

Using Dell Repository Manager to create a Bootable iso and perform system updates

Dell, Inc. Dell Repository Manager Team

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Executive Summary

This technical paper describes the techniques for updating Dell Systems using DellTM Repository Manager (DRM) to create a Bootable iso for use performing pre-operating system updates for system Bios and firmware. These configuration settings can be exclusive to each system or uniform settings across systems, depending on your requirements. This paper describes the steps that you should follow to:

- 1. Import the Dell Catalog containing system updates into DellTM Repository Manager
- 2. Create a bootable ISO image containing the selected updates and customized script
- 3. Deploy the updates to the Dell systems along with the script

Introduction

In the enterprise environment, change management is a time-consuming activity yet important and necessary. DellTM Repository Manager is a Microsoft Windows-based application that eases tedious change management tasks for administrators. DellTM Repository Manager facilitates the download, filter, and conversion of updates into various convenient deployable formats.

DellTM Repository Manager, through the bootable iso, assists IT administrators with updating Dell systems with the latest Dell BIOS, firmware, as well as configuring the system settings at the same time within a pre-operating system environment, which simplifies the systems management process.

NOTE:

- Bootable iso uses the Dell Deployment Toolkit (DTK) engine at the backend and supports system configuration which will be only Linux based.
- Only Bios and Firmware can be updated by a Bootable iso
- Bootable iso can be saved to a CD/DVD or a file location. Save to a USB key is currently not supported.

How to create a customized bootable iso for preoperating system update using Dell Repository Manager

Prerequisites

The following prerequisites are required for the creation of bootable iso:

- Install Dell Repository Manager on a system with Internet access.
- Download the latest version of Dell Repository Manager from <u>http://DellTechCenter.com/RepositoryManager</u>. This site also provides a number of papers and videos on using Dell Repository Manager.
- Launch Dell Repository Manager in Data Center Mode (Double click the Dell Repository.

Manager Data Center Icon to open the application).

- 1. Select the My Repository Tab.
- 2. Create a new repository in Dell Repository Manager from the new menu by clicking Create New Repository as shown in Figure 1 and provide a name and description as shown in Figure 2.

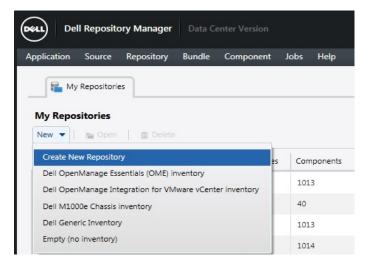


Figure 1 My Repository Screen with Create New Repository selected

Name and Description	Provide a name and description (optional) for the new repository.
Base Repository	Name:
Select Brand	Linux Bootable ISO Repository
Select OS	Description:
Select Models	Create a new Linux Bootable ISO Repository
Select Bundles	
Optional Components	
Summary	

Figure 2 Repository Name and Description

3. Select a source repository that contains the updates from which the new repository needs to be built. This is either the online Dell Online Catalog - or a Local Source Repository (if you have a copy of Dell online catalog locally) or Custom repository stored on the local disk or network location (Figure 3).

Name and Description	Choose the repository that you would like to use as a base for
Base Repository	your new repository.
Select Brand	Dell Online Catalog Decal Source Repository
Select OS	My Custom Repositories
Select Models	Archived Source: 09/02/2013 11:24:49 -1
Select Bundles	
Optional Components	
Summary	=

Figure 3 Source Repository Selection

4. Select one or more brand from the list available. The brand list is built from bundles available in the source repository selected (Figure 4).

Name and Description	Select one or more brands from the list below: Note that the brand list is built from bundles
Base Repository	available in the source repository.
Select Brand	
Select OS	A Server
Select Models	PowerEdge Rack
Select Bundles	Blade
Optional Components	Tower
Summary	Storage EqualLogic PowerVault

Figure 4 Brand selection

5. Select the desired operating system (s) which would be included in the repository created. Since bootable iso uses Linux to create the bootable capability, select the Linux bundles (Figure 5).

Name and Description	~	Specify the operating system(s) that you would like to include in your repository.
Base Repository	~	
Select Brand	~	
Select OS		
Select Models		Windows 32-bit
Select Bundles		Windows 64-bit
Optional Components		Linux (32-bit and 64-bit)
Summary		
		OS Independent

Figure 5 Select Operating System

6. Select the Dell system model(s) that would like to be included in the repository. All model(s) can be included or only specific model(s) can be chosen. The model list is built from the bundles available in the repository (Figure 6).

lame and Description	 Specify the Dell system model(s) that you would like to include in your repository. Note that
ase Repository	system model(s) list is built from bundles available in the repository.
elect Brand	 Include All Models supported by this repository Select Model(s)
elect OS	Select Model(s)
elect Models	PowerEdge R410
elect Bundles	PowerEdge R415 PowerEdge R420
ptional Components	PowerEdge R510 PowerEdge R515
	PowerEdge R520
immary	PowerEdge R610 PowerEdge R620
	PowerEdge R710
	PowerEdge R715
	PowerEdge R720 PowerEdge R720xd
	PowerEdge R805
	PowerEdge R810
	PowerEdge R815
	PowerEdge R820
	PowerEdge R900
	PowerEdge R905

Figure 6 Select Model(s)

7. Select the bundle(s) that are available for the model(s) and the operating system(s) which would be included in the repository. By default the most recent bundle would only be selected (Figure 7).

			×
Dell Reposito	ory Ma	nager	
Name and Description	~	The following bundle(s) are available for the model(s) and operating system(s). Specify which bundle(s) you would like to include in your repository.	h
Base Repository	~		
Select Brand	~	 ONLY include most recent and custom bundle(s) Select Bundle(s) 	
Select OS	~	PowerEdge R610	l.
Select Models	~	System Bundle (Linux) PER610 v474	
Select Bundles		System Bundle (Linux) PEROIO V460	
Optional Components			
Summary			
			1
		Cancel < Back Next >	
		Caricel Caricel IVext >	

Figure 7 Select Bundles

8. The repository selected as the source may contain individual update files that are not assigned to any system. The optional components wizard provides an opportunity to browse and select manually those files and add to your repository. Example of an optional component is OMSA (Figure 8).

Dell Reposite		2000005								
Dell Reposit		anager								
Name and Description	~	Advanced Option – Select optional files:								
Base Repository	~	The repository you have selected as the source contains individual update files that are not								
Select Brand	~	assigned to any system. You can choose to browse and manually select from these files to add them to your repository. You may wish to do this if you are attempting to locate individual								
Select OS	~	update files for older devices or non-system files (e.g., updates for Dell OpenManage Server Administrator).								
Select Models	~	Administrator).								
Select Bundles	~									
Optional Components		0 of 8 Optional Files Selected								
Summary										
		Select Components								
		Cancel < Back Next >								

Figure 8 Select optional components

9. Click Finish on the Summary page to create a repository (Figure 9). The repository contains bundles for the model(s) and the operating system(s) selected.

Name and Description	~	Name: Linux Bootable ISO Repository	0
Base Repository	~	Description: Create a new Linux Bootable ISO Repository	
Select Brand	~		
Select OS	~	++ Source Repository:	
Select Models	~	++ Path:	
Select Bundles	~	***********	
Optional Components	~	++ Operating System:	
Summary		++ N/A ++ Model(s):	
		PowerEdge R610	

Figure 9 Summary of repository creation steps

- 10. After the repository is created, select the newly created bundle and navigate on to the components tab. From the components tab you can select just the specific files you want to include in your Bootable iso. Only desired components may be selected or search filters can also be used to get a filtered list of components. With the selected components a new repository needs to be created using Copy To or New Bundle option to export it as a Bootable ISO as shown in Figure 10.
- 11. Alternatively you can open up the bundle and delete file from the bundle and utilize the modified bundle to create the Bootable iso. Either method will help you to create a Bootable iso with just the Firmware desired.

(m)										
My Repositories 🔚 Linux Bootab	ole ISO Reposi	itory ×								
inux Bootable ISO Repository								7	Save 👔 🟦 Run a comparison 👘 🛊	Properti
reate a new Linux Bootable ISO Repository Bundles Components										
	💼 Delete	Download File H Opy To Download File							Selected/Total : Total selected size:	6, 38,98
Display from bundles:	Compor	nents (filtered results):							Total selected size.	50.50
	•	File Name	Туре	OS	Version	Criticality	Date	Size		
ilter Components by: Select a filter		SAS-Drive_Firmware_4VM2N_LN32_HT66_A06.8IN	Firmware	Linux	HT66	Urgent	10/18/2012	3.85 MB		
✓ Keyword Search		TAPE_FRMW_LX_R217256.BIN	Firmware	Linux	4.17	Urgent	11/5/2011	2.36 MB		
[]		TAPE_FRMW_LX_R309322.BIN	Firmware	Linux	B6W1	Urgent	11/5/2011	11.17 MB		
✓ Update Type * ✓ Drivers ♥ Firmwares ■ BIOS		SAS-Drive_Firmware_X11HM_LN32_FS66_A08.BIN	Firmware	Linux	FS66	Urgent	10/26/2012	3.85 MB		
Applications Utilities		SAS-Drive_Firmware_YN3M1_LN32_AS08_A06.BIN	Firmware	Linux	AS08	Urgent	10/18/2012	3.99 MB		
✓ Criticality *		TAPE_FRMW_LX_R309321.BIN	Firmware	Linux	B6W1/B711	Urgent	11/5/2011	13.76 MB		
Optional Recommended Urgent	ä 🔲	SAS-RAID_Firmware_8VM7T_LN32_5.2.2-0076_A11.BIN	Firmware	Linux	5.2.2-0076	Urgent	11/5/2011	4.31 MB		
> Supported Platforms		Serial-ATA_Firmware_740GN_LN_AA09_A09.8IN	Firmware	Linux	AA09	Urgent	5/10/2013	Unknown		
✓ Component Version *		SAS-Drive_Firmware_H1TYD_LN32_DSF4_A01.BIN	Firmware	Linux	DSF4	Urgent	4/23/2012	3.95 MB		
O All O Most Recent O Contains		SAS-Drive_Firmware_6PM3Y_LN_CS09_A07.BIN	Firmware	Linux	CS09	Urgent	1/3/2013	9.59 MB		
		SAS-Drive_Firmware_PVD82_LN32_FSF9_A01.BIN	Firmware	Linux	FSF9	Urgent	3/28/2012	3.94 MB		
> Operating System		SAS-Drive_Firmware_5WTTD_LN32_DS66_A06.BIN	Firmware	Linux	DS66	Urgent	10/18/2012	3.85 MB		
Manage Save Reset		SAS-Drive Firmware NF2RT LN32 ASF9 A03.BIN	Firmware	Linux	ASF9	Urgent	9/11/2012	4.04 MB		

Figure 10 Selecting desired components

12. Select the bundle under the new repository created (Figure 11) and select Export option.

	e ISO Rep	ository										7 Save	t Run a comparison	Propertie
eate a new Linux Bundies	Bootable ISO I Components	Repository												
Tasks: + Add Iter Bundles by: Select a filter		++ Clone	pare Report itered results): Name		i // 🛔 Sequ Version		Date	Size	Author	Generation	Brand		Selected/Total : Total selected size:	1 Unknoi
Keyword Search	E C		System Bundle (Linux) P	ER610 v480	8155520,480	Linux	9/30/2013	Unknown	DELL	11G	PowerEdge			
Brand														
Supported Platf														
Operating Syste Release Date	m													
> Release Lake														

Figure 11 Select bundle and export

13. Select Bootable iso (Using the Linux Bundle). Click Next.

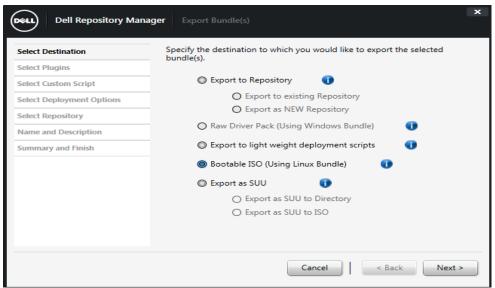


Figure 12 Specifying the export bundle destination

14. If the required plug- in is not available, it downloads during the export process as mentioned in the note on Figure 13.

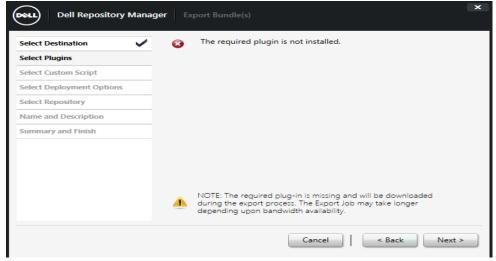


Figure 13 Installing the Plugin

15. Optionally if the plug-in is not available, it can also be downloaded by navigating to the menu as follows:

Application->Settings->Plug-in Update. Refer Figure 14.

Application Source Repository Bundle Component Jobs Help Settings • Source Repository Source Repository Check for Application Update • Default Proxy Close Selected Tab Ctrl+W Plug-in Update Exit Ctrl+Q	DEEL	De	ll Reposito	ory Manager	Data Ce	enter Version		
Close Selected Tab Ctrl+W FileStore	Appli	cation	Source	Repository	Bundle	Component	Jobs	Help
Close Selected Tab Ctrl+W Plug-in Update FileStore		Setting	s		+	Source Re	pository	1
Close Selected Tab Ctrl+W FileStore		Check	for Applica	tion Update		Default Pr	оху	
FileStore		Close	Selected Ta	b	Ctrl+W	Plug-in Up	odate	
Exit Ctrl+Q			Sciected 10			FileStore		
bundes components		Exit	~~~~~		Ctrl+Q			_

Figure 14 Plug-in Update

16. On clicking the Plug-in Update, Dell Repository Manager will retrieve the plug-in information from ftp.dell.com and gives a dialog box showing the available plug-in's to download. Desired one's can be selected or all can be selected for download. Once Download is clicked, the plug-in(s) get downloaded and a job-queue will be submitted. Optionally the plug-in(s) can also be downloaded to a desired location by checking the "Save a copy of the latest plugins to". Refer Figure 15.

All	ftp.dell.com Plugin	Current Version	New Version
	Dell Server Update Utility x32 Plug-in	730	730
	Dell Server Update Utility x64 Plug-in	10 Mar 1995	730
~	Dell Bootable ISO Plug-in	Not available	730
	III		0
Save	a copy of the latest plugins to:		
		B	rowse

Figure 15 Plugin Browser

17. Once the required plug-in is available, during the export wizard, you will see a note saying that required plug-in is found. Refer Figure 16.

Dell Repository Manager	Export Bundle(s)	x
Welcome Image: Comparison of the second	 Required plugin found. Version : 730 Click 'Next' to proceed. 	
	Cancel < Back Next	>

Figure 16 Plug-in found Wizard

- 18. Choose the location to save the ISO image. Click OK.
- 19. You are provided with an option to include your own script in the ISO image, or choose to use the default script and proceed with the creation of the image.

Select Destination	~	Would you like to	o include your own script for Bootable ISO?
Select Plugins	~	Example Script :	C:\Program Files (x86)\Dell\Dell Repository Manager v1.8.0\isocreation\isolinux\drm_files \apply bundles.sh
Select Custom Script Select Deployment Optio	ns	No Yes	
Select Repository		- Select Script	
Name and Description	_	Replace de de	fault script
Summary and Finish	_		replacing the default script, your script will be named es.sh' on the bootable ISO)
		O Append to	default script
		Your own scrip	ot:
			Browse
		Update options	;
		Force scrip	ts to update regardless of version or date.
			Cancel < Back Next >

Figure 17 Selecting the custom bundle script

20. Add a custom BASH script to run system configuration commands by either replacing the default script or appending the custom script to the default script. This provides additional options to configure the system settings, in addition to running system updates.

Select Destination	~	Would you like to	o include your own script for Bootable ISO?
Select Plugins	~	Example Script :	C:\Program Files (x86)\Dell\Dell Repository Manager v1.8.0\isocreation\isolinux\drm_files
Select Custom Script			\apply_bundles.sh
Select Deployment Optio	15	○ No ○ Yes	
Select Repository		Select Script —	
Name and Description		Replace de (Note: when	fault script replacing the default script, your script will be named
Summary and Finish			es.sh' on the bootable ISO)
		Append to	default script
		Your own scrip	pt:
			Browse
		Update options	;
		Force scrip	ts to update regardless of version or date.

Figure 18 Adding a custom BASH script

Select Script > Option 1 – Replace Default script

Make your customized script the same format as the script *apply_bundles.sh*, which is obtained from the DellTM Repository Manager Install location.

Select Script > Option 2 - Append to default script

You have the flexibility to append the customized script for system configuration to achieve both or either of the following:

- Uniform configuration for all systems in the bootable iso
- Exclusive configuration for individual systems in the bootable iso

Provide a sample script of the format below:

#!/bin/bash # This is a Sample Script # Below path is required for Dell Deployment Toolkit Commands to run export PATH=\$PATH:/opt/dell/toolkit/bin export LD_LIBRARY_PATH=\$PATH:/opt/dell/toolkit/lib:/opt/lsi name=`syscfg --sysname | cut -f 2 -d\= `; # This would return the Model Name & Number of the System its currently Running on case "\$name" in "PowerEdge R810") # Mention the Server Model Name & Number for which the following settings will be applied exclusively raidcfg -ctrl; # Dell Deployment Toolkit Command syscfg --numlock=on;; # Dell Deployment Toolkit Command "PowerEdge R715") # Mention the Server Model Name & Number for which the following settings will be applied exclusively syscfg -bootsequence=3,2,1; # Dell Deployment Toolkit Command racadm -r 10.94.171.51 -u user_name -p xxxxx getsysinfo;; # Dell Deployment Toolkit Command "PowerEdge 1950") # Mention the Server Model Name & Number for which the following settings will be applied exclusively racadm -r 10.94.171.51 -u root -p calvin getsysinfo # Dell Deployment Toolkit Command raidcfg -ctrl -ac=cvd -c=id -ad=id;; # Dell Deployment Toolkit Command *) # The below settings will be applied to the Systems which are NOT mentioned above - Uniform settings syscfg --numlock=off; # Dell Deployment Toolkit Command racadm -r 10.94.171.51 -u user_name -p xxxxx getsysinfo;; # Dell Deployment Toolkit Command esac exit 0

21. Browse to the location of the script (saved in UNIX format). Click Next.

22. In the Export Summary window (Figure 19), click Finish.

Dell Repository	Manager Export Bundle(s)
Select Destination Select Plugins	Please review the settings below. To complete the export process, click Finish.
Select Custom Script Select Deployment Options	 Selected Bundles: System Bundle (Linux) PEM915 v480 System Bundle (Linux) PER310 v474
Select Repository Name and Description	Destination Properties: Exporting Bundles to ISO
Summary and Finish	ISO Output Directory: C:\Users\sashi_k\Desktop \BootableISO_2013-10-23_19-00-02
	Custom Bundle Script:
	Cancel < Back Finish

Figure 19 Viewing Export Summary

A bootable ISO image will be created. This ISO image uses the Bootable iso Linux Kernel to run the Dell Update Packages. Burn the ISO image to: either a CD or a DVD media depending on the size of the created ISO, or mount the created ISO through the virtual media feature of iDRAC to perform remote updates.

Note: The bootable ISO image created cannot be converted in to a USB key image as this feature is not yet supported.

- If the bootable iso is created using multiple system bundles, all the bundles are displayed on the console when you boot the server through the media. To start running, enter the number corresponding to the bundle and press <ENTER>. For example, if PER200 is the second in the list, press <2> and apply the bundle.
- If the bootable iso is created using a single baseline (a single bundle), execution automatically starts when you boot the server through the media. Figure 20 below shows one of the scenario.

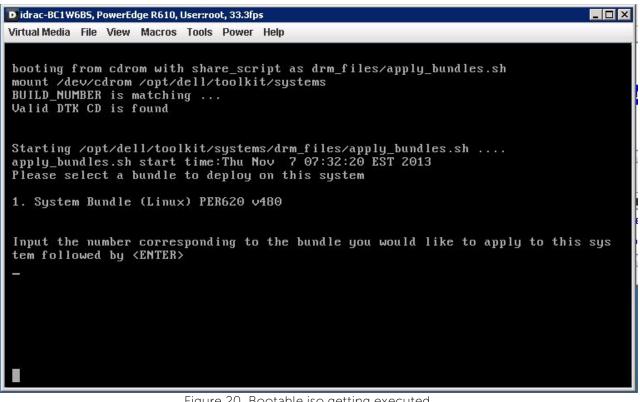


Figure 20 Bootable iso getting executed

Summary

DellTM Repository Manager lets you keep Dell systems up to date in pre-operating system environment. The DellTM Repository Manager documentation is available at:

http://support.dell.com/support/edocs/SOFTWARE/smdrm/

http://www.dell.com/support/Manuals/us/en/555/Product/dell-repository-mangr-v1.8

This document lists in detail the hardware and software requirements for its installation.

Dell Deployment Toolkit documentation is available at: http://support.dell.com/support/edocs/software/dtk

l earn more

Visit <u>Dell.com/PowerEdge</u> for more information about enterprise-class servers from Dell.

Visit <u>http://www.dell.com/support/Manuals/us/en/555/Product/dell-repository-mangr-v1.8</u> for more information about Dell Repository Manager tool.