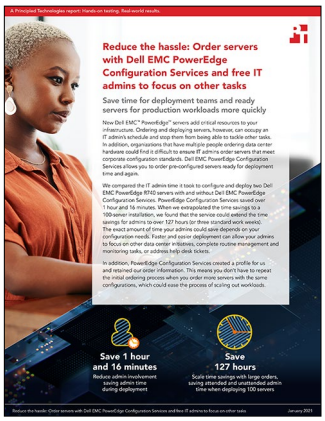

The science behind the report:

Reduce the hassle: Order servers with Dell EMC PowerEdge Configuration Services and free IT admins to focus on other tasks

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 Reduce the hassle: Order servers with Dell EMC PowerEdge Configuration Services and free IT admins to focus on other tasks.

We concluded our hands-on testing on November 18, 2020. 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 October 14, 2020 or earlier. Unavoidably, these configurations may not represent the latest versions available when this report appears.

Our results

Table 1: The time and steps (in minutes and seconds) required to complete the requested configurations.

	Dell EMC™ PowerEdge™ Configuration Services		Manually	
	Time (min:sec)	**Steps**	**Time (min:sec)**	**Steps**
Asset tracking				
Create labels	0:00	0	0:22	4
Label server	0:00	0	0:10	2
Label box	0:00	0	0:19	2
Asset reporting				
Gather report information	0:00	0	5:46	18

	Dell EMC™ PowerEdge™ Configuration Services		Manually	
	Time (min:sec)	**Steps**	**Time (min:sec)**	**Steps**
iDRAC settings				
Set iDRAC IP address	0:00	0	0:32	4
Set time zone and enable NTP	0:00	0	0:18	4
Create "maintenance" user with Power User privileges	0:00	0	0:33	4
Set Limit 4 (60°C) exhaust temp limit	0:00	0	0:23	4
Set PSUs to non-redundant	0:00	0	0:12	2
BIOS settings				
Disable memory testing	0:00	0	0:11	3
Enable boot on BOSS only	0:00	0	0:36	3
Disable internal and back USB ports	0:00	0	0:10	3
System Profile to Performance-per-watt (OS)	0:00	0	0:17	3
Enter asset tag and disable F1/F2 prompt on error	0:00	0	0:15	3
Reboot to apply changes	0:00	0	2:01	2
RAID settings				
RAID1 on BOSS card	0:00	0	0:38	5
RAID10 on 300GB drives	0:00	0	0:44	5
RAID1 on 600GB drives	0:00	0	0:39	5
Custom disk image				
Attach and boot to virtual media	0:00	0	6:33	3
Install Windows Server 2019	0:00	0	16:58	6
Firmware freeze				
Downgrade BIOS	0:00	0	7:04	1
Downgrade iDRAC9	0:00	0	8:15	1
Downgrade integrated NIC	0:00	0	7:39	1
Downgrade add-on NIC	0:00	0	7:52	1
Downgrade PERC	0:00	0	7:45	1
Total	**0:00**	**0**	**76:12**	**90**

System configuration information

We used older versions of BIOS, iDRAC, NIC, and PERC firmware to evaluate the firmware freeze service of Dell EMC PowerEdge Configuration Services.

Table 2: Detailed information on the system we tested.

System configuration information	Dell EMC PowerEdge R740
BIOS name and version	2.7.7
Operating system name and version/build number	Microsoft Windows Server 2019 Datacenter 17763.1490
Date of last OS updates/patches applied	10/13/2020
Power management policy	Default
Processor	
Number of processors	1
Vendor and model	Intel® Xeon® Bronze 3204
Core count (per processor)	6
Core frequency (GHz)	1.90
Stepping	7
Memory module(s)	
Total memory in system (GB)	8
Number of memory modules	1
Vendor and model	Micron 9ASF1G72PZ-3G2E2
Size (GB)	8
Type	PC4-3200
Speed (MHz)	3,200
Speed running in the server (MHz)	2,133
Storage controller	
Vendor and model	Dell PERC H330
Cache size	N/A
Firmware version	25.5.5.0005
Driver version	6.604.06.00
Local storage (type A)	
Number of drives	2 / 6
Drive vendor and model	Seagate ST300MP0026 / Seagate ST600MM0069
Drive size (GB)	300 / 600
Drive information (speed, interface, type)	15k SAS HDD / 10k SAS HDD

System configuration information	Dell EMC PowerEdge R740
Integrated network adapter	
Vendor and model	Broadcom BCM57416
Number and type of ports	4 10GbE
Driver version	212.0.88.0
PCIe network adapter	
Vendor and model	Intel Ethernet Converged Network Adapter X710
Number and type of ports	4 10GbE
Driver version	1.11.101.0
Cooling fans	
Vendor and model	Dell EMC 4VXP3
Number of cooling fans	6
Power supplies	
Vendor and model	Dell EMC 0KTW3
Number of power supplies	2
Wattage of each (W)	750

How we tested

Upon receiving the pre-configured servers from Dell EMC PowerEdge Configuration Services, we first verified that the service completed each item in the configuration request correctly. We then reset each setting to its default and performed the manual steps necessary to recreate the configuration.

Asset tracking

Creating labels

1. Turn on the label maker.
2. Enter the asset tag onto the label.
3. Print the labels.
4. Trim the labels.

Labeling the server

1. Peel off non-adhesive backing.
2. Stick the label to the server.

Labeling the box

1. Peel off non-adhesive backing.
2. Stick the label to the box.

Asset reporting

Building and emailing the report

Draft an email with the following information:

1. Order number
2. PO number
3. Asset tag
4. Manufacture date
5. Dell Service Tag
6. Dell Express Service Code
7. Model
8. Chassis description
9. Chassis style
10. Ship date
11. Ship address
12. Ship zip code
13. Ship country
14. Ship company name
15. Ship city
16. Ship state
17. Customer name
18. Customer number

iDRAC settings

Setting iDRAC IP address

1. In iDRAC, click iDRAC Settings.
2. Click Connectivity.
3. Expand the IPv4 settings.
4. Enter the desired settings, and click Apply.

Setting the time zone and enabling NTP

1. In iDRAC, click iDRAC Settings.
2. Click Settings.
3. Expand the time zone and NTP settings.
4. Enter the desired settings, and click Apply.

Creating "maintenance" user with Power User privileges

1. In iDRAC, click iDRAC Settings.
2. Click Users.
3. Expand Local Users.
4. Enter the desired settings, and click Apply.

Setting Limit 4 (60°C) exhaust temp limit

1. In iDRAC, click iDRAC Settings.
2. Click System Settings.
3. Expand Hardware Settings.
4. Enter the desired settings, and click Apply.

Setting PSUs to non-redundant

1. In iDRAC, click Configuration.
2. Enter the desired settings, and click Apply.

BIOS settings

Disabling memory testing

1. In iDRAC, click BIOS.
2. Expand Memory Settings.
3. Enter the desired settings, and click Apply.

Enabling boot on BOSS only

1. In iDRAC, click BIOS.
2. Expand Boot Settings.
3. Enter the desired settings, and click Apply.

Disabling internal and back USB ports

1. In iDRAC, click BIOS.
2. Expand Integrated Devices.
3. Enter the desired settings, and click Apply.

Setting the system profile to Performance-per-watt (OS)

1. In iDRAC, click BIOS.
2. Expand System Profile.
3. Enter the desired settings, and click Apply.

Entering the asset tag and disabling F1/F2 prompt on error

1. In iDRAC, click BIOS.
2. Expand Miscellaneous Settings.
3. Enter the desired settings, and click Apply.

Rebooting to apply changes

1. In iDRAC, click Dashboard.
2. Reset the system.

RAID settings

Configuring RAID1 on BOSS card

1. In iDRAC, click Configuration.
2. Click Storage Configuration.
3. Select the controller, and click Create Virtual Disk.
4. Enter the RAID settings, and click Add to Pending Operations.
5. Click Apply Now.

Configuring RAID10 on 300GB drives

1. In iDRAC, click Configuration.
2. Click Storage Configuration.
3. Select the controller, and click Create Virtual Disk.
4. Enter the RAID settings, and click Add to Pending Operations.
5. Click Apply Now.

Configuring RAID1 on 600GB drives

1. In iDRAC, click Configuration.
2. Click Storage Configuration.
3. Select the controller, and click Create Virtual Disk.
4. Enter the RAID settings, and click Add to Pending Operations.
5. Click Apply Now.

Custom disk image

Attaching and booting to virtual media

1. Open the iDRAC virtual console.
2. Click Attach Media.
3. Boot the system to the virtual media.

Installing Microsoft Windows Server 2019

1. Select the language, and click Next.
2. Click Install Now.
3. Select Windows Server 2019 Datacenter (Desktop Experience), and click Next.
4. Accept the terms of the license agreement, and click Next.
5. Select Custom: Install Windows only (advanced), and click Next.
6. Select the BOSS RAID group, and click Next.

Firmware freeze

To downgrade BIOS, iDRAC9, the integrated NIC, the add-on NIC, and the PERC, run the firmware installer package and allow the system to reboot. Each of the five processes requires just the lone step.

Read the report at http://facts.pt/SLkGCbE ▶

This project was commissioned by Dell EMC.