

ALTIRIS.
SMART DECISIONS.



Simplify Dell™ PowerEdge M600 Series Blade Server Management

WITH ALTIRIS® DEPLOYMENT SOLUTION™ RIP AND REPLACE

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Altiris, Inc., now part of Symantec, is a pioneer of IT lifecycle management software that allows IT organizations to easily manage desktops, notebooks, thin clients, handhelds, industry-standard servers, and heterogeneous software including Windows, Linux, and UNIX. Altiris automates and simplifies IT projects throughout the life of an asset to reduce the cost and complexity of management. Altiris client and mobile, server, and asset management solutions natively integrate via a common Web-based console and repository. For more information, visit www.altiris.com.

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Abstract

Altiris, now part of Symantec, has extended its Altiris® Deployment Solution™ software to offer automated rip-and-replace functionality for Dell™ PowerEdge™ M600 series blade servers. This article describes how to configure and use this feature to help simplify deployment and management for Dell's 10th generation blade servers.

Introduction

Many enterprises today struggle with the rising costs of server management. Blade servers can provide several advantages in enterprise data centers, including allowing you to use fewer cables and, after the chassis is racked, carry out faster physical deployments than you can with 1U rack servers. Dell has teamed with Altiris, now part of Symantec, to provide blade servers with truly simplified management, helping reduce data center complexity by easing blade deployment and relocation within a chassis.

Altiris server management software is designed to simplify common tasks such as server deployment, software and firmware updating, inventory scanning, monitoring, security auditing, and asset management, and uses a central console for easy centralized management. Because Altiris software is designed to support Dell blade, rack, and tower servers equally, you can manage blade servers using the same console, agents, and policies you use for rack and tower servers. Using Altiris software in enterprise data centers can dramatically reduce initial server deployment time and help to simplify data center operations and reduce IT management costs. (For more information, see “Time-Savings Validation for Dell Server Deployment with Altiris Deployment Solution,” in Dell Power Solutions magazine, August 2005, at www.dell.com/downloads/global/power/ps3q05-20050221-Altiris.pdf.) Support for Dell blade servers does not incur additional licensing costs—you can add Dell support for existing licensed installations of Altiris® Deployment Solution™ software by installing the free Altiris Deployment Solution for Dell Servers add-on module, which is available for download at www.altiris.com/eval/dell.

One key feature of blade servers is the ability to associate a specific server with a specific location in a chassis. To take advantage of this characteristic, Altiris has extended its standard server management software to include additional automation functions for blade servers. Chief among these is the Altiris Deployment Solution rip-and-replace feature.

Configuring Altiris Deployment Solution Rip and Replace

“Rip and replace” refers to automating blade server deployment so that you can quickly and easily deploy a replacement blade with the same configuration as the previous blade. This deployment can be as simple as removing the old blade from the chassis, then inserting the new one in the same slot and powering it up.

You can configure Altiris Deployment Solution to detect Dell service tags, Media Access Control (MAC) addresses, asset tags, or universally unique identifiers (UUIDs) during boot and use that information to perform specialized bare-metal server builds. Because servers may include multiple network adapters, Dell service tags are typically recommended as the primary lookup key. You can set this option in the Altiris Console by clicking Tools>Options>Global>Primary lookup key.

In addition to providing deployment functionality, Altiris Deployment Solution enables powerful post-deployment management, including software delivery, inventory, hardware reconfiguration, and rapid server repurposing—the last of which is a key function of the rip-and-replace feature.

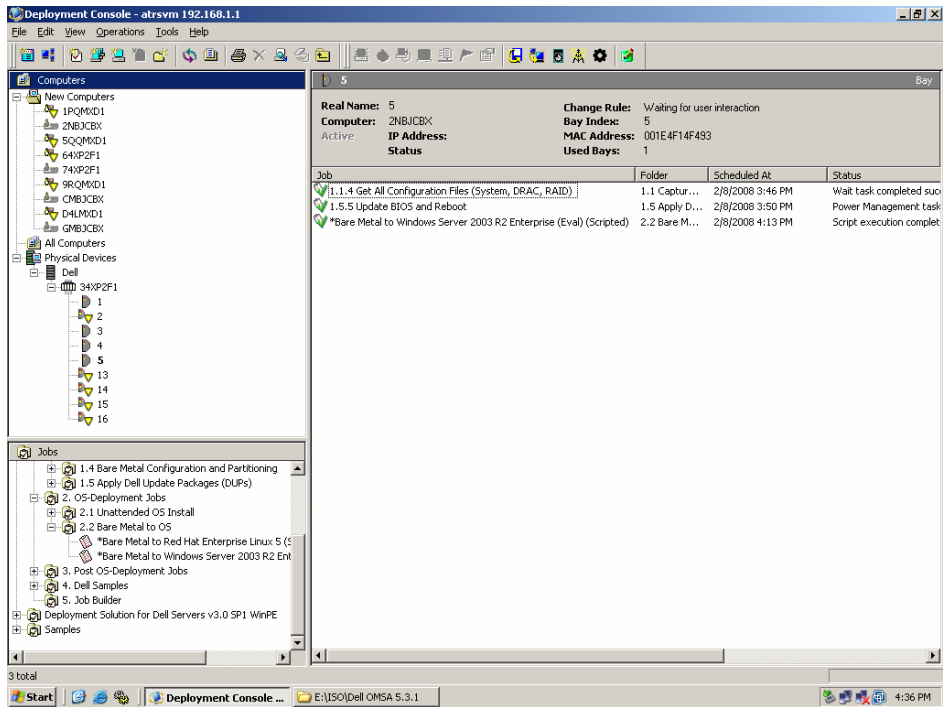


Figure 1: The Dell Chassis/Slot hierarchy is displayed in the Altiris Console.

SERVER CHANGE RULES

You can configure the rip-and-replace feature in the Altiris Console using server change rules, which designate the action the software should take if it detects a server change in a particular chassis slot. Chassis icons are displayed in the Physical Devices tree of the Computers pane in the Altiris Console. You can assign change rules either in the Bay Properties window for the chassis (see Figure 2) or in the properties window for an individual chassis slot.

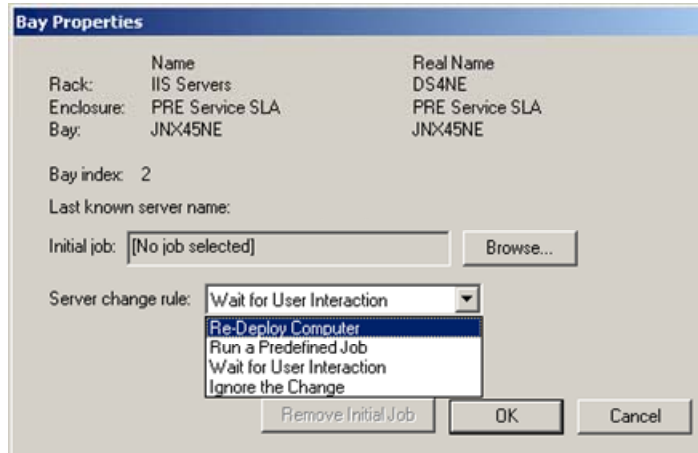


Figure 2: Each slot in a chassis can set a different server change rule.

You can choose from four rules:

1. **Re-Deploy Computer**—Altiris Deployment Solution automatically deploys the new blade using the last sequence of deployment and configuration jobs in the previous blade's job history, without requiring you to begin the build process through the Altiris console. In order for this re-deployment to occur, however, the previous blade's history must contain a task with an embedded script that includes the text "REM Deployment Start" or an image distribution task. Any history following one of the previously mentioned items will be automatically deployed. This setting enables you to quickly and easily replace a failed blade.
2. **Run a Predefined Job**—Altiris Deployment Solution automatically runs a predefined job on the new blade. This job can employ different levels of deployment, including various combinations of hardware configuration, OS deployment, and application installation. This type of automation can reduce the time you spend on basic installation functions from hours to minutes. For more information, see "Time-Savings Validation for Dell Server Deployment with Altiris Deployment Solution," in Dell Power Solutions magazine, August 2005, at www.dell.com/downloads/global/power/ps3q05-20050221-Altiris.pdf.
3. **Wait for User Interaction**—This is the default setting, in which Altiris Deployment Solution waits for you to manually perform deployment tasks. For blades previously deployed elsewhere, Altiris Deployment Solution does not automatically associate its history or configuration parameters with its new slot, and the Altiris Agent on the blade waits for further instructions. An icon in the Altiris Console indicates that the blade is waiting until you drag and drop the first job on the blade.
4. **Ignore the Change**—Altiris Deployment Solution does not run any jobs or other automated rip-and-replace functions, but does associate the history and configuration parameters of blades previously deployed in another slot with the new slot—a useful option when you want to move blades to different slots while maintaining their existing configuration.

If the blade has not been deployed elsewhere, then the typical default deployment mechanisms are available, such as initial deployment through the Preboot Execution Environment (PXE) menu. This type of globally defined deployment process operates separately from rip-and-replace functions.

The Altiris Console supports two views for working with blade servers:

- Administrator-defined hierarchy showing server groups, which appears in the All Computers tree in the Computers pane
- Physical hierarchy showing racks, chassis, and slots, which appears in the Physical Devices tree in the Computers pane

You can use the server groups to manage blades just like rack and tower servers, or use the physical hierarchy view to drag and drop jobs onto server blades installed in a particular rack, chassis, or slot.

To assign server change rules, you can first create a chassis view in the Altiris Console by right-clicking on the Physical Devices tree in the Computers pane and selecting "New Virtual Bay." In the Create Virtual Bays window, you can enter rack and enclosure names, select the enclosure type from the drop-down menu, and set the server change rule for the entire chassis (see Figure 3). After creating the chassis view, you can also set rules for individual slots.

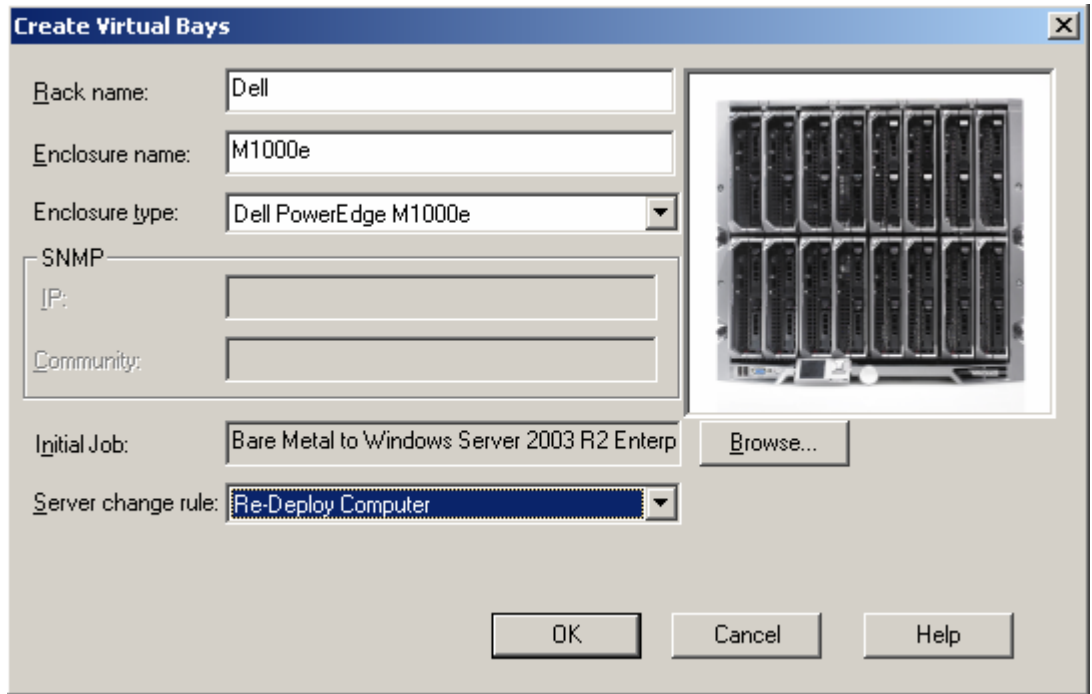


Figure 3: Create Virtual Bays dialog

Performing a Rip-and-Replace Operation

Performing a rip-and-replace operation by replacing an existing blade with a new one involves these steps:

1. Remove a blade server from a chassis slot, and then install the new blade in that slot.
2. Power up the new blade manually or by using remote power control through the Dell Remote Access Controller (DRAC) or baseboard management controller Intelligent Platform Management Interface (IPMI) interfaces through Dell conventional methods (if first configured). The Deployment Solution for Dell Servers add-on module offers the ability to power cycle through the IPMI interface by right-clicking the managed server icon in the Deployment Server console, but the server must first be discovered through the Dell Configuration Utility or manually added based on the IP address, Deployment Server's Computer ID, and credentials needed to access the out-of-band Dell hardware management before this functionality is enabled.
3. The blade network interface card that is set to network boot connects to the Altiris PXE server.
4. The Altiris PXE server checks the blade's MAC address to determine whether it recognizes the blade as an existing Altiris managed device. If the PXE server recognizes the blade, then it checks the Deployment Server for any queued jobs. If no jobs are queued, then the server tries to boot to the production OS. If the PXE server does not recognize the blade, then it directs the blade to load the Initial Deployment PXE menu where a user defined PXE boot image can be selected, and the procedure continues with the following steps.
5. The blade boots from the Initial Deployment PXE image, and the Altiris BootWorks® agent within that image contacts Altiris Deployment Server.

6. Altiris Deployment Server confirms that the blade is new using the primary lookup setting from the Altiris Console, creates a Re-Deploy task in the job history of the newly appointed blade server, then executes the respective server change rule for the appropriate chassis slot. If you are using the Re-Deploy Computer rule, the deployment process is automated and requires no manual intervention.

Note: Altiris has learned of a future enhancement to Dell's M1000e chassis which will change the way rip and replace is triggered today. This future enhancement will provide the ability to assign persistent WorldWide Names (WWN) and MAC Addresses to the individual chassis slots and is expected to be introduced around the Q2 '08 timeframe. Traditionally, rip and replace has been triggered based on the changing of the MAC Address when a failed Blade server is removed from the chassis slot and replaced with a new, unmanaged Blade. When the Blade server is powered on and booted to the PXE, the Altiris PXE Server senses that the new server's MAC address is not in the cache and then treats it as a re-deployment of the previous Blade's deployment history. To circumvent the new M1000e chassis feature, the next major release of Deployment Solution v6.9 will provide the ability to specify primary key lookups other than just the MAC address. For example, you will now have the ability to specify the following lookups: Service tags, Asset Tags, universally unique identifiers (UUID), and of course, the Media Access Control (MAC) address.

Avoiding Unwanted Deployments

Altiris Deployment Solution is designed to avoid mistaken blade re-imaging or redeployment with the rip-and-replace feature. For example, to help ensure that the software does not perform unwanted jobs or other deployment tasks automatically, the default change rule for each chassis slot is "Wait for User Interaction". In addition, the Altiris Initial Deployment feature is disabled by default for new or existing servers, which helps prevent deployment events from executing by booting to the Initial Deployment PXE menu and executing a job from the physical server without explicit permission. You enable this feature by right-clicking on the Initial Deployment job, clicking Properties > Advanced, and clearing the Servers check box.

Simplifying Blade Server Management

The rip-and-replace feature for Dell PowerEdge M600 series blade servers is a standard feature of Altiris Deployment Solution for Dell Servers, and can provide significant advantages for both new and existing users of these servers. Using this software to manage blades does not require special licensing beyond the standard Altiris Deployment Solution per-server licenses. Once implemented, Altiris Deployment Solution can automatically detect Dell blade servers as they are added to the environment, helping provide a simplified, cost-effective way to manage these servers.

Additional Information

Read more about Altiris support for blade servers in the following resources:

- To view a video of an actual Dell M600 series rip and replace, visit http://ibase.altiris.com/resources/dell/demo/rip_and_replace10g.wmv
- To view a quick 10-minute product video for Altiris Deployment Solution, visit <http://ibase.altiris.com/resources/dell/demo/Deployment10min.wmv>.

- To learn how Dell IT uses Altiris Deployment Solution to deploy servers around the world, visit http://dell.altiris.com/portals/0/dell_case_study_altiris_v2.pdf.
 - Video: <http://ibase.altiris.com/resources/dell/videos/dellitdvd.wmv> (23MB)
 - Podcast: http://i.dell.com/images/global/vlog/quicktime/ent_server_provisioning.mp3 (1.48MB)
- To read an independent time savings validation study that shows how Altiris Deployment Solution reduces server deployment times, visit <http://www.dell.com/downloads/global/power/ps3q05-20050221-Altiris.pdf>.
- To view the Altiris Deployment Solution for Dell Servers product support page, visit www.altiris.com/delldeploy.
- To view Altiris Deployment Solution documentation, visit <http://www.altiris.com/Support/Documentation.aspx>.
- For more information about the Dell and Altiris partnership, visit www.dell.com/altiris.