Unattended Deployment of Microsoft® Windows® on HP Business-Class Products with Microsoft SCCM 2007

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Executive Summary

This technical whitepaper describes the procedure for using the Microsoft System Center Configuration Manager (SCCM) 2007 during the unattended installation of Microsoft Windows and the deployment of an HP Driver Pack on HP business-class products.

Introduction

Managing operating system images and hardware driver configurations has become a key activity for IT professionals. In enterprise environments, it can be a complex and time-consuming process, as an IT professional needs to:

- Manually select the appropriate hardware drivers for the remote imaging environment

- Deploy the drivers to the correct set of systems for keeping the environment stable and reliable

Microsoft SCCM 2007 provides a solution to help IT professionals deploy Microsoft Windows with HP qualified drivers. This tool streamlines operating system deployments (OSD) and simplifies the client management process.

Microsoft SCCM 2007 provides a common console with the comprehensive tools and guidance needed to efficiently manage the deployment of Microsoft Windows, ensuring that the desired software, drivers, and operating system updates and patches are installed.

HP Driver Pack Overview

An HP Driver Pack contains the hardware-enabling drivers necessary for each PC model. It is structured for the unattended installation of operating system images on HP client systems.

After downloading an HP Driver Pack, you can double-click it to extract its contents into a similar folder structure to the one shown in the following diagram:
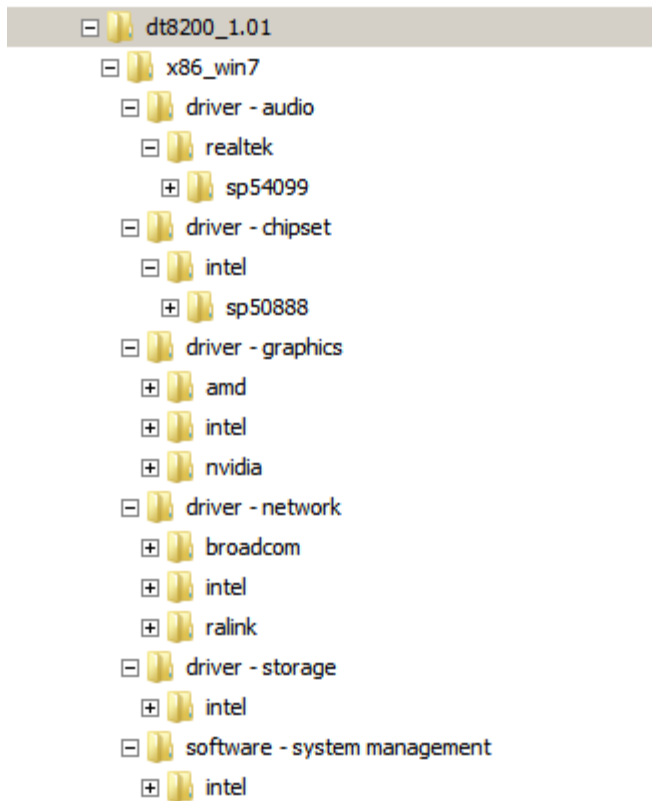

Figure 1 – HP Driver Pack folder structure

The HP Driver Pack above contains the necessary drivers for the HP 8200 desktop family.

Note:

The associated applications are not installed with HP Driver Pack.

Below is the description of the directory structure in the HP Driver Pack:

Level	Short Description	Naming Convention	Example
1	Business segment and product or product family and revision # of the current pack	Convention: <business segment>_<product or product series>_<major revision>.<minor revision> **dt** is used for desktops, **nb** for notebooks, **wk** for workstations	dt_8100_1.01 dt_dc7800_2.02 nb_xx60-xx65_3.01 wk_z600_4.01
2	Operating system and architecture	Convention: <architecture>_<OS short name> **x86** is used for 32-bit architecture and **x64** for 64-bit architecture.	x64_win7
3	Category	A category description for the driver	driver - graphics
4	Vendor	Driver vendor name	intel amd
5	SoftPaq number	The same as the SoftPaq number if the drivers were downloaded individually from the HP website	sp<number>

Benefits

- Microsoft SCCM 2007 is an improved OS deployment experience with shortened image deployment timelines
- Each HP Driver Pack is structured for the OSD of Windows

Before You Begin

Have the following items before you begin the Microsoft SCCM 2007 operating system and driver deployment process:

- Microsoft SCCM 2007 Management Console installed and connected to the network. For more information on installing SCCM 2007, visit Microsoft's website at http://technet.microsoft.com/en-us/library/bb680397.aspx.
- A basic understanding of PXE configuration and OSD using Microsoft ConfigMgr 2007. For more information on OSD in Microsoft ConfigMgr 2007, visit Microsoft's website at http://technet.microsoft.com/en-us/library/bb632767.aspx.
- Either a Windows OS image provided by Microsoft or a custom image created by your company
- An HP Driver Pack for each managed HP client system

Deploying Microsoft Windows 7 Utilizing Microsoft SCCM 2007 and an HP Driver Pack

The Configuration Manager 2007 console (ConfigMgr 2007) is the primary interface in Microsoft SCCM 2007 for change and configuration management for the Microsoft platform. The following sections describe how to use Microsoft ConfigMgr 2007 to deploy Microsoft Windows and HP drivers on HP business-class products. HP system applicable drivers are delivered in a single package called the HP Driver Pack in order to simplify the OSD process. HP Driver Packs are available on the HP website at http://www.hp.com/support.

Importing WinPE Drivers to a Boot Image

To deploy Microsoft Windows on a system, ConfigMgr 2007 requires that Windows-based storage and network drivers are added to the WinPE boot image, a Windows Pre-installation Environment boot image. This paper uses the WinPE 3.0 drivers downloaded from the HP website at http://www.hp.com/support. After downloading the WinPE Driver Pack, perform the following steps to import the drivers into the WinPE boot image in ConfigMgr 2007:

1. Double-click the WinPE Driver Pack to extract its contents into the folder structure shown in the following diagram:
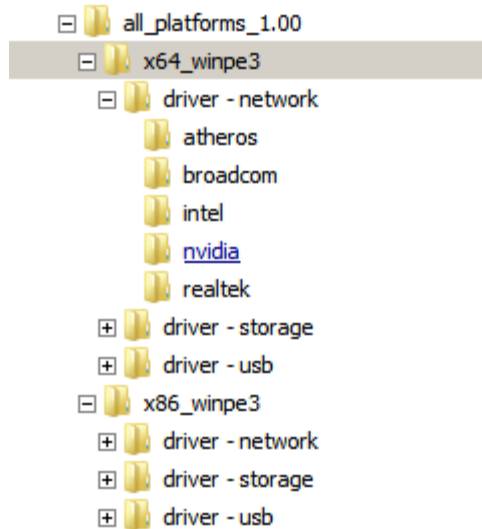

Figure 2 – Extracted WinPE SoftPaq folder structure

2. In the Configuration Manager Console tree pane, expand **Site Database -> Computer Management -> Operating System Deployment**.
3. Right-click **Drivers**, and select **Import**.
4. On the "Locate Driver" screen of the wizard, select the location of the extracted WinPE SoftPaq (e.g. \\sccmserver\WinPE\x86).
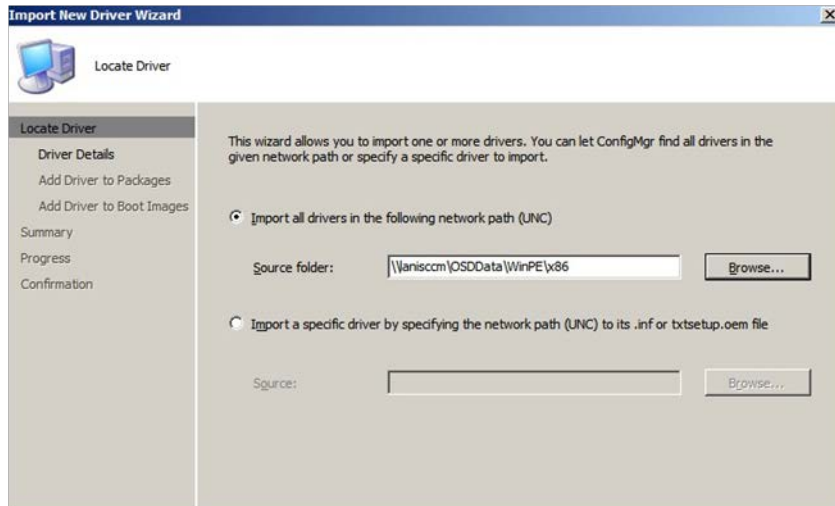

Figure 3 – Importing the WinPE drivers

5. Click **Next** until you get to the "Add Driver to Boot Images" screen of the wizard.

6. On the "Add Driver to Boot Images" screen of the wizard, select the boot image of the WinPE architecture you want to use (e.g. x86), and click to select the check box **Update distribution points when finished**.
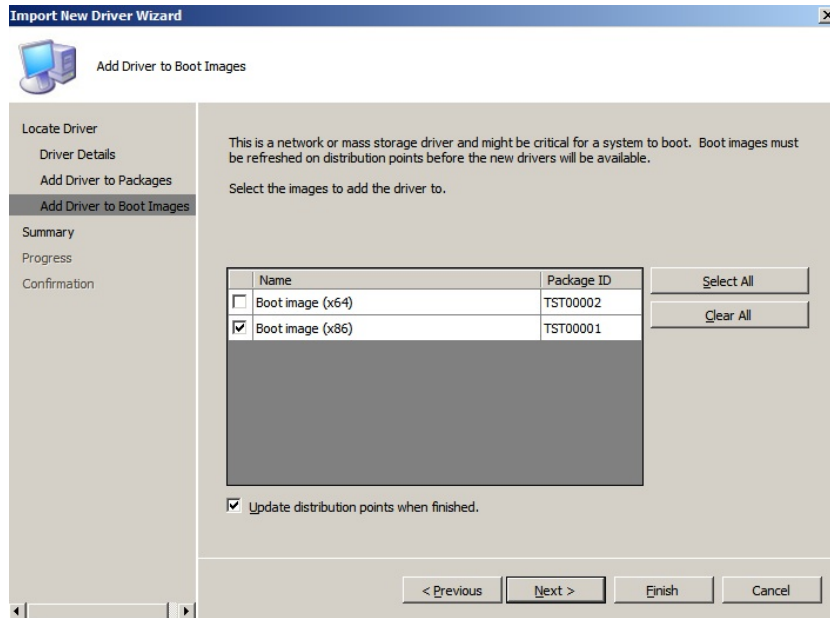

Figure 4 – Boot image selection

7. Click **Finish**.
8. Repeat steps 2 through 7 to add the x64 WinPE drivers to the x64 boot image.

   Your boot images now contain all of the network and mass storage drivers for the supported HP business-class products.

> **Important:**
>
> Regardless of the architecture of the Windows OS being deployed, it is IMPERATIVE that BOTH the x86 and x64 boot images are on BOTH a standard Distribution Point and the SMSPXEIMAGES$ Distribution Point.

> **Note:**
>
> You only need to import the WinPE drivers to the driver library. You do not need to store them again in a separate driver package.

For more details about configuring the WinPE boot images, visit the Microsoft website at <u>http://technet.microsoft.com/en-us/library/bb680372.aspx</u>.

Importing the HP Driver Packs

Collecting the Required HP Driver Pack for the Target System

HP Driver Packs must be downloaded for specific HP systems from the HP website at http://www.hp.com/support.

1. Click the **Drivers and Software** button, and search for the product name for which you want to download drivers.
2. Select the specific operating system to obtain the appropriate drivers. Drivers are contained in a self-extracting package called a SoftPaq.
3. Execute the HP Driver Pack SoftPaq to expand it into folder structures needed by ConfigMgr 2007 to import the necessary files for OS deployment.

> **Note:**
>
> The associated applications are not installed with HP Driver Pack.

Adding the HP Driver Pack to ConfigMgr 2007

1. In the Configuration Manager Console tree pane, expand **Site Database -> Computer Management -> Operating System Deployment**.
2. Right-click on **Driver Packages**, select **New**, and then select **Driver Package**.
3. In the "New Driver Package" dialog box, enter a descriptive name (e.g. HP_8200_ x64_win7), select the top folder of the extracted driver packages, and select the appropriate OS and architecture (e.g. x64_win7). Click **OK**.
4. Update distribution points to ensure the newly created driver packages are available for use by the OS deployment task sequence. For information on updating driver package distribution points, visit the Microsoft website at http://technet.microsoft.com/en-us/library/bb633285.aspx.

Applying the HP Driver Pack to OSD Task Sequences

For details about creating OSD task sequences in ConfigMgr 2007, visit the Microsoft website at http://technet.microsoft.com/en-us/library/bb632767.aspx.

1. Expand **Computer Management -> Operating System Deployment -> Task Sequences**.
2. In the right pane, right-click the newly created task sequence and select **Edit**.
3. Highlight the **Apply Operating System** group, and click **Add** at the top left of menu.

4. Select **Drivers**, and then select **Apply Driver Package**. The newly added Apply Driver Package group will display below the Apply Operating System group.

> **Note:**
>
> In the Task Sequence Editor, the Apply Driver Package group should be placed after the Apply Operating System group and before the Setup Operating System group.

5. Change the name of the new Apply Driver Package step to a useful descriptive name, such as **HP_8200_ x64_Win7**.
6. Click **Browse** to select the top folder of the extracted driver package containing the drivers to be made available during Windows setup.
7. Check the **Do unattended installation of unsigned drivers on versions of Windows where this is allowed** checkbox. This will prevent the unsigned drivers warning dialog.
8. In the "Task Sequence Editor" dialog box, click **OK** to save changes to your Deployment Tasks.

Deploying Windows 7 to Target Systems

1. To deploy Windows 7 to your target system, right-click on your Task Sequence and select **Advertise**.
2. Follow the instructions in the New Advertisement Wizard.

For mandatory PXE advertisements, the computer will automatically boot using PXE.

A successful PXE boot will look like this:

```
Argon PXE Boot Agent v2.00 (BIOS Integrated)
(C) Copyright 2004 Argon Technology Corporation
All rights reserved. www.ArgonTechnology.com


CLIENT MAC ADDR: 00 03 FF 6F 7D 76  GUID: 5B09CEA8-8212-4247-95F4-AE010DD4AB7C
CLIENT IP: 192.168.3.2  MASK: 255.255.255.0  DHCP IP: 192.168.3.1

Downloaded WDSNBP...

Architecture: x86

The details below show the information relating to the PXE boot request for
this computer. Please provide these details to your Windows Deployment Services
Administrator so that this request can be approved.

Pending Request ID: 20

Contacting Server: 192.168.3.1.
```

Figure 5 – Successful PXE boot screen

Additional Resources

For general help, refer to HP support:

* http://www.hp.com/support

For more information on using Microsoft SCCM 2007 for OSD:

* *Administrator Workflow: PXE Deployment*
  http://technet.microsoft.com/en-us/library/bb693705.aspx
* *Planning and Deploying the Server Infrastructure for Configuration Manager 2007*
  http://technet.microsoft.com/en-us/library/bb680397.aspx
* *Overview of Operating System Deployment*
  http://technet.microsoft.com/en-us/library/bb694101.aspx
* *How to Deploy Operating System Images to a Computer*
  http://technet.microsoft.com/en-us/library/bb632559.aspx
* *How to Deploy an Operating System Image to a New Computer Using Boot Media*
  http://technet.microsoft.com/en-us/library/bb694215.aspx
* *How to Deploy an Operating System Image to an Offline Computer*
  http://technet.microsoft.com/en-us/library/bb681017.aspx.
* *How to Create Stand-alone Media*
  http://technet.microsoft.com/en-us/library/bb632784.aspx
* *How to Create a Computer Association for a Side-by-Side Migration*
  http://technet.microsoft.com/en-us/library/bb680730.aspx
* *How to Configure the PXE Service Point*
  http://technet.microsoft.com/en-us/library/bb680668.aspx
* *How to Deploy an Operating System Image using PXE*
  http://technet.microsoft.com/en-us/library/bb694069.aspx
* *How to Add Windows Drivers to a Boot Image*
  http://technet.microsoft.com/en-us/library/bb680705.aspx
* *How to Add a Boot Image to configuration Manager 2007*
  http://technet.microsoft.com/en-us/library/bb680372.aspx
* *Operating System Deployment in Configuration Manager*
  http://technet.microsoft.com/en-us/library/bb632767.aspx