

Dell EMC OMIVV as a Hardware Support Manager for VMware vSphere Lifecycle Manager

Abstract

Dell EMC OpenManage Integration for VMware vCenter version 5.1 is enhanced to support the firmware update capabilities of vSphere Lifecycle Manager in vSphere 7.0. This technical white paper illustrates how OMIVV can be used as a Hardware Support Manager to update firmware using vSphere Lifecycle Manager.

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Terminology

Terminology Description				
OMIVV	OpenManage Integration for VMware vCenter			
iDRAC	Integrated Dell Remote Access Controller			
HSM	Hardware Support Manager			
HSP	Hardware Support Package			
vSAN	Virtual Storage Area Network			
OS	Operating System			
HCL	Hardware Compatibility List			
ООВ	Out-of-band			
CIFS	Common Internet File System			
NFS	Network File System			
BIOS	Basic Input/Output System			
FC	Fiber Channel			
DRM	Dell Repository Manager			
RAID	Redundant Array of Independent Disks			
NIC	Network Interface Controller			
HCG	Hardware Compatibility Guide			

Executive summary

In vSphere 7.0, VMware enhanced the VMware Update Manager to include capabilities for baselining and remediation of firmware along with Operating System (OS) and add-on components for vSphere 7.0-based clusters and upgraded the feature to vSphere Lifecycle Manager.

This technical white paper describes how the existing baselining and remediation capabilities in Dell EMC OpenManage Integration for VMware vCenter (OMIVV) is enhanced in version 5.1 and also describes how OMIVV can be used as a Hardware Support Manager (HSM) for supporting firmware update functionalities on Dell EMC PowerEdge servers using vSphere Lifecycle Manager.

Introduction

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Data center is a complex and sensitive environment. Maintaining the software and firmware running on each of the devices at a standard level becomes crucial in order to achieve uniformity and better manageability. According to their technical and security assessments, data center admins define the standard levels of software and firmware and maintain them at the specified levels. These levels are reviewed periodically and upgraded as needed.

To help the data center administrators in maintaining the firmware levels on their PowerEdge servers in VMware-based virtualization environment, OMIVV provides an ability to baseline the ESXi clusters to a desired level and to remediate when there is a drift. With the release of vSphere 7.0, VMware also allows administrators to baseline vSphere 7.0-based clusters for the desired state of ESXi base image, add-ons, and firmware for the servers.

This technical white paper describes how baselining is achieved in OMIVV and how the same baselining mechanism is enhanced to support the vSphere Lifecycle Manager feature in vSphere 7.0 and later versions using OMIVV as an HSM.

2 Baselining and remediation in OMIVV

OMIVV provides an ability to baseline the clusters with respect to a desired state.

Baselining in OMIVV is achieved using cluster profile. A cluster profile consists of firmware repository profile, driver repository profile, and system profile, or any combination of these profiles.

When a cluster is associated to a cluster profile, all the OMIVV-managed hosts in the corresponding cluster automatically becomes part of the drift detection job.

2.1 Firmware repository profile

Based on your environment and requirements, you can choose to use one of the default available repositories, or create a custom repository using <u>Dell EMC Repository Manager</u> (DRM) that matches your server inventory and your data center requirements. You can use the firmware repositories in cluster profile.

For vSAN, the storage controller must be at specific levels. Online repositories can be updated every two weeks, and those updates may move a specific vSAN cluster out of VMware support compliance. Hence, baselining vSAN cluster baselining against online repository is not supported.

Create a custom repository using DRM that aligns with the vSAN firmware requirements as per Hardware Compatibility List (from VMWare) and copy it in either CIFS or NFS share and create a firmware repository profile in OMIVV. For more information, see <u>OMIVV 5.1 user guide</u>.

2.2 Driver repository profile

Baselining against driver repository profile is supported only for vSAN clusters. Download the drivers as applicable to your vSAN clusters and copy them in a CIFS or NFS. Create a driver repository profile in OMIVV pointing to the share location, it can be used in cluster profile. For more information, see <u>OMIVV 5.1 user guide</u>.

2.3 System profile

System profile can be created referencing either a bare-metal server or a managed host. This profile captures the component-level settings and configuration of iDRAC, BIOS, RAID, Event Filters, FC, and NICs.

Baselining against a system profile helps you in getting notification when a configuration drift is detected in any of the machines in the baselined cluster against the desired state in machine-level settings.

2.4 Update cluster profile

The cluster profile will not refresh itself when the source repository changes. To identify the updated profiles that are associated with cluster profile, go to the **Cluster Profiles** page. Yellow warning icon will be displayed next to the updated cluster profile.

To update the cluster profile with the latest available driver or firmware, or system profiles, select the impacted cluster profile, click **Update Profiles** on the cluster profile page. For more information, see <u>OMIVV</u> <u>5.1 user guide</u>

2.5 Drift detection in OMIVV

Configuration drift job runs in OMIVV immediately after the cluster profile is created or modified. Later, the drift detection job also runs for each cluster profile at the scheduled time of each week.

When a new host is added to a cluster after the cluster profile is created (and added to host credential profile in OMIVV), the host automatically gets added to the list of hosts for the drift detection process during the next scheduled run of the drift detection job. For more information, see <u>OMIVV 5.1 user guide</u>.

2.6 Remediation in OMIVV

Remediation of firmware and driver drifts can be achieved by using the firmware update functionality available in OMIVV.

Note: Driver updates are mainly for clusters running legacy 6.x versions of ESXi, or admins not using vSphere Lifecycle Manager (which will handle drivers in its image build).

For the configuration drift, you must correct the drifted attributes by logging in to the corresponding iDRAC consoles. For more information, see <u>OMIVV 5.1 user guide</u>.

Baselining using VMware vSphere Lifecycle Manager

In vSphere 7.0, VMware released a new feature called vSphere Lifecycle Manager. It enables you to create the cluster image and associate it to the cluster within in vCenter.

Cluster image can contain the following:

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- Base image—ESXi image and it can be major version or minor version.
- add-on (Driver Components)—consists of components and theses components should be of higher version than the components present in the base image.
- Hardware Support Package (HSP)—consists of firmware section and it contains the firmware baseline image.

This section describes how you can enable OMIVV to act as an HSM. In order to use OMIVV as HSM, you must have OMIVV version at least version 5.1 and later.

3.1 Register vSphere Lifecycle Manager in OMIVV

Before selecting HSM in vSphere Lifecycle Manager image, ensure that you register vSphere Lifecycle Manager in OMIVV.

During first-time installation, you can select the **Register with vSphere Lifecycle Manager (vCenter 7.0 and later)** check box while registering vCenter.

REGISTER A NE	W VCENTER	
vCenter Name		
vCenter Server	IP or Hostname	100.96.37.21
Description (opt	ional)	
		h.
vCenter User A	ccount	
vCenter User Na		administrator@vSphere.local
Password		•••••
Verify Passwo	ord	•••••
Register wit	th vSphere Lifec	ycle Manager(vCenter 7.0 and later
OpenManage Int on the required	egration for VM privileges for OA	quired privileges is used by the ware vCenter. For more informatio NIVV operations in the vCenter sumentation at dell.com/support
		Register

Figure 1: vCenter registration

If you want to modify the vSphere Lifecycle Manager status, on the vCenter Registration page, select **Register** or **Unregister**.

D≪LL EMC omivv adn	INISTRATION CONSOLE					Logout
VCENTER REGISTRATION	vCenter Registration	ı				
APPLIANCE MANAGEMENT	MANAGE VCENTER SERVER (ONNECTIONS				
ALERT MANAGEMENT	Registered vCenters					
BACKUP AND RESTORE	Tasks: 🛛 Register New vCente	er Server 🛛 🖓 Upload I	icense Del D	igital Locker		
	vCenter Server IP or Hostname	Description	Credentials	Certificate	Unregister vCenter	vSphere Lifecycle Manager
	100.96.37.21		🖓 Modify	🖓 Update	🖓 Unregister	🖓 Register

Figure 2: After vCenter registration, register option to enable vSphere Lifecycle Manager

If you upgrade OMIVV to 5.1 or later versions using Backup and restore or RPM upgrade method, vCenters which are registered in earlier OMIVV versions are automatically registered in the updated OMIVV version.

If any vCenter 7.0 and later versions are present under registered vCenter in updated OMVV version, you can register the vSphere Lifecycle Manager by clicking **Register** in the vSphere Lifecycle Manager column.

In case, if you want to unregister vSphere Lifecycle Manager with OMIVV, you can click **Unregister** in the **vSphere Lifecycle Manager** column.

INTER REGISTRATION	vCenter Registratio	n				
IANCE MANAGEMENT	MANAGE VCENTER SERVER	CONNECTIONS				
RT MANAGEMENT	Registered vCenters					
KUP AND RESTORE	Tasks: @ Register New vCent	er Server 🛛 Upload		Digital Locker anager registere	d successfully on vCe	enter 100.96.37.21. ×
	vCenter Server IP or	Description	Credentials	Certificate	Unregister	vSphere Lifecycle
	Hostname				vCenter	Manager

Figure 3: Unregister vSphere Lifecycle Manager in OMIVV

3.2 Prerequisites to use OMIVV as HSM in vSphere Lifecycle Manager

• Register vSphere Lifecycle Manager in OMIVV. For more information, see <u>Register vSphere Lifecycle</u> <u>Manager in OMIVV</u>.

• Create Host credential profile (HCP)

HCP contains credentials of the hosts that is required to manage the hosts components such as getting the host inventory and updating firmware.

Create at least one HCP and associate all your Dell EMC PowerEdge servers to HCP. If HCP is not created and inventory is not successful, you cannot use OMIVV as HSM. For more information about HCP, see <u>OMIVV 5.1 user guide</u>.

• Create firmware repository

Firmware repository contains firmware metadata of server components of Dell EMC PowerEdge servers and the connection information to where the firmware executables are stored. Create a firmware repository to manage the firmware components of servers in vSphere Lifecycle Manager image.

By default, Dell EMC provides two firmware repositories.

One for managing Dell EMC PowerEdge servers and other for managing MX chassis.

The default firmware repositories maps to the metadata which points to Dell online which will have latest firmware versions.

The online catalogs are updated frequently, and new information is posted across all the PowerEdge servers every two weeks.

For baseline tracking, Dell Technologies recommends creating an offline firmware repository. Offline repositories are required for vSAN clusters. For more information about creating firmware repository, see <u>OMIVV 5.1 user guide</u>.

• Create Cluster Profile

Once firmware repository is created, you must create a cluster profile. Cluster profile contains meta data of firmware repository, driver repository, and system profile.

Note: OMIVV supports only firmware repository with respect to vSphere Lifecycle Manager context. Associate only firmware repository to a cluster profile.

Once the cluster profile associated with firmware repository, you must associate this cluster profile to the cluster to manage the firmware baseline.

In this way, cluster profile becomes HSP for an associated cluster. You can have single cluster profile for multiple clusters. The cluster profiles are called as HSPs in the vSphere Lifecycle Manager context. For more information about cluster profile creation, see <u>OMIVV 5.1 user guide</u>.

3.3 Associate OMIVV as HSM in vSphere Lifecycle Manager image

Ensure that you have all the prerequisites that are mentioned in the <u>Prerequisites to use OMIVV as HSM in</u> <u>vSphere Lifecycle Manager</u> section. If you fail to complete any of the prerequisites, you may not be able to create or edit an image to include firmware.

- 1. Go to vSphere Lifecycle Manager.
- Create or edit the cluster image.
 You can see Dell EMC HSM as DellEMC OMIVV.

here integrates with hardware	support managers to install the selected firmware	and driver addon on hosts in your cluster as part of applyi	ng the image to
ster.			
ect the hardware support man	ager		
ect a firmware and driver addo	n		
Addon name	Y Addon version	▼ Supported ESXi versions	
	7	8	
	Select hardware vendor to see availa	able firmware and driver addons.	
	Select hardware vendor to see availe	able firmware and driver addons.	

Figure 4:Select DellEMC OMIVV as HSM

After you select the Dell EMC OMIVV, all the HSPs (called cluster profile in OMIVV) are displayed.

Select relevant HSP which is relevant for the selected cluster.
 To identify the HSP associated to the selected cluster, see the description present in the HSP.



Figure 5: Select HSP and view description.

After you select OMIVV as HSM, all the available HSPs are displayed in the **firmware and driver addon** section in vSphere Lifecycle Manager image.

When you click the HSP, the supported ESXi version is displayed in the Supported ESXi Versions section.

If you select the unsupported ESXi version as base image, you cannot save the image with selected HSP. Select relevant base image and HSP while saving an image.

For example, OMIVV 5.1 supports only base image having ESXi 7.0. If you select the base image as ESXi 7.0 U1, you cannot save the HSP. To resolve this issue, use the supported version of OMIVV.

After you select OMIVV as HSM, all the available HSPs are displayed in the firmware and driver addon section in vSphere Lifecycle Manager image.

Each HSP contains version number which indicates the changes available in the respective cluster profile. The version is incremented when the firmware content is modified.

As of now, you cannot view the HSP version with respect to cluster profile in OMIVV page.

 After selecting the HSP, save the image. vSphere Lifecycle manager computes drift for all the hosts against image, add on, and HSP.

Summary	Moni	tor	Configure	Permissions	Hosts	VMs	Datastores	Networks	Updates	
Hosts	~	Cor	nvert to a	an Image						
Baselines		St	ep 1: Defin	e Image						
Image		5	.ep i. Denn	e inage						
VMware To	ools	ES	Xi Version			7.0	Jpdate 1 - 164420	064 v (released)	06/22/2020)	
VM Hardwa	are	Ve	ndor Addon (1)		SEL	CT (optional)			
		Fit	rmware and D	rivers Addon i		CLP	2 1.0.0-0 🖉 🖞	Ī		
		Co	mponents (j			No a	dditional compo	nents Show deta	ills	
			SAVE	ALIDATE						
			ep 2: Chec	k Image Con to finish.	npliance					
		FIN	ISH IMAGE S	ETUP	CEL					

Figure 6: Save image

3.4 Examine drift status and resolution

After you save the image, any of the following states is displayed for the host:

- **Compliant**: Host is compliant with the image, add-on as and HSP.
- Non-Compliant: Host is not compliant with at least image, or add-on, or HSP.
- Unknown: Host might be not reachable.
 To resolve the issue, ensure that host is in reachable state. If the host is reachable, check whether iDRAC associated to the respective host is reachable or not.
 Ensure that hosts that are associated to cluster are inventoried successfully.
- **Incompatible**: The HSP selected in the vSphere Lifecycle Manager image is not associated to this cluster. Select relevant HSP which is applicable to the selected cluster. See the description present in each HSP to get HSP and cluster mappings.

Access OMIVV user facing logs for any errors that are related to intermediate failures in this operation.

age Compliance t checked on 07/10/2020, 5:52:28 PM (0 days ago) 1 of 1 hosts is out of compliance with the image			CHECK COMPLIANCE
EMEDIATE ALL RUN PRE-CHECK			
osts ▼ ▲ 100.96.21.153	100.96.21.153 ▲ Host is out of compliance with the image		×
	() Quick Boot is not supported on the host.		
	Software compliance		Show Only drift comparison ~
	Image	Host Version	Image Version
	Firmware and Drivers Addon	None	CLP1 2.0.0-0
	Firmware compliance		
	Firmware component	Host Version	Image Version
	СМС	2.30.200.202004220268	2.21.200.201909170048
	Integrated Dell Remote Access Controller	2.63.60.62	2.65.65.65
1 hos		Cor	mponents per page _4 _ 2 components

Figure 7: Firmware components drift

3.5 Pre-Check

During Pre-Check, OMIVV will check whether all pre-requisites required to remediate firmware are met or not.

As part of pre-check, OMIVV performs the pre-requisites check of the following:

- iDRAC reachability
- iDRAC Lock down mode (prevents any updates until unlocked)
- Status of firmware update job (if any) triggered from OMIVV for any hosts for the selected cluster
- Collect System Inventory on Reboot (CSIOR) enablement
- Connectivity to the firmware repository and the required firmware components.

Access OMIVV user facing logs for any errors that are related to intermediate failures in this operation.

Image Compliance			C CHECK COMPLIANCE
ast checked on 07/10/2020, 5:52:28 PM.	I (O days ago)		
1 of 1 hosts is out of compliance with	the image		
Running pre-check			
Started 07/10/2020, 5:55:42 PM			
 Started compliance check for 	or cluster 'RH-vLCM CLuster'. See more 🗸		
REMEDIATE ALL RUN PRE-CHECK			
Hosts	100.96.21.153		
100.96.21.153	▲ Host is out of compliance with	n the image	
	() Quick Boot is not supported of	on the host.	
	Software compliance		Show Only drift comparise
	Image	Host Version	Image Version
	Firmware and Drivers Addon	None	CI P1 2 0 0-0
gure 8: Pre-check in		NY ME	n bi shilin
		AM PAG	
nage Compliance	progress	AV PL2	
nage Compliance st checked on 07/10/2020, 5:56:46 PM (C	progress	AM POL	
nage Compliance st checked on 07/10/2020, 5:56:46 PM (C	progress		CHECK COMPLIANCE
hage Compliance st checked on 07/10/2020, 5:56:46 PM (0 , 1 of 1 hosts is out of compliance with the Pre-check completed Completed 07/10/2020, 5:57:31 PM	progress) days ago) e image		CHECK COMPLIANCE
nage Compliance st checked on 07/10/2020, 5:56:46 PM (0 b 1 of 1 hosts is out of compliance with the Pre-check completed	progress) days ago) e image		CHECK COMPLIANCE
nage Compliance ist checked on 07/10/2020, 5:56:46 PM (0 b 1 of 1 hosts is out of compliance with the Pre-check completed Completed 07/10/2020, 5:57:31 PM	progress		CHECK COMPLIANCE
hage Compliance st checked on 07/10/2020, 5:56:46 PM (0 ,1 of 1 hosts is out of compliance with the Pre-check completed Completed 07/10/2020, 5:57:31 PN @ No pre-check issues found Only one host pre-checked: 100.96	progress		CHECK COMPLIANCE
Age Compliance at checked on 07/10/2020, 5:56:46 PM (C 1 of 1 hosts is out of compliance with the Pre-check completed Completed 07/10/2020, 5:57:31 PM No pre-check issues found Only one host pre-checked: 100.96 REMEDIATE ALL RUN PRE-CHECK	progress		CHECK COMPLIANCE ····
hage Compliance st checked on 07/10/2020, 5:56:46 PM (0 1 of 1 hosts is out of compliance with the Pre-check completed Completed 07/10/2020, 5:57:31 PM Only one host pre-checked: 100.96 REMEDIATE ALL RUN PRE-CHECK	progress		CHECK COMPLIANCE
nage Compliance Ist checked on 07/10/2020, 5:56:46 PM (0 1 of 1 hosts is out of compliance with the Pre-check completed Completed 07/10/2020, 5:57:31 PM Only one host pre-checked: 100.96 REMEDIATE ALL RUN PRE-CHECK Hosts	progress adays ago) e image 4 3.21.153 T 100.96.21.153	ne image	CHECK COMPLIANCE ····
Completed 07/10/2020, 5:57:31 PN O No pre-check issues found Only one host pre-checked: 100.96 REMEDIATE ALL RUN PRE-CHECK Hosts	progress	ne image	

Figure 9: Pre-check results

3.6 Remediation in vSphere Lifecycle Manager

For the firmware remediation, the HSM must be associated to vCenter. HSP selected in the cluster image should be active (Optional).

During remediation, OMIVV performs the following:

Download firmware components from network share to OMIVV Share

OMIVV downloads all the drifted firmware components from the share that is given in the firmware repository that is attached to cluster profile to OMIVV share. If there are any failures occurred at this stage, access OMIVV user facing logs for more information. Ensure that the share that is given in the firmware repository is reachable. If there is a private network,

Ensure that the share that is given in the firmware repository is reachable. If there is a private network ensure that OMIVV is reachable using proxy.

• Upload firmware components to iDRAC

OMIVV uploads all the drifted firmware components from the OMIVV share to iDRAC. If there are any errors, access OMIVV user facing logs. Ensure that the server model present in the cluster is having an entry in the firmware repository catalog that you have selected.

REMEDIATE ALL RUN PRE-CHECK			
Hosts	100.96.21.153		×
<u>.</u> 100.96.21.153	A Host is out of compliance with the image		
	Software compliance		Show_Only drift comparison ~
	Image	Host Version	Image Version
	Firmware and Drivers Addon	None	CLP1 2.0.0-0
	Firmware compliance		
	Firmware component	Host Version	Image Version
	СМС	2.30.200.202004220268	2.21.200.201909170048

Figure 10: Remidiate option

mpact summary	Impact summary
Applicable remediation settings	
nd User License Agreement	 1 host(s) are non-compliant with the image. 1 host(s) will be rebooted.
npact to specific hosts	Notes
100.96.21.153	VM states honor remediation settings
	VMs may be powered off, suspended or migrated to other hosts based on the applicable remediation settings.
	Pre-check will be run again as a part of the remediation
	Pre-check will be run again as a part of the remediation process. This is to ensure that no new issues have
	arisen on the cluster or hosts since the last pre-check (if any) that prevent remediation.
	Hosts are remediated one at a time
	Hosts will be remediated one at a time, so hosts will not reboot/go into maintenance mode simultaneously Order of host remediation is determined at runtime
	Hosts will be remediated in an order determined at runtime. Hence that order may not correspond to the order in which they appear here.
l accept the terms of the end user lic	ense agreement

Figure 11: Start Remediation

Remediating hosts			
Started 07/10/2020, 6:04:10 PM			SKIP REMAINING HOSTS
0			
1 Host remaining			
Pre-check completed			×
Completed 07/10/2020, 5:57:31 PM			
\oslash No pre-check issues found			
Only one host pre-checked: 100.96.21.153			
REMEDIATE ALL RUN PRE-CHECK			
Hosts	100.96.21.153		×
100.96.21.153			
	▲ Host is out of compliance with the im	age	
	Quick Boot is not supported on the h	ost.	
	Software compliance		Show Only drift comparison \vee
	Image	Host Version	Image Version
	Firmware and Drivers Addon	None	CLP1 2.0.0-0

Figure 12: Remediation in progress

/ 1 of 1 hosts is out of compliance with the image

3.7 vSAN Hardware Compatibility Listing (HCL)

If you have enabled vSAN service on cluster, all the servers within the cluster must maintain compatible firmware and driver mappings which are certified by VMware. You can find the certified mappings in VMware Compatibility Guide (VCG).

For more information about the certified vSAN Hardware compatibility matrices that contains required firmware for specific drivers, see the VMware Compatibility Guide.

For example, the following URL provides supported driver and firmware combination for vSphere as 7.0 version and Dell EMC as OEM provider:

https://www.vmware.com/resources/compatibility/search.php?deviceCategory=vsanio&details=1&vsan_type= vsanio&io_partner=23&io_releases=448&vsanio_vsan_type=All%20Flash&page=1&display_interval=10&sort Column=Partner&sortOrder=Asc

OMIVV acts as a firmware provider to supply firmware for this feature in vSphere Lifecycle Manager.

Until vSphere 7.0, VMware shows firmware versions only for storage controller component. Before remediating, you can view the HCG and see whether driver and firmware that is selected in the image are vSAN HCL compliant or not. If it is compliant, then that server component will not be shown in HCG. Only non-compatible components are shown in HCG.

Ensure that you modify an image with supported driver and firmware mappings before remediation. Supported driver and firmware mappings are shown in vSAN HCG.

See the following image for non-compatible storage controller component and how supported versions are shown in vSAN HCG.

Hardware Compatibility VMware Tools VM Hardware	Perc H330 Mini present on 3 hosts		Aini (Broadcom) atible with the driver/firmware	in cluster's image.	>
		Host			
		100.96.20.40			
		100.96.20.115			
		100.96.21.50			
		Driver and firmware	in the cluster's image		
		Driver name	Driver version	Firmware version	
		lsi_mr3	7.712.50.00-1vmw	25.5.6.0009	
		Supported driver-fir	mware combinations ①		
		Driver name	Driver version	Firmware version	
		lsi_mr3	7.708.07.00-3vmw	25.5.5.0005	
		lsi_mr3	7.711.04.00-2vmw	25.5.5.0005	
		lsi_mr3	7.708.07.00-3vmw	25.5.6.0009	
		lsi_mr3	7.710.07.00-10EM	25.5.6.0009	
		lsi_mr3	7.711.04.00-2vmw	Activate Windows	
		Device info		Go to System in Control Pan	el to activa
		VID	DID	Windows. ssid	

Figure 13: Hardware Compatibility page

4 Common issues when using OMIVV as a Hardware Support Manager

Issue 1: "DellEMC OMIVV" is not listed as the HSM (Hardware Support Manager) while creating vSphere Lifecycle Manager image.

S	elect Firmware and	Drivers Addon		\times
	ohere integrates with hardware ster.	e support managers to install the selected firmw	ware and driver addon on hosts in your cluster as part of applying the image to	the
Se	ect the hardware support ma	nager		
	ect a firmware and driver add	lon		
	Addon name	T Addon version	Supported ESXI versions	Ŧ
		Select hardware vendor to see av	available firmware and driver addons.	

Figure 14: DellEMC OMIVV not listed as HSM

Resolution: Start **OMIVV Administration Console**, and then register the vCenter for vSphere Lifecycle Manager.

D&LLEMC OMIVV AT	DMINISTRATION CONSOLE					Logout
VCENTER REGISTRATION	vCenter Registration					
APPLIANCE MANAGEMENT	MANAGE VCENTER SERVER COM	INECTIONS				
ALERT MANAGEMENT	Registered vCenters					
BACKUP AND RESTORE	Tasks: 🛛 Register New vCenter S	erver 🛛 🖓 Upload Lice	nse 🛛 🗗 Dell Digit	al Locker		
	vCenter Server IP or Hostname	Description	Credentials	Certificate	Unregister vCenter	vSphere Lifecycle Manager
	vb- vm10190.sped.bdcsv.lab		년 Modify	🖓 Update	🖓 Unregister	🖓 Register

Figure 15: Register vSphere Lifecycle Manager

Issue 2: Cluster profile (called as HSP in vSphere Lifecycle Manager) created in OMIVV is not listed in vSphere Lifecycle Manager.

Resolution:

a. Ensure that firmware repository profile is associated with cluster profile.

Cluster Profile	Associate Profile(s) ⑦
1 Welcome	Select the profile(s) (
2 Profile Name	System Profile
3 Associate Profile(s)	Driver Repository Profile
4 Associate Cluster(s)	Note (j)
5 Schedule Drift Detection	
6 Summary	Firmware Repository Profile 🕦
	latest v The repository was last successfully updated on:Monday,July 06,2020 09:55:50 AM (GMT+05:30)
	CANCEL BACK NEXT FINISH

Figure 16: Associate firmware repository profile

b. Ensure that cluster (that you have selected for creating vSphere Lifecycle Manager image) is associated with the cluster profile.

	Cluster Profile	Associate Cluster(s)		0
14	1 Welcome	Select the cluster(s) you wa	nt to associate with this Cluster Profile. 🕦	
e	2 Profile Name	Select registered vCenter Server	100.100.10.115	
S	3 Associate Profile(s)	vCenter	Associated Clusters	
1	4 Associate Cluster(s)	100.100.10.115	R6415-vicm	
ł	5 Schedule Drift Detection			
	6 Summary			
			CANCEL BACK NEXT F	INISH

Figure 17: Associate clusters

Issue 3: Getting "Host not compatible with the image" error after creating the image.

Firmware compliance shows following error: This host is not compatible with the firmware in the "Firmware and Drivers Addon" <Name of HSP>.



Figure 18: Firmware compliance error message

Resolution:

This error will occur if you select the HSP which is not relevant for the selected cluster.

Check the description of the HSP and ensure that you are selecting only the HSP created for the cluster on which you are trying to create vSphere Lifecycle Manager image.

vm vSphere Client Menu ∨ O S		C ©~
Control to 15 Dout accesser Control to 15 Control to 15 Control to 10 200 (Maintenance Mode) Control to 200 (Maintenance Mode) Control to 200 (Maintenance Mode) Control to 20 (Maintenance Mode) Control to 20 (Maintenance Mode)	Select Firmware and Drivers Addon vsphere integrates with hardware support managers to install the selected firmware and driver addon on hosts in your cluster as part of applying the image cluster. Select the hardware support manager DelEMC OMIVV > 0 DelEMC OMIVV as Hardware Support Manager for vsphere Lifecycle Manager Select a firmware and driver addon	X
	Addon name V Supported EXX version V O profile2 1.0.0-0 7.0.0,7.01 O onlyDrivers 1.0.0-0 7.0.0,7.01 O onlyDrivers 1.0.0-0 7.0.0,7.01 D onlyDrivers 1.0.0-0 Delt inc. The package is associated with the following clusters of CM2 Supported EXX Versions 7.0.0,7.01 No included driver components This Firmware and Driver Addon has no drivers bundled within. It only includes firmware. The strimware.	×
Recent Tasks Alarms	CANCEL	ELECT

Figure 19: Select HSP and view description

You can also see the OMIVV Logs section and search the log with description "[Scan Task]" and check the error message.

	age™ Integration for VMware	
ashboard H	Hosts & Chassis Compliance & Deployment	Logs Jobs Settings
ogs		
CLEAR FILT	ER	
	ER Date and Time	Description
		Pescription [VCenter: 100.100.115][Cluster: vLCM2][Host: 100.10.43][Scan Task] The cluster is baselined with a different cluster profile (onlyDrivers)
Category	Date and Time	

Figure 20: OMIVV logs page

Issue 4: Getting host compliance status is unknown, and firmware compliance shows following message: Applicable Bundle not found in cluster profile (<Cluster Profile Name>).

Image Compliance Last checked on 07/10/2020, 1.46.10 PM (0 days ago) (2) 1 of 1 hosts' compliance status is unknown REMEDIATE ALL RUN PRE-CHECK	CHECK COMPLIANCE	
Hosts T : ③ 100 100 10 209	100.100.10.209 ⑦ Host status is unknown ① Quick Boot is not supported on the host.	×
1 host	Firmware compliance [Ucenter: 100.100.10.115][Cluster: R6415-vicm][Host: 100.100.10.209][Scan Task] Applicable Bundle not found in cluster profile (5.1Profile).	

Figure 21: Firmware compliance error message

Resolution: Firmware repository profile that is associated with cluster profile does not have firmware for the host present in the cluster.

"Dell Default Catalog" repository profile is a factory created profile present in OMIVV carries firmware for all the servers that are released by Dell EMC. It can be used if your OMIVV appliance is having Internet access and you are managing non-vSAN cluster.

If you have created the repository profile using DRM, ensure that your repository is having platform bundle for the hosts.

Issue 5: The cluster is managed using vSphere Lifecycle Manager with HSP. The firmware repository profile that is associated with the cluster profile in OMIVV or HSP version is modified. In this case, if you run the check compliance in vSphere Lifecycle Manager, shows following error: "Unable to find the cluster profile with provided version."

🔀 R6415-vlcm	ACTIONS 🗸	
Summary Monitor	Configure Permissions Hosts	VMs Datastores Networks Updates
Hosts V Image Hardware Compatibility VMware Tools VM Hardware	ESXi Version Vendor Addon () Firmware and Drivers Addon () Components ()	
	Hots	T 100.100.10.209 ×

Figure 22: Firmware compliance error message

Resolution: Edit the vSphere Lifecycle Manager image, edit the "Firmware and Driver Addon", and then select the HSP (this time it will be shown with updated version because of the changes you have done for firmware repository that is associated with cluster profile) and save the image.

Image Hosts in this cluster are managed o	collectively. This image below will be applied to all hosts in this cluster.	EDIT
ESXi Version	7.0 Update 1 - 16442064	
Vendor Addon (j)	None	
Firmware and Drivers Addon (j)	5.1Profile 5.0.0-0	
Components (j)	No additional components Show details	
▲ Image hardware compatibility is	not verified in non-vSAN clusters. See details	

Figure 23: vSphere Lifecycle Manager image edit option

Issue 6: Getting host compliance status is unknown, and firmware compliance shows following message: "The host (<host-ID>) is currently not managed by OMIVV."

Image Compliance Last checked on 07/10/2020, 4:05:28 PM (0 days ago) () 1 of 1 hosts' compliance status is unknown	CHECK COMPLIANCE ···	
REMEDIATE ALL RUN PRE-CHECK Hosts	100.100.10.209	×
1	O Host status is unknown Ouck Boot is not supported on the host. Firmware compliance () [vCenter: 100.100.10.115][Scan Task] The host (host-13) is currently not managed by OMIVV.	

Figure 24: Firmware compliance error message

Resolution: Ensure that the host credential profile is created in OMIVV and inventory ran successfully for the host.

penManage™ Integ ashboard Hosts & Chassis			Center Appliance : Logs Jobs Setti		GE	
Compliance Deployment	Host Credential Profile CREATE NEW PROFILE EDIT DELETE TEST					
Profiles	>	Profile Name	Description	vCenter	Associated Hosts	iDRAC Certificate Check
Host Credential Profile		> def		100.100.10.115	100.100.10.43	Disabled
Chassis Credential Profile		<				

Figure 25: Create host credential profile

Issue 7: Remediation failed with error "Host reported non-compliance after remediation."

Remediation failed Completed 07/09/2020, 2:29:56 PM Image: Complete and the second se	SKIP REMAINING HOSTS	×
$\textcircled{0}$ 1 Host remaining \bullet \bigcirc 1 Host completed \bullet Only one host remediated: 100.100.10.43		

Figure 26: Remediation result

Resolution: This error will occur if one or more firmware components failed to update. Rerunning the Check Compliance will show the firmware components which are failed to update.

OMIVV updates the host firmware components using iDRAC channel, if any issue during this process, some of the firmware component may get failed to update.

Resetting the iDRAC once and then trying remediation may resolve this issue. Select "Clear iDRAC Jobs and Reset iDRAC" as shown in below figure and try remediation again.

OpenMa	nage™ Integ	ration for VMwa	ware vCenter Appliance : 100.100.10.156 CHANGE
Dashboard	Hosts & Chassis	Compliance & Deploym	rment Logs Jobs Settings
Appliance	e Settings		Appliance Settings
Notifications > Deployment Credentials		>	Firmware Update Settings ()
Override Severity for Proactive HA			Clear iDRAC Jobs and Reset iDRAC
Initial Configuration Wizard			APPLY CANCEL
Firmw	are Update Settings		

Figure 27: Firmware update settings

5 Conclusion

Since the past several releases, OMIVV has been offering ability to baseline clusters in the vCenter against drivers, firmware and configuration drift, and provides abilities to report the drift with periodical checks and allows users to remediate the drift against the baseline. OMIVV offers this functionality for clusters having any supported ESXi versions starting from ESXi 6.0.

With the introduction of vSphere Lifecycle Manager in vCenter 7.0, VMware offers the capabilities to baseline ESXi 7.0 host-based clusters against base image, add-on, and firmware, and allows admins to remediate the host to align with the baseline. In this scenario, Dell EMC OMIVV acts as the Hardware Support Manager to achieve firmware baselining on Dell EMC PowerEdge servers.

6 Technical Support and Resources

Dell.com/support

OMIVV product page

OMIVV Documentation page

VMware Docs

YouTube Video:

Dell EMC OMIVV as a hardware support manager in vSphere Lifecycle Manager

https://www.youtube.com/watch?v=IUtfuAskL94