

Windows Deployment Services for Bare Metal Recovery in Large Replay Deployments

Introduction

The Replay Recovery Console (RRC) is used in conjunction with a Replay Core to perform Bare Metal Recovery of a Windows server or desktop. The RRC is based on Windows PE 2.1 and requires that you create a Bootable CD before performing a bare-metal recovery. The CD approach works fine with small environments, however, when Replay is deployed within a large environment it is less practical to create and use a bootable CD for server recoveries. This document explains how you can leverage PXE technology for large scale environments.

Pre-Boot Execution Environment (PXE) technology is a standard created by Intel that establishes a common and consistent set of pre-boot services within the boot firmware. The end goal is to enable a client to perform a network boot and receive a network boot program (NBP) from a network boot server.

The PXE server is used by Windows Deployment Services (WDS) to provide network boot programs to client computers. When a new PXE remote boot-enabled client computer starts for the first time, it uses the DHCP to request an Internet Protocol (IP) address and it must locate a PXE boot server that will send it the appropriate files from which to boot. After the PXE client has an IP address, has located a boot server, and has downloaded the file that is needed to boot. It is at this point that you receive a prompt to press F12 for a network boot.

Once the client has booted into the RRC environment, the server recovery can proceed using the standard documented process.

Prerequisites

The following components are required for deploying RRC with PXE

1. A functioning DHCP server with an active scope. WDS will utilize PXE which requires a DHCP server. The following Dynamic Host Configuration Protocol (DHCP) options set:
 - #60 = Client Identifier (set to "PXECClient")
 - #66 = Boot Server Host Name. In this case the IP address of the WDS server
 - #67 = BootFile Name.
2. Firewall and server port settings. The following UDP ports must be open on the WDS server and on the firewall:
 - Port 67 (DHCP)
 - Port 69 (TFTP)
 - Port 4011 (PXE)
3. WDS Server. The Transport Server WDS role service is required for PXE support.
 - Windows Server® 2008 - WDS is included in the operating system software. The PXE service point site role must be installed on a server with WDS installed. The Transport Server is a component of

WDS and can be installed using the Add Roles Wizard. WDS services can be provided by a primary or secondary site server. For more information about WDS on Windows Server 2008, see: <http://go.microsoft.com/fwlink/?LinkId=129528>.

- Windows Server 2003 - For Windows Server 2003, Service Pack 1 you must first install the Remote Installation Services (RIS) and then install the Windows Vista SP1 or Windows Server 2008 version of Windows Automated Installation Kit (Windows AIK). RIS must be installed however no additional RIS configuration is required.
 - For Windows 2003 servers running Service Pack 2 and higher, the Windows AIK installation is not necessary. The WDS role can be added by using Add or Remove Programs. Use the following link for more information about the Windows AIK: <http://go.microsoft.com/fwlink/?LinkId=81030>
4. The RRC Boot.wim Image. To create the boot.wim, install the Replay Boot CD Builder and create an ISO image with the appropriate configuration. Next extract the Boot.wim file from the ISO image using tools such as PowerIso or WinRar. The image is available under *sources\boot.wim*.

Configuration overview

Install WDS on a Windows Server running Windows Server 2008 R2. During installation make sure that the PXE service point site role is installed on a server along with WDS. Note the IP address of the WDS server. Next update the Dynamic Host Configuration Protocol (DHCP) options #60 = Client Identifier (set to "PXECient"), #66 = Boot Server Host Name or IP address of the WDS server and #67 = Boot.wim on the DHCP server. Also configure your Windows firewall to allow UDP on Port 67 (DHCP), Port 69 (TFTP) and Port 4011 (PXE). Last step is to register the boot.wim image in the WDS server and now you are ready to boot. Check that the network is the first option for booting. Boot the client and press F12

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Network boot from Intel E1000
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CLIENT MAC ADDR: 00 0C 29 1C 27 A6  GUID: 564DED9E-5119-9F18-72BD-E2B28D1C27A6
CLIENT IP: 10.10.1.162  MASK: 255.255.0.0  DHCP IP: 10.10.10.10
GATEWAY IP: 10.10.10.99

Downloaded WDSNBP...

Architecture: x64
Contacting Server: 10.10.1.134.
TFTP Download: boot\x64\pxeboot.com

Press F12 for network service boot
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