Windows 7 Unattended Setup

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Chapter 1

Migrating from CD to USB

One of the best new features of the Windows 7 installation is that you can now install completely from any generic bootable USB device.

This section will describe how to format and prepare such a USB device.

To begin, you will need:

- The Windows 7 install DVD
- A working Windows Vista or Windows 7 machine

Note that the version of diskpart that ships with Windows XP does not work with removable drives.

Begin by opening cmd.exe or command.com

Type diskpart to start the utility:

```
Microsoft Windows [Version 6.1.7600]
Copyright (c) 2009 Microsoft Corporation.  All rights reserved.

C:\Users\Administrator>diskpart

Microsoft DiskPart version 6.1.7600
Copyright (C) 1999-2008 Microsoft Corporation.
On computer: ASTROTEST-PC

DISKPART> list disk

  Disk ###  Status         Size     Free     Dyn  Gpt
  --------  -------------  -------  -------  ---  ---
  Disk 0    Online           74 GB      0 B
  Disk 1    Online         3824 MB      0 B

DISKPART> select disk 1

Disk 1 is now the selected disk.

DISKPART> clean

DiskPart succeeded in cleaning the disk.

DISKPART> create partition primary

DiskPart succeeded in creating the specified partition.

DISKPART> select partition 1

Partition 1 is now the selected partition.

DISKPART> active

DiskPart marked the current partition as active.

DISKPART> format fs=NTFS

    100 percent completed

DiskPart successfully formatted the volume.

DISKPART> assign

DiskPart successfully assigned the drive letter or mount point.

DISKPART> exit

Leaving DiskPart...
```

Type 'Select disk ' and the number of your disk.

Type 'clean' to wipe out any partition information.

Type 'create partition primary'.

Type 'select partition 1'.

Type 'active'.

Type 'format fs=NTFS'.

Type 'assign'.

Type 'Exit'.

Next, you will need to set up the boot manager on the USB device. There is a utility included on the Windows 7 install DVD which can do this for you. Put the DVD in, and at the command prompt cd to the boot directory on the DVD.

```
C:\Users\Administrator>e:

E:\>cd boot

E:\boot>bootsect.exe /nt60 f:
Target volumes will be updated with BOOTMGR compatible bootcode.

F: (\\?\Volume{110f3fd7-32b7-11df-8377-00219b6e1eed})

    Successfully updated NTFS filesystem bootcode.

Bootcode was successfully updated on all targeted volumes.
```

Once formatted, the USB drive is now ready to have all of the windows install files copied to it. Simply select all of the files on the install DVD in Windows Explorer and copy them to the USB drive.

Once complete, your USB disk is ready to use for installation!

(Much of this section was taken from
http://technet.microsoft.com/en-us/magazine/dd535816.aspx)

Chapter 2

Customizing the Windows 7 Installer

2.1 Using vlite

vlite is a utility that was designed for Vista to help streamline and customize the installer for rapid deployment. Since Windows 7 is based heavily on Vista's code, the utility works perfectly for our needs.

vlite can be downloaded from http://vlite.net/download.html. You will also need the Windows Automated Installation Kit, a 1.3GB download from Microsoft's website.

Begin by installing the WAIK first, and vlite afterwards. If you're on a 32bit system, you will need to copy a dll file from the WAIK installation (see this note.) Once both packages are installed, you can use the vlite utility to customize your windows installation as you see fit.

vlite can prepare for you a burnable DVD image, or it can write it's changes back to your USB key. If you remove components, vlite will try to remove unnecessary packages from the USB key to save space - I do not recommend letting vlite do this.

vlite will create on your USB key a new file called unattended.xml, which is the file that will instruct the windows installer on how to set up your installation of Windows 7.

I noticed that after modifying my installer with vlite, the install key that vlite plugs in is invalid (it's probably a generic key for vista). To solve, I simply edited the unattended.xml key with my favorite editor, and blanked out the key in the file. Look for the string "ProductKey" in that file and remove any characters between the two tags.

Finally, a big security note - if you provide an administrator password to vlite, that password is written in CLEAR TEXT to the unattended.txt file. Keep this in mind if you plan to share your installer with anyone else.

(Much of this section was taken from
http://www.intowindows.com/how-to-create-unattended-windows-7-installation-setup/.)

2.2 Using WAIK

2.3 Rebuilding a Bootable .ISO

While USB-based installation is much faster, in some circumstances you may need to create a bootable DVD installer for your custom windows 7 setup. To do this, you can use the oscdimg.exe utility (part of the WAIK).

The exact command to use is:

```
oscdimg.exe -b[Custom_Root]\boot\etfsboot.com -u2 -h -m
-lWIN_EN_DVD [Custom_Root] output.iso
```

Replace "Custom_Root" with the actual location of your Windows 7 Custom setup.

Chapter 3

Customizing Office 2007

Office 2007 is pretty simple to customize and deploy for your users.

To create a custom "template" install, use the /admin flag: `setup.exe /admin`

The Office Customization Tool will open and ask you for all the information it needs to deploy, including the Volume License Key.

Once you've set all the options you want, a .msp patch file will be produced. This .msp file can be used in one of two ways, via the /adminfile flag, or by putting it in the "Patch" directory of your Office Installer media.

```
setup.exe /adminfile office.msp
```

Some of the interesting features you can set are the verbosity of the installer (from completely silent, to a progress bar, to full dialogues with pre-filled answers). You can also...

Chapter 4

Editing the WIM file

4.1 Mounting the WIM file

The Windows 7 installer uses a .wim file (Windows Image) during installation to copy a fresh source of windows to your computer. You can directly edit and modify this file to include your own scripts or settings - but be aware that corrupting this file will produce a broken installer.

To mount this file, you can use the imagex utility that's included with the Windows Automated Installer Kit (WAIK). You can download the WAIK from Microsoft's website. Note that the installer is 1.3GB in size.

To begin, you will need:

- The Windows 7 install DVD
- A working Windows XP, Vista or Windows 7 machine

Begin by opening the Windows PE Tools Command Prompt (under the WAIK in the start menu).

Create a folder on your hard drive where you want to mount the files.

```
Updating path to include peimg, cdimage, imagex

   C:\Program Files\Windows AIK\Tools\PETools\
   C:\Program Files\Windows AIK\Tools\PETools\..\x86


C:\Program Files\Windows AIK\Tools\PETools>mkdir c:\hbp4c

C:\Program Files\Windows AIK\Tools\PETools>imagex /mountrw f:\sources
\install.wim 1 c:\hbp4c

ImageX Tool for Windows
Copyright (C) Microsoft Corp. All rights reserved.


Mounting (RW): [f:\sources\install.wim, 1] ->
               [c:\hbp4c]

Successfully mounted image (RW).
```

Now you can edit the .wim using standard tools, such as Windows Explorer and Notepad.exe as you wish.

When your edits are completed, you must umount the image

```
C:\Program Files\Windows AIK\Tools\PETools>imagex /unmount /commit c:\hbp4c

ImageX Tool for Windows
Copyright (C) Microsoft Corp. All rights reserved.


Unmounting: [c:\hbp4c]...

Successfully unmounted image.
```

Note that if you do not wish to save changes, you can omit the "/commit" above.

4.2 Interesting Things to Edit

You can create a 1^{st} login script by creating the file Windows\Setup\Scripts\SetupComplete.cmd. This is a normal bat script that you can edit with any utility such as notepad. This script gets run silently after the out of box experience part of setup but before the first user login on the system.

Chapter 5

Scripted Printer Installs

Since Windows XP, site administrators have been able to use printui.dll to deploy printers via a bat script quickly to machines they administer. In windows 7, this exact same functionality has been wrapped into printui.exe.

Windows 7 does not include many of the printer drivers that previous versions of windows did - instead it asks users during the printer install to download the drivers from windows update. To collect the necessary drivers needed to build a working batch file, you will need to visit the manufacturer's website and download the drivers for your printers individually.

As of this writing (March 2010) the HP Universal Print Driver seems to crash spoolsvc.exe. To get around this (and in general) one can use the Vista (or if necessary, the Windows XP) driver.

Any driver that was not signed will cause a pop up dialog when the batch script runs asking the user to allow the unsigned driver to install. To get around this, you can disable driver signing in Windows 7, or self-sign the driver with the Microsoft Driver Developer's Toolkit.

Running pritnui.exe with the /? (help) flag produces a list of helpful examples.

5.1 Creating Printers via Batch Script

In the example below, I've downloaded the 32bit Vista driver for a Hewlett-Packard Laserjet 5200dtn printer and extracted it to the folder 5200 in the same directory as where I keep this script. The printer is an IPP printer attached to a printer server named calisto.astro.virginia.edu.

```
printui.exe /b "astro-hp" /y /x /n "astro-hp" /if /f 5200\hpc520xc.inf
/l 5200\ /r "http://calisto.astro.virginia.edu:631/printers/astro-hp"
/m "HP LaserJet 5200 PCL 6"
```

Breaking down the options given:

- /b - base printer name
- /y - set printer as the default
- /x - (Undocumented flag) - useful for an IPP printer
- /n - printer name as you want it to appear to the user
- /if - use an .inf file to install a specific printer driver
- /f - the .inf to use
- /l - the path to the printer driver
- /r - port name (in this case, an IPP printer URL)
- /m - the printer model name as specified in the .inf file

To create a printer attached to LPT1:

```
printui.exe /b "astro-hp" /y /n "astro-hp" /if /f 5200\hpc520xc.inf
/l 5200\ /r "lpt1:" /m "HP LaserJet 5200 PCL 6"
```

To create a network shared printer on another machine:

```
printui.exe /ga /c\\machine /n\\machine\printer /j"LanMan Print Services"
```

The options here are defined as:

- /ga - Creates a new machine connection
- /c -The remote machine name in UNC form.
- /n - Again, the printer name as you want it to appear to the end user.
- /j - The print provider name - in this case Windows network printing services.

5.2 Setting Printer Defaults

Another very useful trick you can do with printui is to save any custom settings (for example, duplexing settings) to a binary file and then restore those settings on a different machine. To do this, use the /Ss and /Sr settings.

First, you must create the printer and make any custom settings you want within the printing preferences or printer preferences dialogs. Once set, you can save these settings to a binary file:

```
printui /Ss /n "astro-hp" /a "settings\astro-hp.dat"
```

Now, on a newly installed machine, you can recover those settings:

```
printui /Sr /n "astro-hp" /a "settings\astro-hp.dat" d u g 2
```

You should find that your printer now is set up just as your master version on the first machine!

5.3 References

Much of the information in this section comes from this Microsoft KnowledgeBase article: http://support.microsoft.com/kb/314486.

Chapter 6

Useful Batch Scripts

6.1 Windows Activation

```
echo Activating Windows 7 Enterprise...
cscript //b c:\windows\system32\slmgr.vbs -skms skms.eservices.virginia.edu:1688
cscript //b c:\windows\system32\slmgr /ato
```

6.2 Automated Weekly Defrag

```
echo Setting up a weekly defrag...
schtasks /create /tn defrag /tr "'defrag.exe c:\'" /sc weekly /d Wed /st 22:00:00 /ru system
```

6.3 Scripted Windows Version Detection

If you use a netlogon script (such as in a windows domain) you may find it useful to do different things depending on which version of Windows you're logged into. This script will help you figure out which version of the OS is present and let you do version specific commands.

- Version 5.1 is Windows XP SP3
- Version 6.0 is Windows Vista or Server 2008
- Version 6.1 is Windows 7

```
GOTO OSVer

:OSVer
set OSVer=noSup
ver | find /i "5.1." && set OSVer=XP
ver | find /i "6.0." && set OSVer=Vista
ver | find /i "6.1." && set OSVer=Win7
IF %OSVer%==XP GOTO XPScript
IF %OSVer%==Vista GOTO VistaScript
IF %OSVer%==Win7 GOTO Win7Script
IF %OSVer%==noSup GOTO unsupported

:XPScript
echo Doing some XP specific stuff...
GOTO END

:VistaScript
echo Doing some Vista specific stuff...
GOTO END

:Win7Script
echo Doing some Windows 7 specific stuff...
GOTO END

:Unsupported
echo Not sure what to do here!
GOTO END

:END
```

6.4 Power Configuration

Due to overnight backups, I typically configure machines to never sleep (monitors turn off, but the CPU remains online).

```
powercfg -x standby-timeout-ac 0
powercfg -x hibernate-timeout-ac 0
```

6.5 Importing the UVA Security Certificates

```
certutil.exe -addstore -f -enterprise root Certs\usher.cer
certutil.exe -addstore -f -enterprise root Certs\uvahigh.cer
certutil.exe -addstore -f -enterprise ca Certs\uvahighint.cer
```

6.6 Automatic Reboot at the end of the script

```
start "reboot" /wait shutdown.exe /r /t 5 /d p:0:0
```