Installing Cisco Container Platform on vSphere Web Client

This chapter contains the following topics:

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 4

  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 7

  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**.
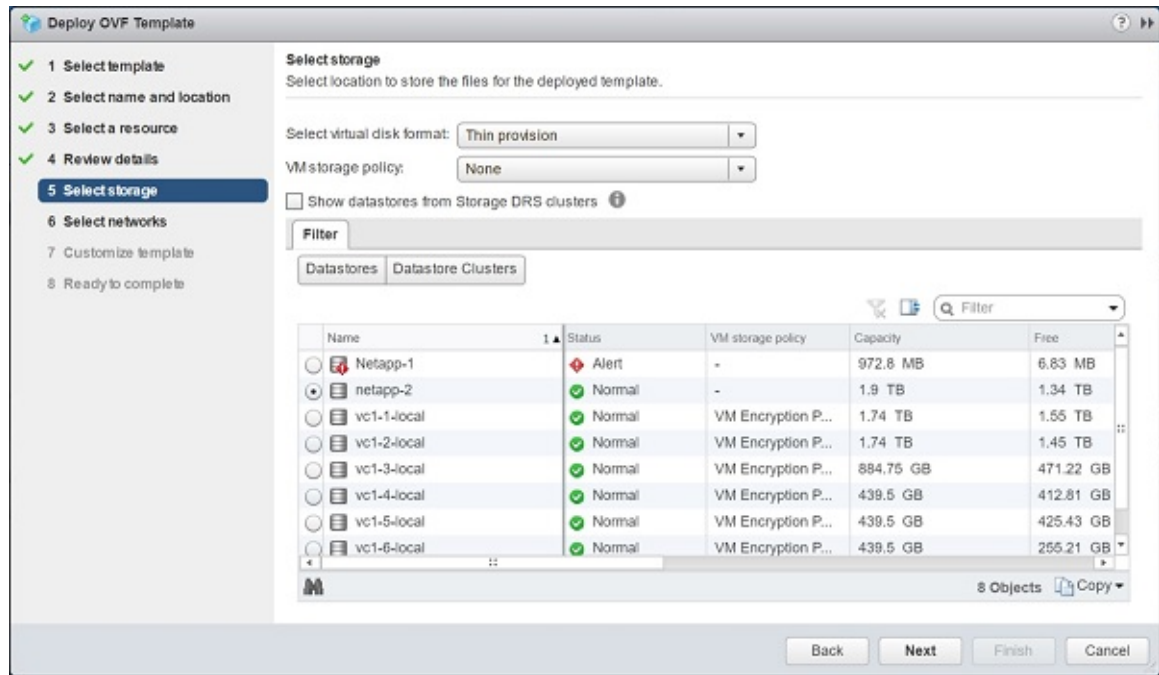
Importing Cisco Container Platform Tenant Base VM

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 Download the Cisco Container Platform tenant base VM from Cisco.com.

Step 2 Log in to the **VMware vSphere Web Client** as an administrator.

Step 3 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 4 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.

b) Click **Next**.

Step 5 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 6 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 7 In the **Review details** screen, verify the Cisco Container Platform tenant base VM details, and then click **Next**.

Step 8 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**.
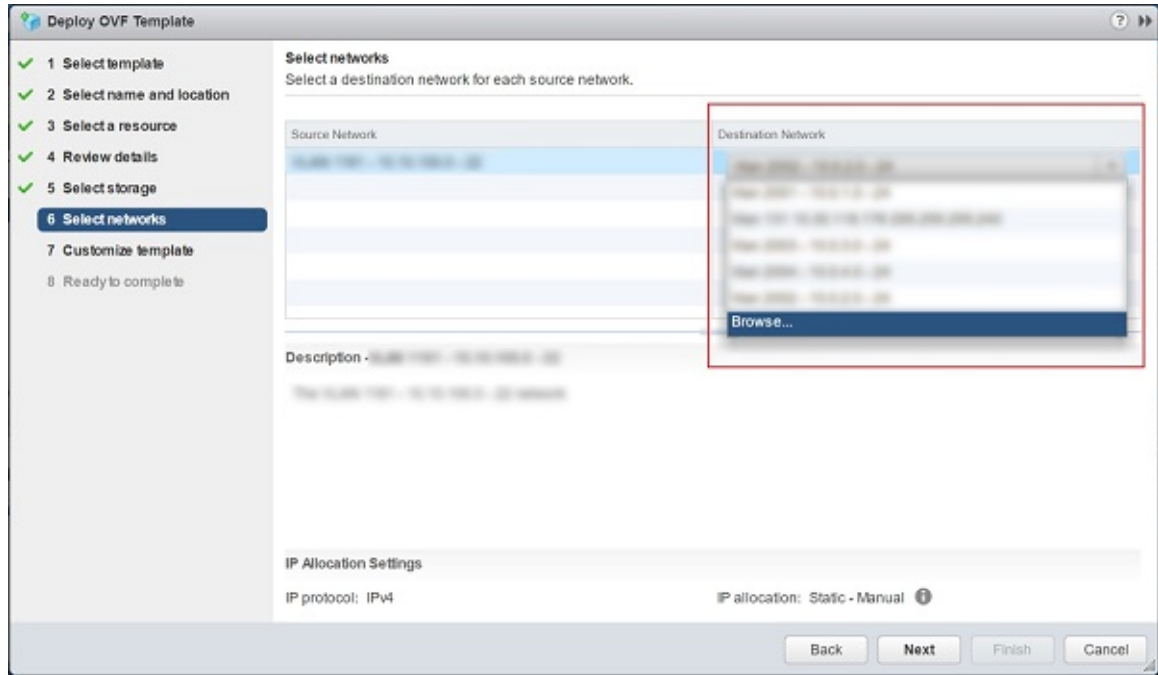The **Select storage** screen appears.

Figure 1: Select Storage Screen

Step 9 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**.
The **Select networks** screen appears.

Figure 2: Select Networks Screen

Step 10   In the **Customize template** screen, click **Next**.

Step 11   In 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.

Deploying Installer VM

Before you begin

Note   This deployment is for new installations of Cisco Container Platform. For upgrades, see Upgrading Cisco Container Platform, on page 9.

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   Download the Installer VM from Cisco.com.

Step 2   Log in to the **VMware vSphere Web Client** as an administrator.

Step 3   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 4   In the **Select template** screen, perform these steps:

      a) Click the **URL** radio button, and enter the URL of the Installer OVA.

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

      b) Click **Next**.

Step 5   In the **Select name and location** screen, perform these steps:

      a) In the **Name** field, enter a name for the installer VM.

      b) In the **Browse** tab, choose the data center where you want to deploy Cisco Container Platform.

      c) Click **Next**.

Step 6   In the **Select a resource** screen, choose the cluster where you want to run the installer VM, and then click **Next**.

Step 7   In the **Review details** screen, verify the template details, and then click **Next**.

Step 8   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 to store the installer VM.

      c) Click **Next**.

Step 9   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 installer VM.

        Note   The selected network must have access to vCenter and the tenant VM networks.

      b) Click **Next**.

Step 10   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 **Cluster name** field, enter a unique name for the Control Plane cluster.

        Note   Deployment of the installer VM fails if another Control Plane cluster with the same name already exists on your HyperFlex instance. You must ensure that you specify a unique name for the Control Plane cluster.

      c) 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.
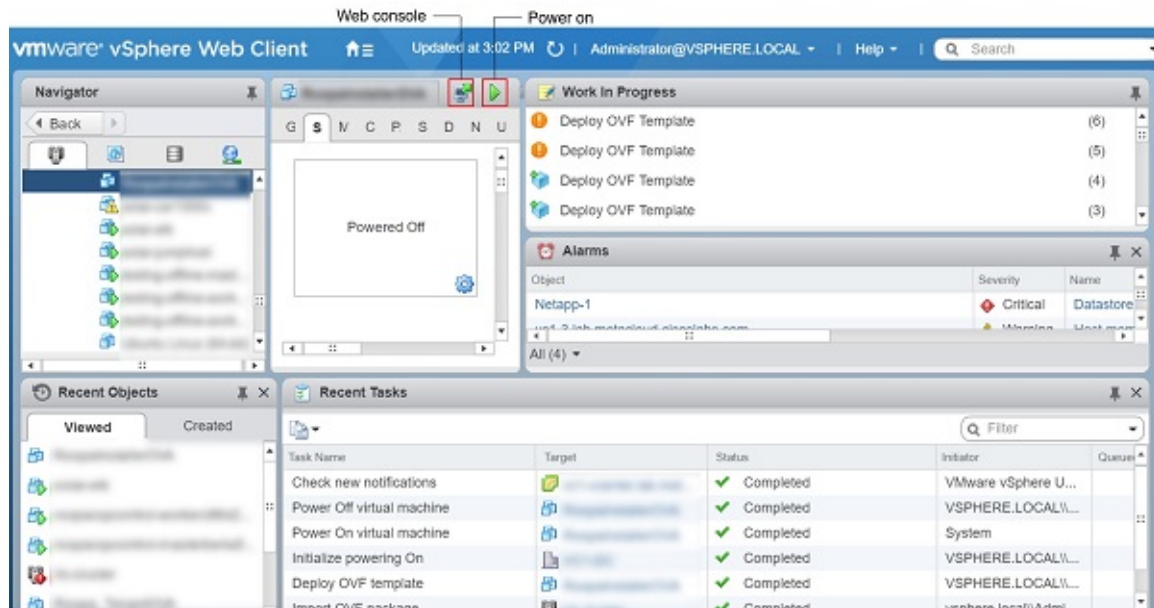
      d) Click **Next**.

Figure 3: Customize Template Screen
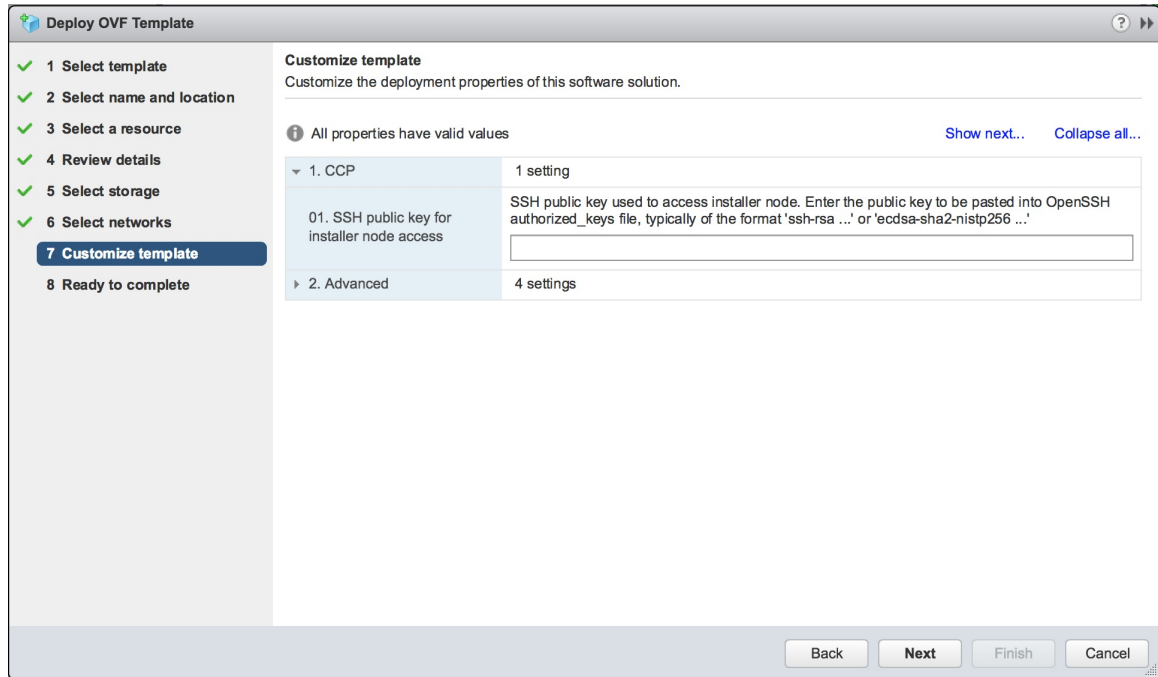
Step 11 In the **Ready to complete** screen, verify the installer VM deployment settings, and then click **Finish**.

Step 12 Click the **Power on** button to switch on the VM.

*Figure 4: Switching on Installer VM*

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 1   Obtain the URL from the vCenter **Web console** and use a browser to open the installer UI.

Step 2   From the **SELECT AN OPERATION TO PERFORM** drop-down list, choose **Install**.
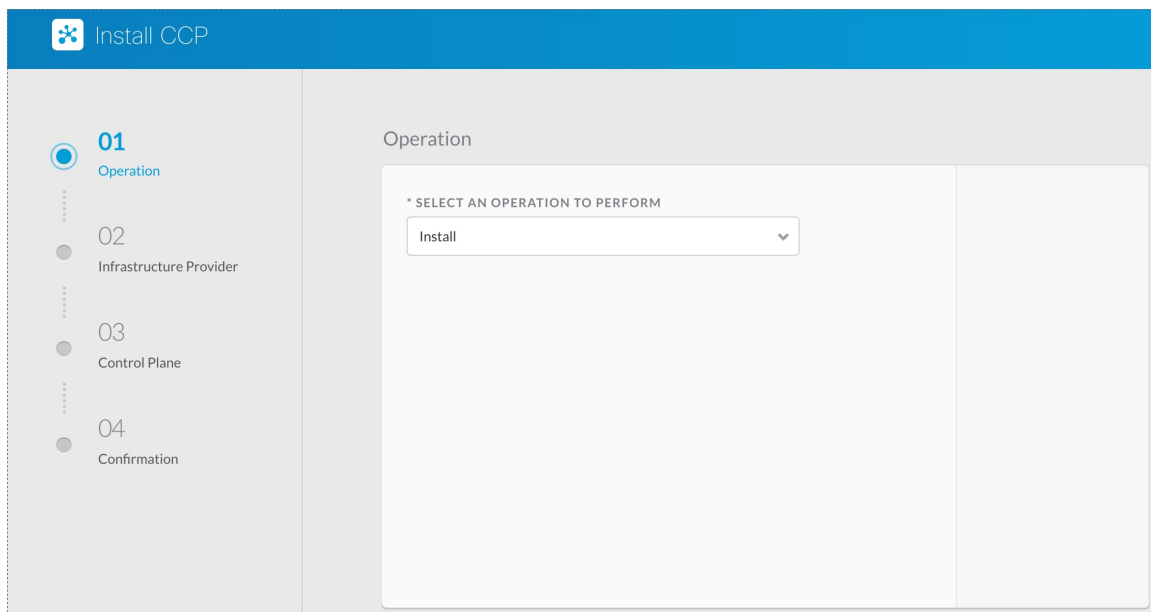
Step 3   In the **Infrastructure Provider** screen, enter the following information and then click **Next**:
a)   In the **VCENTER IP ADDRESS** field, enter the IP address of the vCenter instance that you want to use.
b)   In the **VCENTER IP PORT** field, enter the port of the vCenter instance that you want to use.
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.

Step 4 In the **Control Plane** screen, enter the following information:

a) In the **CONTROL PLANE NAME** field, enter the name of the Cisco Container Platform cluster.

b) From the **NETWORK PLUGIN FOR TENANT K8S CLUSTERS** drop-down list, choose one of the following options for network connectivity:

- Calico

- ACI

- Contiv (Tech Preview)

c) From the **VSPHERE DATACENTER** drop-down list, choose the datacenter.

d) From the **VSPHERE CLUSTER** drop-down list, choose the cluster.

e) From the **VSPHERE DATASTORE** drop-down list, choose the datastore.

f) From the **VSPHERE NETWORK** drop-down list, choose the network.

g) 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.

h) 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.

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

j) In the **USERNAME FOR NODE ACCESS** field, enter the username of the user who can ssh into the CCP Control Plane nodes.

k) 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.

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.

l)　In the **CCP LICENSE ENTITLEMENT** field, enter the appropriate entitlement.

m)　In the **CCP CONTROL PLANE ADMIN PASSPHRASE** field, enter the password of the Cisco Container Platform Control Plane.

n)　In the **NTP SERVERS** field, enter the list of any NTP servers in your environment.

> **Note**　The **CCP HELM CHART REPO**, **CCP CONTAINER REGISTRY**, and **DEV SWITCH: CNI-CONTROL-PLANE** fields are used for internal purpose. You may skip these fields.

Step 5　In the **Infrastructure Provider** screen, enter the following information and then click **Next**:

a)　In the **VCENTER IP ADDRESS** field, enter the IP address of the vCenter instance that you want to use.

b)　In the **VCENTER IP PORT** field, enter the port of the vCenter instance that you want to use.

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.

Step 6　Click **Deploy** and then monitor the installation progress through the vCenter **Web console**.

Upgrading Cisco Container Platform

Upgrading Cisco Container Platform and upgrading tenant clusters are independent operations. You must upgrade the Cisco Container Platform to allow tenant clusters to upgrade. Specifically, tenant clusters cannot be upgraded to a higher version than the Control Plane. For example, if the Control Plane is at version 1.10, the tenant cluster cannot be upgraded to the 1.11 version.

Upgrading Cisco Container Platform is a three-step process:

- Upgrading Cisco Container Platform Tenant Base VM, on page 10
- Deploying Upgrade VM, on page 10
- Upgrading Cisco Container Platform, on page 10

Note   Taking a snapshot of the VMs managed by Cisco Container Platform is currently unsupported and results in failures during upgrades.

Upgrading Cisco Container Platform Tenant Base VM

You can follow the instructions in the Installing Cisco Container Platform > Importing Cisco Container Platform Tenant Base VM section.

Note   The older tenant images are no longer required, you can delete them from your vCenter instance.

Deploying Upgrade VM

Download the latest installer VM and follow the instructions in the Installing Cisco Container Platform > Deploying Installer VM section to deploy the latest VM.

It may take a few minutes for the deployment of the VM to complete. You can view the status of the upgrade task using the Web console of vCenter.

Note   Depending on CNI usage, the port used to access CCP may change as part of the upgrade.

Upgrading Cisco Container Platform

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

Step 1   Obtain the URL from the vCenter **Web console** and use a browser to open the installer UI.

Step 2   From the **SELECT AN OPERATION TO PERFORM** drop-down list, choose **Upgrade**.

Step 3   In the **Infrastructure Provider** screen, enter the following information, and then click **NEXT**:

a) In the **VCENTER IP ADDRESS** field, enter the IP address of the vCenter instance that you want to use.

b) In the **VCENTER IP PORT** field, enter the port of the vCenter instance that you want to use.

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.

Step 4 In the **Existing Setup** screen, enter the following information, and then click **UPGRADE**:

    a) In the **CCP URL** field, enter the URL for accessing Cisco Container Platform in the following format:

       https://*<CCP_IP_Address>:<Port>*

Step 5 In the **Control Plane** screen, enter the following information:

    a) In the **CONTROL PLANE NAME** field, enter the name of the Cisco Container Platform cluster.

    b) From the **VSPHERE DATACENTER** drop-down list, choose the datacenter.

    c) 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.

    d) 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.

    e) In the **USERNAME FOR NODE ACCESS** field, enter the username of the user who can ssh into the Cisco Container Platform Control Plane nodes.

    f) 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.

Note	• Ensure that you enter the public key in a single line.
	• You can use the private key to securely connect to the Cisco Container Platform Control Plane VMs through SSH, after installation.
	• If you do not have an SSH key pair, you can generate it using the **ssh-keygen** command.

Step 6 In the **CCP LICENSE ENTITLEMENT** field, enter the appropriate entitlement.

Step 7 In the **CCP CONTROL PLANE ADMIN PASSPHRASE** field, enter the password of the Cisco Container Platform Control Plane.

The **CCP HELM CHART REPO**, **CCP CONTAINER REGISTRY**, and **DEV SWITCH: CNI-CONTROL-PLANE** fields are used for internal purpose. You may skip these fields

Step 8 Click **UPGRADE**.

Uninstalling Cisco Container Platform

Uninstalling Cisco Container Platform removes all containers and services associated with it. You will no longer be able to create or manage tenant clusters on this Cisco Container Platform instance.

Step 1 Open the Cisco Container Platform web interface and delete all the Kubernetes tenant clusters that belong to the Cisco Container Platform instance.

For more information on deleting Kubernetes clusters, refer to the *Cisco Container Platform User Guide*.

Step 2 Follow these steps to delete the Control Plane and installer node VMs:

    a) In vSphere web client, right-click the VM, choose **Power** > **Power off** and then click **Yes** in the confirmation dialog box.

    b) Right-click each VM and choose **Delete from Disk**.

Step 3 Follow these steps to delete the Control Plane cluster data disks:

a) In the vSphere web client, choose **Home** > **Storage**.

b) From the left pane, choose the datastore that is used to install the Control Plane VMs.

This is the same as the datastore to which the installer VM is imported to unless you have changed it in the **OVF properties** window.

c) If you have installed the Control Plane using the default name, right-click the folder named **ccpcontrol** or if you have provided a different name to the Control Plane in the installer node **OVF properties** window, right-click the folder with that name.

d) Choose **Delete File**.