

Installing Cisco Container Platform

Installing Cisco Container Platform is a three-step process:

• Importing Cisco Container Platform Tenant Base VM

The Cisco Container Platform tenant base VM contains the container image and the files that are necessary to create the tenant Kubernetes clusters that are used for configuring monitoring, logging, container network interfaces (CNI), and persistent volumes.

• Deploying Installer VM, on page 3

The Installer VM contains the VM image and the files for installing other components such as Kubernetes and the Cisco Container Platform application.

• Deploying Cisco Container Platform, on page 6

The Cisco Container Platform Control Plane is set up using an installer UI. After the installer VM is switched on, the URL of the installer appears on the vCenter **Web console**.

- Importing Cisco Container Platform Tenant Base VM, on page 1
- Deploying Installer VM, on page 3
- Deploying Cisco Container Platform, on page 6

Importing Cisco Container Platform Tenant Base VM

Before you begin

- Ensure that you have configured the storage and networking requirements. For more information, see Storage Requirements and Network Requirements.
- Ensure that vSphere has an Enterprise Plus license, which supports DRS and vSphere HA.

Step 1	Log in to the VMware vSphere Web Client as an administrator.
Step 2	In the Navigation pane, right-click the cluster on which you want to deploy Cisco Container Platform, and then choose
	Deploy OVF Template.
	The Deploy OVF Template wizard appears.
Step 3	In the Select template screen, perform these steps:

a) Click the URL radio button, and enter the URL of the Cisco Container Platform Tenant OVA.

Alternatively, click the **Local file** radio button, and browse to the location where the Cisco Container Platform tenant OVA is saved on your computer.

Note The format of the Tenant OVA filename is as follows:

```
ccp-tenant-image-x.y.z-ubuntuXX-a.b.c.ova
```

Where x.y.z corresponds to the version of Kubernetes and a.b.c corresponds to the version of Cisco Container Platform.

The Version Mapping Table provides the Cisco Container Platform version, Kubernetes version and image names mapping for each release.

b) Click Next.

Step 4 In the **Select name and location** screen, perform these steps:

a) In the Name field, enter a name for the Cisco Container Platform tenant base VM.

Note You need to note down the Cisco Container Platform tenant base VM name as you will need to specify it while creating a cluster.

- b) In the **Browse** tab, choose the data center where you want to deploy Cisco Container Platform.
- c) Click Next.
- **Step 5** In the Select a resource screen, choose a cluster where you want to run the Cisco Container Platform tenant base VM, and then click Next.
- **Step 6** In the **Review details** screen, verify the Cisco Container Platform tenant base VM details, and then click **Next**. The **Select storage** screen appears.

Figure 1: Select Storage Screen

1 Select template 2 Select name and location	Select storage Select location to store the	e files for the deployed template.			
3 Select a resource 4 Review details 5 Select storage	Select virtual disk format: VM storage policy:	Thin provision None	•		
6 Select networks 7 Customize template	Filter	Storage DRS clusters			
8 Ready to complete	Datastores Datastore	- Guaidia			ter 👻
	Name	Alert Normal	•	972.8 MB 1.9 TB	6.83 MB 1.34 TB
	el ve1-1-local ve1-2-local	 Normal Normal 	VM Encryption P VM Encryption P	1.74 TB 1.74 TB	1.55 TB 1.45 TB
	vc1-3-local vc1-4-local	 Normal Normal 	VM Encryption P VM Encryption P	884.75 GB 439.5 GB	471.22 GB 412.81 GB
	el ve1-5-local el ve1-6-local	Normal Normal	VM Encryption P VM Encryption P	439.5 GB 439.5 GB	425.43 GB 255.21 GB
	44				8 Objects Copy -

Step 7

- In the **Select storage** screen, perform these steps:
 - a) From the Select virtual disk format drop-down list, choose Thin Provision to allocate storage on demand.
 - b) In the Filters tab, choose a destination datastore for the Cisco Container Platform tenant base VM.
 - c) Click Next.

The Select networks screen appears.

Figure 2: Select Networks Screen

🍞 Deploy OVF Template		(3) >>
 1 Select template 2 Select name and location 	Select networks Select a destination network for each source network	L
 ✓ 3 Select a resource ✓ 4 Review details 	Source Network	Destination Network
✓ 5 Select storage		The SH 1113 St
7 Customize template 8 Ready to complete	Description -	Browse
	IP Allocation Settings IP protocol: IPv4	IP allocation: Static - Manual 🚯
		Back Next Finish Cancel

Step 8 In the **Select networks** screen, perform these steps:

- a) From the **Destination Network** column, choose a network for each source network that is available in the Cisco Container Platform tenant base VM.
- b) Click Next.

Step 9 In the Customize template screen, click Next.

- Step 10In the Ready to complete screen, verify the Cisco Container Platform tenant base VM settings, and then click Finish.
The Cisco Container Platform tenant base VM import takes few minutes to complete.
 - **Note** You can leave the tenant base VM powered off and continue to Deploying Installer VM.

Deploying Installer VM

Before you begin



Note This deployment is for new installations of Cisco Container Platform. For upgrades, see Upgrading Cisco Container Platform.

Ensure that you have imported the latest Cisco Container Platform tenant base VM to the vCenter instance. For more information, see Importing Cisco Container Platform Tenant Base VM, on page 1.

Step 1 Log in to the VMware vSphere Web Client as an administrator.

Step 2 In the Navigation pane, right-click the cluster on which you want to deploy Cisco Container Platform, and then choose Deploy OVF Template.

	The Deploy OVF Template wizard appears.					
Step 3	In the Select template screen, perform these steps:					
	a) (Click the URL radio button, and enter the URL of the Installer OVA.				
) J	Alternatively, click the Local file radio button, and browse to the location where the Installer OVA is saved on your computer.				
	r	lote The format of the Installer OVA filename is as follows:				
		kcp-vm-x.y.z.ova				
		Where x, y, z corresponds to the major, minor, and patch release of Cisco Container Platform.				
	b) (Click Next.				
Step 4	In the Select name and location screen, perform these steps:					
	a) In the Name field, enter a name for the installer VM.					
	b) I	n the Browse tab, choose the data center where you want to deploy Cisco Container Platform.				
	Click Next.					
Step 5	In th	e Select a resource screen, choose the cluster where you want to run the installer VM, and then click Next.				
Step 6	In th	e Review details screen, verify the template details, and then click Next.				
Step 7	In the Select storage screen, perform these steps:					
	a) I	From the Select virtual disk format drop-down list, choose Thin Provision to allocate storage on demand.				
	b) I	n the Filters tab, choose a destination datastore to store the installer VM.				
	c) (lick Next.				
Step 8	In th	e Select networks screen, perform these steps:				
	a) I V	From the Destination Network column, choose a network for each source network that is available in the installer /M.				
	r	lote The selected network must have access to vCenter and the tenant VM networks.				
	b) (Click Next.				

The Customize template screen appears.

Figure 3: Customize Template Screen

beploy OVF Template		(? »
 1 Select template 2 Select name and location 	Customize template Customize the deployment proper	ties of this software solution.
✓ 3 Select a resource	All properties have valid value	s Show next Collapse al
 4 Review details 	▼ 1. CCP	1 setting
 Select storage 6 Select networks 	01. SSH public key for installer node access	SSH public key used to access installer node. Enter the public key to be pasted into OpenSSH authorized_keys file, typically of the format'ssh-rsa' or 'ecdsa-sha2-nistp256'
7 Customize template	. 0.44	
		Back Next Finish Cancel

Step 9 In the **Customize template** screen, enter the following optional parameters to customize the deployment properties:

a) Expand **CCP**, in the **SSH public key for installer node access** field, enter an ssh public key. You can use this key to ssh to the installer VM.

- **Note** Ensure that you enter the public key in a single line.
 - If you do not have an SSH key pair, you can generate it using the ssh-keygen command.
- b) Expand Advanced, in the CIDR for kubernetes pod network field, 192.168.0.0/16 is displayed as the default pod network CIDR of the Kubernetes cluster for the installer. If the CIDR IP addresses conflict with the tenant cluster VM network or the vCenter network, you need to set a different value for the CIDR.

This CIDR is the single large CIDR from which smaller CIDRs are automatically allocated to each node for allocating IP addresses to the pods in the Kubernetes cluster. For more information, refer to https://kubernetes.io/docs/setup/scratch/#network-connectivity.

c) Click Next.

Step 10 In the **Ready to complete** screen, verify the installer VM deployment settings, and then click **Finish**.

Step 11 Click the **Power on** button to switch on the VM.

Figure 4: Switching on Installer VM

		Web console	- Power on			
vmware [,] vSphere	Web Clie	ent fh≣ Updated at 3:0	2 PM 🖸 Administrate	m@VSPHERE.LOCAL - I Hel	p - I Q Search	
Navigator	*	3 5	Work In Progres	55		*
		G S N C P S D N U Powered Off	Deploy OVF Tem Deploy O	plate plate plate plate	Severity Gritica Without	(6) (5) (4) (3) * * * * * *
TRecent Objects	Т×	🖹 Recent Tasks				≢ ×
Viewed Cr	reated	B-			Q Fiter	•)
8		Task Name	Target	Status	Initiator	Queue
20		Check new notifications	0	✓ Completed	VMware vSphe	re U
R		Power Off virtual machine	Bh	✓ Completed	VSPHERE.LOC	CALV
Ra		Power On virtual machine	B	✓ Completed	System	
CDP		Initialize powering On	Da	 Completed 	VSPHERE.LOC	CALV
10		Deploy OVF template	凸	✓ Completed	VSPHERE.LOC	CALV
Ach .			100			

Once the installer VM is switched on, the installer UI takes a few minutes to become ready. You can view the status of the Installer UI using the Web console of vCenter. When the installer UI is ready, you can access it using the URL from the Web console.

Deploying Cisco Container Platform

The Cisco Container Platform Control Plane is set up using an installer UI. After the installer VM is switched on, the URL of the installer appears on the vCenter **Web console**.

Step 1Obtain the URL from the vCenter Web console and use a browser to open the installer UI.
The Welcome screen appears.

L

Figure 5: Welcome Screen

container Plat	form Installer		
	Welcome to the Cisc		
	0	4	
	Installation To create a new installation.	Upgrade To upgrade an existing installation.	

Step 2 Click Install.

The Connect your Cloud screen appears.

Figure 6: Connect your Cloud Screen

.ı ı.ı ı. cısco	Container Platform	Installer	×
•	01 Connect your Cloud 02 Placement Properties 03 Network Settings 04	Connect your Cloud • vcenter hostname or ip address • port • vcenter username • vcenter username • vcenter passphrase	
	Cluster Configuration		
		CONNECT	,

Step 3 In the **Connect your Cloud** screen, enter the following information:

- a) In the VCENTER HOSTNAME OR IP ADDRESS field, enter the IP address of the vCenter instance that you want to use.
- b) In the **PORT** field, enter the port number that your vCenter server uses.

Note The default port for vCenter is 443.

- c) In the VCENTER USERNAME field, enter the username of the user with administrator access to the vCenter instance.
- d) In the VCENTER PASSPHRASE field, enter the passphrase of the vCenter user.
- e) Click CONNECT.

The Placement Properties screen appears.

Figure 7: Placement Properties Screen

cisco Container Platf	orm Installer			>
O1 Connect your Cloud :	Placement Properties			
O2 Placement Properties	* VSPHERE DATACENTER Hyperflex	*		
O3 Network Settings	* VSPHERE CLUSTER hx1 * VSPHERE DATASTORE	~		
O4 Cluster Configuration	• VSPHERE NETWORK	*		
			 BACK	NEXT

Step 4 In the **Placement Properties** screen, enter the following information:

- a) From the VSPHERE DATACENTER drop-down list, choose the datacenter.
- b) From the VSPHERE CLUSTER drop-down list, choose the cluster.
- c) From the VSPHERE DATASTORE drop-down list, choose the datastore.
- d) From the VSPHERE NETWORK drop-down list, choose the network.
- e) In the **BASE VM IMAGE** field, enter the Cisco Container Platform tenant base VM name from Step 5 of the Importing Cisco Container Platform Tenant Base VM task.
- f) Click NEXT.

The Network Settings screen appears.

Figure 8: Network Settings Screen

<u>^</u>	Network Settings	
01 Connect your Cloud	* NETWORK NAME	
	default-network	
02 Placement Properties	* SUBNET CIDR	
03 Network Settings	GATEWAY IP	
04	A gateway IP will allow a cluster to access other networks	
Cluster Comgutation	* IP ADDRESS RANGE	

BACK

Step 5 In the Network Settings screen, enter the following information:

Note These network settings will be used to configure the Cisco Container Platform web interface.

- a) In the NETWORK NAME field, enter the name of the network that you want to use.
- b) In the SUBNET CIDR field, enter a CIDR for your subnet.
- c) In the GATEWAY IP field, enter the gateway IP address that you want to use.
- d) In the **IP ADDRESS RANGE** field, enter a range for the VIP network pool from which Cisco Container Platform can allocate the master VIP and the ingress VIP of the control plane.

Note You must ensure that these IP addresses are not part of a DHCP pool.

e) Click CONNECT.

The **Cluster Configuration** screen appears.

Figure 9: Cluster Configuration Screen

cisco Container Platfo	orm Installer	×
O1 Connect your Cloud	Cluster Configuration	
O2 Placement Properties	NETWORK PLUGIN FOR TENANT K8S CLUSTERS Calico CIDR FOR KUBERNETES POD NETWORK	
O3 Network 5ettings	CCP CONTROLLER MASTER NODE VIRTUAL IP	
O4 Cluster Configuration	* USERNAME FOR NODE ACCESS	NEXT

Step 6 In the Cluster Configuration screen, enter the following information:

- a) From the **NETWORK PLUGIN FOR TENANT K8S CLUSTERS** drop-down list, choose one of the following options for network connectivity:
 - ACI-CNI
 - Calico
 - Contiv (Tech Preview)

Note For more information on the network plugins, see Container Network Interface Plugins.

b) In the CIDR FOR KUBERNETES POD NETWORK field, 192.168.0.0/16 is displayed as the default pod network CIDR of the Kubernetes cluster for the installer. If the CIDR IP addresses conflict with the tenant cluster VM network or the vCenter network, you need to set a different value for the CIDR.

This CIDR is the single large CIDR from which smaller CIDRs are automatically allocated to each node for allocating IP addresses to the pods in the Kubernetes cluster. For more information, refer to https://kubernetes.io/docs/setup/scratch/#network-connectivity.

c) In the CCP CONTROLLER MASTER NODE VIRTUAL IP field, enter the IP address that is used to support a Cisco Container Platform upgrade.

This IP address needs to be in the same subnet, or it should be routable from the DHCP IP address for the controller VMs.

- d) In the USERNAME FOR NODE ACCESS field, enter the username of the user who can ssh into the Cisco Container Platform Control Plane nodes.
- e) In the SSH PUBLIC KEY FOR INSTALLER NODE ACCESS field, enter an ssh public key. You can use this key to ssh to the Control Plane nodes.

• Ensure that you enter the public key in a single line.

• If you do not have an SSH key pair, you can generate it using the ssh-keygen command.

f) Click NEXT.

The Control Plane Settings screen appears.

Figure 10: Control Plane Settings Screen

 cisi	⁽⁾ Container Platforr	n Installer	×
Ø	01	Control Plane Settings	
0	O2	* CONTROL PLANE NAME	
0	Placement Properties	* CCP VERSION 1.5.0-x-10-ga03cffa	
	Network Settings	CCP LICENSE ENTITLEMENT Customer Customer CDEATE VOUD ADMIN DASERUDASE	
	Cluster Configuration	BACK	DEPLOY

Step 7 In the **Control Plane Settings** screen, enter the following information:

- a) In the CONTROL PLANE NAME field, enter the name of the Cisco Container Platform cluster.
 - The cluster name must start with an alphanumeric character (a-z, A-Z, 0-9). It can contain a combination of hyphen (-) symbols and alphanumeric characters (a-z, A-Z, 0-9). The maximum length of the cluster name is 46 characters.
 - Deployment of the installer VM fails if another Control Plane cluster with the same name already exists on the same datastore. You must ensure that you specify a unique name for the Control Plane cluster.
- b) In the CCP VERSION field, enter the version of the Cisco Container Platform cluster.
- c) From the CCP LICENSE ENTITLEMENT drop-down list, choose an entitlement option that indicates the type of Smart Licensing that you want to use.

Note The **Partner** option will only be used in conjunction with a **Not for Retail (NFR)** or **Trial** license.

d) In the **CREATE YOUR ADMIN PASSPHRASE** field, enter the passphrase you want to use for an **Administrator** user of the Cisco Container Platform Control Plane.

- e) Expand Advanced Settings, in the NTP SERVERS field, enter the list of any NTP servers in your environment.
- f) Click **DEPLOY** and then monitor the installation progress through the vCenter **Web console**.
- **Note** You can use the ssh private key to access the Installer, control plane VMs, or the tenant cluster VMs. However, logging into these VMs using a username and password is not supported.