Install Cisco Optical Network Controller Using VMware vSphere

Installation Requirements

The following list contains the pre-requisites of Cisco Optical Network Controller installation.

- Before installing Cisco Optical Network Controller, you must first login in to the VMware customer center and download VMware vCenter server version 7.0, as well as vSphere server and client with version 7.0. Cisco Optical Network Controller is deployed on rack or blade servers within vSphere.

> ⚠ **Attention** Upgrade to VMware vCenter Server 8.0 U2 if you are using VMware vCenter Server 8.0.2 or VMware vCenter Server 8.0.1.

- Install ESXi host version of 7.0 or higher on the servers to support creating Virtual Machines.
- You must have a DNS server. The DNS server can be an internal DNS server if the Cisco Optical Network Controller instance is not exposed to the internet.
- You must have an NTP server or NTP Pool for time synchronization. Configure the same NTP server or pool on Cisco Optical Network Controller and the PC or VM you use to access Cisco Optical Network Controller. Configure the ESXi host also with the same NTP configuration.
- Before the Cisco Optical Network Controller installation, three networks must be created.
  - **Control Plane Network**:

    The control plane network helps in the internal communication between the deployed VMs within a cluster. If you are setting up a standalone system, this can refer to any private network.
  - **VM Network or Northbound Network**:

The VM network is used for communication between the user and the cluster. It handles all the traffic to and from the VMs running on your ESXi hosts and this is your Public network through which the UI is hosted.

- **Eastbound Network**:

  The Eastbound Network helps in the internal communication between the deployed VMs within a cluster. If you are setting up a standalone system, this can refer to any private network.

- Accept the Self-Signed Certificate from the ESXi host.
  1. Access the ESXi host using your web browser.
  2. If you receive a security warning indicating that the connection is not private or that the certificate is not trusted, proceed by accepting the risk or bypassing the warning.

Note For more details on VMware vSphere, see *VMware vSphere*.

The minimum requirement for Cisco Optical Network Controller installation is given in the table below.

Table 1: Minimum Requirement

Sizing	CPU	Memory	Disk
XS	16 vCPU	64 GB	800 GB
S	32 vCPU	128 GB	1536 GB
M	48 vCPU	256 GB	1536 GB

Note Configure vCPU and memory according to the VM profile (XS=16vCPU+64GB, S=32vCPU+128GB) before you power on the VM in vCenter.

vCPU to Physical CPU Core Ratio: We support a vCPU to Physical CPU core ratio of 2:1 if hyperthreading is enabled and the hardware supports hyperthreading. Hyperthreading is enabled by default on Cisco UCS servers that support hyperthreading. In other cases, the vCPU to Physical CPU core ratio is 1:1.

The requirements based on type of deployment are given in the table below.

Table 2: Deployment Requirements

Deployment Type	Requirements
Standalone (SA)	**Control Plane Network:** Can be a private network for standalone setups. Requires 1 IP address. **Gateway:** Required. **DNS Server:** Should be an internal DNS if the node is not exposed to the internet; otherwise, an internet DNS can be used. **Northbound Network (VM Network):** Should be a public network. All communication between the Cisco Optical Network Controller and devices will flow through this network. Requires 1 public IP address. **Gateway:** Required. **DNS Server:**Required. Should be an internal DNS if the node is not exposed to the internet; otherwise, an internet DNS can be used. **Eastbound Network:** Can be a private network for standalone setups. Requires 1 private IP address. **Gateway:** Required. **DNS Server:**Required. Should be an internal DNS if the node is not exposed to the internet; otherwise, an internet DNS can be used.

To create the control plane and virtual management networks follow the steps listed below.

1. From the vSphere client, select the Datacenter where you want to add the ESXi host.
2. Right-click the server from the vCenter inventory and click **Add Networking**.
3. To create a private network for Control Plane and Eastbound Networks, follow the wizard for a Standard Switch addition for each network.
   a. In **Select connection type**, choose **Virtual Machine Port Group for a Standard Switch** and click **Next**.
   b. In **Select target device** , select **New Standard Switch (MTU 1500)** and click **Next**.
   c. In **Create a Standard Switch**, click **Next**, and confirm *There are no active physical network adapters for the switch.*
   d. In **Connection settings** choose a network label (Control Plane or Eastbound) and select VLAN ID as None(0) click **Next**.
   e. In **Ready to complete**, review your configuration and click **Finish**.

After adding the ESXi host, create the Control Plane, Northbound, and Eastbound Networks before deploying.

This table lists the default port assignments.

Table 3: Communications Matrix

Traffic Type	Port	Description
Inbound	TCP 22	SSH remote management
	TCP 8443	HTTPS for UI access

Traffic Type	Port	Description
Outbound	TCP 22	NETCONF to routers
	TCP 389	LDAP if using Active Directory
	TCP 636	LDAPS if using Active Directory
	Customer Specific	HTTP for access to an SDN controller
	User Specific	HTTPS for access to an SDN controller
	TCP 3082, 3083, 2361, 6251	TL1 to optical devices
Eastbound	TCP 10443	Supercluster join requests
	UDP 8472	VxLAN
syslog	User specific	TCP/UDP
Control Plane Ports (Internal network between cluster nodes, not exposed)	TCP 443	Kubernetes
	TCP 6443	Kubernetes
	TCP 10250	Kubernetes
	TCP 2379	etcd
	TCP 2380	etcd
	UDP 8472	VXLAN
	ICMP	Ping between nodes (optional)

SSH Key Generation

For accessing SSH, ed25519 key is required. The ed25519 key is different from the RSA key.

Use the following CLI to generate the ed25519 key.

```
ssh-keygen -t ed25519
Generating public/private ed25519 key pair.
Enter file in which to save the key (/Users/xyz/.ssh/id_ed25519):
./<file-name-of-your-key>.pem
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in ./<file-name-of-your-key>.pem
Your public key has been saved in ./<file-name-of-your-key>.pem.pub
The key fingerprint is:
SHA256:zGW6aGn8rxvEq82sA/97jOaHrl9rnoTaYi+TqU3MeRU xyz@abc
The key's randomart image is:
+--[ED25519 256]--+
|                 |
|                 |
|          E      |
|       + + .     |
|        S .      |
|    .+ = =       |
|     o@o*+o      |
|      =XX++=o     |
|     .o*#/X=      |
+----[SHA256]-----+

#Once created you can cat the file with .pub extension for the public key. ( ex:
<file-name-of-your-key>.pem.pub )

cat <file-name-of-your-key>.pem.pub
#The above key has to be used in the deployment template ( SSH Public Key ) in the Deployment
 process
```

Install Cisco Optical Network Controller Using VMware vSphere

The Cisco Optical Network Controller is distributed as a single OVA file, which is a disk image deployed using vCenter on any ESXi host. This OVA includes several components, such as a file descriptor (OVF) and virtual disk files that contain a basic operating system and the Cisco Optical Network Controller installation files. It can be deployed on ESXi hosts supporting standalone (SA) or supercluster deployment models.

To deploy the OVA template, follow the steps given below.

Before you begin

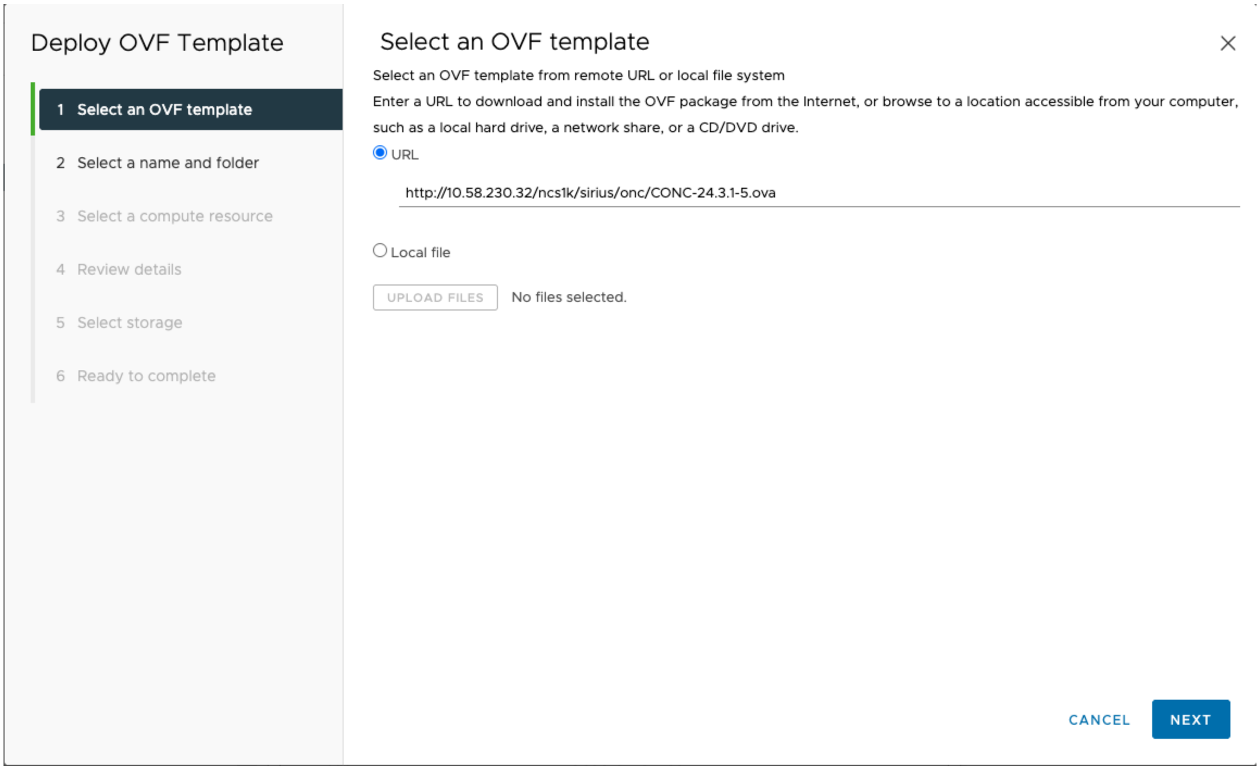
Note During the OVF deployment, the deployment gets aborted if there is an internet disconnection.

Procedure

Step 1 Right-click the ESXi host in the vSphere client screen and click **Deploy OVF Template**.

Step 2 In the **Select an OVF template** screen, select the **URL** radio button for specifying the URL to download and install the OVF package from the Internet or select the **Local file** radio button to upload the downloaded ova files from your local system and click **Next.**

Figure 1: Select an OVF Template



Select an OVF template

Select an OVF template from remote URL or local file system

Enter a URL to download and install the OVF package from the Internet, or browse to a location accessible from your computer, such as a local hard drive, a network share, or a CD/DVD drive.

● URL

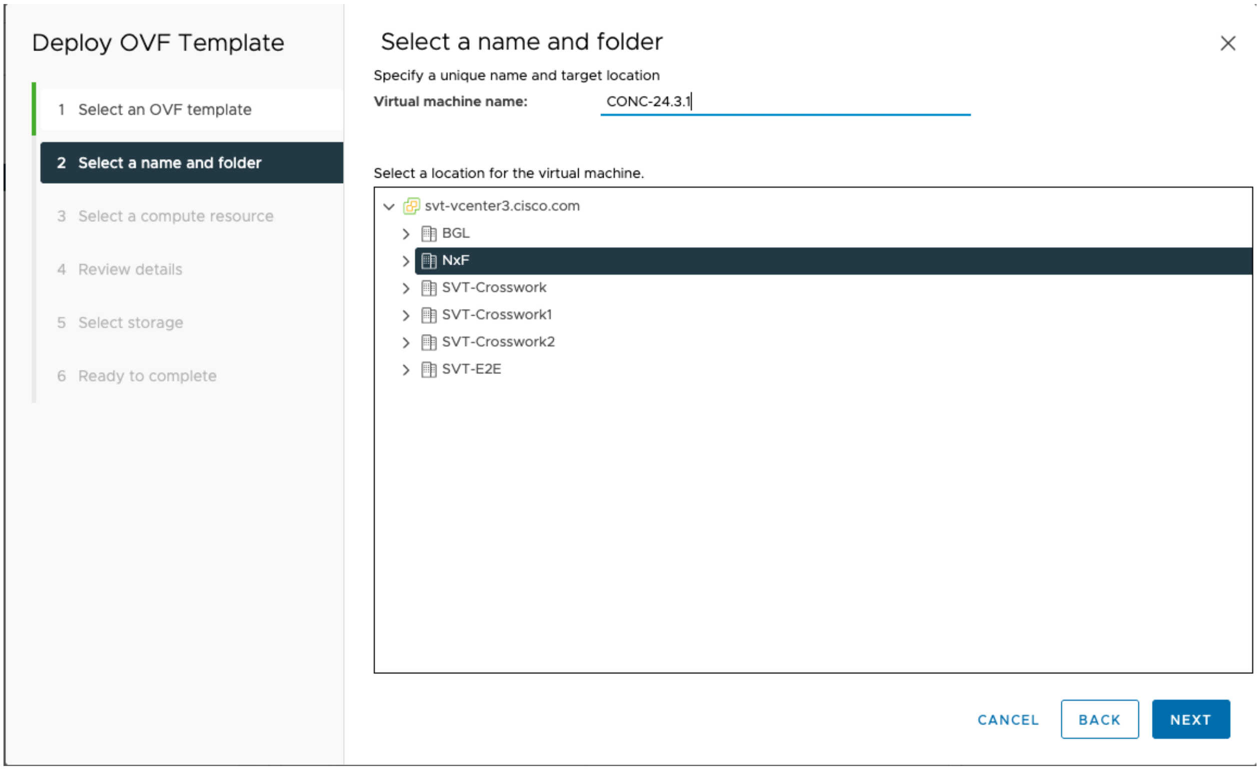
http://10.58.230.32/ncs1k/sirius/onc/CONC-24.3.1-5.ova

○ Local file

No files selected.

Step 3 In the **Select a name and folder** screen, specify a unique name for the virtual machine Instance. From the list of options, select the location of the VM to be used and click **Next.**

Figure 2: Select a name and folder



Deploy OVF Template

Select a name and folder

Specify a unique name and target location

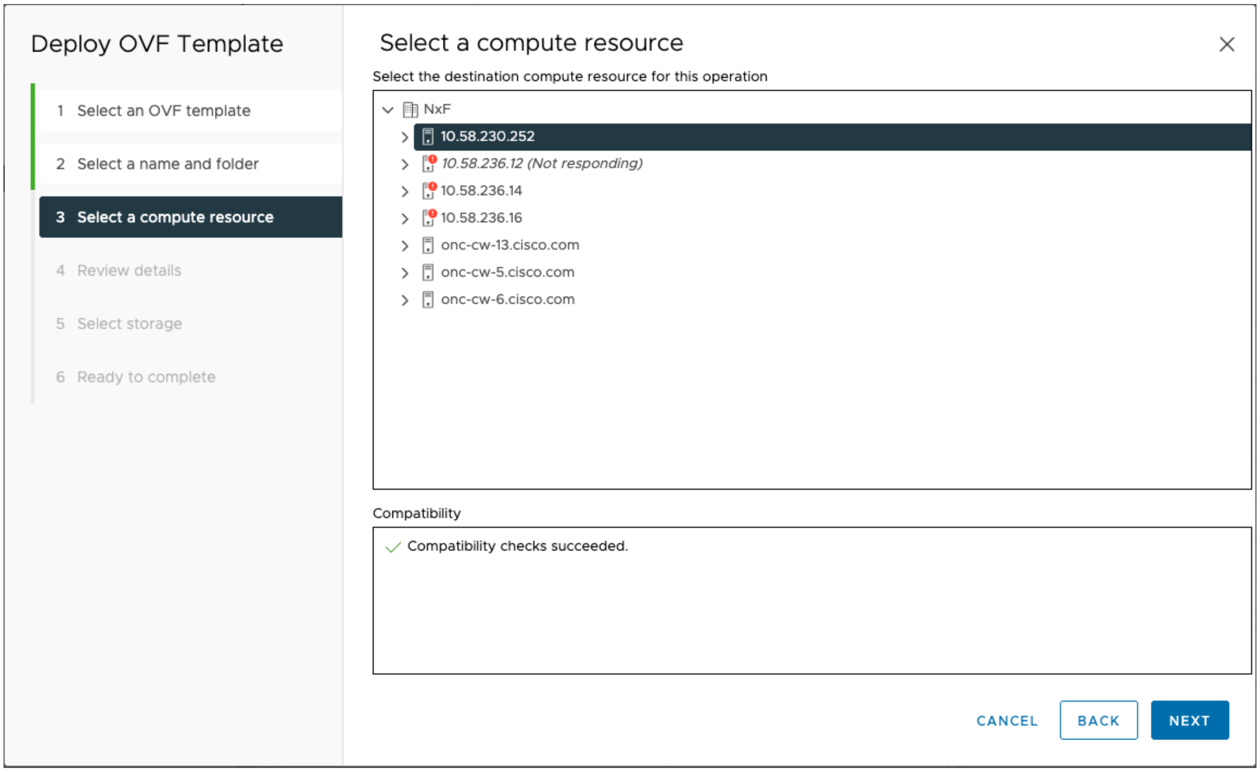
Virtual machine name: CONC-24.3.1

Select a location for the virtual machine.

- svt-vcenter3.cisco.com
  - BGL
  - NxF
  - SVT-Crosswork
  - SVT-Crosswork1
  - SVT-Crosswork2
  - SVT-E2E

Step 4 In the **Select a compute resource** screen, select the destination compute resource on which you want to deploy the VM and click **Next.**

Figure 3: Select a Compute Resource



Deploy OVF Template

1 Select an OVF template
2 Select a name and folder
3 Select a compute resource
4 Review details
5 Select storage
6 Ready to complete

Select a compute resource

Select the destination compute resource for this operation

- NxF
  - 10.58.230.252
  - 10.58.236.12 (Not responding)
  - 10.58.236.14
  - 10.58.236.16
  - onc-cw-13.cisco.com
  - onc-cw-5.cisco.com
  - onc-cw-6.cisco.com

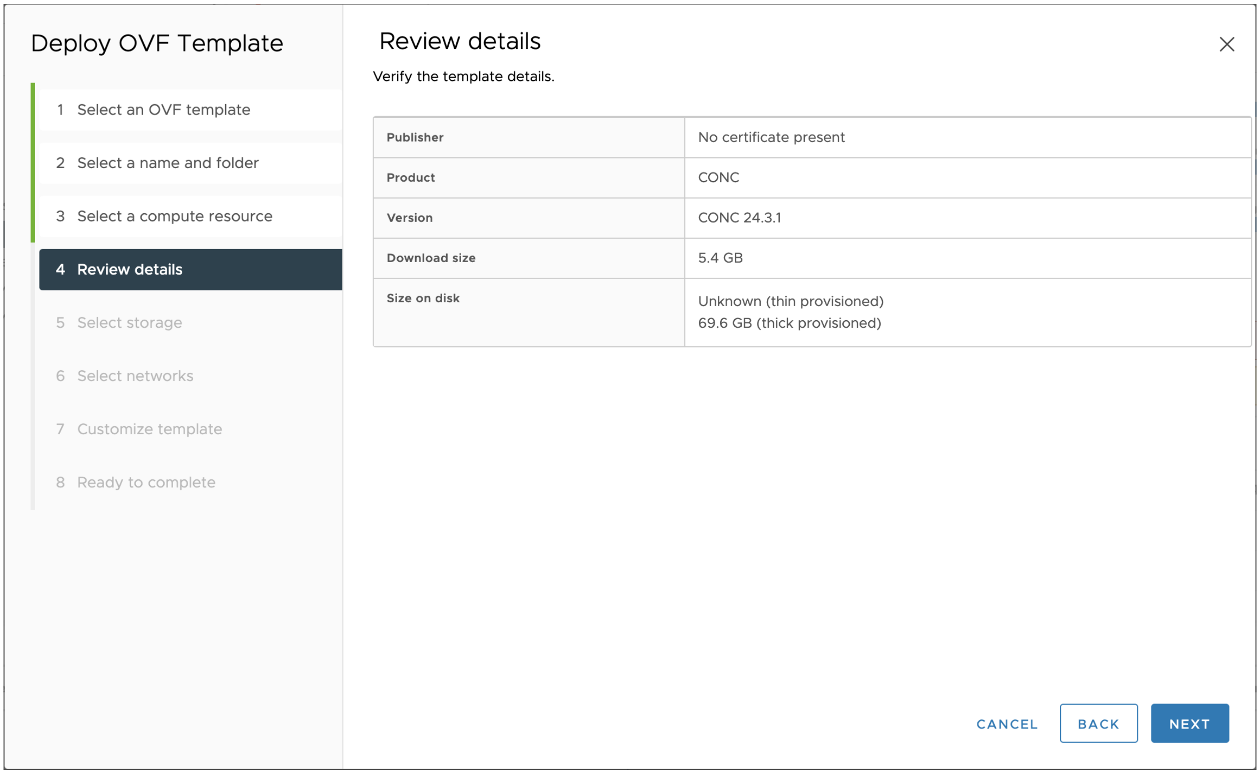
Compatibility

✓ Compatibility checks succeeded.

Note
While selecting the compute resource the compatibility check proceeds till it completes successfully.

Step 5 In the **Review details** screen, verify the template details and click **Next**.

Figure 4: Review Details



Review details

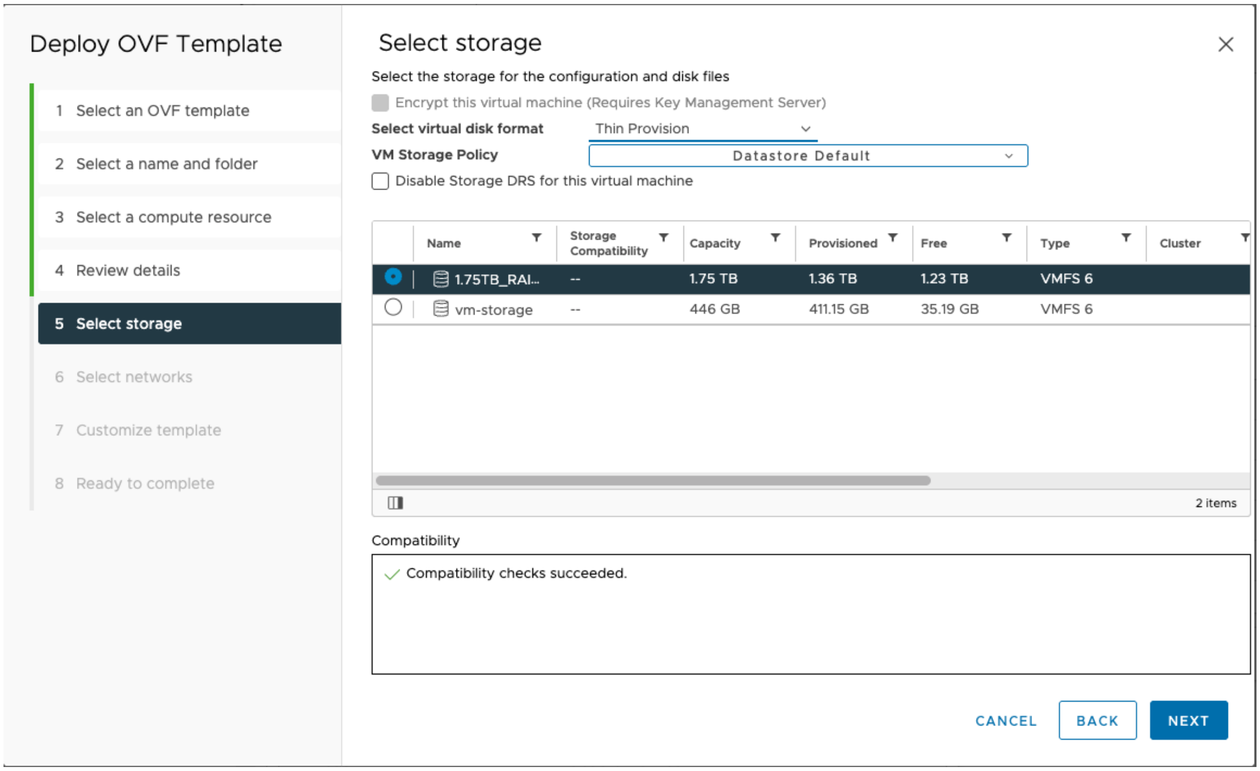
Verify the template details.

Publisher	No certificate present
Product	CONC
Version	CONC 24.3.1
Download size	5.4 GB
Size on disk	Unknown (thin provisioned) 69.6 GB (thick provisioned)

Step 6 In the Select storage screen, select the virtual disk format based on provision type requirement. **VM Storage Policy** is set as *Datastore Default* and click **Next**. Select the **virtual disk format** as *Thin Provision*.

You must select "Thin provision" as the virtual disk format.

Figure 5: Select Storage



Deploy OVF Template

1 Select an OVF template
2 Select a name and folder
3 Select a compute resource
4 Review details
5 Select storage
6 Select networks
7 Customize template
8 Ready to complete

Select storage

Select the storage for the configuration and disk files

□ Encrypt this virtual machine (Requires Key Management Server)

Select virtual disk format: Thin Provision

VM Storage Policy: Datastore Default

□ Disable Storage DRS for this virtual machine

	Name	Storage Compatibility	Capacity	Provisioned	Free	Type	Cluster
●	1.75TB_RAI...	--	1.75 TB	1.36 TB	1.23 TB	VMFS 6	
○	vm-storage	--	446 GB	411.15 GB	35.19 GB	VMFS 6	

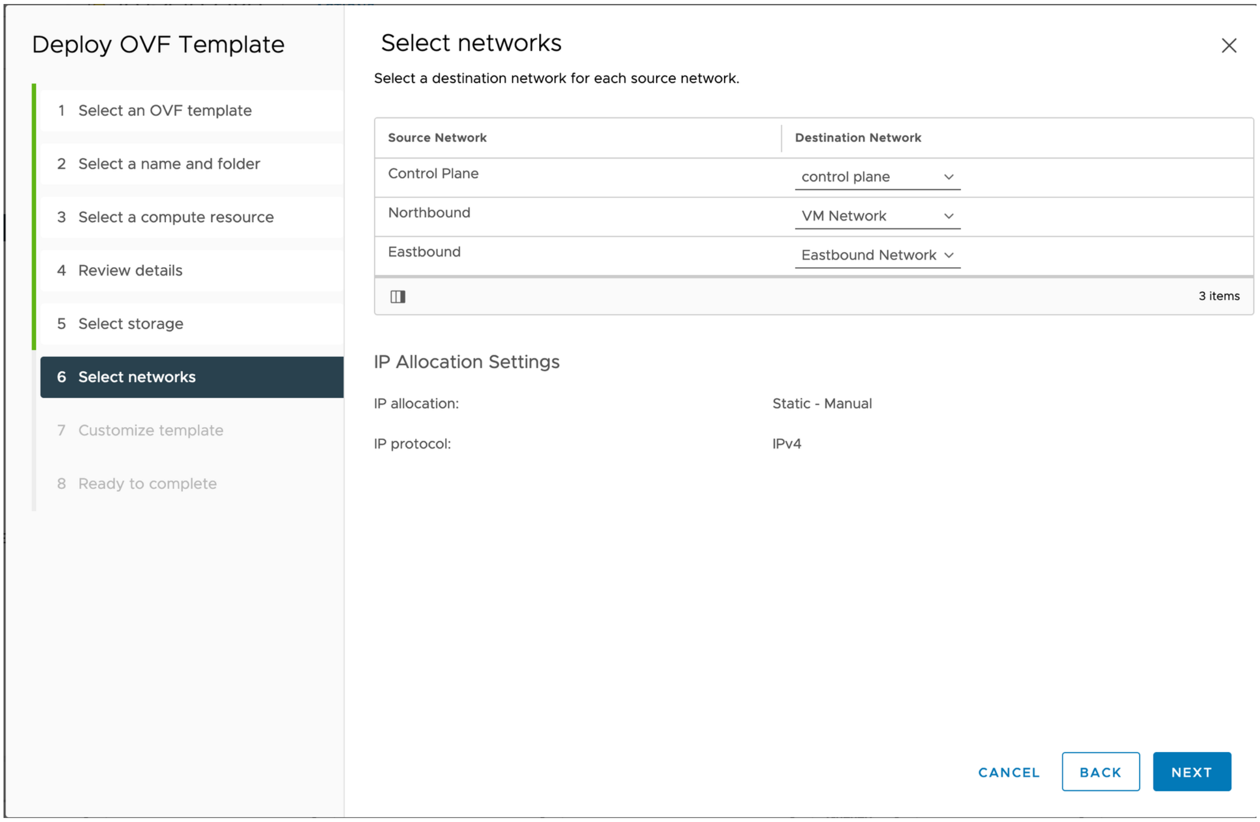
2 items

Compatibility

✓ Compatibility checks succeeded.

Step 7 In the **Select networks** screen, select the control and management networks as **Control Plane, Eastbound,** and **Northbound** from the networks created earlier and **click Next**.

Figure 6: Select Networks



Select networks

Select a destination network for each source network.

Source Network	Destination Network
Control Plane	control plane
Northbound	VM Network
Eastbound	Eastbound Network

3 items

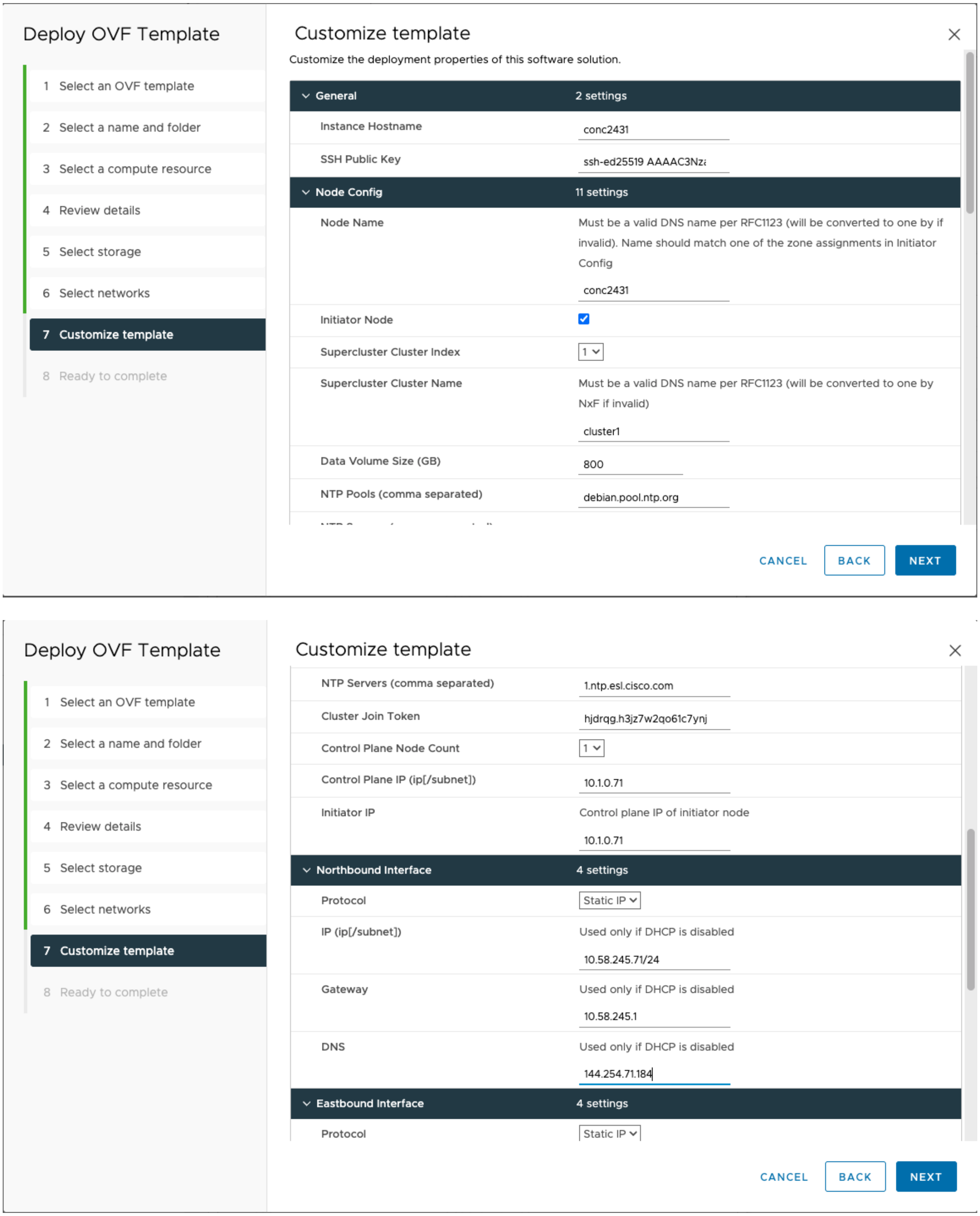
IP Allocation Settings

IP allocation: Static - Manual

IP protocol: IPv4

Step 8 In the **Customize template** screen, set the values using the following table as a guideline for deployment.

Figure 7: Customize Template



Deploy OVF Template

1 Select an OVF template
2 Select a name and folder
3 Select a compute resource
4 Review details
5 Select storage
6 Select networks
7 Customize template
8 Ready to complete

Customize template

Customize the deployment properties of this software solution.

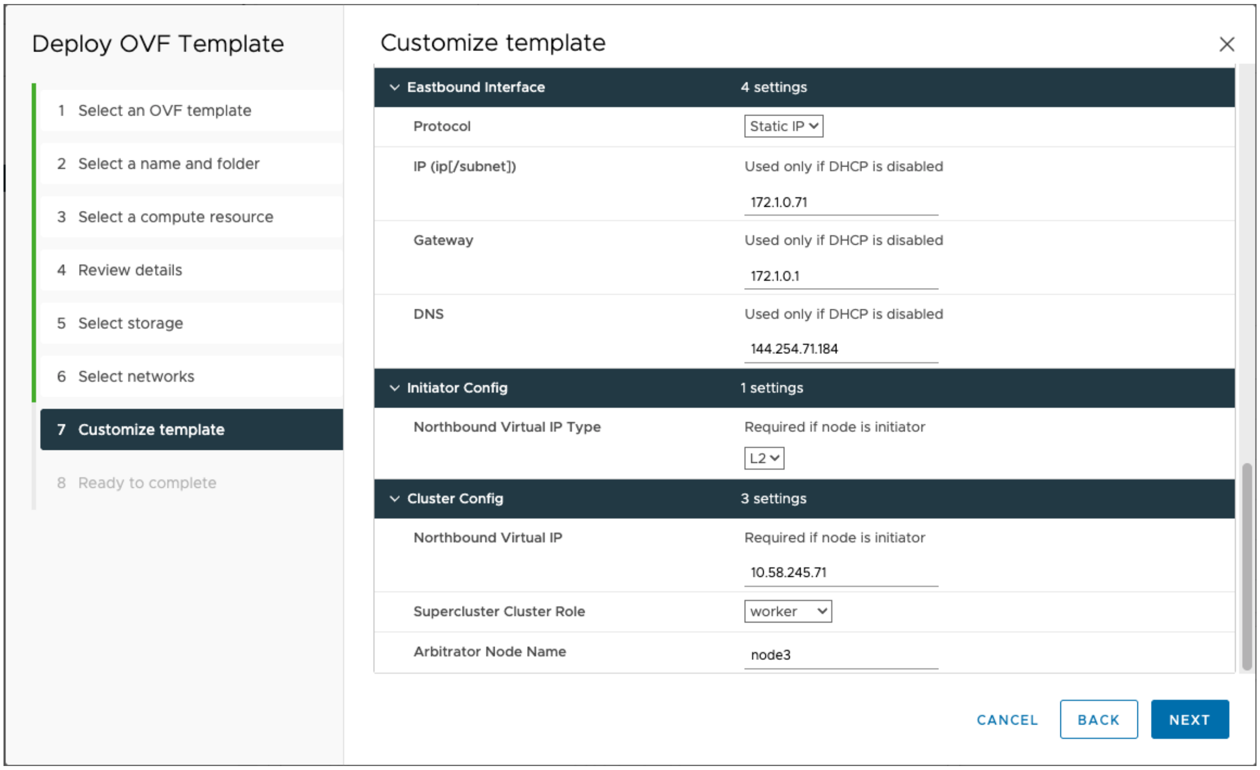
General	2 settings
Instance Hostname	conc2431
SSH Public Key	ssh-ed25519 AAAAC3Nzi
Node Config	11 settings
Node Name	Must be a valid DNS name per RFC1123 (will be converted to one by if invalid). Name should match one of the zone assignments in Initiator Config conc2431
Initiator Node	☑
Supercluster Cluster Index	1
Supercluster Cluster Name	Must be a valid DNS name per RFC1123 (will be converted to one by NxF if invalid) cluster1
Data Volume Size (GB)	800
NTP Pools (comma separated)	debian.pool.ntp.org

Deploy OVF Template

1 Select an OVF template
2 Select a name and folder
3 Select a compute resource
4 Review details
5 Select storage
6 Select networks
7 Customize template
8 Ready to complete

Customize template

NTP Servers (comma separated)	1.ntp.esl.cisco.com
Cluster Join Token	hjdrqg.h3jz7w2qo61c7ynj
Control Plane Node Count	1
Control Plane IP (ip[/subnet])	10.1.0.71
Initiator IP	Control plane IP of initiator node 10.1.0.71
Northbound Interface	4 settings
Protocol	Static IP
IP (ip[/subnet])	Used only if DHCP is disabled 10.58.245.71/24
Gateway	Used only if DHCP is disabled 10.58.245.1
DNS	Used only if DHCP is disabled 144.254.71.184
Eastbound Interface	4 settings
Protocol	Static IP



Deploy OVF Template

1 Select an OVF template
2 Select a name and folder
3 Select a compute resource
4 Review details
5 Select storage
6 Select networks
7 Customize template
8 Ready to complete

Customize template

Eastbound Interface	4 settings
Protocol	Static IP
IP (ip[/subnet])	Used only if DHCP is disabled 172.1.0.71
Gateway	Used only if DHCP is disabled 172.1.0.1
DNS	Used only if DHCP is disabled 144.254.71.184
Initiator Config	**1 settings**
Northbound Virtual IP Type	Required if node is initiator L2
Cluster Config	**3 settings**
Northbound Virtual IP	Required if node is initiator 10.58.245.71
Supercluster Cluster Role	worker
Arbitrator Node Name	node3

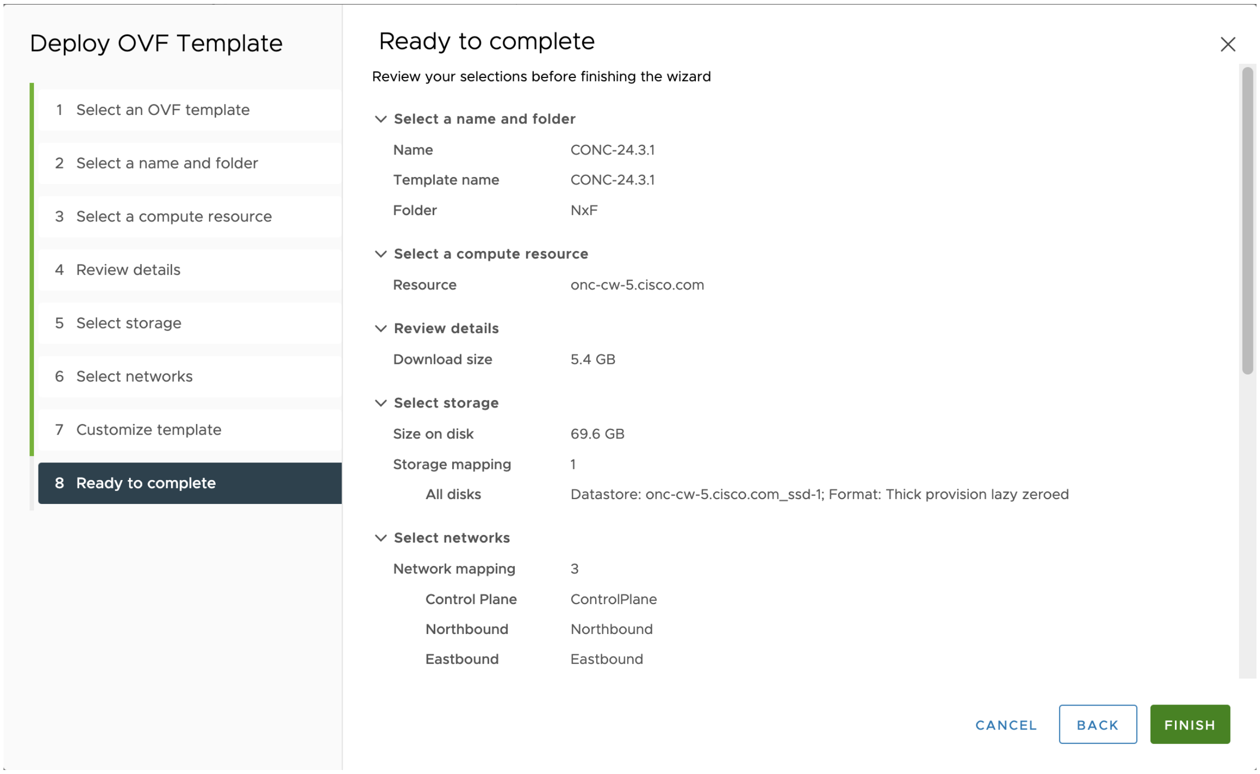
Table 4: Customize Template

Key	Values
Instance Hostname	*<instance-name>*
SSH Public Key	<*ssh-public-key*>. Used for SSH access that allows you to connect to the instances securely without the need to manage credentials for multiple instances. SSH public key must be a ed25519 key.
Node Name	node1 Must be a valid DNS name per RFC1123.1.2.4 • Contain at most 63 characters. • Contain only lowercase alphanumeric characters or '-'.3 • Start with an alphanumeric character. • End with an alphanumeric character. • Node Name should be the same as instance name.
Initiator Node	Select the Checkbox
Supercluster Cluster Index	1 If you want to add your Cisco Optical Network Controller instance to a GeoHA SuperCluster in the future, use different Super Cluster Index values for each instance.

Supercluster Cluster Name	cluster1 Must be a valid DNS name per RFC1123 If you want to add your Cisco Optical Network Controller instance to a GeoHA SuperCluster in the future, use unique Super Cluster Names for each instance.
Data Volume Size (GB)	Configure data volume according to the VM profile. 800 GB and 1.5 TB for XS and S profiles respectively.
NTP Pools (comma separated)	(Optional) A comma-separated list of the NTP pools. For example, debian.pool.ntp.org
NTP Servers (comma separated)	(Optional) A comma-separated list of the NTP servers.
Cluster Join Token	Can be left with the default value
Control Plane Node Count	1
Control Plane IP (ip[/subnet])	<Private IP for the Instance> Control Plane Network
Initiator IP	<Same IP as Control Plane> Control Plane Network
Protocol	Static IP
IP (ip[/subnet]) - if not using DHCP	<Public IP for the Instance> Northbound Network
Gateway - if not using DHCP	<Gateway IP for the Instance> Northbound Network
DNS	DNS Server IP
Protocol	Static IP
IP (ip[/subnet]) - if not using DHCP	< IP for the Instance> Eastbound Network Can be a private IP **Warning** Do not include subnet when you enter this IP address.
Gateway - if not using DHCP	<Gateway IP for the Network> Eastbound Network
DNS	DNS Server IP
Northbound Virtual IP Type	L2
Northbound Virtual IP	Same as Northbound IP
Supercluster Cluster Role	worker
Arbitrator Node Name	node3

Step 9 In **Review the details** screen, review all your selections and click **Finish**. To check or change any properties from the review screen anytime, before clicking Finish **click BACK** to go back to the previous screen **Customize template** to add your changes.

Figure 8: Ready to Complete



Ready to complete

Review your selections before finishing the wizard

Select a name and folder

Name	CONC-24.3.1
Template name	CONC-24.3.1
Folder	NxF

Select a compute resource

Resource	onc-cw-5.cisco.com

Review details

Download size	5.4 GB

Select storage

Size on disk	69.6 GB
Storage mapping	1
All disks	Datastore: onc-cw-5.cisco.com_ssd-1; Format: Thick provision lazy zeroed

Select networks

Network mapping	3
Control Plane	ControlPlane
Northbound	Northbound
Eastbound	Eastbound

Step 10 After the VM is created, power-on the VM and try connecting to the VM using the pem key which was generated earlier, see *SSH Key Generation* above. For this, use the private key that is generated along with the public key during customizing the public key options.

Attention

Upon activation of the virtual machine (VM), it is designed not to respond to ping requests. However, you can log in using SSH if the installation has been completed successfully.

Step 11 Log in to the VM using the private key.

Note:

- After the nodes are deployed, the deployment of OVA progress can be checked in the Tasks console of vSphere Client. After Successful deployment Cisco Optical Network Controller takes around 30 minutes to boot.
- By default, the user ID is admin, and only the password needs to be set. This username is to login to the web UI only. For ssh, the username is `nxf`.

Step 12 **SSH to the node** and execute the following CLI command.

```
ssh -i [ed25519 Private key] nxf@<northbound-vip>
Enter passphrase for key '<file-name-of-your-key>.pem':
```

Note

Private key is created as part of the key generation with just the **.pem** extension, and it must be set with the least permission level before using it.

Step 13 After you SSH into the node, use the sedo system status command to check the status of all the pods.

```
sedo system status
```

```
┌──────────────────────────────────────────────────────────────────────────────────┐
│ System Status (Fri, 20 Sep 2024 08:21:27 UTC)                                    │
├────────┬───────────────────────────────┬───────┬─────────┬──────────┬──────────────┤
│ OWNER  │ NAME                          │ NODE  │ STATUS  │ RESTARTS │ STARTED      │
├────────┼───────────────────────────────┼───────┼─────────┼──────────┼──────────────┤
│ onc    │ monitoring                    │ node1 │ Running │ 0        │ 3 hours ago  │
│ onc    │ onc-alarm-service             │ node1 │ Running │ 0        │ 3 hours ago  │
│ onc    │ onc-apps-ui-service           │ node1 │ Running │ 0        │ 3 hours ago  │
│ onc    │ onc-circuit-service           │ node1 │ Running │ 0        │ 3 hours ago  │
│ onc    │ onc-collector-service         │ node1 │ Running │ 0        │ 3 hours ago  │
│ onc    │ onc-config-service            │ node1 │ Running │ 0        │ 3 hours ago  │
│ onc    │ onc-devicemanager-service     │ node1 │ Running │ 0        │ 3 hours ago  │
│ onc    │ onc-inventory-service         │ node1 │ Running │ 0        │ 3 hours ago  │
│ onc    │ onc-nbi-service               │ node1 │ Running │ 0        │ 3 hours ago  │
│ onc    │ onc-netconfcollector-service  │ node1 │ Running │ 0        │ 3 hours ago  │
│ onc    │ onc-osapi-gw-service          │ node1 │ Running │ 0        │ 3 hours ago  │
│ onc    │ onc-pce-service               │ node1 │ Running │ 0        │ 3 hours ago  │
│ onc    │ onc-pm-service                │ node1 │ Running │ 0        │ 3 hours ago  │
│ onc    │ onc-pmcollector-service       │ node1 │ Running │ 0        │ 3 hours ago  │
│ onc    │ onc-topology-service          │ node1 │ Running │ 0        │ 3 hours ago  │
│ onc    │ onc-torch-service             │ node1 │ Running │ 0        │ 3 hours ago  │
│ system │ authenticator                 │ node1 │ Running │ 0        │ 12 hours ago │
│ system │ controller                    │ node1 │ Running │ 0        │ 12 hours ago │
│ system │ flannel                       │ node1 │ Running │ 0        │ 12 hours ago │
│ system │ ingress-proxy                 │ node1 │ Running │ 0        │ 12 hours ago │
│ system │ kafka                         │ node1 │ Running │ 0        │ 12 hours ago │
│ system │ loki                          │ node1 │ Running │ 0        │ 12 hours ago │
│ system │ metrics                       │ node1 │ Running │ 0        │ 12 hours ago │
│ system │ minio                         │ node1 │ Running │ 0        │ 12 hours ago │
│ system │ postgres                      │ node1 │ Running │ 0        │ 12 hours ago │
│ system │ promtail-cltmk                │ node1 │ Running │ 0        │ 12 hours ago │
│ system │ vip-add                       │ node1 │ Running │ 0        │ 12 hours ago │
└────────┴───────────────────────────────┴───────┴─────────┴──────────┴──────────────┘
```

Note

- The different pods along with their statuses including active and standby modes are all displayed in the different terminal sessions for each pod.
- All the services with owner *onc* must display the status as *Running.*

Step 14 You can check the current version using the **sedo version** command.

```
 sedo version
```

```
┌──────────────────────────────────────────────────────────────────────────────────────────────┐
│ Installer: 25.1.1                                                                            │
├───────────────────┬──────────────────────────────────────────────────────────┬───────────────┤
│ NODE NAME         │ OS VERSION                                               │ KERNEL VERSION │
├───────────────────┼──────────────────────────────────────────────────────────┼───────────────┤
│ vc39-es33-sa-169  │ NxFOS 3.2-555 (93358ad257a6cf1e3da439144e3d2e8343b53008) │ 6.1.0-31-amd64 │
└───────────────────┴──────────────────────────────────────────────────────────┴───────────────┘

┌────────────────────────────────────────────────────────────────────┬─────────────┬──────────────┐
│ IMAGE NAME                                                          │ VERSION      │ NODES
           │
├────────────────────────────────────────────────────────────────────┼─────────────┼──────────────┤
│ docker.io/library/alpine                                            │ 3.20.3       │
vc39-es33-sa-169 │
│ docker.io/rancher/local-path-provisioner                            │ v0.0.30      │
vc39-es33-sa-169 │
│ quay.io/coreos/etcd                                                 │ v3.5.15      │
vc39-es33-sa-169 │
```

```
│ registry.k8s.io/pause                                                      │ 3.10         │
vc39-es33-sa-169 │
│ registry.nxf-system.svc:8443/cisco-onc-docker/dev/alarmservice             │ 25.1.1-2     │
vc39-es33-sa-169 │
│ registry.nxf-system.svc:8443/cisco-onc-docker/dev/circuit-service          │ 25.1.1-2     │
vc39-es33-sa-169 │
│ registry.nxf-system.svc:8443/cisco-onc-docker/dev/collector-service        │ 25.1.1-2     │
vc39-es33-sa-169 │
│ registry.nxf-system.svc:8443/cisco-onc-docker/dev/config-service           │ 25.1.1-2     │
vc39-es33-sa-169 │
│ registry.nxf-system.svc:8443/cisco-onc-docker/dev/devicemanager-service    │ 25.1.1-2     │
vc39-es33-sa-169 │
│ registry.nxf-system.svc:8443/cisco-onc-docker/dev/inventory-service        │ 25.1.1-2     │
vc39-es33-sa-169 │
│ registry.nxf-system.svc:8443/cisco-onc-docker/dev/monitoring               │ 25.1.1-2     │
vc39-es33-sa-169 │
│ registry.nxf-system.svc:8443/cisco-onc-docker/dev/nbi-service              │ 25.1.1-2     │
vc39-es33-sa-169 │
│ registry.nxf-system.svc:8443/cisco-onc-docker/dev/netconfcollector-service │ 25.1.1-2     │
vc39-es33-sa-169 │
│ registry.nxf-system.svc:8443/cisco-onc-docker/dev/onc-apps-ui-service      │ 25.1.1-2     │
vc39-es33-sa-169 │
│ registry.nxf-system.svc:8443/cisco-onc-docker/dev/osapi-gw-service         │ 25.1.1-2     │
vc39-es33-sa-169 │
│ registry.nxf-system.svc:8443/cisco-onc-docker/dev/pce_service              │ 25.1.1-2     │
vc39-es33-sa-169 │
│ registry.nxf-system.svc:8443/cisco-onc-docker/dev/pm-service               │ 25.1.1-2     │
vc39-es33-sa-169 │
│ registry.nxf-system.svc:8443/cisco-onc-docker/dev/pmcollector-service      │ 25.1.1-2     │
vc39-es33-sa-169 │
│ registry.nxf-system.svc:8443/cisco-onc-docker/dev/topology-service         │ 25.1.1-2     │
vc39-es33-sa-169 │
│ registry.nxf-system.svc:8443/cisco-onc-docker/dev/torch                    │ 25.1.1-2     │
vc39-es33-sa-169 │
│ registry.sedona.ciscolabs.com/nxf/authenticator                            │ 3.2-508      │
vc39-es33-sa-169 │
│ registry.sedona.ciscolabs.com/nxf/bgp                                      │ 3.2-505      │
vc39-es33-sa-169 │
│ registry.sedona.ciscolabs.com/nxf/controller                               │ 3.2-533      │
vc39-es33-sa-169 │
│ registry.sedona.ciscolabs.com/nxf/firewalld                                │ 3.2-505      │
vc39-es33-sa-169 │
│ registry.sedona.ciscolabs.com/nxf/flannel                                  │ 3.2-505      │
vc39-es33-sa-169 │
│ registry.sedona.ciscolabs.com/nxf/ingress-proxy                            │ 3.2-508      │
vc39-es33-sa-169 │
│ registry.sedona.ciscolabs.com/nxf/iptables                                 │ 3.2-508      │
vc39-es33-sa-169 │
│ registry.sedona.ciscolabs.com/nxf/kafka                                    │ 3.2-505      │
vc39-es33-sa-169 │
│ registry.sedona.ciscolabs.com/nxf/kubernetes                               │ 3.2-505      │
vc39-es33-sa-169 │
│ registry.sedona.ciscolabs.com/nxf/loki                                     │ 3.2-505      │
vc39-es33-sa-169 │
│ registry.sedona.ciscolabs.com/nxf/metrics-exporter                         │ 3.2-505      │
vc39-es33-sa-169 │
│ registry.sedona.ciscolabs.com/nxf/minio                                    │ 3.2-505      │
vc39-es33-sa-169 │
│ registry.sedona.ciscolabs.com/nxf/service-proxy                            │ 3.2-508      │
vc39-es33-sa-169 │
│ registry.sedona.ciscolabs.com/nxf/syslog-forwarder                         │ 3.2-503      │
vc39-es33-sa-169 │
│ registry.sedona.ciscolabs.com/nxf/timescale                                │ 3.2-515      │
```

```
vc39-es33-sa-169 |
└──────────────────────────────────────────────────────────────────────┴─────────────┴───────────────┘
```

Step 15 SSH to the node and set the initial UI password for the admin user.

```
sedo security user set admin --password
```

Note

The password policy for the system includes both configurable settings and non-configurable hard requirements to ensure security.

Password Requirements

- The password must contain at least:
  - 1 uppercase letter
  - 1 lowercase letter
  - 1 number
  - 1 special character
- Must have a minimum length of 8 characters

Configurable Requirements

You can change the password policy settings using the sedo security password-policy set command. Specify the desired parameters to adjust the configuration:

```
sedo security password-policy set --expiration-days <number> --reuse-limit <number>
--min-complexity-score <number>
```

Step 16 To check the default admin user ID, use the command sedo security user list. To change the default password, use the command sedo security user admin set --password on the CLI console of the VM or through the web UI.

Step 17 Use a web browser to access *https://<virtual ip>:8443/* to access the Cisco Optical Network Controller Web UI. Use the admin id and the password you set to log in to Cisco Optical Network Controller.

Note

Access the web UI only after all the `onc` services are running. Use the **sedo system status** to verify that all services are running.

Service Pack Upgrade for Cisco Optical Network Controller

You can install service pack upgrades when Cisco releases upgrades to get additional functionality or bug fixes. This topic describes how to install a Service Pack Upgrade.

Before you begin

Download the Service Pack from the Cisco Software Download page. The service pack file is in .tar.gz format.

You must have an instance of the Cisco Optical Network Controller.

Procedure

Step 1 SSH into the Cisco Optical Network Controller instance.

Example:

```
ssh -i [ed25519 Private key] nxf@<northbound-vip>
Enter passphrase for key '<file-name-of-your-key>.pem':
```

Step 2 Copy the downloaded service pack file into the `/data` folder. You can use scp to copy the file into the Cisco Optical Network Controller instance from your local machine.

Note

You can download the SHA-256 checksum from the Cisco Software Download page and compare the checksum with the service pack file to verify the integrity of the file. Use the following command to get the checksum of the downloaded file.

```
openssl sha256 <service-pack-file>.tar.gz
```

Step 3 Run the `sedo service install` command to install the service pack.

Example:

```
sedo service install <service-pack-file>.tar.gz
```

Wait for the installation to complete.

Step 4 Run the `sedo service list-installed` command to verify the service pack version.

Example:

This sample output shows the 24.3.1-5-SP-1 as the installed service pack.

```
sedo service list-installed
┌────────┬──────────────┬──────────────┬──────────────────────────────┬─────────────────────────────┐
│ INSTALLED BY │ APPLY TIME           │ SERVICE PACK VERSION │ PLATFORM VERSION
            │ FILE NAME                                    │
├────────┼──────────────┼──────────────┼──────────────────────────────┼─────────────────────────────┤
│ sedo         │ 2024-11-13T17:00:31Z │ CONC-24.3.1-5        │
3.0-23+a71ee7572eee85ecad82d2841045d4a5b90425cd │ /config/service-packs/000_CONC-24.3.1-5.tar.gz │
│ sedo         │ 2024-11-13T17:20:17Z │ CONC-24.3.1-5-SP-1   │
3.0-23+a71ee7572eee85ecad82d2841045d4a5b90425cd │ CONC-24.3.1-SP-1.tar.gz                        │
└────────┴──────────────┴──────────────┴──────────────────────────────┴─────────────────────────────┘
```

Step 5 Run the `sedo version` command to verify the image version.

Example:

This sample output shows the 24.3.1-5-SP-1 as the installed service pack.

```
sedo version
┌──────────────────────────────────────────────────────────────────────────────────────────────┐
│ Installer: CONC 24.3.1                                                                       │
├──────────────────┬──────────────────────────────────────────────────────────┬────────────────┤
│ NODE NAME        │ OS VERSION                                               │ KERNEL VERSION │
├──────────────────┼──────────────────────────────────────────────────────────┼────────────────┤
│ vc39-es20-sa-86  │ NxFOS 3.0-408 (f2beddad9abeb84896cc13efcd9a87c48ccb5d0c) │ 6.1.0-23-amd64 │
└──────────────────┴──────────────────────────────────────────────────────────┴────────────────┘

┌──────────────────────────────────────────────────────────────────┬──────────────────┬─────────┐
│ IMAGE NAME                                                       │ VERSION                    │
 NODES           │
```

```
├─────────────────────────────────────────────────────────────────┼─────────────────┼───────────────┤
│ docker.io/library/alpine                                                   │ 3.20.0             │
vc39-es20-sa-86 │
│ docker.io/rancher/local-path-provisioner                                   │ v0.0.27            │
vc39-es20-sa-86 │
│ quay.io/coreos/etcd                                                        │ v3.5.12            │
vc39-es20-sa-86 │
│ registry.k8s.io/coredns/coredns                                            │ v1.11.1            │
vc39-es20-sa-86 │
│ registry.k8s.io/kube-apiserver                                             │ v1.30.2            │
vc39-es20-sa-86 │
│ registry.k8s.io/kube-controller-manager                                    │ v1.30.2            │
vc39-es20-sa-86 │
│ registry.k8s.io/kube-proxy                                                 │ v1.30.2            │
vc39-es20-sa-86 │
│ registry.k8s.io/kube-scheduler                                             │ v1.30.2            │
vc39-es20-sa-86 │
│ registry.k8s.io/pause                                                      │ 3.9                │
vc39-es20-sa-86 │
│ registry.nxf-system.svc:8443/cisco-onc-docker/dev/alarmservice             │ 24.3.1-5           │
vc39-es20-sa-86 │
│ registry.nxf-system.svc:8443/cisco-onc-docker/dev/circuit-service          │ 24.3.1-5           │
vc39-es20-sa-86 │
│ registry.nxf-system.svc:8443/cisco-onc-docker/dev/circuit-service          │ 24.3.1-5-SP-1      │
vc39-es20-sa-86 │
│ registry.nxf-system.svc:8443/cisco-onc-docker/dev/collector-service        │ 24.3.1-5           │
vc39-es20-sa-86 │
│ registry.nxf-system.svc:8443/cisco-onc-docker/dev/config-service           │ 24.3.1-5-SP-1      │
vc39-es20-sa-86 │
│ registry.nxf-system.svc:8443/cisco-onc-docker/dev/config-service           │ 24.3.1-5           │
vc39-es20-sa-86 │
│ registry.nxf-system.svc:8443/cisco-onc-docker/dev/devicemanager-service    │ 24.3.1-5           │
vc39-es20-sa-86 │
│ registry.nxf-system.svc:8443/cisco-onc-docker/dev/inventory-service        │ 24.3.1-5           │
vc39-es20-sa-86 │
│ registry.nxf-system.svc:8443/cisco-onc-docker/dev/monitoring               │ release2431_latest │
vc39-es20-sa-86 │
│ registry.nxf-system.svc:8443/cisco-onc-docker/dev/nbi-service              │ 24.3.1-5           │
vc39-es20-sa-86 │
│ registry.nxf-system.svc:8443/cisco-onc-docker/dev/netconfcollector-service │ 24.3.1-5           │
vc39-es20-sa-86 │
│ registry.nxf-system.svc:8443/cisco-onc-docker/dev/netconfcollector-service │ 24.3.1-5-SP-1      │
vc39-es20-sa-86 │
│ registry.nxf-system.svc:8443/cisco-onc-docker/dev/onc-apps-ui-service      │ 24.3.1-5-SP-1      │
vc39-es20-sa-86 │
│ registry.nxf-system.svc:8443/cisco-onc-docker/dev/onc-apps-ui-service      │ 24.3.1-5           │
vc39-es20-sa-86 │
│ registry.nxf-system.svc:8443/cisco-onc-docker/dev/osapi-gw-service         │ 24.3.1-5           │
vc39-es20-sa-86 │
│ registry.nxf-system.svc:8443/cisco-onc-docker/dev/pce_service              │ 24.3.1-5           │
vc39-es20-sa-86 │
│ registry.nxf-system.svc:8443/cisco-onc-docker/dev/pm-service               │ 24.3.1-5-SP-1      │
vc39-es20-sa-86 │
│ registry.nxf-system.svc:8443/cisco-onc-docker/dev/pm-service               │ 24.3.1-5           │
vc39-es20-sa-86 │
│ registry.nxf-system.svc:8443/cisco-onc-docker/dev/pmcollector-service      │ 24.3.1-5-SP-1      │
vc39-es20-sa-86 │
│ registry.nxf-system.svc:8443/cisco-onc-docker/dev/pmcollector-service      │ 24.3.1-5           │
vc39-es20-sa-86 │
│ registry.nxf-system.svc:8443/cisco-onc-docker/dev/topology-service         │ 24.3.1-5-SP-1      │
vc39-es20-sa-86 │
│ registry.nxf-system.svc:8443/cisco-onc-docker/dev/topology-service         │ 24.3.1-5           │
vc39-es20-sa-86 │
│ registry.nxf-system.svc:8443/cisco-onc-docker/dev/torch                    │ 24.3.1-5           │
```

```
vc39-es20-sa-86 │
│ registry.sedona.ciscolabs.com/nxf/authenticator                            │ 3.0-348            │
vc39-es20-sa-86 │
│ registry.sedona.ciscolabs.com/nxf/bgp                                      │ 3.0-365            │
vc39-es20-sa-86 │
│ registry.sedona.ciscolabs.com/nxf/controller                               │ 3.0-384            │
vc39-es20-sa-86 │
│ registry.sedona.ciscolabs.com/nxf/firewalld                                │ 3.0-365            │
vc39-es20-sa-86 │
│ registry.sedona.ciscolabs.com/nxf/flannel                                  │ 3.0-365            │
vc39-es20-sa-86 │
│ registry.sedona.ciscolabs.com/nxf/ingress-proxy                            │ 3.0-370            │
vc39-es20-sa-86 │
│ registry.sedona.ciscolabs.com/nxf/iptables                                 │ 3.0-370            │
vc39-es20-sa-86 │
│ registry.sedona.ciscolabs.com/nxf/kafka                                    │ 3.0-365            │
vc39-es20-sa-86 │
│ registry.sedona.ciscolabs.com/nxf/loki                                     │ 3.0-365            │
vc39-es20-sa-86 │
│ registry.sedona.ciscolabs.com/nxf/metrics-exporter                         │ 3.0-365            │
vc39-es20-sa-86 │
│ registry.sedona.ciscolabs.com/nxf/minio                                    │ 3.0-365            │
vc39-es20-sa-86 │
│ registry.sedona.ciscolabs.com/nxf/service-proxy                            │ 3.0-370            │
vc39-es20-sa-86 │
│ registry.sedona.ciscolabs.com/nxf/syslog-forwarder                         │ 3.0-340            │
vc39-es20-sa-86 │
│ registry.sedona.ciscolabs.com/nxf/timescale                                │ 3.0-359            │
vc39-es20-sa-86 │
└────────────────────────────────────────────────────────────────┴─────────────────┴───────────────┘
```