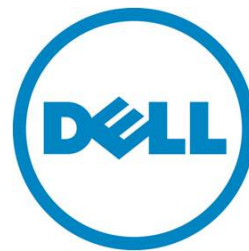

Lifecycle Controller Platform Update/Firmware Update in Dell PowerEdge 12th Generation Servers

This Dell Technical White Paper provides detailed information about the capabilities of Lifecycle Controller to perform firmware/platform updates on Dell's 12th generation servers.

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Contents

Introduction	4
About Platform/Firmware Update.....	5
Platform/Firmware Update Methods.....	6
Using FTP Server	6
Using Non-Proxy FTP Server.....	6
Using Proxy FTP Server.....	12
Using a Local Drive.....	16
Using a DVD.....	16
Using a USB Drive	21
Creating a USB Drive Repository.....	25
Using a Network Share (CIFS or NFS).....	26
Creating the Local CIFS or NFS Share Repository.....	31
Using Single Component Update	31
FTP	31
Local Drive (CD/DVD/USB Drive).....	33
Network Share (CIFS and NFS).....	36
Roll Back to Earlier Firmware Version	40
View Current Version	44
Testing Network Connectivity	45
Checking the Signature	48
Catalog on FTP Server	48
Single Component DUPs.....	50
Firmware Update Mechanism	51
Trusted Platform/Firmware Module Warning.....	53
Using Dell Repository Manager	56
Saving the Repository Using DRM	56

Introduction

Lifecycle Controller allows an IT administrator to perform platform/firmware updates and roll backs, and view existing firmware versions even if the operating system is not installed or running. Using Lifecycle Controller, the system can be updated using the repositories accessible through FTP or located on a locally attached USB drive, DVD or network share.

After selecting the update repository, Lifecycle Controller automatically detects the applicable update. Similarly, Lifecycle Controller can also roll back the component firmware to the previous firmware version.

The Platform/Firmware Update feature provides the following benefits:

- A simplified system management experience and greater standardization. The update process operates from a single point in the pre-OS UEFI environment that works on all supported servers.
- A secure process, the system and data are protected through multiple layers of security validation.

Reduced downtime - The number of reboots is minimized during the update process. Further, since the update process runs in the UEFI environment, the boot time on the system is reduced, eliminating the need to load a running operating system.

Supported Components the following table lists the components that are supported through the Platform/Firmware Update feature.

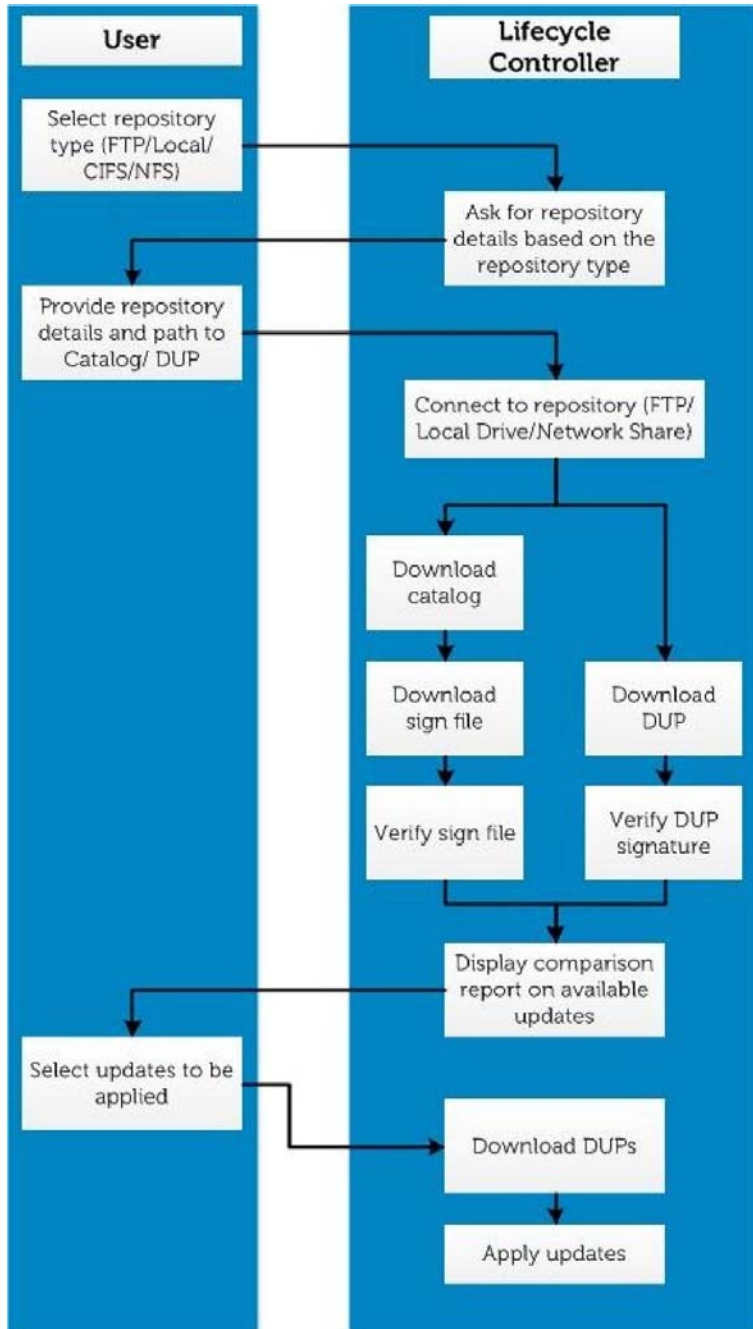
Table 1. Platform/Firmware Update – Supported Components

Component Name	Update (Yes/No)	Rollback (Yes/No)	Reboot (Yes/No)
Lifecycle Controller	Yes	No	Yes
OS Driver Pack	Yes	No	No
Diagnostics	Yes	No	No
BIOS	Yes	Yes	Yes
RAID Controller	Yes	Yes	Yes
Backplane	Yes	Yes	Yes
Enclosure	Yes	Yes	Yes
NIC	Yes	Yes	Yes
iDRAC	Yes	Yes	Yes
Power Supply	Yes	Yes	Yes
CPLD	Yes	No	Yes

About Platform/Firmware Update

The following figure provides a snapshot of the Platform/Firmware Update process.

Figure 1. Platform/Firmware Update Snapshot



Platform/Firmware Update Methods

The following table lists the various methods of performing Platform/Firmware Update.

Table 2. Platform/Firmware Update Methods

FTP	
Non-proxy (Dell, Internal, or Service Provider)	Proxy (Dell, Internal, or Service Provider)
Local Drive (SUU DVD or USB Drive)	
Virtual Console (Mapped on Client)	Attached Locally
Network Share (CIFS or NFS)	

Using FTP Server

Lifecycle Controller provides options to update a server using the latest firmware available on the Dell FTP server or on an internal FTP server.

Using Non-Proxy FTP Server

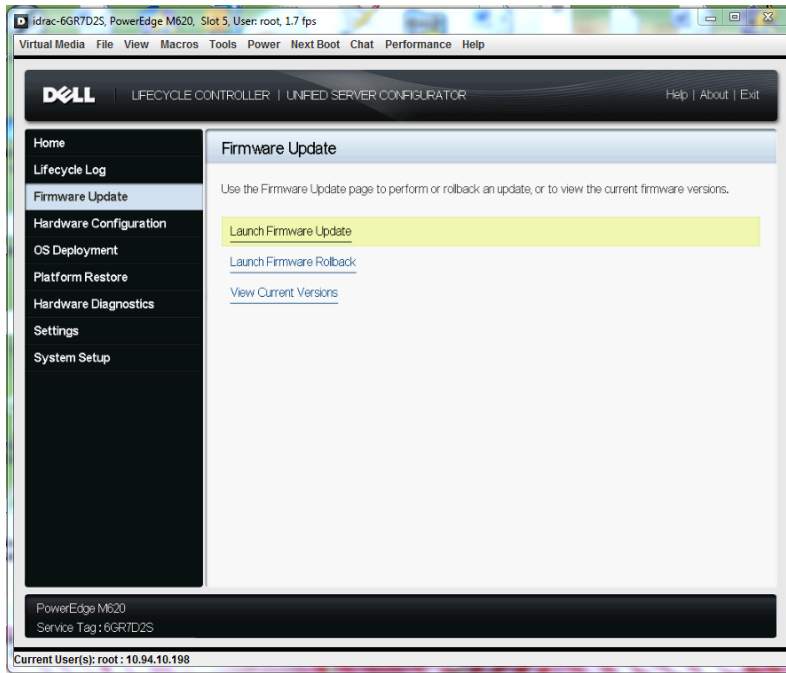
Lifecycle Controller can access the latest firmware from ftp.dell.com. Lifecycle Controller downloads the DUPs from this location to perform Platform/Firmware Update. Before performing an update, make sure the following prerequisites are met:

- The network settings are configured (**Lifecycle Controller Settings** → **Network Settings**).
- The updates are downloaded using the Dell Repository Manager, and the repository is created on an internal FTP server.

To update the platform/firmware using Dell FTP, internal, or service provider’s FTP server:

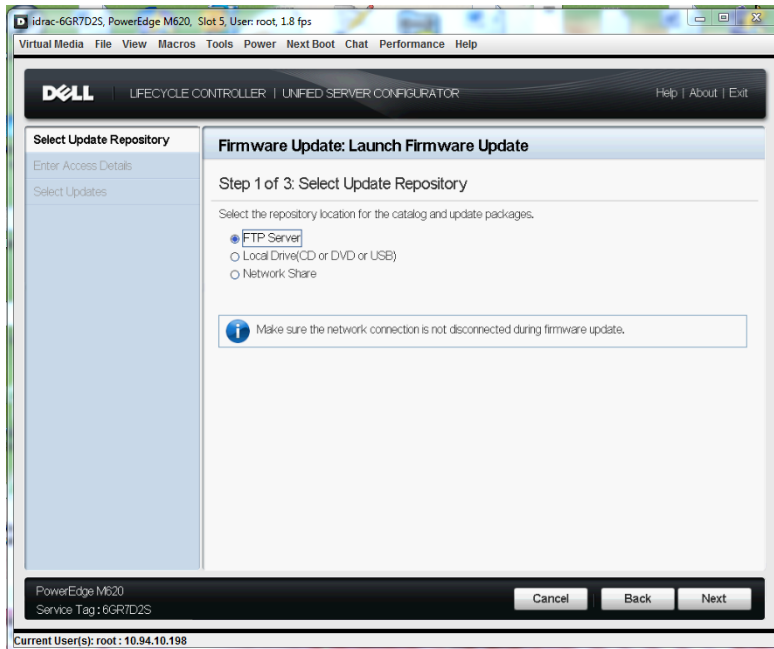
1. Start Lifecycle Controller: Press <F10> within 10 seconds after the Dell logo is displayed.
2. Click **Firmware Update** → **Launch Firmware Update**.

Figure 2. Select Firmware Update



The **Select Update Repository** page is displayed.

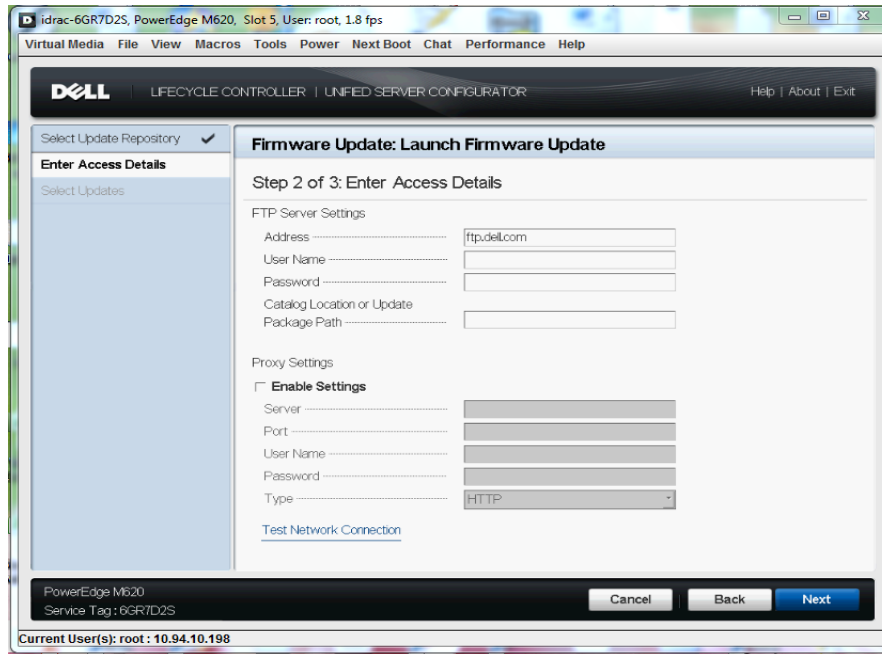
Figure 3. Select Update Repository



3. Select **FTP Server** as the source location, and then click **Next**.

The **Enter Access Details** page is displayed.

Figure 4. Enter Access Details



4. In the **Address** box, type the host name or IP address of the FTP server, and then click **Next**.

- Dell FTP Server (<ftp.dell.com>)
- Internal or service provider's FTP server (contact your system administrator or service provider for the information).

5. The latest firmware is downloaded from the Dell FTP server, internal FTP server, or service provider's FTP server.
- The Select Updates page is displayed.

Figure 5. Select Updates - FTP

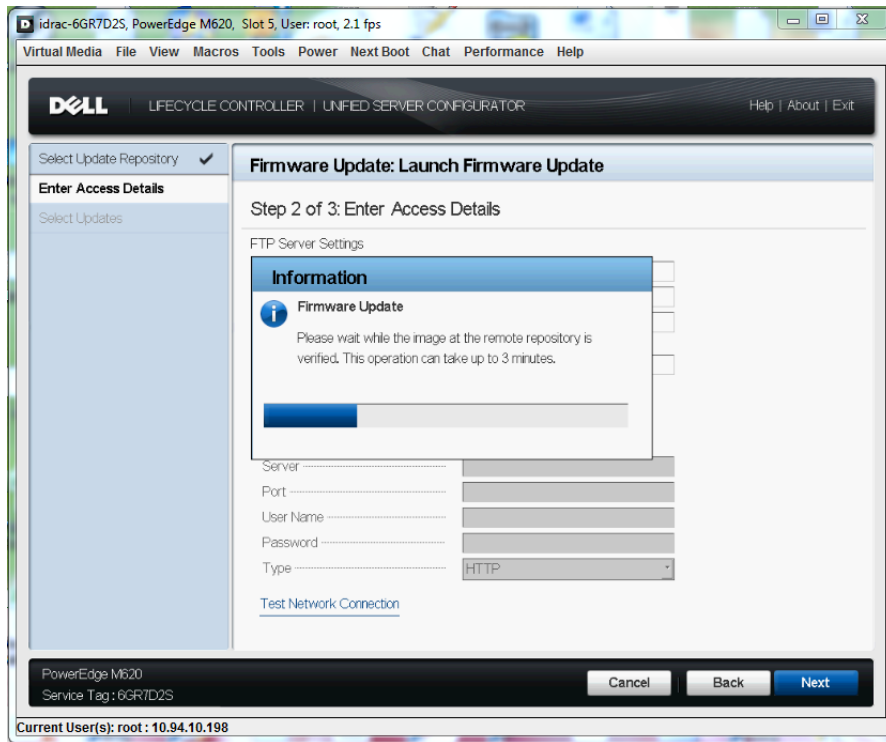


Figure 6. Connecting to FTP

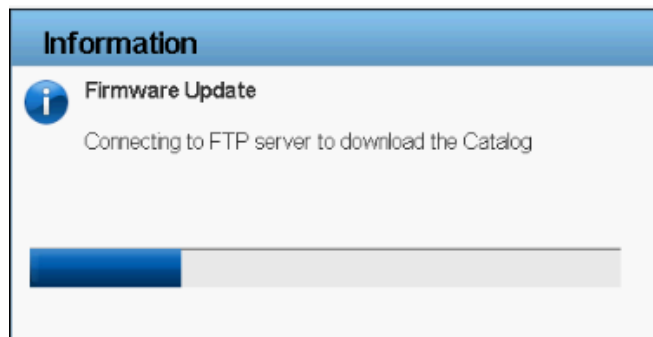
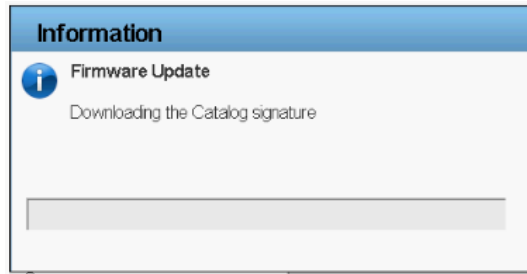
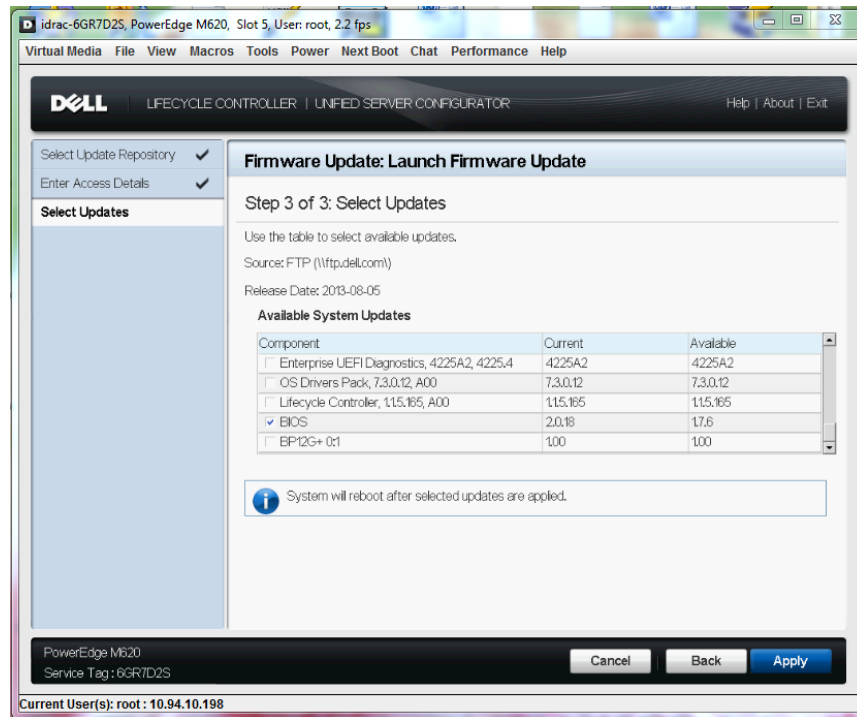


Figure 7. Downloading Catalog Signature



5. For a component, compare the currently installed firmware version and the later version under the **Current** and **Available** columns.

Figure 8. Components (current and available version)



6. Select the required components.

NOTE: By default, Lifecycle Controller selects the components for which a later version is available.

7. Click **Apply**.

After the update process is complete, the system restarts.

NOTE: When applying more than one update, the system may need to restart between updates. In this case, the system starts directly into Lifecycle Controller and automatically continues the update process.

NOTE: If the iDRAC firmware update is interrupted for any reason, wait for about 30 minutes before updating another firmware.

NOTE: Do not perform an AC power cycle during the update process. However, if the system is turned off before the update process is complete, a message `Lifecycle Controller update required` may be displayed during Power-On Self-Test (POST). In such cases, use the LC Repair Package to repair Lifecycle Controller. For more information, see the *Lifecycle Controller User's Guide*.

Using Proxy FTP Server

Lifecycle Controller can be used to perform updates with firmware available at ftp.dell.com, or by using an internal, or service provider's FTP server, when you are connected to the Internet through a proxy server.

Before performing the update, make sure the following prerequisites are met:

- Network settings are configured (**Lifecycle Controller Settings** → **Network Settings**).
- Updates are downloaded using the Dell Repository Manager and the repository is created on an internal FTP server.
- The proxy server supports either HTTP or SOCKS4 protocols.
- Information related to proxy server such as IP address or host name of the proxy server, login credentials, and the port number are readily available.

To update the platform/firmware using the Dell FTP server:

1. Start Lifecycle Controller. Press <F10> within 10 seconds after the Dell logo is displayed during system start.
2. Click **Firmware Update** → **Launch Firmware Update**.
The **Select Update Repository** page is displayed.

Figure 9. Select Update Repository

3. Select FTP as the source location, and then click **Next**.

The **Enter Access Details** page is displayed.

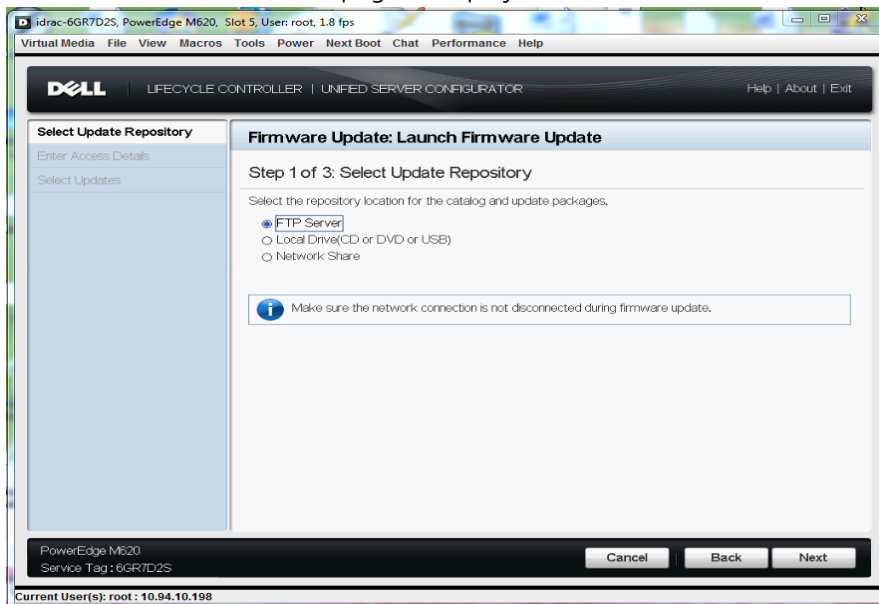
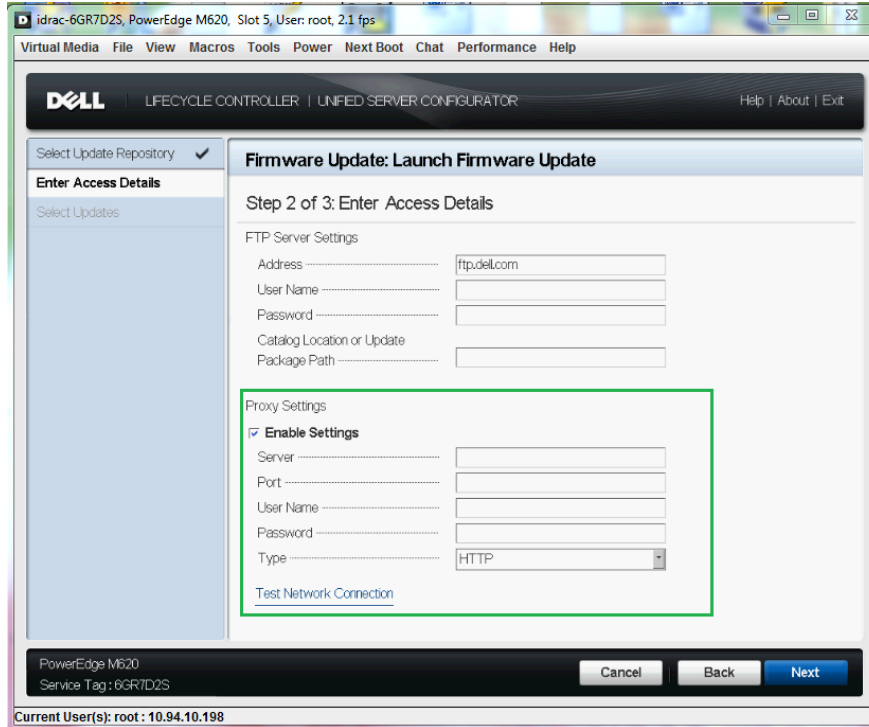


Figure 10. Enter Access Details



4. In the **Address** box, type the host name or IP address of the FTP server.
 - Dell FTP Server (ftp.dell.com)
 - Internal or service provider's FTP server (for more information, contact your system administrator or service provider).
6. Type the proxy server credentials, and then click **Next**.

The latest firmware is downloaded from the Dell FTP server, internal FTP server, or service provider's FTP server,
The **Select Updates** page is displayed.

NOTE: Click **Test Network Connection** to check the network connectivity between Lifecycle Controller and the proxy server. For more information, see [Testing Network Connectivity](#).

Figure 11. Select Updates - FTP

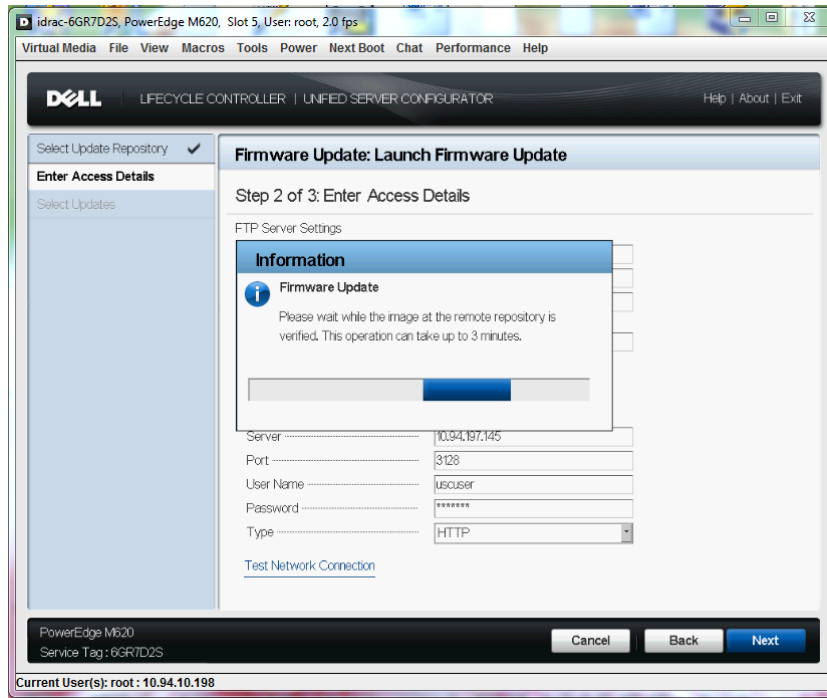


Figure 12. Connecting to FTP

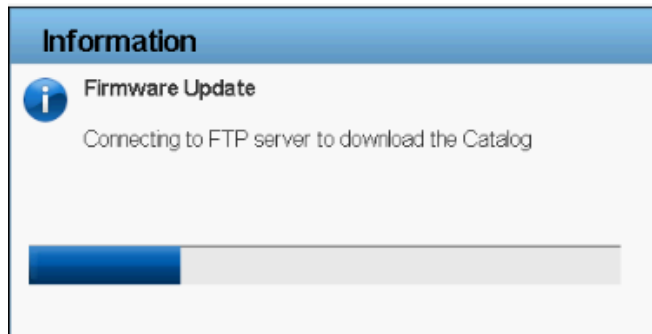


Figure 13. Downloading Catalog Signature

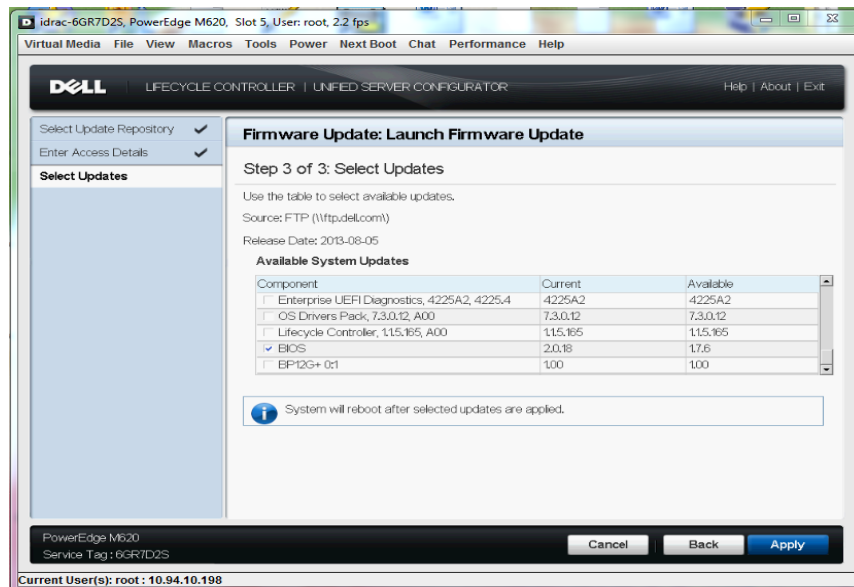


Figure 14. Verifying Catalog Signature



6. For a component, compare the currently installed firmware version and the later version under the Current and Available columns.

Figure 15. Components (Current and Available Version)



7. Select the required components.

NOTE: By default, Lifecycle Controller selects the components for which a later version is available.

8. Click **Apply**.

After the update process is complete, the system restarts.

NOTE: When applying more than one update, the system may need to restart between updates. In this case, the system starts directly into Lifecycle Controller and automatically continues the update process.

NOTE: If the iDRAC firmware update is interrupted for any reason, wait for about 30 minutes before attempting to update another firmware.

Using a Local Drive

Lifecycle Controller allows you to perform Firmware Updates using locally available DVDs or USBs, or by using Virtual Media. This flexibility improves the efficiency of the update process when there is heavy network traffic. After selecting the update repository, Lifecycle Controller automatically detects any necessary updates and then performs those updates either on components you specifically select, or on all components Lifecycle Controller has identified by default.

Using a DVD

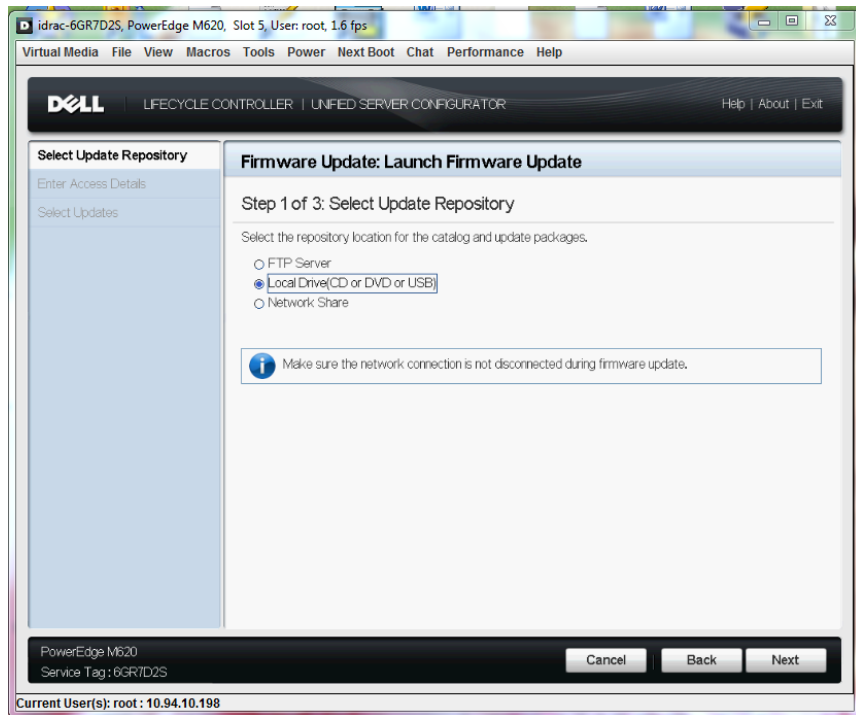
Use either Server Update Utility (SUU) DVDs or custom DVDs (SUU ISO downloaded from support.dell.com and written to a DVD) to perform Firmware Updates. The available DVDs are:

- OpenManage SUU DVD to update all the server components such as Lifecycle Controller, Dell Diagnostics, BIOS, Raid Controller, NIC, iDRAC and Power Supply.
- Lifecycle Controller Operating System Driver Packs DVD to update the operating system driver packs. To update using SUU DVDs:

1. Start Lifecycle Controller: Press <F10> within 10 seconds after the Dell logo is displayed
2. Click **Firmware Update Launch Firmware Update**.

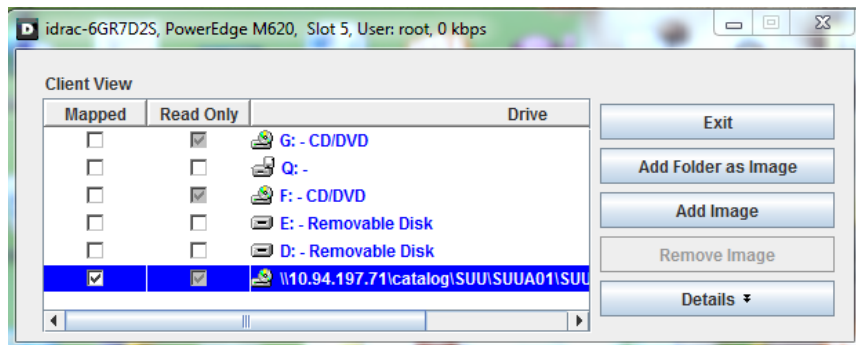
The **Select Update Repository** page is displayed.

Figure 16. Select Update Repository



3. Insert the appropriate DVD in the locally-attached CD/DVD. Alternatively, insert the appropriate DVD in the client and use the Virtual Media feature to access the attached CD/DVD. For more information, see the *iDRAC7 User's Guide*.

Figure 17. DVD Mapped To the Client Drive



4. Select Local Drive (CD/DVD/USB) as the source location, and then click Next.
The Enter Access Details page is displayed. However, if the catalog is not signed, a warning message is displayed. Click Yes to continue.

Figure 18. Enter Access Details

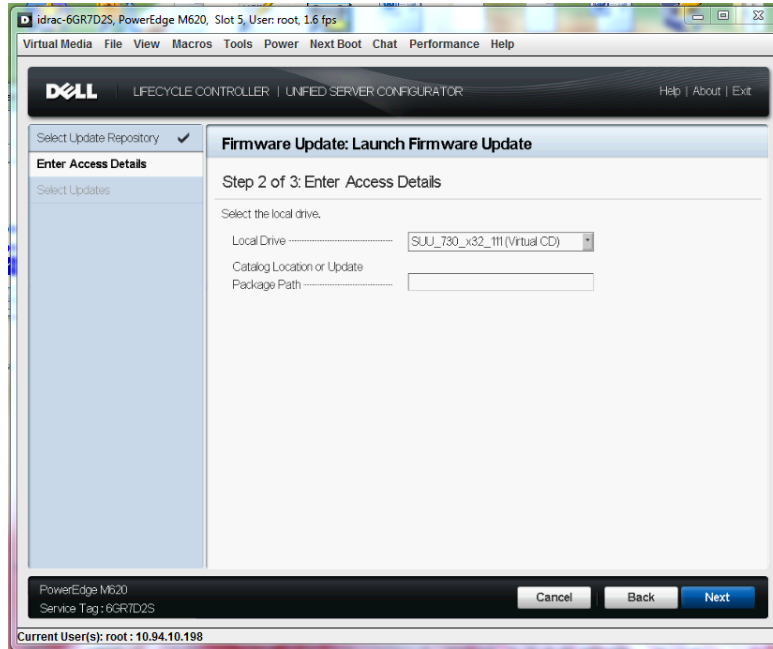


Figure 19. Verifying Selection

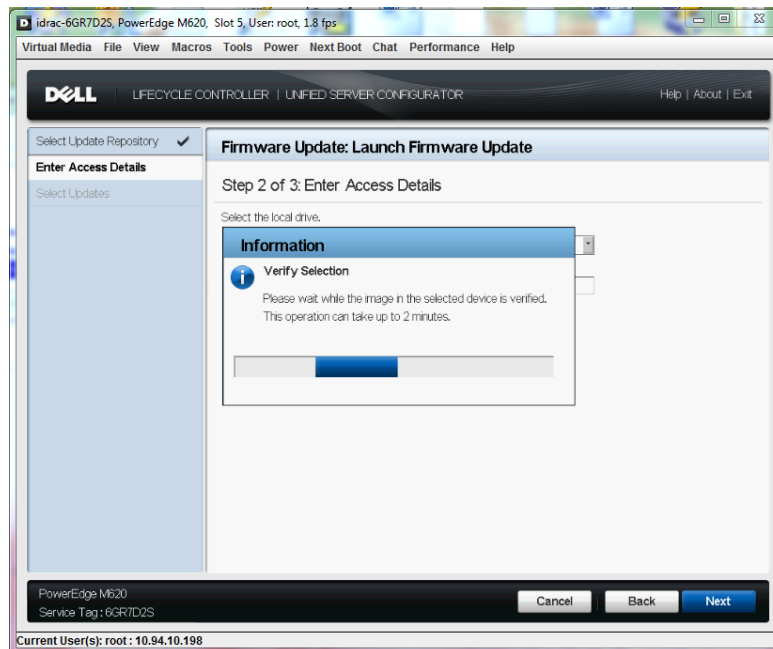
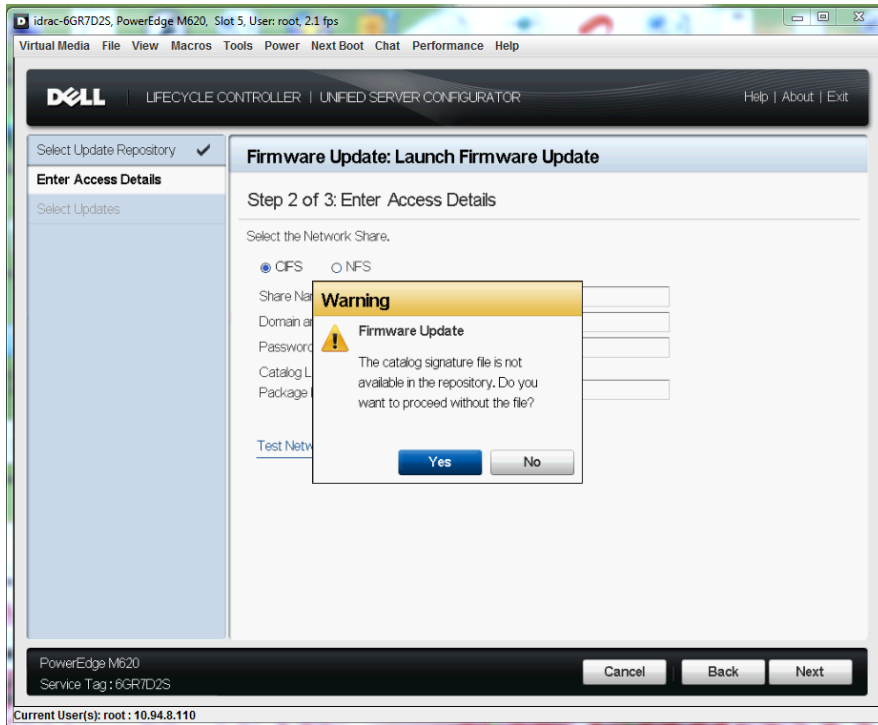


Figure 20. Warning Message



5. From the Local Drive drop-down menu, select the appropriate drive, and then click **Next**.
The **Select Updates** page is displayed.

Figure 21. Select Updates (BIOS)

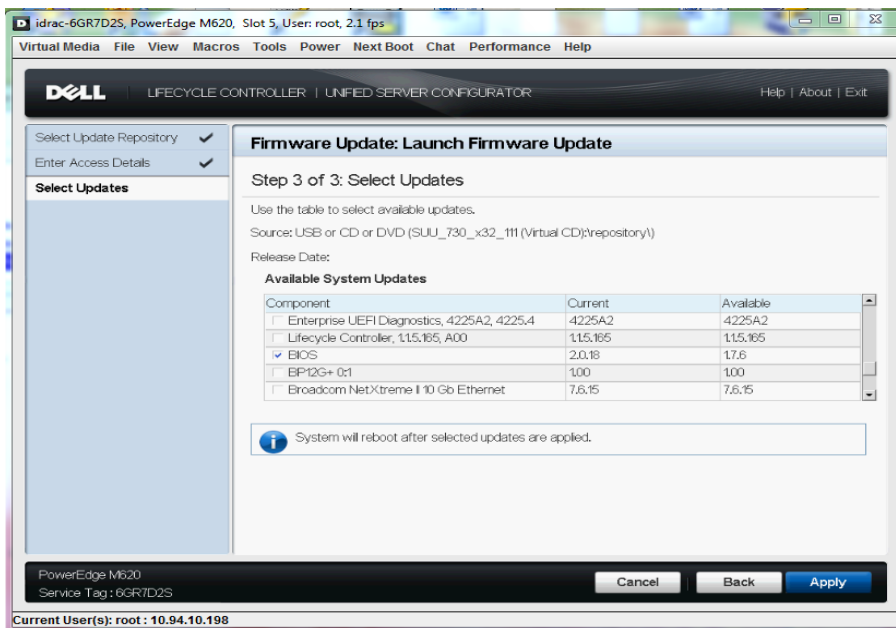
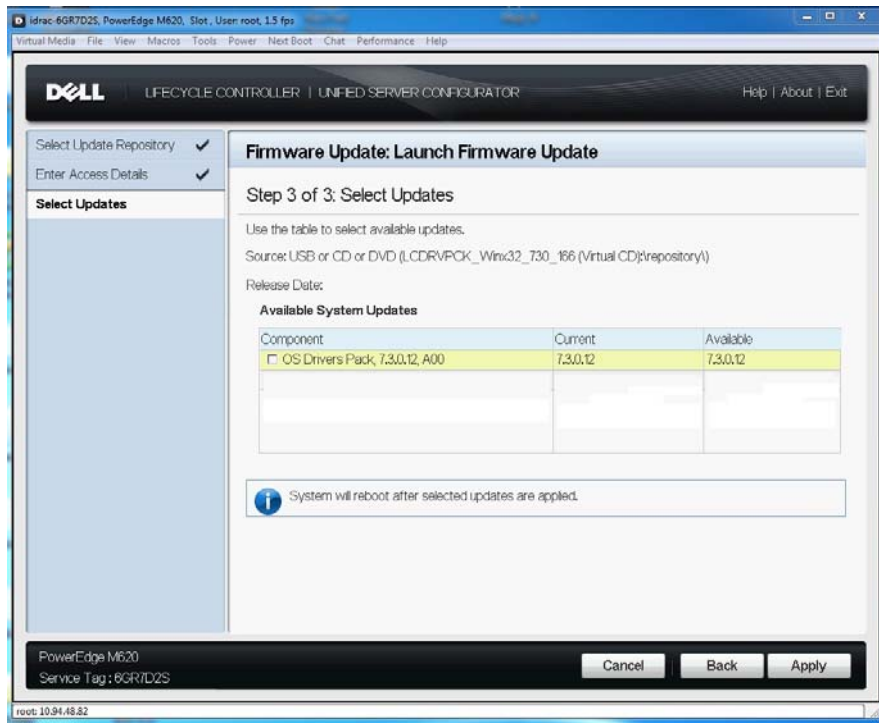


Figure 22. Select Updates (OS Driver Pack)



3. For a component, compare the currently installed firmware version and the later version under the **Current** and **Available** columns and select the required components.

NOTE: By default, Lifecycle Controller selects the components for which a later version is available.

4. Click **Apply**.

After the update process is complete, the system restarts.

NOTE: When applying more than one update, the system may need to restart between updates. In this case, the system starts directly into Lifecycle Controller and automatically continues the update process.

NOTE: If the iDRAC firmware update is interrupted for any reason, wait for about 30 minutes before attempting to update another firmware.

Using a USB Drive

You can download the repository from the SUU DVD or an FTP to a USB drive, and access the updates from this drive. For more information, see *Creating a USB Drive Repository*.

Before you perform the updates, make sure the following pre-requisites are met:

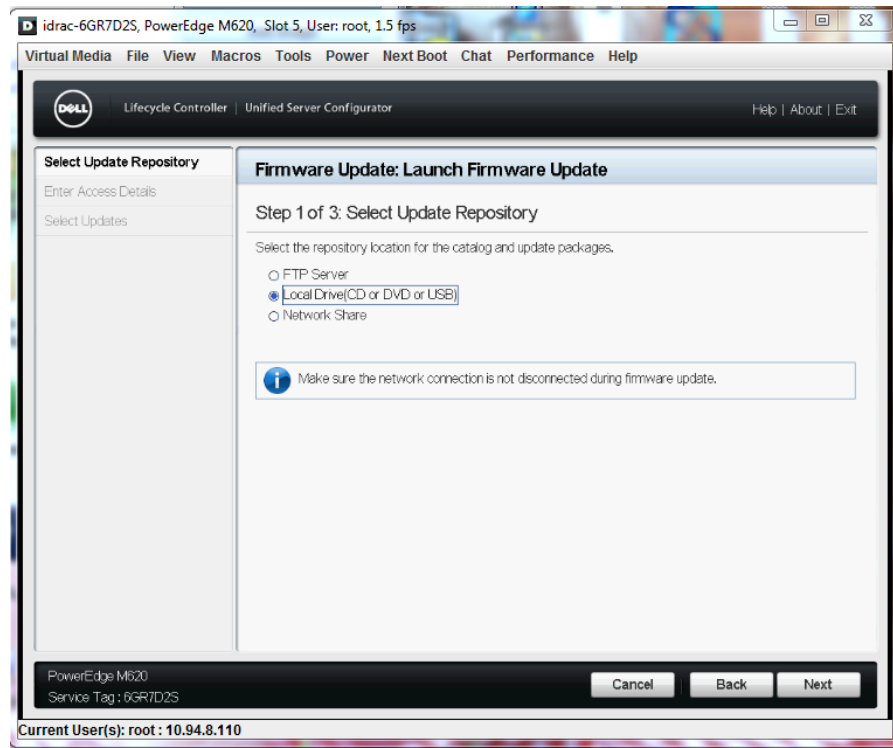
- The updates are downloaded using the Dell Repository Manager and the repository is created on a USB drive.
- **NOTE:** To download the complete repository, make sure that the USB drive has more than 8 GB of free memory space.
- Connect the USB drive to the system.

To update the platform/firmware using a USB drive:

1. Start Lifecycle Controller: Press <F10> within 10 seconds after the Dell logo is displayed
2. Click **Firmware Update** → **Launch Firmware Update**.

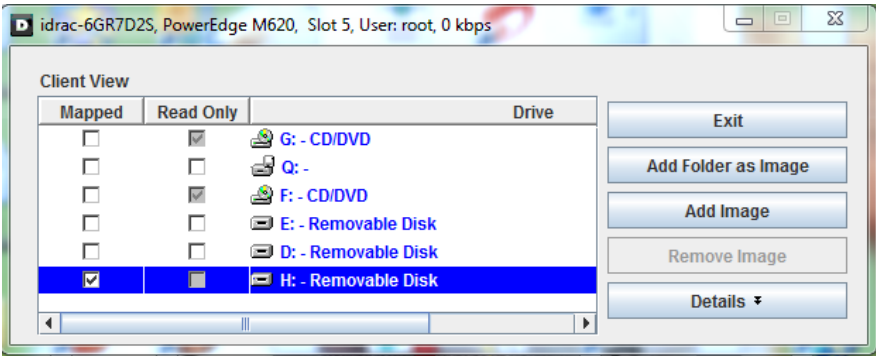
The **Select Update Repository** page is displayed.

Figure 23. Select Update Repository



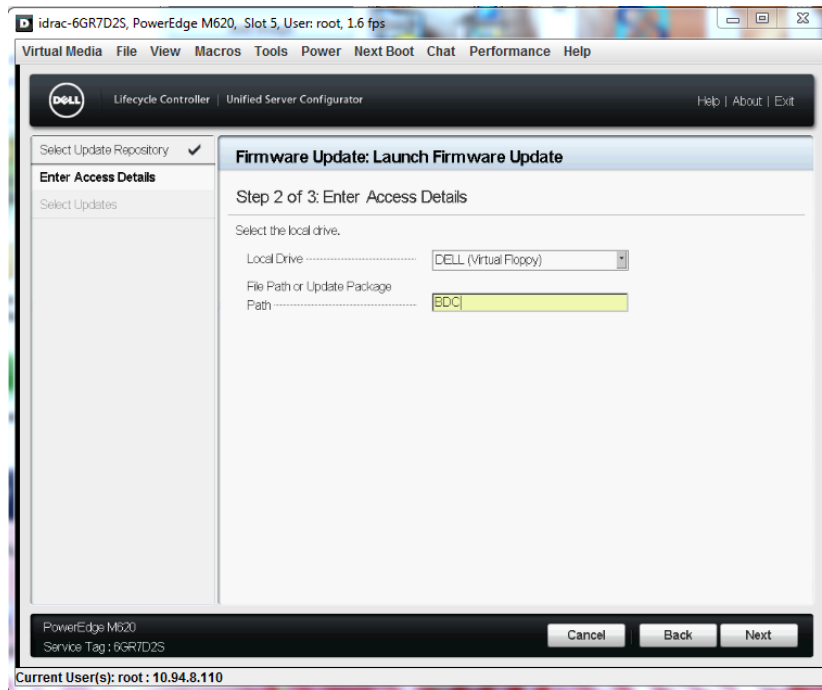
3. Insert the USB drive to the host. Alternatively, insert the USB drive to the client system and use the Virtual Media feature to access it. For more information, see the *iDRAC7 User's Guide*.

Figure 24. . USB Drive Attached To the Client



4. Select **Local Drive (CD/DVD/USB)** as the source location and click **Next**. The **Enter Access Details** page is displayed.

Figure 25. Enter Access Details



5. From the **Local Disk Drive** drop-down menu, select the appropriate drive.

6. Enter the path to the catalog file, and then click Next.

The **Select Updates** page is displayed. However, if the catalog is not signed, a warning message is displayed as given in the screen shot. Click Yes to continue.

Figure 26. Verifying Selection

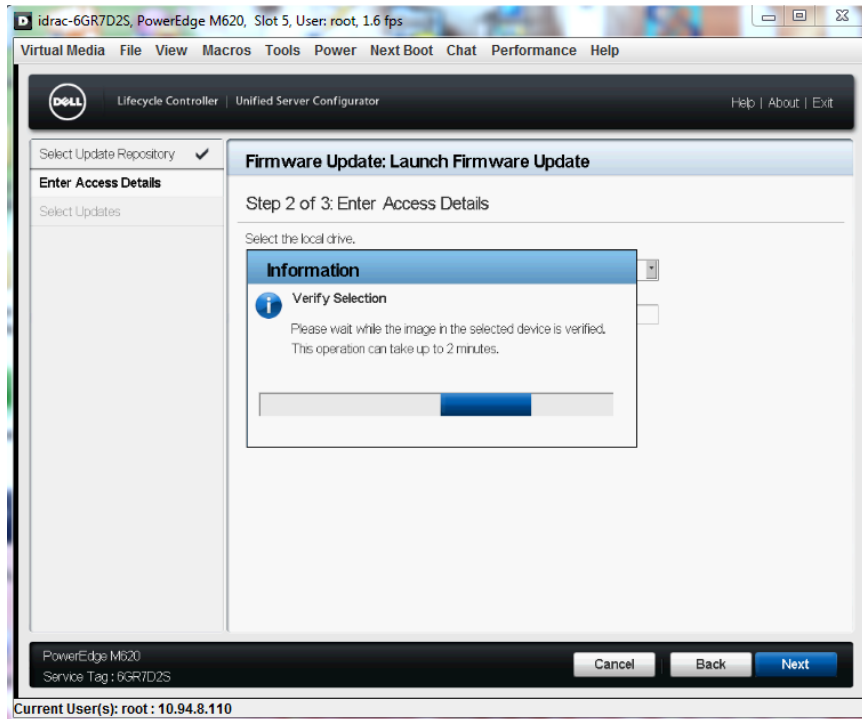


Figure 27. Warning Message

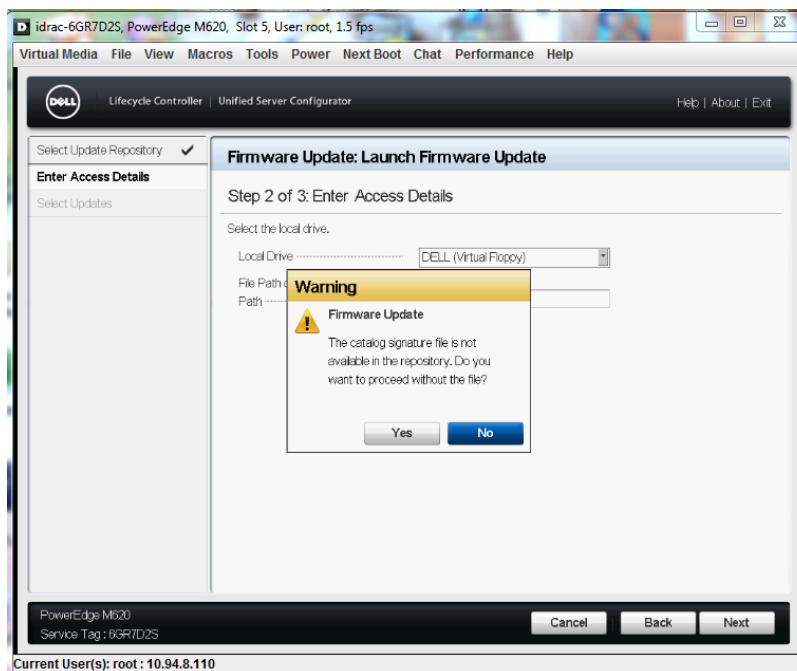
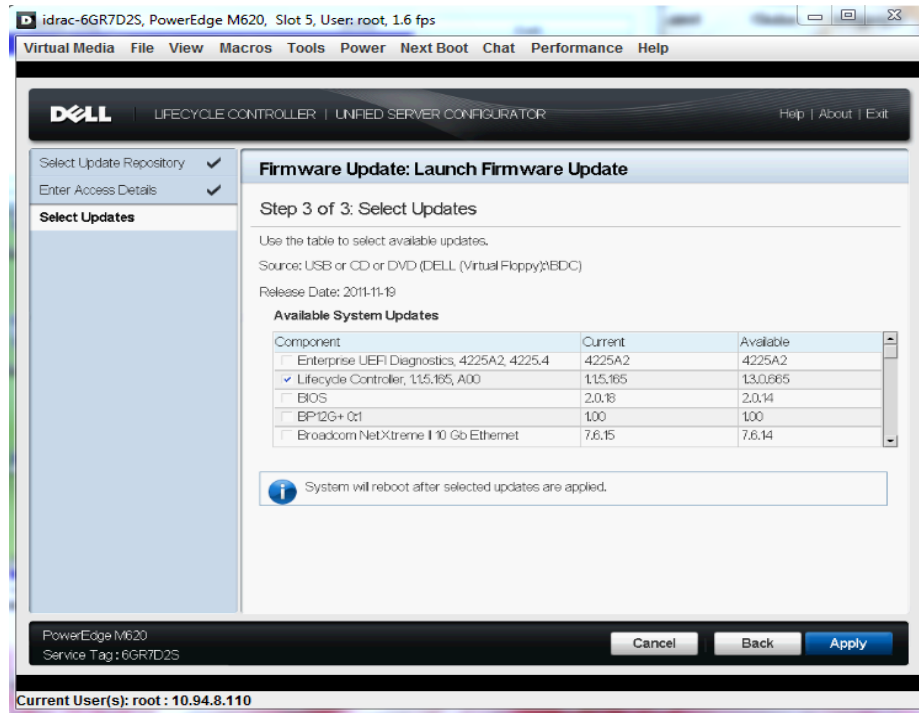


Figure 28. Select Updates



6. For a component, compare the currently installed firmware version and the later version under the **Current** and **Available** columns and select the required components.

NOTE: By default, Lifecycle Controller selects the components for which a later version is available.

7. Click **Apply**.

After the update process is complete, the system restarts.

NOTE: When applying more than one update, the system may need to restart between updates. In this case, the system starts directly in to Lifecycle Controller and automatically continues the update process.

NOTE: If the iDRAC firmware update is interrupted for any reason, wait for about 30 minutes before attempting to update another firmware.

Creating a USB Drive Repository

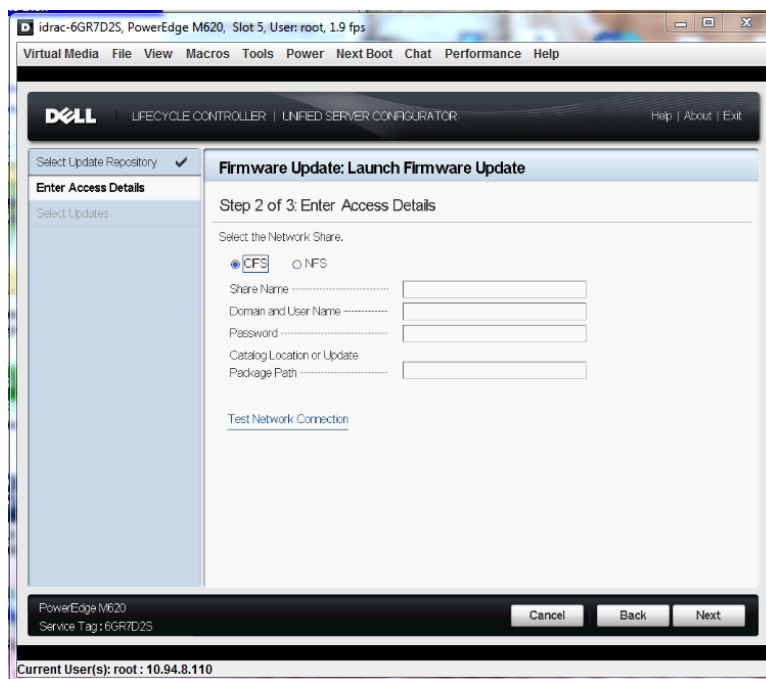
8. Create a folder named "catalog" in the root directory of the USB device.
9. Copy all files from the repository folder of the SUU DVD to the "catalog" folder.

Using a Network Share (CIFS or NFS)

If you are accessing the updates from a CIFS or NFS share, select the **Network Share**. To update the platform/firmware using CIFS or NFS network share option:

1. Start Lifecycle Controller: Press <F10> within 10 seconds after the Dell logo is displayed.
2. Click **Firmware Update** → **Launch Firmware Update**.
The **Select Update Repository** page is displayed.
3. Select **Network Share** as the source location, and then click **Next**.
The **Enter Access Details** page is displayed.

Figure 29. Enter Access Details - CIFS



4. Select **CIFS** or **NFS**, enter the following details, and then click **Next**.
 - **Share Name** (CIFS or NFS) – Path to the shared folder where the Update Packages or repository is located. For example: \\192.168.20.26\sharename or \\servername\sharename.
 - **Domain and User Name** (CIFS) – Domain and user name required to log on to the network share. For example: login-name@myDomain. If there is no domain, type only the login-name. For example: login-name.
 - **Password** (CIFS) – Password to authenticate the user name.
 - **NOTE:** For NFS option, the **Domain and User Name** and **Password** boxes are grayed-out as the NFS protocol does not support user name and password.
 - **Catalog Location or Update package path** (CIFS or NFS)
 - **For single DUPs** – If the DUP is located in the root directory, enter the name of the DUP (for example, APP_WIN_RYYYYZZZ.EXE). If the DUP is present in a sub-directory, enter both the sub-directory name and name of the DUP (for example, subdirectory\APP_WIN_RYYYYZZZ.EXE).
 - **For Catalog file** – If the catalog file is located in the root directory, do not enter the file name. If the catalog file is located in a sub-directory, enter the sub-directory name (for example, subdirectory).

The selected image in the specified location is validated and the **Select Updates** page is displayed. However, if the catalog is not signed, a warning message is displayed. Click **Yes** to continue.

Figure 30. Enter Access Details - CIFS

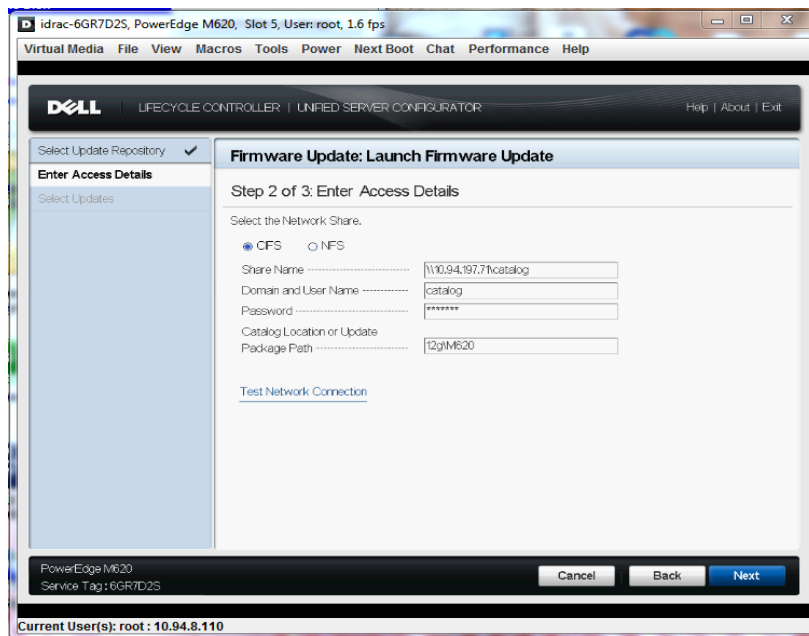


Figure 31. Enter Access Details - NFS

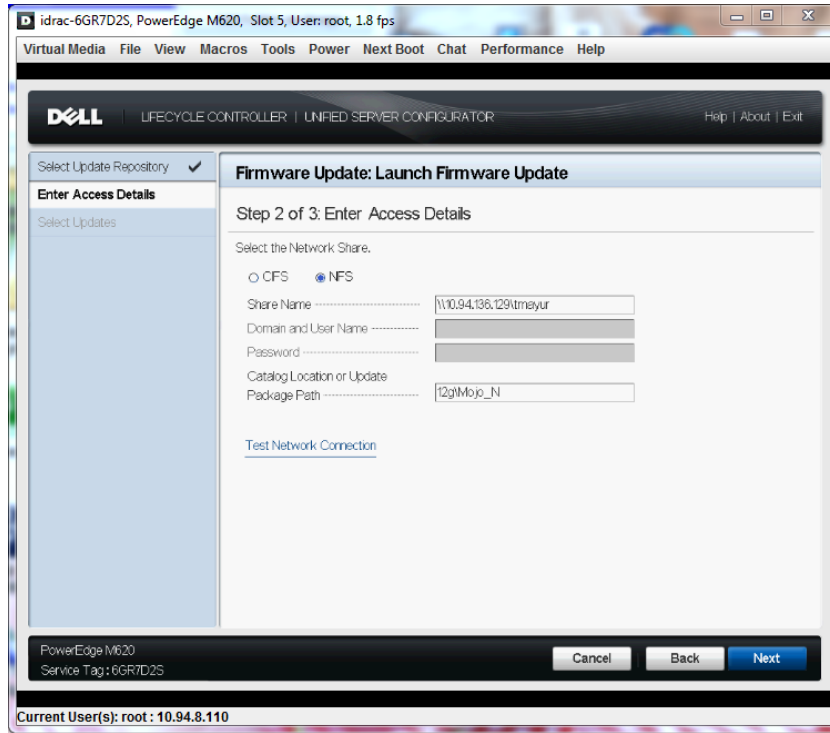


Figure 32. Connecting to Network Share

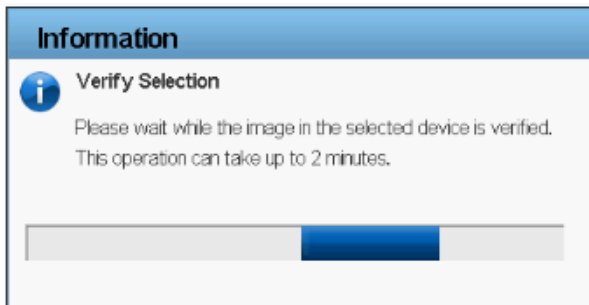


Figure 33. Downloading Catalog

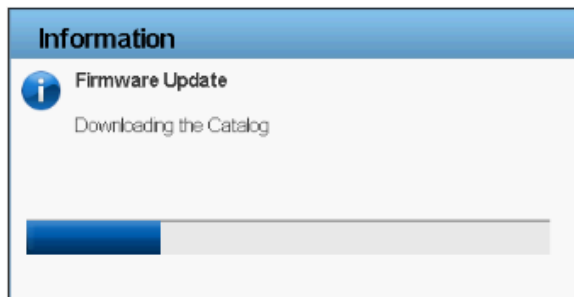


Figure 34. Downloading Catalog Signature

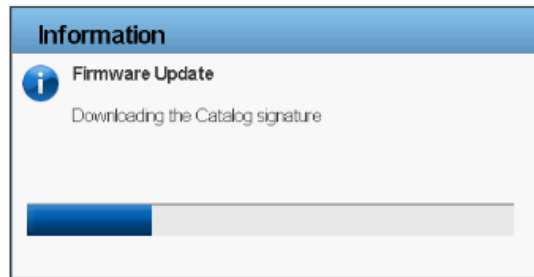


Figure 35. Verifying Catalog Signature

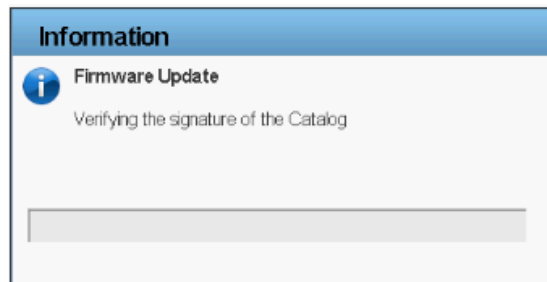


Figure 36. Warning Message

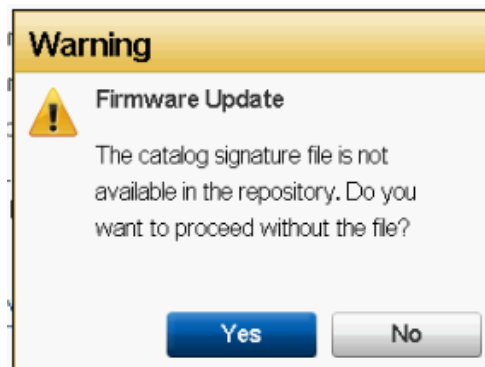


Figure 37. Select Updates - CIFS

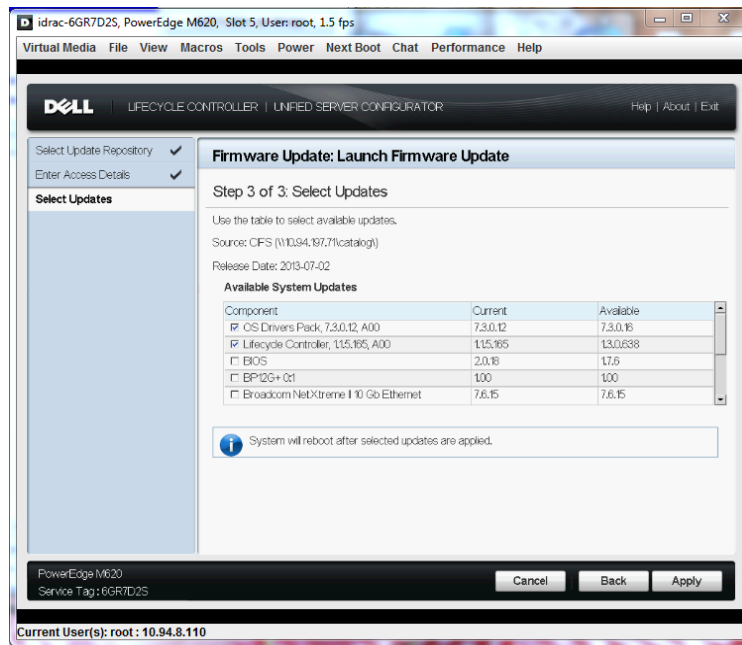
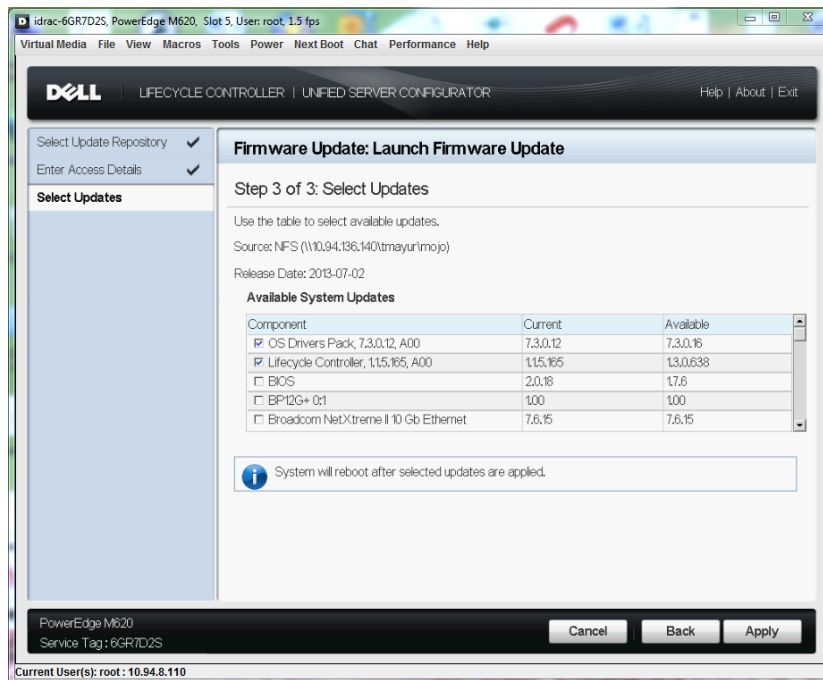


Figure 38. Select Updates - NFS



Creating the Local CIFS or NFS Share Repository

- If your organization uses a private network that cannot access external sites such as ftp.dell.com, you can provide Firmware Updates from a locally-configured network share device.
- If a CIFS or NFS share is available, you can copy the repository created using Dell Repository Manager or the repository downloaded from ftp.dell.com.

Using Single Component Update

You can perform single component DUP update whenever components such as RAID, NIC, Diagnostic, OS Driver Pack, PSU, and iDRAC are partially corrupt, or when a specific component must be updated. Lifecycle Controller supports DUPs only in .exe format.

NOTE: If the DUP is located in the root directory, enter the name of the DUP (for example, APP_WIN_RYYYYZZZ.EXE). If the Update package is present in a sub-directory, enter both the sub-directory name and name of the Update Package (for example, subdirectory\APP_WIN_RYYYYZZZ.EXE).

The following screens provide the workflow to update using FTP, local drive, or network share:

FTP

Provide the Dell Update Package (only .exe) location on the Dell FTP server (ftp.dell.com), internal FTP server, or service provider's FTP server.

NOTE: If the DUP is located in the root directory, enter the name of the Update Package (for example, APP_WIN_RYYYYZZZ.EXE). If the DUP is present in a sub-directory, enter both the sub-directory name and name of the DUP (for example, subdirectory\APP_WIN_RYYYYZZZ.EXE).

The selected image in the specified location is validated and the Select Updates page is displayed.

Figure 39. Enter Access Details – FTP

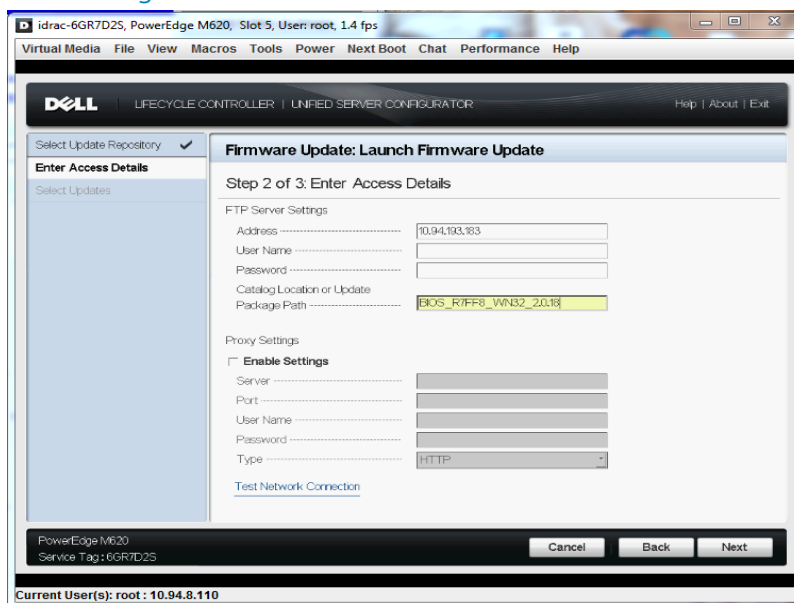


Figure 40. Warning Message

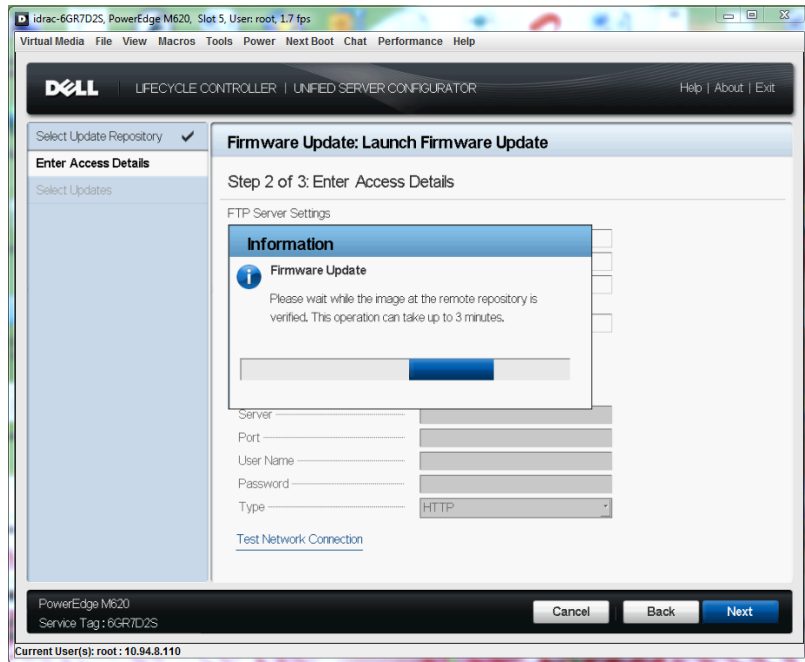


Figure 41. Connecting to FTP

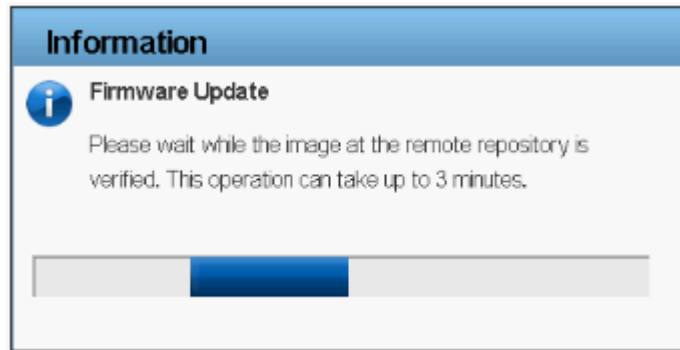


Figure 42. Downloading and Validating Update Package

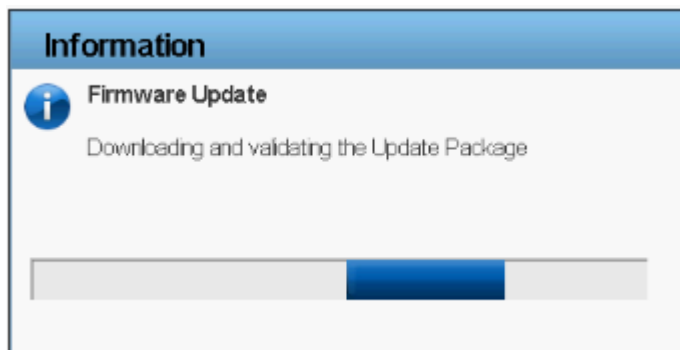
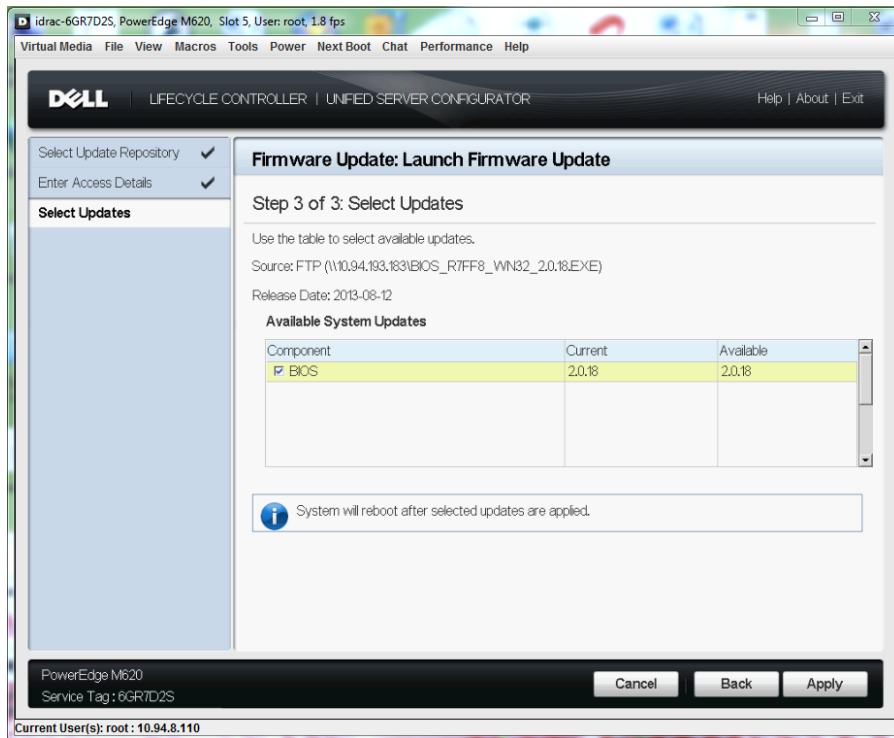


Figure 43. Verifying Update Package Signature



Figure 44. Select Updates – Single Component DUP



Local Drive (CD/DVD/USB Drive)

Download the Dell Update Package (only .exe) from the Dell FTP site (ftp.dell.com), copy from the Server Update Utility DVD, or from support.dell.com.

NOTE: If the DUP is located in the root directory, enter the name of Update Package (for example, APP_WIN_RYYYYZZZ.EXE). If the Update package is present in a sub-directory, enter both the sub-directory name and name of the Update Package (for example, subdirectory\APP_WIN_RYYYYZZZ.EXE).

Figure 45. Enter Access Details – Local Drive

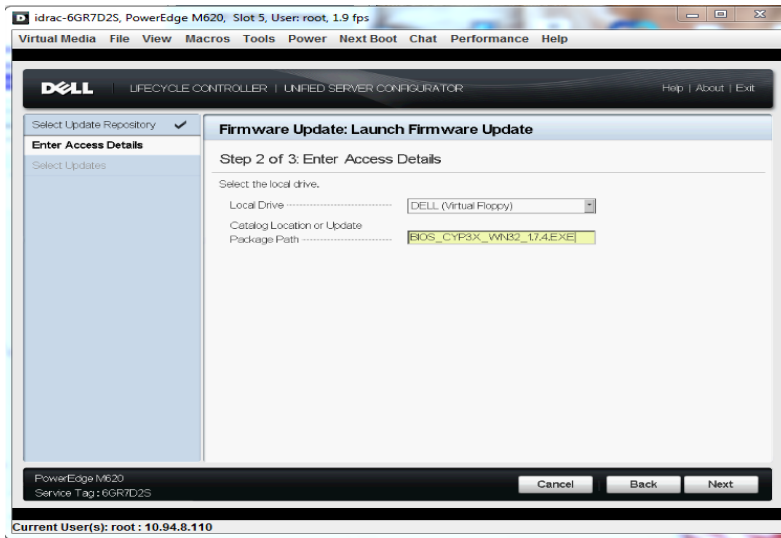


Figure 46. Verify Selection

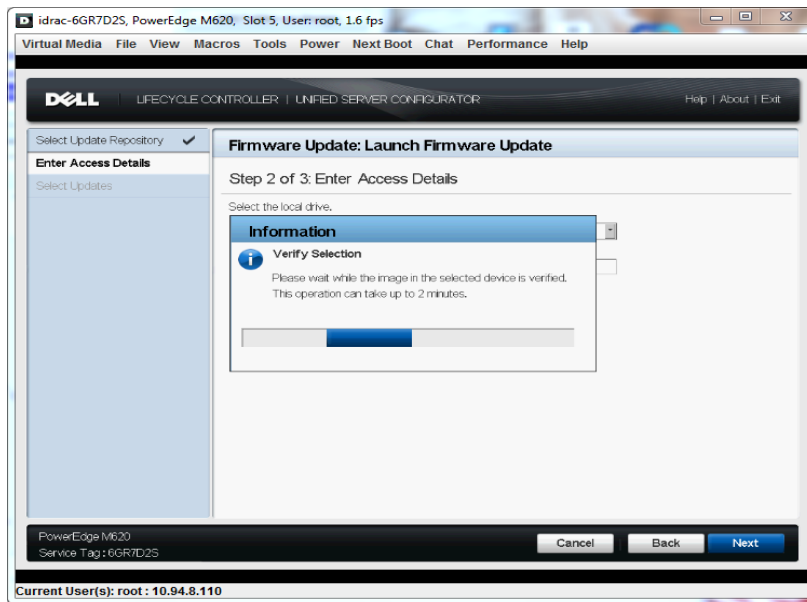
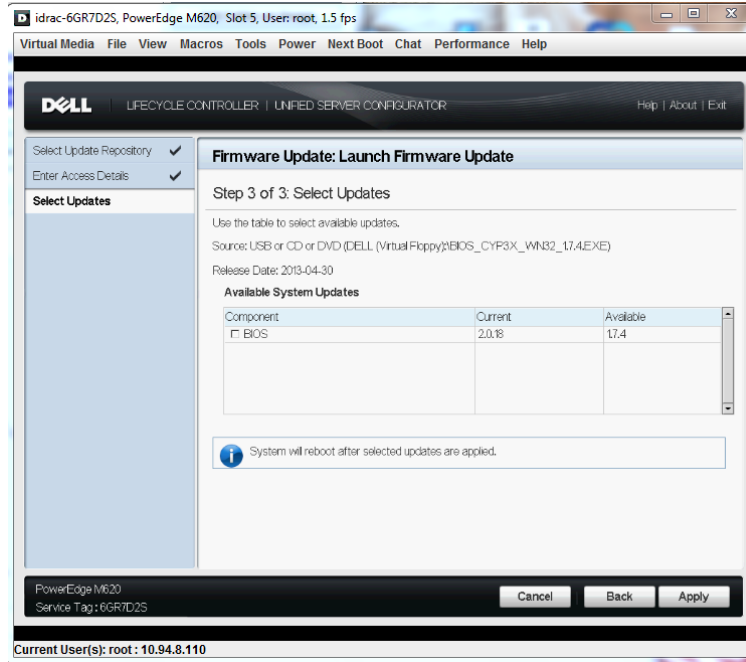


Figure 47. Select Updates – Local Drive



Network Share (CIFS and NFS)

Download the Dell Update Package (only .exe) from the Dell FTP site (<ftp.dell.com>), copy the Server Update Utility DVD, or from support.dell.com to a CIFS or NFS network share.

NOTE: If the DUP is located in the root directory, enter the name of the update package (for example, APP_WIN_RYYYYZZZ.EXE). If the update package is present in a sub-directory, enter both the sub-directory name and name of the update package (for example, subdirectory\APP_WIN_RYYYYZZZ.EXE).

Figure 48. Enter Access Details – Network Share (CIFS)

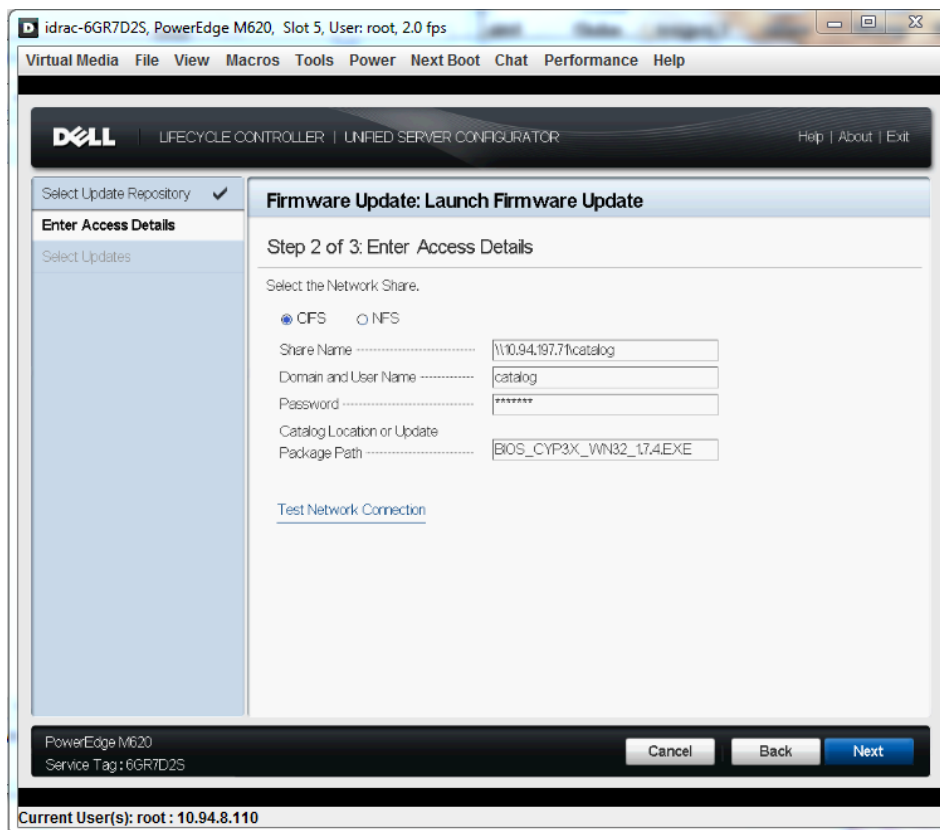


Figure 49. Verify Selection

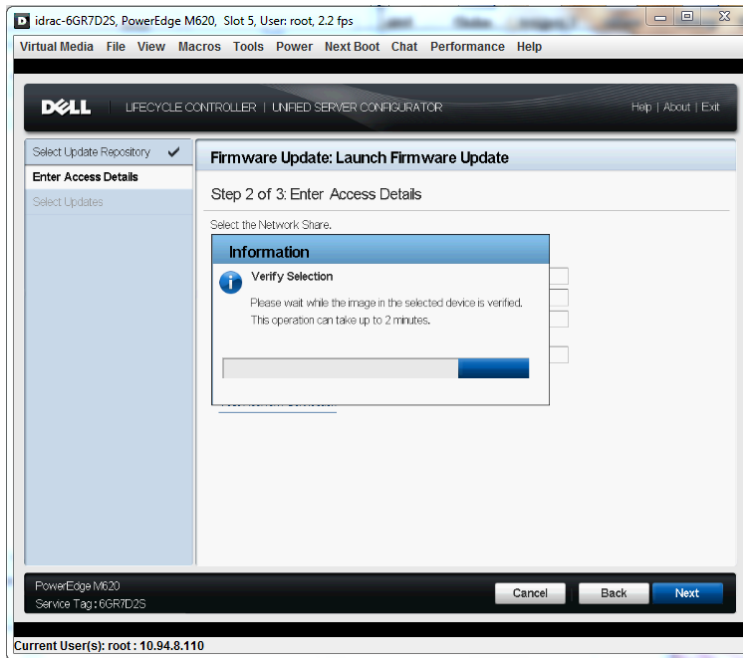


Figure 50. Connecting to Network Share

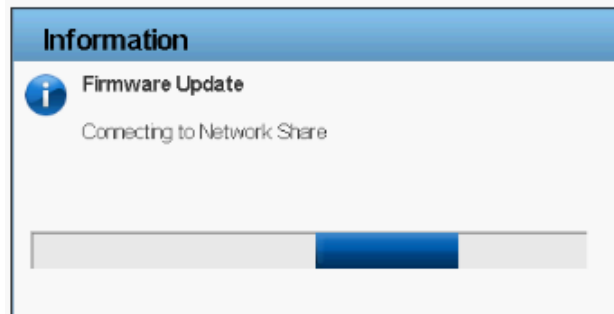


Figure 51. Verifying Update Package Signature



Figure 52. Select Updates – Network Share (CIFS)

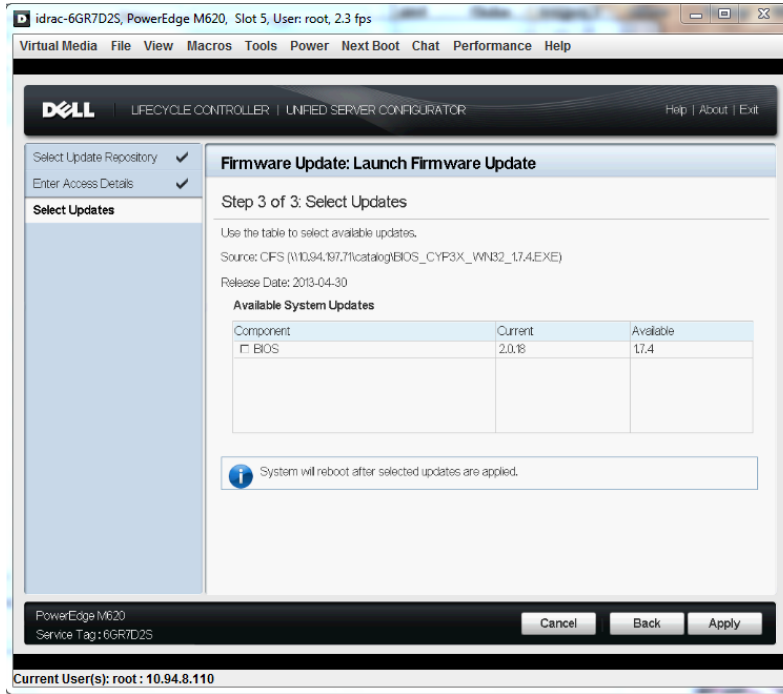


Figure 53. Enter Access Details – Network Share (NFS)

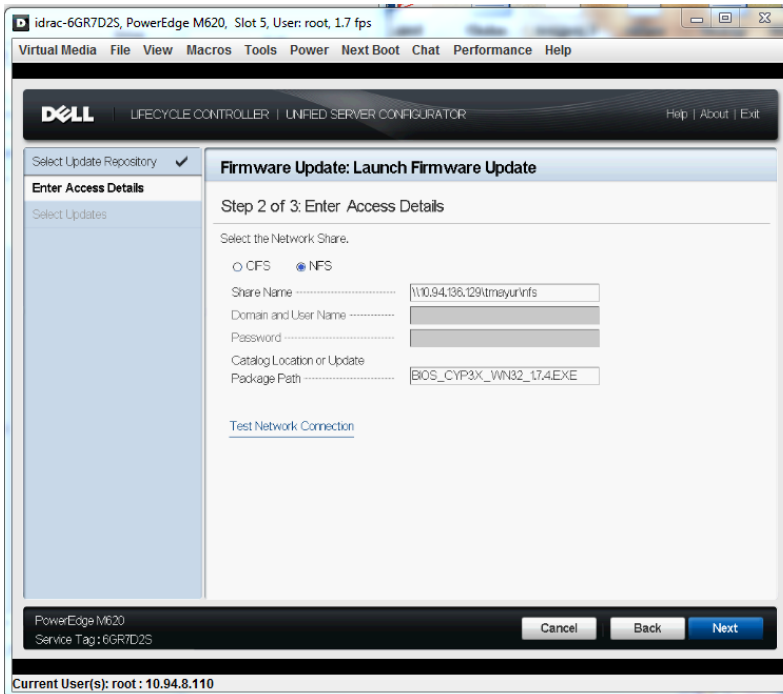


Figure 54. Verify Selection

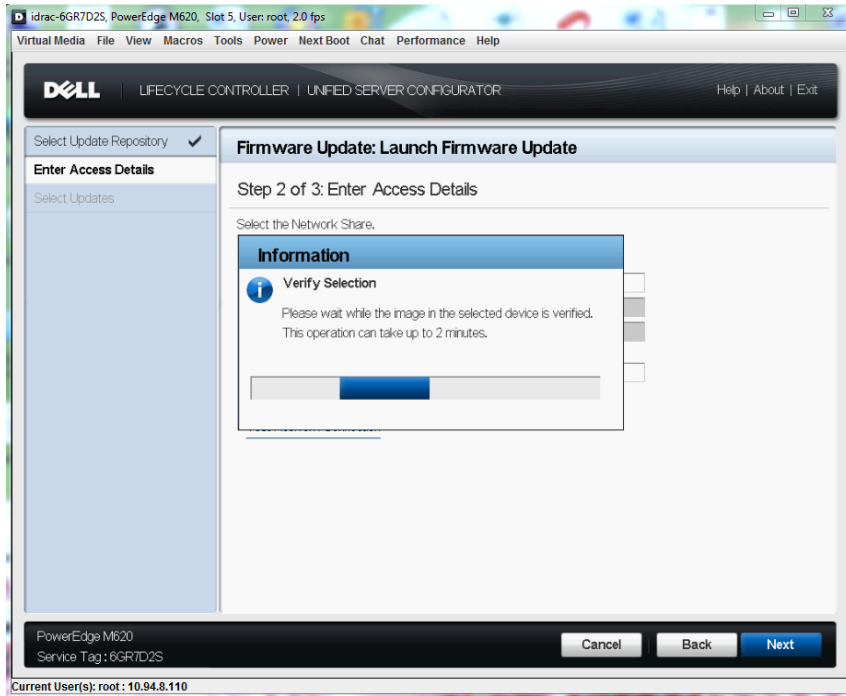


Figure 55. Connecting to Network Share

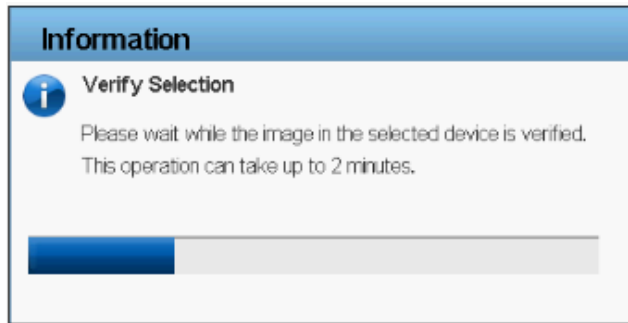


Figure 56. Verifying Update Package Signature

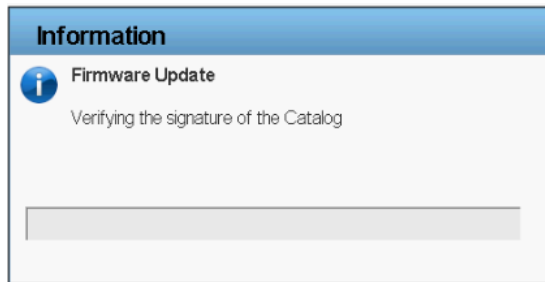
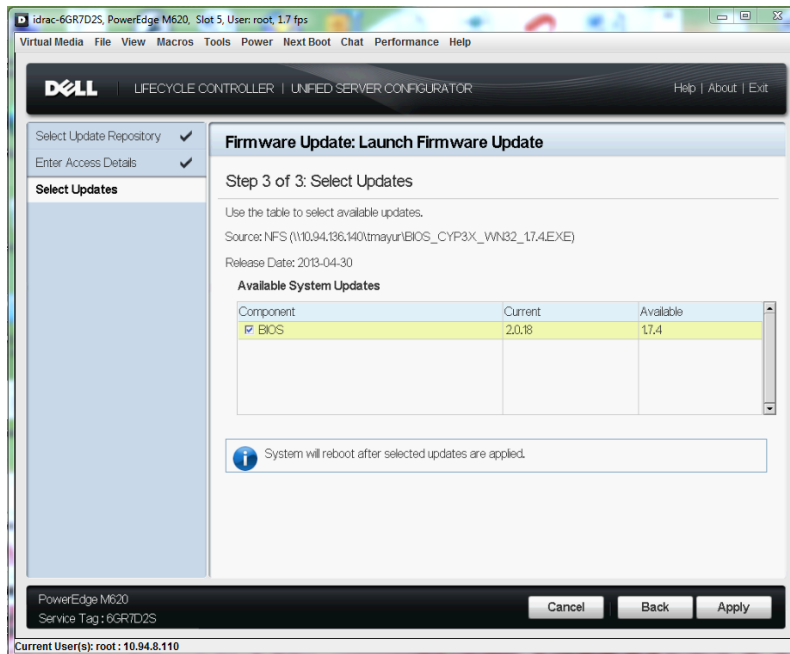


Figure 57. Select Updates – Network Share (NFS)



Roll Back to Earlier Firmware Version

Lifecycle Controller allows roll back to a previously-installed version of component firmware such as BIOS, iDRAC, RAID Controller, NIC, and Power supply.

Important

- The Dell Diagnostics, OS driver packs, and Lifecycle Controller firmware cannot be rolled back to previous versions.
- The previous version is available only if the component firmware is updated at least once to a different version.
- The previous version of the firmware image is overwritten every time an update is performed.
- Every time a rollback is performed, the previously installed firmware becomes the current version, and the previous version will not be available. However, for iDRAC, previously installed version becomes the current version and the current version is stored as the previous version.
- The earlier version of the firmware is available only if any of the following tools are used to update the firmware: Lifecycle Controller Firmware Update feature, Lifecycle Controller-Remote Services, or the Dell Update Package. However, the previous version of PSU firmware is available if Lifecycle Controller Firmware Update feature or Lifecycle Controller-Remote Services is used to update the firmware.

To roll back a firmware version to a previously-installed image:

5. Start Lifecycle Controller: Press <F10> within 10 seconds after the Dell logo is displayed. Click **Firmware Update** → **Launch Platform Rollback**.

Figure 57. Firmware Update

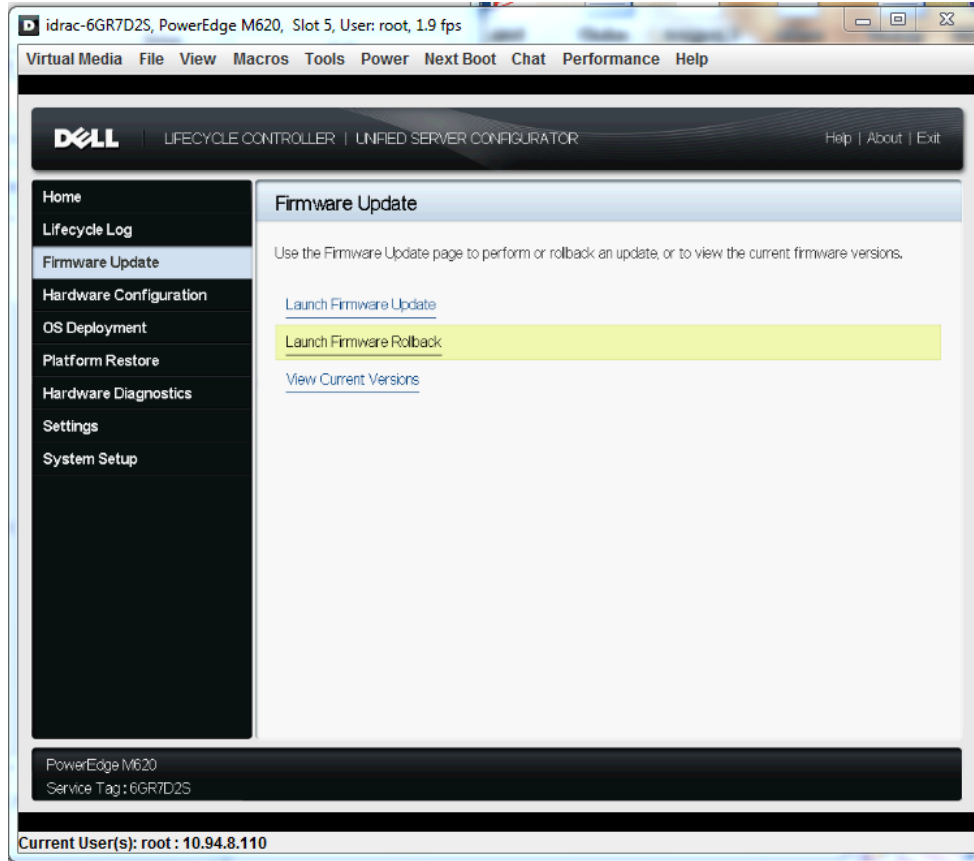
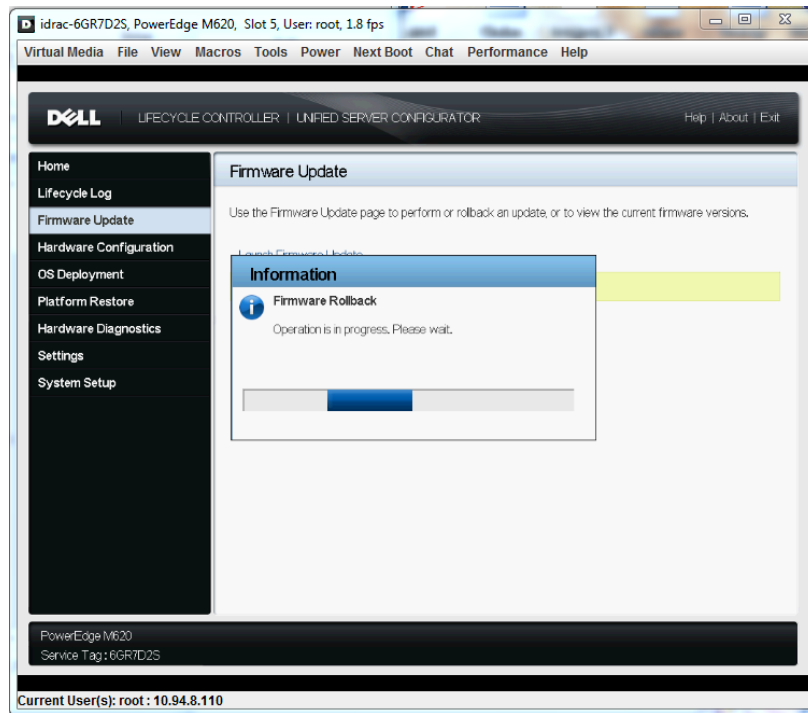


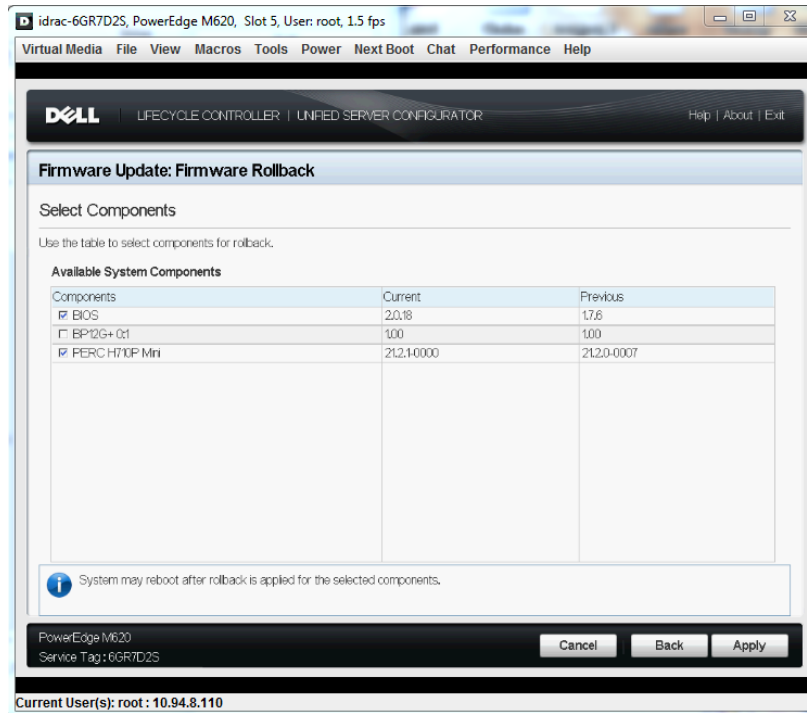
Figure 58. Launching Firmware Rollback



The Select Components page displays a list of available rollback images with the following details.

- **Component** – Displays the available updates.
- **Current** – Displays the component version currently installed on the system.
- **Previous** – Displays the version number of the previous version.

Figure 59. Firmware Rollback – Select Components



3. Select the components, and then click **Apply**.
4. Select the rollback image that you want to apply to the system, and then click **Apply**.

After the rollback process is complete, the system restarts. When applying more than one update, the system may need to restart between each rollback. In such scenarios, the system starts directly into Lifecycle Controller and continues the rollback process.

View Current Version

Lifecycle Controller enables the user to check the firmware version of the currently installed components in the system. It displays the firmware version of the component along with the time stamp when the firmware version was last updated, rolled back, or newly-installed component.

If Collect System Inventory On Restart (CSIOR) is enabled, the inventory collection starts before launching Lifecycle Controller every time the system is started. Therefore the **View Current Versions** page always displays the latest information. For more information about CSIOR, see the *Lifecycle Controller User's Guide*.

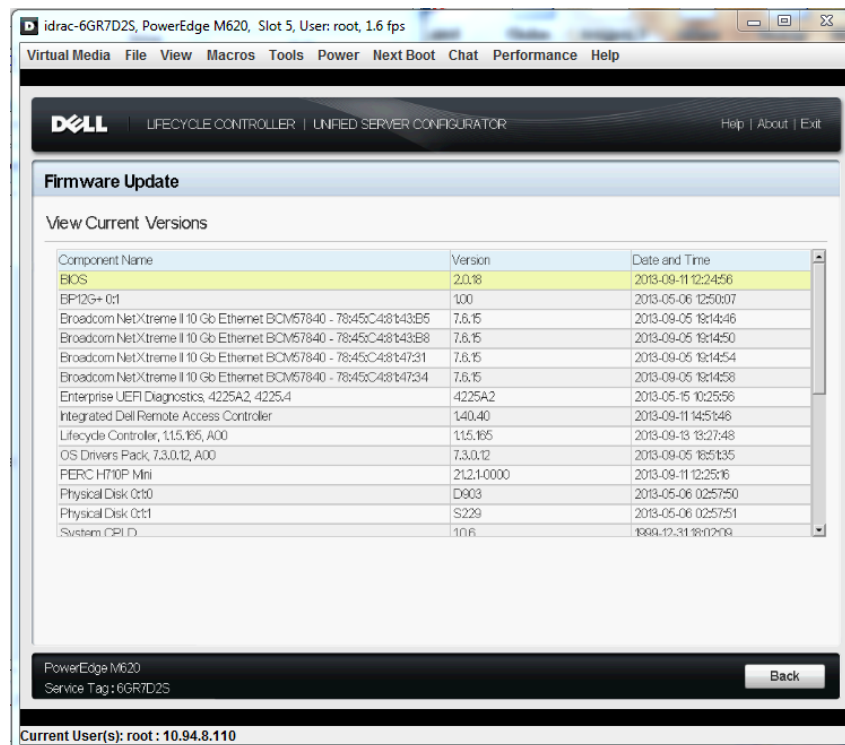
To view the currently installed firmware versions:

6. Start Lifecycle Controller: Press <F10> within 10 seconds after the Dell logo is displayed. Click **Firmware Update** → **View Current Versions**.

The **View Current Versions** page displays a list of installed components with the following information:

- **Component Name** – Displays the name of the currently installed component.
- **Version** – Displays the firmware version currently installed on that component.
- **Date and Time** – The time the component was installed in the system, updated, or rolled back. The format is yyyy-mm-dd hh:mm:ss.

Figure 60. View Current Versions



Testing Network Connectivity

Lifecycle Controller provides the **Test Network Connection** feature to perform a PING test to the following server types:

- **Repository host server** – FTP server or the CIFS or NFS share.
- DNS server if it is configured in the **Network settings** page.
- Gateway server if it is configured in the **Network setting** page.
- FTP proxy server if it is configured in the **FTP access details** page.

Before using this feature, make sure that Lifecycle Controller network settings are configured. For more information about configuring the network settings, see the *Lifecycle Controller 2 1.0 User's Guide*.

To test the network connection:

7. Start Lifecycle Controller: Press <F10> within 10 seconds after the Dell logo is displayed. Click **Firmware Update** → **Launch Firmware Update** → **FTP Server** or **Network Share**, and then click **Next**.

The **Enter Access Details** page is displayed.

Figure 61. Select Test Network Connection - FTP

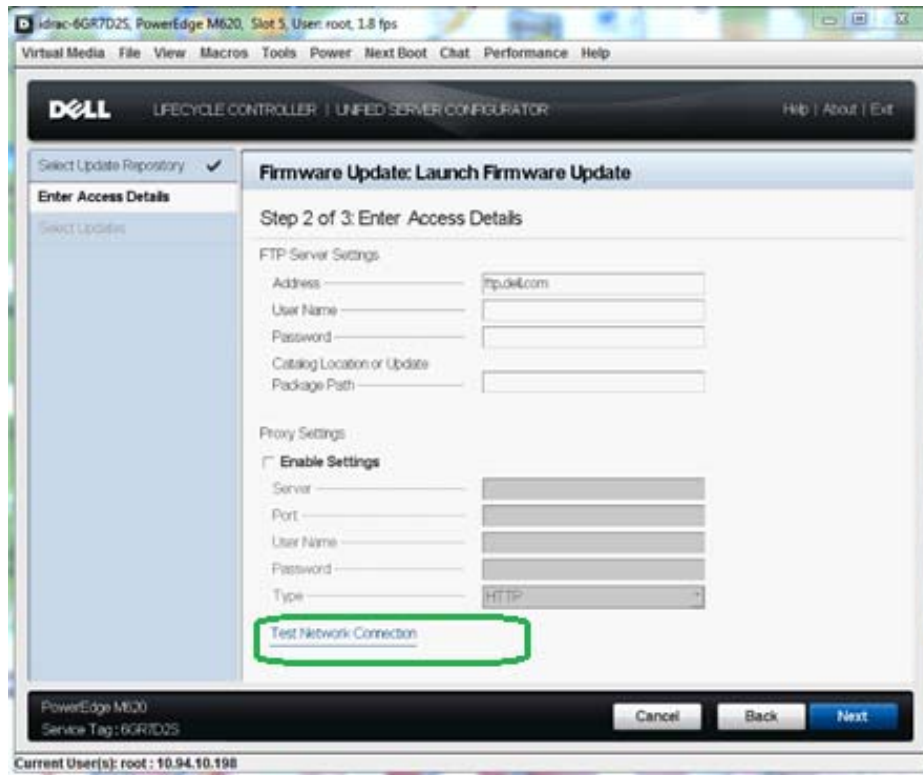


Figure 62. Select Test Network Connection – CIFS

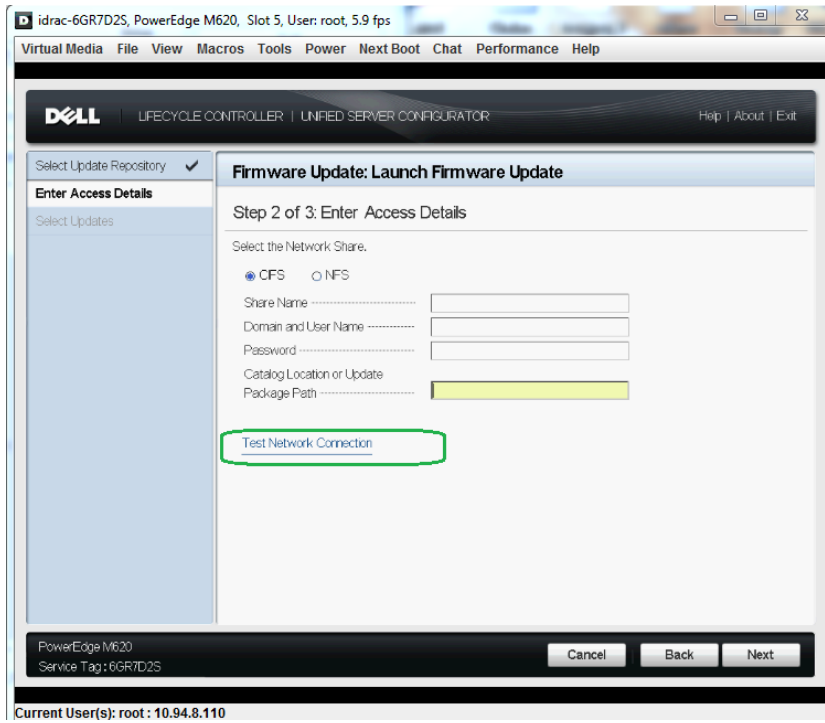
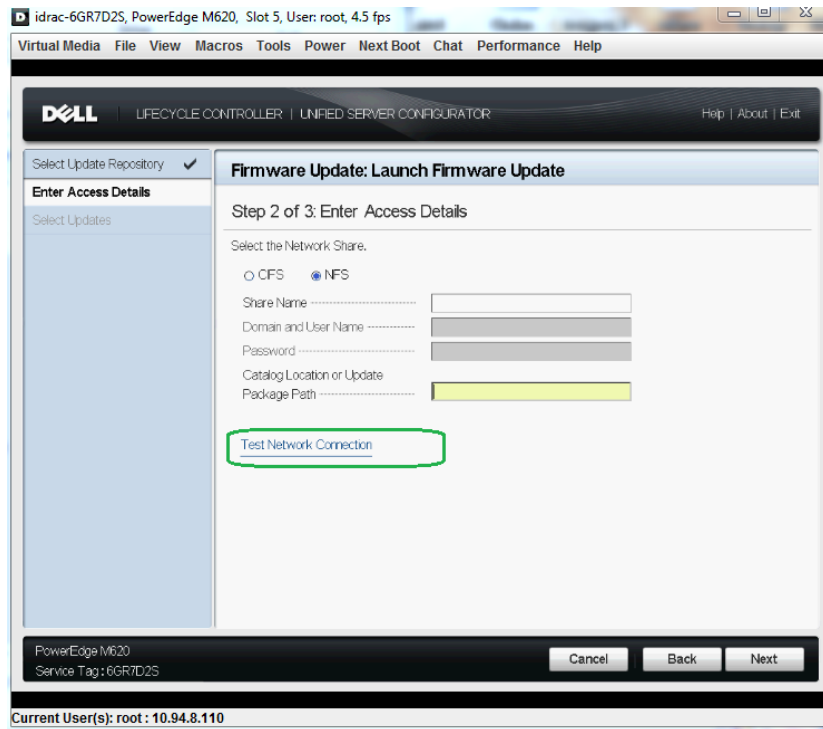


Figure 63. Select Test Network Connection – NFS



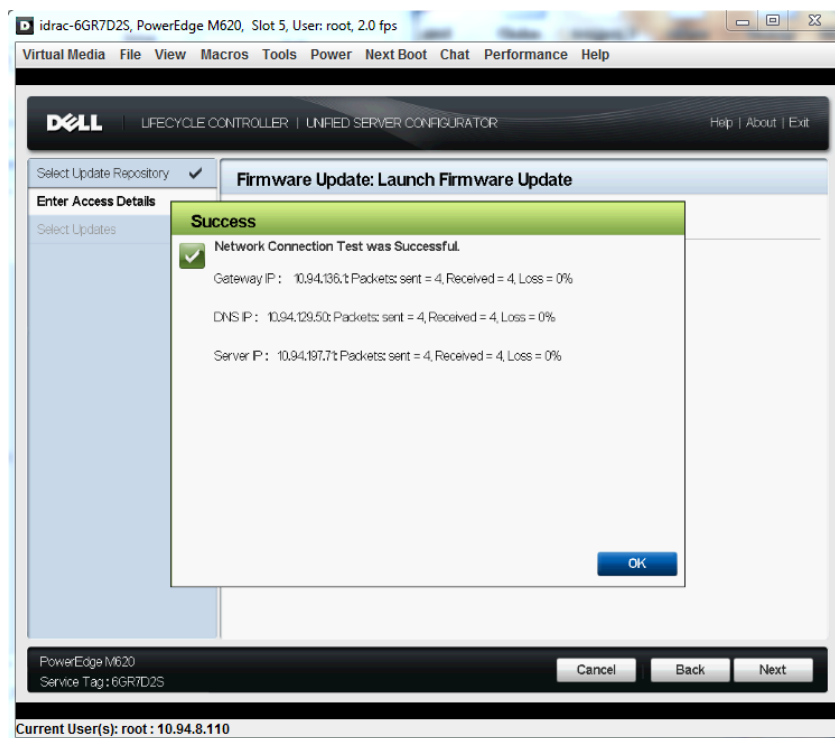
8. Type the **FTP Server** or **Network Share** details.
9. Click **Test Network Connection**.

After the test is complete, the **Network Connection Report** is generated with the following details:

- Parameters specified in the **Network Settings** page - Gateway IP and DNS IP.
- Parameters specified in the **Enter Access Details** page - Proxy IP (only if you have specified FTP proxy server) and Server IP (FTP address or network share address.)

NOTE: The report always displays the IP address of the host name.

Figure 64. Network Connection Report – Network Share



Checking the Signature

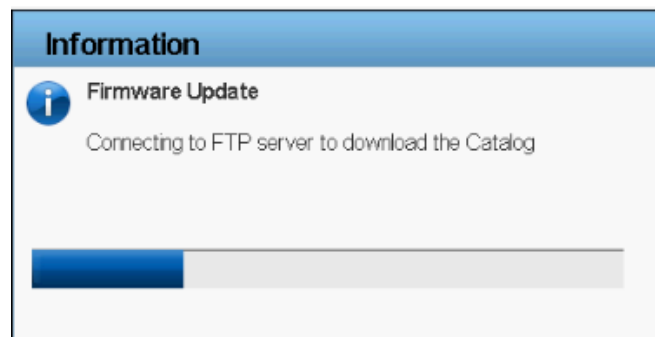
Catalog on FTP Server

The catalog present on <ftp.dell.com> is signed with the signature file present in the same location.

NOTE: If a catalog is created using Dell Repository Manager, the catalog does not have an associated signature file.

On the **Enter Access Details** page, after you click **Next**, the following messages are displayed when Lifecycle Controller connects to a repository.

Figure 65. Connecting to FTP



Lifecycle Controller attempts to locate the catalog signature file. If the signature file is not present, a warning message is displayed. To continue, click Yes.

Figure 66. Warning Message



If the signature file is present, it is downloaded and verified. This makes sure that updates are performed only for an authenticated catalog.

Figure 67. Downloading Catalog Signature

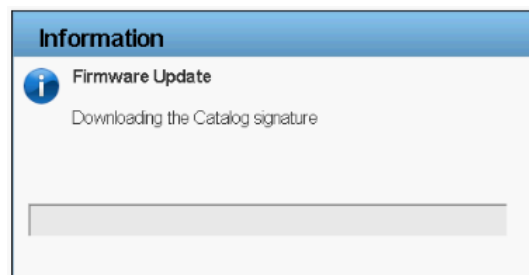


Figure 68. Verifying Catalog Signature



NOTE: Lifecycle Controller performs a validation against an authenticated signature file, and if it detects any signature mismatch, the firmware update does not continue.

After the catalog signature is verified, the **Available Updates** page is displayed. For more information, see the *Using FTP Server* section in the Lifecycle Controller2 User's Guide.

Single Component DUPs

On the **Enter Access Details** page, after you click **Next**, the following messages are displayed while performing updates using single component DUP:

NOTE: Single component DUP contains the signature within the package.

Figure 69. . Verifying Update Package Signature



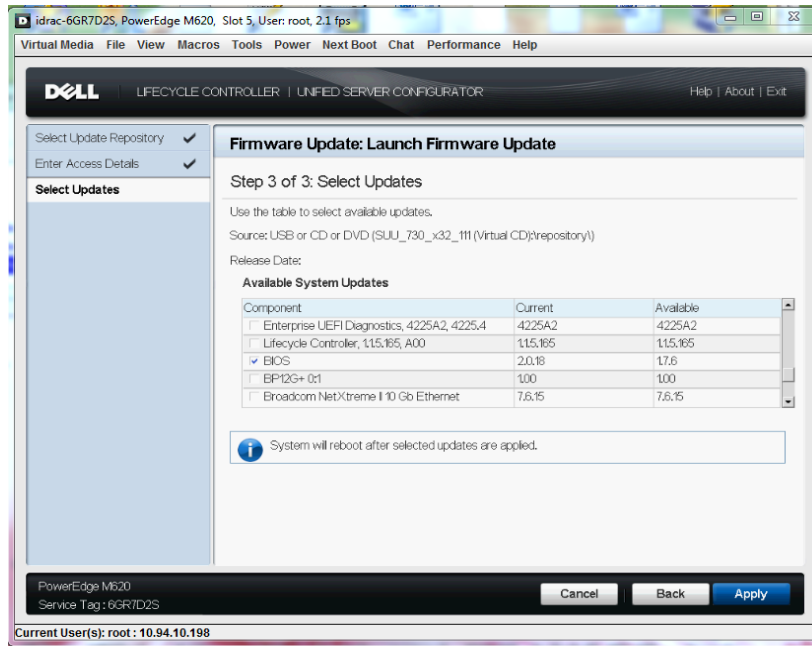
If Lifecycle Controller detects a signature mismatch, the firmware update does not continue. This ensures that updates are performed only against an authenticated catalog.

Firmware Update Mechanism

This section provides the background operations that are performed after you do the following tasks:

1. Select the repository location.
2. Select the components and click **Apply**.

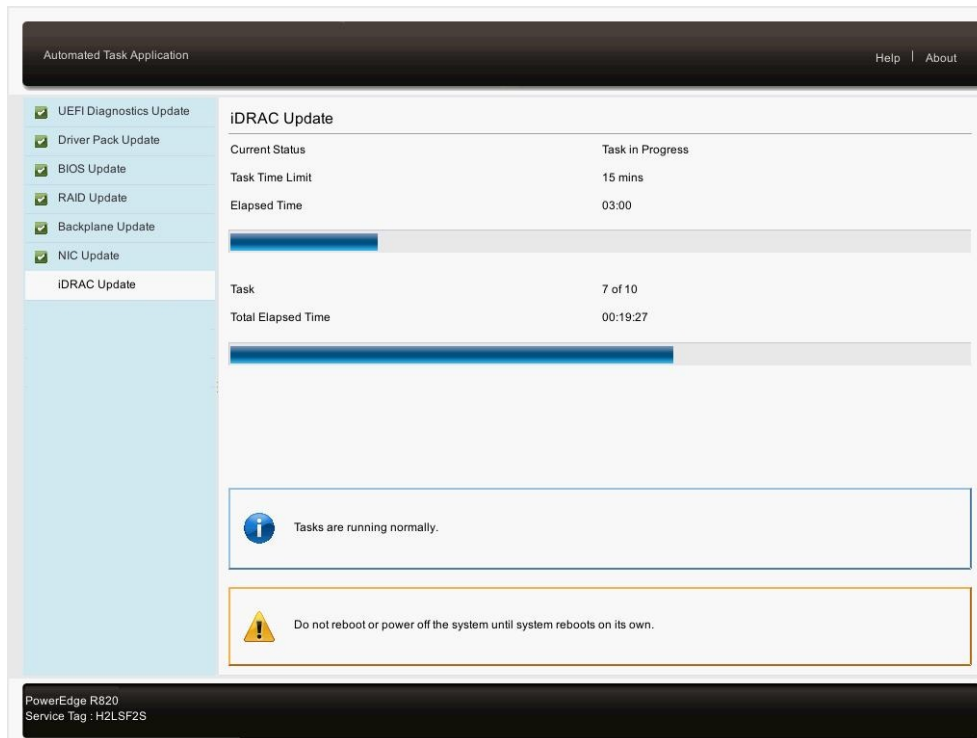
Figure 77. Select Updates



The system restarts after the update process is complete for a component. However, if multiple components are selected, the system directly boots in to Lifecycle Controller and automatically continues the update process for the next component. For more information about post-update behavior, see [Supported Components](#).

NOTE: If the iDRAC firmware update is interrupted for any reason, you must wait for 30 minutes before you can attempt another firmware update operation.

Figure 70. Post Update Behavior



NOTE: The time taken for each component update has a set limit. The update is completed within this limit.

Security is important, and the update process is designed to ensure both system and data are protected. The update process uses multiple layers of security validation:

- External data is temporarily stored in non-volatile storage. The data is then validated using Dell's private key signature to prevent intrusion of tampered data from external sources.
- Access control is restricted on Lifecycle Controller, and Lifecycle Controller partitions are opened as read-only. Only authorized programs are allowed to open the partitions as read/write.
- Only validated data is staged in Lifecycle Controller for application to the related components.

Trusted Platform/Firmware Module Warning

If BitLocker protection is enabled on your system, updating components such as RAID, BIOS, and NIC requires you to enter a recovery password or insert a USB drive containing a recovery key during the next server start. This situation occurs only if the Trusted Platform Module (TPM) security setting is set to "On with Pre-boot Measurements."

For information about how to set TPM settings, see the *BIOS User's Guide* available at dell.com/support/manuals.

Figure 70. Firmware Update – Select Updates

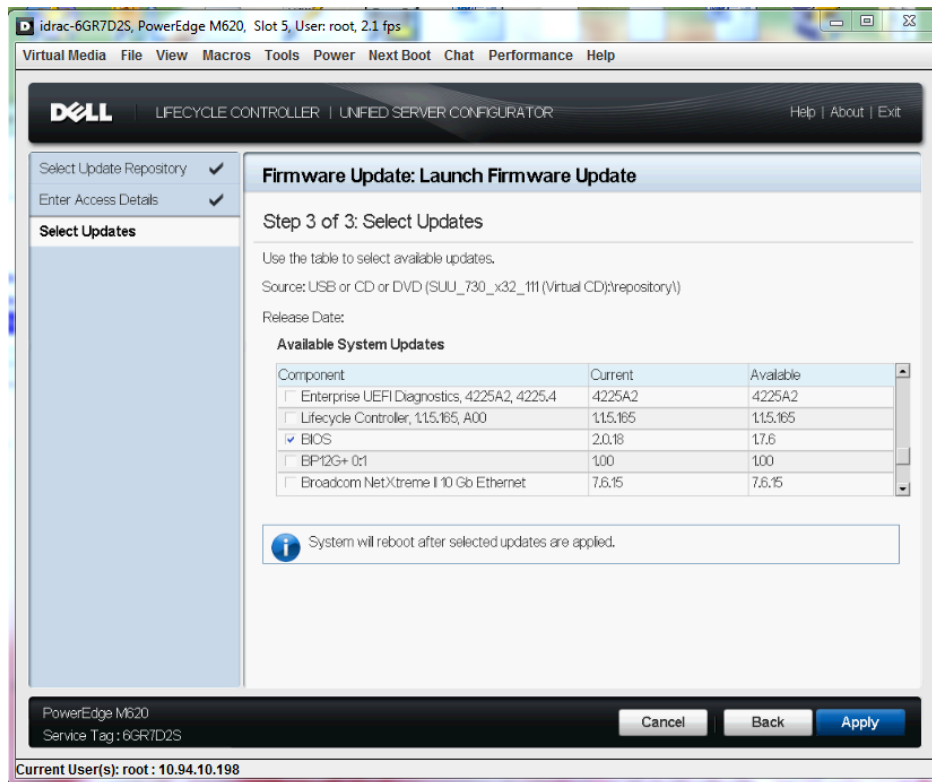


Figure 71. Firmware Update – Select Updates TPM Warning

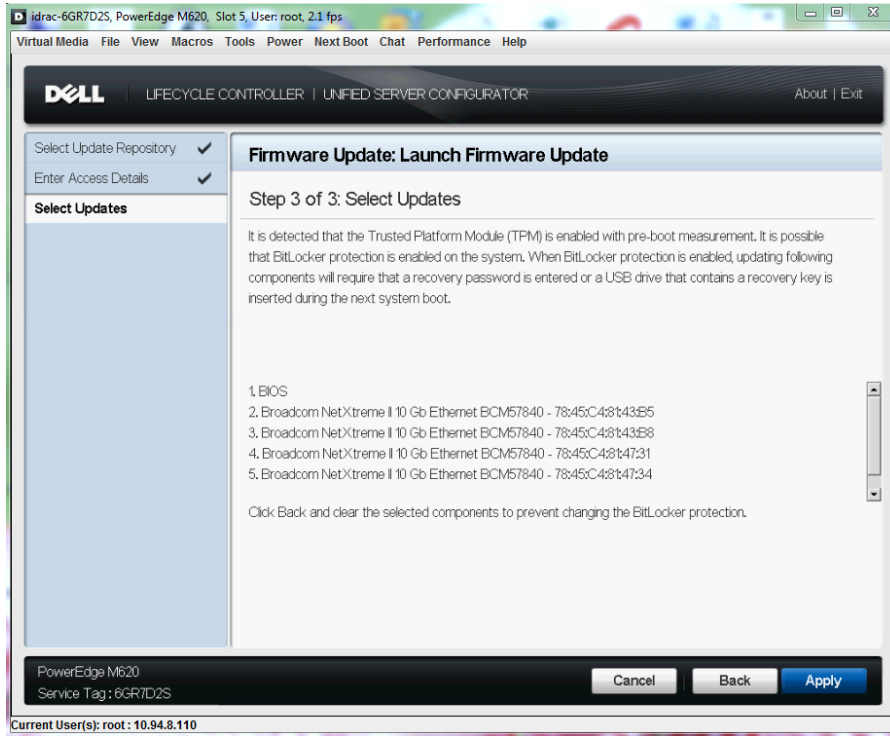


Figure 72. Firmware Rollback – Select Updates

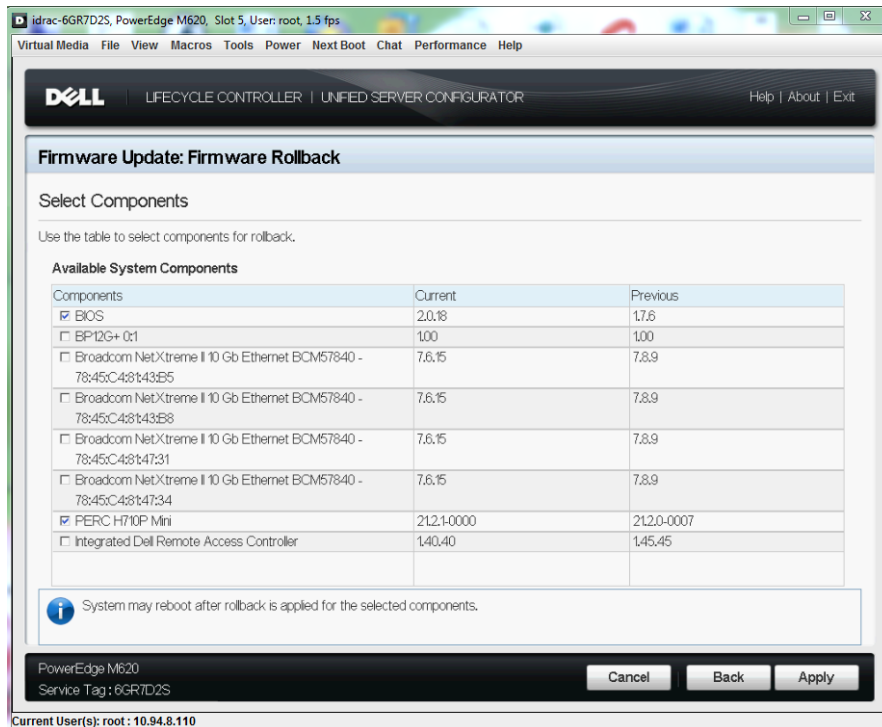
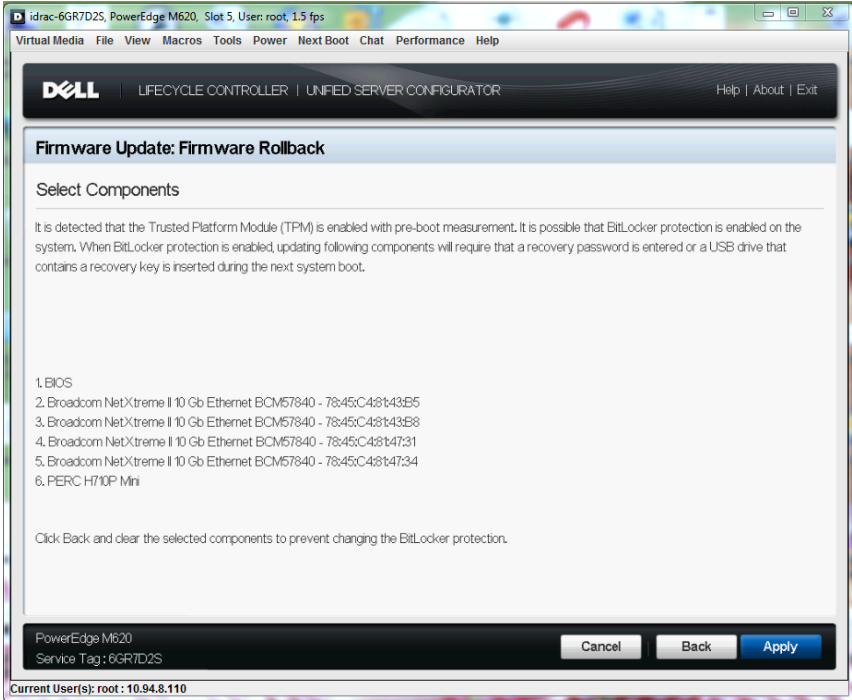


Figure 73. Firmware Rollback – TPM Warning



Using Dell Repository Manager

Dell Repository Manager (DRM) is an effective Microsoft Windows-based application that simplifies change management tasks. It helps to maintain Dell systems with the latest BIOS, firmware, drivers, and applications. It operates in server and client modes, obtaining updates for both Dell systems and client systems. The client mode of DRM manages the Dell catalog for client systems that contains the set of updates for supported Dell client systems running Windows operating system.

You can use access the repositories created using DRM from Lifecycle Controller.

Saving the Repository Using DRM

You can create a repository using any of the following options:

- Download the repository from Dell FTP server (ftp.dell.com).
- SUU DVD.

For more information about managing repositories, see the *Dell Repository Manager User's Guide*. To save the created repository for using through Lifecycle Controller:

1. Click **Floppy** and from the save repository dialog box, select **Save full repository**.
2. Click **Browse** and provide the destination location (USB drive, Network Share, or local FTP) for saving the repository.
3. Click **Save** to save the repository in the specified location.

To use the created repository, see the following sections:

- Using FTP Server
- Using a Local Drive
- Using a Network Share (CIFS or NFS)

For more information about Dell Repository Manager, its features, and usage see:

- support.dell.com/support/edocs/SOFTWARE/smdrm
- delltechcenter.com/page/Repository+Manage