Installing Cisco CMX in a VMware Virtual Machine

This chapter describes how to install and deploy a Cisco Mobility Services Engine (MSE) virtual appliance.

Cisco CMX is a prebuilt software solution that comprises one or more virtual machines (VMs) that are packaged, maintained, updated, and managed as a single unit. Cisco CMX is distributed as an Open Virtual Appliance (OVA) for installation on a virtual appliance and as an ISO image for installation on a physical appliance.

Cisco CMX acts as a platform (physical or virtual Cisco Mobility Services Engine [MSE] appliance) to deploy and run the Cisco services.

If you choose Location during installation, you will see the following services in Cisco CMX GUI.

- DETECT & LOCATE—Active for 120 day trial period unless either a CMX base or advanced license is added.
- ANALYTICS—Active for 120 day trial period unless a CMX advanced license is added.

If you choose Presence during installation, you will see the following services in the Cisco CMX GUI.

- CONNECT—Active for 120 day trial period unless either a CMX base license is added.
- PRESENCE ANALYTICS

Virtualization Concepts

Refer to these documents for information on virtualization:

- Virtualization Overview
- Setting Up ESXi
- Virtualization Basics

Installation Overview

The following table lists the Cisco CMX virtual appliance installation process and contains information about the sections providing details about them:

Table 1: Installation Overview

Step	Task	See
1	Review the deployment checklist and prepare for the installation of a Cisco CMX virtual appliance.	Cisco CMX Virtual Appliance Deployment Checklist, on page 3 and Hardware Guidelines, on page 4
2	Download the Cisco CMX Open Virtualization Archive (OVA) file from Cisco.com.	Downloading the Cisco CMX OVA File, on page 8
3	Deploy the Cisco CMX OVA file.	Deploying the Cisco CMX OVA File Using the VMware vSphere Web Client, on page 8
4	Configure the basic configurations and install the Cisco CMX virtual appliance.	Configuring Cisco CMX Release 10.5.x and Later, on page 13
5	Set up the Cisco CMX virtual appliance.	Installing Cisco CMX Using Web Interface, on page 19

Note Performing a Cisco CMX installation over high latency links might not work in a reliable manner. If you want to install Cisco CMX on a remote location, we recommend that you load the ISO to a remote file server that can be accessed locally by the remote server.

Restrictions for Installing Cisco CMX in a VMware Virtual Machine

- Map size must be less than 5 MB in Cisco Prime Infrastructure.

- There must be less than 1000 access points on a single map.
- The Mobile Application Server is not available.
- The Wireless Intrusion Prevention System (wIPS) is available with limited feature support. From 10.4 release onwards, Cisco CMX supports rogue access points and rogue clients.
- A common NTP server must be used to synchronize the time.
- Simple Mail Transfer Protocol (SMTP) Mail Server name and authentication mechanism must be used for the Cisco CMX mail notification system.
- VMware vSphere Storage API - Data Protection (VADP) hypervisor clone feature is not supported

Cisco CMX Virtual Appliance Deployment Checklist

- Cisco Wireless Controller has IP connectivity to a Cisco CMX instance.
- Cisco Prime Infrastructure has IP connectivity to a Cisco CMX instance.
- Port 16113 is routable from Cisco WLC to the Cisco CMX IP address.
- Port 161 (for Simple Network Management Protocol [SNMP] traffic) is routable from Cisco WLC to the Cisco CMX IP address.
- SSH client to log in with the root access to the VM is present.
- A Secure Copy (SCP) client (on MAC native or installed on PC) or a Secure File Transfer Protocol (SFTP) exists to move files into Cisco CMX OVA (specifically, map files and images to upgrade).
- Ensure that UDP port 2003 is routable from Cisco WLC to Cisco CMX IP addresss for hyperlocation .

Note If you are using Cisco 3365 CMX Appliance and need to deploy Cisco CMX 10.5, you can only restore a backup file of maximium 200GB. If your backup file size is more than 200GB, we recommend that you add external disks or perform a selective backup for restoring Cisco CMX data.

Prerequisites for Installing Cisco CMX in a VMware Virtual Machine

- VMWare vSphere client.
- Cisco 10.6 OVA, which can be downloaded from Download Software on cisco.com.
- Hostname IP address, netmask, default gateway, DNS IP address, and Network Time Protocol (NTP) Server IP address or name.

Hardware Guidelines

The following table lists the hardware guidelines for the Cisco CMX virtual appliance.

Note If the hardware requirements are not met, the OVA deployment fails. Similarly, the Cisco CMX setup fails during installation when the other minimum requirements listed in the table below are not met.

Table 2: Hardware Guidelines

Hardware Platform	Basic Appliance	Standard Appliance	High-End Appliance
CPU	8 vCPU (2.4 GHz core)	16 vCPU (2.4 GHz core)	20 vCPU (2.4 GHz core)
RAM	24 GB	48 GB	64 GB [1]
HDD [2]	550 GB	550 GB	1 TB

[1] The high-end deployment VM (20 vCPU, 64 GB RAM) reserves 63.74 GB for itself and the rest of the RAM is used by ESXi.

[2] For Cisco CMX OVA installation, 160 GB is the default HDD (hard disk drive) on low-end, standard and high-end virtual machines. We strongly recommend immediately after deploying the OVA file and before powering on the VM that you increase the disk space to the recommended amount as described in the above table, so that the HDD resource does not run low while using Cisco CMX. If you do not increase the disk space before powering on the VM, refer to the VMWare 6.7 guidelines on how to increase disk space: https://docs.vmware.com/en/VMware-vSphere/6.7/com.vmware.vsphere.vm_admin.doc/GUID-79116E5D-22B3-4E84-86DF-49A8D16E7AF2.html

Note We recommend you to allocate the required HDD space. For more information, see step 12 in Deploying the Cisco CMX OVA File Using the VMware vSphere Web Client, on page 8 section.

Release Upgrade Compatibility Matrix

The following table lists the Cisco CMX releases available on Cisco.com.

Table 3: Cisco CMX Releases Available on Cisco.com

Cisco CMX Release	OVA	3365 ISO	3375 ISO	Upgrade Option Only
10.1.0	cmx-v10-1-0.ova	—		—
10.1.1	—	10.1.1		—

Cisco CMX Release	OVA	3365 ISO	3375 ISO	Upgrade Option Only
10.1.1-2	—	—		cisco_cmx-10.1.1-2.tar.gz (cisco_cmx-10.1.1-2.x86_64.rpm and cisco_cmx_connect-10.1.1-30.x86_64.rpm)
10.1.2	—	—		cisco_cmx-10.1.1-2.tar.gz
10.2	10.2 OVA	10.2 ISO		10.2 backend upgrade (10.1 and 10.1.1 to 10.2) script and.CMX image file
10.3	10.3 OVA	10.3 ISO		—
10.4	10.4 OVA	10.4 ISO		—
10.5	10.5 OVA	10.5 ISO		No direct upgrade option. New OVA/ISO System
10.6	10.6 OVA	10.6 ISO	10.6 ISO	—

Table 4: Node Types Supported Per Release

Release	Location and Analytics Node	Location and Connect Node	Location, Analytics, and Connect Node (L-Node)	Connect and Presence Node (P-Node)	High Availability
10.1.0	Yes	—	—	—	—
10.1.1-2	Yes	Yes	Yes	—	—
10.1.2	Yes	Yes	Yes	—	—
10.2	Use the upgrade script to change Location and Analytics to Location, Analytics, and Connect internally.	Use the upgrade script to change Location and Connect to Location, Analytics, and Connect internally.	Yes	Yes	—
10.3	Use the upgrade script to change Location and Analytics to Location, Analytics, and Connect internally.	Use the upgrade script to change Location and Connect to Location, Analytics, and Connect internally.	Yes	Yes	Yes

Release	Location and Analytics Node	Location and Connect Node	Location, Analytics, and Connect Node (L-Node)	Connect and Presence Node (P-Node)	High Availability
10.4	Use the upgrade script to change Location and Analytics to Location, Analytics, and Connect internally.	Use the upgrade script to change Location and Connect to Location, Analytics, and Connect internally.	Use the upgrade script to change Location and Connect to Location, Analytics, and Connect internally.	Yes	Yes
10.5	No direct upgrade is available. New OVA/ISO system upgrade	No direct upgrade is available. New OVA/ISO system upgrade	Yes	Yes	Yes
10.6	Use the upgrade script to change Location and Analytics to Location, Analytics, and Connect internally.	Use the upgrade script to change Location and Connect to Location, Analytics, and Connect internally.	Yes	Yes	Yes

Table 5: Upgrade Path by Node Type

Upgrade Path 1[3]	Location and Connect Node	Location and Analytics Node	Location, Analytics, and Connect Node (L-Node)	Connect and Presence Node (P-Node)
10.1.0 OVA to 10.2	10.2 backend script to upgrade image to10.2 and change Location and Connect to Location, Connect, and Analytics.	10.2 backend script to upgrade image to10.2 and change Location and Analytics to Location, Connect, and Analytics.	10.2 backend script to upgrade image to 10.2.	—
10.1.1-2 tar.gz to 10.2	10.2 backend script to upgrade image to10.2 and change Location and Connect to Location, Connect, and Analytics.	10.2 backend script to upgrade image to10.2 and change Location and Analytics to Location, Connect, and Analytics.	10.2 backend script to upgrade image to 10.2.	—
10.1.2 tar.gz to 10.2	10.2 backend script to upgrade image to10.2 and change Location and Connect to Location, Connect, and Analytics.	10.2 backend script to upgrade image to10.2 and change Location and Analytics to Location, Connect, and Analytics.	10.2 backend script to upgrade image to 10.2.	—

10.2 OVA/ISO to 10.3	—	—	UI upgrade script to upgrade image.	UI upgrade script to upgrade image
10.3 OVA/ISO to 10.4	—	—	UI upgrade script to upgrade image.	UI upgrade script to upgrade image
10.5 OVA/ISO	—	—	UI upgrade script to upgrade image.	UI upgrade script to upgrade image
10.6 OVA/ISO	—	—	UI upgrade script to upgrade image.	Upgrade is supported from the Cisco CMX Release 10.5.x to Cisco CMX Release 10.6. **Note** Releases earlier than Cisco CMX Release 10.5 cannot be upgraded to Cisco CMX Release 10.6, for example Cisco CMX Release 10.4.1 cannot be upgraded to Cisco CMX Release 10.6.

[3] The path that is provided for upgrade is the same as that used for backup and restore.

VM Alerts

The following table displays the alerts shown on the VM for the following conditions:

Table 6: VM Alerts

Hard Disk Status	Alert Shown
50 percent	Do Not Back Up
80 percent	System Is About To Run Out Of Space
85 percent	All The Services Are Stopped

Downloading the Cisco CMX OVA File

Step 1 Download the Cisco CMX image from Download Software on cisco.com.

Step 2 Save the Cisco CMX OVA installer to your computer and ensure that it is accessible.

Deploying the Cisco CMX OVA File Using the VMware vSphere Web Client

The VMware vSphere Web Client (Flash/Flex client) is the client to manage vCenter Server 6.5 environment with all the features and plugins. From VMware vSphere release 6.5 version, the recommened option to use is vSphere Web Client.

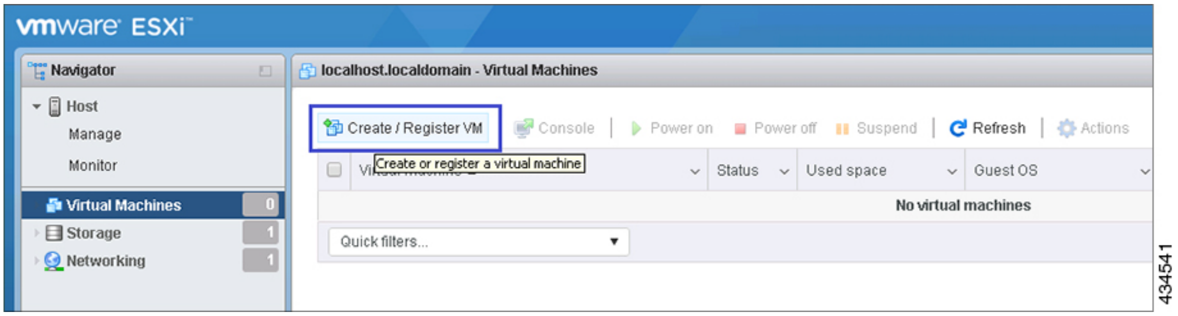
From VMware vSphere release 6.5 version, the **thick client** is no longer supported. Only the vSphere Client (HTML 5) and vSphere Web Client are supported.

To deploy the Cisco CMX OVA file using the VMware vSphere Web Client, follow these steps:

Step 1 Launch the VMware vSphere Web Client application on your desktop.

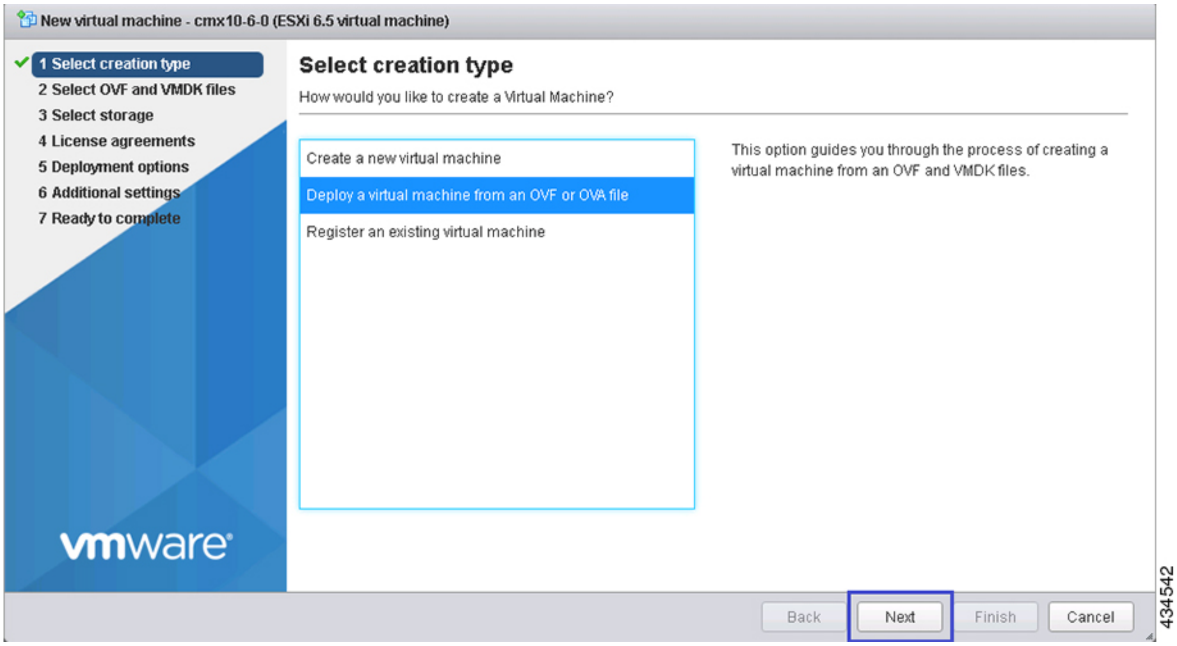
Step 2 From the **Navigator** pane, click **Create/Register VM** to create or register a virtual machine.

Figure 1: Create/Register VM



Step 3 Choose **Deploy a virtual machine from an OVF or OVA file** as a creation type and click **Next**. This option helps you to create a virtual machine from a Cisco CMX OVA file.

Figure 2: Deploy VM



New virtual machine - cmx10-6-0 (ESXi 6.5 virtual machine)

1 Select creation type
2 Select OVF and VMDK files
3 Select storage
4 License agreements
5 Deployment options
6 Additional settings
7 Ready to complete

Select creation type

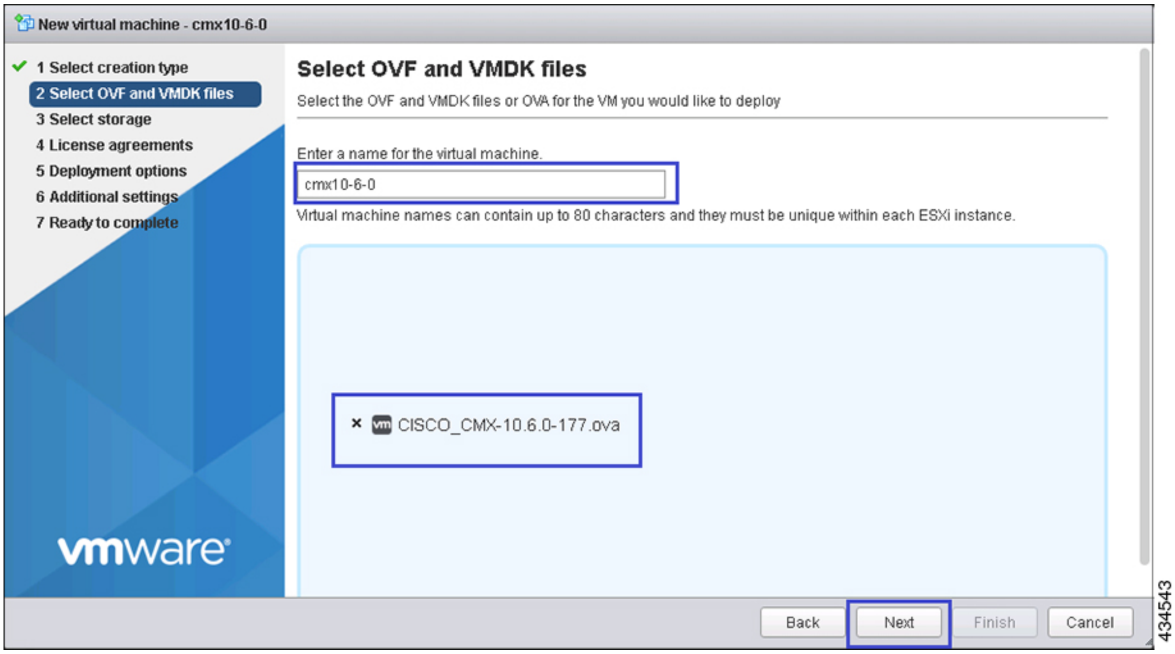
How would you like to create a Virtual Machine?

Create a new virtual machine
Deploy a virtual machine from an OVF or OVA file
Register an existing virtual machine

This option guides you through the process of creating a virtual machine from an OVF and VMDK files.

Step 4 In the **Select OVF and VMDK files** section, enter a name for the virtual machine, select the Cisco CMX OVA file that is stored locally on the machine and click **Next**.

Figure 3: Cisco CMX OVA



New virtual machine - cmx10-6-0

1 Select creation type
2 Select OVF and VMDK files
3 Select storage
4 License agreements
5 Deployment options
6 Additional settings
7 Ready to complete

Select OVF and VMDK files

Select the OVF and VMDK files or OVA for the VM you would like to deploy

Enter a name for the virtual machine.

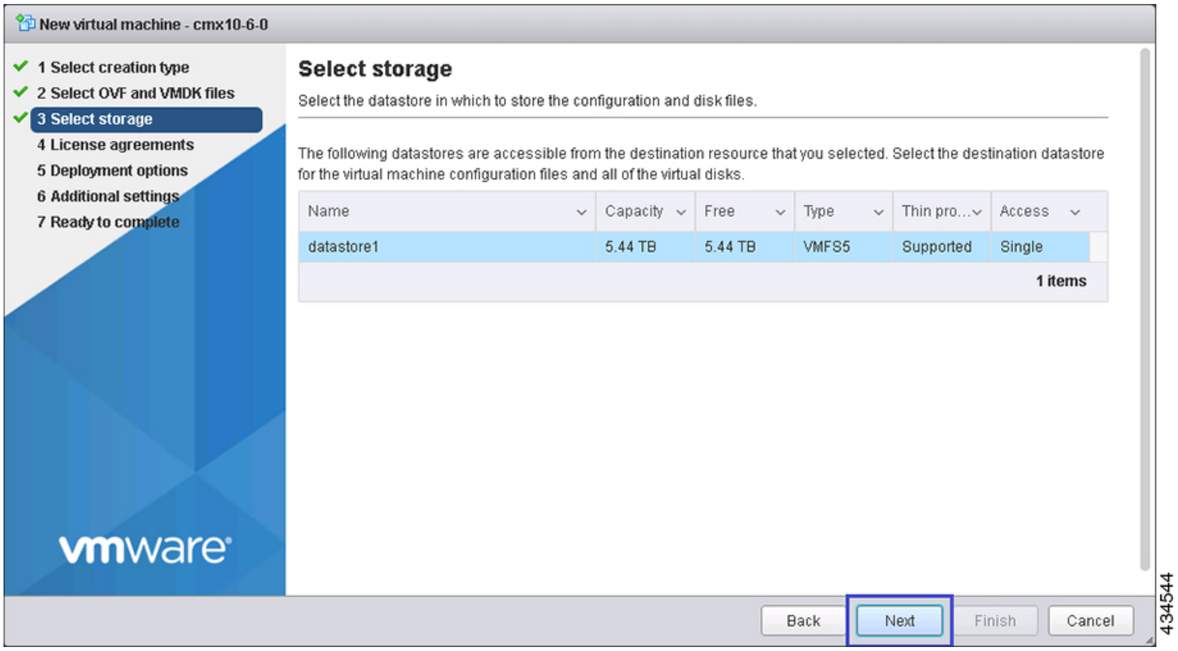
cmx10-6-0

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

× CISCO_CMX-10.6.0-177.ova

Step 5 Select the destination datastore for the virtual machine configuration files and virtual disks and click **Next**.

Figure 4: Datastore



Select storage

Select the datastore in which to store the configuration and disk files.

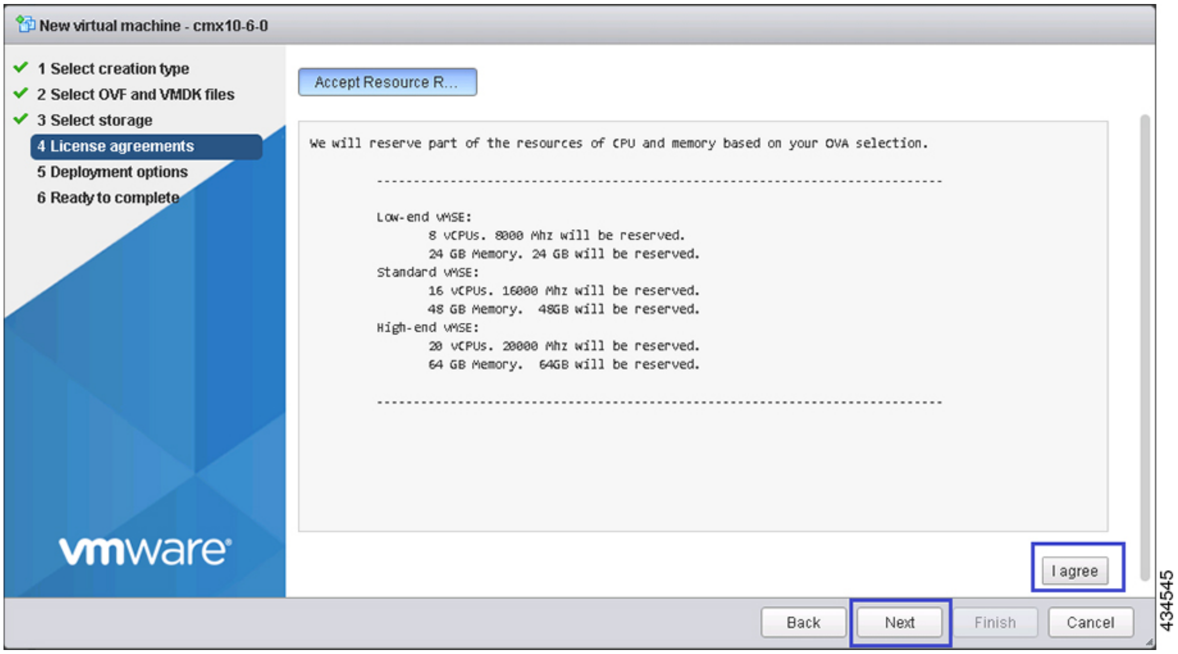
The following datastores are accessible from the destination resource that you selected. Select the destination datastore for the virtual machine configuration files and all of the virtual disks.

Name	Capacity	Free	Type	Thin pro...	Access
datastore1	5.44 TB	5.44 TB	VMFS5	Supported	Single

1 items

Step 6 Click **I Agree** to accept the End User License Agreement and then click **Next**.

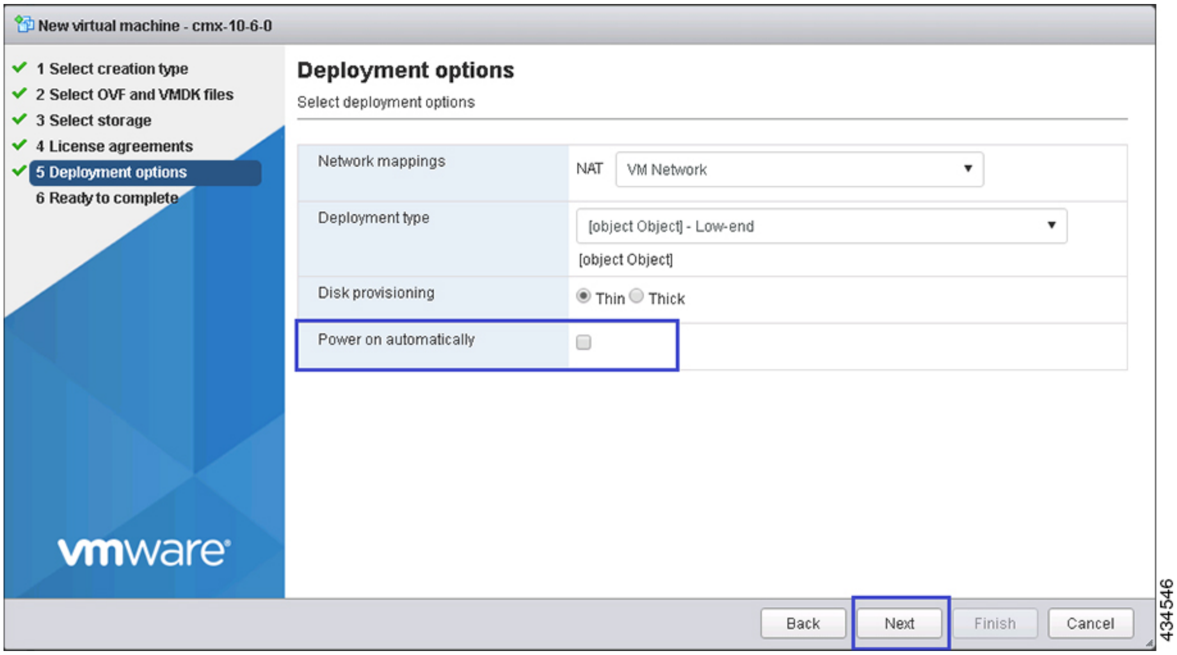
Figure 5: License Agreements



```
We will reserve part of the resources of CPU and memory based on your OVA selection.

        ---------------------------------------------------------------------------

        Low-end vMSE:
               8 vCPUs. 8000 Mhz will be reserved.
               24 GB Memory. 24 GB will be reserved.
        Standard vMSE:
               16 vCPUs. 16000 Mhz will be reserved.
               48 GB Memory.  48GB will be reserved.
        High-end vMSE:
               20 vCPUs. 20000 Mhz will be reserved.
               64 GB Memory.  64GB will be reserved.

        ---------------------------------------------------------------------------
```

Step 7 Select the deployment options. Ensure that **Power on automatically** is not checked.

Figure 6: Deployment Options



New virtual machine - cmx-10-6-0

- ✓ 1 Select creation type
- ✓ 2 Select OVF and VMDK files
- ✓ 3 Select storage
- ✓ 4 License agreements
- ✓ 5 Deployment options
- 6 Ready to complete

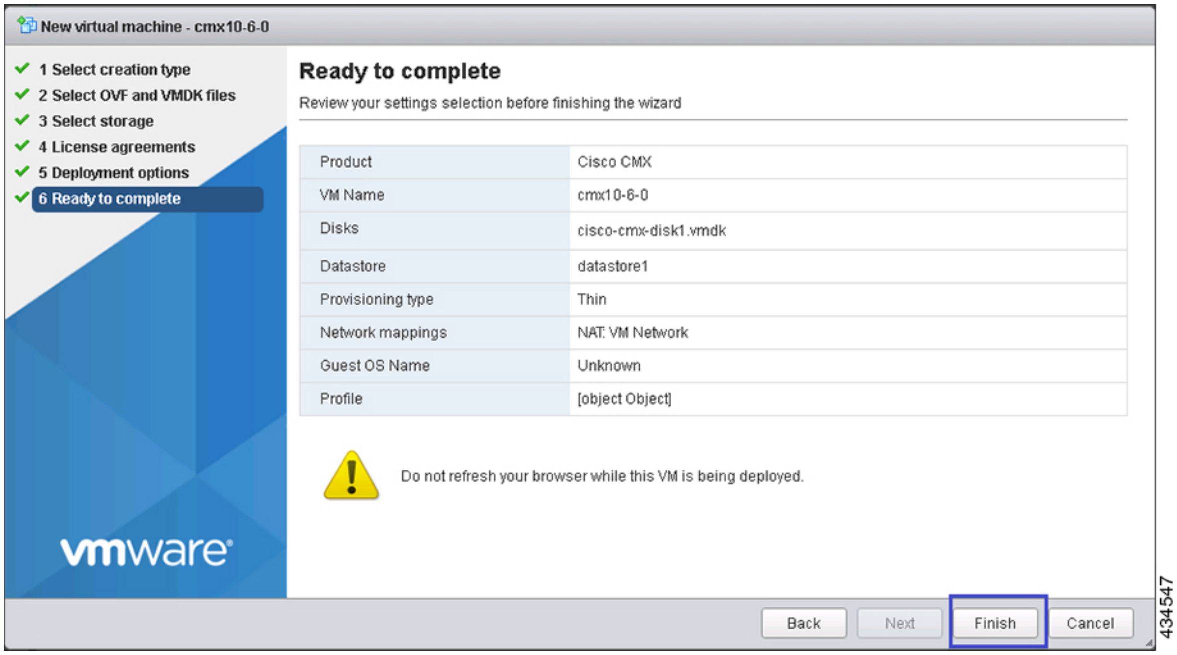
Deployment options

Select deployment options

Network mappings	NAT VM Network
Deployment type	[object Object] - Low-end [object Object]
Disk provisioning	● Thin ○ Thick
Power on automatically	□

Step 8 In the Ready to complete section, review the settings and click **Finish**. Ensure that you do not refresh the browser while the VM is deployed.

Figure 7: Verify Settings



New virtual machine - cmx10-6-0

- ✓ 1 Select creation type
- ✓ 2 Select OVF and VMDK files
- ✓ 3 Select storage
- ✓ 4 License agreements
- ✓ 5 Deployment options
- ✓ 6 Ready to complete

Ready to complete

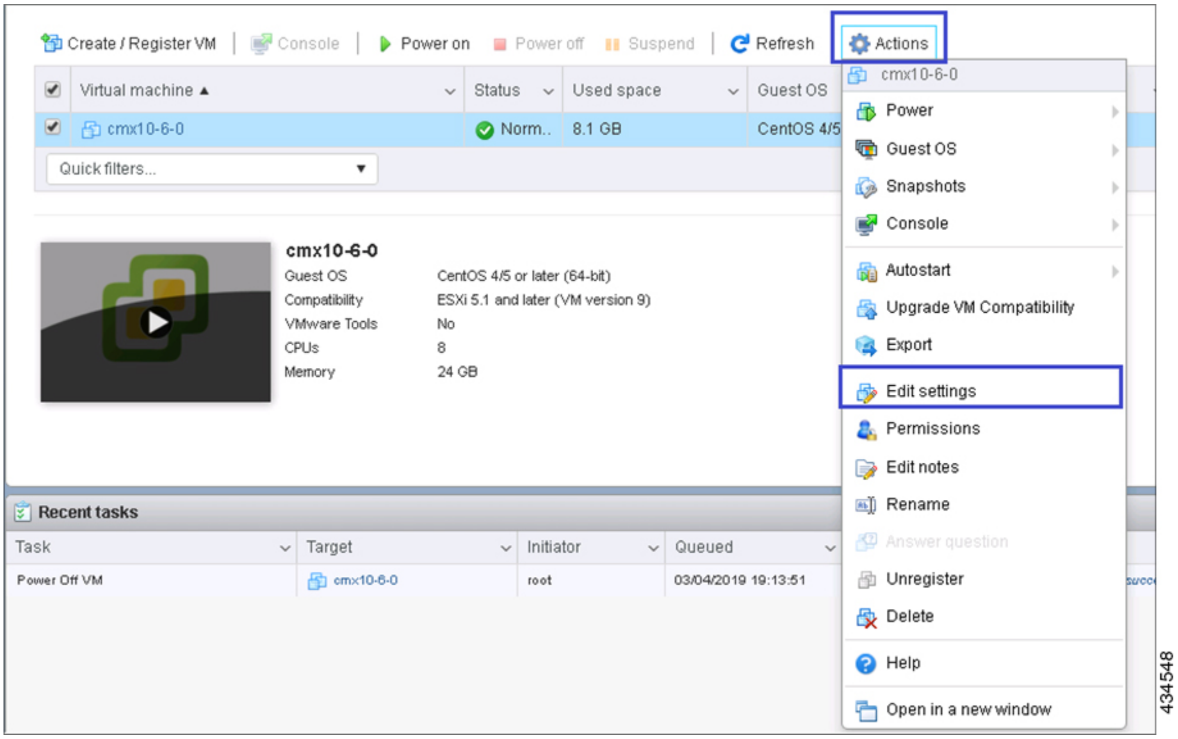
Review your settings selection before finishing the wizard

Product	Cisco CMX
VM Name	cmx10-6-0
Disks	cisco-cmx-disk1.vmdk
Datastore	datastore1
Provisioning type	Thin
Network mappings	NAT: VM Network
Guest OS Name	Unknown
Profile	[object Object]

Do not refresh your browser while this VM is being deployed.

Step 9 Click the deployed VM and choose **Actions** > **Edit settings**.

Figure 8: Edit Settings



☑	Virtual machine ▲	Status	Used space	Guest OS
☑	cmx10-6-0	Norm..	8.1 GB	CentOS 4/5

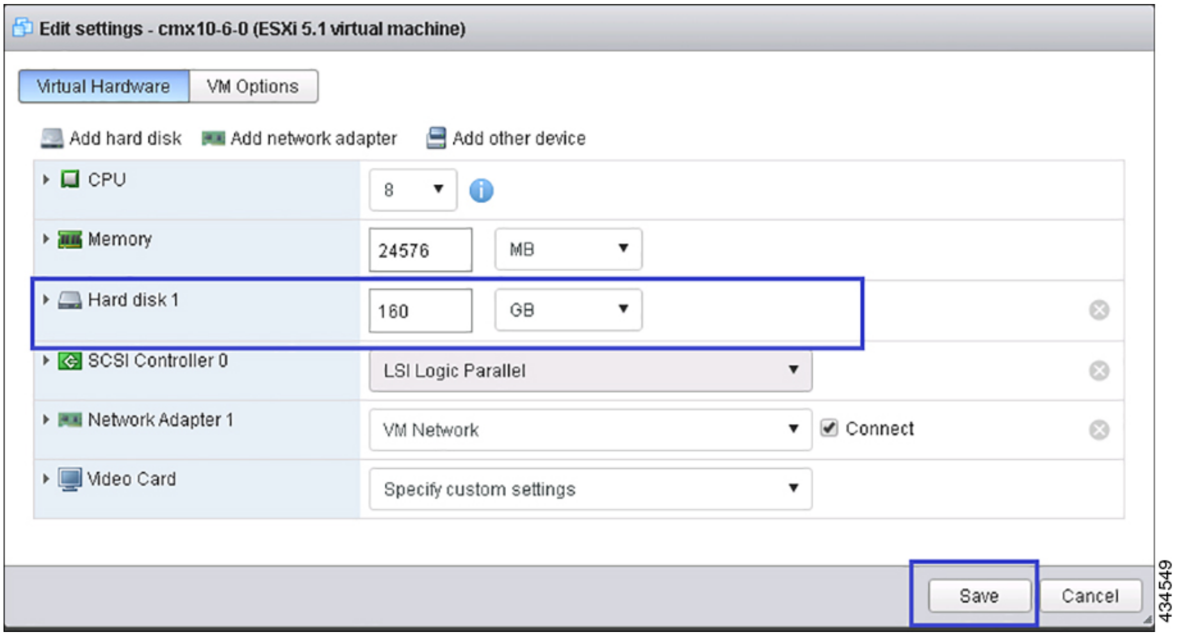
cmx10-6-0

Guest OS	CentOS 4/5 or later (64-bit)
Compatibility	ESXi 5.1 and later (VM version 9)
VMware Tools	No
CPUs	8
Memory	24 GB

Task	Target	Initiator	Queued
Power Off VM	cmx10-6-0	root	03/04/2019 19:13:51

Step 10 Click **Hard disk**, modify the provisioned size to match the instance requirement and click **Save**. The default size is 160 GB.

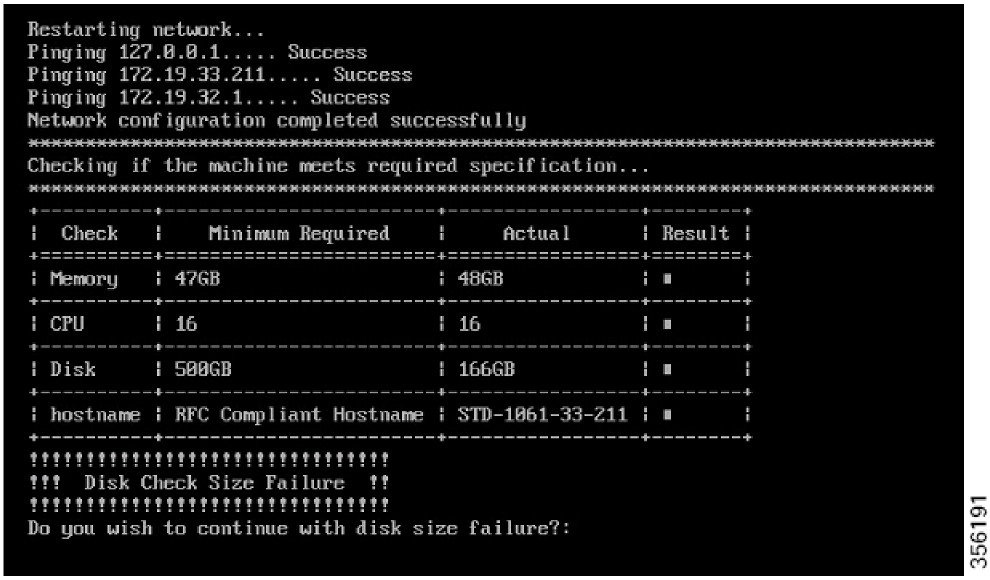
Figure 9: Hard Disk Provisioned Size



Edit settings - cmx10-6-0 (ESXi 5.1 virtual machine)

CPU	8
Memory	24576 MB
Hard disk 1	160 GB
SCSI Controller 0	LSI Logic Parallel
Network Adapter 1	VM Network ☑ Connect
Video Card	Specify custom settings

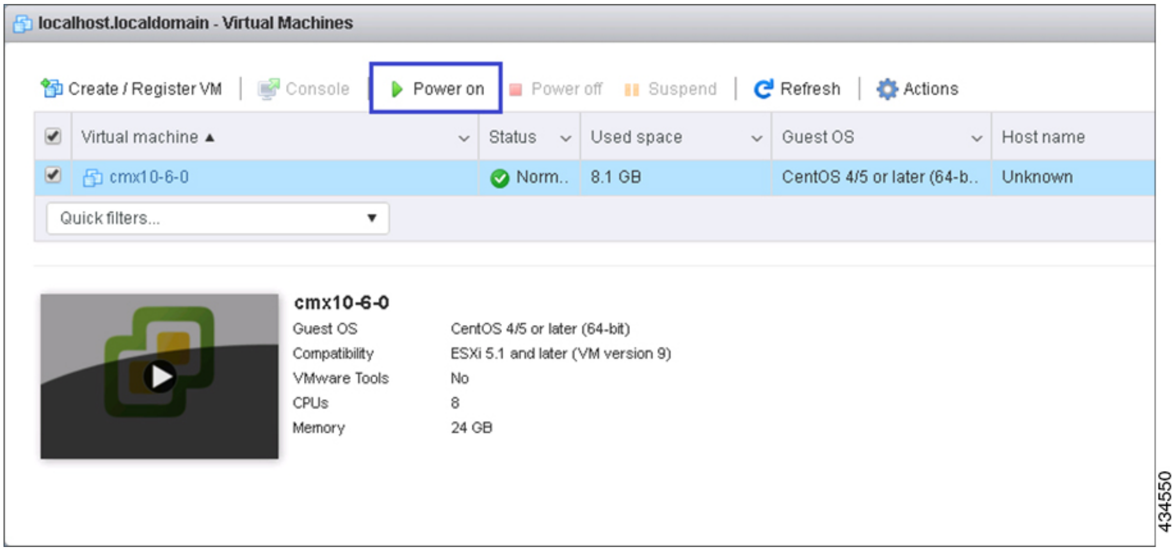
Note If the instance is powered on, it will display a warning message for the Hard Disk Size Failure (for Standard and High End instances) as shown below.



```
Restarting network...
Pinging 127.0.0.1..... Success
Pinging 172.19.33.211..... Success
Pinging 172.19.32.1..... Success
Network configuration completed successfully
********************************************************************************
Checking if the machine meets required specification...
********************************************************************************
+----------+-----------------------+-----------------+--------+
|  Check   |    Minimum Required   |     Actual      | Result |
+==========+=======================+=================+========+
| Memory   | 47GB                  | 48GB            | ■      |
+----------+-----------------------+-----------------+--------+
| CPU      | 16                    | 16              | ■      |
+----------+-----------------------+-----------------+--------+
| Disk     | 500GB                 | 166GB           | ■      |
+----------+-----------------------+-----------------+--------+
| hostname | RFC Compliant Hostname | STD-1061-33-211 | ■      |
+----------+-----------------------+-----------------+--------+
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!  Disk Check Size Failure  !!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Do you wish to continue with disk size failure?:
```

Step 11 Click **Power on** to power on the VM. The first boot takes a while as the new disk has to be expanded.

Figure 10: Power On VM



Virtual machine ▲	Status	Used space	Guest OS	Host name
☑ cmx10-6-0	✓ Norm..	8.1 GB	CentOS 4/5 or later (64-b..	Unknown

cmx10-6-0

Guest OS	CentOS 4/5 or later (64-bit)
Compatibility	ESXi 5.1 and later (VM version 9)
VMware Tools	No
CPUs	8
Memory	24 GB

Configuring Cisco CMX Release 10.5.x and Later

After the Cisco CMX is deployed, you can install and configure a Cisco CMX virtual machine (VM). Note the following points:

- Cisco CMX does not have a node install menu. However, there is a first-boot script that checks if a configuration exists on the device. If the script does not find a valid configuration, it launches the setup routine and initiates network configuration tasks using the CLI, followed by the initial setup tasks on the browser.
- The new first-boot script determines if the initial configuration is completed, and then displays the normal login prompt. If the initial configuration is not completed, the default login prompt is displayed.

Note The **cmxctl node install** command is no longer valid.

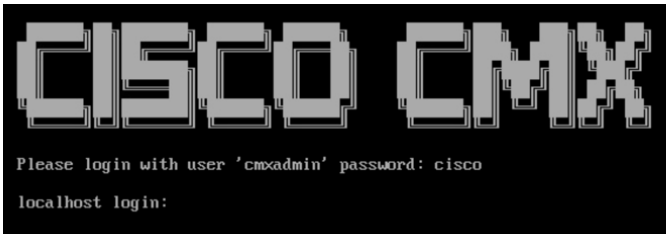
To install and configure a Cisco CMX VM, follow these steps:

Step 1 Right-click the Cisco CMX VM and click **Open Console.**

The CentOS initial boot displays 3 options, with the last option, **rescue image**, being selected by default. Retain the selection and wait for 5 seconds.

Step 2 Enter the login name cmxadmin and password cisco, as prompted.

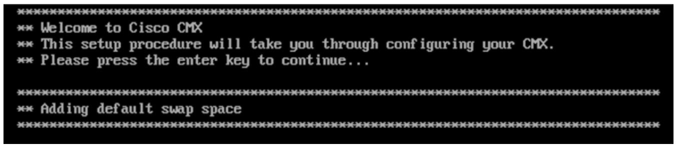
Figure 11: Console Window



```
Please login with user 'cmxadmin' password: cisco

localhost login:
```

Step 3 Press **Enter** when prompted, as shown in the figure below.

Figure 12: Press Enter



```
********************************************************************************
** Welcome to Cisco CMX
** This setup procedure will take you through configuring your CMX.
** Please press the enter key to continue...

********************************************************************************
** Adding default swap space
********************************************************************************
```

Step 4 Enter a new password for the root user and reconfirm it when prompted. The password should meet the minimum requirements listed on the screen.

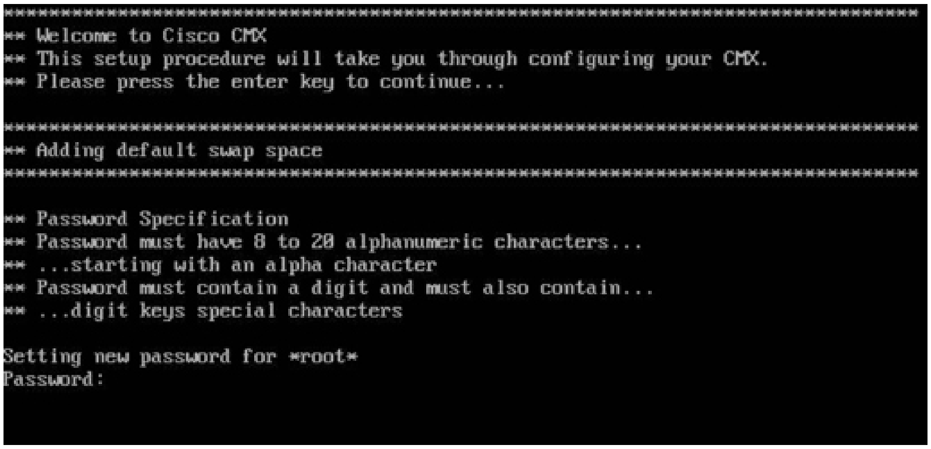
Note The root password is used only for the root operating system configuration and not for the cmxadmin user functions.

Starting Cisco CMX Release 10.6.3, you are not required to enter new password for root user.

Step 5 Enter a new password for cmxadmin user and reconfirm it. The password should meet the minimum requirements listed on the screen.

Note The cmxadmin password is used for logging in to the Cisco CMX account for future network admin configurations.

Figure 13: Set Passwords

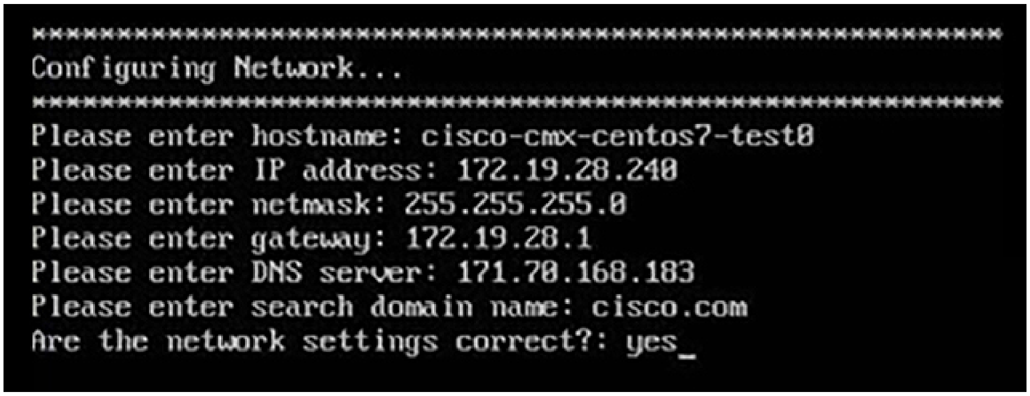


```
********************************************************************************
** Welcome to Cisco CMX
** This setup procedure will take you through configuring your CMX.
** Please press the enter key to continue...

********************************************************************************
** Adding default swap space
********************************************************************************

** Password Specification
** Password must have 8 to 20 alphanumeric characters...
** ...starting with an alpha character
** Password must contain a digit and must also contain...
** ...digit keys special characters

Setting new password for *root*
Password:
```

Step 6 Enter the following network configuration parameters when prompted.

- **Hostname**
- **IP Address**
- **Netmask**
- **Gateway**
- **DNS Server**
- **Search Domain Name**

Figure 14: Network Configuration Parameters

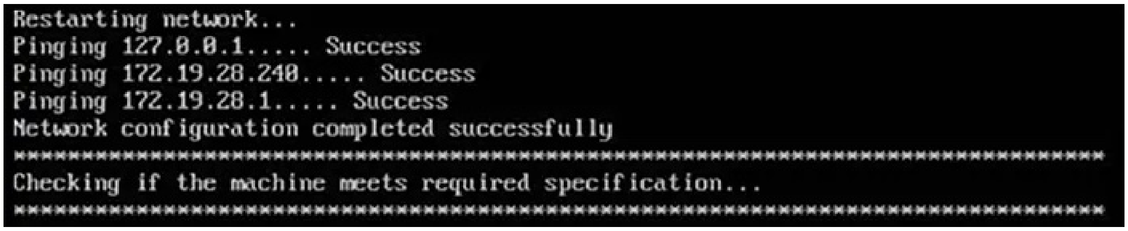


```
************************************************************
Configuring Network...
************************************************************
Please enter hostname: cisco-cmx-centos7-test0
Please enter IP address: 172.19.28.240
Please enter netmask: 255.255.255.0
Please enter gateway: 172.19.28.1
Please enter DNS server: 171.70.168.183
Please enter search domain name: cisco.com
Are the network settings correct?: yes_
```

Step 7 Confirm the network configurations when prompted.

Step 8 The network is restarted and a success message is displayed.

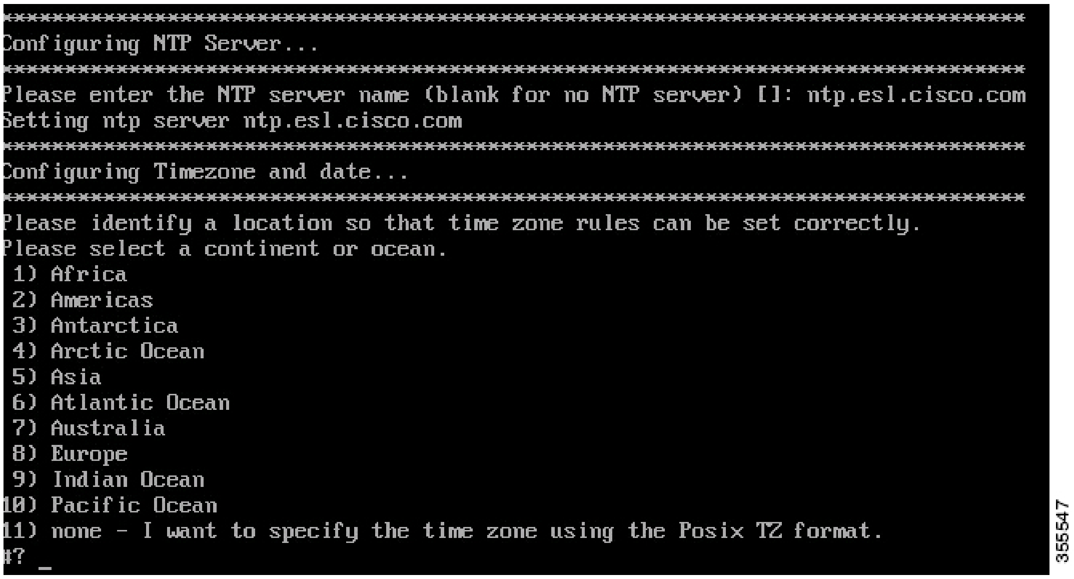
Figure 15: Network Configuration Success Message



```
Restarting network...
Pinging 127.0.0.1..... Success
Pinging 172.19.28.240..... Success
Pinging 172.19.28.1..... Success
Network configuration completed successfully
*****************************************************************************
Checking if the machine meets required specification...
*****************************************************************************
```

Step 9 (Optional) Enter the NTP server name or the IP address of the NTP server when prompted.

Figure 16: NTP Server Configuration



```
*****************************************************************************
Configuring NTP Server...
*****************************************************************************
Please enter the NTP server name (blank for no NTP server) []: ntp.esl.cisco.com
Setting ntp server ntp.esl.cisco.com
*****************************************************************************
Configuring Timezone and date...
*****************************************************************************
Please identify a location so that time zone rules can be set correctly.
Please select a continent or ocean.
 1) Africa
 2) Americas
 3) Antarctica
 4) Arctic Ocean
 5) Asia
 6) Atlantic Ocean
 7) Australia
 8) Europe
 9) Indian Ocean
10) Pacific Ocean
11) none - I want to specify the time zone using the Posix TZ format.
#? _
```

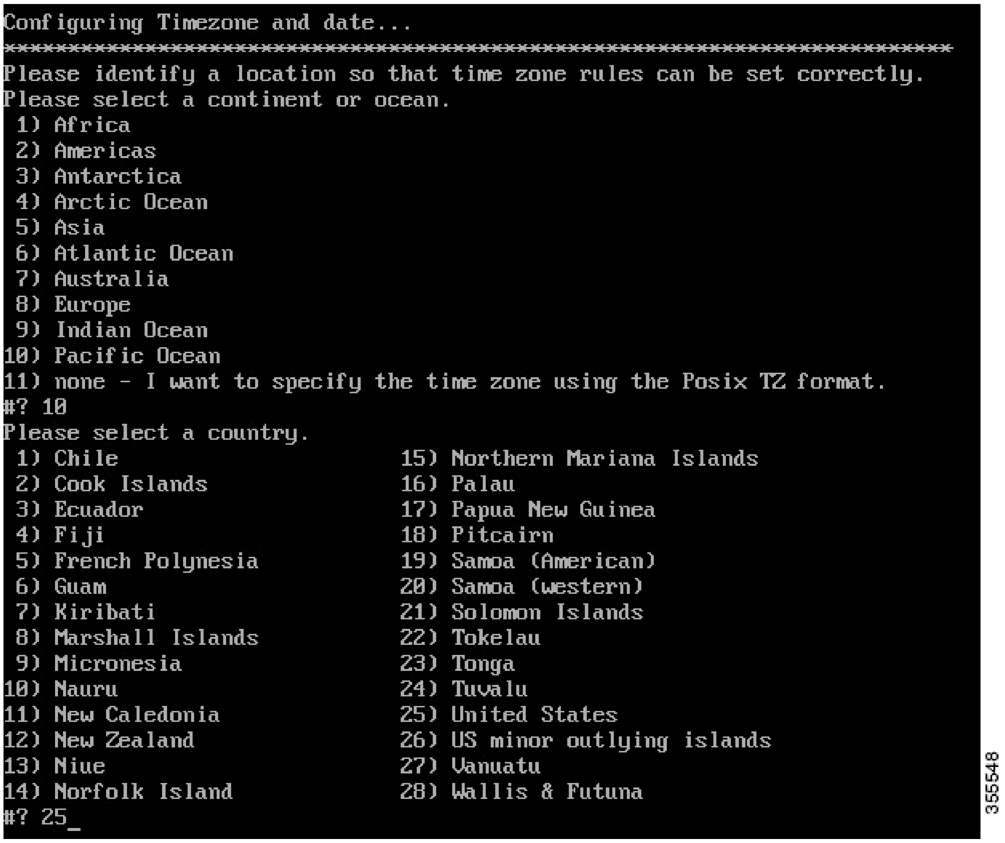
Note

- After installation, the task of changing the NTP information either through the CLI or the GUI is not supported. Use the **cmxos reconfigure** command from the CMX CLI to change the NTP information. The following example shows a workaround to change the NTP information.

```
cmxctl stop
cmxctl stop ?a
!Go to root user
su
!Run the timezone script
/opt/cmx/bin/tzselect
!Logout of the box
exit
!Log back in and check the timezone
date
!Restart the services
cmxctl start agent
cmxctl start
```

Step 10 Configure a time zone and save the changes.

Figure 17: Configuring a Time Zone

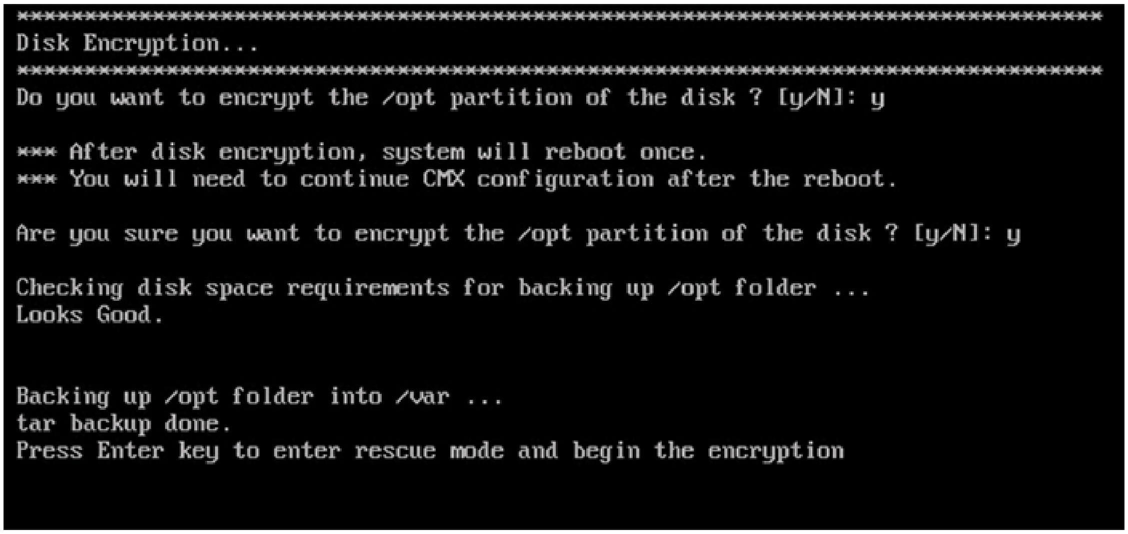


```
Configuring Timezone and date...
***************************************************************************
Please identify a location so that time zone rules can be set correctly.
Please select a continent or ocean.
 1) Africa
 2) Americas
 3) Antarctica
 4) Arctic Ocean
 5) Asia
 6) Atlantic Ocean
 7) Australia
 8) Europe
 9) Indian Ocean
10) Pacific Ocean
11) none - I want to specify the time zone using the Posix TZ format.
#? 10
Please select a country.
 1) Chile                     15) Northern Mariana Islands
 2) Cook Islands              16) Palau
 3) Ecuador                   17) Papua New Guinea
 4) Fiji                      18) Pitcairn
 5) French Polynesia          19) Samoa (American)
 6) Guam                      20) Samoa (western)
 7) Kiribati                  21) Solomon Islands
 8) Marshall Islands          22) Tokelau
 9) Micronesia                23) Tonga
10) Nauru                     24) Tuvalu
11) New Caledonia             25) United States
12) New Zealand               26) US minor outlying islands
13) Niue                      27) Vanuatu
14) Norfolk Island            28) Wallis & Futuna
#? 25_
```

Step 11 (Optional) Encrypt the /opt partition of the disk. You can perform disk encryption during the installation process or at a later time.

- If you do not want to perform disk encryption, enter **N** and complete the CMX operating system configuration process. However, we recommend that you perform disk encryption after the CMX operating system configuration is complete, using the **cmxos encryptdisk** command. The time taken for disk encryption is equal to the amount of data available on the /opt partition.
- If you want to perform disk encryption, enter **y**. The system performs the /opt folder backup operation and enters the rescue mode. Confirm the passphrase for encrypting the disk. A system reboot is mandatory if you perform disk encryption during the installation. After the reboot, you must complete the CMX operating system configuration from https://<*ip address or CMX DNS name*>:1984.

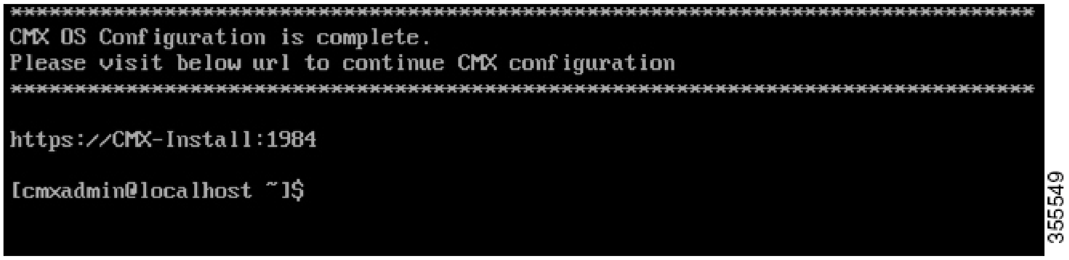
Figure 18: Disk Encryption



```
******************************************************************************
Disk Encryption...
******************************************************************************
Do you want to encrypt the /opt partition of the disk ? [y/N]: y

*** After disk encryption, system will reboot once.
*** You will need to continue CMX configuration after the reboot.

Are you sure you want to encrypt the /opt partition of the disk ? [y/N]: y

Checking disk space requirements for backing up /opt folder ...
Looks Good.


Backing up /opt folder into /var ...
tar backup done.
Press Enter key to enter rescue mode and begin the encryption
```

Step 12 Access the URL when prompted.

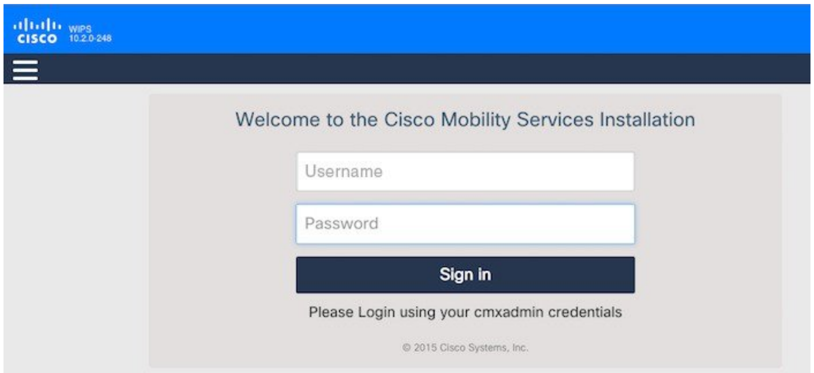
Figure 19: Access URL for CMX Configuration - No Disk Encryption



```
******************************************************************************
CMX OS Configuration is complete.
Please visit below url to continue CMX configuration
******************************************************************************

https://CMX-Install:1984

[cmxadmin@localhost ~]$
```

Step 13 Open the URL https://<*ip-address*>:1984 when prompted in the browser. The Cisco Mobility Services Installation sign-in window is displayed.

Figure 20: Sign-In Window



Welcome to the Cisco Mobility Services Installation

Please Login using your cmxadmin credentials

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Step 14 Enter your cmxadmin credentials and proceed with the installation.

Note Use Step 13 and Step 14 while installing a new CMX VM.

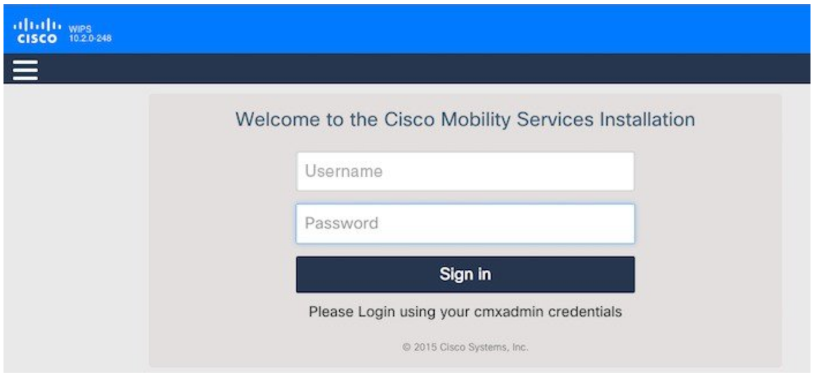
Installing Cisco CMX Using Web Interface

Launch the Cisco CMX user interface using Google Chrome 40 or later, and follow these steps:

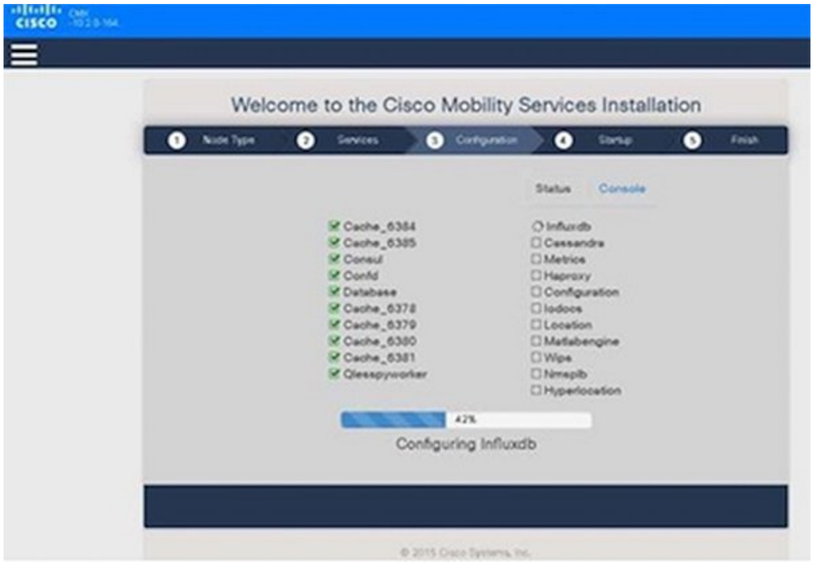
Step 1 In the Cisco CMX web interface, enter the login credentials for a Cisco CMX administrator and click **Sign in** to continue.

The login username is **cmxadmin**. Use the password that was configured when the system was started for the first time.

Figure 21: Welcome Window


WIPS
10.2.0-248
Welcome to the Cisco Mobility Services Installation
Username
Password
Sign in
Please Login using your cmxadmin credentials
© 2015 Cisco Systems, Inc.

Step 2 Choose the Cisco CMX type as either **Location** or **Presence**.
The installation is initiated and services are started. Note that this may take a few minutes.


CMX
Welcome to the Cisco Mobility Services Installation
1 Node Type
2 Services
3 Configuration
4 Startup
5 Finish
Status
Console

☑ Cache_6384
☑ Cache_6385
☑ Consul
☑ Confd
☑ Database
☑ Cache_6378
☑ Cache_6379
☑ Cache_6380
☑ Cache_6381
☑ Qlesspyworker

○ Influxdb
□ Cassandra
□ Metrics
□ Haproxy
□ Configuration
□ Iodocs
□ Location
□ Matlabengine
□ Wips
□ Nmsplb
□ Hyperlocation

42%
Configuring Influxdb

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The sequence of events is as follows:

a. Consul Configuration

b. DB Installation

c. Schema Migration

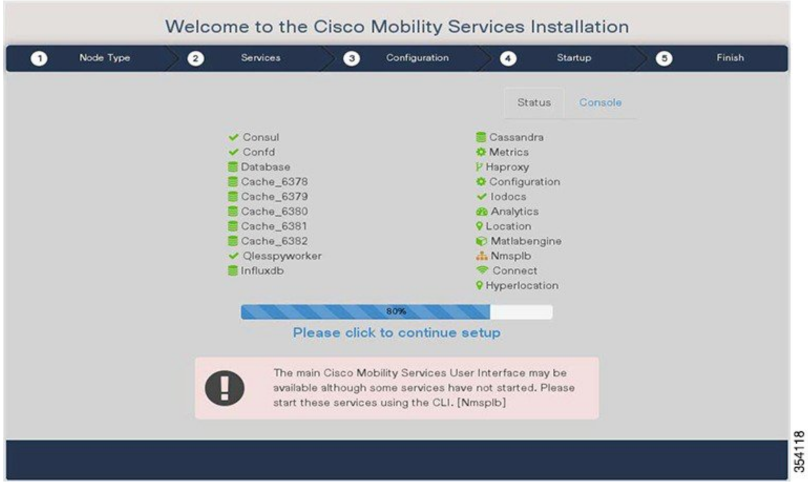
d. InfluxDB Configuration

e. Cassandra Installation

f. Node Registration

Step 3 Click **Please click to continue setup** or press **Enter** to proceed to the main portal.

Note You can monitor the progress of the installation either through the graphical status display or the console output. Note that this console is for display only.

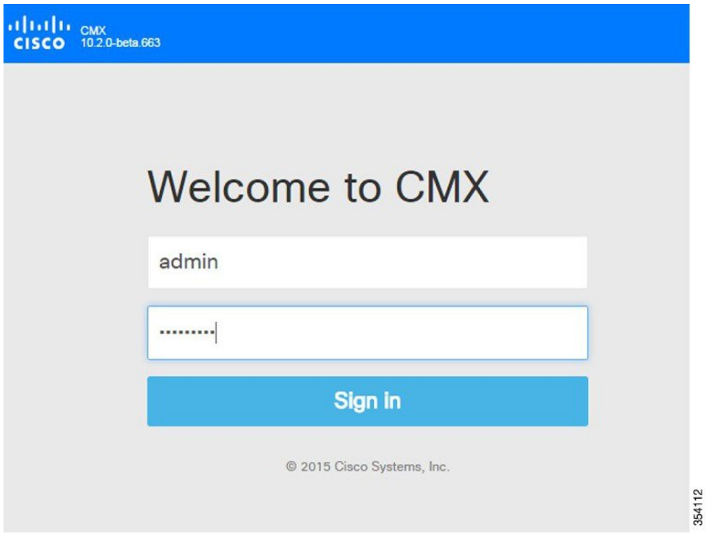


The main Cisco Mobility Services User Interface may be available although some services have not started. Please start these services using the CLI. [Nmsplb]

The installation is complete. If this is a reinstallation, the **Cisco CMX Welcome** window is displayed. If this is a fresh installation, the user is automatically authenticated and the **Cisco CMX Welcome** is skipped.

Step 4 Log in with the username **admin** and password **admin**.

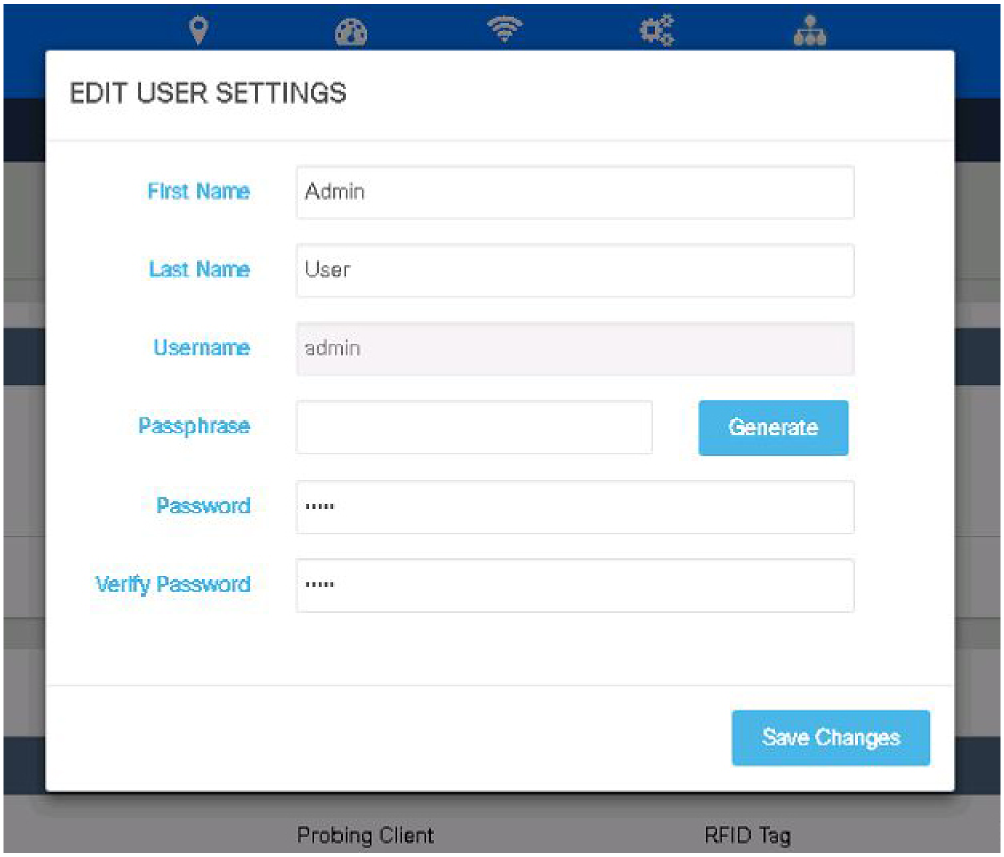
Figure 22: Welcome Screen



What to do next

A **Edit User Settings** window is displayed, from where you can complete the initial configuration. You must now set a password for the admin user using this window.

Figure 23: Edit User Settings



EDIT USER SETTINGS

First Name: Admin

Last Name: User

Username: admin

Passphrase:

Password: ·····

Verify Password: ·····

Procced to import Cisco WLC details and maps from Cisco Prime Infrastructure, and configure and test mail server settings.

Use https://<ip address> for all subsequent logins to the web user interface. Use https:// <ip-address>:1984 only for initial configuration.

Upgrading from Cisco CMX 10.5 to 10.6.0 and Later

There are three options to upgrade from Cisco CMX 10.5 to Cisco CMX 10.6:

- Option 1—Copy the Cisco CMX image into the Cisco CMX node, and then use the **cmxos upgrade** <*cmx-file*> command from the command line to perform the upgrade.
- Option 2—Use the web installer on port 1984, and choose **Remote File** to download the Cisco CMX image from a hosted site, for example, the Cisco CMX image may be available in an internal web server for download.
- Option 3—Use the web installer on port 1984, and choose **Local File** to upload the Cisco CMX image from your local machine through the web browser.

Note

- For upgrading to Cisco CMX 10.6.1, we recommend Option 1.
- If Option 2 or Option 3 is used then you may see that the web installer not showing the 100% completion on the screen. However the actual upgrade would have completed. We recommend that you wait for 20 minutes and run the **cmxctl status** command to confirm the upgrade status.
- We recommend that before performing a Cisco CMX install or upgrade, ensure that the certificates installed on Cisco CMX are valid and not expired. Cisco CMX upgrade will fail if the certificate is invalid or expired. For example, an invalid or expired certificate might cause failure during upgrade at Postgres / Database step.
- As a workaround to resolve the certificate issue during upgrade proces, you can clear the existing certificate using **cmxctl config certs clear** command followed by creating new valid certificate using **cmxctl config certs installnewcerts** command.

Verifying Installation of Cisco CMX in a VMware Virtual Machine

You can verify the overall system health and status of the Cisco CMX services using the **System** tab in the Cisco CMX user interface. Ensure that all the services, memory, and CPU indicate a healthy status (green) for each Cisco CMX and Cisco CMX node, and that there is at least 1 active Cisco WLC.

The **System** tab contains the following subtabs:

- **Dashboard**—Provides an overall view of the system.
- **Alerts**—Enables you to view live alerts.
- **Patterns**—Enables you to detect patterns of various criteria, such as Client Count, CPU Usage, Memory Usage, and so on.
- **Metrics**—Enables you to view system metrics.