

Windows Driver Updates with OpenManage Enterprise 3.4

This technical white paper provides information about managing Windows OS driver inventory and updates using OpenManage Enterprise 3.4 console.

Abstract

With OME 3.4, users can inventory and update OS drivers for Windows systems. Read on to know how to use this feature.

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Revisions

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Executive summary

Traditionally, OpenManage Enterprise has been used to update server firmware in data center environments. With OpenManage Enterprise 3.4, Windows OS driver inventory and updates can also be managed from the console. The feature is implemented so that the workflows are as similar as possible to the existing firmware update workflows. This paper walks you through the process of enabling and using the Windows driver update feature with OpenManage Enterprise 3.4.

Windows OS Driver updates with OME 3.4

Windows OS Driver update feature in OpenManage Enterprise 3.4 enables users to obtain inventory and update Windows OS drivers of servers discovered via the host OS credentials. To use this feature, OME virtual machine deployed in the data center should be version 3.4 or later.

The following topics are discussed in this paper:

1

- How does Windows OS Driver Update work?
- Navigating Windows OS driver inventory workflow
- Navigating Windows OS driver update workflow
- Troubleshooting Issues with Driver Inventory or Update

1.1 How does Windows OS Driver Update work?

OME manages Windows OS driver inventory and updates by using internal utilities such as Dell System Update (DSU) and Inventory Collector (IC).

The following diagram is a quick illustration of the process involved from OME.



Figure 1 Windows OS driver inventory and update process

Since obtaining OS driver inventory and then updating OS drivers requires OME to install the internal utilities on the host OS, this feature is not enabled by default. The user must enable the feature to retrieve the OS driver inventory. Thereafter, OS drivers can be kept updated with the existing firmware update workflows. OS driver inventory and updates are supported for 64-bit Windows versions 2012 and up.

In the next sections, the user workflow is detailed.

1.2 Navigating the OS driver inventory workflow

User workflow for OS driver inventory is described in this section.

- 1. The administrator discovers servers running Windows OS using the host OS credentials as shown below. An SSH connection is made to each such system to discover it.
 - a. Specify discovery mode for creating a server discovery job as shown below.

How would you like to connect to server(s)?	
Protocol to use during discovery	
O Dell iDRAC	
Host OS	
⊖ ESXi	
Windows(Hyper-V)	
○ Non-Dell Servers (via OOB)	
	ОК

Figure 2 Specifying how to discover the servers – via Host OS

b. Specify IP addresses, ranges and/or hostnames and SSH credentials as shown below.

Create Discovery Job Specify device types and IP addresses, ranges and/or hostnames. If an admin account is used for discovery, primary application usage is assumed to be device management. The admin account will be used for future device management tasks. If only monitoring is desired, lower privileged accounts can be used.								
Discovery Job Name Devices to Discover	Windows-OS-Discovery							
Add Import	O Global Exclude							
Device Type Image: Server Image: Server Schedule Discovery Job	IP/Hostname/Range	Settings SSH Crede User Name Password	administrator Additional Settings					
Run Now ~	Enable trap reception from discovered iDRAC server Email when complete	s and MX7000 cha	assis.					
			Finish Cancel					

Figure 3 Creating Discovery job

c. On successful discovery, the servers are displayed under All Devices>Servers>Windows Servers.

Oper	nManage Ente	erprise						Search Everythin	g	۹	C 1
🕇 Home	Devices	🖗 Configuration 🗸	🚩 Alerts 🗸	🔜 Monitor 🗸	 Application Settings 						
SYSTEM	GROUPS		*	Windows ope	dows Servers						
• C • C	HI Devices	ces Systems		3 Devices	3 Normal		5 Alerts	1 Normal4 Info			
► C ► C ▼ 8	 Modular Sys Network Dev Servers 	vices		Add To Gro	oup 🖌 Delete Exclu		ory Refresh Status	More Actions -			
	 Dell iDR/ Linux Se 	AC Servers		> Y Advanc	ced Filters 븆 🕂 NAME	IP ADDRESS	SERVICE TAG	MODEL	TYPE		CH.
	O 🛔 Non-Dell	Servers			● ✓ With Street Charles ● ✓ With Street Charles	100.06.00.001		PowerEdge R640 PowerEdge R540	Compute Compute		•
► C	Window 🔒 Storage Dev	s Servers ices			0 -		encuqz	PowerEdge R630	Compute		
сизтом	GROUPS Static Groups		+~								

Figure 4 List of Windows operating system servers

2. To collect the inventory information, initiate an inventory job and select Collect driver inventory.

The **Collect driver inventory** option present in the "Default Inventory task" (as well as any other inventory task created via the Inventory portal) is not enabled by default. To collect driver inventory, OME pushes two utilities to the target systems: Dell System Update (DSU) and Inventory Collector (IC). Traditionally, inventory is a read operation which does not involve altering the target system. Since driver inventory requires DSU and IC to be pushed and installed on target systems, the workflow requires explicit user opt-in. The "collect driver inventory" only affects server devices discovered via their host OS.

entory			0 ×
Inventory Job Name	Default Inventory Task		
Select Groups	All Devices		
Scheduling			
Run On Schedule ~	Daily ~ at	02 : 00 AM	
Additional Options	Collect configuration inventory		
	Collect driver inventory		
			Finish Cancel

Figure 5 Configuring inventory jobs to additionally collect driver inventory

3. Once the inventory job completes, the OS driver inventory is displayed in the **Hardware>Installed Software** tab on the Driver Details page.

OpenManage Enterprise					C 17	8	0	² admin
🕈 Home 🔳 Devices 🔗 Configuration 🗸 🔰 Alerts 🗸	Monitor 🗸 🔹 🌣 Application Setti	ngs 🗸						
WIN-34C866ROVVB Health: Ok State:	On IP: Service Tag							
							U DOLL	EMC
Overview Hardware Firmware/Drivers Configurat	ion Inventory							
						Last	Updated: Jul '	13, 2020 4:00:38 PM
Processor 🐼 Operating System	Memory Information	Device Management	vare Guest Information					
Installed Software								
DESCRIPTION	VERSION	TYPE	INSTAL	LATION D	ATE			
Intel(R) C620 series chipset PCI Express Root Port #1 - A190 Dr	10.1.2.85	DRVR						
Intel(R) Xeon(R) processor P family/Core i7 DECS Channel 2 - 2	10.1.2.85	DRVR						
Intel(R) Xeon(R) processor P family/Core i7 RAS Configuration	10.1.2.85	DRVR						
Standard SATA AHCI Controller Driver	10.0.17763.168	DRVR						
Intel(R) Xeon(R) processor P family/Core i7 PCU Registers - 20	10.1.2.85	DRVR						
Intel(R) Xeon(R) processor P family/Core i7 M2PCI Registers - 2	10.1.2.85	DRVR						
Broadcom NetXtreme-E Driver Family	21.60.22.11	DRVR						
Intel(R) Xeon(R) processor P family/Core i7 M3KTI Registers - 2	10.1.2.85	DRVR						
Intel(R) Xeon(R) processor P family/Core i7 DMI3 Port - 2020 Dr	10.1.2.85	DRVR						
Standard SATA AHCI Controller Driver	10.0.17763.168	DRVR						
Intel(R) Xeon(R) processor P family/Core i7 PCU Registers - 20	10.1.2.85	DRVR						
Intel(R) Xeon(R) processor P family/Core i7 IOAPIC - 2026 Driver	10.1.2.85	DRVR						
	10 1 2 85	DRVR						

1.3 Navigating the OS driver update workflow

The user workflow for OS driver update is described in this section.

1.3.1 Using the compliance report

For ease of use and familiar workflow for users, the OS driver update workflow has been kept almost identical to the firmware update workflow.

- 1. Create a catalog in OME by either pointing to Dell online or by specifying a catalog on a network share (catalog created manually / using DRM). The user can specify if the catalog is manually refreshed or automatically refreshed periodically.
- 2. Create a baseline by choosing a catalog and a set of devices or group of devices to associate with that catalog. This causes a compliance evaluation to run. The compliance evaluation compares the software inventory collected for the devices in that baseline, against the versions specified in the catalog.

In versions prior to OME 3.4, the software inventory only includes the Firmware component inventory. With OME 3.4, it also includes the OS driver inventory for applicable systems. The compliance report displays both Firmware and OS driver compliance.

The "Advanced Filters" for compliance reports has an additional filter option for "Component Type" with values: All, Firmware, Drivers. The default option for the "Component Type" filter is All. If an OS driver update requires a host reboot, the "Reboot required" field for the appropriate driver update is true.

The following screenshots show an online catalog, a baseline targeting a mix of servers (discovered via iDRACs and discovered via Windows OS) and the resultant compliance report.

K Return to Firmware/Driver Compliance												
atalog Management												
Add Delete												
CATALOG NAME	DOWNLOAD STATUS	REPOSITORY TYPE	REPOSITORY LOCATION	CATALOG FILE	RELEASE DATE							
C1	Completed	Dell Online	downloads.dell.com/catalog/catalog.gz	catalog.xml	Jun 16, 2020 3:51:49 PM							
1 item(s) found, 0 item(s) selected. Display	ring items 1 - 1.											

Figure 7 Creating online catalog

🕇 Home 🔳 De	vices 🔗 Configuration 🗸 🔰 Aler	ts 🗸 🖾 Monitor 🗸	Application Settings											
🖗 Configur	Configuration													
Firmware/Driver (Compliance Templates Profile	s Auto Deploy	Configuration Compliance	Identity Pools VLA	ls									
C	Baseline Compliance Critical: 1 ▲ Warning: 0 ♦ Downgrade: 0 ♥ Ok: 0													
Create Baseline		Catalog Managemer	nt											
COMPLIANCE	NAME	JOB STATUS	CATALOG		LAST RUN TIME		h1							
• •	b1	Completed	c1		Jul 13, 2020 10:56:49 AM		DI							
1 item(s) found 0 ite	m(s) selected Displaying items 1 - 1						View Report Edit							
Titerin(3) Iounu, o ite	nn(a) selected. Displaying terns 1 - 1.						Compliance Summary 5 Device(s)							
							© Critical: 5 ▲ Warning: 0 ♦ Downgrade: 0 ☑ Ok: 0							

Figure 8 Creating a baseline

< Return to	o Firmware	/Driver Compliance	9								
Compl	iance	Report									
Catalog		c1									
Make Co		Event -									
Make Co	Inplant	Export +									
Device C Critical	ompliance Warning	Componer	ent Compliance Component Type	V Device Type	V All	ا ب	Device Name Contains	Component Contains	Si	ervice Tag Contains	Reboot Required
Current \	/ersion Co	ntains Ba	seline Version Contains								
COMPLI.	ANCE D	EVICE TYPE	DEVICE NAME / COMPONENTS	MODEL	SERVICE TAG	COMPONENT TYP	E REBOOT REQU PREREQUISI	TES IMPACT ASSESS	0 0	CURRENT VERSION	BASELINE VERSION
	з с	ompute		PowerEdge MX840c			Yes				
	3 0	Compute		PowerEdge MX740c	PEOTI OP		Yes				
	з с	ompute	¥	PowerEdge R640	J102002		Yes				
	3		Broadcom NetXtreme I Driver Family			Driver	No		0 2	21.40.1	21.60.1
	3		PERC H740P Mini Monolithic			Driver	Yes		0 7	7.710.10.0	7.711.4.0
	3 0	Compute		PowerEdge R630			Yes				
) (Compute		PowerEdge R540			Yes				
5 item(s) four	nd. Display	ing items 1 - 5.									

Figure 9 Compliance report

- 3. For each non-compliant device shown in the compliance report, the user can choose to:
- Update all components (firmware and drivers)
- Update Firmware components only (all firmware components, or subset)
- Update OS drivers only (all drivers or subset)
- Update a combination of Firmware components and OS drivers.

The status of driver update can be checked via the Jobs portal - Task execution history detail.

Figure 10 Task execution details

1.3.2 Using individual component updates in the device details page

The user can also use the device details page to update drivers as per baseline recommendations or via an individual DUP upload.

Home	Devic	ess 🖗 Configuration 🗸 🚩 Alerts 🗸 📼 Monitor 🗸 🏟 Application Settings 🗸								`
Overview	Hardy	ware Firmware/Drivers Configuration Inventory								
Baseline:	b1	v								
Update	Rollba	ack Export -								
- COMPLI	ANCE	COMPONENT	COMPONENT TYPE	REBOOT REQUIRED	PREREQUISITES	IMPACT ASSESS	0	CURRENT VERSION	BASELINE VERSION	
	8	Dell PERC H730 Mini Monolithic	Driver	Yes			0	6.603.6.0	6.604.06.00	^
	8	PERC H830 Adapter	Driver	Yes			0	6.603.6.0	6.604.06.00	
	8	PowerEdge Chipset Driver	Driver	No			0	0	10.1.2.86	
	0	Broadcom NetXtreme I Driver Family	Driver	No			0	0.0.0	21.60.1	
4 item(s) four	nd, 2 item	(s) selected. Displaying items 1 - 4.								

Figure 11 Driver update using device details page

A driver update job is created and listed in the job list for tracking.

1.4 Troubleshooting issues with driver inventory and update

Issues	Troubleshooting steps
Driver inventory for servers is not visible.	Verify if the "collect driver inventory" option was checked and if the Windows server was discovered using administrator credentials.
	Verify if the Inventory Collector application (invcol) is installed and available on the target server. The default install location for this utility is "C:\ProgramData\Dell".
	Check monitor service logs for any errors.
Compliance report shows a driver as compliant even though it is not listed in the catalog.	No resolution steps expected from the user.
	In a follow-up release, components that do not have a reference version in the catalog will show up with an "Unknown" compliance status.
OS driver update is not successful	Verify if "Dell EMC System Update" is installed and available on the target server. The default install location for this utility is "C:\ProgramData\Dell".
	Check task execution service logs for any errors.

A.1 Related resources

OpenManage Enterprise Version 3.4 and OpenManage Enterprise - Modular Edition Version 1.20.00 RESTful API Guide