

After Meltdown – a quick reminder of best practices for updating a PowerEdge server BIOS

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By now, you've heard about the side-channel analysis vulnerabilities commonly known as **Meltdown** and **Spectre** that affect many modern microprocessors. These vulnerabilities were first described by a team of security researchers in January 2018. Dell EMC issued a Knowledge Base article describing these vulnerabilities at <http://dell.to/2EbaR36>, and now you may be asking yourself, "what next? How do I apply the needed BIOS updates?"

This document serves as a brief guide to Dell EMC recommended best practices for obtaining and applying BIOS updates. As always, Dell supplies different tools so that our customers can choose the method best suited to their particular IT environment and needs. In general, servers may require updates for reasons such as security updates, performance enhancements, enabling new functionality, new operating system support, and general bug fixes. Regardless of the reason, server updates ensure that Dell EMC customers get the most out of their investment.

Downloading the BIOS update

BIOS update packages can be obtained from support.dell.com manually by keying in the system tag and then looking for a BIOS update such as that pictured in figure 1.

The screenshot shows the Dell Support website interface. At the top, there is a navigation bar with the Dell logo, a search bar, and links for Sign In and Basket. Below the navigation bar, there is a breadcrumb trail: Home > Support > Product Support. The main heading is "Support for PowerEdge R740xd" with a "Change product" link. On the left, there is a sidebar with links: Support topics & articles, Drivers & downloads (selected), Manuals & documents, Warranty, System configuration, and Parts & accessories. The main content area is titled "Drivers & downloads" and contains a search bar with the text "Find a driver for your PowerEdge R740xd". Below the search bar, there are filters for Keyword (a text input field), Operating system (a dropdown menu set to "Windows Server 2016"), Category (a dropdown menu set to "All"), and Format (a dropdown menu set to "All"). There is also a checkbox for "Show urgent downloads only" and a button for "Add Selected to Download List". The results are displayed in a table with columns: Name, Category, Last Updated, and Download. The table shows one result: "Dell EMC Server PowerEdge BIOS R740/R740xd/R640/R940/7920R Version 1.2.11" with Category "BIOS", Last Updated "06 Feb 2018", and a download icon. Below the table, there is additional information: Importance: Urgent, Version: 1.2.11, 1.2.11, Release Date: 20 Nov 2017, File Name: BIOS_79GKV_WN64_1.2.11_01.EXE, and File size: 26.07 MB.

Name	Category	Last Updated	Download
 Dell EMC Server PowerEdge BIOS R740/R740xd/R640/R940/7920R Version 1.2.11	BIOS	06 Feb 2018	

Importance: Urgent
Version: 1.2.11, 1.2.11
Release Date: 20 Nov 2017
File Name: BIOS_79GKV_WN64_1.2.11_01.EXE
File size: 26.07 MB

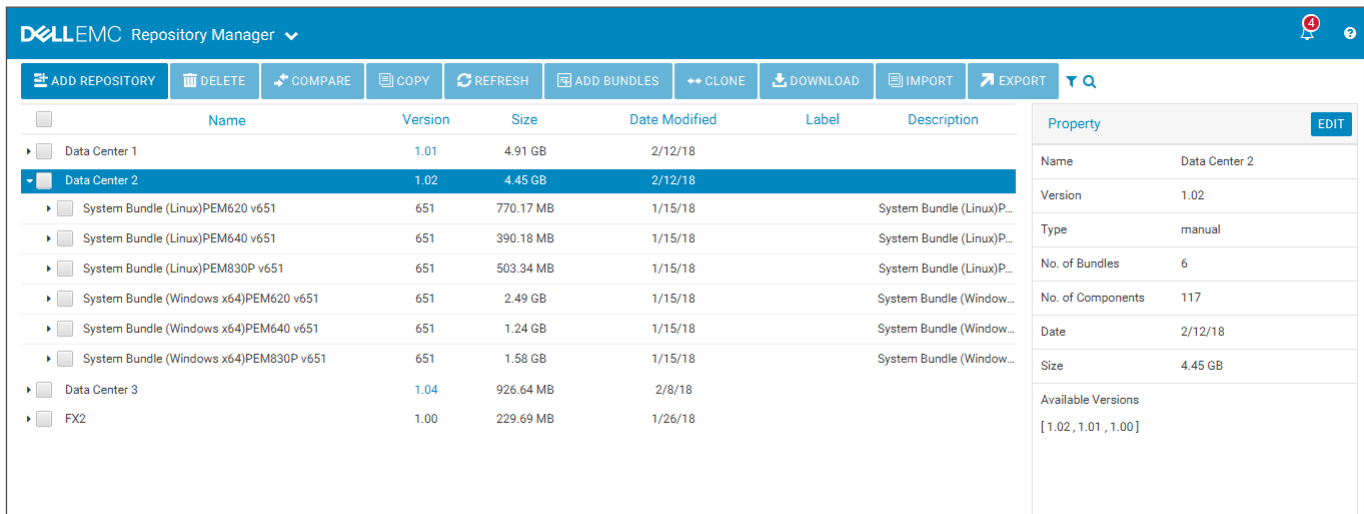
Fig 1 – support.dell.com showing a BIOS update for PowerEdge server

Dell EMC Advantage: downloads / driver updates are free. That's always been the case and there are no plans to change that.

Downloading this file and then applying the update manually to a single local server is straightforward, but doing the same for hundreds or thousands of servers in a distant data center could be a very time-consuming task. There are better ways.

Get the BIOS update automatically

Intelligent Automation is a Dell EMC hallmark, and that's why Dell EMC offers a range of OpenManage solutions that can simplify mass server updates. With Dell EMC Repository Manager, new updates from Dell EMC online catalogs can be automatically downloaded, as shown in figure 2.



The screenshot shows the Dell EMC Repository Manager web interface. At the top is a blue header with the 'DELL EMC' logo and a dropdown menu. Below the header is a toolbar with buttons: ADD REPOSITORY, DELETE, COMPARE, COPY, REFRESH, ADD BUNDLES, CLONE, DOWNLOAD, IMPORT, and EXPORT. A search icon is also present. The main area contains a table with columns: Name, Version, Size, Date Modified, Label, and Description. The table lists several repositories, including 'Data Center 1', 'Data Center 2' (selected), 'Data Center 3', and 'FX2'. 'Data Center 2' is expanded, showing a list of system bundles for various operating systems and processors. To the right of the table is a 'Property' panel with an 'EDIT' button, displaying details for the selected repository: Name (Data Center 2), Version (1.02), Type (manual), No. of Bundles (6), No. of Components (117), Date (2/12/18), Size (4.45 GB), and Available Versions ([1.02, 1.01, 1.00]).

Name	Version	Size	Date Modified	Label	Description
Data Center 1	1.01	4.91 GB	2/12/18		
Data Center 2	1.02	4.45 GB	2/12/18		
System Bundle (Linux)PEM620 v651	651	770.17 MB	1/15/18		System Bundle (Linux)P...
System Bundle (Linux)PEM640 v651	651	390.18 MB	1/15/18		System Bundle (Linux)P...
System Bundle (Linux)PEM830P v651	651	503.34 MB	1/15/18		System Bundle (Linux)P...
System Bundle (Windows x64)PEM620 v651	651	2.49 GB	1/15/18		System Bundle (Window...
System Bundle (Windows x64)PEM640 v651	651	1.24 GB	1/15/18		System Bundle (Window...
System Bundle (Windows x64)PEM830P v651	651	1.58 GB	1/15/18		System Bundle (Window...
Data Center 3	1.04	926.64 MB	2/8/18		
FX2	1.00	229.69 MB	1/26/18		

Property	Value
Name	Data Center 2
Version	1.02
Type	manual
No. of Bundles	6
No. of Components	117
Date	2/12/18
Size	4.45 GB
Available Versions	[1.02, 1.01, 1.00]

Fig 2 – Dell EMC Repository Manager interface

Repository Manager can be configured to download updates on certain days and to download updates for specific systems. Additionally, Repository Manager can download different sets of updates for different logical or physical groups of servers as you define them, and separate them into repositories in different locations. This gives IT administrators the flexibility to support different deployment methods.

Please note: it is important to test and validate any update in your IT environment. Dell EMC recommends using non-production systems in a lab or test environment to evaluate changes before deployment. It is also important to determine the best time in order to minimize the impact of server downtime. Regardless of the method chosen, planning and testing prior to an actual deployment of an update to physical servers is critically important.

Updating the BIOS

So now you have a BIOS update. You've tested it and you want to deploy it to the production servers in your datacenter. Now what? How to deploy it? As mentioned earlier, updating one server manually is an easy process: just download the BIOS update file, extract and then run it. More typically, administrators will use automation to perform mass updates from one management console to multiple target servers: what we refer to as "one-to-many" update.

Dell EMC recommends one of the following approaches to automate one-to-many updates:

- Use OpenManage Essentials or OpenManage Enterprise
- Use OpenManage integration with Microsoft System Center or VMware vCenter
- Create a custom automation script that operates with standard management APIs provided by the iDRAC with Lifecycle Controller embedded in every PowerEdge server

For example, OpenManage Enterprise, the next-generation Dell EMC management console, provides an easy-to-use graphical interface that automates many server management functions including one-to-many server updates. After discovering and defining a group of servers, OpenManage Enterprise provides a simple click-and-go process to schedule and perform BIOS updates for a set of up to thousands of servers (see figure 3).

COMPLIANCE	TYPE	DEVICE NAME / COMPONENTS	MODEL	SERVICE TAG	REBOOT REQUIRED	CURRENT VERSION	BASILINE VERSION
<input checked="" type="checkbox"/>	Compute	▼ iDRAC-945B0M2	PowerEdge M640 (VRTX)	945B0M2	Yes		
<input checked="" type="checkbox"/>		Server BIOS			Yes	1.0.0	1.2.71
<input checked="" type="checkbox"/>		Intel(R) Gigabit 2P I350-T Adapter			Yes	13.0.0	18.3.6
<input checked="" type="checkbox"/>		Intel(R) Ethernet 10G 4P X710-k bNDC			Yes	18.0.17	18.3.6
<input checked="" type="checkbox"/>		14G SEP			Yes	4.04	4.23
<input checked="" type="checkbox"/>		Intel Downville S3520 Ri Boot 120GB SSD SATA6 2.5 512n ISEModel Number: ...			No	DL42	DL43
<input checked="" type="checkbox"/>		Intel(R) Gigabit 2P I350-T Adapter			Yes	13.0.0	18.3.6
<input checked="" type="checkbox"/>		Intel Downville S3520 Ri Boot 120GB SSD SATA6 2.5 512n ISEModel Number: ...			No	DL42	DL43
<input checked="" type="checkbox"/>		iDRAC with Lifecycle Controller			No	3.11.11.11	3.15.15.15
<input checked="" type="checkbox"/>		OS Drivers Pack			No	17.08.11	17.10.13
<input type="checkbox"/>		OS COLLECTOR 3.1			No	3.1	3.1
<input type="checkbox"/>		Enterprise UEFI Diagnostics			No	4301A12	4301A12
<input checked="" type="checkbox"/>	Compute	► iDRAC-792B0M2	PowerEdge R640	792B0M2	Yes		
<input checked="" type="checkbox"/>	Compute	► iDRAC-78KD0M2	PowerEdge R740	78KD0M2	Yes		
<input checked="" type="checkbox"/>	Compute	► iDRAC-944F0M2	PowerEdge FC640	944F0M2	Yes		

Fig 3 – OpenManage Enterprise screen showing target servers to update

Those systems will process the update as scheduled and with no further intervention. If you're new to managing PowerEdge servers, this is an easy way to efficiently update thousands of servers without a lot of effort.

For customers who are using scripts to perform one-to-many updates, we offer resources on Dell TechCenter at <http://dell.to/2BvdDS2> as well as open source PowerShell and Python Scripting repositories at <http://github.com/dell>. These assets provide a good starting point for automation, and can be adapted to the specifics of your IT environment.

Dell EMC Advantage: Dell EMC provides the tools to deploy updates in a manner that best suits your needs. We realize that one method does not fit all situations.

Conclusion

Dell EMC makes a variety of tools to allow our customers to quickly, securely perform server updates, particularly as part of an automated one-to-many update workflow. With Intelligent Automation, your IT staff can efficiently perform updates. And because Dell EMC provides easy-to-use tools that integrate well with each other and with third-party tools, they are readily adapted to a variety of IT environments.

For more detailed, technical information on performing updates on Dell EMC PowerEdge servers, please visit this Dell TechCenter archive: <http://dell.to/2o04cSn> and for more on OpenManage systems management tools and technologies, please reference the Dell TechCenter wiki at <http://dell.to/2w4myYE>.

Learn more and join the conversation on Twitter at [@DellEMCServers](https://twitter.com/DellEMCServers).