



Installation Tasks

This section contains the following topics:

- [Install Cisco Crosswork Optimization Engine, on page 1](#)
- [Verify the VM Configuration, on page 11](#)
- [Log In to the UI From a Browser, on page 12](#)
- [Troubleshoot the Installation, on page 13](#)

Install Cisco Crosswork Optimization Engine

Before you begin, ensure that:

- You are creating the Cisco Crosswork Network Automation VM on VMware ESXi 6.5 (Update 2d or later), and using the VMware vCenter Server 6.5 (Update 2d or later).
- The Cisco Crosswork Network Automation VM has allocated to it a minimum of 96 GB of RAM, 16 vCPUs, and 1 TB of hard drive space.
- You have a public IPv4 address to assign to the Cisco Crosswork Network Automation VM's management network virtual interface. The DNS and NTP servers, and the default gateway, must be reachable via this IP address.
- You have a public or private IPv4 address to assign to the Cisco Crosswork Network Automation VM's data network virtual interface. This IP address must be able to reach your managed devices, and be reachable by Cisco Network Services Orchestrator.

During installation, Cisco Crosswork Optimization Engine creates two special administrative IDs:

1. The **virtual machine (VM) administrator**, with the username **cw-admin**, and the default password **cw-admin**. Data center administrators use this ID to log in to and troubleshoot the Cisco Crosswork Network Automation VM hosting the Cisco Crosswork Optimization Engine server. You will use it to verify that the VM has been properly set up (see [Verify the VM Configuration, on page 11](#)).
2. The **Crosswork administrator**, with the username **admin** and the default password **admin**. Product administrators use this ID to log in to and configure the Cisco Crosswork Optimization Engine user interface, and to perform special operations, such as stopping and restarting services.

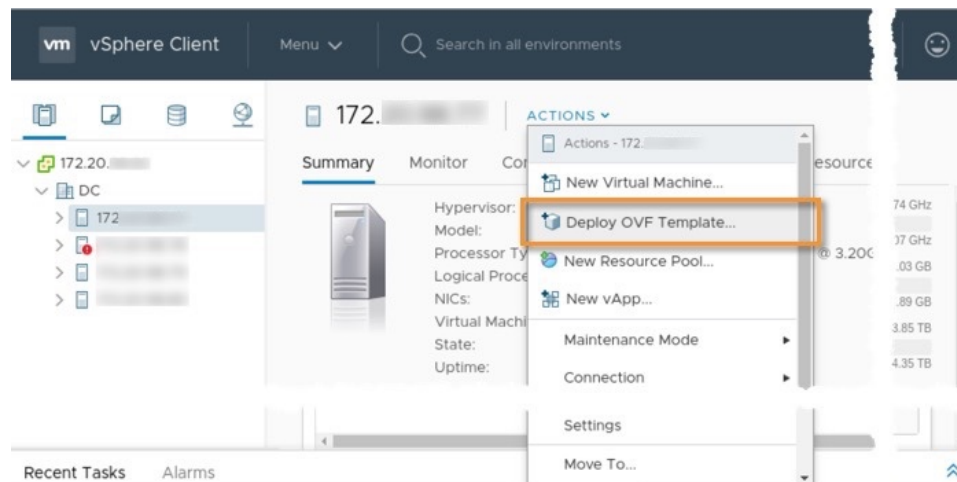
These two administrative usernames are reserved and cannot be changed. The first time you log in using either of these administrative IDs, you will be prompted to change that ID's password.

While this section describes installation, you must also set up Cisco SR-PCE in order to use Cisco Crosswork Optimization Engine. Refer to the appropriate device configuration guide (for example, [Segment Routing Configuration Guide for Cisco ASR 9000 Series Routers](#)).

Step 1 Download the latest available Cisco Crosswork Optimization Engine image file (*.ova) to your system.

Warning The default VMware vCenter deployment timeout is 15 minutes. The total time needed to deploy the OVA image file may take much longer than 15 minutes, depending on your network speed and other factors. If vCenter times out during deployment, the resulting VM will be unbootable. To prevent this, Cisco recommends that you either set the vCenter deployment timeout to a much longer period (such as one hour), or unTAR the OVA file before continuing and then deploy using the OVA's three separate Open Virtualization Format and Virtual Machine Disk component files: `cw.ovf`, `cw_rootfs.vmdk`, and `cw_dockerfs.vmdk`.

Step 2 With VMware ESXi running, log in to the VMware vSphere Client or vSphere Web Client. Then select **Actions** > **Deploy OVF Template**, as shown in the following figure.



Step 3 The VMware **Deploy OVF Template** wizard appears and highlights the first step, **1 - Select an OVF Template**, as shown in the following figure. Click **Browse** to navigate to the location where you downloaded the OVA image file and select it. Once selected, the file name is displayed in the window.

Deploy OVF Template

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

Local file

Choose Files cw-optima-1.0...ase-190704.ova

Step 4 Click **Next** to go to **2 - Select a name and folder**, as shown in the following figure. Enter a name for the Cisco Crosswork Network Automation VM you are creating. In the **Select a location for the virtual machine** list, choose the location under which the Cisco Crosswork Network Automation VM will reside.

Cisco recommends that you include the Cisco Crosswork Optimization Engine version and build number in the name (for example: **CW_VM-1.0.0_400**).

Figure 1: VM Name

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 name and folder
Specify a unique name and target location

Virtual machine name:

Select a location for the virtual machine.

- 172.20...
- DC**

CANCEL BACK NEXT

Step 5 Click **Next** to go to **3 - Select a compute resource**, as shown in the following figure. Choose the Cisco Crosswork Network Automation VM's host.

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

- DC
- > 172.20...

Compatibility

✓ Compatibility checks succeeded.

CANCEL BACK NEXT

Step 6 Click **Next**. The VMware vCenter Server validates the OVA. Network speed will determine how long validation takes. When validation is complete, the wizard moves to **4 - Review details**, as shown in the following figure. Take a moment to review the OVF template you are deploying. Note that this information is gathered from the OVF and cannot be modified.

Deploy OVF Template

- ✓ 1 Select an OVF template
- ✓ 2 Select a name and folder
- ✓ 3 Select a compute resource
- 4 Review details**
- 5 License agreements
- 6 Configuration
- 7 Select storage
- 8 Select networks
- 9 Customize template
- 10 Ready to complete

Review details

Verify the template details.

Publisher	No certificate present
Product	Cisco Crosswork Network Automation
Version	1.0.0
Vendor	Cisco Systems, Inc.
Description	Cisco Crosswork Optimization Engine
Download size	8.7 GB
Size on disk	21.5 GB (thin provisioned)
	520.0 GB (thick provisioned)

Step 7

Click **Next** to go to **5 - License Agreements**. Review the End User License Agreement and ensure that the **I accept all license agreements** checkbox is checked before you continue.

Step 8

Click **Next** to go to **6 - Configuration**, as shown in the following figure. Select the number of interfaces (VMNICs) to use. Cisco recommends that you choose the default **Dual Interface** configuration.

Deploy OVF Template

- ✓ 1 Select an OVF template
- ✓ 2 Select a name and folder
- ✓ 3 Select a compute resource
- ✓ 4 Review details
- ✓ 5 License agreements
- 6 Configuration**
- 7 Select storage
- 8 Select networks
- 9 Customize template
- 10 Ready to complete

Configuration

Select a deployment configuration

<input type="radio"/> Single Interface	Description Use an interface for management traffic and a second interface for data traffic.
<input checked="" type="radio"/> Dual Interface	

CANCEL

BACK

NEXT

Step 9

Click **Next** to go to **7 - Select Storage**, as shown in the following figure. Cisco recommends that you select **Thin Provision** from the **Select virtual disk format** drop-down list. From the table, choose the datastore you want to use and review its properties to ensure there is enough available storage.

Deploy OVF Template

1 Select an OVF template
2 Select a name and folder
3 Select a compute resource
4 Review details
5 License agreements
6 Configuration
7 Select storage
 8 Select networks
 9 Customize template
 10 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**

Name	Capacity	Provisioned	Free	Type
datastore77	4.35 TB	543.49 GB	3.85 TB	VM

Compatibility
 ✓ Compatibility checks succeeded.

CANCEL BACK NEXT

Step 10 Click **Next** to go to **8 - Select networks**, as shown in the following figure. In the dropdown table at the top of the page, choose the appropriate destination network for the source **Data Network** and **Management Network**, respectively.

Deploy OVF Template

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

Select networks
 Select a destination network for each source network.

Source Network	Destination Network
Data Network	Change Me
Management Network	VM Network

2 Items

CANCEL BACK NEXT

Step 11 Click **Next** to go to **9 - Customize template**, with the **Management IPv4 Address** settings already expanded, as shown in the following figure. Make entries in both fields:

- The **Management IPv4 Address** is the IP address for managing and interacting with the Cisco Crosswork Optimization Engine user face. Enter it in CIDR format.
- The **Management IPv4 Gateway** is the IPv4 address of the primary gateway to the Cisco Crosswork Optimization Engine management IP and the management network.

Deploy OVF Template

<ul style="list-style-type: none"> ✓ 1 Select an OVF template ✓ 2 Select a name and folder ✓ 3 Select a compute resource ✓ 4 Review details ✓ 5 License agreements ✓ 6 Configuration ✓ 7 Select storage ✓ 8 Select networks <li style="background-color: #2c5e8c; color: white; padding: 2px;">9 Customize template 10 Ready to complete 	<p>Customize template Customize the deployment properties of this software solution.</p> <hr/> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr style="background-color: #e6f2ff;"> <td style="padding: 5px;">▼ Management IPv4 Address</td> <td style="padding: 5px;">2 settings</td> </tr> <tr> <td style="padding: 5px;">Management IPv4 Address</td> <td style="padding: 5px;">Please enter the VM's IPv4 management address in CIDR format. <input style="width: 80%;" type="text" value="1.1.1/24"/></td> </tr> <tr> <td style="padding: 5px;">Management IPv4 Gateway</td> <td style="padding: 5px;">Please enter the VM's IPv4 management gateway. <input style="width: 80%;" type="text" value="1.1.1"/></td> </tr> <tr style="background-color: #f2f2f2;"> <td style="padding: 5px;">> Data IPv4 Address</td> <td style="padding: 5px;">2 settings</td> </tr> <tr style="background-color: #f2f2f2;"> <td style="padding: 5px;">> DNS and NTP Servers</td> <td style="padding: 5px;">3 settings</td> </tr> <tr style="background-color: #f2f2f2;"> <td style="padding: 5px;">> Disk Configuration</td> <td style="padding: 5px;">3 settings</td> </tr> <tr style="background-color: #f2f2f2;"> <td style="padding: 5px;">> Crosswork Configuration</td> <td style="padding: 5px;">2 settings</td> </tr> </table>	▼ Management IPv4 Address	2 settings	Management IPv4 Address	Please enter the VM's IPv4 management address in CIDR format. <input style="width: 80%;" type="text" value="1.1.1/24"/>	Management IPv4 Gateway	Please enter the VM's IPv4 management gateway. <input style="width: 80%;" type="text" value="1.1.1"/>	> Data IPv4 Address	2 settings	> DNS and NTP Servers	3 settings	> Disk Configuration	3 settings	> Crosswork Configuration	2 settings
▼ Management IPv4 Address	2 settings														
Management IPv4 Address	Please enter the VM's IPv4 management address in CIDR format. <input style="width: 80%;" type="text" value="1.1.1/24"/>														
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> Data IPv4 Address	2 settings														
> DNS and NTP Servers	3 settings														
> Disk Configuration	3 settings														
> Crosswork Configuration	2 settings														

CANCEL
BACK
NEXT

Step 12 Expand the **Data Network IPv4 Address** settings, as shown in the following figure. Make entries in both fields:

- The **Data IPv4 Address** is the IP address for managing and interacting with the managed devices and with Cisco Crosswork Optimization Engine providers. Enter it in CIDR format.
- The **Data IPv4 Gateway** is the IPv4 address of the primary gateway to the Cisco Crosswork Optimization Engine data IP address, and to the managed devices and providers.

Deploy OVF Template

<ul style="list-style-type: none"> ✓ 1 Select an OVF template ✓ 2 Select a name and folder ✓ 3 Select a compute resource ✓ 4 Review details ✓ 5 License agreements ✓ 6 Configuration ✓ 7 Select storage ✓ 8 Select networks <li style="background-color: #2c5e8c; color: white; padding: 2px;">9 Customize template 10 Ready to complete 	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr style="background-color: #e6f2ff;"> <td style="padding: 5px;">▼ Data IPv4 Address</td> <td style="padding: 5px;">2 settings</td> </tr> <tr> <td style="padding: 5px;">Data IPv4 Address</td> <td style="padding: 5px;">Please enter the VM's IPv4 data address in CIDR format. <input style="width: 80%;" type="text" value="2.2.2.2/24"/></td> </tr> <tr> <td style="padding: 5px;">Data IPv4 Gateway</td> <td style="padding: 5px;">Please enter the VM's IPv4 data gateway. <input style="width: 80%;" type="text" value="0.0.0.0"/></td> </tr> <tr style="background-color: #e6f2ff;"> <td style="padding: 5px;">▼ DNS and NTP Servers</td> <td style="padding: 5px;">3 settings</td> </tr> </table>	▼ Data IPv4 Address	2 settings	Data IPv4 Address	Please enter the VM's IPv4 data address in CIDR format. <input style="width: 80%;" type="text" value="2.2.2.2/24"/>	Data IPv4 Gateway	Please enter the VM's IPv4 data gateway. <input style="width: 80%;" type="text" value="0.0.0.0"/>	▼ DNS and NTP Servers	3 settings
▼ Data IPv4 Address	2 settings								
Data IPv4 Address	Please enter the VM's IPv4 data address in CIDR format. <input style="width: 80%;" type="text" value="2.2.2.2/24"/>								
Data IPv4 Gateway	Please enter the VM's IPv4 data gateway. <input style="width: 80%;" type="text" value="0.0.0.0"/>								
▼ DNS and NTP Servers	3 settings								

Step 13 Expand the **DNS and NTP Servers** settings, as shown in the following figure. Make entries in three fields:

- **DNS IPv4 Address:** The IPv4 addresses of the DNS servers you want the Cisco Crosswork Optimization Engine server to use. Separate multiple IP addresses with spaces.

- **DNS Search Domain:** The name of the DNS search domain.
- **NTP Servers:** The IP addresses or host names of the NTP servers you want to use. Separate multiple IPs or host names with spaces.

> Data IPv4 Address	2 settings
▼ DNS and NTP Servers	3 settings
DNS IPv4 Address	Please enter the DNS server's IPv4 address. Multiple DNS server IPs can be provided space separated. <input type="text" value="<your dns server ip>"/>
NTP Servers	Please enter NTP server hostname. Multiple NTP servers can be provided space separated. <input type="text" value="<your ntp server>"/>
DNS Search Domain	Please enter the DNS search domain. <input type="text" value="<your search domain>"/>
> Disk Configuration	3 settings

Step 14 Expand the **Disk Configuration** settings, as shown in the following figure. Make entries in all three fields. . The settings shown in the figure should work for most environments.

> DNS and NTP Servers	3 settings
▼ Disk Configuration	3 settings
Logfs Disk Size	Please enter the size of the logfs disk in GB. <input type="text" value="10"/>
Datafs Disk Size	Please enter the size of the datafs disk in GB. <input type="text" value="200"/>
Corefs Disk Size	Please enter the size of the corefs disk in GB. <input type="text" value="100"/>
> Crosswork Configuration	2 settings

Step 15 Expand the **Crosswork Configuration** settings, as shown in the following figure. Make entries in both fields. The **Private Key** encrypts the inventory database.

> Disk Configuration	3 settings
▼ Crosswork Configuration	2 settings
Private Key	Enter the 32byte Private Key to encrypt the database. Please remember this key for future. EncryptCrossworkInvento
Disclaimer	Enter the legal disclaimer. <The official legal disclaim

Step 16 Expand the **Crosswork Collection Configuration** settings, as shown in the following figure.

Check this option if you plan to use Cisco NSO and want to manage more than 500 MDT capable devices. By selecting this option, you will have enabled the multiple collection mode which uses multiple MDT collectors (depending on the number of devices that are added). Do not check this option if you do not plan to add Cisco NSO as a provider. When this option is deselected, you will have enabled the single collection mode where only one MDT collector is used and Cisco NSO cannot be mapped to devices. For more guidance and information on which mode to select, see [Collection Modes](#)).

Deploy OVF Template

<ul style="list-style-type: none"> ✓ 1 Select an OVF template ✓ 2 Select a name and folder ✓ 3 Select a compute resource ✓ 4 Review details ✓ 5 License agreements ✓ 6 Configuration ✓ 7 Select storage ✓ 8 Select networks ✓ 9 Customize template 10 Ready to complete 	<table border="1"> <tr> <td>Logfs Disk Size</td> <td>Please enter the size of the logfs disk in GB. 10</td> </tr> <tr> <td>Datafs Disk Size</td> <td>Please enter the size of the datafs disk in GB. 200</td> </tr> <tr> <td>Corefs Disk Size</td> <td>Please enter the size of the corefs disk in GB. 100</td> </tr> <tr> <td>▼ Crosswork Configuration</td> <td>2 settings</td> </tr> <tr> <td>Private Key</td> <td>Enter the 32byte Private Key to encrypt the database. Please remember this key for future. EncryptedcrossworkOpti</td> </tr> <tr> <td>Disclaimer</td> <td>Enter the legal disclaimer. Welcome to Optima</td> </tr> <tr> <td>▼ Crosswork Collection Configuration</td> <td>1 settings</td> </tr> <tr> <td>NSO as Provider</td> <td>Is NSO used as the provider for device management? <input checked="" type="checkbox"/></td> </tr> </table>	Logfs Disk Size	Please enter the size of the logfs disk in GB. 10	Datafs Disk Size	Please enter the size of the datafs disk in GB. 200	Corefs Disk Size	Please enter the size of the corefs disk in GB. 100	▼ Crosswork Configuration	2 settings	Private Key	Enter the 32byte Private Key to encrypt the database. Please remember this key for future. EncryptedcrossworkOpti	Disclaimer	Enter the legal disclaimer. Welcome to Optima	▼ Crosswork Collection Configuration	1 settings	NSO as Provider	Is NSO used as the provider for device management? <input checked="" type="checkbox"/>
Logfs Disk Size	Please enter the size of the logfs disk in GB. 10																
Datafs Disk Size	Please enter the size of the datafs disk in GB. 200																
Corefs Disk Size	Please enter the size of the corefs disk in GB. 100																
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Private Key	Enter the 32byte Private Key to encrypt the database. Please remember this key for future. EncryptedcrossworkOpti																
Disclaimer	Enter the legal disclaimer. Welcome to Optima																
▼ Crosswork Collection Configuration	1 settings																
NSO as Provider	Is NSO used as the provider for device management? <input checked="" type="checkbox"/>																

Step 17 Click **Next** to go to **10 - Ready to Complete**, as shown in the following figure. Review your settings and then click **Finish** if you are ready to begin deployment.

Deploy OVF Template

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

Provisioning type	Deploy CVF From Remote URL
Name	CW_VM-1.0.0_400
Template name	cw-optima-1.0.0-8-cwoptima100release-190704
Download size	8.7 GB
Size on disk	21.5 GB
Folder	Optima
Resource	worama1.cisco.com
Location	worama1-dsk1
Storage mapping	1
All disks	Datastore: worama1-dsk1; Format: Thin Provision
Network mapping	2
Data Network	auto-4-5
Management Network	VM Network
IP allocation settings	
IP protocol	IPV4
IP allocation	Static - Manual

CANCEL BACK FINISH

Step 18

Wait for the deployment to finish before continuing. To check on the deployment status:

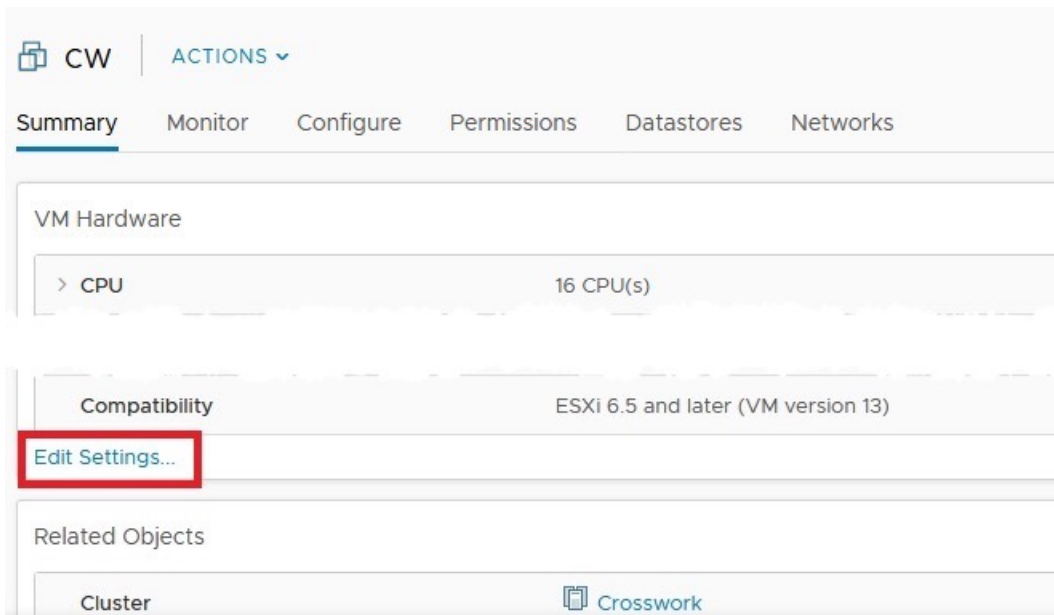
- a) Open a VMware vCenter client.
- b) In the **Recent Tasks** tab for the host VM, view the status for the **Deploy OVF template** and **Import OVF package** jobs, as shown in the following figure.

Task Name	Target	Start Time	Server
Import OVF package	robot-	0/29/2018, 12:28:57 P:	obot-vcenter2. .com
Deploy OVF template	. .mr	0/29/2018, 12:31:43 PM	obot-vcenter2. .com

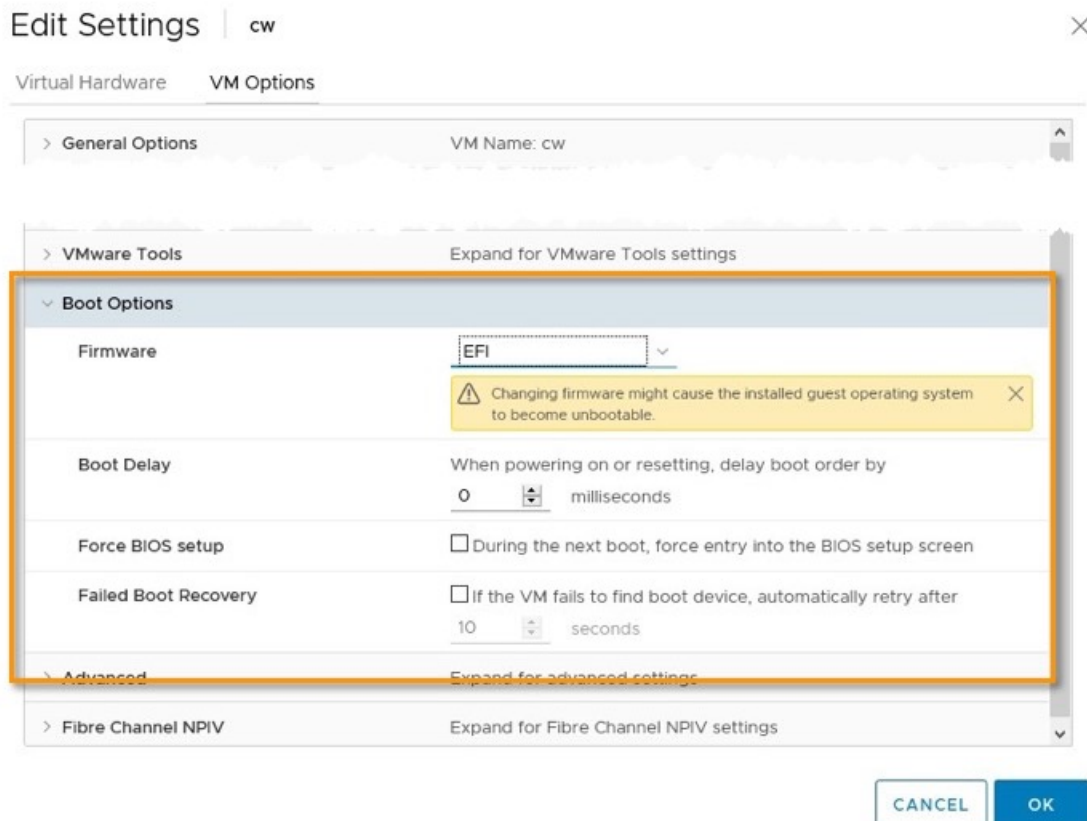
Step 19

After the deployment tasks are complete, edit the host's VM settings to permit boot from EFI Firmware:

- a) On the host VM **Summary** tab, below the **VM Hardware** table, click **Edit Settings**, as shown in the following figure.

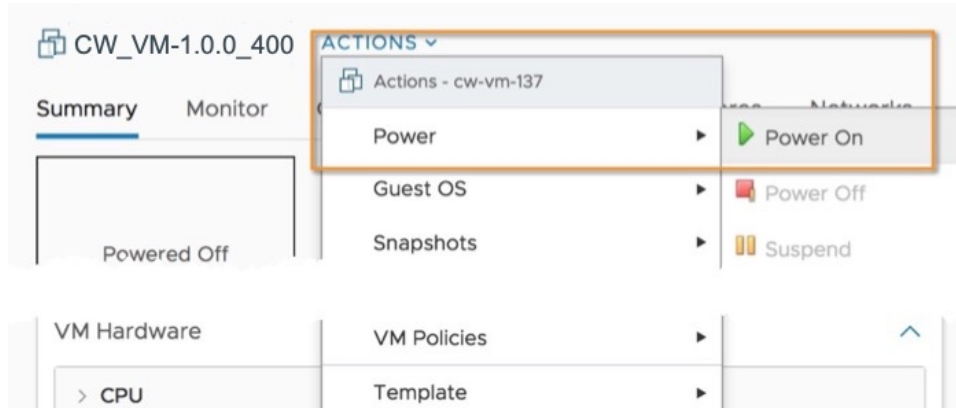


- b) On the **Edit Settings** page, click the **VM Options** tab.
- c) Expand the **Boot Options** dropdown list and change the **Firmware** setting to **EFI**, as shown in the following figure. When you are finished, click **OK**. You may want to take a snapshot of the VM at this point.



Step 20 You can now power on the Cisco Crosswork Network Automation VM to complete the deployment process. Expand the host's entry so you can click the Cisco Crosswork Network Automation VM and then choose **Actions > Power > Power On**, as shown in the following figure.

Figure 2: Power On



From this point, it will take 20 minutes for the Cisco Crosswork Network Automation VM to become operational. Please wait for the process to finish before continuing.

Verify the VM Configuration

Before trying to log in to the new installation, verify that the VM is properly configured. You will be prompted to change the VM administrator's password during first login via the console.

Step 1 Connect to the Cisco Crosswork Optimization Engine VM via SSH, as follows:

Enter the SSH command using the default VM administrator user name (**cw-admin**) and the IPv4 management network address you specified when deploying the Cisco Crosswork Optimization Engine image, as follows:

```
ssh cw-admin@ManagementNetworkIP
```

Where *ManagementNetworkIP* is the management network IPv4 address. For example:

```
ssh cw-admin@1.1.1.1
```

When prompted, enter the default cw-admin user password, **cw-admin**.

If you cannot connect to the VM at all, see [Troubleshoot the Installation, on page 13](#).

Step 2 When prompted to change the cw-admin user's password, enter the default password again for verification. Then enter and confirm the new password as prompted.

Step 3 Shift to sudo user access (`sudo su`), then enter the following commands to verify the Cisco Crosswork Optimization Engine VM:

- `ifconfig eth0`—Shows the management network IP address of the VM. This should match the management network IP address you entered during the installation.

- `ifconfig eth1`—Shows the data network IP address of the VM. This should match the data network IP address you entered during the installation.
- `kubectl get nodes`—Checks the Kubernetes cluster and shows the VM IP address with a Ready status.

If the IP addresses do not match what you entered, or you do not get a Ready status, see [Troubleshoot the Installation, on page 13](#).

Log In to the UI From a Browser

To log in to the Cisco Crosswork Optimization Engine web-based user interface from a browser, perform these steps. If you are unable to display the user interface, see [Troubleshoot the Installation, on page 13](#).

Before you begin

Connect to the virtual machine and verify that it is properly configured before attempting to log in to the user interface (see [Verify the VM Configuration, on page 11](#)).

Step 1 Launch one of the supported browsers (see [Supported Web Browsers](#)).

Step 2 In the browser's address bar, enter:

```
https://<Crosswork_VM_management_IP_address>:30603/
```


The **Log In** window opens, as shown in the following figure.

Figure 3: Cisco Crosswork Optimization Engine Log In Window



When you access Cisco Crosswork Optimization Engine for the first time, some browsers display a warning that the site is untrusted. When this happens, follow the prompts to add a security exception and download the self-signed certificate from the Cisco Crosswork Optimization Engine server. After you add a security exception, the browser accepts the server

as a trusted site in all future login attempts. If you want to use a CA signed certificate, see the "Manage Certificates" section in the *Cisco Crosswork Optimization Engine User Guide*.

- Step 3** Log into Cisco Crosswork Optimization Engine as follows:
- Enter the Cisco Crosswork Network Automation administrator username **admin** and the default password **admin**.
 - Click **Log In**.
 - When prompted to change the Cisco Crosswork Network Automation administrator's default password, enter the new password in the fields provided and then click **OK**.
- Step 4** To exit the web GUI, close the browser window or click  at the top right of the home page and choose **Log out**.

Troubleshoot the Installation

The following table lists common problems experienced while installing Cisco Crosswork Optimization Engine, and approaches to identifying the source of the problem and solving it.

Table 1: Troubleshoot the Installation

Issue	Action
Cannot Connect to the VM	
VM cannot be reached by the provided gateways due to IP misconfiguration	<ol style="list-style-type: none"> You will see error messages in the login banner indicating this problem when you try to connect to the VM via SSH following the steps in as explained in Verify the VM Configuration, on page 11. Redeploy the VM from scratch, using the correct IP configuration.
VM cannot be reached by the provided gateways due to other network issues	<ol style="list-style-type: none"> Log into the VM via the VMware console. Change the IP settings as needed to fix the issue.
Cannot Display the User Interface	
Browser does not display the login screen.	<ol style="list-style-type: none"> Make sure you are using a supported browser (see Supported Web Browsers and that you entered the correct IP address in the browser (this should be the same as the management IP4 address you entered during installation). Log in to the VM using SSH, as explained in Verify the VM Configuration, on page 11. At the prompt, enter the command collect. Contact Cisco TAC.

Issue	Action
Running <code>kubectl get nodes</code> does not display the correct VM IPv4 management and data addresses.	<ol style="list-style-type: none"> 1. While connected to the VM, open the file <code>/etc/resolv.conf</code> file and check that it contains the correct DNS name server and search domain. 2. If it does not, redeploy the VM using the correct DNS name server and search domain configuration.
Running <code>kubectl get nodes</code> does not display a Ready status for the VM IPv4 address.	<ol style="list-style-type: none"> 1. While connected to the VM, check the login banner for any error messages. 2. If there are error messages in the login banner, they will be recorded in <code>/var/log/firstBoot.log</code> file, along with recommended remediation steps. Open the log and follow the steps given for the error message found in the banner. 3. If this does not help, run <code>kubectl get pods --namespace kube-system</code> and look for mismatched Ready counts.
Running <code>kubectl get pods --namespace kube-system</code> displays one or more mismatched Ready status counts (for example: 2/3 Ready or 0/1 Ready instead of 3/3 Ready or 1/1 Ready).	<ol style="list-style-type: none"> 1. Check for user input errors in the <code>/var/log/boot.log</code> file and perform the log's recommended remediation steps. 2. If this does not help, redeploy the VM.
Able to Display the User Interface	
I cannot log in.	<ol style="list-style-type: none"> 1. Make sure you are using the Crosswork administrator default user ID and password (admin and admin). 2. If the Crosswork administrator default password has already been changed, use the new password.
I can log in but cannot access some features.	Make sure all the applications and their underlying services are up and running by selecting Admin > Crosswork Manager and checking the status of the applications and services. See the <i>Cisco Crosswork Optimization Engine User Guide</i> topic "Monitor Cisco Crosswork Infrastructure and Resources".

Issue	Action
Crosswork Manager shows one or more applications or their underlying services are not running.	<ol style="list-style-type: none"><li data-bbox="958 294 1526 483">1. In Crosswork Manager, check the description of the application or service issue and, if possible, try restarting the application or service. See the <i>Cisco Crosswork Optimization Engine User Guide</i> topic "Monitor Cisco Crosswork Infrastructure and Resources".<li data-bbox="958 493 1526 630">2. Gather log and metric information about the application or service with issues. See the <i>User Guide</i> topic "View, Control and Log Cisco Crosswork Applications and Services".<li data-bbox="958 640 1526 672">3. Contact Cisco TAC.

