

Simplifying Blade Server Management

with Altiris Deployment Solution Rip and Replace

Altiris has extended its Altiris® Deployment Solution™ software to offer automated rip-and-replace functionality for Dell™ PowerEdge™ blade servers. This article describes how to configure and use this feature to help simplify blade server deployment.

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Many enterprises today struggle with the rising costs of server management. Blade servers can provide several advantages in enterprise data centers, including allowing administrators to use fewer cables and, after the chassis is racked, carry out faster physical deployments than they can with 1U rack servers. Dell has teamed with Altiris 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, monitoring, security auditing, and asset management, and uses a single console for easy centralized management. Because Altiris software is designed to support Dell blade, rack, and tower servers equally, administrators can manage blade servers using the same console, agents, and policies they use for rack and tower servers. Using Altiris software in enterprise data centers can dramatically reduce initial server deployment time,¹ helping simplify data center operations and reduce IT management costs. And support

for Dell blade servers does not incur additional licensing costs—administrators can add Dell support for existing licensed installations of Altiris Deployment Solution by installing the free Altiris Deployment Solution for Dell Servers add-on module.²

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 administrators 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.

¹ For more information, see "Time-Savings Validation for Dell Server Deployment with Altiris Deployment Solution," by Todd Mitchell and Landon Hale, in *Dell Power Solutions*, August 2005, www.dell.com/downloads/global/power/ps3q05-20050221-Altiris.pdf.

² This module is available for download at www.altiris.com/eval/dell.

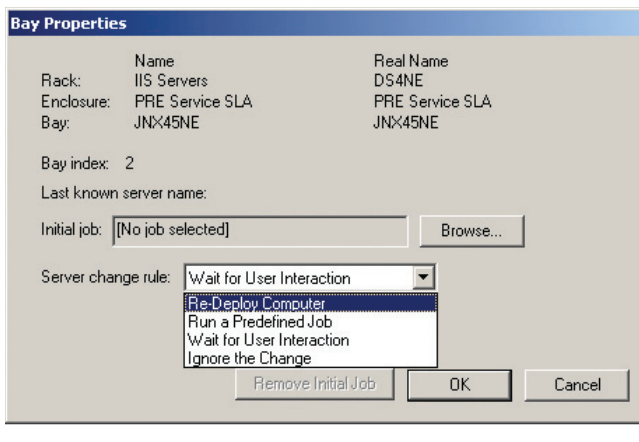


Figure 1. Server change rules in the Bay Properties window of the Altiris console

Administrators 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; administrators can set this option in the Altiris console by selecting 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.

Server change rules

Administrators 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; administrators can assign change rules either in the Bay Properties window for the chassis (see Figure 1) or in the properties window for an individual chassis slot. They can choose from four rules:

- **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,³ without requiring administrators to begin the build process through the Altiris console. This setting enables administrators to quickly and easily replace a failed blade.

- **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 administrators spend on basic installation functions from hours to minutes.⁴
- **Wait for User Interaction:** This is the default setting, in which Altiris Deployment Solution waits for administrators 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 an administrator drags and drops the first job on the blade.
- **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 administrators 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: an administrator-defined hierarchy showing server groups, which appears in the All Computers tree in the Computers pane; and a physical hierarchy showing racks, chassis, and slots, which appears in the Physical Devices tree in the Computers pane. Administrators 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, administrators 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, they 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 2). After creating the chassis view, they can also set rules for individual slots.

³ Altiris Deployment Solution maintains a detailed history of management functions executed on a managed computer, including configuration changes, imaging events, custom scripts, software delivery tasks, and so on. When the Re-Deploy Computer rule is used on a newly inserted blade, Altiris Deployment Solution executes the tasks in the slot's history starting with the last Distributing a Disk Image task or Scripted OS Install task, or from the last Run Script task that includes the `rem deployment start` command.

⁴ For more information, see “Time-Savings Validation for Dell Server Deployment with Altiris Deployment Solution,” by Todd Mitchell and Landon Hale, in *Dell Power Solutions*, August 2005, www.dell.com/downloads/global/power/ps3q05-20050221-Altiris.pdf.

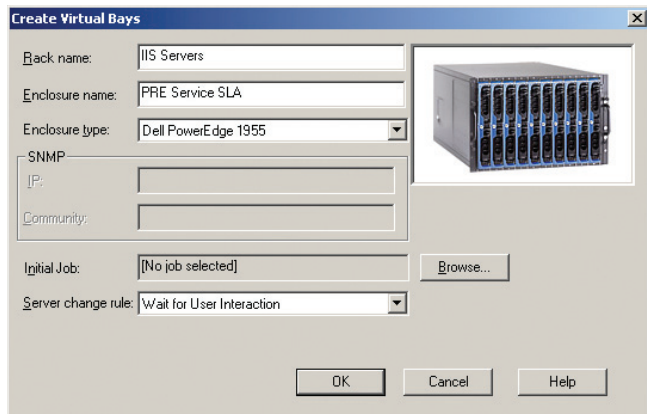


Figure 2. Create Virtual Bays window in the Altiris console

Performing rip-and-replace operations

Performing rip-and-replace operations by replacing an existing blade with a new one involves the following steps:


1. Administrators remove a blade server from a chassis slot, then install the new blade in that slot.
2. Administrators 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 available as part of the Altiris Deployment Solution for Dell Servers add-on module.
3. The blade network interface card that is set to network boot connects to the Altiris PXE server.⁵
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 directs the blade to load a managed image. If the PXE server does not recognize the blade, then it directs the blade to load the Initial Deployment PXE boot image, and the procedure continues with the following steps.
5. The blade boots from the Initial Deployment image, and the Altiris 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, then executes the server change rule for the appropriate chassis slot. If administrators are using the Re-Deploy Computer rule, the deployment process is automated and requires no manual intervention.

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 servers, which helps prevent deployment events from executing on managed or unmanaged servers without explicit permission. Administrators enable this feature by right-clicking on the Initial Deployment job, selecting Properties > Advanced, and clearing the Servers check box.

Simplifying blade server management

The rip-and-replace feature for Dell PowerEdge blade servers is a standard part 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. 

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FOR MORE INFORMATION

Altiris and Dell:

www.altiris.com/dell
www.dell.com/altiris

Altiris Deployment Solution for Dell Servers:

www.altiris.com/delldeploy

Altiris Deployment Solution for Dell blade servers:

www.altiris.com/upload/ds_dsfornewdellservers_6.pdf

Altiris Deployment Solution documentation:

www.altiris.com/support/documentation

Altiris Deployment Solution video:

apl-ibase.altiris.com/resources/dell/demo/Deployment10min.wmv

Dell Inc. "Increasing Efficiencies for One of the World's Most Efficient Companies." December 2005. www.altiris.com/upload/dell_it_success_story.pdf

Mitchell, Todd, and Landon Hale. "Time-Savings Validation for Dell Server Deployment with Altiris Deployment Solution."

Dell Power Solutions, August 2005. www.dell.com/downloads/global/power/ps3q05-20050221-Altiris.pdf

⁵ For more information about the PXE boot process, see the Altiris Deployment Solution documentation at www.altiris.com/support/documentation.