

CREATING BOOTABLE WINPE USB DEVICES

Introduction

This document reviews the processes involved with creating USB devices that boots into a Windows PE 2.0 environment. WinPE 2.0 is a Windows based environment leveraging the core components, that's offered as part of the Windows Automated Installation Kit (AIK). WinPE 2.0 provides enhanced device driver support, Network support, ADSI, WSH and WMI support which makes it valuable tool for troubleshooting issues when the installed OS is not available. Additionally, Microsoft's Deployment Toolkit and OSD in SCCM 2007 leverage WinPE 2.0 for OS deployment tasks that prepare the target system for imaging and for applying configuration items prior to starting the new OS.

Creating a Custom WinPE 2.0 CD ISO

From a computer with Windows AIK installed go to the start menu and run "Windows PE Tools Command Prompt" as "Administrator" from in the Windows AIK program folder. The following example commands create a customized PE ISO that can be burned to CD, applied to a bootable USB device or used to boot a virtual machine instance.

```
copyype.cmd x86 E:\WinPE ↵  
imagex /mountrw E:\WinPE\winpe.wim 1 E:\WinPE\mount ↵  
+ Add driver example + peimg /inf="E:\Drivers\NIC\WinXP\b57win32.inf" E:\WinPE\mount\Windows ↵  
peimg /install=WinPE* E:\WinPE\mount\Windows ↵  
copy "C:\program files\Windows AIK\Tools\x86\imagex.exe" E:\mount\Windows\Program Files ↵  
copy "C:\program files\Windows AIK\Tools\Serviceing" E:\mount\Windows\Program Files\Serviceing ↵  
peimg /prep E:\WinPE\mount\Windows ↵ "yes" ↵  
imagex /unmount E:\WinPE\mount /commit ↵  
copy E:\WinPE\winpe.wim E:\WinPE\ISO\sources\boot.wim ↵ "All" ↵  
oscdimg -n -bE:\WinPE\etfsboot.com E:\WinPE\ISO E:\WinPE\PE-VM.iso ↵
```

Creating a Bootable USB Device.

The target USB 2.0 device should be at least 512mb. If the intention is to leverage the device as a portable deployment solution, potentially including USMT data migration, a larger device should be used.

Formatting

USB device with a single partition

The example formats a device in preparation for WinPE 2.0 and assumes the USB device is detected as disk 1. Using a Windows Vista PC open a command prompt as "Administrator" and run the commands listed below.

```
diskpart ↵  
select disk 1 ↵  
  
clean ↵  
  
create partition primary ↵  
  
select partition 1 ↵
```

```
active ↵  
format fs=fat ↵  
assign ↵  
exit ↵
```

Formatting USB device with multiple partitions

To provide a portable, full featured deployment solution a USB device with multiple partitions can be leveraged. The first partitions will be dedicated to the boot environment and the other(s) for the deployment/migration data. This example formats a device in preparation for WinPE 2.0 and assumes the USB device is detected as disk 1. Using a Windows Vista PC open a command prompt as “Administrator” and run the commands listed below.

```
diskpart ↵  
select disk 1 ↵  
clean ↵  
create partition primary size=512 ↵  
create partition primary ↵  
    note: this command creates the second partition using the remainder of the drive space, size=n can  
    also be used to define the size of the new partition size in MB  
select partition 1 ↵  
active ↵  
format fs=fat32 quick ↵  
assign ↵  
select partition 2 ↵  
format fs=ntfs quick ↵  
assign ↵  
exit ↵
```

Applying the boot environment

Bootting to Standalone Custom WinPE 2.0

This example creates a customized version of WinPE 2.0 and installs it to a bootable USB device. Using a machine with the Windows AIK installed, open "Windows PE Tools Command Prompt" from in the Windows AIK program folder in the Start Menu. The following commands assume the USB device has been formatted with a bootable partition and was assigned the drive letter G:

```
copy cmd x86 E:\WinPE ↵  
imagex /mountrw E:\WinPE\winpe.wim 1 E:\WinPE\mount ↵  
+ Add driver example + peimg /inf="E:\Drivers\NIC\WinXP\b57win32.inf" E:\WinPE\mount\Windows ↵  
peimg /install=WinPE* E:\WinPE\mount\Windows ↵  
copy "C:\program files\Windows AIK\Tools\x86\imagex.exe" E:\mount\Windows\Program Files ↵
```

```

copy "C:\program files\Windows AIK\Tools\Serviceing" E:\mount\Windows\Program Files\Serviceing ↵
peimg /prep E:\WinPE\mount\Windows ↵ "yes" ↵
imagex /unmount E:\WinPE\mount /commit ↵
copy E:\WinPE\winpe.wim E:\WinPE\ISO\sources\boot.wim ↵ "All" ↵
xcopy E:\WinPE\ISO\*. * /s /e /f G:\ ↵ (where G:\ is the drive letter assigned to the USB device)

```

Bootling to a BDD 2007 OS Deployment WIM

In this example, BDD 2007 was used to create a custom Lite Touch Installation (LTI) "MEDIA" deployment point. When the deployment point is updated a LiteTouch_x86.wim file is generated containing the deployment, OS, application and driver collateral defined in the BDD Workbench. This WIM file is often larger than a single layer DVD so an external USB hard drive is a good solution. The following section assumes that the USB device is detected as disk 1. Using a Windows Vista PC where the Windows AIK is installed open a command prompt as "Administrator" and run the commands listed below.

```

diskpart ↵
select disk 1 ↵
clean ↵
create partition primary size=6656 ↵
    note: this command creates a 6.5GB primary boot partition.
create partition primary ↵
    note: this command creates the second partition using the remainder of the drive space, size=n can also be used to define the size of the new partition size in MB
select partition 1 ↵
active ↵
format fs=fat32 quick ↵
assign ↵
select partition 2 ↵
format fs=ntfs quick ↵
assign letter=z ↵
exit ↵

```

Close the command prompt window then open the start menu and run "Windows PE Tools Command Prompt" as Administrator from in the Windows AIK program folder. The following section assumes that M: is the drive that hosts a BDD Media share named "deploy" and that the m:\deploy\LiteTouch_x86.wim is 7GB and the bootable partition created above was assigned drive letter E.

```

Imagex /apply m:\deploy\LiteTouch_x86.wim 1 e: ↵

```

Creating Offline SCCM 2007 OS Deployment Media

SCCM 2007 can be used to create task sequences and their related files and dependencies to a DVD, CD set or a USB drive. Using external or off-line media will allow you to run the operating system deployment task sequence steps on computers that do not have a network connection or have a slow network.

In the Configuration Manager console, navigate to System Center Configuration Manager/ Site Database / Computer Management / Operating System Deployment / Task Sequences and perform the following steps to create a stand-alone media set.

Start the Task Sequence Media Wizard.

In the Task Sequence Wizard, on the Select Media Type page, select Stand-alone media.

If you selected CD/DVD set on the Media Type page, the files created are a set of .ISO files that need to be burned onto the media set. You can then use another product to burn the installation files onto the CD or DVD set.

Select a USB flash drive on the Media Type page, the files will be created and saved directly to the USB flash drive.