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UPDATING DELL SERVER FIRMWARE IN ALTIRIS PREBOOT ENVIRONMENTS

Altiris® Deployment Solution™ for Dell Servers now enables administrators to update Dell™ PowerEdge™ server firmware in a preboot environment rather than using a traditional OS update agent. Using this approach can help reduce incompatibilities and alleviate common concerns about deploying updates in production environments.

One of the best ways to help ensure that hardware performs optimally and to maximize return on investment is to deploy feature and function updates provided by hardware vendors as well as bug fixes included in driver, BIOS, and firmware updates. Dell provides these updates for its servers as Dell Update Packages (DUPs)—self-contained files designed to execute in either Microsoft® Windows® or Linux® OS environments.

While some organizations spend a great deal of time, effort, and money to help ensure the successful deployment of firmware updates in their data centers, others question whether updates are even necessary—typically because they do not want to invest resources in deploying updates, are not experiencing compatibility or performance problems that an update might resolve, or do not want to risk disrupting a production system by running a noncritical process. In addition, if they have a large number of servers that do not run Windows or a mainstream Linux distribution—for example, Dell PowerEdge R805 and PowerEdge R905 servers running the integrated VMware® ESX Server 3i virtualization platform, or other servers running a custom Linux or UNIX® distribution—their environment may not be compatible with standard software management agents, or may not be able to execute DUPs in that OS. Enterprise IT policies may also limit the number of agents that can be installed on a server, or may lock down the OS and limit what processes can run effectively inside it.

Despite these concerns, keeping servers updated can offer several advantages, including enhanced performance, reduced incompatibilities, increased stability, and enhanced features and configuration options; deploying updates may also be required to maintain warranty support. To help reduce incompatibilities and alleviate common concerns about updates, Altiris Deployment Solution for Dell Servers now enables administrators to update Dell PowerEdge server firmware from an independent Linux preboot environment designed to provide successful update deployment while minimizing risks to the OS and system stability.

APPLYING FIRMWARE UPDATES IN A PREBOOT ENVIRONMENT

Altiris Deployment Solution for Dell Servers has previously enabled administrators to apply DUPs through an agent installed in a Windows or Linux environment. Using this traditional method, administrators would apply firmware updates to the hardware components by running processes that began in a production OS and ended with a reboot. In fact, DUPs were previously only designed and certified by Dell to execute in this manner.

Removing the OS from the update process altogether, and instead deploying updates in a Preboot Execution Environment (PXE) that supports the latest DUPs for BIOSs and firmware, provides a clear way

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to help avoid incompatibilities and other potential problems. With the release of Altiris Deployment Solution for Dell Servers 3.0 (Service Pack 1), Dell now supports executing DUPs in the Linux preboot environment without the presence of an agent, and administrators can use Altiris Deployment Solution for Dell Servers to apply DUPs in an independent Linux preboot environment. In this approach, servers PXE boot, execute the DUPs, and then boot back into the production OS while tracking the change history for that server and without leaving a footprint.

This update method can offer several advantages, including the following:

- Updating sensitive server components without affecting the production OS, which helps increase availability and performance, minimize potential risks of downtime, and avoid the perceived risk of a residual memory or disk footprint
- Offering a mechanism to update sensitive server components on diskless servers, such as Dell PowerEdge R805 and PowerEdge R905 systems capable of running an embedded OS
- Helping ensure that server component firmware is updated first as the initial step in the hardware provisioning process, before the OS is loaded and, more importantly, before the system is placed into production
- Enabling service providers to offer update services that can help dramatically reduce concerns about modifying production systems—for example, by not requiring agent installation or removal

USING ALTIRIS DEPLOYMENT SOLUTION FOR DELL SERVERS

Altiris Deployment Solution for Dell Servers comprises two parts: the core Altiris Deployment Solution component and a Dell Deployment add-on available at no additional cost. The Dell Deployment add-on provides a Dell-specific interface in the

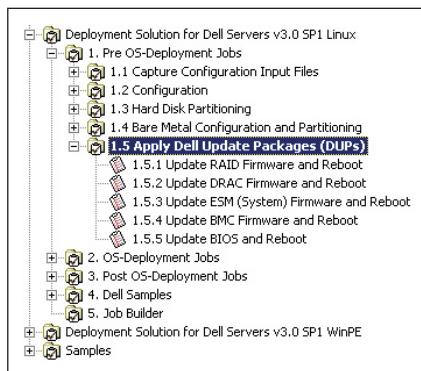


Figure 1. Predefined jobs in Altiris Deployment Solution for Dell Servers for applying Dell Update Packages in a Linux preboot environment

console and integrates Dell OpenManage™ Deployment Toolkit utilities with standard Altiris functions. The result is a collection of predefined Dell jobs that administrators can drag and drop onto managed systems to perform remote functions such as provisioning the BIOS, Dell Remote Access Controller (DRAC), baseboard management controller (BMC), and RAID components; deploying the OS; deploying popular software applications; and updating the firmware in either a pre-OS or post-OS environment (see Figure 1).¹

Before administrators can drag and drop these predefined Dell jobs onto the managed system, they must first copy the jobs to the Altiris Deployment Server. If this server can connect to the Internet, administrators can use the Dell-specific configuration pages to retrieve DUPs for Linux from support.dell.com. If this server cannot connect to the Internet, then they can retrieve DUPs from a repository on the Dell OpenManage Server Update Utility DVD using the same Dell-specific configuration pages. (Administrators could also use the Dell configuration dialog page in the Altiris console to retrieve DUPs for Windows from the Dell OpenManage Server Update Utility DVD and execute them in the Windows OS; however, the execution of DUPs in the preboot environment is currently only supported in Linux.)

When a Dell server is PXE booted, the Altiris PXE Server checks the Media Access Control (MAC) address of the specified network interface card against its cached entries. If the MAC address is not present, then the server is treated as unmanaged and displays the Altiris PXE menu along with the PXE image files that can be loaded. Administrators can then select “Dell DUP Linux” in the PXE boot menu. After the preboot environment is loaded, the server appears in the console as a managed system, and administrators can drag and drop predefined jobs onto the system to update the server’s firmware in a zero-footprint environment. As an alternative, they can preprovision the system in the Altiris Deployment Solution console based on lookup fields consisting of the serial number (Dell service tag), asset tag, or MAC address. This approach provides additional automation and helps avoid the need to perform certain tasks manually.

ENHANCING SERVER FIRMWARE UPDATES

Altiris Deployment Solution for Dell Servers is designed to simplify the process of applying Dell Update Packages for Dell PowerEdge servers while helping minimize risk regardless of the production OS used by a given server. By taking advantage of this approach to firmware updates, enterprises can help maximize the stability and performance of Dell servers in their environment.

For an expanded version of this article, including detailed step-by-step instructions, visit www.altiris.com/delldeploy. For more information on Altiris and Dell, visit www.altiris.com/dellwhitepapers and www.altiris.com/dell.

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¹For more information on these capabilities, see “Simplified Management with Altiris Deployment Solution for Dell Servers 3.0,” by Eric Szewczyk, in *Dell Power Solutions*, February 2008, DELL.COM/Downloads/Global/Power/ps1q08-20070310-Altiris.pdf.