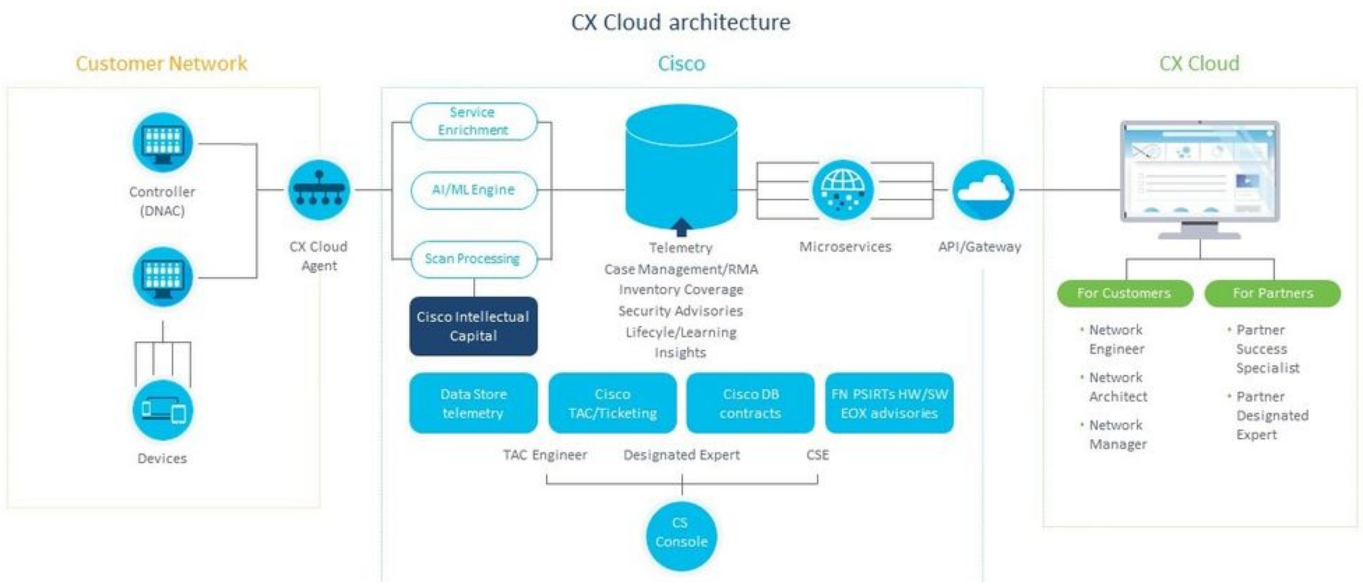
CX Cloud Agent Overview

Contents

Overview

Cisco's Customer Experience (CX) Cloud Agent is a modernized modular on-prem software platform that unifies all existing on-prem applications into lightweight containerized microservice capabilities. These capabilities can be installed, configured, and managed on customer premise from the cloud. CX Cloud Agent is a major advancement in how we create, deploy, and manage on-prem software capabilities that are tied to business offers. It expedites the monetization of new offers, scales existing capabilities, and helps to develop next-generation services driven by big data, analytics, automation, Machine Learning/Artificial Intelligence (ML/AI), and streaming.



CX Cloud Agent Architecture

Prerequisites

CX Cloud Agent runs as a virtual machine (VM) and is available for download as an Open Virtual Appliance (OVA) or a Virtual Hard Disk (VHD).

Requirements to deploy are:

- Any of the following hypervisors: VMWare ESXi version 5.5 or aboveOracle Virtual Box 5.2.30Hypervisor version 2012
- The hypervisor should be able to host a VM which requires: 8 Core CPU16 GB Memory/RAM200GB Disk Space

- For customers storing CX Cloud data in Amazon Web Services (AWS) US data centers:
  The CX Cloud Agent must be able to connect to the following servers, using both the FQDN and the IP address, and using HTTPS on TCP port 443:
  FQDN: concsoweb-prd.cisco.com/**IP address:** 72.163.7.113
- For customers storing CX Cloud data in AWS APJC data centers:
  The CX Cloud Agent must be able to connect to the following servers, using both the FQDN and the IP address, and using HTTPS on TCP port 443:
  FQDN: concsoweb-prd.cisco.com/**IP address:** 72.163.7.113
- For customers storing CX Cloud data in the AWS European data centers:
  The CX Cloud Agent must be able to connect to both of the following servers, using both the FQDN and the IP address, and using HTTPS on TCP port 443:
  FQDN: concsoweb-prd.cisco.com/**IP address:** 72.163.7.113
  FQDN: concsoweb3-prd.cisco.com/**IP address:** 173.38.212.48
- For customers using the AWS European region, connectivity to FQDN: concsoweb-prd.cisco.com IP address: 72.163.7.113 is required only for registering the CX Cloud Agent with CX Cloud during initial setup. Once the CX Cloud Agenered with CX Cloud, this connection is no longer required.
- For local management of the CX Cloud Agent, port 22 should be accessible.

Other notes on CX Cloud Agent:

- An IP will automatically be detected if DHCP is enabled in the VM environment otherwise a free IPv4 address must be assigned to the CX Cloud Agent, know about the Subnet mask for the network, the IP of the Default Gateway and optionally the IP of the DNS server
- Only IPv4 is supported, not IPv6
- The certified single node and HA Cluster Cisco Digital Network Architecture (DNA) Center versions from 1.2.8 to 1.3.3.9 and 2.1.2.0 to 2.2.3.0 are required.
- System events (AFM): The CCO ID given at the time of registration should have device contracts associated with it to raise automated TAC cases.

Critical Domains Access

To start the CX Cloud journey, users require access to the following domains.

Major Domains:

- cisco.com
- csco.cloud
- split.io

Other Domains:

- mixpanel.com
- cloudfront.net
- eum-appdynamics.com
- apdynamics.com
- tiqcdn.com
- jquery.com

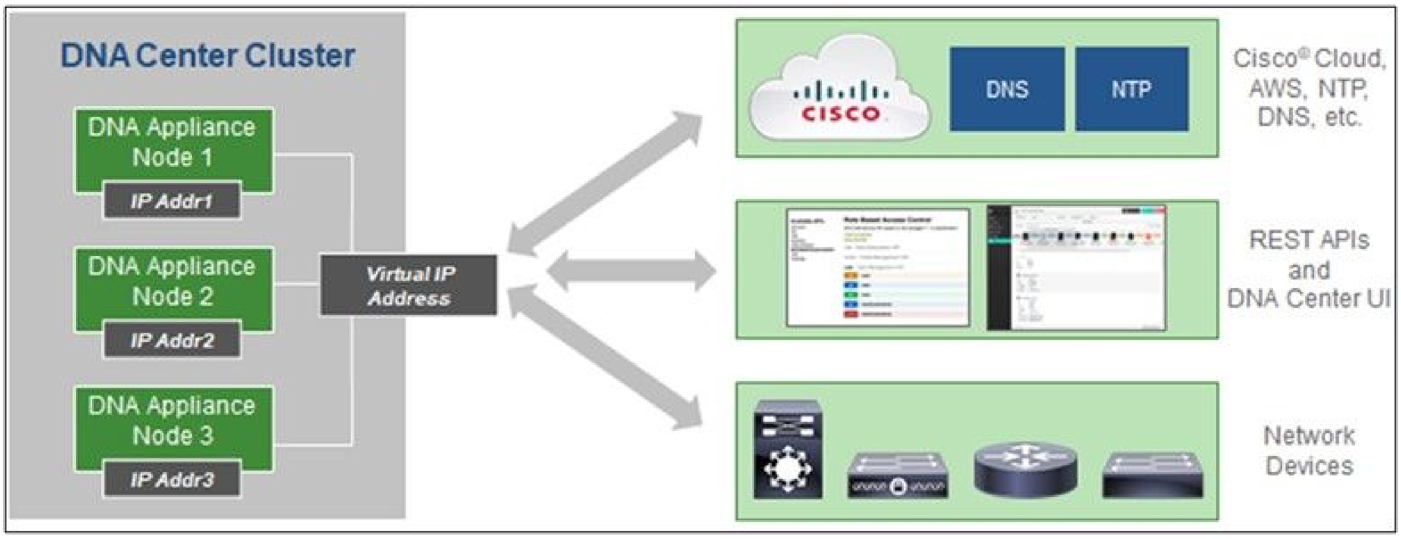
Acronyms

The list of acronyms used in this document are:

- API – Application Program Interface
- BDB – Big Data Broker
- CX – Customer Experience
- DHCP – Dynamic Host Configuration Protocol
- Cisco DNA Center – Cisco Digital Network Architecture Center
- OVA – Open Virtual Appliance
- SSH – Secure Socket Shell
- TLS – Transport Layer Security
- VHD – Virtual Hard Disk

Cisco DNA Center Certified Versions

Certified single node and HA Cluster Cisco DNA Center versions are from 1.2.8 to 1.3.3.9 and 2.1.2.0 to 2.1.2.6.



Multi-Node HA Cluster Cisco DNA Center

Supported Browsers

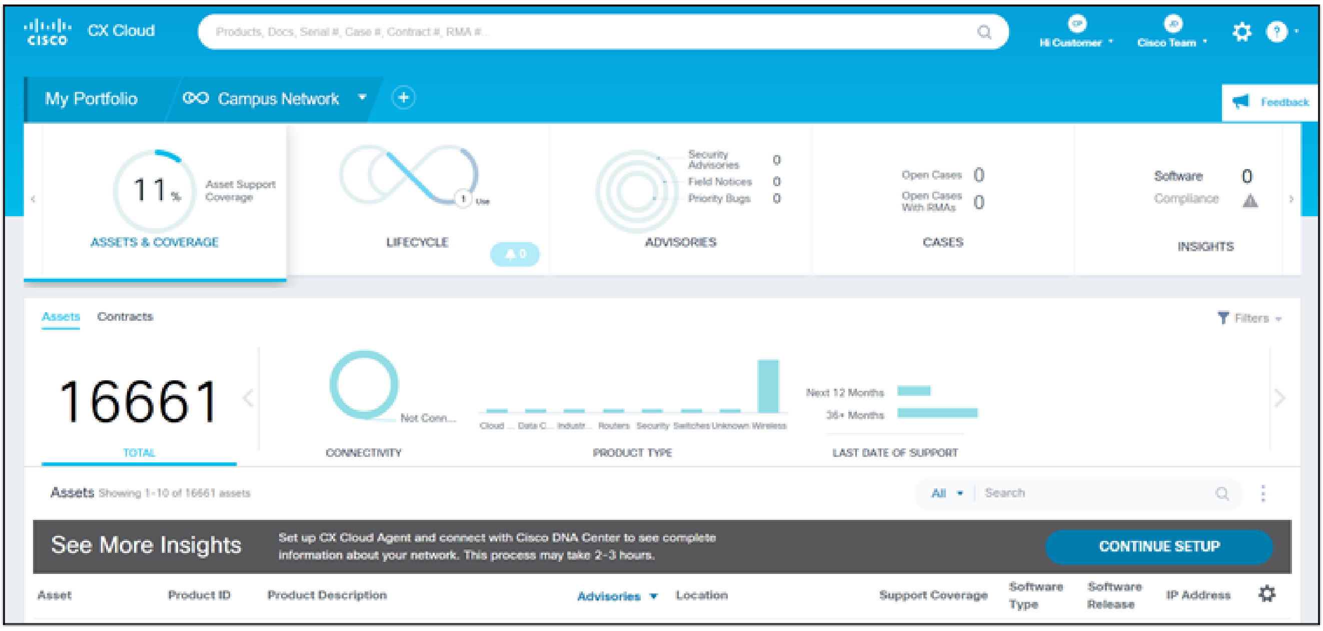
For the best experience on Cisco.com, we recommend the following browsers:

- Google Chrome (latest official release)
- Microsoft Edge (latest official release)
- Mozilla Firefox (latest official release)

Deploying CX Cloud Agent

To deploy CX Cloud Agent:

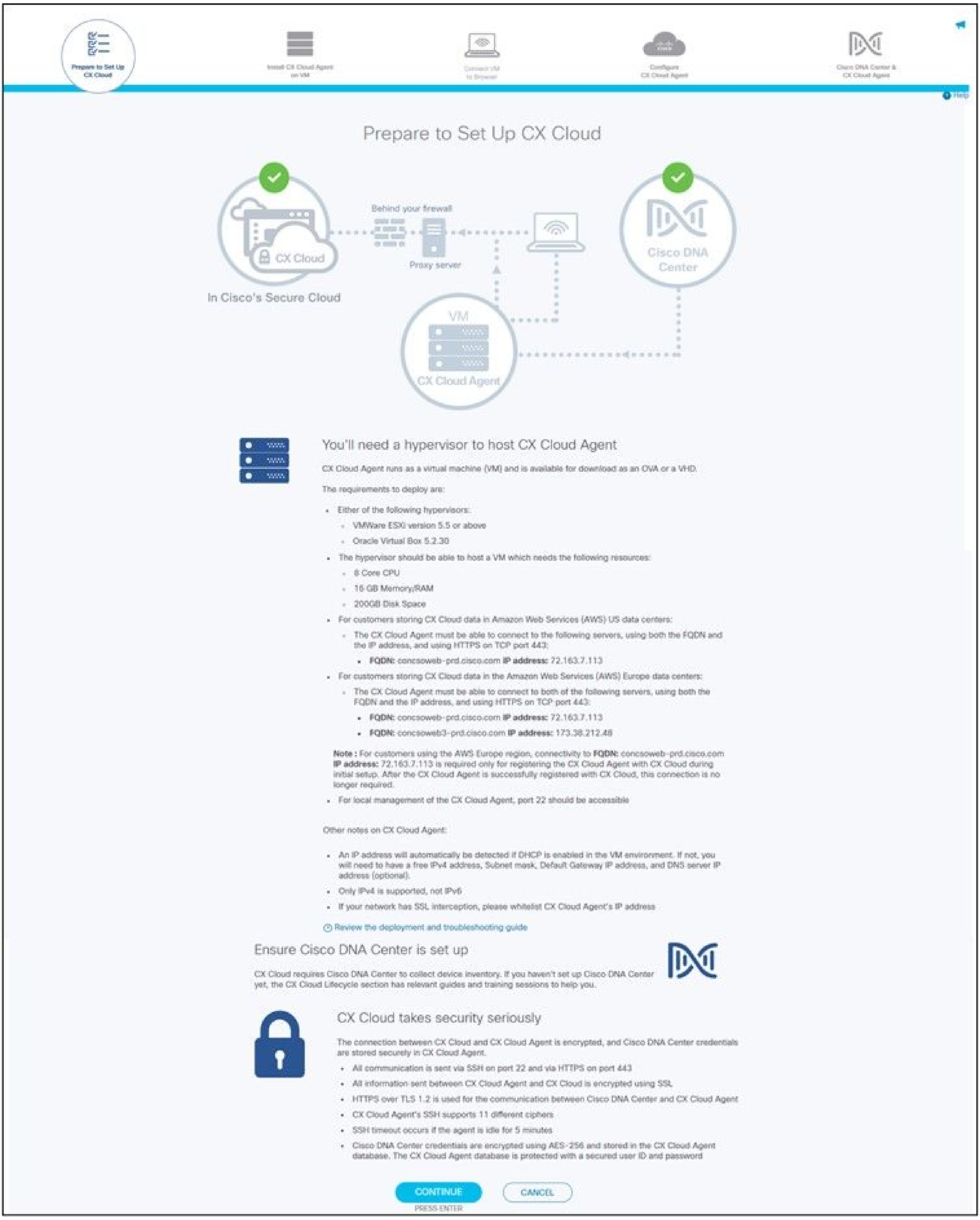
1. Click cx.cisco.com to log in to CX Cloud.
2. Select **Campus Network** and navigate to **Assets & Coverage** tile.
3. Click **Continue Setup** to start the deployment.



Set up CX Cloud Agent and connect with Cisco DNA Center to see complete information about your network. This process may take 2-3 hours.

Home Page

4. Read through the prerequisites and click **Continue**.



Prepare to Set Up CX Cloud

You'll need a hypervisor to host CX Cloud Agent

CX Cloud Agent runs as a virtual machine (VM) and is available for download as an OVA or a VHD.

The requirements to deploy are:

- Either of the following hypervisors:
  - VMWare ESXi version 5.5 or above
  - Oracle Virtual Box 5.2.30
- The hypervisor should be able to host a VM which needs the following resources:
  - 8 Core CPU
  - 16 GB Memory/RAM
  - 200GB Disk Space
- For customers storing CX Cloud data in Amazon Web Services (AWS) US data centers:
  - The CX Cloud Agent must be able to connect to the following servers, using both the FQDN and the IP address, and using HTTPS on TCP port 443:
    - **FQDN:** concsoweb-prd.cisco.com **IP address:** 72.163.7.113
- For customers storing CX Cloud data in the Amazon Web Services (AWS) Europe data centers:
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    - **FQDN:** concsoweb-prd.cisco.com **IP address:** 72.163.7.113
    - **FQDN:** concsoweb3-prd.cisco.com **IP address:** 173.38.212.48

  Note : For customers using the AWS Europe region, connectivity to **FQDN:** concsoweb-prd.cisco.com **IP address:** 72.163.7.113 is required only for registering the CX Cloud Agent with CX Cloud during initial setup. After the CX Cloud Agent is successfully registered with CX Cloud, this connection is no longer required.
- For local management of the CX Cloud Agent, port 22 should be accessible

Other notes on CX Cloud Agent:

- An IP address will automatically be detected if DHCP is enabled in the VM environment. If not, you will need to have a free IPv4 address, Subnet mask, Default Gateway IP address, and DNS server IP address (optional).
- Only IPv4 is supported, not IPv6
- If your network has SSL interception, please whitelist CX Cloud Agent's IP address

Review the deployment and troubleshooting guide

Ensure Cisco DNA Center is set up

CX Cloud requires Cisco DNA Center to collect device inventory. If you haven't set up Cisco DNA Center yet, the CX Cloud Lifecycle section has relevant guides and training sessions to help you.

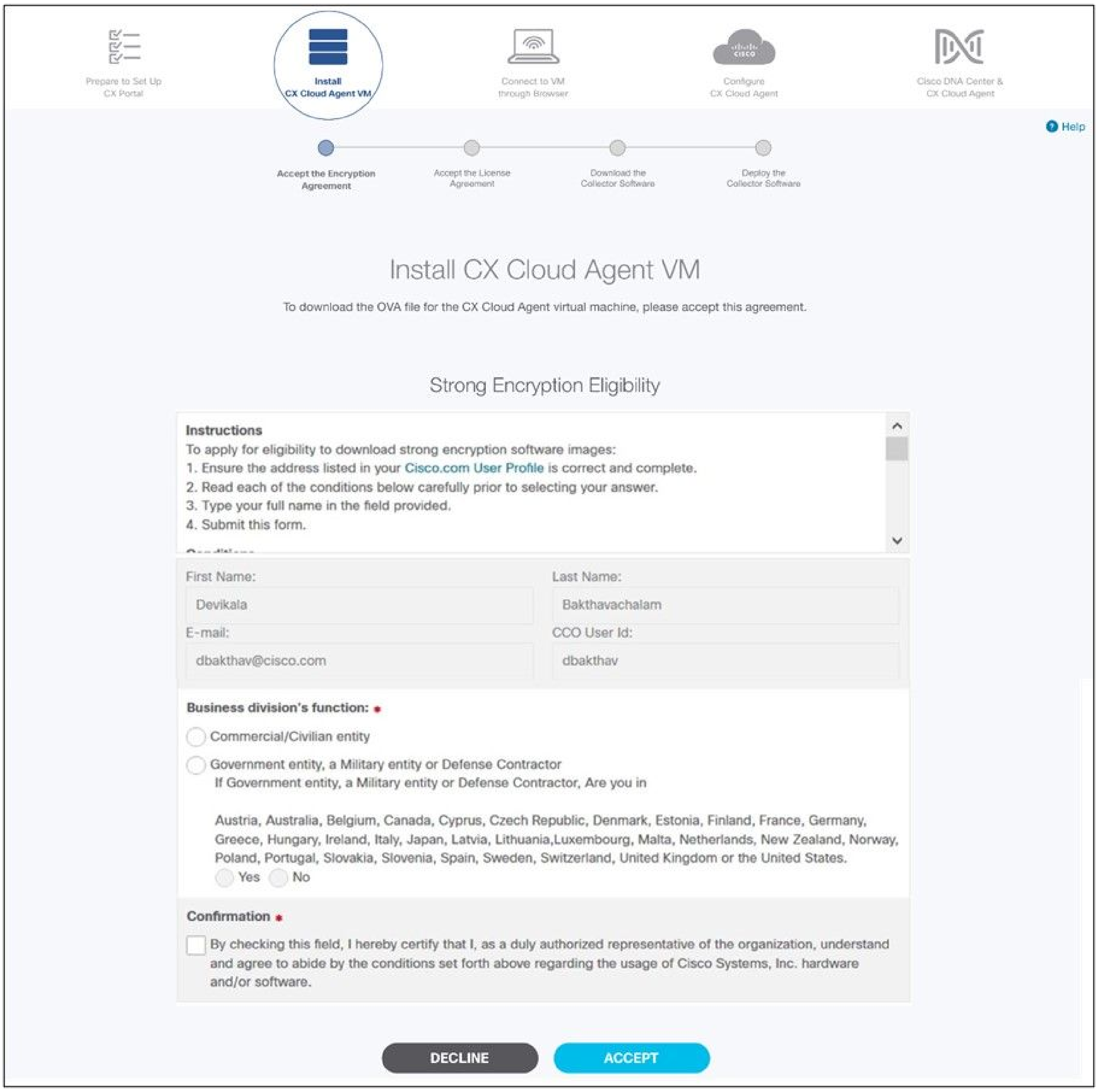
CX Cloud takes security seriously

The connection between CX Cloud and CX Cloud Agent is encrypted, and Cisco DNA Center credentials are stored securely in CX Cloud Agent.

- All communication is sent via SSH on port 22 and via HTTPS on port 443
- All information sent between CX Cloud Agent and CX Cloud is encrypted using SSL
- HTTPS over TLS 1.2 is used for the communication between Cisco DNA Center and CX Cloud Agent
- CX Cloud Agent's SSH supports 11 different ciphers
- SSH timeout occurs if the agent is idle for 5 minutes
- Cisco DNA Center credentials are encrypted using AES-256 and stored in the CX Cloud Agent database. The CX Cloud Agent database is protected with a secured user ID and password

Prerequisites

5. Verify the auto-populated information in the **First Name**, **Last Name**, **E-mail**, and **COO User Id** fields.
6. Select the **Business division's functions**.
7. Indicate whether a listed government entity is applicable.
8. Select the **Confirmation** check box to agree to the usage conditions.
9. Click **Accept** to agree to the Encryption agreement.


Prepare to Set Up CX Portal
Install CX Cloud Agent VM
Connect to VM through Browser
Configure CX Cloud Agent
Cisco DNA Center & CX Cloud Agent
Help
Accept the Encryption Agreement
Accept the License Agreement
Download the Collector Software
Deploy the Collector Software

Install CX Cloud Agent VM

To download the OVA file for the CX Cloud Agent virtual machine, please accept this agreement.

Strong Encryption Eligibility

Instructions

To apply for eligibility to download strong encryption software images:

1. Ensure the address listed in your Cisco.com User Profile is correct and complete.
2. Read each of the conditions below carefully prior to selecting your answer.
3. Type your full name in the field provided.
4. Submit this form.

First Name: Devikala

Last Name: Bakthavachalam

E-mail: dbakthav@cisco.com

CCO User Id: dbakthav

Business division's function: *

○ Commercial/Civilian entity

○ Government entity, a Military entity or Defense Contractor

If Government entity, a Military entity or Defense Contractor, Are you in

Austria, Australia, Belgium, Canada, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Japan, Latvia, Lithuania,Luxembourg, Malta, Netherlands, New Zealand, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, United Kingdom or the United States.

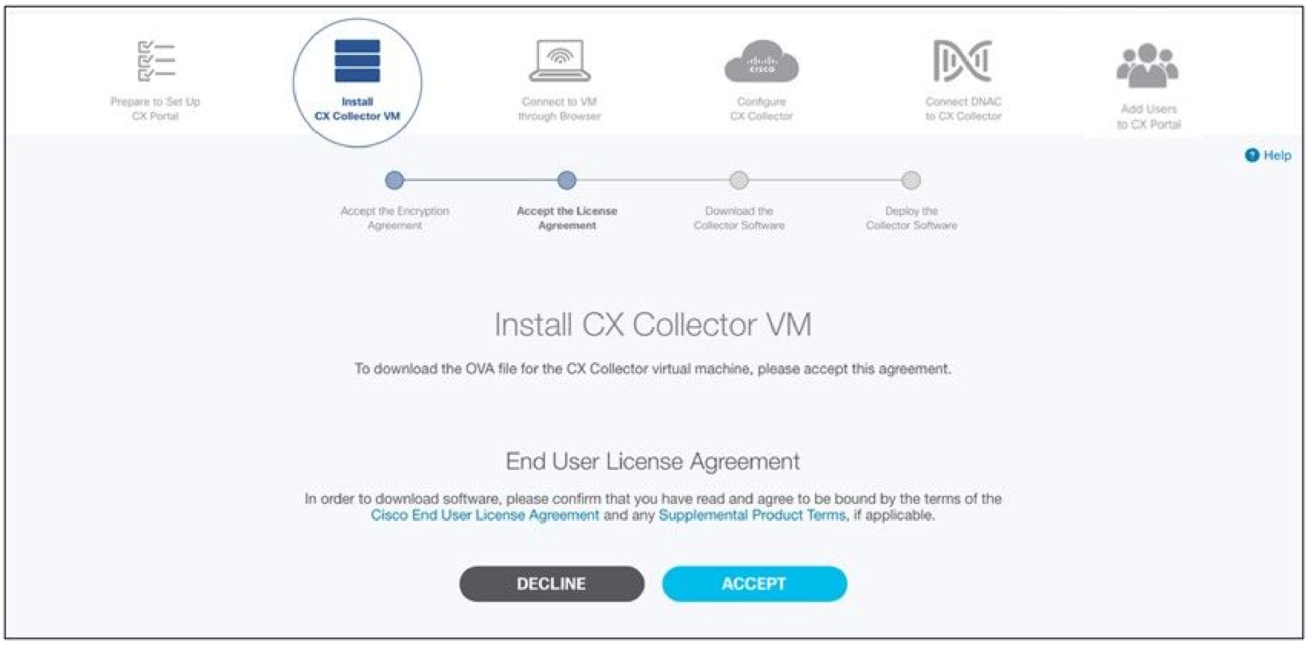
○ Yes ○ No

Confirmation *

□ By checking this field, I hereby certify that I, as a duly authorized representative of the organization, understand and agree to abide by the conditions set forth above regarding the usage of Cisco Systems, Inc. hardware and/or software.

Encryption Agreement

10. Click **Accept** to accept the end-user license agreement.



Install CX Collector VM

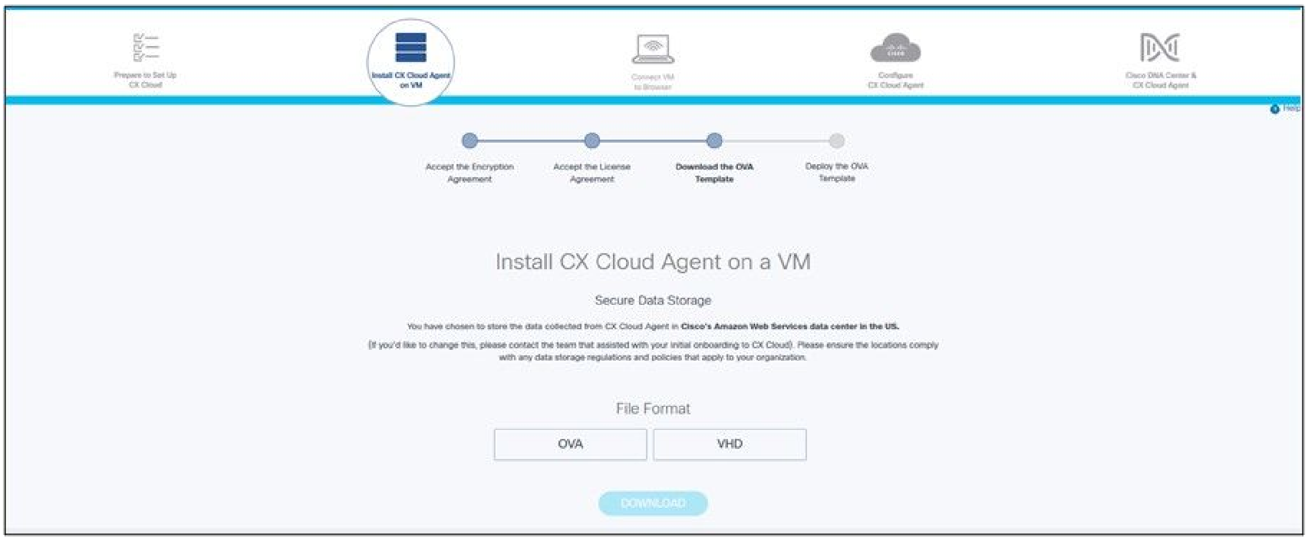
To download the OVA file for the CX Collector virtual machine, please accept this agreement.

End User License Agreement

In order to download software, please confirm that you have read and agree to be bound by the terms of the Cisco End User License Agreement and any Supplemental Product Terms, if applicable.

End User License Agreement

11. Select the format you require to install. Click **Download Image** to get the installation file. Your preferred data center is displayed.



Install CX Cloud Agent on a VM

Secure Data Storage

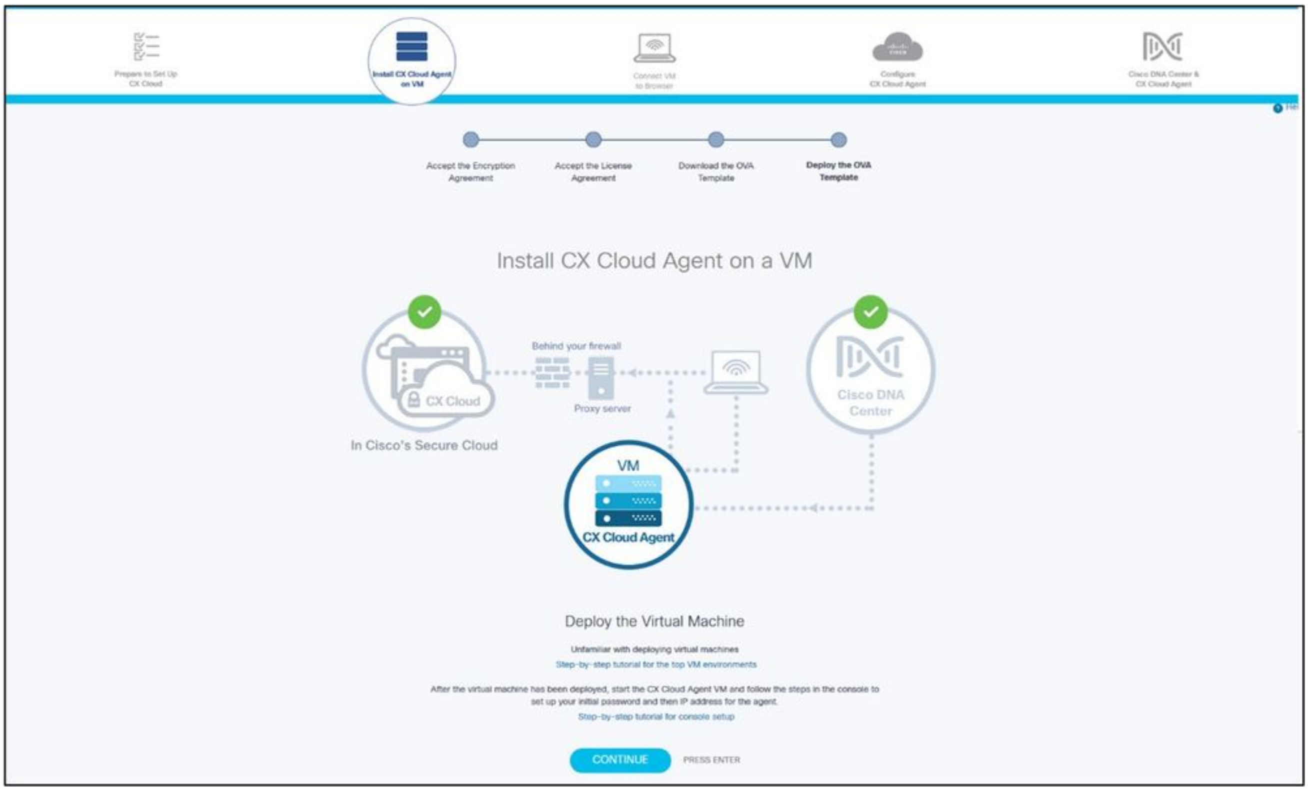
You have chosen to store the data collected from CX Cloud Agent in **Cisco's Amazon Web Services data center in the US.**

(If you'd like to change this, please contact the team that assisted with your initial onboarding to CX Cloud). Please ensure the locations comply with any data storage regulations and policies that apply to your organization.

File Format

Download Image

12. Click **View step-by-step tutorial** on the next screen for help deploying the set up. The step-by-step tutorial is explained in the Deployment and Network Configuration section. The download depends on the network speed.



Install CX Cloud Agent on a VM

Deploy the Virtual Machine

Unfamiliar with deploying virtual machines

Step-by-step tutorial for the top VM environments

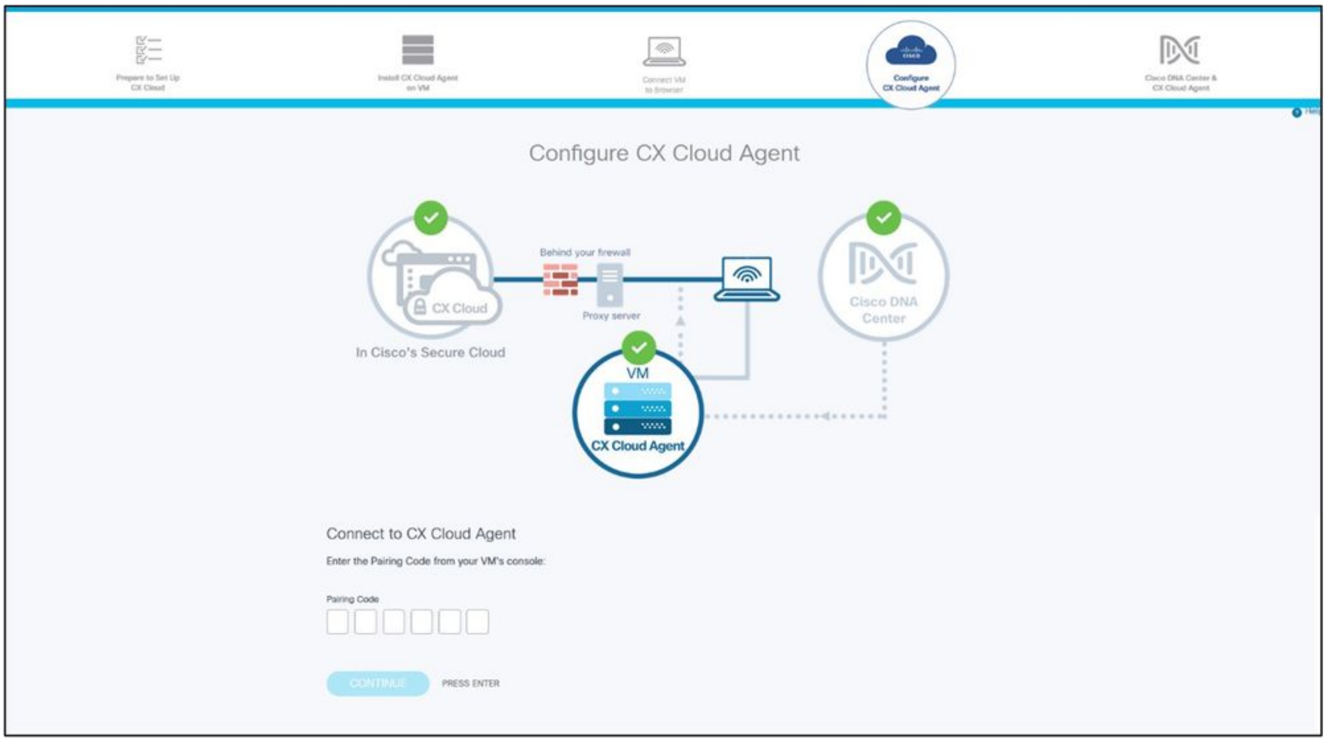
After the virtual machine has been deployed, start the CX Cloud Agent VM and follow the steps in the console to set up your initial password and then IP address for the agent.

Step-by-step tutorial for console setup

VM and Console Tutorial

Connecting CX Cloud Agent to CX Cloud

1. Enter the Pairing Code that you got from the console dialog or CLI. For more info refer to Network Configuration.



Configure CX Cloud Agent

Connect to CX Cloud Agent

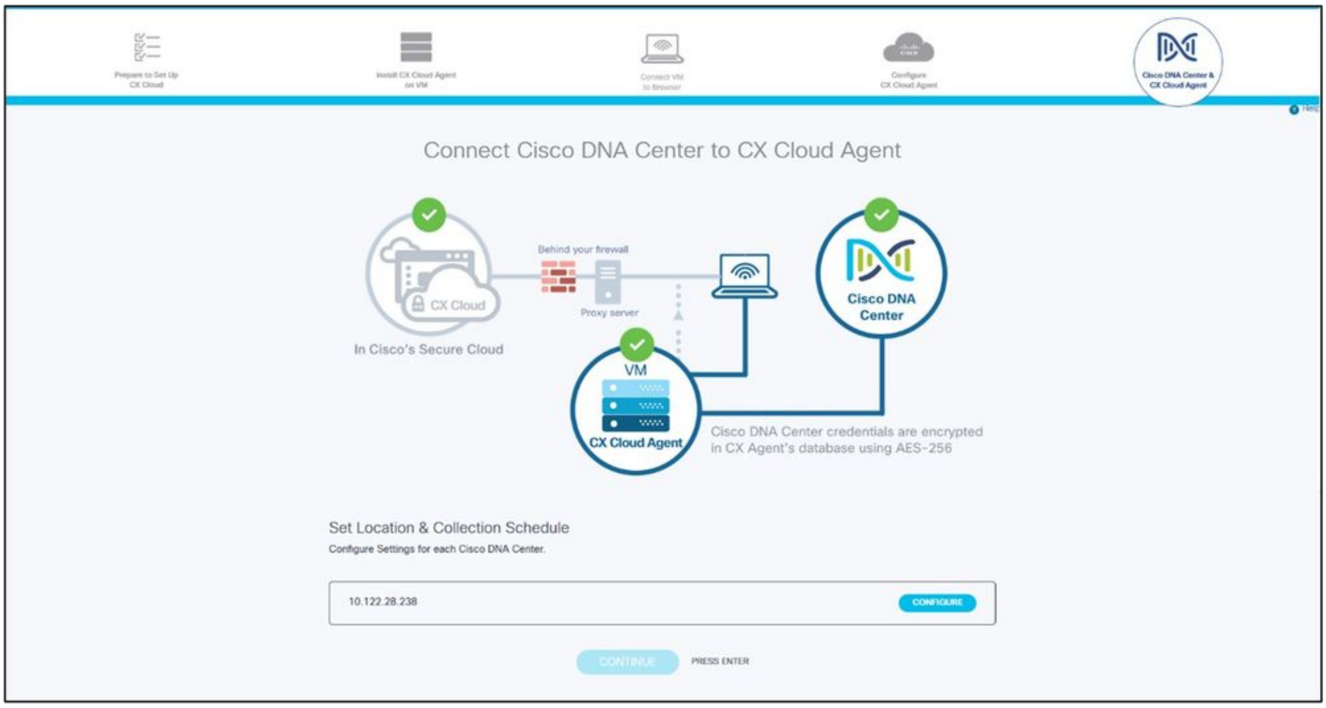
Enter the Pairing Code from your VM's console:

Pairing Code

□□□□□□

Pairing Code

2. Click **Configure** to add the configurations for Cisco DNA Center(s) details that you have added using Console dialog or CLI. Refer Network Configuration.


Prepare to Set Up CX Cloud
Install CX Cloud Agent on VM
Connect VM to Browser
Configure CX Cloud Agent
Cisco DNA Center & CX Cloud Agent
Help
CX Cloud
In Cisco's Secure Cloud
Behind your firewall
Proxy server
VM
CX Cloud Agent
Cisco DNA Center
Cisco DNA Center credentials are encrypted in CX Agent's database using AES-256

Connect Cisco DNA Center to CX Cloud Agent

Set Location & Collection Schedule

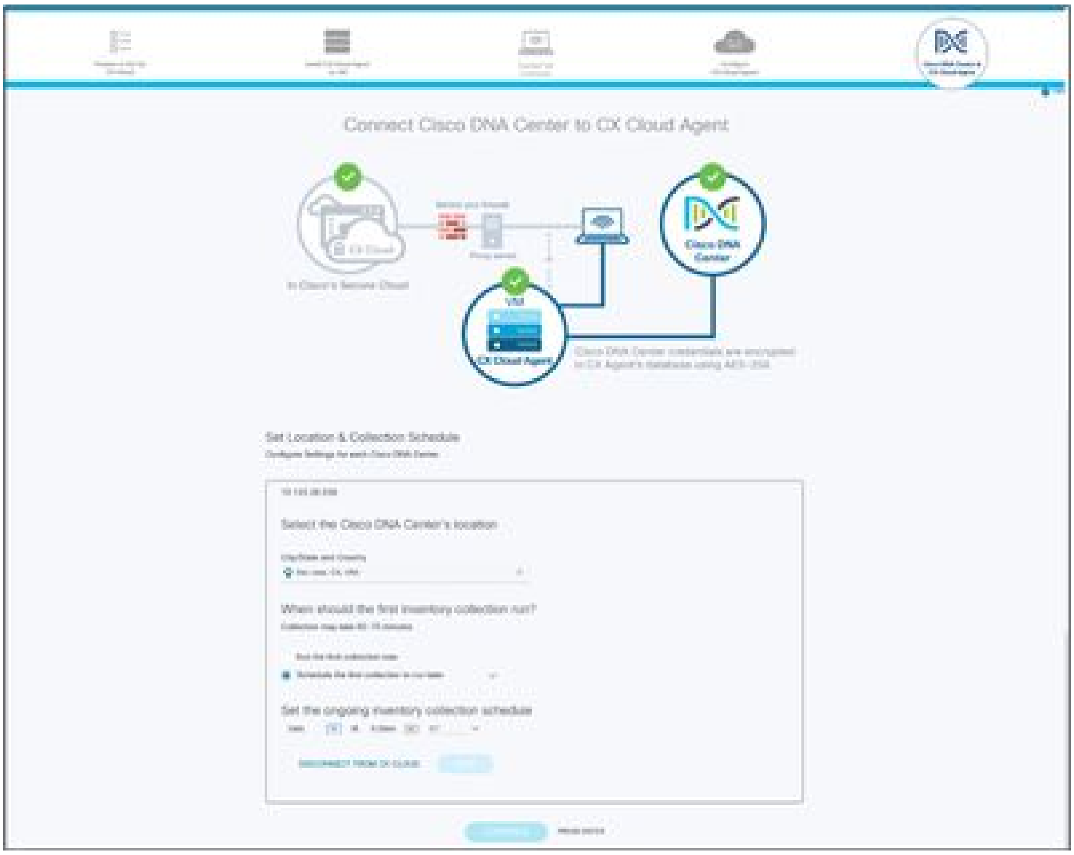
Configure Settings for each Cisco DNA Center.

10.122.28.238 CONFIGURE

CONTINUE PRESS ENTER

Configure Cisco DNA Center

3. Select the location from the list and you can choose either run now or schedule the collection later. You can schedule the ongoing Inventory collection and click **Save**. Click **Continue**.**Note**: Two different assets having configured for the same IP address behind two separate DNA Center clusters is not supported currently.
4. Cisco DNA Center is ready to use. Click Continue.
5. CX Portal landing page appears. If the data is not populated on the screen within 8 to 24 hrs., Contact support for the queries.



Connect Cisco DNA Center to CX Cloud Agent

Set Location & Collection Schedule

Configure Settings for each Cisco DNA Center

Select the Cisco DNA Center's location

City/State and Country

When should the first inventory collection run?

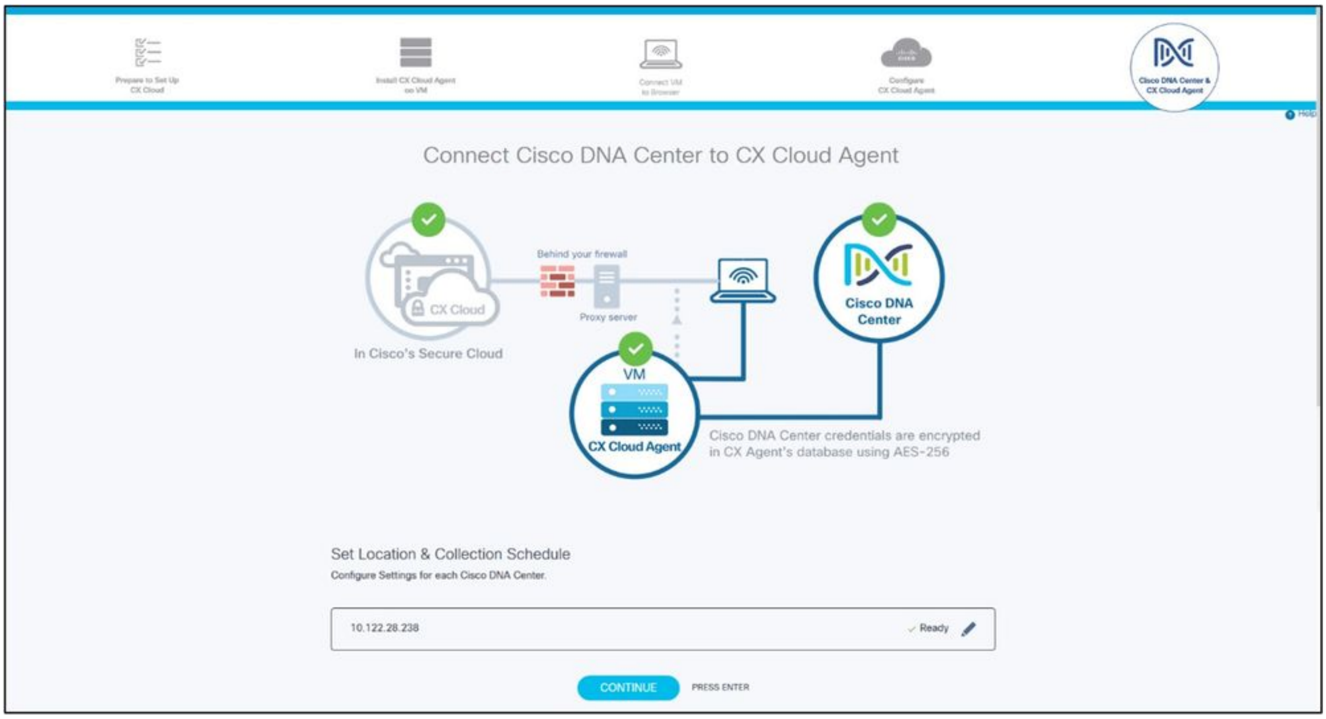
○ Run the first collection now

● Schedule the first collection to run later

Set the ongoing inventory collection schedule

DISCONNECT FROM CX CLOUD

Connect Cisco DNA Center



Connect Cisco DNA Center to CX Cloud Agent

Cisco DNA Center credentials are encrypted in CX Agent's database using AES-256

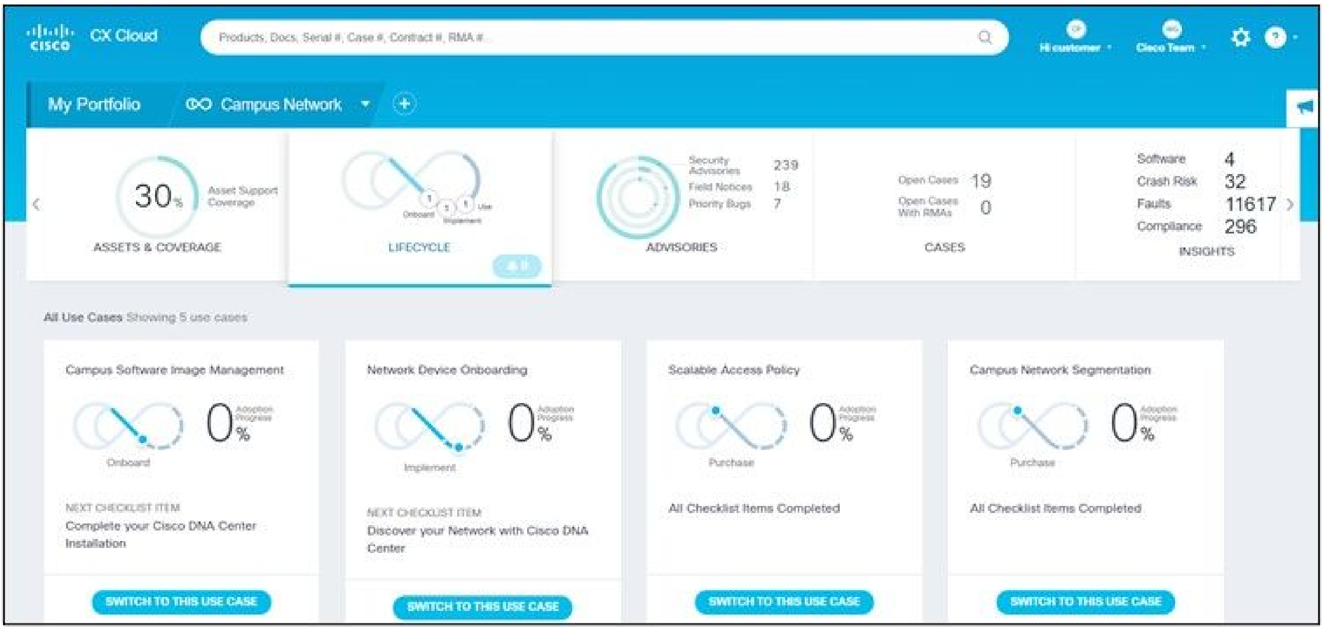
Set Location & Collection Schedule

Configure Settings for each Cisco DNA Center.

10.122.28.238 ✓ Ready

CONTINUE PRESS ENTER

Successful Configuration



30%	Asset Support Coverage

ASSETS & COVERAGE

LIFECYCLE

Security Advisories	239
Field Notices	18
Priority Bugs	7

ADVISORIES

Open Cases	19
Open Cases With RMAs	0

CASES

Software	4
Crash Risk	32
Faults	11617
Compliance	296

INSIGHTS

All Use Cases Showing 5 use cases

Campus Software Image Management
Onboard
0% Adoption Progress
NEXT CHECKLIST ITEM
Complete your Cisco DNA Center Installation
SWITCH TO THIS USE CASE

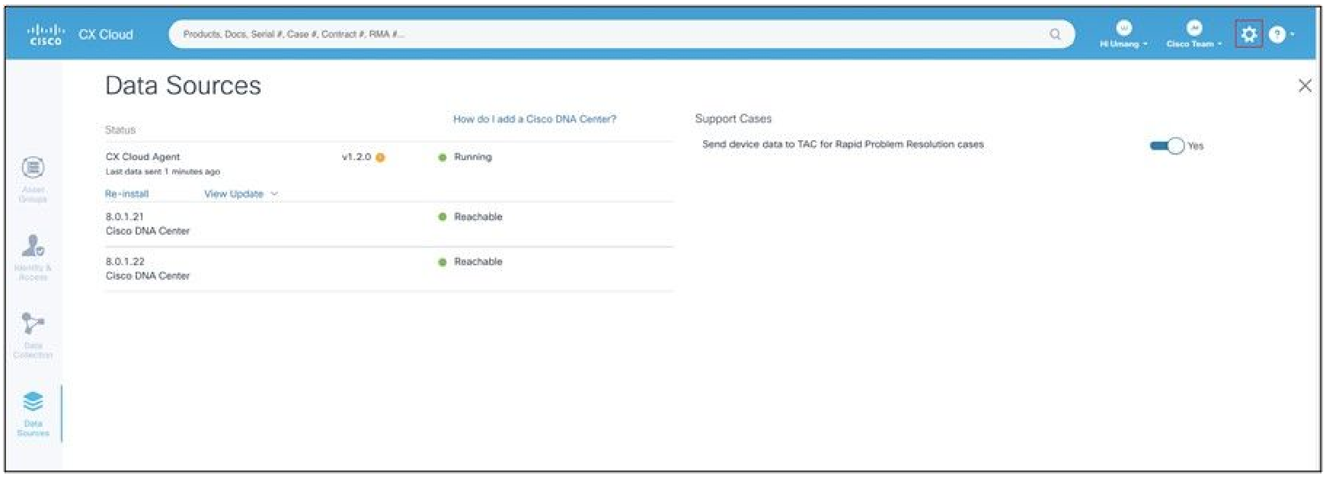
Network Device Onboarding
Implement
0% Adoption Progress
NEXT CHECKLIST ITEM
Discover your Network with Cisco DNA Center
SWITCH TO THIS USE CASE

Scalable Access Policy
Purchase
0% Adoption Progress
All Checklist Items Completed
SWITCH TO THIS USE CASE

Campus Network Segmentation
Purchase
0% Adoption Progress
All Checklist Items Completed
SWITCH TO THIS USE CASE

CX Portal Landing Page

6. To view the configured Cisco DNA Center, navigate to **Admin Settings** > **Data Source**.



Data Sources

Status

How do I add a Cisco DNA Center?

CX Cloud Agent v1.2.0 Running
Last data sent 1 minutes ago

Re-install View Update

8.0.1.21 Reachable
Cisco DNA Center

8.0.1.22 Reachable
Cisco DNA Center

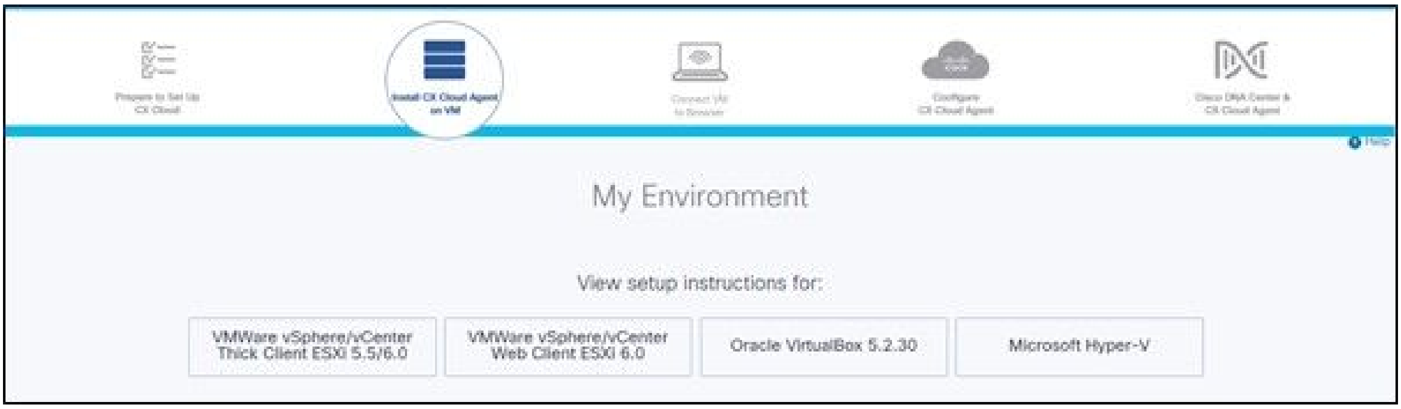
Support Cases

Send device data to TAC for Rapid Problem Resolution cases Yes

Data Source

Deployment and Network Configuration

You can choose any one of the below options to deploy CX Cloud Agent:


Prepare to Set Up CX Cloud
Install CX Cloud Agent on VM
Connect VM to Session
Configure CX Cloud Agent
Cisco DNA Center & CX Cloud Agent
Help

My Environment

View setup instructions for:

VMWare vSphere/vCenter Thick Client ESXi 5.5/6.0

VMWare vSphere/vCenter Web Client ESXi 6.0

Oracle VirtualBox 5.2.30

Microsoft Hyper-V

Deployment Environments

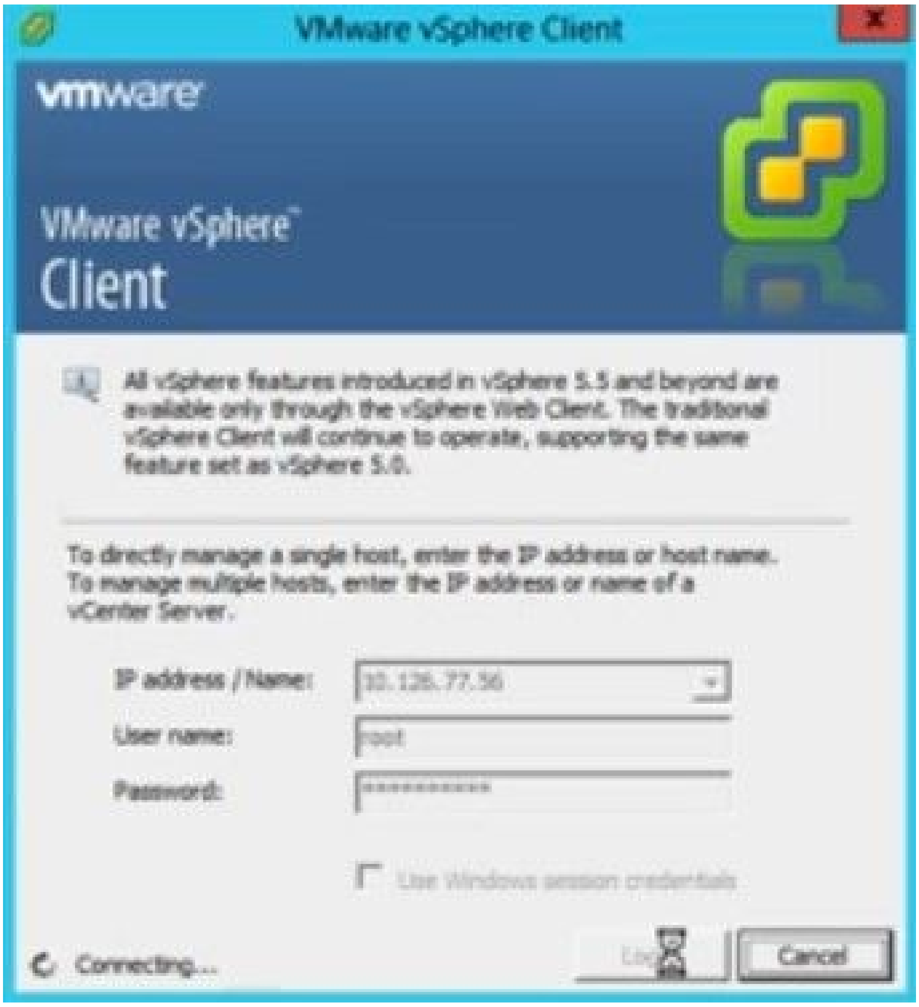
- If you select VMware vSphere/vCenter Thick Client ESXi 5.5/6.0 go to Thick Client
- If you select VMware vSphere/vCenter Web Client ESXi 6.0 go to Web Client vSphere or Center
- If you select Oracle Virtual Box 5.2.30 go to Oracle VM
- If you select Microsoft Hyper-V go to Hyper-V

OVA Deployment

Thick Client ESXi 5.5/6.0 Installation

This client allows you to deploy CX Cloud Agent OVA using the vSphere thick client.

1. After downloading the image, launch the VMware vSphere Client and log in using the credentials.



All vSphere features introduced in vSphere 5.5 and beyond are available only through the vSphere Web Client. The traditional vSphere Client will continue to operate, supporting the same feature set as vSphere 5.0.

To directly manage a single host, enter the IP address or host name. To manage multiple hosts, enter the IP address or name of a vCenter Server.

IP address / Name: 10.126.77.56

User name: root

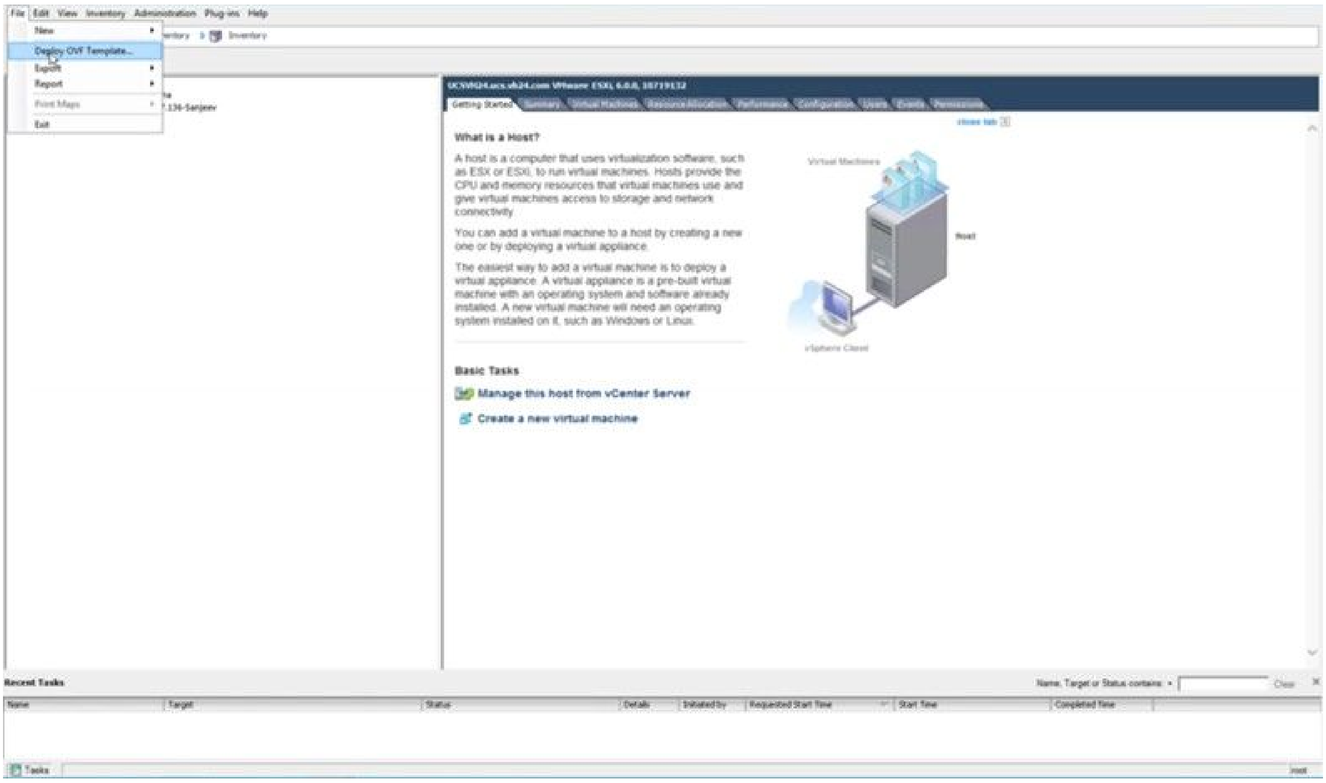
Password: **********

□ Use Windows session credentials

Connecting...

Login

2. Navigate to **File > Deploy OVF Template.**



What is a Host?

A host is a computer that uses virtualization software, such as ESX or ESXi, to run virtual machines. Hosts provide the CPU and memory resources that virtual machines use and give virtual machines access to storage and network connectivity.

You can add a virtual machine to a host by creating a new one or by deploying a virtual appliance.

The easiest way to add a virtual machine is to deploy a virtual appliance. A virtual appliance is a pre-built virtual machine with an operating system and software already installed. A new virtual machine will need an operating system installed on it, such as Windows or Linux.

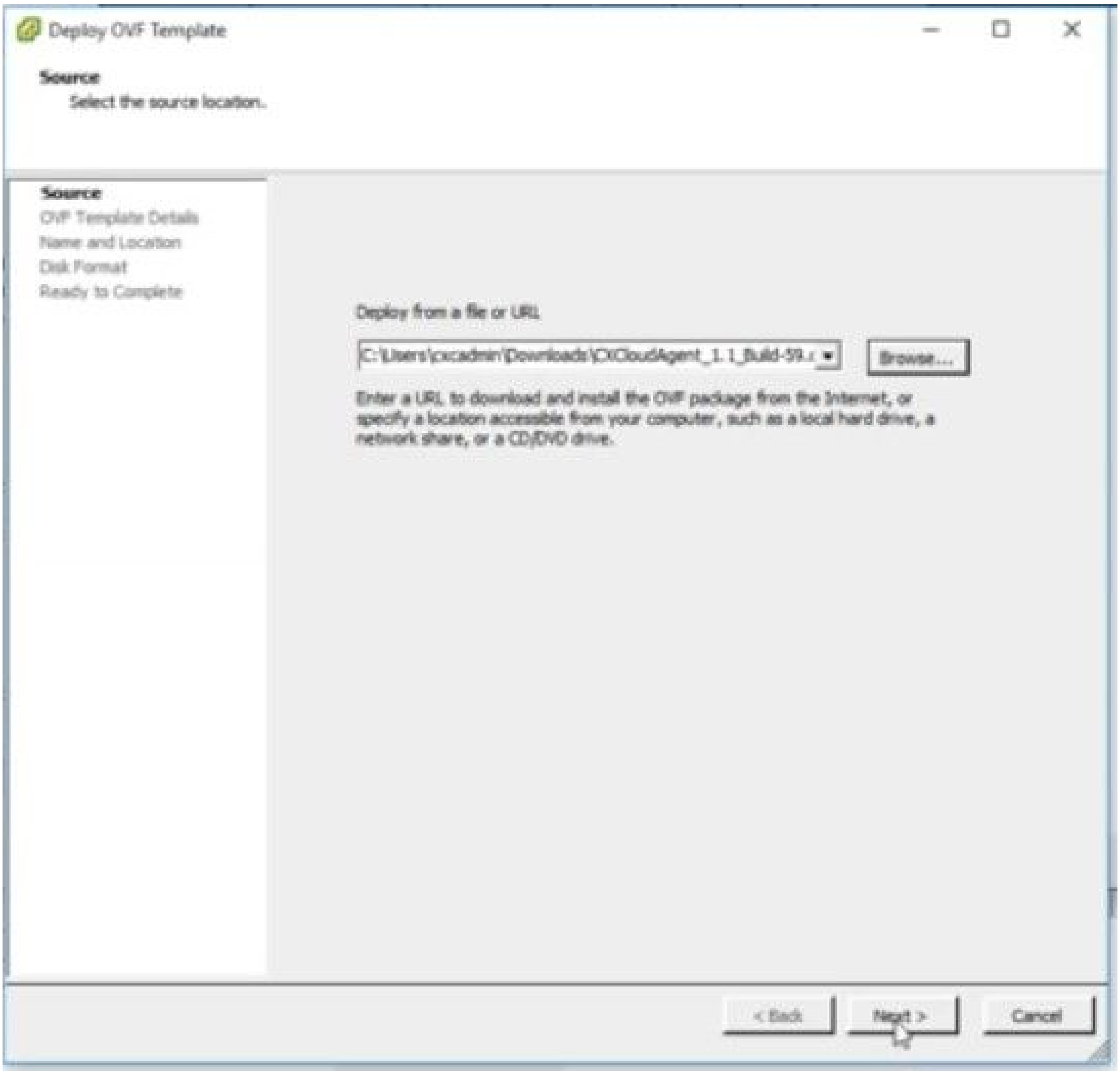
Basic Tasks

Manage this host from vCenter Server

Create a new virtual machine

vSphere Client

3. Browser to select OVA file. Click **Next>** to proceed.



Deploy OVF Template

Source

Select the source location.

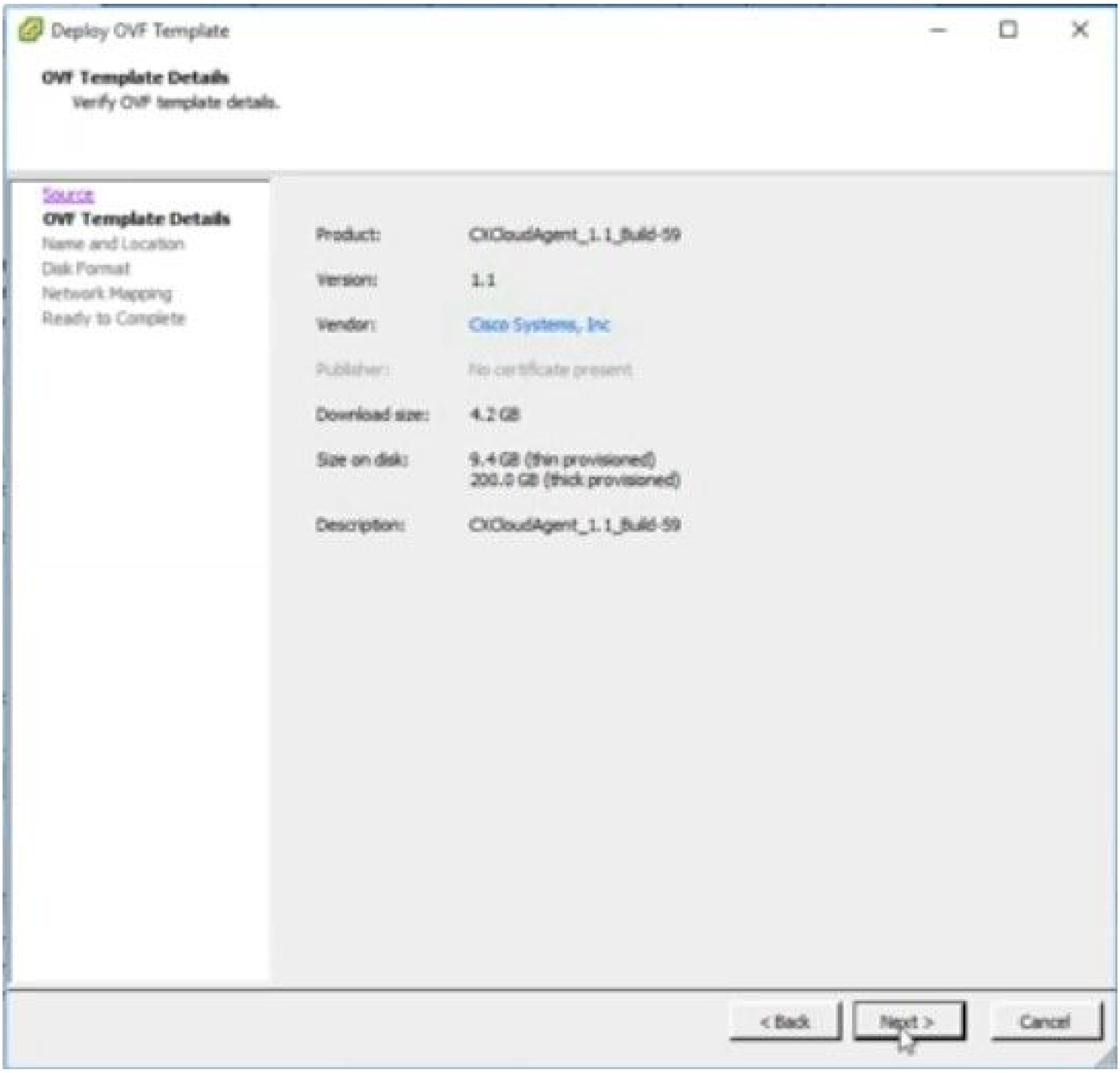
Deploy from a file or URL

C:\Users\cxcadmin\Downloads\CXCloudAgent_1.1_Build-59.c

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

OVA Path

4. Verify the **OVF Details** and click **Next>** to proceed.



OVF Template Details

Verify OVF template details.

Product: CXCloudAgent_1.1_Build-59

Version: 1.1

Vendor: Cisco Systems, Inc

Publisher: No certificate present

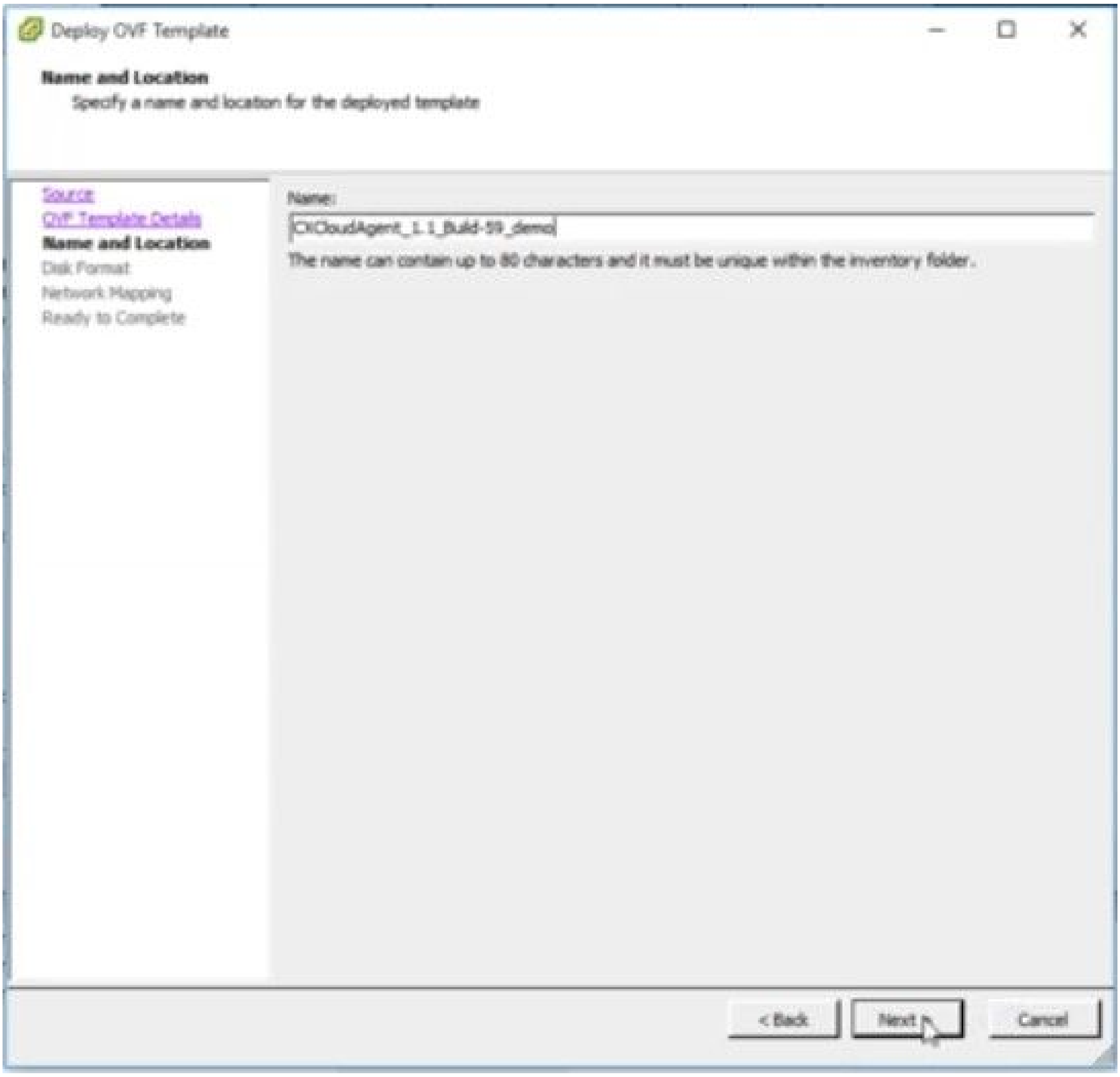
Download size: 4.2 GB

Size on disk: 9.4 GB (thin provisioned)
200.0 GB (thick provisioned)

Description: CXCloudAgent_1.1_Build-59

Template Details

5. Enter a **Unique Name** and click **Next>** to proceed.



Name and Location

Specify a name and location for the deployed template

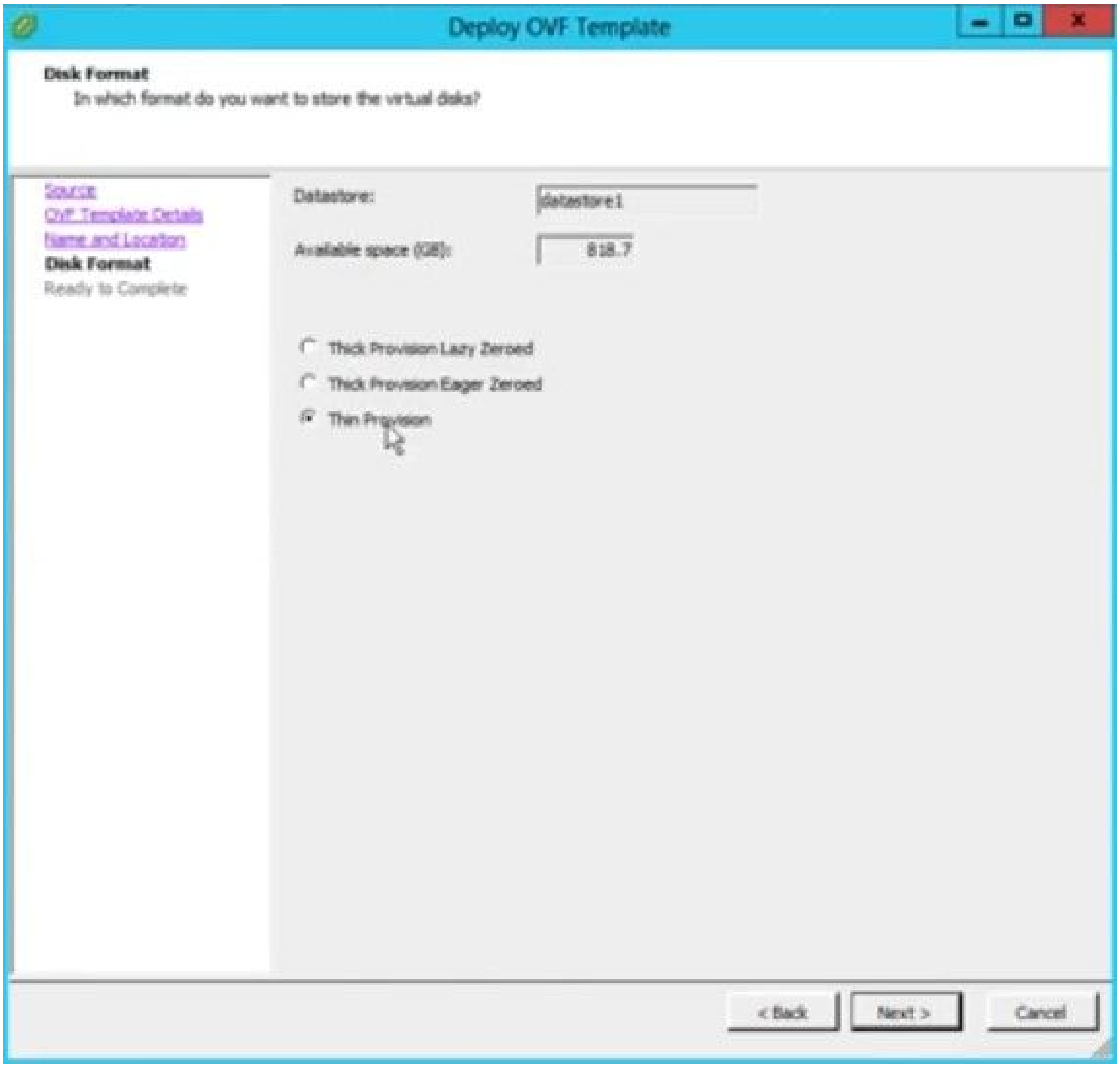
Name:

CXCloudAgent_1.1_Build-59_demo

The name can contain up to 80 characters and it must be unique within the inventory folder.

Name and Location

6. Select **Disk Format** and click **Next>** to proceed (recommended Thin Provision).



Deploy OVF Template

Disk Format

In which format do you want to store the virtual disks?

Datastore: datastore1

Available space (GB): 818.7

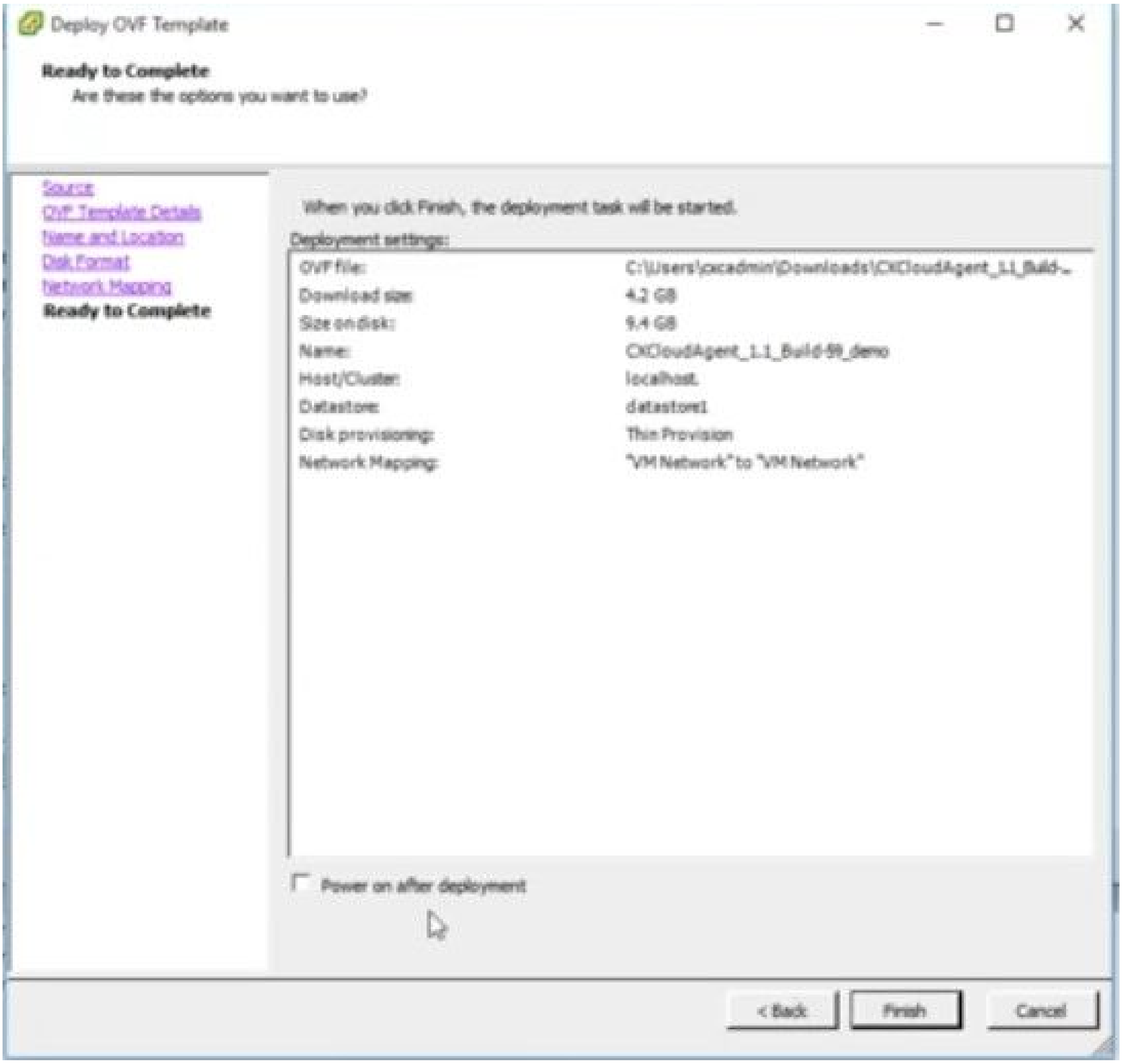
○ Thick Provision Lazy Zeroed

○ Thick Provision Eager Zeroed

● Thin Provision

Disk Format

7. Check **Power on after deployment** and click **Finish**.



Ready to Complete

Are these the options you want to use?

When you click Finish, the deployment task will be started.

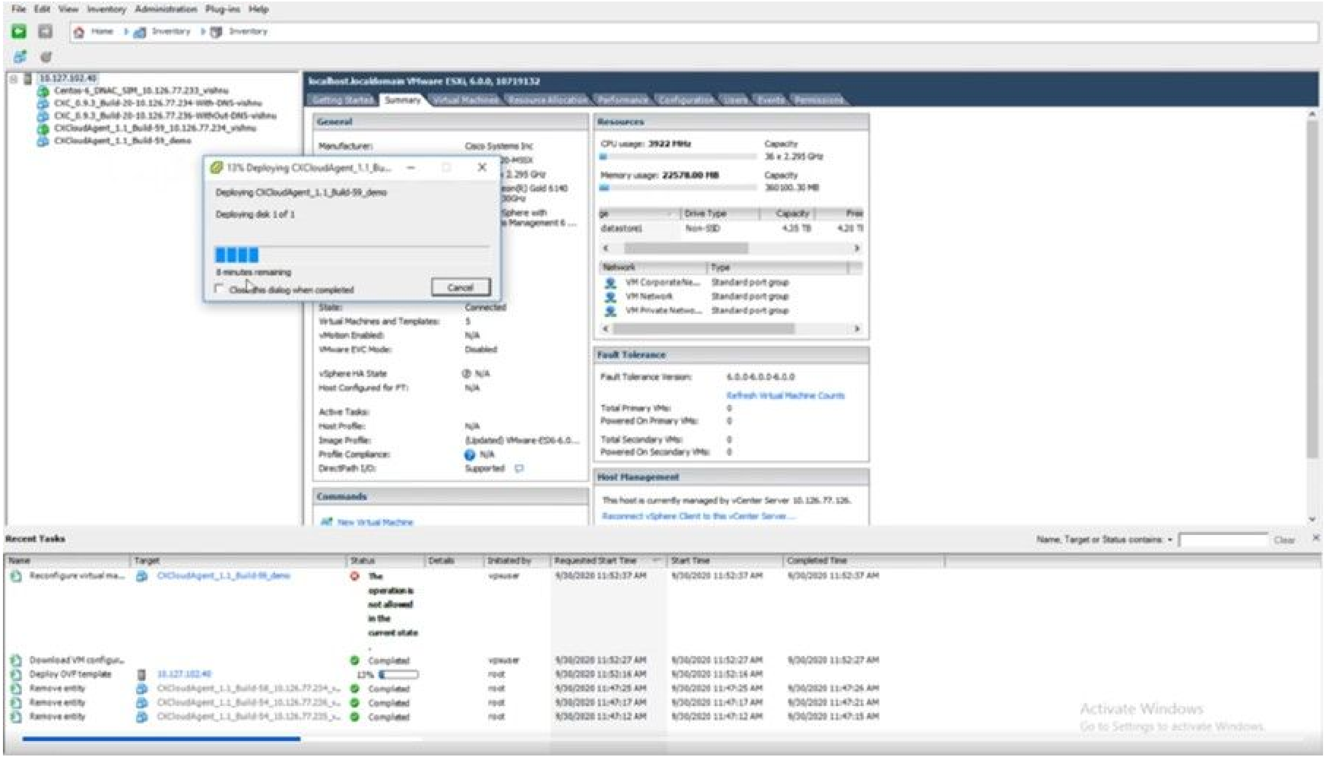
Deployment settings:

OVF file:	C:\Users\cxcadmin\Downloads\CXCloudAgent_1.1_Build-...
Download size:	4.2 GB
Size on disk:	9.4 GB
Name:	CXCloudAgent_1.1_Build-59_demo
Host/Cluster:	localhost.
Datastore:	datastore1
Disk provisioning:	Thin Provision
Network Mapping:	"VM Network" to "VM Network"

☐ Power on after deployment

Ready to Complete

8. Deployment may take several minutes. Wait until you get a success message.


File Edit View Inventory Administration Plug-ins Help
Home
Inventory
Inventory
10.127.102.40
Centos-6_DNAC_SIM_10.126.77.233_vishnu
CXC_0.9.3_Build-20-10.126.77.234-With-DNS-vishnu
CXC_0.9.3_Build-20-10.126.77.236-WithOut-DNS-vishnu
CXCloudAgent_1.1_Build-59_10.126.77.234_vishnu
CXCloudAgent_1.1_Build-59_demo
localhost.localdomain VMware ESXi, 6.0.0, 10719132
Getting Started
Summary
Virtual Machines
Resource Allocation
Performance
Configuration
Users
Events
Permissions
General
Resources
Fault Tolerance
Host Management
Commands
New Virtual Machine
Recent Tasks

13% Deploying CXCloudAgent_1.1_Bu...

Deploying CXCloudAgent_1.1_Build-59_demo

Deploying disk 1 of 1

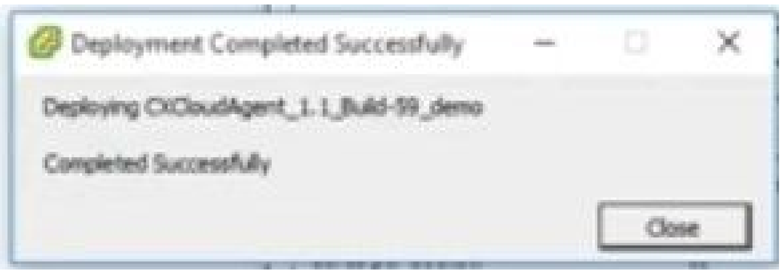
8 minutes remaining

□ Close this dialog when completed

Cancel

Name	Target	Status	Details	Initiated by	Requested Start Time	Start Time	Completed Time
Reconfigure virtual ma...	CXCloudAgent_1.1_Build-59_demo	The operation is not allowed in the current state .		vpxuser	9/30/2020 11:52:37 AM	9/30/2020 11:52:37 AM	9/30/2020 11:52:37 AM
Download VM configur...		Completed		vpxuser	9/30/2020 11:52:27 AM	9/30/2020 11:52:27 AM	9/30/2020 11:52:27 AM
Deploy OVF template	10.127.102.40	13%		root	9/30/2020 11:52:16 AM	9/30/2020 11:52:16 AM	
Remove entity	CXCloudAgent_1.1_Build-58_10.126.77.234_v...	Completed		root	9/30/2020 11:47:25 AM	9/30/2020 11:47:25 AM	9/30/2020 11:47:26 AM
Remove entity	CXCloudAgent_1.1_Build-54_10.126.77.236_v...	Completed		root	9/30/2020 11:47:17 AM	9/30/2020 11:47:17 AM	9/30/2020 11:47:21 AM
Remove entity	CXCloudAgent_1.1_Build-54_10.126.77.235_v...	Completed		root	9/30/2020 11:47:12 AM	9/30/2020 11:47:12 AM	9/30/2020 11:47:15 AM

Deployment in Progress



Deployment Completed Successfully

Deploying CXCloudAgent_1.1_Build-59_demo

Completed Successfully

Close

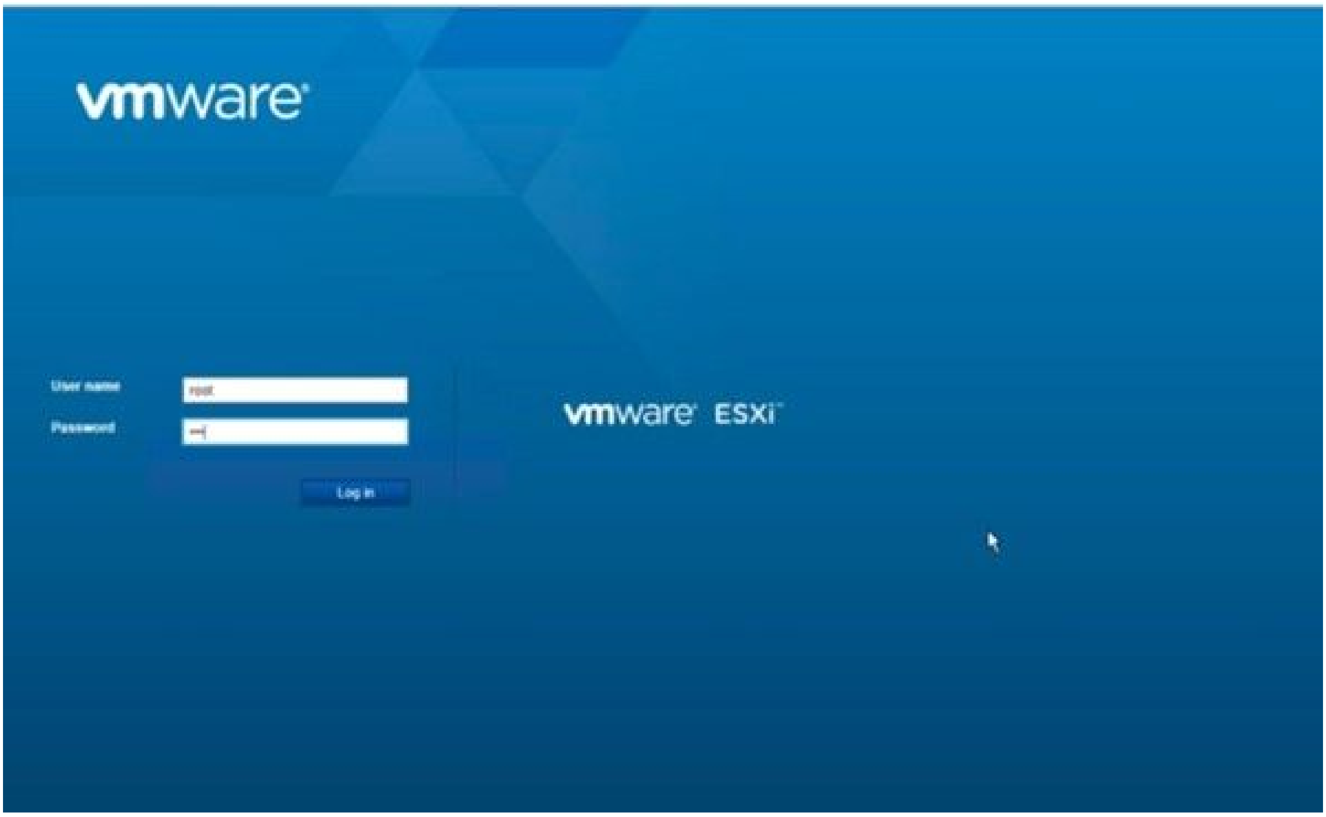
Deployment Completed

9. Select the virtual machine you just deployed and open the console. Go to IP Configuration.

Web Client ESXi 6.0 Installation

This client allows you to deploy CX Cloud Agent OVA using the vSphere web.

1. Log in to VM Ware UI with the use of these credentials.

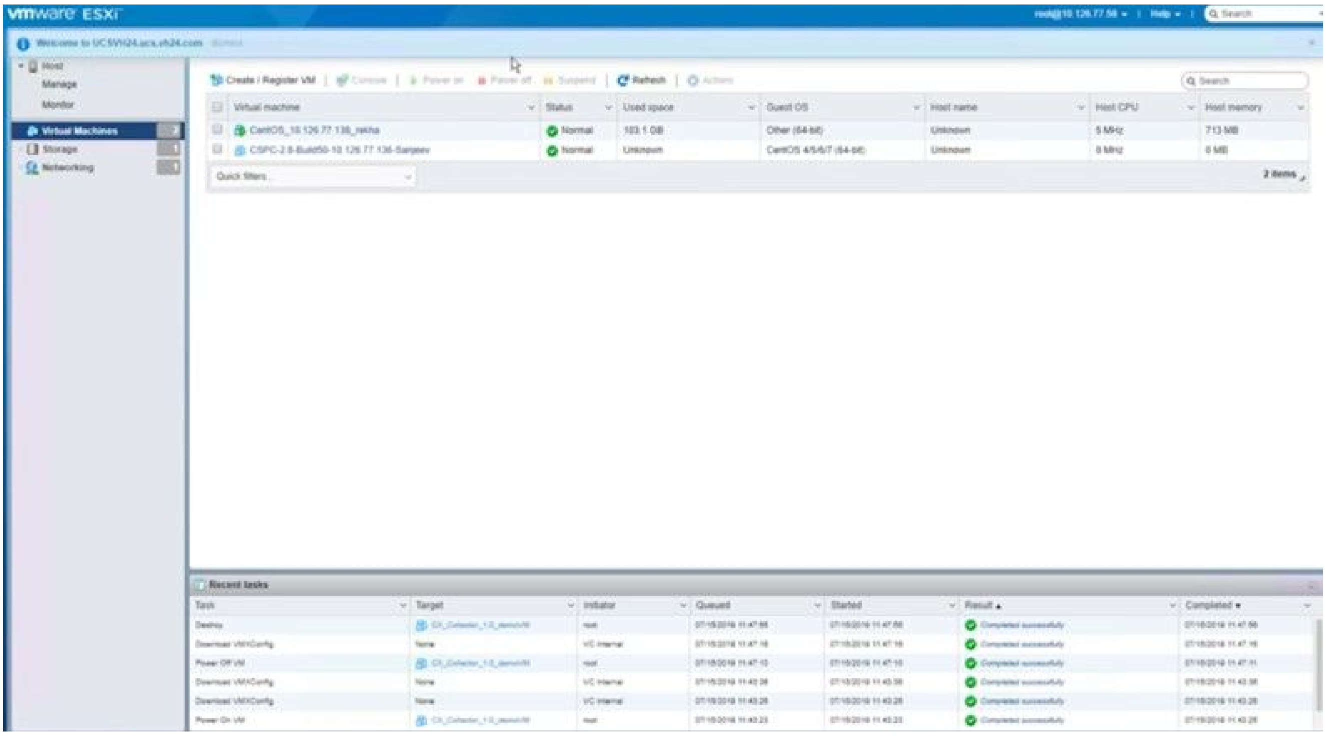


User name: root

Password

VMware ESXi Login

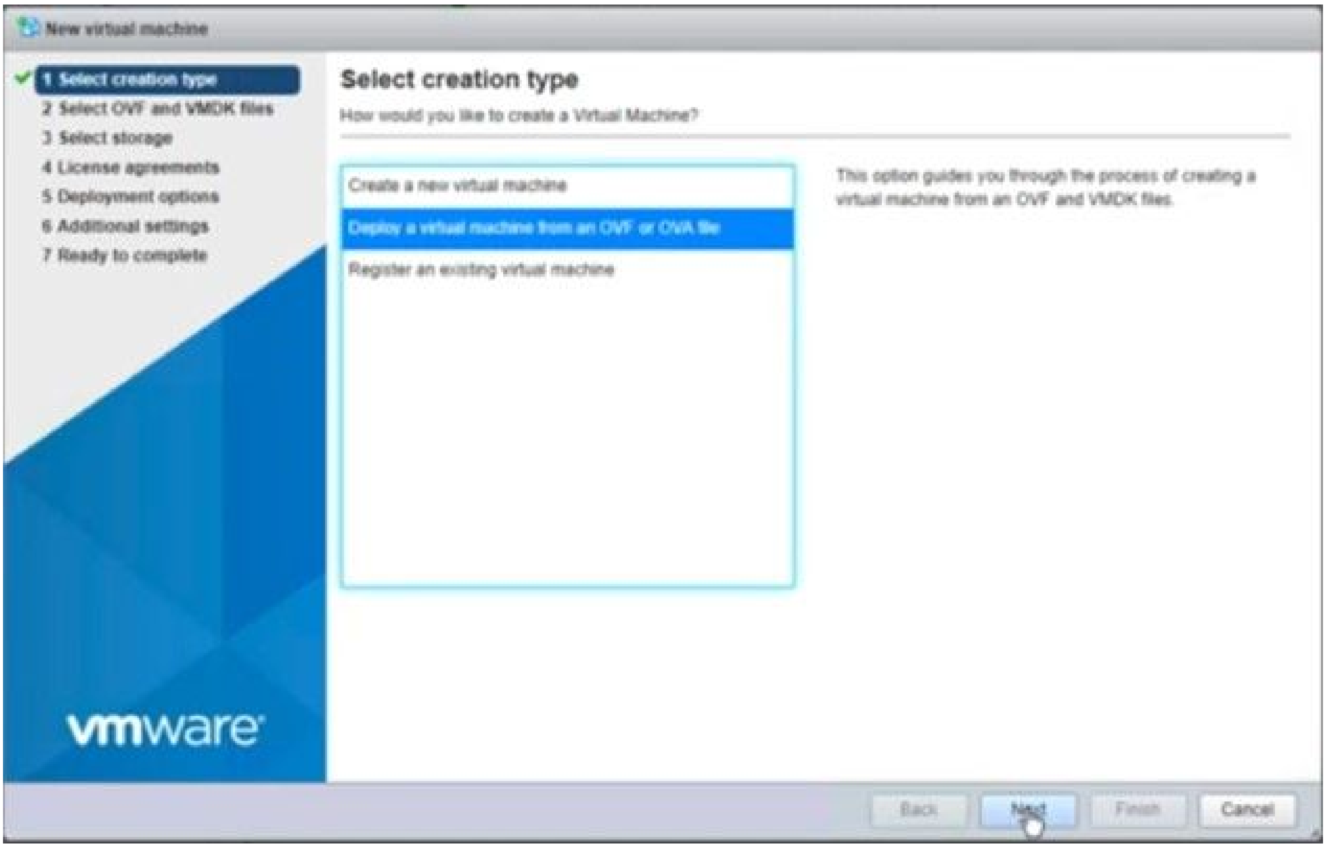
2. Open **Virtual Machine > Create / Register VM**.



Virtual machine	Status	Used space	Guest OS	Host name	Host CPU	Host memory
CentOS_10.126.77.138_rekha	Normal	103.1 GB	Other (64-bit)	Unknown	5 MHz	713 MB
CSPC-2.8-Build50-10.126.77.136-Sanjeev	Normal	Unknown	CentOS 4/5/6/7 (64-bit)	Unknown	0 MHz	0 MB

Task	Target	Initiator	Queued	Started	Result ▲	Completed ▼
Destroy	CX_Collector_1.0_demoVM	root	07/16/2019 11:47:56	07/16/2019 11:47:56	Completed successfully	07/16/2019 11:47:56
Download VMXConfig	None	VC Internal	07/16/2019 11:47:16	07/16/2019 11:47:16	Completed successfully	07/16/2019 11:47:16
Power Off VM	CX_Collector_1.0_demoVM	root	07/16/2019 11:47:10	07/16/2019 11:47:10	Completed successfully	07/16/2019 11:47:11
Download VMXConfig	None	VC Internal	07/16/2019 11:43:38	07/16/2019 11:43:38	Completed successfully	07/16/2019 11:43:38
Download VMXConfig	None	VC Internal	07/16/2019 11:43:28	07/16/2019 11:43:28	Completed successfully	07/16/2019 11:43:28
Power On VM	CX_Collector_1.0_demoVM	root	07/16/2019 11:43:23	07/16/2019 11:43:23	Completed successfully	07/16/2019 11:43:28

Create VM



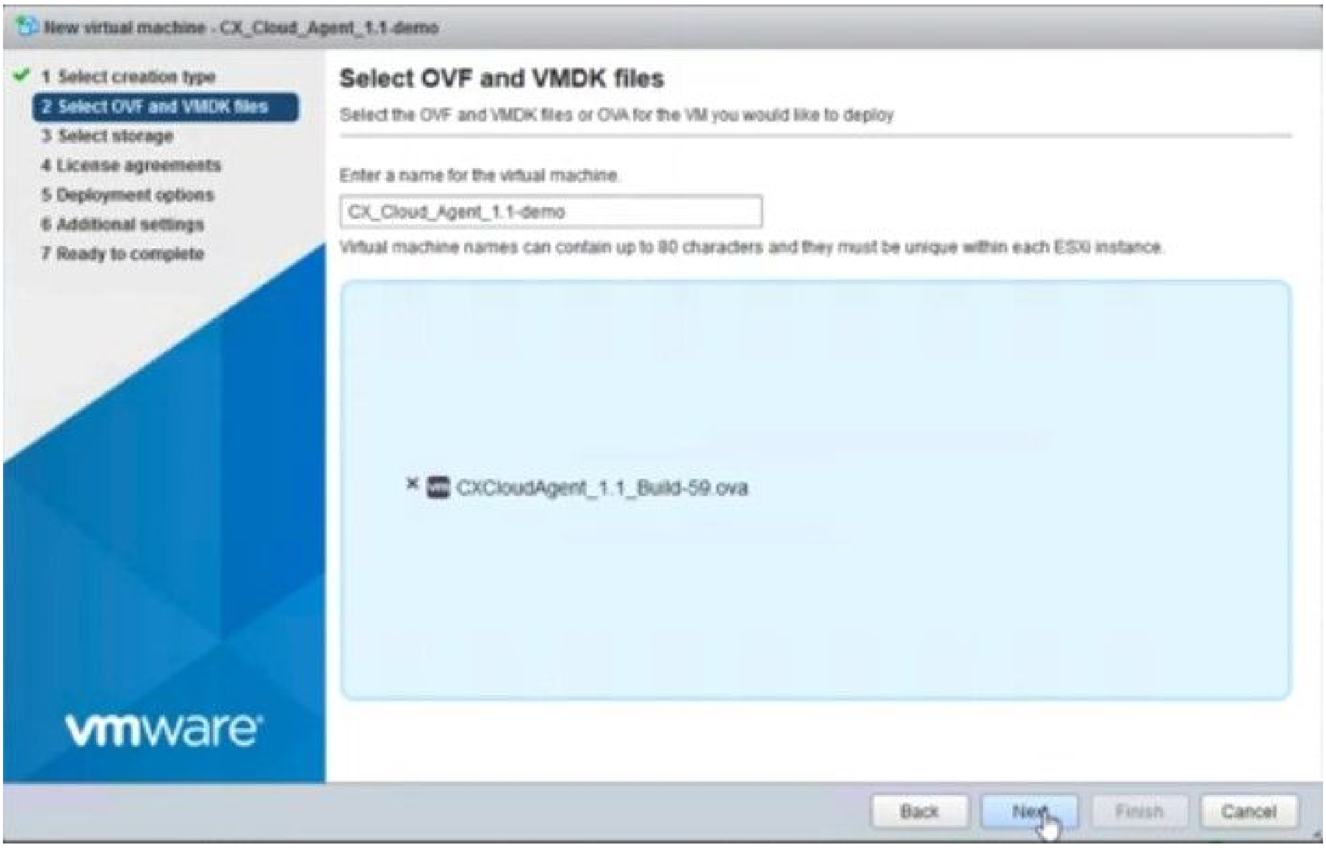
Select creation type

How would you like to create a Virtual Machine?

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

OVA Deployment

3. Select **Deploy a virtual machine from an OVF or OVA file** and click **Next**.
4. Enter the **Name** of the VM, browse to select the file or drag and drop the downloaded OVA file. Click **Next**.



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.

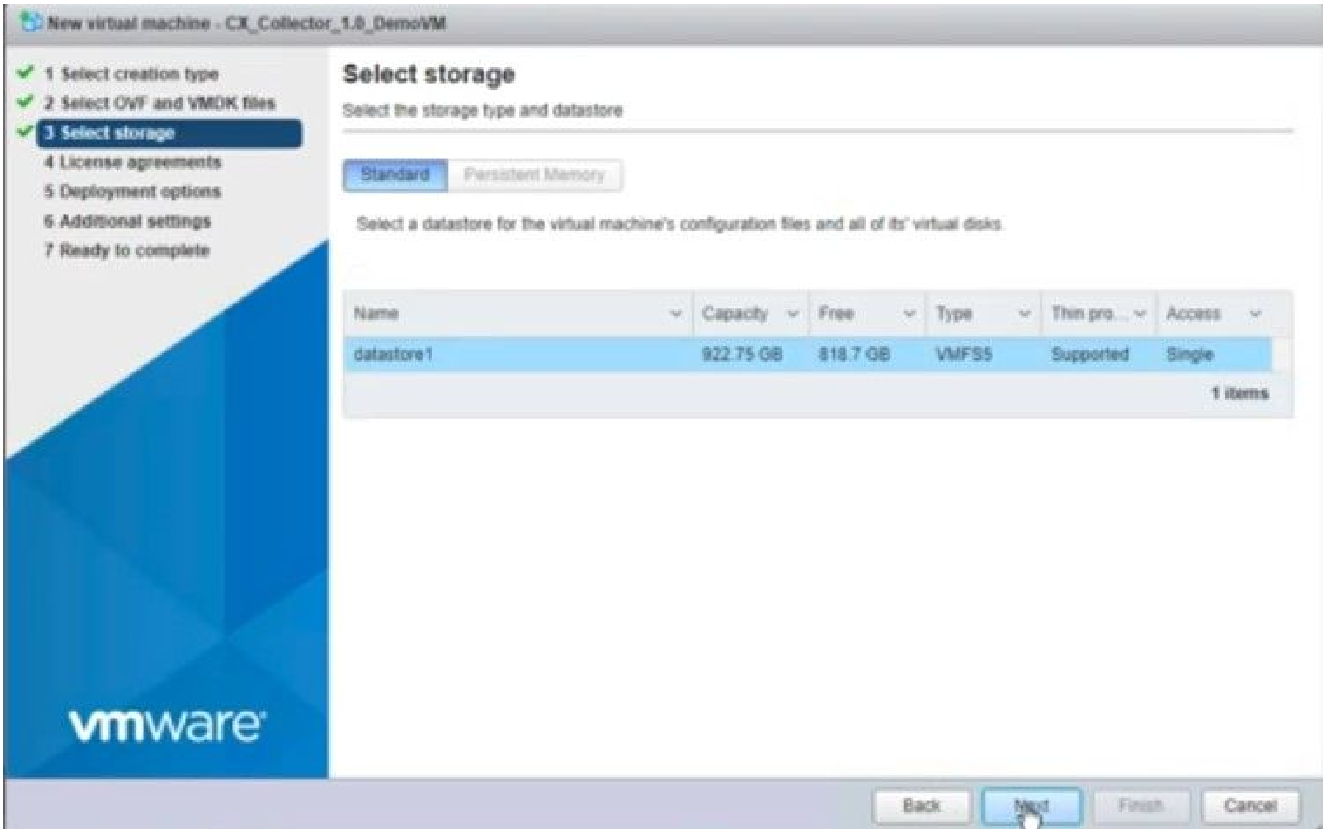
CX_Cloud_Agent_1.1-demo

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

× CXCloudAgent_1.1_Build-59.ova

OVA Selection

5. Select **Standard Storage** and click **Next**.



Select storage

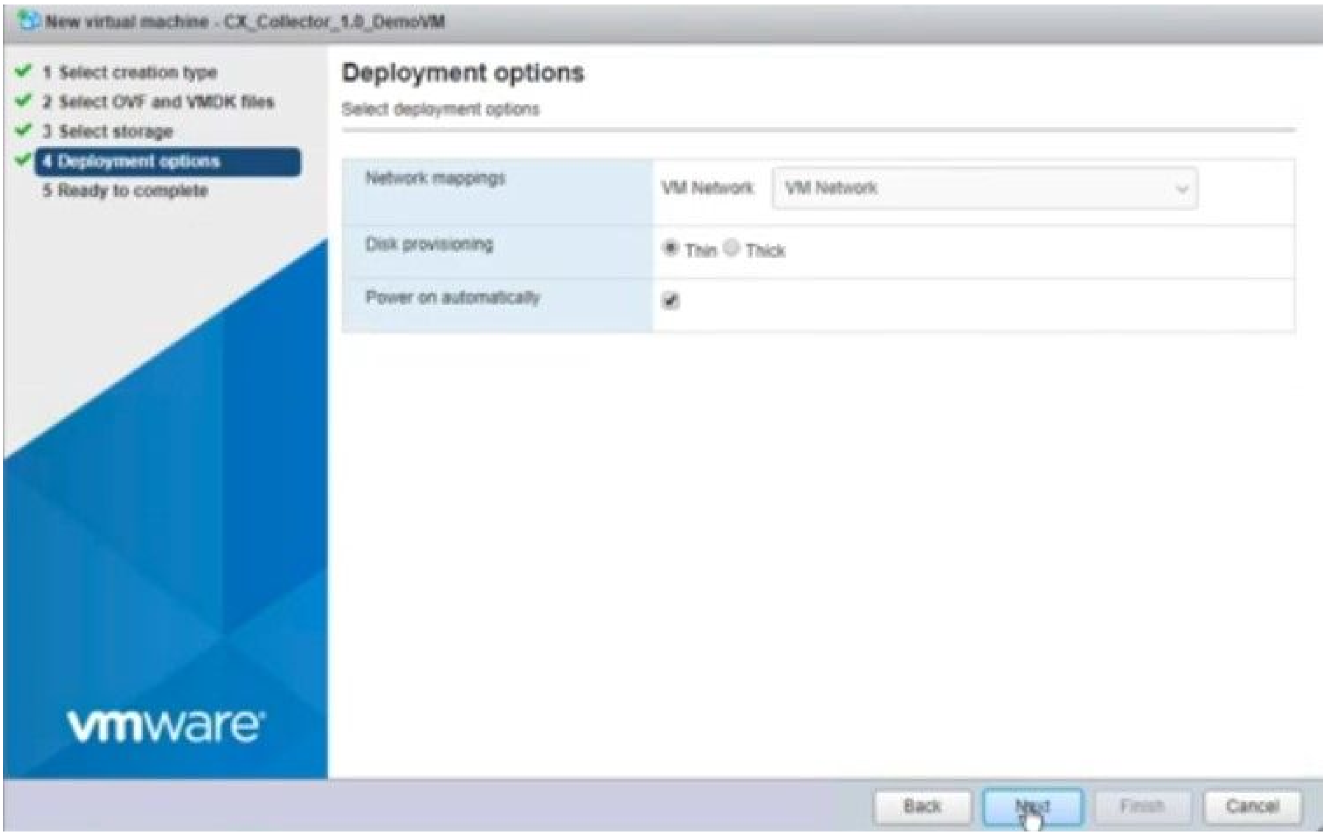
Select the storage type and datastore

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

Name	Capacity	Free	Type	Thin pro...	Access
datastore1	922.75 GB	818.7 GB	VMFS5	Supported	Single

1 items

Select Storage



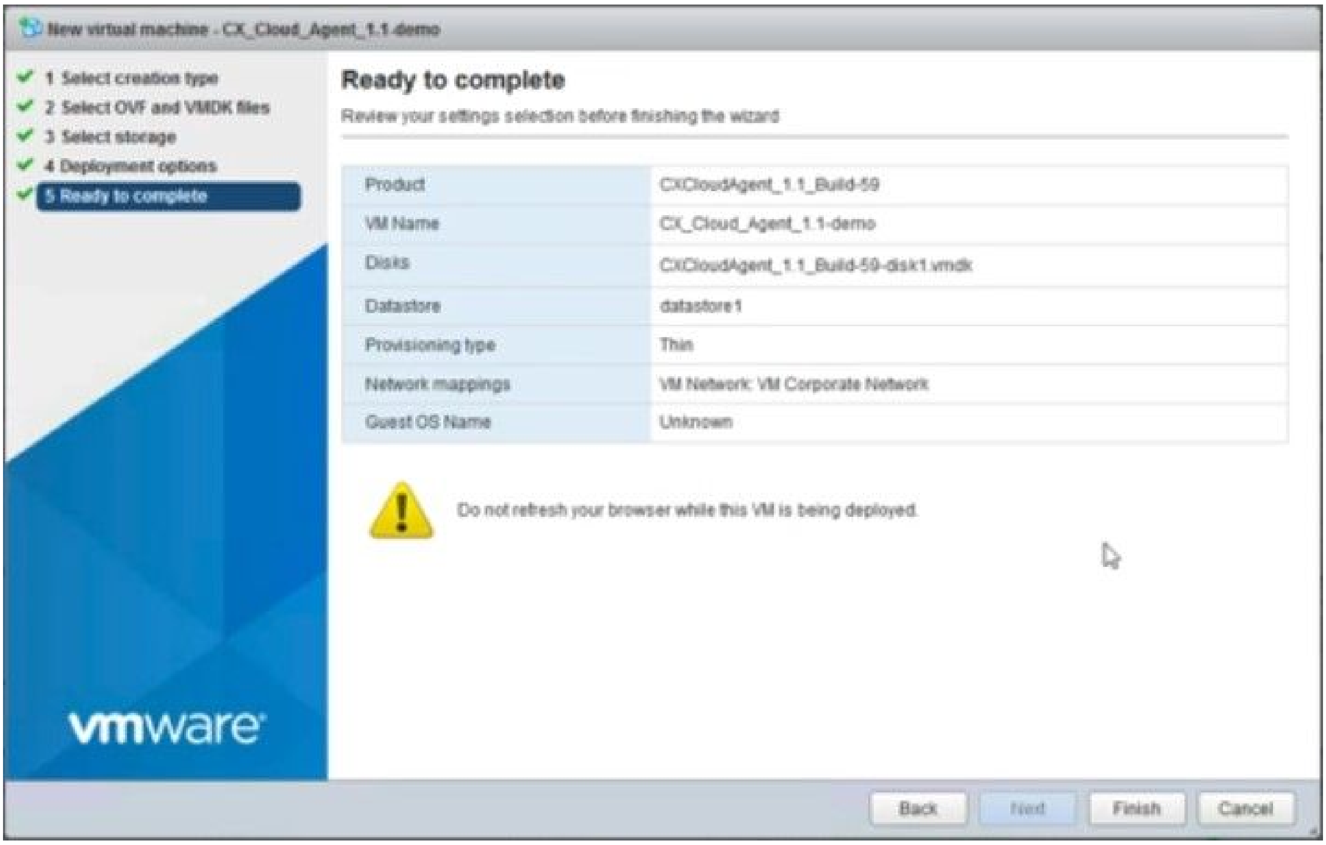
Deployment options

Select deployment options

Network mappings	VM Network	VM Network
Disk provisioning	● Thin ○ Thick	
Power on automatically	☑	

Deployment Options

6. Select the Deployment options and click **Next.**



New virtual machine - CX_Cloud_Agent_1.1-demo

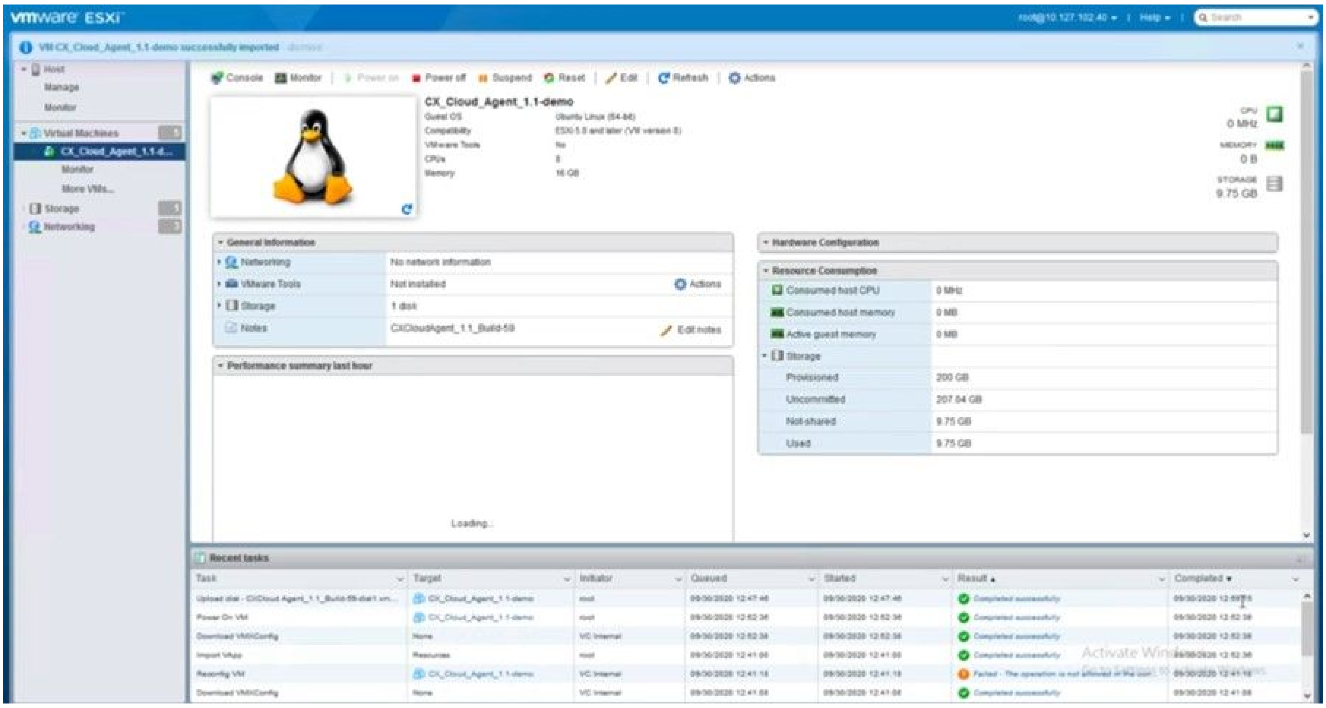
Ready to complete

Review your settings selection before finishing the wizard

Product	CXCloudAgent_1.1_Build-59
VM Name	CX_Cloud_Agent_1.1-demo
Disks	CXCloudAgent_1.1_Build-59-disk1.vmdk
Datastore	datastore1
Provisioning type	Thin
Network mappings	VM Network: VM Corporate Network
Guest OS Name	Unknown

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

Ready to Complete



VM CX_Cloud_Agent_1.1-demo successfully imported

CX_Cloud_Agent_1.1-demo

Guest OS	Ubuntu Linux (64-bit)
Compatibility	ESXi 5.0 and later (VM version 8)
VMware Tools	No
CPUs	8
Memory	16 GB

CPU 0 MHz

MEMORY 0 B

STORAGE 9.75 GB

General Information

Networking	No network information
VMware Tools	Not installed
Storage	1 disk
Notes	CXCloudAgent_1.1_Build-59

Performance summary last hour

Loading...

Hardware Configuration

Resource Consumption

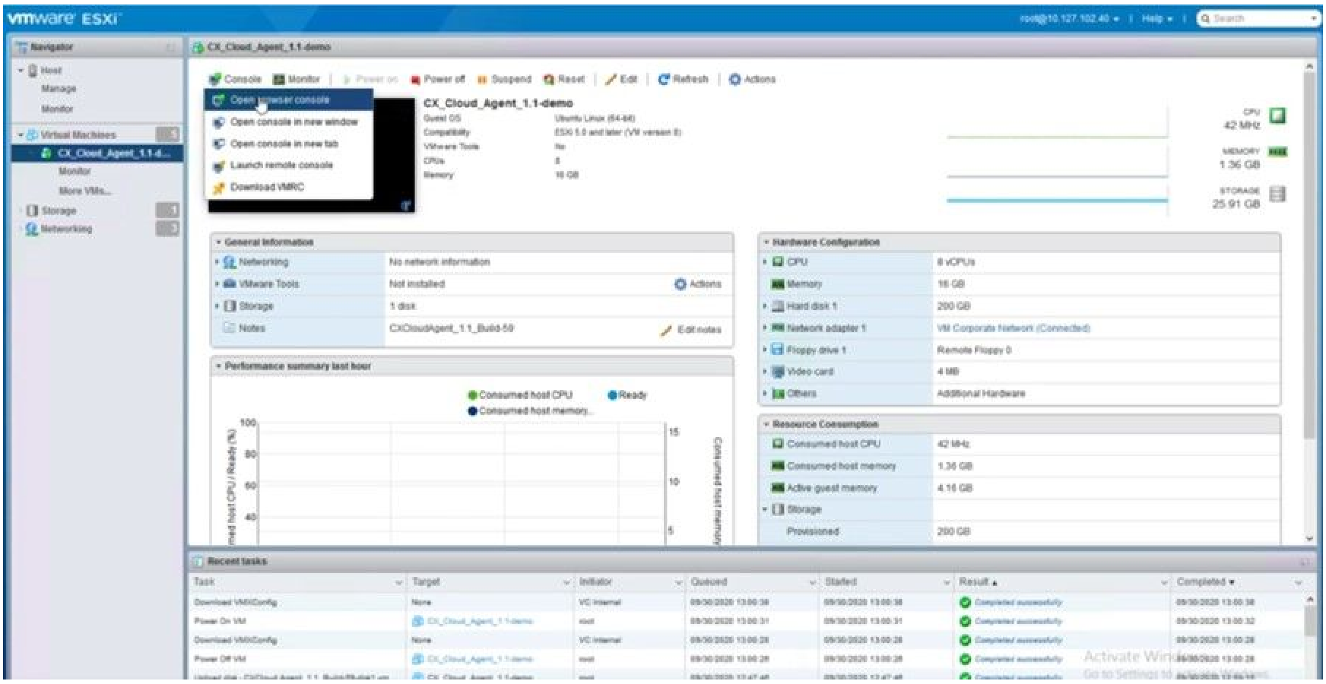
Consumed host CPU	0 MHz
Consumed host memory	0 MB
Active guest memory	0 MB
Storage	
Provisioned	200 GB
Uncommitted	207.84 GB
Not-shared	9.75 GB
Used	9.75 GB

Recent tasks

Task	Target	Initiator	Queued	Started	Result ▴	Completed ▾
Upload disk - CXCloud Agent_1.1_Build-59-disk1.vm...	CX_Cloud_Agent_1.1-demo	root	09/30/2020 12:47:46	09/30/2020 12:47:46	Completed successfully	09/30/2020 12:5[illegible]
Power On VM	CX_Cloud_Agent_1.1-demo	root	09/30/2020 12:52:36	09/30/2020 12:52:36	Completed successfully	09/30/2020 12:52:38
Download VMXConfig	None	VC Internal	09/30/2020 12:52:38	09/30/2020 12:52:38	Completed successfully	09/30/2020 12:52:38
Import VApp	Resources	root	09/30/2020 12:41:00	09/30/2020 12:41:00	Completed successfully	09/30/2020 12:52:36
Reconfig VM	CX_Cloud_Agent_1.1-demo	VC Internal	09/30/2020 12:41:18	09/30/2020 12:41:18	Failed - The operation is not allowed in the curr...	09/30/2020 12:41:18
Download VMXConfig	None	VC Internal	09/30/2020 12:41:08	09/30/2020 12:41:08	Completed successfully	09/30/2020 12:41:08

Successful Completion

7. Review the settings and click **Finish**.
8. Select the virtual machine you just deployed and click **Console > Open browser console**.

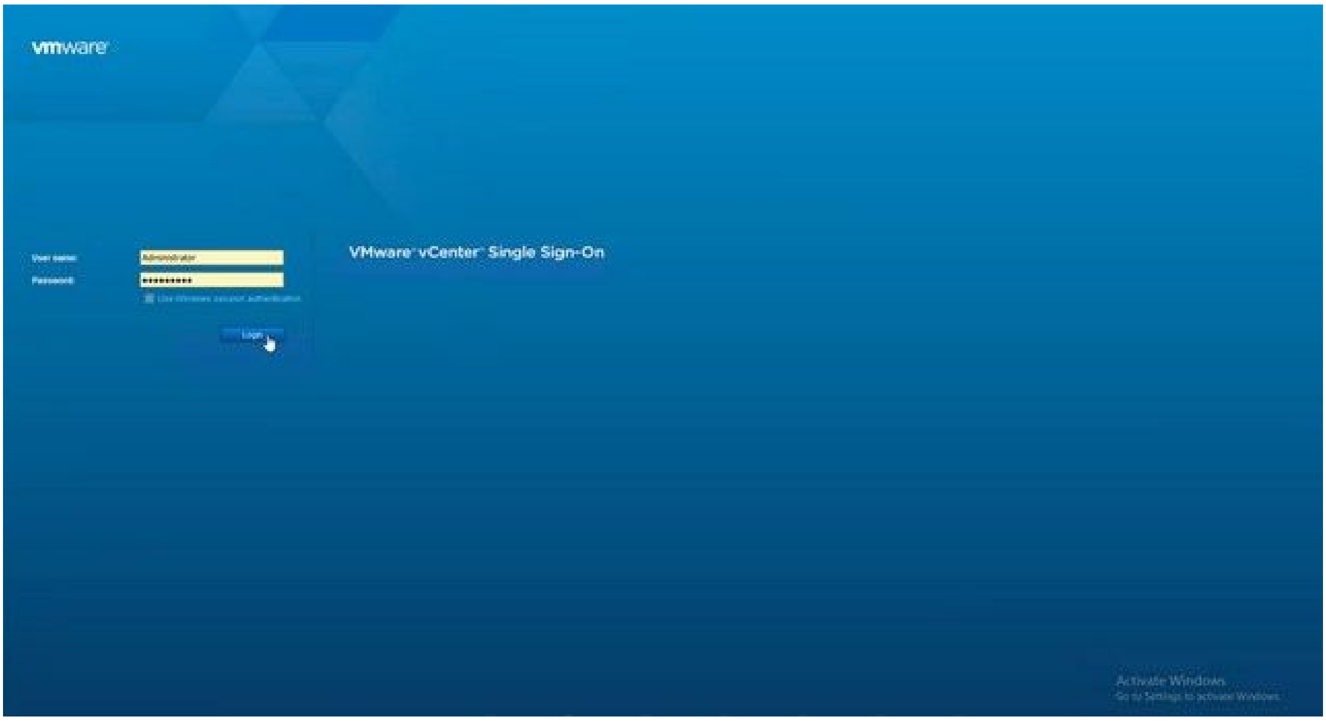


Open Console

9. Navigate to **Network Configuration**.

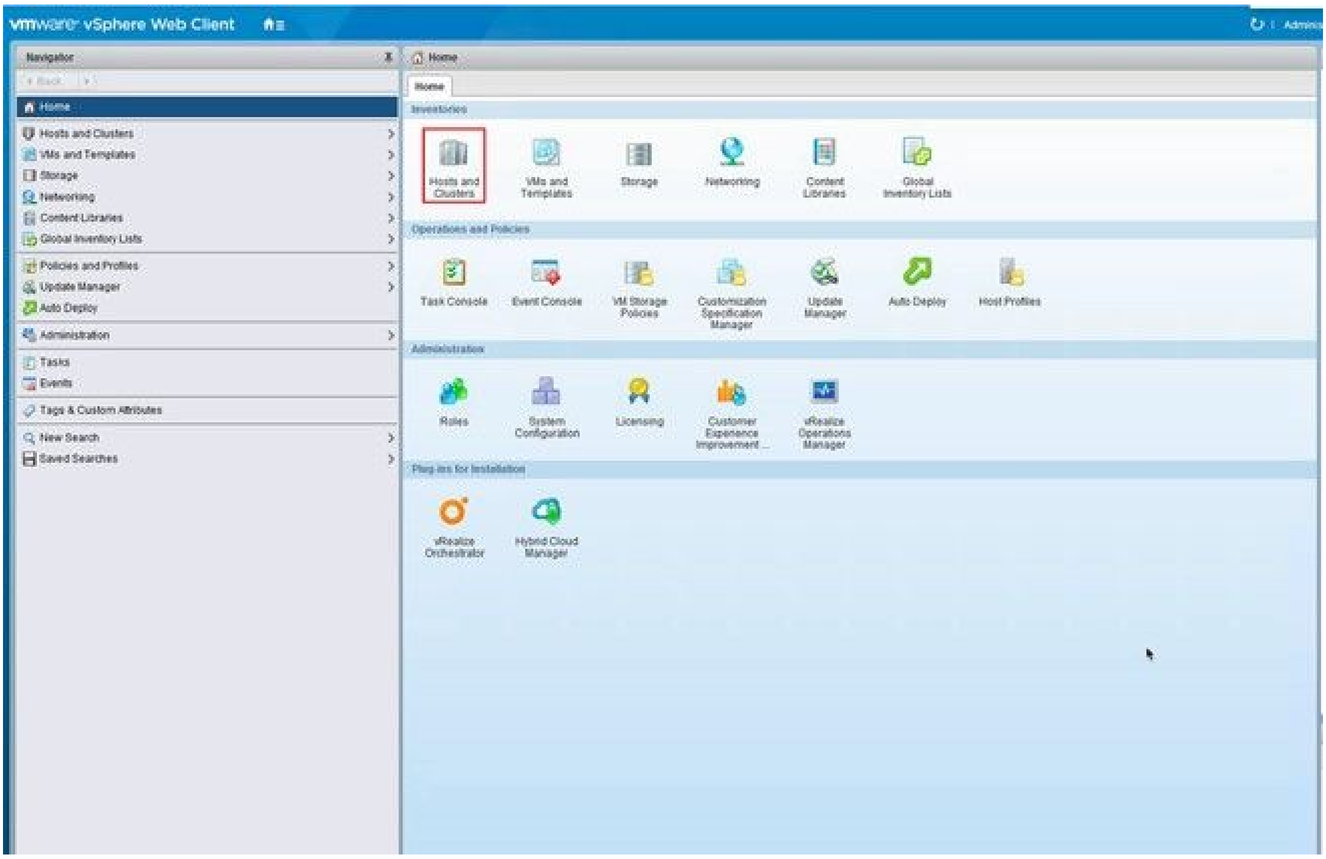
Web Client vCenter Installation

1. Use Login to vCenter Client using the credentials.


vmware
VMware vCenter Single Sign-On
User name:
Password:
Use Windows session authentication
Login

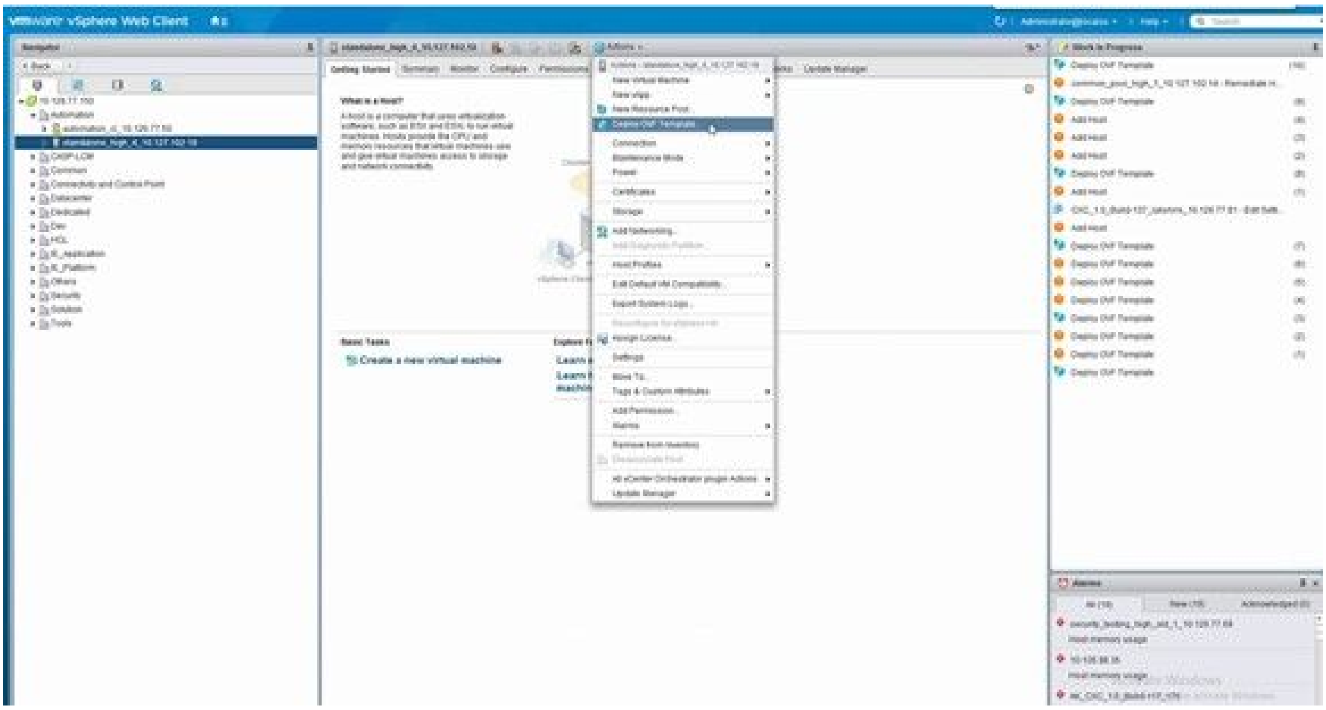
User name: Administrator

Login

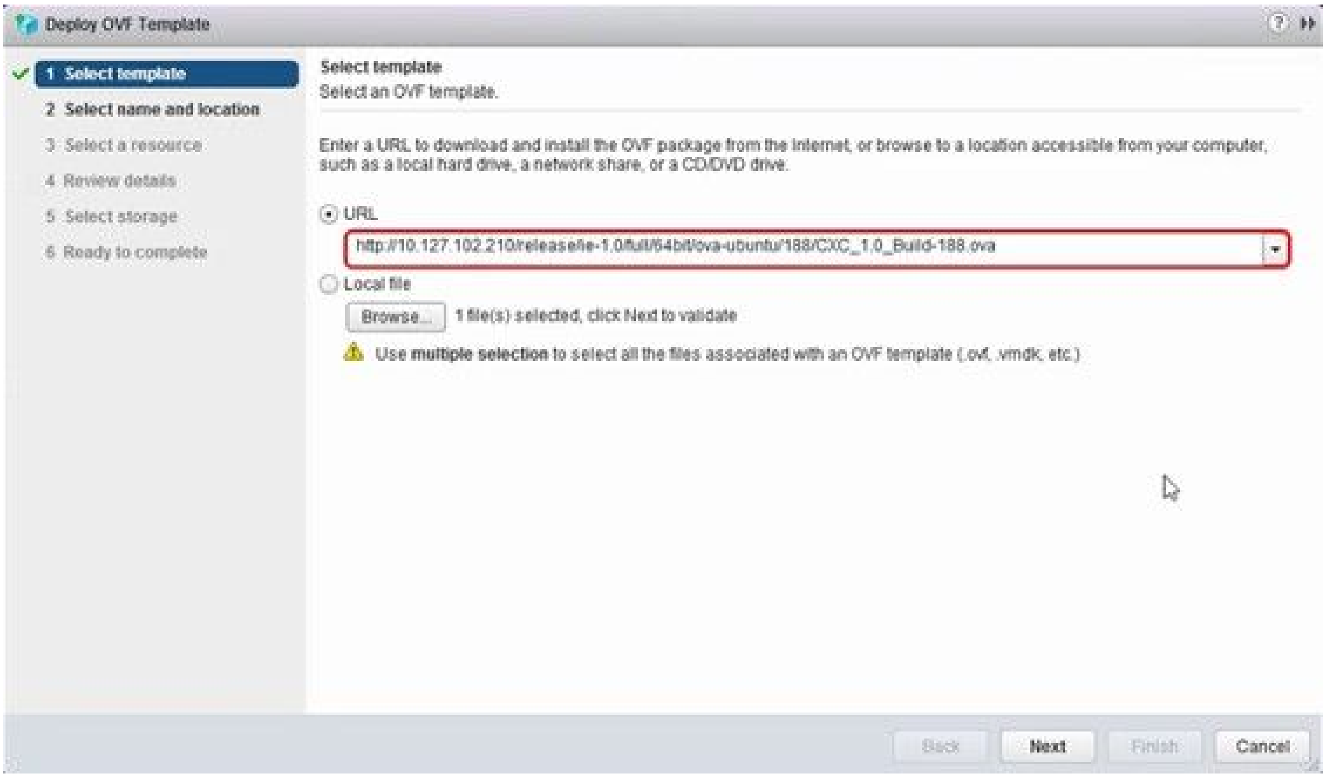


Home Screen

2. On the Home page click **Hosts and Clusters**.
3. Select the VM and click **Action > Deploy OVF Template**.



Actions



Select template

Select an OVF template.

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://10.127.102.210/release/ie-1.0/full/64bit/ova-ubuntu/188/CXC_1.0_Build-188.ova

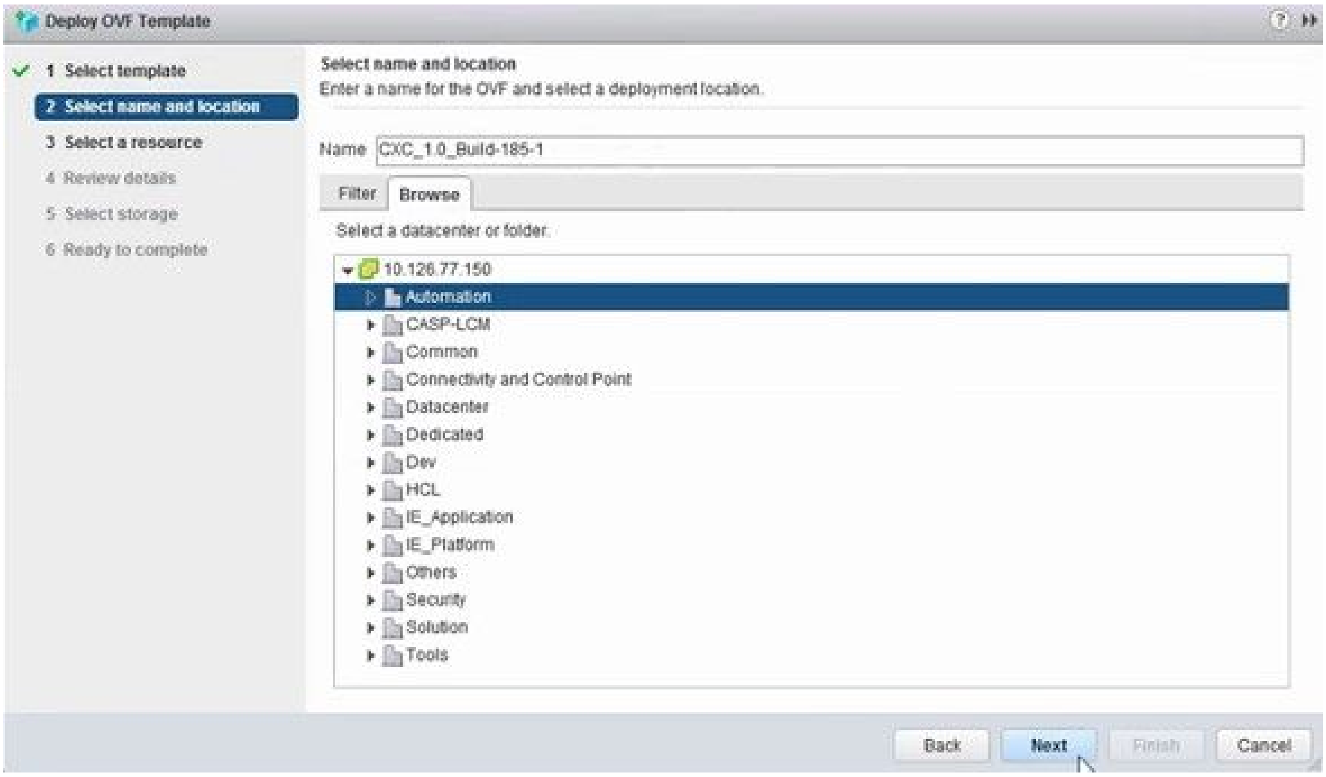
○ Local file

Browse... 1 file(s) selected, click Next to validate

⚠ Use **multiple selection** to select all the files associated with an OVF template (.ovf, .vmdk, etc.)

Select Template

4. You can either add the URL directly or browse to select the ova file and click **Next**.
5. Enter a unique name and only if required browse to the location. Click **Next**.



Select name and location

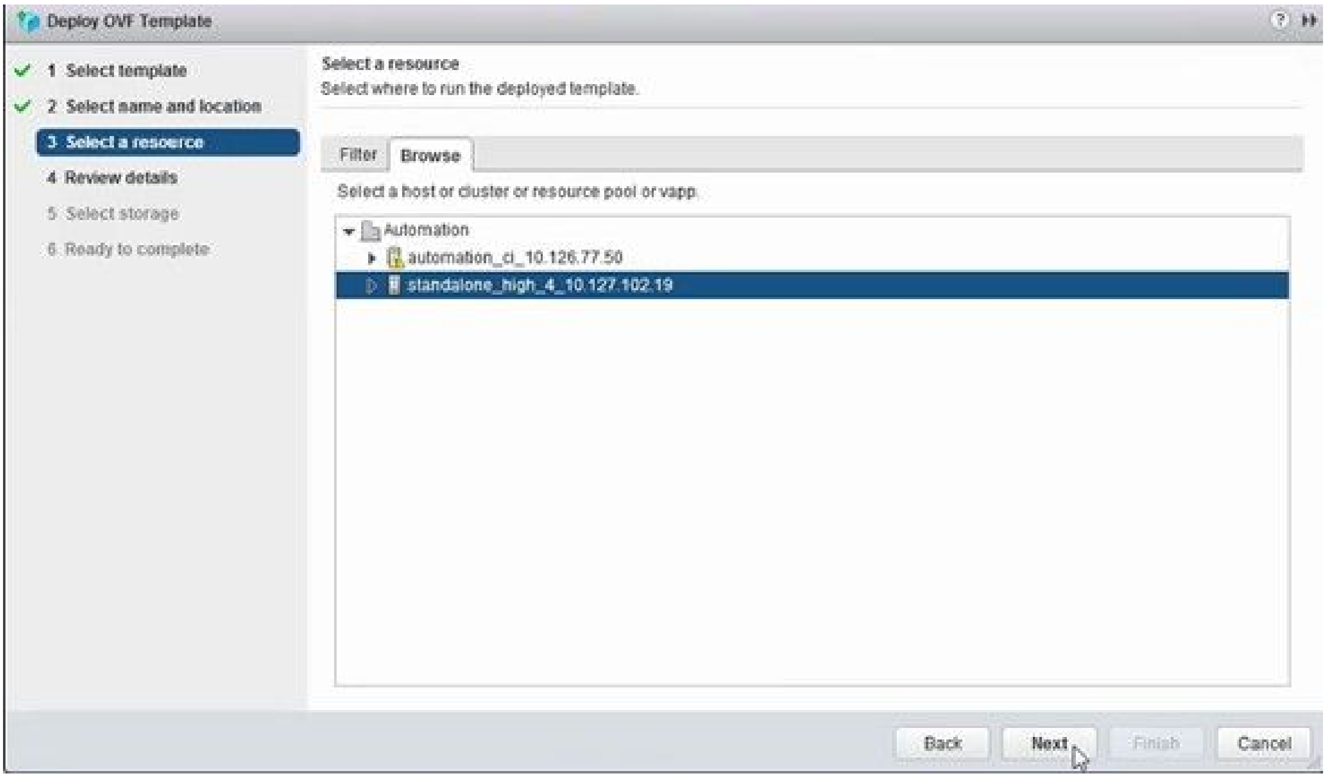
Enter a name for the OVF and select a deployment location.

Name CXC_1.0_Build-185-1

Select a datacenter or folder.

Name and Location

6. Select the source and click **Next**.



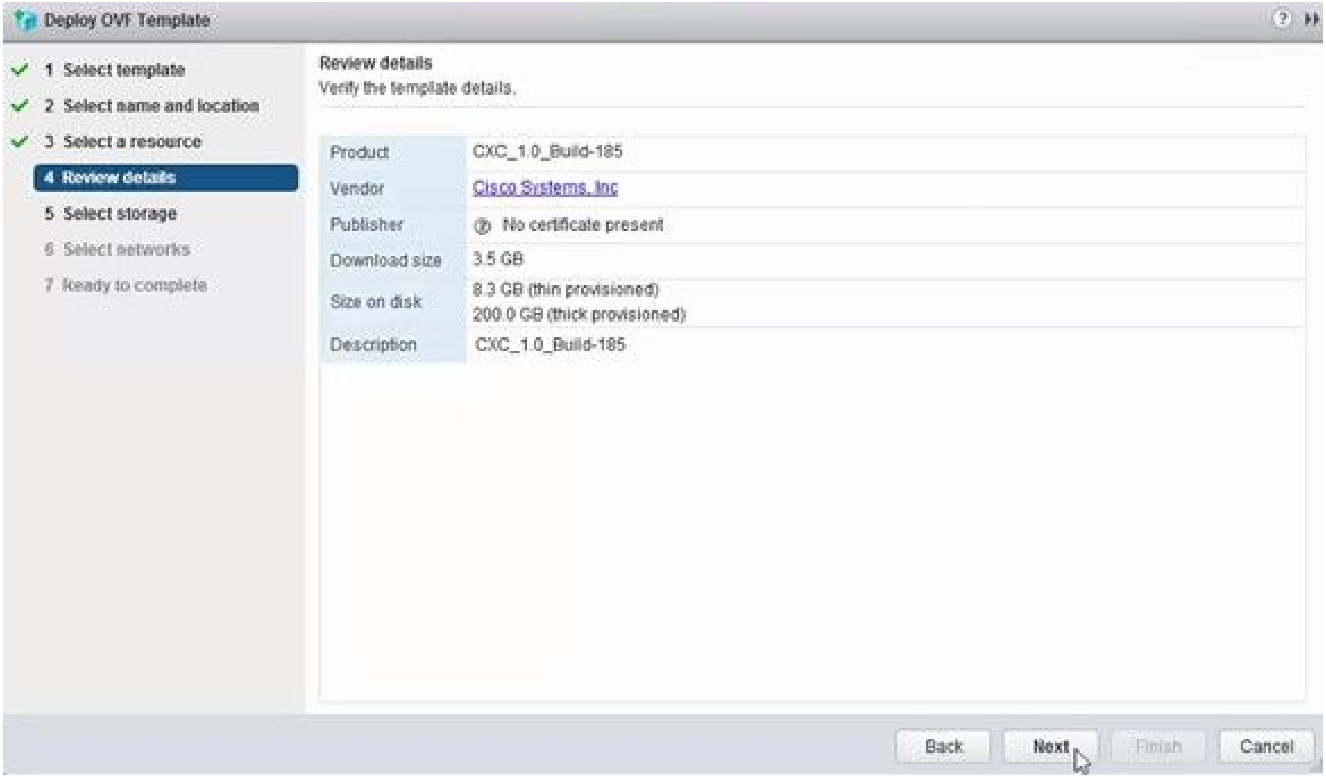
Select a resource

Select where to run the deployed template.

Select a host or cluster or resource pool or vapp.

- Automation
  - automation_ci_10.126.77.50
  - standalone_high_4_10.127.102.19

7. Review the details and click **Next**.



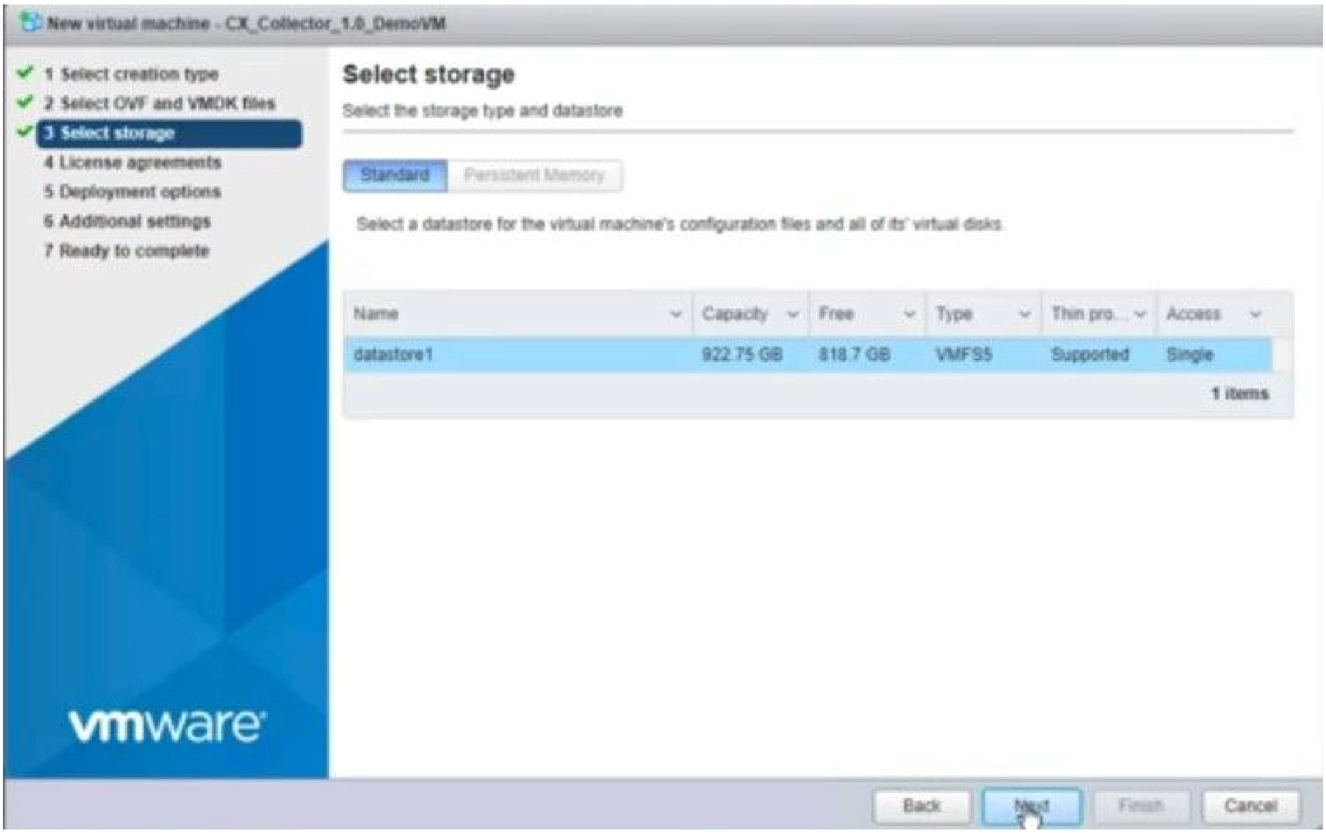
Review details

Verify the template details.

Product	CXC_1.0_Build-185
Vendor	Cisco Systems, Inc
Publisher	No certificate present
Download size	3.5 GB
Size on disk	8.3 GB (thin provisioned) 200.0 GB (thick provisioned)
Description	CXC_1.0_Build-185

Review Details

8. Select the virtual disk format and click **Next**.



Select storage

Select the storage type and datastore

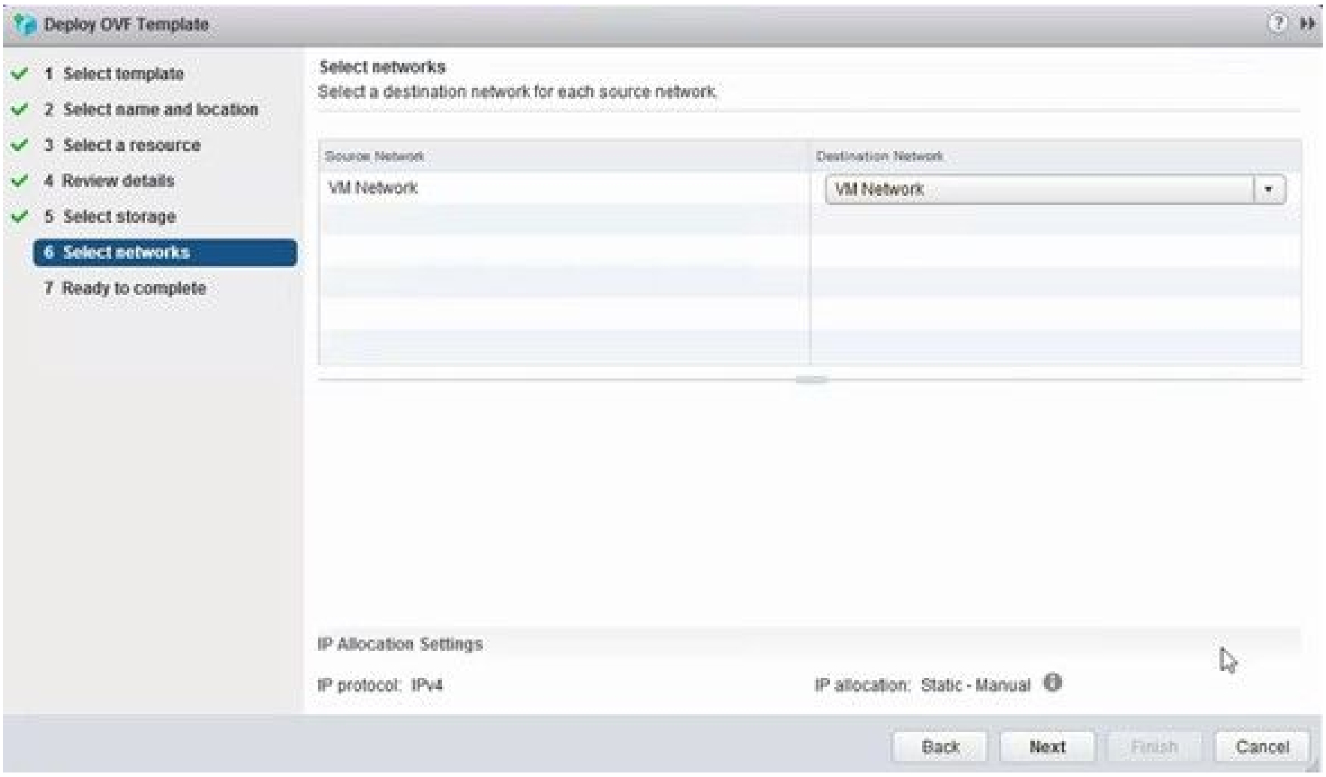
Select a datastore for the virtual machine's configuration files and all of its' virtual disks.

Name	Capacity	Free	Type	Thin pro...	Access
datastore1	922.75 GB	818.7 GB	VMFS5	Supported	Single

1 items

Select Storage

9. Click **Next**.



Select networks

Select a destination network for each source network.

Source Network	Destination Network
VM Network	VM Network

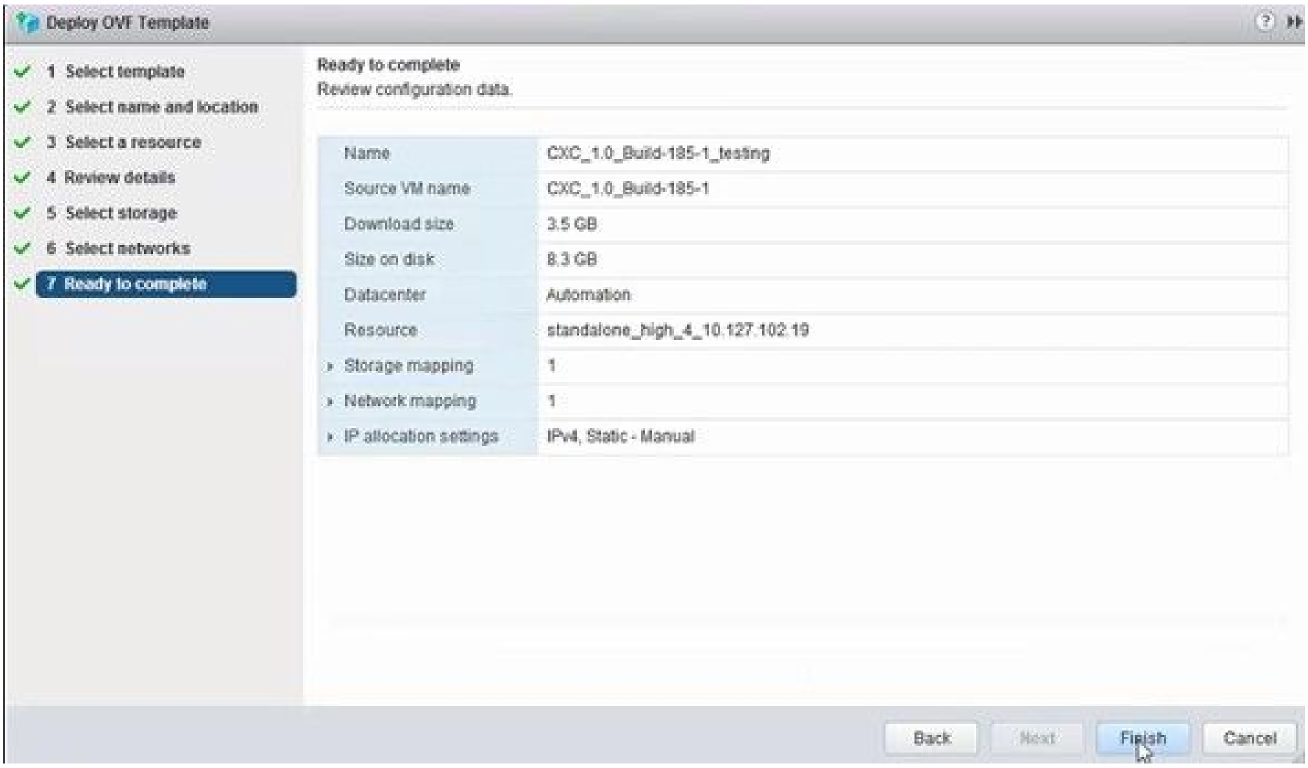
IP Allocation Settings

IP protocol: IPv4

IP allocation: Static - Manual

Select Networks

10. Click **Finish**.



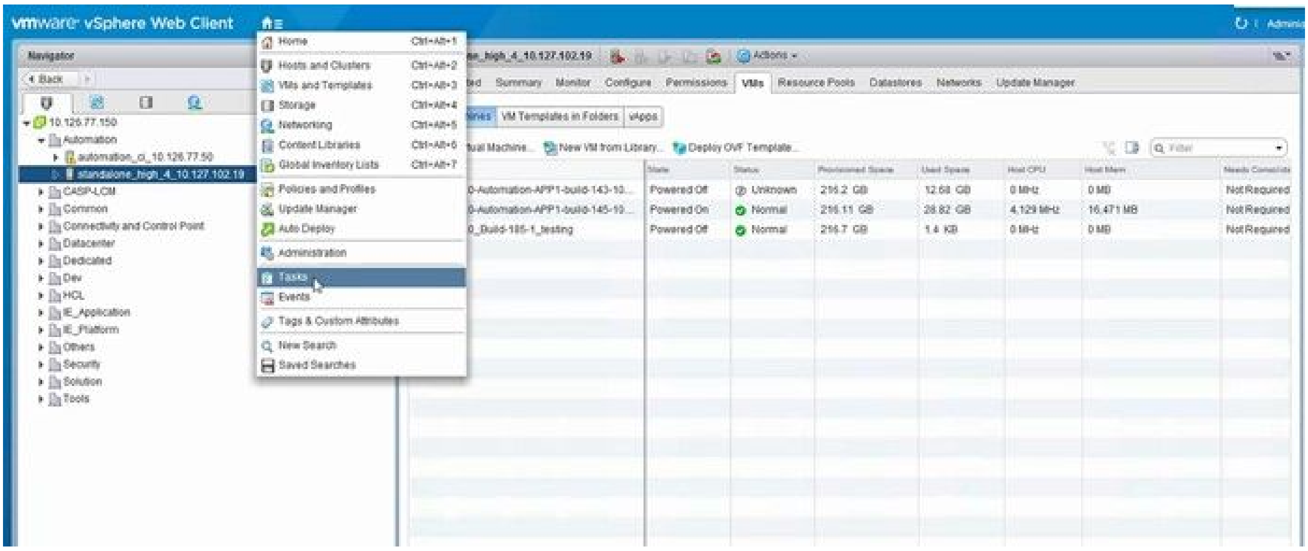
Deploy OVF Template

- ✓ 1 Select template
- ✓ 2 Select name and location
- ✓ 3 Select a resource
- ✓ 4 Review details
- ✓ 5 Select storage
- ✓ 6 Select networks
- ✓ 7 Ready to complete

Ready to complete
Review configuration data.

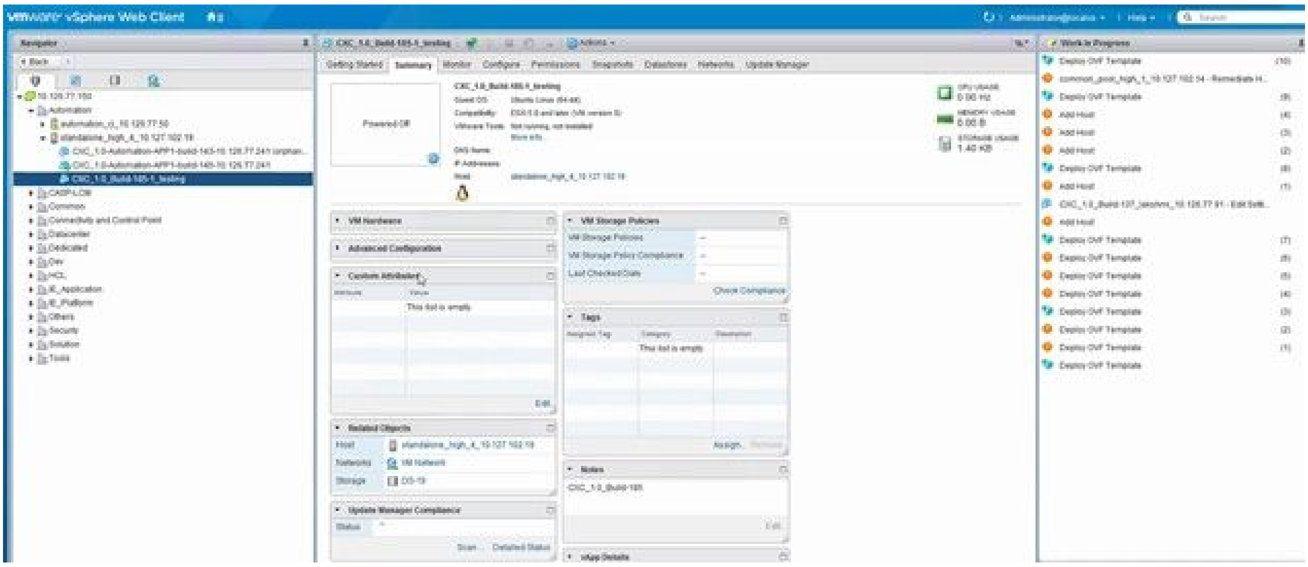
Name	CXC_1.0_Build-185-1_testing
Source VM name	CXC_1.0_Build-185-1
Download size	3.5 GB
Size on disk	8.3 GB
Datacenter	Automation
Resource	standalone_high_4_10.127.102.19
Storage mapping	1
Network mapping	1
IP allocation settings	IPv4, Static - Manual

11. You can see a new VM is added and to see the status click **Home > Tasks**.



	State	Status	Provisioned Space	Used Space	Host CPU	Host Mem	Needs Consolidation
0-Automation-APP1-build-143-10...	Powered Off	Unknown	216.2 GB	12.68 GB	0 MHz	0 MB	Not Required
0-Automation-APP1-build-145-10...	Powered On	Normal	216.11 GB	28.82 GB	4,129 MHz	16,471 MB	Not Required
0_Build-185-1_testing	Powered Off	Normal	216.7 GB	1.4 KB	0 MHz	0 MB	Not Required

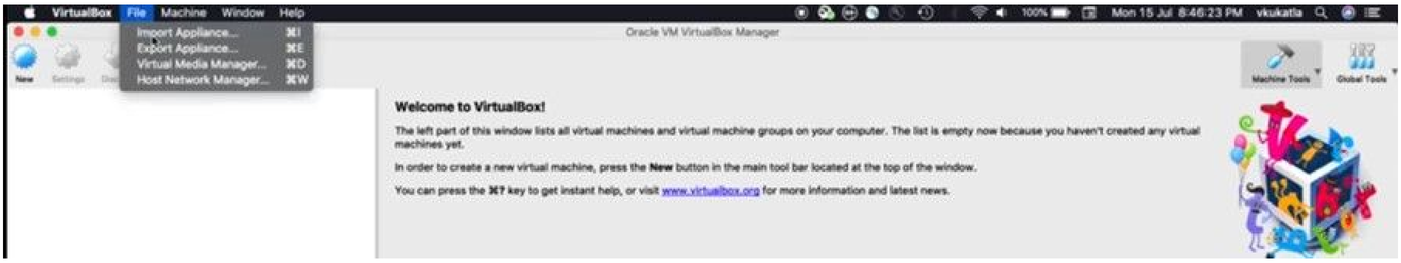
12. Once installed power on the VM and open the console.



13. Navigate to **IP Configuration**.

Oracle Virtual Box 5.2.30 Installation

This client allows you to deploy CX Cloud Agent OVA using the Oracle Virtual Box.



Welcome to VirtualBox!

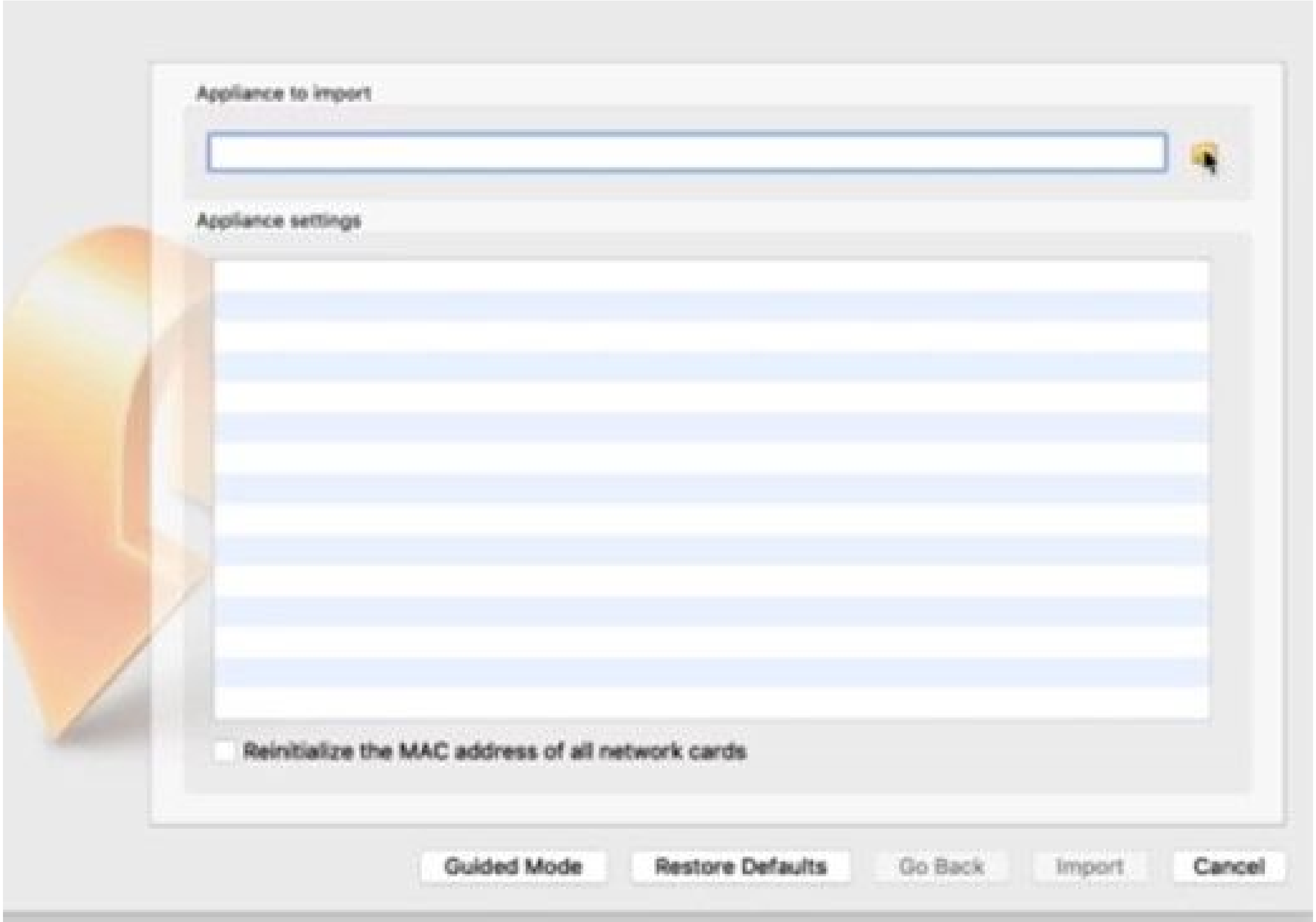
The left part of this window lists all virtual machines and virtual machine groups on your computer. The list is empty now because you haven't created any virtual machines yet.

In order to create a new virtual machine, press the **New** button in the main tool bar located at the top of the window.

You can press the ⌘? key to get instant help, or visit www.virtualbox.org for more information and latest news.

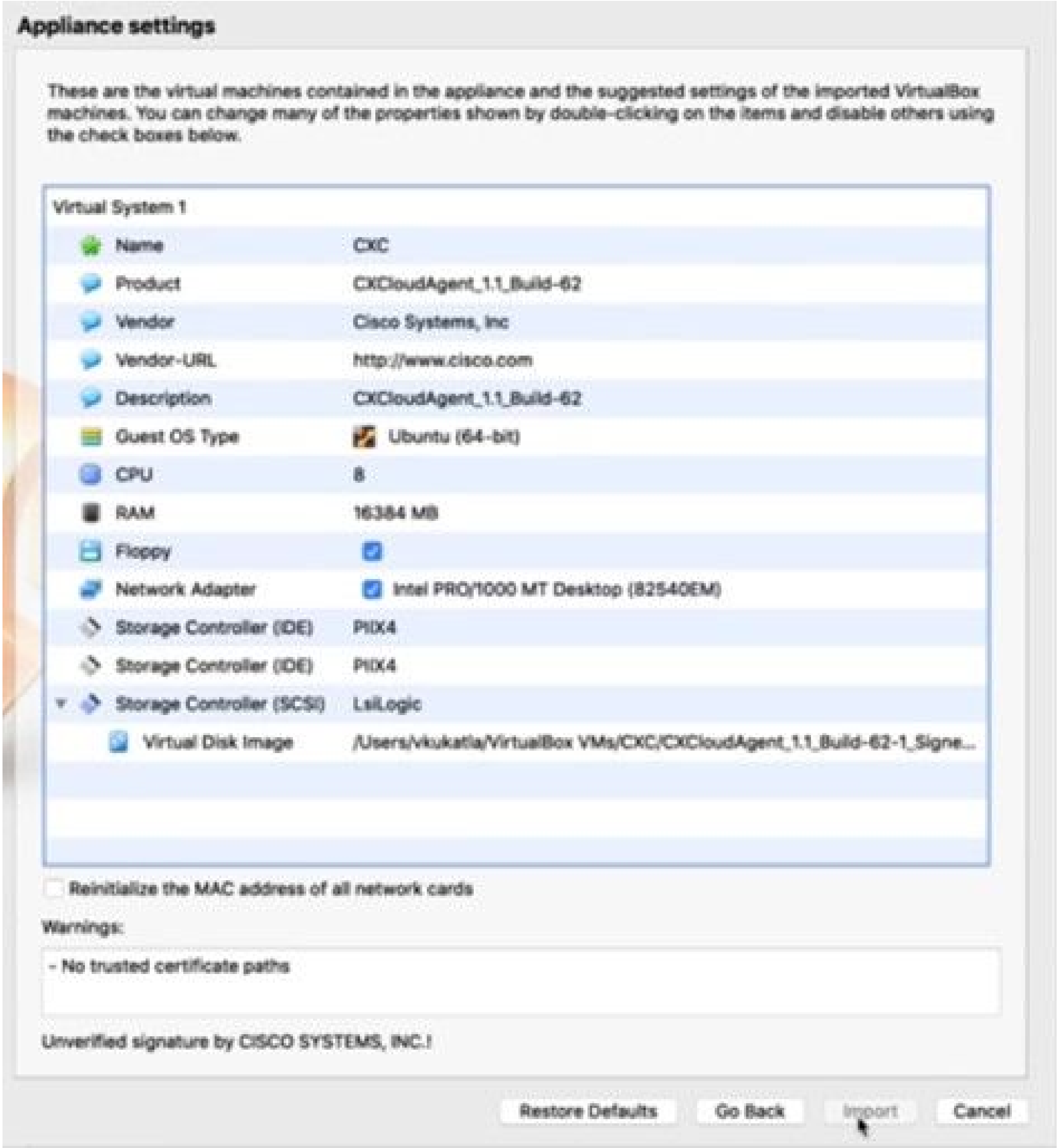
Oracle VM

1. Open the Oracle VM UI click **File** > **Import Appliance**.
2. Browse to import the OVA file.



Select File

3. Click **Import**.



Appliance settings

These are the virtual machines contained in the appliance and the suggested settings of the imported VirtualBox machines. You can change many of the properties shown by double-clicking on the items and disable others using the check boxes below.

Virtual System 1	
Name	CXC
Product	CXCloudAgent_1.1_Build-62
Vendor	Cisco Systems, Inc
Vendor-URL	http://www.cisco.com
Description	CXCloudAgent_1.1_Build-62
Guest OS Type	Ubuntu (64-bit)
CPU	8
RAM	16384 MB
Floppy	☑
Network Adapter	☑ Intel PRO/1000 MT Desktop (82540EM)
Storage Controller (IDE)	PIIX4
Storage Controller (IDE)	PIIX4
▾ Storage Controller (SCSI)	LsiLogic
Virtual Disk Image	/Users/vkukatla/VirtualBox VMs/CXC/CXCloudAgent_1.1_Build-62-1_Signe...

□ Reinitialize the MAC address of all network cards

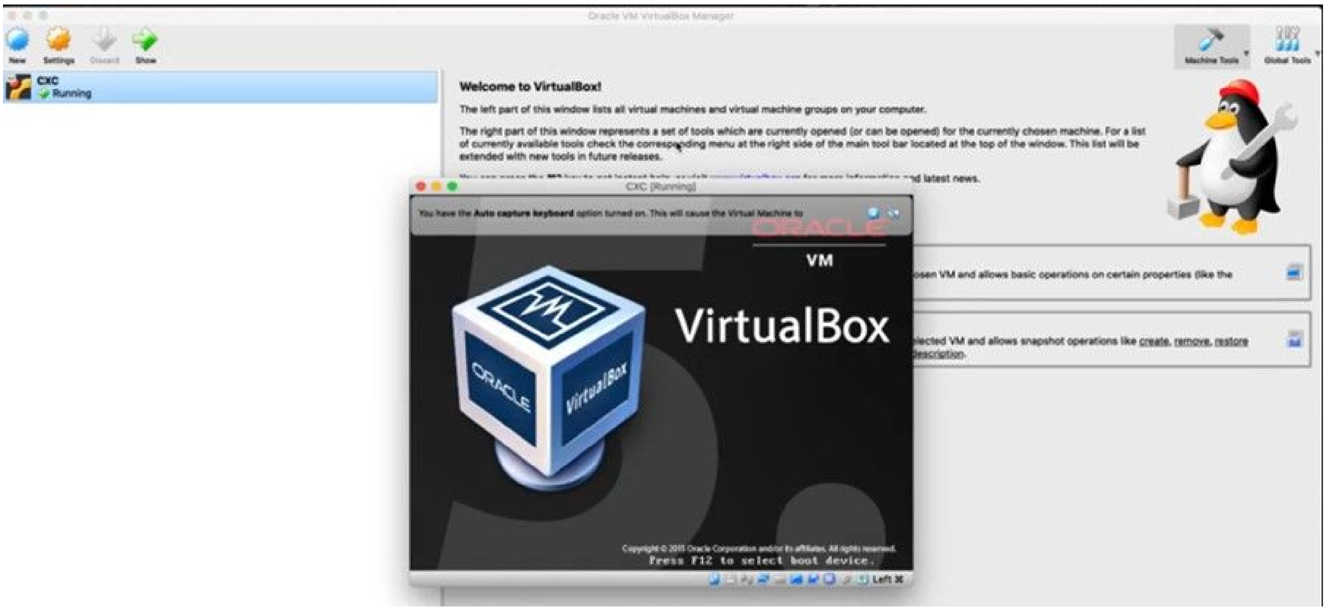
Warnings:

- No trusted certificate paths

Unverified signature by CISCO SYSTEMS, INC.!

Import File

4. Select the virtual machine you just deployed and click **Start**.



CXC
Running

Welcome to VirtualBox!

The left part of this window lists all virtual machines and virtual machine groups on your computer.

The right part of this window represents a set of tools which are currently opened (or can be opened) for the currently chosen machine. For a list of currently available tools check the corresponding menu at the right side of the main tool bar located at the top of the window. This list will be extended with new tools in future releases.

d latest news.

CXC [Running]

You have the **Auto capture keyboard** option turned on. This will cause the Virtual Machine to

osen VM and allows basic operations on certain properties (like the

lected VM and allows snapshot operations like create, remove, restore description.

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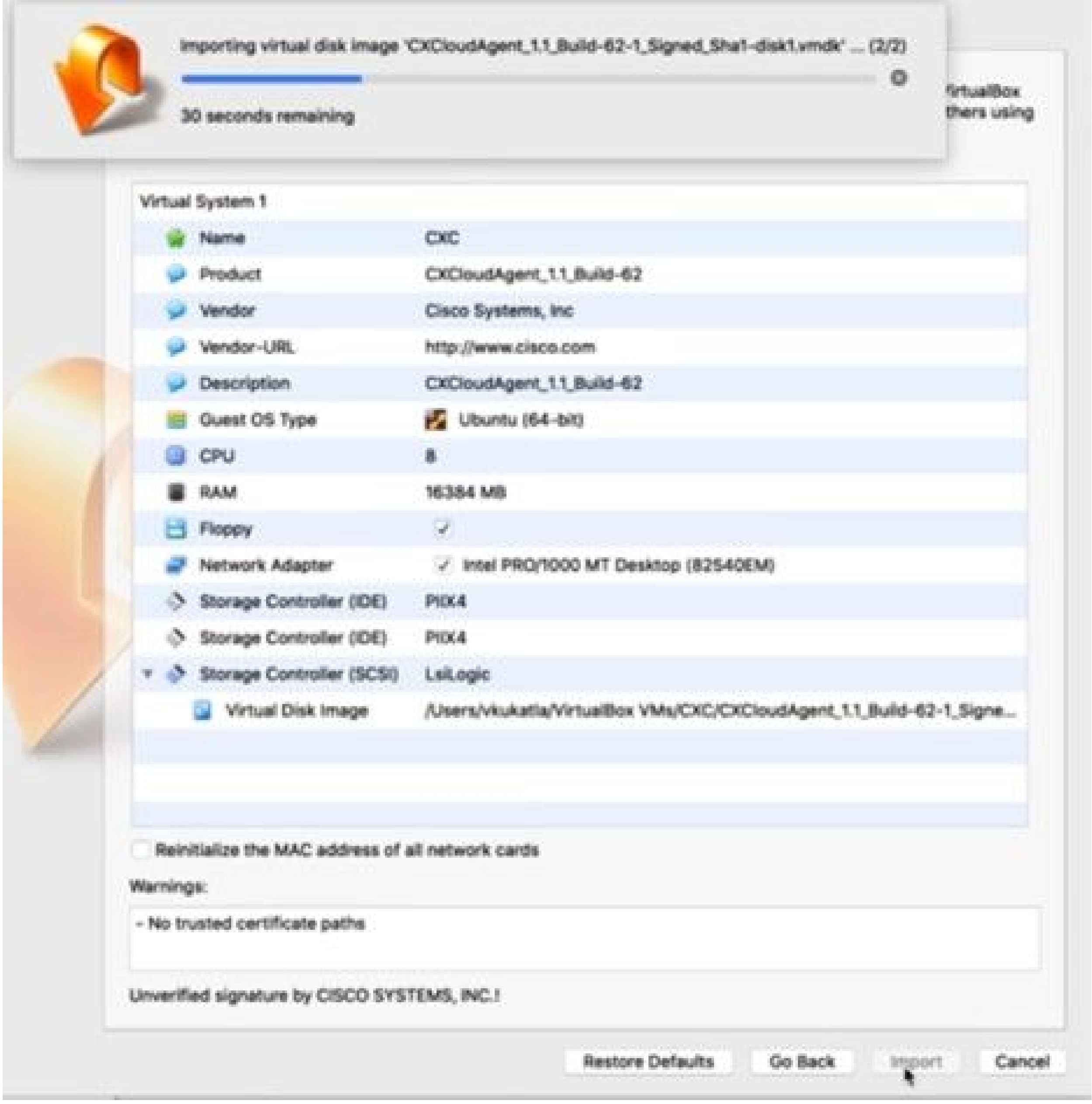
```
Press F12 to select boot device.
```

VM Console Startup



Importing virtual disk image 'CXCloudAgent_1.1_Build-62-1_Signed_Sha1-disk1.vmdk' ... (2/2)

30 seconds remaining

irtualBox
thers using

Virtual System 1

Name	CXC
Product	CXCloudAgent_1.1_Build-62
Vendor	Cisco Systems, Inc
Vendor-URL	http://www.cisco.com
Description	CXCloudAgent_1.1_Build-62
Guest OS Type	Ubuntu (64-bit)
CPU	8
RAM	16384 MB
Floppy	✓
Network Adapter	✓ Intel PRO/1000 MT Desktop (82540EM)
Storage Controller (IDE)	PIIX4
Storage Controller (IDE)	PIIX4
Storage Controller (SCSI)	LsiLogic
Virtual Disk Image	/Users/vkukatla/VirtualBox VMs/CXC/CXCloudAgent_1.1_Build-62-1_Signe...

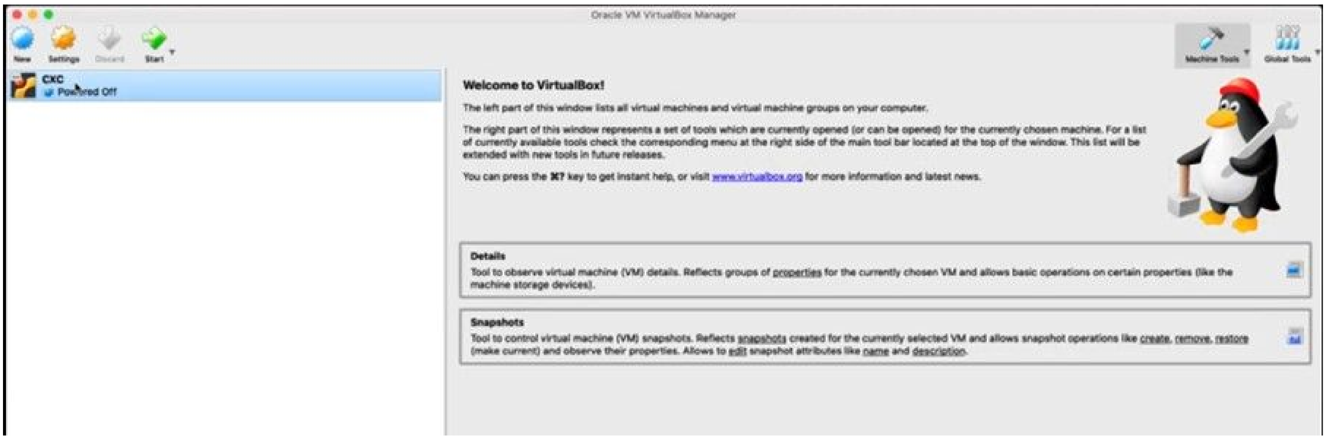
□ Reinitialize the MAC address of all network cards

Warnings:

- No trusted certificate paths

Unverified signature by CISCO SYSTEMS, INC.!

Import in Progress



Welcome to VirtualBox!

The left part of this window lists all virtual machines and virtual machine groups on your computer.

The right part of this window represents a set of tools which are currently opened (or can be opened) for the currently chosen machine. For a list of currently available tools check the corresponding menu at the right side of the main tool bar located at the top of the window. This list will be extended with new tools in future releases.

You can press the ⌘? key to get instant help, or visit www.virtualbox.org for more information and latest news.

Details

Tool to observe virtual machine (VM) details. Reflects groups of properties for the currently chosen VM and allows basic operations on certain properties (like the machine storage devices).

Snapshots

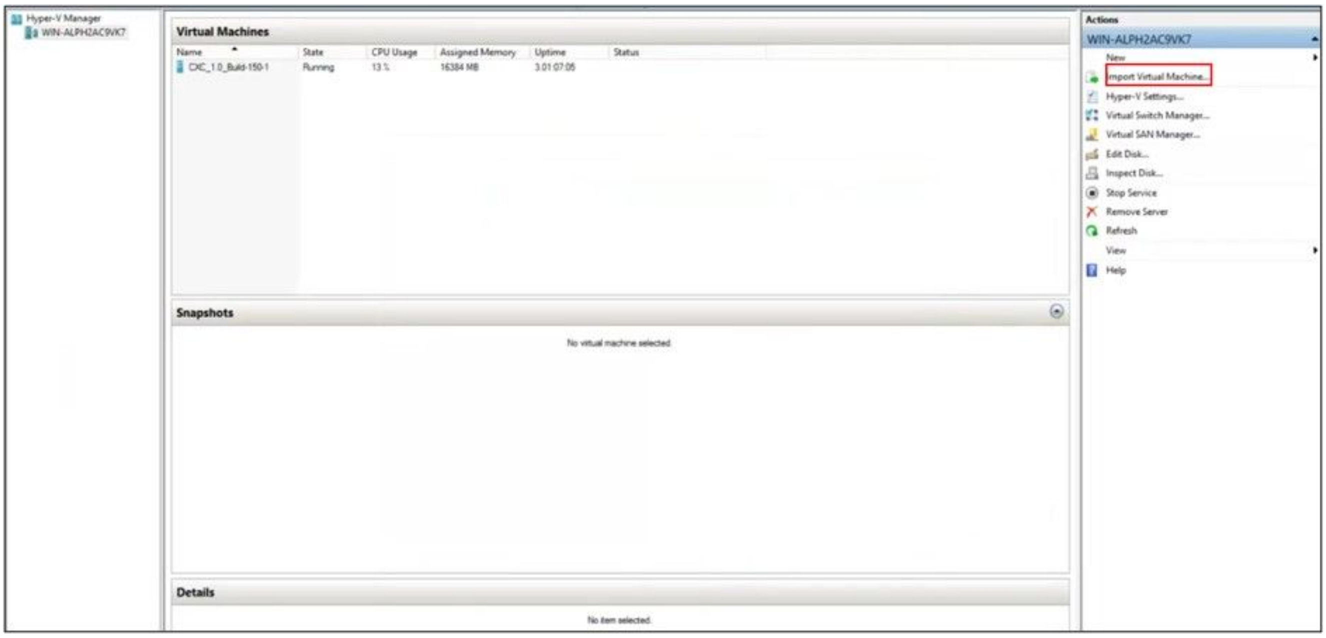
Tool to control virtual machine (VM) snapshots. Reflects snapshots created for the currently selected VM and allows snapshot operations like create, remove, restore (make current) and observe their properties. Allows to edit snapshot attributes like name and description.

Open the Console

5. Navigate to **Network Configuration**.

Microsoft Hyper-V Installation

1. Click on **Import Virtual Machine** as highlighted on the screen.



Virtual Machines

Name	State	CPU Usage	Assigned Memory	Uptime	Status
CXC_1.0_Build-150-1	Running	13 %	16384 MB	3.01:07:05	

Snapshots

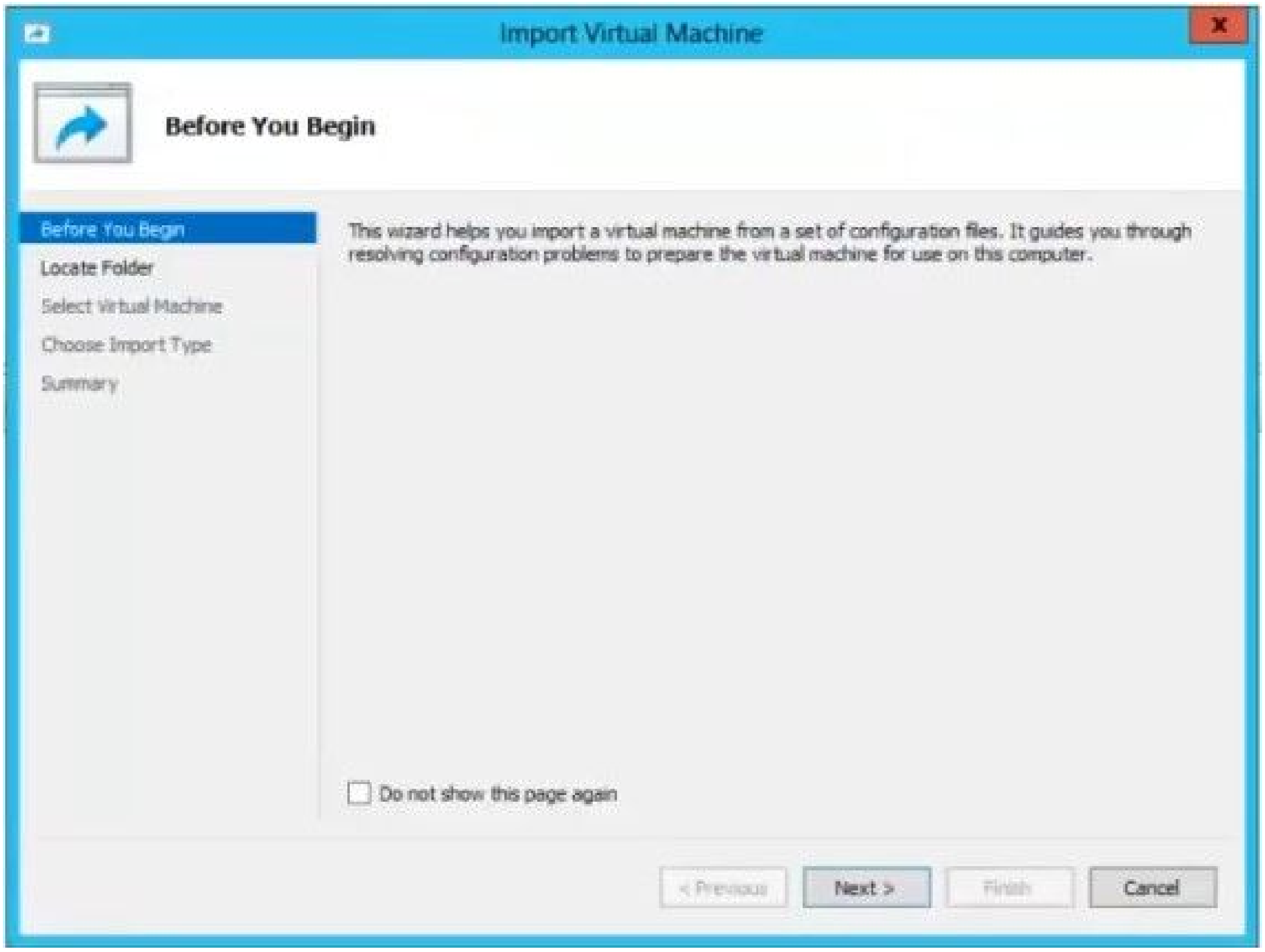
No virtual machine selected

Details

No item selected

Hyper-V Manager

2. Click **Next>** to start Import.

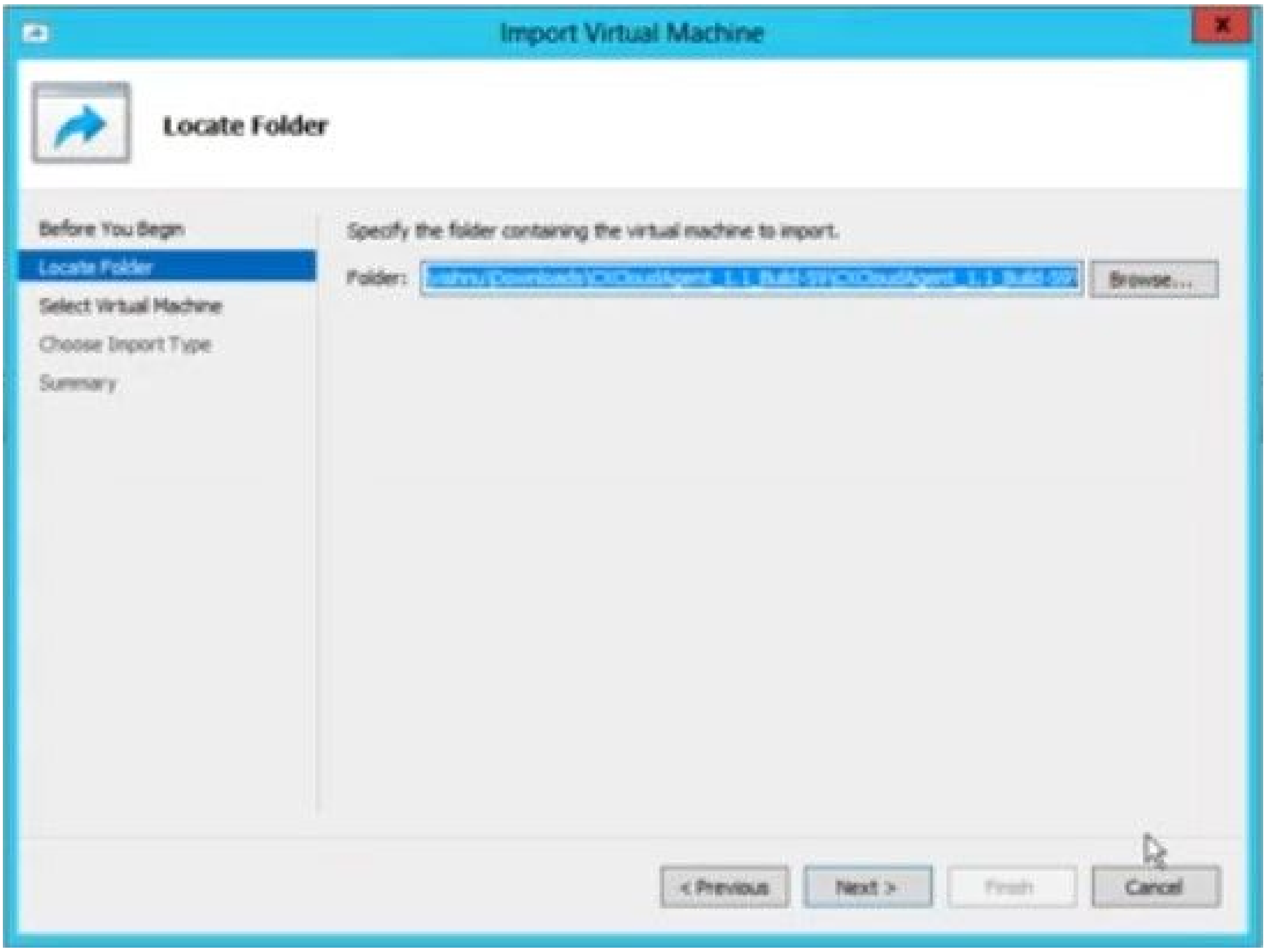


This wizard helps you import a virtual machine from a set of configuration files. It guides you through resolving configuration problems to prepare the virtual machine for use on this computer.

□ Do not show this page again

Introduction Screen

3. Browse and select the download folder. Click **Next>**.

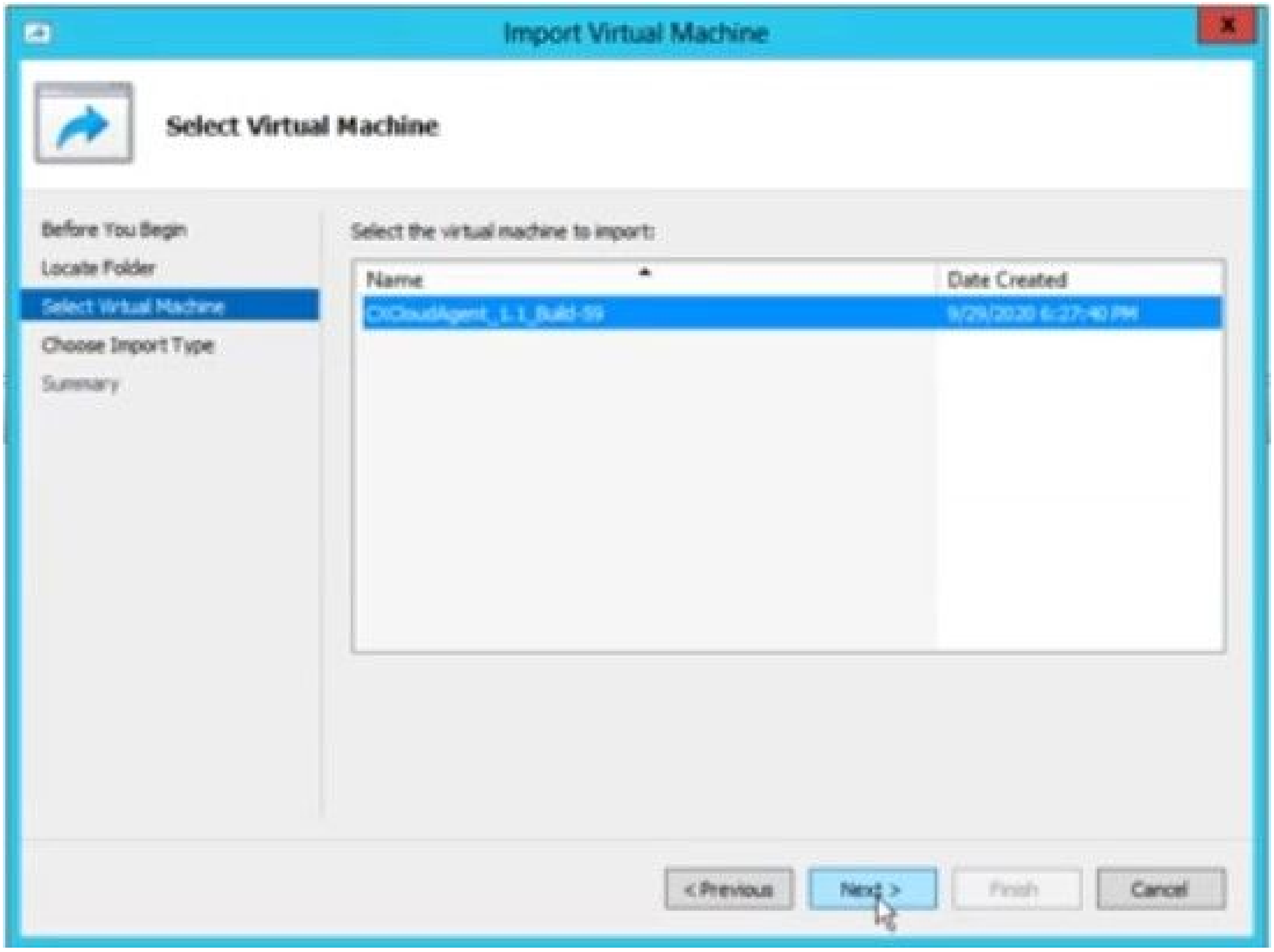


Specify the folder containing the virtual machine to import.

Folder: ishnu\Downloads\CXCloudAgent_1.1_Build-59\CXCloudAgent_1.1_Build-59

Folder to Import

4. Select the Virtual Machine and click **Next>**.

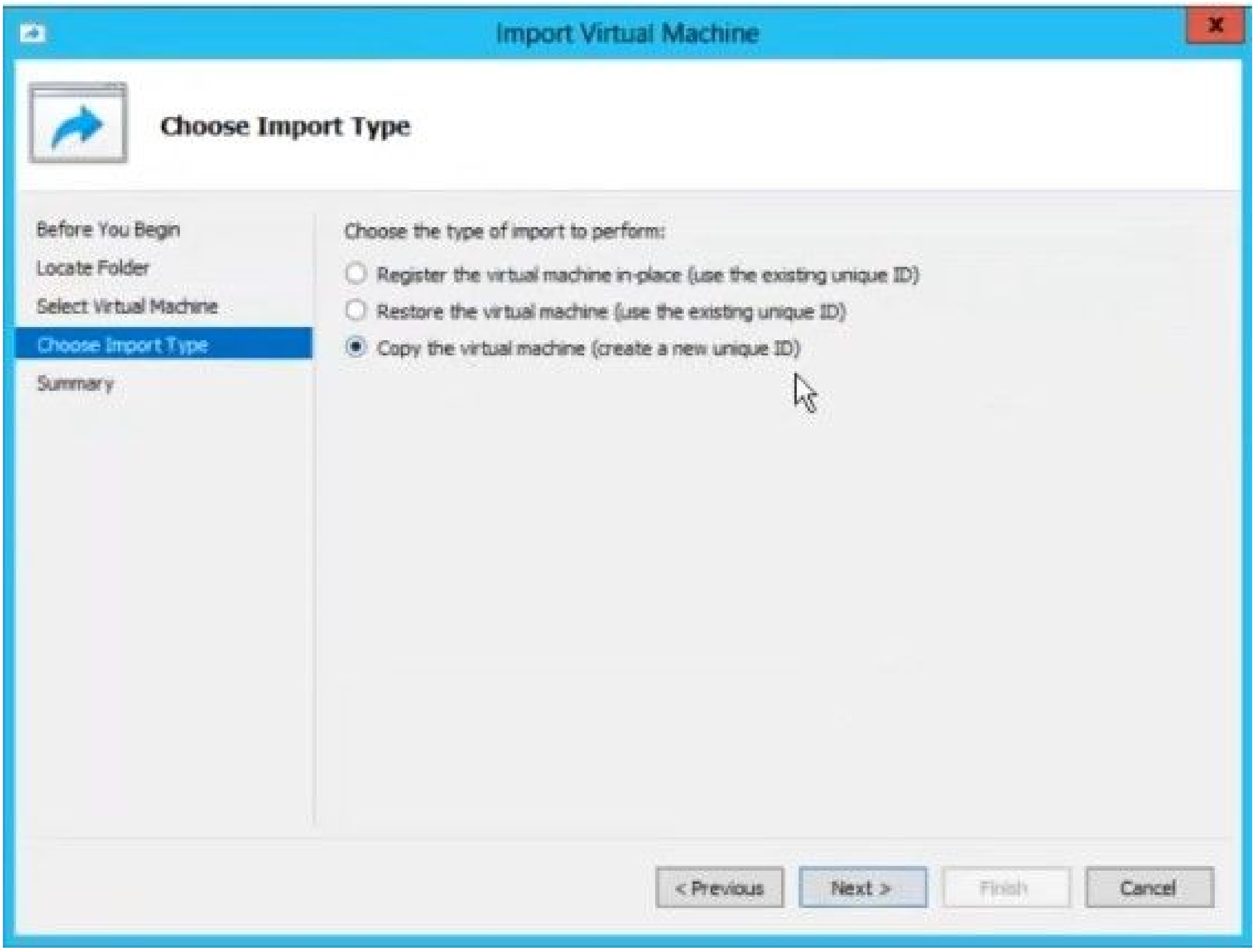


Select the virtual machine to import:

Name	Date Created
CXCloudAgent_1.1_Build-59	9/29/2020 6:27:40 PM

Select VM

5. Choose **Copy the virtual machine (create a new unique ID)**, click **Next>**.



Import Virtual Machine

Choose Import Type

Choose the type of import to perform:

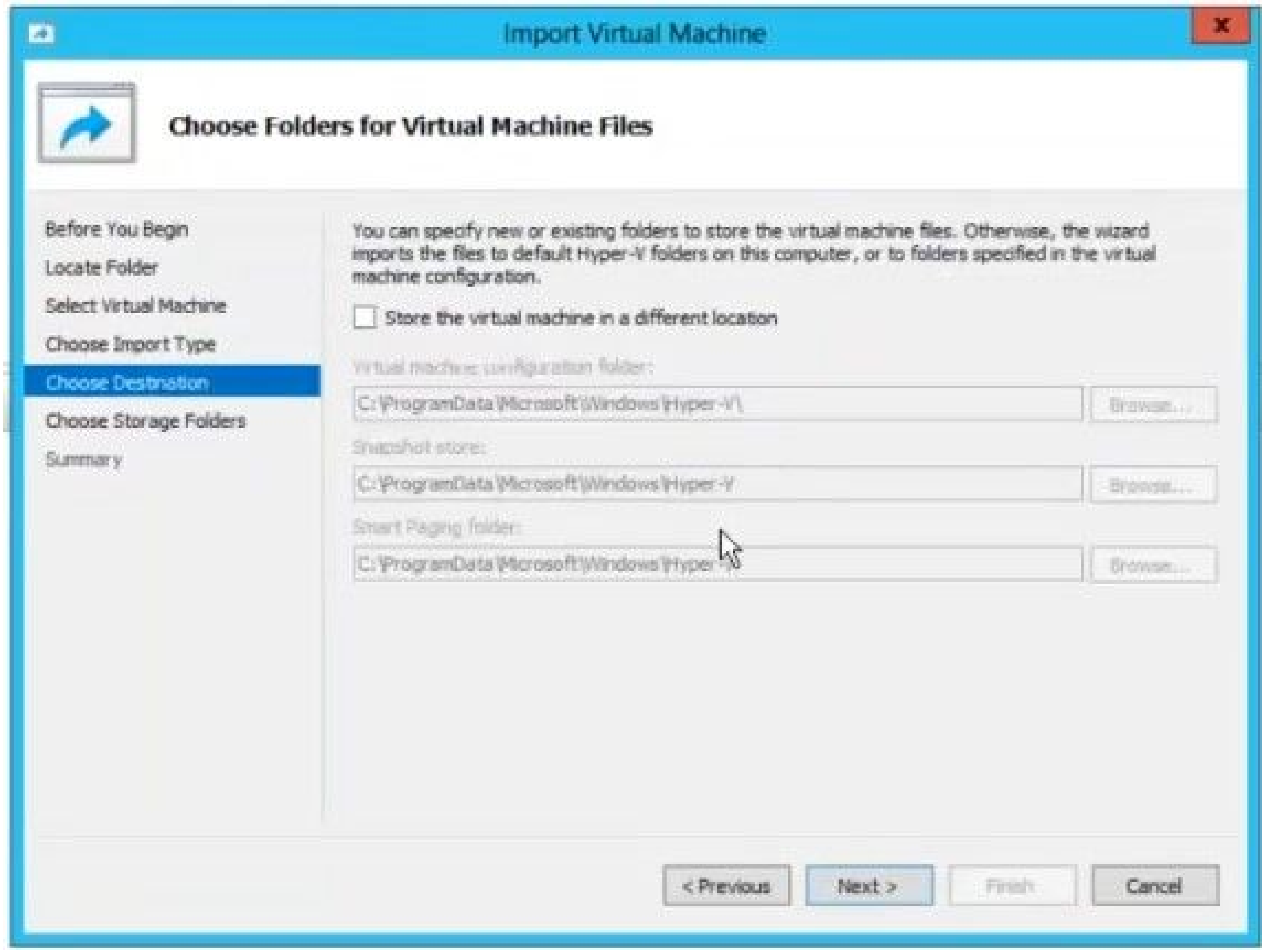
○ Register the virtual machine in-place (use the existing unique ID)

○ Restore the virtual machine (use the existing unique ID)

● Copy the virtual machine (create a new unique ID)

Import Type

6. Browse to select the folder for VM files. It is recommended to use default paths, click **Next>**.



Import Virtual Machine

Choose Folders for Virtual Machine Files

- Before You Begin
- Locate Folder
- Select Virtual Machine
- Choose Import Type
- Choose Destination
- Choose Storage Folders
- Summary

You can specify new or existing folders to store the virtual machine files. Otherwise, the wizard imports the files to default Hyper-V folders on this computer, or to folders specified in the virtual machine configuration.

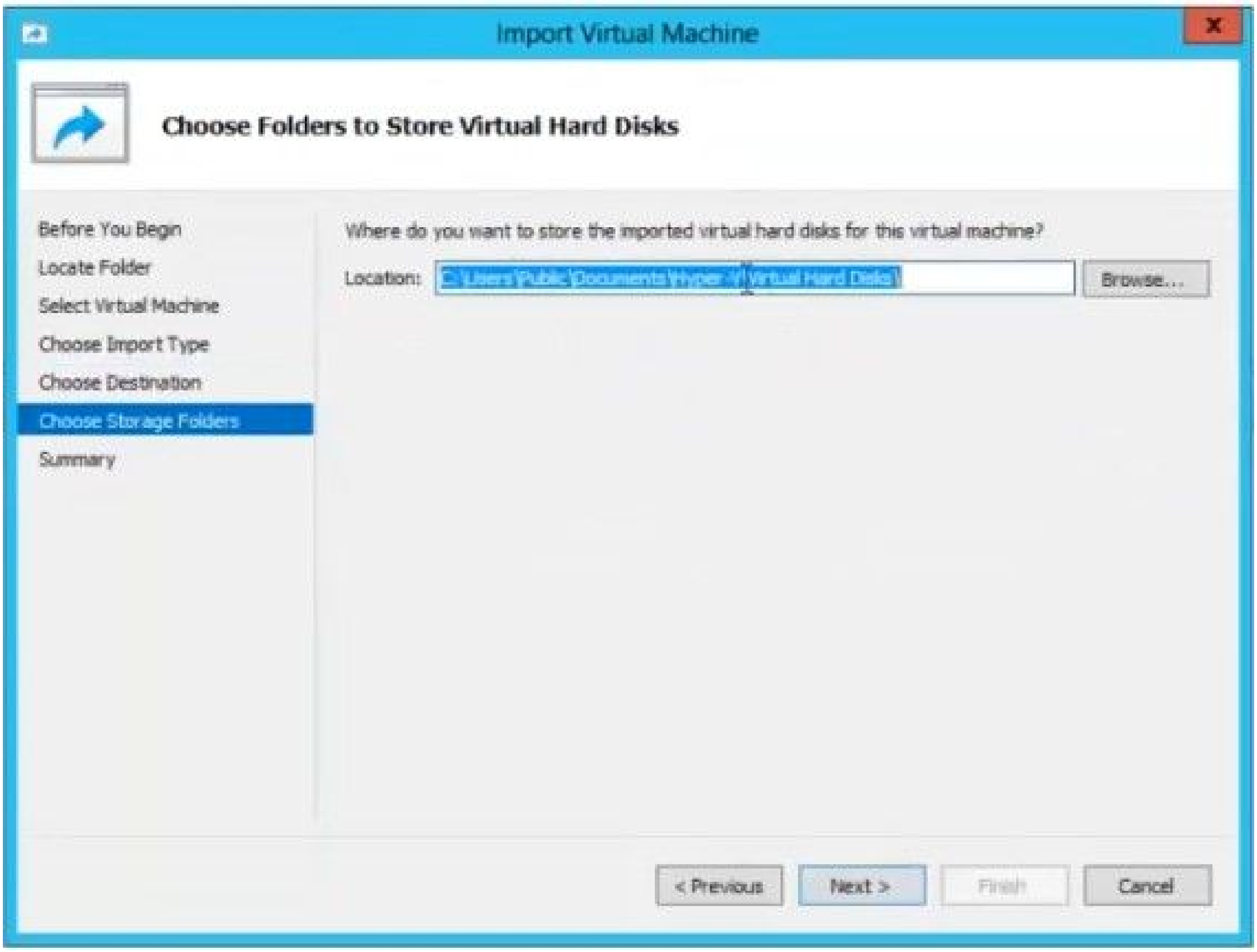
□ Store the virtual machine in a different location

Virtual machine configuration folder:
C:\ProgramData\Microsoft\Windows\Hyper-V\

Snapshot store:
C:\ProgramData\Microsoft\Windows\Hyper-V

Smart Paging folder:
C:\ProgramData\Microsoft\Windows\Hyper-V

7. Browse and select the folder to store the VM hard disk. It is recommended to use default paths, Click **Next>**.



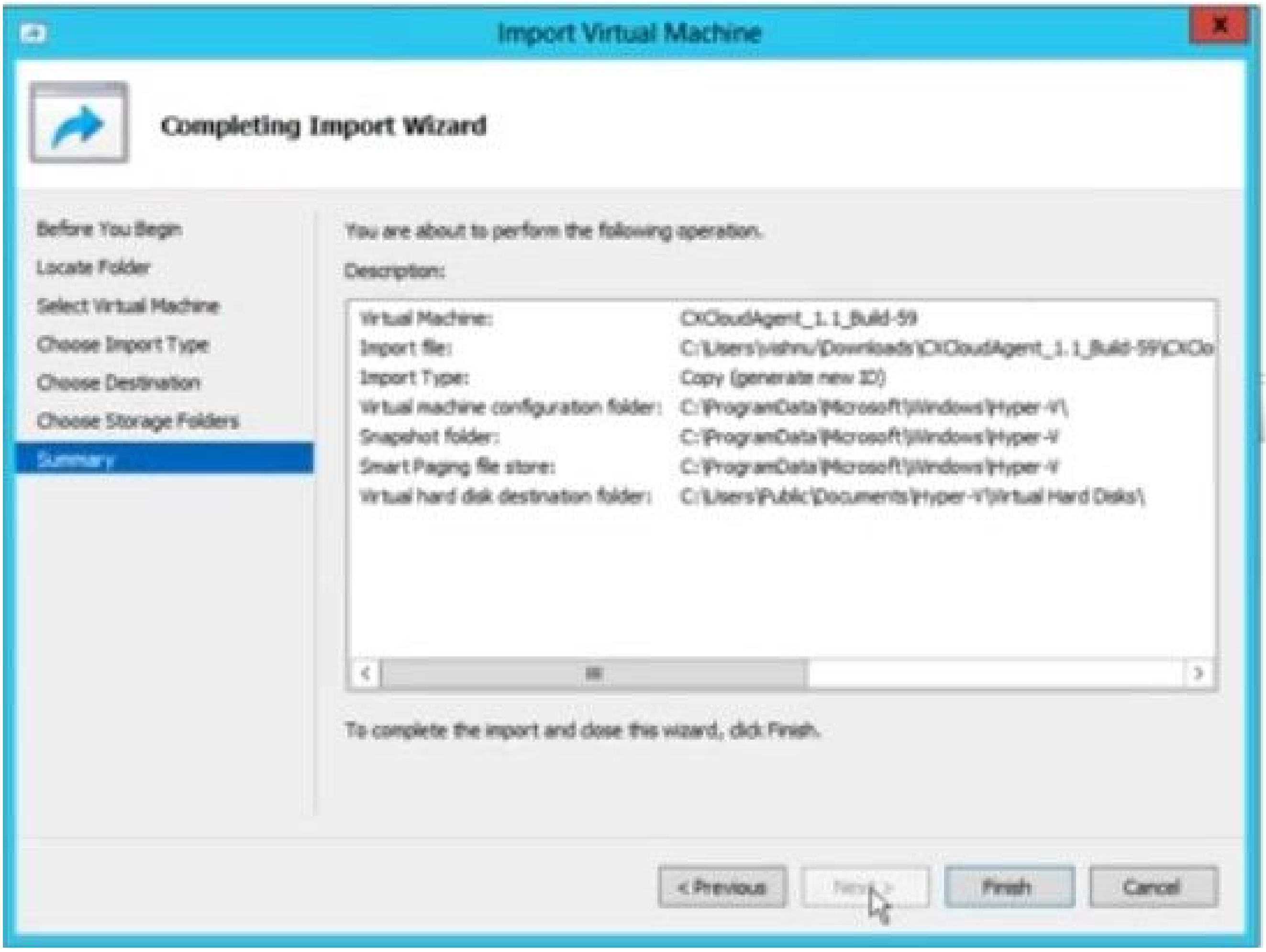
Choose Folders to Store Virtual Hard Disks

Where do you want to store the imported virtual hard disks for this virtual machine?

Location: C:\Users\Public\Documents\Hyper-V\Virtual Hard Disks\

Folder to Store Virtual hard Disks

8. Virtual Machine summary appears, if all inputs are fine, click **Finish**.



You are about to perform the following operation.

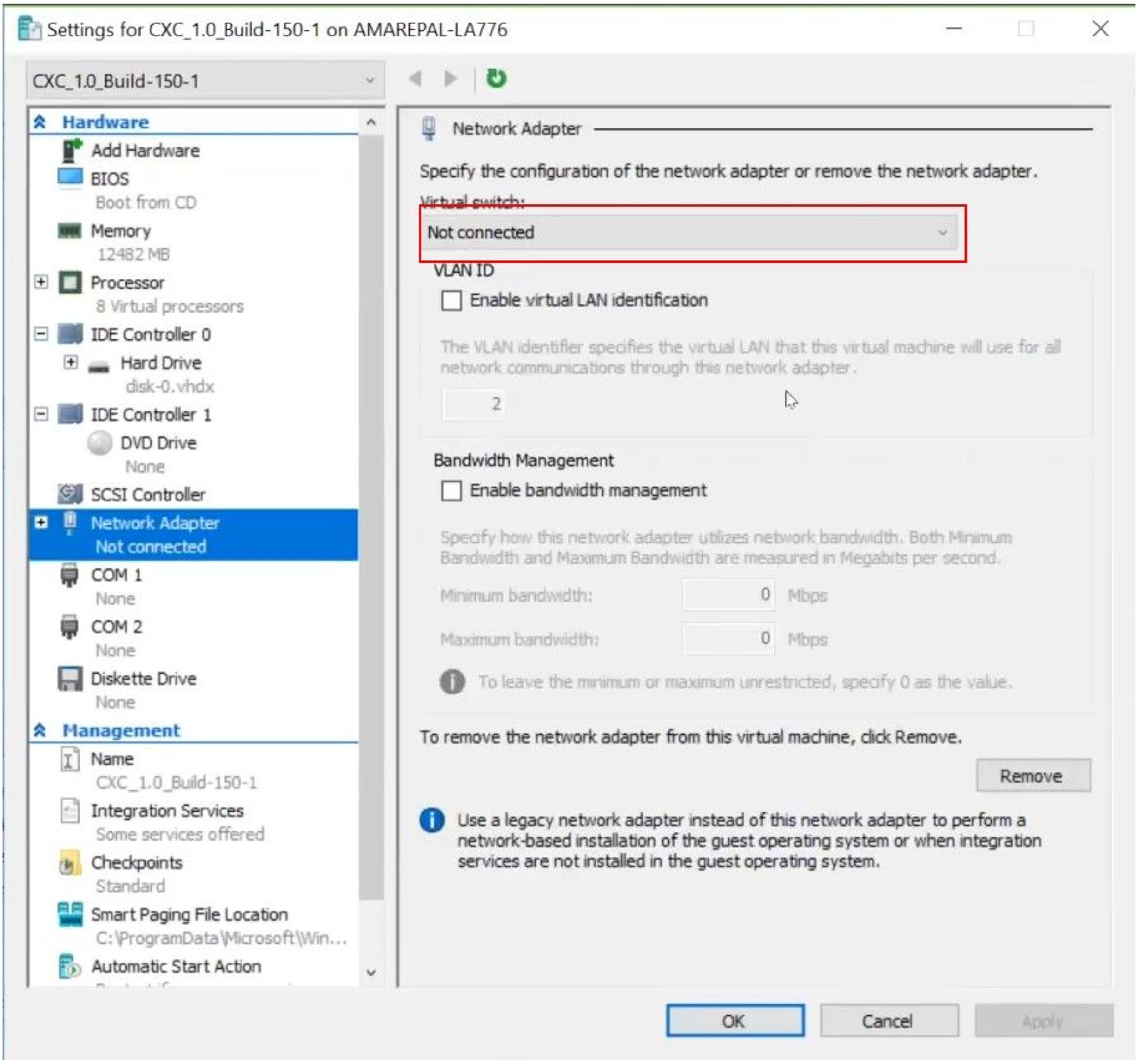
Description:

Virtual Machine:	CXCloudAgent_1.1_Build-59
Import file:	C:\Users\vishnu\Downloads\CXCloudAgent_1.1_Build-59\CXClo
Import Type:	Copy (generate new ID)
Virtual machine configuration folder:	C:\ProgramData\Microsoft\Windows\Hyper-V\
Snapshot folder:	C:\ProgramData\Microsoft\Windows\Hyper-V
Smart Paging file store:	C:\ProgramData\Microsoft\Windows\Hyper-V
Virtual hard disk destination folder:	C:\Users\Public\Documents\Hyper-V\Virtual Hard Disks\

To complete the import and close this wizard, click Finish.

Summary

9. After the import is completed successfully a new VM is created on Hyper-V. Open the VM setting. Select the network adaptor on the left pane and choose the available **Virtual Switch** from the drop-down.



Settings for CXC_1.0_Build-150-1 on AMAREPAL-LA776

CXC_1.0_Build-150-1

Hardware
- Add Hardware
- BIOS
  Boot from CD
- Memory
  12482 MB
- Processor
  8 Virtual processors
- IDE Controller 0
  - Hard Drive
    disk-0.vhdx
- IDE Controller 1
  - DVD Drive
    None
- SCSI Controller
- Network Adapter
  Not connected
- COM 1
  None
- COM 2
  None
- Diskette Drive
  None

Management
- Name
  CXC_1.0_Build-150-1
- Integration Services
  Some services offered
- Checkpoints
  Standard
- Smart Paging File Location
  C:\ProgramData\Microsoft\Win...
- Automatic Start Action

Network Adapter

Specify the configuration of the network adapter or remove the network adapter.

Virtual switch:
Not connected

VLAN ID
□ Enable virtual LAN identification

The VLAN identifier specifies the virtual LAN that this virtual machine will use for all network communications through this network adapter.

2

Bandwidth Management
□ Enable bandwidth management

Specify how this network adapter utilizes network bandwidth. Both Minimum Bandwidth and Maximum Bandwidth are measured in Megabits per second.

Minimum bandwidth: 0 Mbps

Maximum bandwidth: 0 Mbps

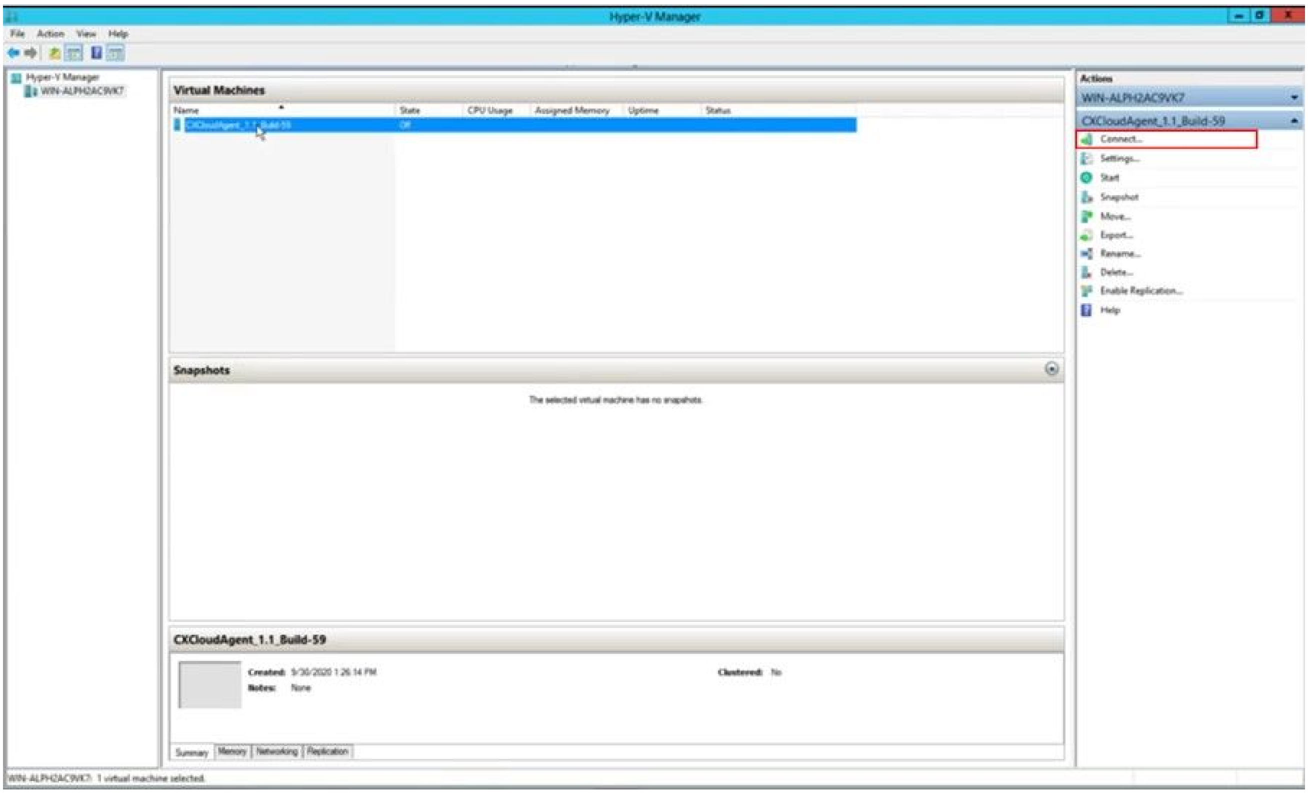
To leave the minimum or maximum unrestricted, specify 0 as the value.

To remove the network adapter from this virtual machine, click Remove.

Use a legacy network adapter instead of this network adapter to perform a network-based installation of the guest operating system or when integration services are not installed in the guest operating system.

Virtual Switch

10. Click connect as shown on the figure to start the VM.



Starting VM

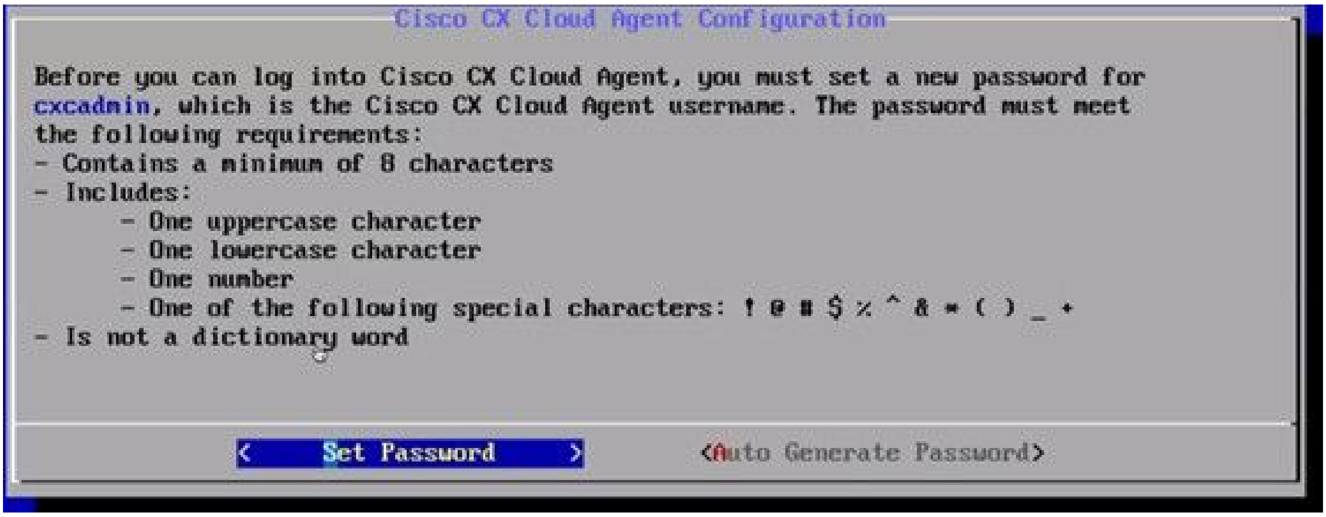
11. Navigate to Network Configuration.

Network Configuration

VM Console

1. Click **Set Password** to add a new password for cxcadmin **OR** click **Auto Generate**

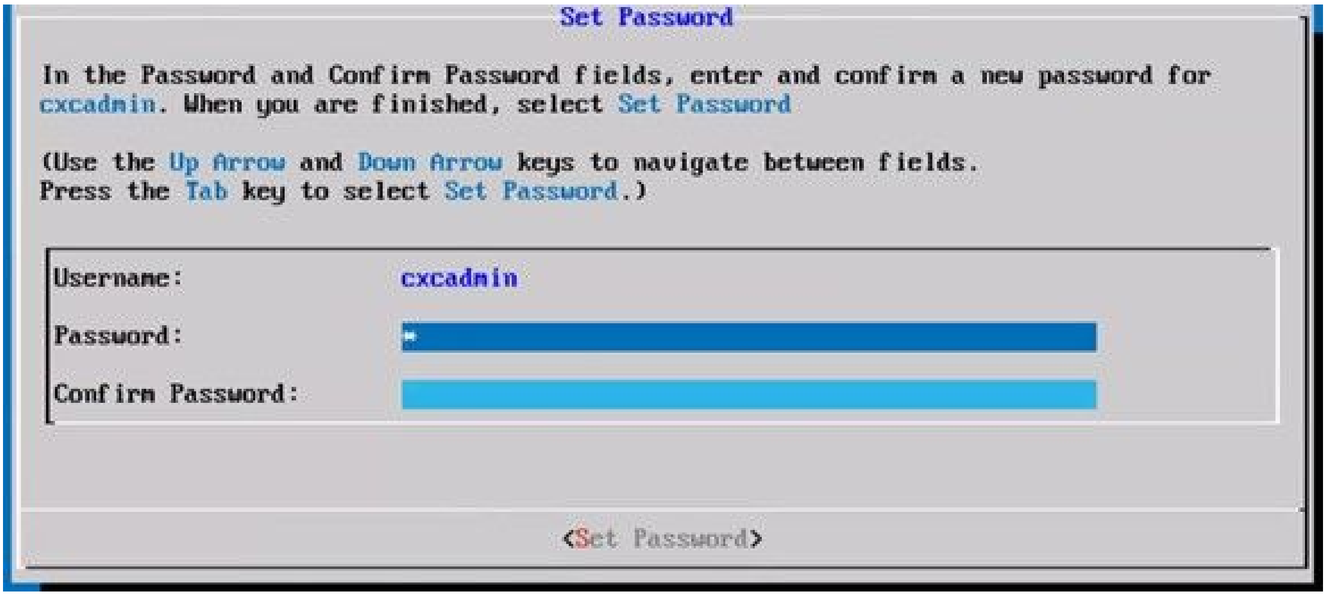
Password to get the new password.



```
Cisco CX Cloud Agent Configuration

Before you can log into Cisco CX Cloud Agent, you must set a new password for
cxcadmin, which is the Cisco CX Cloud Agent username. The password must meet
the following requirements:
- Contains a minimum of 8 characters
- Includes:
      - One uppercase character
      - One lowercase character
      - One number
      - One of the following special characters: ! @ # $ % ^ & * ( ) _ +
- Is not a dictionary word

        <     Set Password     >          <Auto Generate Password>
```

Set Password

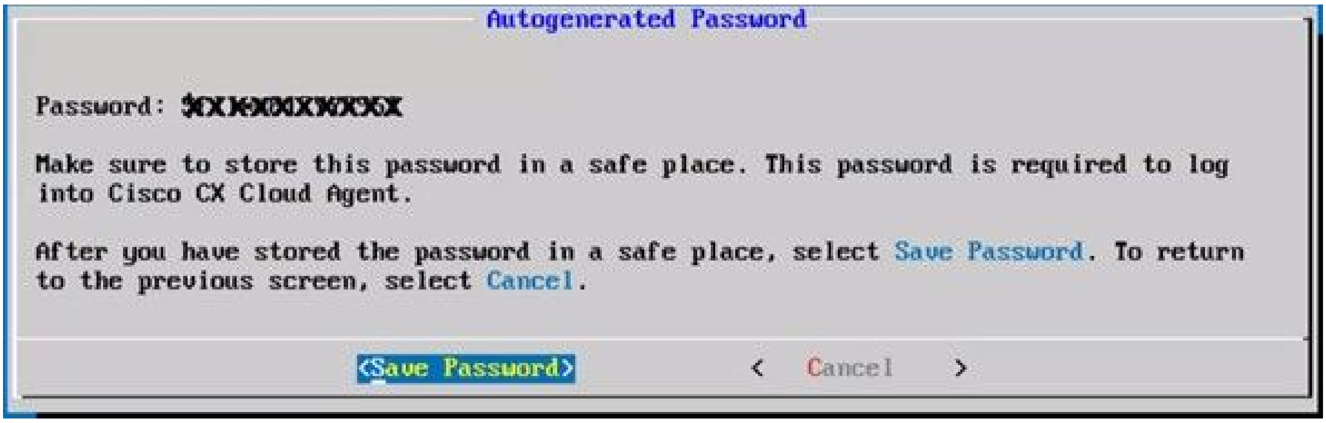
2. If **Set Password** is selected, enter the password for **cxcadmin** and confirm it. Click **Set Password** and go to Step 3.



```
Set Password

In the Password and Confirm Password fields, enter and confirm a new password for
cxcadmin. When you are finished, select Set Password

(Use the Up Arrow and Down Arrow keys to navigate between fields.
Press the Tab key to select Set Password.)

Username:                cxcadmin

Password:                *

Confirm Password:

                          <Set Password>
```

New Password

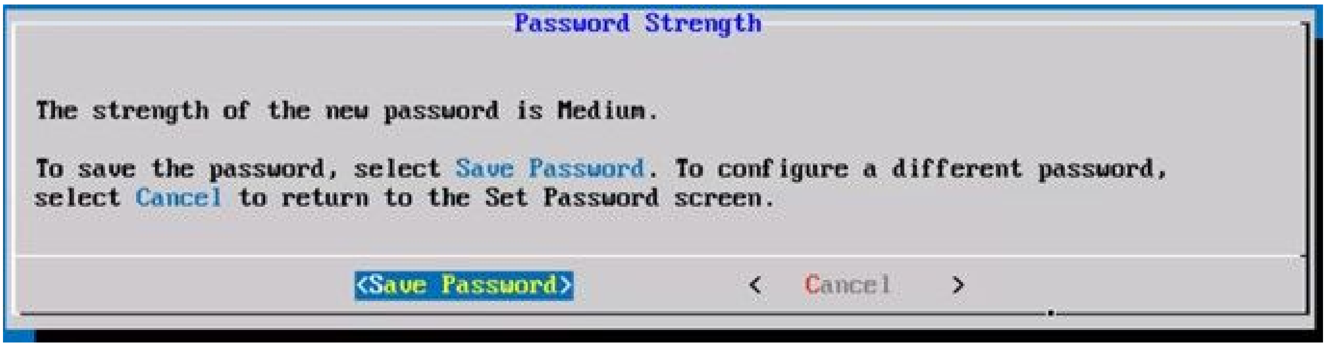
OR If **Auto Generate Password** is selected, copy the password generated and store it for future use. Click **Save Password** and go to Step
4.



```
Autogenerated Password

Password: $XXXXXXXXXXX

Make sure to store this password in a safe place. This password is required to log
into Cisco CX Cloud Agent.

After you have stored the password in a safe place, select Save Password. To return
to the previous screen, select Cancel.

          <Save Password>          <    Cancel    >
```

Auto Generated Password

3. Click **Save Password** to use it for authentication.



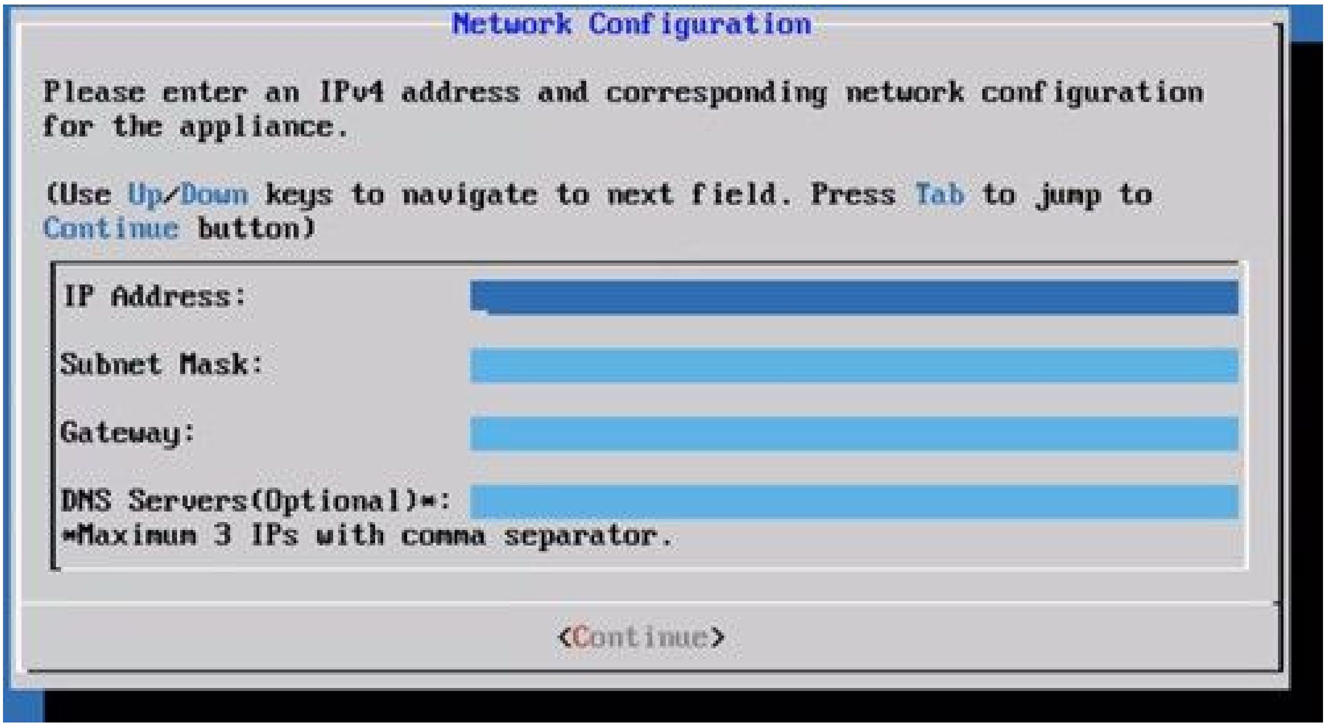
Password Strength

The strength of the new password is Medium.

To save the password, select Save Password. To configure a different password, select Cancel to return to the Set Password screen.

Save Password

4. Enter the IP Address, Subnet Mask, Gateway, and DNS server, then click **Continue**.



Network Configuration

Please enter an IPv4 address and corresponding network configuration for the appliance.

(Use Up/Down keys to navigate to next field. Press Tab to jump to Continue button)

IP Address:

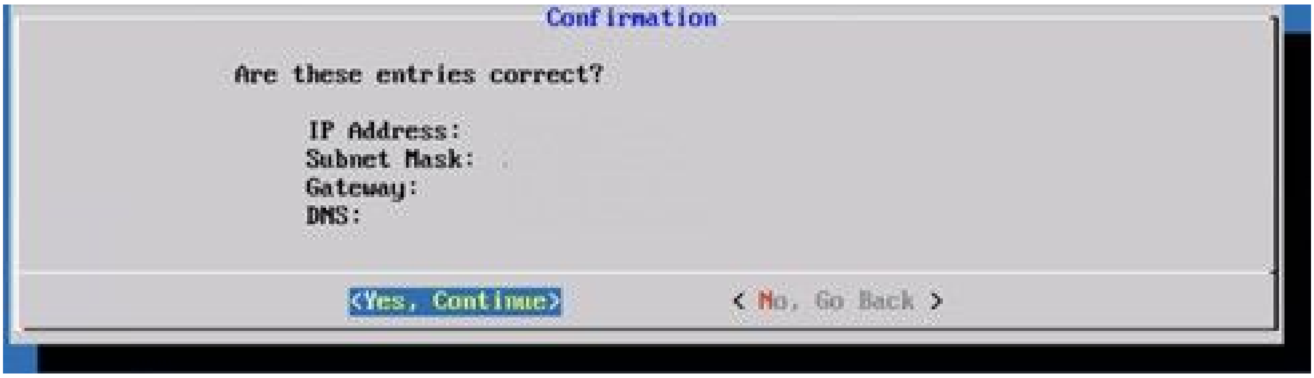
Subnet Mask:

Gateway:

DNS Servers(Optional)*:
*Maximum 3 IPs with comma separator.

Network Configuration

5. Confirm the entries and click **Yes, Continue**.



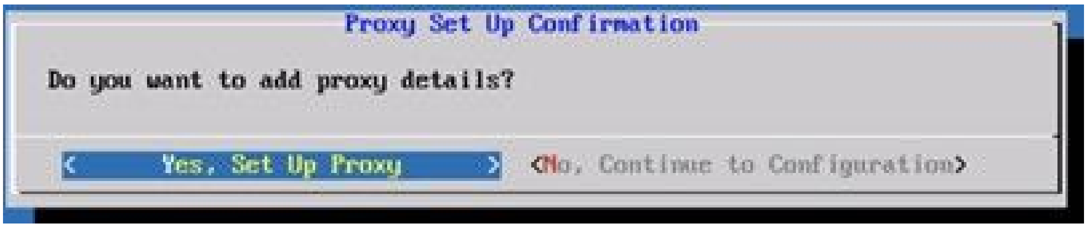
Confirmation

Are these entries correct?

IP Address:
Subnet Mask:
Gateway:
DNS:

Confirmation

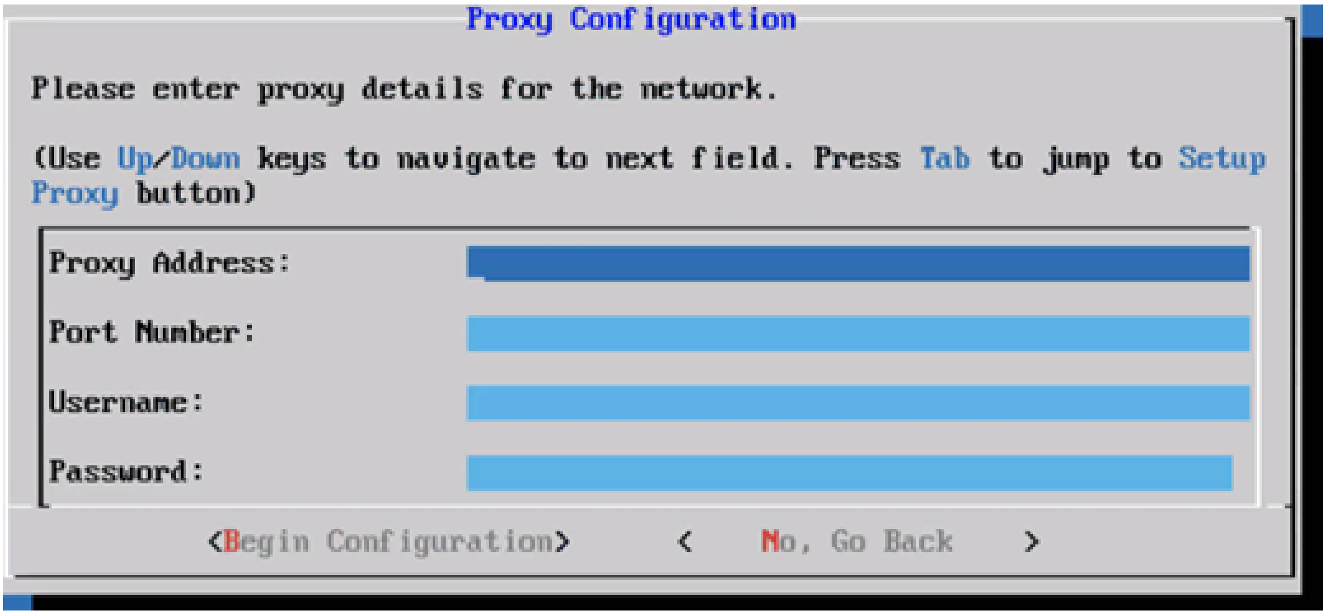
6. If you want to set the proxy details, click **Yes, Set Up Proxy**. Else click **No, Continue to Configuration** to complete the configuration, go to step 8.



```
Proxy Set Up Confirmation

Do you want to add proxy details?
```

Proxy Setup

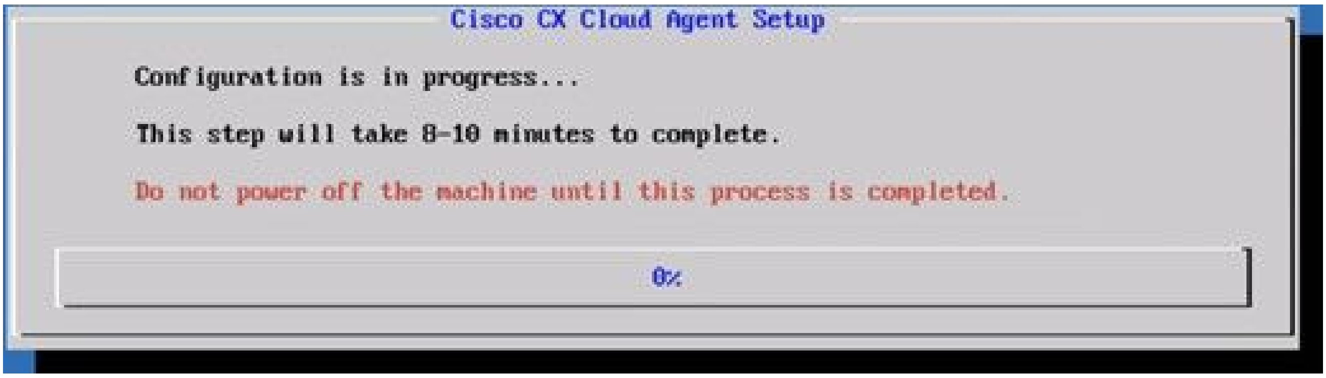
7. Enter the Proxy Address, Port Number, Username, and Password. Click **Begin Configuration**.



```
Proxy Configuration

Please enter proxy details for the network.

(Use Up/Down keys to navigate to next field. Press Tab to jump to Setup
Proxy button)

Proxy Address:
Port Number:
Username:
Password:
```

Proxy Configuration

8. Configuration may take 8 -10 minutes to complete.



```
Cisco CX Cloud Agent Setup

Configuration is in progress...

This step will take 8-10 minutes to complete.

Do not power off the machine until this process is completed.

0%
```

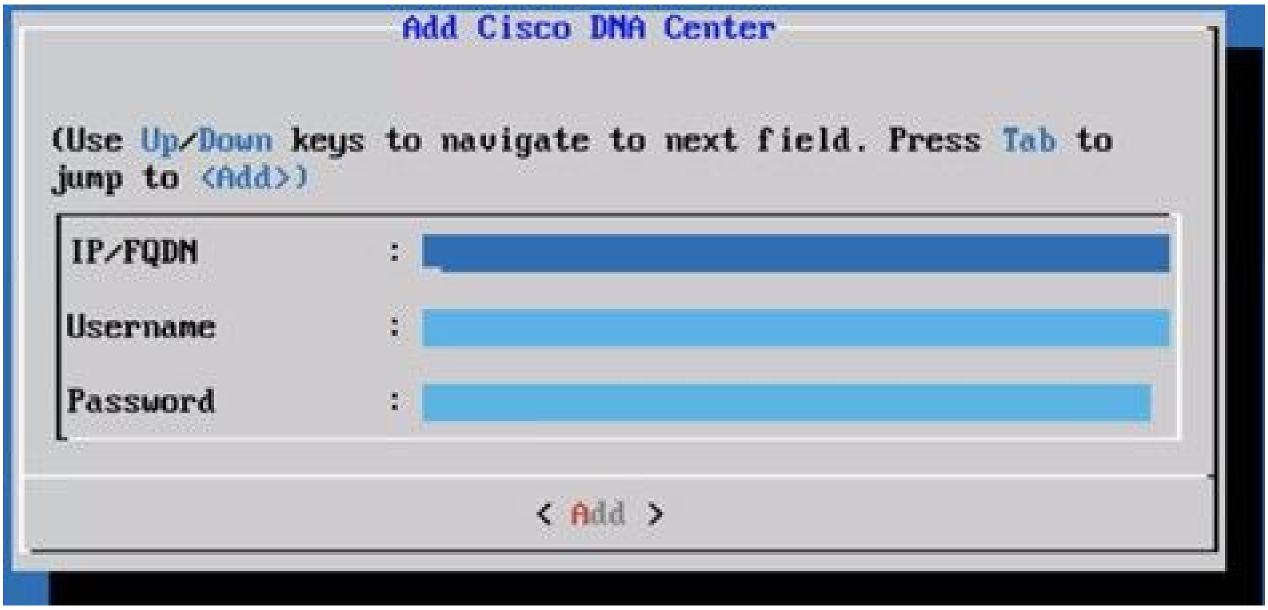
Configuration in Progress

Setting CX Cloud Agent

Setup Using Console

Use the console option to add the Cisco DNA centers and for generating the pairing code to proceed with cloud agent registration.

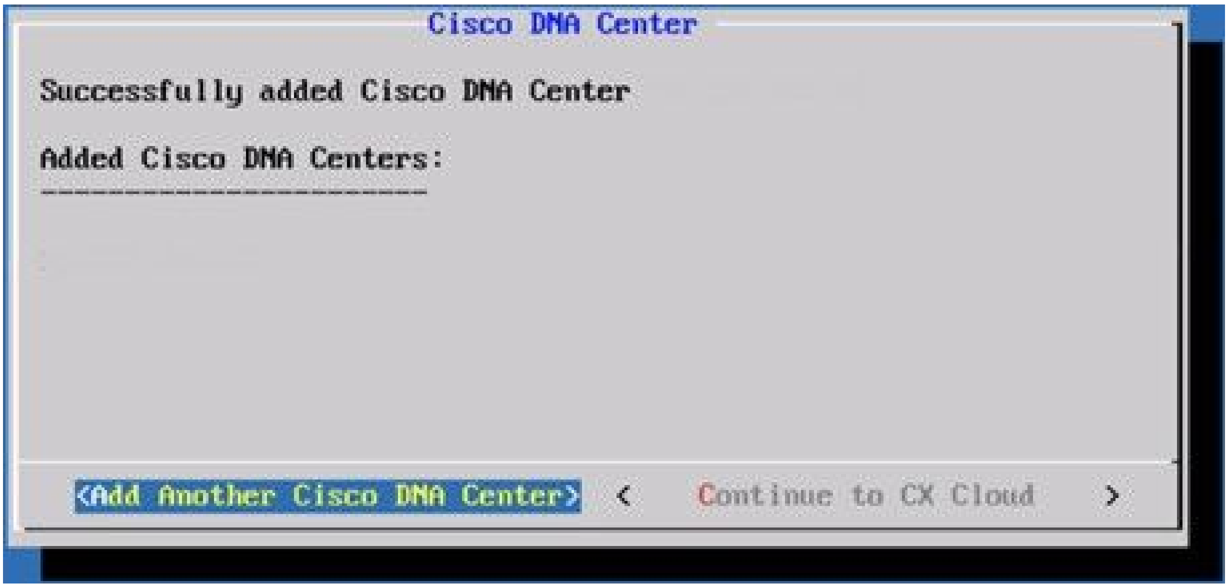
1. Enter the **IP/ FQDN**, **Username**, and **Password**, click **Add**.



```
Add Cisco DNA Center

(Use Up/Down keys to navigate to next field. Press Tab to
jump to <Add>)

IP/FQDN      :
Username     :
Password     :

< Add >
```

Add Cisco DNA Center

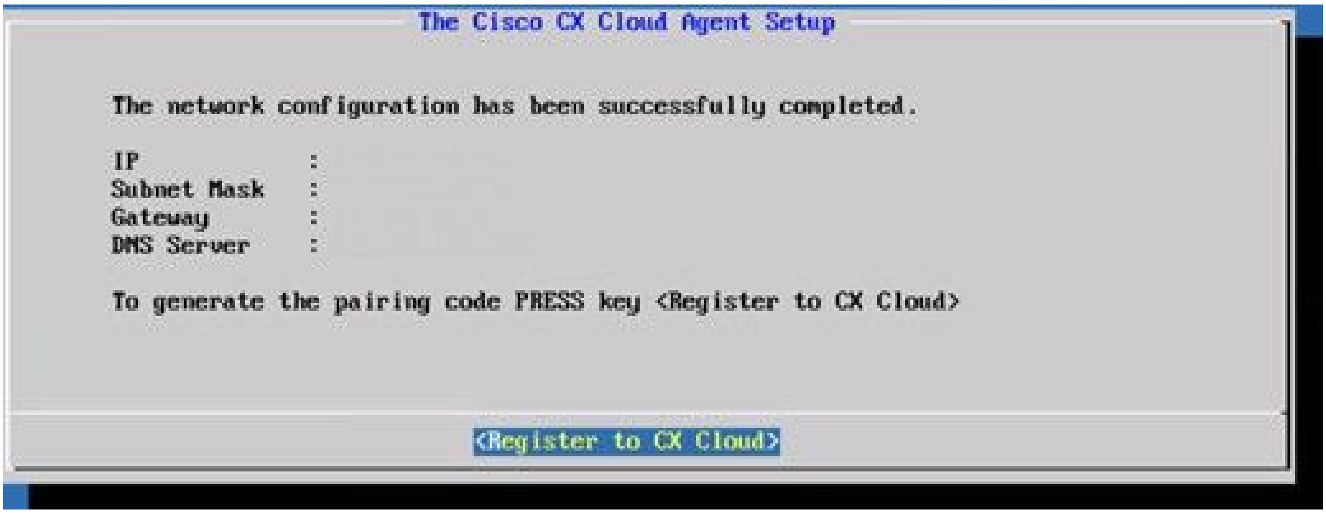
2. Click **Add Another Cisco DNA Center** to add one or multiple Cisco DNA Centers or click **Continue to CX Cloud** to start the registration process. You can add only 10 Cisco DNA Centers.



```
Cisco DNA Center

Successfully added Cisco DNA Center

Added Cisco DNA Centers:
------------------------

<Add Another Cisco DNA Center> <   Continue to CX Cloud   >
```

Cisco DNA Center

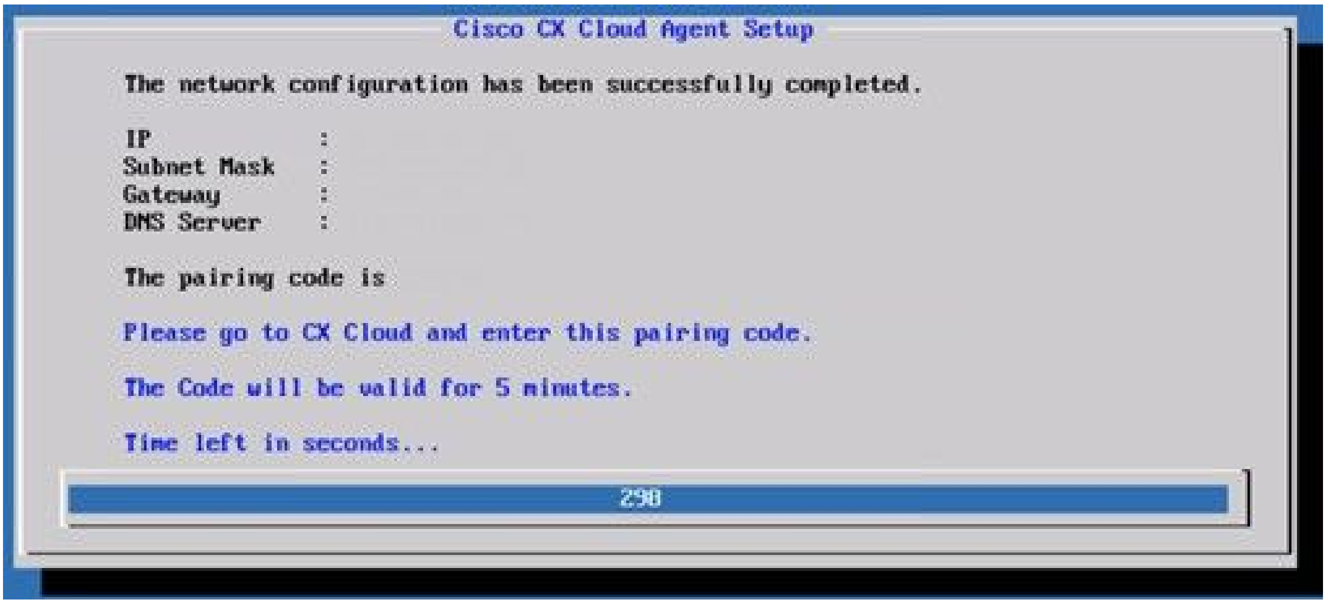
3. Click **Register** to CX Cloud to get the pairing code.



```
The Cisco CX Cloud Agent Setup

The network configuration has been successfully completed.

IP             :
Subnet Mask    :
Gateway        :
DNS Server     :

To generate the pairing code PRESS key <Register to CX Cloud>
```

Register to CX Cloud

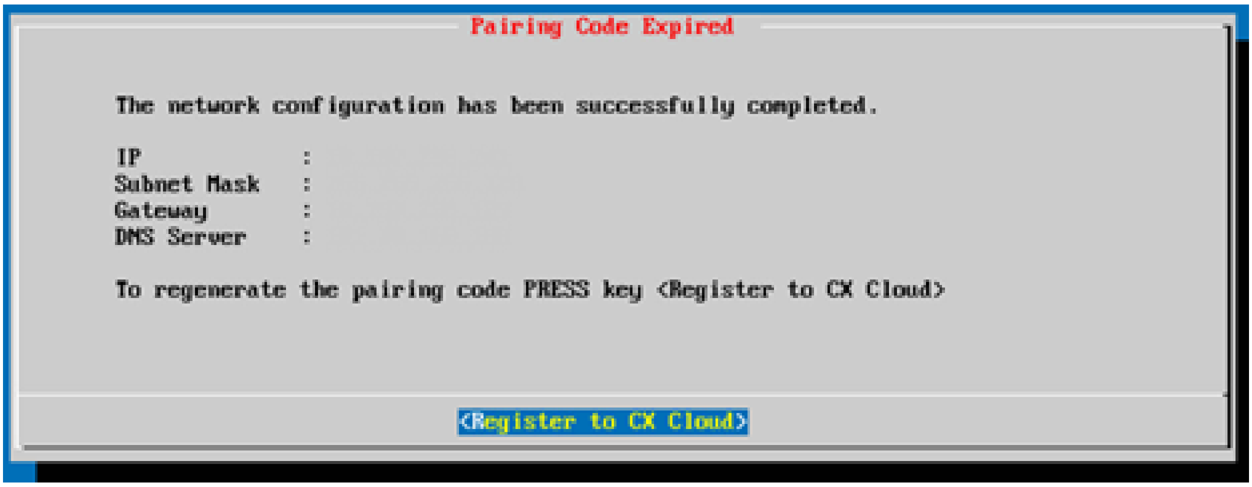
4. Copy the **Pairing Code** and return to CX Cloud to continue the setup. Refer Connecting to Customer Portal.



```
Cisco CX Cloud Agent Setup

The network configuration has been successfully completed.

IP             :
Subnet Mask    :
Gateway        :
DNS Server     :

The pairing code is

Please go to CX Cloud and enter this pairing code.

The Code will be valid for 5 minutes.

Time left in seconds...

                         298
```

Pairing Code

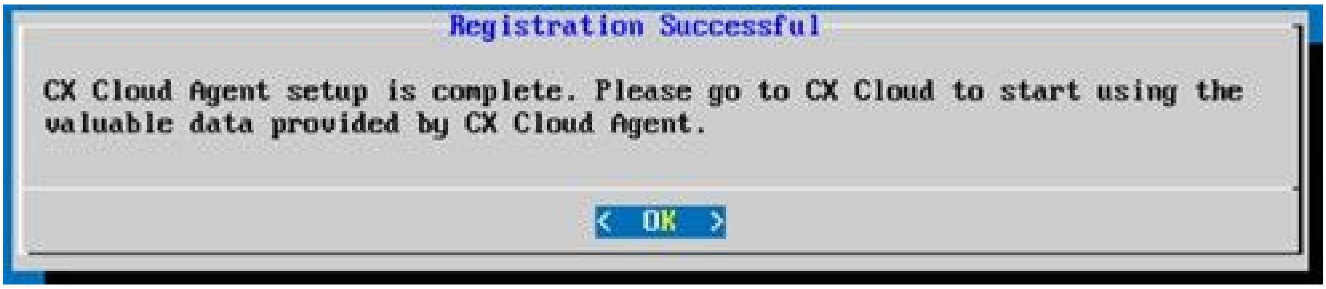
5. If the Pairing Code expires, then click **Register to CX Cloud** to get the code.



```
Pairing Code Expired

The network configuration has been successfully completed.

IP             :
Subnet Mask    :
Gateway        :
DNS Server     :

To regenerate the pairing code PRESS key <Register to CX Cloud>
```

Code Expired

6. Click **OK**.



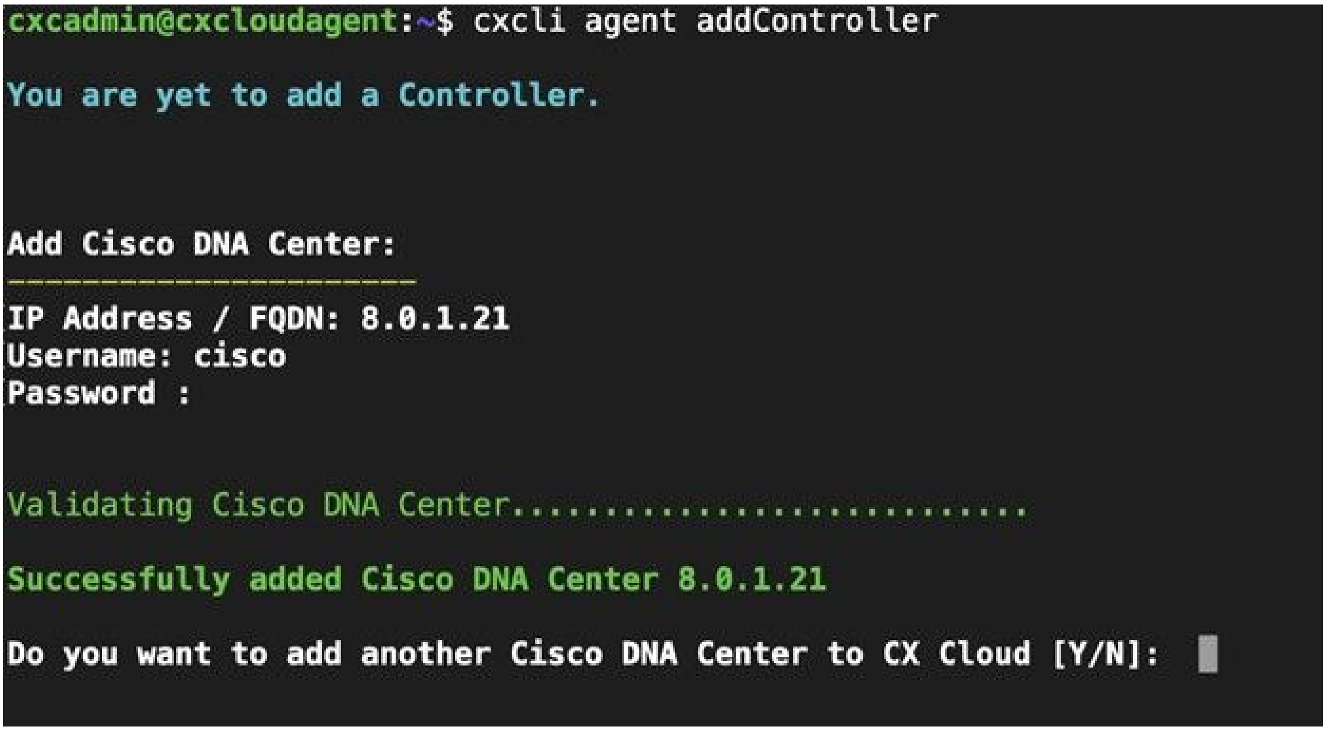
```
Registration Successful

CX Cloud Agent setup is complete. Please go to CX Cloud to start using the
valuable data provided by CX Cloud Agent.

< OK >
```

Registration Successful

Setup Using CLI

The other option to add Cisco DNA Centers and generating the pairing code is by using the CLI option.

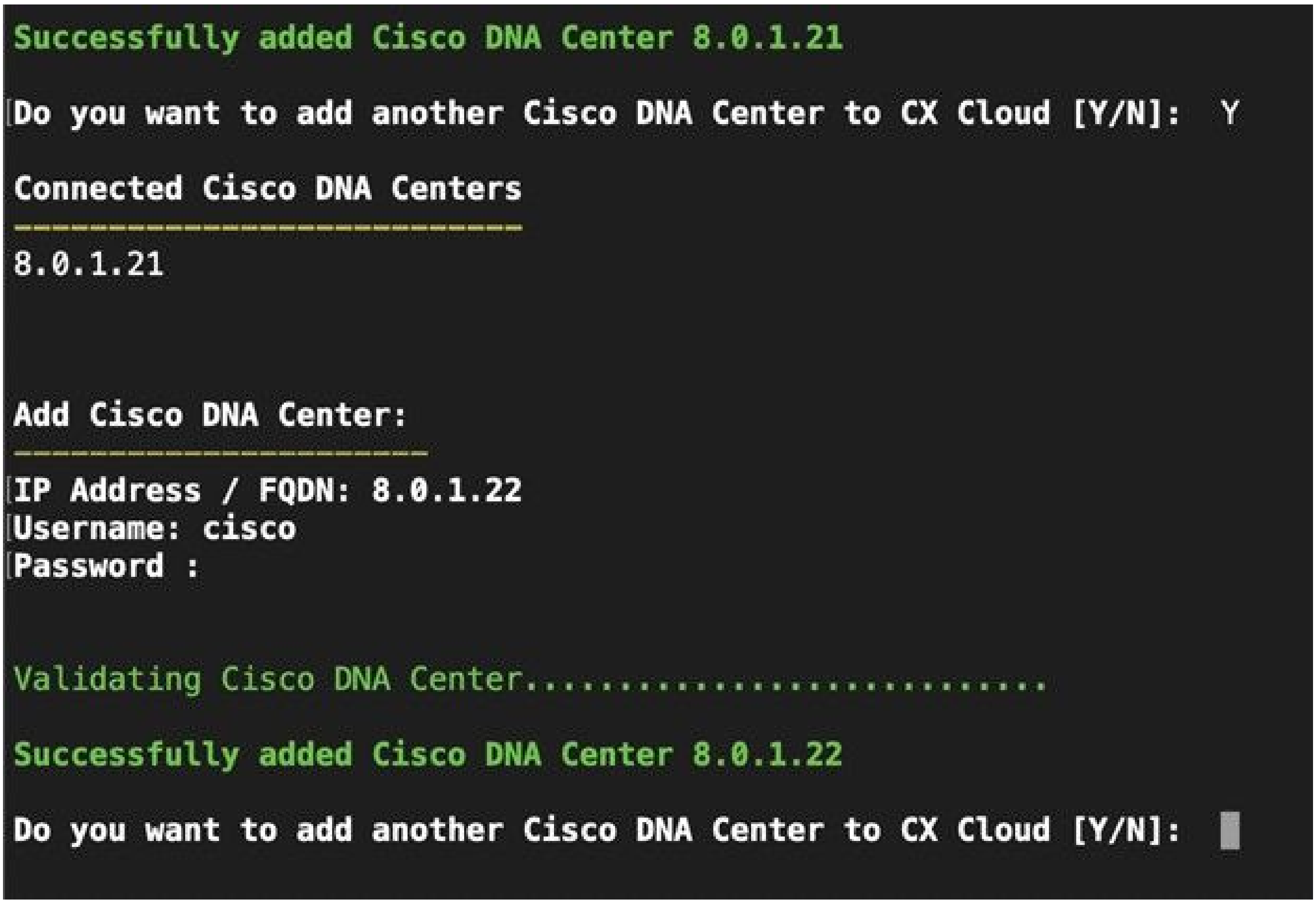
1. Log in to the Cloud Agent via ssh using cxcadmin user credential.
2. Use the command cxcli agent addController and enter **IP/ FQDN**, **Username**, and **Password** to add cisco DNA Center.



```
cxcadmin@cxcloudagent:~$ cxcli agent addController

You are yet to add a Controller.


Add Cisco DNA Center:
----------------------
IP Address / FQDN: 8.0.1.21
Username: cisco
Password :


Validating Cisco DNA Center............................

Successfully added Cisco DNA Center 8.0.1.21

Do you want to add another Cisco DNA Center to CX Cloud [Y/N]:
```

Add Cisco DNA Center CLI

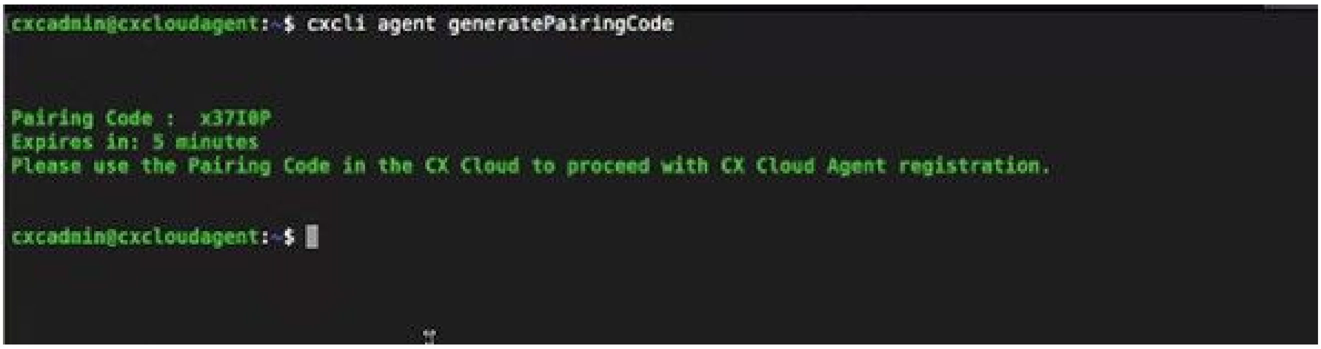
3. To add more cisco DNA Centers, enter **Y** else **N** to continue.



```
Successfully added Cisco DNA Center 8.0.1.21

Do you want to add another Cisco DNA Center to CX Cloud [Y/N]:  Y

Connected Cisco DNA Centers
---------------------------
8.0.1.21


Add Cisco DNA Center:
----------------------
IP Address / FQDN: 8.0.1.22
Username: cisco
Password :


Validating Cisco DNA Center............................

Successfully added Cisco DNA Center 8.0.1.22

Do you want to add another Cisco DNA Center to CX Cloud [Y/N]:
```

Additional Cisco DNA Center

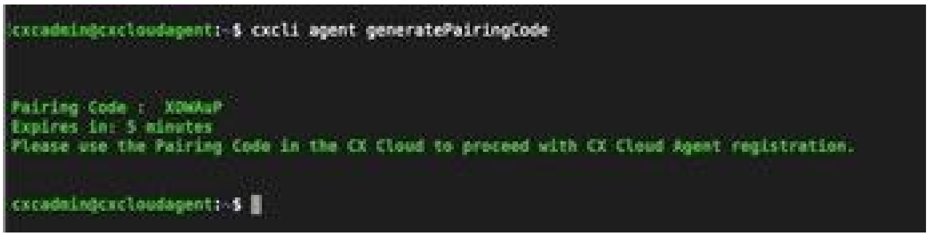
4. Generate the pairing code using the command *cxcli* agent generatePairingCode.



```
cxcadmin@cxcloudagent:~$ cxcli agent generatePairingCode


Pairing Code :  x37I0P
Expires in: 5 minutes
Please use the Pairing Code in the CX Cloud to proceed with CX Cloud Agent registration.


cxcadmin@cxcloudagent:~$
```

Generate Pairing code CLI

5. Copy the **Pairing Code** and return to CX Cloud to continue the setup. Refer [Connecting to Customer Portal](#).



```
cxcadmin@cxcloudagent:~$ cxcli agent generatePairingCode


Pairing Code :  X0WAuP
Expires in: 5 minutes
Please use the Pairing Code in the CX Cloud to proceed with CX Cloud Agent registration.


cxcadmin@cxcloudagent:~$
```

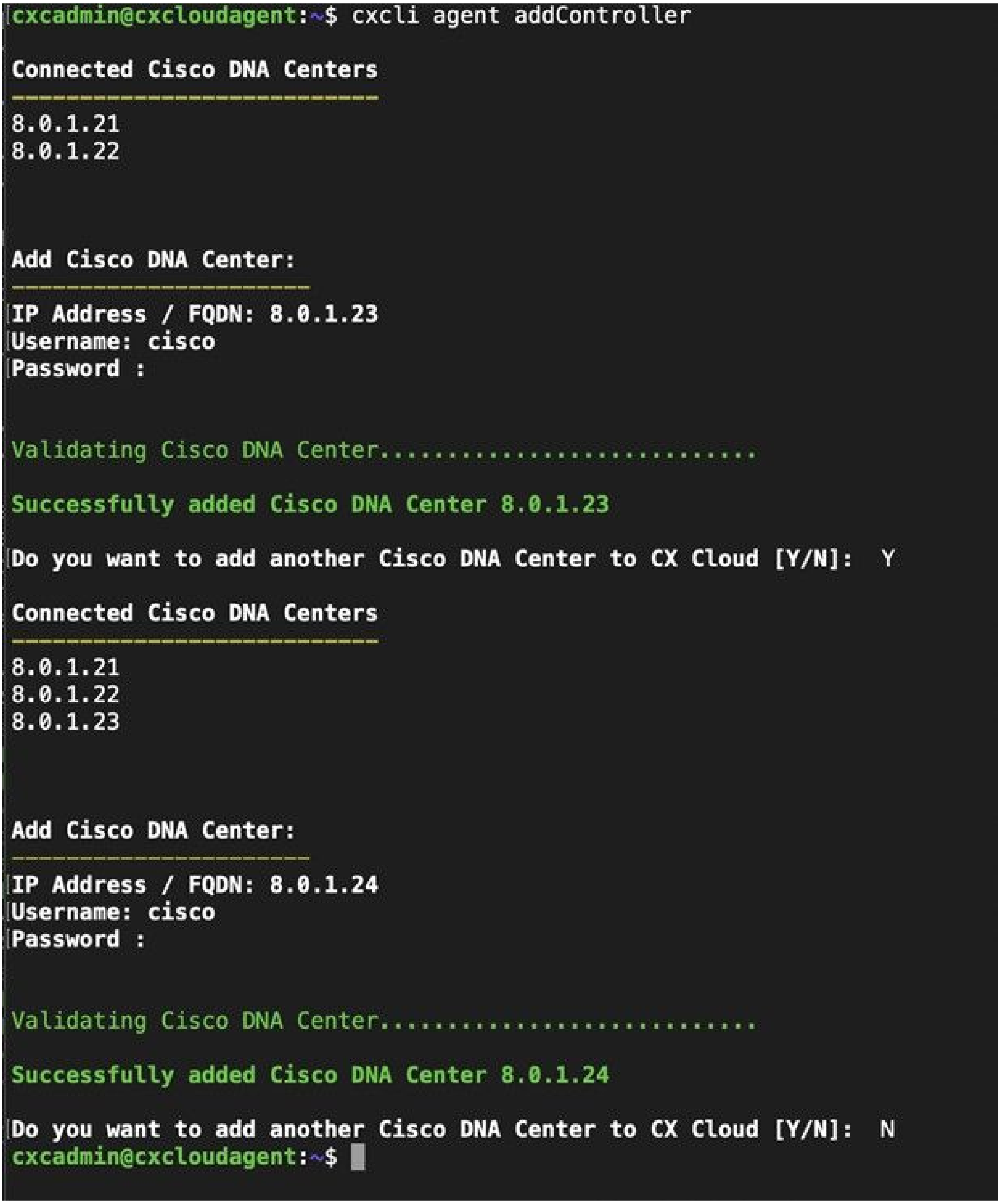
Regenerate Pairing Code CLI

6. If the Pairing Code expires, execute the command **cxcli agent generatePairingCode** again

to get the fresh pairing code. **Note**: It is recommended to use one of the options at a time.

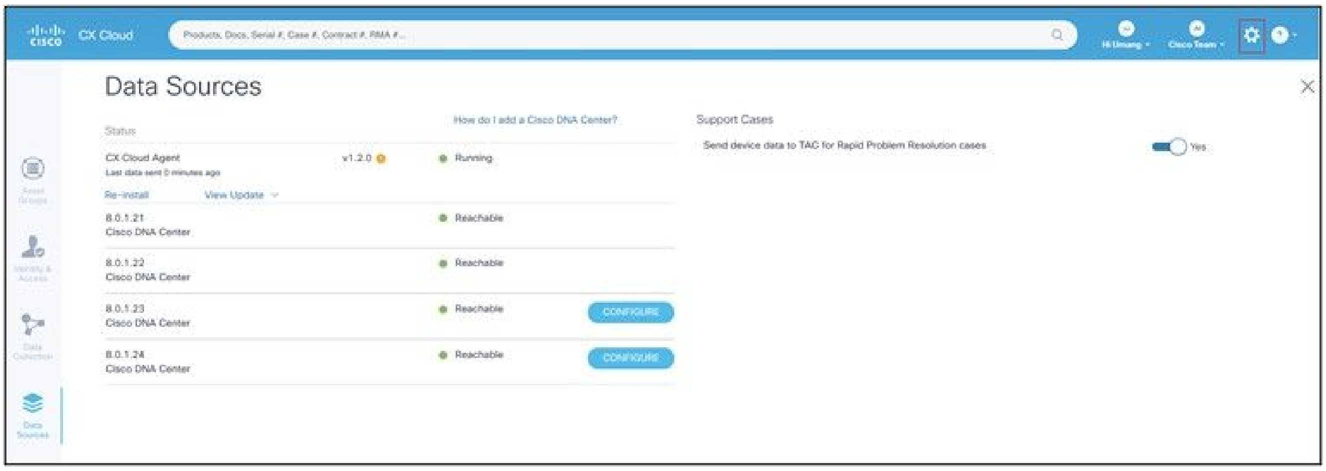
Add Additional Cisco DNA Centers

To add additional cisco DNA centers after initial Cloud Agent setup, perform the following:Log in to the Cloud Agent via ssh using cxcadmin credentials.Use the command cxcli agent addController and enter **IP/ FQDN**, **Username**, and **Password** to add cisco DNA Center.To add more cisco DNA Centers, enter **Y** else **N** to continue.



```
cxcadmin@cxcloudagent:~$ cxcli agent addController

Connected Cisco DNA Centers
---------------------------
8.0.1.21
8.0.1.22



Add Cisco DNA Center:
----------------------
IP Address / FQDN: 8.0.1.23
Username: cisco
Password :


Validating Cisco DNA Center............................

Successfully added Cisco DNA Center 8.0.1.23

Do you want to add another Cisco DNA Center to CX Cloud [Y/N]:  Y

Connected Cisco DNA Centers
---------------------------
8.0.1.21
8.0.1.22
8.0.1.23



Add Cisco DNA Center:
----------------------
IP Address / FQDN: 8.0.1.24
Username: cisco
Password :


Validating Cisco DNA Center............................

Successfully added Cisco DNA Center 8.0.1.24

Do you want to add another Cisco DNA Center to CX Cloud [Y/N]:  N
cxcadmin@cxcloudagent:~$
```

Add Cisco DNA Centers CLI**Note**: You can add only 10 Cisco DNA centers.To configure the newly add cisco DNA center(s), perform the following:Navigate to CX Cloud **Settings** > **Data Source**.Click **Configure** for any one of the unconfigured DNACs that will take you to the next window to configure all the unconfigured DNACs.



Data Sources

How do I add a Cisco DNA Center?

Status

CX Cloud Agent v1.2.0 ● Running
Last data sent 0 minutes ago
Re-install View Update

8.0.1.21 Cisco DNA Center ● Reachable

8.0.1.22 Cisco DNA Center ● Reachable

8.0.1.23 Cisco DNA Center ● Reachable CONFIGURE

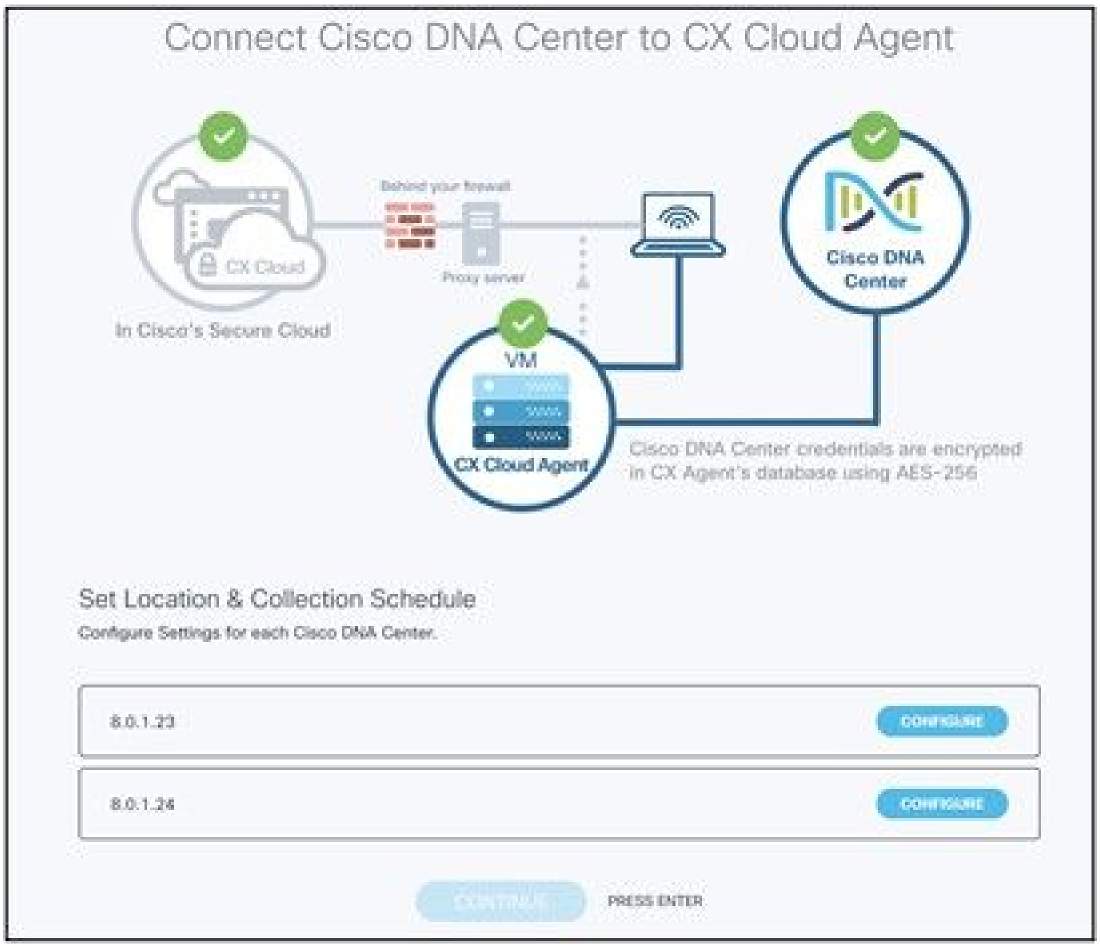
8.0.1.24 Cisco DNA Center ● Reachable CONFIGURE

Support Cases

Send device data to TAC for Rapid Problem Resolution cases Yes

Data Sources

Click **Configure** to set the location and collection schedule.


Connect Cisco DNA Center to CX Cloud Agent
CX Cloud
In Cisco's Secure Cloud
Behind your firewall
Proxy server
VM
CX Cloud Agent
Cisco DNA Center
Cisco DNA Center credentials are encrypted in CX Agent's database using AES-256

Set Location & Collection Schedule

Configure Settings for each Cisco DNA Center.

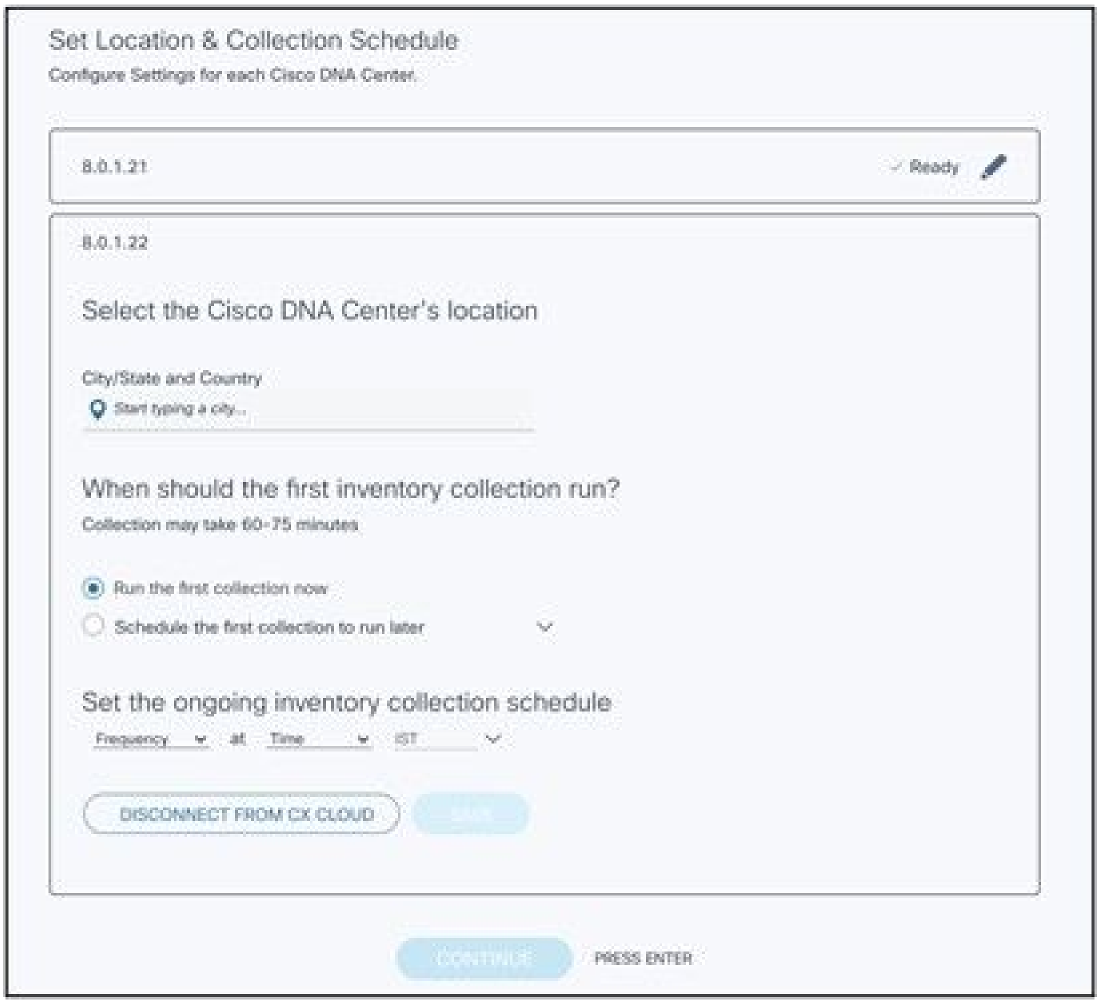
8.0.1.23 CONFIGURE

8.0.1.24 CONFIGURE

CONTINUE PRESS ENTER

Connect Cisco DNA Center

Select the location from the list and you can choose either run now or schedule the collection later. You can schedule the ongoing Inventory collection and click **Save**. Click **Continue**.



Set Location & Collection Schedule

Configure Settings for each Cisco DNA Center.

8.0.1.21 ✓ Ready

8.0.1.22

Select the Cisco DNA Center's location

City/State and Country: Start typing a city...

When should the first inventory collection run?

Collection may take 60-75 minutes

● Run the first collection now

○ Schedule the first collection to run later

Set the ongoing inventory collection schedule

Frequency at Time IST

Set Location and Collection Schedule

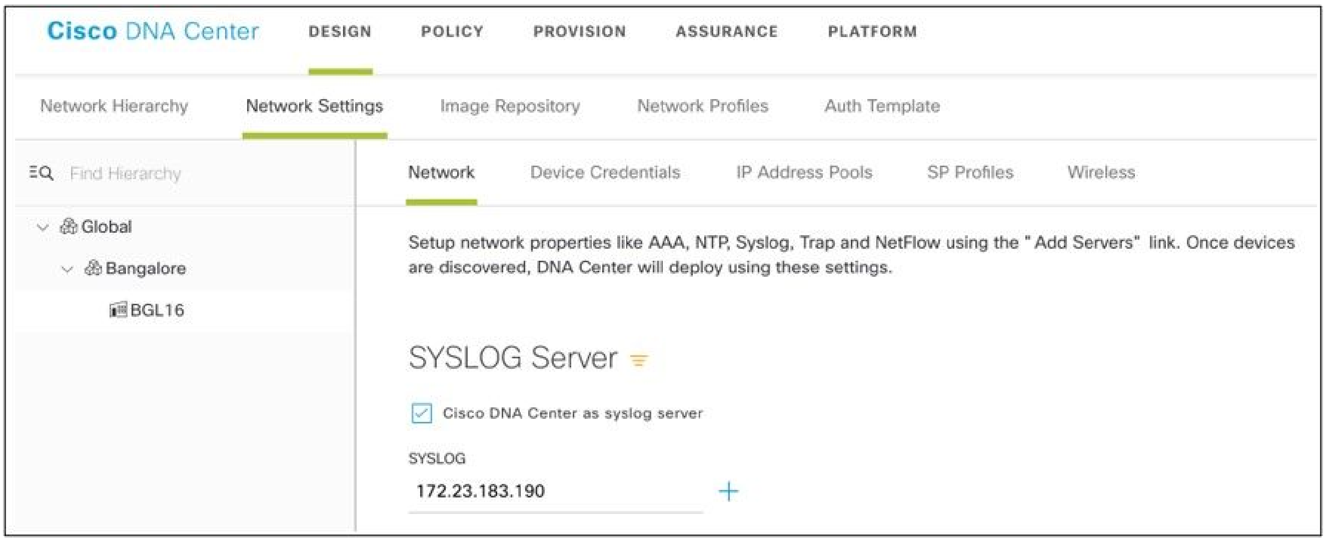
Set Up Syslog Forwarding on Cisco DNA Center

Prerequisite

Ensure that you are using certified Cisco DNA Center versions from 1.2.8 to 1.3.3.9 and from 2.1.2.0 to 2.2.3.0.

Configure Syslog Forwarding Setting

To configure Syslog Forwarding to CX Cloud Agent in Cisco DNA Center using UI, perform the following:Launch Cisco DNA Center. Go to **Design** > **Network Settings** > **Network**. For each site, add the CX Cloud Agent IP as the Syslog Server.



Setup network properties like AAA, NTP, Syslog, Trap and NetFlow using the " Add Servers" link. Once devices are discovered, DNA Center will deploy using these settings.

SYSLOG Server

☑ Cisco DNA Center as syslog server

SYSLOG

172.23.183.190

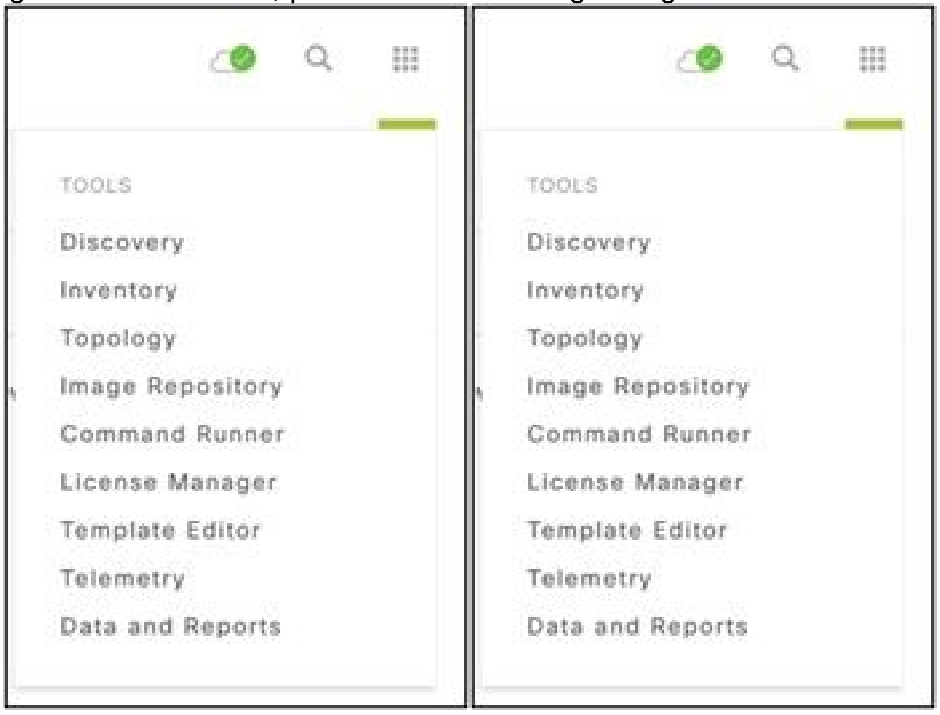
Syslog Server

Notes:

- Once configured, all the devices associated with that site are configured to send syslog with level critical to CX Cloud Agent.
- The devices should be associated to some site for enabling the syslog forwarding from the device to CX Cloud Agent.
- When a syslog server setting is updated, all the devices associated with that site will be automatically set to default critical level.

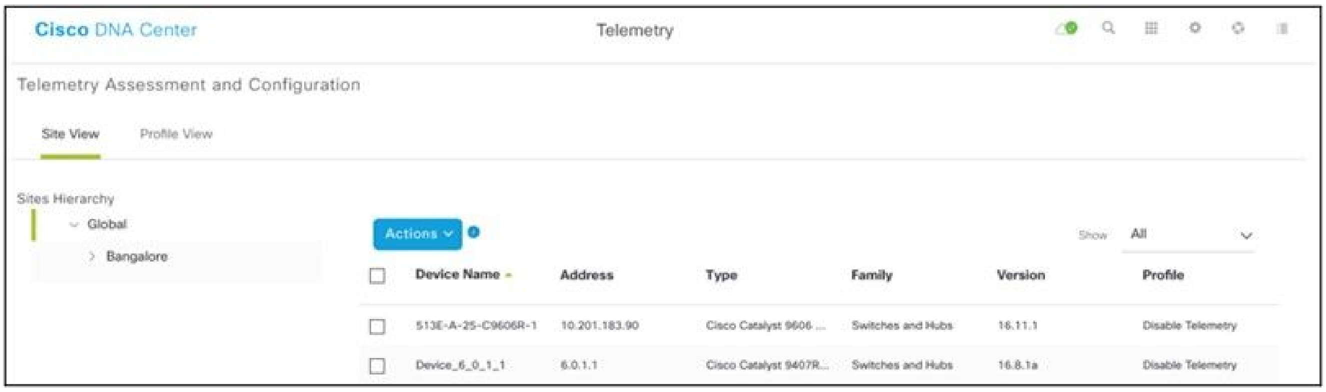
Enabling Info Level Syslog Settings

To make Syslog Info Level visible, perform the following:Navigate to **Tool** > **Telemetry**.



Tool Menu

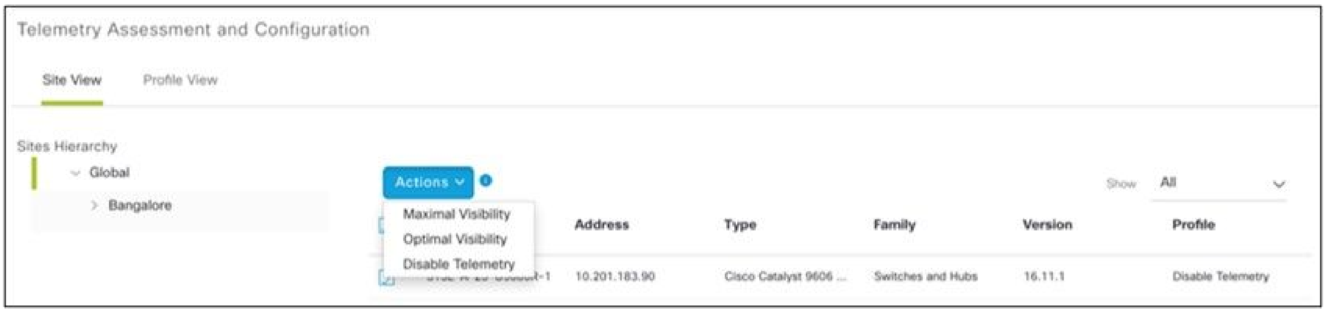
Click **Site View** Tab. Expand and select a site from site hierarchy.



□	Device Name	Address	Type	Family	Version	Profile
□	513E-A-25-C9606R-1	10.201.183.90	Cisco Catalyst 9606 ...	Switches and Hubs	16.11.1	Disable Telemetry
□	Device_6_0_1_1	6.0.1.1	Cisco Catalyst 9407R...	Switches and Hubs	16.8.1a	Disable Telemetry

Site View

Select the required site and select all devices using the check box before **Device name** and under **Actions** select **Optimal Visibility**.



	Address	Type	Family	Version	Profile
[illegible]-1	10.201.183.90	Cisco Catalyst 9606 ...	Switches and Hubs	16.11.1	Disable Telemetry

Actions**Security****Physical Security**You need to deploy CX Cloud Agent OVA image in a secured VMWare server firm. The OVA is shared securely through cisco software download center.Bootloader (Single user mode) password is set with a randomly unique password. Users must refer to FAQ to set this bootloader (single-user mode) password.**User Access**Customer cloud (User) uses the CX Cloud Agent APIs exposed to access the features/functionalities of the CX Cloud Agent.User can log in to the appliance only through ssh.**Account Security**On deployment, cxcadmin user account is created. User is forced to set a password for the same during the initial configuration.cxcadmin user/credentials are used to access both the CX Cloud Agent APIs and to connect the appliance over ssh.cxcadmin user has restricted access with least privileges. cxcadmin password follows the security policy and is one-way hashed. It has an expiry period of 90 days.cxadmin user can create a cxcroot user using the utility called remoteaccount. The cxcroot user can gain root privileges. Passphrase expires in 2 days.**Network Security**CX Cloud Agent VM can be accessed using ssh with cxcadmin user credentials.Incoming ports are restricted to 22 (ssh), 514(Syslog).

Authentication

Password based authentication: Appliance maintains a single user - ‘cxcadmin’ which enables the user to authenticate and communicate with the CX Cloud Agent.Root privileged actions on the appliance using ssh cxadmin user can create cxcroot user, using a utility called remoteaccount. This utility displays an RSA/ECB/PKCS1v1_5 encrypted password which can be decrypted only from SWIM portal. Only authorized personnel have access to this portal. cxcroot user can gain root privileges using this decrypted password. Passphrase is valid only for two days. cxcadmin user needs to recreate the account and get the password from SWIM portal post password expiry.

Hardening

CX Cloud Agent appliance follows CIS hardening standards and has achieved high scores.

Data Security

CX Cloud Agent appliance does not store any customer personal information.Device credential application (running as one of the pods) stores encrypted Cisco DNA Center server credentials inside secured database. Cisco DNA Center collected data is not stored in any form inside the appliance. The data collected is uploaded to the backed soon after the collection is complete, and the data is purged from the agent.

Data Transmission

A secure TLS 1.2 channel is established between CX Cloud Agent and RP (Reverse proxy) server.Ciphers supported are AES256-SHA and AES128-SHAThe Reverse proxy authenticates the connection establishment using symmetric hashing. Unique shared key generated per appliance is used to perform the symmetric hashing.

Logs and Monitoring

Logs do not contain any form of sensitive information. Audit logs capture all security-sensitive actions performed on the Cloud Agent appliance.

Security Summary

Frequently Asked Questions

CX Cloud Agent

Deployment

Q - With "Re-install" option, can the user deploy the new Cloud Agent with new IP Address?A - Yes

Q - Flavours of InstallableA - OVA and VHD

Q - What is the environment on which the installable can be deployed?A - OVAVMWare ESXi version 5.5 or aboveOracle Virtual Box 5.2.30 or above VHDHyper-V

Q - Can CX Cloud Agent detect IP address in a DHCP environment?A - Yes, in case of DHCP environment, the IP address assignment during IP configuration is taken care. However, the IP address change expected for the CX Cloud Agent at any point in future is not supported. Also, the customer is recommended to reserve the IP for the Cloud Agent in their DHCP environment.Q - Does CX Cloud Agent support both IPv4 and IPv6 configuration?A - No, only IPV4 is supported.

Q - During IP configuration, is IP address validated?A - Yes, IP address syntax and duplicate IP address assignment will be validated.

Q - What is the approximate time taken for the OVA deployment and IP configuration?A - The OVA deployment depends on the speed of the network to copy the data. The IP configuration takes approximately 8-10 minutes that includes Kubernetes and container creations.

Q - Is there any limitation with respect to any hardware type?A - Host machine on which OVA is deployed must meet the requirements provided as part of the CX portal setup. The CX Cloud Agent is tested with VMware/Virtual box running on a hardware with Intel Xeon E5 processors with vCPU to CPU ratio set at 2:1. If a less powerful processor CPU or larger ratio is used, the performance might degrade.

Q - Can we generate the pairing code anytime?A - No, the pairing code can be generated only if the Cloud Agent is not registered.

Releases and PatchesQ - What are the different kinds of versions listed for the upgrade of CX Cloud Agent?A - Below are the set of the released versions of CX Cloud Agent that are listed:A.x.0 (where x is the latest production major feature release, example:1.3.0)A.x.y (where A.x.0 is mandatory and incremental up-gradation to be initiated, x is the latest production major feature release, and y is the latest upgrade patch that is live, example: 1.3.1).A.x.y-z (where A.x.0 is mandatory and incremental up-gradation to be initiated, x is the latest production major feature release, and y is the latest upgrade patch that is live, and z is the spot-patch that is an instant fix for a very short span of time, example: 1.3.1-1)where A is a long-term release spread across 3-5 years span**Authentication and Proxy configuration**Q - What is the default user of the CX Cloud Agent Application?A - cxcadmin

Q - How the password is set for the default user?A - Password is set during Network configuration.

Q - Is there any option available to reset the password after Day-0?A - No specific option is provided by the agent to reset the password, but you can use the linux commands to reset the password for cxcadmin.

Q - What are the password policies to configure CX Cloud Agent?A - Password policies are:Password Maximum Age (length) set to 90 daysPassword Minimum age (length) set to 8Password Maximum length 127 characters.At least one upper case and one lower case should be provided.Should contain at least one special character (for example,

!$%^&*()_+|~-=\`{}[]:";'<>?,/).The following characters are not be permitted Special 8-bit characters (for example, ¬£, Å ´, ¥, ë, ¬ø, ü)SpacesThe password should not be the last recently used 10 passwords.Should not contain regular expression i.e. should not contain the following words or derivatives thereof cisco, sanjose, and sanfran

Q - How to set Grub password?A - To set the Grub Password, perform the following:Run ssh as cxcroot and provide the token [Contact the support team to get the cxcroot token]Execute sudo su, provide the same tokenExecute the command grub-mkpasswd-pbkdf2 and set the GRUB password. Hash of the provided password will be printed, copy the content.vi to the file /etc/grub.d/00_header**.** Navigate to the end of file and replace the hash output followed by the content password_pbkdf2 root ***** with the obtained hash for the password you got in step 3Save the file with the command :wq!Execute the command update-grub

Q - What is the expiry period for password of **cxcadmin**?A - The password expiry in 90 days.

Q - Does the system disable the account after consecutive unsuccessful login attempts?A - Yes, the account gets disabled after 5 consecutive unsuccessful attempts. The lockout period is 30 minutes.

Q - How to generate passphrase?A - Perform the following steps,Run ssh and login as cxcadmin userExecute the command “remoteaccount cleanup”Execute the command “remoteaccount create”

Q - Does proxy host support both hostname and IP?A - Yes, but to use hostname, user should have provide the DNS IP during network configuration.

Q - Are both IPv4 and IPv6 supported for proxy?A - No, only IPv4 is supported.**Secure Shell SSH**Q - What are the ciphers supported by ssh shell?A - chacha20-poly1305@openssh.com, aes256-gcm@openssh.com, aes128-gcm@openssh.com , aes256-ctr, aes192-ctr, aes128-ctr

Q - How to login to console?A - Follow the steps to login:Login as cxcadmin user.Provide the cxcadmin password that is set.

Q - Are ssh logins logged?A - Yes, it is logged as part of the var/logs/audit/audit.log.

Q - What is the idle session out time?A - ssh session timeout occurs if the Cloud Agent is idle for five minutes.

Ports and ServicesQ - What are the ports kept open by default on the CX Cloud Agent?A - They are,**Outbound port**: The deployed CX Cloud Agent can connect to concsoweb-prd.cisco.com on HTTPS port 443 or via a proxy to send data to Cisco.

The deployed CX Cloud Agent can connect to Cisco DNA Center on HTTPS port 443.**Inbound port**: For local management of the CX Cloud Agent 514(Syslog) and 22 (ssh) should be accessible.

The customer must allow port 443 in their Firewall to receive data from CX Cloud.**CX Cloud Agent Connection with Cisco DNA Center**Q - What is the purpose and relationship of Cisco DNA Center with CX Cloud Agent r?A - Cisco DNA Center is the Cloud Agent which manages the customer premise network devices. CX Cloud Agent collects the inventory information of the devices from the configured Cisco DNA Center and uploads the inventory information that is available as “Asset View” in CX Cloud.

Q - Where can the user provide Cisco DNA Center details on the CX Cloud agent?A - During the CX Cloud Agent setup, the user will be prompted to provide the Cisco DNA Center details or user can use CLI command cxcli agent addController to add the Cisco DNA Centers.

Q - How many Cisco DNA Centers can be added?A - 10 Cisco DNA Centers.

Q - What role the Cisco DNA Center user should have?A - The user role should be either **admin** or **observer**.

Q - How are the Cisco DNA Center details stored in CX Cloud Agent?A - Cisco DNA Center credentials are encrypted using AES-256 and stored in CX Cloud Agent database. CX Cloud Agent database is protected with a secured user ID and password.

Q - What kind of encryption will be used while accessing Cisco DNA Center API from CX Cloud Agent?A - HTTPS over TLS 1.2 is used for the communication between Cisco DNA Center and CX Cloud Agent.

Q - What are the operations performed by CX Cloud Agent on the integrated Cisco DNA Center Cloud Agent?A - Different operations performed by CX Cloud Agent on the integrated Cisco DNA Center Cloud Agent are,CX Cloud Agent collects data that Cisco DNA Center has about the network devices.It uses the Cisco DNA Center command runner interface to talk to end devices and execute CLI commands (show command).No config change commands are executed.

Q - What are default data collected from Cisco DNA Center and uploaded to backend?A- Network EntityModulesShow versionConfigDevice image informationTags

Q - What are the additional data collected from Cisco DNA Center and uploaded to Cisco backend?A - You get all the information here.

Q - How is the inventory data uploaded to backend?A - CX Cloud Agent uploads the data via TLS 1.2 protocol to Cisco backend server.

Q - What is the frequency of inventory upload?A - Collection gets triggered as per the user-defined schedule and gets uploaded to CISCO backend. UTC and gets uploaded to backend.

Q - Can the user re-schedule inventory?A - Yes, an option is available to modify the schedule information from Admin Settings à Data Sources.

Q - When does the connection timeout occur between Cisco DNA Center and Cloud Agent?A - Timeouts are categorizes as follows:For initial connection, timeout is max 300 seconds. If connection is not established between Cisco DNA Center and Cloud Agent within max 5 minutes, then the connection terminates.For recurring, typical, or updates: response timeout is 1800 seconds. If the response is not received or not able to read within 30 minutes, then the connection terminates.

CX Cloud Agent Used Diagnostic Scan

Q - What are the commands executed on the device for scan?A - The commands that need to be executed on the device for the scan is dynamically determined during the scanning process. The set of commands can change over time, even for the same device (and not in control of Diagnostic Scan).)

Q - Where are the scan results stored and profiled?A - The scanned results are stored and profiled in cisco backend.

Q - Are the duplicates (By hostname or IP) in Cisco DNA Center, added to Diagnostic Scan when Cisco DNA Center source is plugged in?A - No, the duplicates will be filtered and only the unique devices will be extracted.

Q - What happens when one of the command scans fails?A - The device scan will be completely stopped and will be marked as unsuccessful.

CX Cloud Agent System Logs

Q - List of health information that is sent to the CX Cloud?A - Application logs, Pod status, Cisco DNA Center details, audit logs, system details, and hardware details.

Q - What system details and hardware details are collected?A - Sample output:

```
system_details":{
     "os_details":{
        "containerRuntimeVersion":"docker://19.3.12",
        "kernelVersion":"5.4.0-47-generic",
        "kubeProxyVersion":"v1.15.12",
        "kubeletVersion":"v1.15.12",
        "machineID":"81edd7df1c1145e7bcc1ab4fe778615f",
        "operatingSystem":"linux",
         "osImage":"Ubuntu 20.04.1 LTS",
         "systemUUID":"42002151-4131-2ad8-4443-8682911bdadb"
      },
      "hardware_details":{
         "total_cpu":"8",
         "cpu_utilization":"12.5%",
         "total_memory":"16007MB",
         "free_memory":"9994MB",
         "hdd_size":"214G",
         "free_hdd_size":"202G"
      }
   }
}
```

Q - How is the health data sent to backend?A - With CX Cloud Agent, the health service (servicability) streams the data (via kafka), after which websocket connection is established with the Cisco backend and from there the data is streamed (via kafka).

Q - What is the CX Cloud Agent's health data log retention policy in the backend?A - The CX Cloud Agent's health data log retention policy in the backend is 60 days.

Q - What are the types of uploads available?A - Agent triggers two types of uploads such as Full upload and Partial upload.**Full upload** - Scheduled for every hour. Collects and sends details like Pod status, Cisco DNA Center details, audit logs, system details, and hardware details.**Partial upload** – Scheduled for every five minutes. Difference with the last collected information is uploaded. Unconfigured Cisco DNA Centers information is sent with every partial health upload.

Troubleshooting

Issue: Not able to access the configured IP.**Solution**: Execute ssh using configured IP. If you get connection timeout, the possible reason might be the IP misconfiguration. In this case, reinstall by configuring a valid IP. This can be done via portal with the reinstall option provided in the Admin Setting page.

Issue: How to verify if the services are up and running after the registration?**Solution**: Execute the below command and check if the pods are up and running.ssh to the configured IP as cxcadmin.Provide the password.Execute the command **kubectl get pods**.The pods can be in any one of the state such as running, Initializing, or Container creating but, approx. after 20 minutes, the pods should be in running state.If you observe the states other than running and PodInitialaizing, check the pod description with the below command**kubectl describe pod <podname>**.The output will have the information on the pod status.

Issue: How to verify the Cisco Backend reachability before generating Pairing

Code?**Solution**: Perform the following steps:

If customer network configured with proxy, set proxy in the environment variable.

```
export https_proxy=http://[username:password@]<proxy_ip>:<portumber>
```

Execute the following curl command to verify the reachability to concsoweb server

For US & APJC Data Centre: curl -v --header 'Authorization: Basic xxxxxx' https://concsoweb-prd.cisco.com/ For EMEA Data Centre: curl -v --header 'Authorization: Basic xxxxxxx' https://concsoweb3-prd.cisco.com/

This command should result in 200 response with "It Works!" message* Mark bundle as not supporting multiuse<HTTP/1.1 200 OK ----><Date: Thu, 25 Nov 2021 09:05:15 GMT<Server: Apache<Last-Modified: Mon, 11 Jun 2007 18:53:14 GMT<ETag: "2d-432a5e4a73a80"<Accept-Ranges: bytes<Content-Length: 45<Cache-Control: max-age=604800, public<Expires: Thu, 25 Nov 2021 09:05:15 GMT<Access-Control-Allow-Credentials: true<Access-Control-Allow-Methods: GET, POST, PUT, DELETE, OPTIONS<Access-Control-Allow-Headers: Content-type, fromPartyID, inputFormat, outputFormat, Authorization, Content-Length, Accept, Origin, remote_user,X-XSRF-Header<Access-Control-Expose-Headers: Location<Pragma: public<Content-Type: text/html<<html><body><h1>It works!</h1></body></html> --->

Issue: How to verify whether SSL Interceptor is disabled at customer Proxy?

Solution: Execute the following curl command to verify the server certificate section. The response has the certificate details of concsoweb server.

```
curl -v --header 'Authorization: Basic xxxxxx' https://concsoweb-prd.cisco.com/
```

* Server certificate:* subject: C=US; ST=California; L=San Jose; O=Cisco Systems, Inc.; CN=concsoweb-prd.cisco.com* start date: Feb 16 11:55:11 2021 GMT* expire date: Feb 16 12:05:00 2022 GMT* subjectAltName: host "concsoweb-prd.cisco.com" matched cert's "concsoweb-prd.cisco.com"* issuer: C=US; O=HydrantID (Avalanche Cloud Corporation); CN=HydrantID SSL CA G3* SSL certificate verify ok.>GET / HTTP/1.1

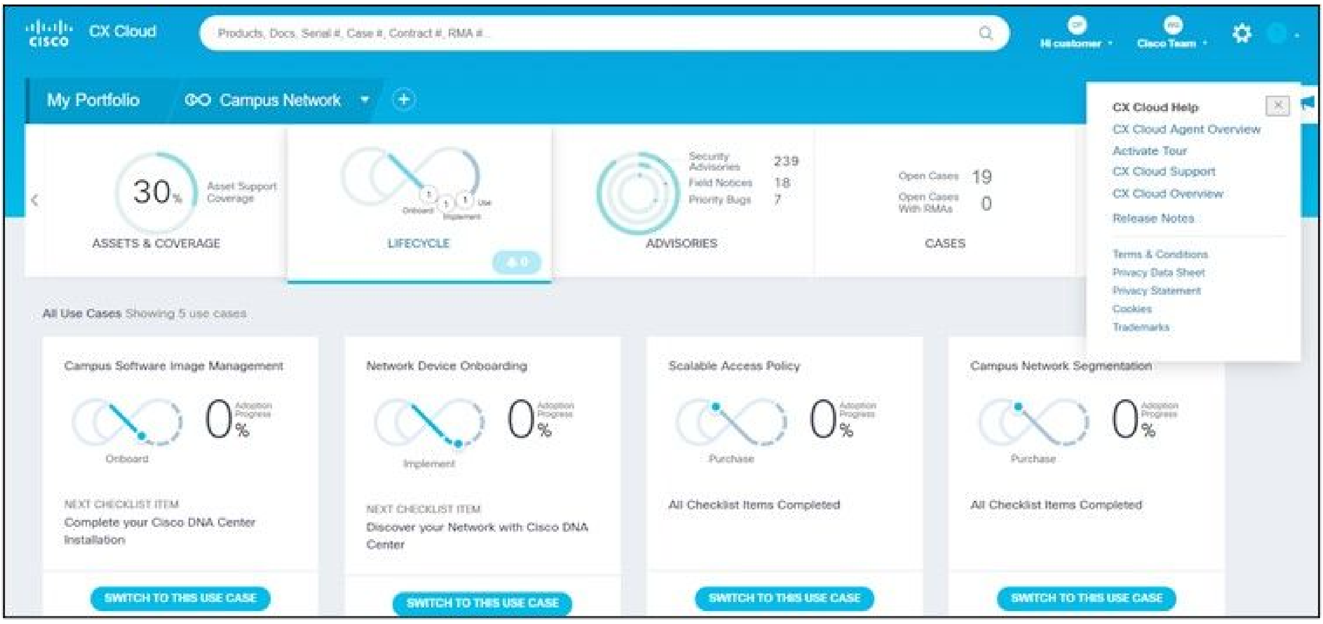
Issue: kubectl commands gets failed and if it shows the error as “The connection to the server X.X.X.X:6443 was refused - did you specify the right host or port”

Solution:Verify for resource availability. [example: CPU, Memory]Wait for the Kubernetes service to start

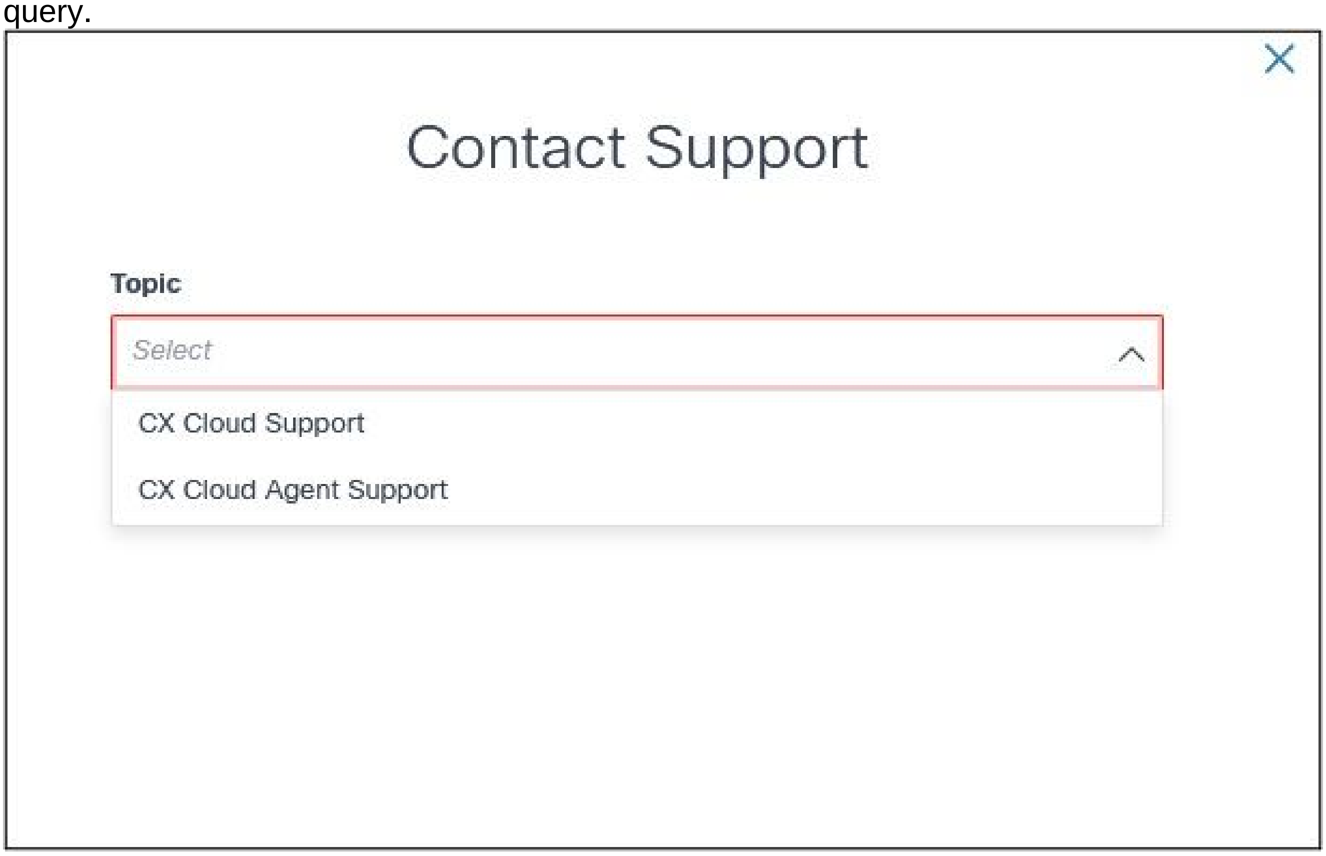
Issue: How to get the details of collection failure for a command/device**Solution**:Execute kubectl get pods and get the collection pod name.Execute kubectl logs <collectionPodName> to get the command/device specific details.

Issue: kubectl command not working with error "[authentication.go:64] Unable to authenticate the request due to an error: [x509: certificate has expired or is not yet valid, x509: certificate has expired or is not yet valid]"**Solution**:Run the below commnadskubeadm alpha certs renew allkubeadm alpha certs check-expirationrm -rf /etc/kubernetes/*.confkubeadm init phase kubeconfig all --apiserver-advertise-address $(ip a | grep -A1 -P 'eth0' | grep inet | awk '{print $2}' | cut -d "/" -f1)rm -rf $HOME/.kubemkdir -p $HOME/.kubesudo cp -i /etc/kubernetes/admin.conf $HOME/.kube/configsudo chown $(id -u):$(id -g) $HOME/.kube/configls -ld /etc/kubernetes/admin.confsudo chmod 644 /etc/kubernetes/admin.confls -ld /etc/kubernetes/admin.confreboot**Collection Failure Responses**Collection failure cause can be any constraints or issues seen with the added controller or devices present in the controller.The below table has the error snippet for few use cases seen under the Collection microservice during the collection process.**Diagnostic Scan Failure Responses**Scan failure and the cause can be from any of the listed componentsWhen the user initiates a scan from the portal, occasionally it results as “failed: Internal server error”The cause for the issue might be any of the listed componentsControl PointNetwork Data GatewayControl Point AgentDiagnostic ScanCX Cloud Agent Microservice [devicemanager, collection]Cisco DNA centerReverse ProxyAPIXMasheryPing AccessIRONBANKIRONBANK GWBDBThe below table has the error snippet seen under Collection microservice and Control Point Agent microservice logs that occurs due to the issues/constraints with the componentsTo see the logs, perform the following:Login to the CX Cloud Agent consolessh to cxcadmin and provide the passwordExecute kubectl get podsGet the pod name of collection and controlpoint Agent microserviceTo verify the collection microservice/controlpointAgent logsExecute kubectl logs <collectionpodname>Execute kubectl logs <controlpointagent>

Portal Support Use the highlighted button on the screens to get answers to your queries.



Portal SupportSelect the classification and enter the problem faced and submit the query.



Addendum

7. **Issue**: How to verify if the services are up and running after the registration?**Solution**: Execute the below command and check if the pods are up and running.
8. **Issue**: How to verify if the services are up and running after the registration?**Solution**: Execute the below command and check if the pods are up and running.