# 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 <u>Cisco vManage Upgrade Paths</u> 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.

cisco VManage									•
K TOOLS   SSH TERMINA	L								
Device Group	<	9.9.9.1 ×	9.9.9.2 × 9	.9.9.3 ×					
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٩	~	Last login: M Welcome to Vi admin connect	Mon Aug 1 20:52:22 : iptela CLI ted from 9.9.9.1 usin	2022 from 9.9.9.1 ig ssh on vManage	1				
Sort by Reachability 🖨	te.	vManage01#							
vManage01 9.9.9.1   Site ID: 1	vManage	vManage01# vManage01# sh	how control connection	DODS PEER				PEER	
vManage02 9.9.9.2   Site ID: 1	vManage	PEER	PEER PEER PUB	CONFIGURED	SITE	DO	AIN PEER	PRIV PEER	
vManage03 9.9.9.3   Site ID: 1	vManage	INDEX TYPE	PROT SYSTEM IP PORT ORGANIZATION	REMOT	E COLOR	ID STATE	UPTIME	PORT PUBLIC 1P	
vbond01	vEdge Cloud	0 vbond	dtls 9.9.9.4 12346 SDWANcluster:	9.9.9.4 (AN defau)	0 1t	0 up	172.12.15.78 0:00:24:23	12346 172.12.15.78	
9.9.9.4   Site ID: 1 Reachable	vBond	0 vmanage	e dtls 9.9.9.2	9.9.9.2		0	172.12.15.76	12346 172.12.15.76	
		0 vmanage	e dtls 9.9.9.3	9.9.9.3	1	0 0	172.12.15.77	12346 172.12.15.77	
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		5 vbond	dtls 0.0.0.0 12346 SDWANcluster	- IAN defau	0 lt	0 up	172.12.15.78 0:00:24:23	12346 172.12.15.78	

To check the conectivity, 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 plataform.
- 6. Select the new code from the dropdown menu and click Upgrade..

Software Upgra	ade			×
🛕 Backup o	f data volume is highly	recomme	ended before upgradi	ng vManage.
🔘 vManage	O Remote Server	O Rem	note Server - vManag	e
Platform		Ve	ersion	
vManage			Select	~
			Upgrade	Cancel

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 succesfully.

E TAS	SK VIEW							Stop Scheduled Tasks
Softwa	re Install   🕑 Validation	1 Success 👻					Initia	ated By: admin From: 10.24.204.135
Total T	ask: 3   Scheduled : 2   I	In Progress : 1						
_								08
Q		Search Options 🗸						Total Rows: 3
×	Status	Message	Hostname	System IP	Site ID	Device Type	Device Model	vManage IP
2	C Scheduled	Waiting for other vManage servi	😋 vManage01	9.9.9.1	1	vManage	vManage	9.9.9.1
>	In progress	Downloading 1300 / 1596 MB (	😋 vManage02	9.9.9.2	1	vManage	vManage	9.9.9.1
2	C Scheduled	Waiting for other vManage servi	😋 vManage03	9.9.9.3	1	vManage	vManage	9.9.9.1

**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.

Ê TA	ASK VIEW								
Softv	vare Install   😋 Validation	Success *						Initiated By: admin	From: 10.24.204.135
Total	Task: 3   Success : 3								
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Q		Search Options 🛩							Total Rows: 3
2	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	
	[1-Aug-2022 21:30:3 [1-Aug-2022 21:30:3 [1-Aug-2022 21:31:0 [1-Aug-2022 21:32:1 Signature verificat [1-Aug-2022 21:32:1	11 UTC1 Software image download may t 6 UTC1 Downloading http://9.99.1180 5 UTC1 Downloaded http://9.9.9.1180 8 UTC1 Signature verification Suceed 10 UTC1 Signature verification Suceed 0 UTC1 Installed 20.3.4.1	ake upto 60 minutes 30/software/package/vman 8/software/package/vmanz ed.	age-20.3.4.1-x86_64.tar.g ge-20.3.4.1-x86_64.tar.gz	z?deviceId=9.9.9.1 ?deviceId=9.9.9.1				× ×
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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 succesfully.

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	
LNaDled: true	
Status: running PID:18676 for 1958	
MMS SUHVE proxy	
Eliduleu, true Statua: rupping DID:000 for 200a	
status, running Pill.000 for 300s	

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.





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

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- Maria	
VManageNZ#	
1 Manage 02# measured and further activate 20 2 4 1	
MManayebz# request soltware activate 20.3.4.1	
5 1	
This will report the node with the activated of	uorsion
INIS WILL LEDUOL THE HOUE WITH THE ACTIVATED	version.
Are now sure now want to proceed? tues NUL u	
mic you suic you want to proceed. Lyes, not y	
Hre you sure you want to proceed? Lyes, NUI 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.

$\leftarrow \  \  \rightarrow \  \   C$	(i) https://10.88.244.30:51075	<b>\$</b>	Q, Search	© -%(	≫ ≡
		Unable to connect			
		Firefox can't establish a connection to the server at 10.88.244.30:51075.			
		<ul> <li>The site could be temporarily unavailable or too busy. Try again in a few moments.</li> <li>If you are unable to load any pages, check your computer's network connection.</li> <li>If your computer or network is protected by a firewall or proxy, make sure that Firefox is the Web.</li> </ul>			
			Try Again		

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



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

 $\circ$   $\circ$   $\circ$ vmanage01cluster 3 > 1 21:55:35 UTC 2022: System Ready lon Aug JARNING: No cpu cfs quota support JARNING: No cpu cfs period support viptela 20.3.4.1 Manage01 login: admin Password: Jelcome to Viptela CLI admin connected from 127.0.0.1 using console on vManage01 /Manage01# request software con Invalid input detected at '^' marker. /Manage01# request software upgrade-confirm Manage01# show software JERSION ACTIVE DEFAULT PREVIOUS CONFIRMED TIMESTAMP 20.3.4 false 2022-07-30T00:53:34-00:00 true true 2022-08-01T21:55:36-00:00 20.3.4.1 false false true user nago01#

Verify whether the status is confirmed by user or auto

000			Vľ	nanage03cluster							
00	$\langle \rangle$										
vManageØ3	login:										
Mon Aug	1 21:54:	29 UTC 20	22: Syste	ем 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 2	0.3.4.1										
vManageØ3 Password: Welcome t admin con vManageØ3 vManageØ3	login: o Viptel nected f # reques # show s	admin a CLI rom 127.0 t softward oftware	.0.1 usir e upgrade	ng console on -contirm	∨ManageØ3						
VERSION	ACTIVE	DEFAULT	PREVIOU	CONFIRMED	TIMESTAMP						
20.3.4 20.3.4.1	false true	true false	true – 2022-07-30T00:58:36-00: false user 2022-08-01T21:54:30-00:								
vManage03	#										

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

If some services did not start, stop all services on ecah 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.

0 0 0 vmanage01cluster	0 0 0 vmanage02cluster	0 0 0 vmanage03cluster
		11 - 4 >
NMS configuration database Fashind: tran	NMS configuration database	NMS configuration database Enabled: true
Status: running P1D:20967 for 619s	Status: running PID:31473 for 613s	Status: running PID:26514 for 590s
NMS coordination server Enabled: tran	NMS coordination server	NMS coordination server Enabled: true
Status: running P1D:32719 for 414s	Status: running PID:2749 for 414s	Status: running PID:30243 for 395s
MMS Messaging server	NMS messaging server	NMS Messaging server
Enabled: true Status: running PID:2555	Status: running P1D:4953	Status: running P10:332
HMS statistics database	NMS statistics database	NHS statistics database
Enabled: true Status: manufac DID:20055 for 210s	Enabled: true	Enabled: true Status: supples DID:24254 for CD2s
Status: running PID:20956 for 7195 NMS data collection agent	Status: running ris:2010 for 7155	Status: running ru:24354 for 6925 NMS data collection agent
Enabled: true	Enabled: true	Enabled: true
Status: running PID:6133 for 219s	Status: running PID:8697 for 289s	Status: running PID:4497 for 101s
Enabled: true	Enabled: true	Enabled: true
Status: not running	Status: not running	Status: not running
MMS container manager Enabled: true	MMS container manager Enabled: true	NMS container manager Enabled: true
Status: running PID:10676 for 1212s	Status: running PID:18673 for 1248s	Status: running PID:6512 for 1315s
HMS SDAVC proxy	NHS SDAVC proxy	NHS SDRUC proxy
Status: running PID:000 for 1317s	Status: running PID:942 for 1338s	Status: rooming PID:865 for 1337s
Manage81#	Manage82#	Manage83#

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

≡	cisco VM	lanage										٠	ė	4	0	admin 👻
55	E DASHBOARD	MAIN DASHBOARD									_					
□ ¢	•	vSmart - 0	8	WAN Edge - 0		3	<b>1</b> ↑ vBond - 1		3 Ø vManage	3	Reboot Last 24 hrs	3		R	Warning Invalid	0
٩	Control Status (T	iotal 0)			Site He	alth (Total 0)		_		Transport	t Interface Distribu	tion				
<b>≙</b> 	Control Up			0	۰	Full WAN Connec	ctivity		0 sites	< 10 Mbp	35					0
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	Control Down			0	۰	No WAN Connect	tivity		0 sites	- 000 mb						0
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	WAN Edge Inven	tory			WAN E	dge Health (Total	10)			Transport	t Health				Type: By Los	s • ∓ □
	Total			0												

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).

ADMINISTRATION (	Verticenter 67%								
<b>Bennice Configuration</b>	Dentise Reachability								
· ALC HERITS									
Out-Instrume a status in	er for more information							@ Normal	( tradited
Romana	P 10000	1000	Application Server	Turbullus Turbalana	Configuration Solutions	Messaging Server	10-441	***	
-Manapel I	1010/10/12/4	Ready				0		28h/%-p59-Osc4880-1.	-
-Managel I	100.001.00	Ready					0	1001109-0014-044-0024	-
-Manapel I	101.001.00	Ready					0	articles had excluded.	-

Verify that all nodes are reachable via SSH tool form 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	L.								
Device Group	<	9.9.9.1 ×	9.9.9.2 ×	0.9.9.3 ×					
All	٠	9.9.9.1 logir Password:	h: admin						
Q	~	Last login: Mon Aug 1 20:52:22 2022 from 9.9.9.1 Welcome to Viptela CLI addin concerted from 9.9.9.1 using sab on vManage 1							
Sort by Reachability 🖨	te.	vManage01#		ily bbi on vi	anayo				
vManage01 9.9.9.1   Site ID: 1	vManage	vManage01#	now control connecti	ons PEER				PEER	
vManage02 9.9.9.2   Site ID: 1	vManage	PEER	PEER PEER PUB PROT SYSTEM IP	CONFIGURE	D SITE	DO ID	AIN PEER PRIVATE IP	PRIV PEER PORT PUBLIC IP	
vManage03 9.9.9.3   Site ID: 1	vManage		PORT ORGANIZATION		REMOTE COLOR	STATE	UPTIME		
vbond01	vEdge Cloud	0 vbond	dtls 9.9.9.4	9.9.9.4	0 dofoult	0	172.12.15.78	12346 172.12.15.78	
9.9.9.4   Site ID: 1 Reachable	vBond	0 vmanage	dtls 9.9.9.2	9.9.9.2	l l	0	172.12.15.76	12346 172.12.15.76	
		0 vmanage	dtls 9.9.9.3	9.9.9.3	derault 1	up 0	172.12.15.77	12346 172.12.15.77	
		1 vbond	dtls 0.0.0.0	-	0	0	172.12.15.78	12346 172.12.15.78	
		2 vbond	dtls 0.0.0.0	= TAN	0 default	0 100	172.12.15.78	12346 172.12.15.78	
		3 vbond	dtls 0.0.0.0 12346 SDWANcluster	- IAN	0 default	0 UD	172.12.15.78	12346 172.12.15.78	
		4 vbond	dtls 0.0.0.0 12346 SDWANcluster	- IAN	0 default	0 up	172.12.15.78 0:00:24:08	12346 172.12.15.78	
		5 vbond	dtls 0.0.0.0	-	0	0	172.12.15.78	12346 172.12.15.78	

# **Related Information**

vManage Cluster Guide Technical Support & Documentation - Cisco Systems