Installing vRealize Network Insight

VMware vRealize Network Insight 6.0

vmware®

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

https://docs.vmware.com/

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Contents

About vRealize Network Insight Installation Guide

The *vRealize Network Insight Installation Guide* is intended for administrators or specialists responsible for installing vRealize Network Insight.

Intended Audience

This information is intended for administrators or specialists responsible for installing vRealize Network Insight. The information is written for experienced virtual machine administrators who are familiar with enterprise management applications and datacenter operations.

System Recommendations and Requirements

1

For optimum performance, you must match the minimum recommendations for the deployment.

Recommendations for the Platform Deployment

Table 1-1. Specifications for Platform Brick Size

Brick Size	Cores required for 2.1 GHz CPU	Cores required for 2.3 GHz CPU	Cores required for 2.6 GHz CPU	RAM	Disk
Medium	10	9	8	32 GB	1 TB
Large	15	14	12	48 GB	1 TB
Extra Large	20	18	16	64 GB	2 TB

Note

- The reservation for the CPU speed and RAM for each node must be 100% of the value specified above.
- If the disk in any of the platform nodes exceeds 95% of the capacity, vRealize Network Insight UI will not be accessible.
- To match your setup to all the specifications, you might have to add the resources (RAM, Disk, CPU). See https://kb.vmware.com/s/article/53550 and Increase the Brick Size of your Setup.

Table 1-2. Non-Cluster Deployment - Maximum Capacity

Brick Size	*Number of VMs (K = Thousand)	Flows per Day (M = Million)	Total Flows (M = Million)	Flow Planning (M = Million)	Number of Devices	Number of Rules (K = Thousand)	*Number of Edges for VMware SD-WAN (K = Thousand)
Medium	4K	1M	4M	2M	10	2K	2K
Large	6K	2M	8M	4M	20	4K	2K
Extra Large	10K	2M	8M	4M	30	5K	4K

Note

- The Network Verification and Assurance feature (Network Map and Intents) is available only for Extra Large brick size only.
- * The count of VMs and edges mentioned in the table is the maximum individual limit for a single deployment. So, if you have edges in your setup, you might have to reduce the VM count.
- The count of VMs includes the templates on the vCenter as well.
- Total Flows is the maximum count of flows the system can store for the retention period.
- Flow Planning is the total flows for which the system can perform security planning.

Table 1-3. Cluster Deployment - Maximum Capacity

Configuration	Brick Size	Cluster Size	*Number of VMs (K = Thousand)	Flows per Day (M = Million)	Total Flows (M = Million)	Flow Planning (M = Million)	Number of Devices	Number of Rules (K = Thousand)	*Number of Edges for VMware SD-WAN (K = Thousand)
Up to 50 Devices	Large	3	10K	2M	8M	4M	30	5K	4K
	Extra Large	3	18K	6M	24M	6M	50	10K	6K
	Extra Large	5	30K	10M	40M	10M	50	10K	10K
	Extra Large	10	100K	15M	55M	10M	50	10K	10K
Greater than 50 Devices	Extra Large	3	12K	3M	12M	4M	300	275K	6K

Table 1-3. Cluster Deployment - Maximum Capacity (continued)

Configuration	Brick Size	Cluster Size	*Number of VMs (K = Thousand)	Flows per Day (M = Million)	Total Flows (M = Million)	Flow Planning (M = Million)	Number of Devices	Number of Rules (K = Thousand)	*Number of Edges for VMware SD-WAN (K = Thousand)
	Extra Large	5	18K	6M	24M	6M	400	575K	10K
	Extra Large	10	72K	13M	50M	10M	400	575K	10K

Note

- The Network Verification and Assurance feature (Network Map and Intents) is available only for Extra Large brick size only.
- The number of rules includes all forwarding entries, including layer 3, layer 2, access control and NAT.
- * The count of VMs and edges mentioned in the table is the maximum individual limit for a single deployment. So, if you have edges in your setup, you might have to reduce the VM count.
- The number of VMs includes the templates on the vCenter as well.
- Cluster size is the total number of nodes in the cluster.
- Total Flows is the count of flows in the system for the retention period.
- The query to determine the Total Flows is `count of flows in last 31 days`, assuming the retention period as 31 days.
- Flow Planning is the total flows for which the system can perform security planning.
- vRealize Network Insight supports maximum 10,000 security groups and 10,000 IPSets for a cluster deployment of 10 XL.

Recommendation for the Collector Deployment

Table 1-4. Specifications for Collector Brick Size

Brick Size	Cores required for 2.1 GHz CPU	Cores required for 2.3 GHz CPU	Cores required for 2.6 GHz CPU	RAM	Disk
Medium	5	5	4	12 GB	200 GB
Large	10	9	8	16 GB	200 GB
Extra Large	10	9	8	24 GB	200 GB

Note The reservation for the CPU speed and RAM for each node must be 100% of the value specified above.

Table 1-5. Collector Deployment - Maximum Capacity

Collector Size	Number of VMs (K = Thousand)	Flows per Day (M = Million)	Flow count in 4 days (M = Million)	Number of Edges for VMware SD-WAN (K = Thousand)
Medium	4K	2.5M	3.25M	4K
Large	10K	5M	6.5M	6K
Extra Large	35K	10M	13M	10K

Note

- The count of VMs and edges mentioned in the table is the maximum individual limit for a single deployment. So, if you have edges in your setup, you might have to reduce the VM count.
- The count of VMs includes the templates on the vCenter as well.
- For a single deployment with more than one collector, the limitation on the total flows across collectors is based on the capacity of the platform.

Other Requirements and Considerations

- The maximum time skew between the platform nodes has to be lesser than 30 seconds.
- The availability of the NTP service is critical to system operations. Ensure that you do not reboot the platform node or the collector node when the NTP service is not available.
- When the existing compute resources are completely used by the other processes on the platform, vRealize Network Insight crashes and does not recover automatically. If the services fail to recover, reboot the platform node.
- If the network latency between platform node and upgrade server is greater than 500ms, the vRealize Network Insight upgrade might encounter an error. So, the network latency must be less than 500ms.

- The recommended network latency between platform VMs for optimal performance is up to 3ms. The system performance might degrade beyond the limit.
- The recommended network latency between platform and collector VMs for optimal performance is up to 150ms. The system performance might degrade beyond this limit.
- The recommended disk latency for optimal performance is up to 5ms. If the disk latency is greater than 5ms, the system performance degrades.
- The recommended disk IOPS is 7500.
- For Network Map, the maximum supported firewall rules per VMware NSX-T Manager (including of DFW and edge rules) is 5000.

Supported Web Browser

- Google Chrome: The latest two versions.
- Mozilla Firefox: The latest two versions.

Recommendations to Support High Availability

You can customize vSphere HA options to enable vSphere high availability.

- **Host Failure** - Restart VMs
- **Host Isolation**- Disabled
- **Guest not heartbeating**- Disabled

vRealize Network Insight Installation Process

2

You can deploy Network Insight Network Insight using vSphere Web client or vSphere Windows native client.

Note After you successfully deploy vRealize Network Insight Platform OVA, verify whether the given static IP is set on vCenter Server.

To automate installation, configuration, upgrade, patch, configuration management, drift remediation and health from within a single pane of glass, you can use vRealize Suite Lifecycle Manager. If you are a new user, click here to install vRealize Suite Lifecycle Manager. This provides the IT Managers of Cloud admin resources to focus on business-critical initiatives, while improving time to value (TTV), reliability and consistency.

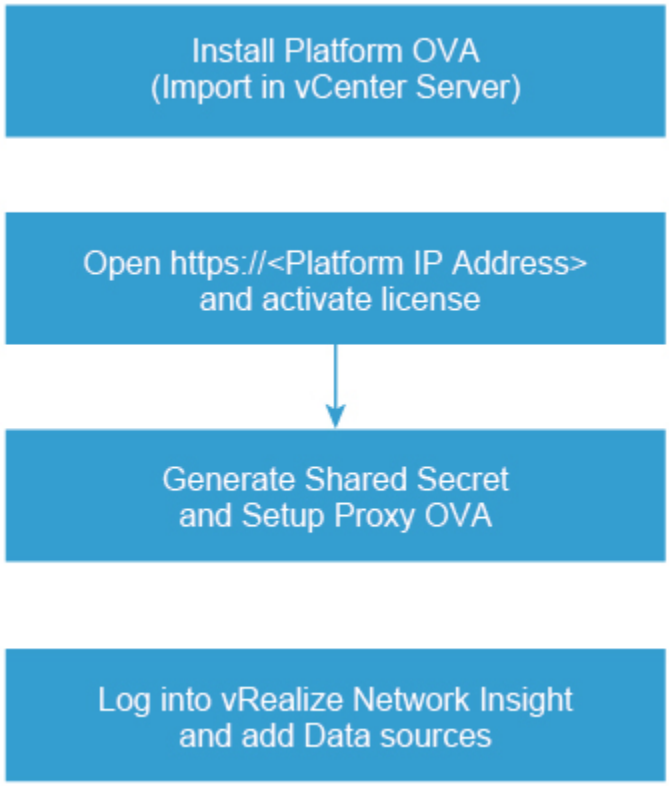
You can also install and upgrade vRealize Network Insight by using vRealize Suite Lifecycle Manager. For more information, see the vRealize Suite Lifecycle Manager Installation, Upgrade, and Management Guide.

You can also view How to Install VMware vRealize Network Insight 6.0 Video Walkthrough.

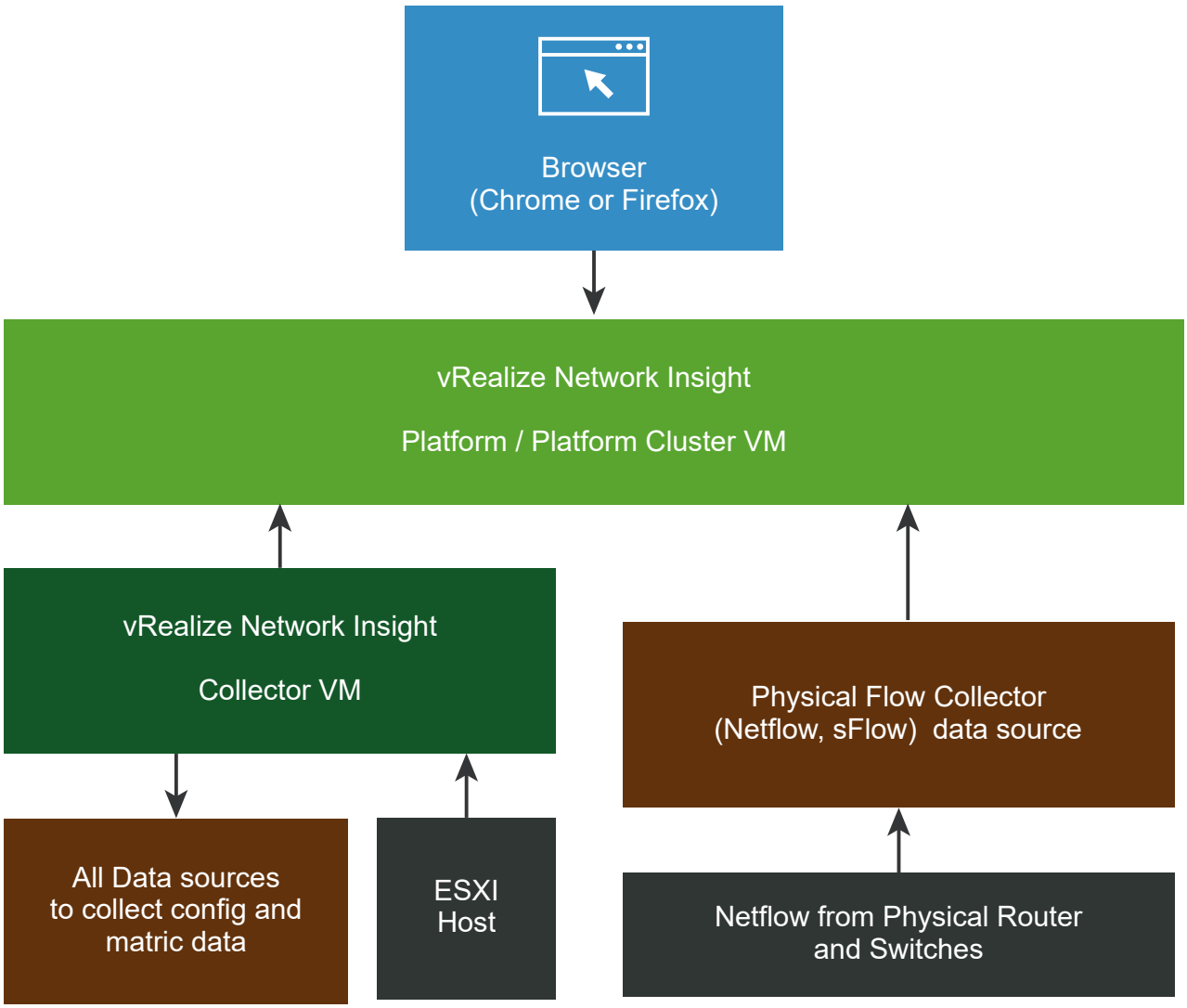
This chapter includes the following topics:

Installation Workflow

To install vRealize Network Insight, you install the platform OVA, activate the license, generate a shared secret, and setup collector OVA.



A simplified deployment diagram of vRealize Network Insight is as follows:



Deploying vRealize Network Insight Platform OVA

You can import the vRealize Network Insight Platform OVA to your vCenter Server.

Note Deployment of vRealize Network Insight Platform OVA on the VMC SDDC is not supported.

Deployment using vSphere Web Client

You can deploy vRealize Network Insight using vSphere Web Client.

Procedure

1 Right-click the **Datacenter** where you want to install the appliance and select **Deploy OVF Template**.

2 Enter the URL to download and install the OVA package or browse to select the source location of the OVA package.

3 Enter the OVA name. Select the destination folder for deployment.

4 Select a host or a cluster or a resource pool where you want to run the deployed template.

5 Verify the OVF template details.

6 Read the End User License Agreement and click **Accept**.

7 Select a deployment configuration. Click **Next**.

8 Select the location to store the files for the deployed template. Select **Thin Provision** as the Virtual Disk format. Select the datastore or the datastore clusters where you want to store the files. Click **Next**.

9 Select the network that the deployed VM will use.

The selected network should allow the appliance to reach out to Internet for support and upgrade.

10 To customize the template for the deployment, you will have to manually configure the appliance using the VM console. Click **Next**.

11 Verify the configuration details and click **Finish**.

12 Increase the Brick Size of your Setup to match the system recommendations and requirements.

13 Once the platform is installed, start the VM and launch the console.

14 Log in with the console credential that you see on the screen and run the `setup` command.

15 Create the password for the *support* login and change the password for the *consoleuser*.

Note

- Your password must contain a minimum of 6 characters. A single quote (`'`) is not allowed.
- You must change the *support* and *consoleuser* password periodically to comply with your organization policy.

16 Enter the following details to configure the network:

a **IPv4 Address**: Second reserved static IP address

b **Netmask**: Subnet mask for the above static IP

c **Default Gateway**: Default gateway of your network

d **DNS** : DNS server of your environment

Note For multiple DNS servers, ensure that they are separated by space.

e **Domain Search List** : The domain that needs to be appended for dns lookups

f Enter `y` to save the configuration.

17 Enter the NTP Sever and ensure that it can reached from the VM. The services will fail to start if NTP time is out of sync.

Note For multiple NTP servers, ensure that they are separated by commas.

18 (Optional) To configure Web Proxy, enter `y`.

19 All the services are verified.

20 Add additional disk space based on your setup requirement. See https://kb.vmware.com/s/article/53550.

Deployment Using vSphere Windows Native Client

You can deploy vRealize Network Insight using vSphere Windows native client.

Procedure

1 Click **File > Deploy OVF Template**.

2 Enter the URL to download and install the OVA package from the internet or browse to select the source location of the OVA package on your computer.

3 Click **Next** and verify the OVF template details.

4 Read the End-User License Agreement and click **Accept**.

5 Provide a name and specify the location for the deployed template. Click **Next**.

6 Select the **Deployment Configuration**.

7 Select a **Host/Cluster** where you want to run the deployed template.

8 Select the **Resource Pool** in which you want to deploy this template.

9 Select a destination storage for the VM files. Click **Next**.

10 Specify the format in which you want to store the virtual disks. Select **Thin Provision** as the virtual disk format. Click **Next**.

11 Specify the network that the deployed template should use. Map the network from OVA to your inventory.

12 Customize the template for the deployment. Provide the shared secret that was generated on the onboarding page. You will have to manually configure the appliance using the VM console. Click **Next**.

13 Verify all the configuration data. Check **Power on after deployment**. Click **Finish**.

14 Increase the Brick Size of your Setup to match the Chapter 1 System Recommendations and Requirements.

15 Once the Collector OVA is installed, start the VM and launch the console.

16 Log in with the console credential that you see on the screen and run the `setup` command.

17 Create the password for the *support* login and change the password for the *consoleuser*.

Note

- Your password must contain a minimum of 6 characters. A single quote (') is not allowed.
- You must change the *support* and *consoleuser* password periodically to comply with your organization policy.

18 Enter the following details to configure the network:

a **IPv4 Address**: Second reserved static IP address

b **Netmask**: Subnet mask for the above static IP

c **Default Gateway**: Default gateway of your network

d **DNS** : DNS server of your environment

Note For multiple DNS servers, ensure that they are separated by space.

e **Domain Search List** : The domain that needs to be appended for `dns lookup`.

f Enter `y` to save the configuration.

19 Enter the NTP Sever and ensure that it can reached from the VM. The services will fail to start if NTP time is out of sync.

Note For multiple NTP servers, ensure that they are separated by commas.

20 (Optional) To configure Web Proxy, enter `y`.

21 All the services are verified.

22 Add additional disk space based on your setup requirement. See https://kb.vmware.com/s/article/53550.

Activate the License

After installing the vRealize Network Insight platform OVA, you must activate the license key that received in the welcome email.

Procedure

1 Open *https://<vRealize Network Insight Platform IP address>* in a web browser.

2 Enter your license key.

3 For UI admin (`admin@local`) user name, set the password.

Note Your password must be alphanumeric, with a minimum of 8 characters and a maximum of 100 characters. Space between the characters is not allowed.

4 Click **Activate**.

Attention It can take up to three minutes to activate the license key. Do not refresh the page.

If you accidentally refresh the page, you must refresh the page again after two minutes to get back to this page.

5 Add the vRealize Network Insight collector after activating the license.

Generate a Shared Secret

You can generate and import the vRealize Network Insight collector virtual appliance.

Generate a shared secret and import the vRealize Network Insight collector virtual appliance:

Procedure

1 Log into the vRealize Network Insight UI.

2 Expand **Infrastructure and Support** and click **Overview and Updates**.

3 Scroll down and click **Add Collector VM**.

The **Add a new Network Insight Data Collector virtual appliance** dialog appears.

4 Click **Copy** to copy the shared secret from the dialog and click **Done**.

You will require this during the deployment of vRealize Network Insight Collector OVA.

Setting up Network Insight Collector (OVA)

You can set up vRealize Network Insight collector by importing OVA to your vCenter server.

Follow the steps below to import the vRealize Network Insight collector OVA to your vCenter Server.

Deployment Using vSphere Web Client

You can import the vRealize Network Insight Collector OVA using vSphere Web Client.

Procedure

1 Right-click the **Datacenter** where you want to install the appliance and select **Deploy OVF Template**.

2 Enter the URL to download and install the OVA package from the internet or browse to select the source location of OVA from your computer.

3 Provide a name and specify the location for the deployed template. Click **Next**.

4 Select a resource (host or a cluster) where you want to run the deployed template. Click **Next**.

5 Verify all the details of the template. Click **Next**.

6 Read the End-User License Agreement and click **Accept**. Click **Next**.

7 Select a deployment configuration. Click **Next**.

8 Select the location where you want to store the files for the deployed template. Specify the format in which you want to store the virtual disks. Select **Thin Provision** as the virtual disk format. Select the Datastore in which you want to install the files. Click **Next**.

9 Specify the destination network for the source network. Click **Next**.

10 Customize the template for the deployment. Provide the shared secret that was generated from the UI. You will have to manually configure the appliance using the VM console. Click **Next**.

11 Verify all the configuration data. Click **Finish**.

12 Once the Collector OVA is installed, start the VM and launch the console.

13 Log in with the console credential that you see on the screen and run the `setup` command.

14 Create the password for the *support* login and change the password for the *consoleuser*.

Note

- Your password must contain a minimum of 6 characters. A single quote (`'`) is not allowed.
- You must change the *support* and *consoleuser* password periodically to comply with your organization policy.

15 Enter the following details to configure the network:

a **IPv4 Address**: Second reserved static IP address

b **Netmask**: Subnet mask for the above static IP

c **Default Gateway**: Default gateway of your network

d **DNS** : DNS server of your environment

Note For multiple DNS servers, ensure that they are separated by space.

e **Domain Search List** : The domain that needs to be appended for dns lookups

f Enter `y` to save the configuration.

16 Enter the NTP Sever and ensure that it can reached from the VM. The services will fail to start if NTP time is out of sync.

Note For multiple NTP servers, ensure that they are separated by commas.

17 (Optional) To configure web proxy:

a Enter `y`.

b Provide the web proxy details.

18 A check is made to see if the shared secret key has been configured. The collector is paired with the corresponding platform. This may take few minutes.

19 All the services are verified.

20 Click **Finish**, once **Proxy Detected!** message is displayed on the onboarding page. It will redirect to the Login Page.

Deployment using vSphere Windows Native Client

You can import the vRealize Network Insight collector OVA using vSphere Windows native client.

Procedure

1 Click **File > Deploy OVF Template**.

2 Enter the URL to download and install the OVA package from the internet or browse to select the source location of the OVA package on your computer.

3 Verify the OVF template details. Click **Next**.

4 Read the End-User License Agreement and click **Accept**. Click **Next**.

5 Provide a name and specify the location for the deployed template. Click **Next**.

6 Select a **Deployment Configuration**. Click **Next**.

7 Select a **Host/Cluster** where you want to run the deployed template. Click **Next**.

8 Select the **Resource Pool** in which you want to deploy this template. Click **Next**.

9 Select a destination storage for the VM files. Click **Next**.

10 Specify the format in which you want to store the virtual disks. the Select **Thin Provision** as the virtual disk format. Click **Next**.

11 Specify the network that the deployed template should use. Map the network from OVA to your inventory.

12 Customize the template for the deployment. Provide the shared secret that was generated on the onboarding page. You will have to manually configure the appliance using the VM console. Click **Next**.

13 Verify all the configuration data. Check **Power on after deployment**. Click **Finish**.

14 Once the Collector OVA is installed, start the VM and launch the console.

15 Log in with the given console credentials. Run the `setup` command.

16 Create the password for the `support` login. Change the password for the `consoleuser`.

17 Enter the following details to configure the network:

   a **IPv4 Address**: Second reserved static IP address

   b **Netmask**: Subnet mask for the above static IP

   c **Default Gateway**: Default gateway of your network

d **DNS** : DNS server of your environment

Note For multiple DNS servers, ensure that they are separated by space.

e **Domain Search List** : The domain that needs to be appended for `dns lookup`.

f Enter `y` to save the configuration.

18 Enter the NTP Sever and ensure that it can reached from the VM. The services will fail to start if NTP time is out of sync.

Note For multiple NTP servers, ensure that they are separated by commas.

19 (Optional) To configure web proxy:

a Enter `y`.

b Provide the web proxy details.

20 A check is made to see if the shared secret key has been configured. The collector is paired with the corresponding platform. This may take few minutes.

21 All the services are verified.

22 Click **Finish**, once **Proxy Detected!** message is displayed on the onboarding page. It will redirect to the Login Page.

Setting up Network Insight Collector (AMI) in AWS for VMware SD-WAN

You can set up vRealize Network Insight collector for AWS by importing Amazon Machine Image (AMI) to your AWS environment.

If your environment does not have a vCenter server, and you want to deploy your collector in a cloud environment then you can deploy your collector in AWS.

Note Currently, vRealize Network Insight supports the collector deployment in AWS using AMI only for VMware SD-WAN.

The procedure and task related to EC2 instances are documented in https://docs.aws.amazon.com/efs/index.html.

Procedure

1 Launch your EC2 instance using the VMware provided AMI in the Amazon EC2 console. For procedure details, see Create Your EC2 Resources and Launch Your EC2 Instance topic in the *Amazon Elastic File System* documentation.

Note When you Launch your EC2 instance in AWS, you must select the following:

Option	Action
Instance type	m4.xlarge (MEDIUM BRICK)
Network	Select an appropriate network and subnet.
Storage	Default Storage.
Tags	As per customer Policies.
Security Group	Allow Outbound to 0.0.0.0/0 for port 443 (or for restricted rules, allow outbound for NI SaaS Prod FQDN for port 443).
Key	Select appropriate Key (SSH Login is enabled for the AMI).

2 When your EC2 instance is in the running state, log in to your EC2 instance.

3 Log in with the given console credentials. Run the `setup` command.

4 Create the password for the `support` login. Change the password for the `consoleuser`.

Note After you change the password, the network options will be skipped during setup CLI.

Proxy AMI does not support the following:

- IP change
- IPv6
- Web Proxy Configuration.

5 Enter the NTP Server and ensure that it can be reached from the VM. The services fail to start if the NTP time is out of sync.

Note For multiple NTP servers, ensure that they are separated by commas.

6 A check is made to see if the shared secret key has been configured. The collector is paired with the corresponding platform. This process can take few minutes.

7 All the services are verified.

What to do next

Enable the flow collection from Edges to the collector you deployed in AWS. To enable the flow collection, do the following:

- Make the collector you deployed in AWS as a Non-VeloCloud Site. For details, contact VMware support.

Deploy Additional Collector to an Existing Setup

You can add additional vRealize Network Insight collector to an existing setup.

Procedure

1. Log into the vRealize Network Insight UI.
2. Expand **Infrastructure and Support** and click **Overview and Updates**.
3. Scroll down and click **Add Collector VM**.

   The **Add a new Network Insight Data Collector virtual appliance** dialog appears.
4. Click **Copy** to copy the shared secret from the dialog and click **Done**.
5. Follow the steps in section Setting up Network Insight Collector (OVA) in step 3.

Accessing vRealize Network Insight by using the Evaluation License

3

vRealize Network Insight starts in the NSX assessment mode when you use the evaluation license.

You can add a data source to vRealize Network Insight, analyze traffic flow, and generate reports.

Note To switch to the Full Product mode, click Switch to Full Product Evaluation located in the bottom right corner.

This chapter includes the following topics:

Add vCenter Server

You can add vCenter Servers as data source to vRealize Network Insight.

Multiple vCenter Servers can be added to vRealize Network Insight to start monitoring data.

Prerequisites

- The predefined roles in the vCenter server must have the following privileges assigned at root level that need to be propagated to the children roles:
  - **System.Anonymous**
  - **System.Read**
  - **System.View**
  - **Global.Settings**
- Following vCenter Server privileges are required to configure and use IPFIX:
  - **Distributed switch: Modify and Port configuration operation**

- **dvPort group: Modify and Policy operation**

  Note IPFIX is supported on the following VMware ESXi versions:

  - 5.5 Update 2 (Build 2068190) and later
  - 6.0 Update 1b (Build 3380124) and later
  - VMware VDS 5.5 and later

- To identify the VM to VM path, you must install VMware tools on all the VMs in the data center .

To know more about roles in vCenter, see the *vSphere Security* guide.

Procedure

1 Click **Add vCenter**.

2 Click **Add new source** and customize the options.

Option	Action
Collector VM	Select a collector VM from the drop-down menu.
IP Address/FQDN	Enter the IP address or fully qualified domain name of the vCenter Server.
Username	Enter the user name with the following privileges: ■ **Distributed Switch**: Modify ■ **dvPort group**: Modify
Password	Enter the password for vRealize Network Insight software to access the vCenter Server system.

3 Click **Validate**.

If the number of VMs discovered exceeds the capacity of the platform or a collector node or both, the validation fails. You will not be allowed to add a data source until you increase the brick size of the platform or create a cluster.

The specified capacity for each brick size with and without flows is as follows:

Brick Size	VMs	State of Flows
Large	6k	Enabled
Large	10k	Disabled
Medium	3k	Enabled
Medium	6k	Disabled

4 Select **Enable Netflow (IPFIX) on this vCenter** to enable IPFIX.

   For more information on IPFIX, see the Enabling IPFIX Configuration on VDS and DVPG section.

   Note If you enable IPFIX in both vCenter and VMware NSX Manager, vRealize Network Insight automatically detects and removes flow redundancies by disabling IPFIX on few of the DVPGs for the associated vCenter.

5 Add advanced data collection sources to your vCenter Server system.

6 Click **Submit** to add the vCenter Server system.

   The vCenter Server systems appear on the homepage.

Analyze Traffic Flows

You can use vRealize Network Insight to analyze flows in your datacenter.

Prerequisites

- Add a vCenter Server datasource. For information about the procedure to add the datasource, see the *User Guide*
- At least two hours of data collection must occur before starting the flow analysis.

Procedure

1 Specify the scope of the analysis. For example, if you are interested in flows of all virtual machines in a **Cluster**, select Cluster from the dropdown menu. You can alternately select all virtual machines connected to a VLAN or VXLAN.

2 Select the entity name for which you want to analyze the flows.

3 Select the duration and click **Analyze**.

Generate a Report

You can generate a report of the flow assessment.

Prerequisites

Analyze traffic flows in the datacenter. For comprehensive reports, collect 24 hours of data before the analysis.

Procedure

1 In the **EVAL NSX Assessment Mode**, click **Generate Report** in the Analyze Flows page.

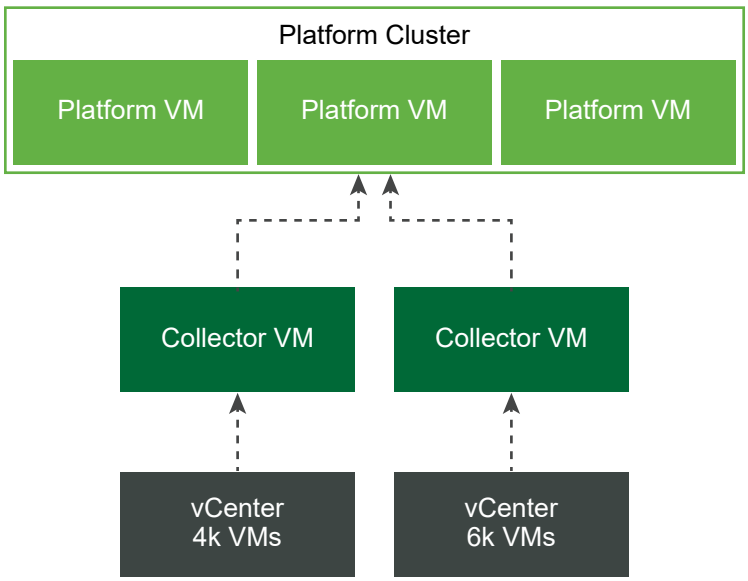
2 In the **Non EVAL Mode**, on the **Microsegmentation** page, click **Traffic Distribution > More Options > Assesment Report**.

Planning to Scale up your Deployment

4

If the VM count or the number of active flows in your setup are high or expected to grow, you can increase the size of the platform or collector.

You can use the following architecture for better understanding of the platform and collector distribution:



This chapter includes the following topics:

- Planning to Scale up the Platform Cluster
- Planning to Scale up the Collector
- Increase the Brick Size of your Setup
- Increase the Disk Size

Planning to Scale up the Platform Cluster

You can scale up the platform cluster to meet the increasing load. Based on the load, you can either scale up by increasing the brick size or creating or expanding a platform cluster. Three

LARGE platform bricks can be connected together to form a platform cluster. If a platform is of LARGE or EXTRA LARGE brick size, then you have to scale up by creating a platform cluster.

To decide platform brick size and number of platform bricks, see Chapter 1 System Recommendations and Requirements.

Note The platform cluster does not support the high availability configuration. All the platform nodes need to be up and running for the cluster to work at optimal performance levels.

Scaling up Scenarios for the Platform Cluster

- Scenario 1 : Your platform is running 5000 VMs and 1.5 million active flows

  Convert your platform MEDIUM to LARGE. See Increase the Brick Size of your Setup.

- Scenario 2 : Your platform is running a single LARGE node with 9000 VMs and 2 million active flows

  Add two more LARGE brick nodes to convert into 3-node LARGE brick cluster. See *Expand Clusters in the vRealize Network Insight User Guide*.

- Scenario 3 : Your platform is running a 3-node LARGE cluster with one or more colletors, 15000 VMs and 4 million active flows.

  Convert your existing platform nodes from LARGE to EXTRA–LARGE. See Increase the Brick Size of your Setup.

- Scenario 4 : Your platform is running a 3-node EXTRA–LARGE cluster with one or more colletors, 25000 VMs and 8 million active flows.

  Add two more EXTRA–LARGE brick nodes to convert into 5-node Extra–LARGE cluster. See *Expand Clusters in the vRealize Network Insight User Guide*.

Planning to Scale up the Collector

The collector capacity is based on the brick size. The data source that you can add to a collector is depended on the capacity of the collector (VMs and flows).

For more information, see Collector Deployment - Maximum Capacity. After a collector is of LARGE brick size, you have to add more collectors. You can scale up each collector to Chapter 1 System Recommendations and Requirements size. You can add multiple data sources to a collector based on the supported collector capacity. However, you cannot add same data source to multiple collectors.

Scaling up Scenarios for the Collectors

Scenarios	Action to perform
2000 VMs in a vCenter	Install one medium collector VM. Add the vCenter to this collector.
1000 VMs in vCenter1 and 2000 VMs in vCenter2 (all of them are in one data center)	Install one medium collector VM. Add both vCenters to this collector.
1000 VMs in vCenter1 (data center1) and 2000 VMs in vCenter2 (data center2)	Install one medium collector VM in each data center. Add vCenter1 to a collector VM in same data center and Add vCenter2 to a collector VM in its data center.
VM count exceeds 4000, active flows exceeds 2.5 Million.	Convert your collector VM from MEDIUM to LARGE. See Increase the Brick Size of your Setup.
9,000 VMs in vCenter1 without flows (data center1).	Install one large collector VM. Add this vCenter to the collector.
VM count is less than or equal to 10000, but the active flow exceeds 5 million.	Convert your collector VM from LARGE to EXTRA–LARGE. See Increase the Brick Size of your Setup.
Two vCenters, vCenter1 has 10000 VMs and 9 million active flows, and vCenter2 has 10000 VMs and 4 million active flows.	Install one EXTRA–LARGE and one LARGE collcctor. Add vCenter1 to EXTRA–LARGE collector and add vCenter2 to LARGE collector.
One vCenter that runs 10000 VMs and 9 million active flows.	Install one EXTRA–LARGE collector and add the vCenter to the collector.

For information about adding vCenter server, see the user guide

Increase the Brick Size of your Setup

To match your requirements, you can change the brick size of your appliance from MEDIUM to LARGE or LARGE to EXTRA–LARGE.

Procedure

- Perform the steps that are relevant to your setup.

Option	Description
For a single node platform or fresh independent OVA	a Log in to vCenter. b Shutdown the platform VM. c Increase the disk size, RAM, total vCPU and corresponding reservation of the VM to match the target brick size. For more information, see the System Recommendations and Requirements page. d Restart Platform VM.
For a cluster platform	a Log in to vCenter. b Shutdown the platform VM in the reverse chronological order. For example: Shut down from Node 3 to Node 1. c Increase the disk size, RAM, total vCPU and corresponding reservation. For more information, see the System Recommendations and Requirements. d Restart Platform VMs in the chronological order. For example: Restart from Node 1 to Node 3.
For a collector	a Log in to vCenter. b Shutdown the collector VM. c Increase the disk size, RAM, total vCPU and corresponding reservation of the VM to match the target brick size. For more information, see the System Recommendations and Requirements page. d Restart the collector VM.

Increase the Disk Size

In vRealize Network Insight, you can add additional disk space to a vRealize Network Insight Platform or Collector node.

If the disk usages on the Platform or Collector are high, adding more disk space helps you prevent any unwanted service interruption.

Note Do not expand the existing disks available in the VM. You must always add a new disk in the VM.

Note Do not reboot any VMs until vRealize Network Insight detects the new disk and the new disk space is added in the `/var` partition.

Prerequisites

Ensure that the nodes are in the power-on state, and you have the correct privileges.

Procedure

1. Log in to VMware vCenter using the web client with correct privileges.
2. Right-click the VM, and click **Edit Settings**.

3 Add a disk of required size.

   A cron job runs every 5 minutes and checks for any new disks added to the VM, then automatically expands the required partition.

What to do next

Wait for 10-15 minutes for vRealize Network Insight to detect the disk, and then check and ensure that the additional disk size is visible in the `/var` partition.

In case troubleshooting is required, the cron job script location is: `/home/ubuntu/build-target/common-utils/cron.5m/run-expandpart.sh`. You can find the related log file at `/home/ubuntu/logs/disk_util.log`.

Upgrading vRealize Network Insight

5

You can upgrade your current vRealize Network Insight environment to the latest version.

Important points to consider before upgarde:

- After upgrade, vRealize Network Insight takes around 12 to 24 hours to process the data that were in pipeline during the upgrade operation and reflect on the UI.
- vRealize Network Insight does not support rollback or product downgrade. You must take a backup before you proceed to upgrade. For more information about the back up and restore process, see the https://kb.vmware.com/s/article/55829 KB article.
- In a cluster environment, you must perform the upgrade operation only on the platform 1 node.
- After upgrading to vRealize Network Insight 5.1, some of the firewall rule IDs might change to the new IDs returned by the VMware Cloud on AWS 1.9 API. If any VMware Cloud on AWS 1.8 firewall rules that are attached to the flows exists:
  - the correct or respective VMware Cloud on AWS 1.9 firewall rules would be attached immediately after upgrade for all active flows.
  - the firewall rules would refer to non-existent rules for the flows whose period of inactivity is greater than 24 hours prior to upgrading 1.8 to 1.9 version.

Note If issues such as upload failure or UI failure come up while performing the centralized upgrade, contact VMware support.

Migration to Foundation DB

To distribute configuration data across datastores in the cluster, vRealize Network Insight 5.1 replaces PostgreSQL to Foundation DB for storing the configuration data. This enables vRealize Network Insight to:

- reduce the load on platform 1 node
- avoid single point of failure
- improve resiliency
- enhance performance

- share the disk uniformly across cluster nodes

The migration process automatically,

- shuts down all services
- starts table to table migration from PostgreSQL to Foundation DB
- displays the dynamic migration progress information on the platform 1 UI

The migration time to move data from PostgreSQL to Foundation DB depends on the disk speed and the node count (more nodes provides more Foundation DB write throughput)

The time taken to complete the migration process depends on the size of the database.

Setup Size	Data Size	Node Count	Typical Migration Time
Small	20GB to 40GB	1 node	1 to 2 hours
Medium	60GB to 100GB	3 nodes	7 to 10 hours
Large One cloud setups	500GB	10 nodes cluster	15 to 20 hours
XL (Megatron)	1 TB	10 node cluster	35 to 40 hours

Note that the migration happens as a part of vRealize Network Insight upgrade process. So, the upgrade time might be longer, which you see on the screen during the process.

vRealize Network Insight provides the different modes of upgrade.

This chapter includes the following topics:

- Online Upgrade
- Single-Click Offline Upgrade
- CLI Upgrade

Online Upgrade

Whenever there is a new version of vRealize Network Insight available, you receive a notification.

Prerequisites

- Download the new license key from my.vmware.com.
- The upgrade steps might fail if there is insufficient space in the `/tmp` directory. Verify you meet the following disk space requirements for platform and collector server:
  - `/tmp` - 6 GB
  - `/home` - 2 GB
- Verify you meet the following disk space requirement for platform server:
  - `/`- 6 GB (Only for the Platform1 node)
  - `/var` - 40 GB

- Verify you have the minimum bandwidth requirement of 500 KB/s to download the upgrade bundle from the server. The **Install and the Support** page throws an error, if the download bandwidth is not sufficient.
- Ensure that all the nodes are online. If any node is inactive, you will not be allowed to trigger the upgrade.
- Take the snapshots of the VMs.
- Note the following values to verify after migration:
  - Count of VMs
  - VM where Snapshot Count > 0
  - Count of Firewall Rule
  - Count of Security Group
  - Count of NSX Firewall

Procedure

1 When an update is available, you see **Update available** message notification.

Note

- If the update notification is not available, verify that both vRealize Network Insight platform and collector VMs have connectivity to `svc.ni.vmware.com` on port 443 and `reg.ni.vmware.com` on port 443 by running the `show-connectivity-status` command. If this connectivity requires `http proxy`, configure it on each VM using the `set-web-proxy` command. Ensure that the output contains upgrade connectivity status as `Passed`.
- File a support ticket and provide the service tag from the product UI. The service tag is shown under **Settings > About**.
- Log into the appliance and run the `show-connectivity-status` command. Provide a screenshot of the command output from each vRealize Network Insight platform and collector VMs.

2 In the `Update Available` message notification, click **View details** to view details of update.

vRealize Network Insight Upgrade screen appears.

3 Read the **Before you proceed** instructions and click **Continue**.

4 Wait for the pre-checks to complete, which verifies:

- the customer table,
- the disk space, including the space required for migration
- the license requirement
- the bandwidth
- the version

- the NTP sync status

5 Click the **I agree to the constraints** option to use the new license keys that you have obtained from my.vmware.com.

Note You get the grace period of seven days to add the new license key. If you do not update the new license key,

- When an admin user logs in after upgrade, the user sees the license validation message to enter the new key.
  1 Click **Proceed**.
  2 Update the new key On the Add License page, **Validate** and **Activate**.

  The user also sees a warning message on the banner stating that the valid license is not available and the data collection stops after the grace period.
- When a non-admin user logs in after upgrade, the user sees the message stating that the valid license is not available and to contact an administrator for adding a new valid key.

You can see the approximate time required to complete the upgrade process (including the migration duration) on your setup.

6 Click **Install Now**.

7 Once the upgrade process begins, the vRealize Network Insight Upgrade screen provides the status of the upgrade process.

Note

- If a node becomes inactive, the upgrade process does not continue. The upgrade will not resume until the node becomes active again.
- The platform1 becomes the upgrade server. If platform1 is offline, then no other node is upgraded.
- Once the platforms are upgraded, you can resume your normal vRealize Network Insight operations even though the collector upgrade happens in parallel. Until the upgrade process is completely over, the `Node Version Mismatch detected` message is shown in the Install and Support page.

- After the services are upgraded, Nginx restarts to display the migration process. So, you might not be able to access the UI for a short period (one to two minutes).
- vRealize Network Insight starts migrating data to Foundation database. On the Data Migration Status screen, you see:
  - the overall status
  - the elapsed time
  - the table by table status
  - the number of records migrated

For any issues, you can use the **Export Migration logs** option to share with the VMware support team.

- The PostgreSQL data on the collectors are also migrated to Foundation DB as part of upgrade process. However, the collector migration status is not shown on the UI.

8 Upon the completion of upgrade process, you see the confirmation message.

All platforms and the collectors nodes are upgraded.

What to do next

- Log in to vRealize Network Insight and perform your tasks.
- After two or three days, delete the snapshots to save the disk space.

Single-Click Offline Upgrade

vRealize Network Insight supports the single-click offline upgrade of the product from Release 3.7 and later.

Prerequisites

- Download the new license key from my.vmware.com.
- The upgrade steps might fail if there is insufficient space in the `/tmp` directory. Verify you meet the following disk space requirements for platform and collector server:
  - `/tmp` - 6 GB
  - `/home` - 2 GB
- Verify you meet the following disk space requirement for platform server:
  - `/`- 12 GB (Only for the Platform1 node)
  - `/var` - 40 GB

  Note The bundle upload and the subsequent upgrade steps may fail if there is insufficient space in the `/tmp` directory.
- To avoid the UI session timeout, go to **Settings > System Configuration > User Session Timeout** and increase the **User Session Timeout** to at least 2 hours. After you change the session timeout duration, you must log in again to the system.
- Ensure that all the nodes are online. If any node is inactive, you will not be allowed to trigger the upgrade.
- Take the snapshots of the VMs.
- Note the following values to verify after migration:
  - Count of VMs
  - VM where Snapshot Count > 0

- Count of Firewall Rule
- Count of Security Group
- Count of NSX Firewall

Procedure

1 Download the required upgrade bundle file from My VMware and save the update package in your local disk.

2 Check and ensure that the `MD5SUM` value of the downloaded bundle matches the `MD5SUM` value specified in the VMware website.

3 On the **Install and Support** page, under **Software version**, select **Click here**.

4 Click **Browse** to select the file and click **Upload**.

When the upload is complete, vRealize Network Insight show the `Bundle Upload Complete` message notification within 2-3 minutes and the bundle processing happens in the background.

Note

- Until the upload of the package happens, ensure that the session is not closed. If the session ends, you have to restart the upload process.
- Do not refresh the page after bundle upload, until you see the `Update Available` message notification.

5 In the `Update Available` message notification, click **View details**.

vRealize Network Insight Upgrade screen appears.

6 Read the **Before you proceed** instruction and click **Continue**.

7 Wait for the pre-checks to complete, which verifies:

- the customer table,
- the disk space, including the space required for migration
- the license requirement
- the bandwidth
- the version
- the NTP sync status

8 Click the **I agree to the constraints** option to use the new license keys that you have obtained from my.vmware.com.

Note You get the grace period of seven days to add the new license key. If you do not update the new license key,

- When an admin user logs in after upgrade, the user sees the license validation message to enter the new key.
  1. Click **Proceed**.
  2. Update the new key On the Add License page, **Validate** and **Activate**.

     The user also sees a warning message on the banner stating that the valid license is not available and the data collection stops after the grace period.
- When a non-admin user logs in after upgrade, the user sees the message stating that the valid license is not available and to contact an administrator for adding a new valid key.

You can see the approximate time required to complete the upgrade process (including the migration duration) on your setup.

9 Click **Install Now**.

10 Once the upgrade process begins, the vRealize Network Insight Upgrade screen provides the status of the upgrade process.

Note

- If a node becomes inactive, the upgrade process does not continue. The upgrade will not resume until the node becomes active again.
- The platform1 becomes the upgrade server. If platform1 is offline, then no other node is upgraded.
- Once the platforms are upgraded, you can resume your normal vRealize Network Insight operations even though the collector upgrade happens in parallel. Until the upgrade process is completely over, the `Node Version Mismatch detected` message is shown in the Install and Support page.

- After the services are upgraded, Nginx restarts to display the migration process. So, you might not be able to access the UI for a short period (one to two minutes).
- vRealize Network Insight starts migrating data to Foundation database. On the Data Migration Status screen, you see:
  - the overall status
  - the elapsed time
  - the table by table status
  - the number of records migrated

For any issues, you can use the **Export Migration logs** option to share with the VMware support team.

- The PostgreSQL data on the collectors are also migrated to Foundation DB as part of upgrade process. However, the collector migration status is not shown on the UI.

11 Upon the completion of upgrade process, you see the confirmation message.

All platforms and the collectors nodes are upgraded.

What to do next

- Log in to vRealize Network Insight and perform your tasks.
- After two or three days, delete the snapshots to save the disk space.

CLI Upgrade

Consider the CLI upgrade only if both online upgrade or single-click offline upgrade does not work. You must upgrade Platform VMs before Collector VMs. However, you must contact VMware Support before initiating Offline Upgrade using CLI.

In a cluster environment, you must perform the upgrade operation only from Platform 1 (P1) node and the other Platform nodes in the cluster get upgraded automatically. But you must upgrade each Collector individually.

Prerequisites

- The upgrade steps might fail if there is insufficient space in the `/tmp` directory. Verify you meet the following disk space requirements for platform and collector server:
  - `/tmp` - 6 GB
  - `/home` - 2 GB
  - `/var` - 40 GB
- Ensure that all the nodes are online. If any node is inactive, you will not be allowed to trigger the upgrade.
- Take the snapshots of the VMs.
- Note the following values to verify after migration:
  - Count of VMs
  - VM where Snapshot Count > 0
  - Count of Firewall Rule
  - Count of Security Group
  - Count of NSX Firewall

Procedure

1 Download the required upgrade bundle file from My VMware.

2 Check and ensure that the `MD5SUM` value of the downloaded bundle matches the `MD5SUM` value specified in the VMware website.

3 Copy the upgrade bundle to vRealize Network Insight Platform 1 VM and all Collector VMs.

- To copy the file from Linux VM to vRealize Network Insight VM, run command `scp <filename>.upgrade.bundle consoleuser@<IP_Address_vRNI_VM>:~/`.
- To copy the file from Windows VM to vRealize Network Insight VM, run command `pscp –scp <SOURCE_PATH>\<filename>.upgrade.bundle consoleuser@<IP_Address_vRNI_VM>:~/`.

  Note Use the `pscp` utility from `https://the.earth.li/~sgtatham/putty/latest/w64/pscp.exe`.

4 Log in to the vRealize Network Insight Platform 1 through CLI using `consoleuser` and run the following commands:

- `package-installer copy --host localhost --user consoleuser --path /home/consoleuser/<filename>.upgrade.bundle`
- `package-installer upgrade --name <filename>.upgrade.bundle`

Note You must perform the Platform upgrade first then start the Collector update.

5 Run the `package-installer upgrade` command again after the setup is rebooted as part of OS upgrade.

Important If you get an SSH session timeout error, you must check `/var/log/arkin/centralized_upgrade.log` to know if the reboot has already happened. If the reboot is successful, you must run the `package-installer upgrade` command again.

6 Log in to each Collector node through CLI and perform the upgrade using the same commands used for platform upgrade.

Note You can upgrade all the Collectors simultaneously.

7 Verify the upgraded version using the `show-version` command.

Uninstall vRealize Network Insight

6

You must uninstall vRealize Network Insight through vSphere Web Client.

Procedure

1 If you can access the vRealize Network Insight web portal, do the following:

   a Log in to the vRealize Network Insight web portal.

   b Go to **Settings > Accounts and Datasources**.

   c Turn off and delete all datasources.

   Deletion of the vCenter datasource removes IPFIX settings (if configured) on VDS. Similarly deletion of the NSX Manager datasource removes IPFIX settings from NSX Flow Monitor.

2 If you are unable to access the vRealize Network Insight web portal, do the following:

   a If Netflow (IPFIX) is enabled on vCenter, remove vRealize Network Insight collector IP from VDS/DVPG IPFIX settings. See Remove Collector IP When Netflow is Enabled in vCenter.

   b If IPFIX is enabled on NSX, remove vRealize Network Insight collector IP Flow Monitoring settings. See Remove Collector IP When Netflow is Enabled in NSX.

   c If Netflow is configured on physical switches to send Netflow to vRealize Network Insight Netflow Collector, modify the configuration at switches to stop sending NetFlow information.

3 If any specific firewall or routing rules are created to allow or route traffic to and from vRealize Network Insight VMs, remove those firewall/routing rules.

4 For security reasons, clean up access credentials used to configure data sources in vRealize Network Insight.

5 Shutdown and delete all vRealize Network Insight Collectors and Platform VMs.

Remove Collector IP When Netflow is Enabled in vCenter

If Netflow (IPFIX) is enabled in vCenter, use this procedure to remove vRealize Network Insight Collector IP from Virtual Dedicated Server (VDS)/Distributed Virtual Port Group (DVPG) IPFIX settings.

Procedure

1 Log in to vSphere Web Client.

2 Go to **Home > Networking**.

3 In the left pane, select the **VDS** and click **Configure > Edit**.

4 In the **Collector IP address** field, remove vRealize Network Insight Collector IP details.

5 In the **Collector Port** field, remove the port details.

6 Click **OK**.

You must wait around two minutes before you move to the next step.

7 Select the DVPG of this VDS and click **Configure > Policies > Edit**.

8 In the **Netflow** field, select **Disable** from the drop-down.

9 Verify your settings and click **Apply**.

What to do next

Perform the steps again for each VDS and its DVPGs for which IPFIX is enabled to remove vRealize Network Insight Collector IP.

Remove Collector IP When Netflow is Enabled in NSX

If Netflow (IPFIX) is enabled in NSX, use this procedure to remove vRealize Network Insight (vRealize Network Insight) Collector IP flow monitoring settings.

Procedure

1 Log in to vSphere Web Client.

2 Click **Home > Networking & Security > Tools > Flow Monitoring > Configuration**.

3 In the **Global Flow Collection Status**, click **Disable**.

4 To disable the flow connection, click **IPFIX**.

5 In the **IPFIX** tab, select the **Collector IP** and click **Delete**.

6 If there are no more IPs left, then click **Edit** and clear **Enable IPFIX Configuration** check-box.

7 Click **Save**.