



The science behind the report:

Streamline server deployment and configuration: Dell OpenManage Enterprise with OpenManage Enterprise Integration for VMware vCenter (OMEVV)

This document describes what we tested, how we tested, and what we found. To learn how these facts translate into real-world benefits, read the report [Streamline server deployment and configuration: Dell OpenManage Enterprise with OpenManage Enterprise Integration for VMware vCenter \(OMEVV\)](#).

We concluded our hands-on testing on April 8, 2023. During testing, we determined the appropriate hardware and software configurations and applied updates as they became available. The results in this report reflect configurations that we finalized on March 30, 2023 or earlier. Unavoidably, these configurations may not represent the latest versions available when this report appears.

Our results

To learn more about how we have calculated the wins in this report, go to <http://facts.pt/calculating-and-highlighting-wins>. Unless we state otherwise, we have followed the rules and principles we outline in that document.

Table 1: Results of our testing.

	Dell™ OpenManage Enterprise™ Integration for VMware vCenter® (OMEVV)		VMware vSphere® Auto Deploy		Savings with Dell OMEVV			
	Time (mm:ss)	Steps	Time (mm:ss)	Steps	Less time (mm:ss)	Percentage less time	Fewer steps	Percentage fewer steps
One-time setup	02:01	16	29:31	97	27:30	93.17%	81	83.51%
Deploy single server	02:30	25	08:06	30	05:36	69.14%	5	16.67%
Deploy two servers	02:34	25	08:59	34	06:25	71.43%	9	26.47%
Deploy three servers	02:36	25	10:17	38	07:41	74.72%	13	34.21%

System configuration information

Table 2: Configuration information for the Dell MX7000 server enclosure.

Server enclosure configuration information	Dell MX7000
Number of management modules	2
Management module firmware revision	2.10.00 (Build A00.112)
First type of I/O module	
Vendor and model number	Dell MX9116n Fabric Engine
I/O module firmware revision	10.5.4.6.33 3.35.1.1-12
Number of modules	2
Occupied bay(s)	A1, A2
Second type of I/O module	
Vendor and model number	Dell MXG610s FC Switch 2SFP
I/O module firmware revision	8.1.0_Inx2
Number of modules	1
Occupied bay(s)	C1
Power supplies	
Vendor and model number	Dell
Number of power supplies	6
Wattage of each (W)	3,000
Cooling fans	
Vendor and model number	Dell
Number of fans	9

Table 3: Detailed information on the systems we tested.

Server configuration information	Dell PowerEdge™ MX760c
BIOS name and version	Dell 1.8.2
Non-default BIOS settings	Intel® Turbo Boost enabled, virtualization enabled
Operating system name and version/build number	VMware ESXi™, 7.0.3, 19482537
Date of last OS updates/patches applied	03/15/2023
Power management policy	Performance
Processor	
Number of processors	2
Vendor and model	Intel Xeon® Gold 6430
Core count (per processor)	32
Core frequency (GHz)	2.10
Memory module(s)	
Total memory in system (GB)	512
Number of memory modules	8
Vendor and model	Hynix® HMCG94AEBRA109N
Size (GB)	64
Type	PC5-38400 (DDR5-4800)
Speed (MHz)	4,800
Speed running in the server (MHz)	4,400
Network adapter	
Vendor and model	Broadcom® Adv Quad 25Gb Ethernet
Number and type of ports	4 x 25GbE
Driver version	Dell FW 22.31.13.70
Local storage	
Number of drives	2
Drive vendor and model	Dell EC NVMe® ISE 7400 RI M.2
Drive size (GB)	480
Drive information (speed, interface, type)	NVMe 1.4, PCIE, M.2 SSD
Number of drives	4
Drive vendor and model	Dell Ent NVMe P5600 MU U.2
Drive size (GB)	3,200
Drive information (speed, interface, type)	NVMe 1.3, PCIE, SSD

How we tested

The following information provides a step-by-step walkthrough of how we configured the environment and performed testing. We assume the environment already contains a VMware vCenter® version 8.0.0 and an OpenManage Enterprise version 3.10.0 (OME). We also assume you have already downloaded all relevant software.

One-time setup and configuration steps (Dell OMEVV) – 16 steps

Installing OMEVV – 11 steps

1. From the OME home page, navigate to Application Settings, and Console and Plugins.
2. On the Console and Plugins page, beside Last Updated, click the refresh icon.
3. Navigate to OpenManage Enterprise Integration for VMware vCenter, and click Install.
4. Wait for the download to finish, and click Next.
5. Click the license agreement, and click Accept.
6. Click Next.
7. Click I agree, and click Finish. Installation completes and restarts OME.
8. From OME homepage, navigate to Plugins, select OMEVV Plugin, then click Administration.
9. Click Register.
10. Enter the vCenter IP address or host name.
 - a. Enter the vCenter username.
 - b. Enter the vCenter password, and confirm the password.
 - c. Click Register with vSphere Lifecycle Manager.
11. Click Finish.

Creating ISO profile – 5 steps

1. Navigate to the ISO profile.
2. Click Create New Profile.
3. Select Get Started.
4. Enter a profile name and an optional short description. Enter the address for the share hosting the ISO you want deployed. From the drop-down menu, select the matching version of ESXi (in this case, ESXi_8.0.x). Scroll down, and click Begin test to verify ISO File Path and ISO File Path Authentication.
5. Once the test validations are all green, click Finish to finalize.

One-time setup and configuration steps (VMware vSphere Auto Deploy) – 97 steps

Enabling vCenter Auto Deploy – 3 steps

1. Navigate to the vCenter Home Page.
2. Click the hamburger menu, and click Auto Deploy.
3. Click Enable Auto Deploy and Image builder.

Creating Software Depot – 2 steps

1. On the far right, click Import.
2. Enter a Name. Click Browse, navigate to where the Dell 8.0b repository zip file was downloaded, select it, and click Upload.

Setting up and configuring TFTP server – deploying – 37 steps

1. Navigate to vCenter Home Page.
2. Click the hamburger menu, and select Inventory.
3. Right-click the appropriate data center, and select New Virtual Machine.
4. Accept the default, and click Next.
5. Enter a name for the virtual machine (in this case, TFTP Server), and click Next.
6. Select either a cluster or the correct folder for the VM, and click Next.
7. Select the correct storage location for the new VM, and click Next.
8. Accept all defaults, and click Next.
9. Use the pull-down menu to change Guest OS Version to Windows Server 2022 (64-bit), and click Next.

10. Customize the hardware with the following settings:
 - a. For CPU, select 8.
 - b. Set Memory to 16GB.
 - c. Set New Hard Disk to 90GB.
 - d. Select the appropriate network controller.
 - e. On New CD/DVD Drive, either attach an ISO from the vCenter Content Library or leave client device enabled and attach the Windows ISO from within the Virtual Console. Click Next.
11. To complete the VM creation, click Finish.
12. Select the new VM, and beside the VM name, click the Power On icon.
13. When prompted to boot from DVD, press any key.
14. When the installation screen appears, leave language, time/currency format, and input method as default, and click Next.
15. Click Install now.
16. When the installation prompts you, enter the product key, and click Next.
17. Select Windows Server 2022 Datacenter Edition (Server with a GUI), and click Next.
18. Check I accept the license terms, and click Next.
19. Click Custom: Install Windows only (advanced).
20. Select Drive 0 Unallocated Space, and click Next. Windows begins and restarts automatically.
21. When the Settings page appears, fill in the Password and Reenter Password fields with the same password, and click OK.
22. Log in with the password you set up in the previous step.
23. Using Windows update, download and install all updates.
24. Once all updates are installed, disable the Windows Update service to ensure no new updates are applied during testing.
25. Disable Windows firewall.
26. To prepare for the TFTP server install, download and install .NET 4.8.
27. Download SolarWinds TFTP, and install it.
28. Start the TFTP Server application.
29. Go to File, then Configure, and verify the root directory is correct. We used C:\TFTP_Root.
30. Next we need to obtain the TFTP config file from vCenter. Navigate to the vCenter home page.
31. Click the hamburger menu, and select Auto Deploy.
32. Click Configure.
33. Click Download TFTP ZIP file.
34. Navigate back to the TFTP server.
35. Transfer the TFTP ZIP file to the server.
36. Navigate to C:/, and then to the TFTP_Root Server.
37. Move and extract the ZIP file to the C:/TFTP_Root folder, so that the files sit in the directory, not in a sub-folder.

Configuring DHCP options – 9 steps

1. Via Virtual Console, connect to the server running DHCP.
2. Open Control Panel.
3. Click System and Security.
4. Click Administrative Tools.
5. Double-click DHCP.
6. Expand server → IPv4 → Scope.
7. Right-click Scope, and select Configure Options.
8. Scroll down to Rule 66, click 066 Boot Server Host Name, and enter the IP of the TFTP server you just deployed.
9. Click 067 Bootfile name, and type in `snponly64.efi.vmw-hardwired` and click OK.

Deploying reference server – 25 steps

We installed ESXi on the reference host we configured previously to capture a host profile for use in deployment with vCenter Auto Deploy.

1. Open a browser tab, and navigate to the iDRAC page of the reference host.
2. Enter administrative credentials, and log in.
3. Start Virtual Console.
4. Attach the VMware ESXi installation media to the Virtual Optical Drive.
5. To begin the installation, press Enter.
6. To Accept and Continue, press F11.
7. Under Storage Device, select the installation drive, and press Enter.

8. Select US Default for keyboard layout, and press Enter.
9. Enter root password twice, and press Enter.
10. At the Confirm Install window, to install, press F11.
11. At the Installation Complete window, to reboot, press Enter.
12. After reboot, press F2 to Configure System.
13. Log in with root user/password, and press Enter.
14. Configure ESXi for Static IP.
15. From ESXi, press F2 for Customize System/View Logs.
16. Enter the root password, and press Enter.
17. Navigate to Configure Management Network, and press Enter.
18. Navigate to IPv6 configuration, and disable IPV6.
19. Navigate to IPv4.
20. To select Set Static IPv4 address and network configuration, press the space bar.
21. Change IPv4 Address to desired static IP. Enter or confirm the subnet mask and gateway addresses, and press Enter.
22. Navigate to DNS Configuration, and press Enter.
23. Enter or confirm the primary DNS address. Change the Hostname an appropriate hostname, and press Enter.
24. Press Esc.
25. Type Y to apply changes, and restart.

Creating host profile from reference server – 21 steps

1. Navigate to Inventory.
2. Right-click the appropriate data center, and select Add Host...
3. Enter the host name or IP address of the server set up in the previous step, and click Next.
4. Enter the username and password, and click Next.
5. Click Next.
6. Select the correct License, and click Next.
7. Click Next.
8. Select the correct data center, and click Next.
9. Click Finish.
10. Next, create the new profile by first navigating to Policies and Profiles.
11. Click Host Profiles.
12. Click Extract Host Profile.
13. Select the server configured in the previous step to serve as the Host template, and click Next.
14. Enter the profile name and a brief description, and click Finish.
15. Next adjust the host profile, by first clicking the hamburger menu.
16. Click Policies and Profiles.
17. Click Host Profiles.
18. Click the name of the profile to be used for Auto Deploy.
19. Click Edit Host Profile...
20. Click and expand Advanced Configuration Settings → System Image Caching Configuration Options → Click System Image Cache Configuration.
21. Make the following changes to the System Image Cache Configuration:
 - a. Under System Image Cache Profile Settings, click User must explicitly choose policy option, and change it to Enable Stateful installs on the host.,
 - b. For arguments for first disk, enter the adapter name for the desired install location (in this case, nvme_pcie).
 - c. Enable the option for Check to overwrite any VMFS volumes on the selected disk.
 - d. Disable Check to ignore any SSD devices connected to the host.
 - e. Leave System Disk configuration on Users must Explicitly choose the policy option, and click Save.

Deploying a single host (Dell OMEVV) – 25 steps

Discovering servers in OME – 8 steps

1. Open a web browser, and enter the IP address for OME.
2. Enter administrative credentials, and log in.
3. On the landing page, click Devices.
4. Hover over Discovery, and select Discover Devices.
5. Under Device Type, click and select Server. Accept the default Dell iDRAC, and click OK.
6. Enter either the IP addresses, hostnames, or IP range of the servers being discovered.
7. Enter the Username and credentials of the iDRACs being discovered.
8. Click Finish.

Discovering bare-metal servers in OMEVV – 8 steps

1. Navigate to vCenter.
2. In the upper left portion of the screen, beside vSphere Client, click the three lines, and select OpenManage Enterprise.
3. Click Compliance & Deployment.
4. Click Deployment.
5. Click Add Baremetals.
6. From Add BareMetal Servers, select the correct iDRAC IPs, and click OK.
7. To confirm job creation, click OK, and wait for the job to finish.
8. Once the job is complete and server(s) show in the Deployment view, the listed servers are eligible for deployment.

Creating deployment job – 9 steps

1. On the OpenManage Enterprise Plugin screen, in the left menu, click Deployment.
2. Check the box beside the server you want to deploy or check the box for all servers, and click Deploy.
3. On the ISO Profile Deployment popup, verify both Checklist items are green, and click Get Started.
4. Under Select Server(s), select the desired server for deployment or all servers, and click Next.
5. Under Select Deployment Options:
 - a. Leave ISO Profile (ESXi installation) enabled.
 - b. From the vCenter Address drop-down menu, select the correct vCenter.
 - c. Beside vCenter Destination Container, click Browse, select the preferred data center where the servers will live, and click OK.
 - d. Under ISO Profile, from the drop-down menu, select the profile that was created.
 - e. Under Installation Target, select BOSS, and click Next.
6. Under Host Credentials, select Yes, enter the credentials for all ESXi hosts, and click Next.
7. Under Configure Host Network Settings, expand the first server to enter the networking information.
 - a. Enter the Fully Qualified Host Name.
 - b. Select the target NIC.
 - c. Ensure the appliance NIC address matches the OME appliance.
 - d. Enter preferred DNS.
 - e. Enter the desired IP address for the ESXi server.
 - f. Enter Subnet Mask.
 - g. Enter Default Gateway, and click Next.
8. Under Schedule Deployment Job, provide a Deployment Job Name, and click Finish.
9. To confirm, click Yes.

Deploying a single host (VMware vSphere Auto Deploy) – 30 steps

Creating new rule – 8 steps

1. In Auto Deploy, click Deploy rules.
2. Click New deploy rule.
3. Configure the rule with the following:
 - a. Enter a name for the rule.
 - b. Select the radio button for Hosts that match the following pattern.
 - c. Click <Add Pattern> and select Serial Number, then enter the correct serial number for the server being deployed.
 - d. Click <Add Pattern> and select Vendor, then enter the correct vendor for the servers being deployed, and click Next.
4. Check the boxes beside Host Location, Image and Host Settings, and click Next.
5. Select host location, select the data center where the deployed servers will live, and click Next.
6. Select the correct Software Depot, and the appropriate image, and click Next.
7. Select the correct host profile, and click Next.
8. Click Finish.

Activating rule – 6 steps

1. Click Activate/Deactivate Rules.
2. Select the rule to be activated.
3. Click Test Rules Before Activation.
4. Click Check Compliance, and ensure Remediate all host associations is enabled, and click OK.
5. Click Activate.
6. Click OK.

Booting server through deployment – 4 steps

1. Open a web browser, and navigate to the iDRAC address for the target server.
2. Click Virtual Console.
3. Select Power, and click Reset (Warm Boot).
4. Click OK.

Customizing host – 6 steps

1. Within vCenter, click the hamburger menu, and select Policies and Profiles.
2. Click Host Profiles.
3. Click the name of the Host Profile that was used for the deployment rule.
4. Beside the host name, click Actions, and select Edit Host Customizations.
5. Select the box beside the server that requires a static IP address, and click Next.
6. Assign a hostname for this server, such as kahlo-node2.pod2.lab. Set the correct IP address and subnet mask, and click Finish.

Performing host remediation against profile – 6 steps

1. Click Actions.
2. Click Remediate.
3. Check the box(es) beside the server(s) getting the IP assigned from the previous step.
4. Click pre-check remediation.
5. Upon completion of the pre-check remediation task, click Actions, and select Remediate.
6. Select the server(s) to be remediated, and click Remediate.

Deploying two hosts (Dell OMEVV) – 25 steps

The process for deploying two hosts is the same as a single host. See above section titled “Deploying a single host (Dell OMEVV) – 25 steps.”

Deploying two hosts (VMware vSphere Auto Deploy) – 34 steps

The process for deploying two hosts is nearly identical as a single host. See above section titled “Deploying a single host (VMware vSphere Auto Deploy) – 30 steps.”

We had to perform the 4 steps under “Booting a server through deployment” for each host, in this case two hosts. This means the resulting number of steps was the original 30 steps plus 4 steps (4 additional steps for the second host), for a total of 34 steps.

Deploying three hosts (Dell OMEVV) – 25 steps

The process for deploying three hosts is the same as a single host. See above section titled “Deploying a single host (Dell OMEVV) – 25 steps.”

Deploying three hosts (VMware vSphere Auto Deploy) – 38 steps

The process for deploying three hosts is nearly identical as a single host. See above section titled “Deploying a single host (VMware vSphere Auto Deploy) – 30 steps.”

We had to perform the 4 steps under “Booting a server through deployment” for each host, in this case three hosts. This means the resulting number of steps was the original 30 steps plus 8 steps (4 additional steps for both the second and third hosts), for a total of 38 steps.

Read the report at <https://facts.pt/EoE88sr>



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