

Upgrade Process for vManage 3 Nodes Cluster if Configuration-DB Upgrade Is Not Needed

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Introduction

This document describes the process of 3-node vManage cluster if configuration or db upgrade is not needed or new code is in the same software train.

Prerequisites

- Snapshots of the 3 VM per vManage Node taken by the vManage administrator if the solution is On-Prem or taken by Cisco CloudOps Team if the solution is hosted in Cisco.
- Take a backup of the configuration-db with the command **request nms configuration-db backup path *path/filename***
- Copy the configuration-db backup file out of the vManage node.

Components Used

- vManage cluster of 3 nodes on 20.3.4 version.
- The 20.3.4.1 vManage image.

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, ensure that you understand the potential impact of any command.

Background Information

The process described on this document refers to upgrades that do not need a configuration-db upgrade.

Check the [Cisco vManage Upgrade Paths](#) document that is located on the Release Notes of each code to verify if configuration-db upgrade is needed.

Note: The configuration-db must be upgraded when the upgrade is from a Cisco vManage Release 18.4.x/19.2.x to Cisco vManage 20.3.x /20.4.x or from a Cisco vManage Release 20.3.x/20.4.x to Cisco vManage Release 20.5.x/20.6.x. Refer to [Upgrade Cisco vManage Cluster](#).

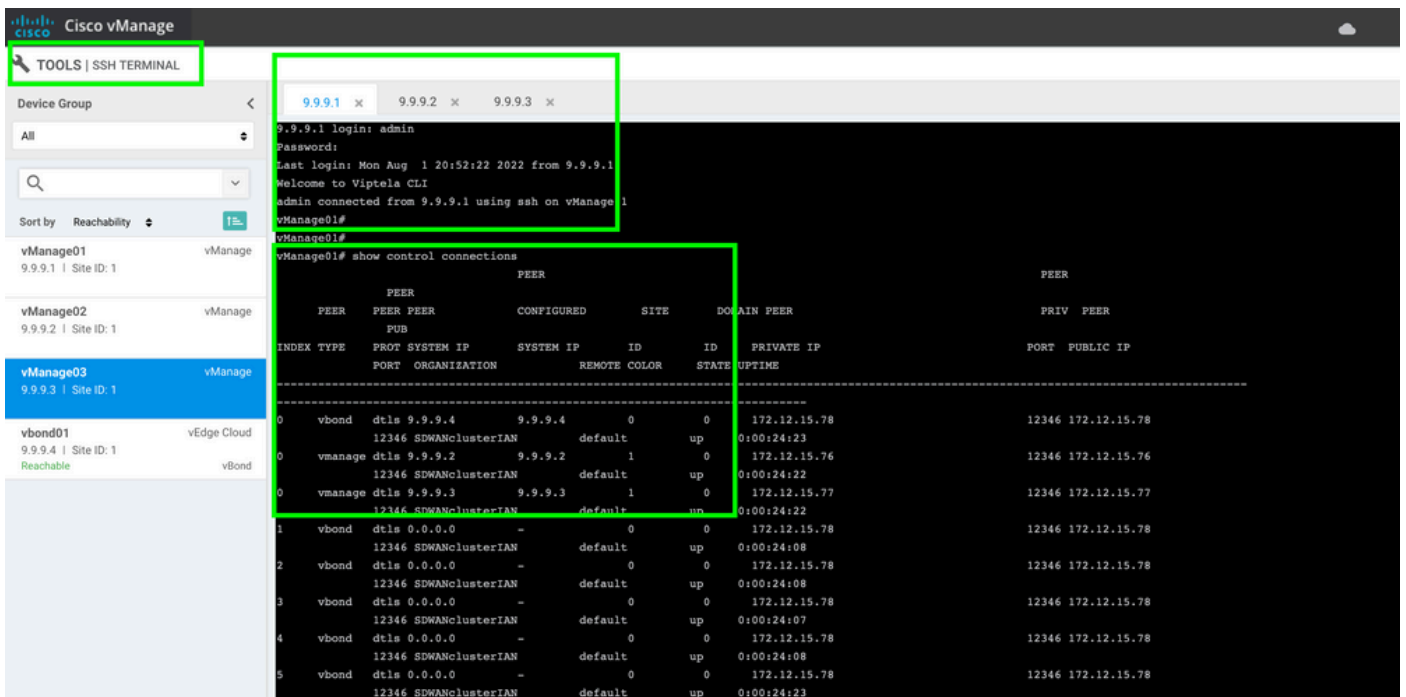
Upgrade Process

1. Ensure in each vManage cluster node that:

- Control Connections are up between each vManage node.
- Network Configuration Protocol (NETCONF) is stable
- Out-of-band interfaces are reachable between each vManage node.
- Data Collection Agent (DCA) is in RUN state on all nodes in the cluster.

To check NETCONF status, navigate to **Tools > SSH Session** and login on each vManage node. If the login is a success, the NETCONF is good.

The **show control connections** shows if there is control connections between the vManage nodes, as shown in the image.



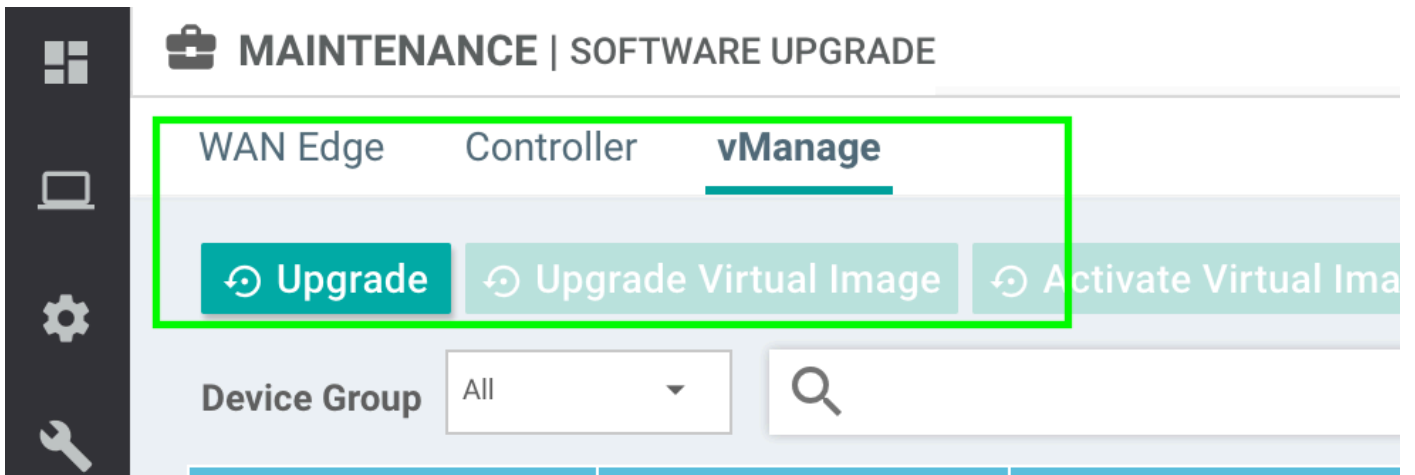
To check the connectivity, ping the remote out-of-bands ips and source the interface out-of-band from any vManage node .

Use the **request nms data-collection-agent status** command to check the status of the DCA.

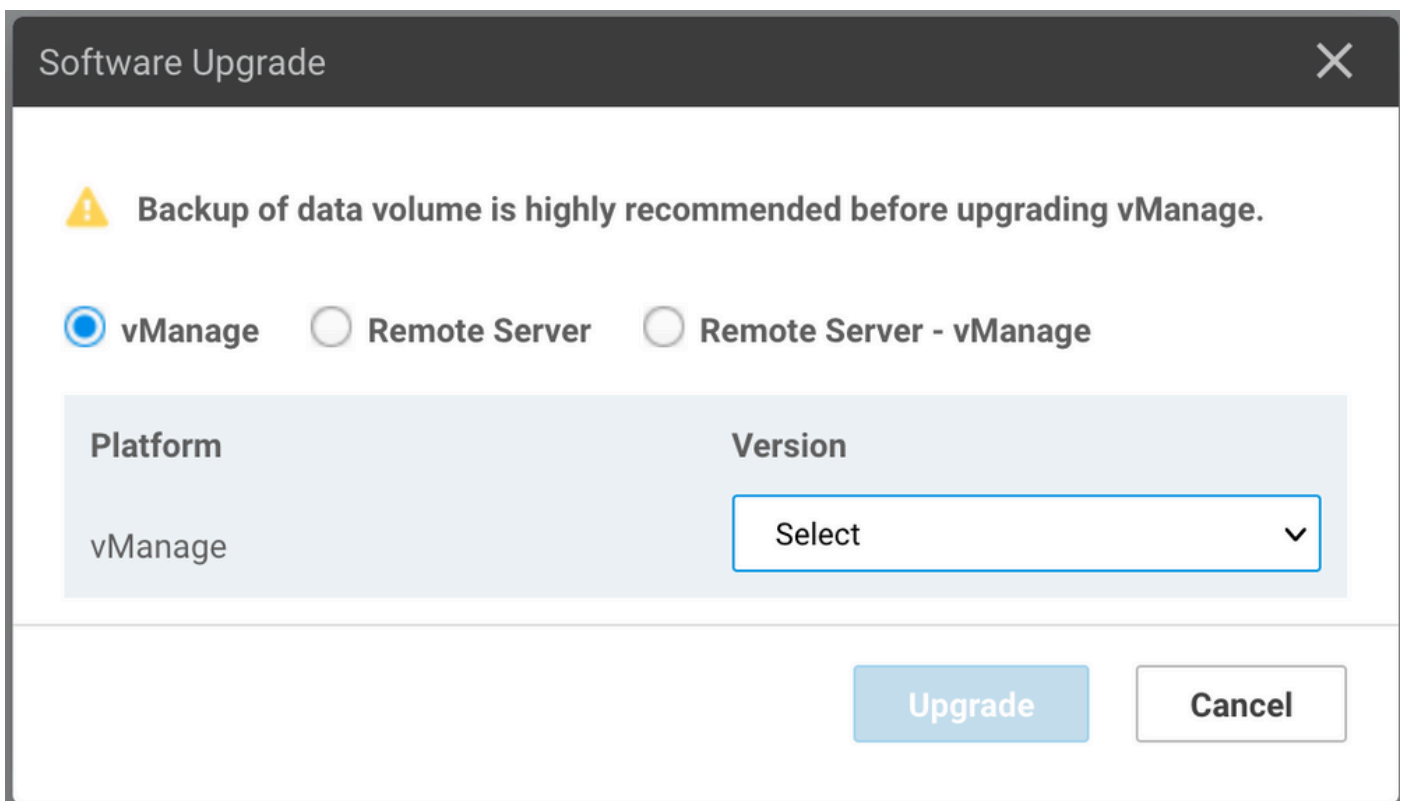
2. Upload the new Cisco Viptela vManage code on the vManage Software Repository on one node.

3. Navigate to **Maintenance > Software Upgrade**.

4. Check the box of the 3 vManage nodes, click **Upgrade**, and choose the new version.



5. Select **Upgrade** option and check vManage as the platform.
6. Select the new code from the dropdown menu and click **Upgrade**..



7. The software installation is performed node by node. While the first vManage node starts with the new code installation, the other nodes are in **Scheduled** status.

After the first node is successful, it starts to install the new code on the next vManage node until the three (3) nodes have the image installed successfully.



Note: The upgrade action for vManage cluster is not the same as that in a standalone vManage or any other device in the overlay. The upgrade action by GUI installs the image on the vManage nodes only. It does not activate the new code on the vManage nodes.. The new code activation is done manually by `request software activate <code>` command.

Note: The installation of the new code fails if the NETCONF sessions are not healthy; either there are no Control connections between vManages nodes or the out-of-band interfaces have reachability issues between them.

8. After the new code is downloaded and installed on each vManage node, activate the new code manually.

Software Install | Validation Success - Initiated By: admin From: 10.24.204.135

Total Task: 3 | Success: 3

Status	Message	Hostname	System IP	Site ID	Device Type	Device Model	vManage IP
Success	Done - Software Install	vManage01	9.9.9.1	1	vManage	vManage	9.9.9.1
Success	Done - Software Install	vManage02	9.9.9.2	1	vManage	vManage	9.9.9.1
Success	Done - Software Install	vManage03	9.9.9.3	1	vManage	vManage	9.9.9.1

The `show software` output confirms that the new code was installed. Check the `show software` command on each node and verify that each node installed the image successfully.

```
vManage02# show software
VERSION  ACTIVE  DEFAULT  PREVIOUS  CONFIRMED  TIMESTAMP
-----
20.3.4   true    true     -          -          2022-07-30T00:56:54-00:00
20.3.4.1 false   false   false     -          -
vManage02#
```

9. Run the `request nms all status` command to get the output for each vManage node and determine which services are enabled prior to the upgrade.

```
vmanage01cluster
NMS configuration database
  Enabled: true
  Status: running PID:20496 for 180s
NMS coordination server
  Enabled: true
  Status: running PID:19910 for 185s
NMS messaging server
  Enabled: true
  Status: not running
NMS statistics database
  Enabled: true
  Status: running PID:20625 for 179s
NMS data collection agent
  Enabled: true
  Status: not running
NMS cloud agent
  Enabled: true
  Status: running PID:827 for 300s
NMS container manager
  Enabled: true
  Status: running PID:18676 for 195s
NMS SDAVC proxy
  Enabled: true
  Status: running PID:880 for 300s
vManage01#
```

10. Use the `request nms all stop` command to stop all the services on each vManage node.

```
vManage01# request nms all stop
Successfully stopped NMS cloud agent
Successfully stopped NMS server proxy
Successfully stopped NMS application server
Successfully stopped NMS data collection agent
Stopping NMS messaging server
Successfully stopped NMS coordination server
Successfully stopped NMS configuration database
Successfully stopped NMS statistics database
vManage01#
```

Tip: Do not interact with the CLI session until all nms services are stopped in order to avoid any unexpected issue.

11. Prepare the `request software activate <code>` command and keep it ready on each CLI session per vManage node.

```
vManage01#
vManage01#
vManage01# request software activate 20.3.4.1 _
```

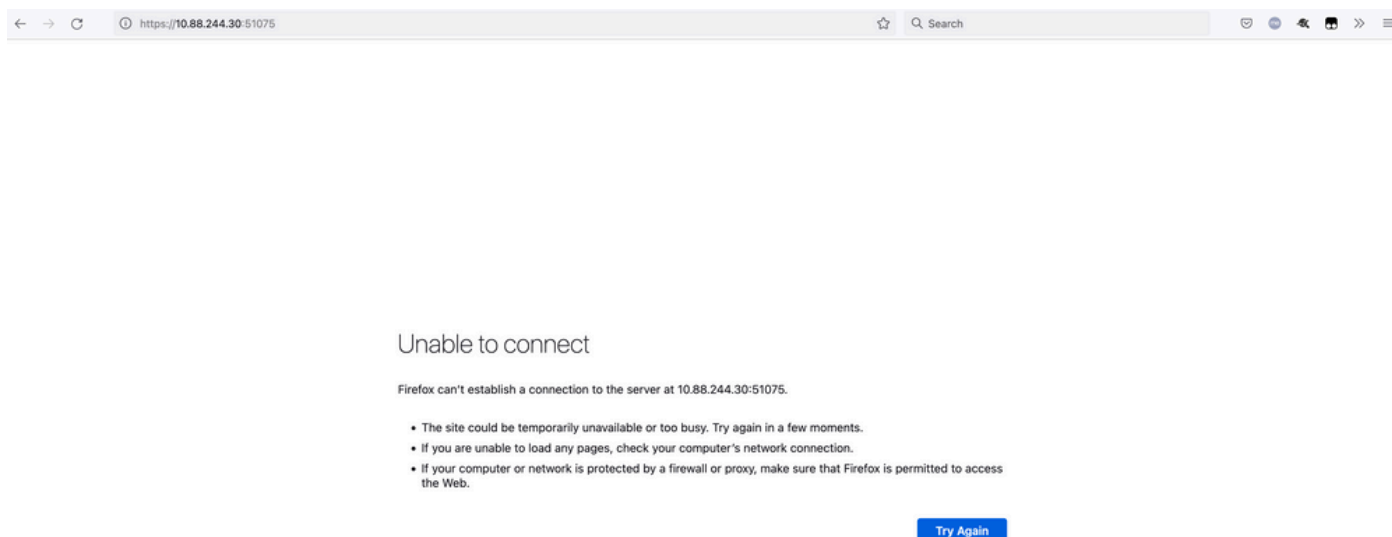
```
vManage02#
vManage02#
vManage02# request software activate 20.3.4.1 _
```

```
vManage03#  
vManage03#  
vManage03# request software activate 20.3.4.1_
```

12. Enter the `request software activate` command on each vManage node and confirm the activation for the new code.

```
vManage02#  
vManage02#  
vManage02# request software activate 20.3.4.1  
This will reboot the node with the activated version.  
Are you sure you want to proceed? [yes,NO] y
```

After the activation, each node is rebooted to boot with new partition code. The vManage GUI is temporarily unreachable, as shown in the image.



13. When the system is ready, it allows you to log in on each vManage node and shows the new version of the vManage.

```
vmanage02cluster
directory
confd_load_schemas(addr->ai addr_ addr->ai addr_len) returned -2 confd_errno=45, vM
confd_lasterr()='EOF on socket to ConfD'
Mon Aug 1 21:55:19 UTC 2022: System Ready
WARNING: No cpu cfs quota support
WARNING: No cpu cfs period support
viptela 20.3.4.1
vManage02 login: admin
Password:
Welcome to Viptela CLI
admin connected from 127.0.0.1 using console on vManage02
vManage02# request software upgrade-confirm
vManage02# show software
VERSION    ACTIVE    DEFAULT    PREVIOUS    CONFIRMED    TIMESTAMP
-----
20.3.4     false    true       true        -            2022-07-30T00:56:54-00:00
20.3.4.1   true     false     false       user         2022-08-01T21:55:20-00:00
vManage02#
```

Use the request software upgrade-confirm to confirm the upgrade on each vManage node.

```
vmanage01cluster
Mon Aug 1 21:55:35 UTC 2022: System Ready
WARNING: No cpu cfs quota support
WARNING: No cpu cfs period support
viptela 20.3.4.1
vManage01 login: admin
Password:
Welcome to Viptela CLI
admin connected from 127.0.0.1 using console on vManage01
vManage01# request software con
% Invalid input detected at '^' marker.
vManage01# request software upgrade-confirm
vManage01# show software
VERSION    ACTIVE    DEFAULT    PREVIOUS    CONFIRMED    TIMESTAMP
-----
20.3.4     false    true       true        -            2022-07-30T00:53:34-00:00
20.3.4.1   true     false     false       user         2022-08-01T21:55:36-00:00
vManage01#
```

Verify whether the status is confirmed by user or auto

```
vmanage03cluster
vManage03 login:
Mon Aug  1 21:54:29 UTC 2022: System Ready
confd_load_schemas(addr->ai_addr, addr->ai_addrLen) returned -2, confd_errno=45
  confd_lasterr()='EOF on socket to ConfD'
WARNING: No cpu cfs quota support
WARNING: No cpu cfs period support

viptela 20.3.4.1

vManage03 login: admin
Password:
Welcome to Viptela CLI
admin connected from 127.0.0.1 using console on vManage03
vManage03# request software upgrade confirm
vManage03# show software
```

VERSION	ACTIVE	DEFAULT	PREVIOUS	CONFIRMED	TIMESTAMP
20.3.4	false	true	true	-	2022-07-30T00:58:36-00:00
20.3.4.1	true	false	false	user	2022-08-01T21:54:30-00:00

```
vManage03#
```

14. Once the activation is done, all NMS eventually start independently.

If some services did not start, stop all services on each vManage node again after the activation, and restart the NMS manually node by node, service by service.

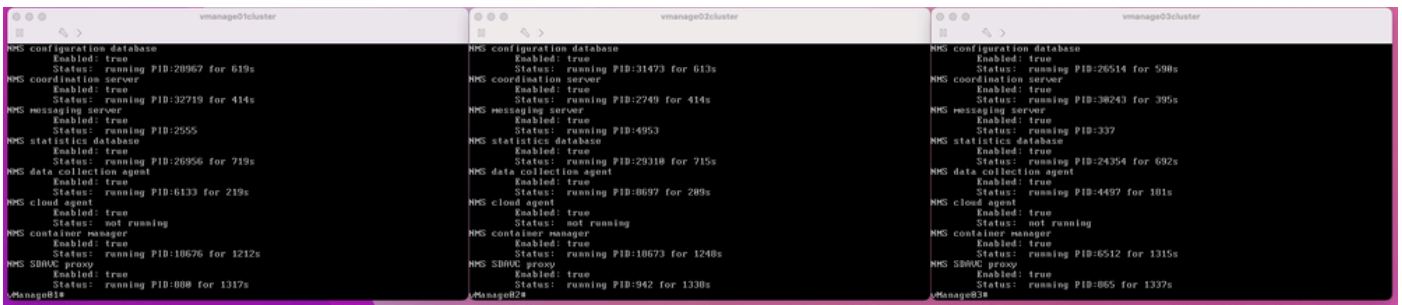
Follow the sequence documented on [Manually Re-Start vManage Processes](#).

When the application server starts, observe that watches are established log on each node.

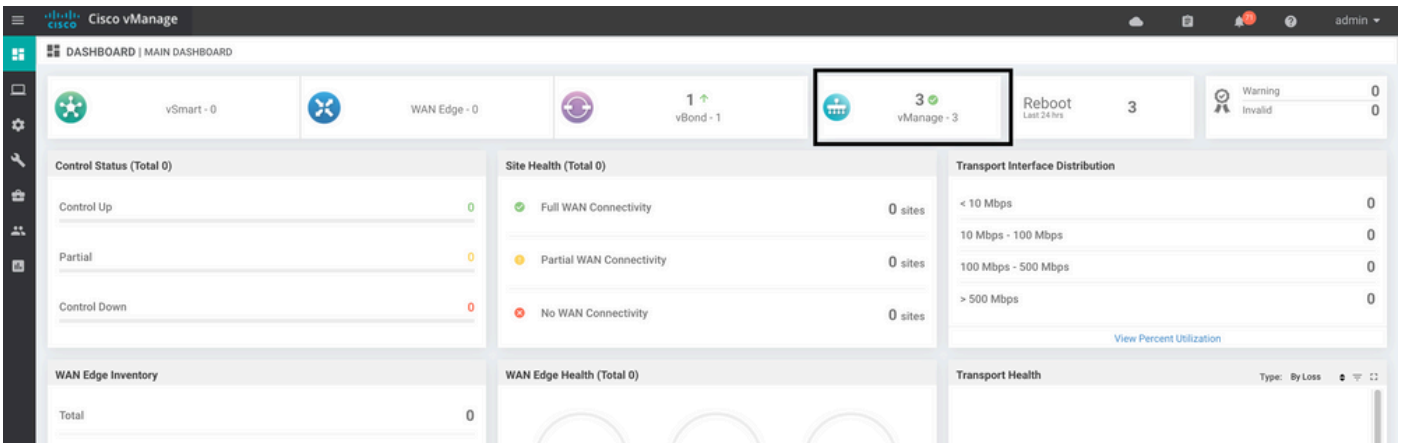
```
vManage02# request nms messaging-server status
NMS messaging server
  Enabled: true
  Status: running PID:4953
vManage02# request nms application-server start
Successfully started NMS application server
Setting up watches.
Watches established.
Successfully started NMS data collection agent
vManage02# request nms application-server status
NMS application server
  Enabled: true
  Status: running PID:7021 for 22s
```

Verify

Use the `request nms all status` output to verify all services that functioned prior to the upgrade are in RUN state after the new code activation.



Join to any of the Cisco vManage GUI nodes and check that 3 vManage nodes are in good status in the vManage Dashboard.



Navigate to **Administration > Cluster Management** to verify that each vManage node is on ready status and the services function properly (only SD-AVC as optional).



Verify that all nodes are reachable via SSH tool from vManage GUI. If you can login and see control connections for each vManage node cluster and cedges/vedges, the cluster is in a good state and NETCONF sessions are established between nodes.

Cisco vManage

TOOLS | SSH TERMINAL

Device Group: All

Sort by: Reachability

9.9.9.1 x 9.9.9.2 x 9.9.9.3 x

```

9.9.9.1 login: admin
Password:
Last login: Mon Aug 1 20:52:22 2022 from 9.9.9.1
Welcome to Viptela CLI
admin connected from 9.9.9.1 using ssh on vManage
vManage01#
vManage01# show control connections

```

		PEER						PEER	
		PEER	PEER	CONFIGURED	SITE	DOMAIN	PEER	PRIV	PEER
INDEX	TYPE	PROT	SYSTEM IP	SYSTEM IP	ID	ID	PRIVATE IP	PORT	PUBLIC IP
		PORT	ORGANIZATION	REMOTE	COLOR	STATE	UPTIME		
0	vbond	dtls	9.9.9.4	9.9.9.4	0	0	172.12.15.78	12346	172.12.15.78
			12346 SDWANclusterIAN	default		up	0:00:24:23		
0	vmanage	dtls	9.9.9.2	9.9.9.2	1	0	172.12.15.76	12346	172.12.15.76
			12346 SDWANclusterIAN	default		up	0:00:24:22		
0	vmanage	dtls	9.9.9.3	9.9.9.3	1	0	172.12.15.77	12346	172.12.15.77
			12346 SDWANclusterIAN	default		up	0:00:24:22		
1	vbond	dtls	0.0.0.0	-	0	0	172.12.15.78	12346	172.12.15.78
			12346 SDWANclusterIAN	default		up	0:00:24:08		
2	vbond	dtls	0.0.0.0	-	0	0	172.12.15.78	12346	172.12.15.78
			12346 SDWANclusterIAN	default		up	0:00:24:08		
3	vbond	dtls	0.0.0.0	-	0	0	172.12.15.78	12346	172.12.15.78
			12346 SDWANclusterIAN	default		up	0:00:24:07		
4	vbond	dtls	0.0.0.0	-	0	0	172.12.15.78	12346	172.12.15.78
			12346 SDWANclusterIAN	default		up	0:00:24:08		
5	vbond	dtls	0.0.0.0	-	0	0	172.12.15.78	12346	172.12.15.78
			12346 SDWANclusterIAN	default		up	0:00:24:23		

Related Information

[vManage Cluster Guide](#)

[Technical Support & Documentation - Cisco Systems](#)