

Cisco SD-WAN Cloud onRamp for Colocation Solution Devices User Guide

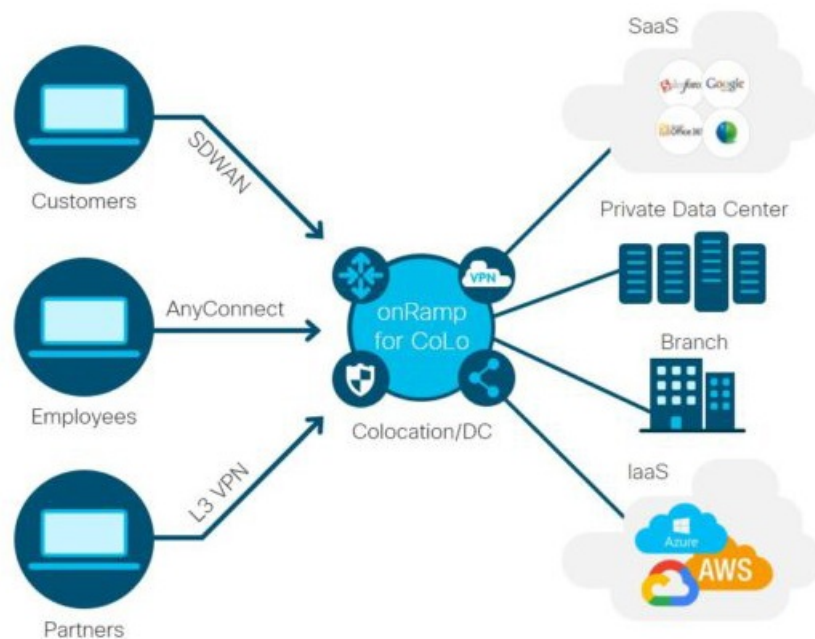
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Cisco SD-WAN Cloud onRamp for Colocation Solution Devices



Specifications

- Operational statistics available: CPU, memory, disk, and VNIC utilization charts
- Devices supported: Cloud Services Platform (CSP) devices and Cisco Colo Manager
- Components of CSP devices that can be monitored: CPU, memory, fan, temperature, etc.
- Notification stream: All notifications are sent to the Cisco vManage notification stream

Monitor Cisco SD-WAN Cloud onRamp for Colocation Solution Devices

Cisco vManage displays the Cloud OnRamp for Colocation status at a cluster level that indicates the health of each device. The cluster level resources are displayed to indicate the resource availability, such as the CPU allocated and available. You can view service groups in the cluster. All the service groups under a cluster are shown in a table view that indicates the number of VMs in a service chain that are up or down. Also, you can view the diagram view of a service group. This diagram view displays all service chains and VMs in a service chain that allows you to look at the resources that are allocated to a VM. The view displays VLANs for each VNIC attached to the VM. You can look at the VNF view, which is in tabular form that displays VNF details. You can hover over VM and get information about management IP, CPU, Memory, disk, HA, and VM type.

The historical and real-time operational statistics such as CPU, memory, disk, and VNIC utilization charts are available for each VM and CSP device. The VNF view can be navigated from a device under the cluster view or from the services view. See Monitor Operational Status of Cloud OnRamp for Colocation Devices from Cisco vManage, on page 1.

- Monitor Operational Status of Cloud OnRamp for Colocation Devices from Cisco vManage, on page 1
- Cisco Colo Manager States for Switch Configuration, on page 10
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Monitor Operational Status of Cloud OnRamp for Colocation Devices from Cisco vManage

1. Monitoring colocation devices is the process of reviewing and analyzing a device, such as Cloud Services

Platform (CSP) devices and Cisco Colo Manager for health, inventory, availability, and other operation-related processes. You can also monitor the components of CSP devices such as CPU, memory, fan, temperature, and so on. For more information about the Cisco vManage

2. Monitoring screens, see the Cisco SD-WAN Configuration Guides configuration guides.
3. All notifications are sent to the Cisco vManage notification stream. To use the notification stream command, see Cisco SD-WAN Command Reference.
4. From the Cisco vManage menu, choose Monitor > Devices.
 - Cisco vManage Release 20.6.x and earlier: From the Cisco vManage menu, choose Monitor > Network.
 - If Cisco vManage can't reach the CSP devices and Cisco Colo Manager (CCM) cannot reach the switches, the CSP devices and CCM are shown as unreachable.
 - Click a CSP device or a switch from the list by clicking the hostname.
By default, the VNF Status window appears.
 - Click Select Device and to filter the search results for devices, use the Filter option in the search bar.
 - The following are the categories of information about the device that are displayed:
 - VNF Status—Displays performance specifications, required resources, and component network functions for each VNF See View Information About VNFs from Cisco vManage, on page 2.
 - |Interface—Displays Interface status and statistics See the “View Interfaces” topic in the Cisco SD-WAN Configuration Guides.
 - Control Connections—Displays status and statistics for control connections See the View Control Connections topic in the Cisco SD-WAN Configuration Guides.
 - System Status—Displays reboot and crash information, hardware component status, and CPU and memory usage. See the View Control Connections topic in the Cisco SD-WAN Configuration Guides.
 - Colo Manager—Displays Cisco Colo Manager health status See View Cisco Colo Manager Health, on page 4.
 - Events—Displays latest system logging (syslog) events. See the View Events topic in the Cisco SD-WAN Configuration Guides.
 - Troubleshooting—Displays information about pings and traceroute traffic connectivity tools See the Troubleshoot a Device topic in the Cisco SD-WAN Configuration Guides.
 - Real Time—Displays real-time device information for feature-specific operational commands. See the View Real-Time Data topic in the Cisco SD-WAN Configuration Guides.
5. To monitor colocation clusters, from the Cisco vManage menu, choose Monitor > Devices and click Colocation Cluster. Cisco vManage Release 20.6.x and earlier: To monitor colocation clusters, from the Cisco vManage menu, choose Monitor > Network and click Colocation Clusters.
6. Click the desired cluster name. See Monitor Cloud onRamp Colocation Clusters, on page 5 for more information.

View Information About VNFs from Cisco vManage

Table 1: Feature History

| Feature Name | Release Information | Description |
|----------------------------|-----------------------------|--|
| VNF States and Color Codes | Cisco SD-WAN Release 20.1.1 | This feature allows you to determine the state of a deployed VM using color codes, which you can view on the Monitor > Devices page. |

Table 2: Feature History

| Feature Name | Release Information | Description |
|---|-----------------------------|--|
| Network Utilization Charts for SR-IOV Enabled NICs and OVS Switch | Cisco SD-WAN Release 20.1.1 | This feature allows you to view network utilization charts of VM VNICs connected to both SR-IOV enabled NICs and OVS switch. |

1. From the Cisco vManage menu, choose Monitor > Devices.

Cisco vManage Release 20.6.x and earlier: From the Cisco vManage menu, choose Monitor > Network.

Cisco vManage displays the VNF information in a tabular format. The table includes information such as CPU use, memory consumption, and disk, and other core parameters that define performance of a network service.

2. Click a CSP device from the table.
3. From the left pane, click VNF Status.
4. From the table, click the VNF name. Cisco vManage displays information about the specific VNF. You can click the network utilization, CPU utilization, memory utilization, and disk utilization to monitor the VNF resources utilization.

The following VNF information is displayed:

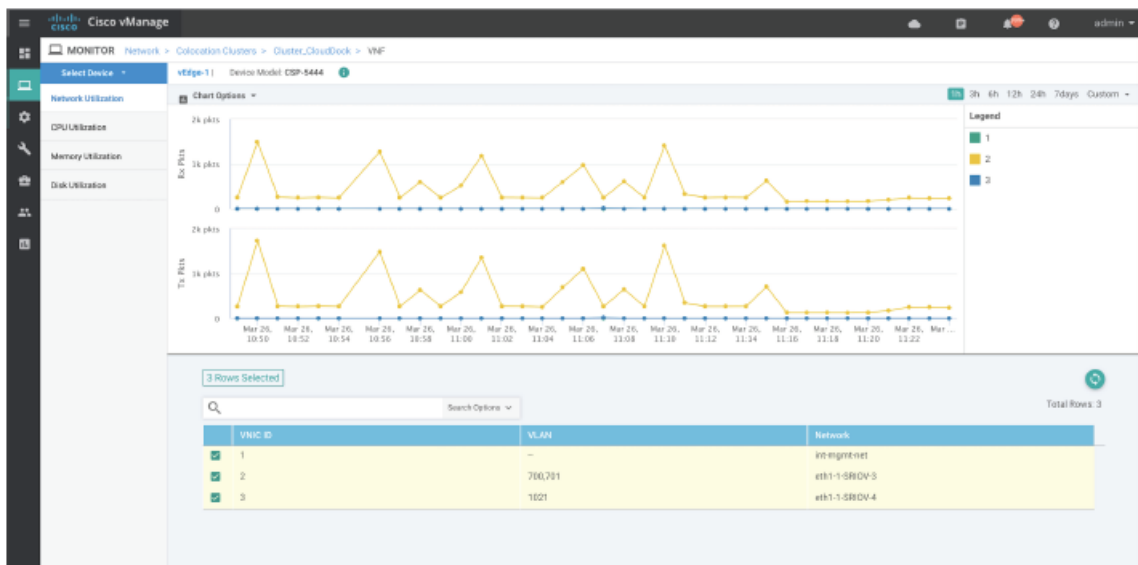
Table 3: VNF Information

| Chart options bar | VNF information in graphical format | VNF information in color coded format |
|--|---|--|
| <ul style="list-style-type: none">• Chart Options drop-down—Click Chart Options drop-down list to select the type of data to display.• Time periods—Click either a predefined time period, or a custom time period for which to display data. | Choose a VNF from the Select Device drop-down list to display information for the VNF. | <ul style="list-style-type: none">• The VNFs are shown in specific colors based on the following operational status of the VNF life cycle:• Green—VNF is healthy, deployed, and successfully booted up.• Red—VNF deployment or any other operation fails, or VNF stops.• Yellow—VNF is transitioning from one state to another. |

The right pane displays the following

- Filter criteria
- VNF table that lists information about all VNFs or VMs. By default, the first six VNFs are selected. The network utilization charts for VNICs connected to SR-IOV enabled NICs and OVS switch are displayed.

Figure 1: VNF Information



The graphical display plots information for the VNFs that you have selected by checking the check box.

- Click the check box at the left to select and deselect VNFs. You can select and display information for a maximum of six VNFs at a time.
- To change the sort order of a column, click the column title

View Cisco Colo Manager Health

You can view Cisco Colo Manager (CCM) health for a device, CCM host system IP, CCM IP, and CCM state. Reviewing this information can help you to determine which VNF to use when you're designing a network service chain. To view information about VNFs, perform the following steps

1. From the Cisco vManage menu, choose Monitor > Devices.
Cisco vManage Release 20.6.x and earlier: From the Cisco vManage menu, choose Monitor > Network.
The information of all devices is displayed in a tabular format.
Click a CSP device from the table.
2. From the left pane, click Colo Manager.
3. The right pane displays information about the memory usage, CPU usage, uptime, and so on, of the colo manager.

Monitor Cloud onRamp Colocation Clusters

Table 4: Feature History

| Feature Name | Release Information | Description |
|---|---|--|
| Network Assurance –VNFs: Stop/Start/Restart | Cisco SD-WAN Release 20.3.1 Cisco vManage Release 20.3.1 | This feature provides the capability to stop, start, or restart VNFs on Cisco CSP devices from the Colocation Cluster tab. You can easily perform the operations on VNFs using Cisco vManage. |

You can view the cluster information and their health states. Reviewing this information can help you to determine which Cisco CSP device is responsible for hosting each VNF in a service chain. To view information about a cluster, perform the following steps

1. From the Cisco vManage menu, choose Monitor > Devices.

Cisco vManage Release 20.6.x and earlier: From the Cisco vManage menu, choose Monitor > Network.

2. To monitor clusters, click Colocation Cluster.

Cisco vManage Release 20.6.x and earlier: Click Colocation Clusters.

All clusters with relevant information are displayed in a tabular format. Click a cluster name. You can monitor cluster by clicking Config. View and Port Level View.

- **Config. View:** The primary part of the window displays the CSP devices and switch devices that form the cluster. In the right pane, you can view the cluster information such as the available and total CPU resources, available and allocated memory, and so on, based on colocation size.

The detail part of the window contains

- **Search:** To filter the search results, use the Filter option in the search bar.
- **A table** that lists information about all devices in a cluster (Cisco CSP devices, PNFs, and switches).
 - Click a Cisco CSP device. VNF information is displayed in a tabular format. The table includes information such as VNF name, service chains, number of CPUs, memory consumption, and other core parameters that define performance of a network service chain. See View Information About VNFs from Cisco vManage, on page 2 .
- To start, stop, or reboot a VNF, for the desired VNF, click ... and choose one of the following operations
- Start.
- Stop.
- Restart.

Note

Ensure that service chain provisioning is complete and VMs are deployed, before issuing start, stop, restart operations on any of the VNFs in the service chain.

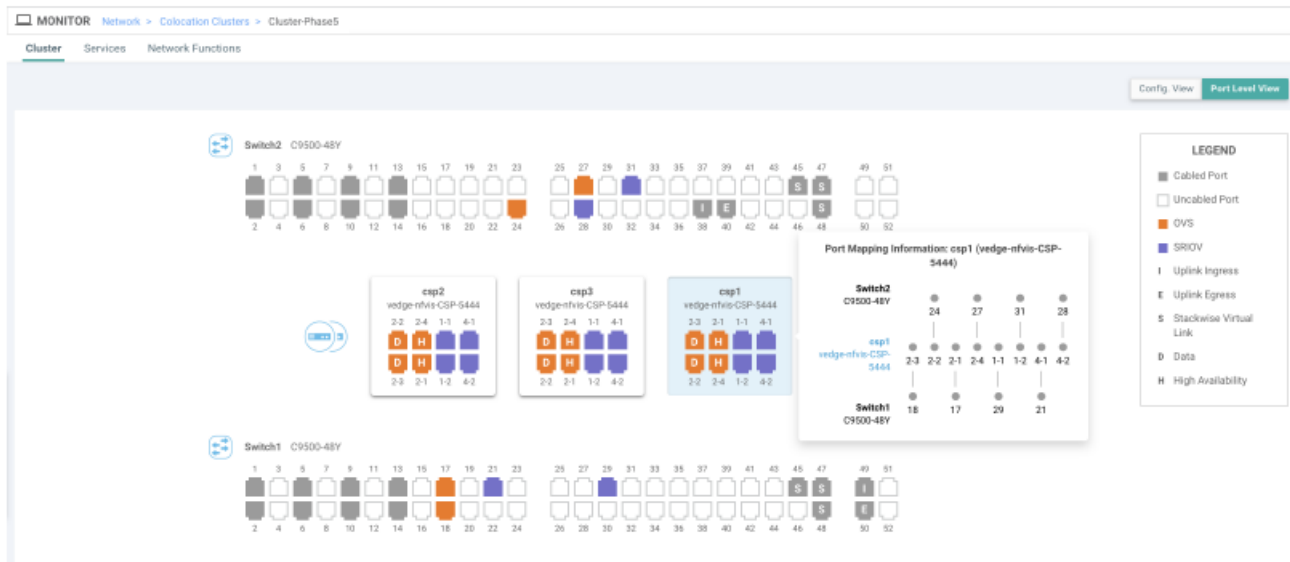
After you choose an operation on a VNF, wait until the operation is complete before you issue another operation. You can view the progress of an operation from the Task View window.

- **Port Level View:** After you activate the cluster, to view the port connectivity details, click Port Level View. You

can view detailed port connectivity information for the switches and CSP devices in a color coded format based on the SR-IOV and OVS modes.

- To view the mapping of ports between the Catalyst 9500 switches and CSP devices, click or hover over a CSP device.

Figure 2: Monitor Port Connectivity Details of a Cluster



Click Services.

Here, you can view the following

- Complete information of a service chain. The first two columns display the name and description of the service chain in the service group and the remaining columns mention about the VNF, PNF statuses, monitoring service enablement, and the overall health of a service chain. You can also view the colocation user group associated with a service chain. The various health statuses and their representations are:
- Healthy—An up arrow in green. A service chain is in 'Healthy' status when all the VNF, PNF devices are running and are in healthy state. Ensure that you configure the routing and policy correctly.
- Unhealthy—A down arrow in red. If one of the VNFs or PNFs are in unhealthy state, the service chain is reported to be in 'Unhealthy' status. For example, after deploying a service chain, if one of the network function IP address changes on the WAN or LAN side, or the firewall policy isn't configured to let the traffic pass through, then unhealthy state is reported. This is because the network function or overall service chain is Unhealthy or both are in Unhealthy state.
- Undetermined—Down arrow in yellow. This state is reported when the health of the service chain can't be determined. This state is also reported when there's no status such as healthy or unhealthy available for the monitored service chain over a time period. You can't query or search a service chain with undetermined status. If a service chain consists of a single PNF and PNF is outside the reachability of Cisco vManage, it can't be monitored. If a service chain consists of a single network function, the firewall that has VPN termination on both sides which can't be monitored, then it's reported as Undetermined.

Note If the status of a service chain is undetermined, you can't choose the service chain to view the detailed monitoring information.

- If you had configured a service chain by enabling the monitoring field, then click a service group that is in Healthy or Unhealthy state. The primary part of the service chain monitoring window contains the following

elements: Graphical display that plots the latency information of the service chain, VNFs, PNFs.

The detail part of the service chain monitoring window contains

- Search: To filter the search results, use the Filter option in the search bar.
- A table that lists information about all service chains, VNFs, PNFs, their health status, and types.
- Check the service chain, VNF, PNF check boxes for the service chains, VNFs, PNFs you want to choose.
- To change the sort order of a column, click the column title.

The status details column indicates the monitored data path and it provides the per hop analysis.

- Click Diagram and view the service group with all the service chains and VNFs in the design view window.
- Click a VNF. You can view CPU, memory, and disk allocated to the VNF in a dialog box.
- Choose a service group from the Service Groups drop-down. The design view displays the selected service group with all the service chains and VNFs.

Click Network Functions.

Here, you can view the following:

- All the virtual or physical network functions in a tabular format. Use the Show button, and choose to display either a VNF or PNF.

VNF information is displayed in a tabular format. The table includes information such as VNF name, service chains, colocation user groups, CPU use, memory consumption, and other core parameters that define performance of network service. To view more information about the VNF, click a VNF name. See View Information About VNFs from Cisco vManage, on page 2 .

- PNF information is displayed in tabular format. The table includes information such as the serial number and PNF type. To view and note configuration of a specific PNF, click the desired PNF serial number. Ensure that you manually note all the configuration of the PNFs and then configure the PNF devices. For example, the following are some of the PNF configuration where you position the PNF at various locations in the service chain. See the ASR 1000 Series Aggregation Services Routers Configuration Guides and Cisco Firepower Threat Defense Configuration Guides to configure the PNFs manually.

Figure 3: PNF in the First Position with Service Chain Side Parameters



Configuration of PNF: 4444

Search Options

| ServiceChainName | ServiceGroupName | INSIDE_PRIM | OUTSIDE_PRIM | INSIDE_SEC | OUTSIDE_SEC | VIP_IP_ADDRESS | INSIDE_AS | OUTSIDE_AS | OUTSIDE_DATA_MASK | INSIDE_DATA_MASK |
|----------------------|------------------|-------------|--------------|------------|-------------|----------------|-----------|------------|-------------------|------------------|
| ServiceGroup3_chain1 | ServiceGroup3 | -- | 22.1.1.41 | -- | -- | -- | -- | 4200000007 | 255.255.255.248 | -- |

Figure 4: PNF in the First Position with Outside Neighbor Information



Configuration of PNF: 4444

Search Options

| OUTSIDE_AS | OUTSIDE_DATA_MASK | INSIDE_DATA_MASK | INSIDE_PEER_DATA_IP_PRIM | INSIDE_PEER_DATA_IP_SEC | OUTSIDE_PEER_DATA_IP_PRIM | OUTSIDE_PEER_DATA_IP_SEC | INS |
|------------|-------------------|------------------|--------------------------|-------------------------|---------------------------|--------------------------|------|
| 4200000007 | 255.255.255.248 | -- | -- | -- | 22.1.1.43 | 22.1.1.44 | [200 |

Figure 5: PNF Shared Across Two Service Chains

The ServiceGroup2_chain3 is a PNF-only service chain and therefore no configuration gets generated. The PNF is in the last position of the ServiceGroup2_chain1, so only INSIDE variables gets generated.

Configuration of PNF: 33334

| ServiceChainName | ServiceGroupName | INSIDE_PRIM | OUTSIDE_PRIM | INSIDE_SEC | OUTSIDE_SEC | VIP_IP_ADDRESS | INSIDE_AS | OUTSIDE_AS | OUTSIDE_DATA_MA |
|----------------------|------------------|-------------|--------------|------------|-------------|----------------|------------|------------|-----------------|
| ServiceGroup2_chain3 | ServiceGroup2 | -- | -- | -- | -- | -- | -- | -- | -- |
| ServiceGroup2_chain1 | ServiceGroup2 | 22.1.1.27 | -- | -- | -- | -- | 4200000002 | -- | -- |

Figure 6: PNF Shared Across Two Service Chains with Outside Neighbor Information

Configuration of PNF: 33334

| | OUTSIDE_AS | OUTSIDE_DATA_MASK | INSIDE_DATA_MASK | INSIDE_PEER_DATA_IP_PRIM | INSIDE_PEER_DATA_IP_SEC | OUTSIDE_PEER_DATA_IP_PRIM | OUTSIDE_PEER_DATA_IP_SEC | INSIDE_VLAN |
|----|------------|-------------------|------------------|--------------------------|-------------------------|---------------------------|--------------------------|-------------|
| -- | -- | -- | -- | -- | -- | -- | -- | [1830] |
| 12 | -- | -- | 255.255.255.248 | 22.1.1.25 | -- | -- | -- | [1032] |

Packet Capture for Cloud onRamp Colocation Clusters

Table 5: Feature History

| Feature Name | Release Information | Description |
|---|---|--|
| Packet Capture for Cloud onRamp Colocation Clusters | Cisco IOS XE Release 17.7.1a Cisco SD-WAN Release 20.7.1 Cisco vManage Release 20.7.1 | <p>This feature lets you capture packets at either the physical network interface card (PNIC) level or the virtual network interface card (VNIC) level on a Cloud Services Platform (CSP) device of a colocation cluster. You can capture packets on one or more PNIC or VNIC on the same device or different devices with different browsers at the same time.</p> <p>This feature lets you gather information about the packet format, and helps in application analysis, security, and troubleshooting.</p> |

You can capture packets flowing to, through, and from a CSP device of a colocation cluster. You can capture packets at either the PNIC or the VNIC level on the CSP device.

Supported Ports for Packet Capture for Cloud onRamp Colocation Clusters

Packet capture is supported for the following ports:

Table 6: Supported Ports for Packet Capture

| Mode | VNIC Level | PNIC Level |
|--|---|--------------|
| Single Tenancy | OVS-DPDK, HA-OVS-DPDK, SR-IOV, OVS-MGMT | SR-IOV, MGMT |
| Multitenancy (Role-Based Access Control) | OVS-DPDK, HA-OVS-DPDK, OVS-MGMT | MGMT |

Enable Packet Capture on Cisco vManage

Enable the packet capture feature on Cisco vManage before capturing packets at the PNIC or VNIC level on a CSP device of a colocation cluster:

1. From the Cisco vManage menu, choose Administration > Settings.
2. In Data Stream, choose Enabled.

Capture Packets at PNIC Level

1. From the Cisco vManage menu, choose Monitor > Devices.
2. Click Colocation Cluster, and choose a cluster.
3. From the list of devices that is displayed, click a CSP device name.
4. In the left pane, click Packet Capture.
5. From the PNIC ID drop-down list, choose a PNIC.
6. (Optional) Click Traffic Filter to filter the packets that you want to capture based on the values in their IP headers.

Table 7: Packet Capture Filters

| Field | Description |
|----------------|--|
| Source IP | Source IP address of the packet. |
| Source Port | Source port number of the packet. |
| Protocol | Protocol ID of the packet. The supported protocols are: ICMP, IGMP, TCP, UDP, ESP, AH , ICMP Version 6 (ICMPv6), IGRP, PIM, and VRRP. |
| Destination IP | Destination IP address of the packet. |

| Field | Description |
|------------------|--|
| Destination Port | Destination port number of the packet. |

Click Start.

The packet capture begins, and its progress is displayed

- Packet Capture in Progress: Packet capture stops after the file size reaches 20 MB, or 5 minutes after you

started packet capture, or when you click Stop.

- Preparing file to download: Cisco vManage creates a file in libpcap format (a .pcap file).
- File ready, click to download the file: Click the download icon to download the generated file.

Capture Packets at VNIC Level

1. From the Cisco vManage menu, choose Monitor > Devices.
2. Click Colocation Cluster, and choose a cluster.
3. From the list of devices that is displayed, click a CSP device name.
4. Choose a VNF, and then click Packet Capture in the left pane.
5. Alternatively, choose Monitor > Devices > Colocation Cluster. Next, choose a cluster and click Network Functions, choose a VNF, and then click Packet Capture in the left pane.
6. From the VNIC ID drop-down list, choose a VNIC.
7. (Optional) Click Traffic Filter to filter the packets to capture based on values in their IP headers. For more information on these filters, see the above section.
8. Click Start. The packet capture begins, and displays its progress.

Cisco Colo Manager States for Switch Configuration

The various Cisco Colo Manager (CCM) states and transitions when you trigger various processes from Cisco vManage are

- INIT state—When the Cisco Colo Manager container is successfully initialized.
- IN-PROGRESS state—When any configuration push is not possible.
- SUCCESS state—When the Cisco Colo Manager container has successfully translated and pushed the intent that is received from Cisco vManage to Cisco Catalyst 9500-40X or Cisco Catalyst 9500-48Y4C switches.
- FAILURE state—If there is any failure in processing or configuration push in Cisco Colo Manager.

When Cisco vManage pushes the Cloud OnRamp for Colocation configuration intent to the CCM for the first time, it moves from INIT to IN-PROGRESS state. After Cisco Colo Manager pushes the configuration, it goes back to the SUCCESS or FAILURE state. For every incremental configuration push, it goes to IN-PROGRESS state. If any of the configurations pushes fail, Cisco Colo Manager goes into FAILURE state.

Note

A notification is sent when Cisco Colo Manager state changes. See Cisco Colo Manager Notifications, on page 11.

Cisco Colo Manager States and Transitions from Host

Cisco vManage depends on various CSP hosts state for the Cisco Colo Manager to be brought up, which are

- Starting—When Cisco Colo Manager is brought up and health check script hasn't been run. During this phase, Cisco vManage waits for CSP state to change to Healthy.
- Healthy—When the health check script has been run and it has passed the checks. This state implies that the operational model for configuration status can be queried or configuration can be pushed. During this phase, if Cisco Colo Manager is in INIT state, Cisco vManage pushes the device list. If Cisco Colo Manager isn't in INIT

state, Cloud OnRamp for Colocation may be in degraded state and recovery flow should start.

- **Unhealthy**—When all the necessary packages in Network Services Orchestrator (NSO) aren't up. This state can be due to various reasons such as, NSO didn't come up, Cisco Colo Manager package didn't come up, or other reasons. This state implies that the configuration status operation isn't up and configuration can't be pushed.

Cisco Colo Manager Notifications

You can view the Cisco Colo Manager notifications from Cisco Colo Manager console by using the show notification stream viptela command.

The various Cisco Colo Manager internal states are

Table 8: CCM Notifications

| Cisco Colo Manager States | Notification Trigger | Notification Output Example |
|---------------------------|--|--|
| INIT | Init: Cloud OnRamp for Colocation is activated and Cisco vManage brings up Cisco Colo Manager on Cisco CSP. | admin@ncs# show notification stream viptela last 50 notification eventTime 2019-04-08T17:15:15.982292+00:00 |
| | Note The Cisco Colo Manager state must be in "Init" only when the docker container is initially brought up and must not be in this state unless container is deleted and brought up again. | ccmEvent severity-level minor host-name ccm user-id vmanage admin config-change false transaction-id 0 status SUCCESS status-code 0 status-message init details Initializing CCM event-type CCM-STATUS |

| Cisco Colo Manager States | Notification Trigger | Notification Output Example |
|---------------------------|--|--|
| IN-PROGRESS | Cisco vManage pushes intent and Cisco Colo Manager moves to in-progress state. | notification eventTime 2019-04-08T17:37:54.536953+00:00 ccmEvent severity-level minor host-name ccm user-id vmanage_admin config-change false transaction-id 0 status SUCCESS status-code 0 status-message IN-PROGRESS details Received configuration from vManage event-type CCM-STATUS ! |
| SUCCESS | During cluster activation, after Cisco Catalyst 9500 switches have been successfully onboarded, status moves to SUCCESS. For any incremental configuration, status moves to SUCCESS only if configuration has been saved successfully in the switch devices. | notification eventTime 2019-04-08T17:51:48.044286+00:00 ccmEvent severity-level minor host-name ccm user-id vmanage_admin config-change false transaction-id 0 status SUCCESS status-code 0 status-message SUCCESS details Devices done onboarding event-type CCM-STATUS admin@ncs# |

| Cisco Colo Manager States | Notification Trigger | Notification Output Example |
|---------------------------|----------------------|-----------------------------|
| FAILURE | If onboarding of | |

| | | |
|--|-------------------------|---|
| | switches fails | |
| | during cluster | notification |
| | activation, CCM | eventTime 2019-04-08T18:01:44.943198+00:00 |
| | status moves to | ccmEvent |
| | FAILURE. If any | severity-level critical host-name ccm |
| | incremental | user-id vmanage_admin config-change false transaction-id 0 status FAILURE |
| | configurations are | status-code 0 |
| | not saved, CCM | status-message FAILURE |
| | status moves to | details SVL bringup not successful. Could not sync TenGigabitEthernet2/0/ |
| | FAILURE. | * interfaces. |
| | Note The failure | event-type CCM-STATUS |
| | state cannot | ! |
| | transition to | tl |
| | another | oadmin@ncs# |
| | state | |
| | without | |
| | end-user | . |
| | intervention | |
| | Onboarding of | |
| | switches fails | |
| | during cluster | |
| | activation due to | admin@ncs# show notification stream viptela last 100 include Step |
| | wiring errors in | notification |
| | flexible | details Step 5 of 7: Device switch1 : 192.168.100.21 (C9500-48Y4C-CAT2 |
| | connections, and | 324L2HM) connected after SVL reload. details Step 6 of 7: Started sync-from |
| | CCM status moves | for primary device switch1 : 192.168.100.21 (C9500-48Y4C-CAT2324L2HM) |
| | | details Step 6 of 7: Sync-from done for primary device switch1 |
| | | : 192.168.100.21 (C9500-48Y4C-CAT2324L2HM) |
| | | Device list : switch1 : 192.168.100.21 |
| | | (C9500-48Y4C-CAT2324L2HM), switch2 : 192.168.100.19 (C9500-48Y4C-CAT2316L2F2) |
| | | details Step 6 of 7: Devices ready for LLDP query Device list |
| | | : switch1 : 192.168.100.21 (C9500-48Y4C-CAT2324L2HM), switch2 |

| | | |
|--|-------------|---|
| | to FAILURE. | <p>: 192.168.100.19 (C9500-48Y4C-CAT2316L2F2)</p> <p>details Step 6.1 of 7: LLDP Query Details: csp2 has 8/8 interfaces connected, 2/4 sriov, 2/4 fortville to primary switch; 2/4 sriov, 2/4 fortville to secondary switch; Found devices with not optimum connections:- csp1 has 6/8 interfaces connected, 2/4 sriov, 2/4 fortville to primary switch; 2/4 sriov, 0/4 fortville to secondary switch; Minimum Requirement is to have 8/8 interfaces per CSP in cluster. Recommended action: Please refer to recommended topologies and minimum requirements details Step 7 of 7:</p> <p>Devices done onboarding Device list : switch1 : 192.168.100.21 (C9500-48Y4C-CAT2324L2HM), switch2 : 192.168.100.19 (C9500-48Y4C-CAT2316L2F2)</p> |
|--|-------------|---|

VM Alarms

The following are VM alarms and you can view them from Cisco vManage, when Cisco vManage receives the alarms.

| Alarm | Trigger Condition | Syslog Messages |
|--------------------|-------------------------|--|
| INTF_STATUS_CHANGE | interface status change | <p>nfvis</p> <p>%SYS-6-INTF_STATUS_CHANGE:</p> <p>Interface eth0, changed state to up</p> |
| VM_STOPPED | vm stopped | <p>nfvis %SYS-6-VM_STOPPED:</p> <p>VM stop successful:</p> <p>SystemAdminTena_ROUTER_0_df6733c1-</p> <p>0768-4ae6-8dce-b223ecdb036c</p> |
| VM_STARTED | vm started | <p>nfvis %SYS-6-VM_STARTED:</p> <p>VM start successful:</p> <p>SystemAdminTena_ROUTER_0_df6733c1-</p> <p>0768-4ae6-8dce-b223ecdb036c</p> |

| | | |
|----------------------|------------------------|---|
| VM_REBOOTED | vm rebooted | nfvis %SYS-6-VM_REBOOTED: VM reboot successful: SystemAdminTena_ROUTER_0_df6733c1-0768-4ae6-8dce-b223ecdb036c |
| VM_RECOVERY_INIT | vm recovery initiation | nfvis %SYS-6-VM_RECOVERY_INIT: VM recovery initiation successful: SystemAdminTena_ROUTER_0_df6733c1-0768-4ae6-8dce-b223ecdb036c |
| VM_RECOVERY_REBOOT | vm recovery reboot | nfvis %SYS-6-VM_RECOVERY_REBOOT: VM recovery reboot successful: SystemAdminTena_ROUTER_0_df6733c1-0768-4ae6-8dce-b223ecdb036c |
| VM_RECOVERY_COMPLETE | vm recovery complete | nfvis %SYS-6-VM_RECOVERY_COMPLETE: VM recovery successful: SystemAdminTena_ROUTER_0_df6733c1-0768-4ae6-8dce-b223ecdb036c |

| Alarm | Trigger Condition | Syslog Messages |
|------------------|---------------------|--|
| VM_MONITOR_UNSET | vm monitoring unset | nfvis %SYS-6-VM_MONITOR_UNSET: Unsetting VM monitoring successful: SystemAdminTena_ROUTER_0_df 6733c1- 0768-4ae6-8dce- b223ecdb036c |
| VM_MONITOR_SET | vm monitoring set | nfvis %SYS-6-VM_MONITOR_SET: Setting VM monitoring successful: SystemAdminTena_ROUTER_0_df 6733c1- 0768-4ae6-8dce-b223ecdb036c |

See [Cisco NFVIS Configuration Guide](#) for more information about syslog support and VM alarms.

VM States

The following are the operational status of deployed VM life cycle. In Cisco SD-WAN, you can view and monitor the VM states from Cisco vManage.

Table 10: VM States

| VM States | Description |
|----------------|--|
| VM_UNDEF_STATE | VM or VNF is transitioning from one state to another. |
| VM_INERT_STATE | VM or VNF is deployed but not alive. |
| VM_ALIVE_STATE | VM or VNF is deployed and successfully booted up or alive. |
| VM_ERROR_STATE | VM or VNF is in error state when deployment or any of her operation fails. |

Cloud Services Platform Real-Time Commands


Table 11: Real-Time Commands

| |
|-----------------------------------|
| System Information |
| Container status |
| show control connections |
| Control connection history |

| |
|---------------------------------|
| Control local properties |
| Control summary |
| Control statistics |
| Control valid vEdges |
| valid vManage ID |
| HW Alarms |
| HW Environments |
| PNICs |
| System Status |
| Host System Mgmt Info |
| Host System settings |
| Host System processes |
| Resource CPU allocation |
| RBAC Authentication |
| Resource CPU VNFs |
| Hardware Inventory |
| Hardware Temperature thresholds |
| Control affinity stats |

Monitor Cisco SD-WAN Cloud onRamp for Colocation Solution Devices

Documents / Resources

| | |
|---|--|
|  | CISCO Cisco SD-WAN Cloud onRamp for Colocation Solution Devices [pdf] User Guide Cisco SD-WAN Cloud onRamp for Colocation Solution Devices, Cisco SD-WAN, Cloud onRamp for Colocation Solution Devices, onRamp for Colocation Solution Devices, Colocation Solution Devices, Solution Devices |
|---|--|

References

-  [Cisco SD-WAN - Configuration Guides - Cisco](#)
-  [Cisco Enterprise Network Function Virtualization Infrastructure Software Configuration Guide, Release 3.10.x - Syslog Support \[Cisco Enterprise NFV Infrastructure Software\] - Cisco](#)

-  [Cisco Catalyst SD-WAN Command Reference - Cisco](#)
- [User Manual](#)

[Manuals+](#), [Privacy Policy](#)