CX Cloud Agent Overview v2.2

Contents

Introduction

This document describes Cisco's Customer Experience (CX) Cloud Agent.

Prerequisites

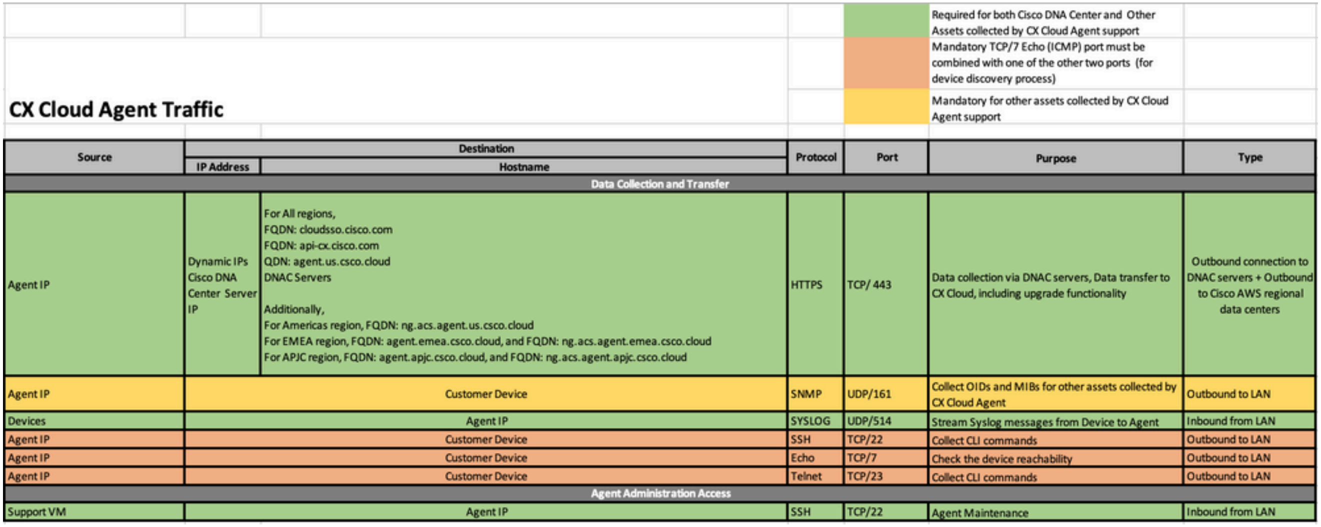
CX Cloud Agent runs as a Virtual Machine (VM) and is available for download as an Open Virtual Appliance (OVA) or a Virtual Hard Disk (VHD).

Requirements

Requirements to deploy:

- Any of these hypervisors:
  - VMware ESXi version 5.5 or later
  - Oracle Virtual Box 5.2.30 or later
  - Windows Hypervisor version 2012 to 2022
- The hypervisor can host a VM which requires:
  - 8 Core CPU
  - 16 GB Memory/RAM
  - 200GB Disk Space
- For customers using designated US data centers as the primary data region to store CX Cloud data, the CX Cloud Agent must be able to connect to the servers shown here, using the Fully Qualified Domain Name (FQDN), and using HTTPS on TCP port 443:
  - FQDN: agent.us.csco.cloud
  - FQDN: ng.acs.agent.us.csco.cloud
  - FQDN: cloudsso.cisco.com
  - FQDN: api-cx.cisco.com
- For customers using designated Europe data centers as the primary data region to store CX Cloud data: the CX Cloud Agent must be able to connect to both of the servers shown here, using the FQDN, and using HTTPS on TCP port 443:
  - FQDN: agent.us.csco.cloud
  - FQDN: agent.emea.csco.cloud
  - FQDN: ng.acs.agent.emea.csco.cloud
  - FQDN: cloudsso.cisco.com
  - FQDN: api-cx.cisco.com

- For customers using designated Asia Pacific data centers as the primary data region to store CX Cloud data: the CX Cloud Agent must be able to connect to both of the servers shown here, using the FQDN, and using HTTPS on TCP port 443:
  - FQDN: agent.us.csco.cloud
  - FQDN: agent.apjc.csco.cloud
  - FQDN: ng.acs.agent.apjc.csco.cloud
  - FQDN: cloudsso.cisco.com
  - FQDN: api-cx.cisco.com
- For customers using designated Europe and Asia Pacific data centers as their primary data region, connectivity to FQDN: agent.us.csco.cloud 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 must be accessible.
- This table provides a summary of the ports and protocols that must be opened and enabled for CX Cloud Agent to function correctly:



🟩	Required for both Cisco DNA Center and Other Assets collected by CX Cloud Agent support
🟧	Mandatory TCP/7 Echo (ICMP) port must be combined with one of the other two ports (for device discovery process)
🟨	Mandatory for other assets collected by CX Cloud Agent support

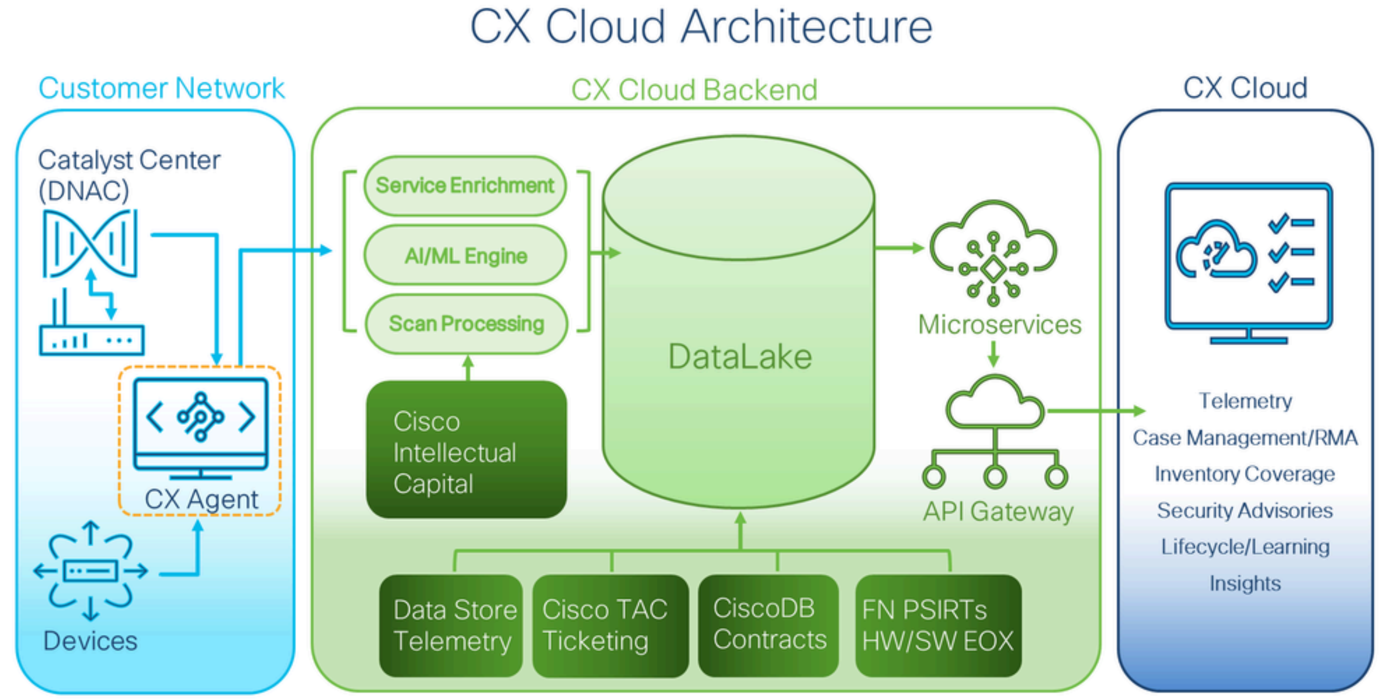
CX Cloud Agent Traffic

Source	Destination		Protocol	Port	Purpose	Type
	IP Address	Hostname				
Data Collection and Transfer						
Agent IP	Dynamic IPs Cisco DNA Center Server IP	For All regions, FQDN: cloudsso.cisco.com FQDN: api-cx.cisco.com QDN: agent.us.csco.cloud DNAC Servers Additionally, For Americas region, FQDN: ng.acs.agent.us.csco.cloud For EMEA region, FQDN: agent.emea.csco.cloud, and FQDN: ng.acs.agent.emea.csco.cloud For APJC region, FQDN: agent.apjc.csco.cloud, and FQDN: ng.acs.agent.apjc.csco.cloud	HTTPS	TCP/ 443	Data collection via DNAC servers, Data transfer to CX Cloud, including upgrade functionality	Outbound connection to DNAC servers + Outbound to Cisco AWS regional data centers
Agent IP	Customer Device		SNMP	UDP/161	Collect OIDs and MIBs for other assets collected by CX Cloud Agent	Outbound to LAN
Devices	Agent IP		SYSLOG	UDP/514	Stream Syslog messages from Device to Agent	Inbound from LAN
Agent IP	Customer Device		SSH	TCP/22	Collect CLI commands	Outbound to LAN
Agent IP	Customer Device		Echo	TCP/7	Check the device reachability	Outbound to LAN
Agent IP	Customer Device		Telnet	TCP/23	Collect CLI commands	Outbound to LAN
Agent Administration Access						
Support VM	Agent IP		SSH	TCP/22	Agent Maintenance	Inbound from LAN

Background Information

Cisco's (CX) Cloud Agent is a highly-scalable platform that collects telemetry data from customer network devices to deliver actionable insights for customers. CX Cloud Agent enables the Artificial Intelligence (AI)/Machine Learning (ML) transformation of active running configuration data into proactive and predictive insights displayed in CX Cloud.

This guide is specific to CX Cloud Agent v2.2 and onwards. Refer to the Cisco CX Cloud Agent page to access prior versions.



CX Cloud Architecture

Note: Images (and the content within) in this guide are for reference purpose only. Actual content can vary.

- An IP is automatically detected if the Dynamic Host Configuration Protocol (DHCP) is enabled in the VM environment; Otherwise, a free IPv4 address, Subnet mask, Default Gateway IP address, and Domain Name Service (DNS) server IP address must be available.
- Only IPv4 is supported.
- The certified single node and High Availability (HA) Cluster Cisco DNA Center versions are 2.1.2.x to 2.2.3.x, 2.3.3.x, 2.3.5.x and Cisco Catalyst Center Virtual Appliance and Cisco DNA Center Virtual Appliance.
- If the network has SSL interception, permit-list CX Cloud Agent's IP address.
- For all directly connected assets, SSH privilege level 15 is required.
- Use only the provided hostnames; static IP addresses cannot be used.

Critical Domains Access

To start the CX Cloud journey, users require access to these domains. Use only the hostnames provided; do not use static IP addresses.

Domains Specific to the CX Cloud Agent Portal

Major Domains	Other Domains
cisco.com	mixpanel.com
csco.cloud	cloudfront.net
split.io	eum-appdynamics.com
	appdynamics.com
	tiqcdn.com
	jquery.com

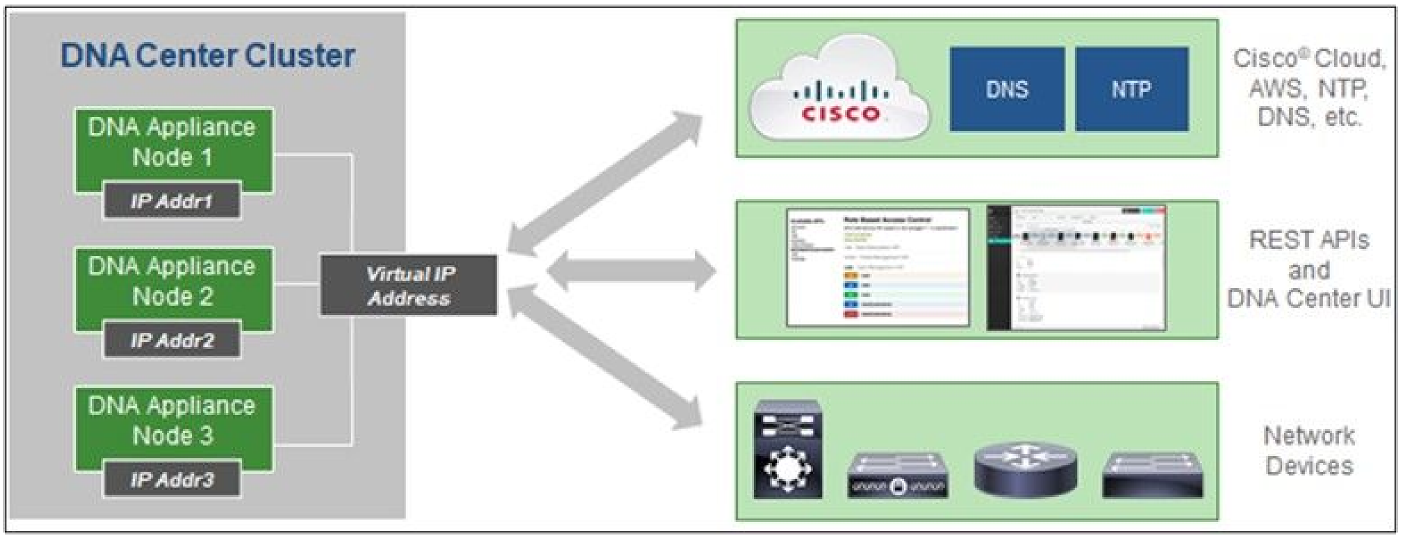
Domains Specific to CX Cloud Agent OVA

AMERICAS	EMEA	APJC
cloudsso.cisco.com	cloudsso.cisco.com	cloudsso.cisco.com
api-cx.cisco.com	api-cx.cisco.com	api-cx.cisco.com
agent.us.csco.cloud	agent.us.csco.cloud	agent.us.csco.cloud
ng.acs.agent.us.csco.cloud	agent.emea.csco.cloud	agent.apjc.csco.cloud
	ng.acs.agent.emea.csco.cloud	ng.acs.agent.apjc.csco.cloud

Note: The outbound access must be allowed with redirection enabled on port 443 for the specified FQDN's.

Cisco DNA Center Supported Version

Supported single node and HA Cluster Cisco DNA Center versions are 2.1.2.x to 2.2.3.x, 2.3.3.x, 2.3.5.x and Cisco Catalyst Center Virtual Appliance and Cisco DNA Center Virtual Appliance.



Multi-Node HA Cluster Cisco DNA Center

Supported Browsers

For the best experience on Cisco.com, the latest official release of these browsers is recommended:

- Google Chrome
- Microsoft Edge
- Mozilla Firefox

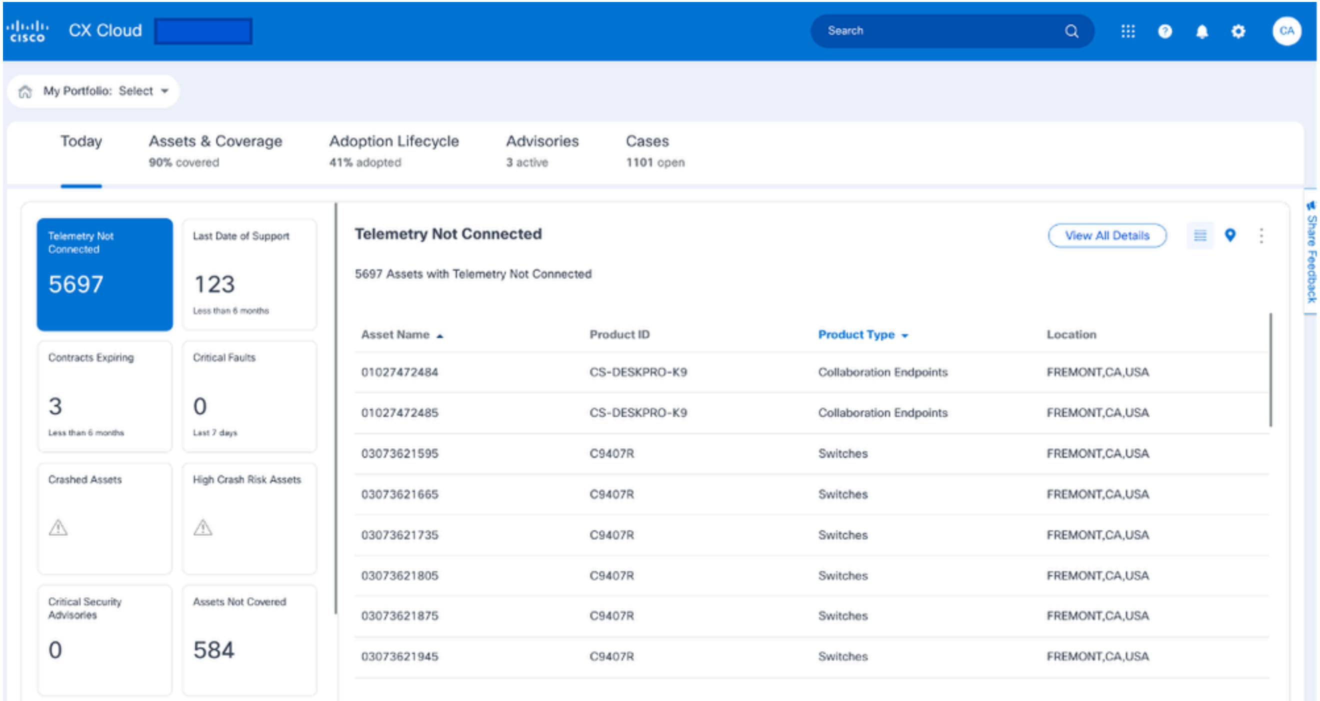
Supported Product List

To view the list of products supported by CX Cloud Agent, refer to the [Supported Product List](#).

Connecting Data Sources

To connect data sources:

1. Click [cx.cisco.com](#) to log in to CX Cloud.



Telemetry Not Connected 5697

Last Date of Support 123 Less than 6 months

Contracts Expiring 3 Less than 6 months

Critical Faults 0 Last 7 days

Crashed Assets ⚠

High Crash Risk Assets ⚠

Critical Security Advisories 0

Assets Not Covered 584

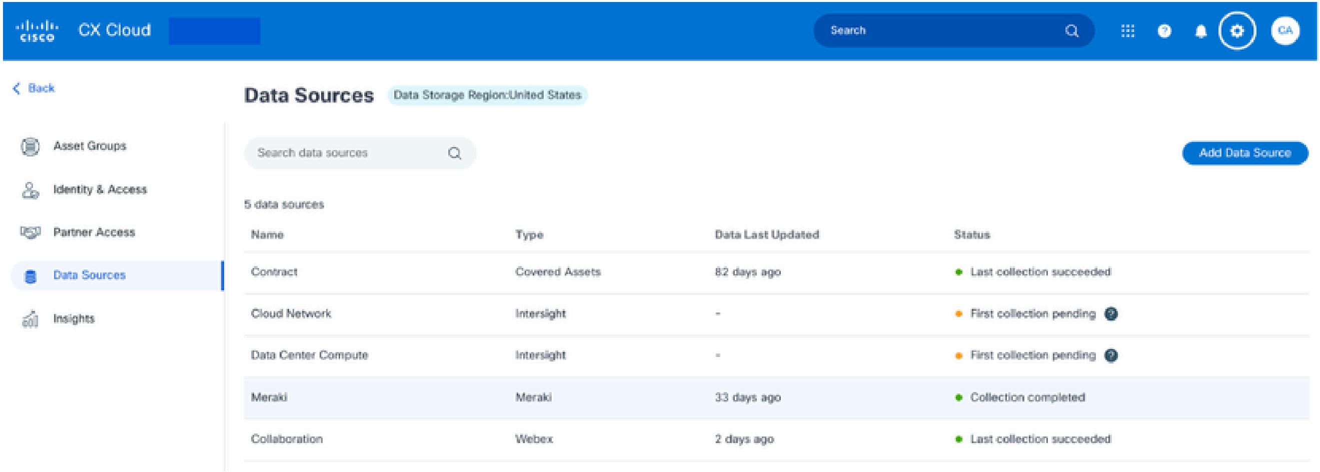
Telemetry Not Connected

5697 Assets with Telemetry Not Connected

Asset Name ▲	Product ID	Product Type ▾	Location
01027472484	CS-DESKPRO-K9	Collaboration Endpoints	FREMONT,CA,USA
01027472485	CS-DESKPRO-K9	Collaboration Endpoints	FREMONT,CA,USA
03073621595	C9407R	Switches	FREMONT,CA,USA
03073621665	C9407R	Switches	FREMONT,CA,USA
03073621735	C9407R	Switches	FREMONT,CA,USA
03073621805	C9407R	Switches	FREMONT,CA,USA
03073621875	C9407R	Switches	FREMONT,CA,USA
03073621945	C9407R	Switches	FREMONT,CA,USA

CX Cloud Home Page

2. Select **Admin Center** icon. The **Data Sources** window opens.



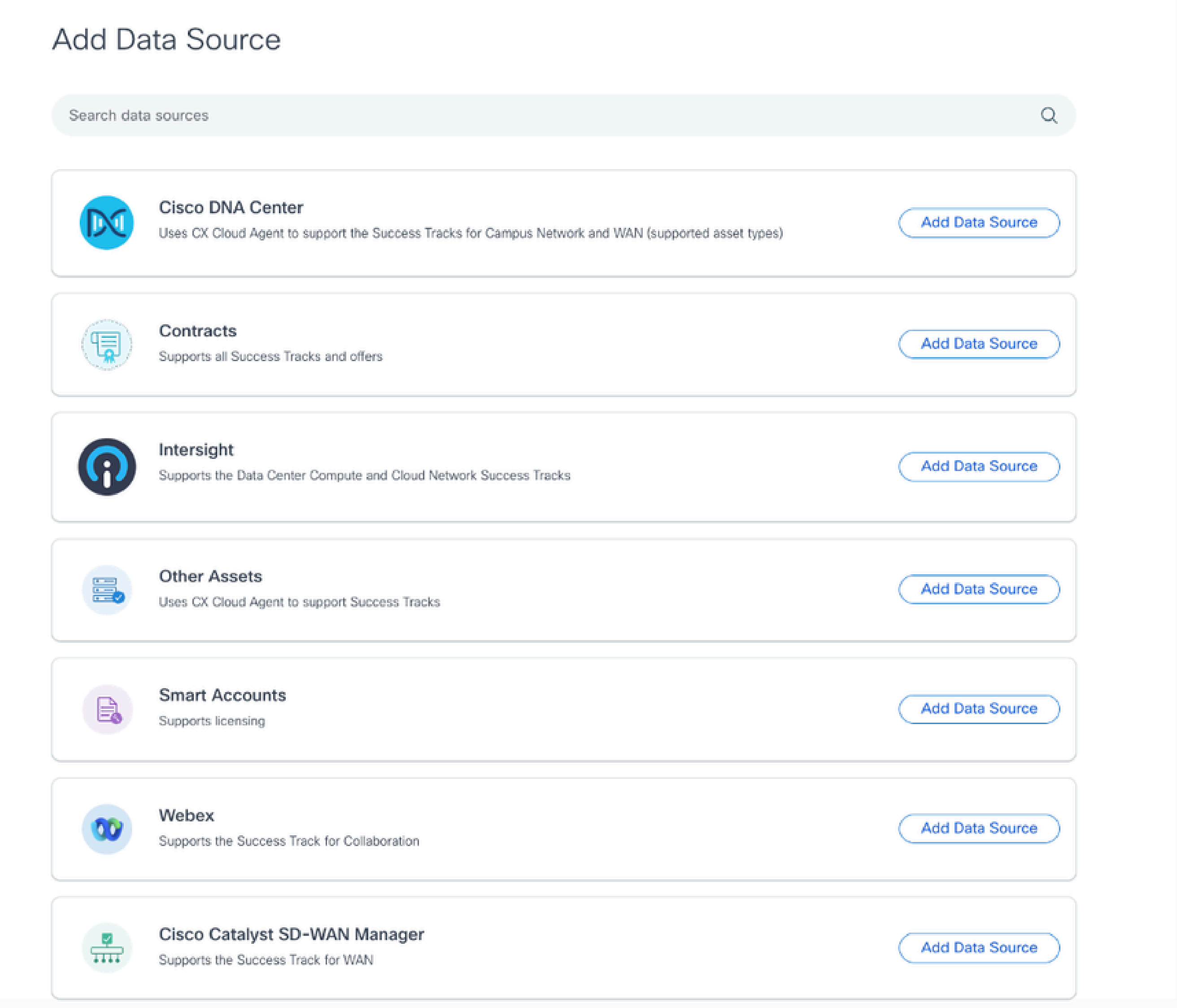
Data Sources Data Storage Region:United States

5 data sources

Name	Type	Data Last Updated	Status
Contract	Covered Assets	82 days ago	● Last collection succeeded
Cloud Network	Intersight	-	● First collection pending
Data Center Compute	Intersight	-	● First collection pending
Meraki	Meraki	33 days ago	● Collection completed
Collaboration	Webex	2 days ago	● Last collection succeeded

Data Sources

3. Click **Add Data Source**. The **Add Data Source** window opens. The displayed options can vary based on customer subscriptions.



Add Data Source

Cisco DNA Center
Uses CX Cloud Agent to support the Success Tracks for Campus Network and WAN (supported asset types)

Contracts
Supports all Success Tracks and offers

Intersight
Supports the Data Center Compute and Cloud Network Success Tracks

Other Assets
Uses CX Cloud Agent to support Success Tracks

Smart Accounts
Supports licensing

Webex
Supports the Success Track for Collaboration

Cisco Catalyst SD-WAN Manager
Supports the Success Track for WAN

Add Data Source

4. Click **Add Data Source** to select the applicable data source. If the CX Cloud Agent was not previously set up, the **Setting Up CX Cloud Agent** window opens where set up must be completed. If set up is complete, connection continues. Refer to one of these sections to continue:

Setting up CX Cloud Agent

Adding Cisco DNA Center as Data Source

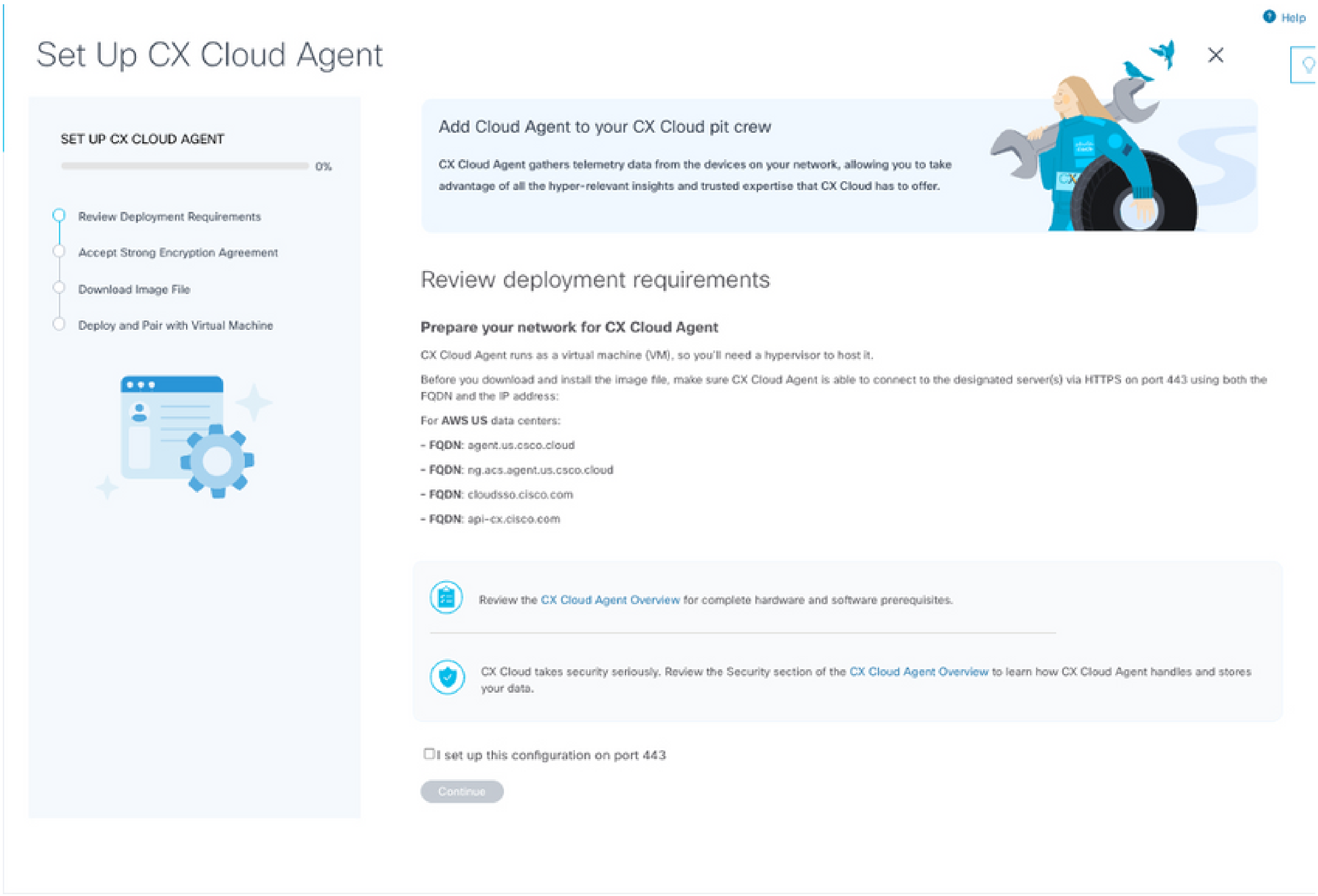
Adding Other Assets as Data Sources

Note: The Other Assets option is only available if direct-device connectivity has not previously been configured.

Setting Up CX Cloud Agent

CX Cloud Agent set up is prompted when connecting data sources if it has not previously been completed.

To set up CX Cloud Agent:



Set Up CX Cloud Agent

SET UP CX CLOUD AGENT

0%

○ Review Deployment Requirements

○ Accept Strong Encryption Agreement

○ Download Image File

○ Deploy and Pair with Virtual Machine

Add Cloud Agent to your CX Cloud pit crew

CX Cloud Agent gathers telemetry data from the devices on your network, allowing you to take advantage of all the hyper-relevant insights and trusted expertise that CX Cloud has to offer.

Review deployment requirements

Prepare your network for CX Cloud Agent

CX Cloud Agent runs as a virtual machine (VM), so you'll need a hypervisor to host it.

Before you download and install the image file, make sure CX Cloud Agent is able to connect to the designated server(s) via HTTPS on port 443 using both the FQDN and the IP address:

For **AWS US** data centers:

- **FQDN**: agent.us.csco.cloud

- **FQDN**: ng.acs.agent.us.csco.cloud

- **FQDN**: cloudsso.cisco.com

- **FQDN**: api-cx.cisco.com

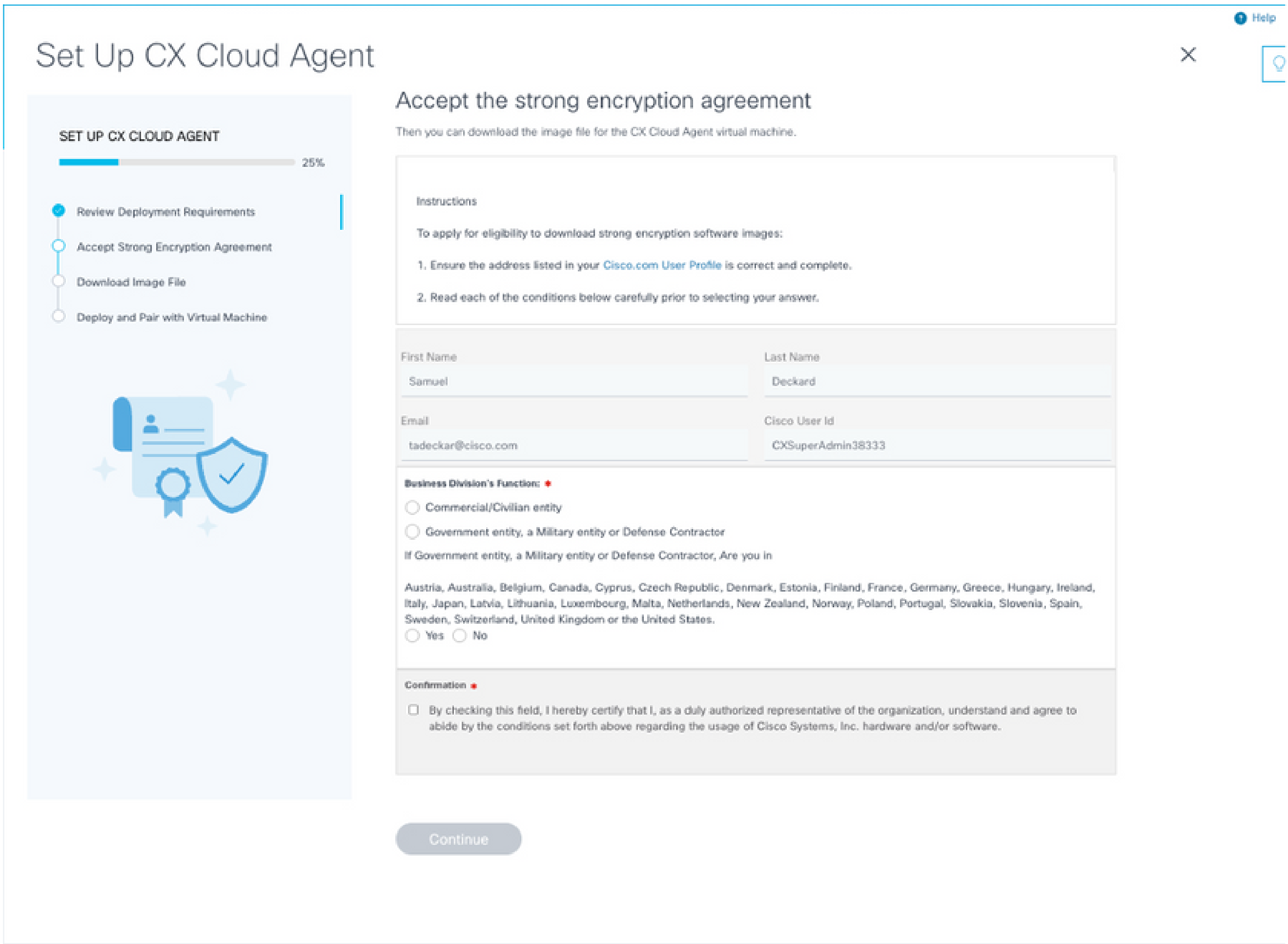
Review the CX Cloud Agent Overview for complete hardware and software prerequisites.

CX Cloud takes security seriously. Review the Security section of the CX Cloud Agent Overview to learn how CX Cloud Agent handles and stores your data.

□I set up this configuration on port 443

Review Deployment Requirements

1. Review the **Review deployment requirements** and select the **I set up this configuration on port 443** check box.
2. Click **Continue**. The Set Up CX Cloud Agent - **Accept the strong encryption agreemen**t window opens.



Help
Set Up CX Cloud Agent
SET UP CX CLOUD AGENT
25%
Review Deployment Requirements
Accept Strong Encryption Agreement
Download Image File
Deploy and Pair with Virtual Machine
Continue

Accept the strong encryption agreement

Then you can download the image file for the CX Cloud Agent virtual machine.

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.

First Name	Last Name
Samuel	Deckard
Email	Cisco User Id
tadeckar@cisco.com	CXSuperAdmin38333

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.

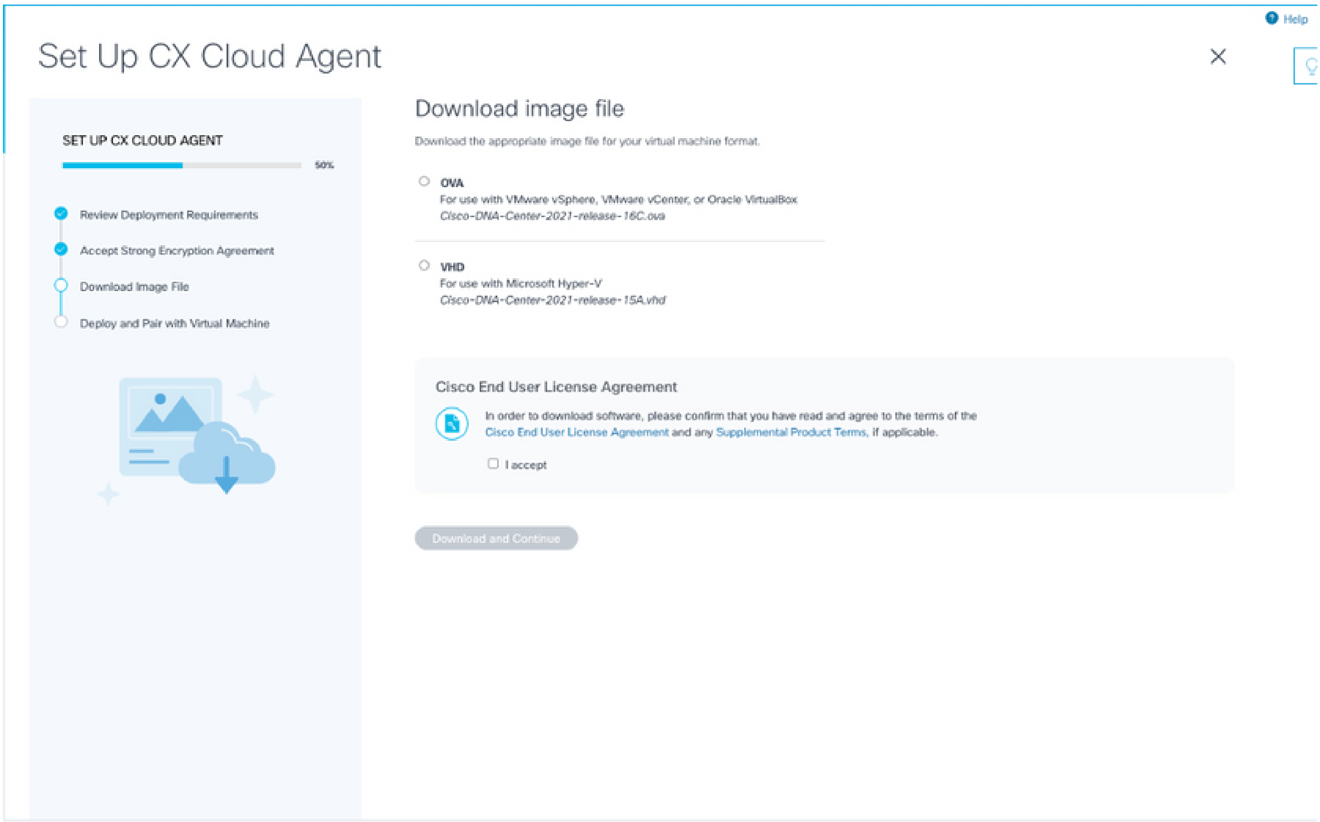
○ Yes ○ No

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

3. Verify the pre-populated information in the **First Name**, **Last Name**, **E-mail**, and **Cisco User Id** fields.
4. Select the appropriate **Business Division's Function**.
5. Select the **Confirmation** check box to agree to the usage conditions.
6. Click **Continue**. The Set Up CX Cloud Agent - **Download image file** window opens.



Help
Set Up CX Cloud Agent
×
SET UP CX CLOUD AGENT
50%
Review Deployment Requirements
Accept Strong Encryption Agreement
Download Image File
Deploy and Pair with Virtual Machine
Download and Continue

Download image file

Download the appropriate image file for your virtual machine format.

○ **OVA**
For use with VMware vSphere, VMware vCenter, or Oracle VirtualBox
Cisco-DNA-Center-2021-release-16C.ova

○ **VHD**
For use with Microsoft Hyper-V
Cisco-DNA-Center-2021-release-15A.vhd

Cisco End User License Agreement

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

□ I accept

Download Image

7. Select the appropriate file format to download the image file required for installation.
8. Select the **I accept** check box to agree to the Cisco End User License Agreement.
9. Click **Download and Continue**. The Set Up CX Cloud Agent - **Deploy and pair with your virtual machine** window opens.
10. Refer to [Network Configuration]() to obtain the pairing code required in the next section.

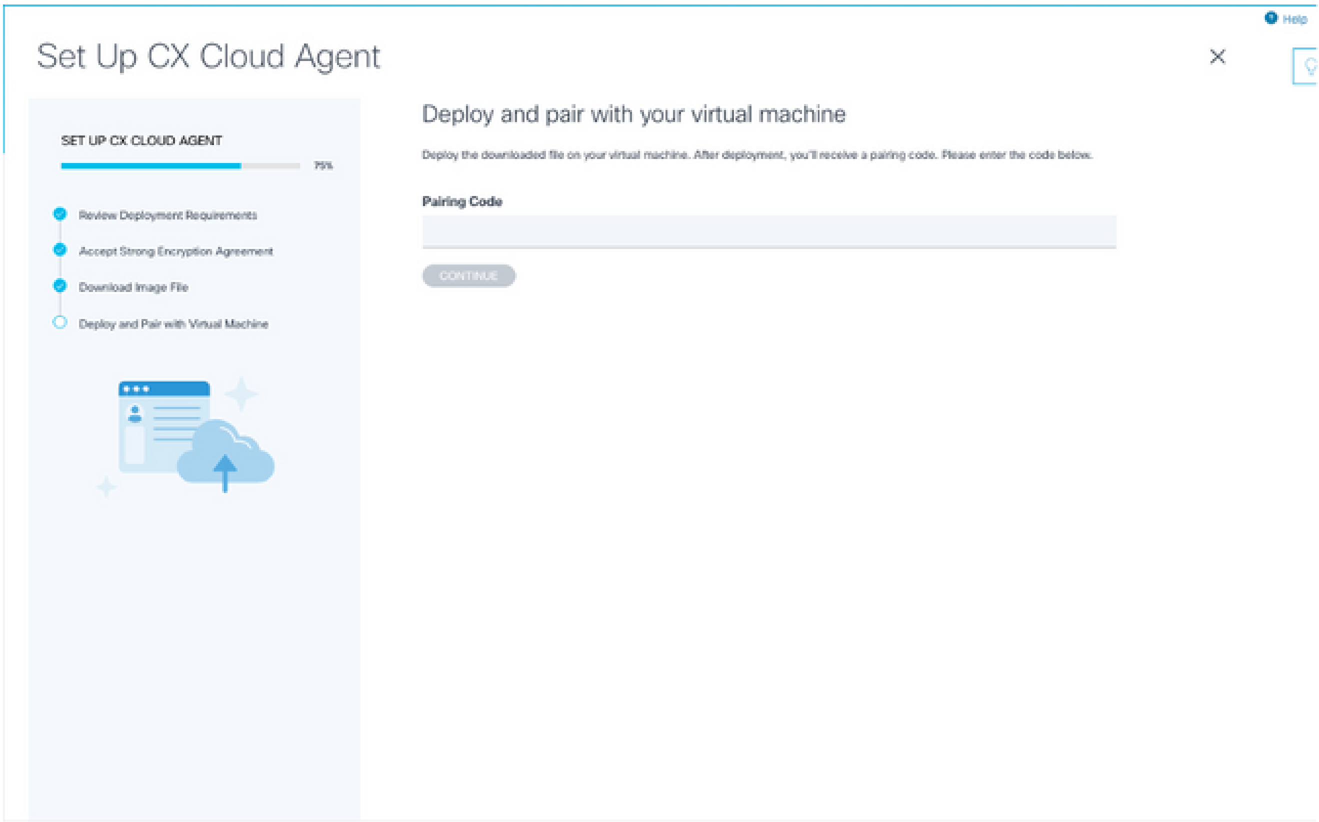
Connecting CX Cloud Agent to CX Cloud

Connecting CX Cloud Agent to CX Cloud is required for telemetry collection to begin so information in the UI can be updated to display the current assets and insights. This section provides details to complete the connection and troubleshooting guidelines.

To connect CX Cloud Agent to CX Cloud:

1. Enter the **Pairing Code** provided in the console dialog or Command Line Interface (CLI) of the Virtual Machine connected via Agent.

> **Note**: The pairing code is received after deployment of downloaded OVA file.



Set Up CX Cloud Agent

Deploy and pair with your virtual machine

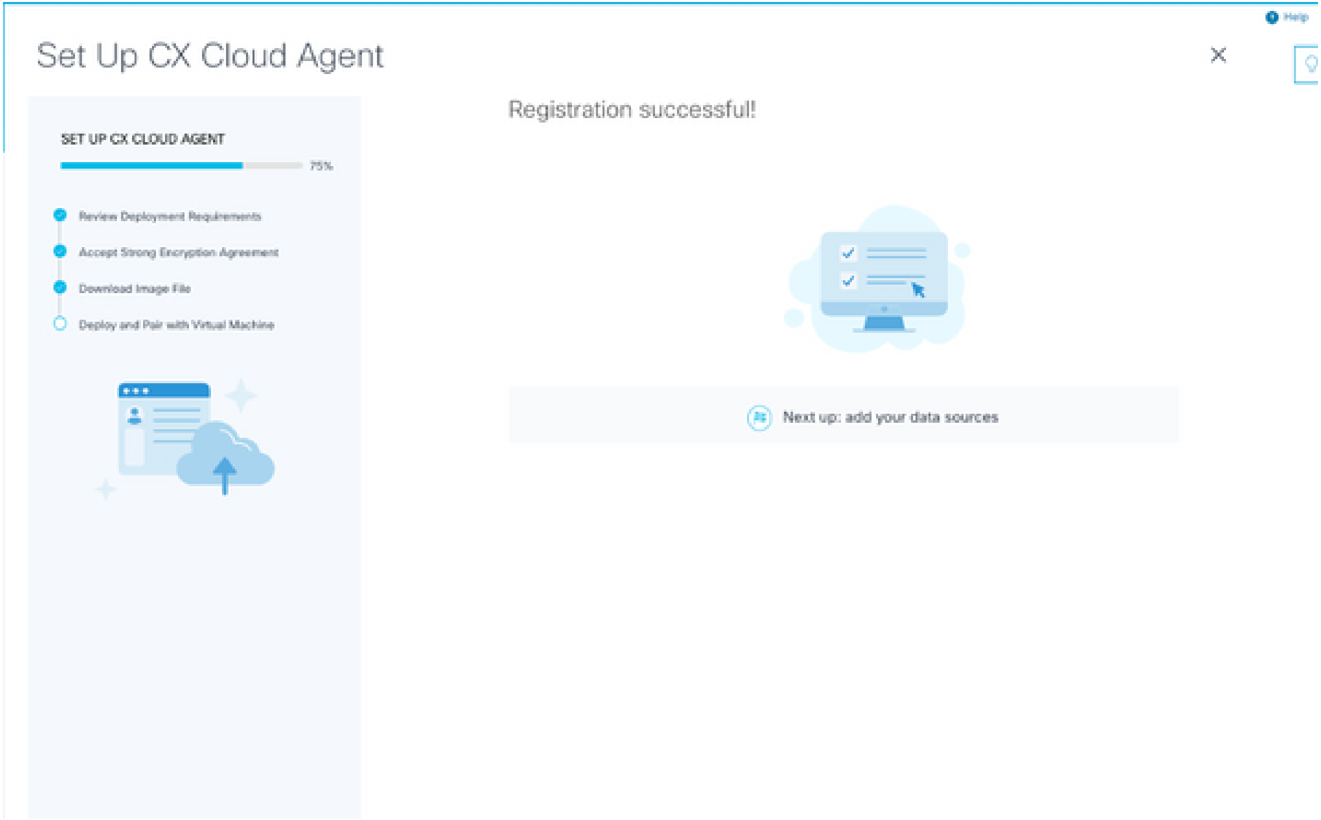
Deploy the downloaded file on your virtual machine. After deployment, you'll receive a pairing code. Please enter the code below.

Pairing Code

Help
SET UP CX CLOUD AGENT
75%
Review Deployment Requirements
Accept Strong Encryption Agreement
Download Image File
Deploy and Pair with Virtual Machine
CONTINUE

Pairing Code

2. Click **Continue** to register the CX Cloud Agent. The **Set Up CX Cloud Agent - Registration successful** window opens briefly before automatically navigating to the **Add Data Sources** page.



Set Up CX Cloud Agent

Registration successful!

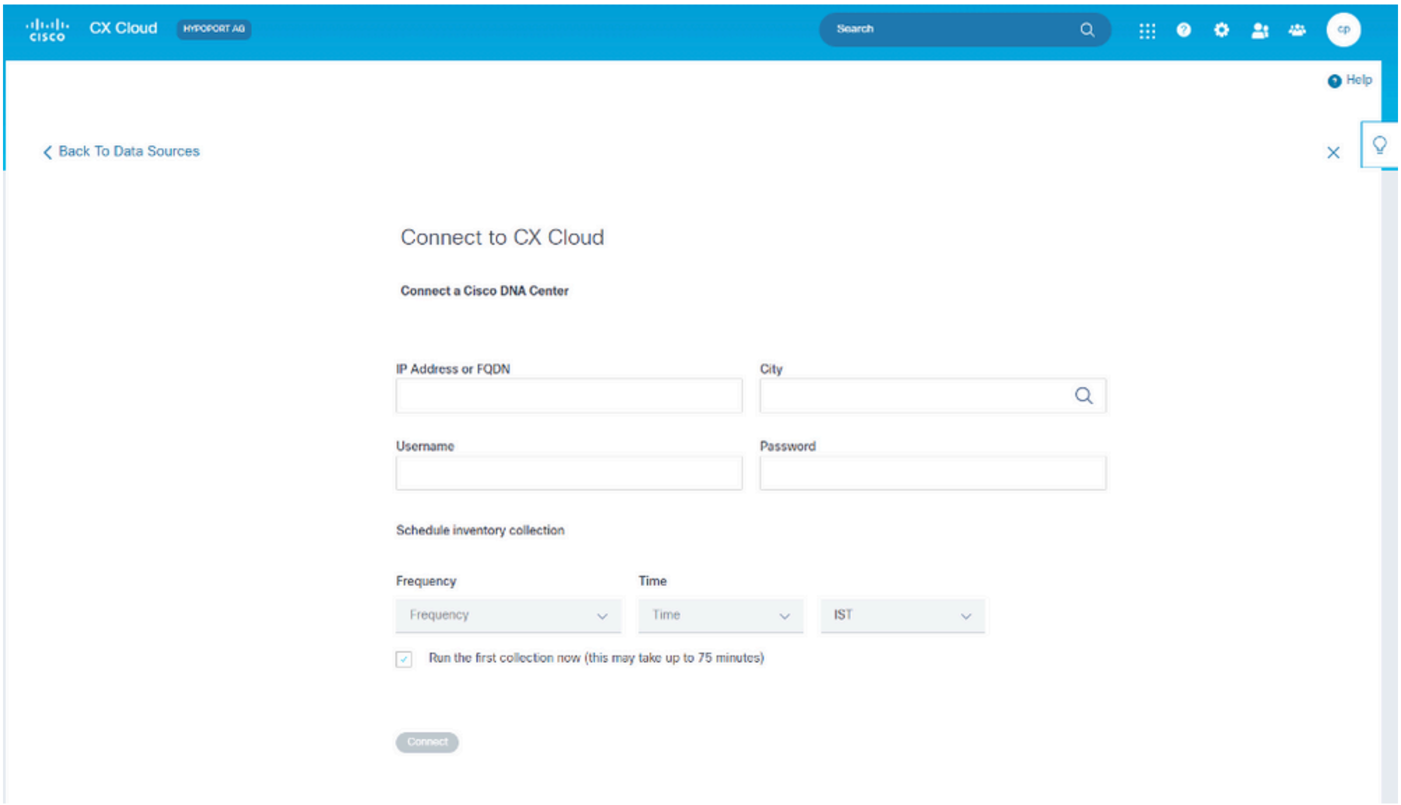
Next up: add your data sources

Help
SET UP CX CLOUD AGENT
75%
Review Deployment Requirements
Accept Strong Encryption Agreement
Download Image File
Deploy and Pair with Virtual Machine

Registration Successful

Adding Cisco DNA Center as a Data Source

When **Cisco DNA Center** is selected from the data sources connection window (refer to Connect Data Sources image in Connecting Data Sources section), this window opens:



Connect to CX Cloud

Connect a Cisco DNA Center

IP Address or FQDN

City

Username

Password

Schedule inventory collection

Frequency: Frequency

Time: Time, IST

☑ Run the first collection now (this may take up to 75 minutes)

Connect to CX Cloud

To add Cisco DNA Center as data source:

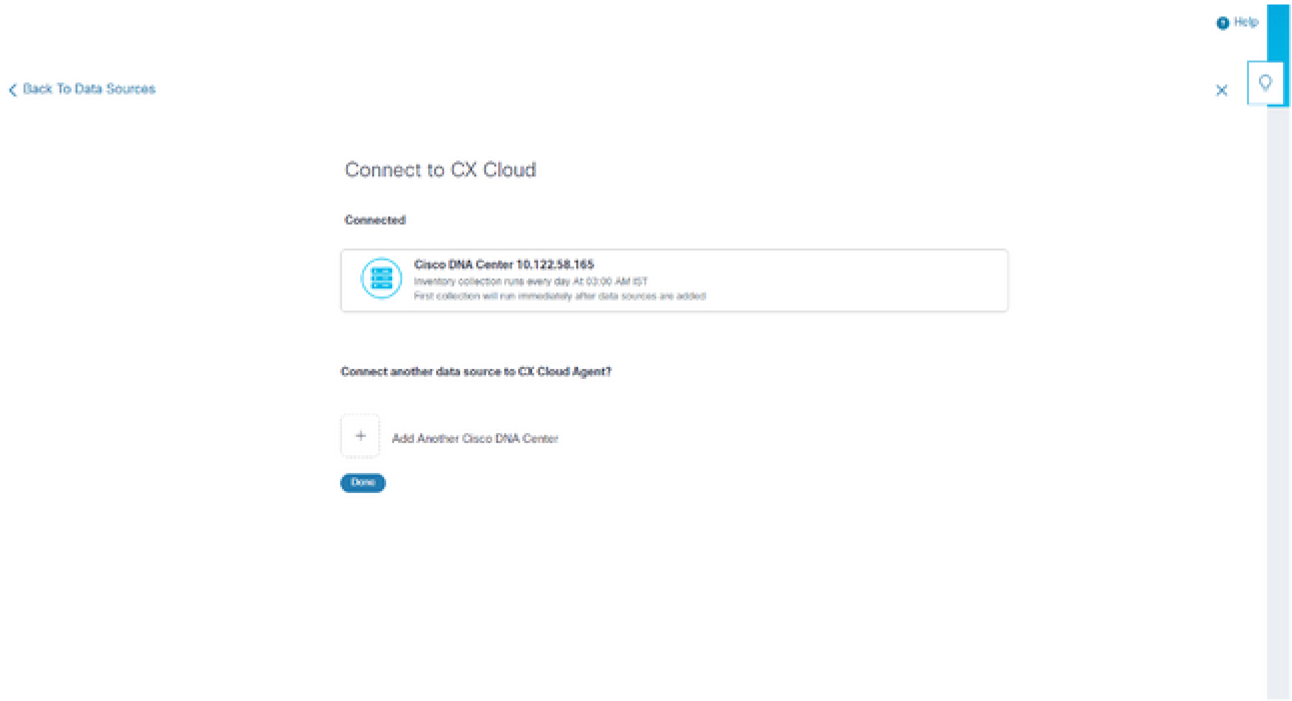
1. Enter the Cisco DNA Center IP Address or virtual **IP Address or FQDN**, **City** (location of Cisco DNA Center), **Username** and **Password**.

   Note: Do not use an individual cluster node IP.

2. Schedule an inventory collection by entering a **Frequency and Time** to indicate how often the CX Cloud Agent can perform network scans and update information on connected devices.

   Note: The first inventory collection can take up to 75 minutes.

3. Click **Connect**. A confirmation displays with the Cisco DNA Center IP address.



Connect to CX Cloud

Connected

Cisco DNA Center 10.122.58.165
Inventory collection runs every day At 03:00 AM IST
First collection will run immediately after data sources are added

Connect another data source to CX Cloud Agent?

Successfully Connected

4. Click **Add Another Cisco DNA Center**, **Done** or **Back to Data Sources** to navigate back to the **Data Sources** window.

Adding Other Assets as Data Sources

Overview

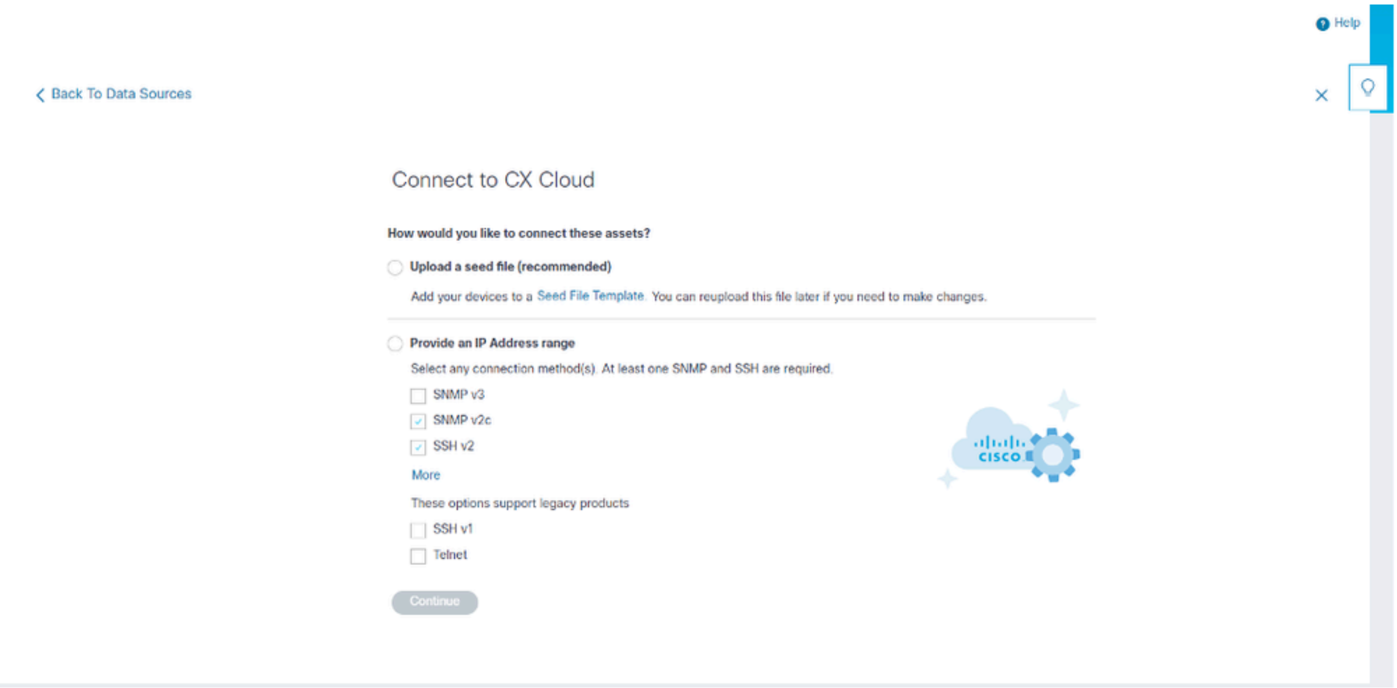
Telemetry collection has been extended to devices not managed by the Cisco DNA Center, enabling customers to view and interact with telemetry-derived insights and analytics for a broader range of devices. After the initial CX Cloud Agent setup, users have the option to configure CX Cloud Agent to connect to 20 additional Cisco DNA Centers within the infrastructure monitored by CX Cloud. Users can also connect CX Cloud Agent directly to other hardware assets in their environment, up to 10,000 directly connected devices.

Users can identify devices to incorporate into CX Cloud by uniquely identifying such devices using a seed file or by specifying an IP range, which can be scanned by CX Cloud Agent. Both approaches rely on Simple Network Management Protocol (SNMP) for the purpose of discovery (SNMP) and on Secure Shell (SSH) for connectivity. These must be properly configured to enable successful telemetry collection.

Note:
Either the seed file or IP range can be used. It is not possible to change this selection after the initial set-up.

Note:
An initial seed file can be replaced with another seed file while an initial IP range can be edited to a new IP range.

When **Other Assets** is selected from the data sources connection window, this window opens:



Connect to CX Cloud

How would you like to connect these assets?

○ Upload a seed file (recommended)

Add your devices to a Seed File Template. You can reupload this file later if you need to make changes.

○ Provide an IP Address range

Select any connection method(s). At least one SNMP and SSH are required.

□ SNMP v3
☑ SNMP v2c
☑ SSH v2

More

These options support legacy products

□ SSH v1
□ Telnet

Configure Connection to CX Cloud

To add other assets as data sources:

- Upload a seed file using a seed file template.
- Provide an IP address range.

Discovery Protocols

Both seed file-based direct device discovery and IP range-based discovery rely on SNMP as the discovery protocol. Different versions of SNMP exist, but CX Cloud Agent supports SNMPV2c and SNMP V3 and either or both versions can be configured. The same information, described next in complete detail, must be provided by the user to complete configuration and to enable connectivity between the SNMP-managed device and SNMP service manager.

SNMPV2c and SNMPV3 differ in terms of security and remote configuration model. SNMPV3 uses an enhanced cryptographic security system supporting SHA encryption to authenticate messages and ensure their privacy. It is recommended that SNMPv3 be used on all public and internet-facing networks to protect against security risks and threats. On CX Cloud, it is preferred that SNMPv3 be configured and not SNMPv2c, except for older legacy devices that lack built-in support for SNMPv3. If both versions of SNMP are configured by the user, CX Cloud Agent can, by default, attempt to communicate with each respective device using SNMPv3 and revert to SNMPv2c if the communication cannot be successfully negotiated.

Connectivity Protocols

As part of the direct device connectivity setup, users must specify details of the device connectivity protocol: SSH (or, alternatively, telnet). SSHv2 can be used, except in the cases of individual legacy assets which lack the appropriate built-in support. Be aware that SSHv1 protocol contains fundamental vulnerabilities. Absent additional security, telemetry data and the underlying assets can be compromised due to these vulnerabilities when relying on SSHv1. Telnet is also insecure. Credential information (usernames and passwords) submitted through telnet are not encrypted and therefore vulnerable to compromise, absent additional security.

Add Devices Using a Seed File

About Seed File

A seed file is a comma-separated values (csv) file where each line represents a system data record. In a seed file, every seed file record corresponds to a unique device from which telemetry can be collected by CX Cloud Agent. All error or information messages for each device entry from the seed file being imported are captured as part of job log details. All devices in a seed file are considered managed devices, even if the devices are unreachable at the time of initial configuration. In the event a new seed file is being uploaded to replace a previous one, the date of last upload is displayed in CX Cloud.

CX Cloud Agent can attempt to connect to the devices but cannot be able to process each one to show in the Assets pages in cases where it is not able to determine the PIDs or Serial Numbers.Any row in the seed file that starts with a semicolon is ignored. The header row in the seed file starts with a semicolon and can be kept as is (recommended option) or deleted while creating the customer seed file.

It is important that the format of the sample seed file, including column headers, not be altered in any way. Click the link provided to view a seed file in PDF format. This PDF is for reference only and can be used to create a seed file that needs to be saved in .csv format.

Click this link to view a seed file that can be used to create a seed file in .csv format.

Note: This PDF is for reference only and can be used to create a seed file that needs to be saved in .csv format.

This table identifies all necessary seed file columns and the data that must be included in each column.

Seed File Column	**Column Header / Identifier**	**Purpose of the Column**
A	IP Address or hostname	Provide a valid, unique IP Address or hostname of the device.
B	SNMP protocol version	The SNMP protocol is required by CX Cloud Agent and is used for device discovery within the customer network. Values can be snmpv2c or snmpv3, but snmpv3 is recommended due to security considerations.
C	snmpRo : Mandatory if col#=3 selected as 'snmpv2c'	If the legacy variant of SNMPv2 is selected for a specific device, then snmpRO (read only) credentials for the device SNMP collection must be specified. Otherwise, entry can be blank.
D	snmpv3UserName : Mandatory if col#=3 selected as 'snmpv3'	If SNMPv3 is selected to communicate with a specific device, then the respective login username must be provided.
E	snmpv3AuthAlgorithm : values can be MD5 or SHA	SNMPv3 protocol permits Authentication via either the MD5 or SHA Algorithm. If the device is configured with secure Authentication, then the

Seed File Column	**Column Header / Identifier**	**Purpose of the Column**
		respective Auth Algorithm must be provided. **Note**: MD5 is considered insecure, and SHA can be used on all devices that support it.
F	snmpv3AuthPassword : password	If either a MD5 or a SHA cryptographic algorithm is configured on the device, then the relevant Authentication password needs to be provided for device access.
G	snmpv3PrivAlgorithm : values can be DES , 3DES	If the device is configured with the SNMPv3 privacy algorithm (this algorithm is used to encrypt the response), then the respective Algorithm needs to be provided. **Note**: 56-bit keys used by DES are

Seed File Column	Column Header / Identifier	Purpose of the Column
		considered too short to provide cryptographic security, and that 3DES can be used on all devices that support it.
H	snmpv3PrivPassword : password	If the SNMPv3 privacy algorithm is configured on the device, then its respective privacy password needs to be provided for device connection.
I	snmpv3EngineId : engineID, unique ID representing device, specify engine ID if manually configured on device	The SNMPv3 EngineID is a unique ID representing each device. This engine ID is sent as a reference while collecting the SNMP datasets by CX Cloud Agent. If the customer configures the EngineID manually, then the respective EngineID needs to be provided.
J	cliProtocol: values can be 'telnet', 'sshv1', 'sshv2'. If empty can set to 'sshv2' by default	The CLI is intended to interact with the device directly. CX Cloud Agent uses this protocol for CLI collection for a specific device. This CLI collection data is used for Assets and other Insights Reporting within CX Cloud. SSHv2 is recommended; absent other network security measures, in themselves SSHv1 and Telnet protocols do not provide adequate transport security.
K	cliPort : CLI protocol port number	If any CLI Protocol is selected, its respective port number needs to be provided. For example, 22 for SSH and 23 for telnet.
L	cliUser : CLI User name (either CLI username/password or BOTH can be provided, BUT both columns (col#=12 and col#=13) cannot be empty.)	The respective CLI username of the device needs to be provided. This is used by CX Cloud Agent at the time of connecting to the device during CLI collection.
M	cliPassword : CLI user password (either CLI username/password or BOTH can be provided, BUT both columns (col#=12 and col#=13) cannot be empty.)	The respective CLI password of the device needs to be provided. This is used by CX Cloud Agent at the time of connecting to the device during CLI collection.

Seed File Column	Column Header / Identifier	Purpose of the Column
N	cliEnableUser	If enable is configured on the device, then the device’s enableUsername value needs to be provided.
O	cliEnablePassword	If enable is configured on the device, then the device’s enablePassword value needs to be provided.
P	Future Support (No Inputs required)	Reserved for Future Use
Q	Future Support (No Inputs required)	Reserved for Future Use
R	Future Support (No Inputs required)	Reserved for Future Use
S	Future Support (No Inputs required)	Reserved for Future Use

Telemetry Processing Limitations for Devices

These are limitations when processing telemetry data for devices:

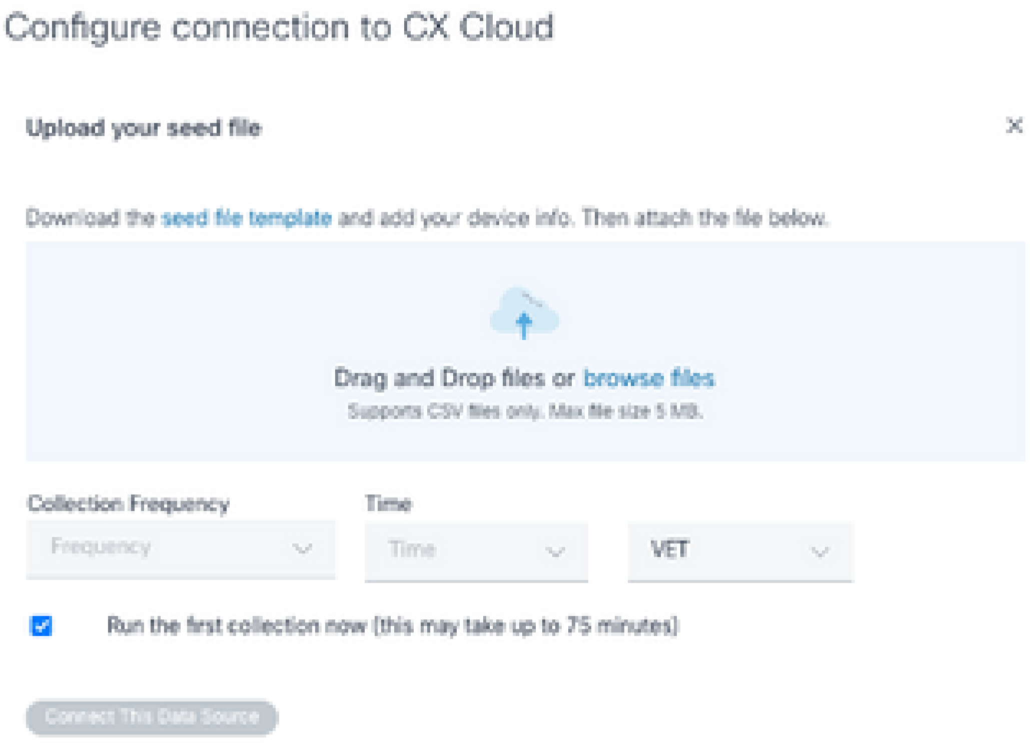
- Some devices can show as reachable in the Collection Summary but are not visible in the CX Cloud Assets page. Device instrumentation limitations prevent the processing of such device telemetry.
- Telemetry attributes can be inaccurate or missing in the CX Cloud Assets page for devices that are not part of the Campus Success Track.
- If a device from the seed file or IP range collections is also part of the Cisco DNA Center inventory, the device is reported only once for the Cisco DNA Center entry. The seed file/ IP range entry is not collected or processed to avoid duplication.

Add Devices Using a New Seed File

To add devices using a new seed file:

1. Download the seed file template (PDF) using the embedded link in this document (refer to About the Seed File) or through a link in the Configure Connection to CX Cloud window.

   Note: The link in the Configure Connection to CX Cloud window is no longer available once the initial seed file has been downloaded.



Configure connection to CX Cloud

Upload your seed file

Download the seed file template and add your device info. Then attach the file below.

Drag and Drop files or browse files

Supports CSV files only. Max file size 5 MB.

Collection Frequency: Frequency

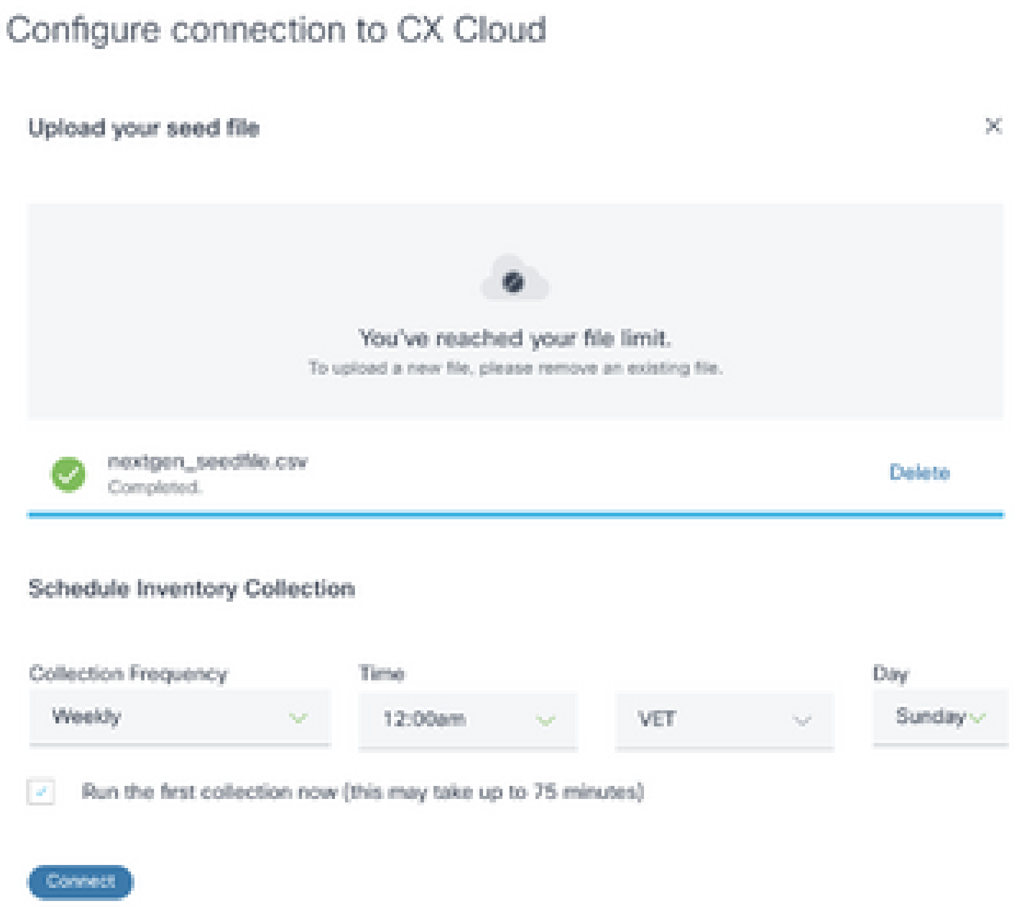
Time: Time

VET

☑ Run the first collection now (this may take up to 75 minutes)

Configure Connect to CX Cloud Window

2. Open an Excel spreadsheet (or any preferred spreadsheet) and enter the headings as shown in the template.
3. Enter data manually or import data into the file.
4. Once complete, save the template as a .csv file to import the file into CX Cloud Agent.



Configure connection to CX Cloud

Upload your seed file

You've reached your file limit.
To upload a new file, please remove an existing file.

nextgen_seedfile.csv
Completed.
Delete

Schedule Inventory Collection

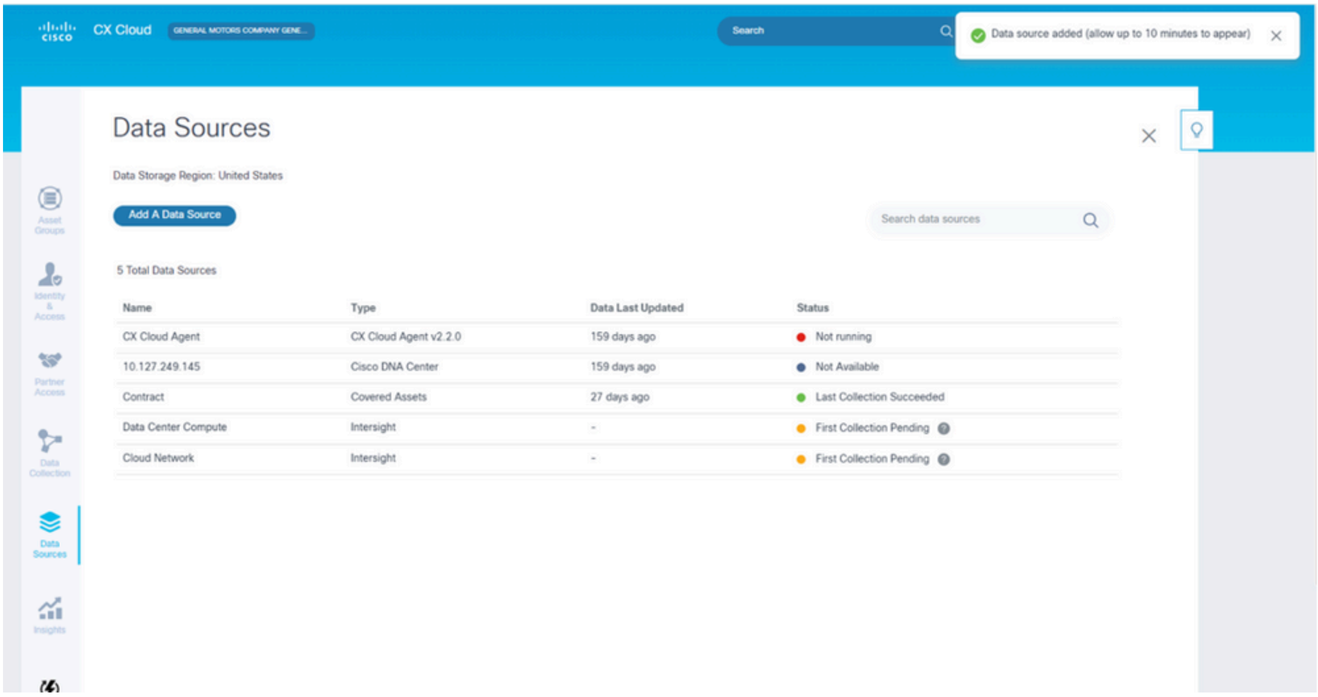
Collection Frequency	Time		Day
Weekly	12:00am	VET	Sunday

☑ Run the first collection now (this may take up to 75 minutes)

Connect

Upload Seed File Window

5. In the **Upload your seed** file window, drag-and-drop the newly created .csv file or click **browse** files and navigate to the **.csv file**.
6. Complete the **Schedule Inventory Collection** section and click **Connect**. The Data Sources window opens, displaying a confirmation message.
7. Before initial configuration of CX Cloud is completed, CX Cloud Agent must perform the first telemetry collection by processing the seed file and establishing connection with all identified devices. Collection can be initiated on-demand or run according to a schedule defined here. Users can perform the first telemetry connection by selecting the **Run the first collection now** check box. Depending on the number of entries specified in the seed file and other factors, this process can take a considerable amount of time.



Data source added (allow up to 10 minutes to appear)

Data Sources

Data Storage Region: United States

Add A Data Source

Search data sources

5 Total Data Sources

Name	Type	Data Last Updated	Status
CX Cloud Agent	CX Cloud Agent v2.2.0	159 days ago	🟥 Not running
10.127.249.145	Cisco DNA Center	159 days ago	● Not Available
Contract	Covered Assets	27 days ago	🟩 Last Collection Succeeded
Data Center Compute	Intersight	-	● First Collection Pending
Cloud Network	Intersight	-	● First Collection Pending

Confirmation Message

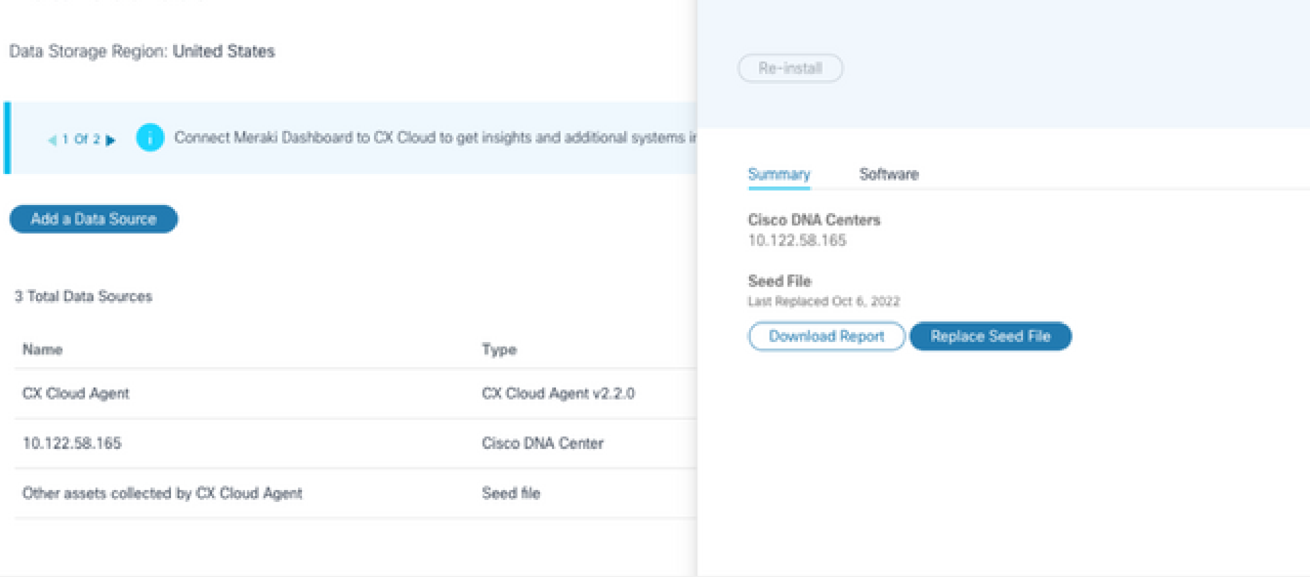
Add Devices Using a Modified Seed File

To add, modify, or delete devices using the current seed file:

1. **Open** the previously created seed file, make required changes, and **save** the file.

> **Note**: To add assets to the seed file, append those assets to the previously created seed file and reload the file. This is necessary since uploading a new seed file replaces the current seed file. Only the latest uploaded seed file is used for discovery and collection.

2. From the **Data Sources** page, select a **data source** that has a Type of CX Cloud Agent. A details window opens with **Summary** and **Software** tabs.



Data Storage Region: United States

1 Of 2 Connect Meraki Dashboard to CX Cloud to get insights and additional systems i

3 Total Data Sources

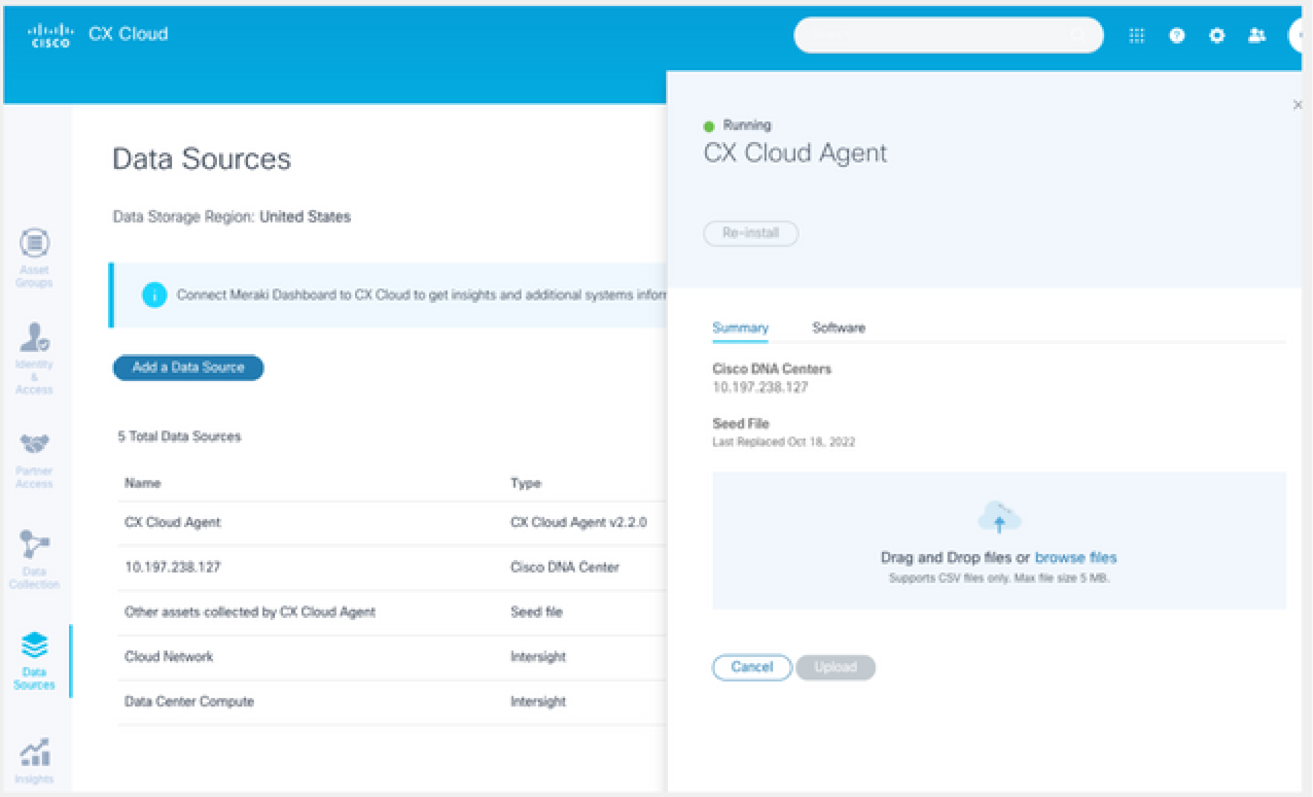
Name	Type
CX Cloud Agent	CX Cloud Agent v2.2.0
10.122.58.165	Cisco DNA Center
Other assets collected by CX Cloud Agent	Seed file

Cisco DNA Centers
10.122.58.165

Seed File
Last Replaced Oct 6, 2022

Details Window

3. Click **Download Report** to generate a report on all assets for the selected data source. The report provides information on the device IP Address, Serial Number, Reachability, Command Type, Command Status, and Command Error, if applicable.
4. Click **Replace Seed File**. The CX Cloud Agent window opens.



Data Sources

Data Storage Region: United States

Connect Meraki Dashboard to CX Cloud to get insights and additional systems infor

5 Total Data Sources

Name	Type
CX Cloud Agent	CX Cloud Agent v2.2.0
10.197.238.127	Cisco DNA Center
Other assets collected by CX Cloud Agent	Seed file
Cloud Network	Intersight
Data Center Compute	Intersight

CX Cloud Agent

Cisco DNA Centers
10.197.238.127

Seed File
Last Replaced Oct 18, 2022

Drag and Drop files or browse files
Supports CSV files only. Max file size 5 MB.

CX Cloud Agent Window

5. Drag and drop the modified seed file into the window or browse to the file and add it in the window.
6. Click **Upload**.

Add Devices Using IP Ranges

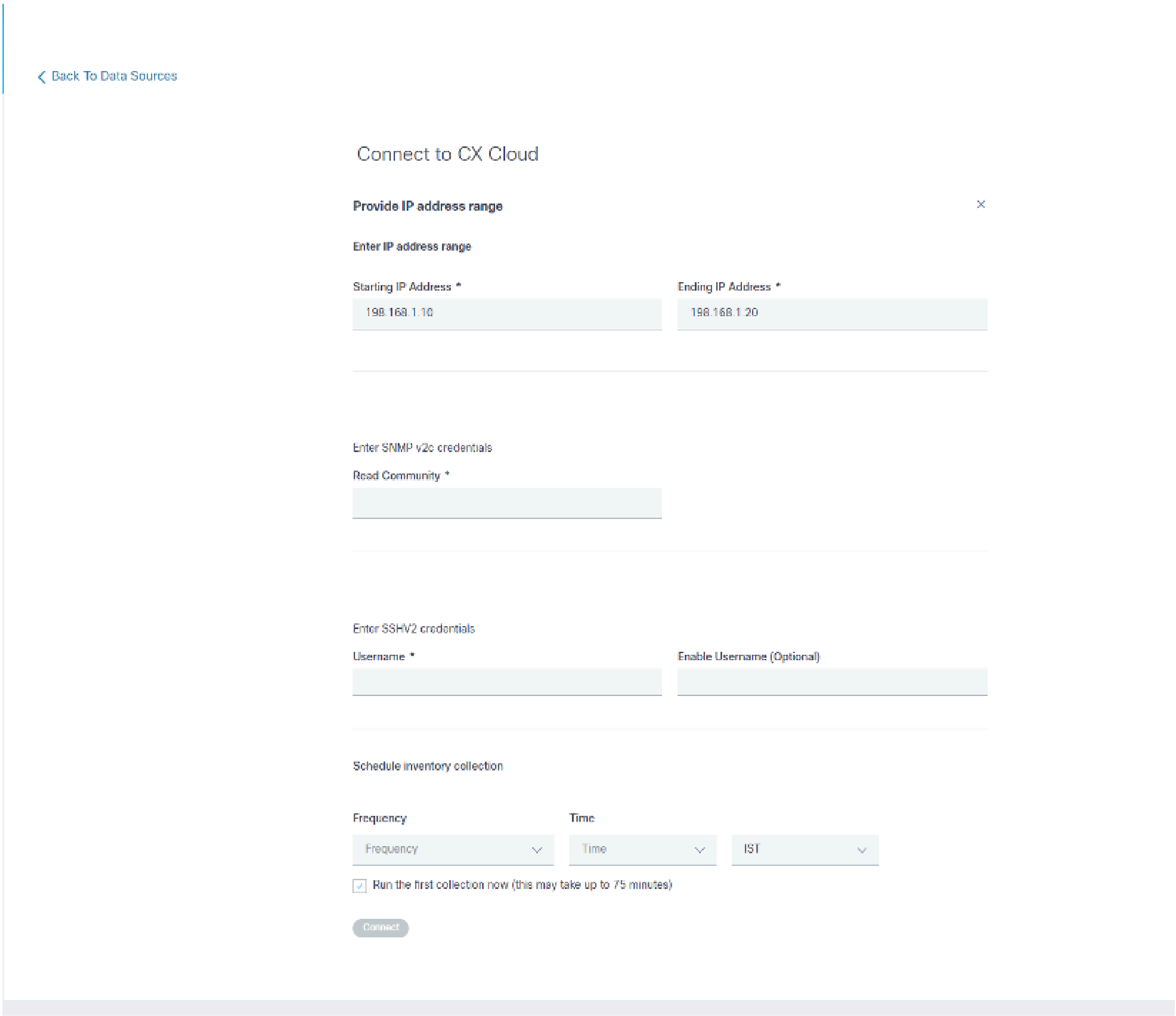
IP ranges allow users to identify hardware assets and, subsequently, collect telemetry from those devices based on IP addresses. The devices for telemetry collection can be uniquely identified by specifying a single network-level IP range, which can be scanned by CX Cloud Agent using the SNMP protocol. If the IP range is chosen to identify a directly connected device, the IP addresses that are referenced can be as restrictive as possible, while allowing coverage for all required assets.

- Specific IPs can be provided, or wildcards can be used to replace octets of an IP to create a range.
- If a specific IP address is not included in the IP range identified during setup, CX Cloud Agent does not attempt to communicate with a device that has such an IP address, nor does it collect telemetry from such a device.
- Entering *.*.*.* allows CX Cloud Agent to use the user-supplied credential with any IP. For example: 172.16.*.* allows the credentials to be used for all devices in the 172.16.0.0/16 subnet.
- If there are any changes to the network or Installed Base (IB), the IP range can be modified. Refer to section Editing IP Ranges

CX Cloud Agent can attempt to connect to the devices but is not able to process each one to show in the **Assets** view in cases where it is not able to determine the PIDs or Serial Numbers.

Notes:

Clicking **Edit IP Address Range** initiates on-demand device discovery. When any new device is added or deleted (within or outside) to a specified IP-range, customer must always click **Edit IP Address Range** (refer to section Editing IP Ranges) and complete the steps required for initiating the on-demand device discovery to include any newly added device to the CX Cloud Agent collection inventory.



< Back To Data Sources

Connect to CX Cloud

Provide IP address range

Enter IP address range

Starting IP Address *: 198.168.1.10

Ending IP Address *: 198.168.1.20

Enter SNMP v2c credentials

Read Community *

Enter SSHV2 credentials

Username *

Enable Username (Optional)

Schedule inventory collection

Frequency: Frequency

Time: Time, IST

☑ Run the first collection now (this may take up to 75 minutes)

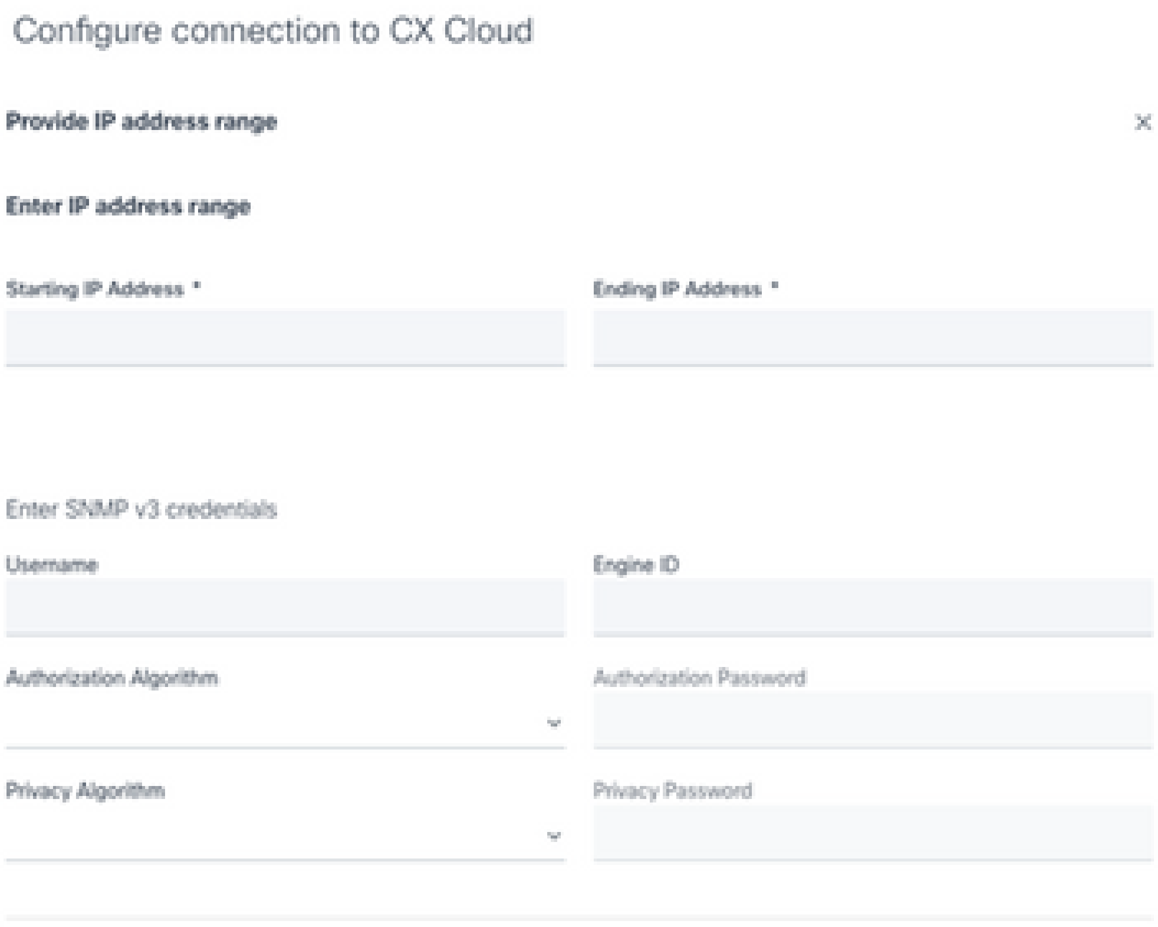
Initial IP Address Range Window

Adding devices using an IP range requires users to specify all applicable credentials through the configuration UI. The fields visible vary depending on the protocols selected on the previous windows. If multiple selections are made for the same protocol, for example, selecting both SNMPv2c and SNMPv3 or selecting both SSHv2 and SSHv1, CX Cloud Agent automatically auto-negotiates the protocol selection based on the individual device capabilities.

When connecting devices using IP addresses, customer can ensure all relevant protocols in the IP range along with SSH versions and Telnet credentials are valid or the connections can fail.

To add devices using the IP range:

1. In the **Configure connection to CX Cloud** window, select the **Provide an IP Address range** option.



Configure connection to CX Cloud

Provide IP address range

Enter IP address range

Starting IP Address *

Ending IP Address *

Enter SNMP v3 credentials

Username

Engine ID

Authorization Algorithm

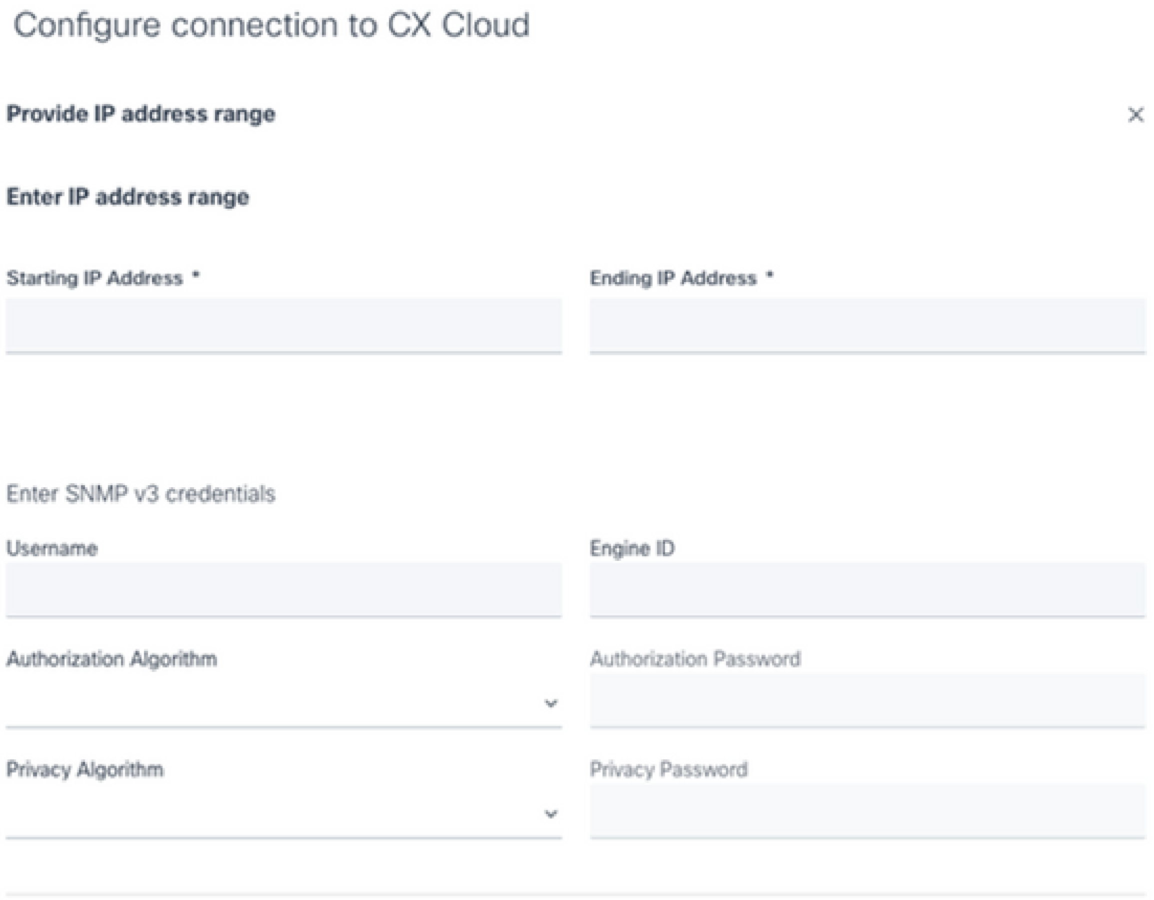
Authorization Password

Privacy Algorithm

Privacy Password

Add Devices Using IP Addresses Form

2. Complete the form with the relevant information.
3. Several connection options can be selected. These screens display the configuration credentials for the options. Refer to About the Seed File for a description of the credential fields for each connection option.



Configure connection to CX Cloud

Provide IP address range

Enter IP address range

Starting IP Address *

Ending IP Address *

Enter SNMP v3 credentials

Username

Engine ID

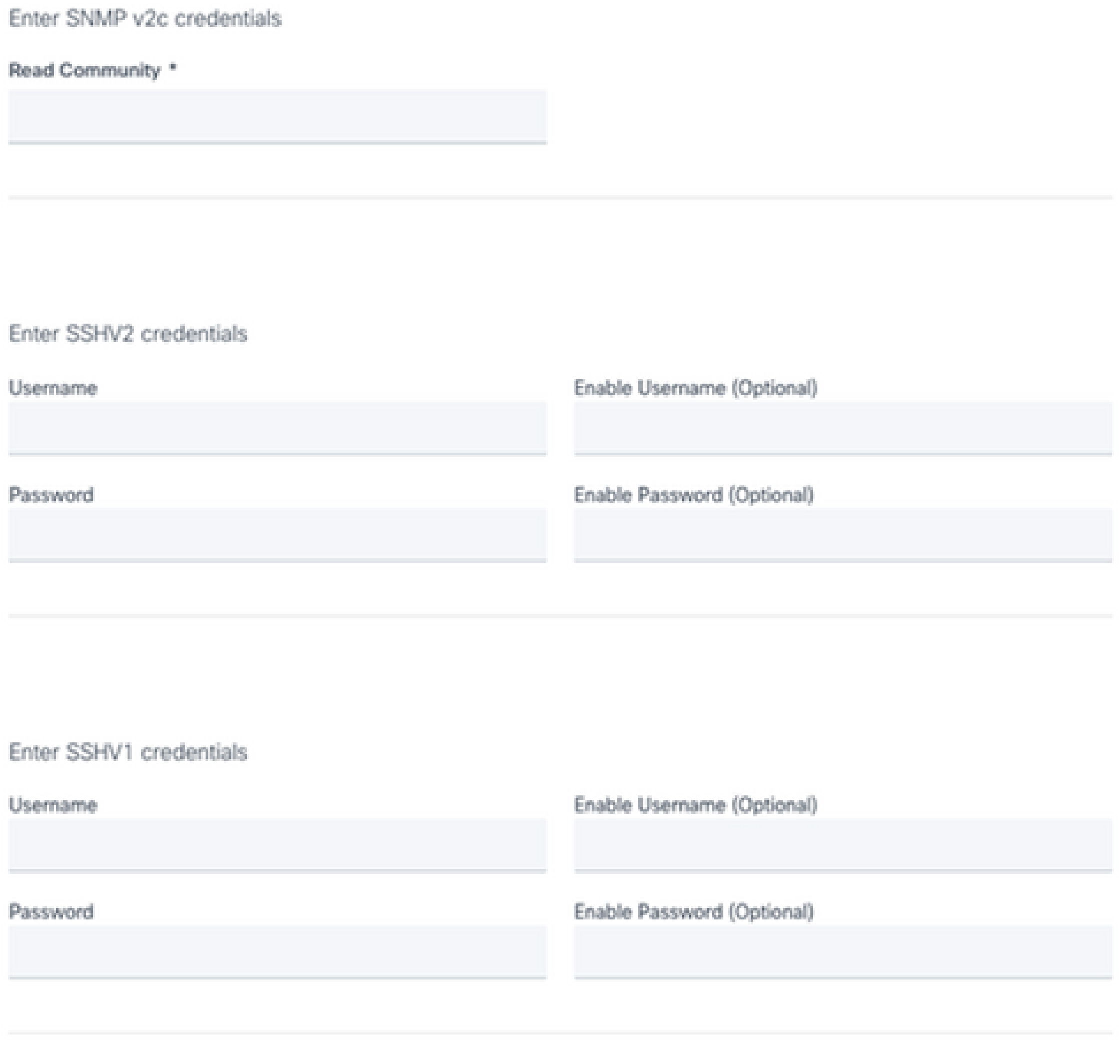
Authorization Algorithm

Authorization Password

Privacy Algorithm

Privacy Password

SNMP v3 Credentials



Enter SNMP v2c credentials

Read Community *

Enter SSHV2 credentials

Username

Enable Username (Optional)

Password

Enable Password (Optional)

Enter SSHV1 credentials

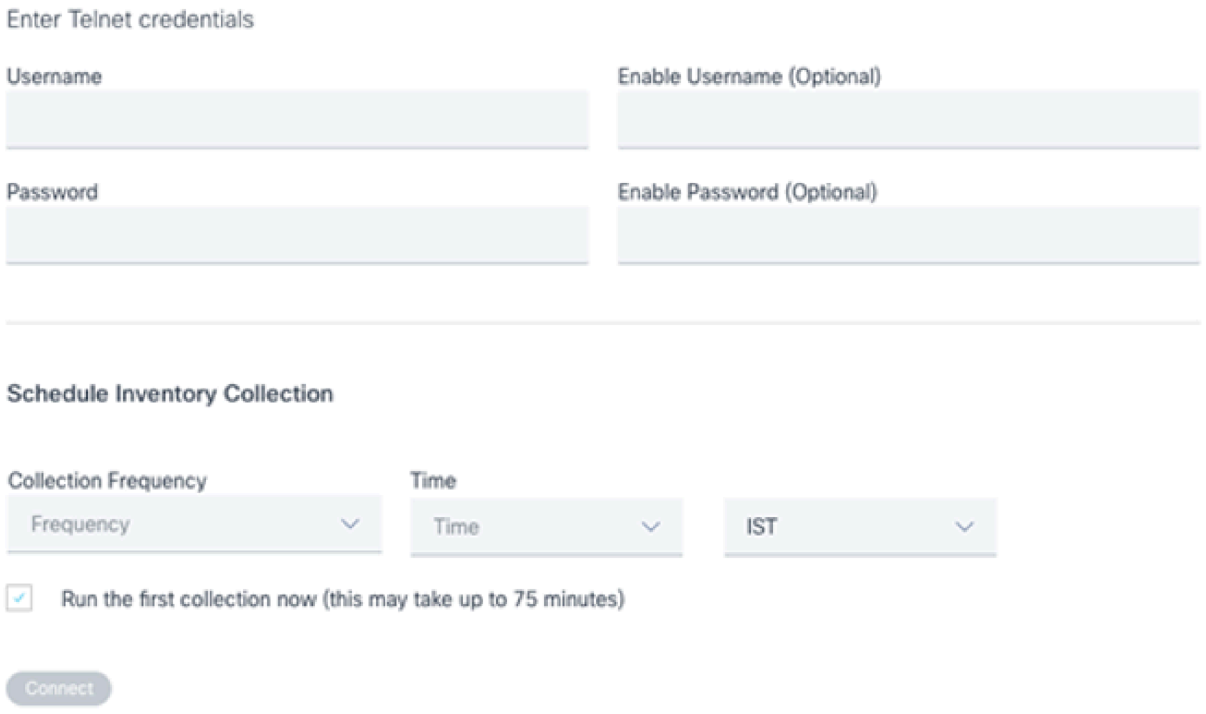
Username

Enable Username (Optional)

Password

Enable Password (Optional)

SNMP v2, SSHV2, and SSHV1 Credentials



Enter Telnet credentials

Username	Enable Username (Optional)
Password	Enable Password (Optional)

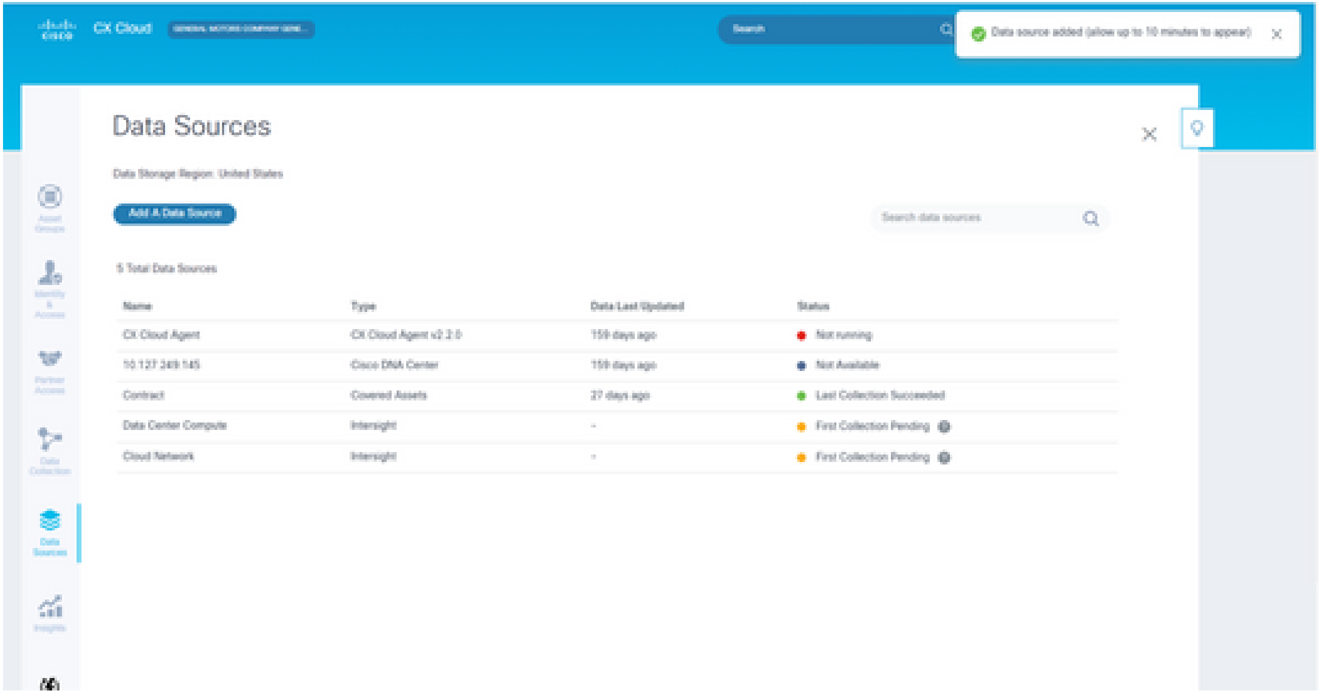
Schedule Inventory Collection

Collection Frequency	Time	
Frequency	Time	IST

☑ Run the first collection now (this may take up to 75 minutes)

Telnet Credentials and Network Scan Scheduling

4. Click **Connect**. The Data Sources window opens, displaying a confirmation message.



Data source added (allow up to 10 minutes to appear)

Data Sources

Data Storage Region: United States

5 Total Data Sources

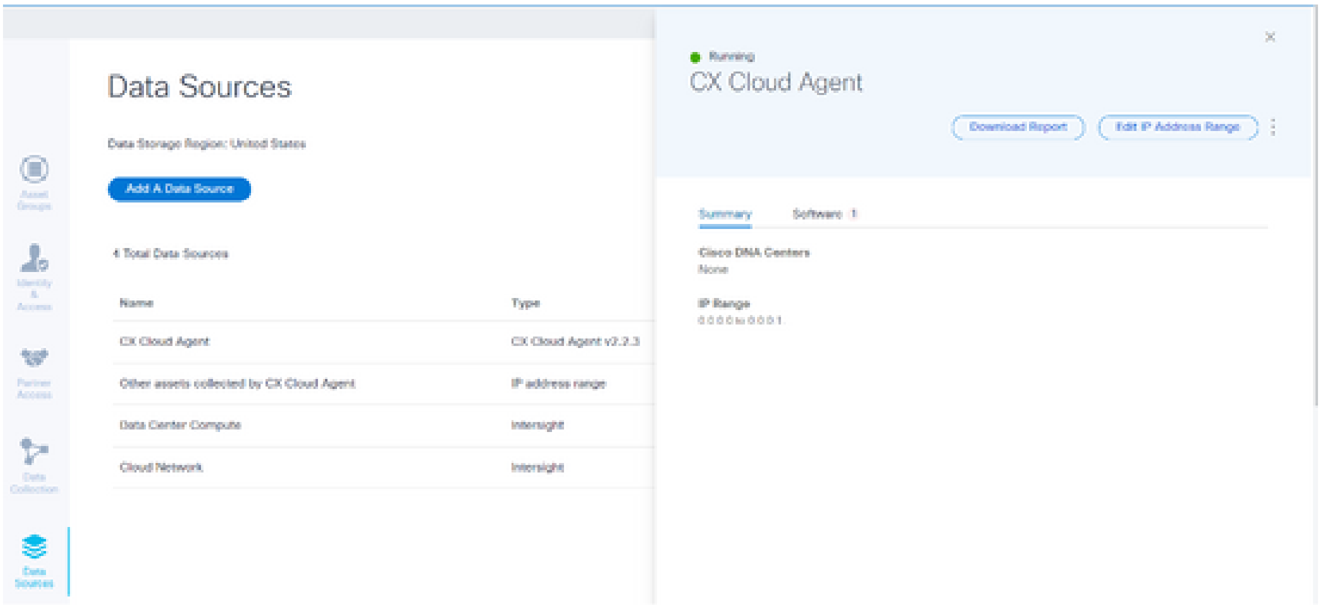
Name	Type	Data Last Updated	Status
CX Cloud Agent	CX Cloud Agent v2.2.0	159 days ago	● Not running
10.127.249.145	Cisco DNA Center	159 days ago	● Not Available
Contract	Covered Assets	27 days ago	● Last Collection Succeeded
Data Center Compute	Intersight	-	● First Collection Pending
Cloud Network	Intersight	-	● First Collection Pending

Confirmation

Editing IP Ranges

To edit an IP range;

1. Navigate to the **Data Sources** window.



Data Sources

Data Storage Region: United States

4 Total Data Sources

Name	Type
CX Cloud Agent	CX Cloud Agent v2.2.3
Other assets collected by CX Cloud Agent	IP address range
Data Center Compute	Intersight
Cloud Network	Intersight

Running

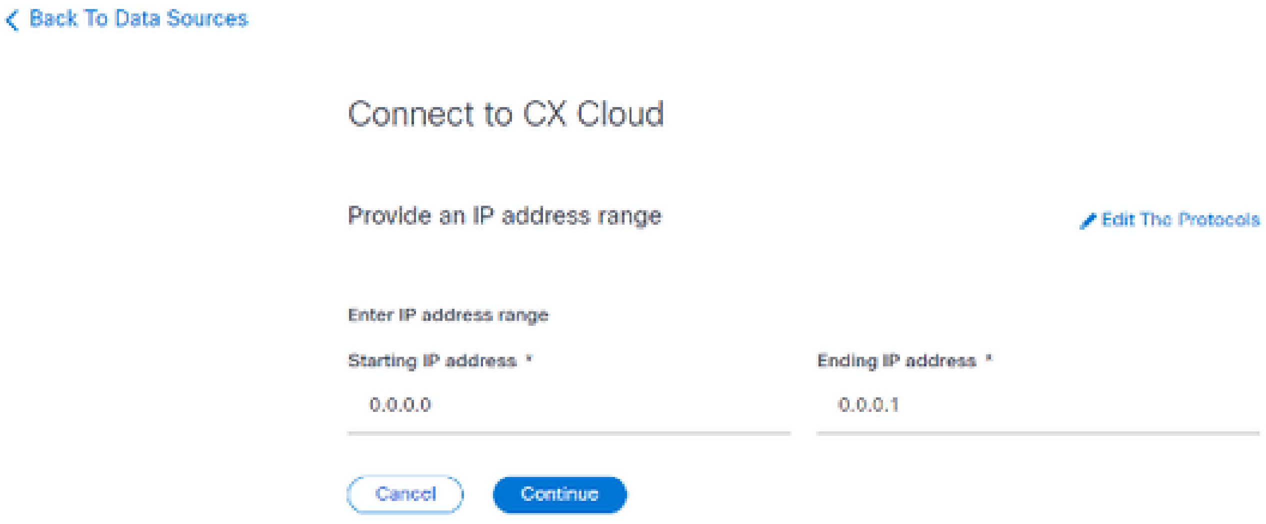
CX Cloud Agent

Cisco DNA Centers
None

IP Range
0.0.0.0 to 0.0.0.1

Data Sources

2. Click the **CX Cloud Agent** that requires IP range edit in Data Sources. The details window opens.
3. Click **Edit IP Address Range**. The Connect to CX Cloud window opens.



Connect to CX Cloud

Provide an IP address range

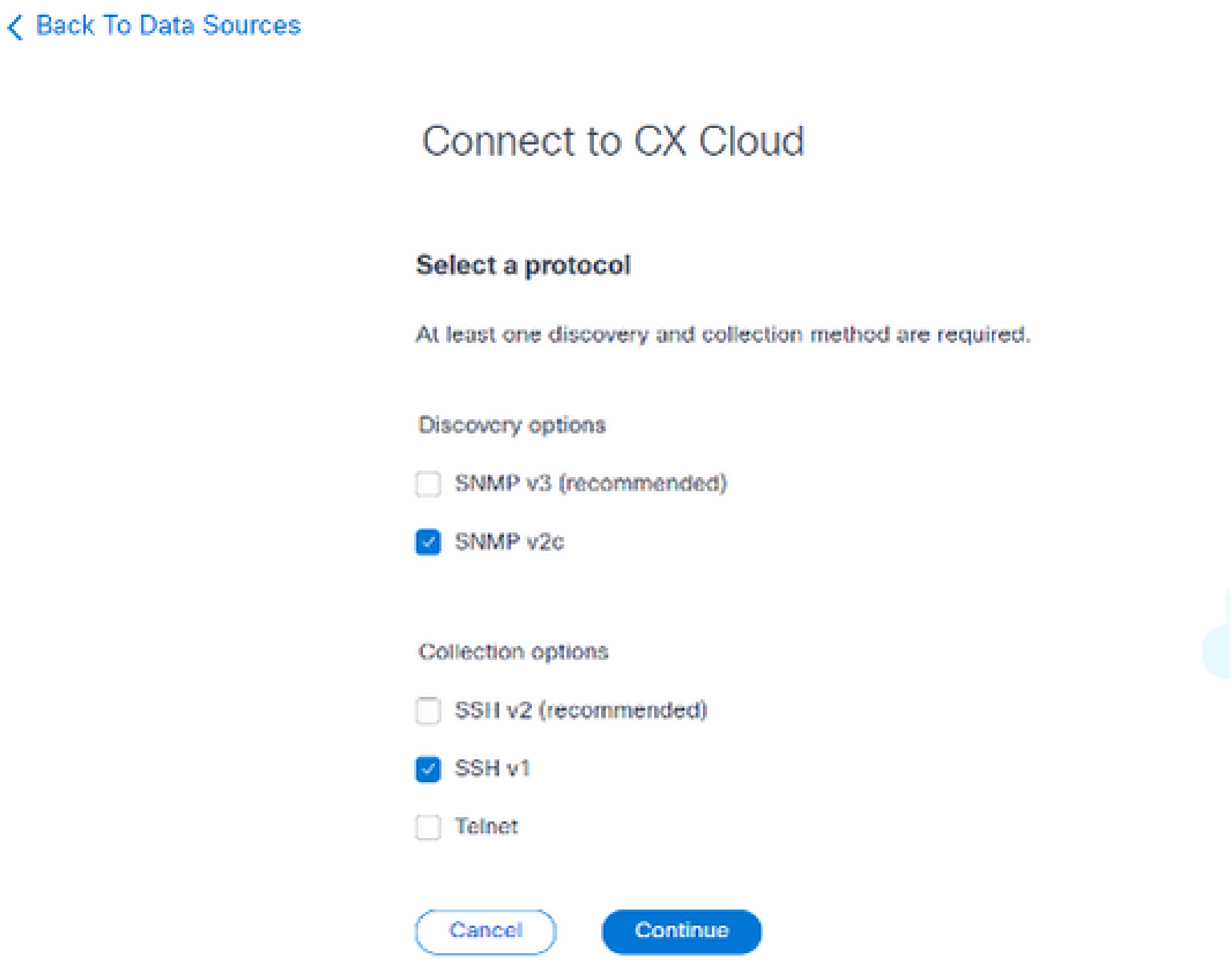
Enter IP address range

Starting IP address *
0.0.0.0

Ending IP address *
0.0.0.1

Provide an IP Range

4. Update the new IPs in the **Starting IP address** and **Ending IP address** fields.
5. Click the **Edit the Protocols** link. The Connect to CX Cloud – Select a protocol window opens.



Connect to CX Cloud

Select a protocol

At least one discovery and collection method are required.

Discovery options

□ SNMP v3 (recommended)

☑ SNMP v2c

Collection options

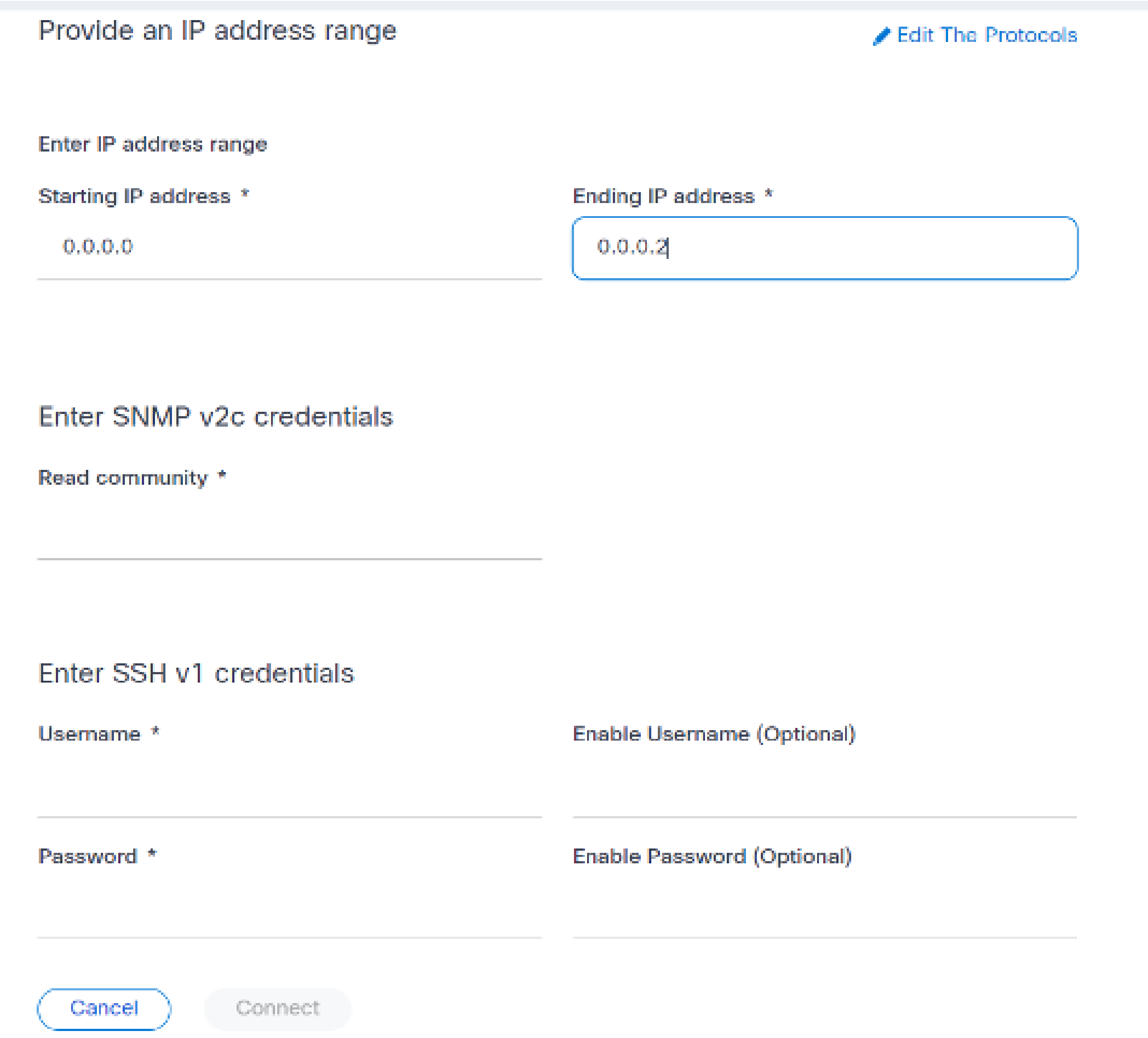
□ SSH v2 (recommended)

☑ SSH v1

□ Telnet

Select a Protocol

6. Select the applicable protocols by clicking the appropriate check boxes.
7. Click **Continue**. The Provide an IP address range window opens.



Provide an IP address range

Edit The Protocols

Enter IP address range

Starting IP address * 0.0.0.0

Ending IP address * 0.0.0.2

Enter SNMP v2c credentials

Read community *

Enter SSH v1 credentials

Username *

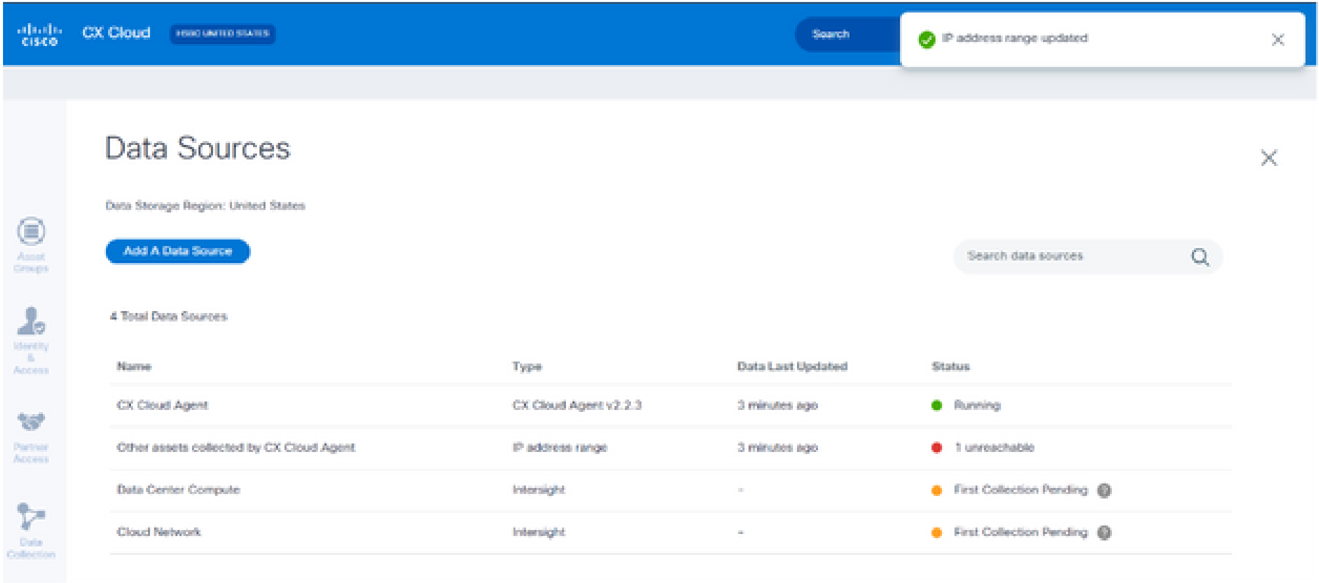
Enable Username (Optional)

Password *

Enable Password (Optional)

Enter Credentials

8. Enter configuration credentials.
9. Click **Connect**. The Data Sources window opens, displaying a confirmation message.



IP address range updated

Data Sources

Data Storage Region: United States

4 Total Data Sources

Name	Type	Data Last Updated	Status
CX Cloud Agent	CX Cloud Agent v2.2.3	3 minutes ago	● Running
Other assets collected by CX Cloud Agent	IP address range	3 minutes ago	● 1 unreachable
Data Center Compute	Intersight	-	● First Collection Pending
Cloud Network	Intersight	-	● First Collection Pending

Confirmation

Note: The confirmation message does not ensure that the devices in the edited range are reachable, and credentials have been accepted.

About Devices Discovered from Multiple Controllers

It is possible that some devices could be discovered by both the Cisco DNA Center and direct device connection to CX Cloud Agent causing duplicate data to be collected from those devices. To avoid collecting duplicate data and having only one controller manage the devices, a precedence for which CX Cloud Agent manages the devices needs to be determined.

- If a device is first discovered by Cisco DNA Center and then rediscovered by direct device connection (using a seed file or an IP range), Cisco DNA Center takes precedence in controlling the device.
- If a device is first discovered by direct device connection to CX Cloud Agent and then rediscovered by Cisco DNA Center, Cisco DNA Center takes precedence in controlling the device.

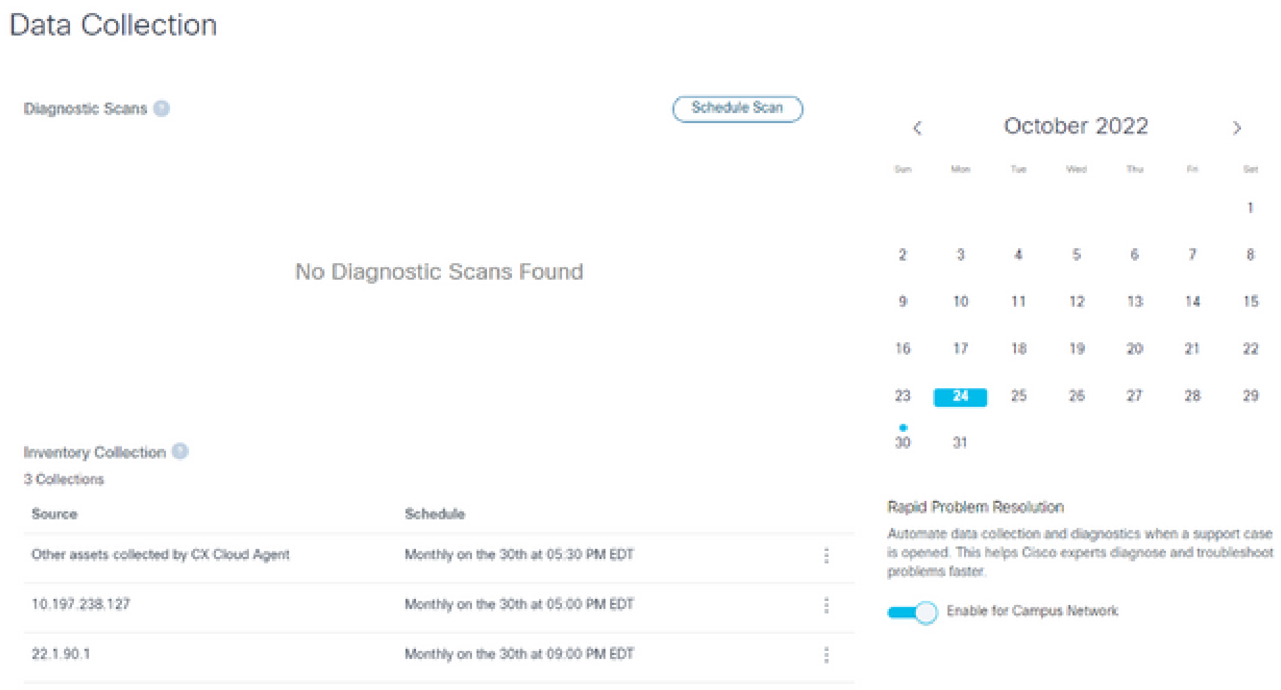
Scheduling Diagnostics Scans

Customers can schedule on demand diagnostic scans in CX Cloud.

Note: Cisco recommends scheduling diagnostic scans or initiating on-demand scans at least 6-7 hours apart from inventory collection schedules so they do not overlap. Executing multiple diagnostic scans simultaneously can slow the scanning process and potentially result in scan failures.

To schedule diagnostic scans:

1. On the **Home** page, click the **Settings** (gear) icon.
2. On the **Data Sources** page, select **Data Collection** in the left pane.
3. Click **Schedule Scan**.



Data Collection

Diagnostic Scans

No Diagnostic Scans Found

October 2022

Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

Inventory Collection

3 Collections

Source	Schedule
Other assets collected by CX Cloud Agent	Monthly on the 30th at 05:30 PM EDT
10.197.238.127	Monthly on the 30th at 05:00 PM EDT
22.1.90.1	Monthly on the 30th at 09:00 PM EDT

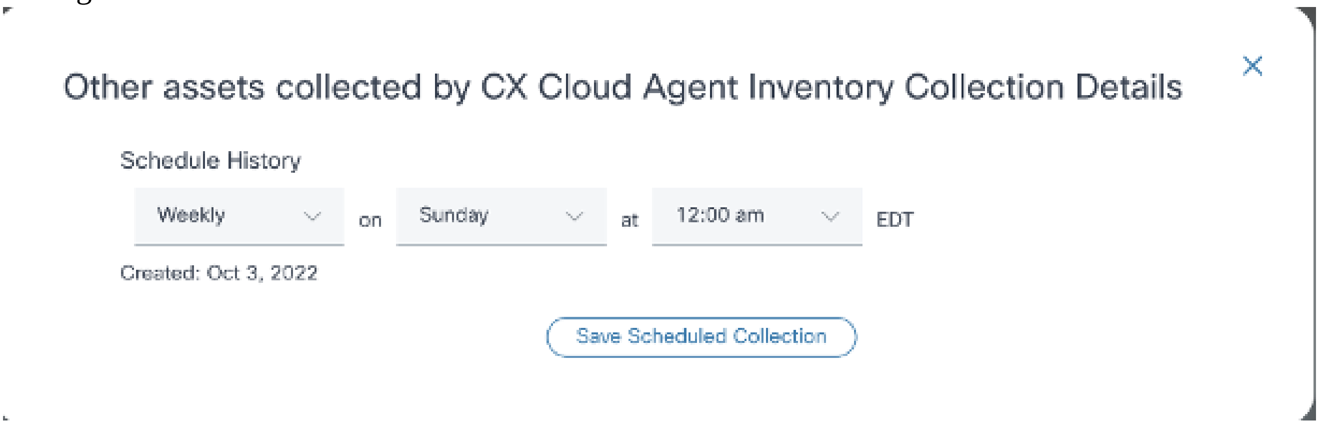
Rapid Problem Resolution

Automate data collection and diagnostics when a support case is opened. This helps Cisco experts diagnose and troubleshoot problems faster.

Enable for Campus Network

Data Collection

4. Configure a schedule for this scan.



Other assets collected by CX Cloud Agent Inventory Collection Details

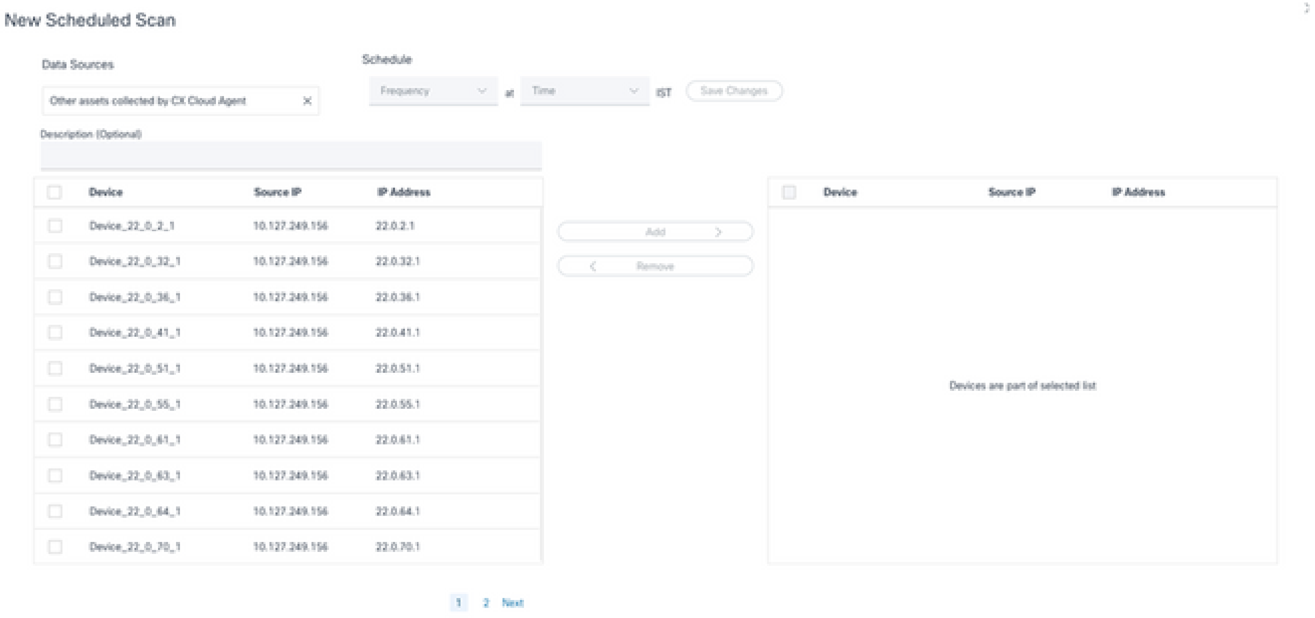
Schedule History

Weekly on Sunday at 12:00 am EDT

Created: Oct 3, 2022

Configure Scan Schedule

5. In the devices list, select all devices for the scan and click **Add**.



New Scheduled Scan

Data Sources: Other assets collected by CX Cloud Agent ×

Schedule: Frequency at Time IST Save Changes

Description (Optional)

□	Device	Source IP	IP Address
□	Device_22_0_2_1	10.127.249.156	22.0.2.1
□	Device_22_0_32_1	10.127.249.156	22.0.32.1
□	Device_22_0_36_1	10.127.249.156	22.0.36.1
□	Device_22_0_41_1	10.127.249.156	22.0.41.1
□	Device_22_0_51_1	10.127.249.156	22.0.51.1
□	Device_22_0_55_1	10.127.249.156	22.0.55.1
□	Device_22_0_61_1	10.127.249.156	22.0.61.1
□	Device_22_0_63_1	10.127.249.156	22.0.63.1
□	Device_22_0_64_1	10.127.249.156	22.0.64.1
□	Device_22_0_70_1	10.127.249.156	22.0.70.1

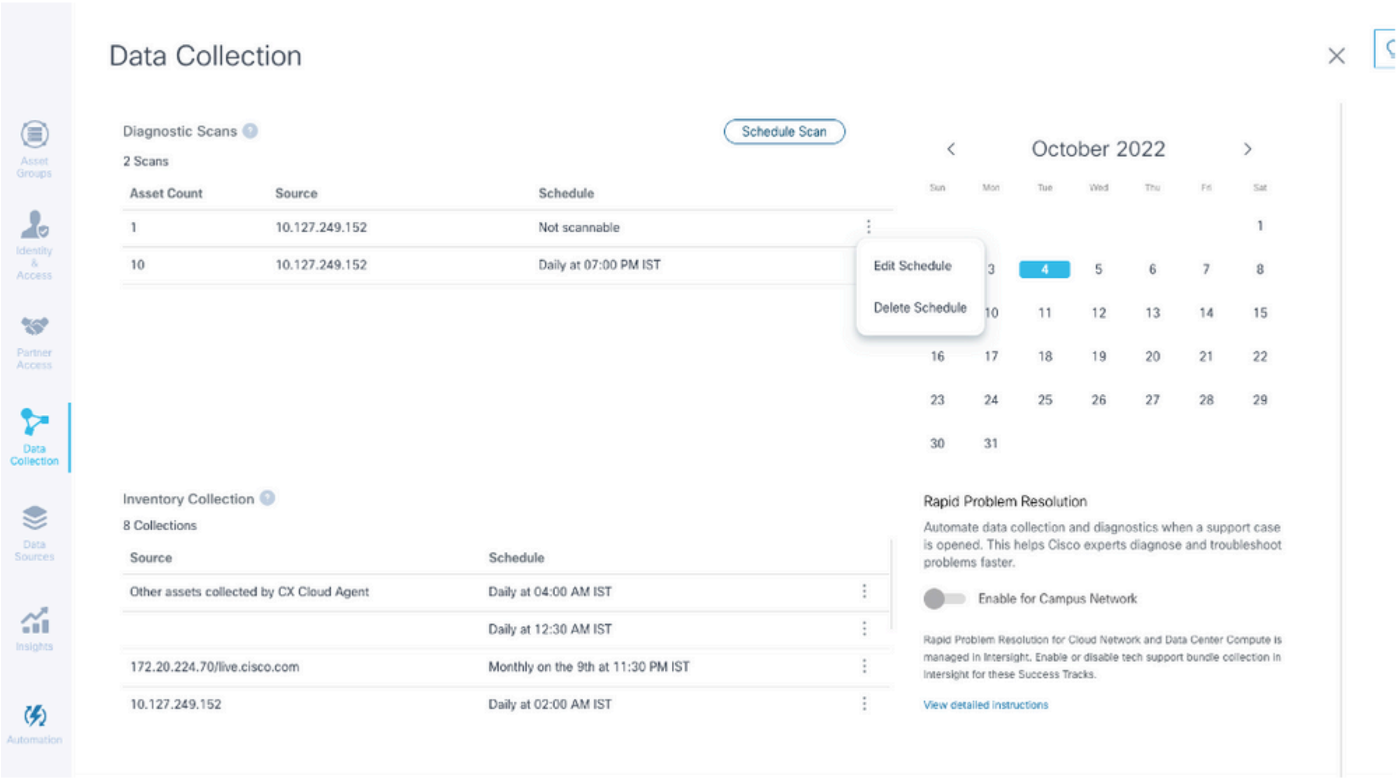
□	Device	Source IP	IP Address

Devices are part of selected list

Schedule a Scan

6. Click **Save Changes** when the scheduling is complete.

The Diagnostic Scans and the Inventory Collection schedules can be edited and deleted from the Data Collection page.



Data Collection

Diagnostic Scans

2 Scans

Asset Count	Source	Schedule
1	10.127.249.152	Not scannable
10	10.127.249.152	Daily at 07:00 PM IST

October 2022

Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1
	3	4	5	6	7	8
	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

Inventory Collection

8 Collections

Source	Schedule
Other assets collected by CX Cloud Agent	Daily at 04:00 AM IST
	Daily at 12:30 AM IST
172.20.224.70/live.cisco.com	Monthly on the 9th at 11:30 PM IST
10.127.249.152	Daily at 02:00 AM IST

Rapid Problem Resolution

Automate data collection and diagnostics when a support case is opened. This helps Cisco experts diagnose and troubleshoot problems faster.

○ Enable for Campus Network

Rapid Problem Resolution for Cloud Network and Data Center Compute is managed in Intersight. Enable or disable tech support bundle collection in Intersight for these Success Tracks.

View detailed instructions

Data Collection with Edit and Delete Schedule Options

Deployment and Network Configuration

Select any of these options to deploy the CX Cloud Agent:

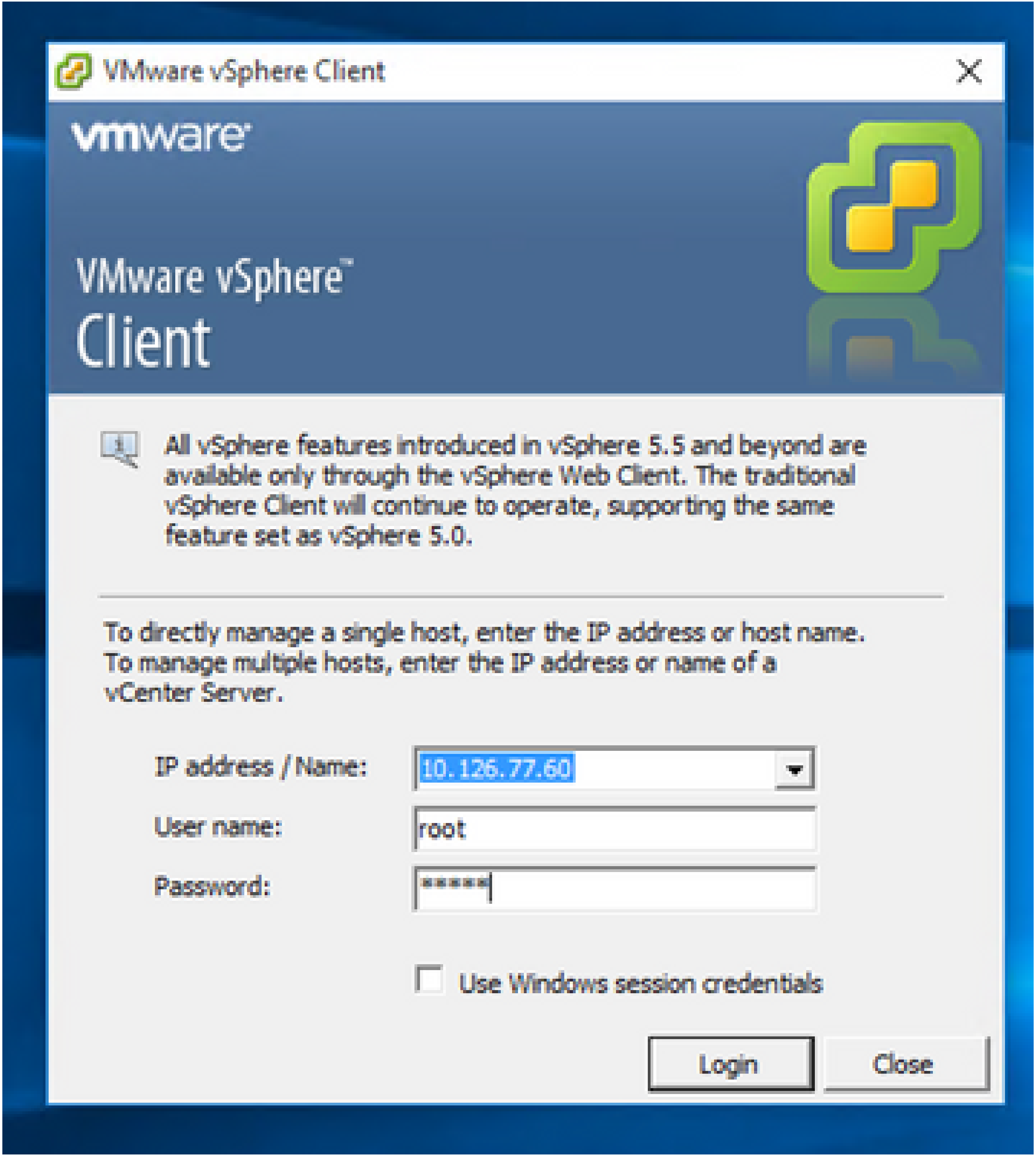
- To select VMware vSphere/vCenter Thick Client ESXi 5.5/6.0 go to Thick Client
- To select VMware vSphere/vCenter Web Client ESXi 6.0 go to Web Client or vSphere Center
- To select Oracle Virtual Box 5.2.30 go to Oracle VM
- To select Microsoft Hyper-V go to Hyper-V

OVA Deployment

Thick Client ESXi 5.5/6.0 Installation

This client allows deployment of CX Cloud Agent OVA by use of the vSphere thick client.

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



VMware vSphere Client

VMware vSphere™ Client

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: 10.126.77.60

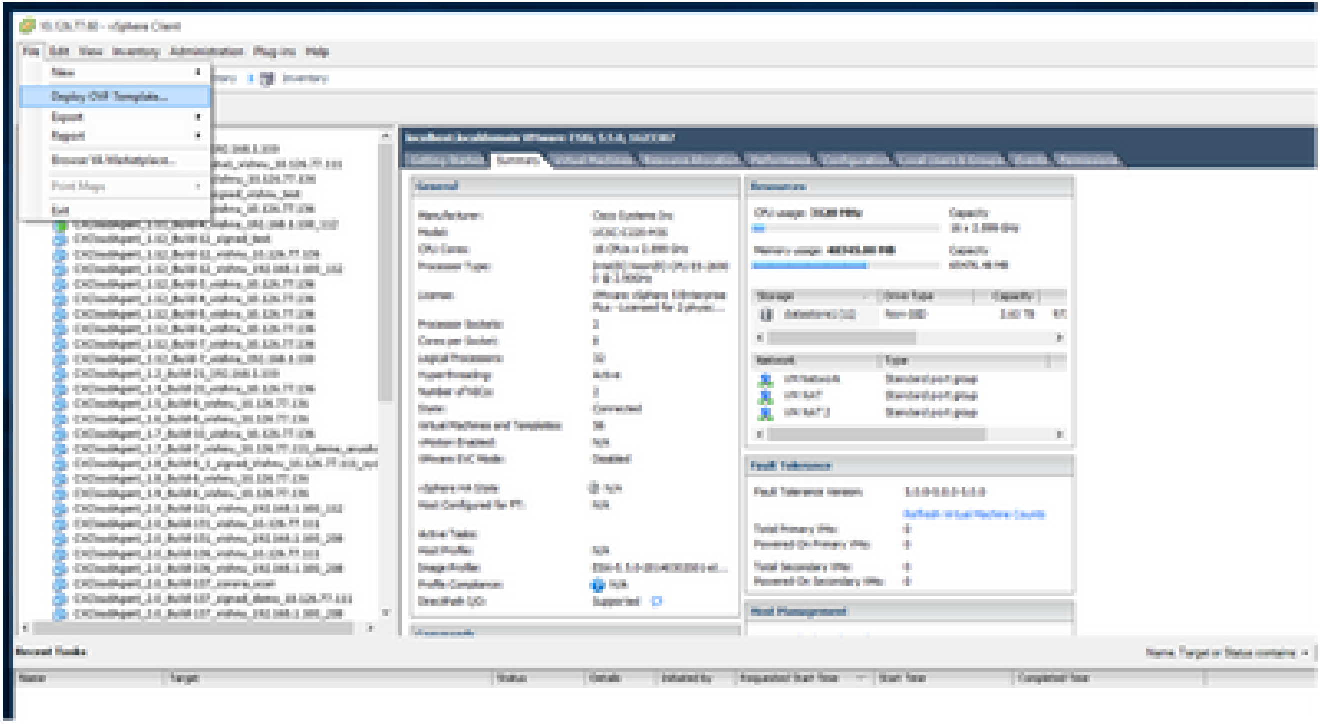
User name: root

Password: *****

□ Use Windows session credentials

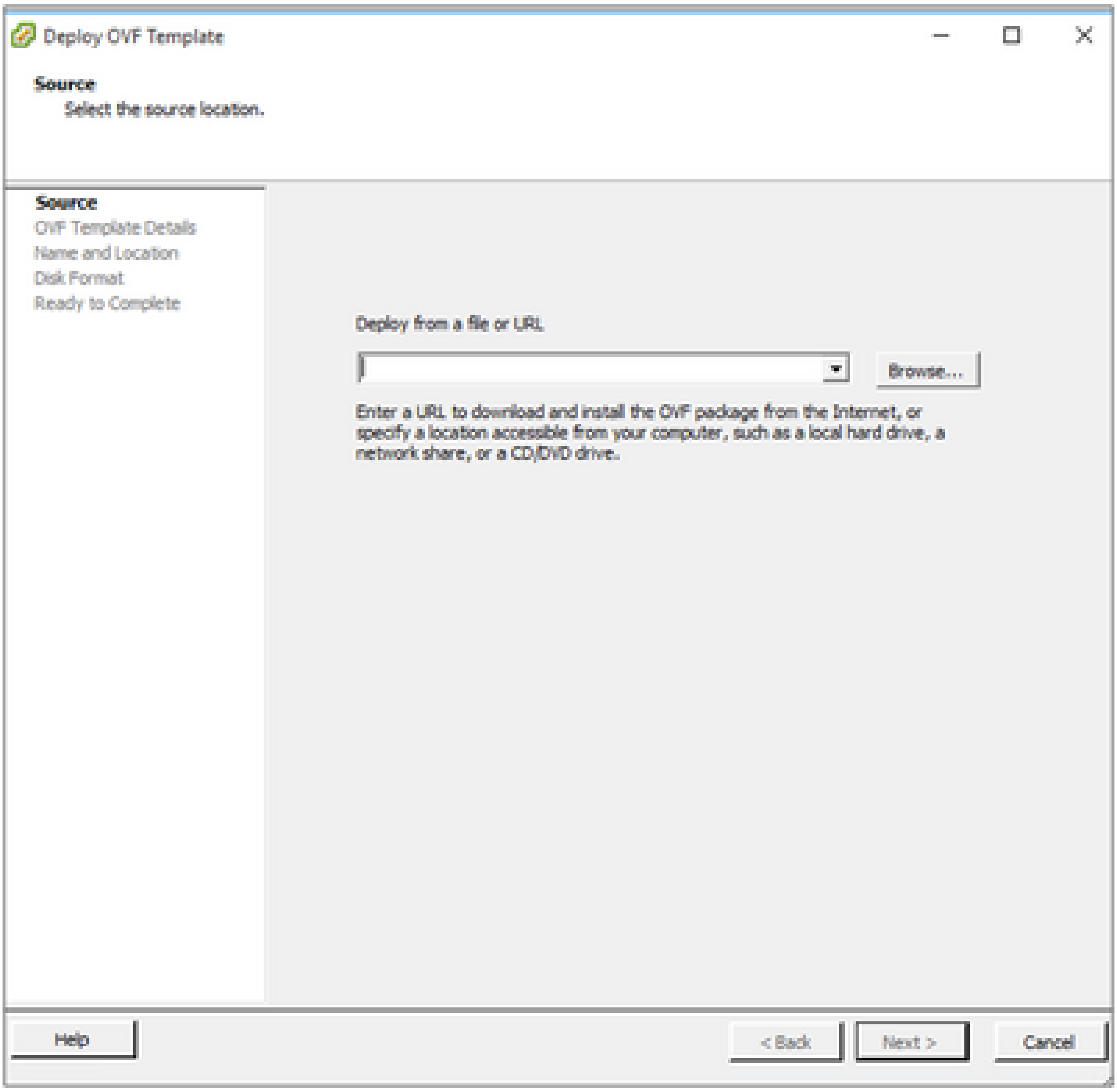
Login

2. From the menu, select **File > Deploy OVF Template**.



vSphere Client

3. Browse to select the **OVA file** and click **Next**.

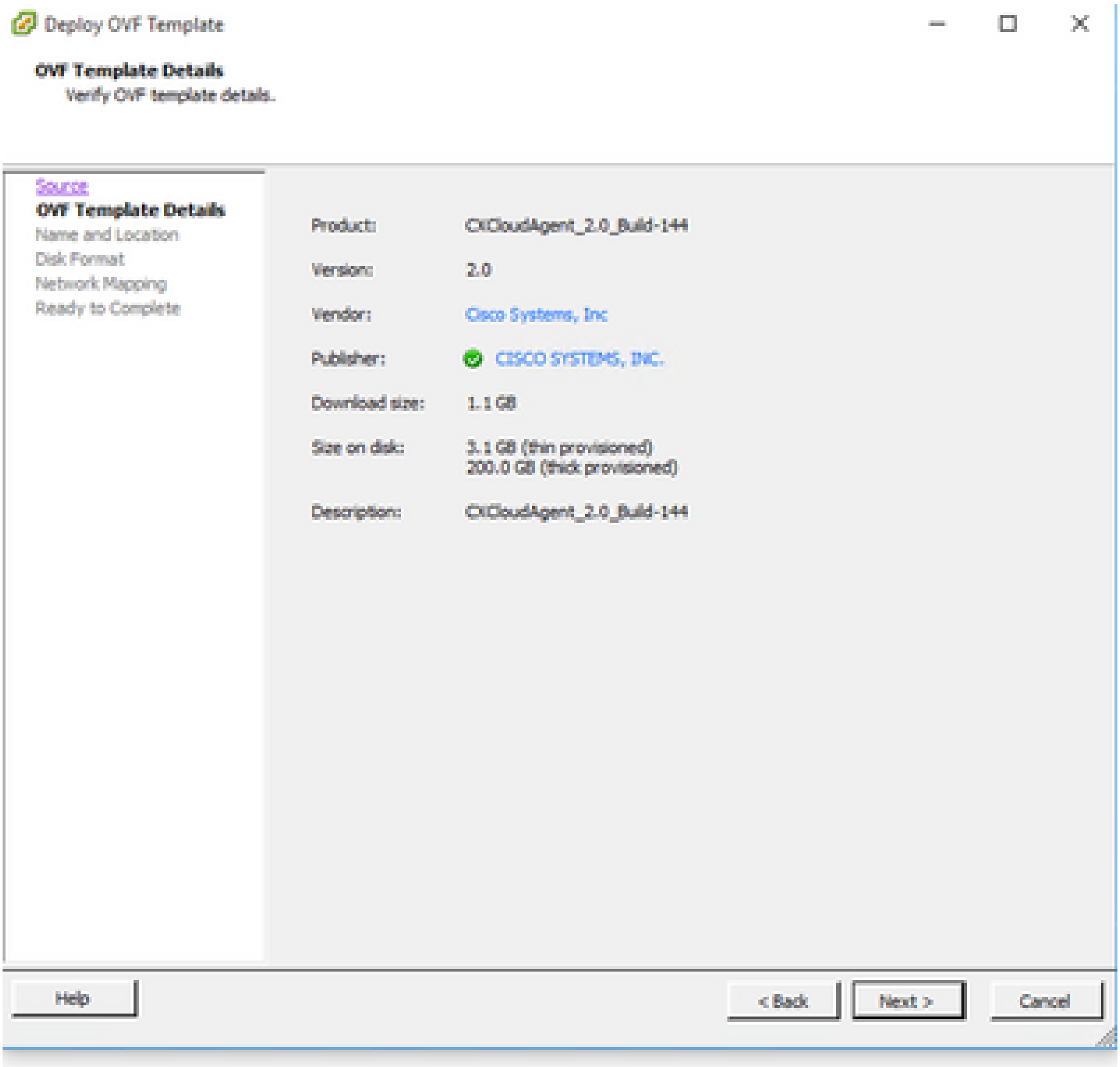


Deploy from a file or URL

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**.



Product: CXCloudAgent_2.0_Build-144

Version: 2.0

Vendor: Cisco Systems, Inc

Publisher: ✓ CISCO SYSTEMS, INC.

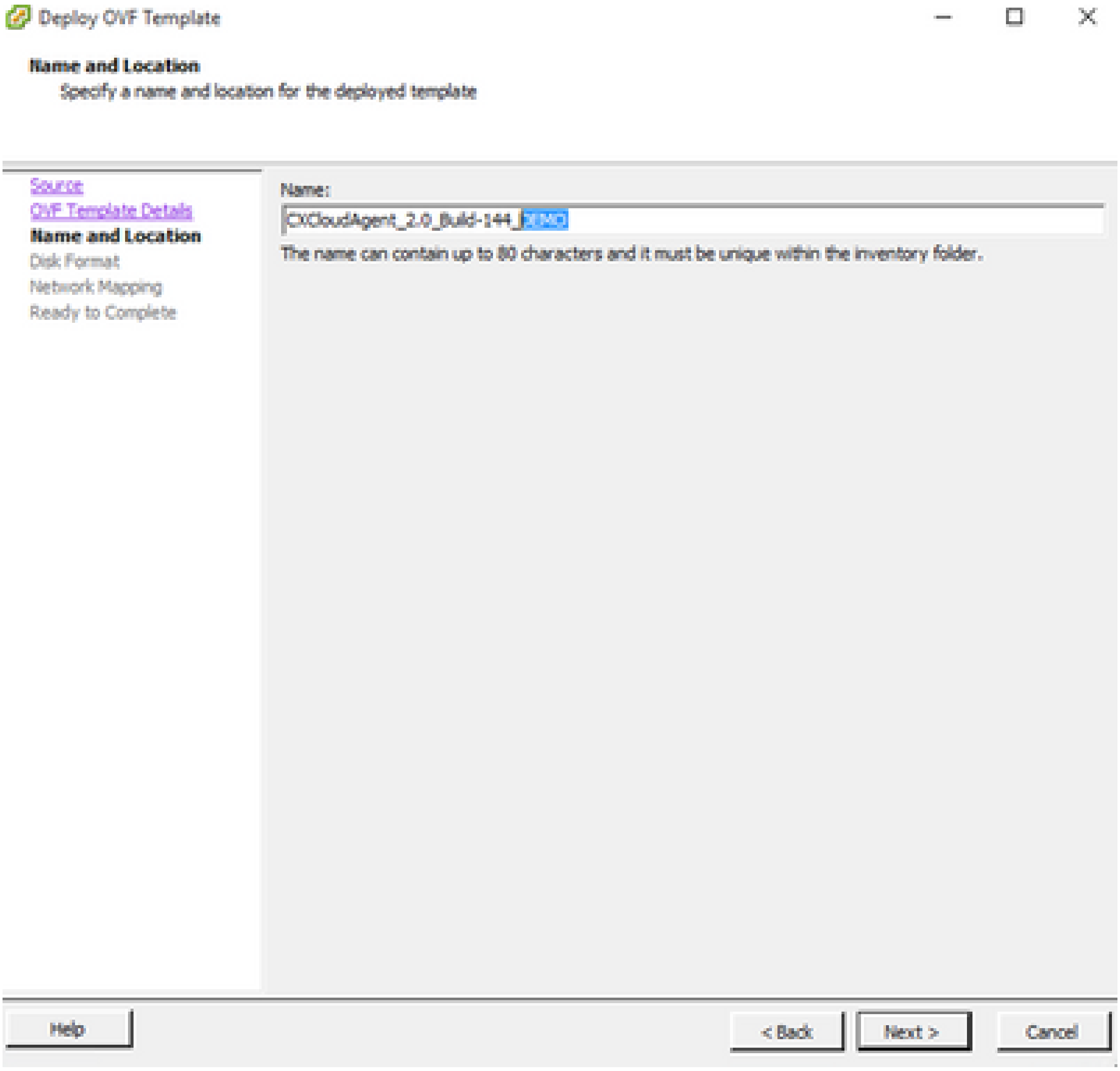
Download size: 1.1 GB

Size on disk: 3.1 GB (thin provisioned)
200.0 GB (thick provisioned)

Description: CXCloudAgent_2.0_Build-144

Template Details

5. Enter a **Unique Name** and click **Next**.



Deploy OVF Template

Name and Location

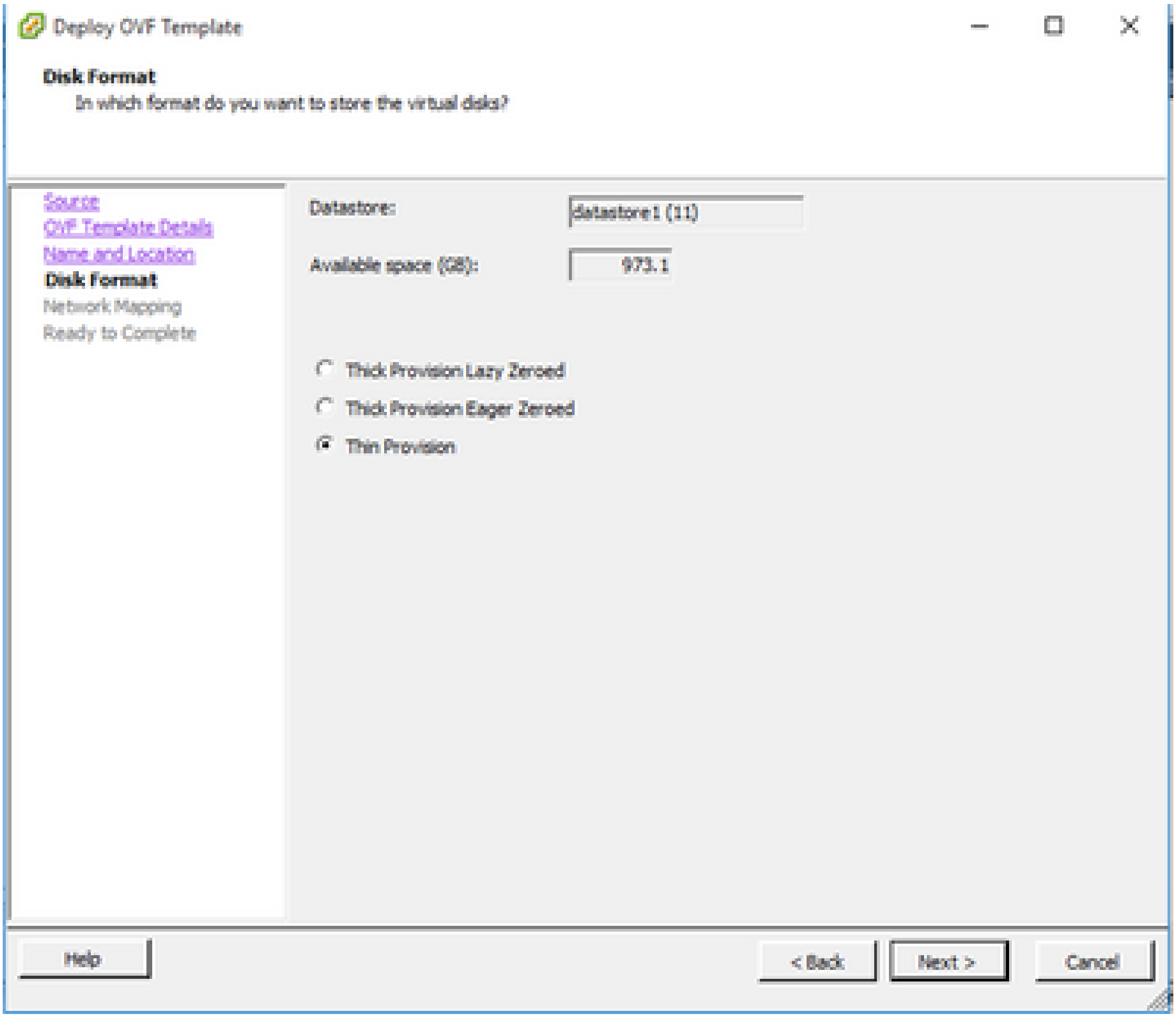
Specify a name and location for the deployed template

Name: CXCloudAgent_2.0_Build-144_DEMO

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

Name and Location

6. Select a **Disk Format** and click **Next** (Thin Provision is recommended).



Disk Format

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

Datastore: datastore1 (11)

Available space (GB): 973.1

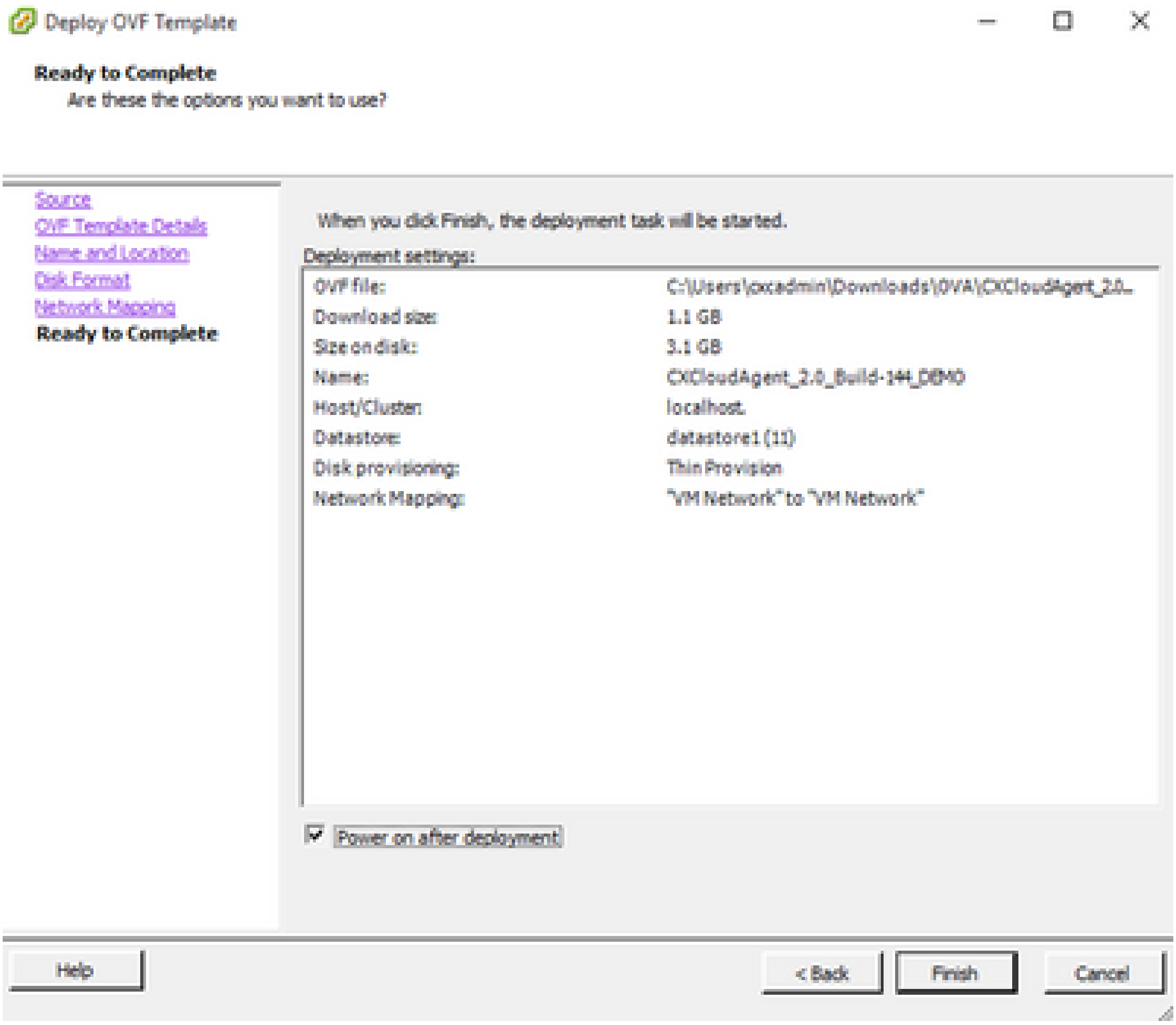
○ Thick Provision Lazy Zeroed

○ Thick Provision Eager Zeroed

● Thin Provision

Disk Format

7. Select the **Power on after deployment** check box and click **Close**.



Deploy OVF Template

Ready to Complete

Are these the options you want to use?

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

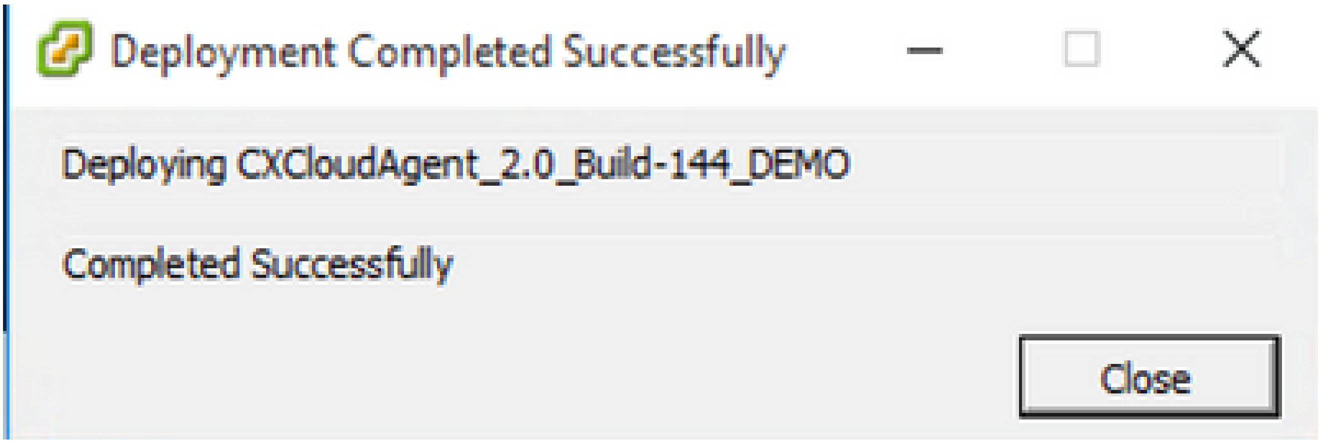
Deployment settings:

OVF file:	C:\Users\cxadmin\Downloads\OVA\CXCloudAgent_2.0...
Download size:	1.1 GB
Size on disk:	3.1 GB
Name:	CXCloudAgent_2.0_Build-144_DEMO
Host/Cluster:	localhost.
Datastore:	datastore1 (11)
Disk provisioning:	Thin Provision
Network Mapping:	"VM Network" to "VM Network"

☑ Power on after deployment

Ready to Complete

Deployment can take several minutes. Confirmation displays upon successful deployment.



Deployment Completed Successfully

Deploying CXCloudAgent_2.0_Build-144_DEMO

Completed Successfully

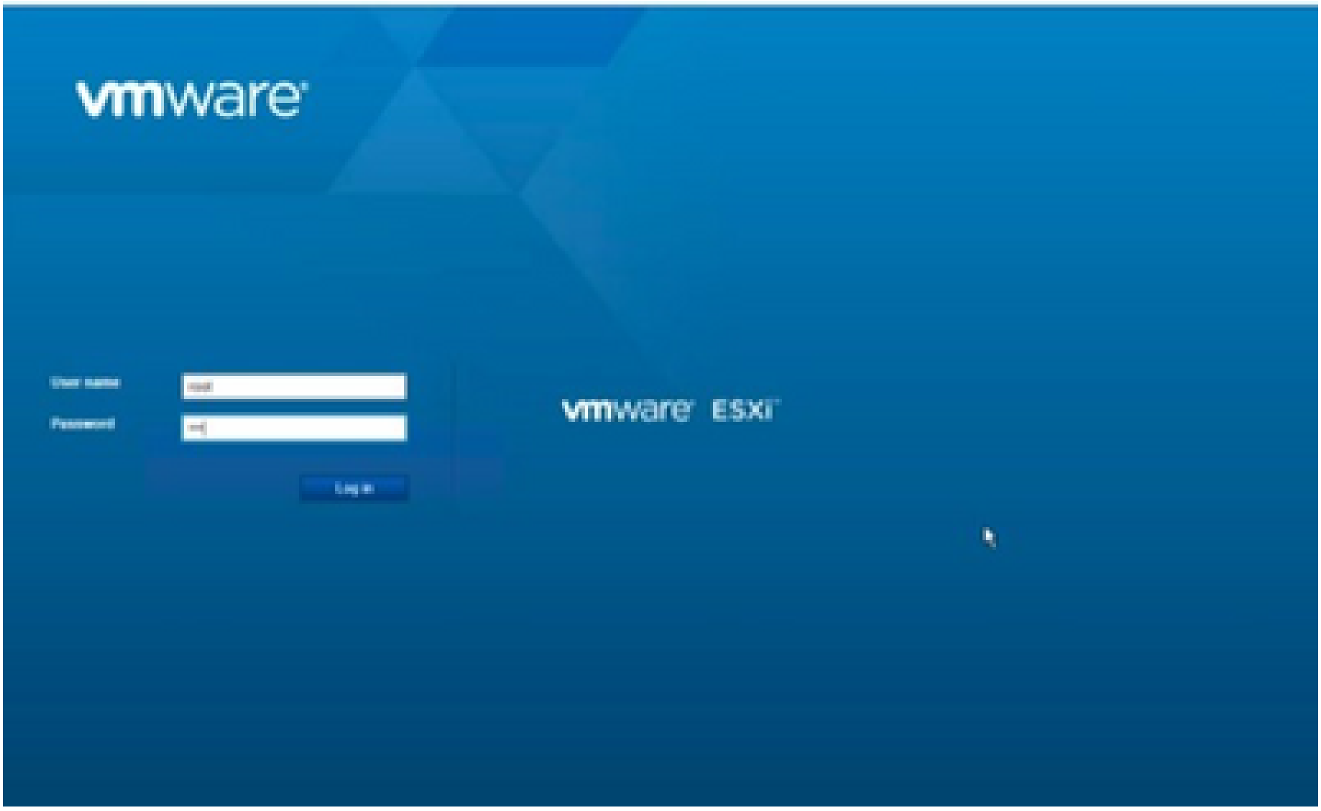
Deployment Complete

8. Select the deployed VM, open the console, and go to Network Configuration to proceed with the next steps.

Web Client ESXi 6.0 Installation

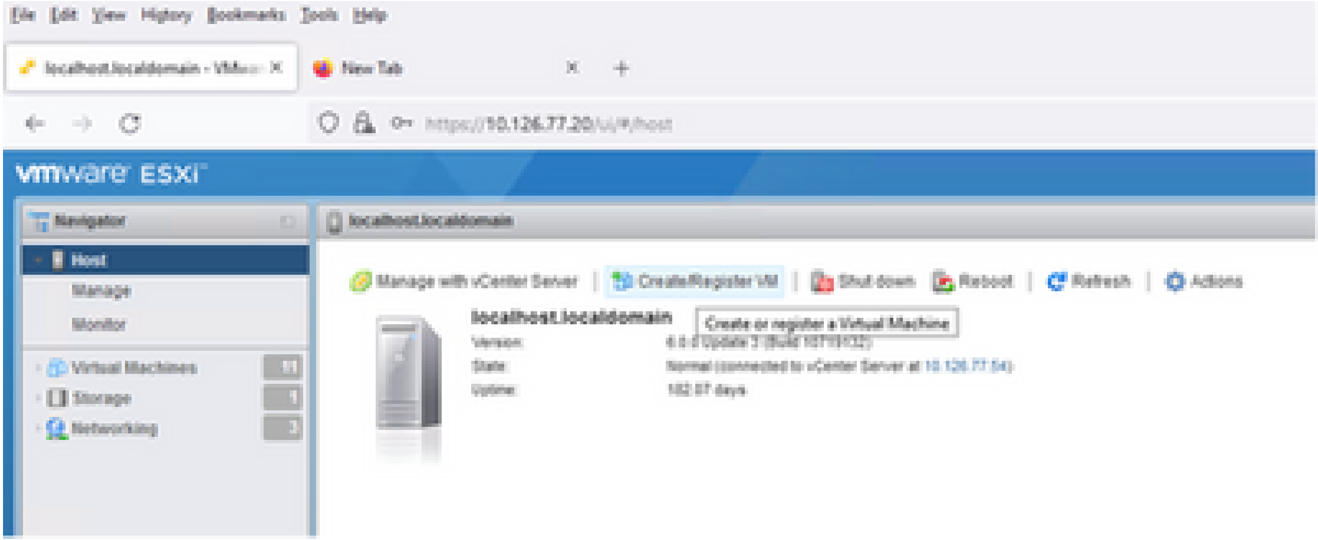
This client deploys CX Cloud Agent OVA by use of the vSphere web.

1. Log in to the VMWare UI with the ESXi/hypervisor credentials used for deploying VM.



VMWare ESXi Login

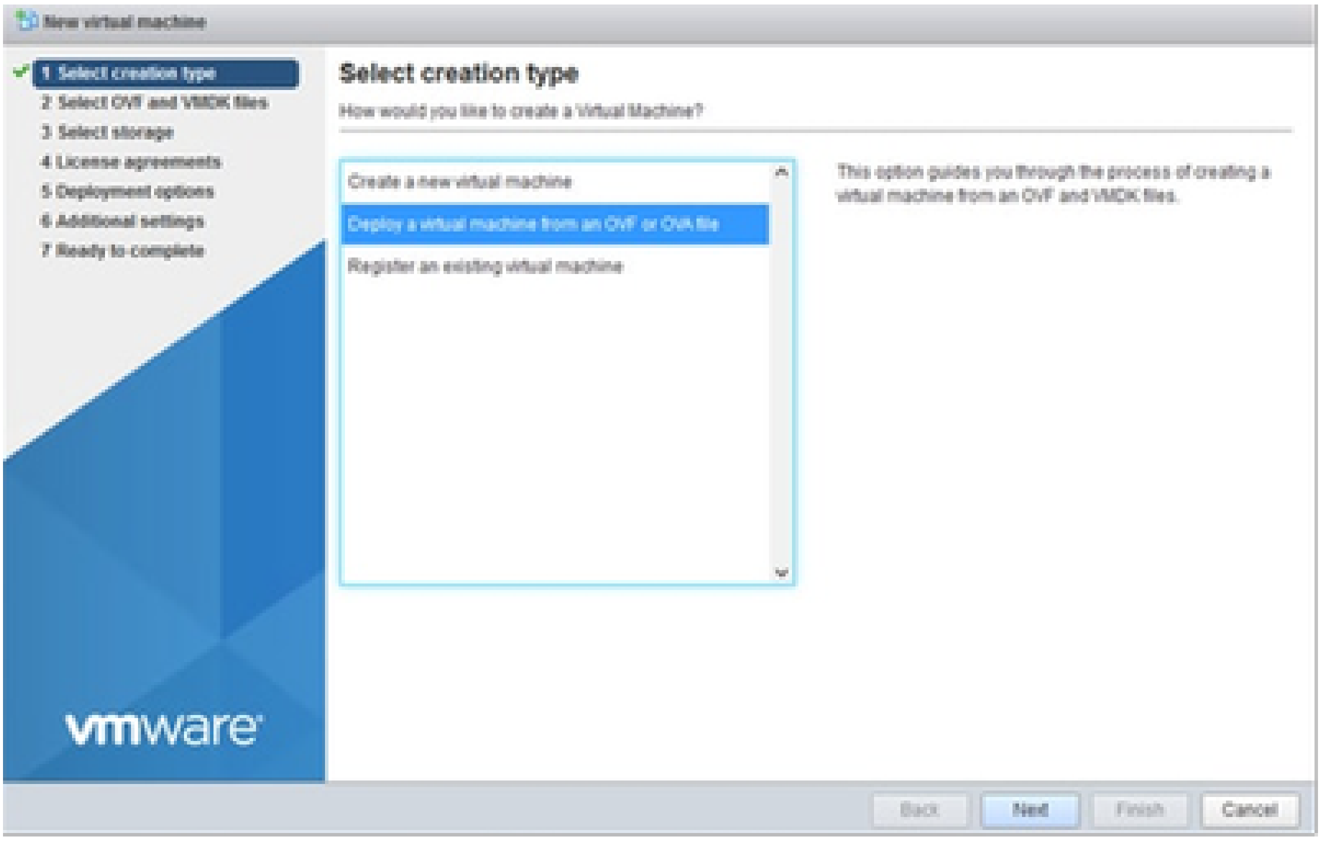
2. Select **Virtual Machine** > **Create / Register VM**.


File Edit View History Bookmarks Tools Help
localhost.localdomain - VMware
New Tab
https://10.126.77.20/ui/#/host
vmware ESXi
Navigator
Host
Manage
Monitor
Virtual Machines
Storage
Networking
localhost.localdomain
Manage with vCenter Server
Create/Register VM
Shut down
Reboot
Refresh
Actions
Create or register a Virtual Machine

localhost.localdomain
Version: 6.0.0 Update 3 (Build 10719132)
State: Normal (connected to vCenter Server at 10.126.77.54)
Uptime: 182.07 days

Create VM

3. Select **Deploy a virtual machine from an OVF or OVA file** and click **Next**.



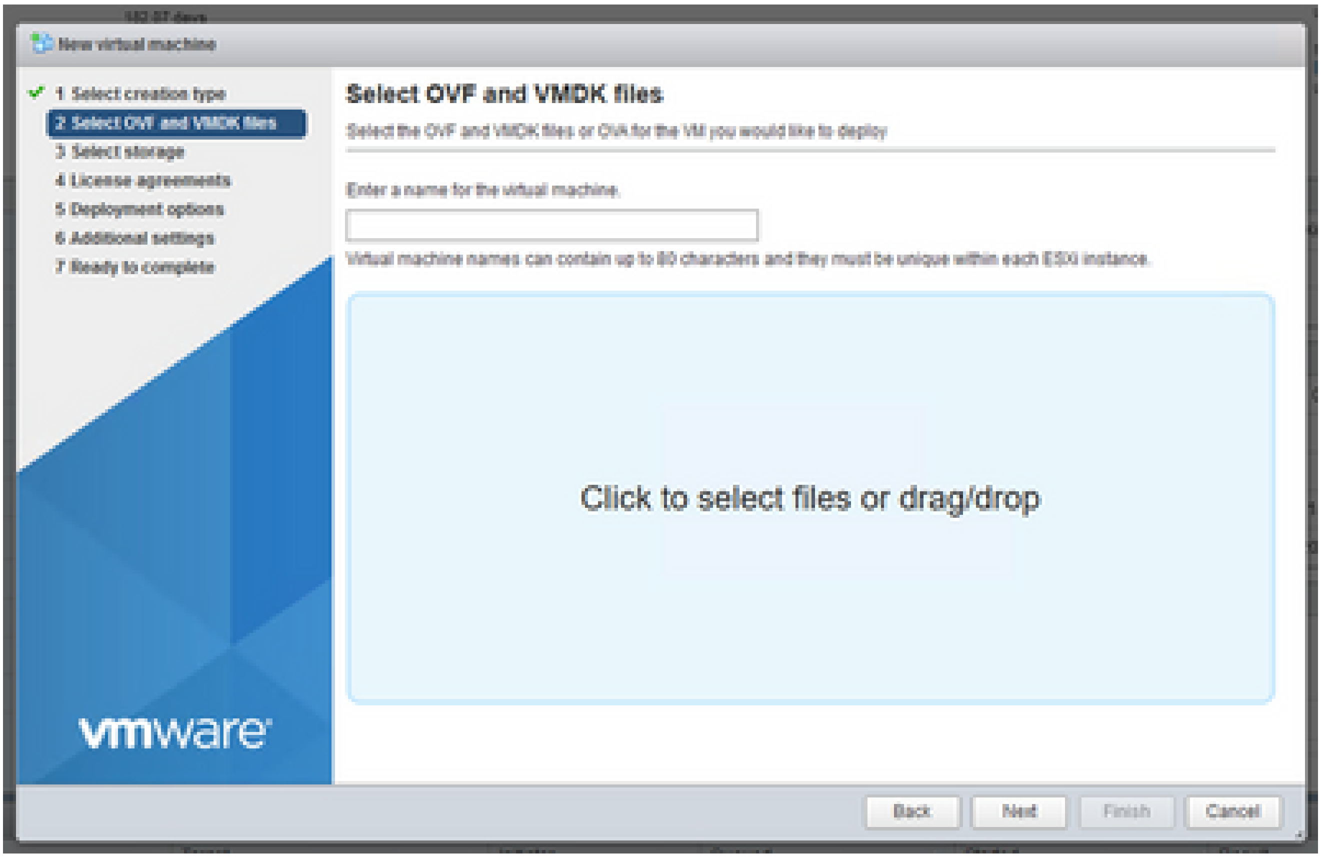
Select creation type

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.

Select Creation Type

4. Enter the name of the VM, browse to select the file, or drag-and-drop the downloaded OVA file.
5. Click **Next**.



Select OVF and VMDK files

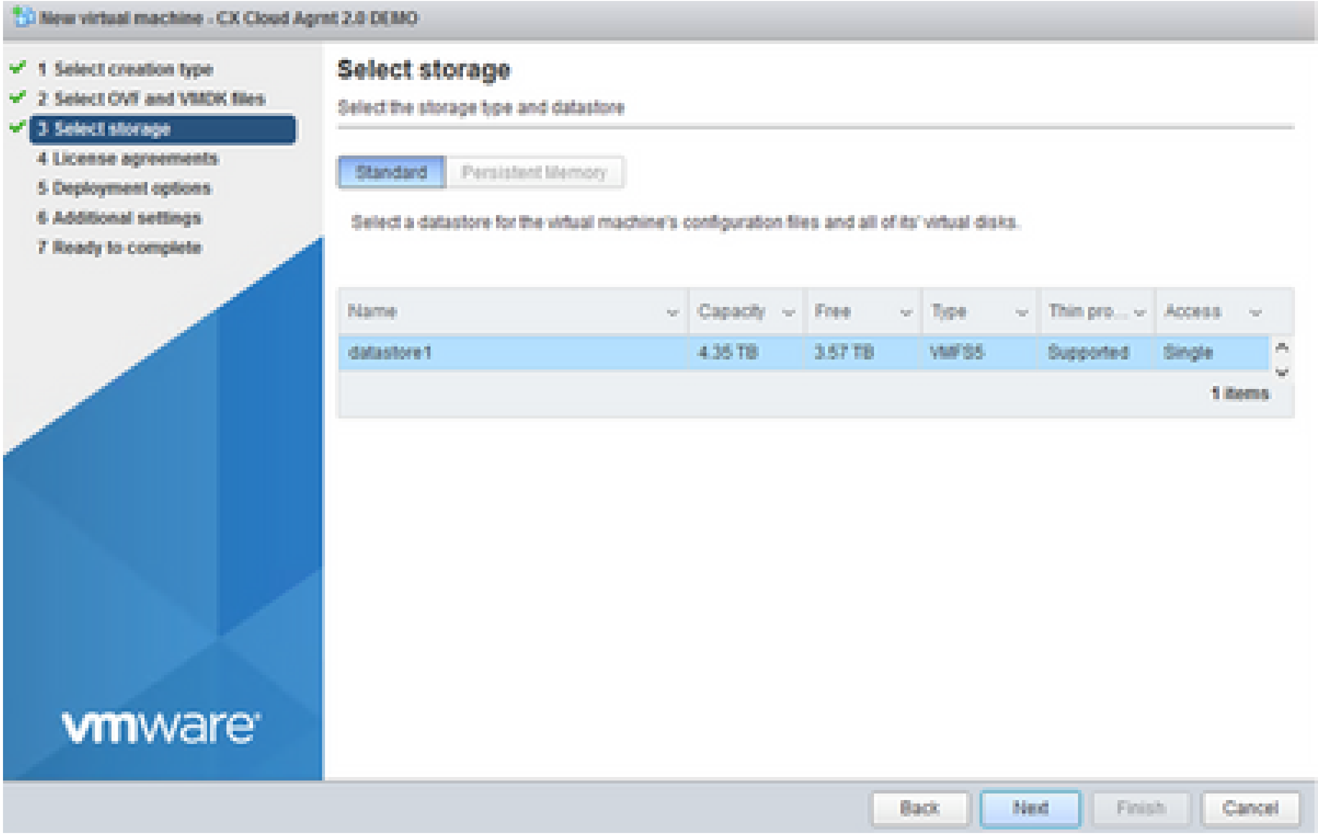
Select the OVF and VMDK files or OVA for the VM you would like to deploy

Enter a name for the virtual machine.

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

OVA Selection

6. Select **Standard** storage and click **Next**.



Select storage

Select the storage type and datastore

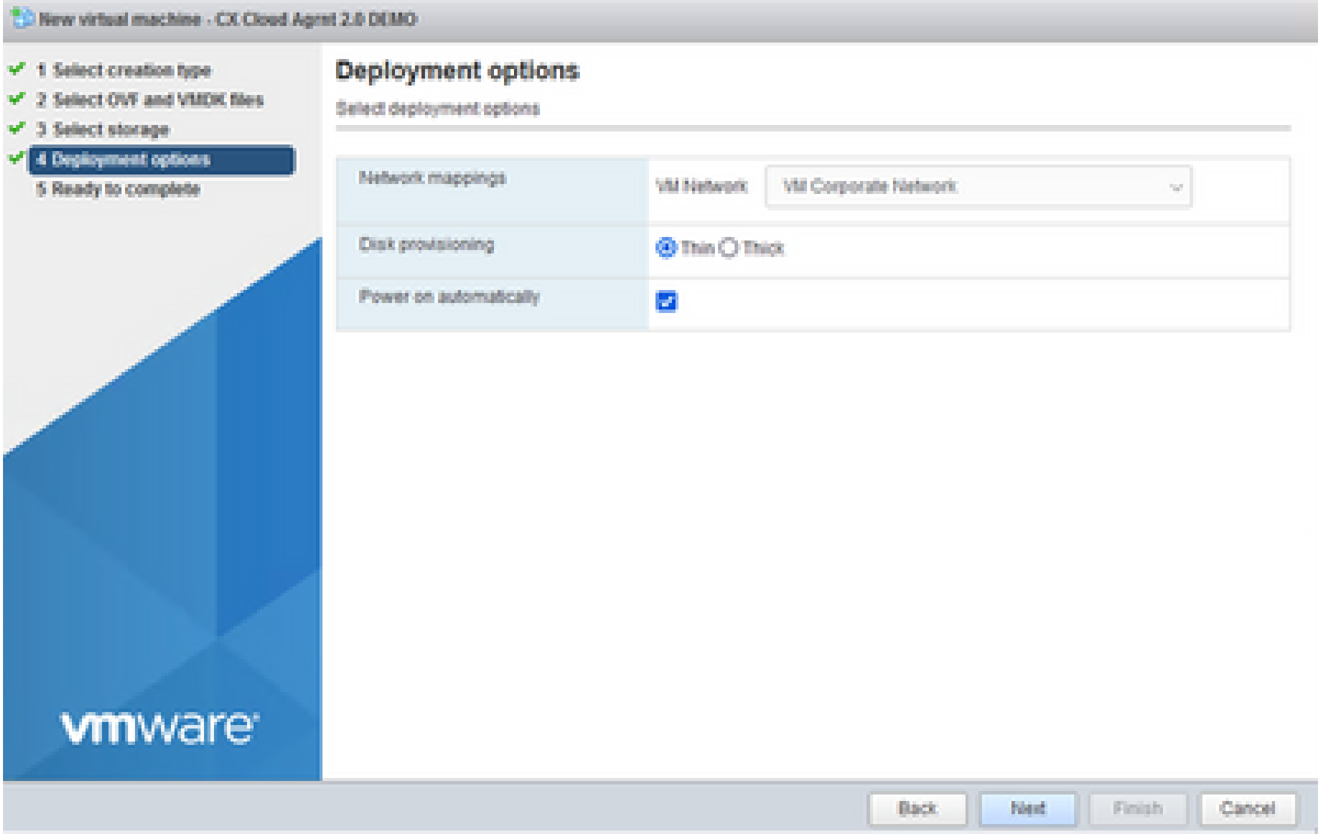
Select a datastore for the virtual machine's configuration files and all of its' virtual disks.

Name	Capacity	Free	Type	Thin pro...	Access
datastore1	4.35 TB	3.57 TB	VMFS5	Supported	Single

1 items

Select Storage

7. Select the appropriate **Deployment options** and click **Next**.



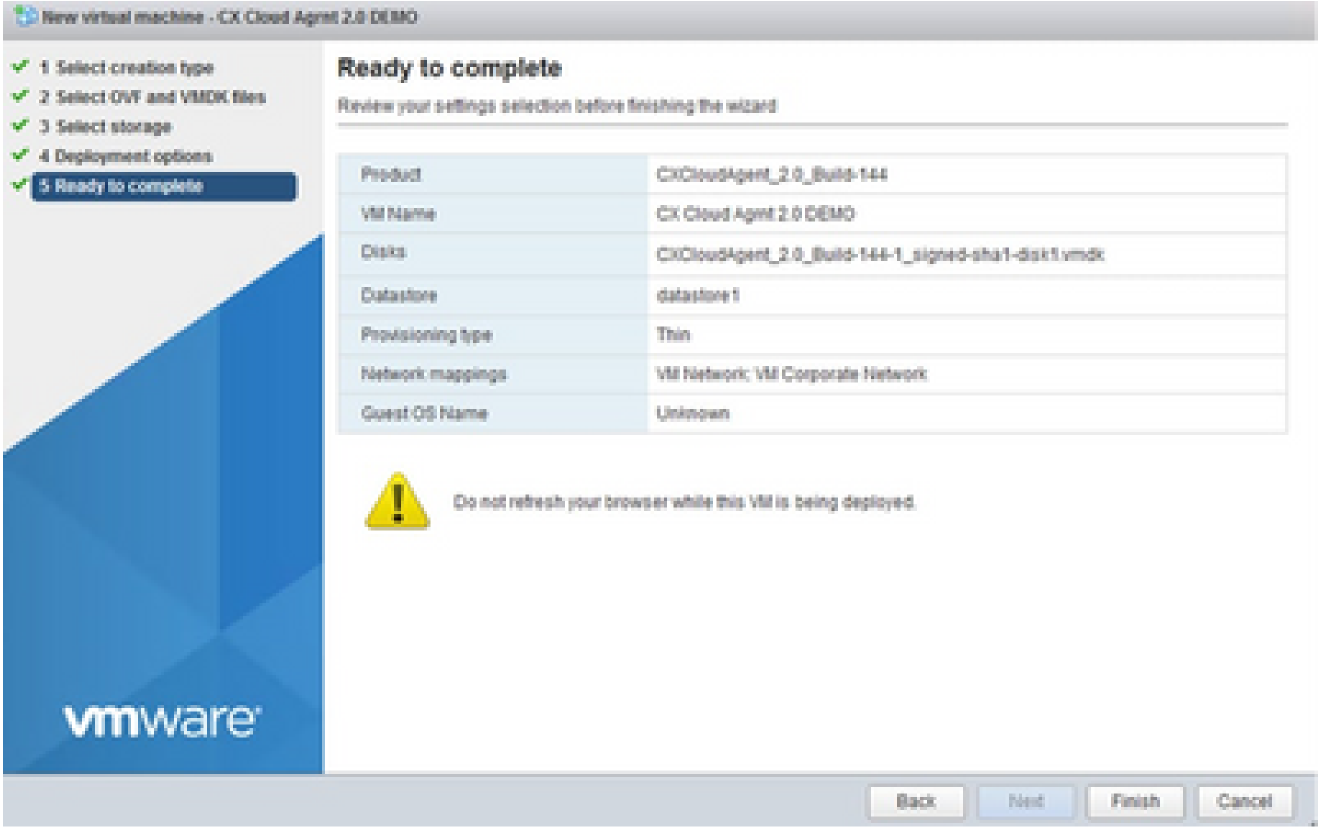
Deployment options

Select deployment options

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

Deployment Options

8. Review the settings and click **Finish**.



New virtual machine - CX Cloud Agent 2.0 DEMO

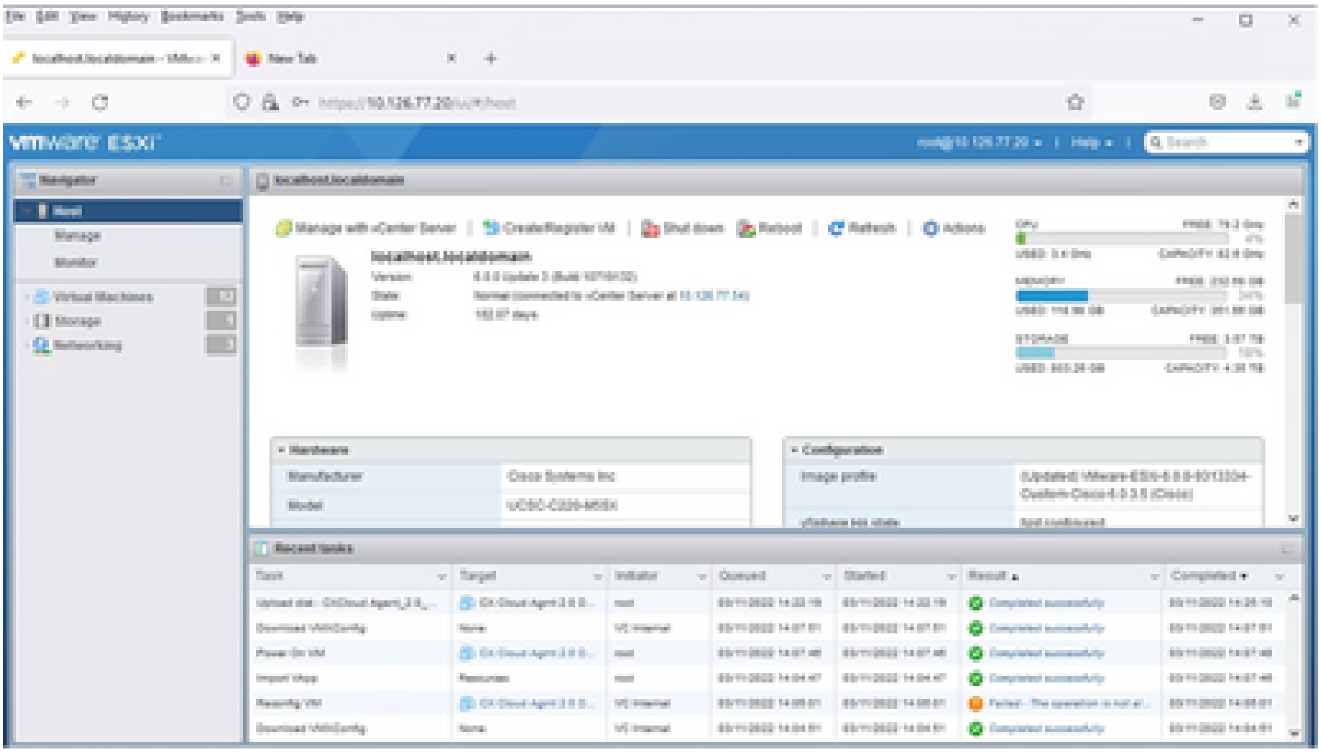
Ready to complete

Review your settings selection before finishing the wizard

Product	CXCloudAgent_2.0_Build-144
VM Name	CX Cloud Agent 2.0 DEMO
Disks	CXCloudAgent_2.0_Build-144-1_signed-sha1-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



localhost.localdomain

Version: 6.5.0 Update 3 (Build 10719132)

State: Normal (connected to vCenter Server at 10.126.77.54)

Uptime: 182.07 days

Hardware	
Manufacturer	Cisco Systems Inc
Model	UCSC-C220-M5SX

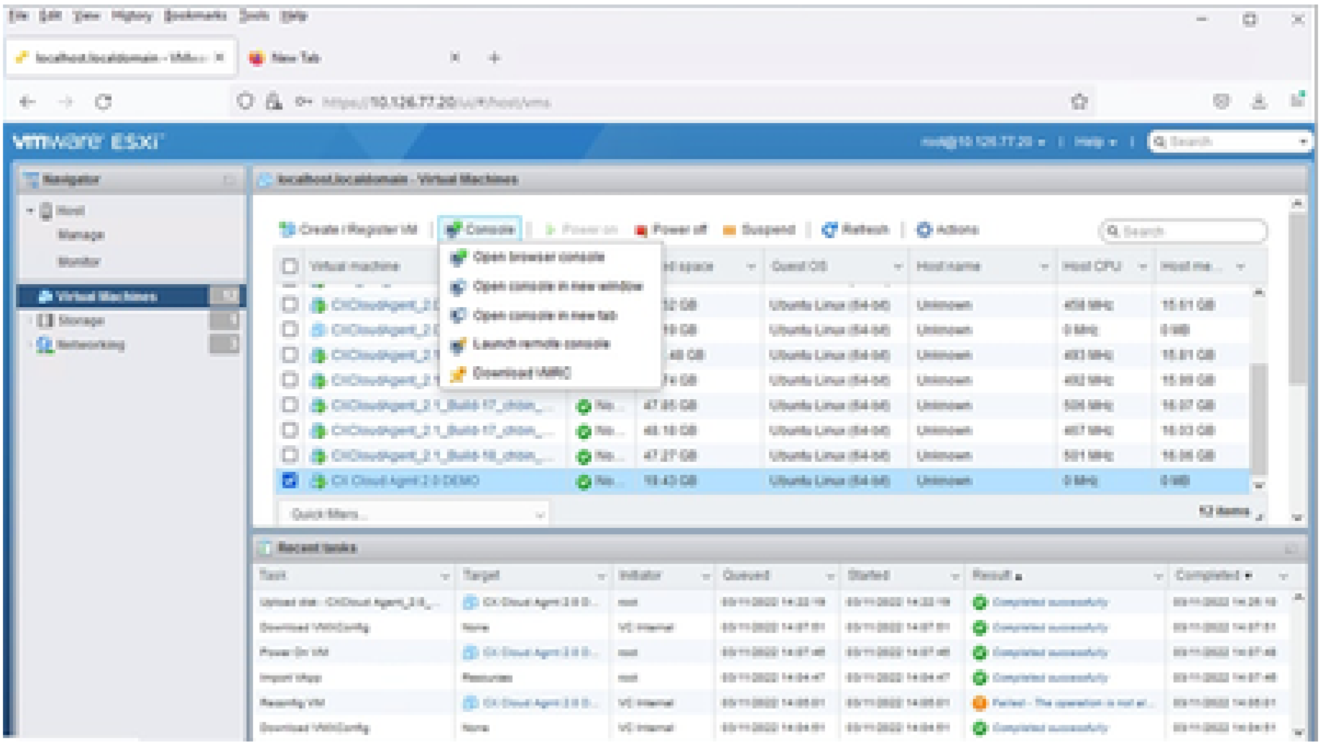
Configuration	
Image profile	(Updated) VMware-ESXi-6.5.0-8013204-Custom-Cisco-6.5.3.5 (Cisco)
vSphere HA state	Not configured

Recent tasks

Task	Target	Initiator	Queued	Started	Result	Completed
Upload disk - CXCloud Agent_2.0_...	CX Cloud Agent 2.0 D...	root	03/11/2022 14:22:19	03/11/2022 14:22:19	Completed successfully	03/11/2022 14:25:10
Download VMXConfig	None	VC Internal	03/11/2022 14:07:51	03/11/2022 14:07:51	Completed successfully	03/11/2022 14:07:51
Power On VM	CX Cloud Agent 2.0 D...	root	03/11/2022 14:07:48	03/11/2022 14:07:48	Completed successfully	03/11/2022 14:07:48
Import VApp	Resources	root	03/11/2022 14:04:47	03/11/2022 14:04:47	Completed successfully	03/11/2022 14:07:48
Reconfig VM	CX Cloud Agent 2.0 D...	VC Internal	03/11/2022 14:05:01	03/11/2022 14:05:01	Failed - The operation is not al...	03/11/2022 14:05:01
Download VMXConfig	None	VC Internal	03/11/2022 14:04:51	03/11/2022 14:04:51	Completed successfully	03/11/2022 14:04:51

Successful Completion

9. Select the VM just deployed and select **Console** > **Open browser console**.



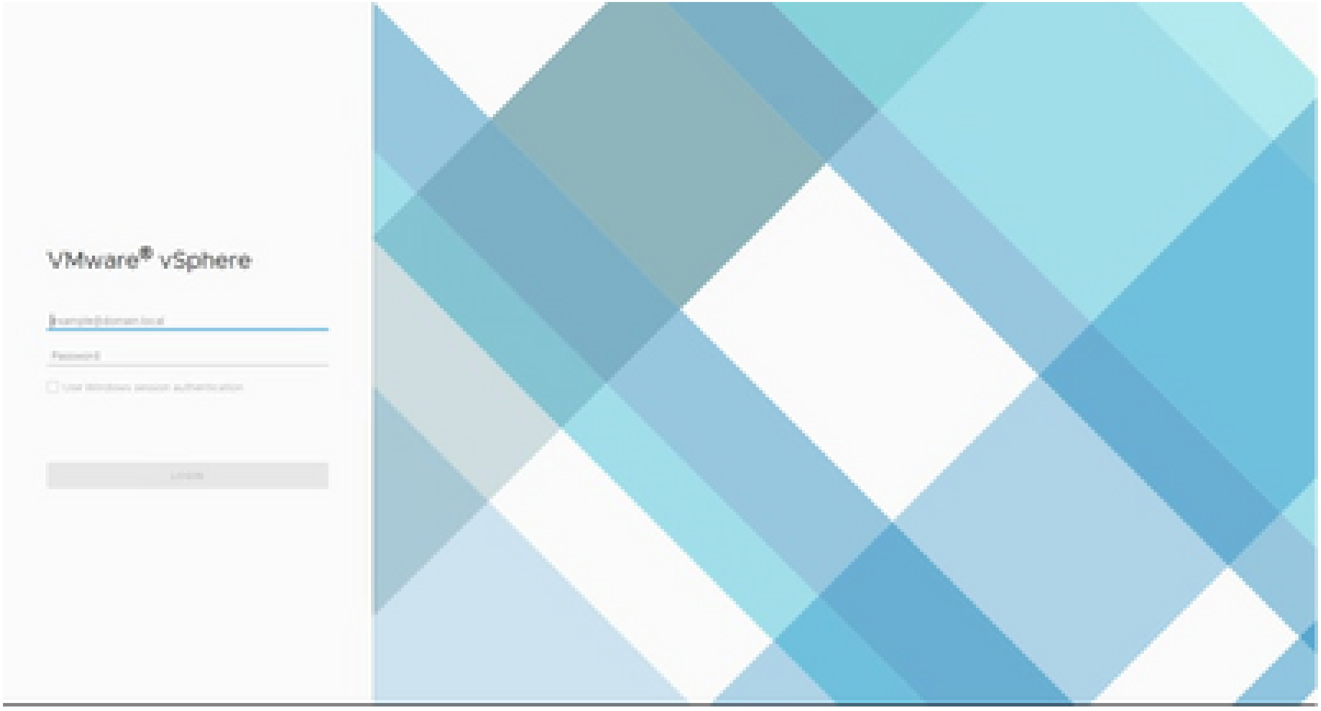
Console

10. Navigate to [Network Configuration]() to proceed with the next steps.

Web Client vCenter Installation

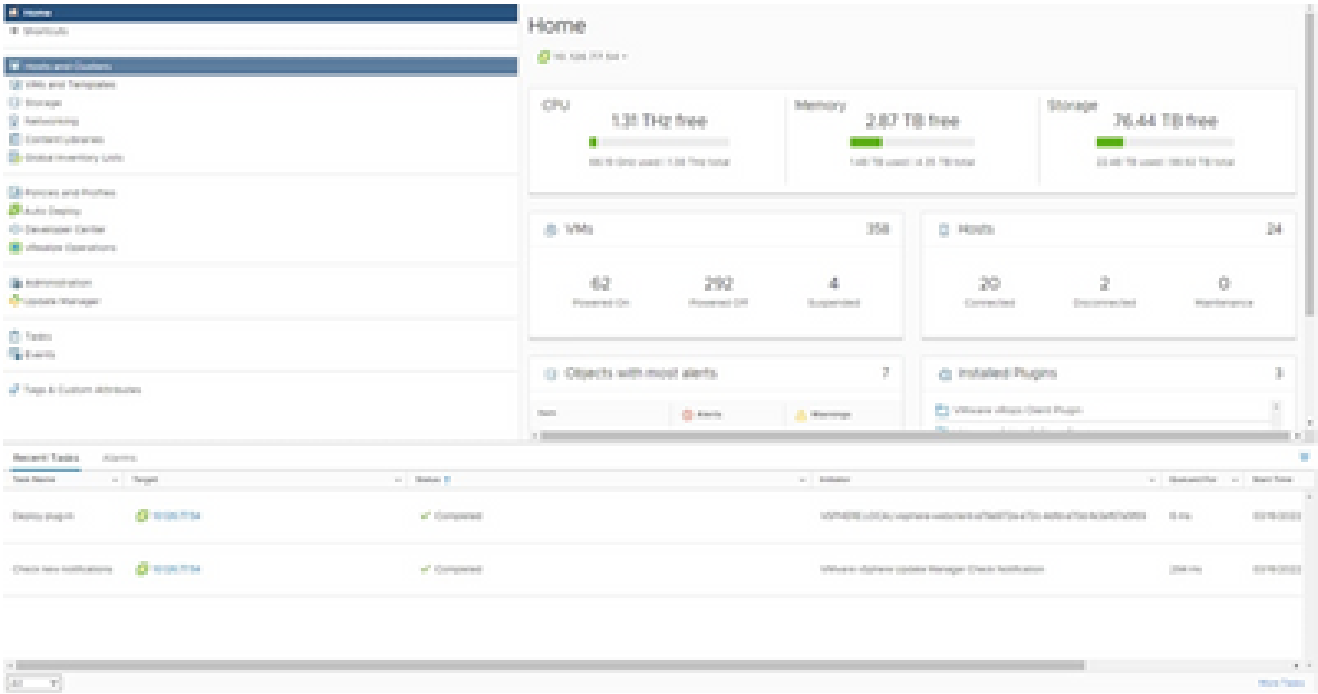
Perform these steps:

1. Log into vCenter Client using ESXi/hypervisor credentials.



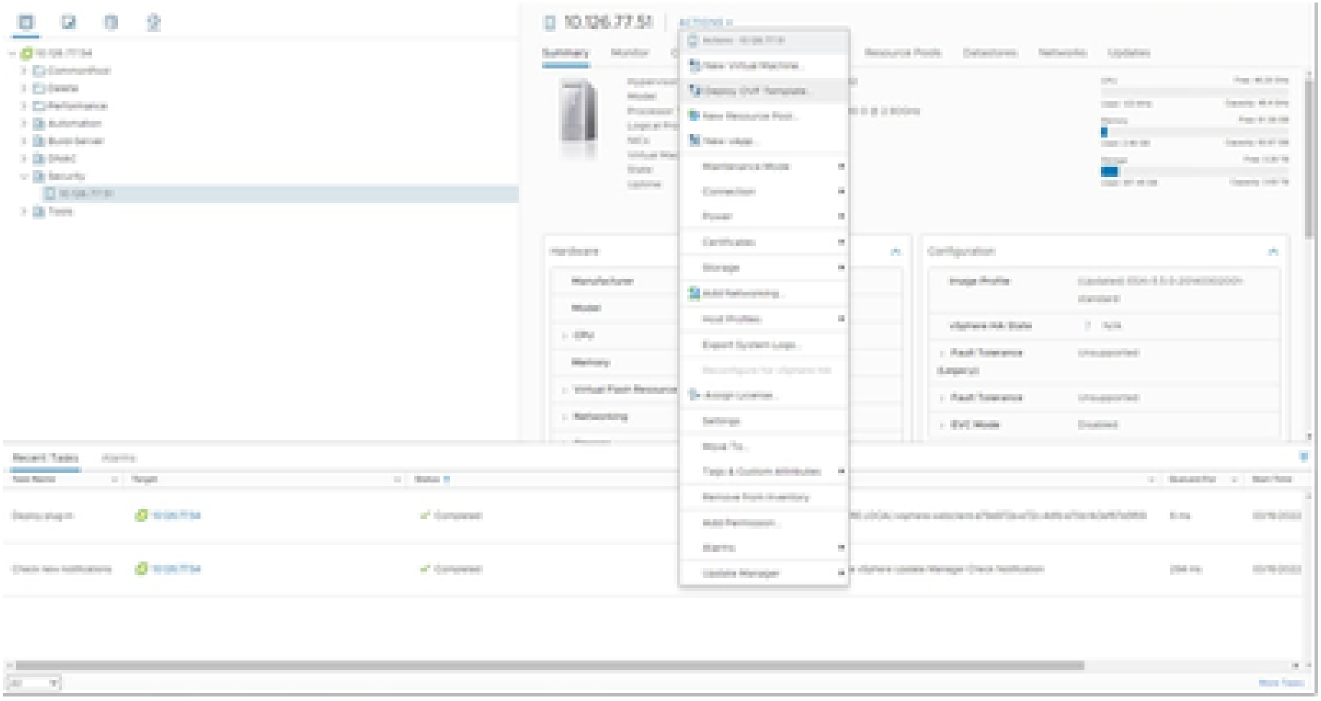
Log In

2. From the **Home** page, click **Hosts and Clusters**.

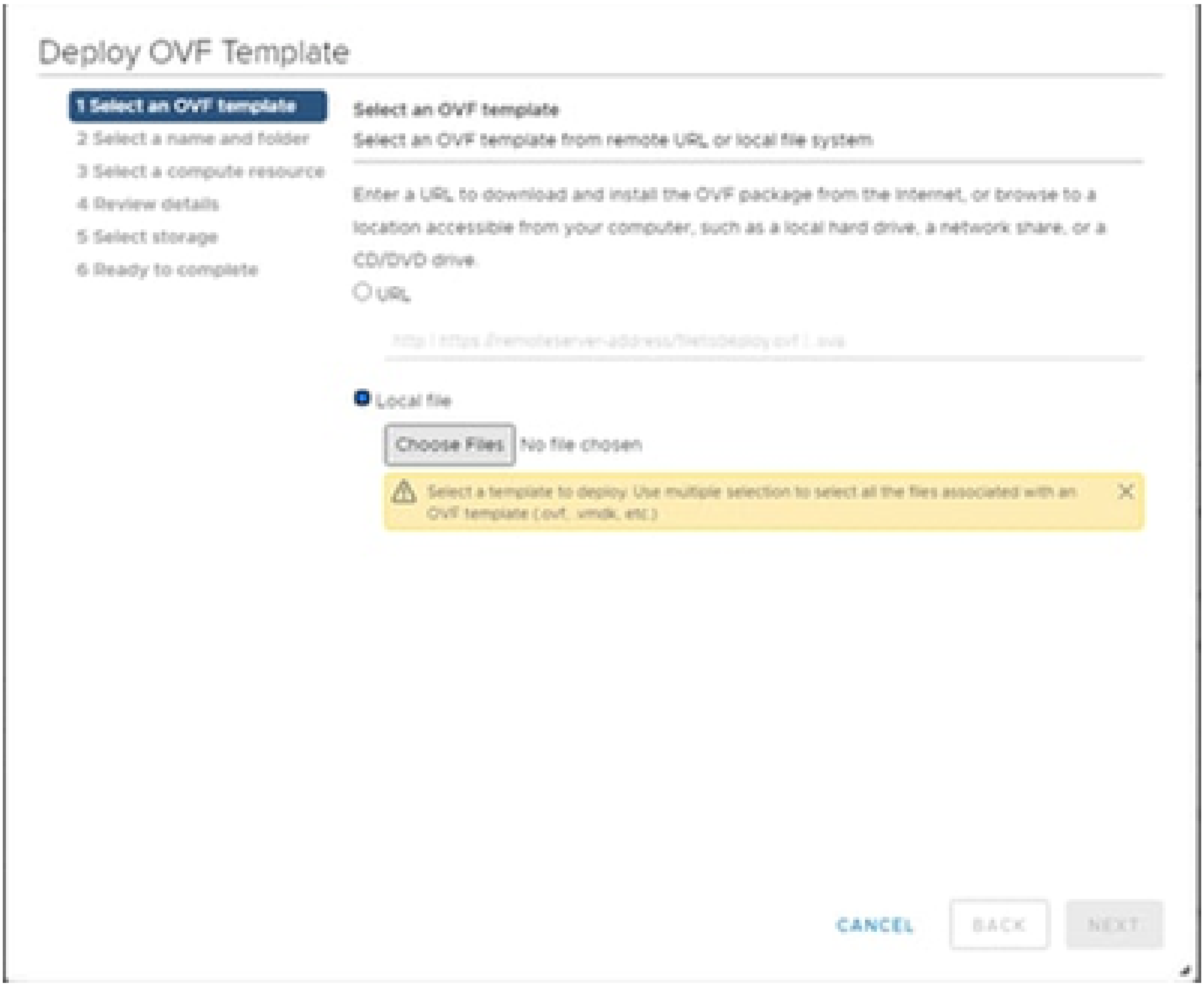


Home Page

3. Select the VM and click **Action > Deploy OVF Template**.



Actions



Deploy OVF Template

Select an OVF template

Select an OVF template from remote URL or local file system

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

○ URL

http | https://remoteserver-address/filetodeploy.ovf | .ova

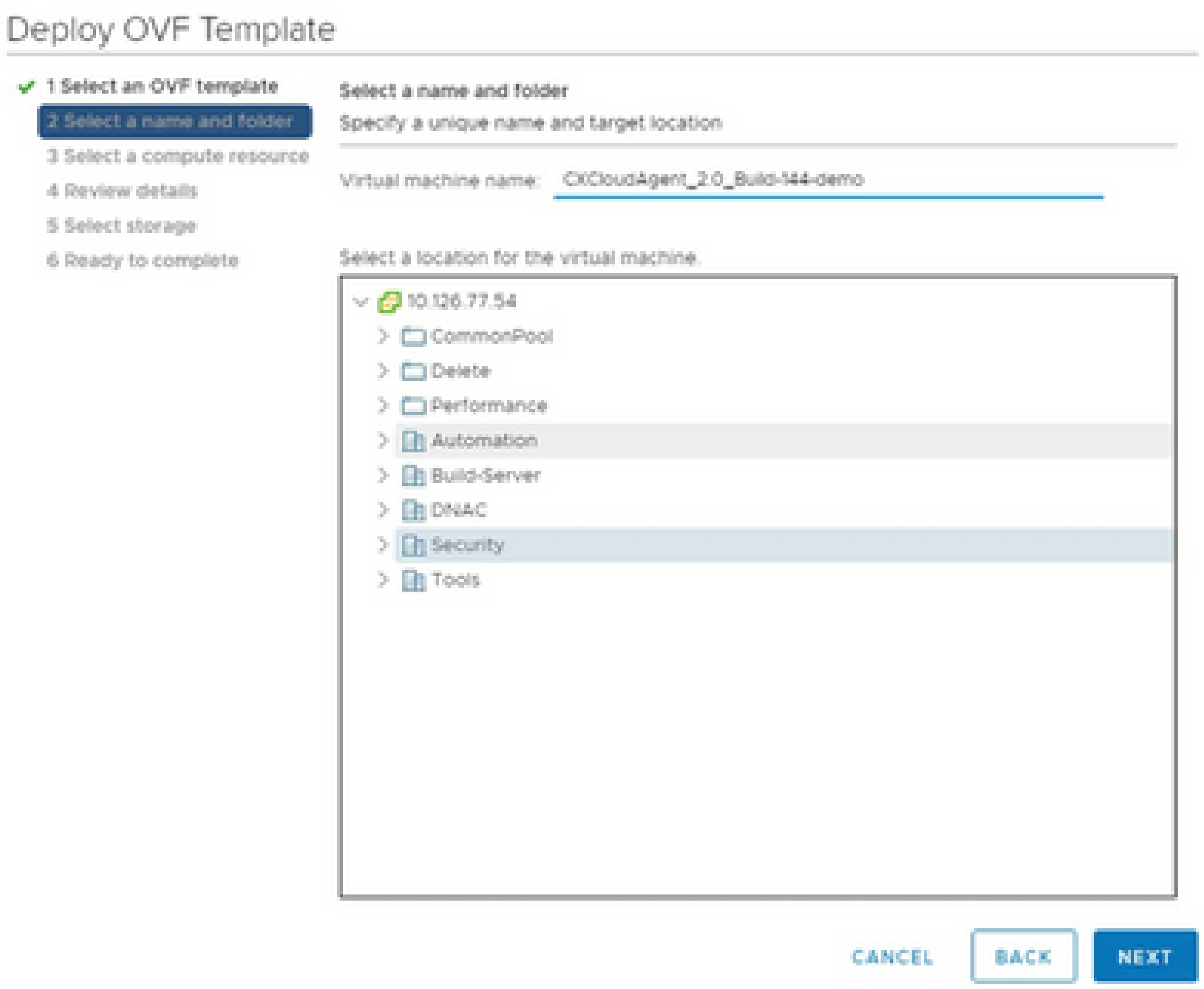
● Local file

Choose Files No file chosen

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

Select Template

4. Add the URL directly or browse to select the OVA file and click **Next**.
5. Enter a unique name and browse to the location if required.
6. Click **Next**.



Deploy OVF Template

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

Select a name and folder

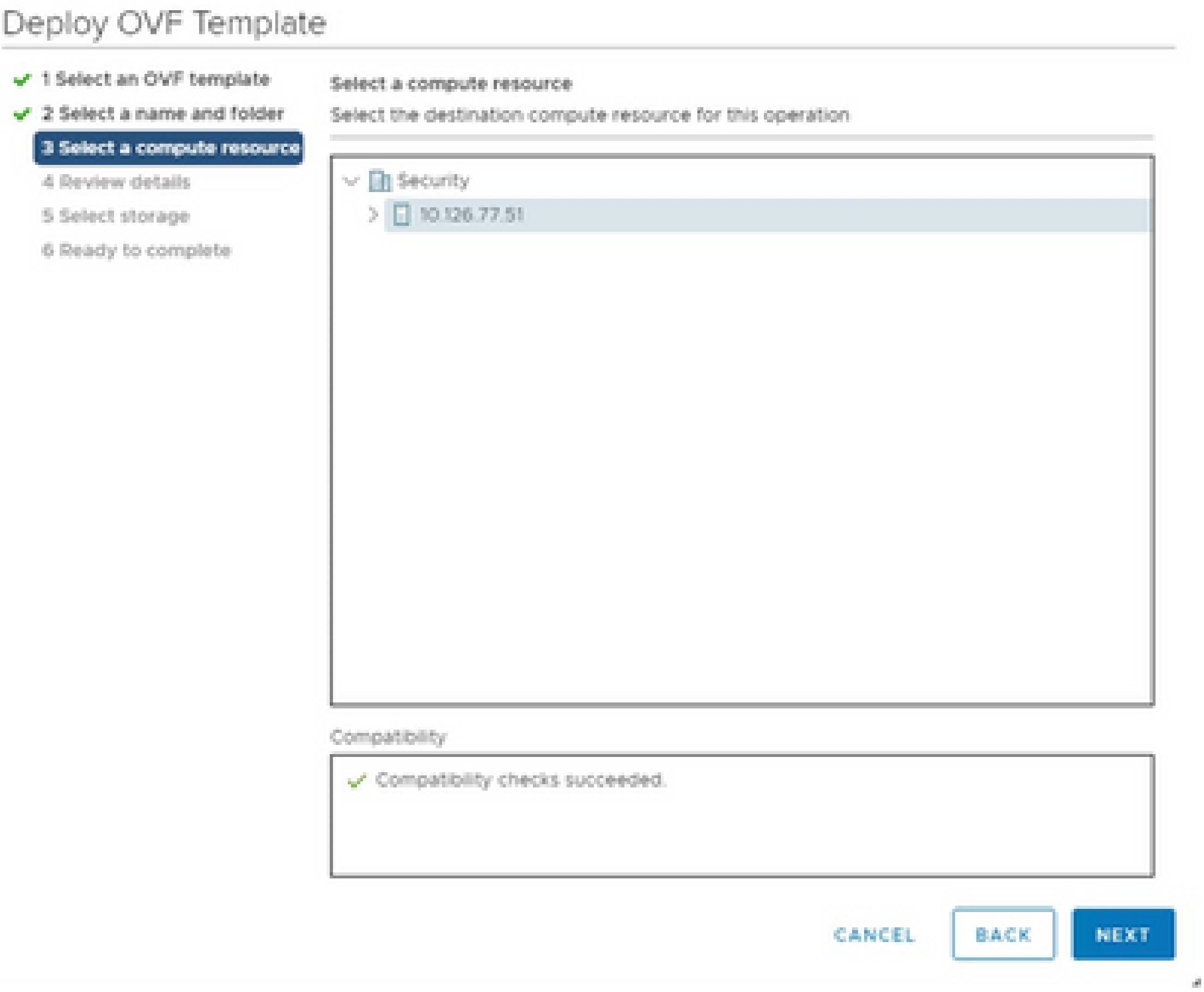
Specify a unique name and target location

Virtual machine name: CXCloudAgent_2.0_Build-144-demo

Select a location for the virtual machine.

Name and Folder

7. Select a compute resource and click **Next**.



Deploy OVF Template

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

Select a compute resource

Select the destination compute resource for this operation

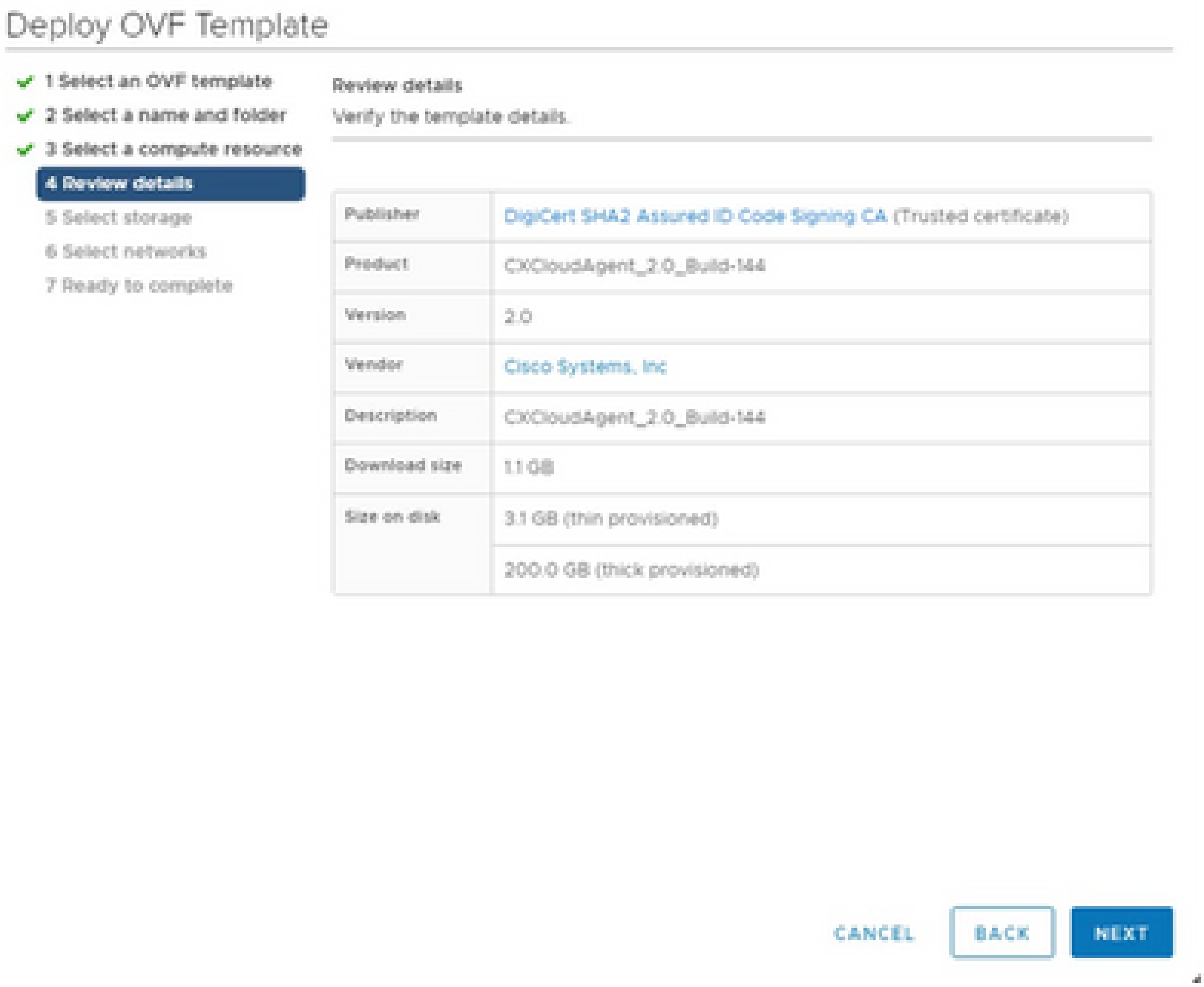
Security
10.126.77.51

Compatibility

✓ Compatibility checks succeeded.

Select Computer Resource

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



Deploy OVF Template

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

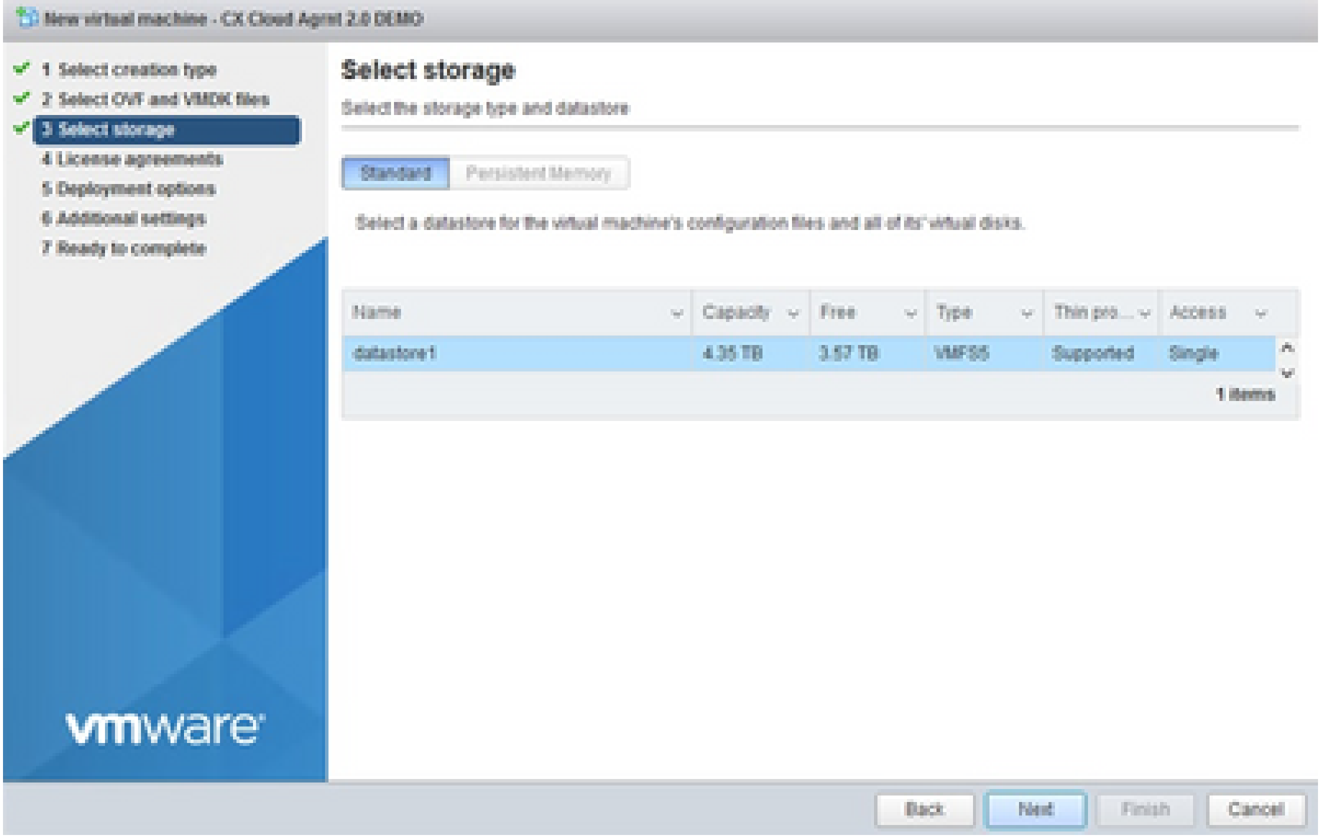
Review details

Verify the template details.

Publisher	DigiCert SHA2 Assured ID Code Signing CA (Trusted certificate)
Product	CXCloudAgent_2.0_Build-144
Version	2.0
Vendor	Cisco Systems, Inc
Description	CXCloudAgent_2.0_Build-144
Download size	1.1 GB
Size on disk	3.1 GB (thin provisioned)
	200.0 GB (thick provisioned)

Review Details

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



Select storage

Select the storage type and datastore

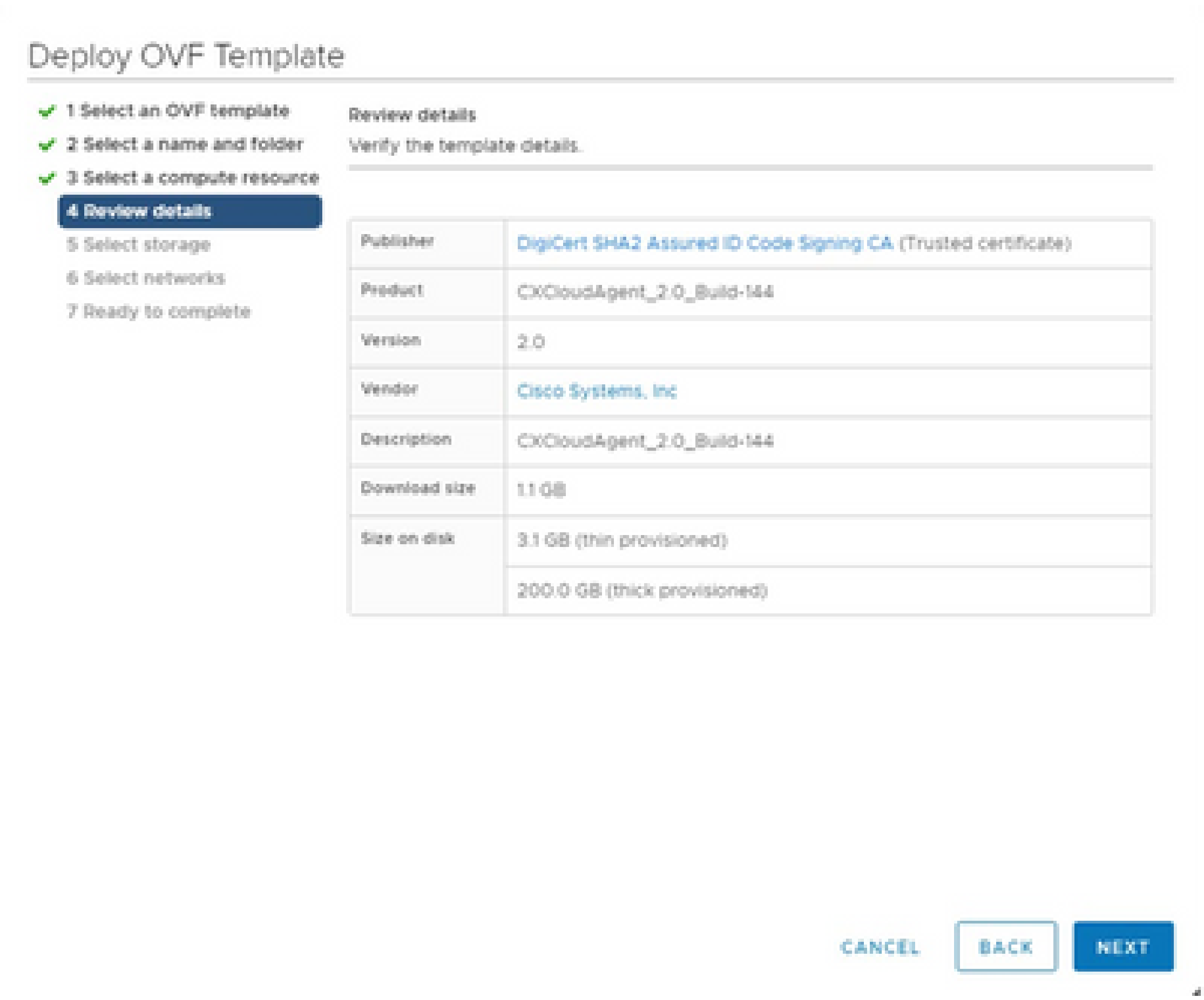
Select a datastore for the virtual machine's configuration files and all of its' virtual disks.

Name	Capacity	Free	Type	Thin pro...	Access
datastore1	4.35 TB	3.57 TB	VMFS5	Supported	Single

1 items

Select Storage

10. Click **Next**.



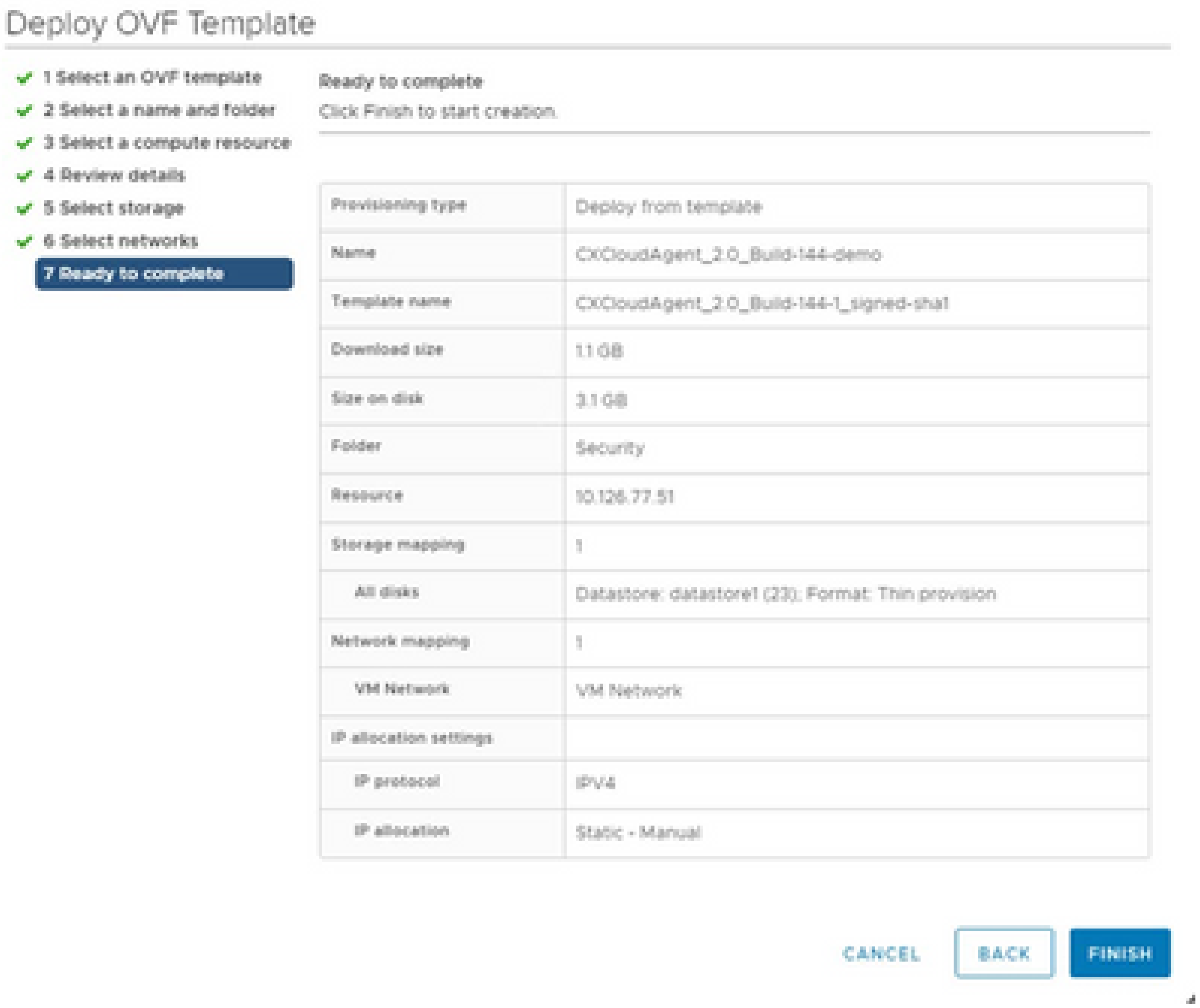
Review details

Verify the template details.

Publisher	DigiCert SHA2 Assured ID Code Signing CA (Trusted certificate)
Product	CXCloudAgent_2.0_Build-144
Version	2.0
Vendor	Cisco Systems, Inc
Description	CXCloudAgent_2.0_Build-144
Download size	1.1 GB
Size on disk	3.1 GB (thin provisioned)
	200.0 GB (thick provisioned)

Select Network

11. Click **Finish**.



Deploy OVF Template

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

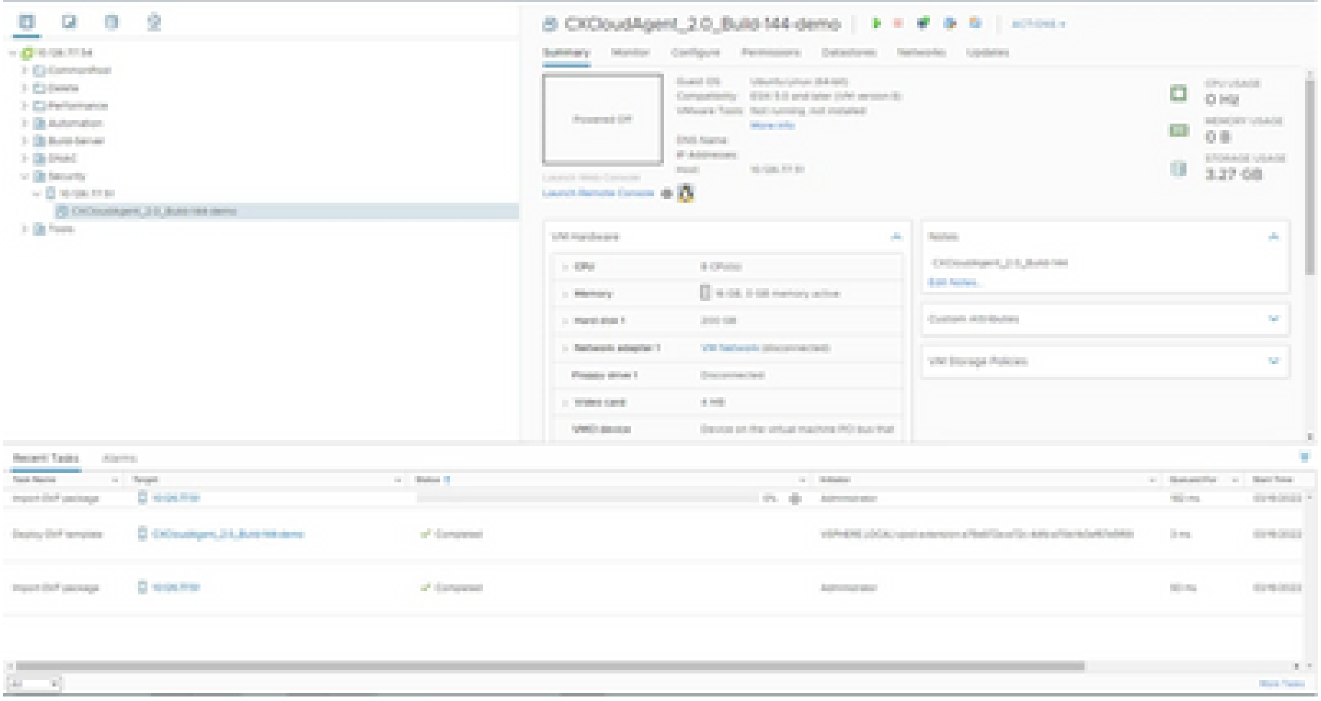
Ready to complete

Click Finish to start creation.

Provisioning type	Deploy from template
Name	CXCloudAgent_2.0_Build-144-demo
Template name	CXCloudAgent_2.0_Build-144-1_signed-sha1
Download size	1.1 GB
Size on disk	3.1 GB
Folder	Security
Resource	10.126.77.51
Storage mapping	1
All disks	Datastore: datastore1 (23); Format: Thin provision
Network mapping	1
VM Network	VM Network
IP allocation settings	
IP protocol	IPV4
IP allocation	Static - Manual

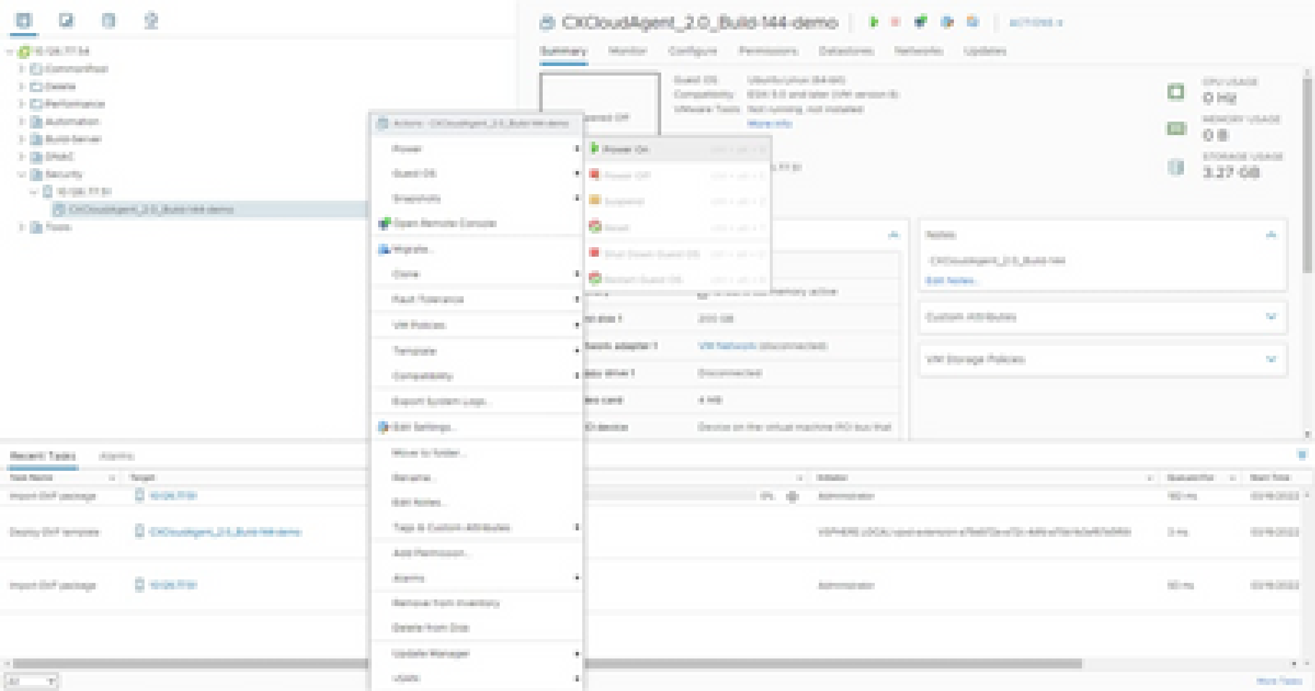
Ready to Complete

12. Click the name of the newly added VM to view the status.



VM Added

13. Once installed, power on the VM and open the console.



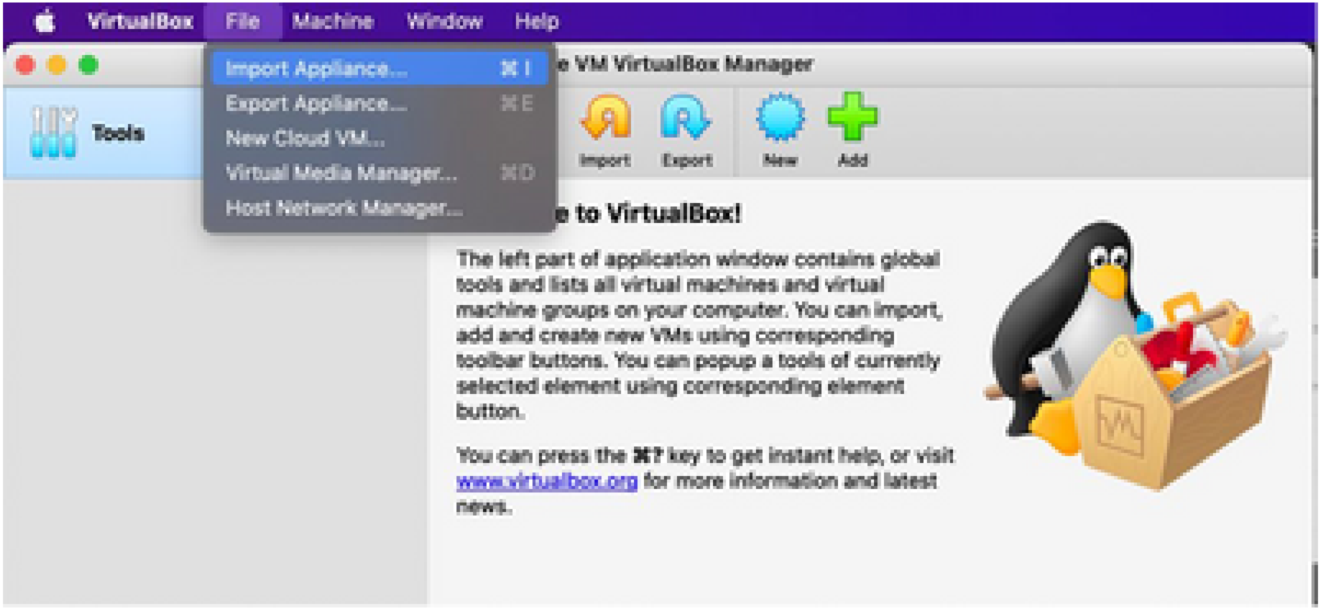
Open Console

14. Navigate to [Network Configuration]to proceed with the next steps.

Oracle Virtual Box 5.2.30 Installation

This client deploys CX Cloud Agent OVA though the Oracle Virtual Box.

1. Open the Oracle VM UI and select **File> Import Appliance**.



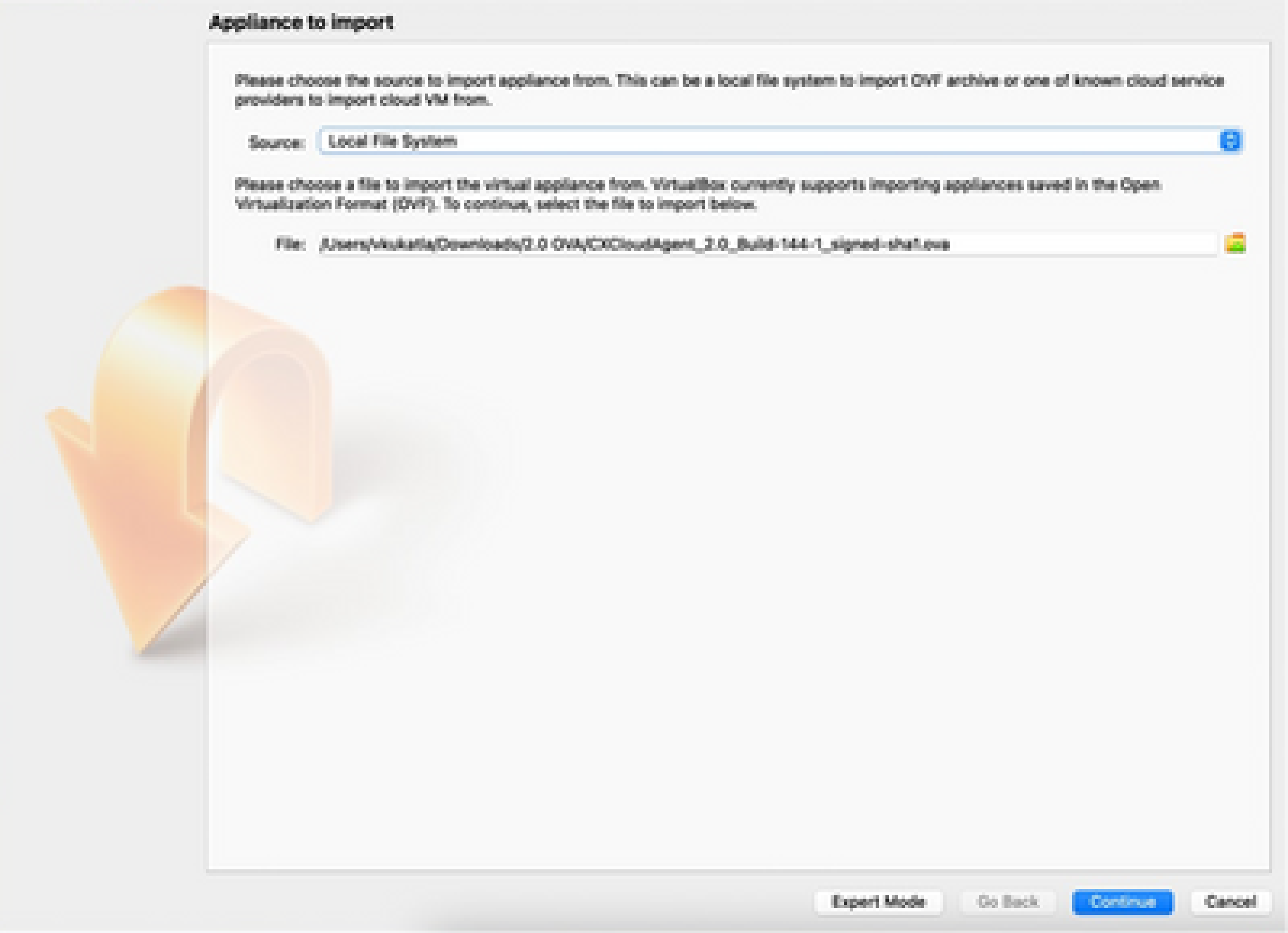
e to VirtualBox!

The left part of application window contains global tools and lists all virtual machines and virtual machine groups on your computer. You can import, add and create new VMs using corresponding toolbar buttons. You can popup a tools of currently selected element using corresponding element button.

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

Oracle VM

2. Browse to import the OVA file.



Appliance to import

Please choose the source to import appliance from. This can be a local file system to import OVF archive or one of known cloud service providers to import cloud VM from.

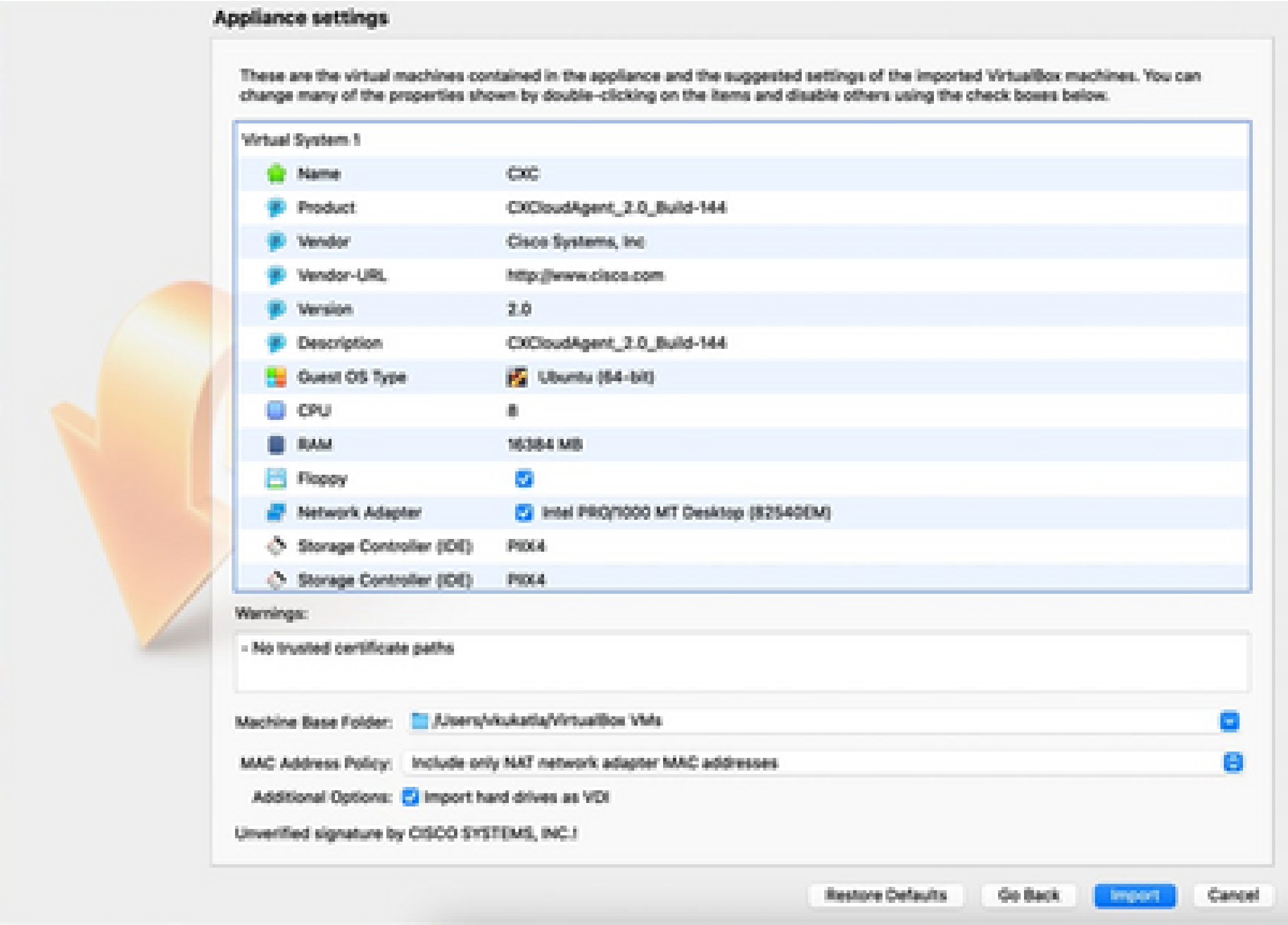
Source: Local File System

Please choose a file to import the virtual appliance from. VirtualBox currently supports importing appliances saved in the Open Virtualization Format (OVF). To continue, select the file to import below.

File: /Users/vkukatla/Downloads/2.0 OVA/CXCloudAgent_2.0_Build-144-1_signed-sha1.ova

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_2.0_Build-144
Vendor	Cisco Systems, Inc
Vendor-URL	http://www.cisco.com
Version	2.0
Description	CXCloudAgent_2.0_Build-144
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

Warnings:

- No trusted certificate paths

Machine Base Folder: /Users/vkukatla/VirtualBox VMs

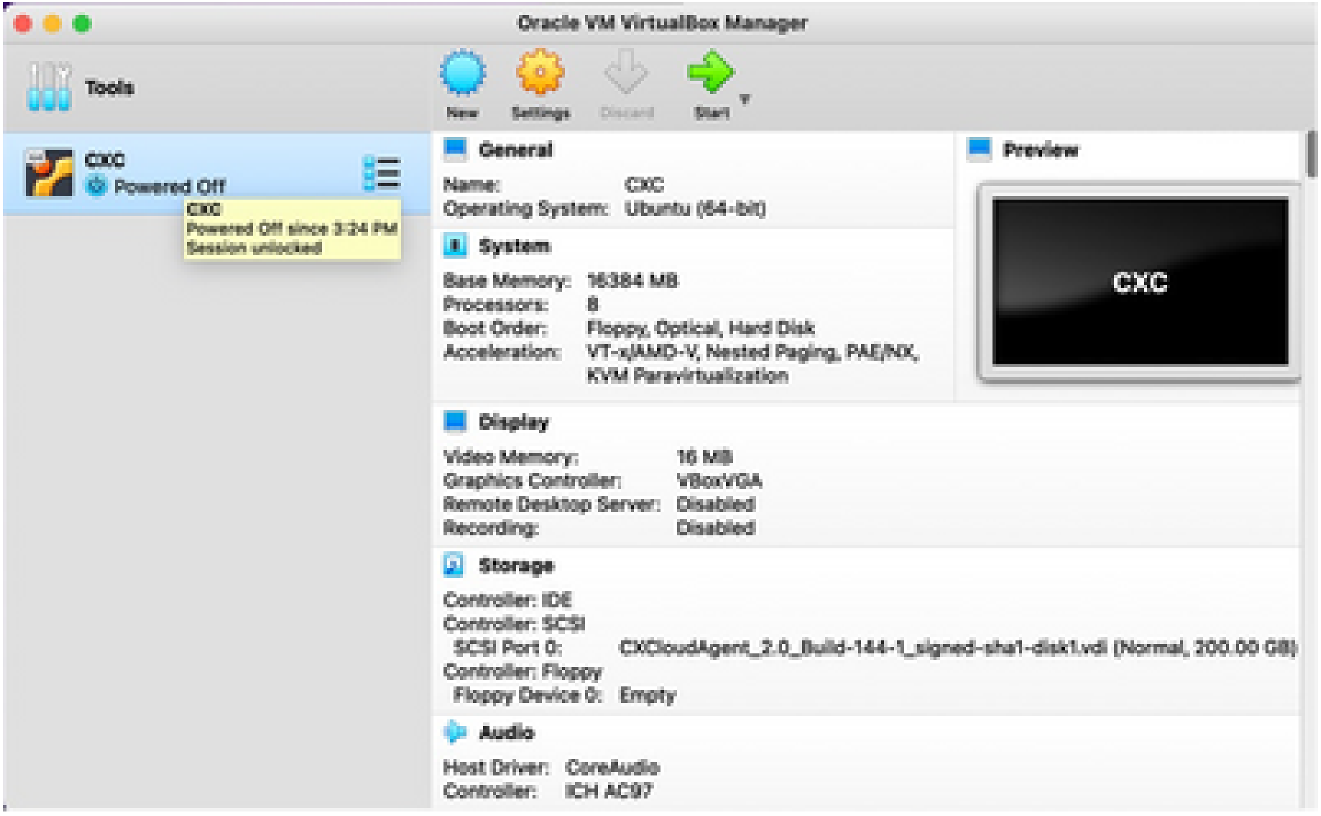
MAC Address Policy: Include only NAT network adapter MAC addresses

Additional Options: ☑ Import hard drives as VDI

Unverified signature by CISCO SYSTEMS, INC.!

Import File

4. Select the VM just deployed and click **Start**.



Oracle VM VirtualBox Manager

CXC
Powered Off

CXC
Powered Off since 3:24 PM
Session unlocked

General

Name: CXC
Operating System: Ubuntu (64-bit)

System

Base Memory: 16384 MB
Processors: 8
Boot Order: Floppy, Optical, Hard Disk
Acceleration: VT-x/AMD-V, Nested Paging, PAE/NX, KVM Paravirtualization

Preview

Display

Video Memory: 16 MB
Graphics Controller: VBoxVGA
Remote Desktop Server: Disabled
Recording: Disabled

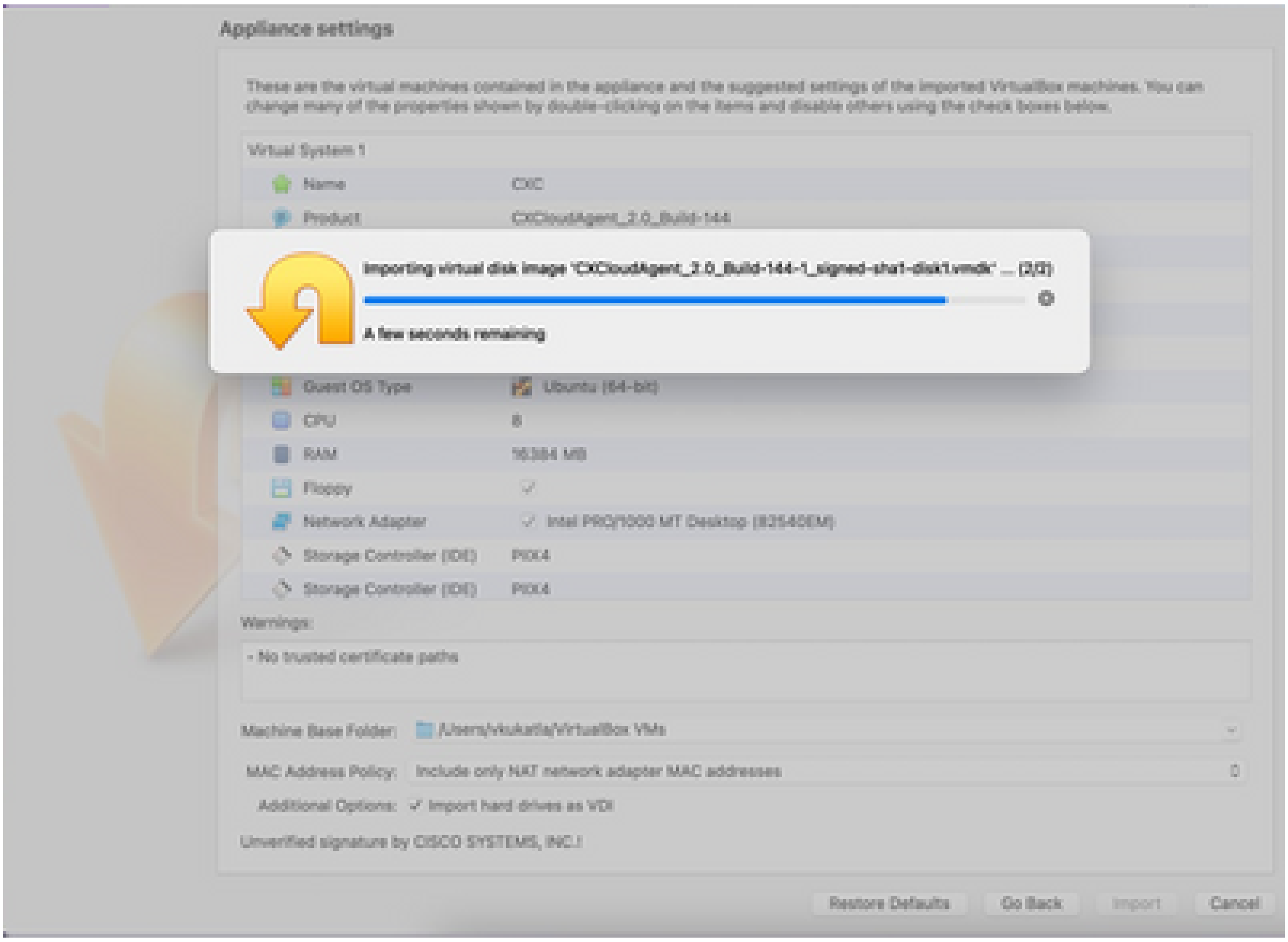
Storage

Controller: IDE
Controller: SCSI
SCSI Port 0: CXCloudAgent_2.0_Build-144-1_signed-sha1-disk1.vdi (Normal, 200.00 GB)
Controller: Floppy
Floppy Device 0: Empty

Audio

Host Driver: CoreAudio
Controller: ICH AC97

VM Console Startup



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_2.0_Build-144
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

Importing virtual disk image 'CXCloudAgent_2.0_Build-144-1_signed-sha1-disk1.vmdk' ... (2/3)

A few seconds remaining

Warnings:

- No trusted certificate paths

Machine Base Folder: /Users/vkukatla/VirtualBox VMs

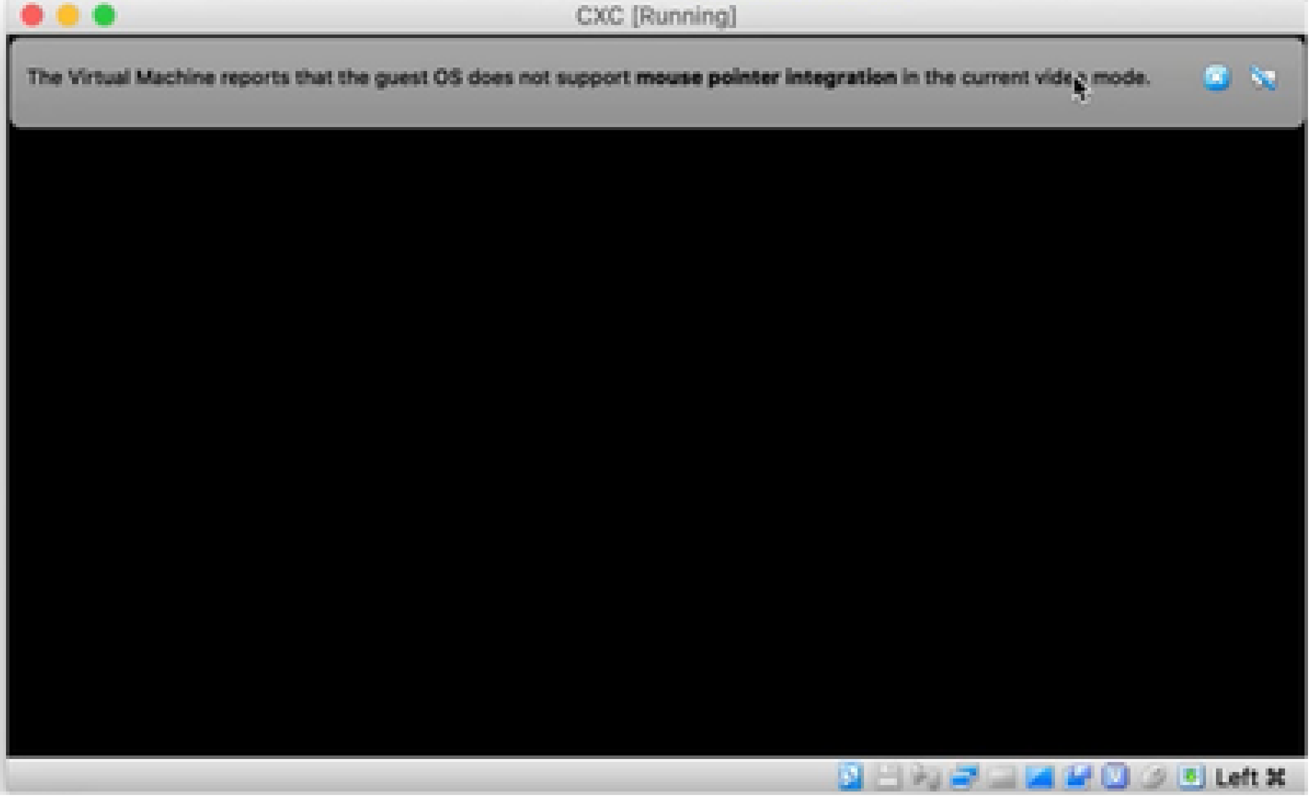
MAC Address Policy: Include only NAT network adapter MAC addresses

Additional Options: ✓ Import hard drives as VDI

Unverified signature by CISCO SYSTEMS, INC.!

Import in Progress

5. Power on the VM. The console displays.



CXC [Running]

The Virtual Machine reports that the guest OS does not support **mouse pointer integration** in the current video mode.

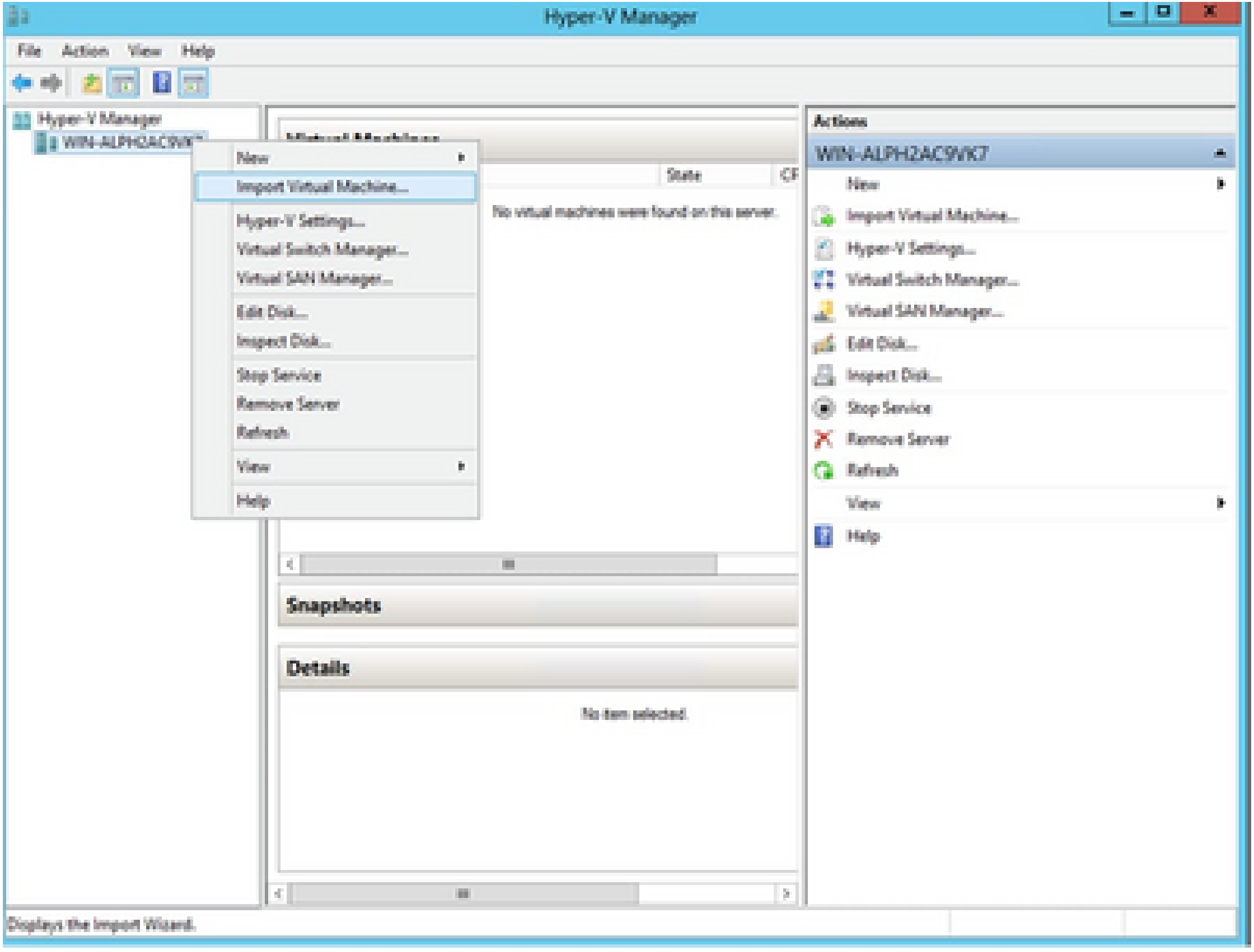
Open Console

6. Navigate to Network Configuration to proceed with the next steps.

Microsoft Hyper-V Installation

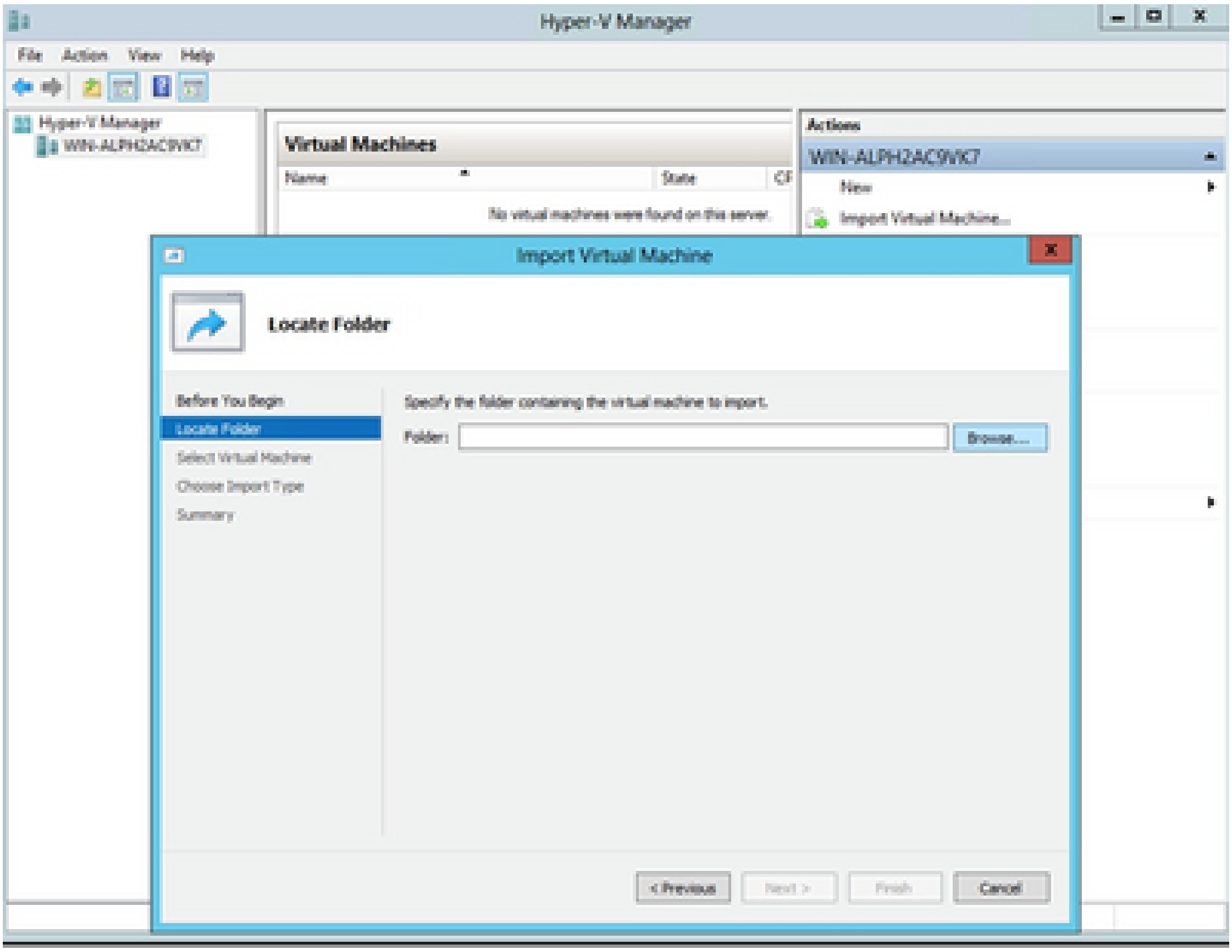
Perform these steps:

1. Select **Import Virtual Machine**.



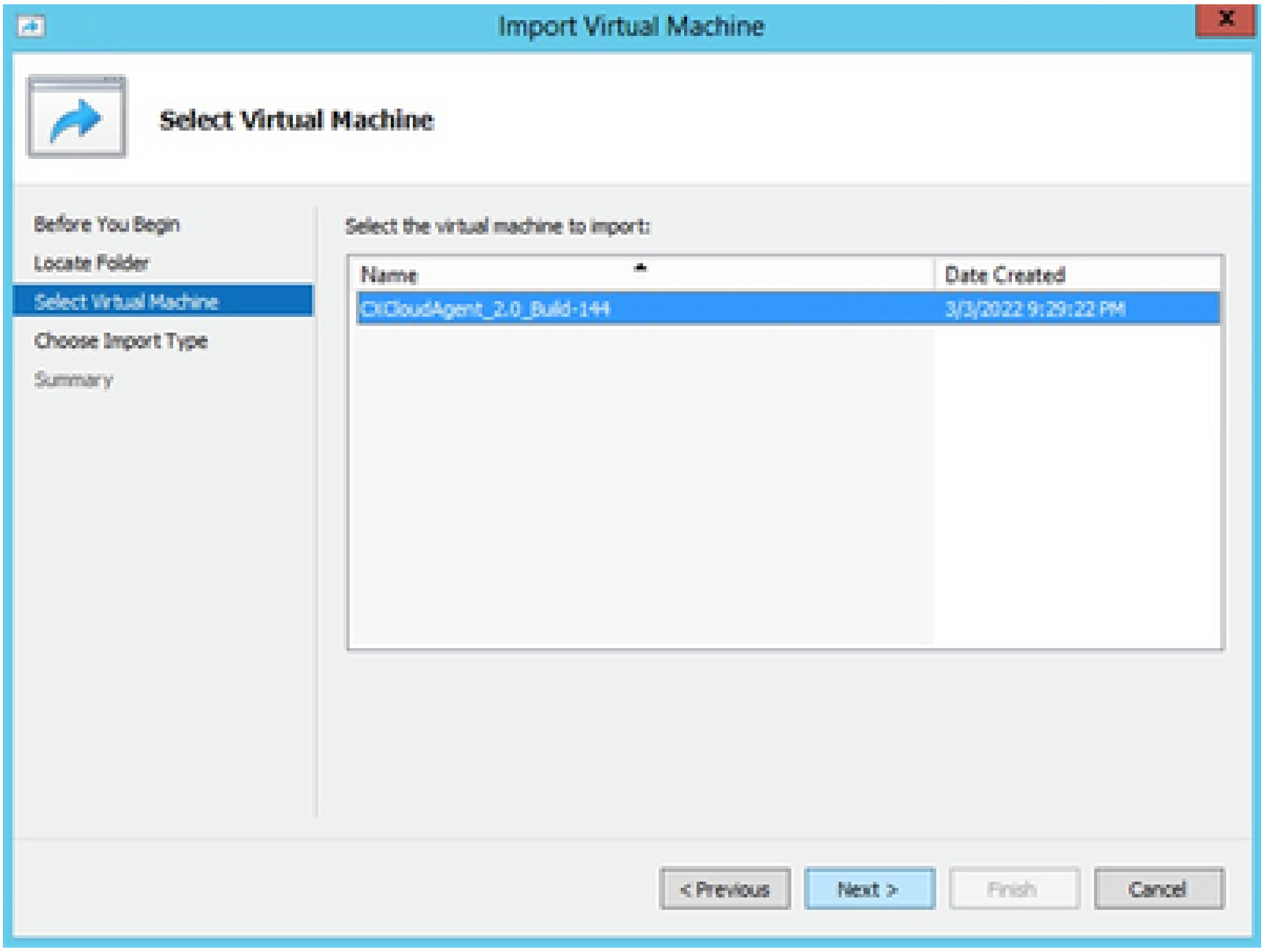
Hyper V Manager

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



Folder to Import

4. Select the **VM** and click **Next**.

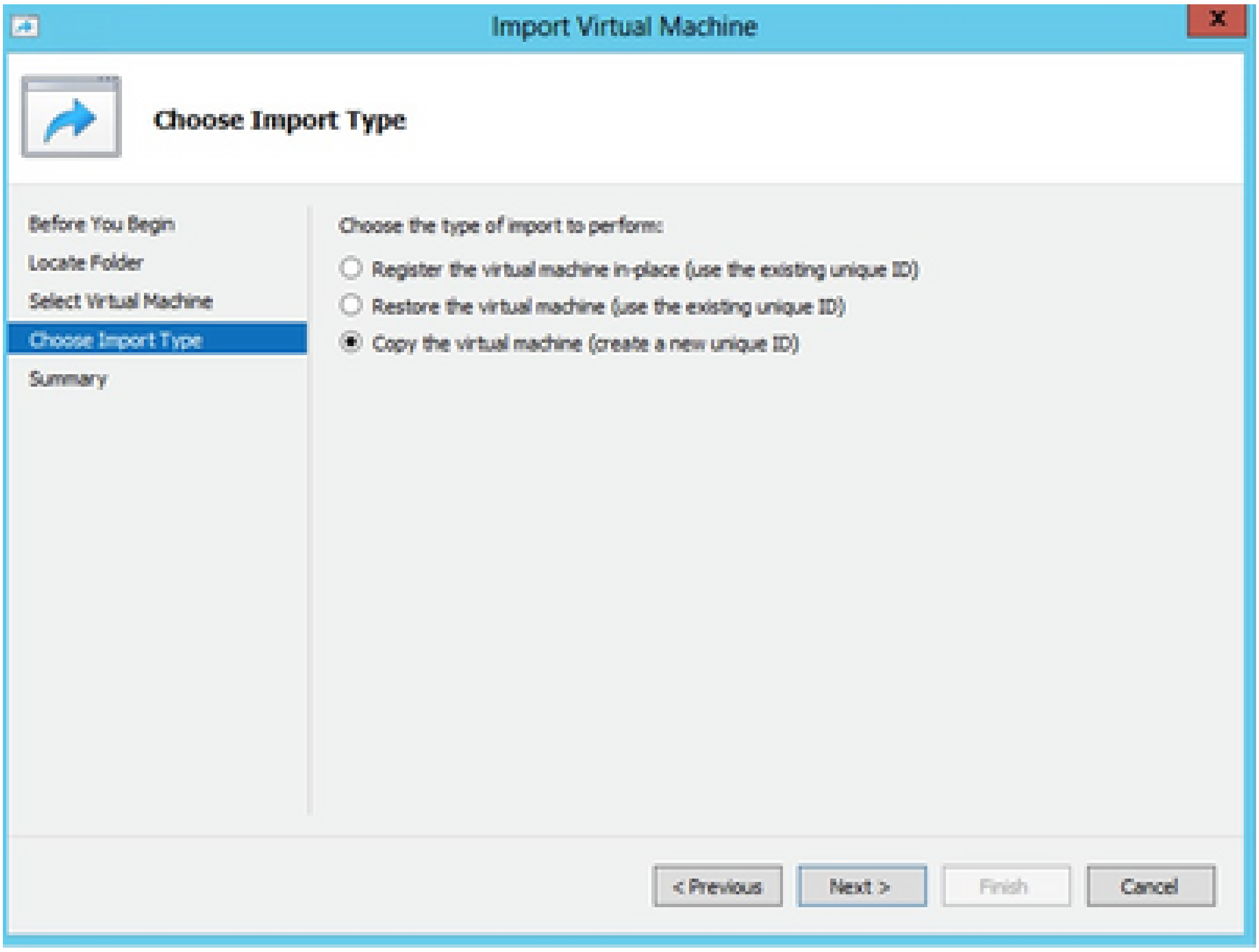


Select the virtual machine to import:

Name	Date Created
CXCloudAgent_2.0_Build-144	3/3/2022 9:29:22 PM

Select VM

5. Select the **Copy the virtual machine (create a new unique ID)** radio button and click **Next**.



Choose the type of import to perform:

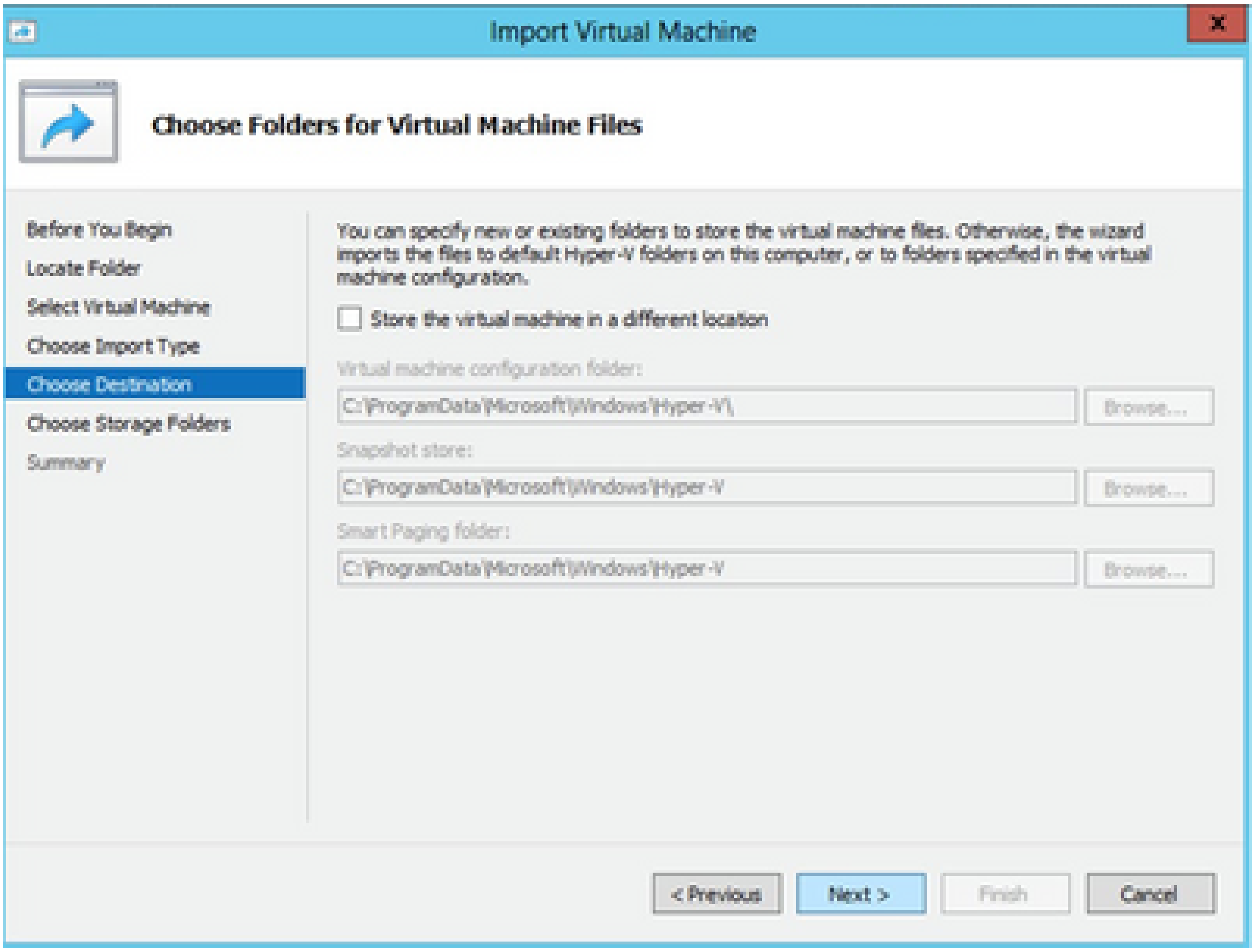
○ Register the virtual machine in-place (use the existing unique ID)

○ 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 the default paths.
7. Click **Next**.



Choose Folders for Virtual Machine Files

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

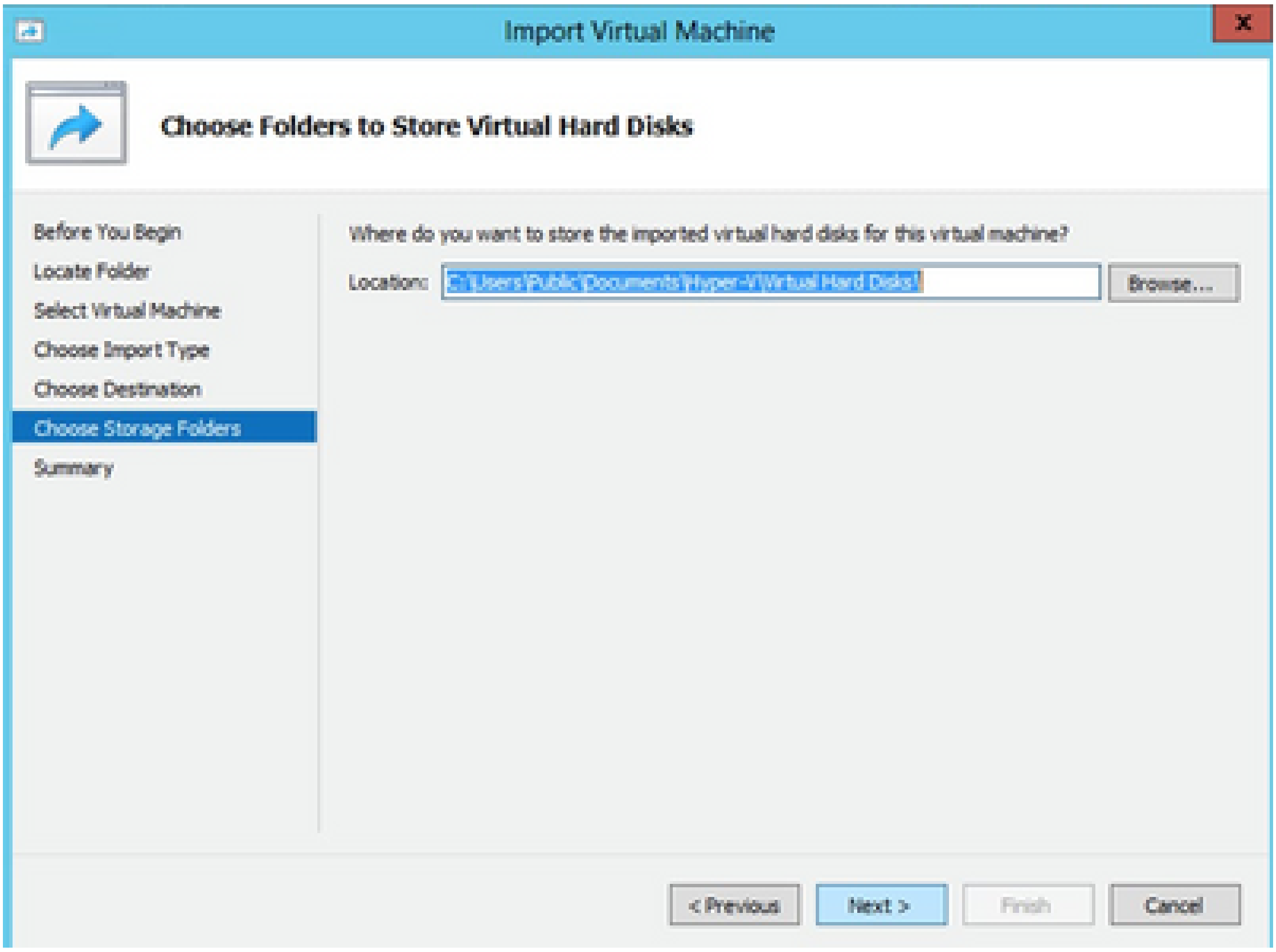
Virtual machine configuration folder: C:\ProgramData\Microsoft\Windows\Hyper-V\

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

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

Choose Folders for Virtual Machine Files

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

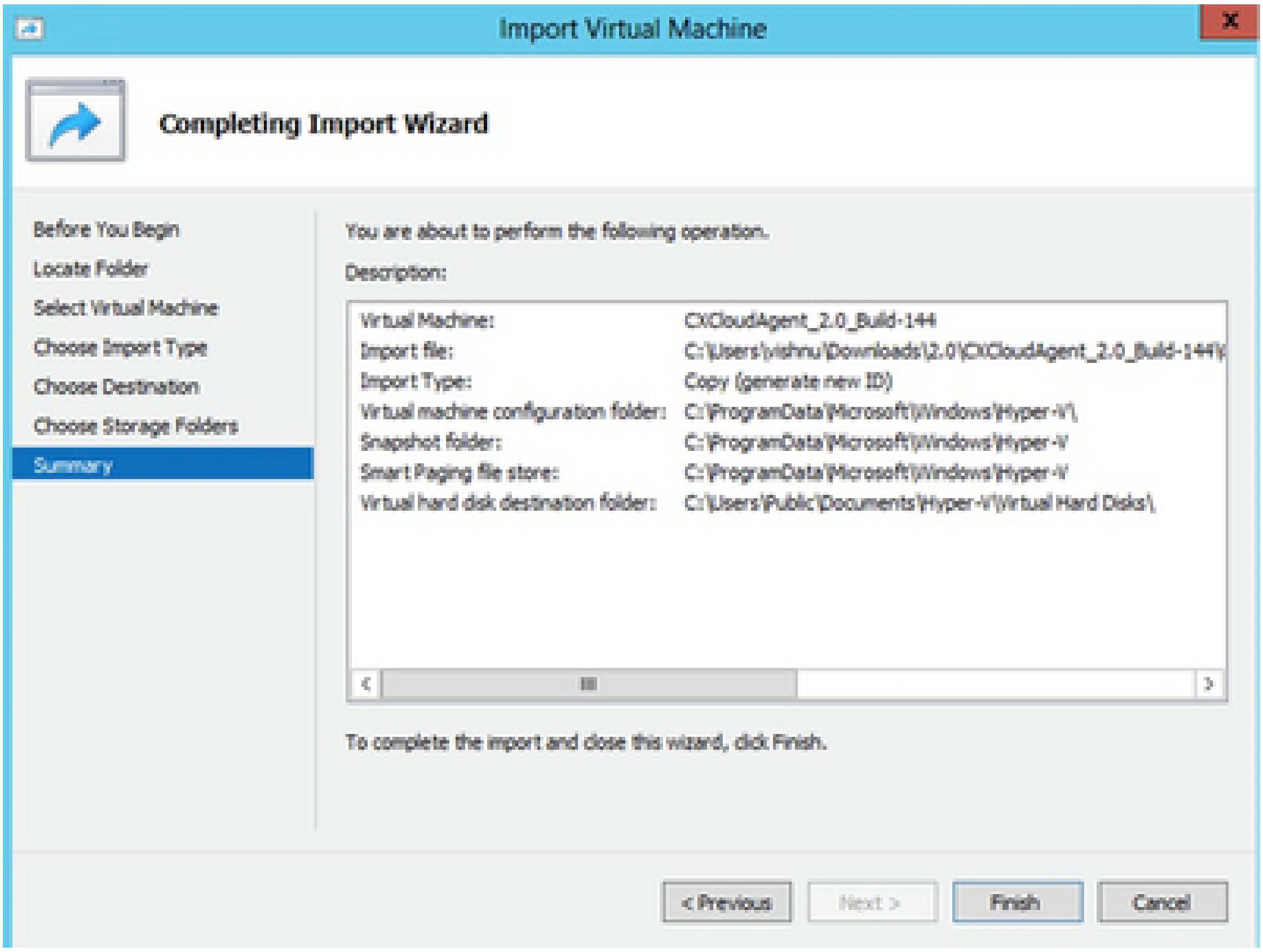


Where do you want to store the imported virtual hard disks for this virtual machine?

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

Folder to Store the Virtual Hard Disks

10. The VM summary displays. Verify all inputs and click **Finish**.



You are about to perform the following operation.

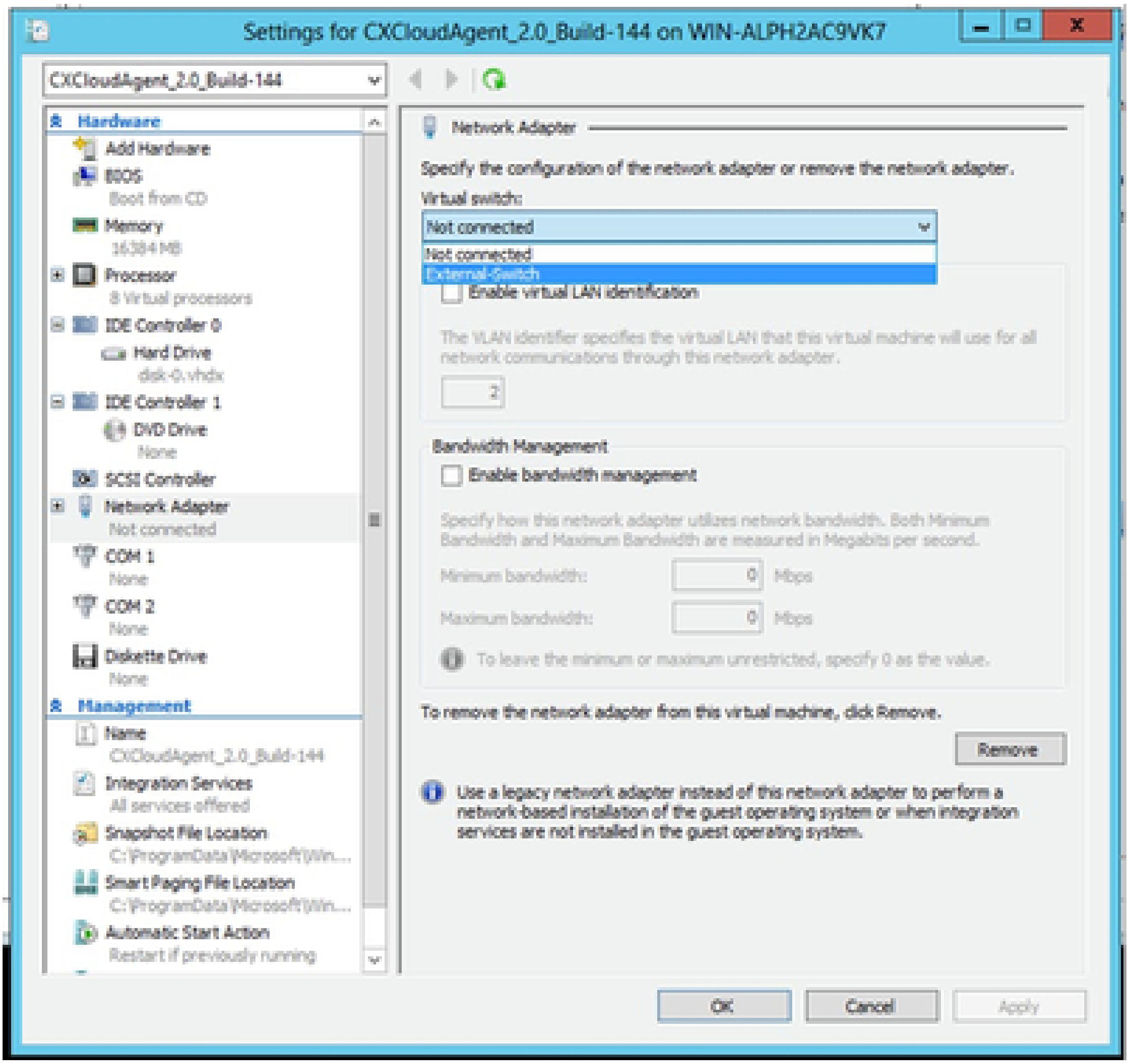
Description:

Virtual Machine:	CXCloudAgent_2.0_Build-144
Import file:	C:\Users\vishnu\Downloads\2.0\CXCloudAgent_2.0_Build-144\
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

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



Settings for CXCloudAgent_2.0_Build-144 on WIN-ALPH2AC9VK7

Network Adapter

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

Virtual switch: Not connected

- Not connected
- External-Switch

□ 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

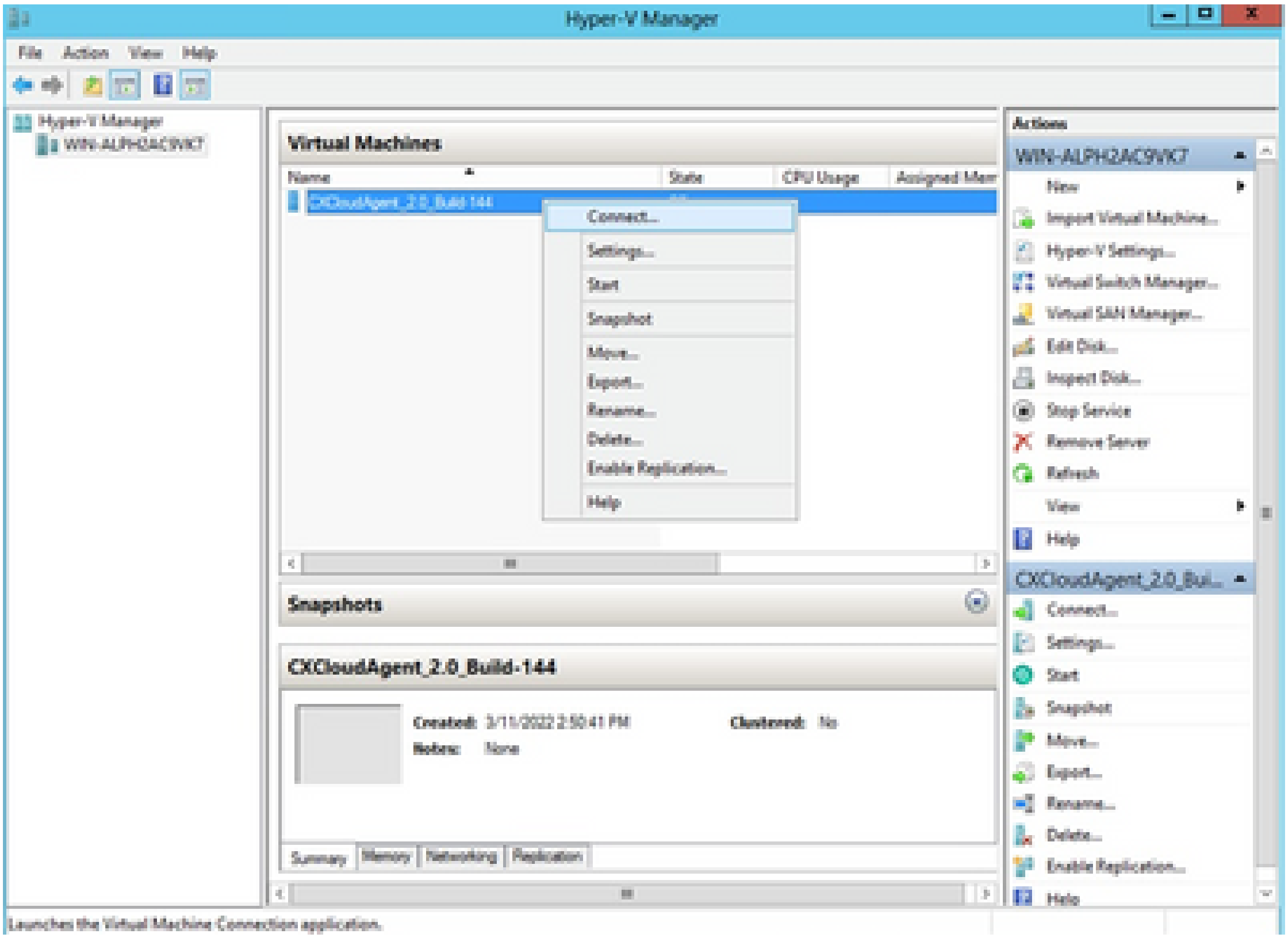
To leave the minimum or maximum unrestricted, specify 0 as the value.

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

13. Select **Connect** to start the VM.



Created: 3/11/2022 2:50:41 PM
Notes: None
Clustered: No

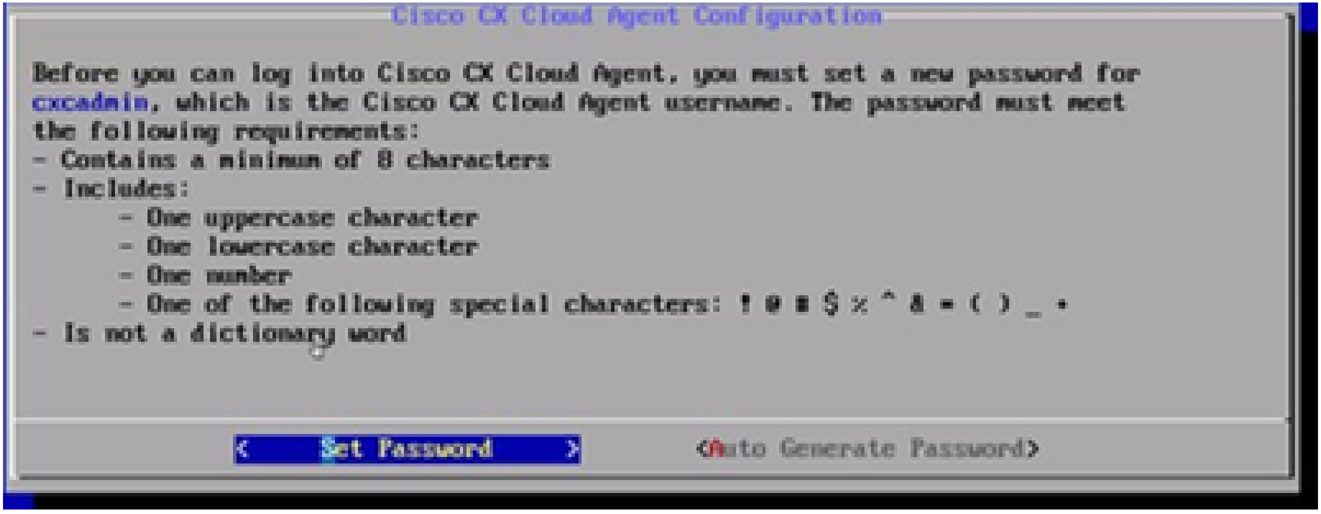
Launches the Virtual Machine Connection application.

Starting VM

14. Navigate to Network Configuration to proceed with the next steps.

Network Configuration

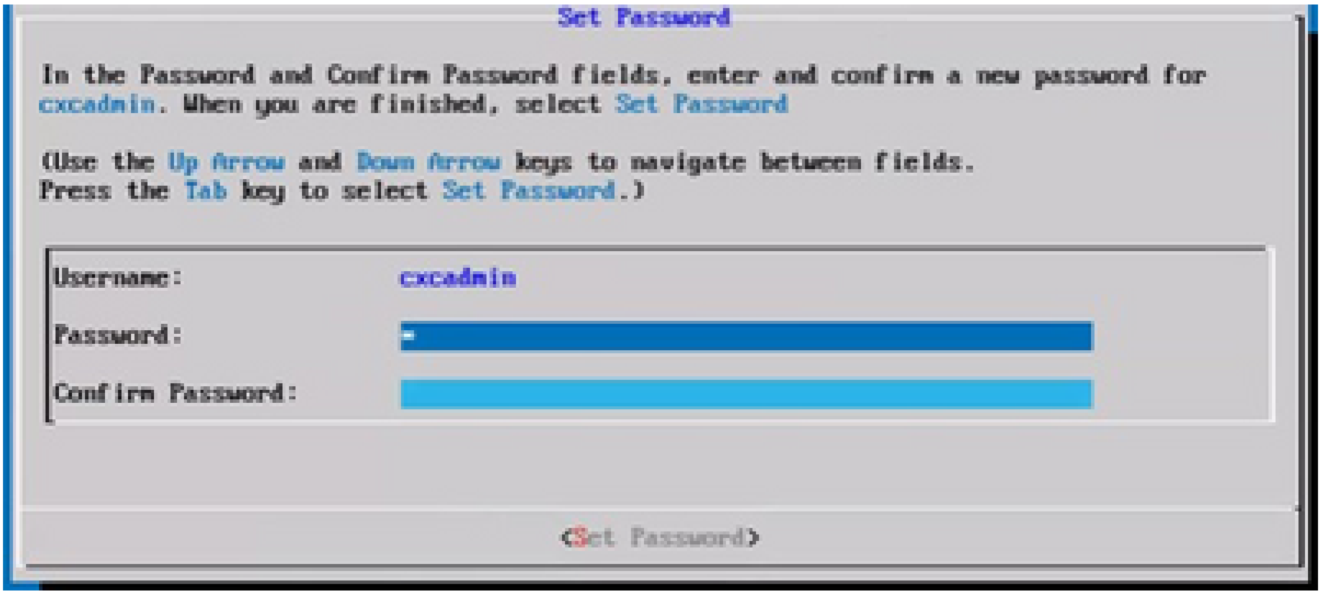
1. Click **Set Password** to add a new password for cxcadmin OR click **Auto Generate Password** to get a new password.



```
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

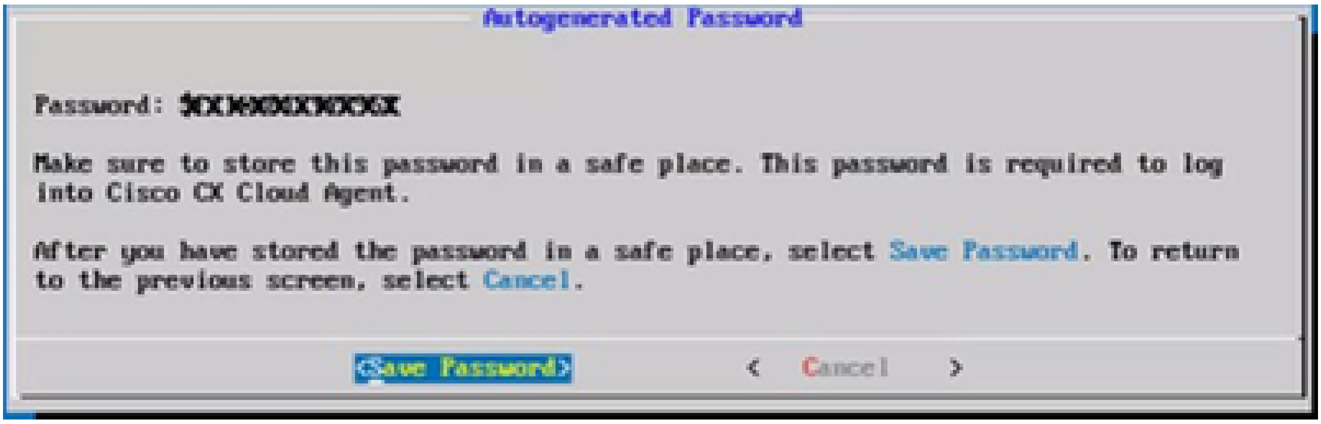
Password:

Confirm Password:

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

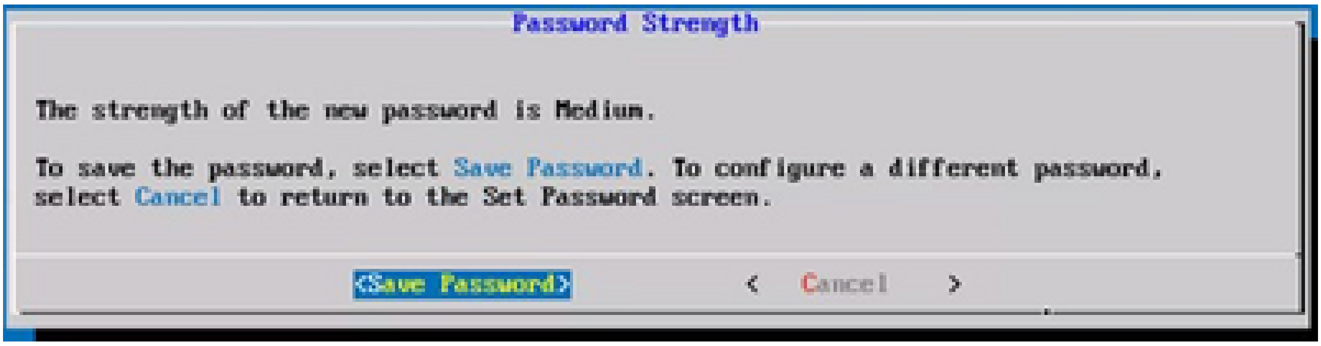
Password: XXXXXXXXXXX

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.

Auto Generated Password

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



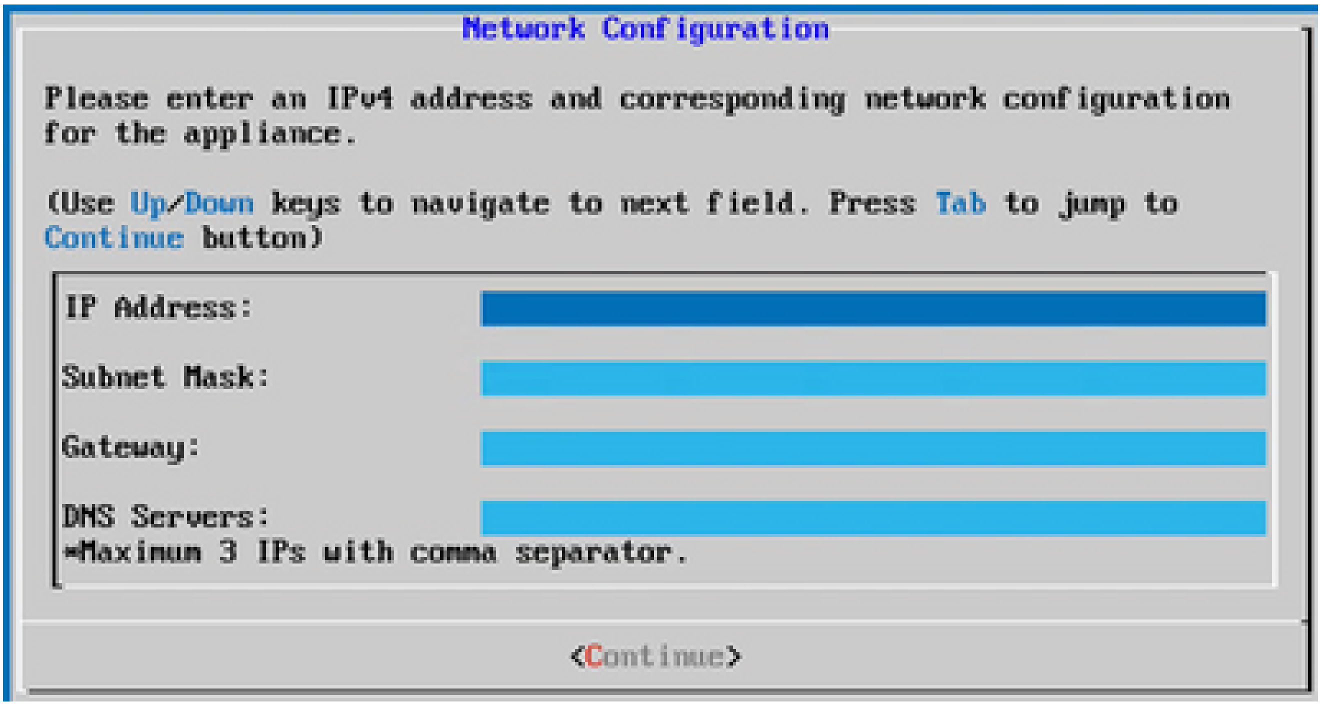
Password Strength

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** and 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:

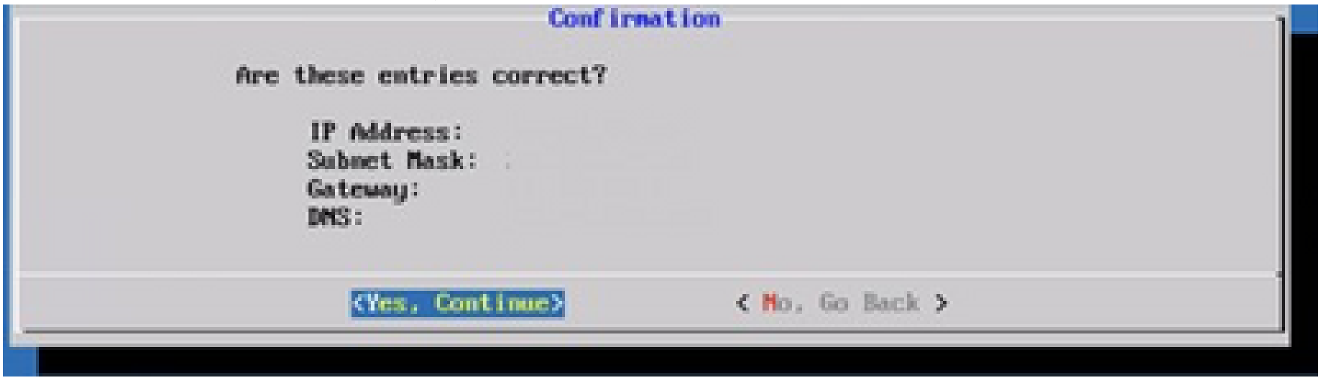
Subnet Mask:

Gateway:

DNS Servers:
*Maximum 3 IPs with comma separator.

Network Configuration

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



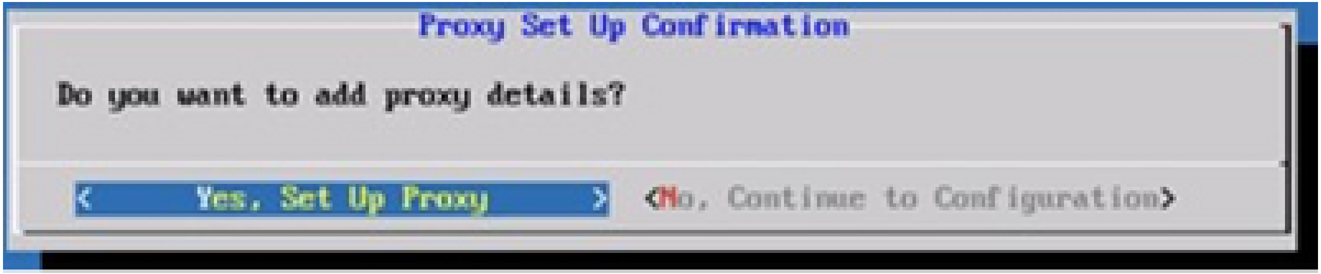
Confirmation

Are these entries correct?

IP Address:
Subnet Mask:
Gateway:
DNS:

Configuration

6. To set the proxy details, click **Yes, Set Up Proxy** or click **No, Continue to Configuration** to complete the configuration, and go to Step 8.

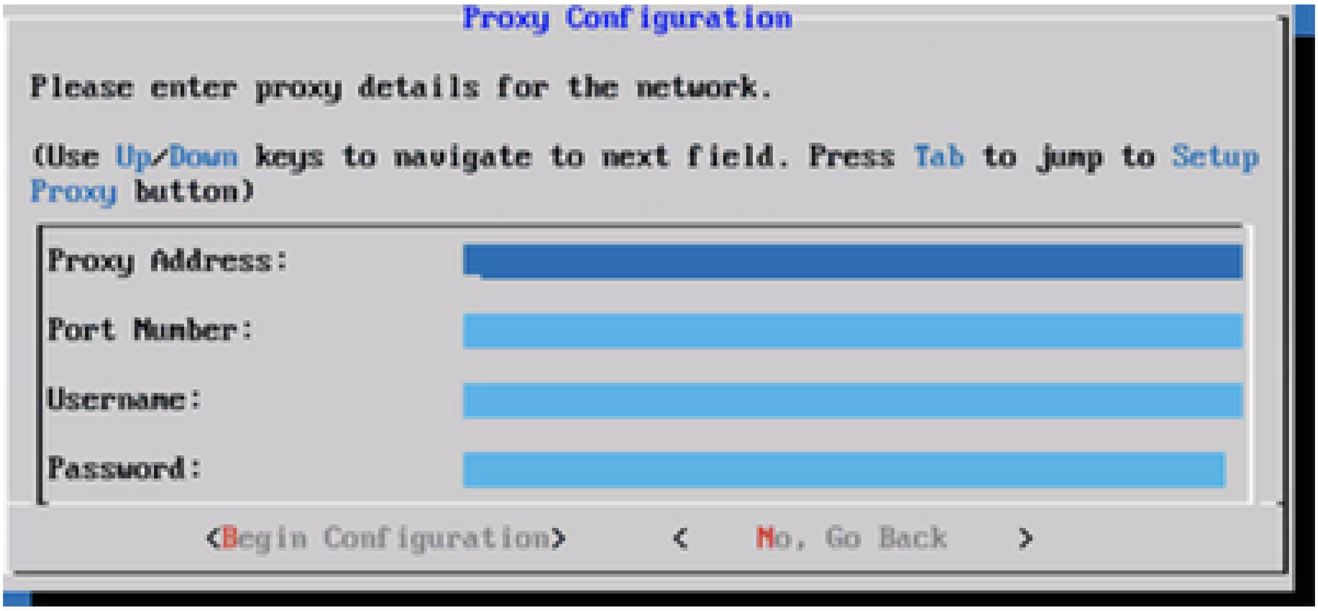


Proxy Set Up Confirmation

Do you want to add proxy details?

Proxy Setup

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



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:

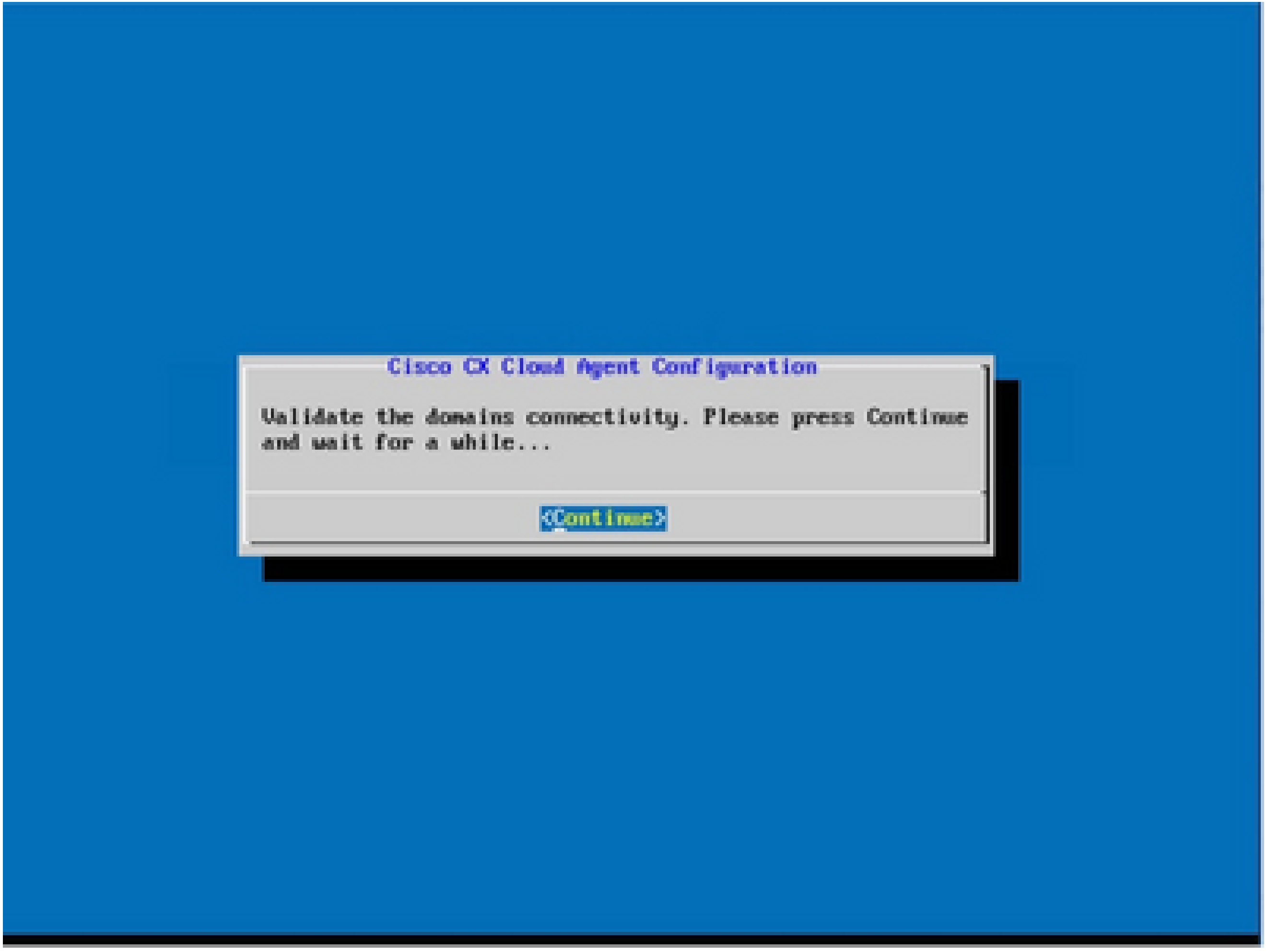
Port Number:

Username:

Password:

Proxy Configuration

8. Click **Begin Configuration**.

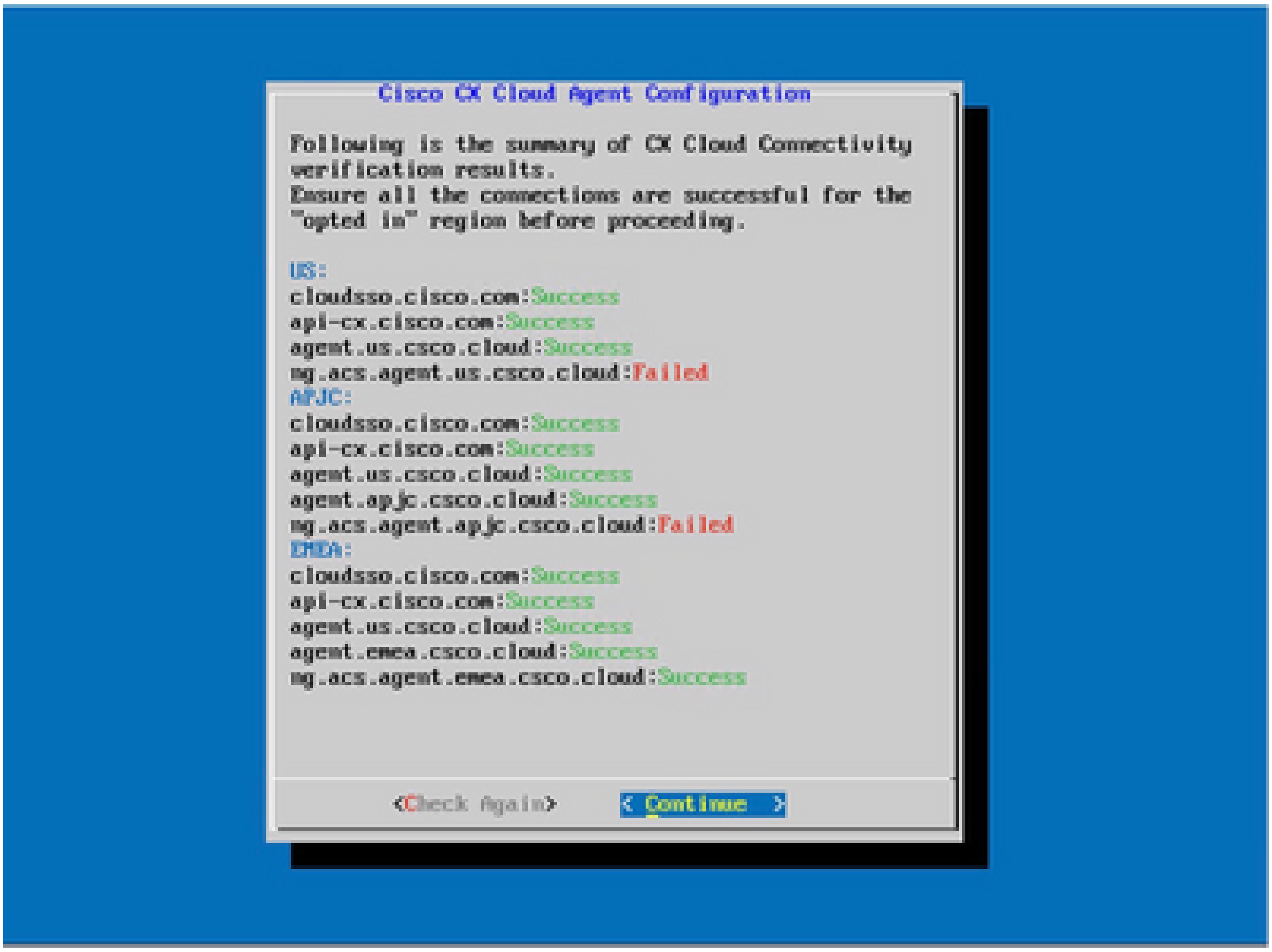


Cisco CX Cloud Agent Configuration

Validate the domains connectivity. Please press Continue and wait for a while...

Begin Configuration

9. Click **Continue**.

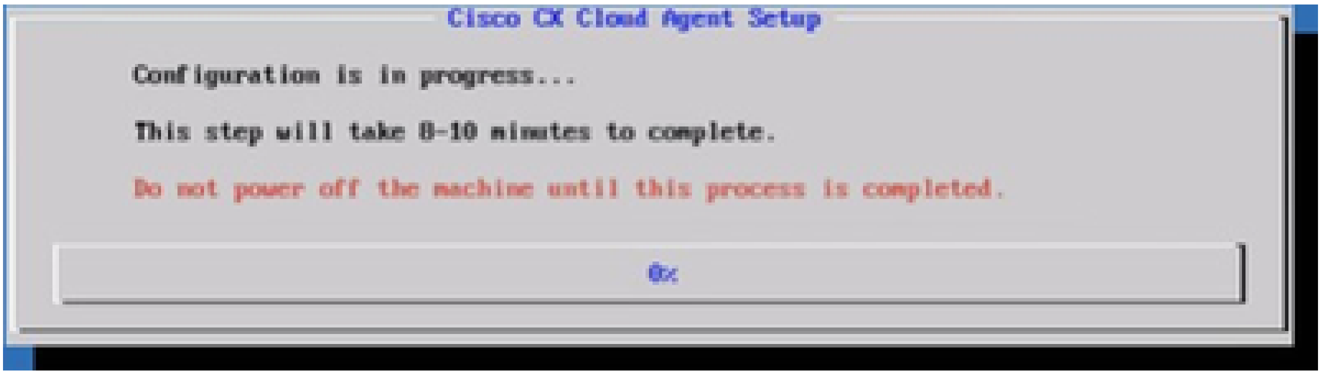


```
Cisco CX Cloud Agent Configuration

Following is the summary of CX Cloud Connectivity
verification results.
Ensure all the connections are successful for the
"opted in" region before proceeding.

US:
cloudsso.cisco.com:Success
api-cx.cisco.com:Success
agent.us.csco.cloud:Success
ng.acs.agent.us.csco.cloud:Failed
APJC:
cloudsso.cisco.com:Success
api-cx.cisco.com:Success
agent.us.csco.cloud:Success
agent.apjc.csco.cloud:Success
ng.acs.agent.apjc.csco.cloud:Failed
EMEA:
cloudsso.cisco.com:Success
api-cx.cisco.com:Success
agent.us.csco.cloud:Success
agent.emea.csco.cloud:Success
ng.acs.agent.emea.csco.cloud:Success

<Check Again>        < Continue  >
```

Configuration Continues

10. Click **Continue** to proceed with the configuration for successful domain reach. The configuration can take several minutes to complete.

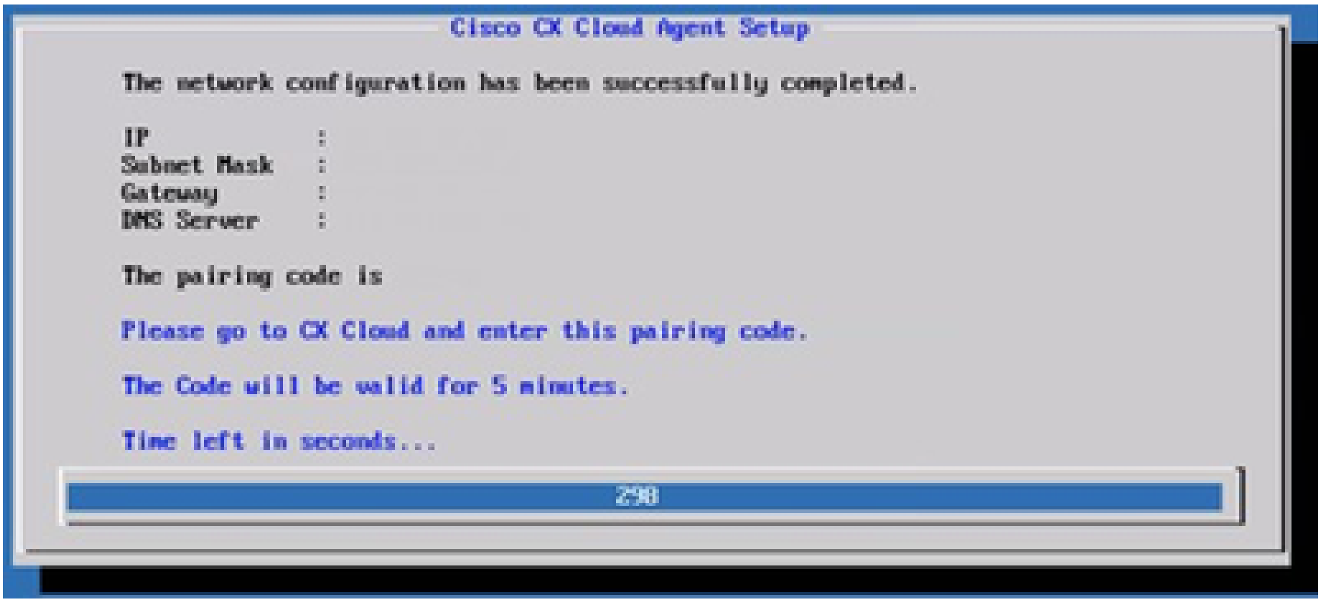
> **Note**: If the domains cannot be reached successfully, the customer must fix domain reachability by making changes in their firewall to ensure that domains are reachable. Click **Check Again** once the domains reachability issue is resolved.



```
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.

                              Ok
```

Configuration in Progress

11. Copy the **Pairing Code** and return to CX Cloud to continue the setup.



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.

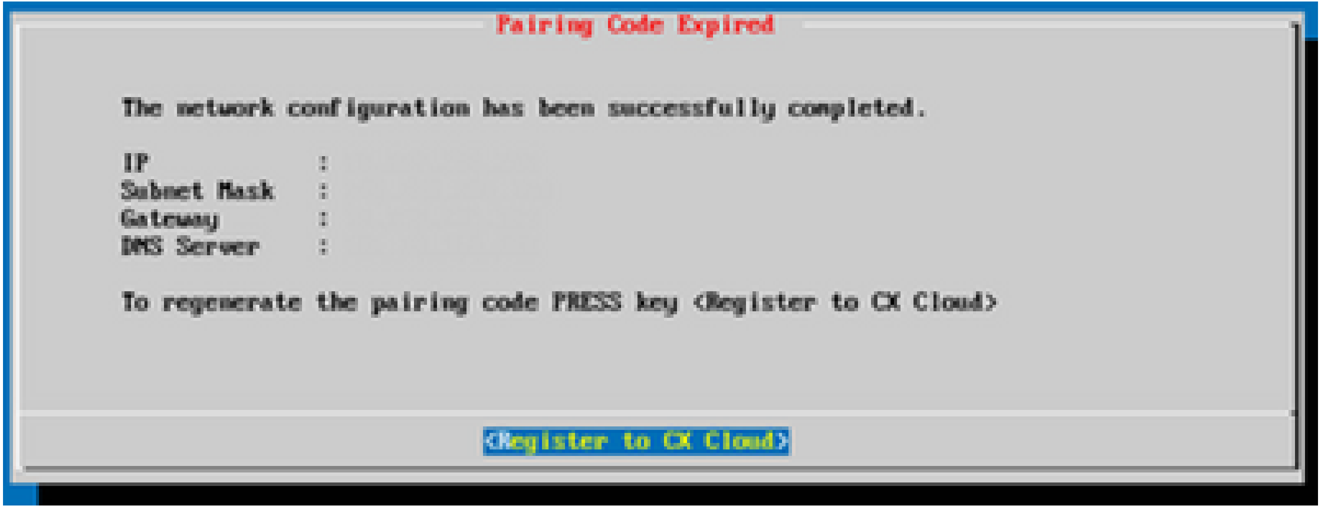
The Code will be valid for 5 minutes.

Time left in seconds...

298

Pairing Code

12. If the Pairing Code expires, click **Register to CX Cloud** to obtain the code again.



Pairing Code Expired

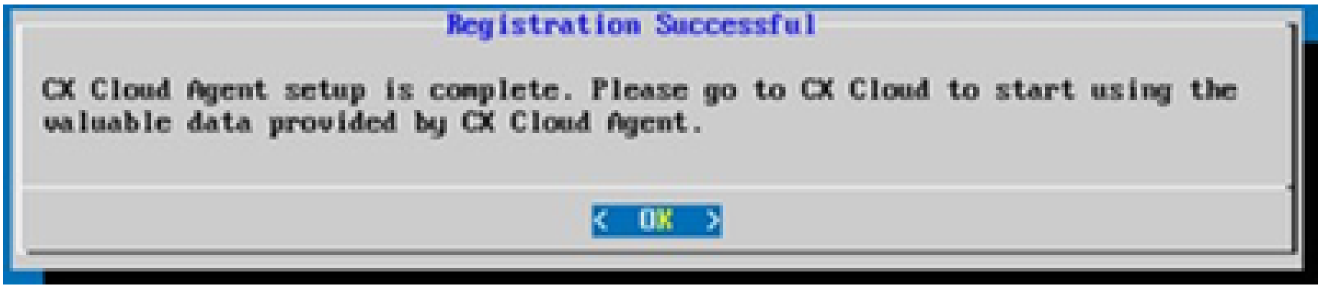
The network configuration has been successfully completed.

```
IP           :
Subnet Mask  :
Gateway      :
DNS Server   :
```

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

Code Expired

13. 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.

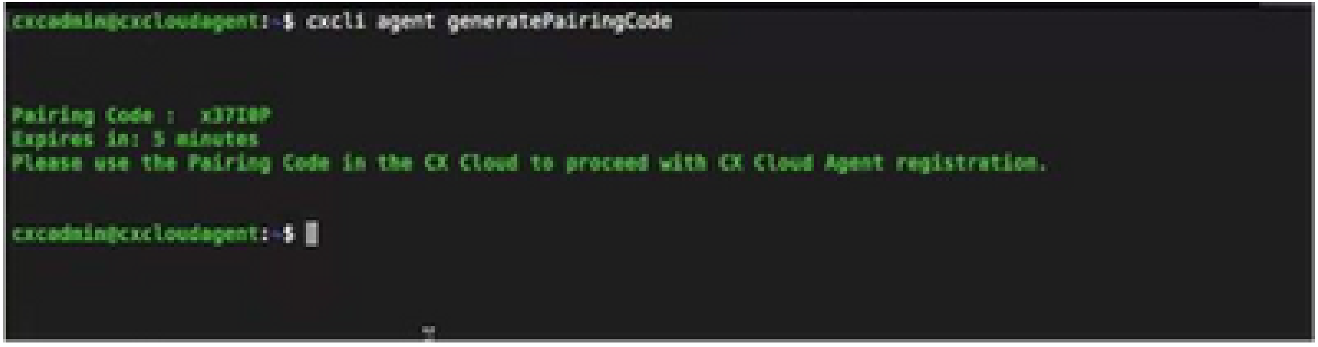
Registration Successful

Alternative Approach to Generate Pairing Code Using CLI

Users can also generate a pairing code by using CLI options.

To generate a pairing code using CLI:

1. Log in to the Cloud Agent via SSH using the cxcadmin user credential.
2. 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

3. Copy the Pairing Code and return to CX Cloud to continue the setup.

Configure Cisco DNA Center To Forward Syslog to CX Cloud Agent

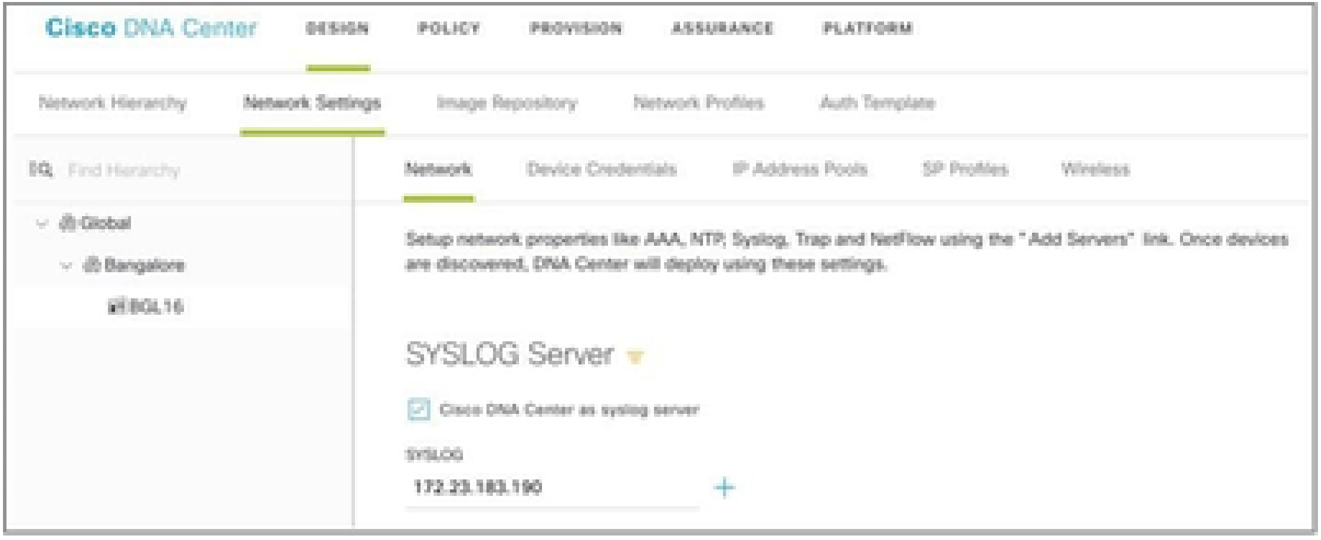
Prerequisites

Supported Cisco DNA Center versions are 2.1.2.0 to 2.2.3.5, 2.3.3.4 to 2.3.3.6, 2.3.5.0, and Cisco DNA Center Virtual Appliance

Configure Syslog Forward Setting

To configure Syslog Forwarding to CX Cloud Agent in the Cisco DNA Center, perform these steps:

1. Launch Cisco DNA Center.
2. Go to **Design > Network Settings >Network**.
3. 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 devices associated with that site are configured to send syslog with level critical to CX Cloud Agent. Devices must be associated to a site for enabling the syslog forwarding from the device to CX Cloud Agent. When a syslog server setting is updated, all devices associated with that

site are automatically set to default critical level.

Configure Other Assets to Forward Syslog to CX Cloud Agent

Devices must be configured to send Syslog messages to the CX Cloud Agent to use the Fault Management feature of CX Cloud.

Note: Only Campus Success Track Level 2 devices are eligible to configure other assets to forward syslog.

Existing Syslog Servers with Forward Capability

Perform the configuration instructions for the syslog server software and add the CX Cloud Agent IP Address as a new destination.

Note: When forwarding syslogs, ensure that the source IP address of the original syslog message is preserved.

Existing Syslog Servers without Forward Capability OR without Syslog Server

Configure each device to send syslogs directly to the CX Cloud Agent IP Address. Refer to this documentation for specific configuration steps.

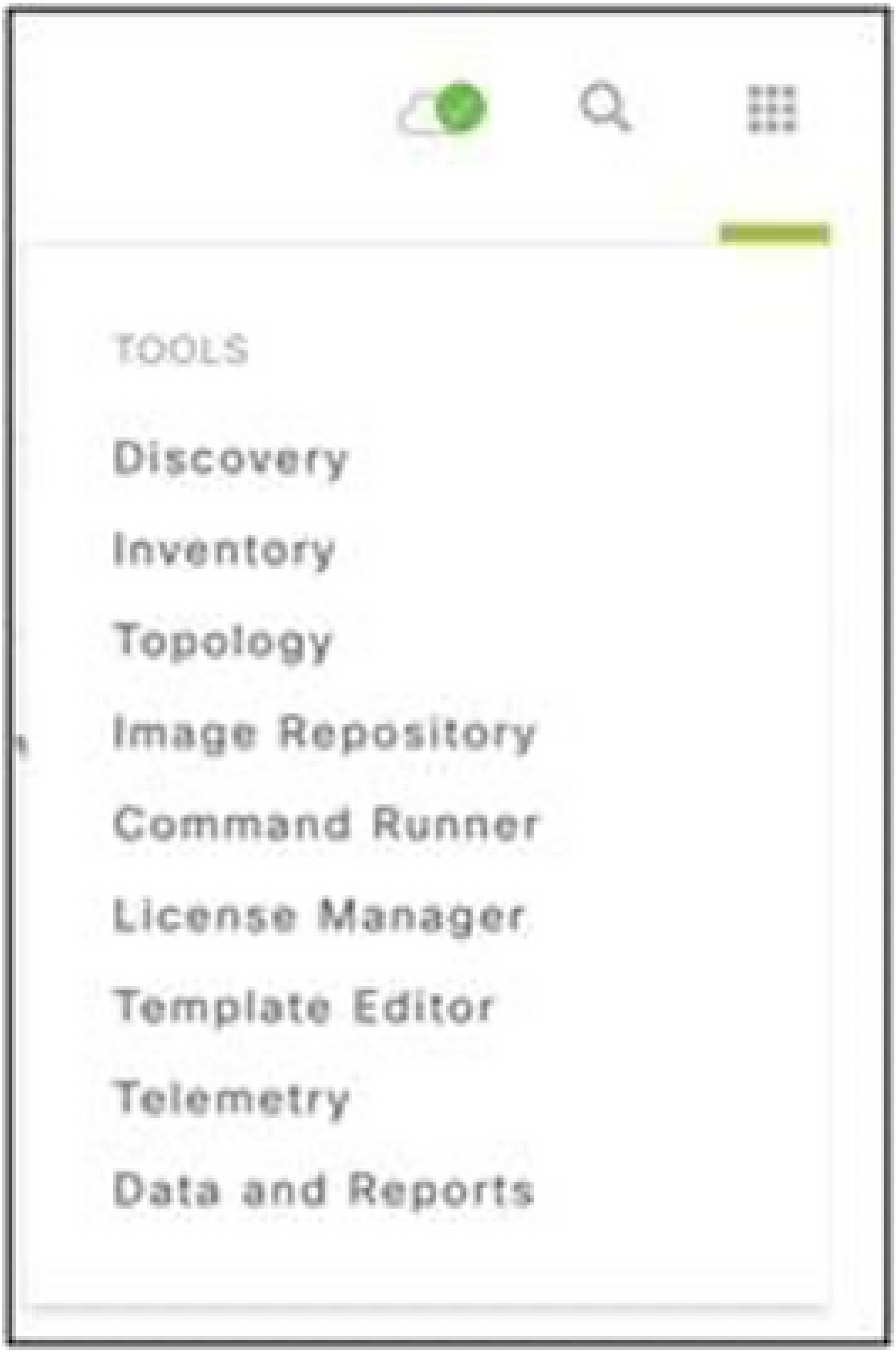
Cisco IOS® XE Configuration Guide

AireOS Wireless Controller Configuration Guide

Enable Information Level Syslog Settings

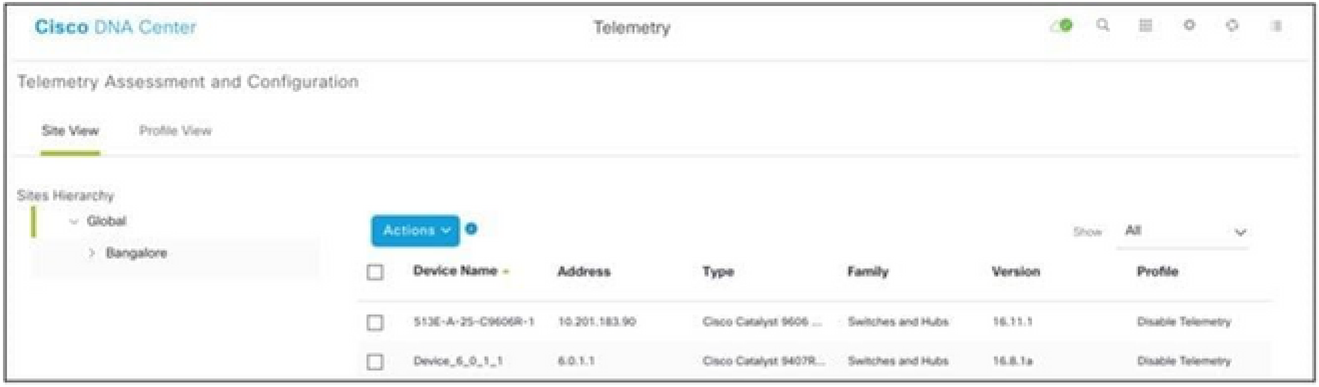
To make Syslog Information level visible, perform these steps:

1. Navigate to **Tools>Telemetry**.


TOOLS
Discovery
Inventory
Topology
Image Repository
Command Runner
License Manager
Template Editor
Telemetry
Data and Reports

Tools Menu

2. Select and expand the **Site View** and select a **site** from site hierarchy.

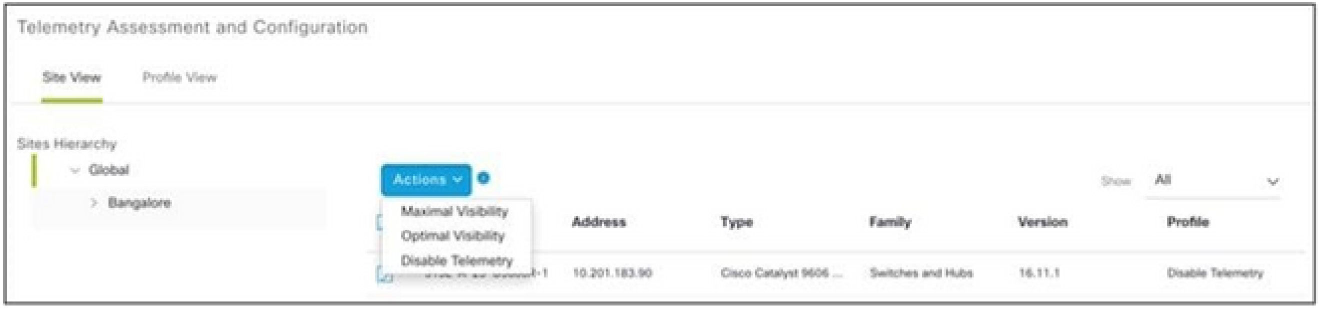


□	Device Name	Address	Type	Family	Version	Profile
□	513E-A-25-C9606R-1	10.201.183.90	Cisco Catalyst 9606 ...	Switches and Hubs	16.11.1	Disable Telemetry
□	Device_6_0_1_1	6.0.1.1	Cisco Catalyst 9407R...	Switches and Hubs	16.8.1a	Disable Telemetry

Site View

3. Select the required site and select all devices using the **Device name** check box.

4. Select **Optimal Visibility** from the **Actions** drop-down.



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

Actions

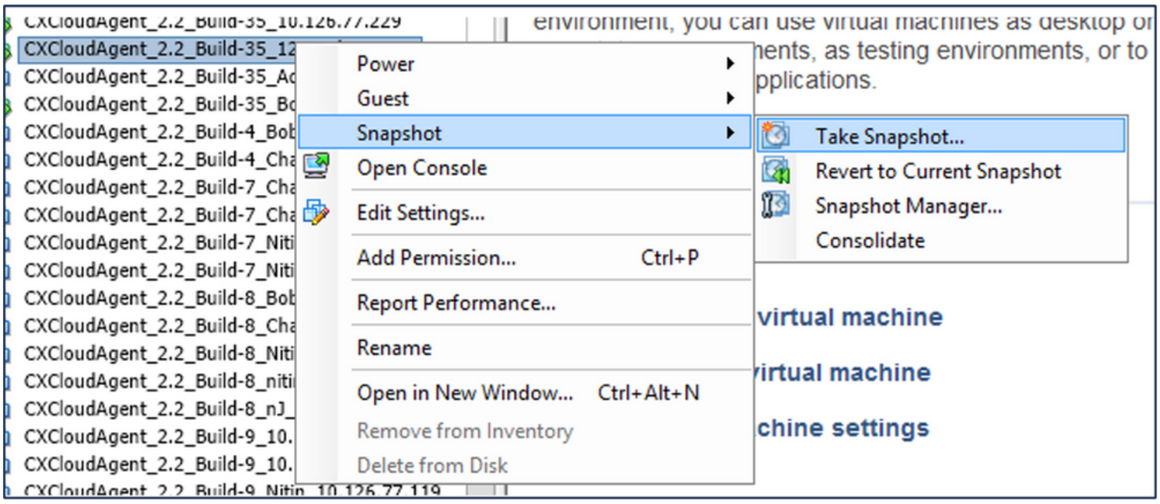
Back Up and Restore the CX Cloud VM

It is recommended to preserve the state and data of a CX Cloud Agent VM at a specific point in time using the snapshot feature. This feature facilitates CX Cloud VM restoration to the specific time that the snapshot is taken.

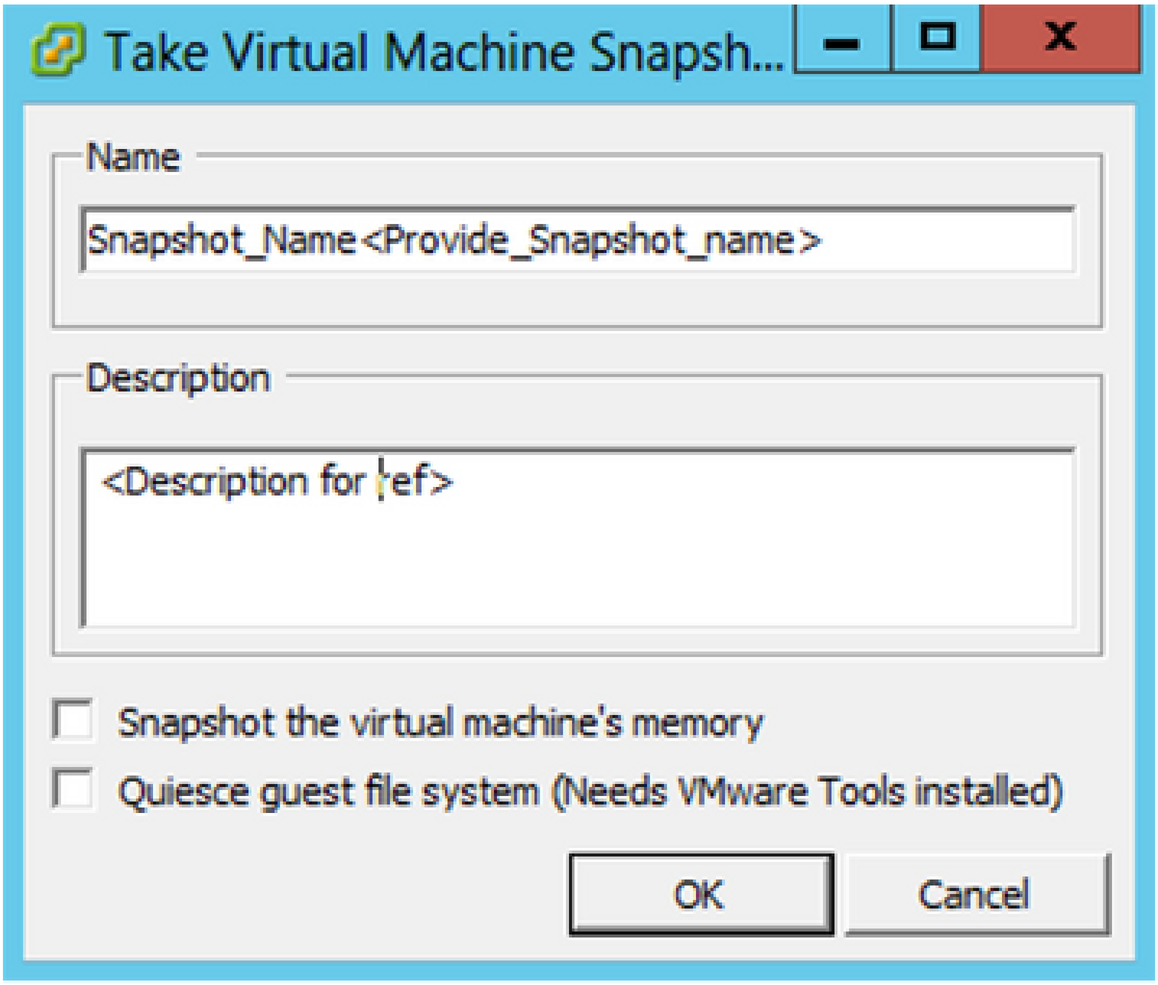
Back Up

To back up the CX Cloud VM:

1. Right-click the **VM** and select **Snapshot > Take Snapshot**. The **Take Virtual Machine Snapshot** window opens.


CXCloudAgent_2.2_Build-35_12
CXCloudAgent_2.2_Build-35_Ac
CXCloudAgent_2.2_Build-35_Bo
CXCloudAgent_2.2_Build-4_Bob
CXCloudAgent_2.2_Build-4_Cha
CXCloudAgent_2.2_Build-7_Cha
CXCloudAgent_2.2_Build-7_Cha
CXCloudAgent_2.2_Build-7_Niti
CXCloudAgent_2.2_Build-7_Niti
CXCloudAgent_2.2_Build-8_Bob
CXCloudAgent_2.2_Build-8_Cha
CXCloudAgent_2.2_Build-8_Niti
CXCloudAgent_2.2_Build-8_niti
CXCloudAgent_2.2_Build-8_nJ_
CXCloudAgent_2.2_Build-9_10.
CXCloudAgent_2.2_Build-9_10.
Power
Guest
Snapshot
Open Console
Edit Settings...
Add Permission... Ctrl+P
Report Performance...
Rename
Open in New Window... Ctrl+Alt+N
Remove from Inventory
Delete from Disk
Take Snapshot...
Revert to Current Snapshot
Snapshot Manager...
Consolidate
ients, as testing environments, or to
pplications.
virtual machine
irtual machine
chine settings

Select VM



Name

Snapshot_Name<Provide_Snapshot_name>

Description

<Description for ref>

□ Snapshot the virtual machine's memory

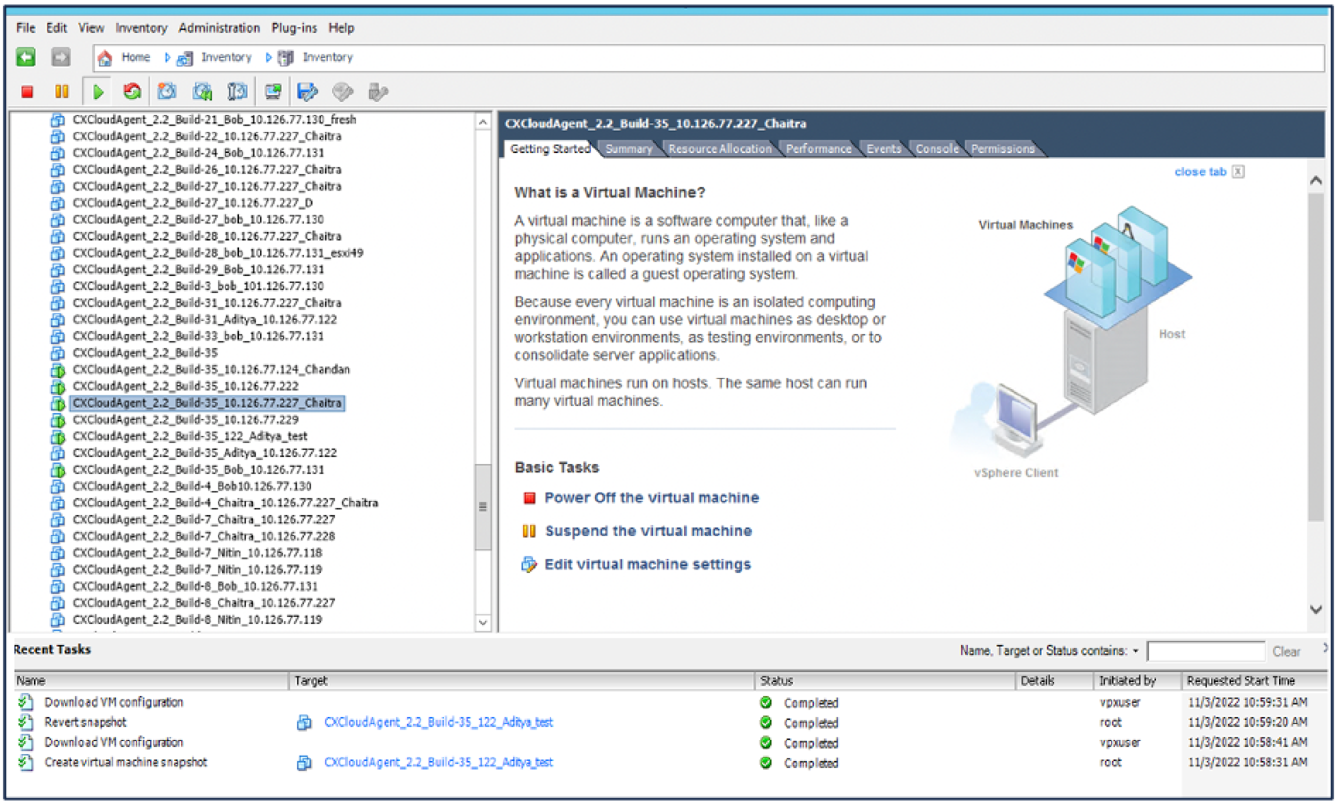
□ Quiesce guest file system (Needs VMware Tools installed)

Take Virtual Machine Snapshot

2. Enter **Name** and **Description**.

Note: Verify that the Snapshot the virtual machine’s memory check box is cleared.

3. Click **OK**. The **Create virtual machine snapshot** status displays as **Completed** in the Recent Tasks list.



CXCloudAgent_2.2_Build-21_Bob_10.126.77.130_fresh
CXCloudAgent_2.2_Build-22_10.126.77.227_Chaitra
CXCloudAgent_2.2_Build-24_Bob_10.126.77.131
CXCloudAgent_2.2_Build-26_10.126.77.227_Chaitra
CXCloudAgent_2.2_Build-27_10.126.77.227_Chaitra
CXCloudAgent_2.2_Build-27_10.126.77.227_D
CXCloudAgent_2.2_Build-27_bob_10.126.77.130
CXCloudAgent_2.2_Build-28_10.126.77.227_Chaitra
CXCloudAgent_2.2_Build-28_bob_10.126.77.131_esxi49
CXCloudAgent_2.2_Build-29_Bob_10.126.77.131
CXCloudAgent_2.2_Build-3_bob_101.126.77.130
CXCloudAgent_2.2_Build-31_10.126.77.227_Chaitra
CXCloudAgent_2.2_Build-31_Aditya_10.126.77.122
CXCloudAgent_2.2_Build-33_bob_10.126.77.131
CXCloudAgent_2.2_Build-35
CXCloudAgent_2.2_Build-35_10.126.77.124_Chandan
CXCloudAgent_2.2_Build-35_10.126.77.222
CXCloudAgent_2.2_Build-35_10.126.77.227_Chaitra
CXCloudAgent_2.2_Build-35_10.126.77.229
CXCloudAgent_2.2_Build-35_122_Aditya_test
CXCloudAgent_2.2_Build-35_Aditya_10.126.77.122
CXCloudAgent_2.2_Build-35_Bob_10.126.77.131
CXCloudAgent_2.2_Build-4_Bob10.126.77.130
CXCloudAgent_2.2_Build-4_Chaitra_10.126.77.227_Chaitra
CXCloudAgent_2.2_Build-7_Chaitra_10.126.77.227
CXCloudAgent_2.2_Build-7_Chaitra_10.126.77.228
CXCloudAgent_2.2_Build-7_Nitin_10.126.77.118
CXCloudAgent_2.2_Build-7_Nitin_10.126.77.119
CXCloudAgent_2.2_Build-8_Bob_10.126.77.131
CXCloudAgent_2.2_Build-8_Chaitra_10.126.77.227
CXCloudAgent_2.2_Build-8_Nitin_10.126.77.119

What is a Virtual Machine?

A virtual machine is a software computer that, like a physical computer, runs an operating system and applications. An operating system installed on a virtual machine is called a guest operating system.

Because every virtual machine is an isolated computing environment, you can use virtual machines as desktop or workstation environments, as testing environments, or to consolidate server applications.

Virtual machines run on hosts. The same host can run many virtual machines.

Basic Tasks

- Power Off the virtual machine
- Suspend the virtual machine
- Edit virtual machine settings

Recent Tasks

Name, Target or Status contains: Clear

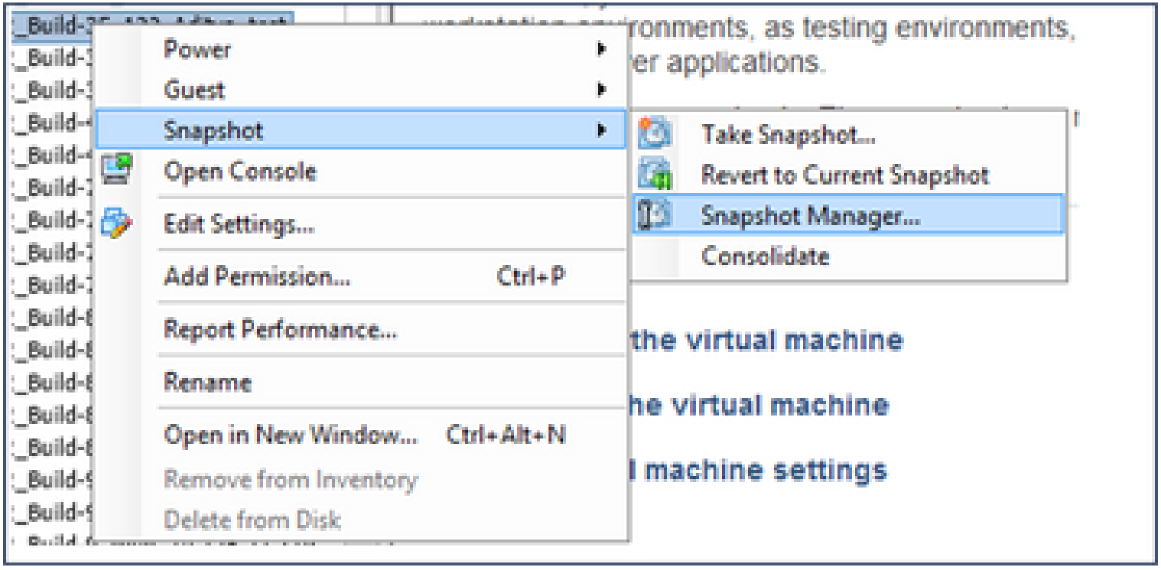
Name	Target	Status	Details	Initiated by	Requested Start Time
Download VM configuration		Completed		vpxuser	11/3/2022 10:59:31 AM
Revert snapshot	CXCloudAgent_2.2_Build-35_122_Aditya_test	Completed		root	11/3/2022 10:59:20 AM
Download VM configuration		Completed		vpxuser	11/3/2022 10:58:41 AM
Create virtual machine snapshot	CXCloudAgent_2.2_Build-35_122_Aditya_test	Completed		root	11/3/2022 10:58:31 AM

Recent Tasks

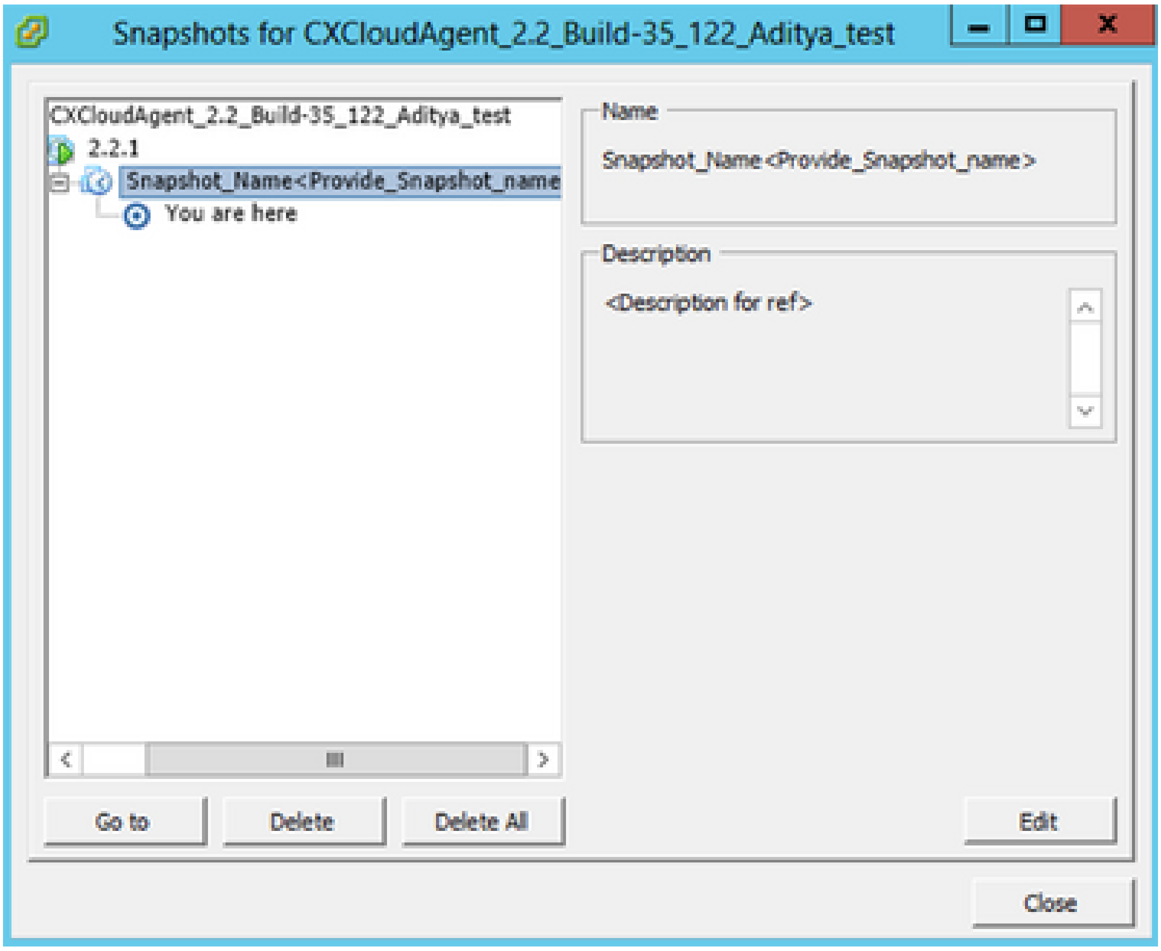
Restore

To restore the CX Cloud VM:

1. Right-click the **VM** and select **Snapshot > Snapshot Manager**. The **Snapshots of the VM** window opens.



Select VM window



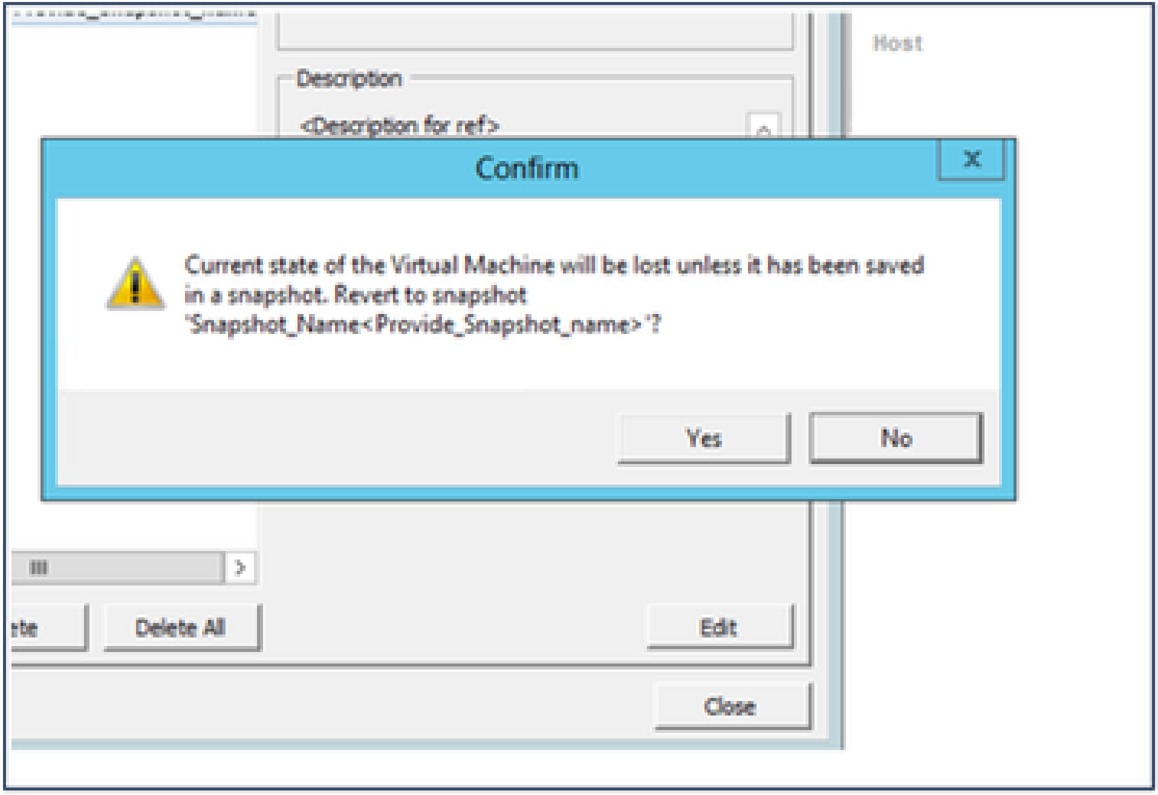
Snapshots for CXCloudAgent_2.2_Build-35_122_Aditya_test
CXCloudAgent_2.2_Build-35_122_Aditya_test
2.2.1
Snapshot_Name<Provide_Snapshot_name
You are here
Name
Description
Go to
Delete
Delete All
Edit
Close

Snapshot_Name<Provide_Snapshot_name>

<Description for ref>

Snapshots Window

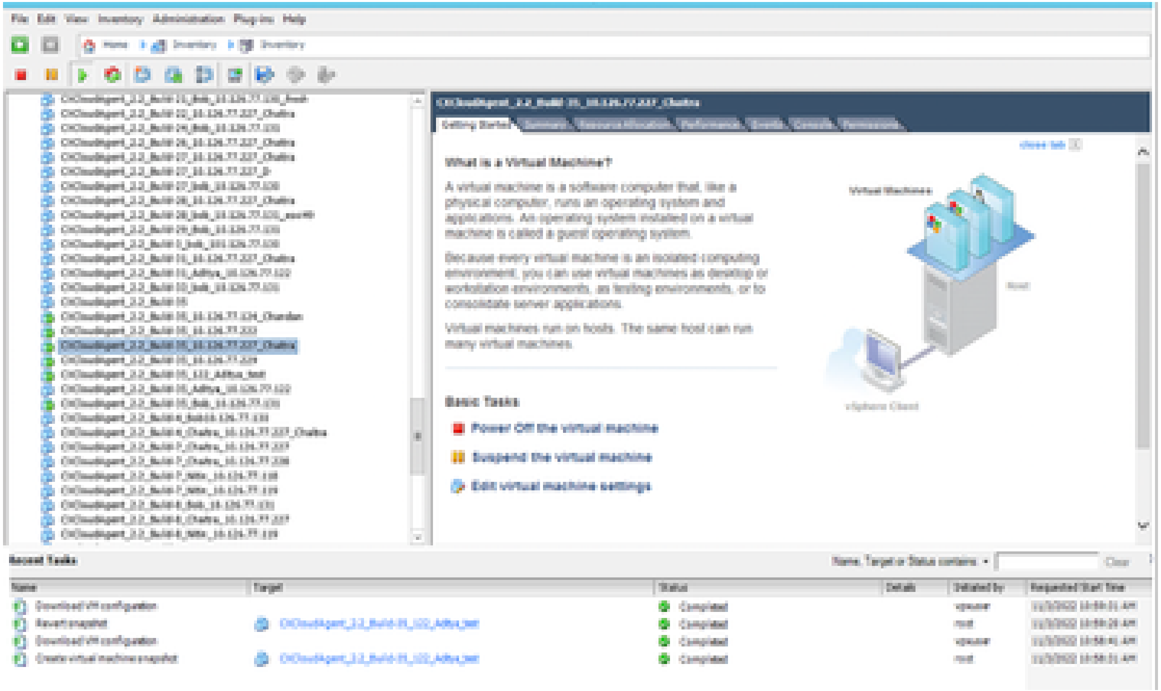
2. Click **Go to**. The **Confirm** window opens.



Current state of the Virtual Machine will be lost unless it has been saved in a snapshot. Revert to snapshot 'Snapshot_Name<Provide_Snapshot_name>'?

Confirm Window

3. Click **Yes**. The **Revert snapshot** status displays as **Completed** in the Recent Tasks list.



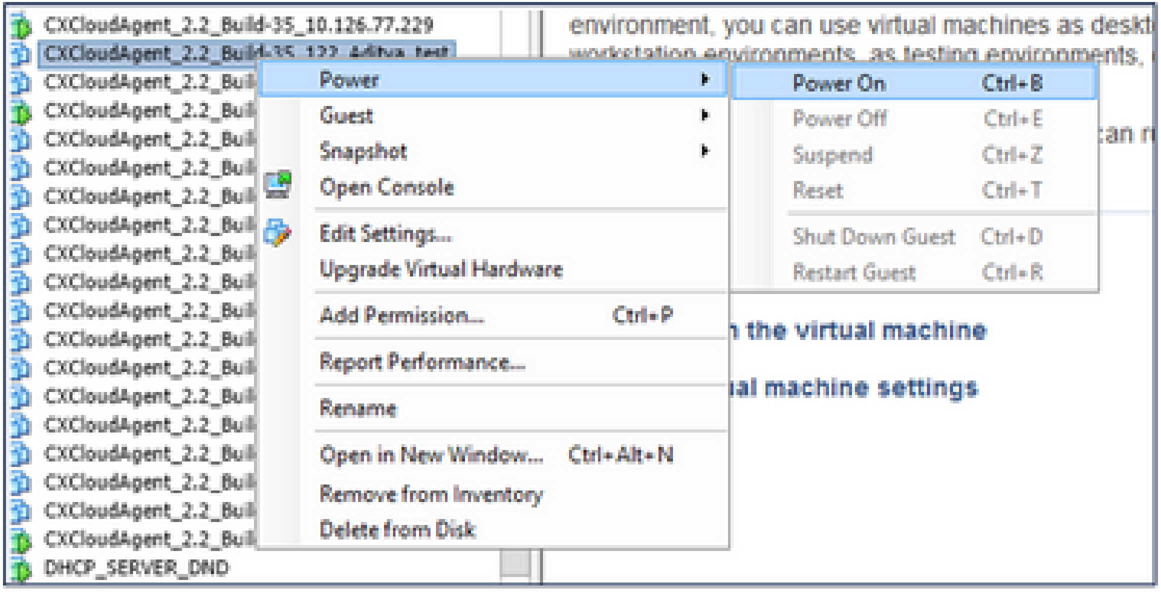
File Edit View Inventory Administration Plug-ins Help
Home
Inventory
Inventory
What is a Virtual Machine?
Virtual Machines
Host
vSphere Client
Basic Tasks
Power Off the virtual machine
Suspend the virtual machine
Edit virtual machine settings
close tab
Clear

Recent Tasks

Name	Target	Status	Details	Initiated by	Requested Start Time
Download VM configuration		Completed		vpxuser	[illegible]
Revert snapshot	CXCloudAgent_2.2_Build-35_122_Aditya_test	Completed		root	[illegible]
Download VM configuration		Completed		vpxuser	[illegible]
Create virtual machine snapshot	CXCloudAgent_2.2_Build-35_122_Aditya_test	Completed		root	[illegible]

Recent Tasks

4. Right-click the **VM** and select **Power > Power On** to power on the VM.



Security

CX Cloud Agent assures the customer of end-to-end security. The connection between CX Cloud and CX Cloud Agent is TLS secured. Cloud Agent's default SSH user is limited to perform only basic operations.

Physical Security

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 this FAQ to set this bootloader (single-user mode) password.

Account Security

During deployment, the cxcadmin user account is created. Users are forced to set a password during the initial configuration. cxcadmin user/credentials are used to access both the CX Cloud Agent APIs and to connect to the appliance over SSH.

cxcadmin users have restricted access with the least privileges. The cxcadmin password follows the security policy and is one-way hashed with an expiry period of 90 days. cxcadmin users can create a cxcroot user using the utility called remoteaccount. cxcroot users can gain root privileges.

Network Security

The 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.

cxcadmin users 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 the SWIM portal (DECRYPT Request Form). Only authorized personnel have access to this portal. cxcroot users can gain root privileges using this decrypted password. Passphrase is valid only for two days. cxcadmin users must recreate the account and obtain the password from the SWIM portal post password expiry.

Hardening

CX Cloud Agent appliance follows Center of Internet Security hardening standards.

Data Security

CX Cloud Agent appliance does not store any customer personal information. Device credential application (running as one of the pods) stores encrypted server credentials inside secured database. The collected data is not stored in any form inside the appliance except temporarily when it is being processed. Telemetry data is uploaded to CX Cloud as soon as possible after the collection is complete and is promptly deleted from local storage after it is confirmed that the upload was successful.

Data Transmission

The registration package contains the required unique X.509 device certificate and keys to establish secure connection with Iot Core. Using that agent establishes a secure connection using Message Queuing Telemetry Transport (MQTT) over Transport Layer Security (TLS) v1.2

Logs and Monitoring

Logs do not contain any form of Personal Identifiable Information (PII) data. Audit logs capture all security-sensitive actions performed on the CX Cloud Agent appliance.

Cisco Telemetry Commands

CX Cloud retrieves asset telemetry using the APIs and commands listed in the Cisco Telemetry Commands. This document categorizes commands based on their applicability to the Cisco DNA Center inventory, Diagnostic Bridge, Intersight, Compliance Insights, Faults, and all other sources of telemetry collected by the CX Cloud Agent.

Sensitive information within asset telemetry is masked before being transmitted to the cloud. The CX Cloud Agent masks sensitive data for all the collected assets that send telemetry directly to the CX Cloud Agent. This includes passwords, keys, community strings, usernames, and so on. Controllers provide data masking for all controller-managed assets before transferring this information to the CX Cloud Agent. In some instances, controller-managed assets telemetry can be anonymized further. Refer to the corresponding product support documentation to learn more about anonymizing the telemetry (for example, the Anonymize Data section of the Cisco DNA Center Administrator Guide).

While the list of telemetry commands cannot be customized and the data masking rules cannot be modified, customers can control which assets' telemetry CX Cloud accesses by specifying data sources as discussed in the product support documentation for controller-managed devices or the Connecting Data Sources section of this document (for Other assets collected by CX Cloud Agent).

Security Summary

Security Features	Description
Bootloader Password	Bootloader (Single user mode) password is set with a randomly unique password. Users must refer to FAQ to set his bootloader (single user mode) password.
User Access	SSH: · Access to appliance using cxcadmin user requires credentials created during installation. · Access to appliance using cxcroot user requires credentials to be decrypted using SWIM portal by authorized personnel.
User Accounts	· cxcadmin: default user account created; User can execute CX Cloud Agent application commands using cxcli and has least privileges on the appliance; cxcroot user and its encrypted password is generated using cxcadmin user. · cxcroot: cxcadmin can create this user using the utility remoteaccount; User can gain root privileges with this account.
cxcadmin password policy	· Password is one-way hashed using SHA-256 and stored securely. · Minimum eight (8) characters, containing three of these categories: uppercase, lowercase, numbers, and special characters.
cxcroot password policy	· cxcroot password is RSA/ECB/PKCS1v1_5 encrypted · The passphrase generated needs to be decrypted in SWIM portal. · The cxcroot user and password is valid for two days and can be regenerated using cxcadmin user.

ssh login password policy	· Minimum of eight characters that contains three of these categories: uppercase, lowercase, numbers, and special characters. · Five failed log in attempts lock the box for 30 minutes; Password expires in 90 days.
Ports	Open Incoming Ports – 514(Syslog) and 22 (SSH)
Data Security	· No Customer information stored. · No Device data stored. · Cisco DNA Center server credentials encrypted and stored in the database.