the **Install Content Pack** dialog box, accept the **License Agreement**, and click **Install**.

6 In the **VMware - NSX-vSphere Setup Instructions** dialog box, click **OK**.

After the installation is complete, the VMware - NSX-vSphere content pack appears in the **Installed Content Packs** list on the left.

Configure NSX Manager to Forward Log Events to vRealize Log Insight for Micro-Segmentation

Configure the NSX Manager instances in the region to send audit logs and system events to vRealize Log Insight.

Procedure

1 Log in to the Management NSX Manager appliance user interface.

a Open a Web browser and go to following URL.

NSX Manager	URL
NSX Manager for the management cluster	`https://sfo01m01nsx01.sfo01.rainpole.local`
NSX Manager for the shared compute and edge cluster	`https://sfo01w01nsx01.sfo01.rainpole.local`

b Log in using the following credentials.

Setting	Value
User name	admin
Password	*nsx_manager_admin_password*

2 On the main page of the appliance user interface, click **Manage Appliance Settings**.

3 Under **Settings**, click **General**, and in the **Syslog Server** pane, click **Edit**.

4 In the **Syslog Server** dialog box, configure vRealize Log Insight as a syslog server by specifying the following settings and click **OK**.

Syslog Server Setting	Value
Syslog Server	sfo01vrli01.sfo01.rainpole.local
Port	514
Protocol	UDP

5 Repeat the steps for the other NSX Manager.

Configure the NSX Controllers to Forward Events to vRealize Log Insight for Micro-Segmentation

Configure the NSX Controller instances to forward log information to vRealize Log Insight by using the NSX REST API. To enable log forwarding, you can use a REST client, such as the Postman application.

Procedure

1 Log in to the Windows host that has access to your data center.

2 Start the Postman application and log in.

3 Specify the headers for requests to the NSX Manager.

a On the **Authorization** tab, configure the following authorization settings and click **Update Request**.

Setting	Value
Type	Basic Auth
User name	admin
Password	*nsx_admin_password*

The `Authorization:Basic XXX` header appears in the **Headers** pane.

b On the **Headers** tab, enter the following header details.

Request Header Attribute	Value
Content-Type	application/xml

The `Content-Type:application/xml` header appears in the **Headers** pane.

4 Contact NSX Manager to retrieve the IDs of the associated NSX Controllers.

a Select **GET** from the drop-down menu that contains the HTTP request methods.

b In the **URL** text box next to the selected method, enter the following URL, and click **Send**.

NSX Manager	URL
NSX Manager for the management cluster	https://sfo01m01nsx01.sfo01.rainpole.local/api/2.0/vdn/controller
NSX Manager for the shared edge and compute cluster	https://sfo01w01nsx01.sfo01.rainpole.local/api/2.0/vdn/controller

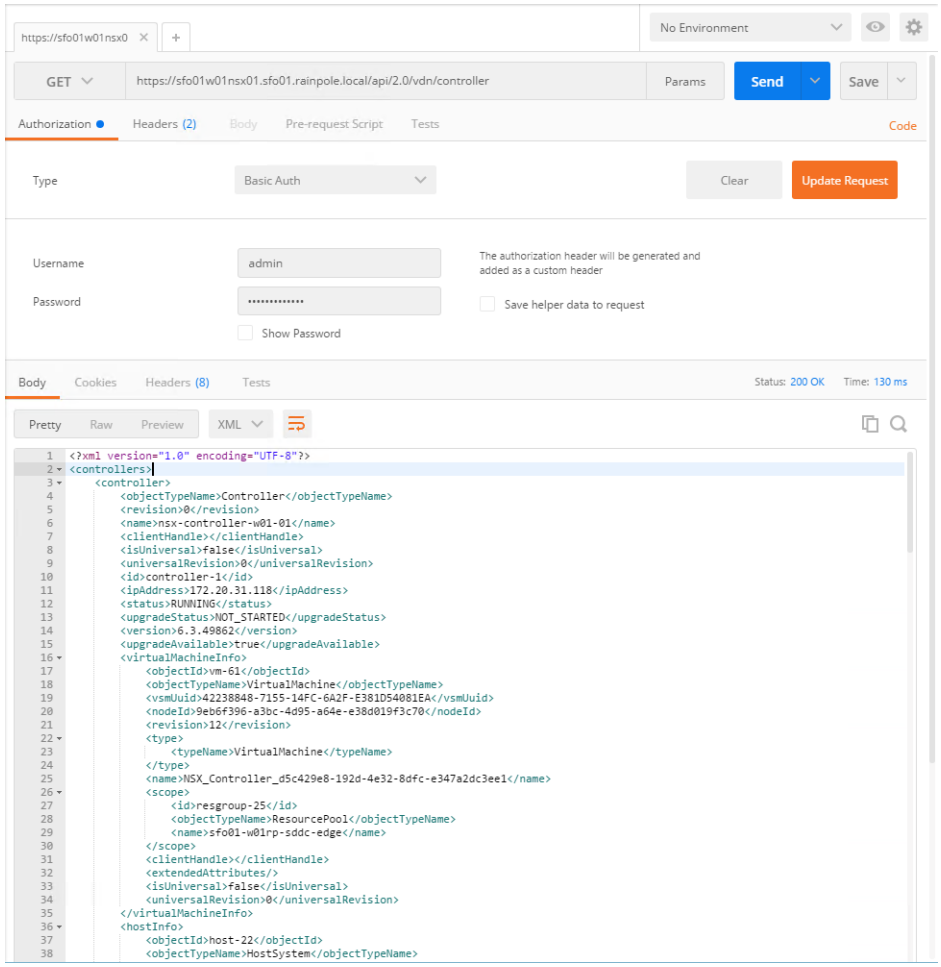
The Postman application sends a query to the NSX Manager about the installed NSX controllers.

c After the NSX Manager sends a response back, click the **Body** tab in the response pane.

The response body contains a root <controllers> XML element that groups the details about the three controllers that form the controller cluster.

d Within the <controllers> element, locate the <controller> element for each controller and write down the content of the <id> element.

Controller IDs have the `controller-id` format where *id* represents the sequence number of the controller in the cluster, for example, `controller-1` in the following image.



e Repeat the steps for the other NSX Manager.

5 For each NSX Controller, send a request to configure vRealize Log Insight as a remote syslog server.

a In the request pane at the top, select **POST** from the drop-down menu that contains the HTTP request methods, and in the **URL** text box, enter the following URL.

Replace *controller-ID* with the controller IDs you have written down.

NSX Manager	NSX Controller in the Controller Cluster	POST URL
NSX Manager for the management cluster	NSX Controller 1	https://sfo01m01nsx01.sfo01.rainpole.local/api/2.0/vdn/controller/**controller-1**/syslog
	NSX Controller 2	https://sfo01m01nsx01.sfo01.rainpole.local/api/2.0/vdn/controller/**controller-2**/syslog
	NSX Controller 3	https://sfo01m01nsx01.sfo01.rainpole.local/api/2.0/vdn/controller/**controller-3**/syslog
NSX Manager for the shared edge and compute cluster	NSX Controller 1	https://sfo01w01nsx01.sfo01.rainpole.local/api/2.0/vdn/controller/**controller-1**/syslog
	NSX Controller 2	https://sfo01w01nsx01.sfo01.rainpole.local/api/2.0/vdn/controller/**controller-2**/syslog
	NSX Controller 3	https://sfo01w01nsx01.sfo01.rainpole.local/api/2.0/vdn/controller/**controller-3**/syslog

b In the **Request** pane, click the **Body** tab, select **Raw**, and using the drop-down menu, select **XML (Application/XML)**.

c Paste the following request body in the **Body** text box and click **Send**.

```
<controllerSyslogServer>
   <syslogServer>192.168.31.10</syslogServer>
   <port>514</port>
   <protocol>UDP</protocol>
   <level>INFO</level>
</controllerSyslogServer>
```

d Repeat the steps for the other NSX Controllers in the management cluster and in the shared edge and compute cluster.

6 Verify the syslog configuration on each NSX Controller.

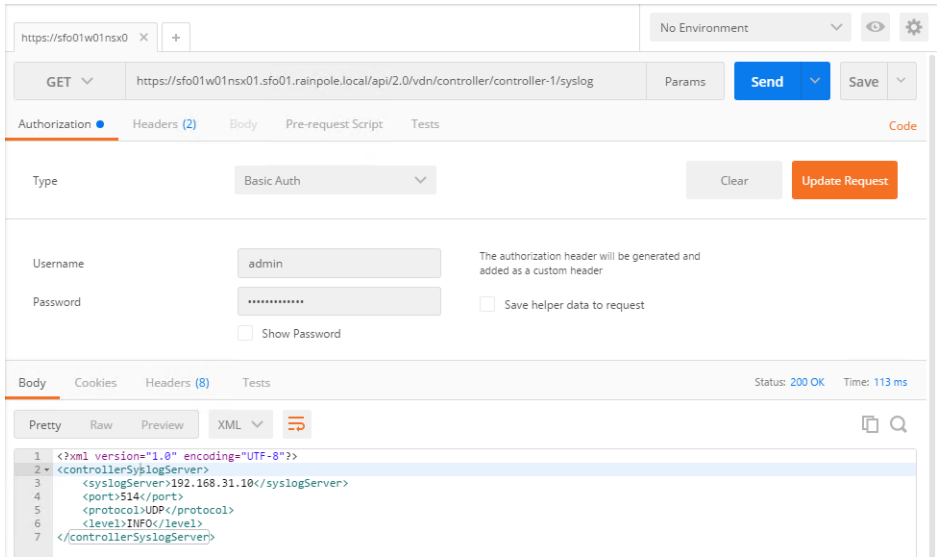
a In the **Request** pane, from the **Method** drop-down menu, select **GET**, in the **URL** text box, enter the controller-specific syslog URL from Step 5, and click the **SEND** button.

b After the NSX Manager sends a response back, click the **Body** tab under **Response**.

The response body contains a root `<controllerSyslogServer>` element, which represents the settings for the remote syslog server on the NSX Controller.

c Verify that the value of the `<syslogServer>` element is 192.168.31.10.

d Repeat the steps for the other NSX Controllers to verify the syslog configuration.



Configure the NSX Edge Instances to Forward Log Events to vRealize Log Insight for Micro-Segmentation

Redirect log information from the edge services gateways, universal distributed logical router, and load balancer to vRealize Log Insight.

Procedure

1 Log in to vCenter Server by using the vSphere Web Client.

a Open a Web browser and go to **`https://sfo01m01vc01.sfo01.rainpole.local/vsphere-client`**.

b Log in using the following credentials.

Setting	Value
User name	administrator@vsphere.local
Password	*vsphere_admin_password*

2 From the **Home** menu of the vSphere Web Client, select **Networking & Security**.

3 In the **Navigator**, click **NSX Edges**.

4 On the **NSX Edges** page, select the NSX Manager instance from the **NSX Manager** drop-down menu.

NSX Manager Instance	IP Address
NSX Manager for the management cluster	172.16.11.65
NSX Manager for the shared edge and compute cluster	172.16.11.66

The edge devices in the scope of the NSX Manager appear.

5 Configure the log forwarding on each edge service gateway instance.

a Double-click the edge device to open its user interface.

Traffic	Management NSX Edge Services Gateway	Compute NSX Edge Services Gateway
North-South Routing	sfo01m01esg01	sfo01w01esg01
North-South Routing	sfo01m01esg02	sfo01w01esg02
East-West Routing	sfo01m01udlr01	sfo01w01udlr01
East-West Routing	-	sfo01w01dlr01
Load Balancer	sfo01m01lb01	-
PSC Load Balancer	sfo01psc01	-

b On the NSX Edge device page, click the **Manage** tab, click **Settings**, and click **Configuration**.

c In the **Details** pane, click **Change** next to **Syslog servers**.

d In the **Edit Syslog Servers Configuration** dialog box, configure the following settings and click **OK**.

Setting	Value
Syslog Server 1	192.168.31.10
Protocol	udp

e Click **OK**.

f Repeat the steps for the remaining NSX Edge devices for management and shared edge and compute clusters.

The vRealize Log Insight user interface starts showing log data in the **NSX-vSphere-Overview** dashboard available under the VMware - NSX-vSphere group of content pack dashboards.

Install the vRealize Log Insight Content Pack for Linux for Micro-Segmentation

Install the content pack for Linux to add dashboards for viewing log information in vRealize Log Insight from the operating system of the management virtual appliances in the region.

Procedure

1 Log in to the vRealize Log Insight user interface.

   a Open a Web browser and go to **`https://sfo01vrli01.sfo01.rainpole.local`**.

   b Log in using the following credentials.

Setting	Value
User name	admin
Password	*vrli_admin_password*

2 In the vRealize Log Insight user interface, click the configuration drop-down menu icon and select **Content Packs**.

3 Under **Content Pack Marketplace**, select **Marketplace**.

4 In the list of content packs, locate the **Linux** content pack and click its icon.

5 In the **Install Content Pack** dialog box, accept the License Agreement, and click **Install**.

After the installation is complete, the **Linux** content pack appears in the **Installed Content Packs** list on the left.

Configure a Log Insight Agent Group for the Management Virtual Appliances for Micro-Segmentation

After you install the content pack for Linux, configure an agent group to apply common settings to the agents on the appliances in the region.

Procedure

1 Log in to the vRealize Log Insight user interface.

   a Open a Web browser and go to **`https://sfo01vrli01.sfo01.rainpole.local`**.

   b Log in using the following credentials.

Setting	Value
User name	admin
Password	*vrli_admin_password*

2 Click the configuration drop-down menu icon and select **Administration**.

3 Under **Management**, click **Agents**.

4 From the drop-down at the top, select **Linux** from the **Available Templates** section.

5 Click **Copy Template**.

6 In the **Copy Agent Group** dialog box, enter **`VA – Linux Agent Group`** in the **Name** text box and click **Copy**.

7 In the agent filter fields, use the following selections.

Press Enter to separate the host name values.

Filter	Operator	Values
Hostname	matches	■ vrops01svr01a.rainpole.local ■ vrops01svr01b.rainpole.local ■ vrops01svr01c.rainpole.local ■ sfo01vropsc01a.sfo01.rainpole.local ■ sfo01vropsc01b.sfo01.rainpole.local

8 Click **Refresh** and verify that all the agents listed in the filter appear in the **Agents** list.

9 Click **Save New Group** at the bottom of the page.

10 Verify that log data is showing up on the Linux dashboards.

a On the main navigation bar, click **Dashboards**.

b Expand **Linux** and click **Security - Overview**.

You see events that have occurred over the past 48 hours.

Configure Log Retention and Archiving for Micro-Segmentation

Set log retention to one week and archive logs for 90 days according to the *VMware Validated Design Architecture and Design* documentation.

Procedure

1 Log in to the vRealize Log Insight user interface.

a Open a Web browser and go to **`https://sfo01vrli01.sfo01.rainpole.local`**.

b Log in using the following credentials.

Setting	Value
User name	admin
Password	*vrli_admin_password*

2 In the vRealize Log Insight user interface, click the configuration drop-down menu icon and select **Administration**.

3 Configure notification about reaching a retention threshold of one week.

   Log Insight continually estimates how long data can be retained with the currently available pool of storage.

   If the estimation drops below the retention threshold of one week, Log Insight immediately notifies the administrator that the amount of searchable log data is likely to drop.

   a Under **Configuration**, click **General**.

   b On the **General Configuration** page, under the **Alerts** section, select the **Send a notification when capacity drops below** check box next to **Retention Notification Threshold**, and enter a 1-week period in the text box.

   c Click **Save**.

4 Configure data archiving.

   a Under **Configuration**, click **Archiving**.

   b Toggle **Enable Data Archiving** on.

   c In the **Archive Location** text box, enter the path in the form of **`nfs://nfs-server-address/V2D_vRLI_MgmtA_400GB`** to an NFS partition where logs will be archived.

   d Click **Test** next to the **Archive Location** text box to verify that the share is accessible.

   e Click **Save**.