



Intel® Server Utilities for Windows Pre-installation Environment

Deployment Procedure, Version 2005

Revision 1.0

April 19, 2007

Enterprise Platforms and Services Division - Marketing

Revision History

Date	Revision Number	Modifications
April 19, 2007	1.0	Initial release.

Disclaimers

Information in this document is provided in connection with Intel® products. No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document. Except as provided in Intel's Terms and Conditions of Sale for such products, Intel assumes no liability whatsoever, and Intel disclaims any express or implied warranty, relating to sale and/or use of Intel products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright or other intellectual property right. Intel products are not intended for use in medical, life saving, or life sustaining applications. Intel may make changes to specifications and product descriptions at any time, without notice.

Designers must not rely on the absence or characteristics of any features or instructions marked "reserved" or "undefined." Intel reserves these for future definition and shall have no responsibility whatsoever for conflicts or incompatibilities arising from future changes to them.

The Intel® Server Utilities for Windows Pre-installation Environment may contain design defects or errors known as errata which may cause the product to deviate from published specifications. Current characterized errata are available on request.

Intel, Pentium, Itanium, and Xeon are trademarks or registered trademarks of Intel Corporation.

*Other brands and names may be claimed as the property of others.

Copyright © Intel Corporation 2007. All rights reserved.

Table of Contents

Introduction 1

 Intended Audience..... 1

 Prerequisites..... 1

Creating Customized Windows PE CD 2

 Step 1: Build Preparation..... 2

 Step 2: Update Windows PE Registry for Intel Drivers..... 2

 Step 3: Create Customized Windows PE Image 2

 Step 4: Insert Intel Server Configuration Utilities and Driver 3

 Step 5: Enable WMI..... 3

 Step 6: Enable Multi Processor Support (optional)..... 3

 Step 7: Create CD 4

Booting from the Customized CD 4

Appendix A. Intel Driver Content to Insert into winpesys.inf 5

Glossary 8

< This page intentionally left blank. >

Introduction

This document describes how to prepare a customized Windows pre-installation environment (Windows PE) image.

Customization refers to the inclusion of the Intel configuration and deployment utilities and its drivers into the Windows PE OS. A bootable Windows PE CD is created from this customized image, from which the Intel Windows PE utilities (iFlash32, SELViewer, SYSCFG, FRUSDR and FWPIAUPD) can be run without going through another update procedure.

Customization includes support for:

- PNP: Adds Plug and Play device driver detection
- WMI: Adds the WMI providers and classes
- Intel® Server Configuration Utilities: Adds the binaries of Intel's Server Configuration Utilities
- Intel drivers: Adds support for the installing IMB driver, IBSMUtil driver, and Flash update driver that are required by the Intel's Server Configuration utilities

Intended Audience

This document is intended for:

- OEM customers who own the license to redistribute the customized Windows PE CD with Server Configuration Utilities
- Windows System Administrators

Prerequisites

- A computer running Microsoft Windows XP* or Windows Server 2003*.
- The files for the Intel® Server Configuration utilities and drivers.
- Microsoft Windows* PE CD with the necessary build tools of version 2005 and executables to create the customized Windows PE image.
- Microsoft Windows Server 2003 with Service Pack 1 (SP1) CD. This OS forms the 'Kernel' for the customized Windows PE OS.

Creating Customized Windows PE CD

Step 1: Build Preparation

1. Insert the Microsoft Windows PE CD that has the build tools for version 2005.
2. Create a folder on your system to store the Windows PE 2005 build tools. In future steps, this is referred to as the *<build_location>*.
3. Copy the contents of \Winpe from the CD to *<build_location>*.

Step 2: Update Windows PE Registry for Intel Drivers

1. Open *<build_location>*\WINPESYS.INF.
2. Copy the text from the appendix of this document into the `network configuration entries` section of the file.

Step 3: Create Customized Windows PE Image

1. Insert the Windows Server 2003 SP1 CD.
2. Run *<build_location>*\mkimg *<cd_drive>* *<winpe_image_dir>* /PNP /WMI

where:

- *<build_location>* is the folder you created in Step 1 to store the Windows PE 2005 build tools.
- *<cd_drive>* is the Windows Server 2003 SP1 CD
- *<winpe_image_dir>* is the destination folder into which the customized Windows PE image files are copied.
- /PNP and /WMI are switches that provide the support for Plug and Play and Windows Management Instrumentation (WMI).

Example: C:\build_X86\mkimg.cmd e:\ c:\winpe /PNP /WMI

Step 4: Insert Intel Server Configuration Utilities and Driver

1. Ensure that all files for the Intel Server Configuration utilities are accessible on the hard drive or removable media. In the steps below, this location is `<source_folder>`.
2. Run `C:\<build_location>\drvinst.exe /inf:<source_folder> <winpe_image_dir>`

where:

- `<source_folder>` is the folder that holds the Intel driver files:
 - IMB driver: `imbdrv.inf`, `imbdrv.sys`
 - IBSMUtil driver: `ibsmutil.inf`, `ibsmutil.sys`
 - Flash Update driver: `flashud.inf`, `FLASHUD.sys`
- `<winpe_image_dir>` is the destination folder into which the customized Windows PE image files are copied.

Example: `C:\build_X86\drvinst.exe /inf:c:\Utilfiles c:\winpe`

This adds Intel driver files (IMB, IBSMUtil and Flash update) to the Windows PE image.

3. Create a folder under `<winpe_image_dir>` and copy the Intel Server Configuration Utility files from `<source_folder>` into it.

Step 5: Enable WMI

1. Insert the Microsoft Windows PE CD.
2. Create these folders under `<winpe_image_dir>\i386\system32\wbem`:
 - repository
 - autorecover
 - logs
 - mof
3. Copy the contents of `<cdrom_drive>\i386\system32\wbem\repository` to `<winpe_image_dir>\i386\system32\wbem\repository`

Step 6: Enable Multi Processor Support (optional)

1. Delete `ntoskrnl.exe` from `<winpe_image_dir>\i386\system32\`
2. Rename `ntkrnlmp.exe` to `ntoskrnl.exe` in `<winpe_image_dir>\i386\system32\`
3. Open `txtsetup.sif` in `<winpe_image_dir>\i386\`
4. Under the section `[Hal.Load]`, replace

- mps_mp = halapic.dll with mps_mp = halmps.dll
- acpiapic_mp = halaacpi.dll with acpiapic_mp = halmacpi.dll

Step 7: Create CD

1. Run `<build_location>\oscdimg.exe -b <boot_location>\etfsboot.com -n <winpe_image_dir> <iso_image>`

where:

- `<build_location>` is the folder you created in Step 1 to store the Windows PE 2005 build tools.
- `<winpe_image_dir>` is the destination folder into which the customized Windows PE image files were copied in Step 3: Create Customized Windows PE Image.
- `<iso_image>` is the location and filename for the image that is to be created.

Example: `C:\build_x86\oscdimg -bc:\build_x86\etfsboot.com -n c:\winpe c:\winpex86.iso`

2. Use your CD-recording software to burn the ISO image file to a blank CD. This CD can be used to boot the target system with the Windows PE OS.

Booting from the Customized CD

Insert the CD you created into the computer on which you want to run Windows PE and start the computer. The computer will start Windows PE OS from the CD. Once the operating system is up, the user can navigate to Intel's system configuration utilities repository and run the utilities.

Note: Plug and Play hardware detection occurs only while the `factory.exe - Windows PE` command runs. Therefore, the Plug and Play devices (like the USB device) that you want to add to your Windows PE image must be attached to the computer when you start Windows PE.

Appendix A. Intel Driver Content to Insert into winpesys.inf

```
;
;Intel drivers
;
HKLM,"SYSTEM\ControlSet001\Control\Class\{4D36E97D-E325-11CE-BFC1-08002BE10318}\0001","InfPath",REG_SZ,"oem3.inf"
HKLM,"SYSTEM\ControlSet001\Control\Class\{4D36E97D-E325-11CE-BFC1-08002BE10318}\0001","InfSection",REG_SZ,"IMBDrvInstallSection"
HKLM,"SYSTEM\ControlSet001\Control\Class\{4D36E97D-E325-11CE-BFC1-08002BE10318}\0001","ProviderName",REG_SZ,"Intel, Inc."
HKLM,"SYSTEM\ControlSet001\Control\Class\{4D36E97D-E325-11CE-BFC1-08002BE10318}\0001","DriverDateData",REG_BINARY,00,40,cb,58,e8,de,c3,01
HKLM,"SYSTEM\ControlSet001\Control\Class\{4D36E97D-E325-11CE-BFC1-08002BE10318}\0001","DriverDate",REG_SZ,"1-20-2004"
HKLM,"SYSTEM\ControlSet001\Control\Class\{4D36E97D-E325-11CE-BFC1-08002BE10318}\0001","DriverVersion",REG_SZ,"6.2.0.0"
HKLM,"SYSTEM\ControlSet001\Control\Class\{4D36E97D-E325-11CE-BFC1-08002BE10318}\0001","MatchingDeviceId",REG_SZ,"*imbdrv"
HKLM,"SYSTEM\ControlSet001\Control\Class\{4D36E97D-E325-11CE-BFC1-08002BE10318}\0001","DriverDesc",REG_SZ,"Intel Intelligent Management Bus Driver V8.10"

HKLM,"SYSTEM\ControlSet001\Control\Class\{4D36E97D-E325-11CE-BFC1-08002BE10318}\0002","InfPath",REG_SZ,"oem4.inf"
HKLM,"SYSTEM\ControlSet001\Control\Class\{4D36E97D-E325-11CE-BFC1-08002BE10318}\0002","InfSection",REG_SZ,"Flashhud_Inst"
HKLM,"SYSTEM\ControlSet001\Control\Class\{4D36E97D-E325-11CE-BFC1-08002BE10318}\0002","InfSectionExt",REG_SZ,".NT"
HKLM,"SYSTEM\ControlSet001\Control\Class\{4D36E97D-E325-11CE-BFC1-08002BE10318}\0002","ProviderName",REG_SZ,"Intel, Inc."
HKLM,"SYSTEM\ControlSet001\Control\Class\{4D36E97D-E325-11CE-BFC1-08002BE10318}\0002","DriverDateData",REG_BINARY,00,c0,bf,b6,30,c4,c3,01
HKLM,"SYSTEM\ControlSet001\Control\Class\{4D36E97D-E325-11CE-BFC1-08002BE10318}\0002","DriverDate",REG_SZ,"12-17-2003"
HKLM,"SYSTEM\ControlSet001\Control\Class\{4D36E97D-E325-11CE-BFC1-08002BE10318}\0002","DriverVersion",REG_SZ,"1.0.0.0"
HKLM,"SYSTEM\ControlSet001\Control\Class\{4D36E97D-E325-11CE-BFC1-08002BE10318}\0002","MatchingDeviceId",REG_SZ,"*int0800"
HKLM,"SYSTEM\ControlSet001\Control\Class\{4D36E97D-E325-11CE-BFC1-08002BE10318}\0002","DriverDesc",REG_SZ,"Intel 28F320C3 Flash Update Device Driver"

HKLM,"SYSTEM\ControlSet001\Control\Class\{4D36E97D-E325-11CE-BFC1-08002BE10318}\0003","InfPath",REG_SZ,"ibsmutil.inf"
HKLM,"SYSTEM\ControlSet001\Control\Class\{4D36E97D-E325-11CE-BFC1-08002BE10318}\0003","InfSection",REG_SZ,"Util_Device_Inst"
HKLM,"SYSTEM\ControlSet001\Control\Class\{4D36E97D-E325-11CE-BFC1-08002BE10318}\0003","InfSectionExt",REG_SZ,".NTx86"
HKLM,"SYSTEM\ControlSet001\Control\Class\{4D36E97D-E325-11CE-BFC1-08002BE10318}\0003","ProviderName",REG_SZ,"Intel Corporation"
HKLM,"SYSTEM\ControlSet001\Control\Class\{4D36E97D-E325-11CE-BFC1-08002BE10318}\0003","DriverDateData",REG_BINARY,00,80,f0,fc,32,88,c6,01
HKLM,"SYSTEM\ControlSet001\Control\Class\{4D36E97D-E325-11CE-BFC1-08002BE10318}\0003","DriverDate",REG_SZ,"6-5-2006"
HKLM,"SYSTEM\ControlSet001\Control\Class\{4D36E97D-E325-11CE-BFC1-08002BE10318}\0003","DriverVersion",REG_SZ,"1.0.0.0"
HKLM,"SYSTEM\ControlSet001\Control\Class\{4D36E97D-E325-11CE-BFC1-08002BE10318}\0003","MatchingDeviceId",REG_SZ,"*intelutildev"
HKLM,"SYSTEM\ControlSet001\Control\Class\{4D36E97D-E325-11CE-BFC1-08002BE10318}\0003","DriverDesc",REG_SZ,"Intel Server Management Utility Device v1.0"
```

```
HKLM,"SYSTEM\ControlSet001\Enum\Root\SYSTEM\0001","ClassGUID",REG_SZ,"{4D36E97D-E325-11CE-BFC1-08002BE10318}"
HKLM,"SYSTEM\ControlSet001\Enum\Root\SYSTEM\0001","Class",REG_SZ,"System"
HKLM,"SYSTEM\ControlSet001\Enum\Root\SYSTEM\0001","HardwareID",REG_MULTI_SZ,"2a,00,49,00,4d,00,42,00,44,00,52,00,56,00,00,00,00,00"
HKLM,"SYSTEM\ControlSet001\Enum\Root\SYSTEM\0001","Driver",REG_SZ,"{4D36E97D-E325-11CE-BFC1-08002BE10318}\\0001"
HKLM,"SYSTEM\ControlSet001\Enum\Root\SYSTEM\0001","Mfg",REG_SZ,"Intel, Inc."
HKLM,"SYSTEM\ControlSet001\Enum\Root\SYSTEM\0001","Service",REG_SZ,"imbdrv"
HKLM,"SYSTEM\ControlSet001\Enum\Root\SYSTEM\0001","DeviceDesc",REG_SZ,"Intel Intelligent Management Bus Driver V8.10"
HKLM,"SYSTEM\ControlSet001\Enum\Root\SYSTEM\0001","ConfigFlags",REG_DWORD,00000000
HKLM,"SYSTEM\ControlSet001\Enum\Root\SYSTEM\0001","Capabilities",REG_DWORD,00000000
HKLM,"SYSTEM\ControlSet001\Enum\Root\SYSTEM\0001\LogConf"
HKLM,"SYSTEM\ControlSet001\Enum\Root\SYSTEM\0001\Control","ActiveService",REG_SZ,"imbdrv"

HKLM,"SYSTEM\ControlSet001\Enum\Root\SYSTEM\0002","ClassGUID",REG_SZ,"{4D36E97D-E325-11CE-BFC1-08002BE10318}"
HKLM,"SYSTEM\ControlSet001\Enum\Root\SYSTEM\0002","Class",REG_SZ,"System"
HKLM,"SYSTEM\ControlSet001\Enum\Root\SYSTEM\0002","HardwareID",REG_MULTI_SZ,"2a,00,49,00,4e,00,54,00,30,00,38,00,30,00,30,00,00,00,00,00"
HKLM,"SYSTEM\ControlSet001\Enum\Root\SYSTEM\0002","Driver",REG_SZ,"{4D36E97D-E325-11CE-BFC1-08002BE10318}\\0002"
HKLM,"SYSTEM\ControlSet001\Enum\Root\SYSTEM\0002","Mfg",REG_SZ,"Intel, Inc."
HKLM,"SYSTEM\ControlSet001\Enum\Root\SYSTEM\0002","Service",REG_SZ,"int0800"
HKLM,"SYSTEM\ControlSet001\Enum\Root\SYSTEM\0002","DeviceDesc",REG_SZ,"Intel 28F320C3 Flash Update Device Driver"
HKLM,"SYSTEM\ControlSet001\Enum\Root\SYSTEM\0002","ConfigFlags",REG_DWORD,00000000
HKLM,"SYSTEM\ControlSet001\Enum\Root\SYSTEM\0002","Capabilities",REG_DWORD,00000000
HKLM,"SYSTEM\ControlSet001\Enum\Root\SYSTEM\0002\LogConf"
HKLM,"SYSTEM\ControlSet001\Enum\Root\SYSTEM\0002\Control","ActiveService",REG_SZ,"int0800"

HKLM,"SYSTEM\ControlSet001\Enum\Root\SYSTEM\0003","ClassGUID",REG_SZ,"{4D36E97D-E325-11CE-BFC1-08002BE10318}"
HKLM,"SYSTEM\ControlSet001\Enum\Root\SYSTEM\0003","Class",REG_SZ,"System"
HKLM,"SYSTEM\ControlSet001\Enum\Root\SYSTEM\0003","HardwareID",REG_MULTI_SZ,"2a,00,49,00,6e,00,74,00,65,00,6c,00,55,00,74,00,69,00,6c,00,44,00,65,00,56,00,00,00,00,00"
HKLM,"SYSTEM\ControlSet001\Enum\Root\SYSTEM\0003","Driver",REG_SZ,"{4D36E97D-E325-11CE-BFC1-08002BE10318}\\0003"
HKLM,"SYSTEM\ControlSet001\Enum\Root\SYSTEM\0003","Mfg",REG_SZ,"Intel Corporation"
HKLM,"SYSTEM\ControlSet001\Enum\Root\SYSTEM\0003","Service",REG_SZ,"IBSMUTIL"
HKLM,"SYSTEM\ControlSet001\Enum\Root\SYSTEM\0003","DeviceDesc",REG_SZ,"Intel Server Management Utility Device v1.0"
HKLM,"SYSTEM\ControlSet001\Enum\Root\SYSTEM\0003","ConfigFlags",REG_DWORD,00000000
HKLM,"SYSTEM\ControlSet001\Enum\Root\SYSTEM\0003","Capabilities",REG_DWORD,00000000
HKLM,"SYSTEM\ControlSet001\Enum\Root\SYSTEM\0003\LogConf"
HKLM,"SYSTEM\ControlSet001\Enum\Root\SYSTEM\0003\Device Parameters"
HKLM,"SYSTEM\ControlSet001\Enum\Root\SYSTEM\0003\Control","ActiveService",REG_SZ,"IBSMUTIL"

HKLM,"SYSTEM\ControlSet001\Services\imbdrv","Type",REG_DWORD,00000001
HKLM,"SYSTEM\ControlSet001\Services\imbdrv","Start",REG_DWORD,00000002
HKLM,"SYSTEM\ControlSet001\Services\imbdrv","ErrorControl",REG_DWORD,00000001
HKLM,"SYSTEM\ControlSet001\Services\imbdrv","ImagePath",REG_EXPAND_SZ,"System32\Drivers\imbdrv.sys"
HKLM,"SYSTEM\ControlSet001\Services\imbdrv","DisplayName",REG_SZ,"Intel Intelligent Management Bus Driver V8.10"
HKLM,"SYSTEM\ControlSet001\Services\imbdrv","Configuration",REG_DWORD,00000011
HKLM,"SYSTEM\ControlSet001\Services\imbdrv","DiagCode",REG_DWORD,0000007f
HKLM,"SYSTEM\ControlSet001\Services\imbdrv","InstallRefCount",REG_DWORD,00000001
```

```
HKLM,"SYSTEM\\ControlSet001\\Services\\imbdrrv\\Security","Security",REG_BINARY,01,00,14,80,b8,00,00,00,c4,00,00,00,14,00,00,00,30,00,00,00,02,00,1c,00,01,00,00,00,02,80,14,00,ff,01,0f,00,01,01,00,00,00,00,00,01,00,00,00,00,02,00,88,00,06,00,00,00,00,00,14,00,fd,01,02,00,01,01,00,00,00,00,00,05,12,00,00,00,00,00,00,18,00,ff,01,0f,00,01,02,00,00,00,00,00,05,20,00,00,00,20,02,00,00,00,00,14,00,8d,01,02,00,01,01,00,00,00,00,05,04,00,00,00,00,14,00,8d,01,02,00,01,01,00,00,00,00,00,05,06,00,00,00,00,00,14,00,00,01,00,00,01,01,00,00,00,00,05,0b,00,00,00,00,00,18,00,fd,01,02,00,01,02,00,00,00,00,00,05,20,00,00,00,23,02,00,00,01,01,00,00,00,00,00,05,12,00,00,00,01,01,00,00,00,00,00,05,12,00,00,00
HKLM,"SYSTEM\\ControlSet001\\Services\\imbdrrv\\Enum","0",REG_SZ,"ROOT\\SYSTEM\\0001"
HKLM,"SYSTEM\\ControlSet001\\Services\\imbdrrv\\Enum","Count",REG_DWORD,00000001
HKLM,"SYSTEM\\ControlSet001\\Services\\imbdrrv\\Enum","NextInstance",REG_DWORD,00000001

HKLM,"SYSTEM\\ControlSet001\\Services\\int0800","Type",REG_DWORD,00000001
HKLM,"SYSTEM\\ControlSet001\\Services\\int0800","Start",REG_DWORD,00000003
HKLM,"SYSTEM\\ControlSet001\\Services\\int0800","ErrorControl",REG_DWORD,00000001
HKLM,"SYSTEM\\ControlSet001\\Services\\int0800","ImagePath",REG_EXPAND_SZ,"System32\\Drivers\\flashud.sys"
HKLM,"SYSTEM\\ControlSet001\\Services\\int0800","DisplayName",REG_SZ,"Intel 28F320C3 Flash Update Device Driver"
HKLM,"SYSTEM\\ControlSet001\\Services\\int0800","Group",REG_SZ,"System Bus Extender"
HKLM,"SYSTEM\\ControlSet001\\Services\\int0800","InstallRefCount",REG_DWORD,00000001
HKLM,"SYSTEM\\ControlSet001\\Services\\int0800\\Security","Security",REG_BINARY,01,00,14,80,b8,00,00,00,c4,00,00,00,14,00,00,00,30,00,00,00,02,00,1c,00,01,00,00,00,02,80,14,00,ff,01,0f,00,01,01,00,00,00,00,00,01,00,00,00,00,02,00,88,00,06,00,00,00,00,00,14,00,fd,01,02,00,01,01,00,00,00,00,00,05,12,00,00,00,00,00,18,00,ff,01,0f,00,01,02,00,00,00,00,00,05,20,00,00,00,20,02,00,00,00,00,14,00,8d,01,02,00,01,01,00,00,00,00,00,05,04,00,00,00,00,14,00,8d,01,02,00,01,01,00,00,00,00,00,05,06,00,00,00,00,14,00,00,01,00,00,01,01,00,00,00,00,05,0b,00,00,00,00,00,18,00,fd,01,02,00,01,02,00,00,00,00,00,05,20,00,00,00,23,02,00,00,01,01,00,00,00,00,00,05,12,00,00,00,01,01,00,00,00,00,00,05,12,00,00,00
HKLM,"SYSTEM\\ControlSet001\\Services\\int0800\\Enum","0",REG_SZ,"ROOT\\SYSTEM\\0002"
HKLM,"SYSTEM\\ControlSet001\\Services\\int0800\\Enum","Count",REG_DWORD,00000001
HKLM,"SYSTEM\\ControlSet001\\Services\\int0800\\Enum","NextInstance",REG_DWORD,00000001

HKLM,"SYSTEM\\ControlSet001\\Services\\IBSMUTIL","Type",REG_DWORD,00000001
HKLM,"SYSTEM\\ControlSet001\\Services\\IBSMUTIL","Start",REG_DWORD,00000003
HKLM,"SYSTEM\\ControlSet001\\Services\\IBSMUTIL","ErrorControl",REG_DWORD,00000001
HKLM,"SYSTEM\\ControlSet001\\Services\\IBSMUTIL","Tag",REG_DWORD,00000006
HKLM,"SYSTEM\\ControlSet001\\Services\\IBSMUTIL","ImagePath",REG_EXPAND_SZ,"System32\\Drivers\\ibsmutil.sys"
HKLM,"SYSTEM\\ControlSet001\\Services\\IBSMUTIL","Group",REG_SZ,"Extended Base"
HKLM,"SYSTEM\\ControlSet001\\Services\\IBSMUTIL\\Security","Security",REG_BINARY,01,00,14,80,b8,00,00,00,c4,00,00,00,14,00,00,00,30,00,00,00,02,00,1c,00,01,00,00,00,02,80,14,00,ff,01,0f,00,01,01,00,00,00,00,00,01,00,00,00,00,02,00,88,00,06,00,00,00,00,00,14,00,fd,01,02,00,01,01,00,00,00,00,00,05,12,00,00,00,00,00,18,00,ff,01,0f,00,01,02,00,00,00,00,00,05,20,00,00,00,20,02,00,00,00,00,14,00,8d,01,02,00,01,01,00,00,00,00,00,05,04,00,00,00,00,14,00,8d,01,02,00,01,01,00,00,00,00,00,05,06,00,00,00,00,14,00,00,01,00,00,01,01,00,00,00,00,05,0b,00,00,00,00,00,18,00,fd,01,02,00,01,02,00,00,00,00,00,05,20,00,00,00,23,02,00,00,01,01,00,00,00,00,00,05,12,00,00,00,01,01,00,00,00,00,00,05,12,00,00,00
HKLM,"SYSTEM\\ControlSet001\\Services\\IBSMUTIL\\Enum","0",REG_SZ,"ROOT\\SYSTEM\\0003"
HKLM,"SYSTEM\\ControlSet001\\Services\\IBSMUTIL\\Enum","Count",REG_DWORD,00000001
HKLM,"SYSTEM\\ControlSet001\\Services\\IBSMUTIL\\Enum","NextInstance",REG_DWORD,00000001
;
;
;
```

Glossary

Term	Definition
Flash Update Driver	Flash Update Device Driver is used to update the BIOS (Basic Input/Output System) of a server.
FRUSDR	FRUSDR Loader Utility is used to update systems' FRUs (Field Replaceable Unit) and SDRs (Sensor Data Record).
FWPIAUPD	Firmware and PIA Flash Update (FWPIAUPD) Utility is used for updating the boot block, operational code and Platform Information Area (PIA) for various micro-controllers on a given platform through the use of platform-specific Intel hex programming files.
IMB Driver	The Intelligent Management Bus (IMB) driver is the reference implementation of an IPMI specification for the Windows NT operating system. It is a driver that supports IPMB messaging to server management firmware on IPMI conformant servers.
IBSMUtil Driver	IBSMUtil Driver is used to access SMBIOS data.
PNP	Plug and Play (PNP) is a feature that enables user to plug in/out a device.
SYSCFG	System Configuration (SYSCFG) Utility is used to configure selective BIOS and firmware settings of server systems.
Windows PE	The Microsoft Windows Pre-installation Environment (Windows PE) is a minimal Win32 subsystem with limited services, based on the Windows kernel running in protected mode.
WMI	Windows Management Instrumentation (WMI) is a scalable system management infrastructure that provides you with a standard way to interact with system management information.