Getting Started with Cisco Virtual Topology System

This chapter provides an overview of Cisco Virtual Topology System (VTS). It also provides a high level workflow of the tasks that you need to perform after you install Cisco VTS.

- Logging in, page 1
- Using the Setup Wizard, page 2
- Initial Configuration Tasks, page 7
- Important Notes Regarding VMware vSphere Distributed Switch (vDS), page 11

Logging in

To log in to the Cisco VTS GUI:

**Step 1**
Open a supported browser, and enter the URL of the server. For example: http:///IP Address>. Cisco VTS supports Google Chrome and Mozilla Firefox browsers. Cisco VTS has been tested on Google Chrome version 49.0.2623.112 m and Mozilla Firefox version 45.0.1.

**Step 2**
Enter the username and passphrase, and click Login. The default username and passphrase is admin/admin. The Change Password window appears.

You will be required to change the passphrase for the admin account the first time you are logging in. Click the Passphrase guidelines link for details about the passphrase guidelines.

**Step 3**
Enter the New Passphrase, and reenter the new passphrase in the Confirm New Passphrase field.

**Step 4**
Click Change Passphrase.

*Note*  
To change your passphrase subsequently, click Change Passphrase on the top right settings button.

The Cisco VTS welcome screen is displayed. The screen provides two options for you to continue with the set up tasks:
- Guide me to set up—This option takes you to the Cisco VTS Setup Wizard. This wizard guides you through the initial configuration tasks to get your system ready for further operations.

- I will set up myself—This option takes you to the Quick Guide, which displays the tasks you need to complete in order to get started with the system.

If you are familiar with the Cisco VTS setup tasks, you may opt to close the Quick Guide and proceed with the tasks. You can access the Quick Guide anytime from the Settings menu on the top right corner of the Cisco VTS GUI.

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**Using the Setup Wizard**

The Cisco VTS Setup wizard guides you through a series of steps that helps you set up the system and get started. We recommend that you use the Setup wizard if you are not familiar with the VTS UI and the sequence of the initial configuration tasks.

**Note**

Not all steps in the wizard are mandatory. Green check mark indicates that the task is not mandatory. These tasks can be done outside of the wizard flow or have default values.

The following sections provide information about the series of screens that are part of the wizard.

**System Settings**

This is the initial screen in the Setup wizard. This helps you to set up the following system parameters:

- DHCP Server IPv4
- DHCP Server IPv6
- AnyCast Gateway Mac
- Out of Sync Commit Behavior
- Default Range for VLAN pools
- Multiple VNIs to Multicast Address Mapping

Enter the values, and click Next.
The Virtual Machine Manager screen is displayed.
Virtual Machine Manager

The Virtual Machine Manager screen in the Setup wizard helps you to register the VMM. You can also specify whether the VMM you register is a trusted or an untrusted VMM.

Note
For cluster-based deployments, you must install the plugin on each node.

Step 1
Click the Add (+) button.
The Add Virtual Machine Manager popup is displayed.

Step 2
Enter the following details:

• VMM Name—Name of the VMM.
• VMM Type—Specify the VMM type. Choose vcenter or openstack from the drop-down list.
• Version Name—Specify the version.
• Datacenter—The name of the datacenter for which Cisco VTS acts as the controller. This is applicable only for vCenter.
• IP Address/Port—The IPv4/IPv6 address of the VMM end point. The default port is 443. This field is applicable only for vCenter.
• Identity IP Address—The IPv4/IPv6 address of the VMM end point. This field is applicable only for OpenStack.
• Protocol—Specify whether the protocol is http or https.
• HTTPS port—In case of vCenter, the vShpere webclient https port. For OpenStack, the OpenStack Neutron service port.
• Keystone port—Keystone port for OpenStack.
• VTF Deployment Mode—If you select openstack-liberty-rhel as the OpenStack version, this option appears. To install VTS in vhost mode, choose vtf-vhost. To install VTF as a VM, choose vts-as-vm.
• User Name—Enter the VMM username.
• Passphrase—Enter the VMM passphrase.
• Mode—Specify whether the VMM is a trusted VMM or an untrusted VMM. This field cannot be edited.
• Openstack Admin Project—The admin project in OpenStack.
• Admin User Name—admin user for the admin project in OpenStack.
• Admin Password—Password of the admin user.

Step 3
Click Add
The VMM you added is listed in the Virtual Machine Manager screen.
You can check the status of VMM registration in the Status column.

Step 4
Click Next if the VMM registration is successful.
To delete a VMM, select the VMM and click X (delete).
For the unregistration to be complete, you need to run the manual clean up procedures. See <section/awaiting inputs> for details.

The Administration > Virtual Machine Manager page displays the following details:

- VMM Name
- VMM Type
- Version
- Openstack Admin Project
- IP Address:Port
- Mode—Whether the VMM has been registered as Trusted or Untrusted.
- Username
- Status—The VMM registration status.
- MultiVMM Operations—Whether Merge, Publish, and Publish from VTS are allowed. Click the respective icon to initiate a Merge/Publish operation.

### Authorization Group

The Authorization Group screen in the Setup wizard helps you to create authorization groups. The authorization group will have credentials for logging into your devices. You can create as many authorization groups as necessary.

Click Add (+) icon. The Add Group popup window appears. Enter the following details, and click Add:

- **Group Name**—The authorization group name.
- **Controller User Name**—This is the VTC administrative user name.
- **Device User Name**—This is the login user name for the device.
- **Passphrase**—This is the login passphrase for the device.

The authorization group gets added to the authorization group table.

To edit an authorization group, select the Auth Group Name check box and click the Edit icon.

To delete an authorization group, select the Auth Group Name check box and click the delete (X) icon.
Discovery

The Discovery screen helps you to discover the devices in your network, and add them to the inventory. You can perform auto discovery, or import devices manually using a .CSV file. Before you perform this step, ensure that:

- Link Layer Discovery Protocol (LLDP) has to be enabled on leafs, spine, DCI, and computes. See documentation for the respective devices for details about how to enable LLDP on these devices.
- A seed device has to be identified, and the IP should be provided. The seed IP is that of one of the leaf or spine devices.
- All devices must have the same set of credentials. These credentials will be used during the discovery process. See Managing Inventory for more information. The credentials must be of the appropriate privilege level on the devices.

To perform discovery:

**Step 1**  Click **Discovery**.

**Step 2**  Enter the **Seed Device IP**.

**Step 3**  Enter the **Seed Device User Name**.

**Step 4**  Enter the **Seed Device Passphrase**.

**Step 5**  Click **Start Discovery**.

**Note**  After the discovery is complete, you may edit the editable fields in the table to modify the device details, before you add the details into the Cisco VTS inventory.

To import device details into inventory via CSV file, manually, click the **Import CSV**, then select the CSV file and import it.

If you want to edit details for more than one devices, you may select the devices, and then click **Bulk Edit** option. Click **Apply** after you make the changes.

**Step 6**  To add the devices to Cisco VTS inventory, select the devices and click **Add to Inventory** button.

**Note**  When you add the devices to inventory using the Add to Inventory button, all the devices in the table are added to the inventory.

**Step 7**  Click **Next**.  
The Inventory screen is displayed.

Inventory

The Inventory screen of the Setup wizard displays view inventory details: It has three tabs:

- Network Inventory—Details about the switches in the inventory. It shows the following details,
  - Device Name
  - Admin State
  - IP Address
You need to discover the devices and add them to the inventory before you bring up the VTSR. If you do these tasks simultaneously, you might encounter errors.

- Fabric Inventory—Details about the fabric connection between the switches. It shows the following details:
  - Device Name
  - Device Type
  - Device Interface
  - Device IP Address
  - Device Port Name
  - Connection ID

- Host Inventory—Details about the servers connected to the switches. It shows the following details:
  - Host Name
  - Host Type
  - Host Interface
  - Host IP Address
  - Device Port Name
  - Connection ID
  - Capability—The host capability - Physical or Virtual.
  - Status—Shows the installation status.

The Host Inventory has the Install Capabilities button. You can select the host from the list, and click Install Capabilities. If the host is connected to a physical VTEP (ToR), it installs the host agent in case of an OpenStack environment. If the capability is Virtual, clicking Install Capabilities installs the VTF VM on that host. See Installing OpenStack Host Agent and VTF using GUI.

Click on the info icon adjacent to the Host Name. Host Summary table popup appears.

If Virtual Capability is 'virtual-switch', both Additional Host Details and VTF Details can be viewed in the Host Summary table.
If Virtual Capability is 'no-virtual-switch' only Additional Host Details can be viewed in the Host Summary table.

Click Finish to exit the Setup wizard.

Using the Expert Mode—Quick Guide

On logging in for the first time, if you choose the I will set up myself option, the Quick Guide appears.

You may opt to close the Quick Guide and proceed to the set up tasks on your own, via the Cisco VTS GUI. To get a list of tasks that need to be performed to set up and get started with Cisco VTS, see Initial Configuration Tasks, on page 7 section. At any time, you can access the Quick Guide from the settings menu on the top right corner of the Cisco VTS GUI.

The Quick Guide has the following tasks listed:

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<th>Subtasks</th>
<th>Doc Section</th>
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</thead>
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<tr>
<td></td>
<td>• Virtual Machine Manager</td>
<td>• Registering the Virtual Machine Manager using GUI</td>
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<tr>
<td>Set up Inventory</td>
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<tr>
<td>Admin Domains</td>
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<td>Set up Tenants</td>
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<td></td>
<td>• Add Virtual Machines</td>
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<tr>
<td></td>
<td>• Add Routers</td>
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</tbody>
</table>

Initial Configuration Tasks

After bringing up the Virtual Topology Controller (VTC) Virtual Machine (VM), do the following:
Before you perform the tasks below, ensure that installation is complete, day zero configuration on leafs is done, and all underlay configurations are working.

<table>
<thead>
<tr>
<th>Sequence</th>
<th>Task</th>
<th>Navigation in VTS GUI / User Guide Section</th>
<th>Additional Notes</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Create an Authorization Group</td>
<td>Inventory &gt; Authorization Group&lt;br&gt;For more information about creating authorization group, see Managing Local Users and Groups</td>
<td>This will have credentials for logging into your devices. You can create as many auth groups as necessary.</td>
</tr>
<tr>
<td>2</td>
<td>Discover the Topology of all the leafs, spine, border-leafs, and DCI</td>
<td>Discovery &gt; Topology Discovery&lt;br&gt;For more information about adding devices and host information, see Performing Auto Discovery</td>
<td>VTFs are not detected in topology discovery.</td>
</tr>
<tr>
<td>3</td>
<td>Import the devices after adding the auth group</td>
<td>Inventory &gt; Import Inventory&lt;br&gt;For more information about adding devices and host information, see Importing Inventory using CSV File</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Add the Domain ID, DHCP Server IP, and Anycast Gateway MAC</td>
<td>Administration &gt; System Settings&lt;br&gt;For more information about adding devices and host information, see Administering Cisco VTS.</td>
<td></td>
</tr>
<tr>
<td>Sequence</td>
<td>Task</td>
<td>Navigation in VTS GUI / User Guide Section</td>
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<tr>
<td>5</td>
<td>Perform VTSR and VTF Registration.</td>
<td>See the <em>Installing the Virtual Topology Forwarder</em> section in the <em>Cisco VTS Installation Guide</em>.</td>
<td>Register the VTF only after you see the VFG group on the GUI. To verify that the VFG group is created, go to Inventory &gt; Virtual Forwarding Groups.</td>
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<td></td>
<td><strong>Note</strong> This step is required only if you have a VTF-based deployment.</td>
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<tr>
<td>6</td>
<td>Login into the VTSR and verify that the network-controller config is pushed</td>
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<td></td>
<td><strong>Note</strong> This step is required only if you have a VTF-based deployment.</td>
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<tr>
<td>7</td>
<td>Update the BGP ASN information for the devices</td>
<td>Inventory &gt; Network Inventory</td>
<td><strong>Note</strong> For more information, see <em>Viewing Network Inventory</em>.</td>
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<tr>
<td></td>
<td><strong>Create resource pools</strong></td>
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<td></td>
<td>• Resource Pools &gt; Global VNI Pool</td>
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<td>• Resource Pools &gt; Device Specific VLAN Pools</td>
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<td></td>
<td>• Resource Pools &gt; Multicast IP Pool</td>
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<td></td>
<td>For more information about creating an admin domain, see <em>Managing Resources</em>.</td>
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</tr>
<tr>
<td>Sequence</td>
<td>Task</td>
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<td>Additional Notes</td>
</tr>
<tr>
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</tbody>
</table>
| 8        | Create an Admin Domain | Admin Domains > Domains For more information about creating an admin domain, see Creating an Admin Domain | Properties for the L2/L3 Gateway Group are as follows:  
- Control Protocol: BGP-EVPN  
- Replication Modes: Multicast and Ingress  
- Distribution Mode: Decentralized |
| 9        | Add the devices to the Gateway Group | Admin Domains > Domains For more information about creating an admin domain, see Creating an Admin Domain | See the Supported Platforms section in the Cisco VTS Installation Guide for details about devices support for different roles. |
| 10       | Add the ToR and VTSR to the L2 and L3 Gateway Group | Admin Domains > Domains For more information about creating an admin domain, see Creating an Admin Domain |  |
| 11       | Save the Admin Domain you created | Admin Domains > Domains For more information about creating an admin domain, see Creating an Admin Domain |  |
Important Notes Regarding VMware vSphere Distributed Switch (vDS)

The following points need to be taken care of while you create a vDS.

**Note**
- All the ToRs in the inventory should be part of the vDSs.
- One vDS can represent one or more ToRs.
- All the hosts that are connected to a particular ToR should be part of the same vDS.

For Non-vPC Specific Configuration

If you are not using vPC on the leaves:
- Associate one or more leafs per vDS.
- Attach the hosts' data interface to the vDS uplinks.

**Note** See VMware documentation for the detailed procedure.

For vPC Specific Configuration

If you are using vPC on the leaves:

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>Create one vDS switch for one or more vPC pairs.</td>
</tr>
</tbody>
</table>
| Step 2 | Enable enhanced LACP.  
See VMware documentation for the detailed procedure. |
| Step 3 | Create a Link Aggregation Group for each vDS.  
See VMware documentation for the detailed procedure. |
| Step 4 | You may remove the default port group that gets created as it will not be used. |