Juniper Networks | Engineering Simplicity

Security Director Insights Installation and Upgrade Guide

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Juniper Networks, Inc.
1133 Innovation Way
Sunnyvale, California 94089
USA
408-745-2000
www.juniper.net

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The information in this document is current as of the date on the title page.

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Table of Contents

About the Documentation

IN THIS SECTION

Use this guide to understand the architecture and deployment of Security Director Insights. It also includes procedures for configuring Policy Enforcer for mitigation, adding log collector nodes, and HA configuration.

Documentation and Release Notes

To obtain the most current version of all Juniper Networks® technical documentation, see the product documentation page on the Juniper Networks website at https://www.juniper.net/documentation/.

If the information in the latest release notes differs from the information in the documentation, follow the product Release Notes.

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Documentation Conventions

Table 1 on page vi defines notice icons used in this guide.

Table 1: Notice Icons

Icon	Meaning	Description
	Informational note	Indicates important features or instructions.
	Caution	Indicates a situation that might result in loss of data or hardware damage.
	Warning	Alerts you to the risk of personal injury or death.
	Laser warning	Alerts you to the risk of personal injury from a laser.
	Tip	Indicates helpful information.
	Best practice	Alerts you to a recommended use or implementation.

Table 2 on page vi defines the text and syntax conventions used in this guide.

Table 2: Text and Syntax Conventions

Convention	Description	Examples
Bold text like this	Represents text that you type.	To enter configuration mode, type the **configure** command: user@host> **configure**
`Fixed-width text like this`	Represents output that appears on the terminal screen.	`user@host>` **show chassis alarms** `No alarms currently active`
Italic text like this	• Introduces or emphasizes important new terms. • Identifies guide names. • Identifies RFC and Internet draft titles.	• A policy *term* is a named structure that defines match conditions and actions. • *Junos OS CLI User Guide* • RFC 1997, *BGP Communities Attribute*

Table 2: Text and Syntax Conventions *(continued)*

Convention	Description	Examples
Italic text like this	Represents variables (options for which you substitute a value) in commands or configuration statements.	Configure the machine's domain name: [edit] root@# **set system domain-name** *domain-name*
Text like this	Represents names of configuration statements, commands, files, and directories; configuration hierarchy levels; or labels on routing platform components.	• To configure a stub area, include the **stub** statement at the **[edit protocols ospf area area-id]** hierarchy level. • The console port is labeled **CONSOLE**.
< > (angle brackets)	Encloses optional keywords or variables.	**stub <default-metric *metric*>;**
| (pipe symbol)	Indicates a choice between the mutually exclusive keywords or variables on either side of the symbol. The set of choices is often enclosed in parentheses for clarity.	**broadcast | multicast** **(*string1* | *string2* | *string3*)**
# (pound sign)	Indicates a comment specified on the same line as the configuration statement to which it applies.	**rsvp { # Required for dynamic MPLS only**
[ ] (square brackets)	Encloses a variable for which you can substitute one or more values.	**community name members [*community-ids*]**

Indention and braces ({ })	Identifies a level in the configuration hierarchy.	[edit]
		routing-options {
		  static {
		  route default {
		  nexthop *address*;
		  retain;
		  }
		  }
		}

; (semicolon)	Identifies a leaf statement at a configuration hierarchy level.	
GUI Conventions		

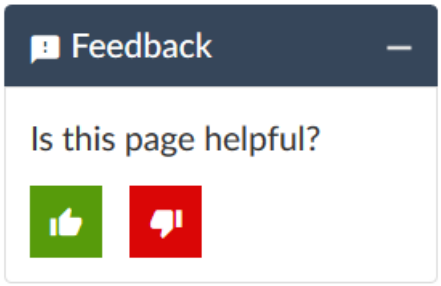
Table 2: Text and Syntax Conventions *(continued)*

Convention	Description	Examples
Bold text like this	Represents graphical user interface (GUI) items you click or select.	• In the Logical Interfaces box, select **All Interfaces**. • To cancel the configuration, click **Cancel**.
> (bold right angle bracket)	Separates levels in a hierarchy of menu selections.	In the configuration editor hierarchy, select **Protocols>Ospf**.

Documentation Feedback

We encourage you to provide feedback so that we can improve our documentation. You can use either of the following methods:

- Online feedback system—Click TechLibrary Feedback, on the lower right of any page on the Juniper Networks TechLibrary site, and do one of the following:



  - Click the thumbs-up icon if the information on the page was helpful to you.
  - Click the thumbs-down icon if the information on the page was not helpful to you or if you have suggestions for improvement, and use the pop-up form to provide feedback.
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covered under warranty, and need post-sales technical support, you can access our tools and resources online or open a case with JTAC.

- JTAC policies—For a complete understanding of our JTAC procedures and policies, review the *JTAC User Guide* located at https://www.juniper.net/us/en/local/pdf/resource-guides/7100059-en.pdf.
- Product warranties—For product warranty information, visit https://www.juniper.net/support/warranty/.
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- Find solutions and answer questions using our Knowledge Base: https://kb.juniper.net/
- Download the latest versions of software and review release notes: https://www.juniper.net/customers/csc/software/
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- Join and participate in the Juniper Networks Community Forum: https://www.juniper.net/company/communities/
- Create a service request online: https://myjuniper.juniper.net

To verify service entitlement by product serial number, use our Serial Number Entitlement (SNE) Tool: https://entitlementsearch.juniper.net/entitlementsearch/

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You can create a service request with JTAC on the Web or by telephone.

- Visit https://myjuniper.juniper.net.
- Call 1-888-314-JTAC (1-888-314-5822 toll-free in the USA, Canada, and Mexico).

For international or direct-dial options in countries without toll-free numbers, see https://support.juniper.net/support/requesting-support/.

1

CHAPTER

Security Director Insights Installation and Upgrade Guide

Security Director Insights Overview

Security Director Insights is a single virtual appliance (Service VM) that runs on the VMware vSphere infrastructure. It facilitates automated security operations. It enables you to take effective actions on security events logged by Juniper Networks security products. The events that affect a host or events that are impacted by a particular threat source are presented by Security Director Insights from different security modules. These events provide instantaneous information about the extent and stage of an attack. Security Director Insights also detects the hosts and servers under attack by analyzing events that are not severe enough to block. The application contains an option to verify the incidents using your trusted threat intelligence providers. After you have verified the incidents, you can take preventive and remedial actions using the rich capabilities of our security products.

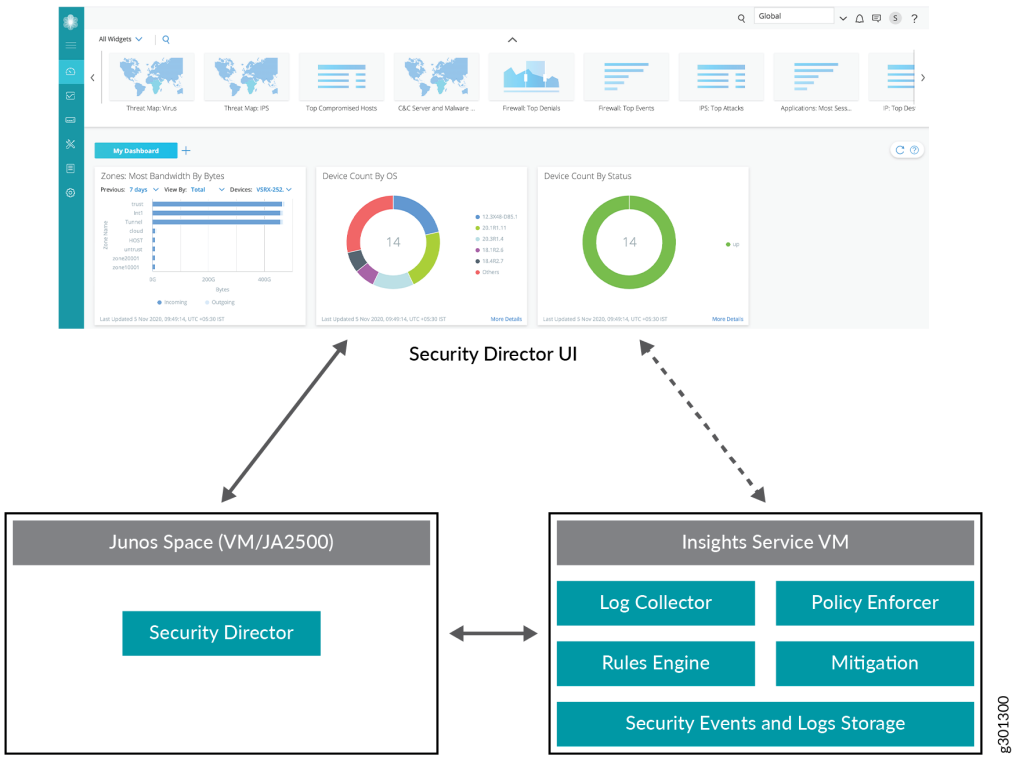
Benefits

- Reduce the number of alerts across disparate security solutions
- Quickly react to active threats with one-click mitigation
- Improve the security operations center (SOC) teams' ability to focus on the highest priority threats

Security Director Insights Architecture

The Service VM provides the following functionality, as shown in Figure 1 on page 12.

Figure 1: Security Director Insights Architecture



- The Service VM works with the Security Director ecosystem. The Security Director Insights GUI is integrated into the Security Director GUI.
- The Log Collector and Policy Enforcer are integrated within the Security Director Insights VM.

RELATED DOCUMENTATION

Add Insights Nodes

Deploy and Configure Security Director Insights with Open Virtualization Appliance (OVA) Files

Security Director Insights requires VMware ESXi server version 6.5 or later to support a virtual machine (VM) with the following configuration:

- 8 CPUs
- 24-GB RAM
- 1.2-TB disk space

If you are not familiar with using VMware ESXi servers, see VMware Documentation and select the appropriate VMware vSphere version.

To deploy and configure the Security Director Insights with OVA files, perform the following tasks:

1. Download the Security Director Insights VM OVA image from the Juniper Networks software download page.

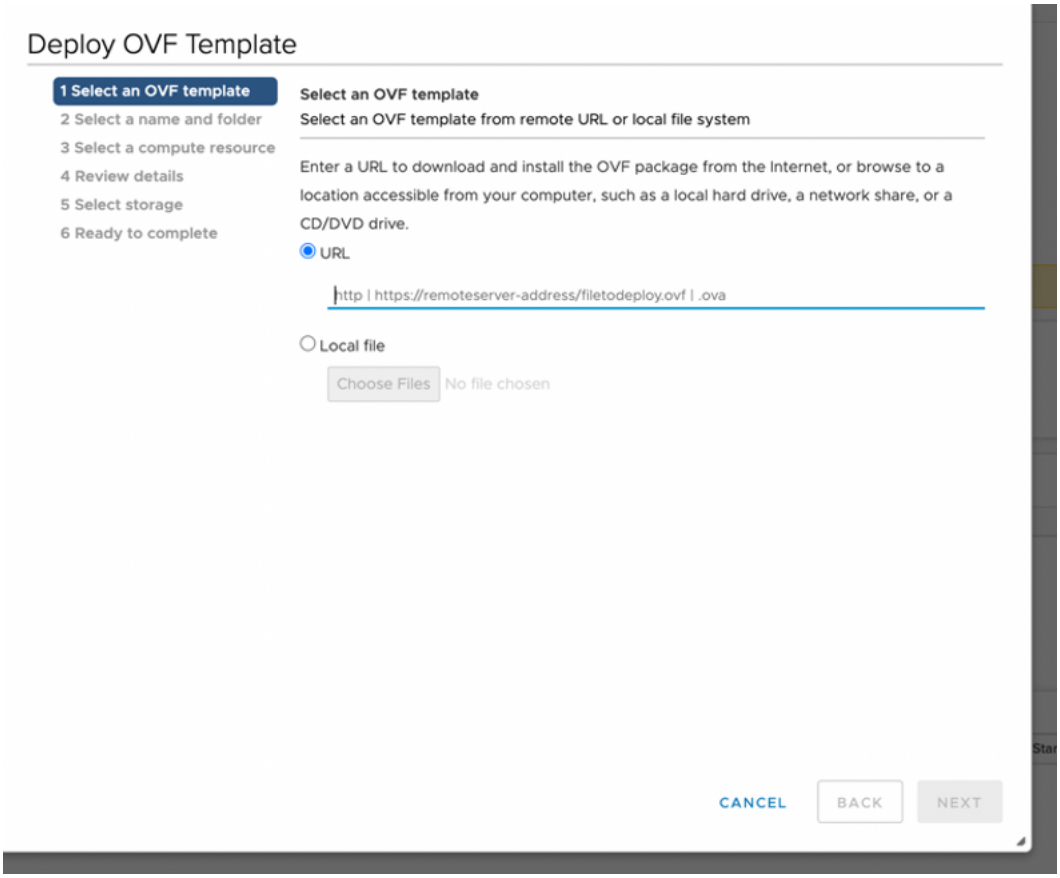
   > **NOTE:** Do not change the name of the Security Director Insights VM image file that you download from the Juniper Networks support site. If you change the name of the image file, the creation of the Security Director Insights VM may fail.

2. Launch the vSphere Client that is connected to the ESXi server, where the Security Director Insights VM is to be deployed.

3. Select **File** > **Deploy OVF Template**.

   The Deploy OVF Template page appears, as shown in Figure 2 on page 14.

Figure 2: Select an OVF Template Page



4. In the Select an OVF template page, select the **URL** option if you want to download the OVA image from the internet or select **Local file** to browse the local drive and upload the OVA image.

5. Click **Next**.

   The Select a name and folder page appears.

6. Specify the OVA name, installation location for the VM, and click **Next**.

   The Select a compute resource page appears.

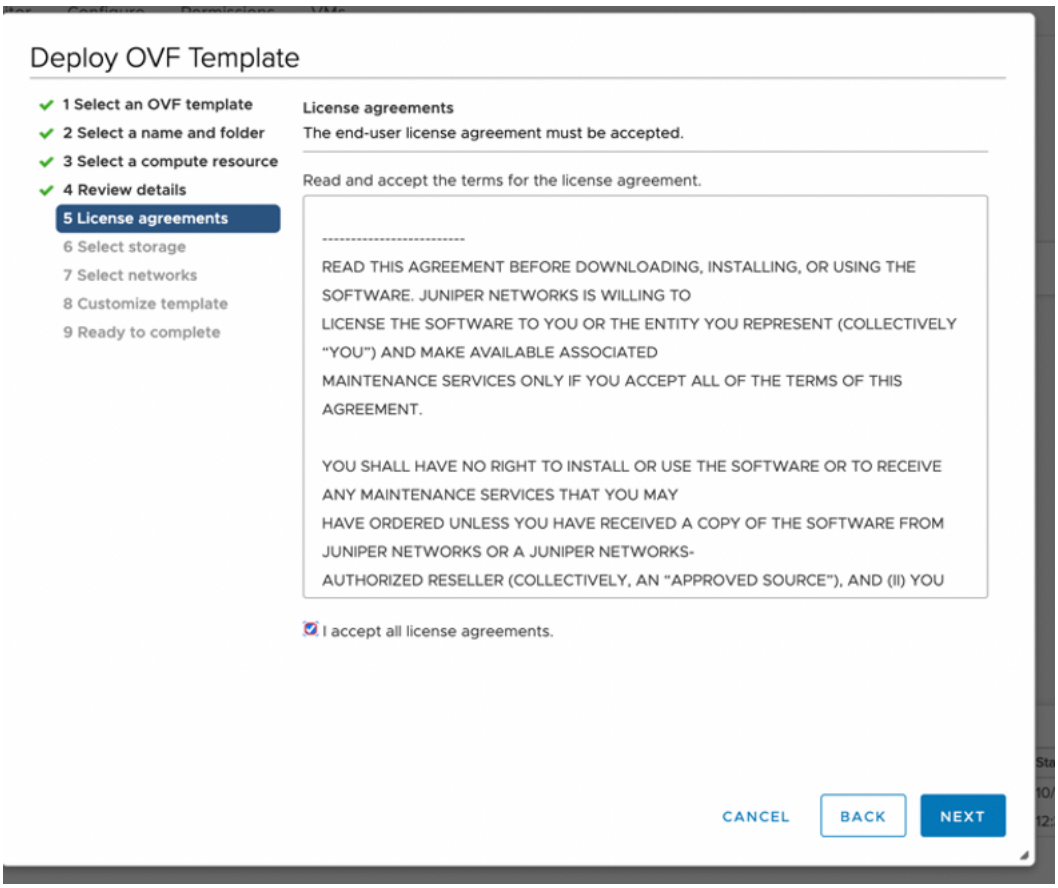
7. Select the destination compute resource for the VM, and click **Next**.

   The Review details page appears.

8. Verify the OVA details and click **Next**.

   The License agreements page appears, as shown in Figure 3 on page 15.

Figure 3: License Agreement Page



9. Accept the EULA and click **Next**.

   The Select storage page appears.

10. Select the destination file storage for the VM configuration files and the disk format. (Thin Provision is for smaller disks and Thick Provision is for larger disks.)

    Click **Next**. The Select networks page appears.

11. Select the network interfaces that will be used by the VM.

    IP allocation can be configured for DHCP or Static addressing. We recommend using Static IP Allocation Policy.

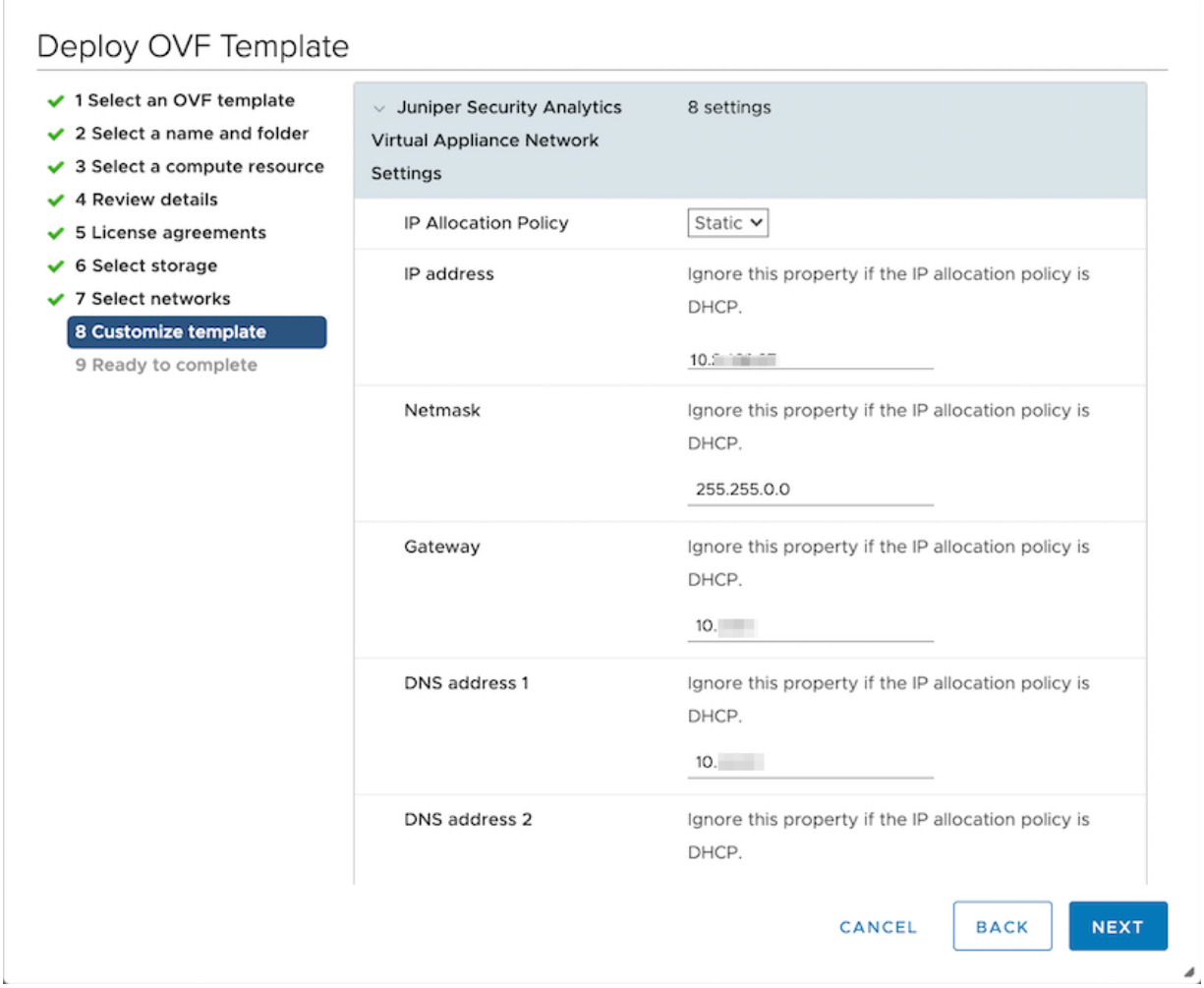
    Click **Next**. The Customize template page appears. For DHCP instructions, see Step 13.

12. For IP allocation as Static, configure the following parameters for the virtual machine:

    - IP address—Enter the Security Director Insights VM IP address.
    - Netmask—Enter the netmask.

- Gateway—Enter the gateway address.
- DNS Address 1—Enter the primary DNS address.
- DNS Address 2—Enter the secondary DNS address.

Figure 4: Customize Template Page

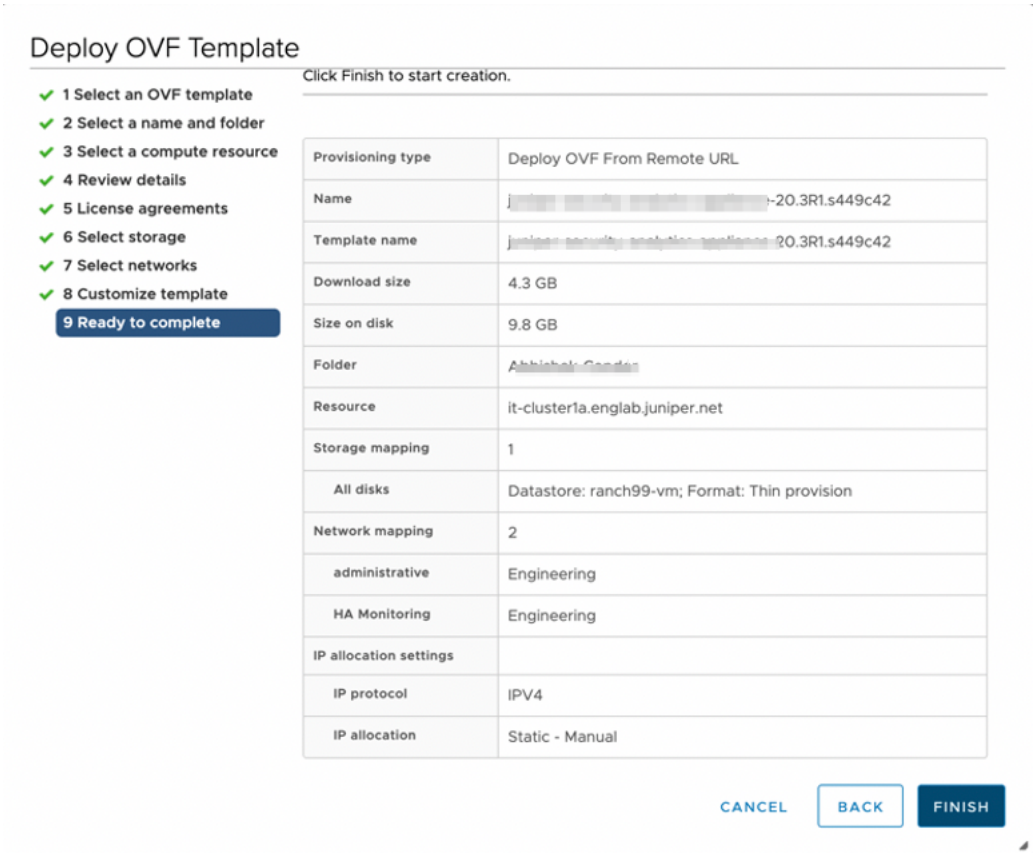


13. For IP allocation as DHCP, enter the search domain, hostname, device name, and device description for the virtual machine.

    This option is recommended only for the Proof of Concept type of short-term deployments. Do not use this option.

    Click **Next**. The Ready to complete page appears, as shown in Figure 5 on page 17.

Figure 5: Ready to Complete Page



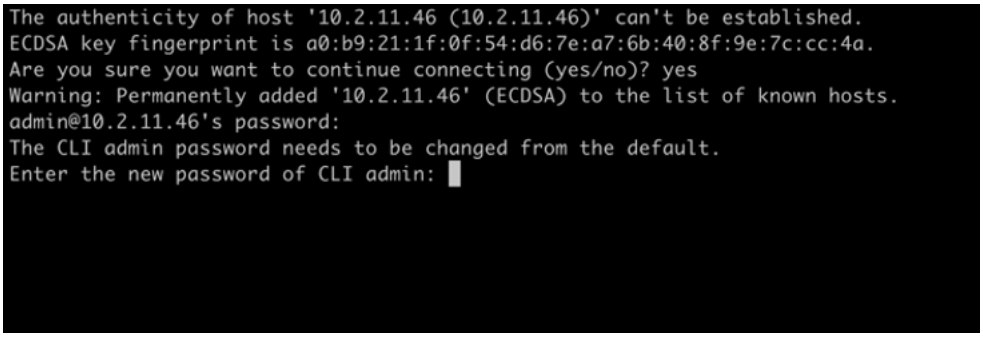
14. Verify all the details and click **Finish** to begin the OVA installation.

15. After the OVA is installed successfully, power on the VM and wait for the boot-up to complete.

16. Once the VM powers on, in the CLI terminal, log in as administrator with the default username as “admin” and password as “abc123”.

    After you log in, you will be prompted to change the default admin password. Enter a new password to change the default password, as shown in Figure 6 on page 18.

Figure 6: Default Admin Password Reset



The Security Director Insights deployment is now complete.

17. You must now add the Security Director Insights node to Junos Space by performing the following steps.

    - Log in to Security Director GUI and navigate to **Administration** > **Insights Management** > **Insights Nodes**.
    - Enter the Security Director Insights IP address and the admin password (from Step 16).
    - Click **Save** to complete integrating the Security Director Insights VM into Security Director.

    To know more about how to add Security Director Insights nodes, see *Add Insights Nodes*.

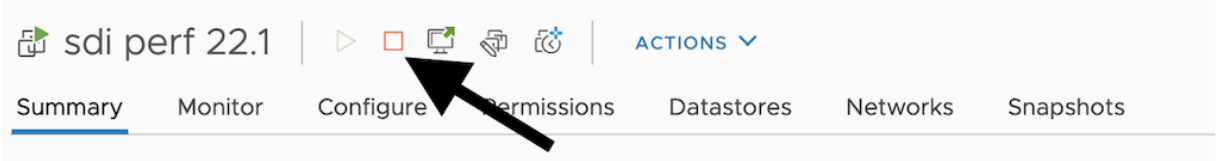
> **NOTE:** You can use the Security Director Insights VM as a log collector and as an integrated Policy Enforcer.

Reserve Resources on VMware vCenter

To reserve CPU and memory on vSphere:

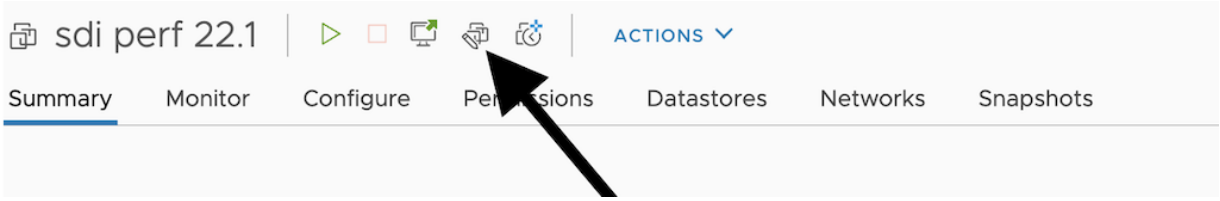
1. Power off the VM, as shown in Figure 7 on page 18.

Figure 7: VM Power Off Button



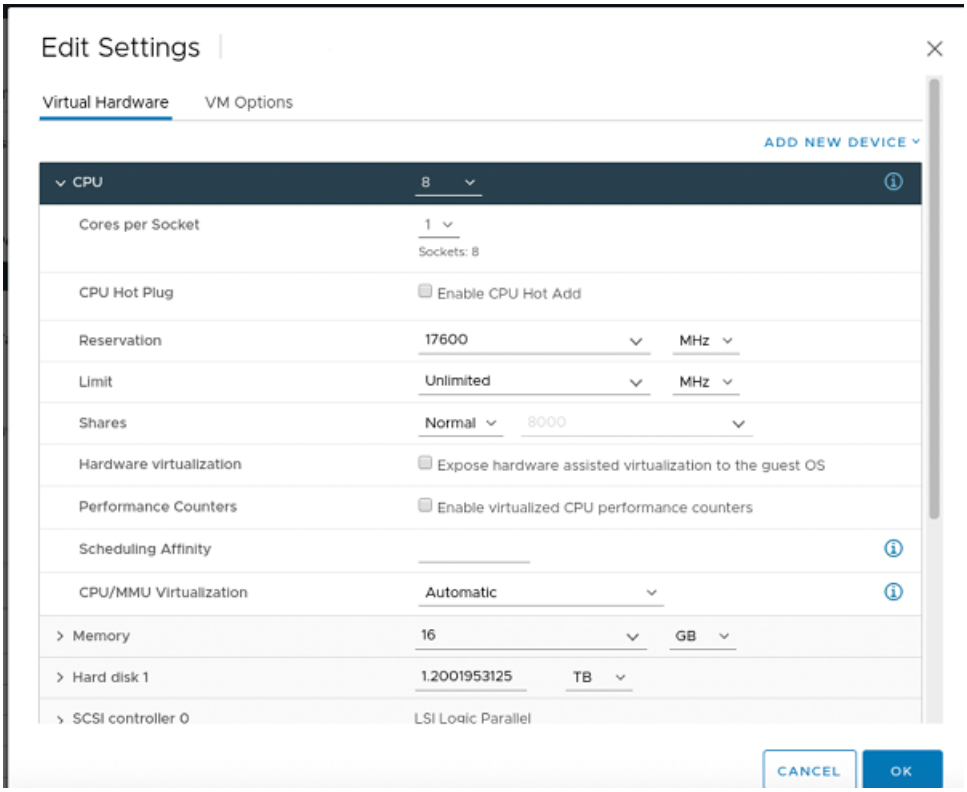
2. Once the VM is completely powered down, click the edit button as show in Figure 8 on page 19.

Figure 8: VM Edit Button



The Edit Settings page appears, as shown in Figure 9 on page 19. Edit the values in the Virtual Hardware page.

Figure 9: Edit Settings Page



3. In the CPU section, modify the number of CPU cores and select the values for Reservation and Limit from the respective lists.

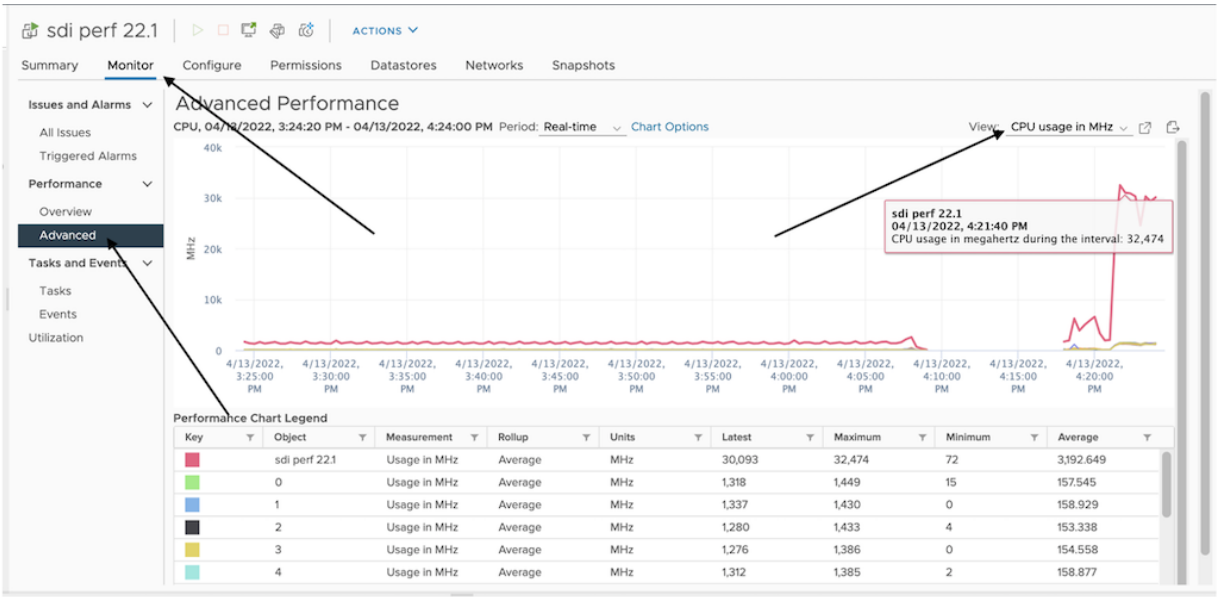
4. In the Memory section, select the required memory reservation and limit values from the lists. For relevant values, refer the Performance Matrix table in "Add Security Director Insights as a Log Collector" on page 32.

5. Click **OK**.

Verify If the VM is Getting Enough Resources

To verify if enough resources are getting allocated to the VM at run time, select **Monitor**>**Performance**>**Advanced** in the vSphere and check the CPU clock speeds. as shown in Figure 10 on page 20.

Figure 10: Monitor CPU Clock Speeds



You can view both CPU usage and reserved memory by selecting the required view from the View list. If the CPU usage does not reach the allocated peak and you observe any performance issues, it may indicate that the ESXi host on which this VM is running might be over subscribed. Reserving a dedicated CPU or memory for the VM might help.

> **NOTE:** You can calculate the clock speed reservation by using the formula (number of cores * clock speed of ESXi host * 1000 MHz). To calculate the limit, the formula is (Reservation + 500MHz). You must fully reserve the memory for each configuration. For example, for a 8 core and 16 GB memory configuration running on a 2.2GHz ESXi host, clock speed reservation is (8 cores * 2.2 * 1000 Mhz) = 17600 MHz (17.6 GHz). The limit is (17600MHz+500MHz) = 18.1GHz limit. Memory is 16GB reserved and 16.5GB limit.

Expand the VM Disk Size

Before You Begin

- Ensure that there are no snapshots. You must delete the snapshot before expanding the disk size.
- We recommend to create a backup by cloning the VM before expanding the disk size.

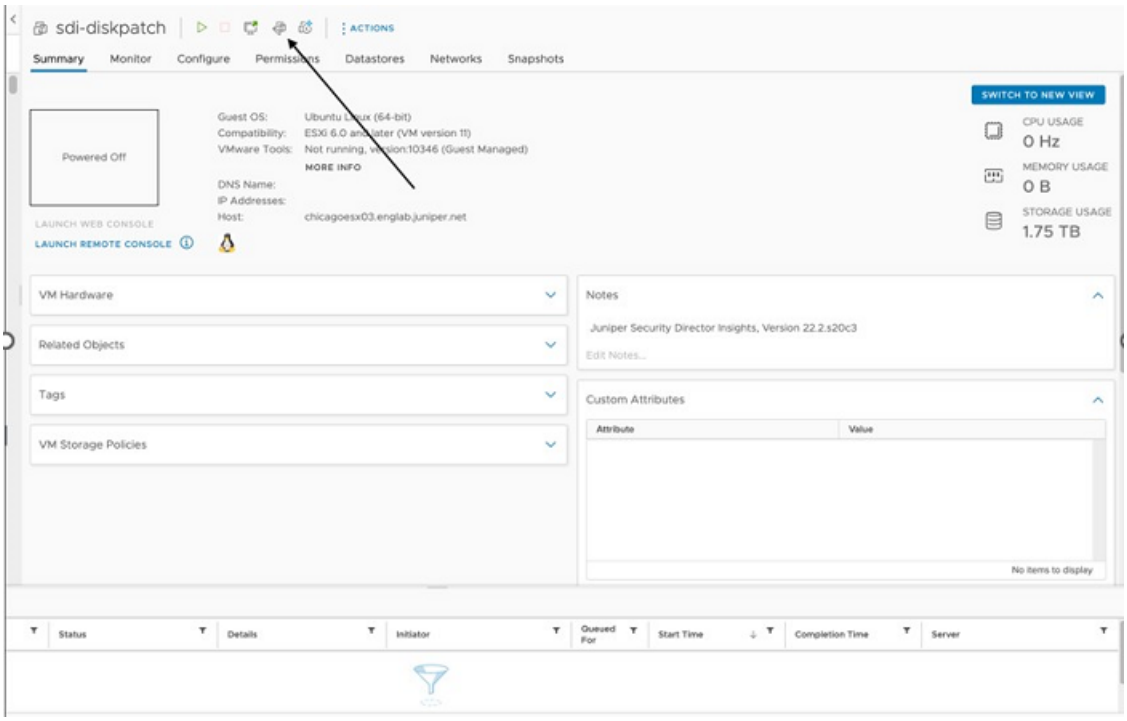
Procedure

To expand the disk to the maximum available size for an OVA file:

1. Log in to vSphere and power down the VM.

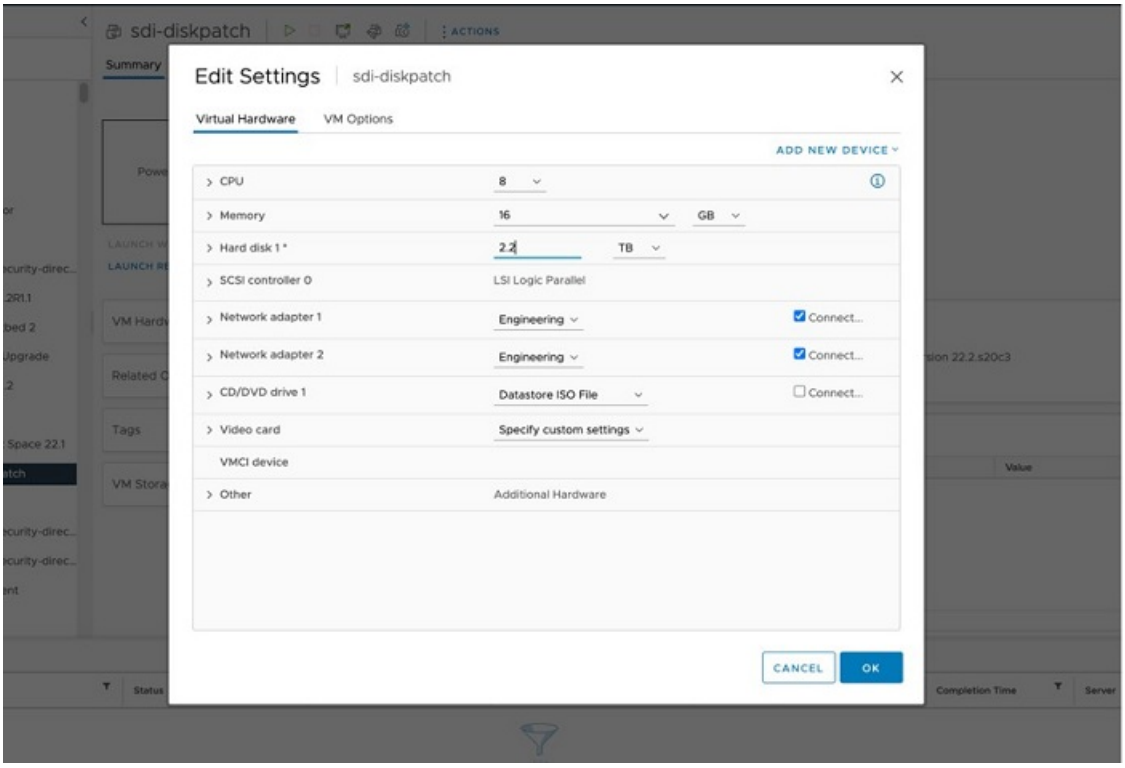
2. Click the Edit VM settings icon, as shown in Figure 11 on page 21.

Figure 11: Edit VM Settings Icon



3. Set the hard disk size, as shown in Figure 12 on page 22.

Figure 12: Edit Settings Page



4. Power on the VM.

5. Log in to the Admin CLI and switch to server mode.

6. Run **set disk-partition-to-full** command.

```
sdi-diskpatch:Core#(server)# set disk-partition-to-full
Resizing partition 2 to new end 5153960722...

Warning: Partition /dev/sda2 is being used. Are you sure you want to continue?
Information: You may need to update /etc/fstab.

Model: VMware Virtual disk (scsi)
Disk /dev/sda: 5153960756s
Sector size (logical/physical): 512B/512B
Partition Table: gpt
Disk Flags:

Number  Start  End          Size         File system  Name  Flags
        34s    2047s        2014s        Free Space
 1      2048s  4095s        2048s                     bios_grub
 2      4096s  5153960722s  5153956627s  ext4


NAME   MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sda      8:0    0  2.4T  0 disk
├─sda1   8:1    0    1M  0 part
└─sda2   8:2    0  2.4T  0 part /

resize2fs 1.44.1 (24-Mar-2018)
Filesystem at /dev/sda2 is mounted on /; on-line resizing required
old_desc_blocks = 295, new_desc_blocks = 308
The filesystem on /dev/sda2 is now 644244578 (4k) blocks long.


Filesystem      Size  Used Avail Use% Mounted on
udev            7.8G     0  7.8G   0% /dev
tmpfs           1.6G   13M  1.6G   1% /run
/dev/sda2       2.4T  1.8T  549G  77% /
tmpfs           7.8G   54M  7.7G   1% /dev/shm
tmpfs           5.0M     0  5.0M   0% /run/lock
tmpfs           7.8G     0  7.8G   0% /sys/fs/cgroup
tmpfs           1.0G     0  1.0G   0% /mnt/tmpfs
/dev/loop0      115M  115M     0 100% /snap/core/13886
tmpfs           1.6G     0  1.6G   0% /run/user/0

sdi-diskpatch:Core#(server)#
```

The new disk size is the size of /dev/sda2.

RELATED DOCUMENTATION

- Add Security Director Insights as a Log Collector | 32
- Configure Security Director Insights High Availability | 38
- Security Director Insights High Availability Deployment Architecture | 37
- Configure Policy Enforcer for Security Director Insights Mitigation | 53

Install Security Director Insights With KVM virt-manager

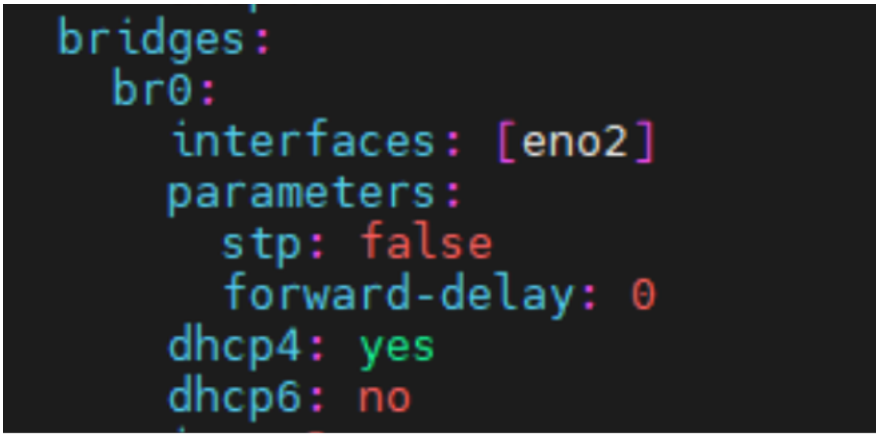
You can install and launch Security Director Insights with the KVM **virt-manager** GUI package.

Before you begin, you must ensure:

- You have already installed KVM, qemu, virt-manager, and libvirt on your host OS.
- You have created a bridge network to access KVM through SSH.

  In this document, a bridge network br0 is created with Netplan. Figure 13 on page 24 shows an example configuration from the /etc/netplan/00-installer-config.yaml file.

Figure 13: Example Configuration of br0



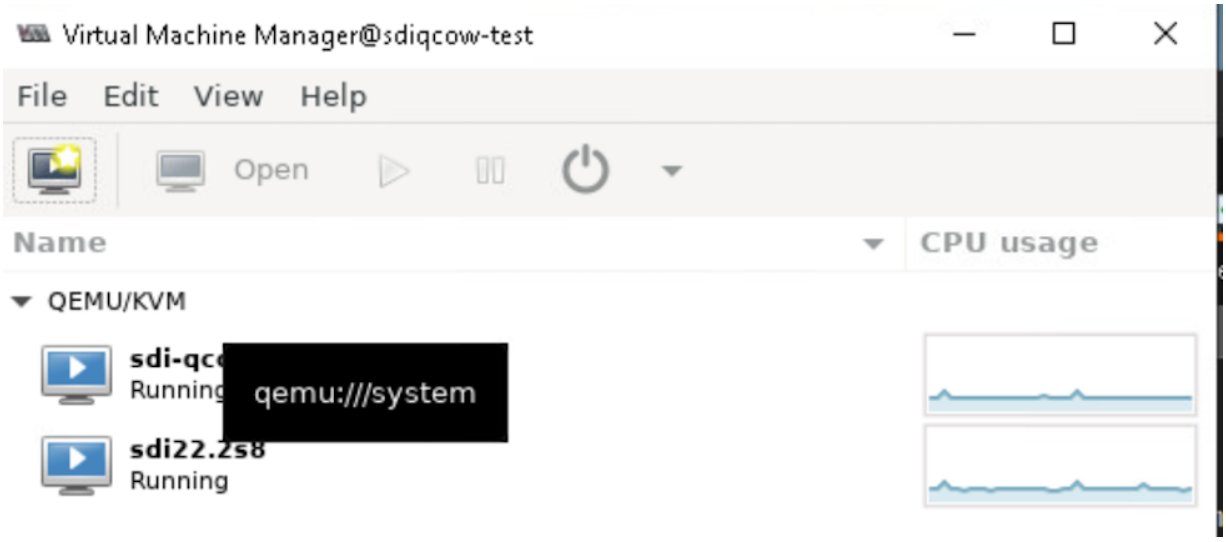
To install Security Director Insights with **virt-manager**:

1. Download the Security Director Insights KVM image from the Juniper software download site.

2. On your host OS, type **virt-manager**.

   The Virtual Machine Manager page appears, as shown in Figure 14 on page 25.

Figure 14: Virtual Machine Manager Page

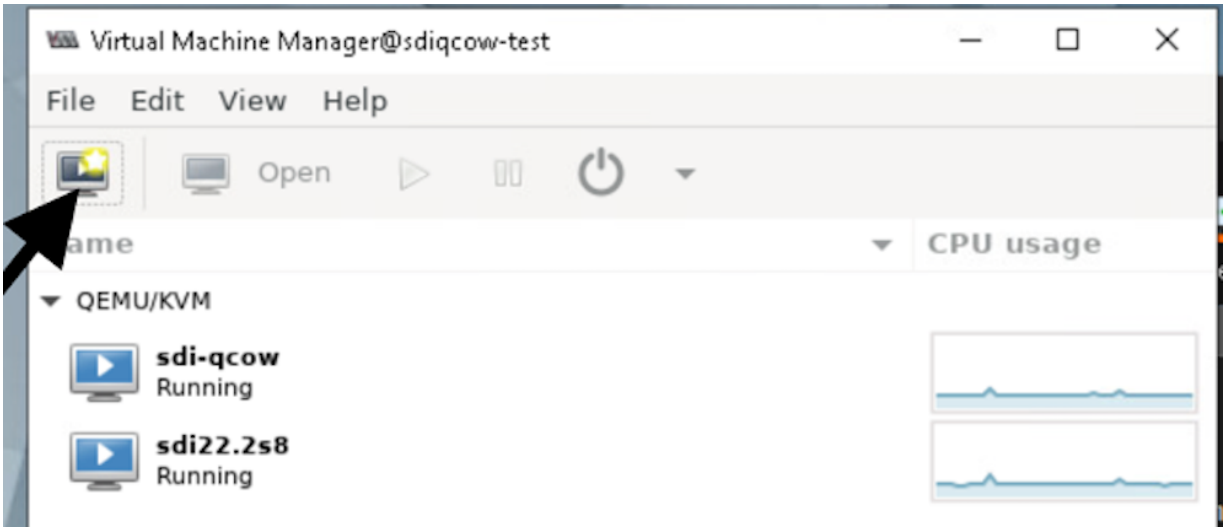


NOTE: You must have admin rights on the host OS to use **virt-manager**.

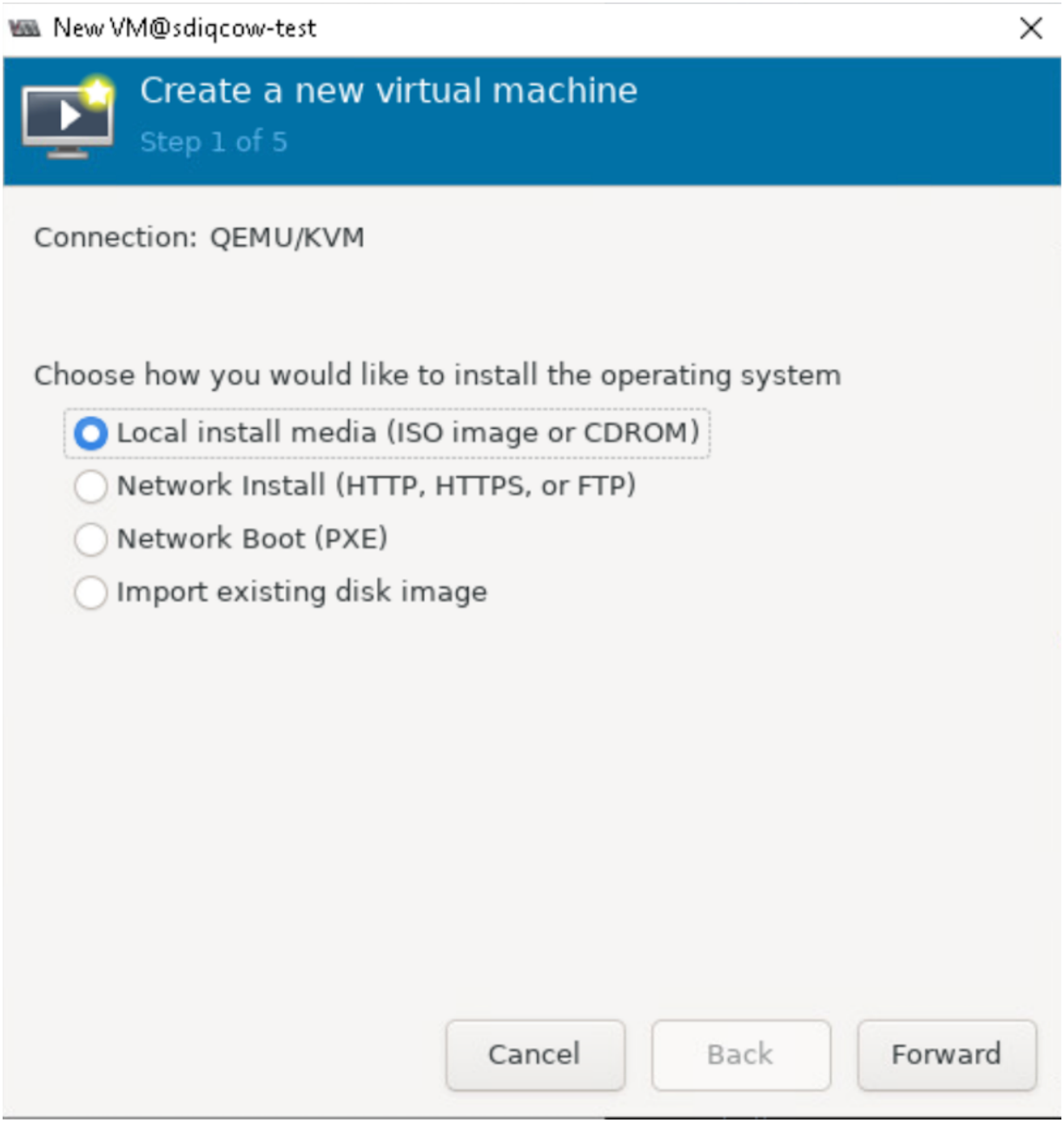
3. Click the Create a new virtual machine icon, as shown in Figure 15 on page 25.

   The Create a new virtual machine page appears.

Figure 15: Create a New Virtual Machine

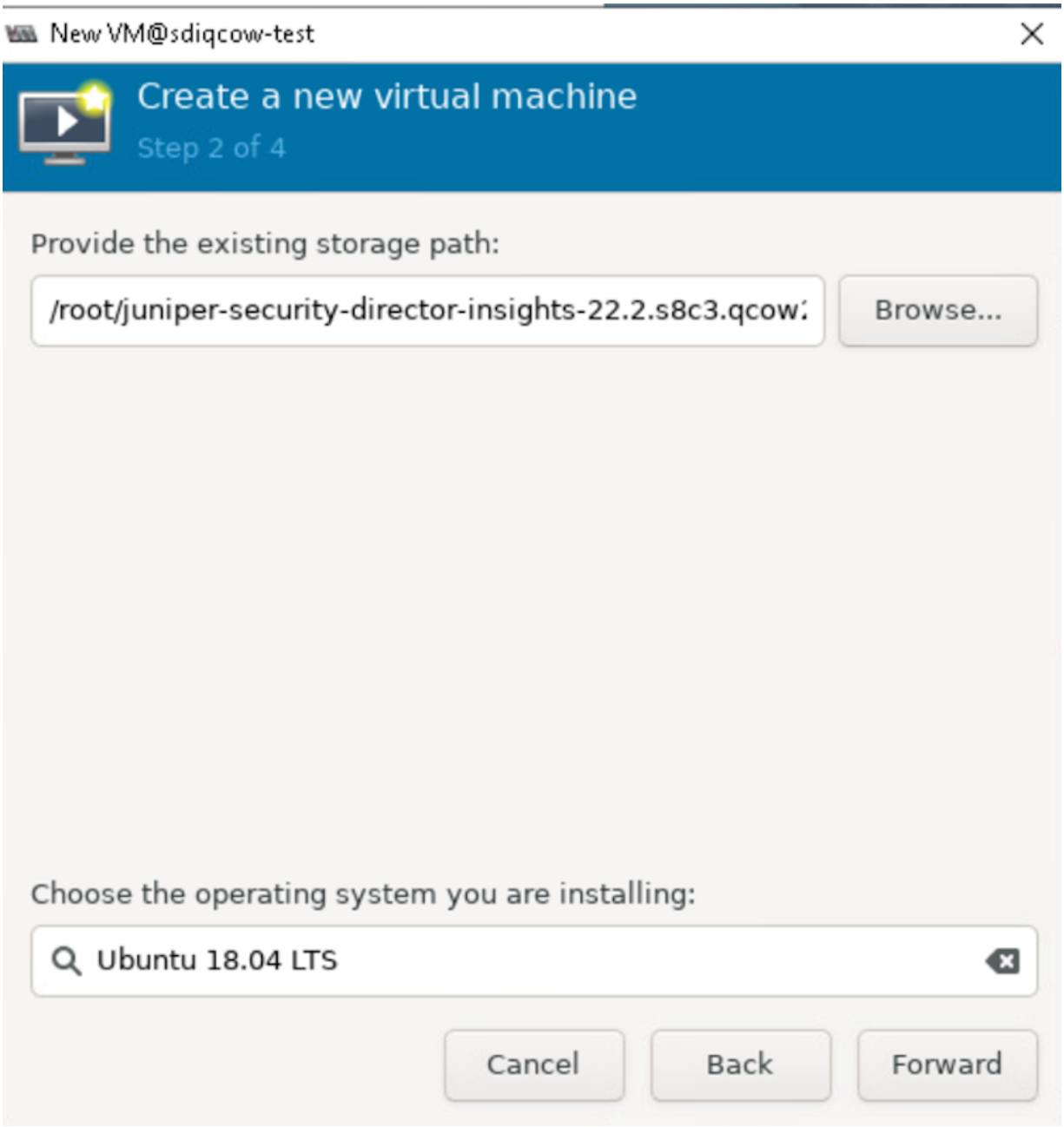


4. Select **Import existing disk image**, and click **Forward**.



5. Browse to the location of the downloaded Security Director Insights image and select the image.

Figure 16: Select Storage Path And Operating System

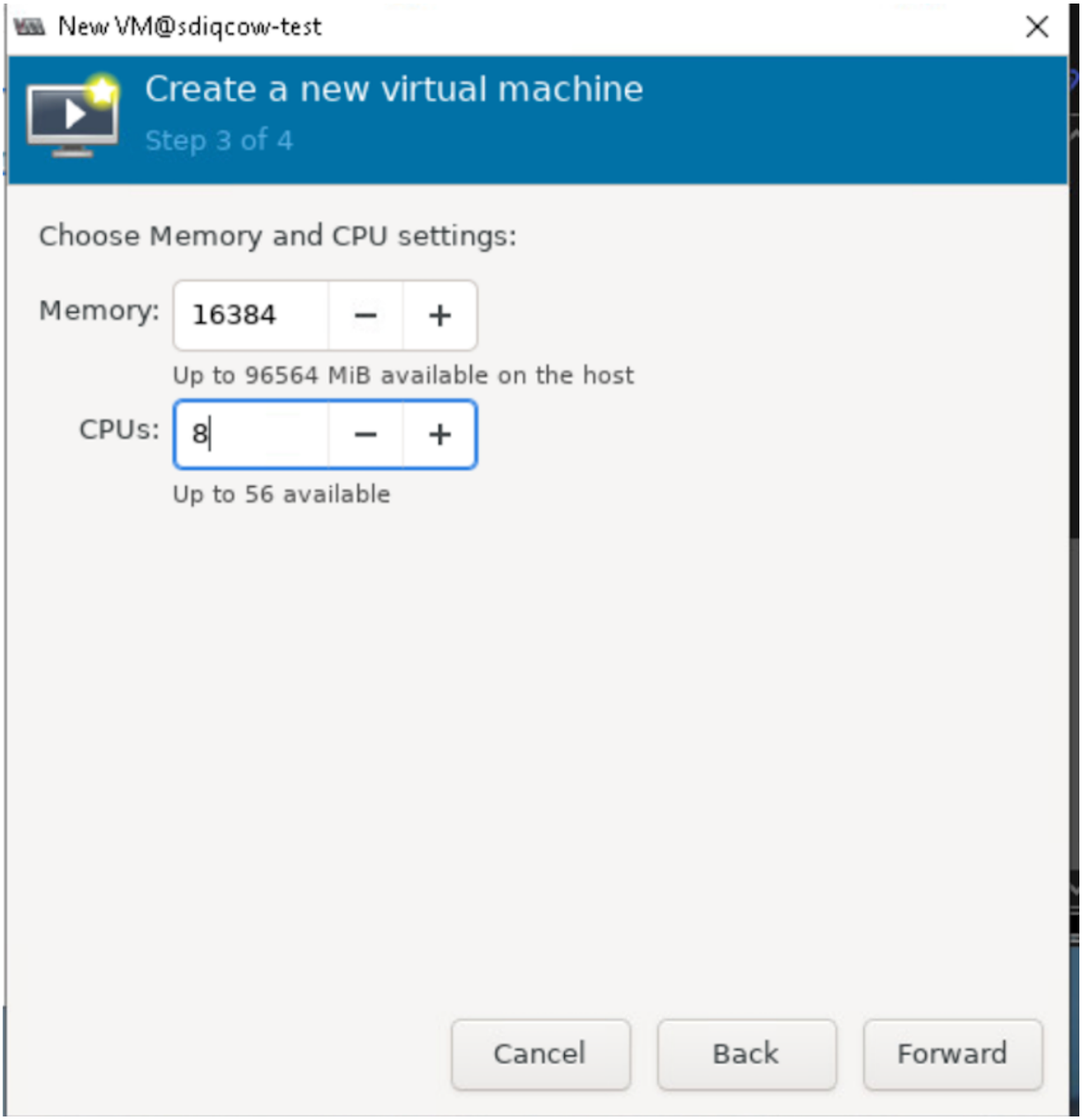


6. In the Choose the operating system you are installing field, select Ubuntu 18.04 version, as shown in Figure 16 on page 27.

7. Click **Forward**.

8. Set the RAM to 16384 MB and set CPUs to 8, as shown in Figure 17 on page 28.

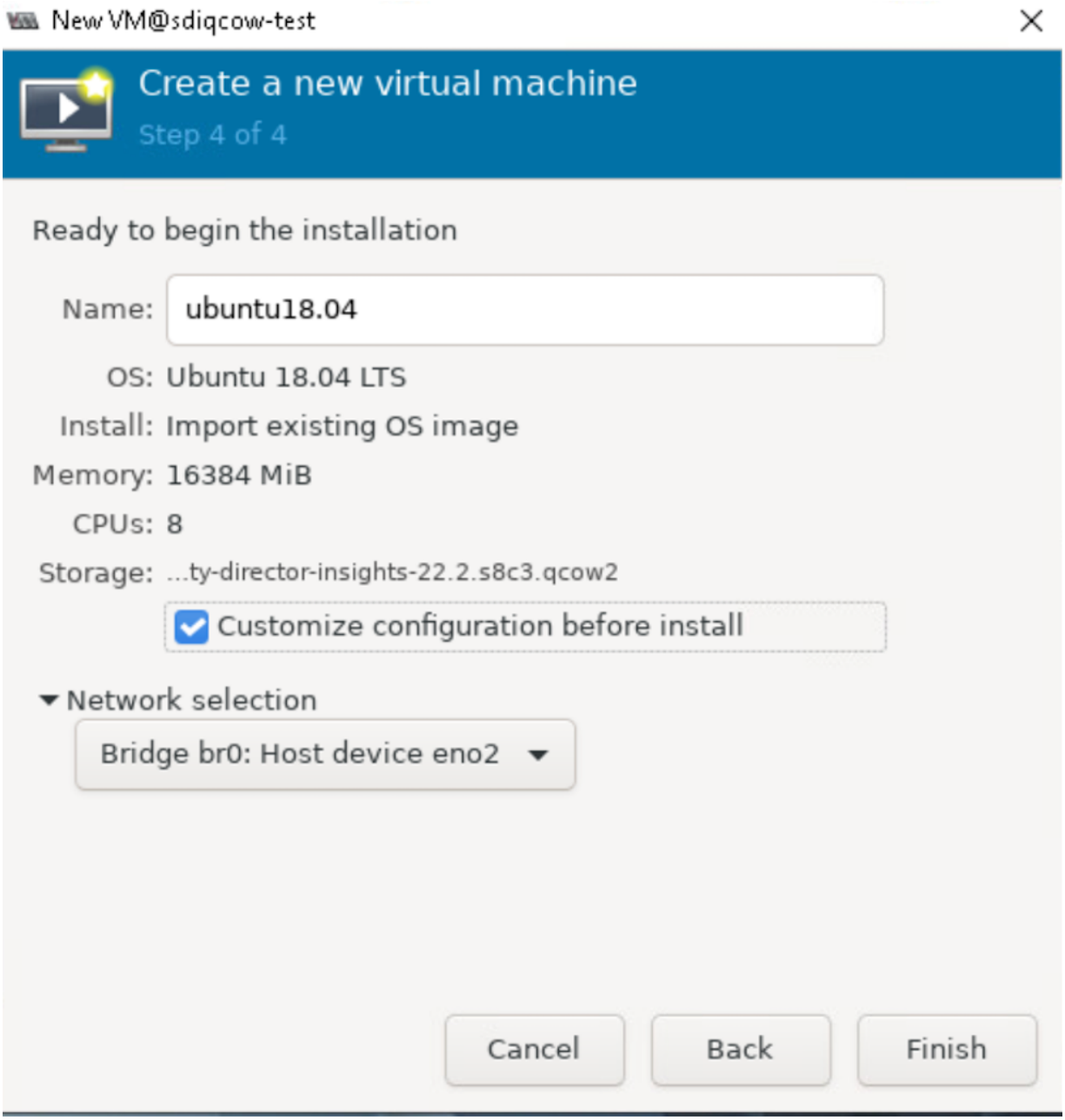
Figure 17: Configure Memory And CPUs



Click **Forward**.

9. Select the **Customize configuration before install** option, as shown in Figure 18 on page 29.

Figure 18: Network Selection Page



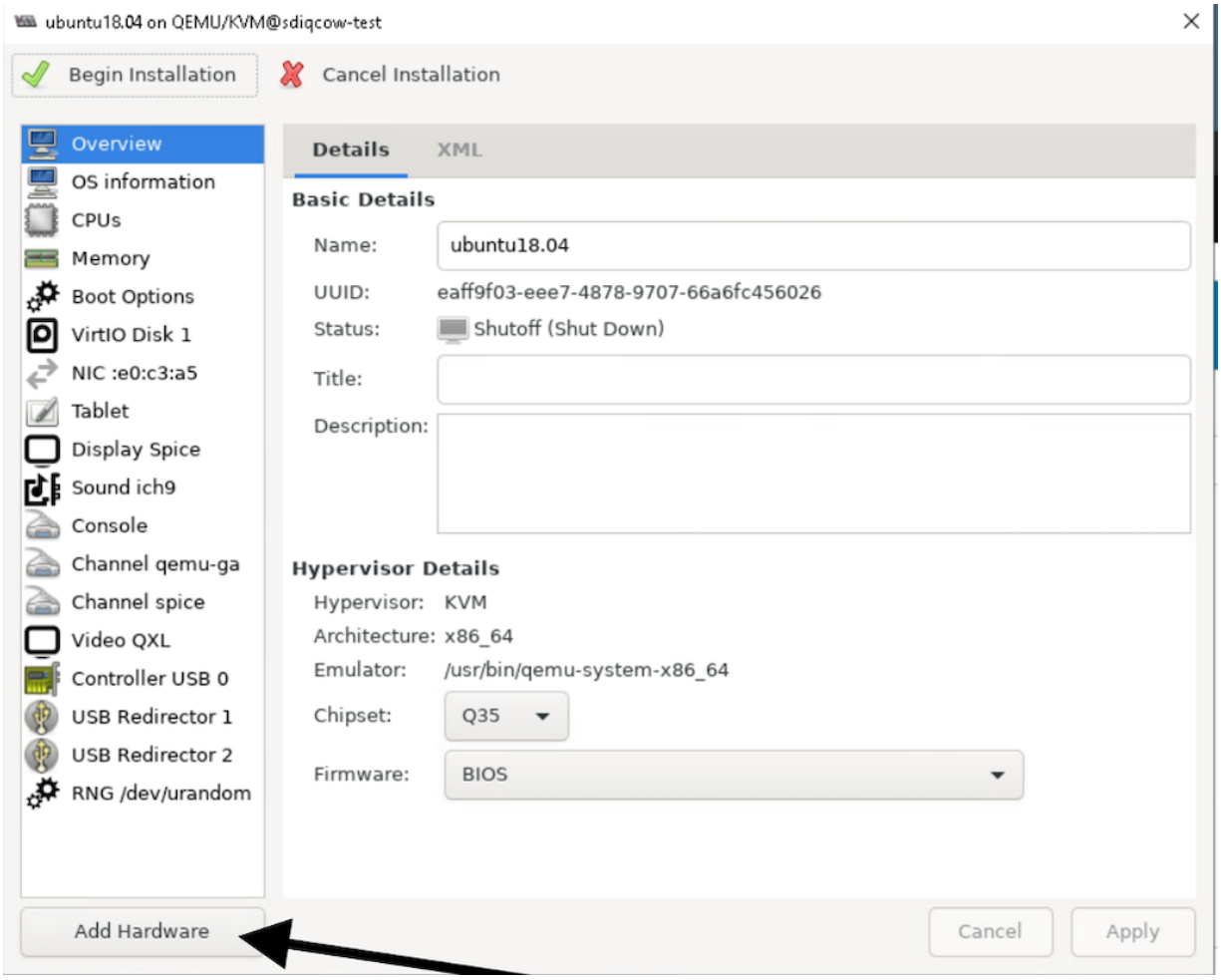
10. In the Network selection field, select the bridge network (typically br0) from the list.

11. Click **Finish**.

12. Click **Add Hardware**, as shown in Figure 19 on page 30.

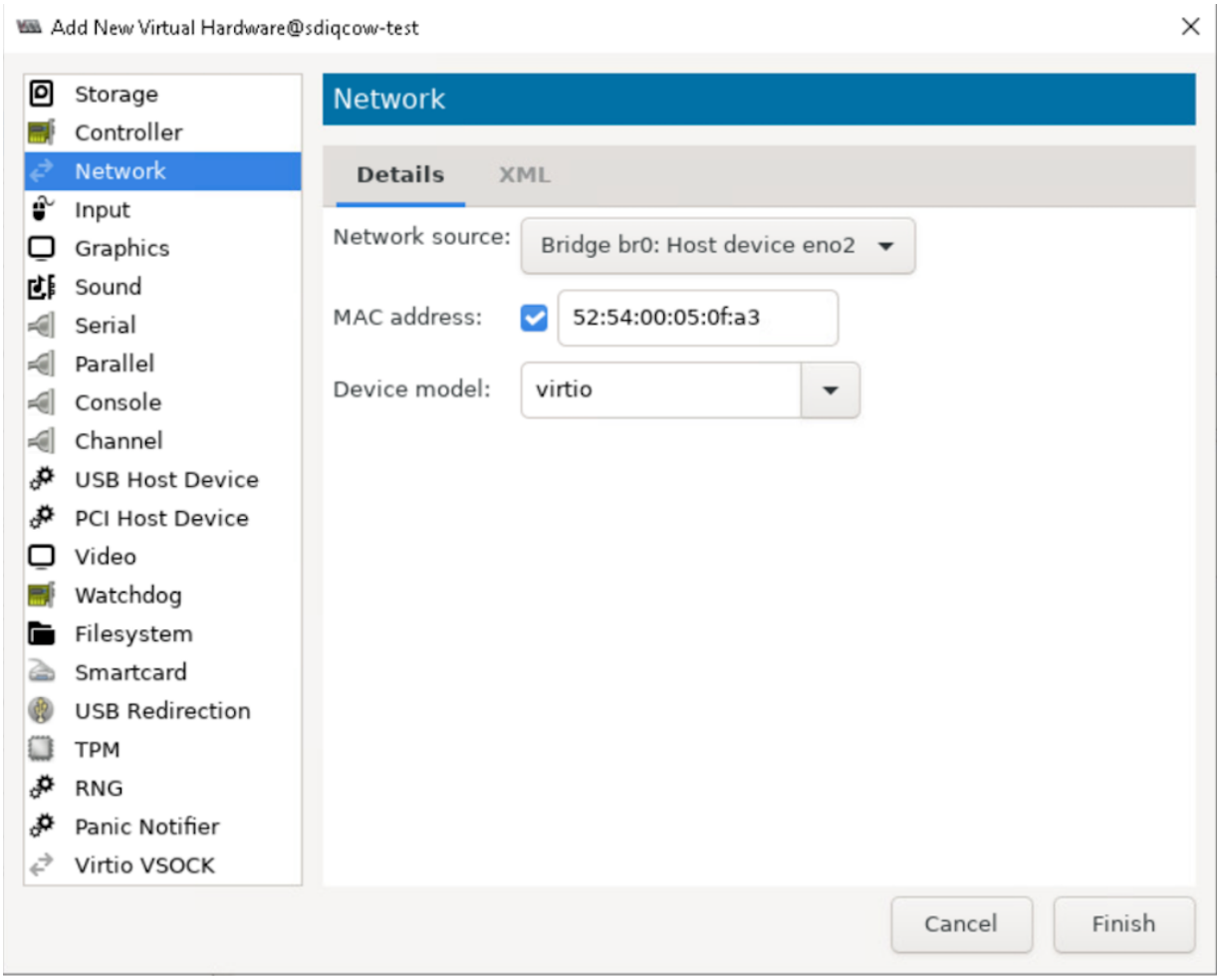
    The Add New Virtual Hardware page appears.

Figure 19: Add Hardware Option



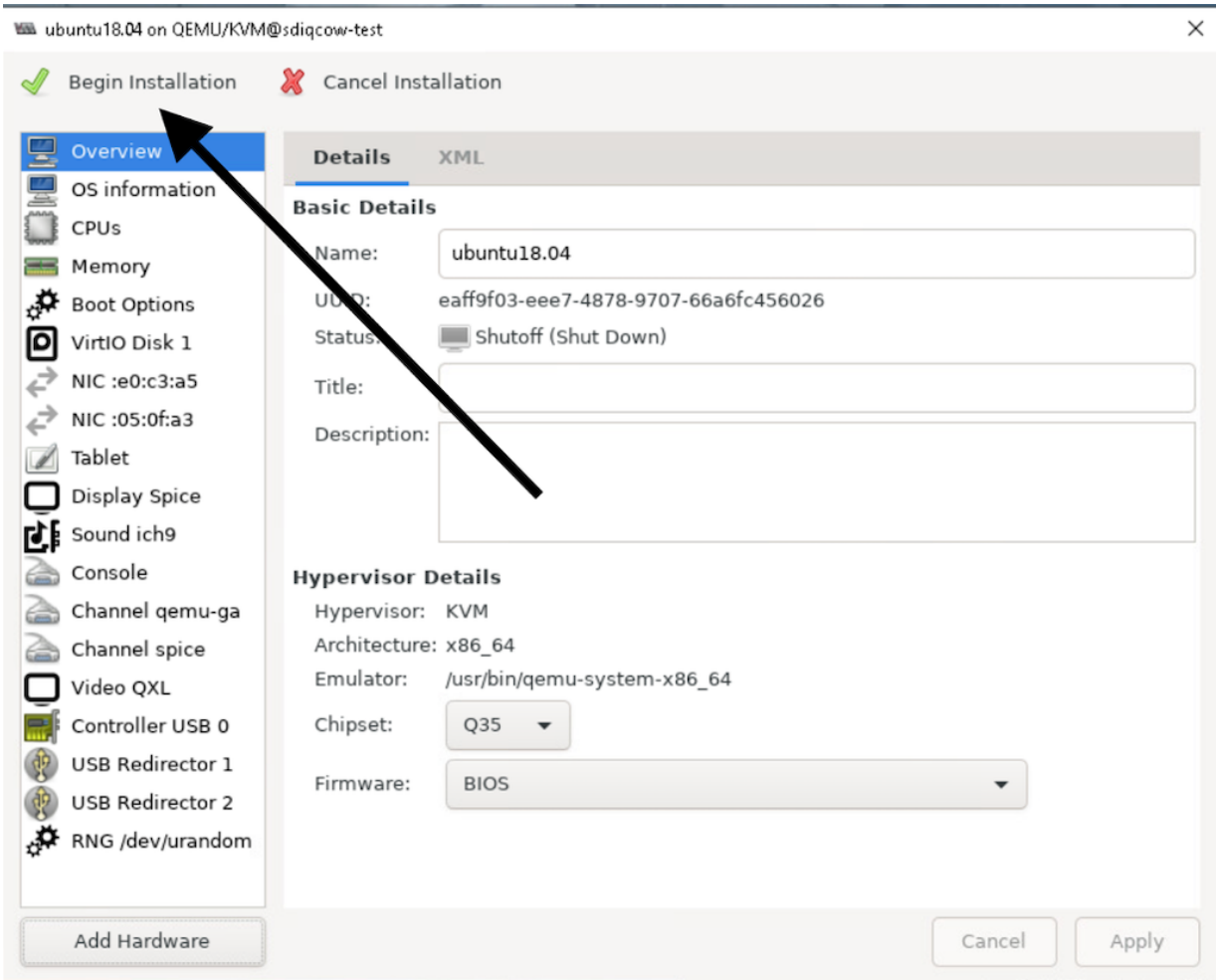
13. Select **Network** from the left side menu and click **Finish**.

Figure 20: Network Details Page



14. Click **Begin Installation**.

Figure 21: Begin Installation



The VM manager creates the virtual machine and launches the Security Director Insights console.

RELATED DOCUMENTATION

Add Security Director Insights as a Log Collector

To use the log collector functionality that comes along with the Security Director Insights installation, add the IP address of the Security Director Insights virtual machine (VM) as a log collector.

Before you add the log collector node in the GUI, you must set the administrator password. By default, the Security Director log collector is disabled. You must first enable it and then set the administrator password.

To enable the log collector and configure the administrator password:

1. Go to the Security Director Insights CLI.

   # ssh admin@${security-director-insights_ip}

2. Enter the application configuration mode.

   user:Core# applications

3. Enable Security Director log collector.

   user:Core#(applications)# set log-collector enable on

4. Configure the administrator password.

   user:Core#(applications)# set log-collector password

   Enter the new password for SD Log Collector access:

   Retype the new password:

   Successfully changed password for SD Log Collector database access

To add the Security Director Insights VM IP address as a log collector node:

1. From the Security Director user interface, select **Administration** > **Logging Management** > **Logging Nodes**, and click the plus sign (+).

   The Add Logging Node page appears.

2. Choose the Log Collector type as **Security Director Log Collector**.

3. Click **Next**.

   The Add Collector Node page appears.

4. In the Node Name field, enter a unique name for the log collector.

5. In the IP Address field, enter the IP address of the Security Director Insights VM.

   The IP address used in the Deploy OVF Template page must be used in the Add Collector Node page, as shown in Figure 22 on page 34 and Figure 23 on page 35.

Figure 22: Deploy OVF Template Page

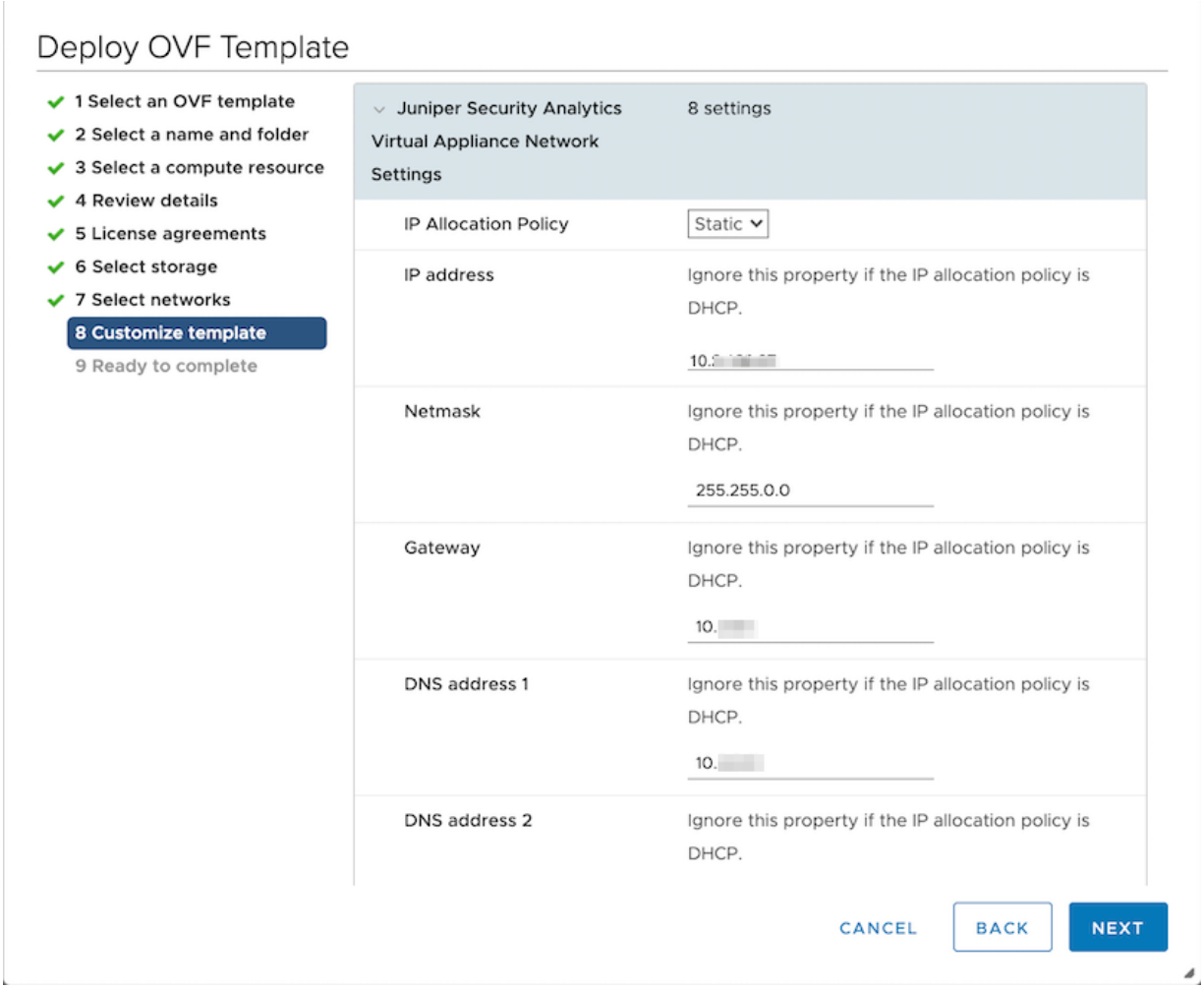
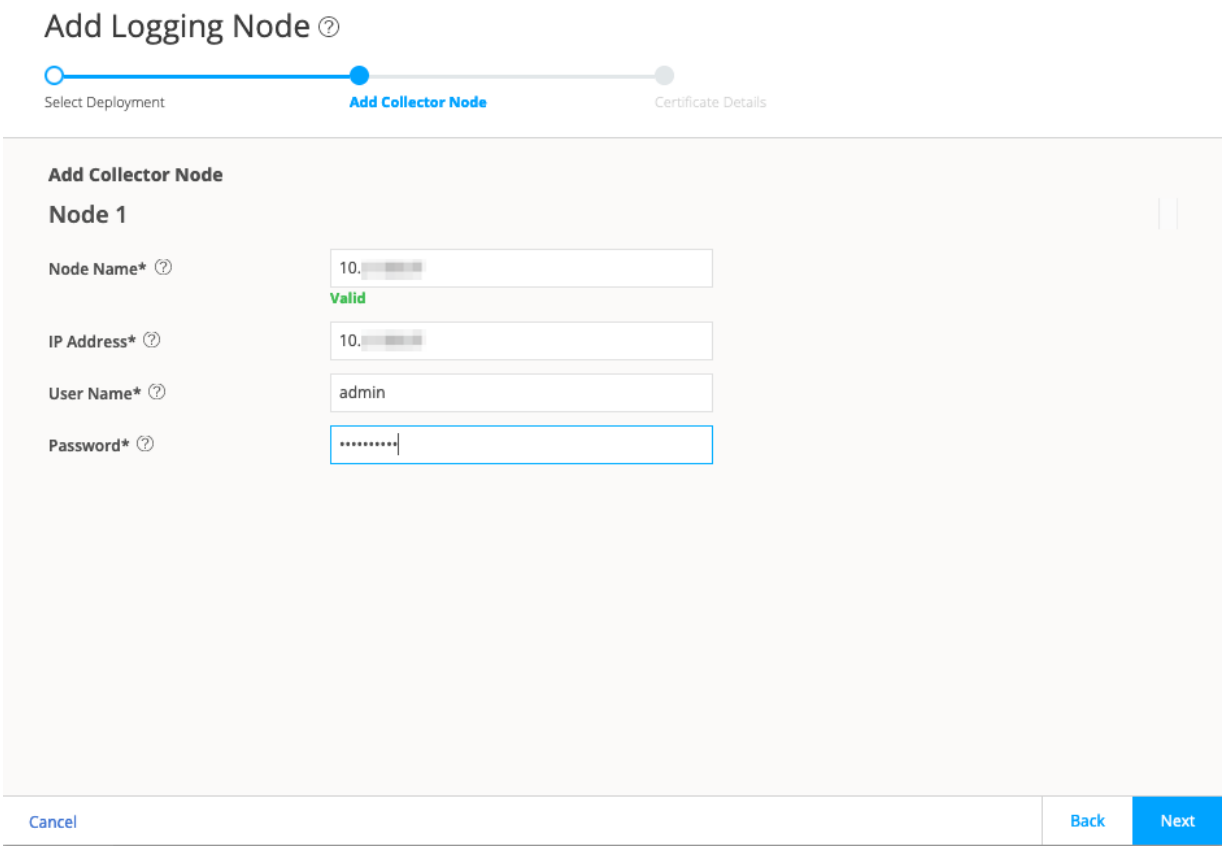


Figure 23: Add Logging Node Page



6. In the User Name field, enter the username of the Security Director Insights VM.

7. In the Password field, enter the password of the Security Director Insights VM.

8. Click **Next**.

   The certificate details are displayed.

9. Click **Finish** and then click **OK** to add the newly created Logging Node.

NOTE: Starting in Security Director Release 21.3R1 Hot Patch V1, you can add both the legacy log collector node and the Security Director Insights VM on the Logging Nodes page in Security Director. We've added the legacy log collector support for read-only purpose to view existing data in the event viewer. You cannot add same type of log collector nodes on the Logging Nodes page.

10. After you add Security Director Insights as a log collector, enable the following options in Junos Space:

    a. Log in to Junos Space.

    b. Select **Administration** > **Applications**.

    c. Right-click **Log Director** and select **Modify Application Settings**.

    d. Enable the following options:

    - Enable SDI Log Collector Query Format
    - Integrated Log Collector on Space Server

Performance Matrix

Table 3 on page 36 shows the performance matrix for various events per second (eps) rates.

Table 3: Performance Matrix for EPS

CPU	Memory	EPS	CPU/Memory Reservation
4	16	5K	8.8 GHz / 16Gb
8	16	10K	17.6 GHz / 16Gb
24	80	25K	50 GHz / 80Gb

NOTE: CPU and Memory values must be reserved according to the performance matrix, to achieve the correlating EPS.

RELATED DOCUMENTATION

Security Director Insights High Availability Deployment Architecture

You can deploy Security Director Insights as a single node and as two nodes with high availability (HA).

Security Director Insights requires the following system and network configurations for the HA deployment:

- Two Security Director Insights systems for two nodes HA.
- Each system must have two network interfaces: one for management and another for HA monitoring.
- The IP addresses of the management interface of the two systems must be in the same subnet.
- The IP addresses of the HA monitoring interface of the two systems must be in the same subnet.

  The management and HA monitoring interfaces must be in different subnets.
- Virtual IP addresses for each subnet.

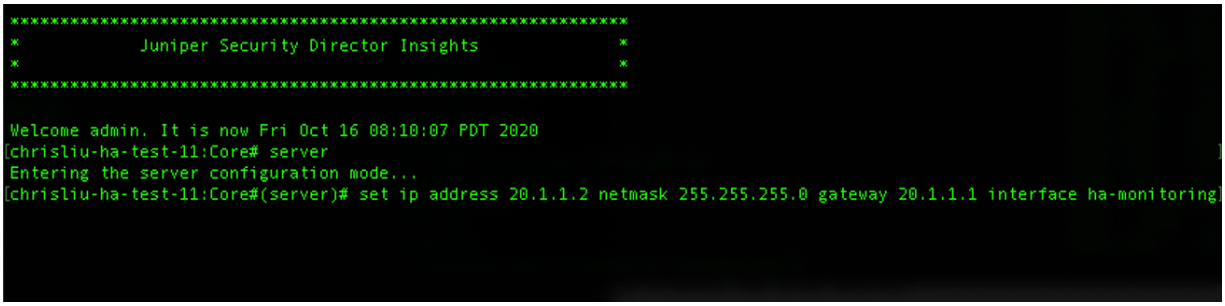
The following example shows the network configuration for the HA deployment:

- System 1:
  - Management IP: 10.1.1.2/24
  - HA monitoring IP: 20.1.1.2/24
- System 2:
  - Management IP: 10.1.1.3/24
  - HA monitoring IP: 20.1.1.3/24
- Virtual IP address for data traffic: 10.1.1.4/24
- Virtual IP address for HA monitoring: 20.1.1.4/24

The virtual IP addresses are used when you configure HA in the Security Director Insights GUI. The virtual IP addresses are automatically assigned to one of the systems, which becomes the active node. When failover occurs, the virtual IP addresses are automatically assigned to the other system, which is the standby node.

You can configure the HA monitoring IP address using a CLI command, as shown in Figure 24 on page 38.

Figure 24: HA Monitoring IP Address Configuration



RELATED DOCUMENTATION

- Deploy and Configure Security Director Insights with Open Virtualization Appliance (OVA) Files | 12
- Configure Security Director Insights High Availability | 38
- Configure Policy Enforcer for Security Director Insights Mitigation | 53
- Add Security Director Insights as a Log Collector | 32

Configure Security Director Insights High Availability

IN THIS SECTION

Security Director Insights supports two-node high availability (HA) with the following specifications:

- Once you enable HA, one Security Director Insights virtual machine (VM) becomes the active node and another Security Director Insights VM becomes the standby node.
- You must specify the virtual IP address assigned to the HA system to inject logs through the virtual IP address.

- If the active node is abnormal or down, the failover to the standby node occurs automatically. You need not change anything when you inject logs.

This topic explains how to setup Security Director Insights HA.

Before You Begin

Before you enable HA:

1. Read "Security Director Insights High Availability Deployment Architecture" on page 37.

   > **NOTE:** If you are using Policy Enforcer inside Security Director Insights and Policy Enforcer is not in HA, you must not deploy Security Director Insights in HA.

2. The two Security Director Insights VMs must have the same Security Director Insights software versions. In each Security Director Insights VM, configure the following network interfaces to enable HA:

   - Eth0—For normal Security Director Insights data and management
   - Eth1—For HA monitoring

   Without the HA feature, Security Director Insights VM requires only a single network interface, eth0, for data and management. The standard Security Director Insights OVA deployment configures only the eth0 interface.

3. Use the following procedure to configure IP addresses for the network interfaces:

   - Go to Security Director Insights CLI.

     # ssh admin@${security-director-insights_ip}

   - Enter the Settings menu.

     # server

   - View already configured IP addresses.

     # show ip

   - Configure the eth0 IP address.

     # set ip interface management address ${eth0_ip} gateway ${eth0_gateway} netmask ${eth0_netmask}

   - Configure the eth1 IP address.

 # set ip interface ha-monitoring address ${eth1_ip} gateway ${eth1_gateway} netmask ${eth1_netmask}

- Verify the configured IP addresses.

  # show ip

> **NOTE:**
> You must ensure that:
>
> - On each node, the IP addresses of the eth0 and eth1 interfaces are in different subnets.
> - The IP address of the eth0 interface of the active and standby nodes are in the same subnet.
> - The IP address of the eth1 interface of the active and standby nodes are in the same subnet.

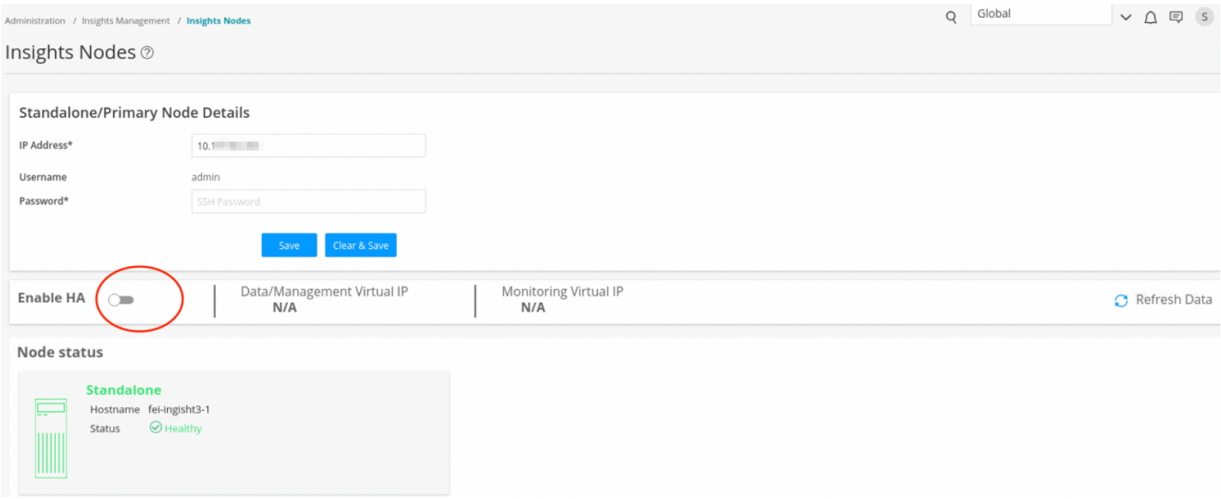
Enable HA

Before you enable HA, you must add the active node.

1. To add the active node:
   - Select **Security Director** > **Administration** > **Insights Management** > **Insights Nodes**.

     The Insights Nodes page appears.
   - Enter the IP address of the active node, admin password, and click **Save**.
2. Once the active node is added successfully, toggle the Enable HA option on, as shown in Figure 25 on page 41.

Figure 25: Enable HA



The HA Setup page appears.

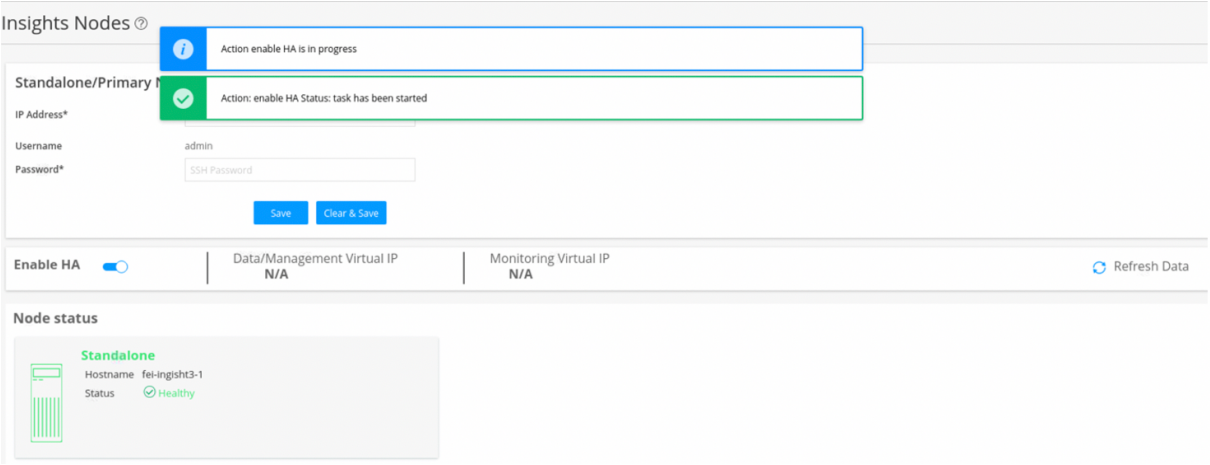
3. Complete the configuration according to the guidelines provided in Table 4 on page 41, and click **Save & Enable**.

Table 4: Fields on the HA Setup Page

Setting	Guideline
Secondary Node Details	
Secondary system IP	Enter the IP address of the eth0 interface of the standby node.
Username	Username is “admin” and you cannot modify it.
Password	Enter the Security Director Insights VM password.
HA Settings	
Data Virtual IP/Netmask	Enter the virtual IP address of the HA management interface.
HA monitor Virtual IP/Netmask	Enter the virtual IP address of the HA monitoring interface.
Ping IPs	(Optional) Enter one or more IP addresses that both nodes can reach to check the connectivity.

You are taken back to the Insights Nodes page. You will see the status messages, as shown in Figure 26 on page 42. Note that the HA enabling takes several minutes.

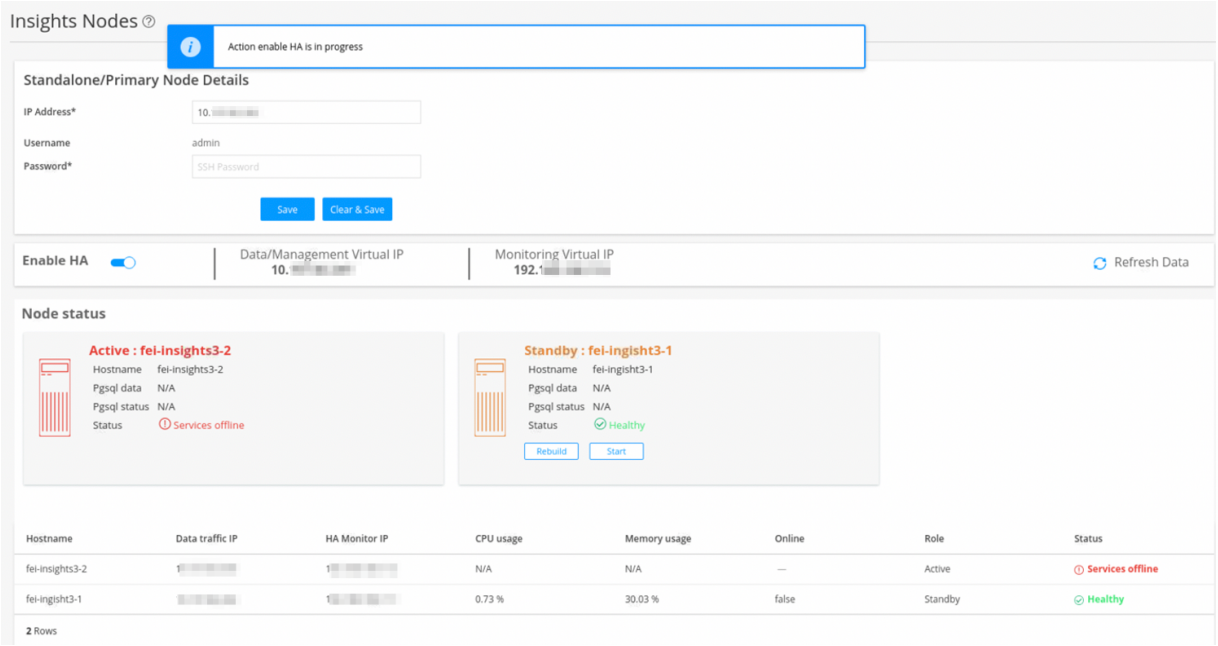
Figure 26: Enable HA in Progress



4. Click **Refresh Data**.

   You will see intermittent status messages, as shown in Figure 27 on page 42.

Figure 27: Enable HA Intermittent Status

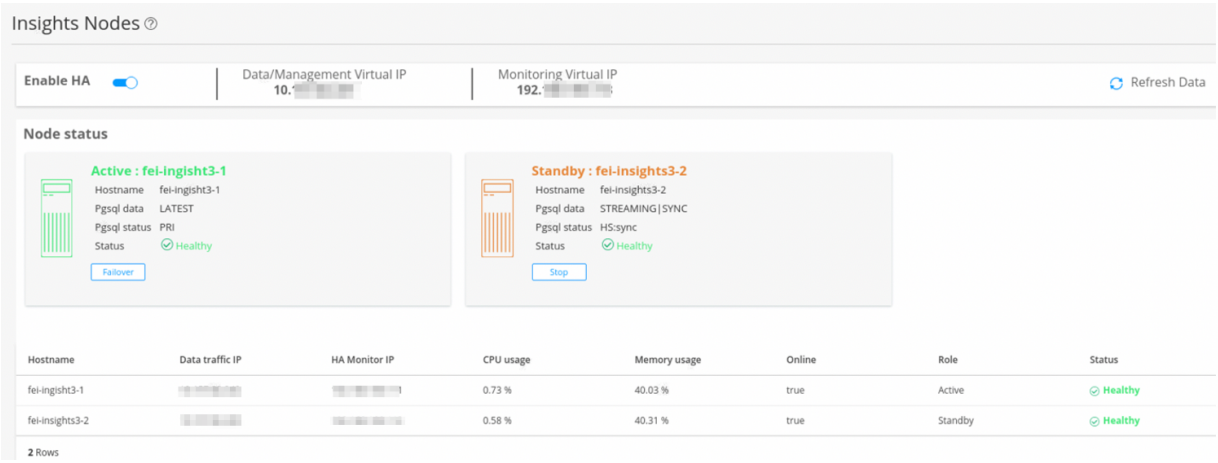


5. Keep clicking the **Refresh Data** option until you see that:

   - Both nodes are healthy.
   - Data and management virtual IP addresses are the same as the ones configured on the HA Setup page.

Figure 28 on page 43 shows the status of the nodes once the HA is enabled successfully.

Figure 28: HA Enabled



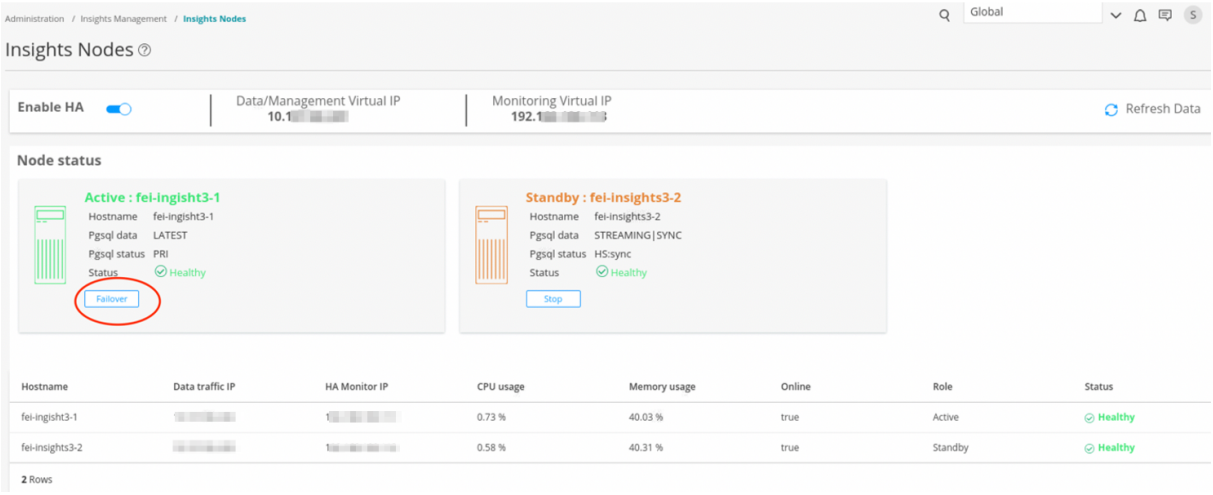
Manually Trigger Failover

You can initialize the HA failover if the active node encounters any issues.

To enable failover to the standby node:

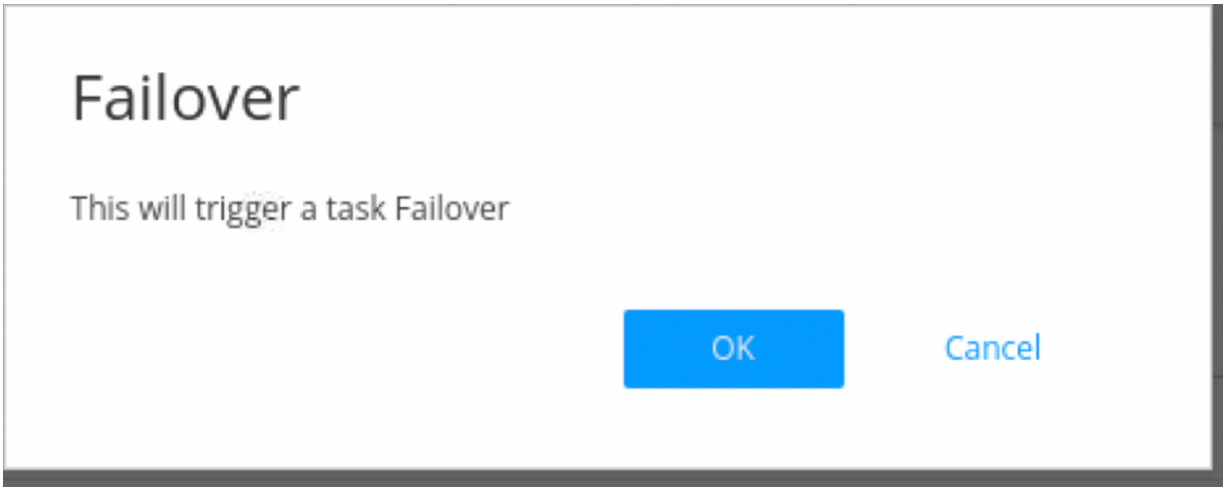
1. In the Insights Node page, click **Failover** under the active node, as shown in Figure 29 on page 44.

Figure 29: Initiate Failover



A confirmation message appears, as shown in Figure 30 on page 44.

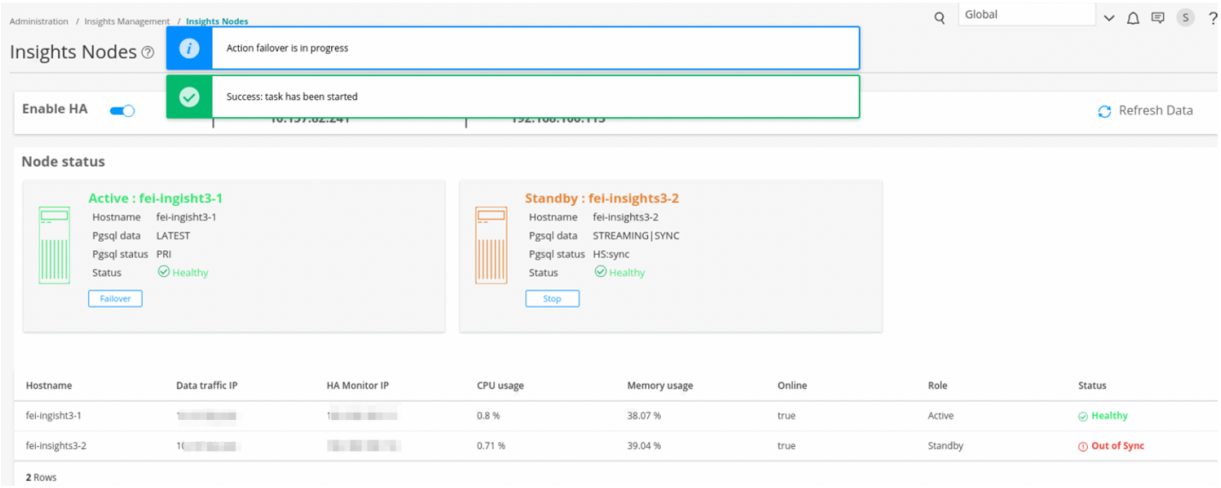
Figure 30: Failover Confirmation Message



2. Click **OK**.

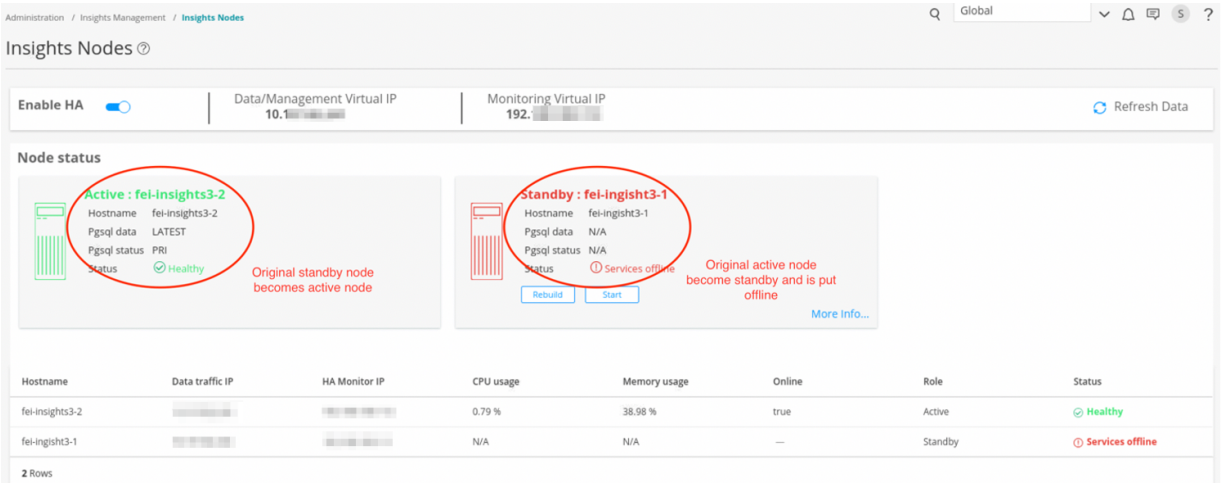
   The failover action takes several minutes to complete. During the process, you will see intermittent status messages, as shown in Figure 31 on page 45.

Figure 31: Failover Intermittent Status



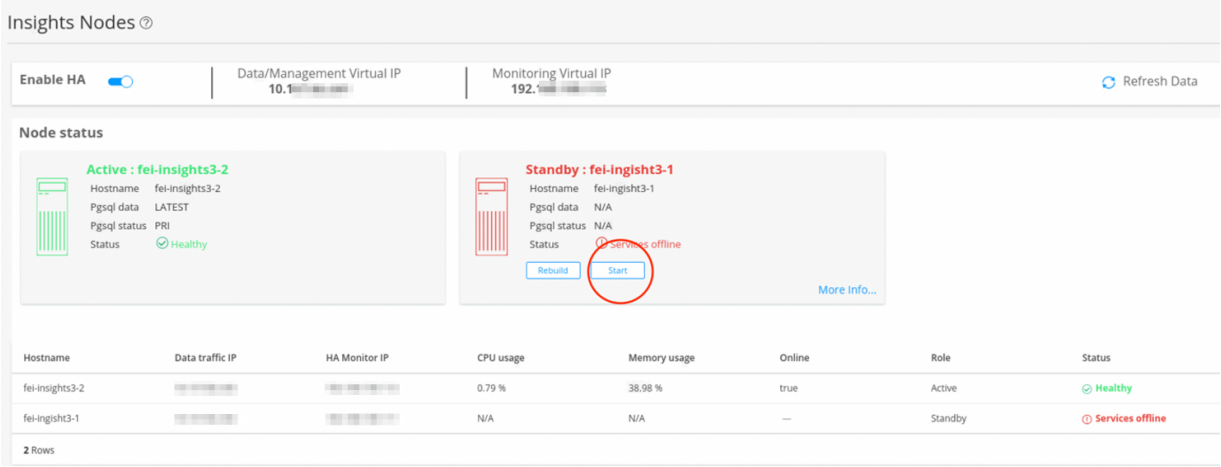
Once the failover is enabled, the original standby node becomes the new active node and the original active node is put in an offline mode, as shown in Figure 32 on page 45.

Figure 32: Standby Node Offline



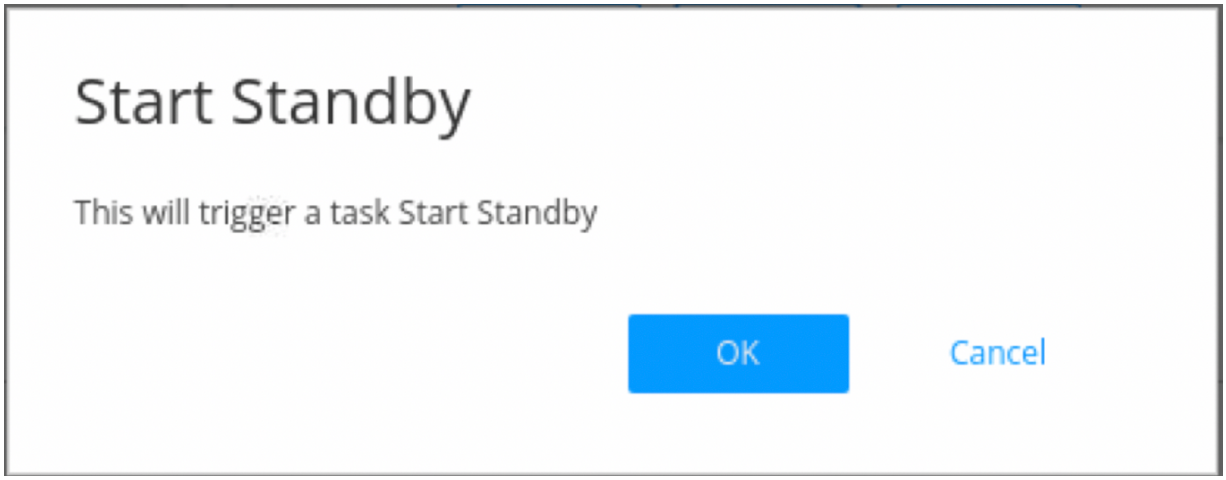
3. To bring the new standby node back online, click **Start**, as shown in Figure 33 on page 46.

Figure 33: Start Standby Node



A confirmation message appears, as shown in Figure 34 on page 46.

Figure 34: Start Standby Confirmation

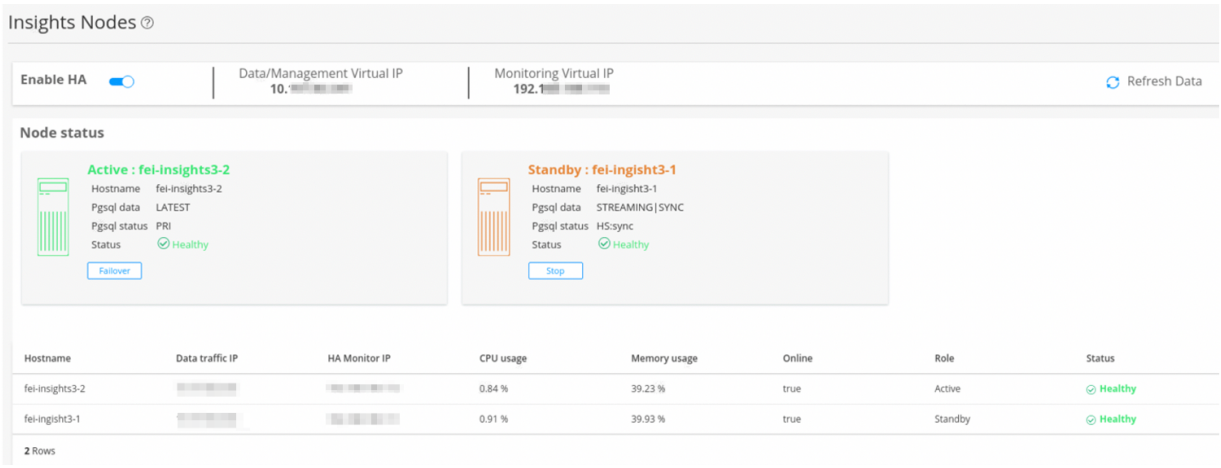


4. Click **OK** to continue.

   The Start action takes several minutes to complete.

   Once the Start action is complete, the status of both the nodes shows online and healthy. The original active node is now online as a standby node, as shown in Figure 35 on page 47.

Figure 35: Standby Start Action



5. If the standby node encounters any synchronization issues with the active node, click **Stop** under the Standby node.

6. Click **Rebuild** to synchronize data between the two nodes.

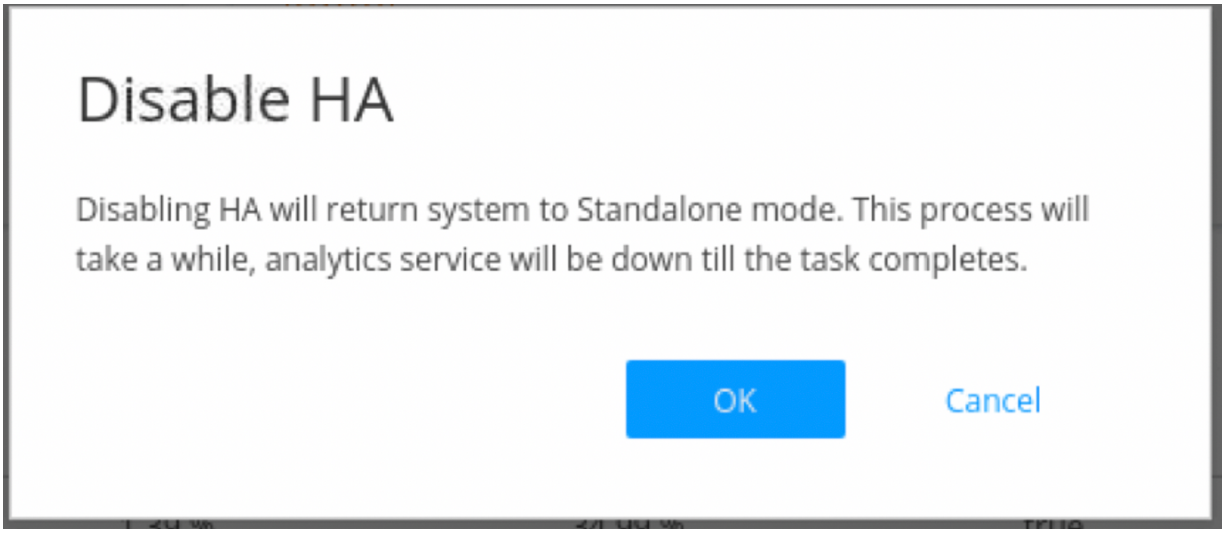
Disable HA

To disable HA:

1. In the Insights Nodes page, toggle the Enable HA option off.

   A confirmation message appears before HA is disabled, as shown in Figure 36 on page 48.

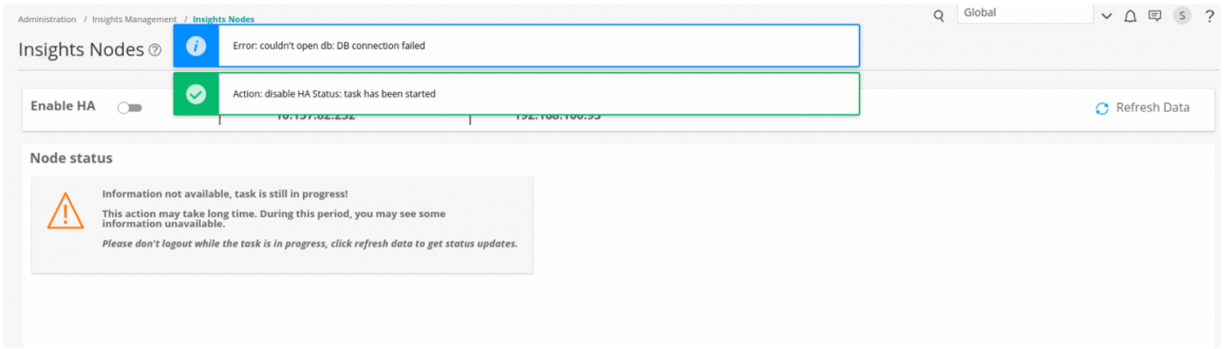
Figure 36: Disable HA Confirmation



2. Click **OK** to confirm the HA disabling.

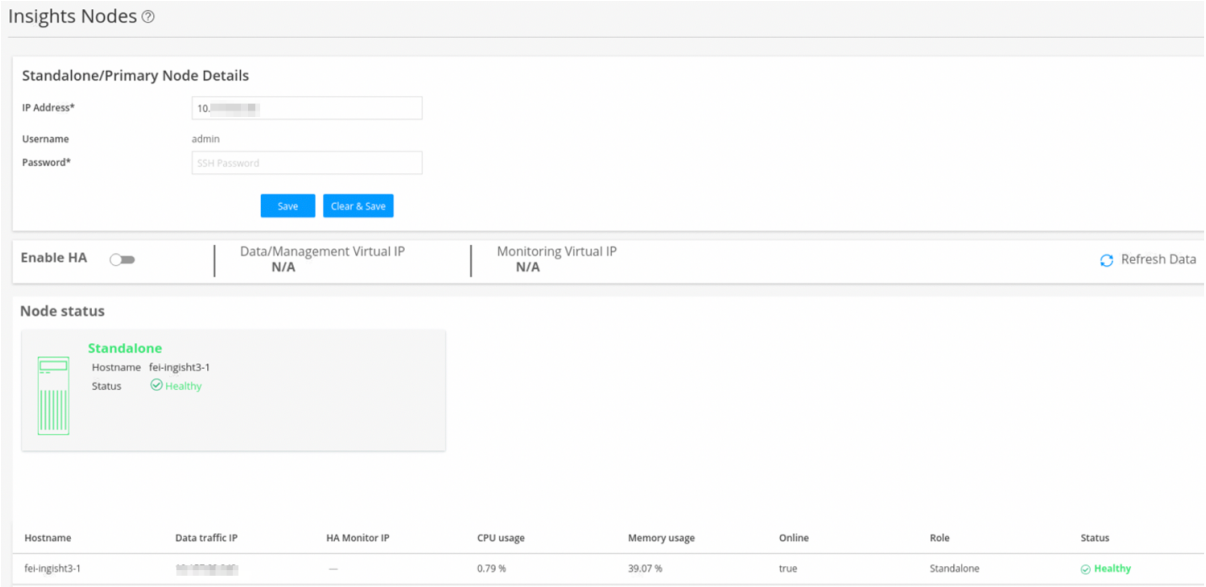
Disabling HA takes several minutes. During the process, intermittent status messages are displayed, as shown in Figure 37 on page 48. Keep clicking **Refresh Data** until HA is disabled successfully.

Figure 37: HA Disabling Status



Once HA is disabled successfully, you can see only the active node VM in the Insights Nodes page, as shown in Figure 38 on page 49.

Figure 38: HA Disabled



Upgrade HA

When a new Security Director Insights software version is available, perform the following procedure to upgrade the HA nodes. You must upgrade HA only from the active node for both the nodes to be upgraded.

1. Go to Security Director Insights CLI.

   ssh admin@${active_node_ip}

2. Enter the Settings menu.

   #server

3. Obtain the software upgrade package.

   #set system-update copy user@${pkg_location_ip}:/${package_file_path/name}

4. View the software upgrade package version.

   # show system-update versions

5. Initiate the upgrade.

 # set system-update start software ${new_version}

```
[redacted]-s448-1:Core#(server)# show system-update versions
Type            Version         Size       OK to upgrade
software        20.3R1.449      1.97 GB    OK
fei-yeezy-s448-1:Core#(server)# set system-update start software 20.3R1.449
```

6. Verify the HA upgrade status.

   # ha system-update status

   Wait until the upgrade is finished successfully in both active and standby nodes, as shown in Figure 39 on page 50.

Figure 39: HA Upgrade

```
[redacted]-s448-1:Core#(server)# ha system-update status
Upgrade Started at: Tue Oct 13 15:22:26 2020

2020-10-13 15:22:26.106006 - Step 1: Preparing system for system update

2020-10-13 15:22:26.106818 - Step 2: Gathering information for software update
2020-10-13 15:22:30.990068 - standby updating from 20.3R1.448 to 20.3R1.449
2020-10-13 15:22:31.013218 - active updating from 20.3R1.448 to 20.3R1.449

2020-10-13 15:22:31.014280 - Step 3: Prepare HA services for update

2020-10-13 15:24:16.590442 - Step 4: Prepare active configuration for update

2020-10-13 15:24:16.610089 - Step 5: Prepare standby for system update

2020-10-13 15:25:41.349251 - Step 6: Start system update on standby
2020-10-13 15:28:37.047819 - Update on standby finished at 2020-10-13 15:28:37.047805

2020-10-13 15:28:40.196587 - Step 7: Start system update on active

2020-10-13 15:30:23.083680 - Step 8: Reconfigure active after system update
2020-10-13 15:33:37.719841 - Waiting for database to be ready for writes...
2020-10-13 15:33:37.733428 - Database is ready for writing
2020-10-13 15:33:37.734353 - Waiting for active HA services

2020-10-13 15:33:47.740471 - Step 9: Reconfigure standby after system update

2020-10-13 15:33:50.713489 - Step 10: Synchronize data from active to standby
2020-10-13 15:33:50.714044 - Waiting until the database is ready...
2020-10-13 15:33:50.721523 - Database is ready to sync up active and standby
2020-10-13 15:34:00.819802 - Waiting for standby HA services to start
2020-10-13 15:34:13.465276 - Restarting services...
2020-10-13 15:35:16.930596 - Upgrade successfully completed
```

Configure High Availability for Security Director Insights as Log Collector

Starting in Security Director Insights Release 21.3, you can configure high availability (HA) for Security Director Insights as log collector.

To configure HA for the log collector:

1. Enable the log collector function in two nodes of Security Director Insights through Security Director Insights CLI terminal.
   a. Go to Security Director Insights CLI.

      # ssh admin@${security-director-insights_ip}

   b. Enter the application CLI menu.

      # applications

   c. Enable the log collector.

      # set log-collector enable on

   d. Set the log collector password.

      # set log-collector password

   e. Retype the new password.

      You will receive the password change success message as shown in Figure 40 on page 52.

Figure 40: Enable Log Collector

2. Enable the Security Director Insights HA through Security Director Insights CLI terminal.
   a. Go to Security Director Insights CLI.

      # ssh admin@${security-director-insights_ip}

   b. Enable HA.

      ha enable ${VIP_data_interface}/${VIP_data_subnet} ${VIP_monitoring_interface}/{VIP_monitoring_subet} ${secondary_node_data_interface_ip} ${secondary_node_admin_password}

   c. Provide the Security Director IP address.

      HA is enabled and a confirmation message is shown, as shown in Figure 41 on page 52.

Figure 41: Enable HA

3. Add the HA virtual IP address as a log collector in Security Director UI.

a. Select **Security Director** > **Administration** > **Logging Management** > **Logging Node**.

b. Click the + icon to add logging nodes.

   The Add Logging Node page appears.

c. Choose the Log Collector type as Security Director Log Collector, and click **Next**.

d. In the IP Address field, enter the HA virtual IP address.

e. In the Username field, enter 'admin'.

f. In the Password field, enter the log collector password that you have configured in Step 1d.

g. Click **Next**.

   The certificate details are displayed.

h. Click **Finish**.

i. Review the summary of configuration changes from the summary page.

j. Click OK to add the node.

RELATED DOCUMENTATION

Configure Security Director Insights High Availability | 38

Add Security Director Insights as a Log Collector | 32

Configure Policy Enforcer for Security Director Insights Mitigation

IN THIS SECTION

Security Director Insights performs mitigation using Juniper® Advanced Threat Prevention Cloud (Juniper ATP Cloud) or Policy Enforcer. This topic explains how to configure Policy Enforcer for mitigation. Policy Enforcer is integrated within the Security Director Insights virtual machine (VM). You can mitigate the IP addresses with either the Security Director Insights integrated Policy Enforcer or the legacy standalone Policy Enforcer. If you are using the integrated Policy Enforcer for mitigation, use the IP address of the Security Director Insights VM wherever Policy Enforcer details need to be entered.

Add Security Director Insights Nodes

To add the Security Director Insights node:

1. Log in to the Security Director GUI and navigate to **Administration** > **Insights Management** > **Insights Nodes**.

2. Enter the Security Director Insights IP address and the admin password.

3. Click **Save**.

   The Security Director Insights VM is added to Security Director. To know more about adding Security Director Insights nodes, see *Add Insights Nodes*.

Configure Security Director Insights as Integrated Policy Enforcer

To configure the integrated Policy Enforcer:

1. Select **Security Director** > **Administration** > **Policy enforcer** > **Settings**.

   The Settings page appears.

2. In the IP Address field, enter the IP address of the Security Director Insights VM.

   The IP address used in the Deploy OVF Template page must be used in the Settings page, as shown in Figure 42 on page 55 and Figure 43 on page 56.

Figure 42: Deploy OVF Template Page

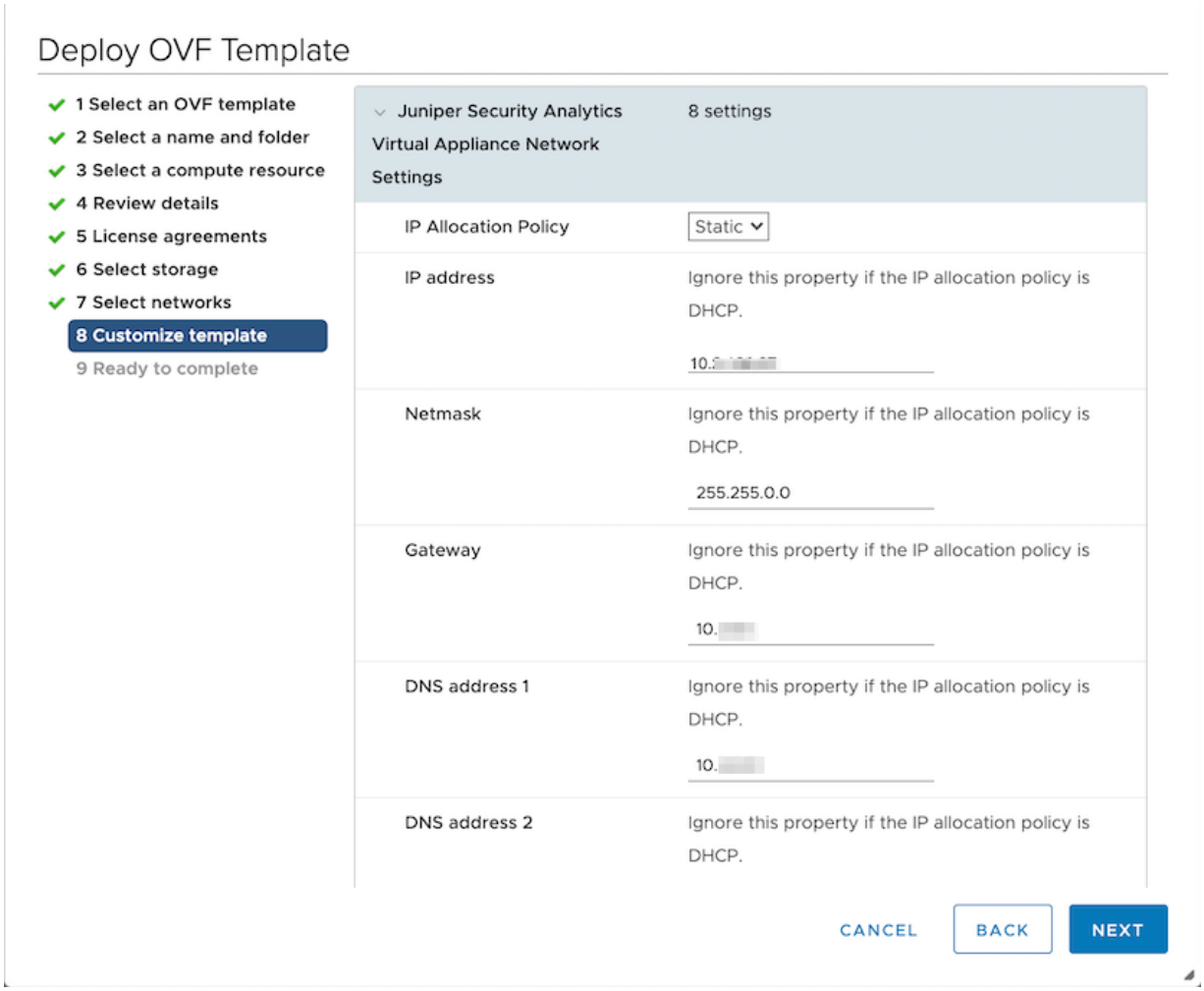
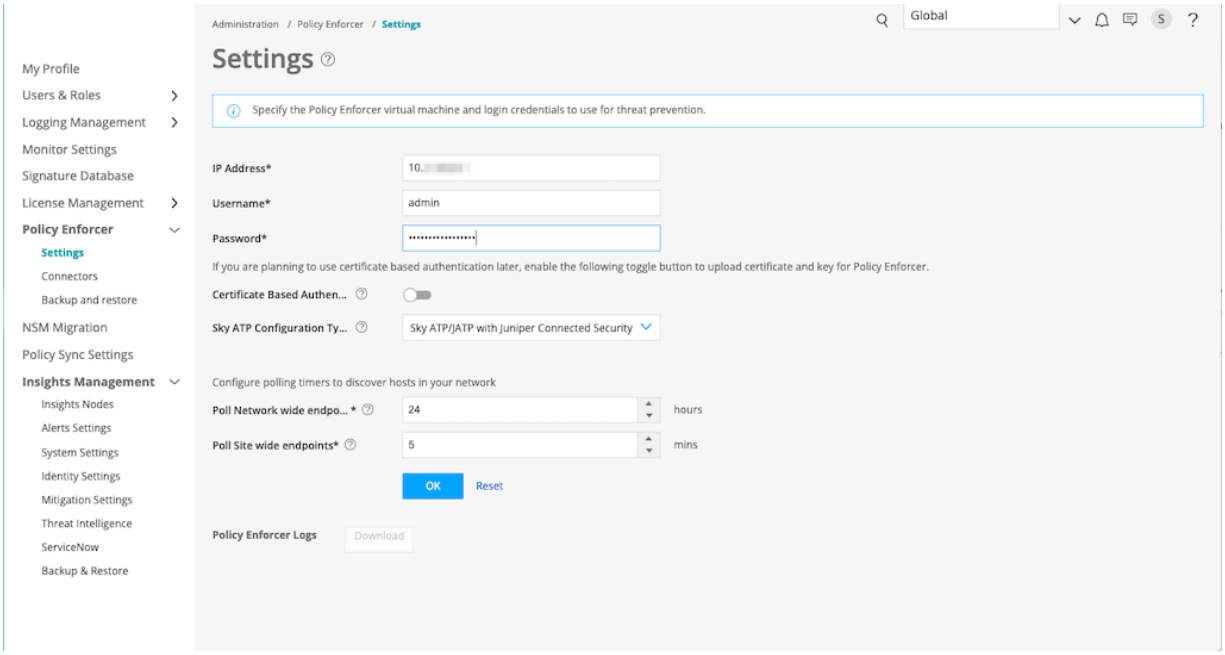


Figure 43: Policy Enforcer Settings Page



3. In the Username field, enter “admin” as the username for the integrated Policy Enforcer.

4. In the Password field, enter the admin password that you used to bring up the Security Director Insights VM.

5. In the SkyATP Configuration Type field, select **Sky ATP/JATP with Juniper Connected Security** from the list and click **OK**.

   A confirmation page appears displaying the Policy Enforcer configuration success message and to confirm setting up the threat prevention policy.

6. Click **OK**.

   The Threat Prevention Policy Guided Setup page appears.

7. Click **Start Setup**.

8. In the Tenants page, do not create any tenants. Skip this step and click **Next**.

   The Security Fabric page appears.

9. In the Security Fabric page, perform the following configuration:

   - Select an existing site or click **+** to create a new site.

- In the Enforcement Point column, click **Add Enforcement Point** to add the SRX Series device as an enforcement point. This enables the SRX Series device to receive feeds from Security Director Insights.
- Click **Next**.

  The Policy Enforcement Group page appears.

10. In the Policy Enforcement Group page, perform the following configuration:
    - Click **+** to create a new policy enforcement group or use an existing group.
    - Click **Next**.

      The SkyATP Realm page appears.
11. In the SkyATP Realm page, perform the following configuration:
    - Click **+** and enter the existing ATP Cloud realm credentials. If you do not have the credentials, you will get an option to create the ATP Cloud realm credentials.
    - Click **OK**.

      If the ATP Cloud realm is added successfully, assign a site in the Sites Assigned column.
    - Click **Next**.

      The Policies page appears.
12. In the Policies page, perform the following configuration:
    - Click **+** to create a threat prevention policy.
    - In the Name field, enter a name for the policy and description in the Description field.
    - In the Profiles section, select the following profiles: Include C&C profile in policy, Include infected host profile in policy, and Include malware profile in policy.
    - Click **OK**.

      You are taken back to the Policies page.
    - Click **Next**.

      The Geo IP page appears.
13. In the Geo IP page, skip the configuration and click **Finish**.

    The Summary page appears.

14. Review the configuration summary and click **OK**.

    A new threat prevention policy is created.

Create Custom Feeds for Mitigation

To mitigate incidents through Policy Enforcer, you must create custom feeds for blocklist and infected host.

To create the Policy Enforcer custom feeds:

1. Select **Security Director** > **Configure** > **Threat Prevention** > **Feed Sources** > **Custom Feeds**.
2. Click **Create** and select **Feeds with local files** from the drop-down list.

   The Create local custom feed page appears.
3. In the Name field, enter a name for the custom feed and description in the Description field.
4. From the Feed Type drop-down list, select **Blacklist**.
5. From the Zones/Realms drop-down list, select the Juniper ATP Cloud realm you created using the Guided Setup.
6. From the User Input Type drop-down list, select **IP, Subnet and Range**.
7. Click **OK**.

   A new custom feed for blocklist is created and you are taken back to the Custom Feeds page.
8. Repeat Steps 1 to 7 to create another custom feed for the infected host. In the Feed Type field, select **Infected-Hosts** from the list.

You will see two new custom feeds listed on the Custom Feeds page: one for blocklist and one for infected host.

Configure Security Director Insights Mitigation Using Policy Enforcer

To configure mitigation settings using Policy Enforcer:

1. Select **Security Director** > **Administration** > **Insights Management** > **Mitigation Settings**.

   The Mitigation Settings page appears.
2. Select the **Policy Enforcer** tab.

3. Complete the configuration by using the guidelines in Table 5 on page 59.

4. Click **Save**.

   If all the parameters are correct, mitigation is enabled.

Table 5: Policy Enforcer Mitigation Guidelines

Setting	Guideline
Policy Enforcer Hostname	The Policy Enforcer virtual machine IP address automatically appears. This is the IP address that you configure in the Policy Enforcer > Settings page.
Policy Enforcer SSH User Name	The SSH username automatically appears. This is the same username that you configure in the Policy Enforcer > Settings page.
Policy Enforcer SSH Password	Enter the Policy Enforcer SSH password. This is the same password that you enter in the Policy Enforcer > Settings page.
API User Name	If you have the credentials for the Policy Enforcer Controller APIs, enter the existing API username. Else, enter a name and Security Director Insights will create a new username.
API Password	If you have the credentials for the Policy Enforcer Controller APIs, enter the existing API password. Else, enter a password and Security Director Insights will create a new password.
Blocklist Feed Name	Enter the blocklist custom feed name that you created in the Configure > Threat Prevention > Feed Sources > Custom Feeds page.
Infected-Host Feed Name	Enter the infected host custom feed name that you created in the Configure > Threat Prevention > Feed Sources > Custom Feeds page.

NOTE: Security Director Insights supports mitigation using Juniper ATP Cloud and Policy Enforcer. Only one plugin can be active at a given time. Before you enable Policy Enforcer mitigation settings, ensure to disable the Juniper ATP Cloud plugin if it is enabled.

Monitor Mitigation Through Policy Enforcer

The following example shows how to mitigate incidents through Policy Enforcer.

To monitor the mitigation:

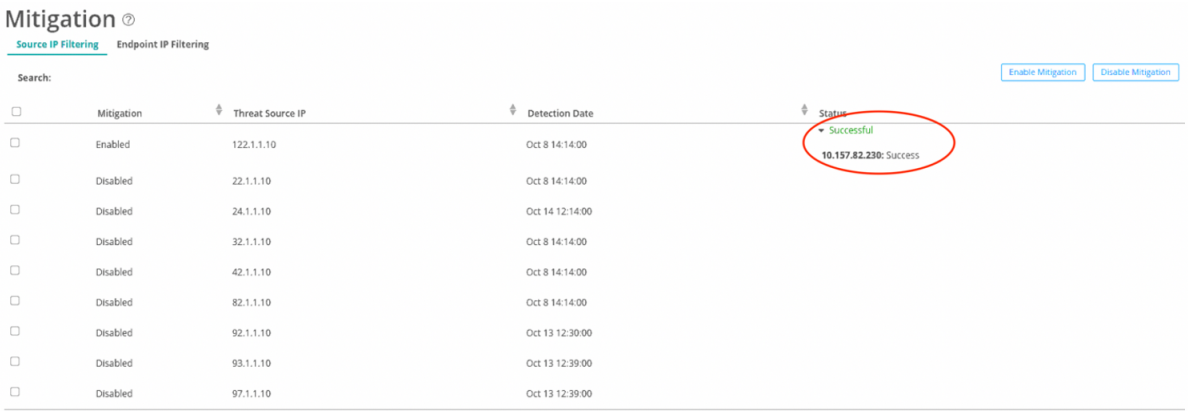
1. Select **Security Director** > **Monitor** > **Insights** > **Mitigation**.

   The Mitigation page appears.

2. Select one or more IP addresses and click **Enable Mitigation**.

   If the mitigation is Successful, the status column displays Successful, as shown in Figure 44 on page 60.

Figure 44: Mitigation Successful



   The mitigated IP addresses listed under the Source IP Filtering tab are added to the custom blocklist feed.

   The mitigated IP addresses listed under the Endpoint IP Filtering tab are added to the infected host custom feed.

3. Verify the blocklisted IP addresses in the SRX Series device that was added as an endpoint in Policy Enforcer. The device receives one blocklist feed with the IP address that you mitigated in Step 2, as shown in Figure 45 on page 60.

Figure 45: Blocklisted IP Address

```
root@                show security dynamic-address category-name Blacklist
No.     IP-start             IP-end               Feed              Address
1       122.1.1.10           122.1.1.10           Blacklist/1       ID-fffc0410

Instance default Total number of matching entries: 1
```

RELATED DOCUMENTATION

Upgrade Security Director Insights

Table 6 on page 61 shows the upgrade path for Security Director Insights.

Table 6: Upgrade Path

Upgrading to Release	Upgrade Path	Description
Security Director Insights 22.3R1	22.2R1 > 22.3R1	You can upgrade from the following release: • Security Director Insights Release 22.2R1
Security Director Insights 22.2R1	22.1R1 > 22.2R1	You can upgrade from the following release: • Security Director Insights Release 22.1R1
Security Director Insights 22.1R1	21.3R1 > 22.1R1	You can upgrade from the following release: • Security Director Insights Release 21.3R1
Security Director Insights 21.3R1	21.2R1 > 21.3R1	You can upgrade from the following release: • Security Director Insights Release 21.2R1
Security Director Insights 21.2R1	21.1R1 > 21.2R1	You can upgrade from the following release: • Security Director Insights Release 21.1R1
Security Director Insights 21.1R1	20.3R1 > 21.1R1	You can upgrade from the following release: • Security Director Insights Release 20.3R1

To upgrade from a previous version of Security Director Insights:

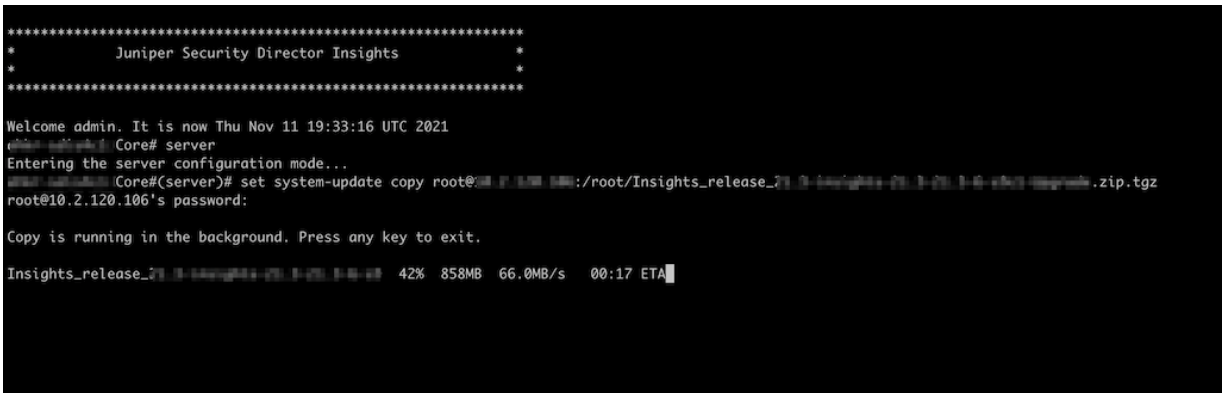
1. Download the release image from the download site to a location (virtual machine) that is accessible from Security Director Insights.

2. Type **server** to switch to the server mode of CLI.

3. Copy the upgrade package to Security Director Insights:

set system-update copy user@ip_addr:/location.

Figure 46: Copy the Upgrade Package

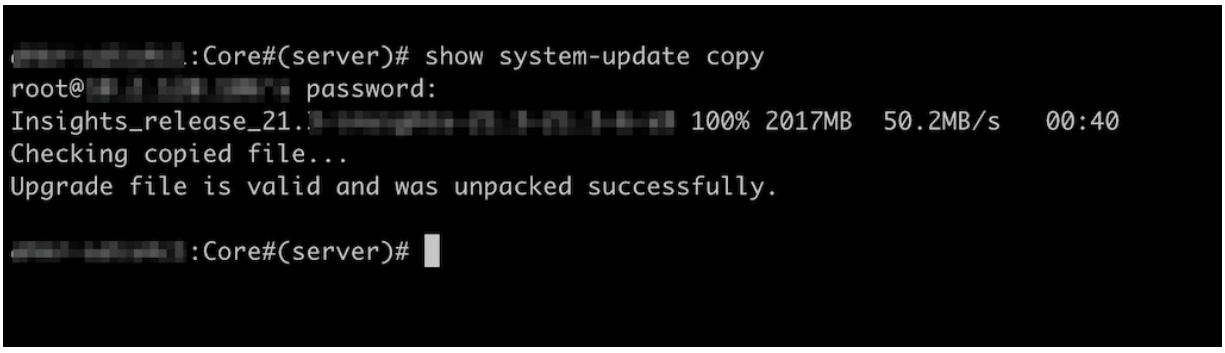


> **NOTE:** You can host the upgrade file to any location that is accessible by secure copy protocol (scp).

4. Check the copy progress:

   show system-update copy.

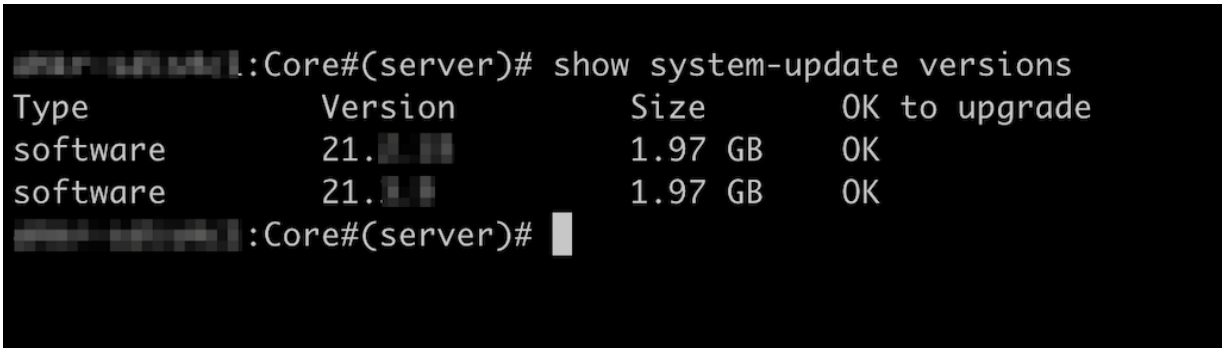
Figure 47: Check Copy Progress



5. Check the available upgrade versions:

   show system-update versions.

Figure 48: Available Upgrade Versions

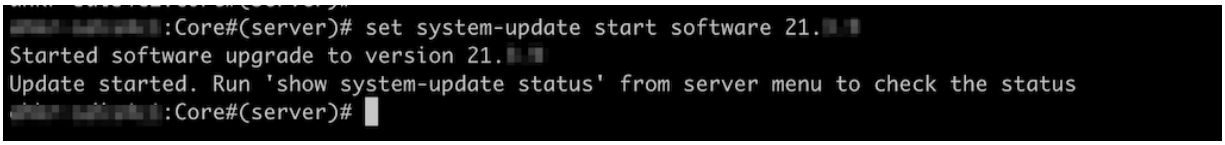


6. Start the upgrade process:

   set system-update start software <version-number>.

   Use the <tab> key to select the software version number.

Figure 49: Start Upgrade Process



7. Monitor the status of upgrade:

   show system-update status.

Figure 50: Monitor Upgrade Status