



Installing vThunder ADC using VMware Template 1.0.0

June, 2023

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Introduction

The VMware templates 1.0.0 offers the following capabilities for Thunder® Application Delivery Controller (ADC):

- Monitors different vThunder performance metrics and logs using the VMware ESXi vRealize tools.
- Publishes the vThunder performance metrics to vRealize Operations (vROps) dashboard using the data collected by the [Thunder Observability Agent](#) (TOA). For more information on Thunder logs, see [Supported Thunder Metrics](#).
- Publishes the vThunder syslog to vRealize Log Insight (vRLI) dashboard using the data collected by the [Thunder Observability Agent](#) (TOA). For more information on Thunder logs, see [Supported Thunder Logs](#).

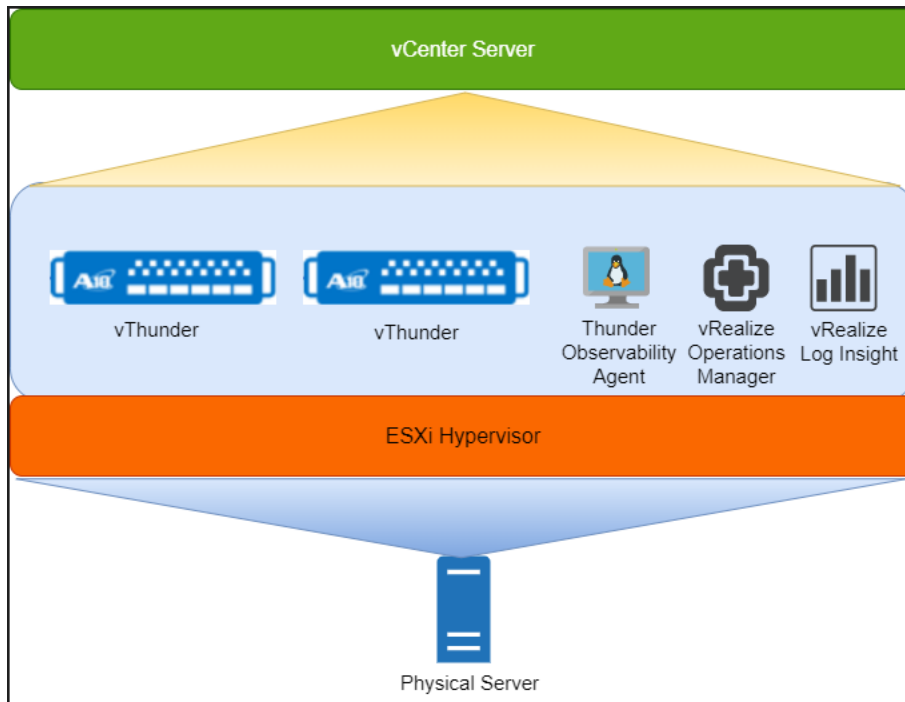
NOTE: The VMware Template release v1.0.0 includes the vROps and vRLI dashboard configuration.
The VMware templates for vThunder deployment and its configuration would be available in a future release.

The following VMware monitoring tools are supported:

- vRealize Operations (vROps)
- vRealize Log Insight (vRLI)

[Figure 1](#) illustrates vThunder installed on VMware ESXi hypervisor.

Figure 1 : vThunder for VMware ESXi



Terminology

The following is a list of VMware terms commonly used in this document:

- **VMware ESXi** — An enterprise-level Bare Metal hypervisor to create and run virtual machines.
- **VMware Realize Operations (vROps)** — A tool that helps in operating and monitoring the capacity, health, and performance of your hosted infrastructure. It provides a user interface to monitor metrics, create dashboards and graphs, and receive alerts and notifications.
- **A10 vThunder** — A fully operational, software-based Application Delivery Controller (ADC) solution that can run on VMware ESXi. vThunder ADC provides a robust, flexible, and easy-to-deploy application delivery and server load balancing service.
- **A10 Thunder Observability Agent (TOA)** — An external plugin that is installed on CentOS, Linux, or Ubuntu. This agent sends Thunder metrics and logs to vROps and vRLI respectively.
- **vRealize Log Insight (vRLI)** — A tool that helps in troubleshooting issues related to the hosted infrastructure using the log files. It provides a user interface to analyze, collect, manage, and view logs.

Prerequisites

The following tables list the prerequisites for installing vThunder on VMware ESXi:

Hardware Dependencies

Table 1 : Hardware Dependencies

Requirement	Description
A10 vThunder Virtual Machine	For trial purposes, the minimum requirements are 4 GB RAM, 4 CPU, 32 GB. To view the available installation options, see A10 Support Portal .
For Monitoring	
A10 Thunder Observability Agent (TOA) Virtual Machine	The minimum requirements are 2 GB RAM, 1 CPU, 4 GB.

Software Dependencies

Table 2 : Software Dependencies

Requirement	Version	Description
A10 vThunder	ACOS version	To download the A10 vThunder image on your machine: 1. Log in to the A10 Support Portal and go to Software and Documentation > Thunder & AX Series > vThunder Installation - ADC/SLB > X.X.X Release > vThunder Appliance for VMware or vThunder Appliance for KVM.

Table 2 : Software Dependencies

Requirement	Version	Description
		2. Select the vThunder OVA <ACOS_vThunder_xxx.ova> or ISO image <ACOS_vThunder_xxx.iso>.
VMware ESXi	7.0	To install VMware ESXi on your Bare Metal instance, see VMware ESXi Installation and Setup .
For Monitoring		
VMware vRealize Operations (vROps)	v8.6	To install vROps on the ESXi host, see vROps installation .
VMware vRealize Log Insight (vRLI)	v8.8	To install vRLI on the ESXi host, see vRLI installation .
A10 Thunder Observability Agent (TOA)	1.0.0	To install TOA, see Online or Offline documentation.

Compatibility Matrix

The following table provides the compatibility matrix for ACOS version, TOA version, and VMware template.

Table 3 : ACOS-TOA-VMware Support Matrix

ACOS Version	VMware Template	TOA Version
64-bit Advanced Core OS (ACOS) version 6.0.0-P2-SP1, build 6	1.0.0	1.0.0
64-bit Advanced Core OS (ACOS) version 6.0.0-P1, build 47	1.0.0	1.0.0
64-bit Advanced Core OS (ACOS) version 5.2.1-P7, build 160	1.0.0	1.0.0
64-bit Advanced Core OS (ACOS) version 5.2.1-P6, build 74	1.0.0	1.0.0
64-bit Advanced Core OS (ACOS) version 5.2.1-P5, build 114	1.0.0	1.0.0

Table 3 : ACOS-TOA-VMware Support Matrix

ACOS Version	VMware Template	TOA Version
64-bit Advanced Core OS (ACOS) version 4.1.4-GR1, build 34	1.0.0	1.0.0

Install A10 vThunder

To manually install vThunder on the VMware ESXi cloud using the OVA or ISO image, perform the following steps:

1. [Upload vThunder Image](#)
2. [Create Two Data Interfaces](#)
3. [Create Two Port Groups](#)
4. [Create a Virtual Machine for vThunder](#)
5. [Verify Installation](#)

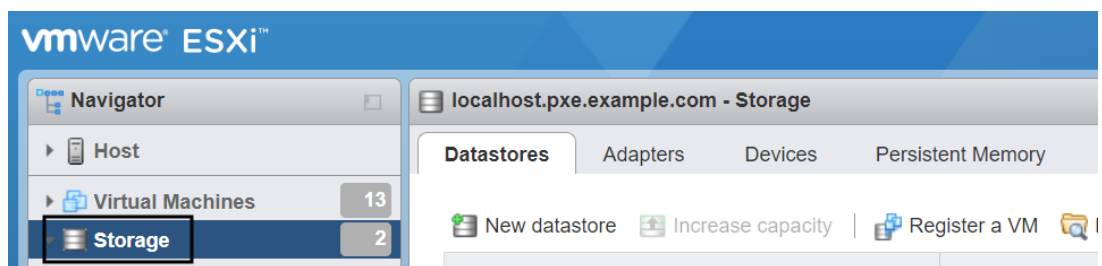
Upload vThunder Image

To upload the vThunder OVA or ISO image instance on the VMware ESXi cloud, perform the following steps:

1. Log in to your VMware ESXi host system.
2. From the **VMware ESXi** console, go to **Navigator** > **Storage** for the selected host.

The <your_host> - Storage window is displayed.

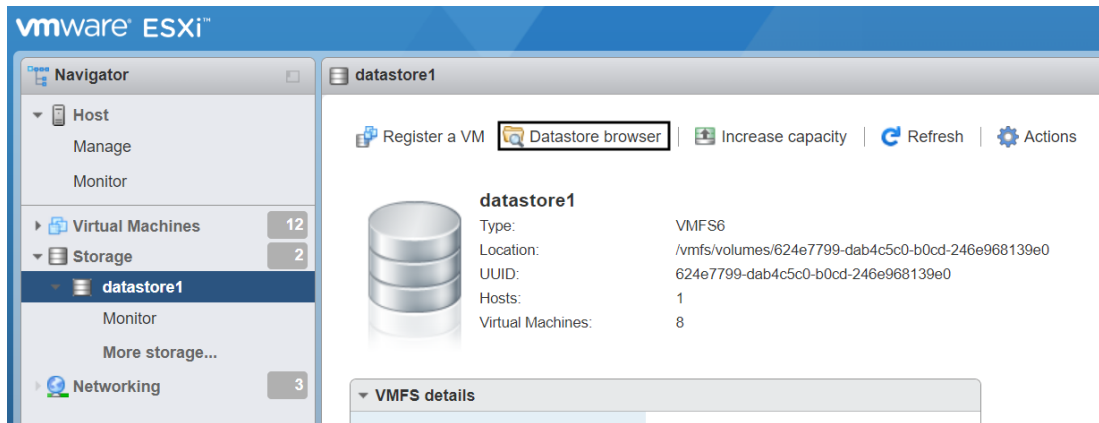
Figure 2 : Storage window



3. Under the **Datastores** tab, select your storage name.

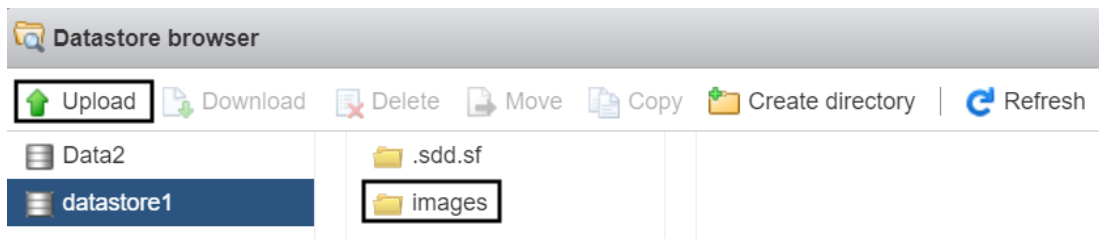
The selected storage window is displayed.

Figure 3 : Selected Storage



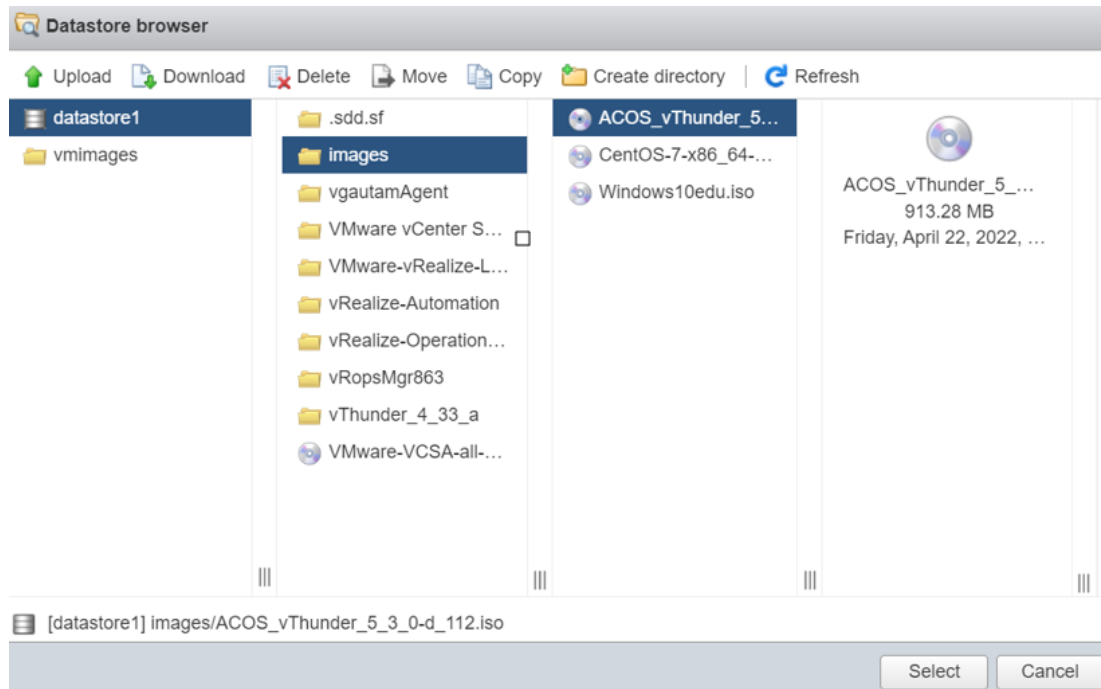
4. Click the **Datastore browser** to open the datastore file browser.
5. From the **Datastore browser** window, select the **images** folder.
6. Click **Upload** to browse to the location where you have saved the vThunder OVA or ISO image.

Figure 4 : Datastore browser



7. Select the required version of the vThunder image and click **Open**.
The selected image is uploaded to the VMware ESXi cloud and listed under the **images** folder.

Figure 5 : Browse vThunder ISO image



8. Ensure that the image is successfully uploaded and then close the **Datastore Browser** window.

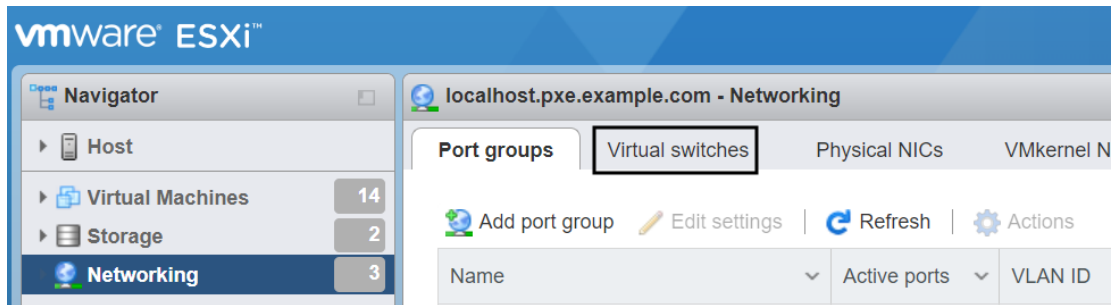
Create Two Data Interfaces

To create the data interfaces on the ESXi host using a virtual switch, perform the following steps:

1. Go to **Navigator > Networking** for the selected host.

The *<your_host>* - Networking window is displayed.

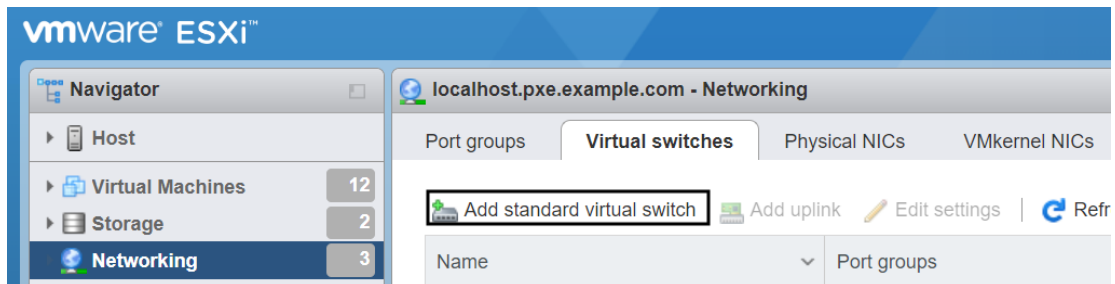
Figure 6 : Networking window



2. Select the **Virtual switches** tab.

The *<your_host>* - Virtual switches window is displayed.

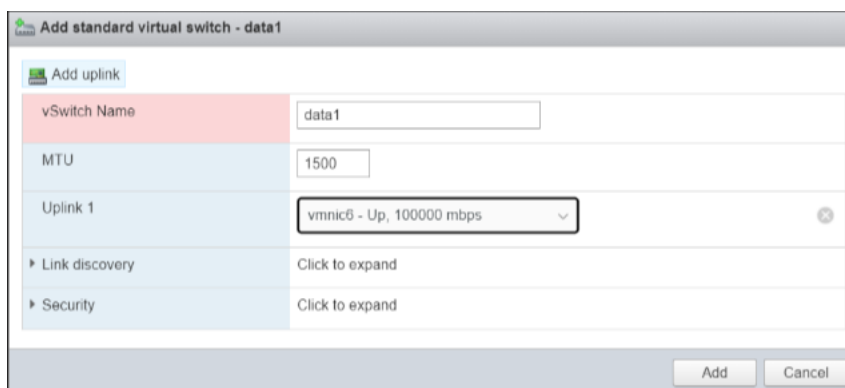
Figure 7 : Virtual switches tab



3. Click **Add standard virtual switch** to add a new switch.

The **Add standard virtual switch** - *<New switch>* window is displayed.

Figure 8 : Add new virtual switch



4. Enter the appropriate values in the following fields:

Table 4 : Add standard virtual switch - New switch

Field Name	Description
vSwitch Name	Enter the data interface name. Example In the Figure 8 , <code>data1</code> is the data interface.
MTU	Select the value as 1500 or above.
Uplink 1	Select the uplink.

5. Click **Add**.

The data interface 1 is listed under the **Virtual switches** tab.

6. Perform the above steps to create `data2` for data interface 2.

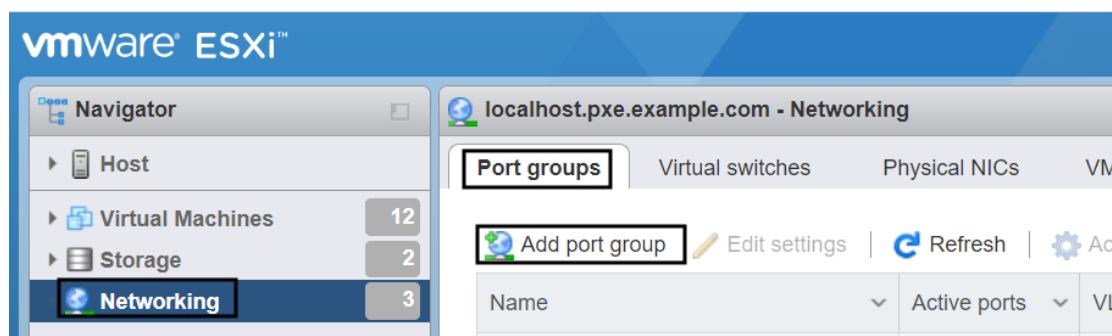
Create Two Port Groups

To create the port groups on the ESXi host, perform the following steps:

1. From the **Networking** window, select the **Port groups** tab.

The `<your_host>` - Port groups window is displayed.

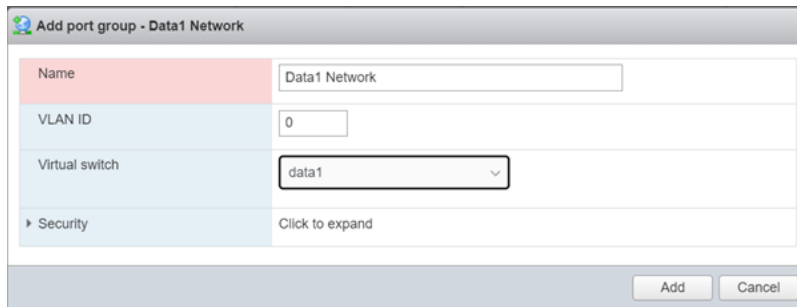
Figure 9 : Ports groups tab



2. Click **Add port group**.

The **Add port group** - `<New port group>` window is displayed.

Figure 10 : Add new port group



3. Enter or select the appropriate values in the following fields:

Table 5 : Add port group - New port group

Field Name	Description
Name	Enter the port group name. Example In the Figure 10 , Data1 Network is the port group name.
VLAN ID	Enter the VLAN ID for port group. Example: In the Figure 10 , 0 is the VLAN ID.
Virtual switch	Select the data interface name created in Create Two Data Interfaces .

4. Click **Add**.
The port group is listed under the **Port groups** tab.
5. Perform the above steps to create Data2 Network for port group 2.

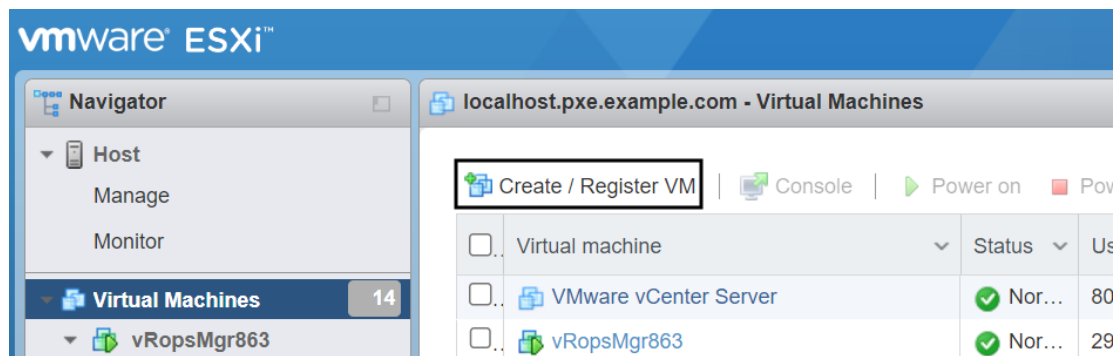
Create a Virtual Machine for vThunder

To create a virtual machine for vThunder, perform the following steps:

1. From the **VMware ESXi** console, go to **Navigator > Virtual Machines** for the selected host.

The <your_host> - Virtual Machines window is displayed.

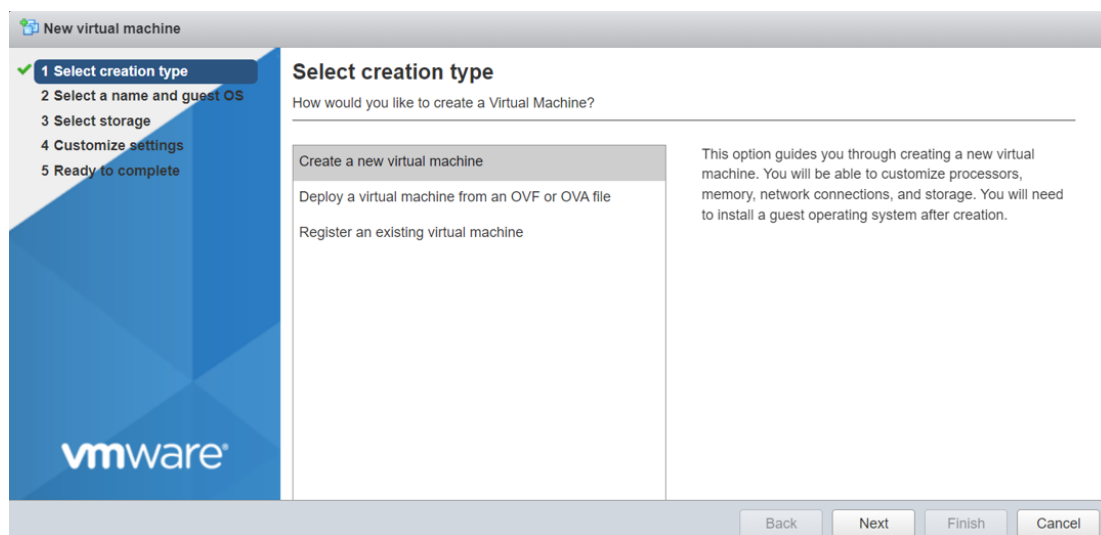
Figure 11 : Virtual Machines window



2. Click **Create / Register VM** to create a new virtual machine.

The **New virtual machine** window is displayed.

Figure 12 : New virtual machine



3. Depending on the image file type, perform the corresponding steps:

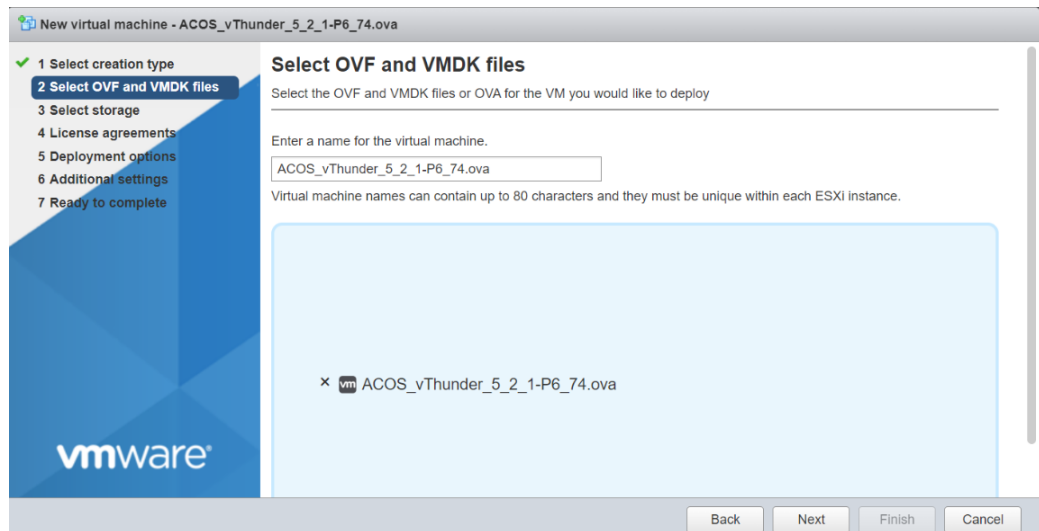
OVA

To create a virtual machine for vThunder using OVA file, perform the following steps:

- a. Under the **Select creation type** tab, select **Deploy a virtual machine from an OVF or OVA file** and click **Next**.

The **Select OVF and VMDK files** tab is displayed.

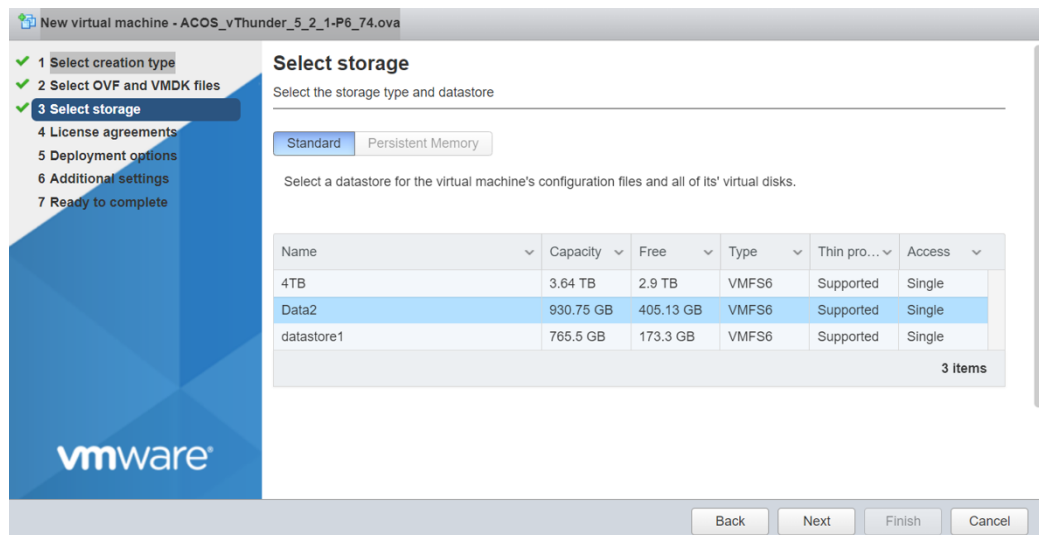
Figure 13 : Select OVF and VMDK files tab



- b. Enter the name of the virtual machine.
- c. Browse to the OVA image from the designated area and then click **Open**.

The **Select storage** tab is displayed.

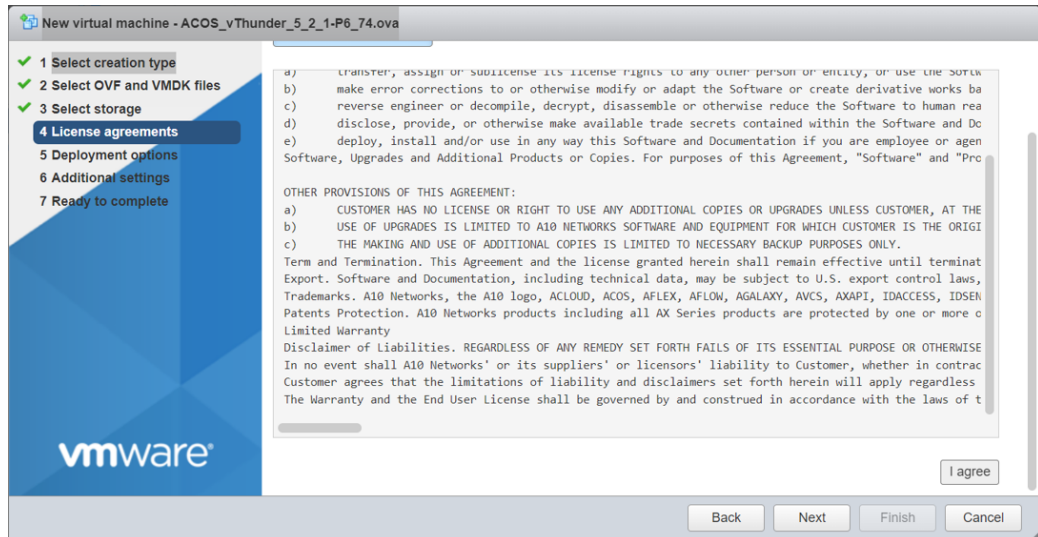
Figure 14 : Select storage tab



- d. Select your storage name and then click **Next**.

The **License agreements** tab is displayed.

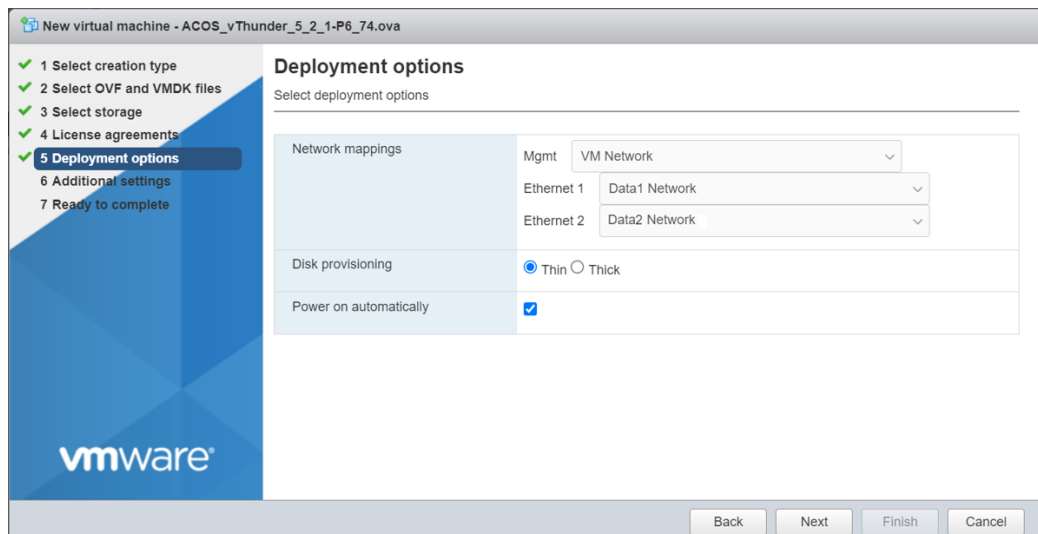
Figure 15 : License agreements tab



- e. Scroll to the bottom of the license to click **I Agree** and then click **Next**.

The **Deployment options** tab is displayed.

Figure 16 : Deployment options tab



- f. Enter or select the appropriate values in the following fields:

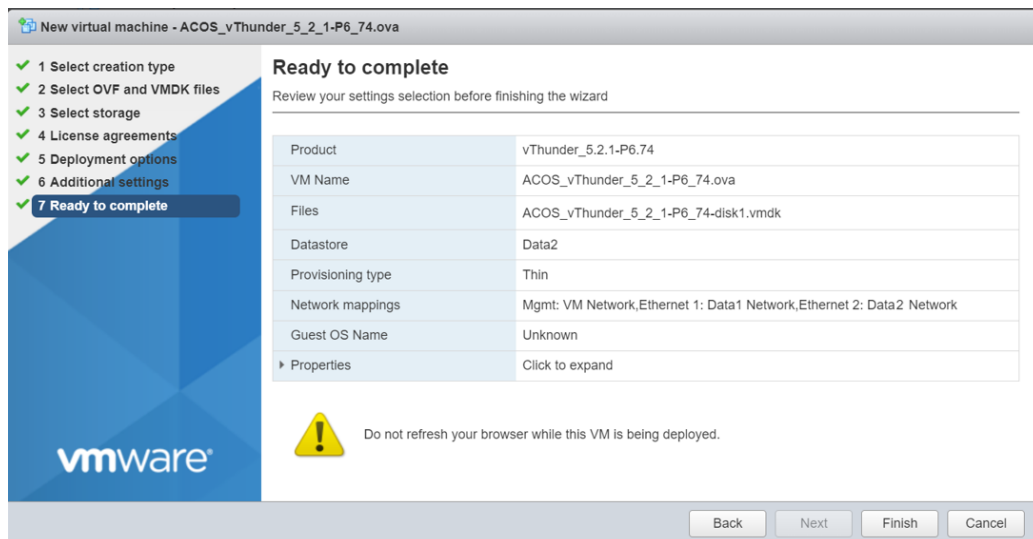
Table 6 : Select a name and guest OS tab

Field Name	Description
Network mappings	Select the appropriate values in the Ethernet 1 , Ethernet 2 , and Mgmt fields.
Disk provisioning	Select the appropriate option as per your setup.
Power on automatically	Select the check box.

- g. Click **Next**.
- h. In the **Additional settings** tab, click **Next** to skip.

The **Ready to complete** tab is displayed.

Figure 17 : Ready to complete tab



- i. Review the VM properties and click **Finish**.

The vThunder virtual machine instance is created using OVA image.

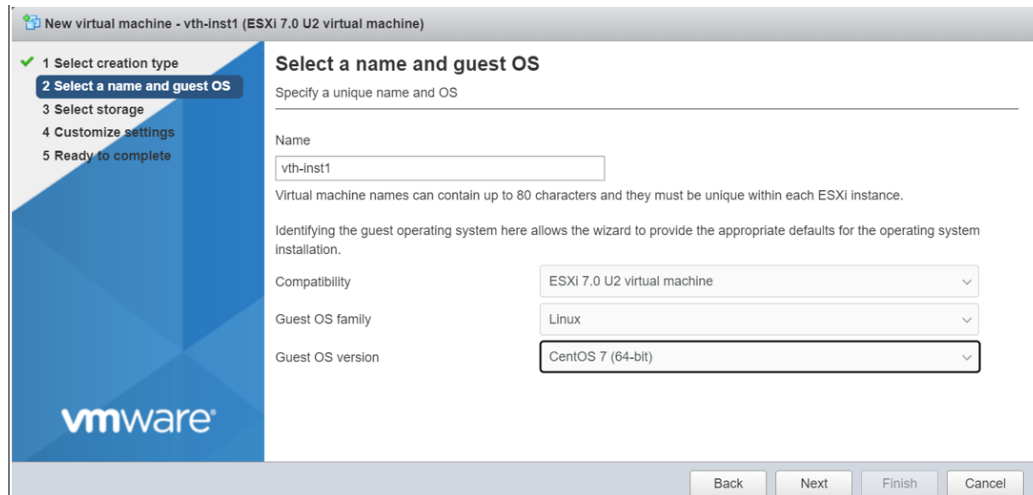
ISO

To create a virtual machine for vThunder using ISO file, perform the following steps:

- a. Under the **Select creation type** tab, select **Create a new virtual machine** and click **Next**.

The **Select a name and guest OS** tab is displayed.

Figure 18 : Select a name and guest OS tab



- b. Enter or select the appropriate values in the following fields:

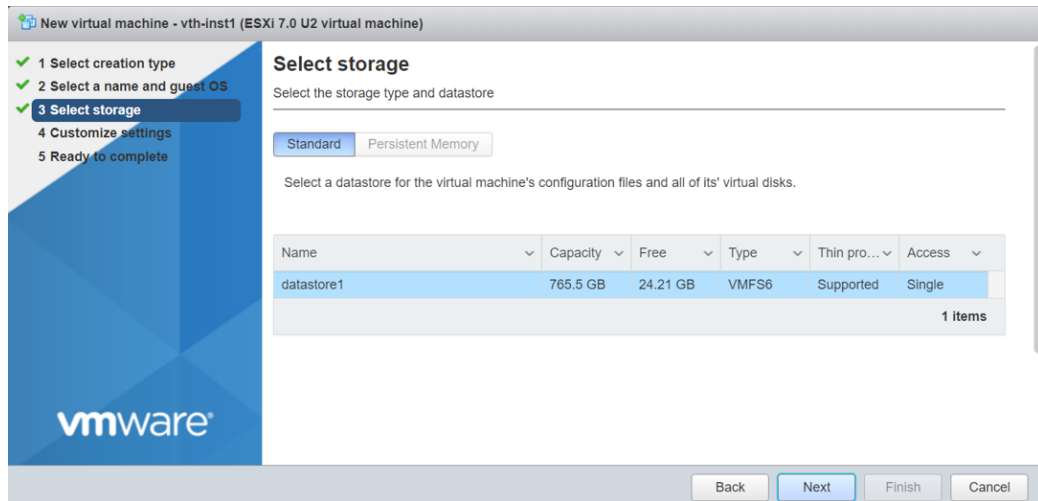
Table 7 : Select a name and guest OS tab

Field Name	Description
Name	Enter the virtual machine name. Example In the Figure 13 , the virtual machine is vth-inst1.
Compatibility	Select ESXi 7.0 U2 virtual machine .
Guest OS family	Select Linux .
Guest OS Version	Select CentOS 7 (64-bit) .

- c. Click **Next**.

The **Select storage** tab is displayed.

Figure 19 : Select storage tab



New virtual machine - vth-inst1 (ESXi 7.0 U2 virtual machine)

- 1 Select creation type
- 2 Select a name and guest OS
- 3 Select storage
- 4 Customize settings
- 5 Ready to complete

Select storage

Select the storage type and datastore

Standard Persistent Memory

Select a datastore for the virtual machine's configuration files and all of its' virtual disks.

Name	Capacity	Free	Type	Thin pro...	Access
datastore1	765.5 GB	24.21 GB	VMFS6	Supported	Single

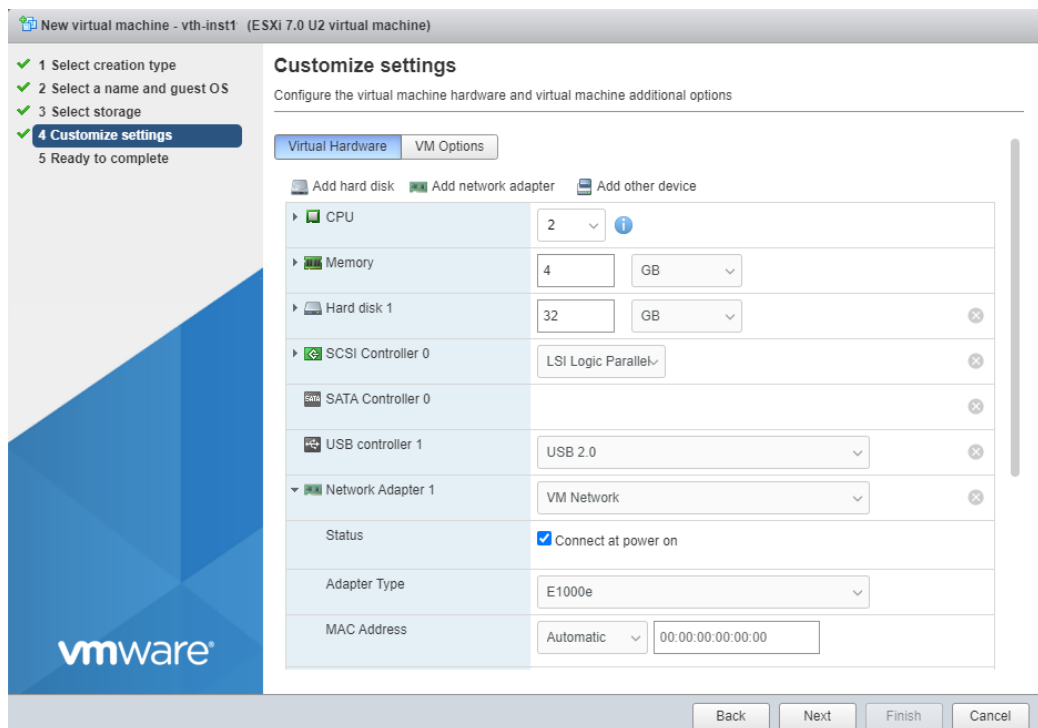
1 items

Back Next Finish Cancel

d. Select your storage name and click **Next**.

The **Customize settings** tab is displayed.

Figure 20 : Customize settings tab



New virtual machine - vth-inst1 (ESXi 7.0 U2 virtual machine)

- 1 Select creation type
- 2 Select a name and guest OS
- 3 Select storage
- 4 Customize settings
- 5 Ready to complete

Customize settings

Configure the virtual machine hardware and virtual machine additional options

Virtual Hardware VM Options

Add hard disk Add network adapter Add other device

- CPU: 2
- Memory: 4 GB
- Hard disk 1: 32 GB
- SCSI Controller 0: LSI Logic Parallel
- SATA Controller 0
- USB controller 1: USB 2.0
- Network Adapter 1: VM Network
- Status: ☒ Connect at power on
- Adapter Type: E1000e
- MAC Address: Automatic 00:00:00:00:00:00

Back Next Finish Cancel

- e. Enter or select the appropriate values for Virtual Hardware in the following fields:

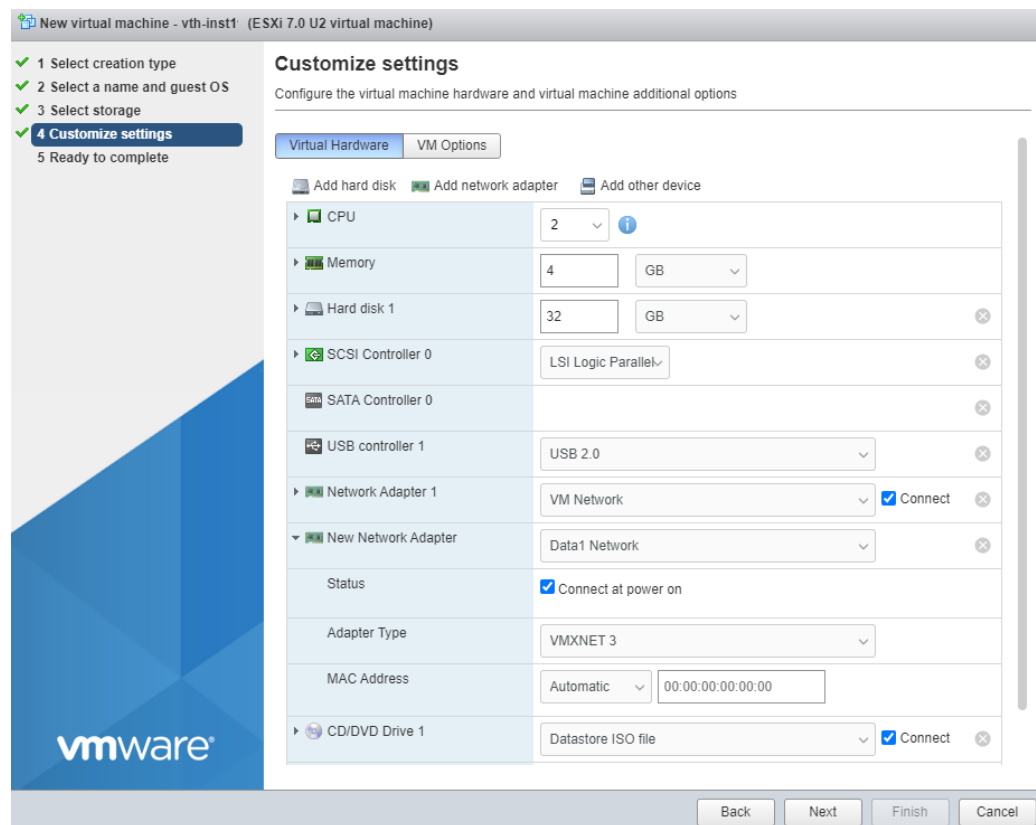
Table 8 : Customize settings tab

Field Name	Description
CPU	Enter the number of CPUs required. The minimum requirement is 2 CPUs.
Memory	Enter the required RAM. The minimum requirement is 4 GB.
Hard disk	Enter the required Hard disk memory. The minimum requirement is 32 GB.
SCSI Controller 0	Select LSI Logic Parallel .
Network Adapter 1	Select VM Network .
Status	Select the Connect at power on check box.
Adapter Type	Select E1000e .
MAC Address	Select Automatic .

- f. From the **Customize Settings** tab, click **Add network adapter**.

The fields for the new network adapter are added.

Figure 21 : Customize settings tab



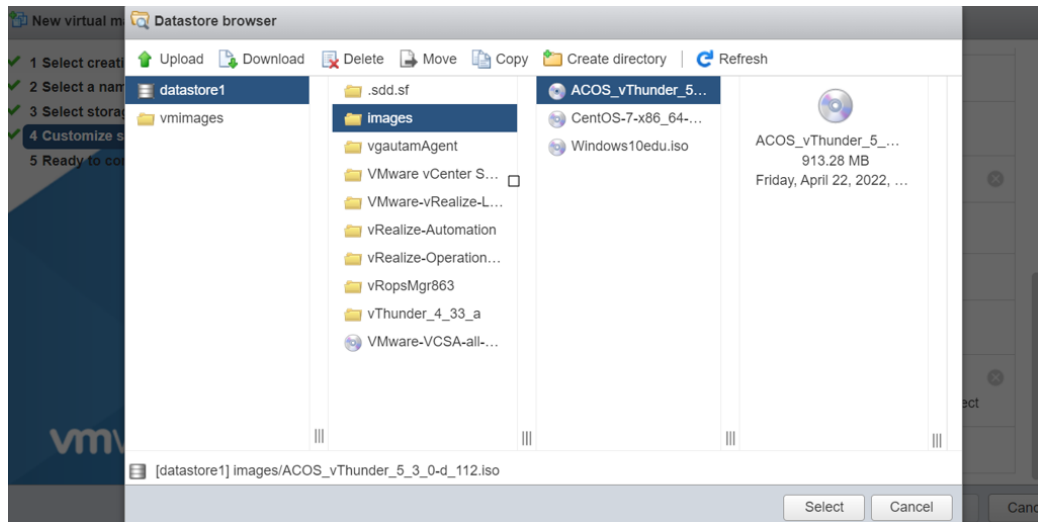
- g. Continue to enter or select the appropriate values for Virtual Hardware in the following fields:

Table 9 : Customize settings tab

Field Name	Description
New Network Adapter	Select Data1 Network .
Status	Select the Connect at power on check box.
Adapter Type	Select VMXNET3 .
MAC Address	Select Automatic .
CD/DVD Drive 1	Select Datastore ISO file .

On selecting **CD/DVD Drive 1**, the Datastore browser window is displayed. Browse and select the uploaded vThunder ISO image from the **images** folder.

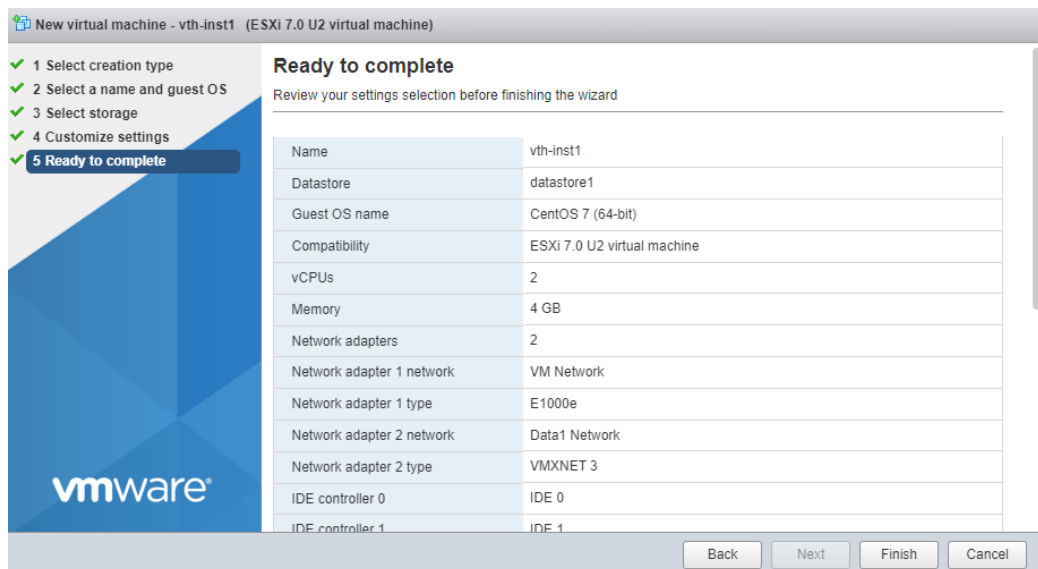
Figure 22 : Browse vThunder ISO image



h. Click **Next**.

The **Ready to complete** tab is displayed.

Figure 23 : Ready to complete tab



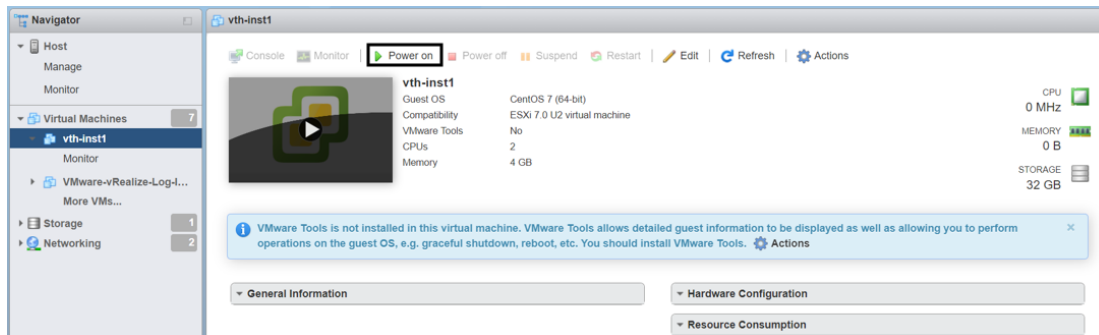
i. Click **Finish**.

The vThunder virtual machine instance is created using ISO image.

4. Go to **Navigator > Virtual Machines** and select your vThunder instance.

The vThunder virtual machine browser console is displayed.

Figure 24 : Browser console

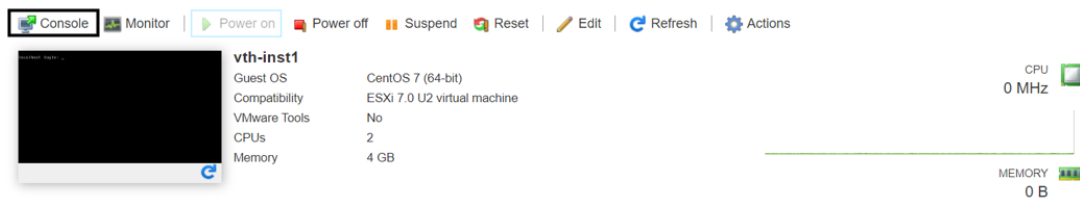


5. Click **Power on**.

NOTE: The system may take a few minutes to power on the vThunder instance.

When the vThunder instance is ready, a command prompt window is displayed.

Figure 25 : Launch Console



6. Click **Console** to launch the vThunder instance.

The vThunder instance opens in the command line interface.

7. Log in to the vThunder virtual machine instance using the following credentials:

- **localhost login:** install
- **Password:** password

8. Type **YesS** at the prompt to verify the installation.

```
localhost login: install
Password:
Last login: Wed Feb 15 00:49:15 on tty1
Automated install script for netXTM

Please backup your data before attempting re-installation

This will delete all partitions in your harddrive - type YesS to
continue
Caution::Installing netXTM application - continue [No/YesS]: YesS
```

9. Log in using the default credentials provided by A10 Networks Support and change the default password immediately after the first login.

```
login as: xxxx <---Enter username provided by A10 Networks Support--->
Using keyboard-interactive authentication.
Password: xxxx <---Enter password provided by A10 Networks Support-->
Last login: Day MM DD HH:MM:SS from a.b.c.d
System is ready now.
[type ? for help]
vThunder(NOLICENSE)> enable <---Execute command--->
Password:<---just press Enter key--->
vThunder(NOLICENSE)#config <---Configuration mode--->
vThunder(config) (NOLICENSE)#admin <admin_username> password <new_
password>
```

NOTE: It is highly recommended to change the default password when you log in for the first time.

10. Run the following command to configure the management interface on vThunder:

```
vThunder(config) (NOLICENSE)#interface management
vThunder(config-if:management) (NOLICENSE)#ip address <ip-
address>/<subnet mask>
vThunder(config-if:management) (NOLICENSE)#enable
vThunder(config-if:management) (NOLICENSE)#ip default-gateway <gateway-
ip-address>
vThunder(config-if:management) (NOLICENSE)#exit
```

11. Run the following command to configure the data interface on vThunder:

```
vThunder (NOLICENSE) #config
vThunder (config) (NOLICENSE) #interface ethernet 1
vThunder (config-if:management) (NOLICENSE) #ip address <ip-
address>/<subnet mask>
vThunder (config-if:management) (NOLICENSE) #enable
vThunder (config-if:management) (NOLICENSE) #write memory
```

The virtual machine for vThunder is ready.

Verify Installation

To verify the installation, perform the following steps:

1. Run the following command to verify the running configuration:

```
vThunder (config-if:ethernet:1) (NOLICENSE) #show running-config
```

If the installation is successful, the following configuration is displayed:

```
!Current configuration: 103 bytes
!Configuration last updated at 17:36:35 GMT Wed Feb 15 2023
!Configuration last saved at 17:35:40 GMT Wed Feb 15 2023
!64-bit Advanced Core OS (ACOS) version 5.2.1, build 112 (Oct-25-
2021,14:34)
!
!
interface management
  ip address 10.67.4.12 255.255.255.0
  ip default-gateway 10.67.4.1
  enable
interface ethernet 1
  enable
  ip address 10.10.4.5 255.255.255.0
!
!
!
end
```

2. Run the following command to verify if vThunder is reachable from the local

instance.

```
C:\Users\<<user>> ping <management-interface-ip>
```

Example:

```
C:\Users\<<user>> ping 10.67.4.12
```

3. Verify if a response is received.

```
Pinging 10.67.4.12 with 32 bytes of data:
Reply from 10.67.4.12: bytes=32 time=262ms TTL=61
Reply from 10.67.4.12: bytes=32 time=261ms TTL=61
Reply from 10.67.4.12: bytes=32 time=261ms TTL=61
Reply from 10.67.4.12: bytes=32 time=263ms TTL=61

Ping statistics for 10.67.4.12:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 261ms, Maximum = 263ms, Average = 261ms
```

Install Thunder Observability Agent

Thunder Observability Agent (TOA) is a lightweight autonomous data processing engine that can be externally installed and configured for any Thunder device.

The TOA offers the following capabilities for Thunder® Application Delivery Controller (ADC):

- Collects, processes, and publishes 14 Thunder metrics. The default data collection frequency is 1 minute. The metrics can be published on the same platform where the Thunder instance is deployed. For more information on Thunder metrics, see *Supported Thunder Metrics*.
- Collects, processes, and publishes Thunder Syslogs. The default data collection frequency is 1 minute. The logs can be published on the same platform where the Thunder instance is deployed. Additionally, logs can also be sent to any AWS, Azure, or VMware platforms. For more information on Thunder logs, see *Supported Thunder Logs*.
- Manages the data collection, processing, aggregation, and publishing internally.
- Provides multitasking capabilities to collect and process data from multiple Thunder instances and their partitions simultaneously. By default, it collects data from a shared partition.
- TOA supports Shared and L3V partitions. The maximum number of partitions supported per Thunder is 20.
- Installs on any orchestration platform such as public cloud compute instances, private cloud physical or virtual machines, hypervisor VMs, and on-premise physical hardware and is self-driven.
- Supports Linux, CentOS, and Ubuntu platforms as a Python Plugin installation package and Docker containerization.
- Supports single or multiple Thunder instances.
- Supports Thunder instances running under AWS auto scaling group or Azure Virtual machine scale set (VMSS).

- Collects data from any type of Thunder device installed on public cloud compute instances, private cloud physical or virtual machines, hypervisor VMs, and on-premise physical hardware installation.
- Publishes data to [Azure Cloud](#), [AWS Cloud](#), and [VMware ESXi](#).

To install TOA on the VMware ESXi cloud using an ISO image, perform the following steps:

1. [Upload ISO Image](#)
2. [Create Virtual Machine for TOA](#)
3. [Verify TOA Virtual Machine](#)
4. [Install TOA](#)

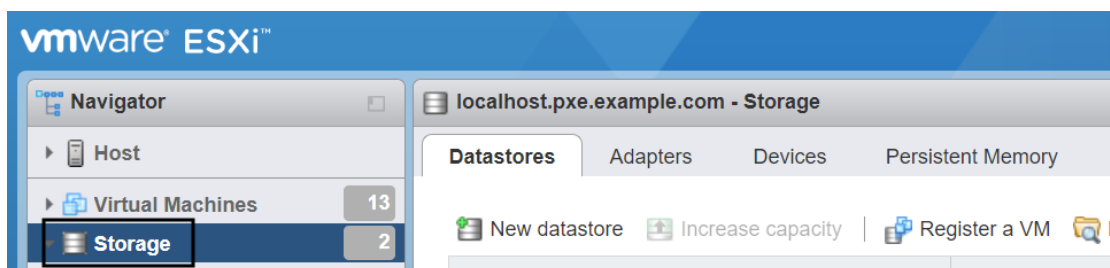
Upload ISO Image

To upload a [CentOS](#) or [Ubuntu](#) ISO image instance on the VMware ESXi cloud, perform the following steps:

1. Log in to your VMware host system.
2. From the **VMware ESXi** console, go to **Navigator** > **Storage** for the selected host.

The <your_host> - Storage window is displayed.

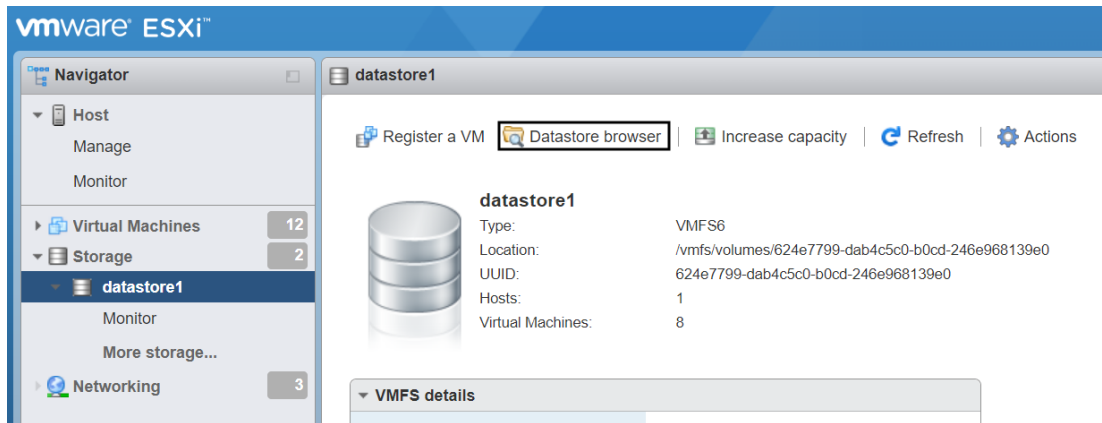
Figure 26 : Storage window



3. Under the **Datastores** tab, select your storage name.

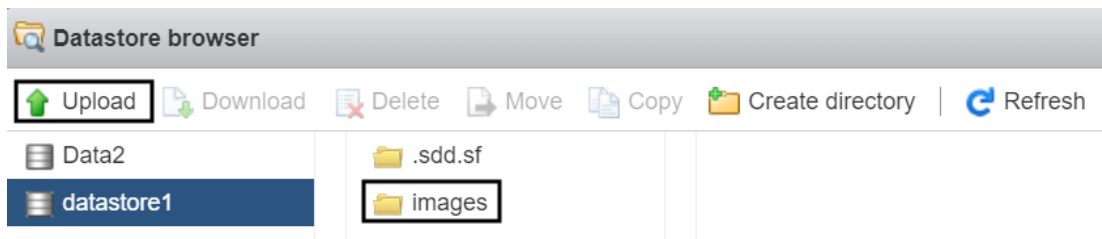
The selected storage window is displayed.

Figure 27 : Selected Storage



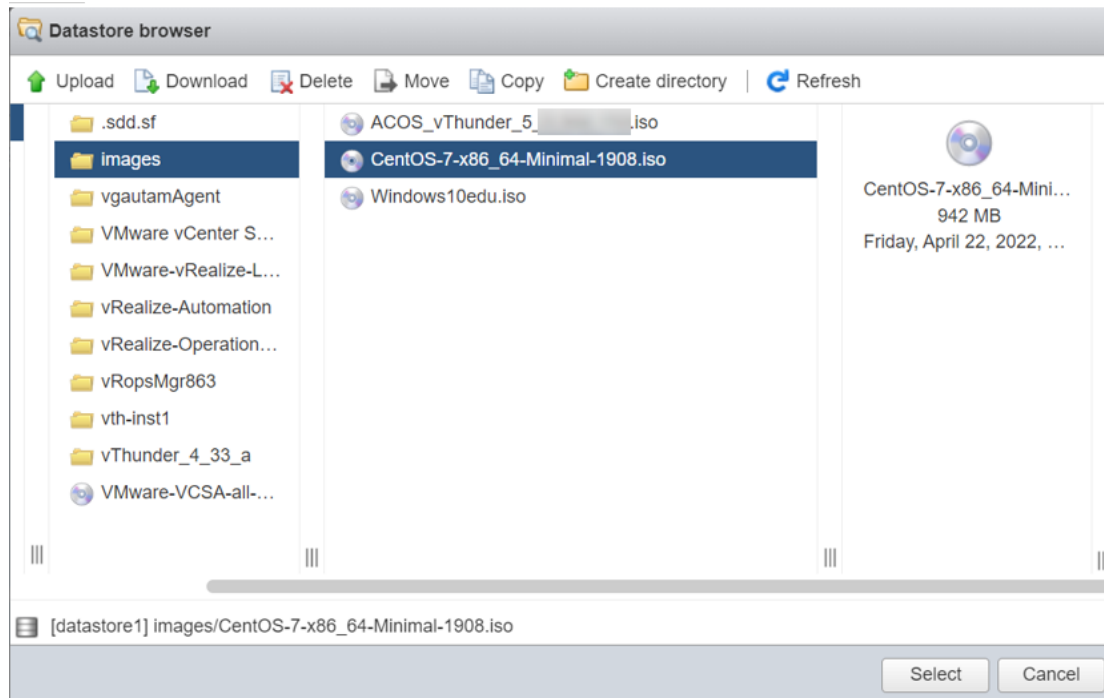
4. Click **Datastore browser** to open the datastore file browser.
5. From the **Datastore browser** window, select the **images** folder.
6. Click **Upload** to browse to the location where you have saved the CentOS ISO image.

Figure 28 : Datastore browser



7. Select the CentOS ISO image of the required version to be uploaded and click **Open**.
The selected image is listed under the **images** folder.

Figure 29 : Browse CentOS ISO image



8. Ensure that the image is successfully uploaded and then close the **Datastore Browser** window.

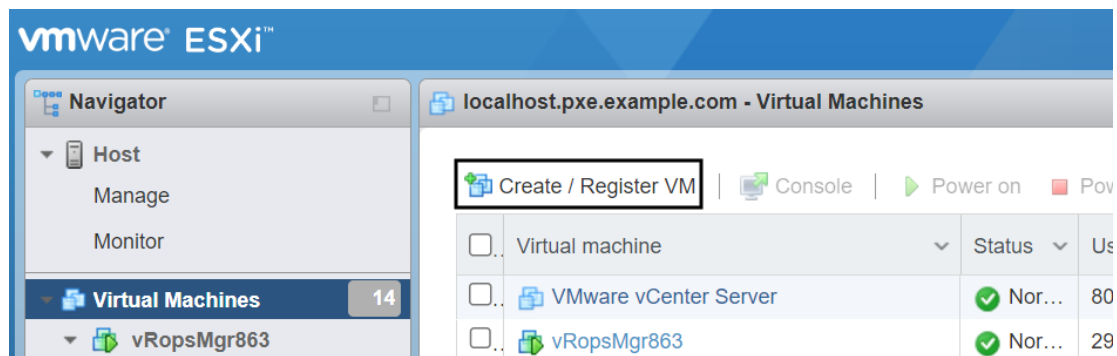
Create Virtual Machine for TOA

To create a virtual machine for TOA, perform the following steps:

1. From the **VMware ESXi** console, go to **Navigator > Virtual Machines** for the selected host.

The *<your_host>* - Virtual Machines window is displayed.

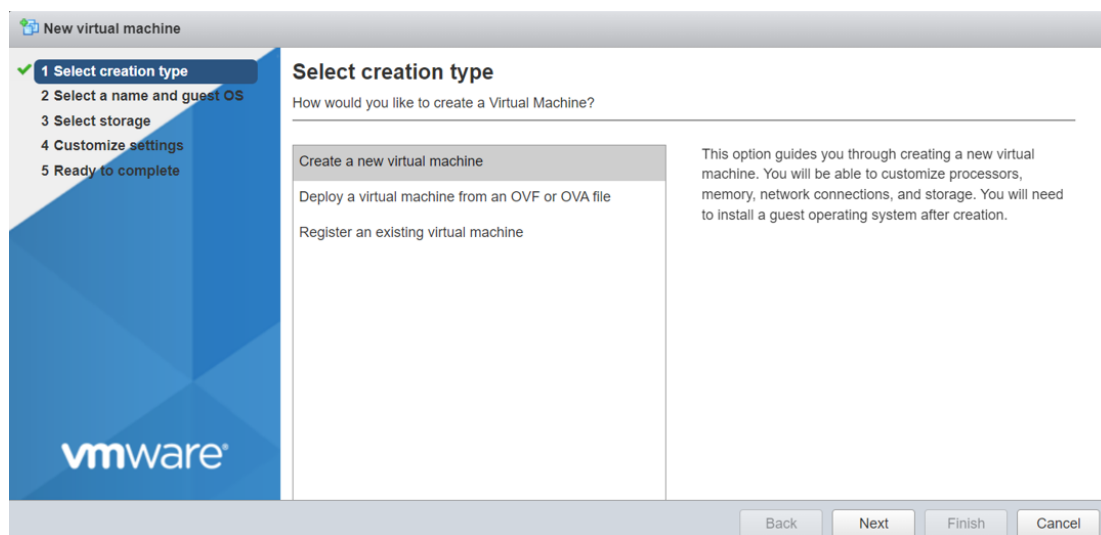
Figure 30 : Virtual Machines window



2. Click **Create / Register VM** to create a new virtual machine.

The **New virtual machine** window is displayed.

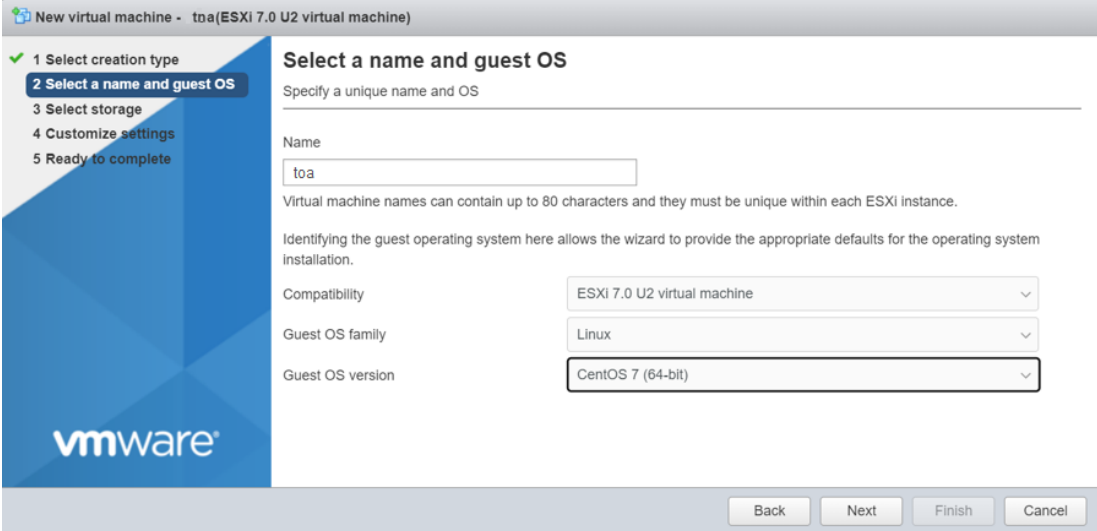
Figure 31 : New virtual machine



3. Under the **Select creation type** tab, select **Create a new virtual machine** and click **Next**.

The **Select a name and guest OS** tab is displayed.

Figure 32 : Select a name and guest OS tab



New virtual machine - toa(ESXi 7.0 U2 virtual machine)

1 Select creation type
2 Select a name and guest OS
3 Select storage
4 Customize settings
5 Ready to complete

Select a name and guest OS

Specify a unique name and OS

Name
toa

Virtual machine names can contain up to 80 characters and they must be unique within each ESXi instance.

Identifying the guest operating system here allows the wizard to provide the appropriate defaults for the operating system installation.

Compatibility: ESXi 7.0 U2 virtual machine

Guest OS family: Linux

Guest OS version: CentOS 7 (64-bit)

Back Next Finish Cancel

4. Enter or select the appropriate values in the following fields:

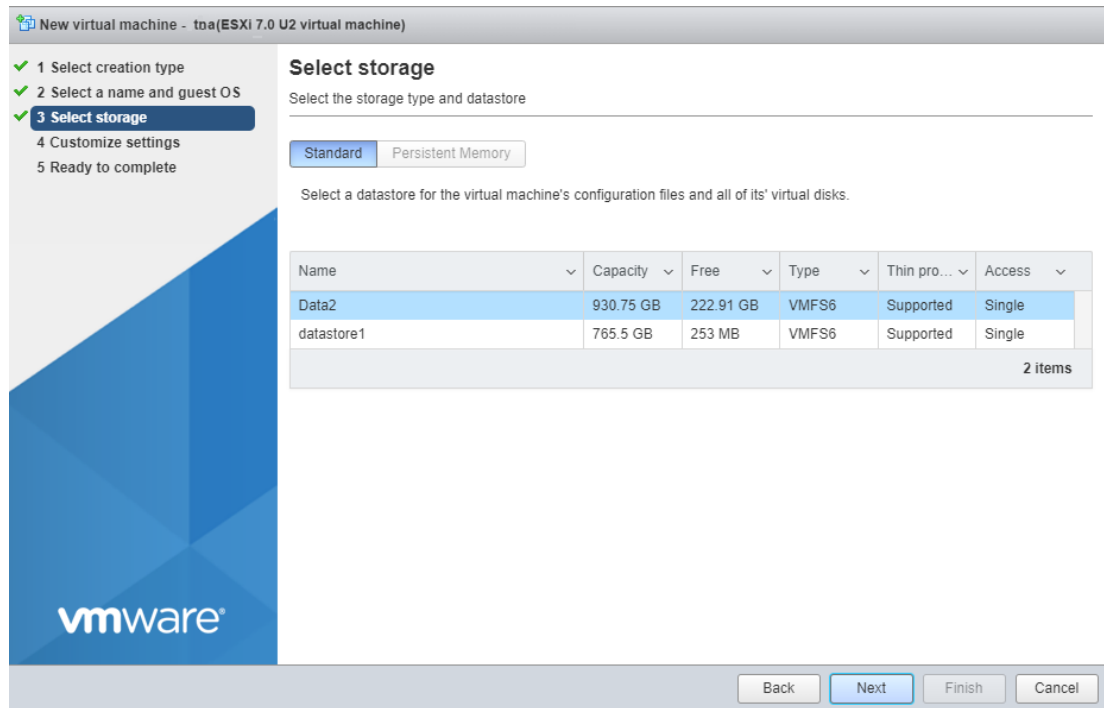
Table 10 : Select a name and guest OS tab

Field Name	Description
Name	Enter the virtual machine name. Example In the Figure 32 , <code>toa</code> is the virtual machine.
Compatibility	Select ESXi 7.0 U2 virtual machine .
Guest OS family	Select Linux .
Guest OS Version	Select CentOS 7 (64-bit) .

5. Click **Next**.

The **Select storage** tab is displayed.

Figure 33 : Select storage tab



New virtual machine - toa(ESXi 7.0 U2 virtual machine)

- ✓ 1 Select creation type
- ✓ 2 Select a name and guest OS
- ✓ 3 Select storage
- 4 Customize settings
- 5 Ready to complete

Select storage

Select the storage type and datastore

Standard Persistent Memory

Select a datastore for the virtual machine's configuration files and all of its' virtual disks.

Name	Capacity	Free	Type	Thin pro...	Access
Data2	930.75 GB	222.91 GB	VMFS6	Supported	Single
datastore1	765.5 GB	253 MB	VMFS6	Supported	Single

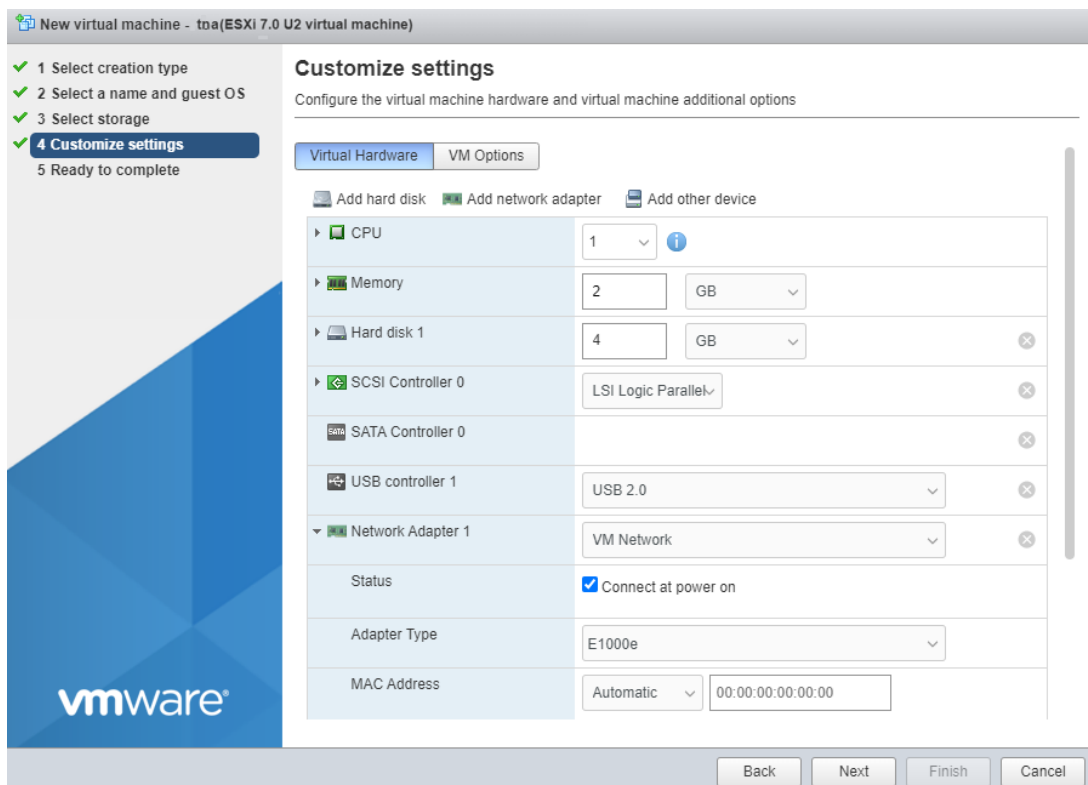
2 items

Back Next Finish Cancel

6. Select your storage name and click **Next**.

The **Customize settings** tab is displayed.

Figure 34 : Customize settings tab



New virtual machine - tna(ESXi 7.0 U2 virtual machine)

1 Select creation type
2 Select a name and guest OS
3 Select storage
4 **Customize settings**
5 Ready to complete

Customize settings

Configure the virtual machine hardware and virtual machine additional options

Virtual Hardware VM Options

Add hard disk Add network adapter Add other device

CPU	1	
Memory	2	GB
Hard disk 1	4	GB
SCSI Controller 0	LSI Logic Parallel	
SATA Controller 0		
USB controller 1	USB 2.0	
Network Adapter 1	VM Network	
Status	<input checked="" type="checkbox"/> Connect at power on	
Adapter Type	E1000e	
MAC Address	Automatic	00:00:00:00:00:00

Back Next Finish Cancel

7. Enter or select the appropriate values for Virtual Hardware in the following fields:

Table 11 : Customize settings tab

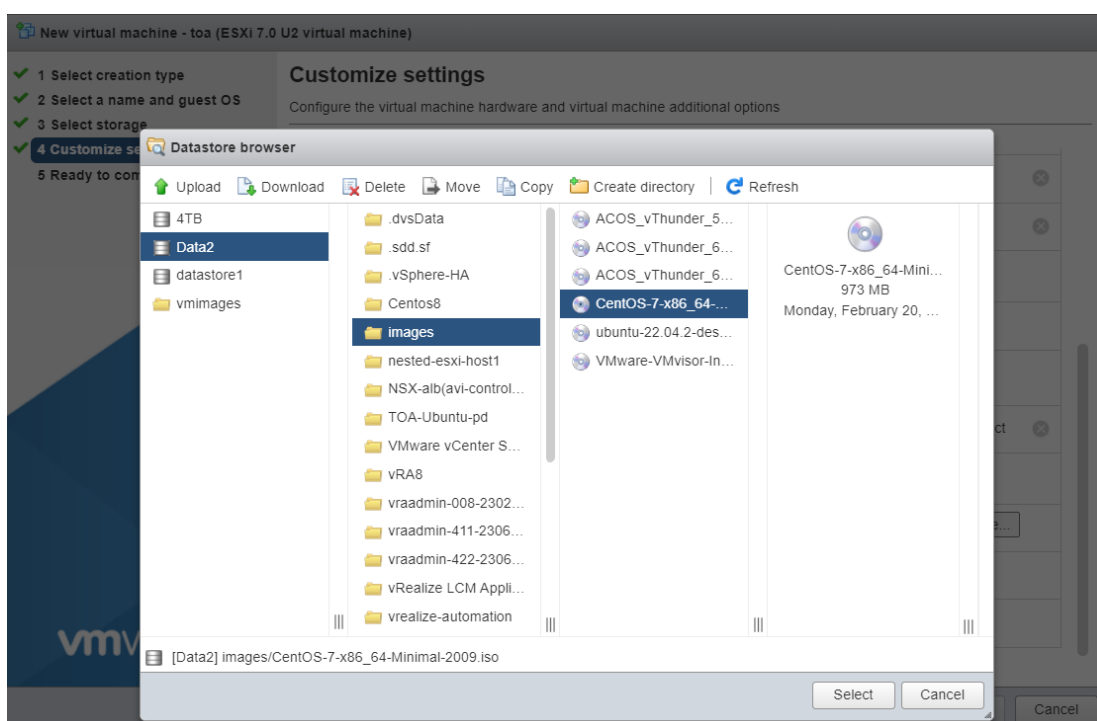
Field Name	Description
CPU	Enter the number of CPU required. The minimum requirement is 1 CPU.
Memory	Enter the required RAM. The minimum requirement is 2 GB.
Hard disk	Enter the required Hard disk memory. The minimum requirement is 4 GB.
SCSI Controller 0	Select LSI Logic Parallel .
Network Adapter 1	Select VM Network .
Status	Select the Connect at power on check box.

Table 11 : Customize settings tab

Field Name	Description
Adapter Type	Select E1000e .
MAC Address	Select Automatic .
CD/DVD Drive 1	Select Datastore ISO file .

On selecting **CD/DVD Drive 1**, the Datastore browser window is displayed. Browse and select the uploaded vThunder ISO image from the **images** folder.

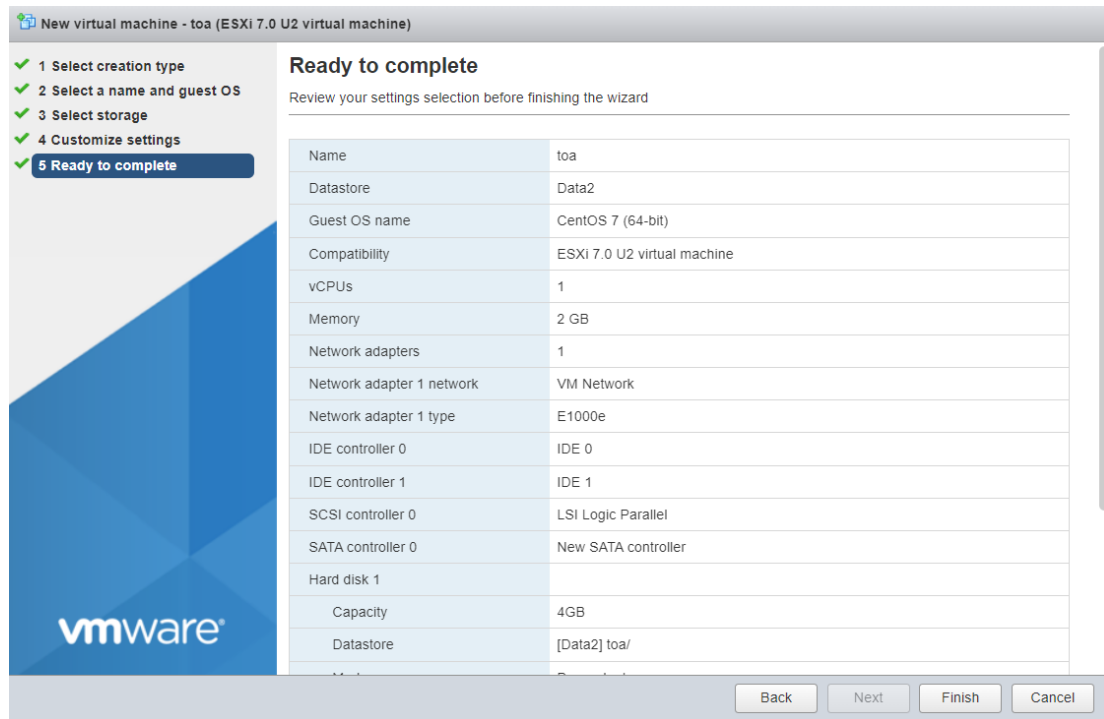
Figure 35 : Browse TOA ISO image



8. Click **Next**.

The **Ready to complete** tab is displayed.

Figure 36 : Ready to complete tab



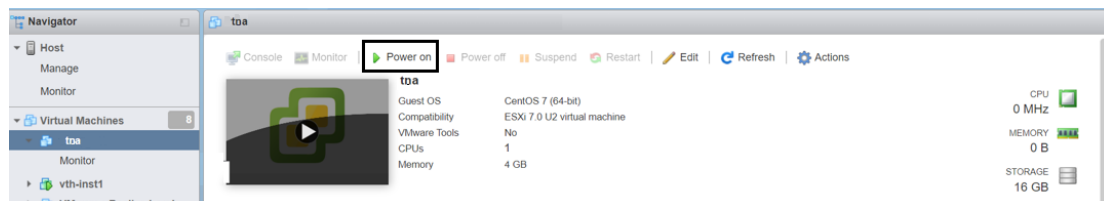
- Click **Finish**.

The TOA virtual machine instance is created.

- Go to **Navigator > Virtual Machines** and select your TOA instance.

The TOA virtual machine browser console is displayed.

Figure 37 : Browser console

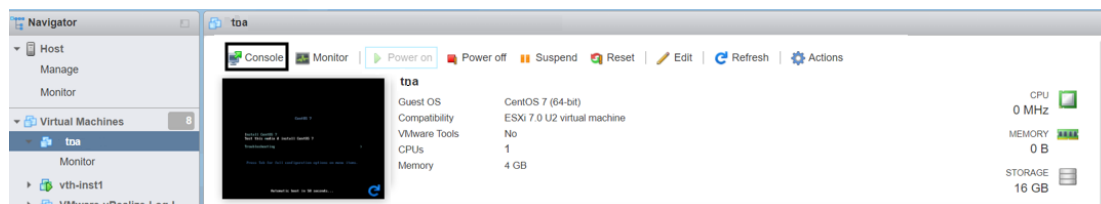


- Click **Power on**.

NOTE: The system may take a few minutes to power on the TOA instance.

When the TOA instance is ready, a command prompt window is displayed.

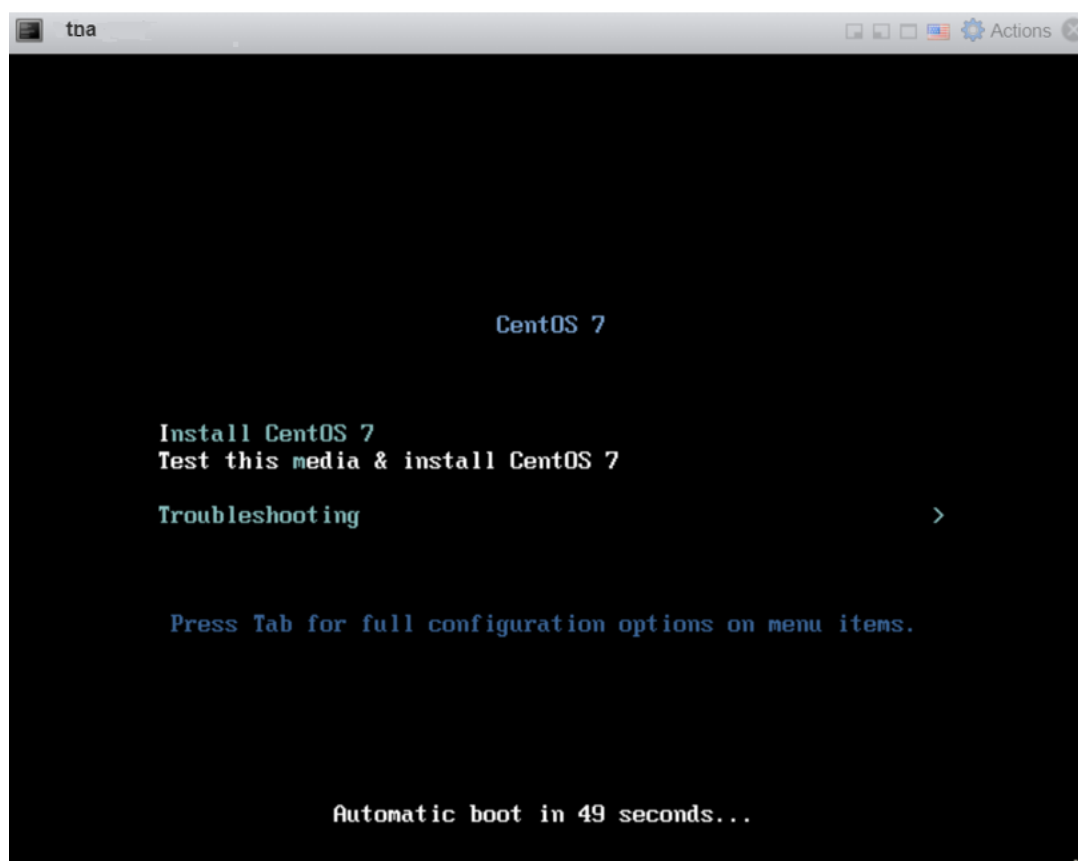
Figure 38 : Launch Console



12. Click **Console** to launch the TOA instance.

The CentOS 7 boot menu is displayed.

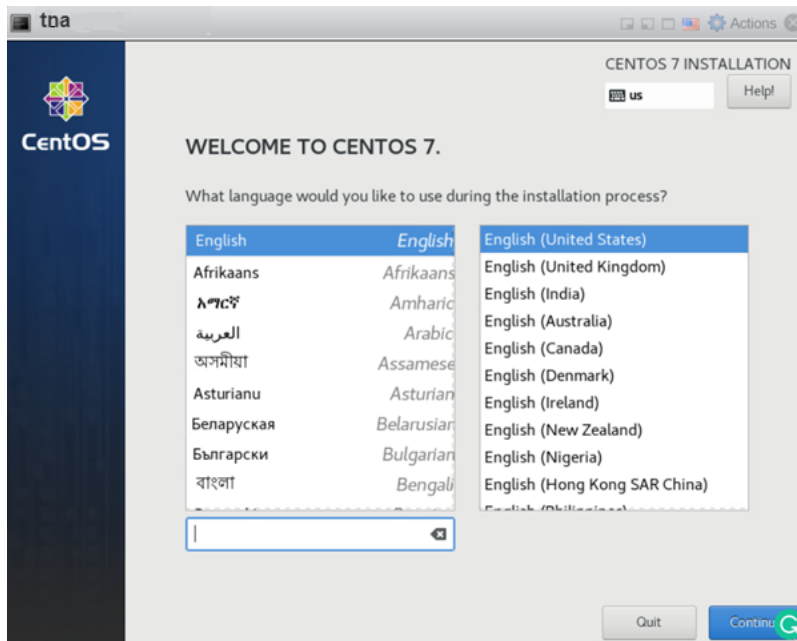
Figure 39 : CentOS 7 boot menu



13. Select **Install CentOS 7** and press **Enter** to launch the CentOS 7 Installation wizard.

The **Welcome** panel is displayed.

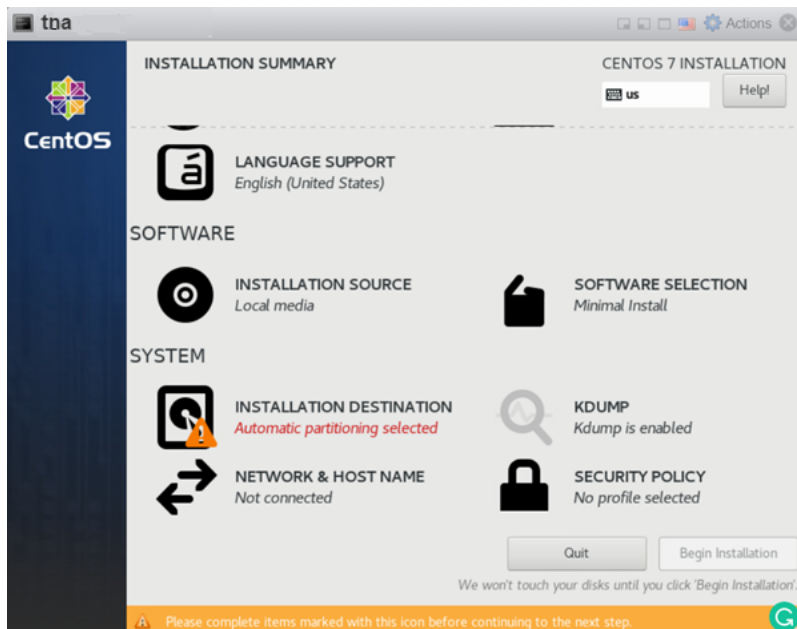
Figure 40 : Welcome panel



14. Select the language and region to be used during the installation process and click **Continue**.

The **Installation Summary** panel is displayed.

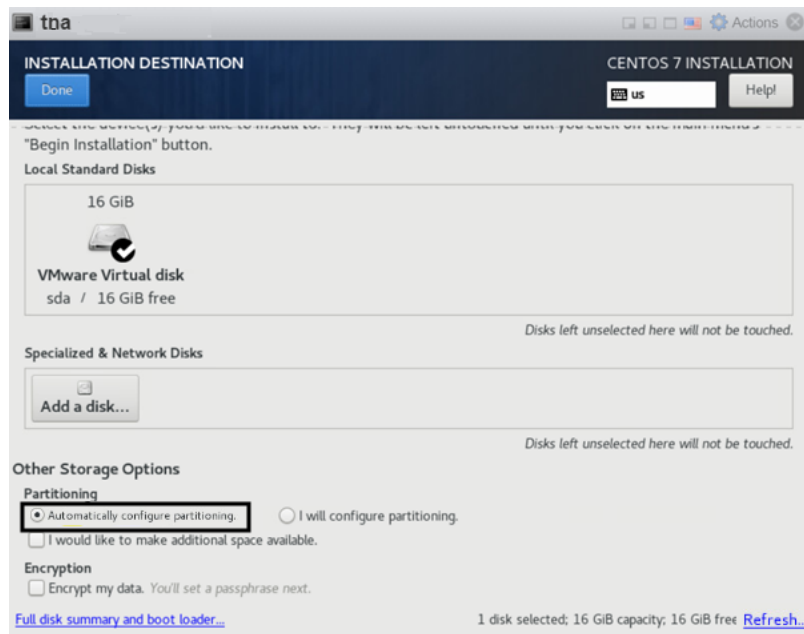
Figure 41 : Installation Summary panel



15. Click **Installation Destination**.

The **Installation Destination** panel is displayed.

Figure 42 : Installation Destination panel



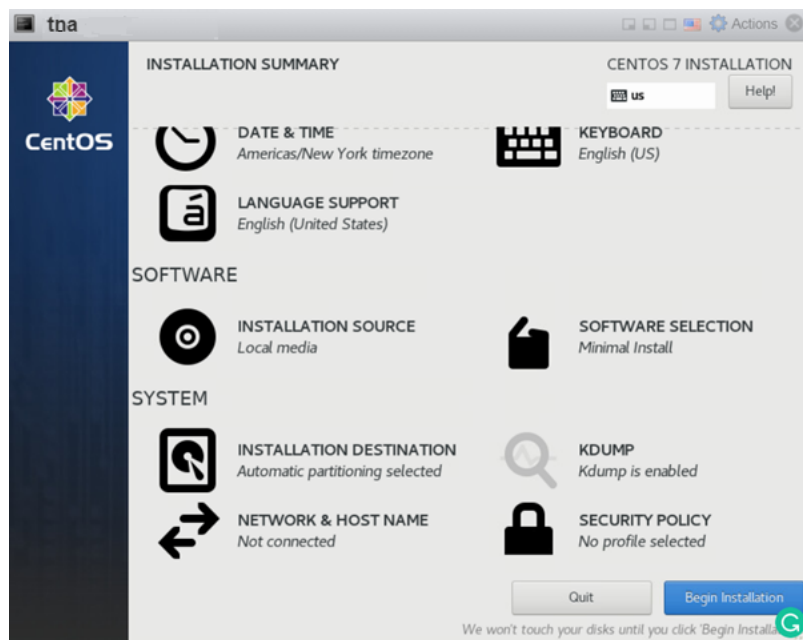
16. Select the target disk.

A check mark is displayed next to the selected target and the selected disk is partitioned automatically.

17. Click **Done** to save the changes.

The **Installation Summary** panel is displayed.

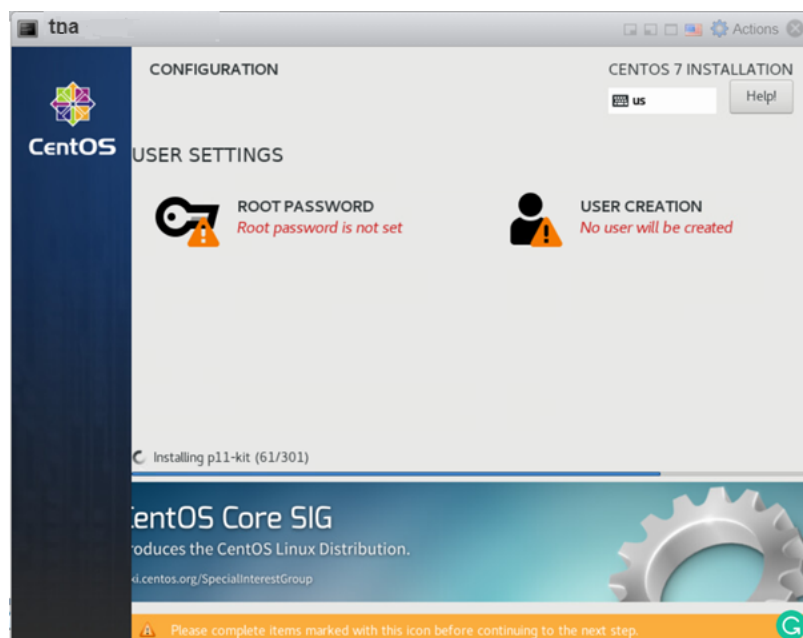
Figure 43 : Installation Summary panel



18. Click **Begin Installation** to start the installation.

The **Configuration** panel is displayed.

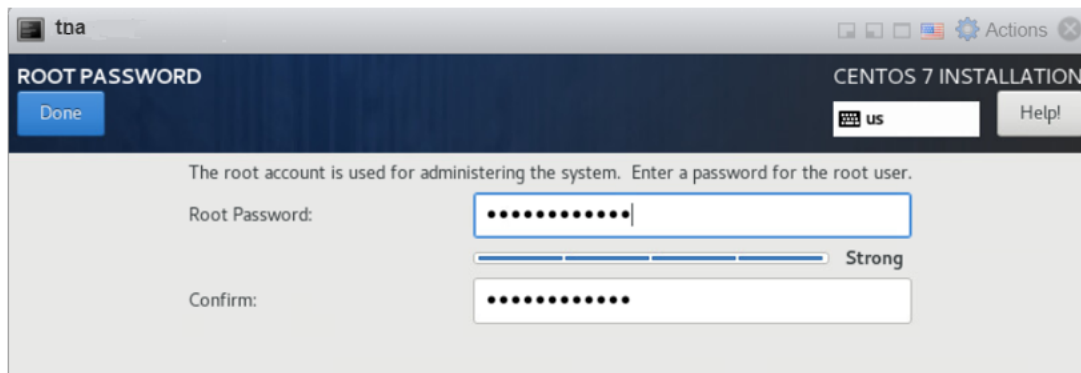
Figure 44 : Configuration panel



19. Click **Root Password** under **User Settings**.

The **Root Password** panel is displayed.

Figure 45 : Root Password panel

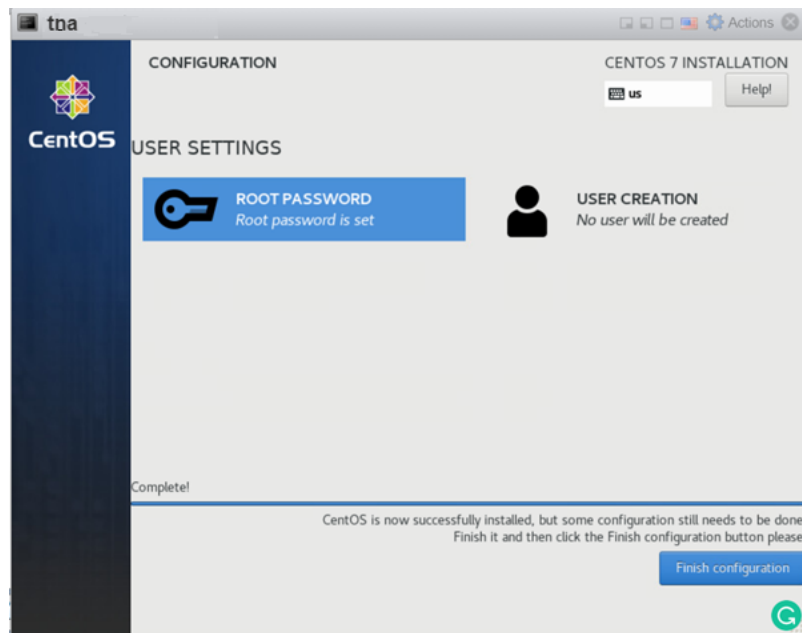


The screenshot shows the 'ROOT PASSWORD' panel in the 'tta' application. The panel has a dark blue header with the title 'ROOT PASSWORD' and a 'Done' button. Below the header, there is a text box for 'Root Password' and a 'Confirm' text box. A strength indicator shows 'Strong'. The panel is part of the 'CENTOS 7 INSTALLATION' window, which also includes a 'Help!' button and a 'us' button.

20. Enter the password for the root user and re-enter to confirm it.
21. Click **Done** to save the changes.

The **Configuration** panel is displayed.

Figure 46 : Configuration panel - Finish configuration

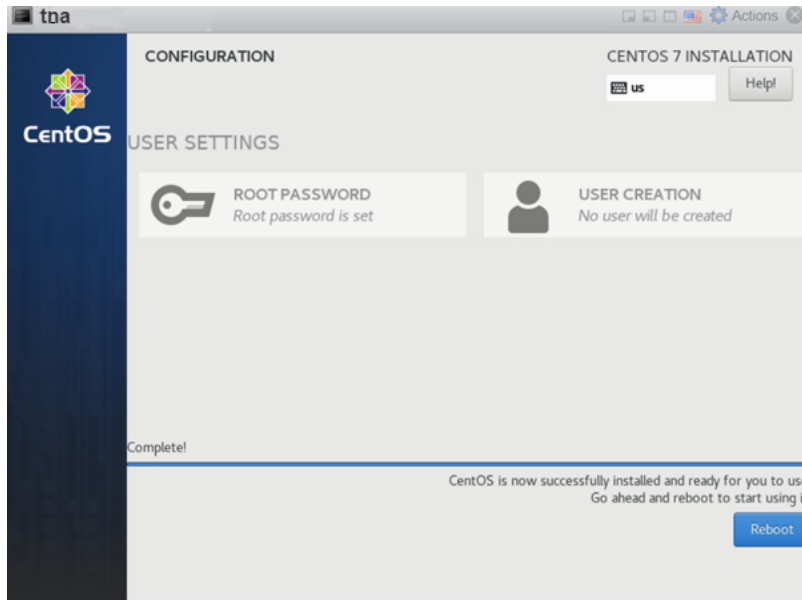


The screenshot shows the 'CONFIGURATION' panel in the 'tta' application. The panel has a dark blue header with the title 'CONFIGURATION' and a 'Finish configuration' button. Below the header, there is a 'USER SETTINGS' section with a 'ROOT PASSWORD' status (Root password is set) and a 'USER CREATION' status (No user will be created). The panel is part of the 'CENTOS 7 INSTALLATION' window, which also includes a 'Help!' button and a 'us' button. A 'Complete!' message is displayed at the bottom.

22. Click **Finish configuration** to install CentOS.

A message 'CentOS is now successfully installed and ready for you to use' is displayed.

Figure 47 : Configuration panel - Reboot



23. Click **Reboot** to reboot the virtual machine.

NOTE: The system may take a few minutes to reboot and restart the TOA virtual machine.

The TOA instance opens in the command line interface.

24. Log in to the TOA virtual machine instance using the following credentials:

- **localhost login:** root
- **Password:** <your_configured_password>

```
CentOS Linux 7 (Core)
Kernel 3.10.0-1062.el7.x86_64 on an x86_64

localhost login: root
Password:
```

25. Run the following command to add the management interface to the TOA virtual

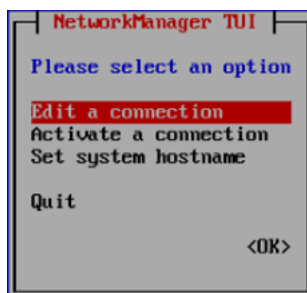
machine using the NetworkManager tool:

```
[root@localhost ~]# nmtui
```

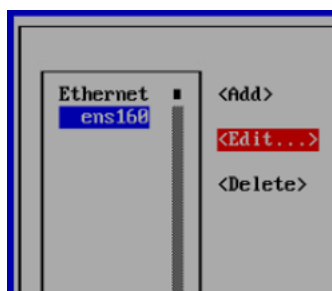
The **NetworkManager TUI** text user interface is displayed.

NOTE: Use the arrow keys or the **Tab** key to select any option in the text user interface.

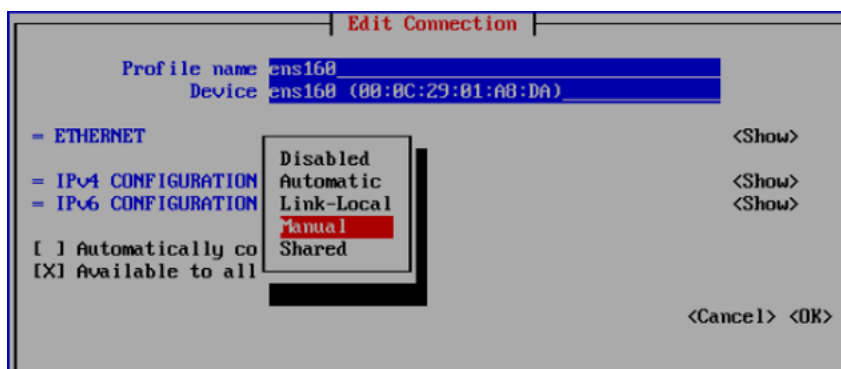
26. Select the **Edit a connection** menu entry and press **Enter**.



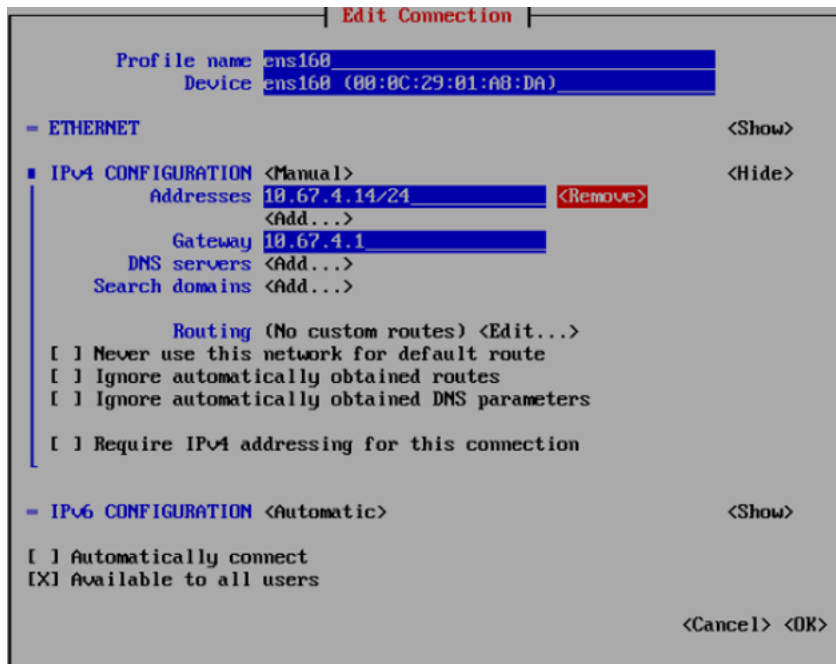
27. Select the required connection, press the tab to select **Edit**, and press **Enter**.



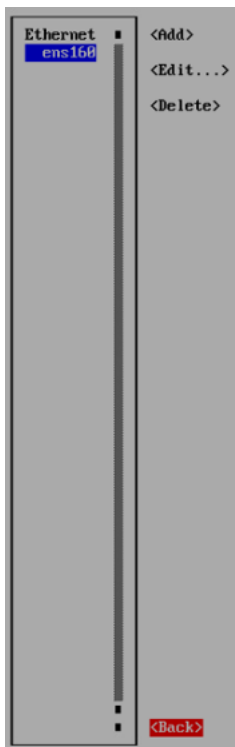
28. Select **IPv4 CONFIGURATION** and press **Enter**.



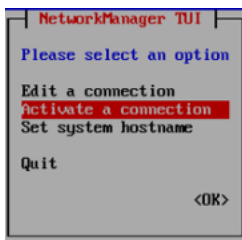
29. Change the connection from **Automatic** to **Manual**.
30. Select **<Show>** corresponding to the IPv4 CONFIGURATION and press **Enter**.
31. Verify the current IPv4 configuration and update the IP address and Gateway IP accordingly.



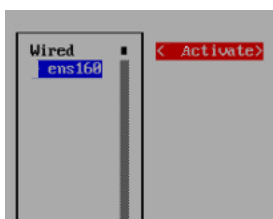
32. Select **OK** and press **Enter** to save the changes.
33. Select **Back** and press **Enter** to open the option menu.



34. Select **Activate a connection** menu entry and press **Enter**.

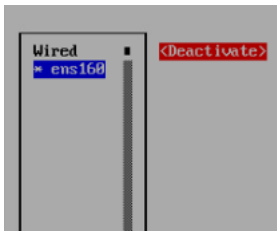


35. Select **Activate** and press **Enter**.

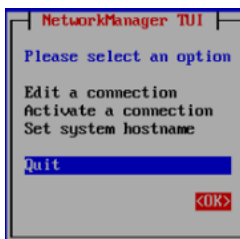


36. Verify if the interface is activated.

An asterisk (*) is prefixed to the interface name to indicate that it is activated.



37. Select **Back** and press **Enter** to open the option menu.
38. Select **OK** and press **Enter**.



39. Run the following command to edit the `ifcfg` file:

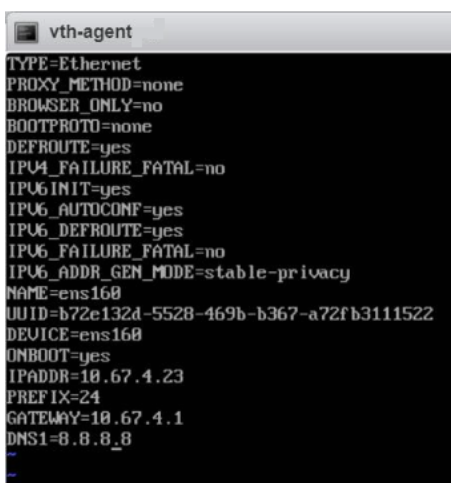
```
[root@localhost ~]# vi /etc/sysconfig/network-scripts/ifcfg-<interface-name>
```

40. Update the following entry:

```
ONBOOT=yes
```

41. Add the following entry:

```
DNS1=8.8.8.8
```




42. Save the changes.

43. Run the following command to edit the `CentOS-Base.repo` file:

```
[root@localhost ~]# vi /etc/yum.repos.d/CentOS-Base.repo
```

44. Uncomment the following line:

```
baseurl=http://mirror.centos.org/centos/$releasever/os/$basearch
```



```
CentOS-Base.repo
#
# The mirror system uses the connecting IP address of the client and the
# update status of each mirror to pick mirrors that are updated to and
# geographically close to the client. You should use this for CentOS updates
# unless you are manually picking other mirrors.
#
# If the mirrorlist= does not work for you, as a fall back you can try the
# remarked out baseurl= line instead.
#
#
[base]
name=CentOS-$releasever - Base
mirrorlist=http://mirrorlist.centos.org/?release=$releasever&arch=$basearch&repo=os
#baseurl=http://mirror.centos.org/centos/$releasever/os/$basearch/
gpgcheck=1
gpgkey=file:///etc/pki/rpm-gpg/RPM-GPG-KEY-CentOS-7

#released updates
[updates]
name=CentOS-$releasever - Updates
mirrorlist=http://mirrorlist.centos.org/?release=$releasever&arch=$basearch&repo=updates
#baseurl=http://mirror.centos.org/centos/$releasever/updates/$basearch/
```

45. Run the following command to restart the network service on your TOA VM:

```
[root@localhost ~]# systemctl restart NetworkManager
```

46. Re-run the following command:

```
[root@localhost ~]# yum update
```

The virtual machine for TOA is created.

Verify TOA Virtual Machine

To verify the TOA VM creation, perform the following steps:

1. Run the following command to verify the interface status:

```
[root@localhost ~]# nmcli d
```

The following configuration is displayed:

DEVICE	TYPE	STATE	CONNECTION
ens160	ethernet	connected	ens160
lo	loopback	unmanaged	--

2. Run the following command to verify the IP address:

```
[root@localhost ~]# ip a
```

The following configuration is displayed:

```
1: lo: <LOOPBACK,UP,<LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN
group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: ens160: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc mq state UP
group default qlen 1000
    link/ether 00:0c:29:01:a8:da brd ff:ff:ff:ff:ff:ff
    inet 10.67.4.14/24 brd 10.67.4.255 scope global noprefixroute
ens160
        valid_lft forever preferred_lft forever
    inet6 fe80::bd4f:9987:e034:aee9/64 scope link noprefixroute
        valid_lft forever preferred_lft forever
```

3. Run the following command to verify if the TOA is reachable from the local instance.

```
C:\Users\<>user>> ping <toa-ip>
```

Example:

```
C:\Users\<>user>> ping 10.67.4.14
```

4. Verify if a response is received.

```
Pinging 10.67.4.14 with 32 bytes of data:
Reply from 10.67.4.14: bytes=32 time=388ms TTL=61
Reply from 10.67.4.14: bytes=32 time=351ms TTL=61
Reply from 10.67.4.14: bytes=32 time=359ms TTL=61
Reply from 10.67.4.14: bytes=32 time=386ms TTL=61

Ping statistics for 10.67.4.14:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 351ms, Maximum = 388ms, Average = 371ms
```

Install TOA

To install TOA, see [A10 Thunder Observability Agent](#) documentation.

Configure VMware vROps

To monitor the Thunder metrics on vROps, perform the following steps:

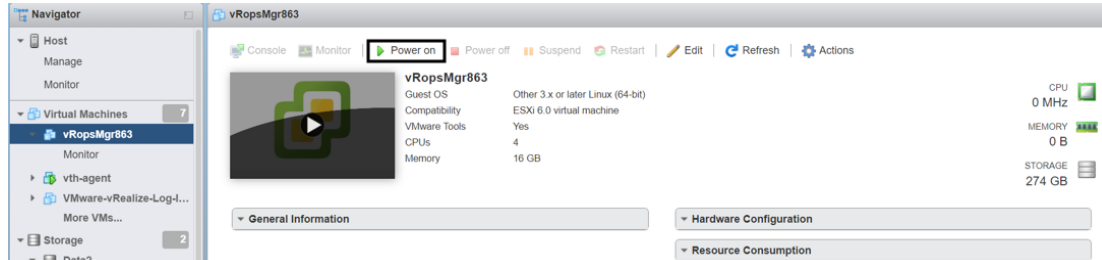
1. [Start vROps VM](#)
2. [Create a Dashboard](#)
3. [Create an Alert](#)
4. [Create a Notification](#)
5. [View Thunder Metrics](#)

Start vROps VM

To start the vROps virtual machine, perform the following steps:

1. From the **VMware ESXi** console, go to **Navigator > Virtual Machines > <your_vROps_VM>** and click **Power on**.

Figure 48 : Start vROps VM

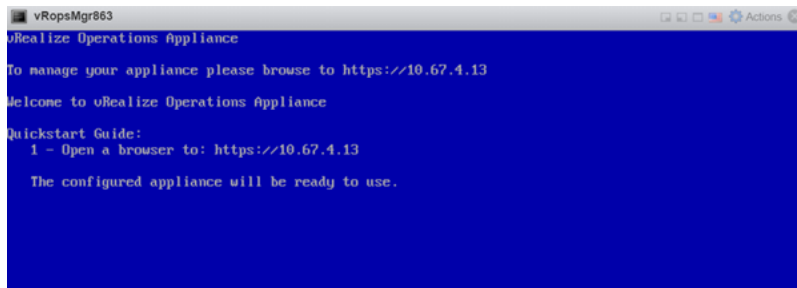


NOTE: The system may take a few minutes to start the vROps virtual machine.

2. Click **Console** to launch vROps virtual machine.

The vROps virtual machine is powered on and is reachable.

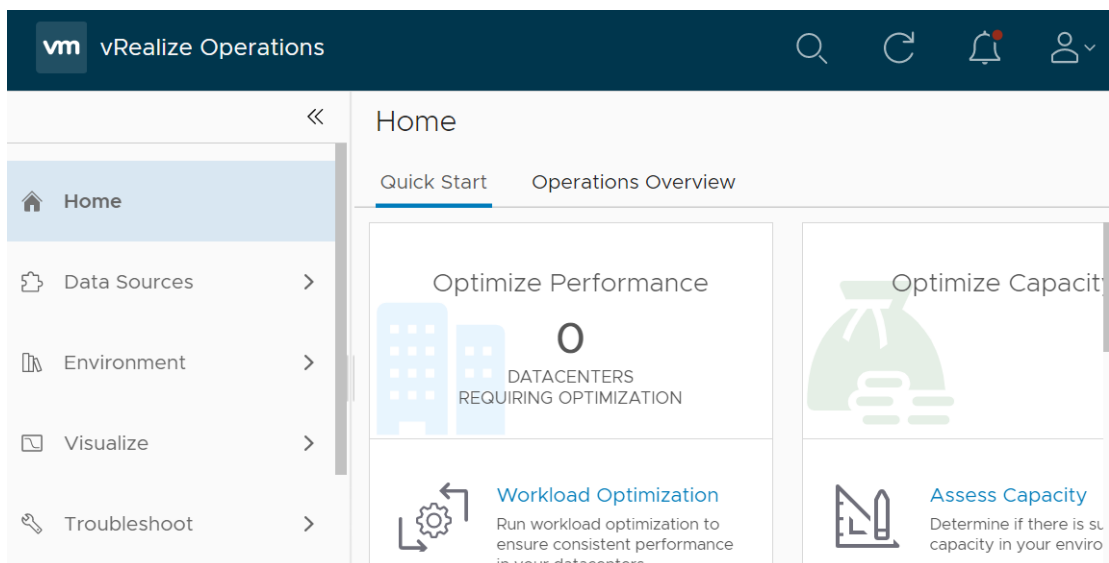
Figure 49 : vRealize Operations Appliance



3. Log in to the **vRealize Operations Web UI** with your admin credentials.

The vRealize Operations Home page is displayed.

Figure 50 : vRealize Operations - Home page



Create a Dashboard

The dashboard can be created using either of the following options:

- Import a dashboard template

To import a dashboard using JSON file, see [Import a Dashboard](#).

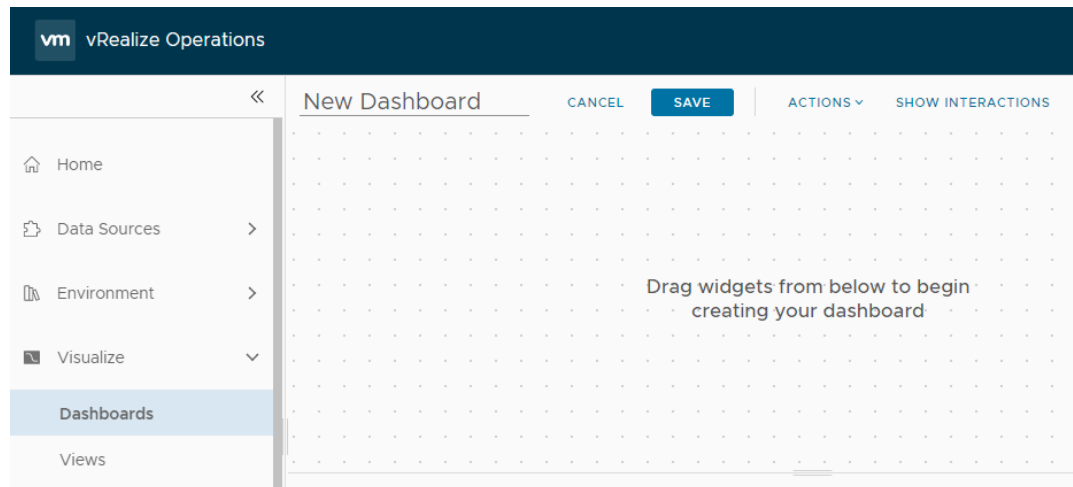
- Create a dashboard manually

To create a dashboard manually, perform the following steps:

1. From the **vRealize Operations Web UI**, go to **Home > Visualize > Dashboards** and click **Create** to add a new dashboard.

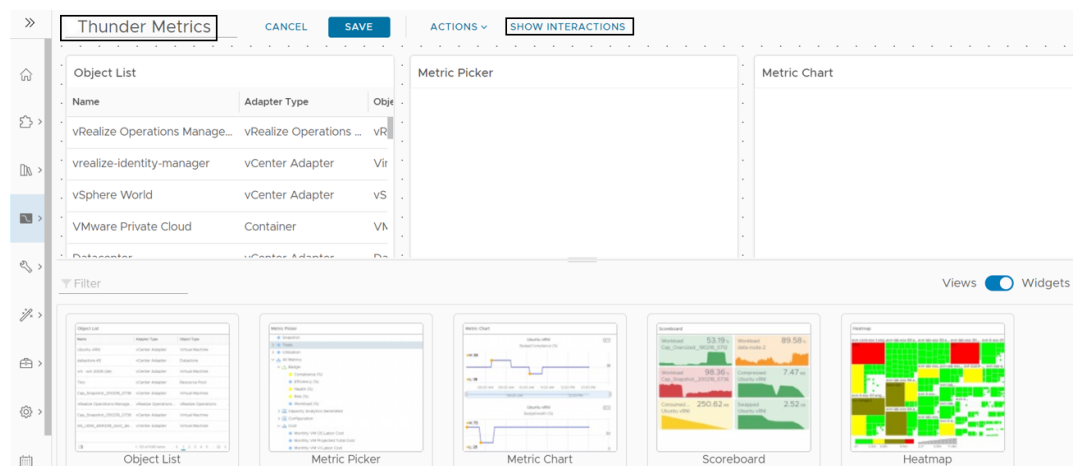
The New Dashboard window is displayed.

Figure 51 : New Dashboard window



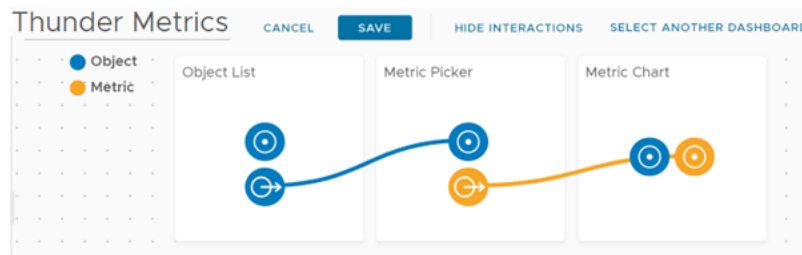
2. Provide a name to the new dashboard and double-click or drag the following widgets:
 - Object List
 - Metric Picker
 - Metric Chart

Figure 52 : Dashboard widgets



3. Click **Show Interactions** to create interactions.

Figure 53 : Interactions



4. Drag the connectors and create interactions as shown in the [Figure 53](#).

5. Click **Save** to save the changes.

A dashboard for Thunder metrics is created.

Create an Alert

The alert definition can be created using either of the following options:

- Import an alert definition template

To import an alert definition using XML file, see [Import an Alert Definition](#).

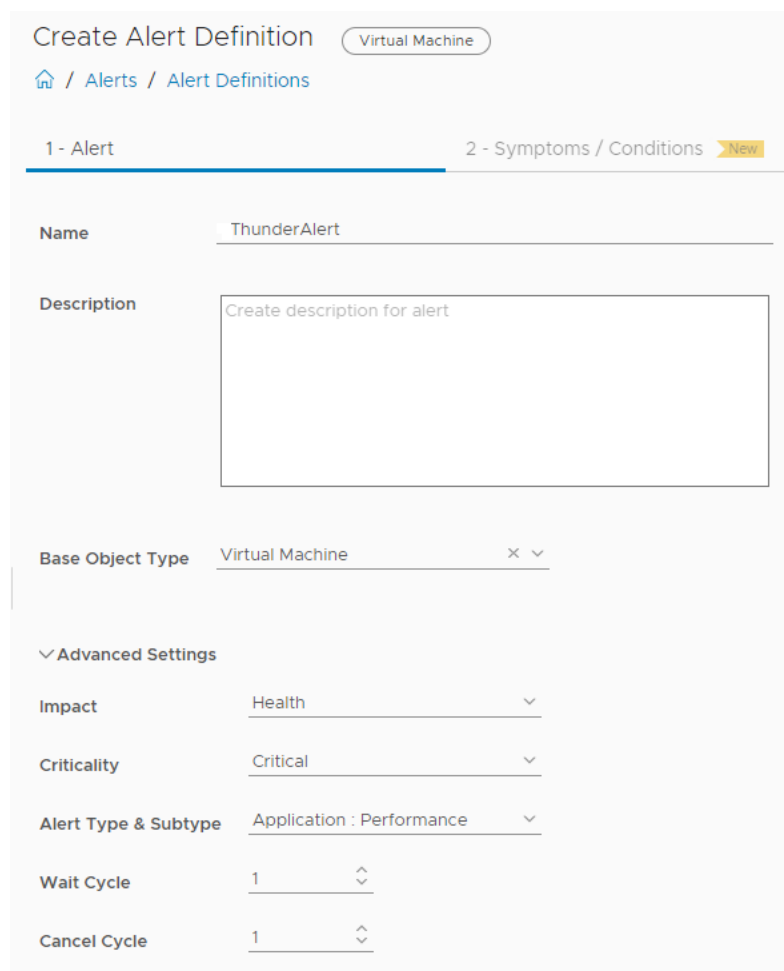
- Create an alert definition manually

To create an alert definition manually, perform the following steps:

1. From the **vRealize Operations Web UI**, go to **Home > Configure > Alerts** and click **Alert Definitions**.
2. Click **Add** in the **Alert Definitions** window.

The **Create Alert Definition** panel with **Alert** tab is displayed.

Figure 54 : Create Alert Definition window



Create Alert Definition Virtual Machine

[Home](#) / [Alerts](#) / [Alert Definitions](#)

1 - Alert 2 - Symptoms / Conditions New

Name

Description

Base Object Type ✕ ▼

▼ Advanced Settings

Impact ▼

Criticality ▼

Alert Type & Subtype ▼

Wait Cycle ▲ ▼

Cancel Cycle ▲ ▼

- Enter or select the appropriate values in the following fields:

Table 12 : Alert tab fields

Field Name	Description
Name	Enter the alert name. Example In the Figure 54 , the alert definition name is ThunderAlert.
Base Object Type	Select vCenter Adapter > Virtual Machine .
Under the Advanced Settings :	

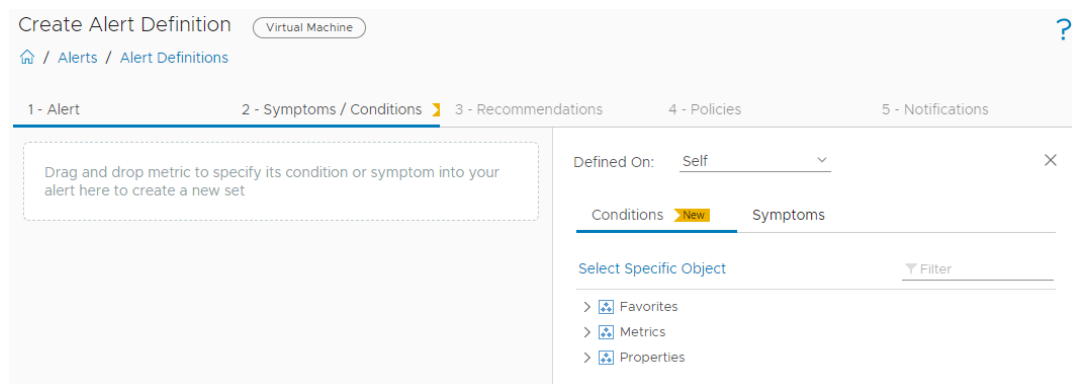
Table 12 : Alert tab fields

Field Name	Description
Impact	Select Health .
Criticality	Select Critical .
Alert Type & Subtype	Select Application : Performance .

4. Click **Next**.

The **Symptoms / Conditions** tab is displayed.

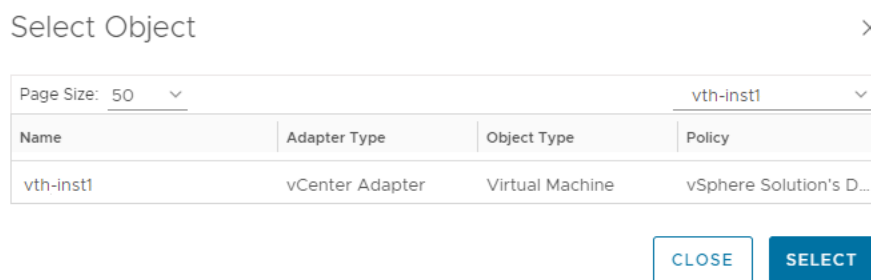
Figure 55 : Symptoms / Conditions tab



5. Click **Select Specific Object** to select your Thunder instance.

The **Select Object** window is displayed.

Figure 56 : Select Object window

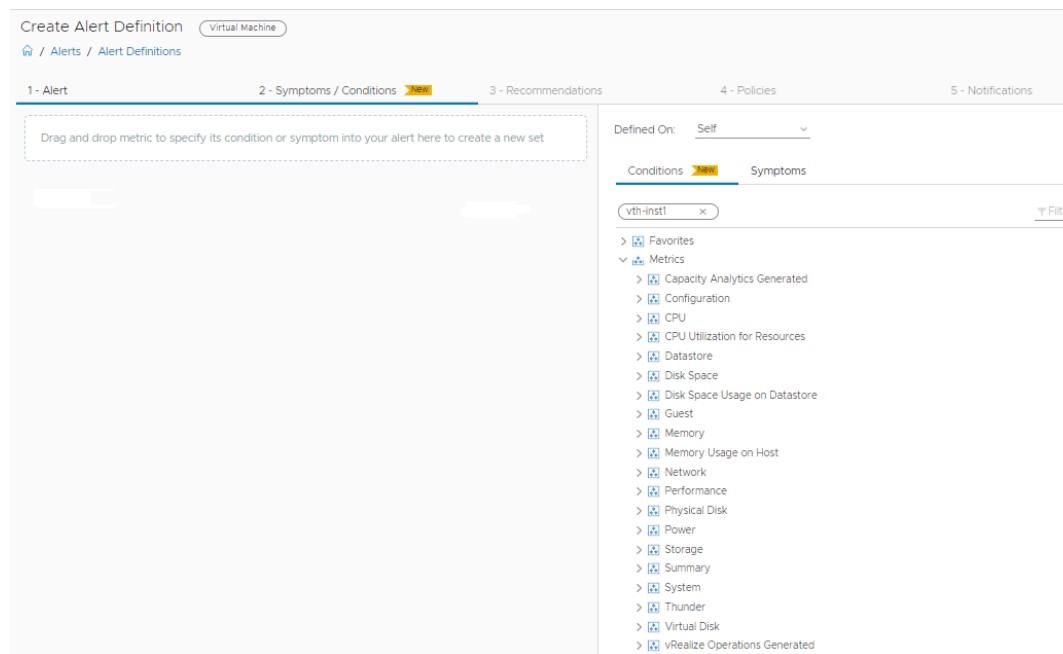


Name	Adapter Type	Object Type	Policy
vth-inst1	vCenter Adapter	Virtual Machine	vSphere Solution's D...

6. Select your Thunder instance and click **Select**.

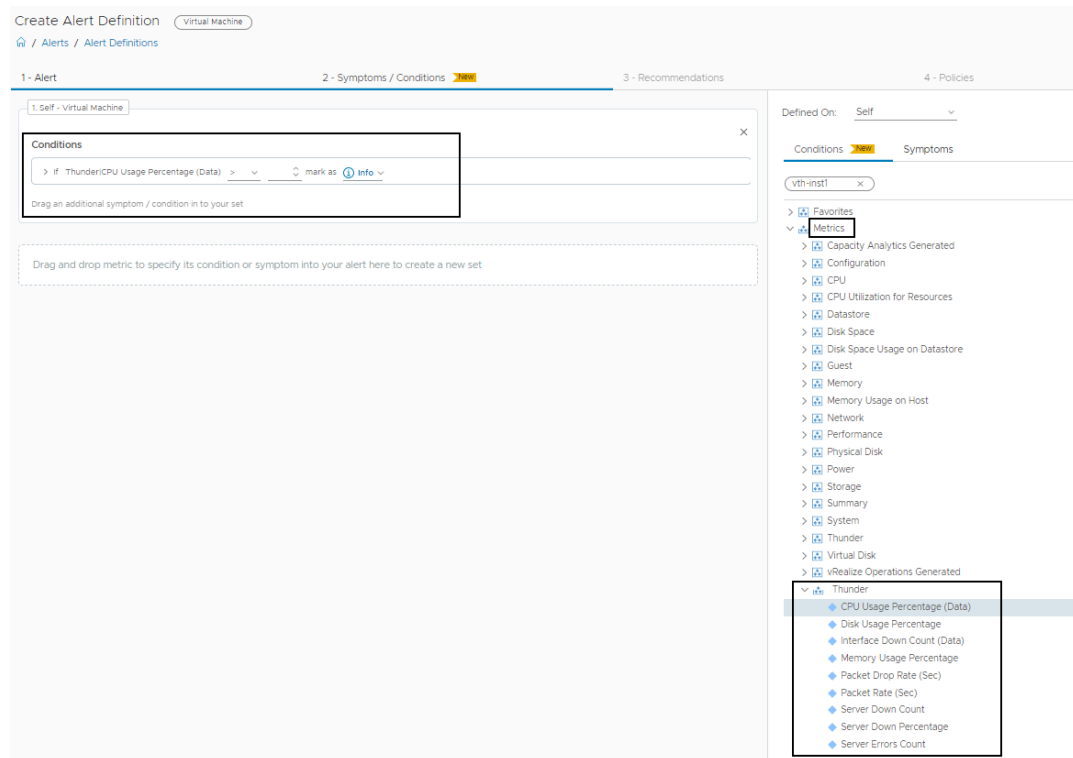
The selected Thunder instance is listed under **Conditions**.

Figure 57 : Selected Thunder instance



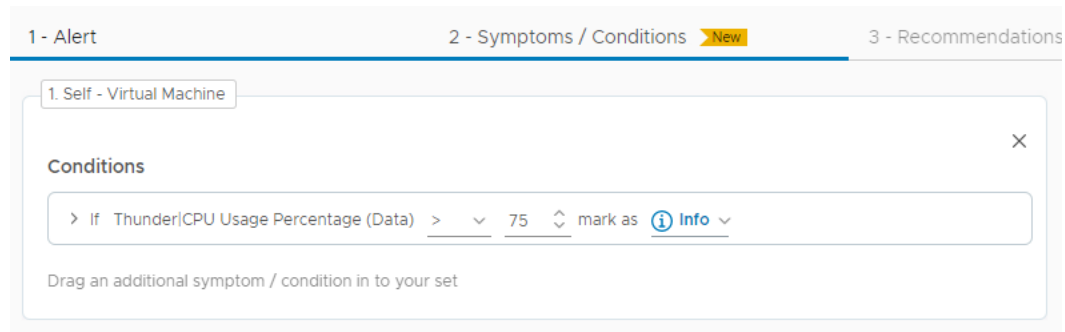
7. Select **Metrics** > **Thunder** and drag the required metrics to the left-side panel.

Figure 58 : Drag metric



8. Specify the appropriate alert condition.

Figure 59 : Alert condition



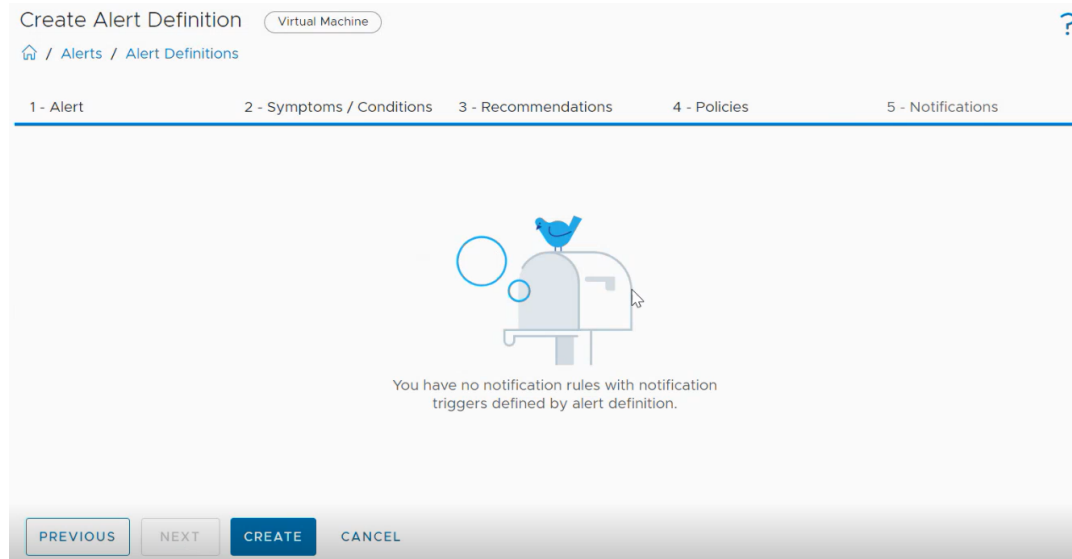
9. Click **Next**.

10. Add the appropriate recommendations in the **Recommendations** tab, if needed.

11. Click **Next**.

12. Select appropriate policy in the **Policies** tab, if needed.
13. Click **Next**.

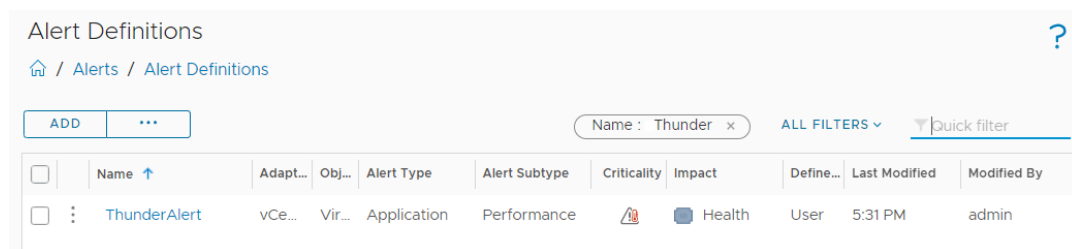
The **Notification** tab is displayed. The notification can be created after the alert definition is created. For more information, see [Create a Notification](#).



14. Click **Create** in the **Notification** tab.

An alert definition is created and is listed in the **Alert Definition** window.

Figure 60 : Verify Alert Definition



Create a Notification

The notification can be created using either of the following options:

- Import a notification template

To import a notification using JSON file, see [Import a Notification](#).

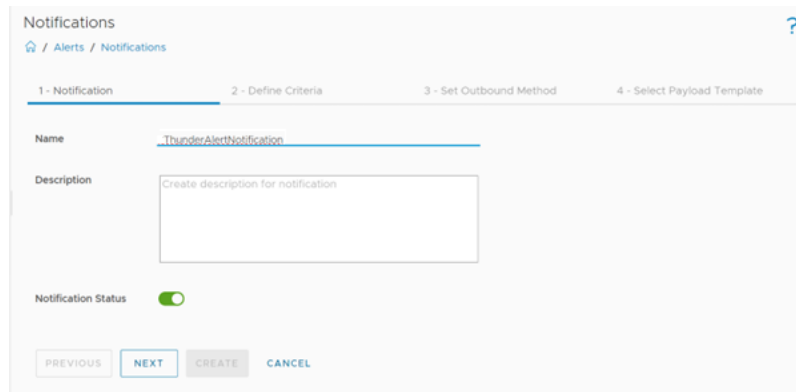
- Create a notification manually

To create a notification manually, perform the following steps:

1. From the **vRealize Operations Web UI**, go to **Home > Configure > Alerts** and click **Notifications**.
2. Click **Add** in the **Notifications** window.

The **Notifications** panel with **Notification** tab is displayed.

Figure 61 : Notifications tab



3. Enter or select the appropriate values in the following fields:

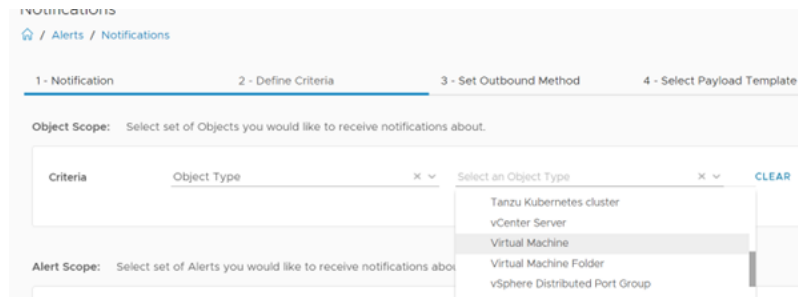
Table 13 : Notifications tab

Field Name	Description
Name	Enter the notification name. Example In the Figure 61 , notification name is ThunderAlertNotification.
Notification Status	Select Enable .

4. Click **Next**.

The **Define Criteria** tab is displayed.

Figure 62 : Define Criteria tab



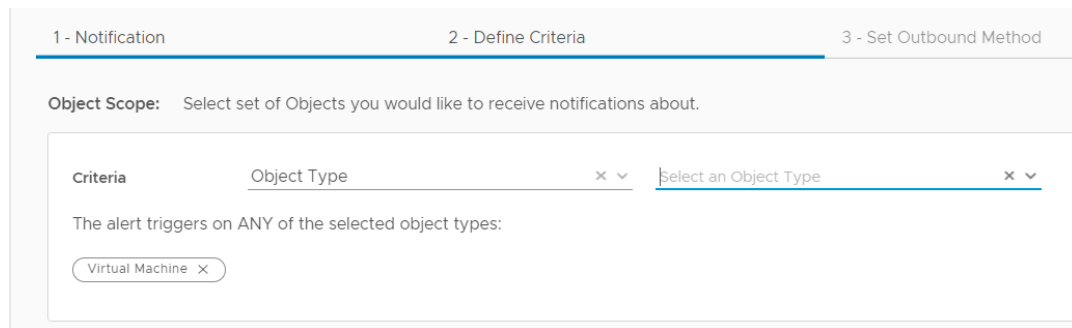
5. In the **Criteria** field, select **Object Type** from the drop-down.

A field appears to select the object type.

6. Expand **vCenterAdapter** and select **Virtual Machine** from the drop-down.

The selected object type is listed under **Criteria**.

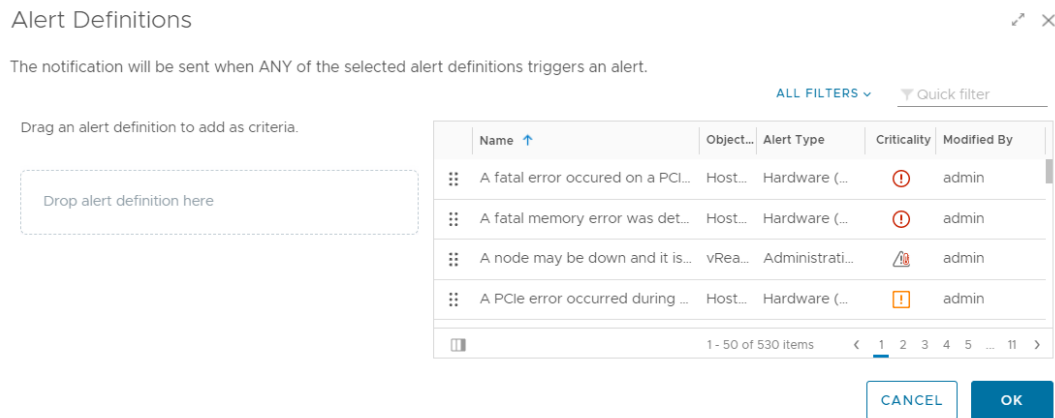
Figure 63 : Criteria defined



7. In the **Category** field, select **Alert Definition** from the drop-down created in the [Create an Alert](#).

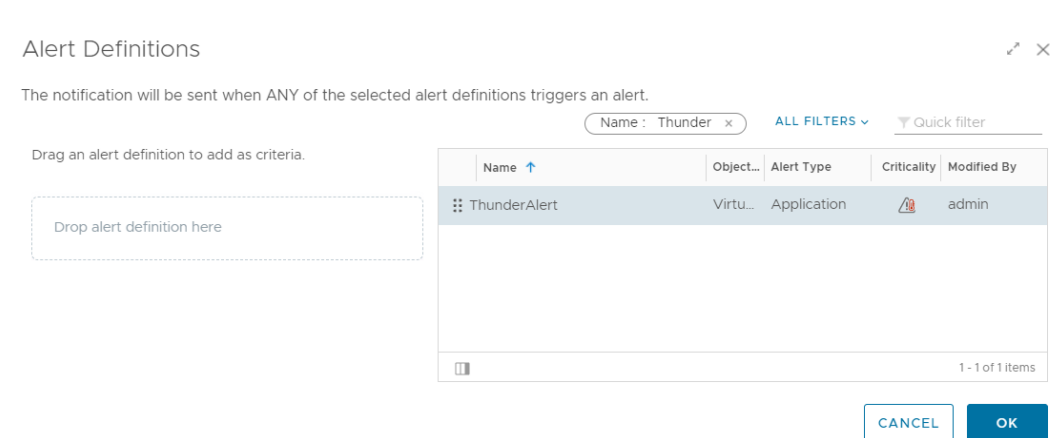
An **Alert Definition** pop-up is displayed.

Figure 64 : Alert Definition pop-up



8. Search your alert definition.

Figure 65 : Search alert definition



9. Select your alert definition and drag it to add as the criteria.

Figure 66 : Drag alert definition

Alert Definitions ↗ ×

The notification will be sent when ANY of the selected alert definitions triggers an alert.

Drag an alert definition to add as criteria.

⋮ ThunderAlert
×

Drop alert definition here

Name : Thunder ×
ALL FILTERS ▾
Quick filter

Name ↑	Object...	Alert Type	Criticality	Modified By

☰
1 - 1 of 1 items

CANCEL
OK

10. Click **OK**.

The selected alert definition is listed under Category.

Figure 67 : Selected alert definition

Alert Scope: Select set of Alerts you would like to receive notifications about.

Category
Alert Definition × ▾

The alert is ANY of the selected (1): ✎

ThunderAlert
×

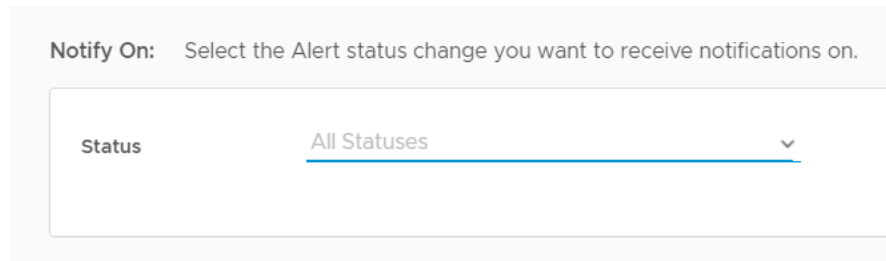
Criticality
All Criticality ▾

Control State
All States ▾

PREVIOUS
NEXT
CREATE
CANCEL

11. In the **Status** field under **Notify On**, select the alert status for which you want to receive the notifications.

Figure 68 : Notify On



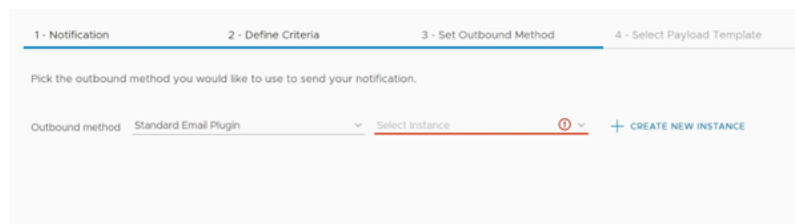
Notify On: Select the Alert status change you want to receive notifications on.

Status All Statuses ▼

12. Click **Next**.

The **Set Outbound Method** tab is displayed.

Figure 69 : Set Outbound Method tab



1 - Notification 2 - Define Criteria 3 - Set Outbound Method 4 - Select Payload Template

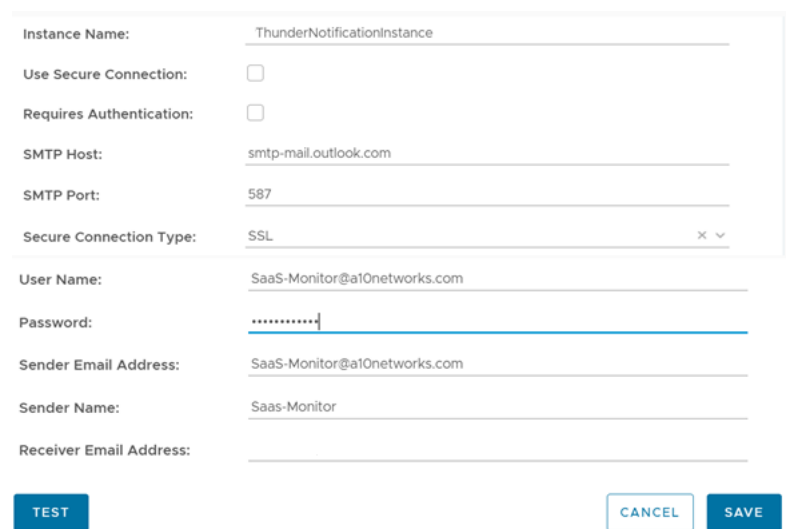
Pick the outbound method you would like to use to send your notification.

Outbound method Standard Email Plugin ▼ Select instance ⓘ ▼ + CREATE NEW INSTANCE

13. In the **Outbound method** field, select **Standard Email Plugin** from the drop-down list.
14. Click **Create New Instance** to create a new instance for corresponding Outbound method.

The fields for creating a new instance are displayed.

Figure 70 : Create New Instance fields



Instance Name: ThunderNotificationInstance

Use Secure Connection: ☐

Requires Authentication: ☐

SMTP Host: smtp-mail.outlook.com

SMTP Port: 587

Secure Connection Type: SSL x v

User Name: SaaS-Monitor@a10networks.com

Password:

Sender Email Address: SaaS-Monitor@a10networks.com

Sender Name: SaaS-Monitor

Receiver Email Address:

TEST CANCEL SAVE

15. Enter or select the appropriate values in the following fields:

Table 14 : Create New Instance

Field Name	Description
Instance Name	Enter the notification instance name. Example In the Figure 70 , the notification instance name is ThunderNotificationInstance.
SMTP Host	Enter the URL or IP address of the email host server.
SMTP Port	Enter the SMTP port number used to connect with the email host server.
Secure Connection Type	Select SSL .
User Name	Enter the username that is used to connect to the email server.
Password	Enter the password for the connection username that appears on the notification message.
Sender Email Address	Enter the email address of the sender.

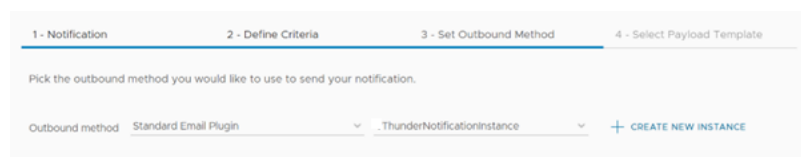
Table 14 : Create New Instance

Field Name	Description
Sender Name	Enter the display name of the sender email address.
Receiver Email Address	Enter the email address of the receiver that receives the notification.

16. Click **Save** to save the changes.

The new instance is populated in the **Select Instance** field.

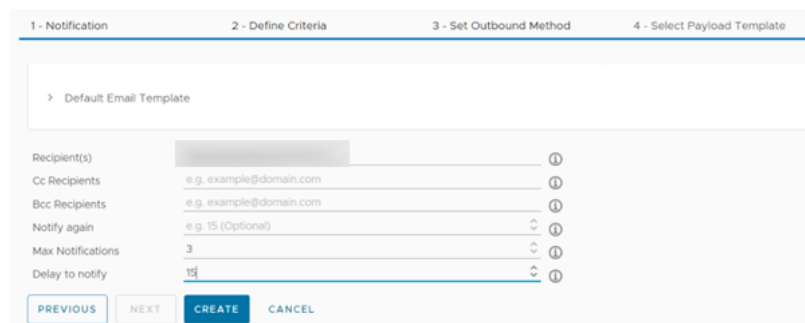
Figure 71 : Selected New Instance



17. Click **Next**.

The **Select Payload Template** tab is displayed.

Figure 72 : Select Payload Template tab



18. Enter or select the appropriate values in the following fields for the default template:

Table 15 : Select Payload Template tab

Field Name	Description
Recipient(s)	Enter the email addresses of the recipient to receive the notification.
Max Notifications	Enter the maximum number of notification to be

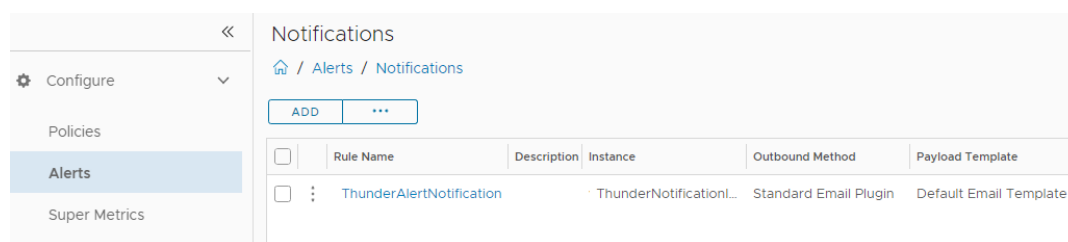
Table 15 : Select Payload Template tab

Field Name	Description
	sent for the active alert.
Delay to notify	Enter the delay time in minutes before sending a notification when a new alert is generated.

19. Click **Create**.

A new notification is created for the selected alert definition and it is listed in the **Notifications** window.

Figure 73 : Verify Notification

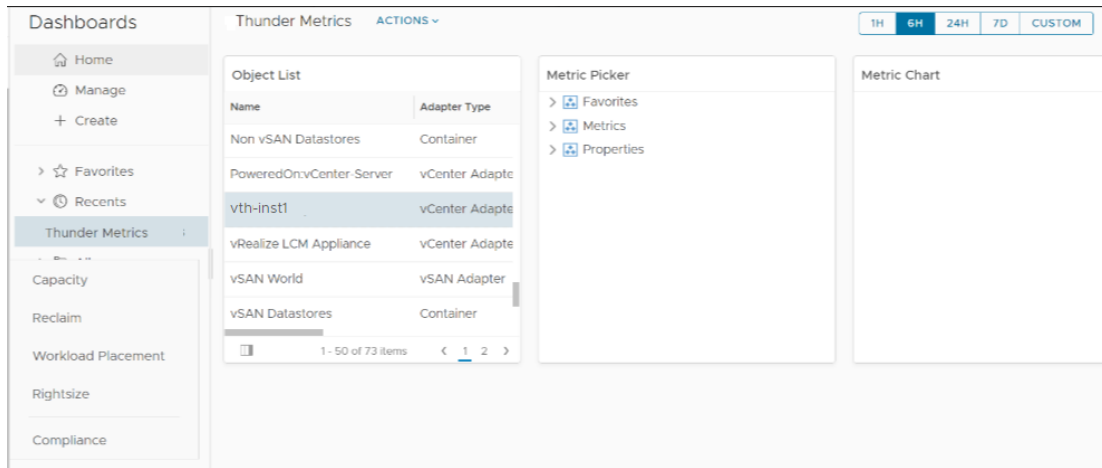
**View Thunder Metrics**

To view the Thunder metrics, perform the following steps:

1. From the **vRealize Operations Web UI**, go to **Home > Visualize > Dashboard** and select your dashboard created for Thunder metrics.

The selected dashboard is displayed.

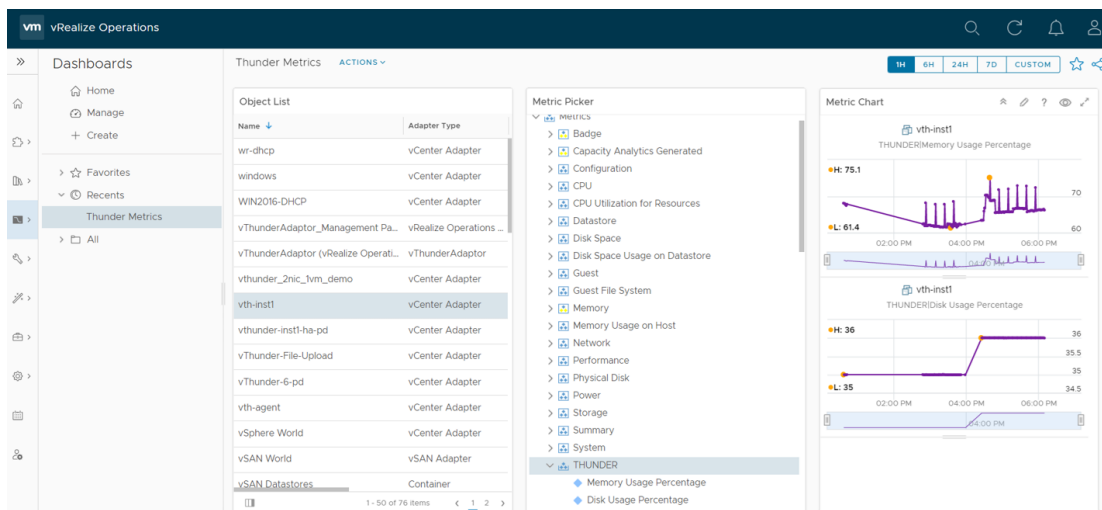
Figure 74 : Selected dashboard



- From **Object List**, double-click your Thunder instance.
- From **Metric Picker**, expand **Metrics > THUNDER** and double-click the following common metrics:
 - Memory Usage Percentage
 - Disk Usage Percentage

As the metric is selected, the corresponding data gets populated in the **Metric Chart** panel for the selected time range.

Figure 75 : THUNDER Dashboard



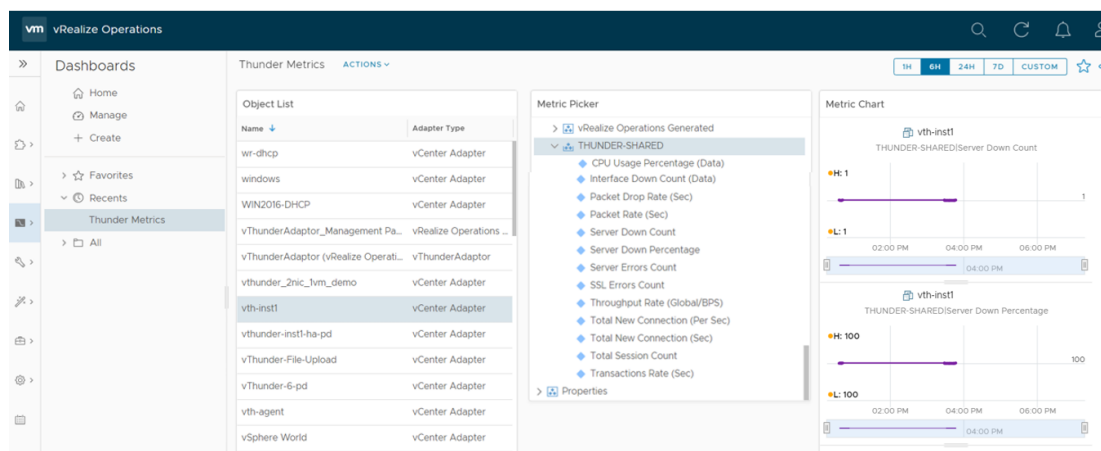
- From **Metric Picker**, expand **Metrics > THUNDER-SHARED** or **THUNDER-Px** and

double-click the following metrics:

- CPU Usage Percentage (Data)
- Throughput Rate (Global/BPS)
- Interface Down Count (Data)
- Total New Connection (Sec)
- Transactions Rate (Sec)
- Server Down Count
- Server Down Percentage
- SSL Errors Count
- Server Errors Count
- Total Session Count
- Packet Rate (Sec)
- Packet Drop Rate (Sec)

As the metric is selected, the corresponding data gets populated in the **Metric Chart** panel for the selected the time range.

Figure 76 : THUNDER-SHARED Dashboard



To view multiple metrics data, select each of those metrics. The data corresponding to each metric is displayed in the **Metric Chart** panel. For the list of available Thunder metrics, see [Supported Thunder Metric](#).

Import vROps Template

The vRealize Operations Manager (vROps) creates a dashboard and a notification by importing a JSON files. It also creates alert definition by importing an XML file.

The following topics are covered:

- [Import a Dashboard](#)
- [Import an Alert Definition](#)
- [Import a Notification](#)

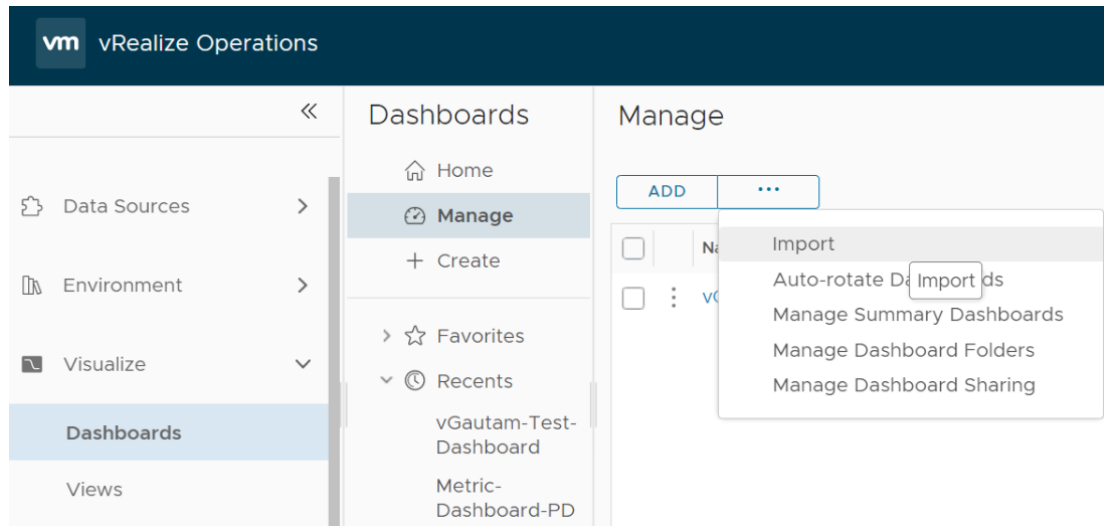
Import a Dashboard

To import a dashboard using the JSON file, perform the following steps:

1. Download and open the [dashboard-template](#) JSON file.
2. Edit the following parameter values in the JSON file:
 - `id`
 - `name`
3. Save the changes in the JSON file.
4. From the **vRealize Operations Web UI**, go to **Home > Visualize > Dashboards** and click **Manage**.

The **Manage** window is displayed.

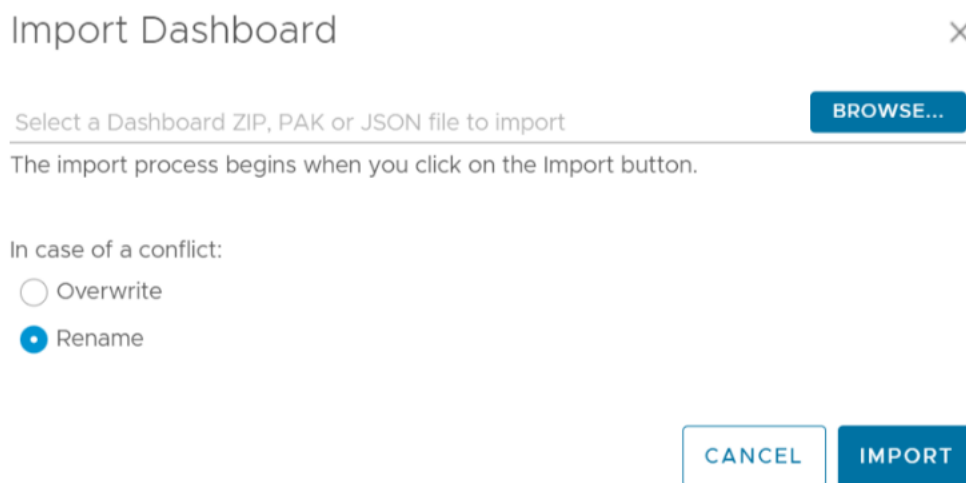
Figure 77 : Manage window



- Click ... > **Import** in the **Manage** panel.

The **Import Dashboard** window is displayed.

Figure 78 : Import Dashboard window



- Browse and select the **dashboard-template.json** file.
- Click **Import**.

The new dashboard is imported and listed in the **Dashboards** window.

Import an Alert Definition

To import an alert definition using the XML file, perform the following steps:

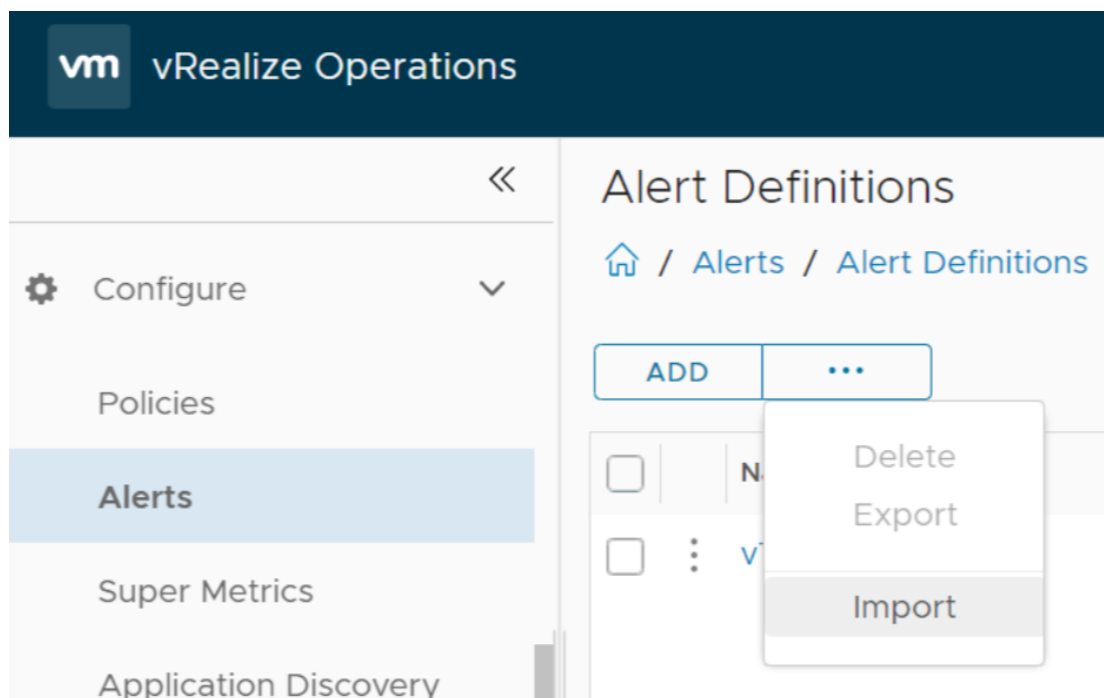
1. Download and open the [alert-template](#) file.
2. Enter the following parameter values in the XML file as appropriate:
 - `id`
 - `name`

NOTE: The `id` and `name` must have unique values.

3. Save the changes in the XML file.
4. From the **vRealize Operations Web UI**, go to **Home > Configure > Alerts** and click **Alert Definitions**.

The **Alert Definitions** window is displayed.

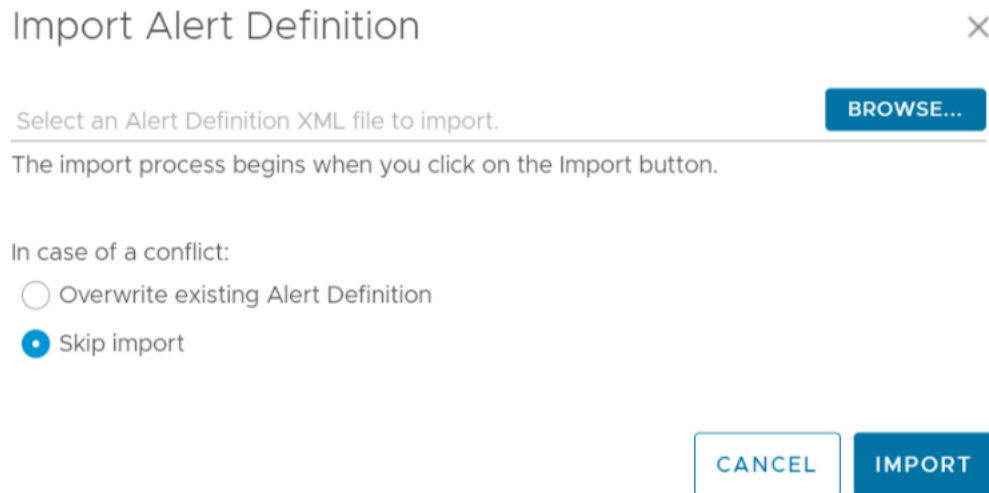
Figure 79 : Alert Definitions window



5. Click **...** > **Import** in the **Alert Definition** window.

The **Import Alert Definition** window is displayed.

Figure 80 : Import Alert Definition window



6. Browse and select the **alert-template.json**.

7. Click **Import**.

The new alert definition is imported and listed in the **Alert Definitions** window.

Import a Notification

To import a notification using the JSON file, perform the following steps:

1. Download and open the [notification-template](#) JSON file.
2. Update the alert definition id in the following parameter:

```
{
  "ConditionType": "ALERT_DEFINITION_ID",
  "NotificationRuleAlertDefinitionCondition": {
    "AlertDefinitionIds": [
      {
        "AlertDefinitionID": "AlertDefinition-<alert-
definition-id>"
      }
    ]
  }
}
```

NOTE: The `AlertDefinitionID` must have the same value as provided in the **alert-template.json**.

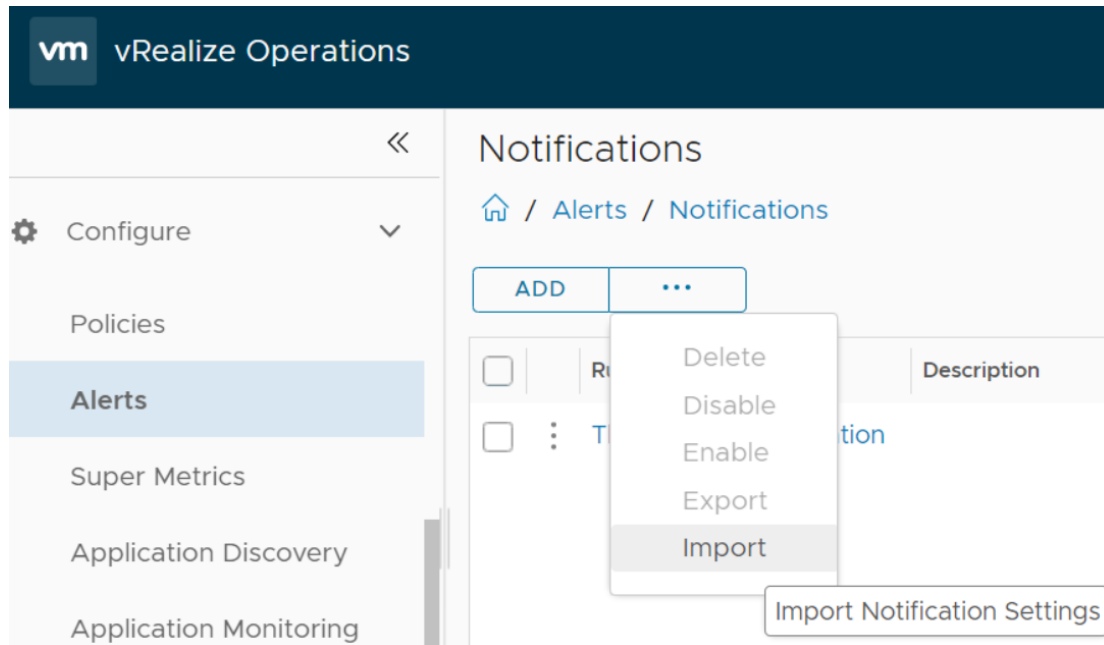
- Update the sender and recipient email address values in the following parameter:

```
"PluginNotificationProperty": [
  {
    "PropertyName": "emailaddr",
    "PropertyValue": "user1@example.com"
  },
  {
    "PropertyName": "ccRecipients",
    "PropertyValue": "usergroup@example.com"
  }
],
```

- Save the changes in the JSON file.
- From the **vRealize Operations Web UI**, go to **Home > Configure > Alerts** and click **Notifications**.

The **Notifications** window is displayed.

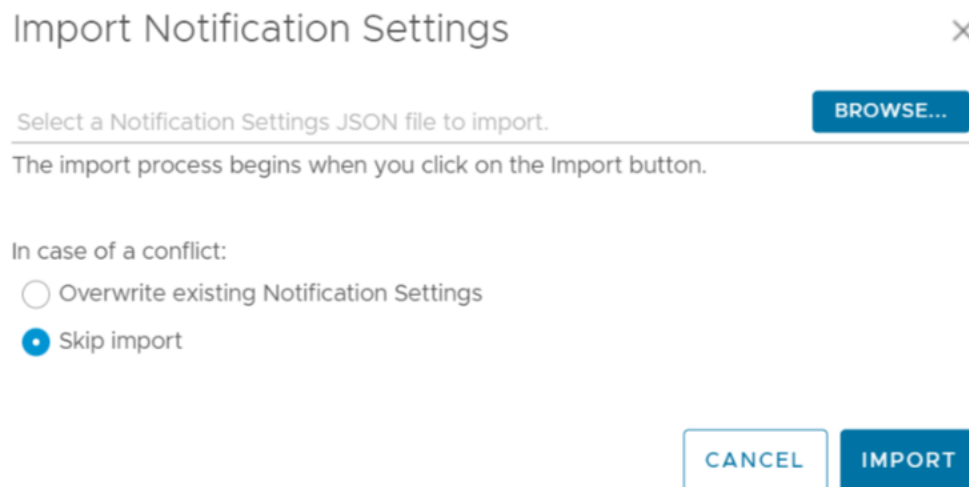
Figure 81 : Notifications window



- Click ... > **Import** in the **Notifications** panel.

The **Import Notification Settings** window is displayed.

Figure 82 : Import Notification Settings window



- Browse and select the **notification-template.json** file.
- Click **Import**.

The new notification is imported and listed in the **Notifications** window.

Configure VMware vRLI

To monitor the Thunder logs on the VMware vRLI, perform the following steps:

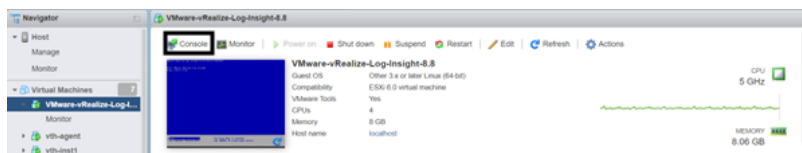
1. [Start vRLI VM](#)
2. [View Logs](#)

Start vRLI VM

To start the vRLI virtual machine, perform the following steps:

1. From the **VMware ESXi** console, go to **Navigator > Virtual Machines > <your_vRLI_VM>** and click **Power on**.

Figure 83 : Start vRLI VM

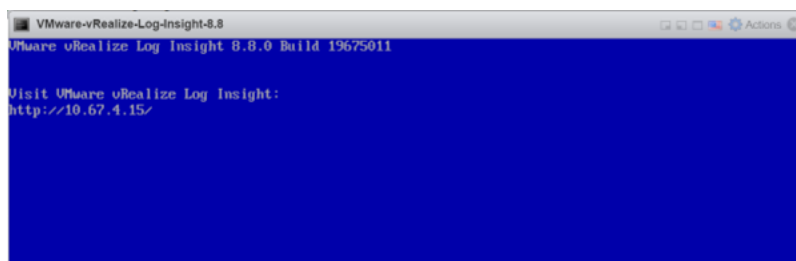


NOTE: The system may take a few minutes to start the vRLI virtual machine.

2. Click **Console** to launch vRLI virtual machine.

The vRLI virtual machine is powered on and reachable.

Figure 84 : VMware vRealize Log Insight

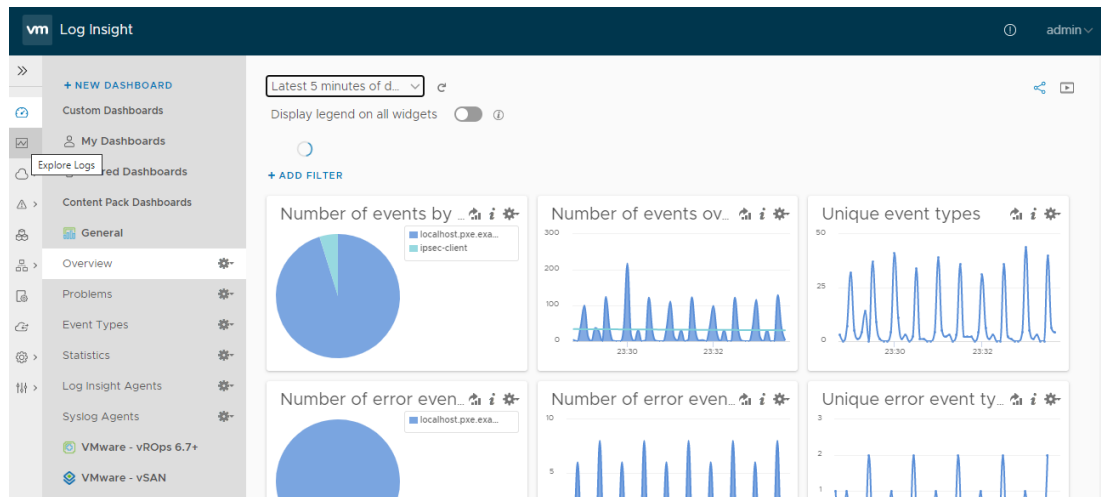


View Logs

1. From the **vRealize Log Insight Web UI**, go to **Home > Explore Logs** to view the logs.

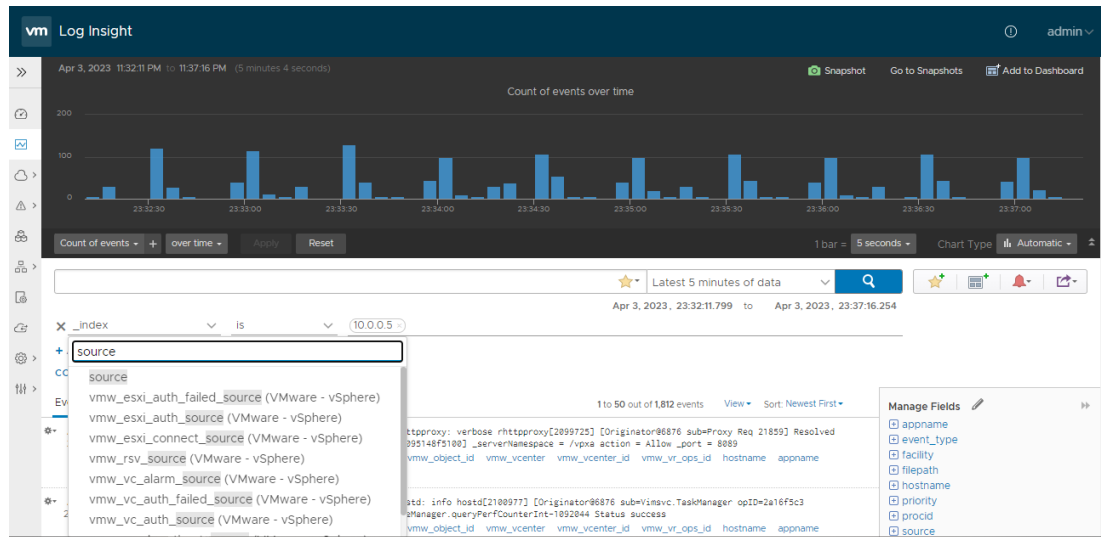
The **Logs** window is displayed.

Figure 85 : vRealize Log Insight - Overview window



2. Click **Add Filter** and add the following filter criteria to search all the logs received from a specific Thunder IP:
 - `_index: ip`
 - `condition: is`
 - `value: <Thunder_IP>`

Figure 86 : vRealize Log Insight - Add Filter

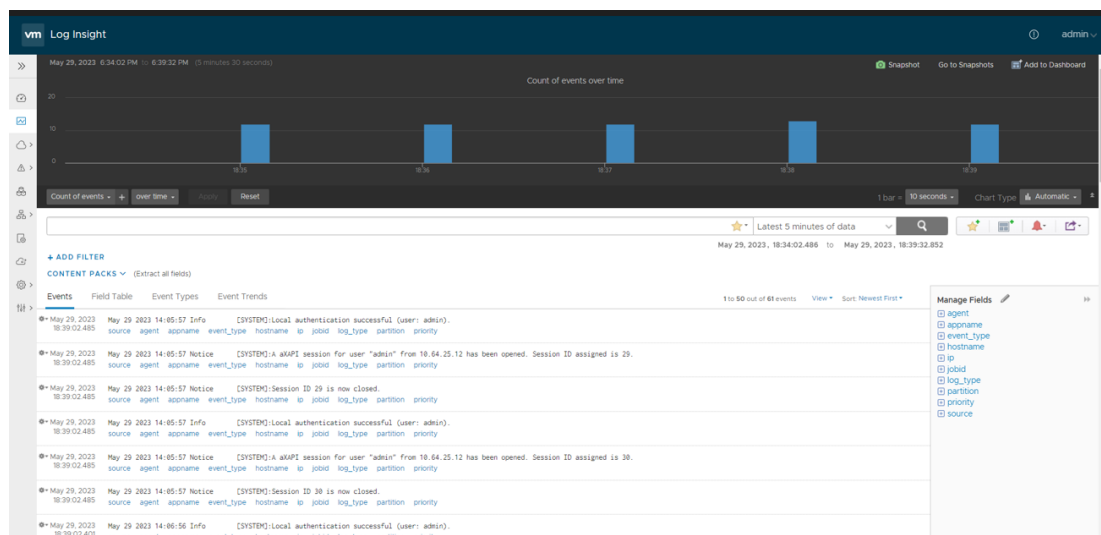


3. Add the following filter criteria to search all logs received from TOA:

- `_index: source`
- condition: is
- value: `<TOA_IP>`

4. Verify if the logs are generated.

Figure 87 : Logs on vRealize Log Insight



The following table lists the Thunder Logs filter options:

Filter	Description
Log_data	Specifies the actual log entry.
hostname	Displays the Thunder resource id.
log_type	Displays the Thunder system logs.
appname	Displays the application name.
ip	Displays the Thunder IP address.
agent	Displays the agent name.
jobid	Displays the JOB ID provided in TOA agent.log file.
priority	Displays the Notice, Info, or Error and so on as per actual log entry.
partition	Displays the Thunder partition name.

Troubleshooting

During the installation process, you might encounter some errors or issues. The common errors and issues with the troubleshooting steps are listed below:

Could not resolve host: mirrorlist.centos.org; Unknown error

Cause

This error is encountered when you run the `yum update` command and your DNS server is not configured properly.

Solution

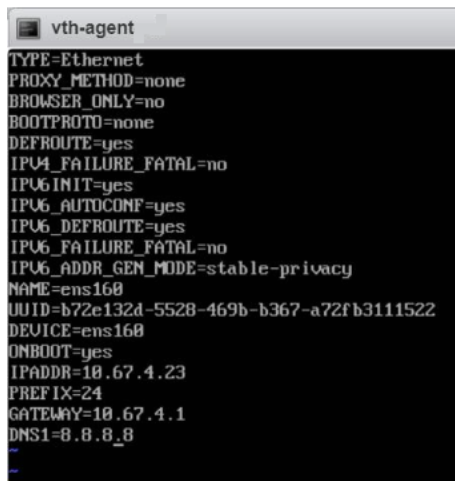
To configure the DNS server, perform the following steps on your agent VM:

1. Run the following command to edit the `ifcfg` file:

```
vi /etc/sysconfig/network-scripts/ifcfg-<interface-name>
```

2. Add the following entry:

```
DNS1=8.8.8.8
```



3. Save the changes.
4. Run the following command to edit the `CentOS-Base.repo` file:

```
vi /etc/yum.repos.d/CentOS-Base.repo
```

5. Uncomment the following line:

```
baseurl=http://mirror.centos.org/centos/$releasever/os/$basearch
```

```
# CentOS-Base.repo
#
# The mirror system uses the connecting IP address of the client and the
# update status of each mirror to pick mirrors that are updated to and
# geographically close to the client. You should use this for CentOS updates
# unless you are manually picking other mirrors.
#
# If the mirrorlist= does not work for you, as a fall back you can try the
# remarked out baseurl= line instead.
#
[base]
name=CentOS-$releasever - Base
mirrorlist=http://mirrorlist.centos.org/?release=$releasever&arch=$basearch&repo=os
#baseurl=http://mirror.centos.org/centos/$releasever/os/$basearch/
gpgcheck=1
gpgkey=file:///etc/pki/rpm-gpg/RPM-GPG-KEY-CentOS-7
#released updates
[updates]
name=CentOS-$releasever - Updates
mirrorlist=http://mirrorlist.centos.org/?release=$releasever&arch=$basearch&repo=updates
#baseurl=http://mirror.centos.org/centos/$releasever/updates/$basearch/
```

6. Run the following command to restart the network service on your agent VM:

```
systemctl restart NetworkManager
```

7. Re-run the following command:

```
yum update
```

Could not find a version that satisfies the requirement <package>**Cause**

This error is encountered when you run the `pip3 install -r requirements.txt` command.

Solution

To resolve this error, perform the following steps:

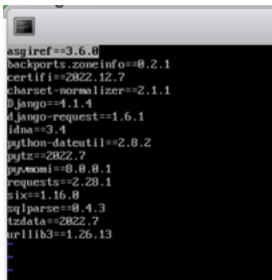
1. Open the **requirements.txt** from the **VMwarevThunderMetrics** folder on your agent VM.

```
vi requirements.txt
```

2. Remove the corresponding entry for the respective package:

```
<package>==<version>
```

where the **<package>** can be `asgiref`, `django`, or `requests`.



3. Run the following commands to re-install the package:

```
pip3 install <package>
pip3 install -r requirements.txt
```

If the ESXi host has incorrect datetime

Cause

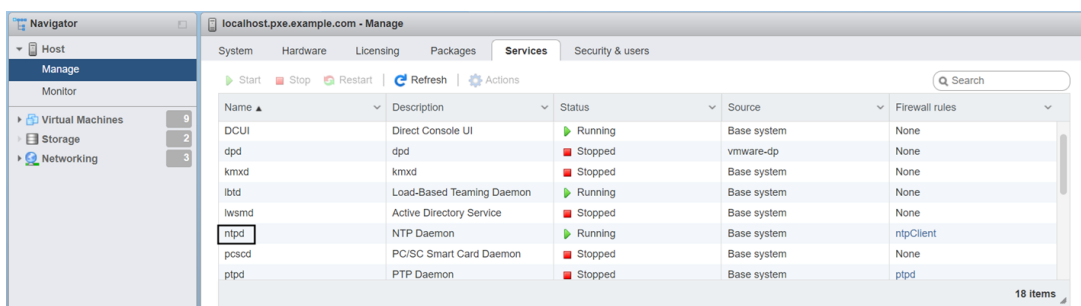
This issue is encountered when Network Time Protocol (NTP) service is stopped.

Solution

To enable the NTP Daemon service, perform the following steps:

1. From the **VMware ESXi** console, go to **Navigator > Manage > Services** tab.
2. Verify if the **ntpd** service is stopped.

Figure 88 : Services tab



3. Start the **ntpd** service.



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