



Simplifying Blade Server Update with Repository Manager 1.8 and CMC 4.5

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Revisions

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Executive summary

Historically, the process for updating a chassis full of blade servers has been to go to the Dell support site and for each model server in the chassis download all the BIOS & firmware updates. Each of those updates then needed to be individually uploaded to the Chassis Management Controller (CMC) which could then update the blades in the chassis.

Now the latest 1.8 version of Repository Manager can download all the updates into a directory or repository for you. And with a single click to select the target in the CMC 4.5 firmware all these updates can then be applied to the PowerEdge M420/M520/M620/M820 blades in the chassis.

1 Introduction

Managing hardware updates for BIOS, PERC, NIC for individual blades in a chassis is a key task for an IT administrator. To maintain a stable and reliable environment, all the blades in the chassis must be updated.

In an Enterprise environment, this task becomes very complex and time consuming as the IT Administrator needs to update all the blades present in the chassis individually.

This white paper looks at how the Dell PowerEdge M1000e Chassis Management Controller 4.5 firmware integrates with Dell Repository Manager 1.8 to provide a solution that will help IT Administrator in updating all the Dell blades with a single click (1 to many update) with latest BIOS, PERC, NIC from a single network share. This share CIFS (Common Internet File system) or NFS (Network File System) is built with local customized repositories for all the blades connected to the enclosure using Dell Repository Manager catalog.

Using the Export inventory file option in Chassis Management Controller Firmware, you can export the entire inventory of blades along with its components and current firmware versions as an xml file. With this inventory file and with the help of Dell Repository Manager, you can build a custom repository based on the enclosed systems and components available in Dell PowerEdge M1000e modular blade enclosure.

The benefits of Dell Repository Manager and Dell PowerEdge M1000e modular chassis integration are:

- Enables you to perform multiple component updates for single server or multiple component updates for multiple blades using network share update method in Chassis management controller firmware.
- You can schedule the updates at the next reboot or can perform the updates immediately.
- Provides an easy way of tracking the updates by looking at the scheduled jobs status.
- Provides a quick and easy way to build a custom repository for connected systems that you own.
- There is no need to remember the system models and configuration of each individual system to build a custom repository from Dell Online Catalog, available on **ftp.dell.com**. Dell Repository Manager leverages the system inventory data from Dell M1000e modular chassis directly.



- Dell Repository Manager enables you to create a fully customized repository that only includes the update packages for the user system configuration. All redundant updates are filtered out.
- Reduces the size of a custom repository, saves the resources and efforts on managing the repository.
- Enables you to build a repository that contains updates for only out-of-date devices, or a baseline repository that contains updates for all the devices including updates for out-of-date devices as well as any other updates for newer files.
- Enables you to create update bundles for Linux or Windows based on the update mode required.



2 Pre-requisites to update firmware from a directory (repository)

- The target servers must have iDRAC7 with Enterprise licenses
- CMC version must be at version 4.5 or later
- Collect System Inventory on Restart (CSIOR) in Lifecycle controller must be enabled on the servers
- iDRAC7 Version 1.56.55 or later and LC 1.4 or later
- Dell Repository Manager 1.8 or later
- You must have CMC Administrator privileges



3 CMC integration with Dell Repository Manager

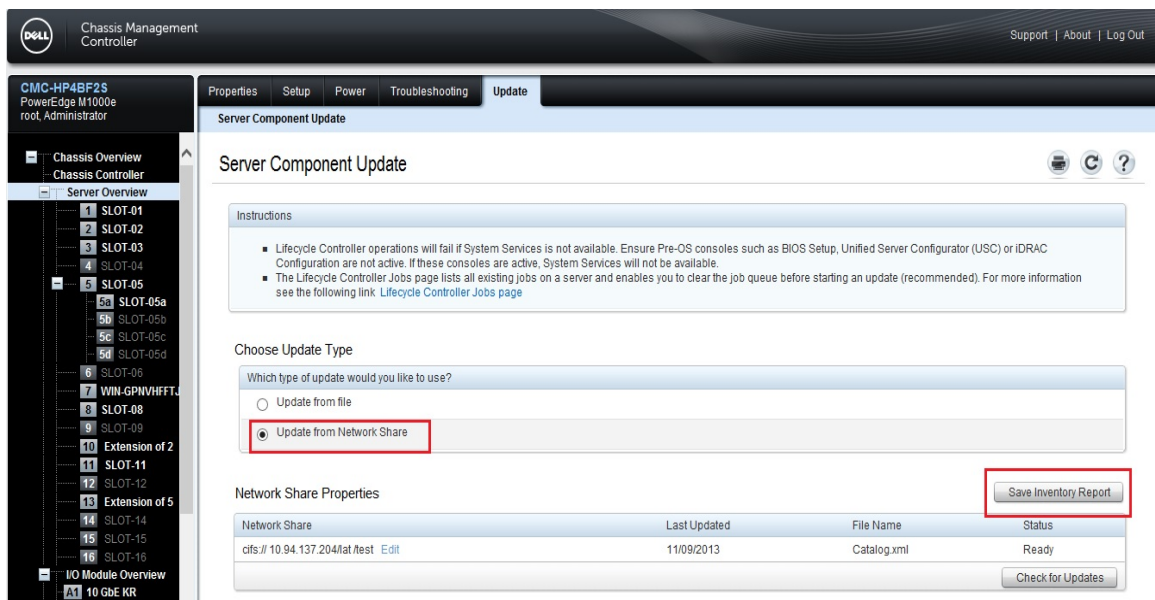
In the existing update option, to update firmware together for all servers in a chassis you must download the firmware individually and select the component (BIOS, LC, IDRAC, RAID, NIC and so on) location. Using the new feature of Firmware Update using Network Share mode you can export the inventory of all the servers in the chassis and provide this as input to Dell Repository Manager (DRM) to create a customized repository of only the servers present in the chassis. DRM takes the inventory of all the components available in the chassis. The customized repository created using the CMC inventory file can be saved to a CIFS/NFS Share from where it can be used by the CMC for firmware update.

3.1 To Export the Inventory File from CMC Web Interface

1. Login to CMC Web interface using Administrator privileges.
2. In the left pane, go to Chassis Overview->Server overview->Update

The Server Component Update page is displayed

3. From the Choose Update Type section, select - **"Update from Network Share"**
4. Click **Save Inventory Report** to export the inventory file (Figure 1)

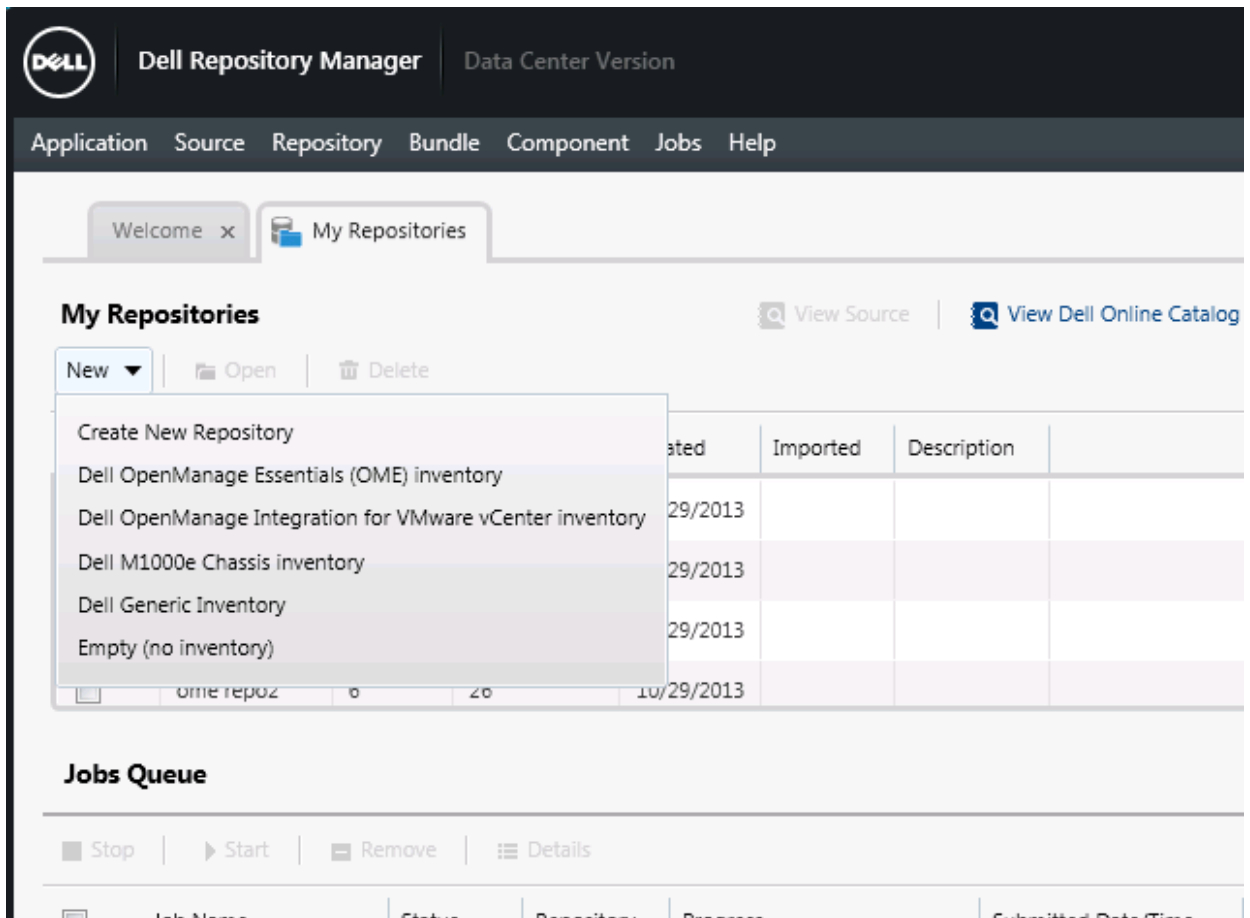


(Figure 1) CMC Chassis inventory page.

5. Save the **inventory.xml** file to the required location

3.2 Creating a Customized Repository Using inventory.xml file and save it to the CIFS/NFS Share

1. Open the Dell Repository Manager Data Center Version installed on Management server
2. To Create a new Dell M1000e Chassis repository in Dell Repository Manager, select **My repostories-> New-> Dell M1000e Chassis inventory** (shown in Figure 2).



(Figure 2) My Repositories screen Dell M1000e Chassis inventory Option.

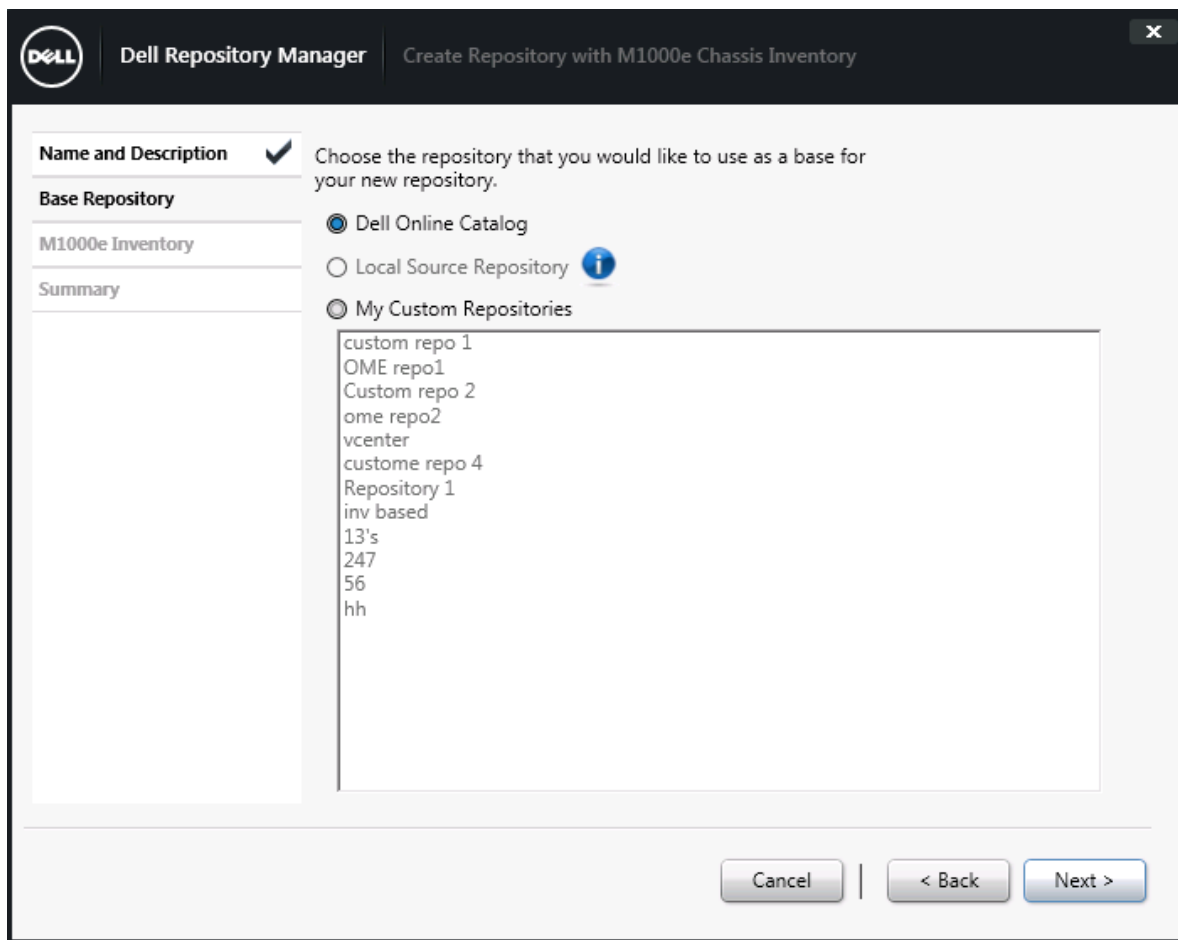
- The Name and description screen is displayed
3. Provide a name and description for the repository and click **Next** (shown in Figure 3)
The Base repository screen is displayed

The screenshot shows the Dell Repository Manager interface. At the top, there's a header with the Dell logo, 'Dell Repository Manager', and 'Create Repository with M1000e Chassis Inventory'. Below this, a sidebar on the left has a 'Name and Description' section with sub-items: 'Base Repository', 'M1000e Inventory', and 'Summary'. The main area is titled 'Provide a name and description (optional) for the new repository.' It contains a 'Name:' label followed by a text input field containing 'M1000e repo', and a 'Description:' label followed by a large empty text area. At the bottom right, there are three buttons: 'Cancel', '< Back', and 'Next >'.

(Figure 3) Naming the Repository

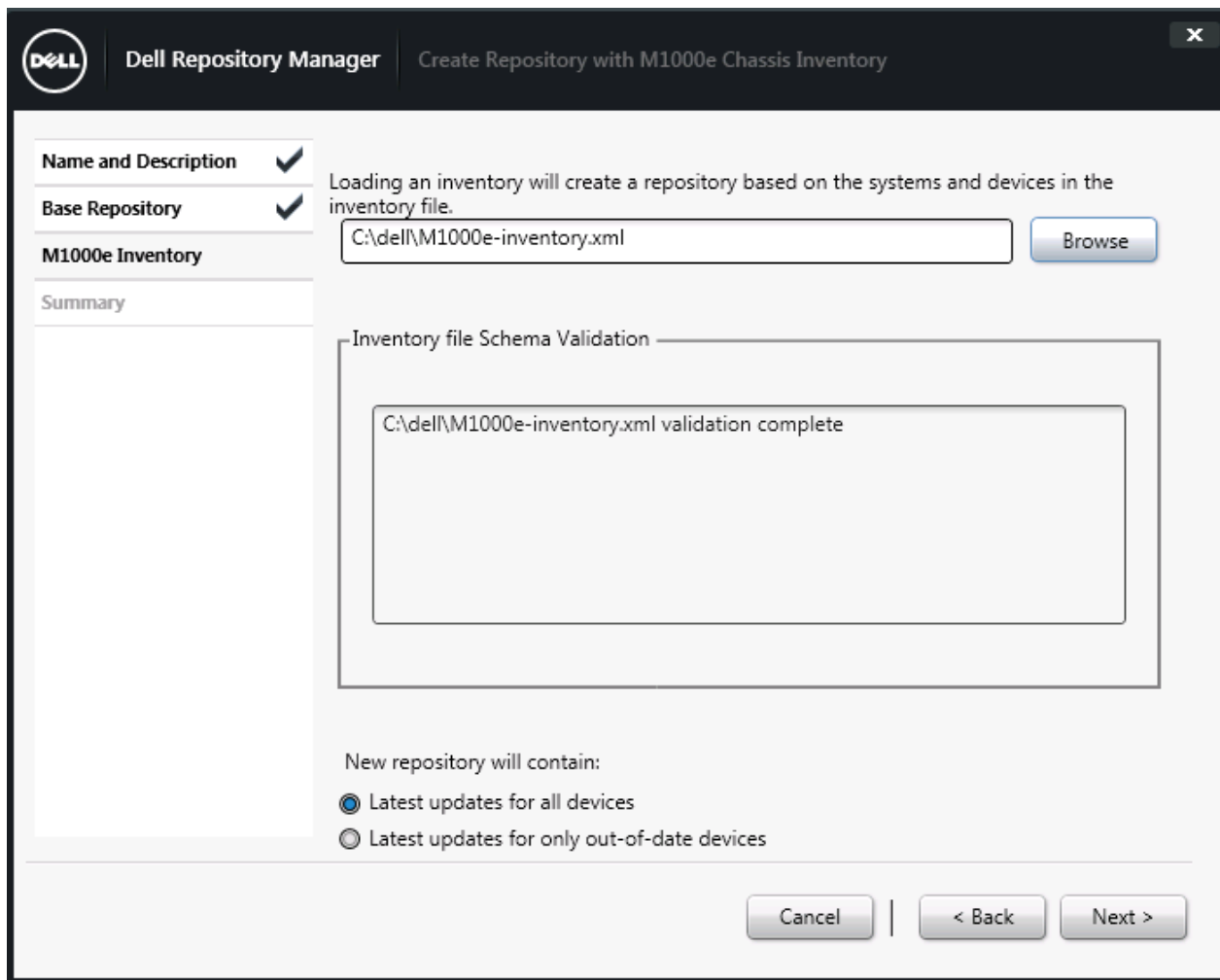
4. Select a source repository that contains the updates from which the new repository must be built(shown in Figure 4).
 - i. Dell Online Catalog – This is the online Dell FTP repository or a Local Source Repository(if you have stored a copy of the Dell Online Catalog locally)
 - ii. My Custom Repositories – This is the custom repository stored on the local disk or network location.

The M1000e inventory screen is displayed



(Figure 4) Source Repository Selections

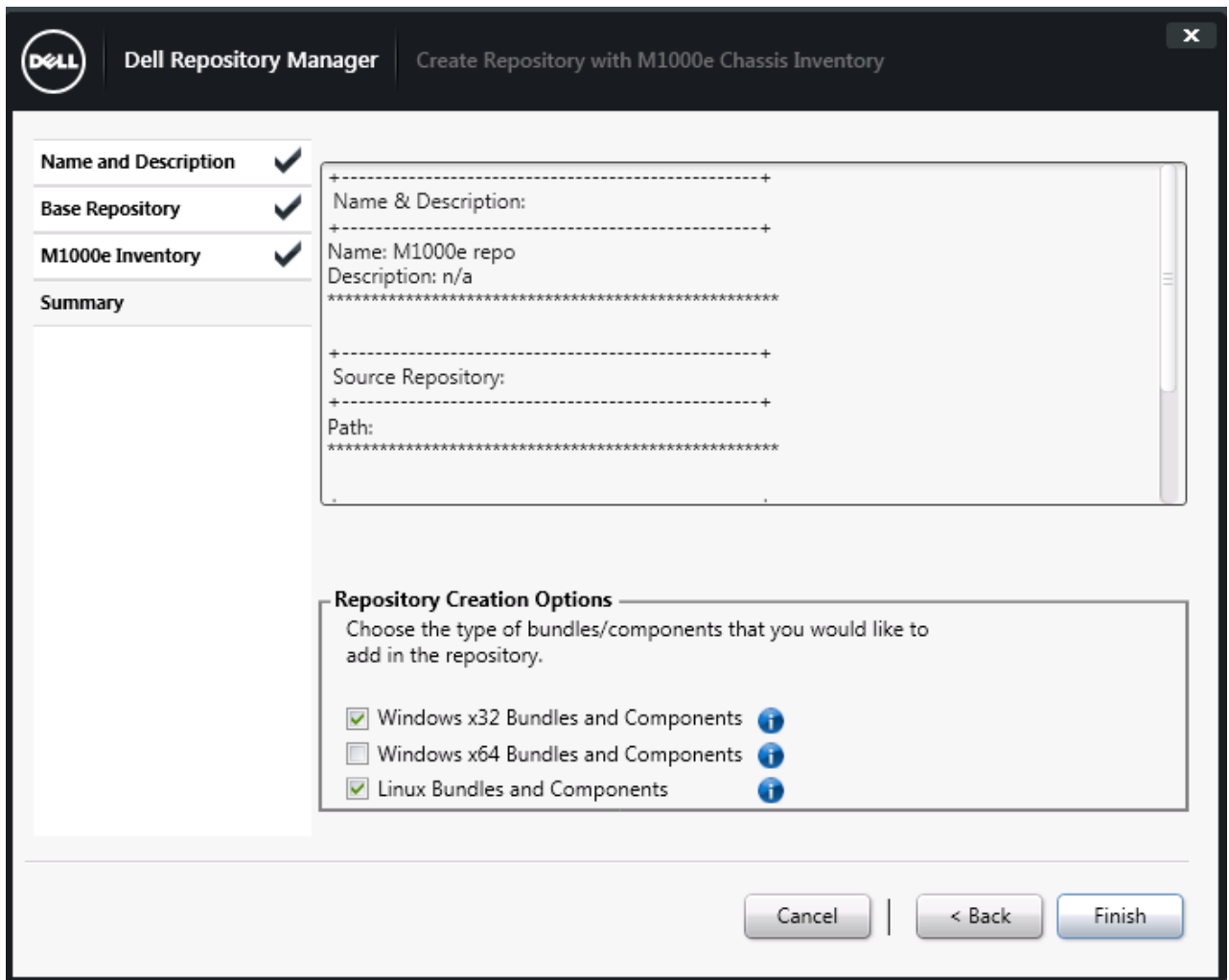
5. Provide the path to the **inventory.xml** file created from M1000e CMC Web interface to the wizard. This validates the xml file and verifies the schema.
6. Select the new repository options to build the repository(shown in Figure 5)
 - Latest updates for all devices – Enables you to select updates that match the device regardless of its version
 - Latest updates for only out-of- date devices- Enables you to select update for only out-of- date devices



(Figure 5) Provide M1000e inventory file for repository creation.

7. Click Next

The Summary screen is displayed with the selections made for creating the repository (shown in Figure 6)



(Figure 6) Wizard showing summary of Dell M1000e Chassis inventory wizard

8. Select the Repository Creation options.
 - i. This allows us to create the repository with the type of bundles/components selected.
 - ii. CMC/IDRAC7 only uses 32 bit Windows DUPs for Blade server update feature . Make sure to select the Windows 32 bit bundles to use this feature.
 - iii. By default Dell Repository Manager will create bundles for each 32 bit Windows and Linux. Microsoft Windows Server updates are available in both 32bit and 64bit versions. If you only want one to show up, you can deselect the one you do not want to be created.
 - iv. It is recommended that you select the 32 bit Bundles as they contain all the updates available, and can be deployed on 64 bit versions of Microsoft Windows server. The exception is if you are using Microsoft Windows 2012 Core Edition, which can only use 64 bit update files.

- v. By default, x32 and Linux are selected as shown in Summary step (Figure 6).
 - vi. After making the selections, it takes time to create the repository based on the number of servers and the size of the source repository.
9. After a successful operation, a repository is created as shown in Figure 10. The repository contains bundles for each server available in Dell M1000e Chassis and also non-OS specific bundle for Chassis component updates. Updates for the same server models are grouped under the same bundle.

3.3 Viewing and refreshing repositories created from inventory

After creating a repository from inventory available in Dell OpenManage there can be changes to inventory data. If that is exported and updated the same xml file with the latest changes. Dell Repository Manager provides an easy method to refresh an existing repository based on this new inventory

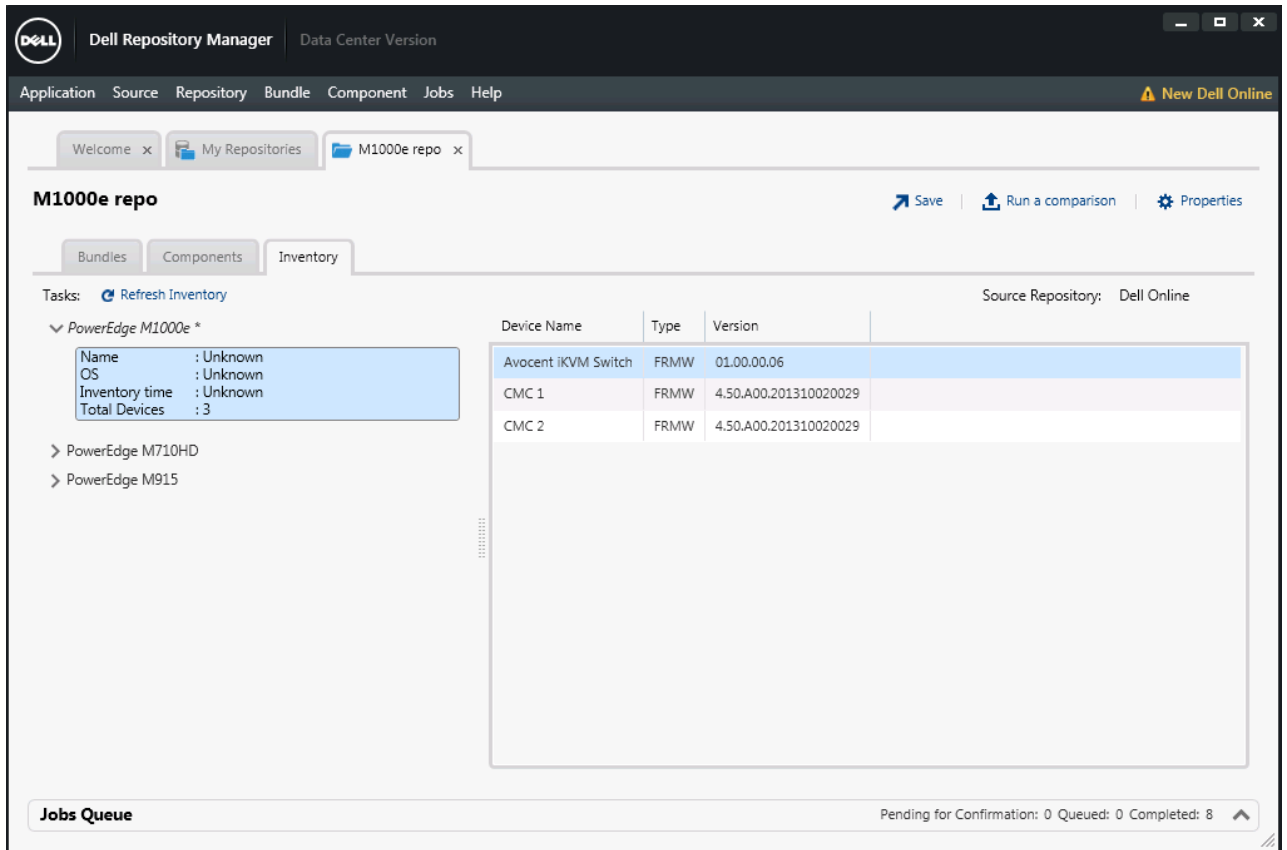
3.3.1 Loading the repository and selecting the Refresh function

1. After loading the repository created using inventory, select the Inventory menu and click Refresh Inventory (). This performs a refresh operation that verifies the inventory xml already loaded and checks for any updates to the same file. The repository is updated with new bundles and components based on the new updates.
2. The previous selections made during repository creation are saved, thereby reducing the effort to go through the wizard again.

3.3.2 Viewing inventory information

Dell Repository Manager also provides a feature to view the inventory information collected from these servers that are grouped under each server model (Figure 8).

Select the Inventory menu in Dell Repository Manager and click Information to bring up a window showing device inventory information. The information presented is what is currently installed on your systems.

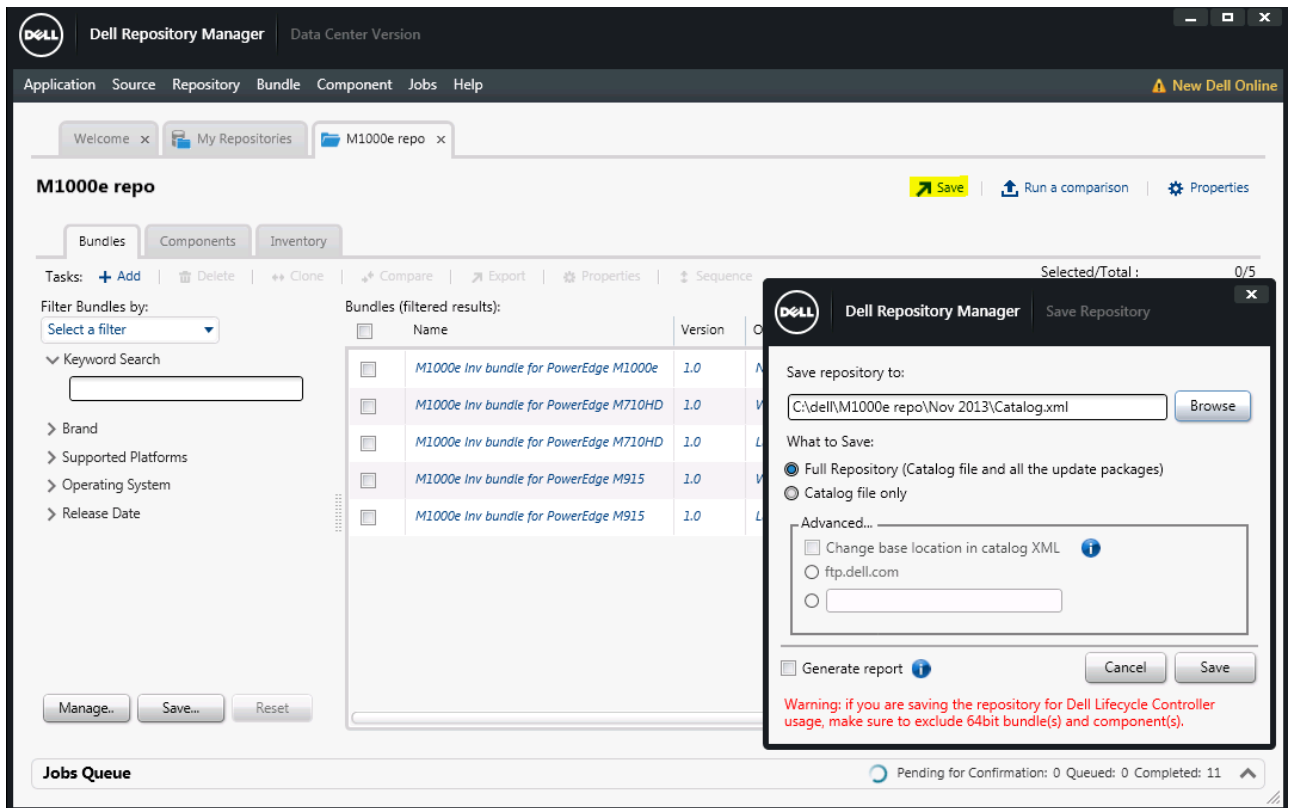


(Figure 8) Inventory view from Dell Repository Manager

3.3.3 Using the repository created from inventory

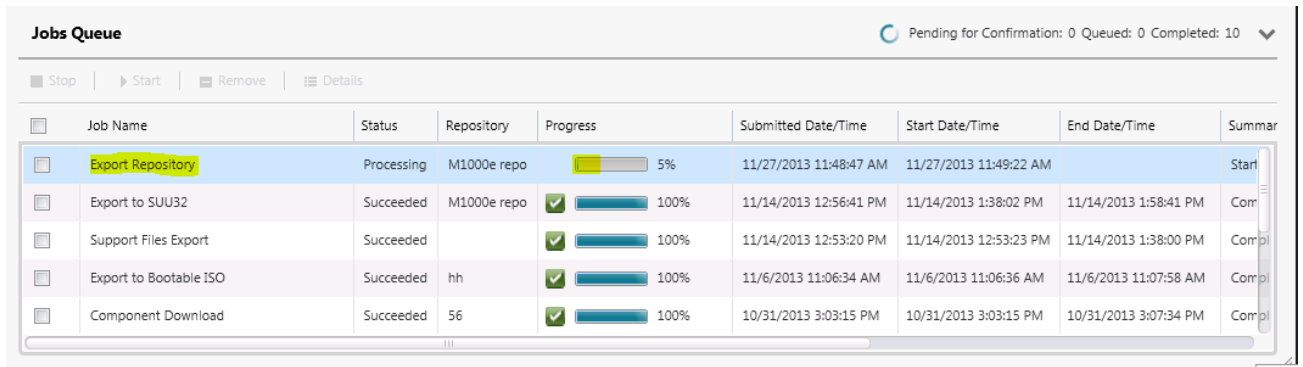
The repository created from the M1000e inventory can be saved as a full repository using the save option available on Dell Repository Manager on to a desired location as shown in Figure 9. Later, the saved repository can be used to update the firmware from CMC console. Alternatively a customized Server Update Utility (SUU) can be created by selecting the Export option and following the tool creation wizard.

Best Practice is to save the file and contents to a network share that CMC console has access to.



(Figure 9) Saving the repository to a desired location

On selecting Ok from the the dialog box, a job gets scheduled as shown in the Figure 10 and the progress can be tracked from the jobs queue accordingly.



(Figure 10) Jobs Queue scheduling of a task

3.4 Saving the CIFS/NFS Share details

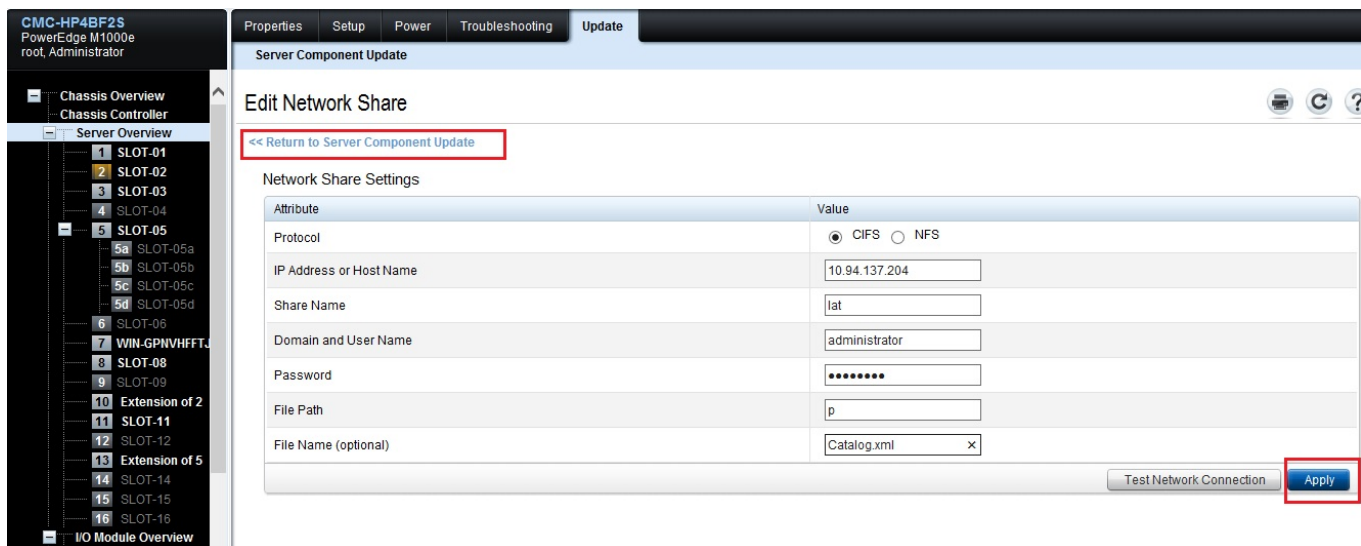
Once the DUPS along with catalog.xml file has been saved to CIFS/NFS share, user can go ahead and start configuring the CIFS/NFS Share details in CMC GUI. Following steps describes about the workflow that helps to save the details.

1. Login to CMC GUI with admin credentials and Navigate to Server Overview>Update>Update from network share.
2. Click on "Edit" link under Network share properties table for giving the network share details(Figure 11)
3. Note: First time this table will be shown as no network share connected.
4. When clicking on "Edit" It opens up a new page where Network share settings can be configured.
5. Select the desired protocol CIFS or NFS
6. Give the IP Address or Hostname of the share
7. Give the share Name, Domain username and password
8. Give the file path where the catalog and dups are residing
9. Give the File name which is by default Catalog.xml
10. Click on Apply to save all the settings.
11. Click on Test Network connection to check whether the share is accessible or not.
12. After saving the settings click on "Return to Server component update" to go to the previous Server component update page

Note:

- a. When NFS Protocol is selected domain and username and password is greyed out. Only Linux NFS Share is currently supported*
- b. File Name field can be left blank only when in case of default name as "Catalog.xml". If it's a different name then new file name has to be mentioned.*
- c. An example of the share ||10.94.137.204|CMC|updates|Catalog.xml , where CMC is the Share name, updates will be File path and File name will be Catalog.xml.*



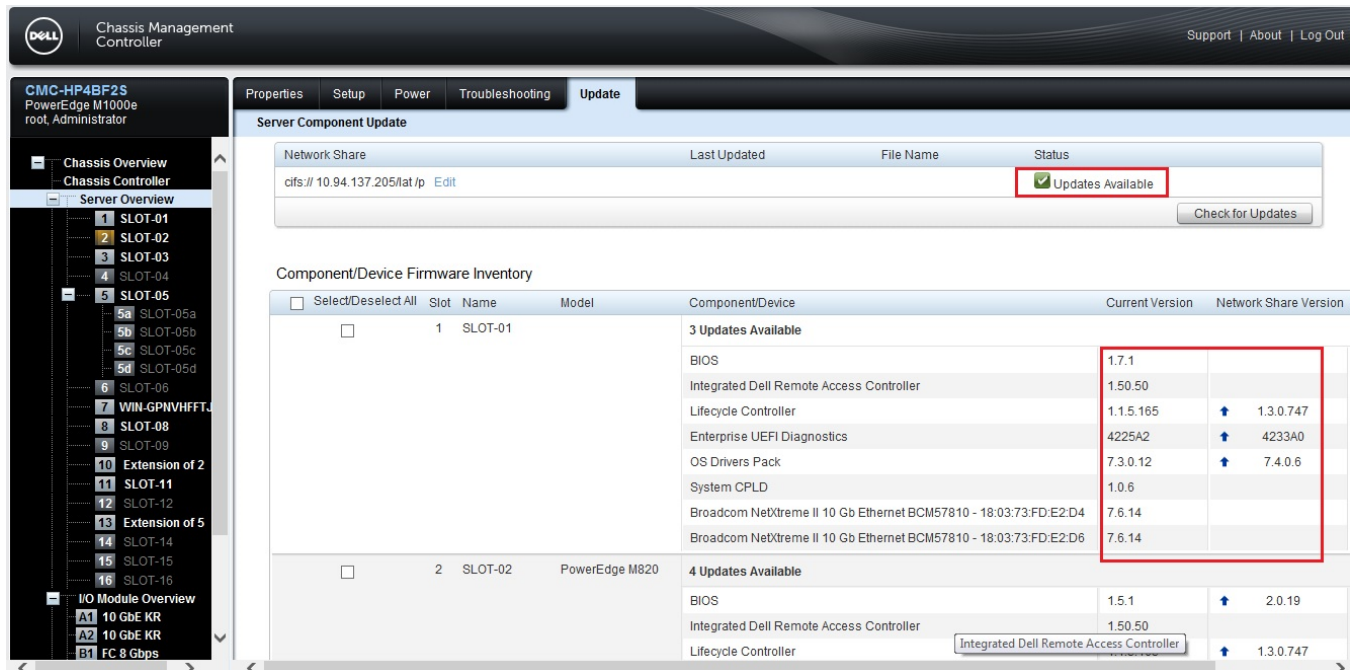


(Figure 11) Updating the CIFS/NFS share details.

3.5 Performing Check for Updates to compare the versions

Check for Updates will compare the server components versions with network share versions and show the list of all components that is available for upgrade, downgrade.

Click on Check for updates; wait till it compares the values for all the updateable servers. Once it's over it will display the updates available for each server as shown in the Figure 12 below.



(Figure 12) Check for updates and updates available

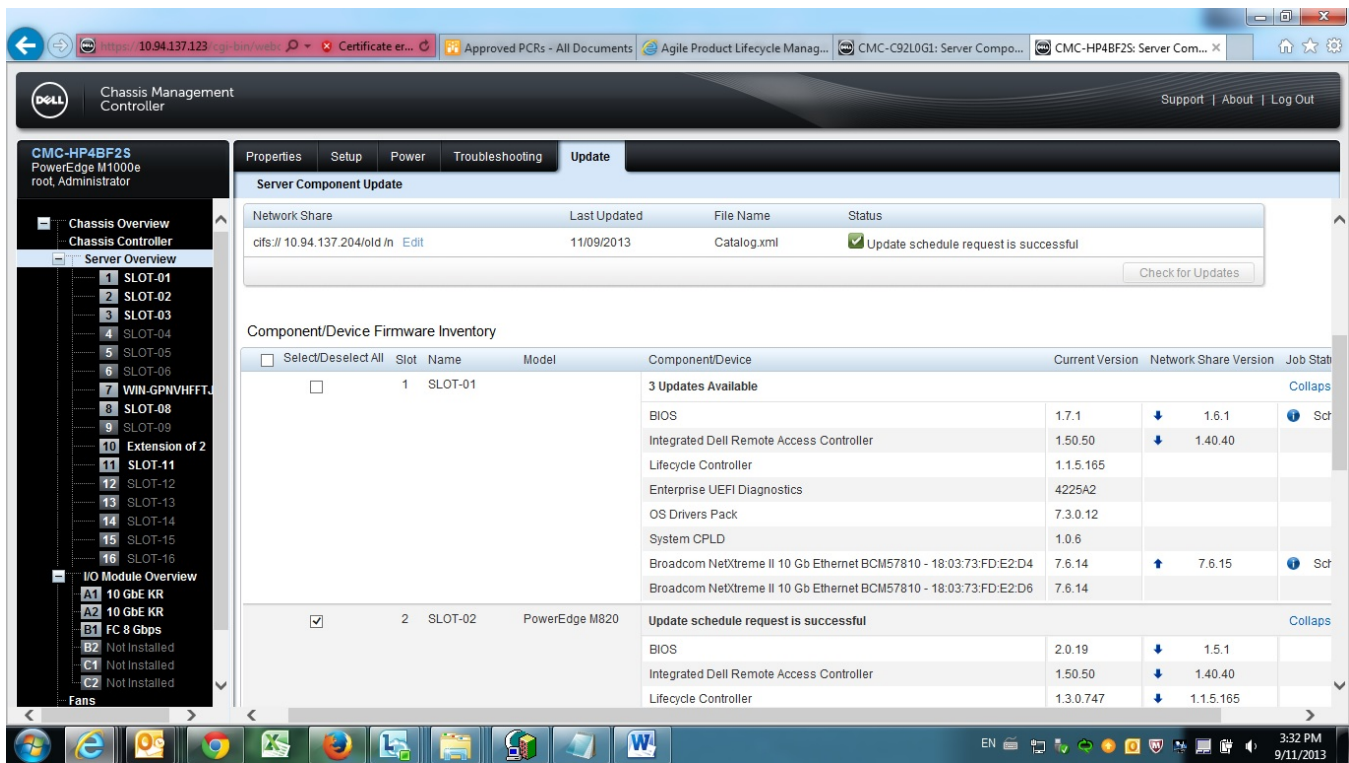
3.6 Performing Network share update using “On Next Reboot & Reboot Now” option.

Once it shows the available updates, user can perform updates using two options

- On Next Reboot:
 - Updates for the server components will happen only on the next reboot of the server even though all the updates are scheduled.
- Reboot Now:
 - Updates for the components will occur immediately and reboot will be initiated for updating those components.

Network share update can be selected for all supported available servers by selecting Select/DeSelect All option. It's possible to update individual servers by selecting the check box available on the left hand side of the server and update.

1. Select the desired servers either by selecting individual servers or by selecting select all option. Traverse down to select “On Next reboot or Reboot Now option” and click on Update to perform the update.
2. It will take few minutes to schedule the updates once its successful it will show as “update scheduled successful” (Figure 13) for the overall status as well as for individual servers.



(Figure 13) Update schedule request successful

3. To know about the status of the updates navigate to Server overview>Troubleshooting>Lifecycle controller jobs.
4. Update will be successful once all the jobs for all the components show the status as completed.
5. Job status of any component jobs (scheduled, running or failed) will be shown next to the components under Server component update page.

3.7 Troubleshooting Tips

1. Before starting any server component update job, it's advised to delete existing jobs listed under Server Overview> Troubleshooting> Lifecycle controller jobs.
2. If any job is scheduled for a long time manually check the server console, whether the server is residing in the F1/F2 prompt or in POST State.
3. Cannot connect to repository will come if repository cannot be mounted properly.

Summary

Dell Repository Manager works along with Dell M1000e chassis to provide an easy method for creating and maintaining repositories based on the inventory available with this.

Learn More:

Visit www.delltechcenter.com/repositorymanager for more information about usage on Dell Repository Manager tool.

Visit <http://en.community.dell.com/techcenter/systems-management/w/wiki/4767.cmc-for-m1000e.aspx> for more information about usage on CMC for Dell M1000e.

Visit <http://www.dell.com/support/drivers/us/en/04/Product/poweredge-m1000e> to download latest CMC Firmware

