

# 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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## Contents

Rev	/isions	5	2
Ack	nowle	edgments	2
Cor	ntents		3
Ter	minol	ogy	4
Exe	cutive	e summary	5
1	Intro	duction	6
2	Base	lining and remediation in OMIVV	7
	2.1	Firmware repository profile	7
	2.2	Driver repository profile	7
	2.3	System profile	7
	2.4	Update cluster profile	7
	2.5	Drift detection in OMIVV	8
	2.6	Remediation in OMIVV	8
3	Base	lining using VMware vSphere Lifecycle Manager	9
	3.1	Register vSphere Lifecycle Manager in OMIVV	10
	3.2	Prerequisites to use OMIVV as HSM in vSphere Lifecycle Manager	11
	3.3	Associate OMIVV as HSM in vSphere Lifecycle Manager image	12
	3.4	Examine drift status and resolution	14
	3.5	Pre-Check	15
	3.6	Remediation in vSphere Lifecycle Manager	16
	3.7	vSAN Hardware Compatibility Listing (HCL)	18
4	Com	mon issues when using OMIVV as a Hardware Support Manager	20
5	Conc	lusion	27
6	Tech	nical Support and Resources	28

## 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			
OOB	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

1

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's 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's</u> <u>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's 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's 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's 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:

3

- 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.

	X
	vCenter Name
	400.04.07.04
	vCenter Server IP or Hostname 100.96.37.21
t	Description (optional)
	vCenter User Account
	vCenter User Nameadministrator@vSphere.local
	Password
	Verify Password
	Register with vSphere Lifecycle Manager(vCenter 7.0 and later)
	Note: The User account with required privileges is used by the OpenManage Integration for VMware vCenter. For more information
	on the required privileges for OMIVV operations in the vCenter
	/manuals.
b i	Register Cancel
1	

Figure 1: vCenter registration

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

<b>D≪LL</b> 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.

	vCenter Registratio	n				
IANCE MANAGEMENT	MANAGE VCENTER SERVER	CONNECTIONS				
RT MANAGEMENT	Registered vCenters					
KUP AND RESTORE	Tasks: @ Register New vCent	er Server 🛛 Upload	License Dell I	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's 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's 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's 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 V (j)			
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	en 1 <sup>.</sup> 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						
		St	ep 2: Chec	<b>k Image Con</b> 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			CHECK 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			
EMEDIATE ALL RUN PRE-CHECK			
osts T	100 96 21 153		,
100.96.21.153	100.30.21.135		
	A 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
		Co	mponents per page 4 💙 2 components
1 host			

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.

inage compliance			C CHECK COMPLIANCE
ast checked on 07/10/2020, 5:52:28 PM	(O days ago)		
1 of 1 hosts is out of compliance with th	he image		
Running pre-check			
Started 07/10/2020, 5:55:42 PM			
<ul> <li>Started compliance check for</li> </ul>	r 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 t	he image	
	() Quick Boot is not supported on	the host.	
	Software compliance		Show Only drift comparise
	Image	Host Version	Image Version
	Firmware and Drivers Addon	None	
	progress		
age Compliance	progress		CHECK COMPLIANCE
age Compliance t checked on 07/10/2020, 5:56:46 PM (0	days ago)		CHECK COMPLIANCE
age Compliance t checked on 07/10/2020, 5:56:46 PM (0 1 of 1 hosts is out of compliance with the	days ago) image		CHECK COMPLIANCE
age Compliance t checked on 07/10/2020, 5:56:46 PM (0 1 of 1 hosts is out of compliance with the Pre-check completed	days ago) image		CHECK COMPLIANCE
age Compliance t checked on 07/10/2020, 5:56:46 PM (0 1 of 1 hosts is out of compliance with the <b>Pre-check completed</b> Completed 07/10/2020, 5:57:31 PM	days ago) image		CHECK COMPLIANCE
age Compliance t checked on 07/10/2020, 5:56:46 PM (0 1 of 1 hosts is out of compliance with the <b>Pre-check completed</b> Completed 07/10/2020, 5:57:31 PM @ No pre-check issues found	days ago) image		CHECK COMPLIANCE
age Compliance t 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 @ No pre-check issues found Only one host pre-checked: 100.96	days ago) image		CHECK COMPLIANCE ····
age Compliance t checked on 07/10/2020, 5:56:46 PM (0 1 of 1 hosts is out of compliance with the <b>Pre-check completed</b> Completed 07/10/2020, 5:57:31 PM Only one host pre-checked: 100.96 EMEDIATE ALL RUN PRE-CHECK	days ago) image .21.153		CHECK COMPLIANCE ····
age Compliance t 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 No pre-check issues found Only one host pre-checked: 100.96. EMEDIATE ALL RUN PRE-CHECK osts	days ago) image .21.153		CHECK COMPLIANCE ····
age Compliance t 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 Ø No pre-check issues found Only one host pre-checked: 100.96 EMEDIATE ALL RUN PRE-CHECK osts M 100.96 21.153	days ago) image .21.153 ▼ 100.96.21.153 ▲ Host is out of compliance with the	image	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 ⊘ No pre-check issues found Only one host pre-checked: 100.96 REMEDIATE ALL RUN PRE-CHECK tosts M 100.96 21153	days ago) image .21.153 ▼ 100.96.21.153 ▲ Host is out of compliance with the ① Quick Boot is not supported on th	image e host.	CHECK COMPLIANCE ····
mage Compliance ast checked on 07/10/2020, 5:56:46 PM (O 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 Hosts MO 096-21.153	days ago) image .21.153 ▼ 100.96.21.153 ▲ Host is out of compliance with the ① Quick Boot is not supported on th Software compliance	image e host.	CHECK COMPLIANCE ····

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	Notos
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
	Hosts will be remediated in an order determined at runtime. Hence that order may not correspond to the order in which they appear here.
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			
⊘ 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 ima	age	
	① Quick Boot is not supported on the ho	ost.	
	Software compliance		Show Only drift comparison $$
	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.

Hosts 🗸	(1) The image has 1 compatibility issues. Re	eview them before remediating th	e cluster.		
Image Hardware Compatibility	△ Driver/firmware Incompatibility PERC H330 Mini (Broadcom)				
VMware Tools VM Hardware	PERC H330 Mini present on 3 hosts	Device is incomp     3 hosts affected	batible with the driver/firmware i	in cluster's image.	
		Host			
		100.96.20.40			
		100.96.20.115			
		100.96.21.50			
		Driver and firmware Driver name Isi_mr3 Supported driver-fit	in the cluster's image Driver version 7.712.50.00-1vmw mware combinations ①	Firmware version 25.5.6.0009	
		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 Panel to activa	
		VID	DID	syindows. 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		$\times$
vS clu	ohere integrates with hardwar ster.	re support managers to install the selected firmw	ware and driver addon on hosts in your cluster as part of applying the image to	o the
Se	ect the hardware support ma	anager		
Se	ect a firmware and driver add	don		
	Addon name	T Addon version	v Supported ESXi versions	Ŧ
		Select hardware vendor to see a	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.

DELLEMC OMIVY ADMINISTRATION CONSOLE						
VCENTER REGISTRATION VCenter Registration						
APPLIANCE MANAGEMENT	MANAGE VCENTER SERVER CONNECTIONS					
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		🖓 Modify	🖓 Update	🖓 Unregister	🗗 Register
				1		

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) (?)
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 <pre> V The repository was last successfully updated on:Monday,July 06,2020 09:55:50 AM (GMT+05:30) </pre>
	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 ∨ Q S		
Control to 15     Control to 15     Control to 15     Control to 15     Control to 200 (Maintenance Mode)     Control to 200 (Maintenance Mode)     Control to 43 (Maintenance Mode)     Control to 43 (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 DetENC OMIVY = 0 DetENC OMIVY = 0 DetENC OMIVY = 10 DetENC OMIVY =	X to the these
	Addom name        is apported E.S.M. versions       versivers	×
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.

OpenMana	ge™ Integration for VMware	VCenter Appliance: 100.100.10.156 CHANGE	
Dashboard H	łosts & Chassis Compliance & Deployment	Logs Jobs Settings	
Logs			
C CLEAR FILT	ER		S
Category	Date and Time	Description	_
() Error	07/08/2020 01:58:11 PM (GMT+05:30)	[vCenter: 100.100.10.115][Cluster: vLCM2][Host: 100.100.10.43][Scan Task] The cluster is baselined with a different cluster profile (onlyDrivers).	
(i) Info	07/08/2020 01:58:11 PM (GMT+05:30)	[vCenter: 100.100.10.115][Cluster: vLCM2][Scan Task] The task with task id (task-27) finished successfully.	
(i) Info	07/08/2020 01:58:11 PM (GMT+05:30)	[vCenter: 100.100.10.115][Scan Task] Successfully created the task with task Id (task-27).	

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         ③ Host status is unknown         ① Quick Boot is not supported on the host.	×
1 host	Firmware compliance  () [vCenter: 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	Image         Hosts in this cluster are managed co         ESXI Version         Vendor Addon ①         Firmware and Drivers Addon ①         Components ①         ▲ The image has 1 compatibility iss         Image Compliance         Last checked on 07/09/2020, 10:02:47 A         ③ 1 of 1 hosts' compliance status is unkn         REMEDIATE ALL       RUN PRE-CHECK	Illectively. This image below will be applied to all hosts in this cluster.       EDIT ····         7.0 Update 1-16442064
	Hosts	▼ 100.100.10.209 ×  ③ Host status is unknown  ③ Outck Boot is not supported on the host.  Firmware compliance  ③ [vCenter: 100.100.10.115[[Scan Task] Unable to find the cluster profile with the provided version.

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) (0) 101 hosts' compliance status is unknown	CHECK COMPLIANCE ···	
REMEDIATE ALL RUN PRE-CHECK Hosts	100.100.10.209	×
1	O Host status is unknown  O duick Boot is not supported on the host. Firmware compliance (1) [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.

OpenManage™ Integration for VMware vCenter Appliance : 100.100.10.156 CHANGE									
Compliance Deployment	Host Credential Profile (1)								
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	4								

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: Complexity of the state of th	SKIP REMAINING HOSTS	×
O 1 Host remaining • ⊘ 1 Host completed • 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.

OpenManage <sup>™</sup> Integration for VMware vCenter Appliance : 100.100.10.156 CHANGE							
Dashboard Hosts & Chassis Compliance & Deployment Logs Jobs Settings							
Appliance Settings			ł	Appliance Settings			
Notifications > Deployment Credentials			Firmware Update Settings 🕦				
Override Severity for Proactive HA			✓ Clear iDRAC Jobs and Reset iDRAC				
Initial Configuration Wizard			APPLY CANCEL				
Firmwa	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