UltimateP2V

using
Qui Hong's FixVM-SCSI and NU2's BartPE

Document Version 1.4

&

by Chris Huss and Mike Laverick

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Tested VMware Versions:
ESX 2.x

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Audience:
Recipe book style instructions suitable for even a "novice" user

Objective:
A step-by-step guide to creating a custom BartPE boot CD/ISO – used to clone a physical machine and reconfigure the virtual machine. In short – Free P2V

Disclaimers & Acknowledgements:
Firstly, Qui Hong must take the lion share of the credit for this development/solution. It's he who has done all the whiz bang stuff!

Secondly, it is Chris who was responsible for providing the step-by-step instructions to configuring Qui's BartPE plug-in. He opened my eyes to the possibilities of using Qui's plug-in. I must admit that I didn't quite grasp the purpose of Qui's plug-in until he and I swapped a forum post on the issue.

Software Required:
Windows Server 2003 CD-ROM (Recommended)
Windows XP Professional with Service Pack 2
Symantec Ghost 8

Note:
Not all versions of Symantec Ghost may be supported or work with BartPE. You might wish to investigate other cloning/copying techniques and plug-ins if this is your situation.

Required Download Links:
BartPE Source Code
Qui Hong's FixVM-SCSI
VMware's SCSI "BusLogic" Drivers

Optional Download Links:
LSILogic Driver (Required for Windows XP)
Sherpya's VMware Drivers (Optional)

This guide shows you how to generate all of these plug-ins and drivers manually using the latest versions. Alternatively, you can download pre-configured plug-ins from the UltimateP2V page.

Known Issues:
- Diskpart in Windows XP does not work correctly. Reboot after the clone process if your BartPE disk is based on Windows XP

Ultimate-P2V using Qui Hong's FixVM-SCSI

Community Support Statement

- Both myself, Chris and Qui are very busy people – and much of our extra-curricular work is done in our free-time. So please do not expect the same level of support you would expect to enjoy from a vendor bought product
- Home Grown P2V Solutions are intended for those people who cannot afford or justify purchasing a commercial P2V offering
- Commercially available products have features and drivers that add value and the commercial tools are supported and updated to keep them current. This tool is not intended to be used on production systems and if they are—you proceed at your own risk. The authors of this paper also feel that nothing replaces training and experience. You should work with qualified engineers and consultants to ensure that production systems are configured to best practices and to protect the integrity of the systems
- If after completing the P2V process, you find your virtual machine will not boot – this might be due to stale hardware/software which is being detected/loaded and then causes an error. You could find you have the same errors using a commercial product (although many try to disable devices/software which causes known issues).
- So try the P2V Forum on VMware's website--you may get a faster and richer set of responses from them
- Some things to try if your P2V Virtual Machine will not boot…
    - Try safe mode – and disabling/removing the offending devices/services
    - Try connecting your P2V'd disk to a working virtual machine, load-up the registry hive from the disk of the problem virtual machine – and use your registry knowledge to disable the problem hardware/service
    - Try running fdisk /mbr or chkdsk /f on the virtual machine's system partition

Document History

Version 1.3

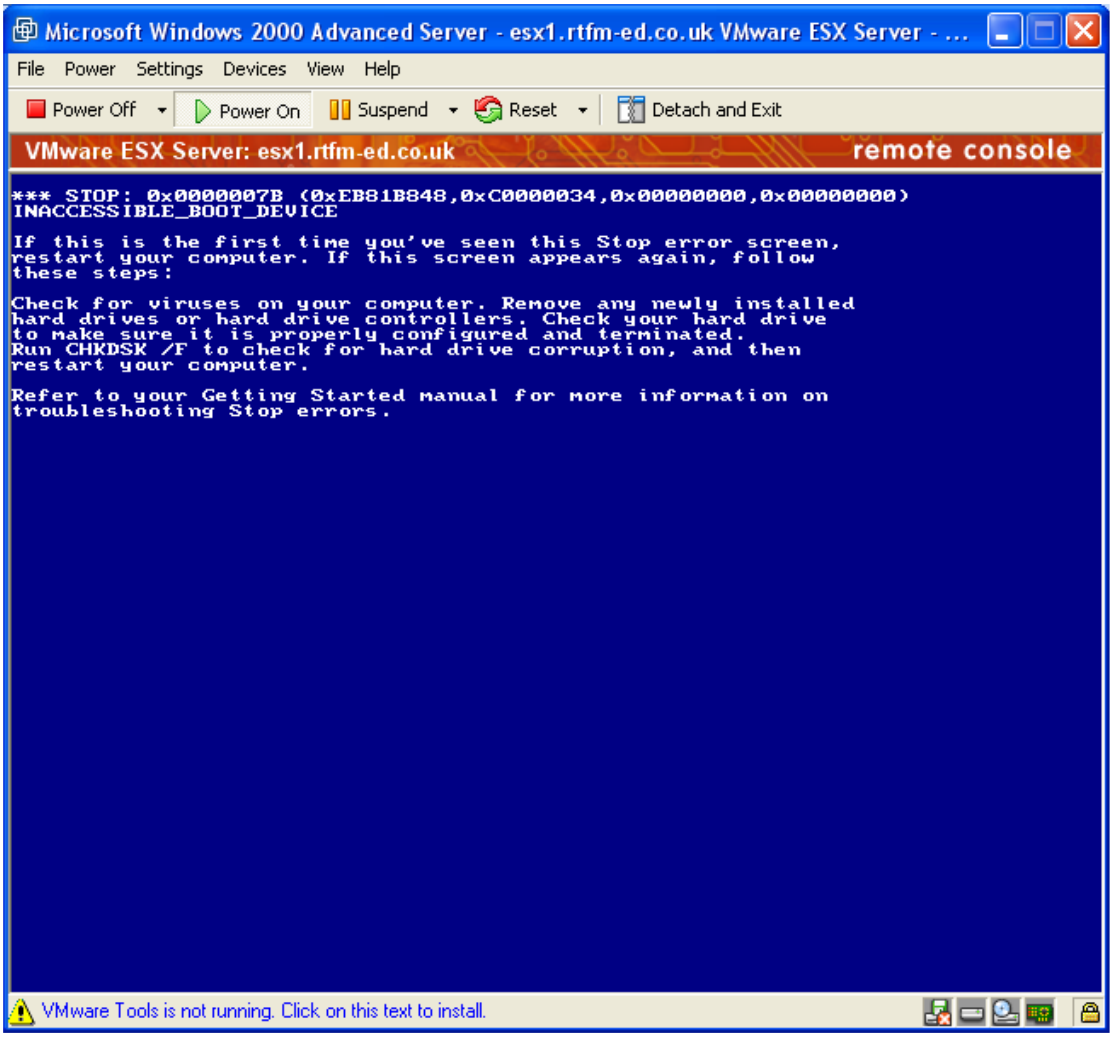
- Removed reference to using Cybervyk's inf file – not actually required to make VMware "BusLogic" SCSI Driver work

Version 1.4

- Fixed the problem with the VMware Tools automatically starting
- Added limited beta support for Sherpya XPE

How does it work?

- BartPE is a boot CD which uses Windows XP or 2003 source code to give a boot CD-ROM. It's the ultimate replacement to the floppy boot disks of years gone by – with a rich plethora of file system support, network support and storage controller support and so on. It's an open-source project within which anyone can develop "plug-ins" to extended its functionality
- We use a BartPE disc with drivers which allows us to clone a physical machine to a virtual machine. Drivers are added to make virtual disks addressable under BartPE
- Symantec Ghost is used to clone the boot disk of physical machine to virtual machine's virtual disk
- Qui Hong's BartPE plug-in "injects" the appropriate driver to make the virtual machine bootable after the cloning process has been completed
- Without it – the cloned virtual machine would give us a Blue Screen of Death like this:



Building a Custom BartPE for P2V

Download and Install BartPE

Note:

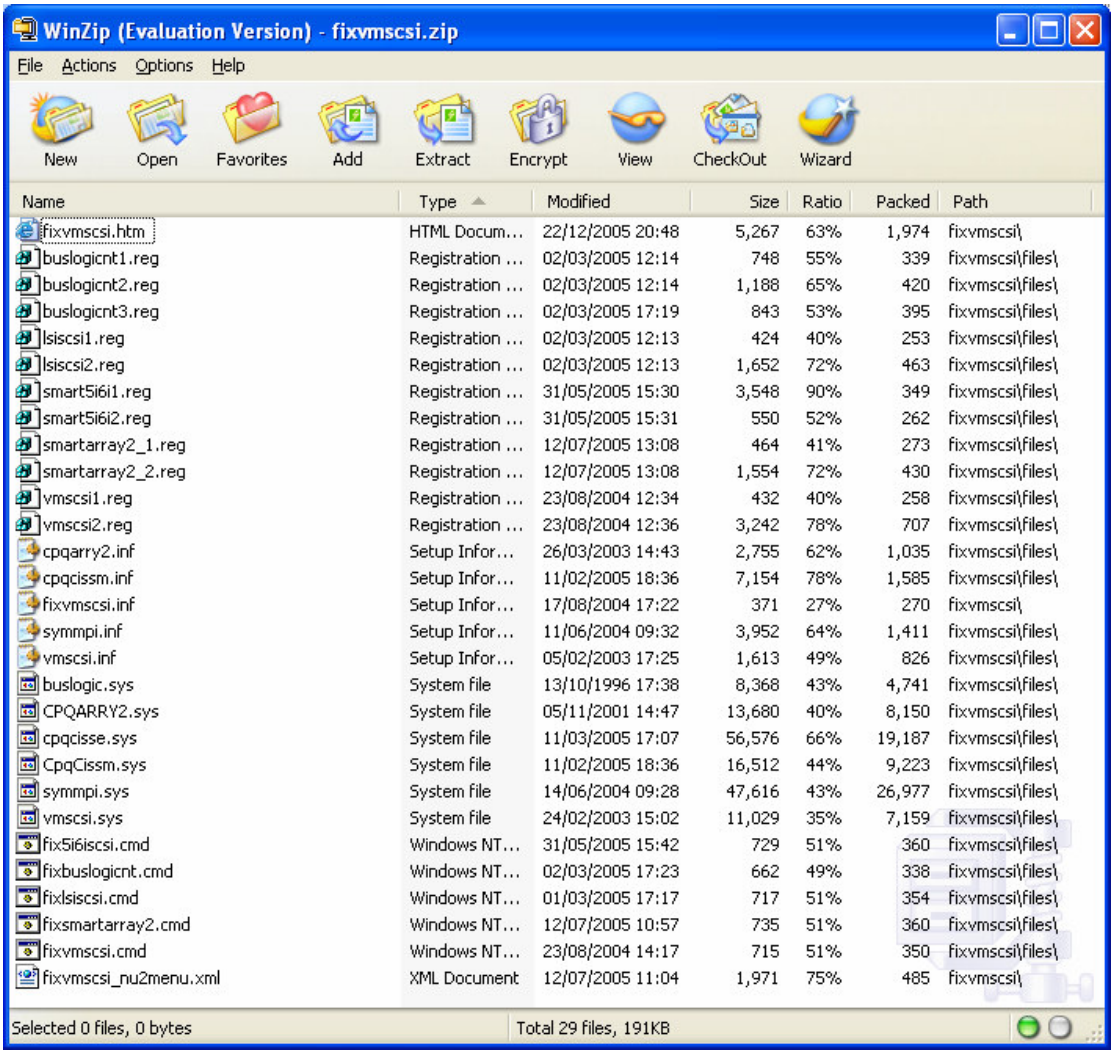
- BartPE recommends you use Windows XP with Service Pack 2 as the source for your boot disk. Service Pack 1 for Windows XP is minimum requirement
- Chris and I would recommend using W2K3 instead.
  - As you might recall, a Virtual Machine uses a virtual SCSI adapter, either a BusLogic (Default for W2K) or LSILogic driver (Default for W2K3).
  - Windows XP has a built-in BusLogic driver not a LSILogic driver – whereas Windows 2003 has a built-in LSILogic driver but not a BusLogic driver.
  - If you create a BartPE boot disk with Windows XP and run it inside a Virtual Machine you will NOT be able to access your hard-drives because there will be NO driver for the SCSI Controller. The only way to make WinXP BartPE disk work is supplying a driver at boot time… or by adding both the LSILogic Driver and VMware SCSI "BusLogic" driver to the BartPE
  - There are instructions which explain how to do this
  - Whereas, if we use W2K3 as the source which contains an LSILogic Driver – then the only storage driver you will need to add (as well as ones for your physical machines) is the VMware SCSI "BusLogic" driver
  - W2K3 works perfectly with Diskpart, whereas Windows XP does not – and reboot is required after the cloning process to make the boot partition accessible
  - W2K3 works out of the box with any need to slipstream/integrate a service pack

1. **Download BartPE Software** (this guide was based on 3.1.3 version)
2. **Run/Open the downloaded Package or ZIP** and **Install/Extract to your preferred location**

   Note:
   I installed BartPE to this path C:\Program Files\Pebuilder\

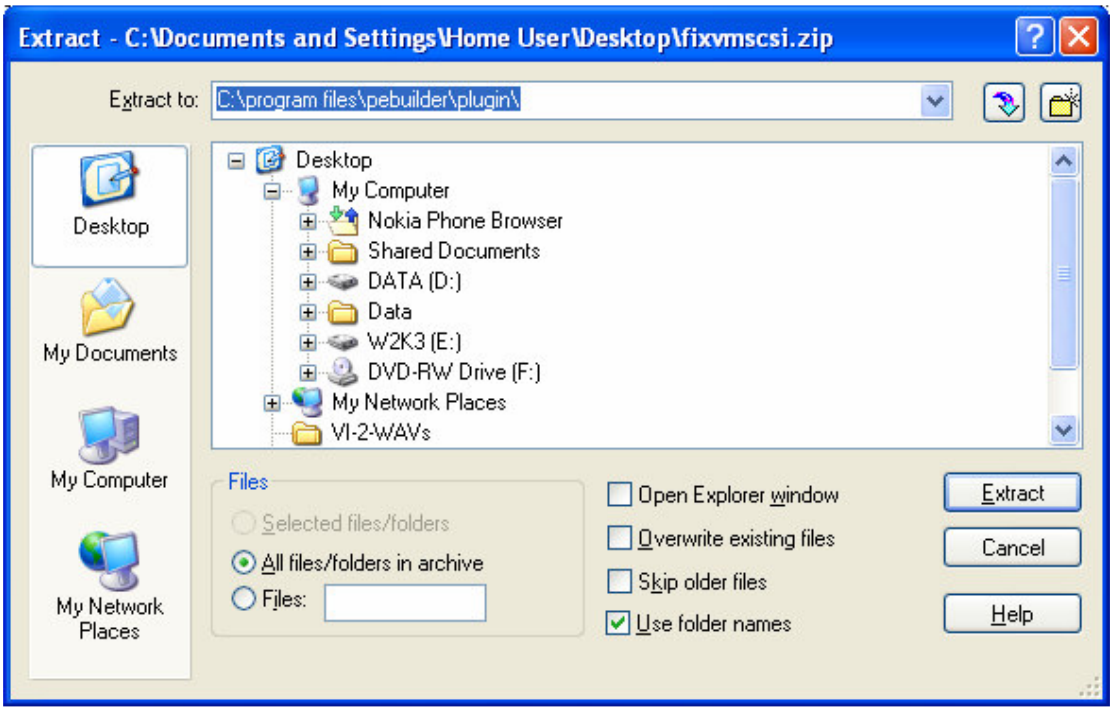
Adding Qui Hong's "FixVM-SCSI" Plug-in

1. **Download the ZIP file from the Software Required section** at the top of this document
2. **Open the ZIP** using your prefer zip utility, say **WinZIP**



3. Click the **Extract** Button
4. **Browse** to **C:\Program Files\Pebuilder\Plugin**

5. Click the **Extract** Button



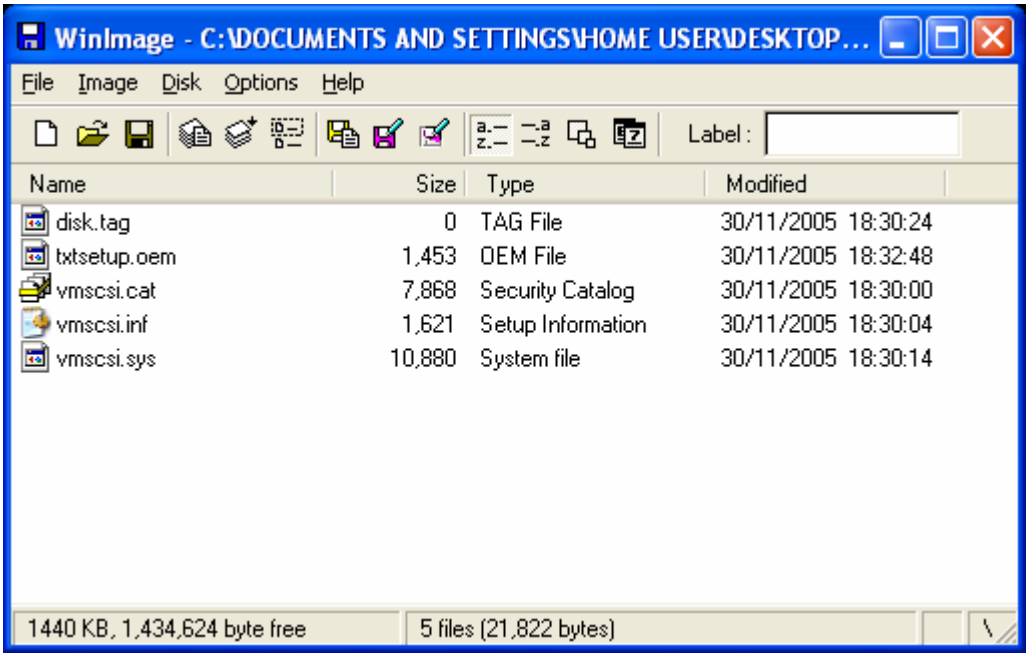
Adding VMware SCSI "BusLogic" Support

Note:

- If you create a Windows 2000 Virtual Machine the default SCSI controller/driver is "BusLogic"
- The default BartPE disk does not support this – so without adding the driver from VMware you would not be able to read/write to a virtual disk attached to the Virtual Machine
- We can add support for VMware SCSI "BusLogic" driver to our BartPE disk.
- You can follow the manual instructions below (which will guarantee the latest version of VMware's SCSI "Buslogic" driver)

1. **Download the VMware SCSI "BusLogic" Driver from VMware's website** VMware's SCSI "BusLogic" Drivers

   Note:
   This is a .flp file – a format like an ISO that represents an image of a floppy disk. You can open the .flp file and extract the driver files using a product like WinImage



2. **Create a folder on your desktop** called **vmscsi**
3. **Copy with drag-and-drop,** these files in the WinImage window to the vmscsi folder

4. **Copy this vmscsi folder** to

   C:\Program Files\Pebuilder\Drivers\Scsiadapter

Adding LSILogic Support (WinXP Only)

Note:
As mentioned earlier, if you use Windows Server 2003 as the basis of your BartPE disc, it will have "built-in" driver for LSIlogic. If however, you use Windows XP+SP2, you will need to add this driver to your BartPE disk. Fortunately, this is very easy..

1. Download from LSIlogic's website the LSILogic driver
2. **Extract the drivers to a directory**, and copy to the

   C:\program files\pebuilder\drivers\SCSIAdapter\lsilogic

Adding Symantec Ghost Support

Note:

- We need a collection of files to run Ghost from the BartPE ISO/CD.
- Remember the Boot CD is Win32 based, so we need Win32 files to run it from the local CD. BartPE support site explains this issue. From a 32-Bit version of Ghost you need the following files:

1. **From machine that has Ghost installed locate these files**

   Ghost32.exe
   Ghostcdr.dll
   Ghostexp.exe
   GhostSrv.exe

   Note:
   You will generally find these files located at **C:\program files\Symantec\Ghost**

2. **Using Windows Explorer, copy these files** to the workstation that has the BartPE software installed to the following location:

   C:\Program Files\Pebuilder\Plugin\Ghost8\Files

Adding vmxnet Support (Optional)

Note:

- Vmxnet is VMware's "native" network driver which is "optimized" for a virtualised environment.
- Most boot CD's will not have support for this driver.
- For compatibility purposes, VMware created a driver called "**vlance**" which emulates an AMD PC-NET Family adapter
- Vlance is the default, but if you choose vmxnet – you will not have network support in the BartPE disk
- So this is not requirement, merely an optional component

1. **From a working Windows Virtual machine**, open a **Remote Console** session
2. In the menu, choose **Settings**, Select **Install VMware Tools**

   Note:
   This should mount the windows.iso which contains the files that make up VMware Tools are located

3. Open **Windows Explorer** and the **CD-ROM**, and browse to **cd-rom:\Program Files\VMware Tools\Drivers\vmxnet**
4. Copy the **winnt** and **win2k** folders to

   C:\program files\pebuilder\drivers\Net

   Note:
   I rename the directories vmxnet-win2k and vmxnet-winnt just so I can easily identify them. I wasn't sure which folder to take – so I took both – it doesn't hurt.

Adding VMware Tools Support (Optional)

Note:

- Graphics drivers and VMware Tools support is not a requirement for Ultimate-P2V.
- It is included here to show it can be added to the BartPE disk.

1. **Download** from Sherpya's website **VMware Tools/Drivers**

   Note:
   If you download the Plug-in from Sherpya's website, you will want the .cab formats, not the zip files. The zip files are "developer" like versions of the plug-ins.

2. **Extract the VMware Tools/Driver plug-in** and copy the files to **C:\program files\pebuilder\plugin\vmware**

3. **Under the vmware directory,** create a directory called **files** so the path is:

   C:\program files\pebuilder\plugin\vmware\files

   Note:
   This is where we will shortly copy the VMware Tools software.

4. **From a working Windows Virtual machine**, open a **Remote Console** session
5. In the menu, choose **Settings**, Select **Install VMware Tools**

   Note:
   This should mount the windows.iso which contains the files that make up VMware Tools are located

6. Open **Windows Explorer** and the **CD-ROM**, and browse to **cd-rom:\Program Files\VMware\VMware Tools** and

7. **copy the contents** to your **workstation where you are building your BartPE** into the

   C:\Program Files\pebuilder\plugin\vmware\files directory

   Note:
   The is no need to copy the 9x Files directory. I shared out the pefolder on my workstation where I was building my BartPE disk – to ease the movement of files.

   Note:
   To make VMware Tools start automatically, we use the "Start-Up" plug-in BartPE. If you intend to use XPE (a plug-in shown later) then you may skip this part, as it has own method of auto-starting services and applications

8. In **C:\Program Files\pebuilder\plugin\vmware** directory create a file called **AutoRun_vmware.cmd**
9. Edit this file and add a net start of the VMware Tools Service

   net start vmtools
   exit

   Note:
   The exit closes the DOS Window down

10. **Open the vmware.inf file in notepad** and **locate the [SourceDisksFiles] section**
11. **Add in a reference to our CMD file** like so:

    [SourceDisksFiles]
    ; Redist
    asycfilt.dll=2
    comcat.dll=2
    mfc42.dll=2
    msvcp60.dll=2
    msvcrt.dll=2
    oleaut32.dll=2
    olepro32.dll=2
    stdole2.tlb=2
    AutoRun_vmware.cmd=2

Adding Network Support Drivers for Physical Machines (Example)

Note:

- You may also wish this disc to offer network support on the Physical Machine – to do this you may have to add drivers.
- For example there is no support for Intel Pro 1000 cards in the default disc.
- Here's how I added support for multiple Intel Pro 1000 cards on my Dell 1650's:

  Note:
  These instructions would be very similar for any network card type – say for example the BroadCom Network Cards which are popular on some HP Proliant Servers.

  General Instructions are on BartPE's website

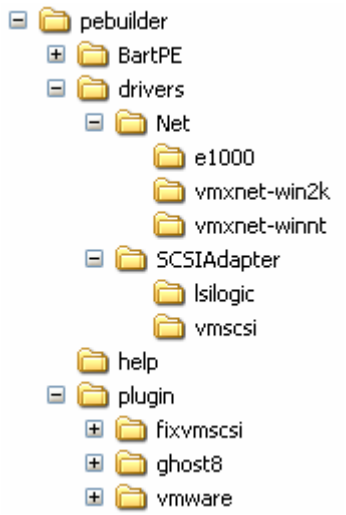
1. Download from the Intel's Website the Driver for Intel Pro 1000
2. **Unzip the drivers**, but **cancel the message to install or create boot disks**
3. **Navigate to the unzip location** and **PRO1000\WS03XP2K**
4. **Copy these files** in the **WS03XP2K directory** to:

   C:\Program Files\pebuilder\drivers\Net IntePro1000\

   Note:
   IntelPro1000 is a directory I made – you can name the sub-directory off \net anything you like.

   Note:
   You can use the same method to handle mass-storage device drivers.

   At the end of this process – if you have added every driver and plug-in (including the optionals), you should have directory structure something like this… I have hidden some of the directories in the plugin folder to make this screen capture easier to see…



Removing BartPE Desktop Logo

Note:

- Some people have reported sluggish mouse responsiveness within the BartPE environment.
- This can be significantly reduced by removing the desktop logo from the background.
- This is very easy edit to a BartPE default inf file

1. Open **Windows Explorer** and navigate to **C:\program files\pebuilder**
2. Open in **Notepad** the **pebuilder.inf** file
3. **Locate the line** that reads:

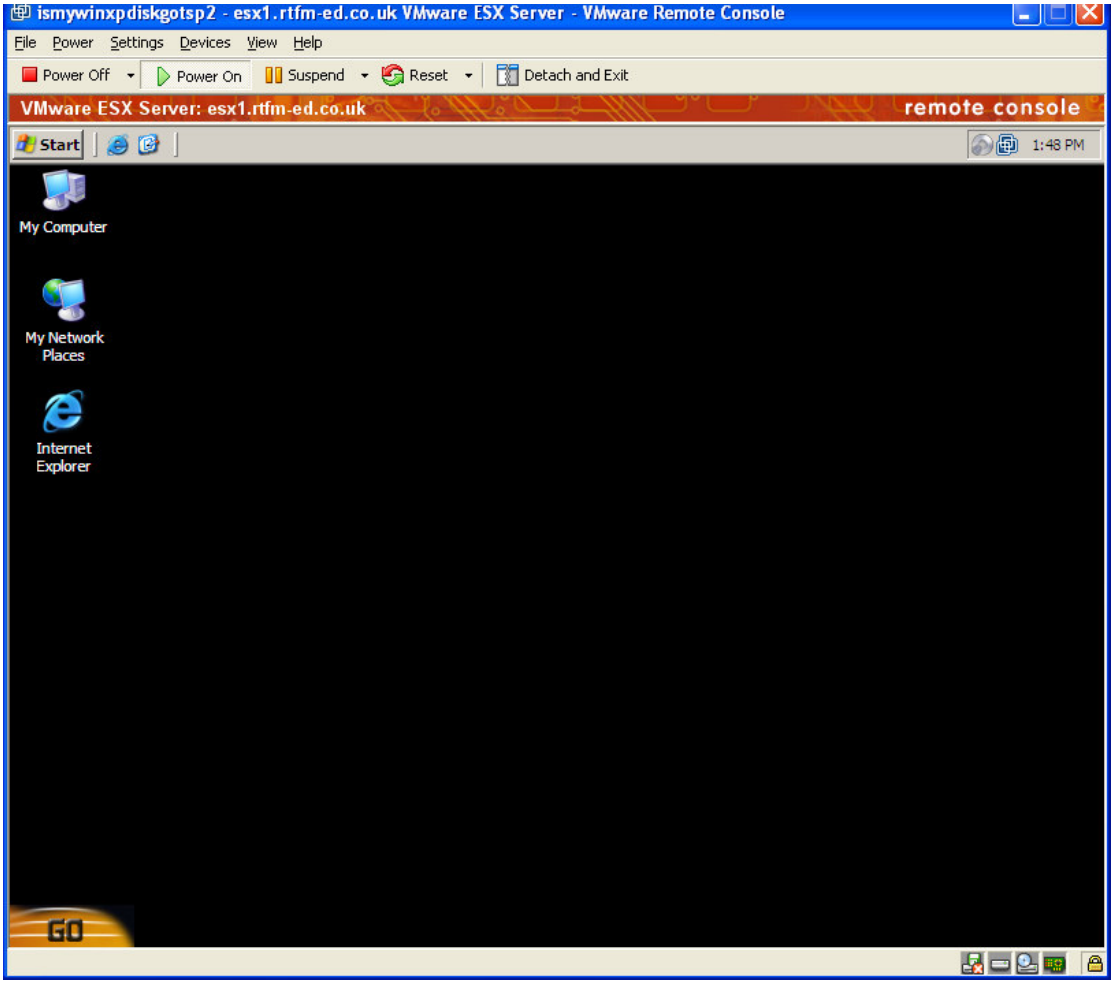
   ; Set wallpaper
   0x2, "Control Panel\desktop",
   "WallPaper",**"%systemroot%\system32\bartpe.bmp"**

4. **Remove the path and file statement** – so the entry reads

   ; Set wallpaper
   0x2, "Control Panel\desktop", "WallPaper", **""**

Adding Support for the XPE Plug-in (Optional)
Note:

- XPE is a plug-in which adds the Windows Task Bar & Start Menu to BartPE



- It also enables the ability to run the mmc.exe for other tools under BartPE
- You can download the latest version of XPE from Sherpya's Windows PE Stuff
- XPE is **NOT** required to use Qui's Fix-VMSCSI. It will add extra load to your CD.

1. **Unzip the XPE files** to **C:\program files\pebuilder\plugin**
2. **In the xpe directory**, rename **z_xpe-custom.inf.sample** to be **z_xpe-custom.inf**

   Note: Screen Resolution Change
   XPE starts in 1024x768 mode you might find 800x600 fits better on your screen within a Virtual Machine, and will also work on older monitors/graphics cards of physical machines

3. **Search in the z_xpe-custom.inf file** for "**Screen Resolution**"
4. **Remark out with a semi-colon ;** the resolution which is the default called **; Screen Resoultion 1024x768 32bpp**

5. **Remove the three semi-colons from one of the other resolutions** to enable it. I enabled:

   ; Screen Resolution 800x600 32bpp
   0x4,"ControlSet001\Services\VgaSave\Dev…(lines trimmed for readability)
   0x4,"ControlSet001\Services\VgaSave\Dev…(lines trimmed for readability)
   0x4,"ControlSet001\Services\VgaSave\Dev…(lines trimmed for readability)

   Note: Switching off auto-hide of the taskbar
   XPE loads by default with the taskbar hidden at the top of the screen. If you want to lower the resolution and switch off auto-hide. This can be done with the z_xpe-custom.inf

6. **Scroll to end of the z_xpe-custom.inf** file
7. **You will see a combination of options** such as:

   TaskBar on Top – Autohide (This is the default)
   TaskBar on Bottom – Autohide
   TaskBar on Left – Autohide
   TaskBar on Right - No AutoHide
   TaskBar on Bottom - No Autohide

   As in the previous example – rem out the default by adding semi-colons; and enable your preference. Beware that "TaskBar on Bottom - No Autohide" does obscure the Classic BartPE "GO" menu option.

   I choose to use:

   ; TaskBar on Right - No AutoHide
   0x3,"Software\Microsoft\Windows\CurrentVersion\Explorer\StuckRects2","
   Settings",\28,00,00,00,ff,ff,ff,ff,02,00,00,00,02,00,00,00,4e,00,00,00,1e,
   00,00,00,b4,\03,00,00,fe,ff,ff,ff,02,04,00,00,02,03,00,00

   Note: Starting VMware Tools with XPE
   If you have added VMware Tools support. You can make XPE automatically start the VMware Tools Service, by making the following edit

8. Browse to **C:\program files\pebuilder\plugin** and open **autorun0xpe.cmd** file
9. After the line that begins **@echo off** add

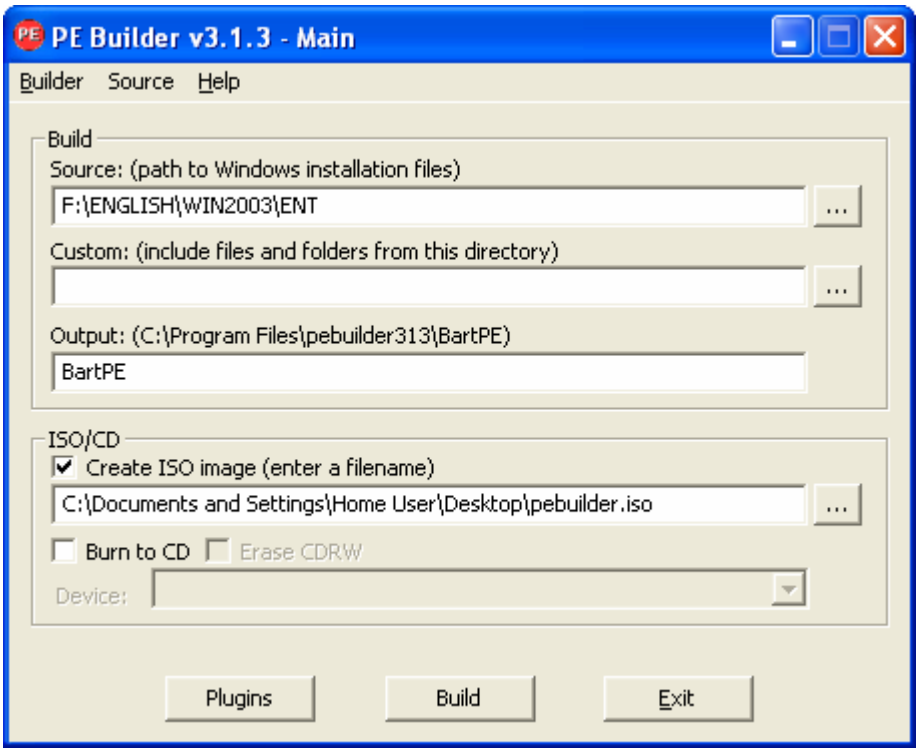
   net start vmtools

Creating your ISO File

1. **Insert your Windows 2003/XP Server CD-ROM**
2. Run the **Program from your Start Menu** and **Agree the License Agreement**

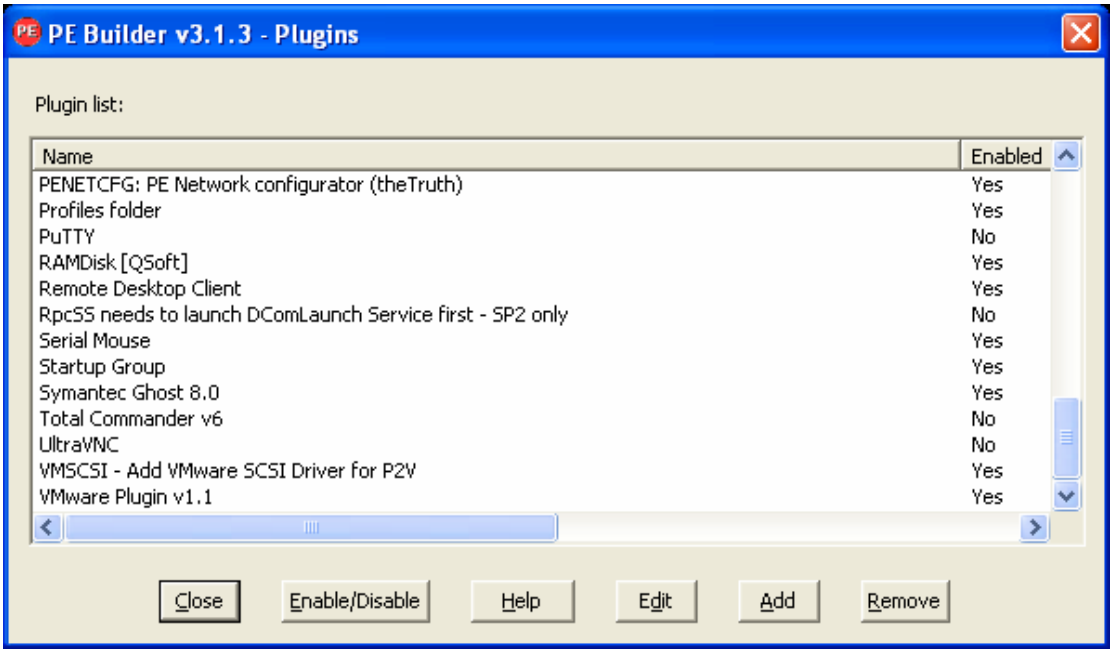
   Note:
   Apparently, from a Microsoft's perspective, your BartPE CD-ROM constitutes a one license consumed. In other words they treat the BartPE CD-ROM as if it was an installation. The path to your Windows source code should be one directory above the i386 location.

3. In the **PE Build v3.1.3 – Main Window**
4. **Browse to the location of you source code** (just to a path ABOVE i386)
5. **Set the location for your ISO**



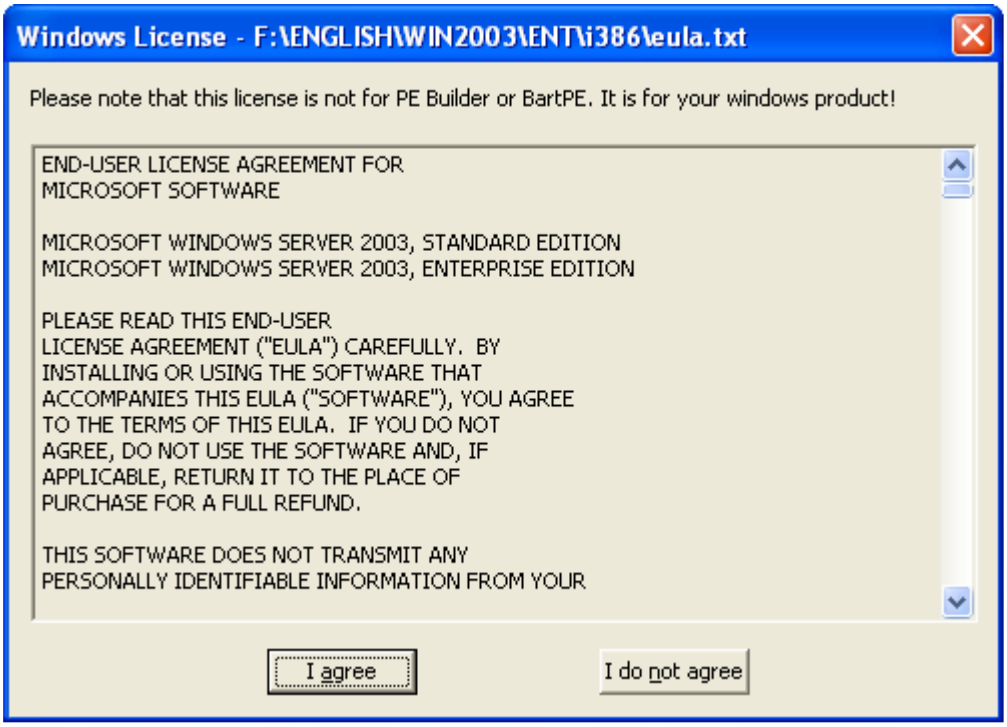
6. Click the **Plugins button**
7. Select **Symantec Ghost 8.0** and Click the **Enable/Disable button**, so **Yes** appears under the enabled column
8. Select **VMSCSI – Add VMware SCSI Driver for P2V**, and Click the **Enable/Disable** button, so **Yes** appears under the enabled column

   Like so:

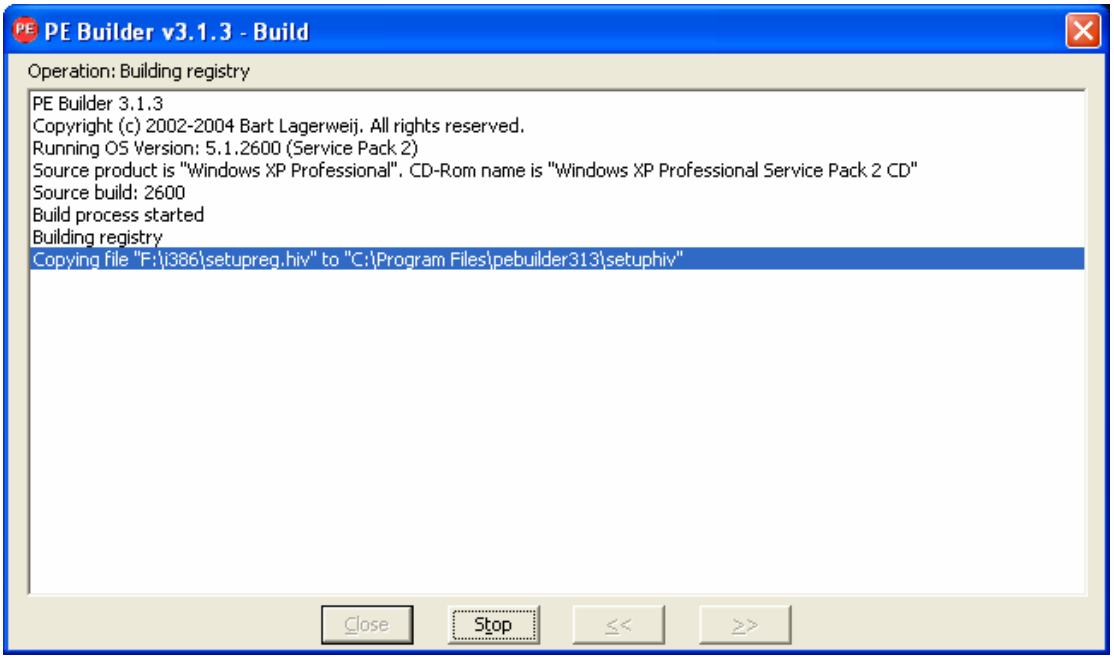


Note:
The VMware Plug-in will only be there if you installed the optional component for VMware Tools support

9. Accept the Windows License Agreement



Note:
After accepting the license agreement, there is then a lengthy log window which shows you what BartPE is up to…



Burning your ISO File to a CD-ROM

Note:

- You can now take the ISO file and burn it to a CD-ROM for use in your physical server.

Uploading your ISO file to your ESX Server

Note:

- You can now upload your ISO file to your ESX server (which will run inside your P2V'd virtual machine).

Using the Custom BartPE Disk

Create a New Virtual Machine

Note:

1. When you create the virtual machine it must have the following properties during the cloning process
2. **Network Properties**
    - Connected to a network which allows it to communicate with the physical server
    - Uses the default virtual network driver of vlance
    - Vlance emulates an AMD PC-NET Family network adapter – which is recognized by the BartPE disc. If you use vmxnet (the idealised virtual adapter), your BartPE will not be able to communicate with the physical machine unless you added the vmxnet driver in as an optional component.
    - Once the clone and system reconfiguration process has completed – the P2V'd virtual machine can be switched to vmxnet which will be recognised once "VMware Tools" has been installed.
3. **Virtual Disk properties**
    - Must be connected to SCSI Adapter 0 with an ID of 0 to be the boot disk
    - Must have enough capacity to take the volume of data contained on the physical machine
    - Ghost automatically gives you the ability to make the disk smaller or larger. BUT, you cannot copy from the physical machine a 36GB disk with 6GB of data, to a 4GB virtual disk.
    - Sounds very obvious this – but you be surprised just how many people try! ☺

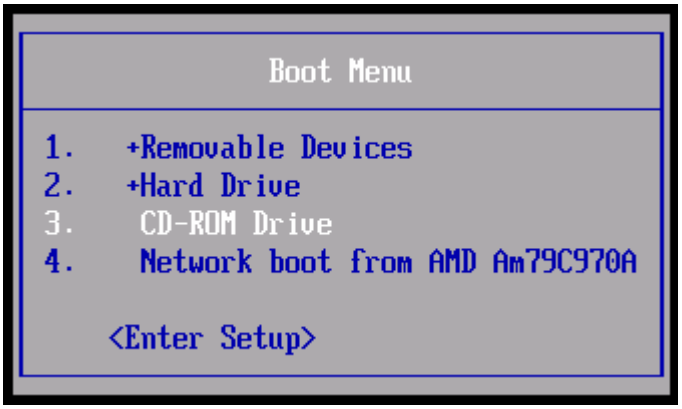
Boot Physical and Virtual Machine to BartPE

Note:

This task is done on both machines – hence the use of the slashes /.

1. **Insert/Attach** the **CD-ROM/ISO** to your **physical/virtual** machine
2. **During Power On, make sure the physical/virtual machine boot to the CD**

    In the Virtual Machine
    Obtain focus to the **Remote Console**
    Press **[ESC]**
    Choose CD-ROM from the boot options like so:



3. In the **Confirm** dialog box, choose **Yes** to **enable network support in BartPE**

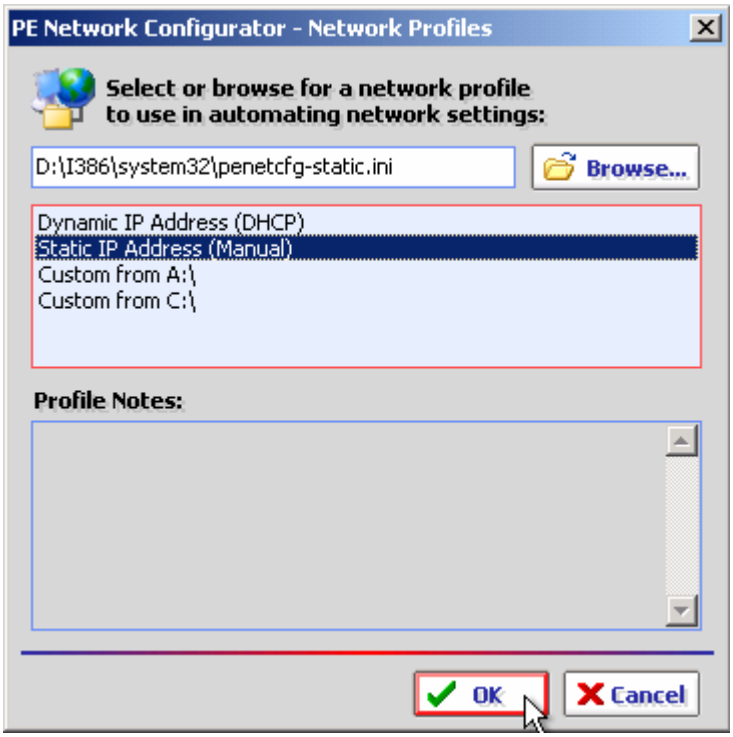
Note:
If you added VMware Tools (Optional) to your build – you can start the service now – by using Go, Run, net start vmtools

4. Choose your **Network Profile**

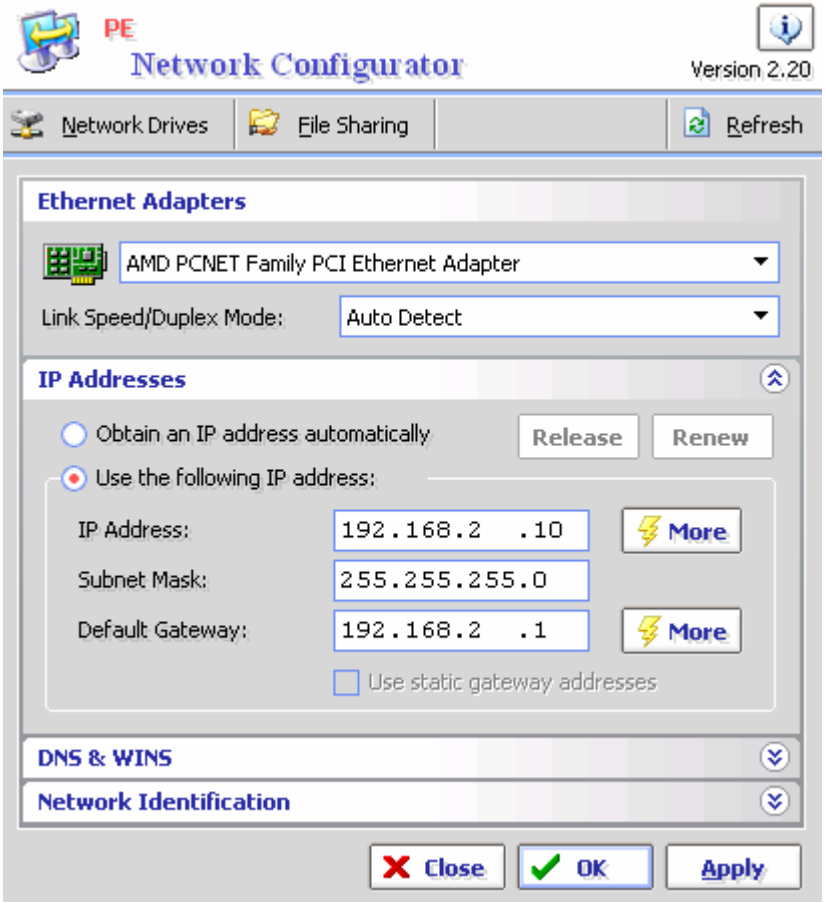
Note:
It is obviously much simpler if you can pick up IP address from a DHCP server – which is what both Chris and I do. All you have to do if you're using a DHCP server is keep on clicking OK to the Network dialog boxes

If on the other hand you prefer to use static addresses, this is how it is done:

Choose Static IP Address (Manual) from the Network Profiles

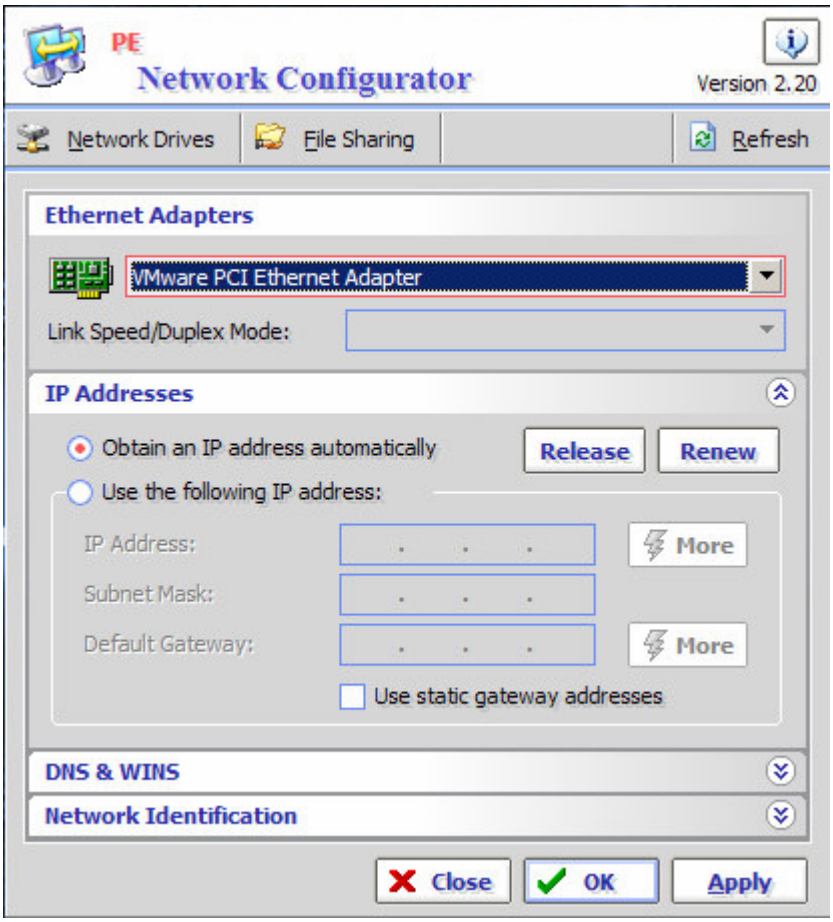


Complete your IP configuration as appropriate, and choose **Apply**



Note:
You might wish to use Go, Command Prompt (CMD) and check that you have an IP address from the DHCP server and that you can ping another host on the network.

Note:
If you are using the vmxnet driver and have installed the vmxnet drivers inside your BartPE, the dialog box will look like this:



Peer To Peer Cloning (Copying Physical-2-Virtual)

Note:

- Historically, I've always cloned to a separate disk/partition or to a file server – saving the file with the .gho extension. This because in the past I've wanted to re-use that clone over-and-over again. If you still want to do this you could. You can open a command prompt and map drive or use BartPE GUI to map a network drive (System, Network, Map Network Drive) if you wish…
- However, Chris put me on to a much more appropriate method which is the Peer-to-Peer method. Where you clone directly from the physical machine's disk to the virtual machine's virtual disk. It's quicker and requires fewer steps to complete!
- Chris also says "For me, 'disk to disk' has been the more successful method verses "partition to partition".

- **VERY IMPORTANT:**

  Peer-to-Peer uses a Master/Slave concept.

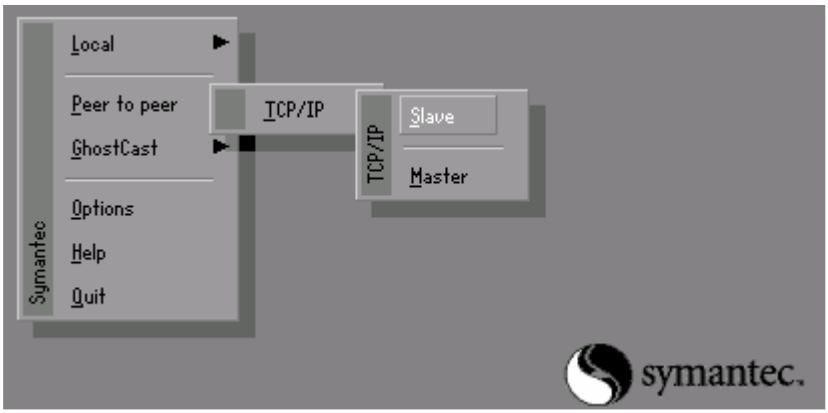
  MASTER is the SOURCE, and SLAVE is the DESTINATION.

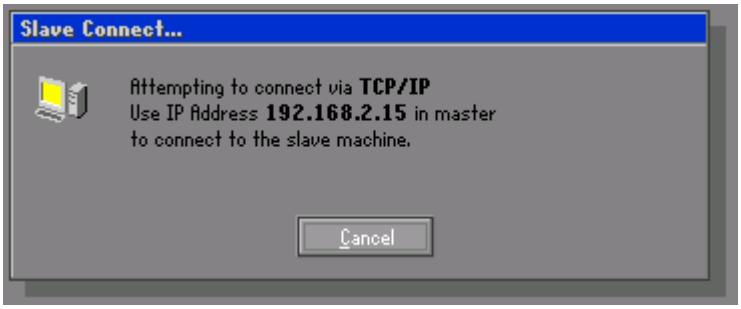
  The ghost process is triggered from the master. So…

  The MASTER is the PHYSICAL MACHINE
  The SLAVE is the VIRTUAL MACHINE

  Read this again – and understand it – before you end up with two blank disks – and a physical machine in need of DR and backup tapes!!! ☺

1. On the **Virtual Machine** click **GO**,
2. Choose **Programs, Symantec Ghost 8** and **Ghost32**
3. Select **Peer to Peer and TCP/IP**
4. Choose **Slave Mode**



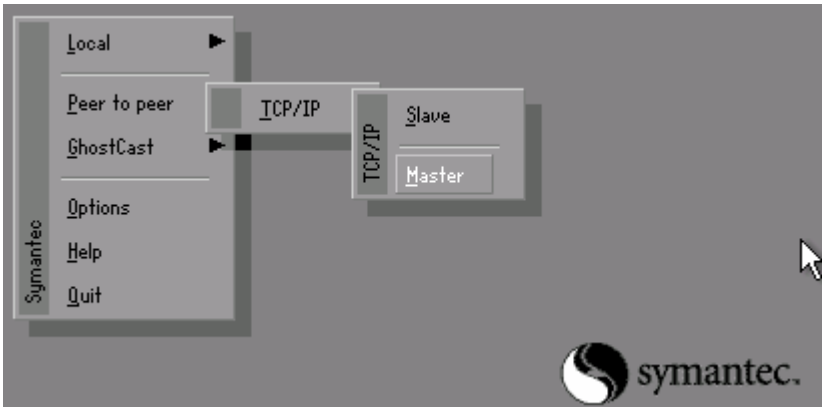


Note:
Make a mental/physical note of the IP address assigned to the slave

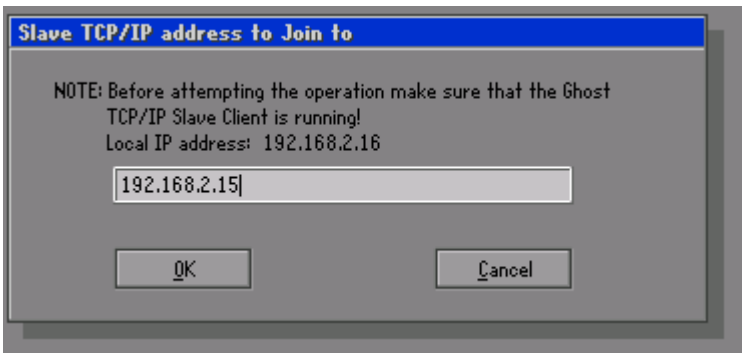
1. On the **Physical Machine** click **GO**,
2. Choose **Programs, Symantec Ghost 8** and **Ghost32**

Note:
If you are cloning a server with a non-standard drive letter layout – say like something like Citrix server with it's drive letters changed from C: D: E: to M: N: E: You might find it useful to use **Ghost32 with Force Disk Signature Preserve Switch (-FDSP)** instead. Otherwise, you won't be able to login or you will get ctxgina.dll error messages when the virtual machine boots from its virtual disk.

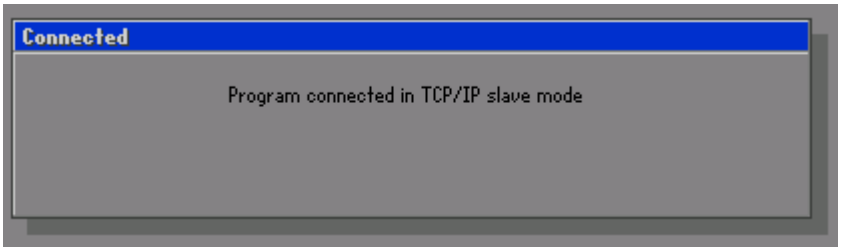
3. Select **Peer to Peer and TCP/IP**
4. Choose **Master Mode**.



5. In the **Slave TCP/IP Address to Join to** – type the **IP address of the Slave** (Virtual Machine) noted a moment ago and click **OK**



6. **Note:**
   The Slave should respond by showing this status dialog box:



7. **At the physical machine** within **Ghost**, choose **Disk**, **To Disk**
8. In the "**Select local source drive by clicking the drive number**" dialog, **select the disk where your OS resides** (this will probably be Drive 1) and click **OK**

9. In the "**Select remote destination drive by clicking the drive number**" dialog **select the disk which is on SCSI Adapter 0 and ID 0**. (this will probably be Drive 1) and click **OK**

10. In the **Destination Drive Details** – use this opportunity to resize the partition if necessary.

11. **At the physical machine**, when you are presented with the **Clone Complete dialog box**, click **Restart Computer** – and remove the CD-ROM – to allow the physical machine to boot normally…

12. **At the virtual machine**, when your are presented with the **Clone Completed** dialog box, click **Continue** – and close **Ghost**

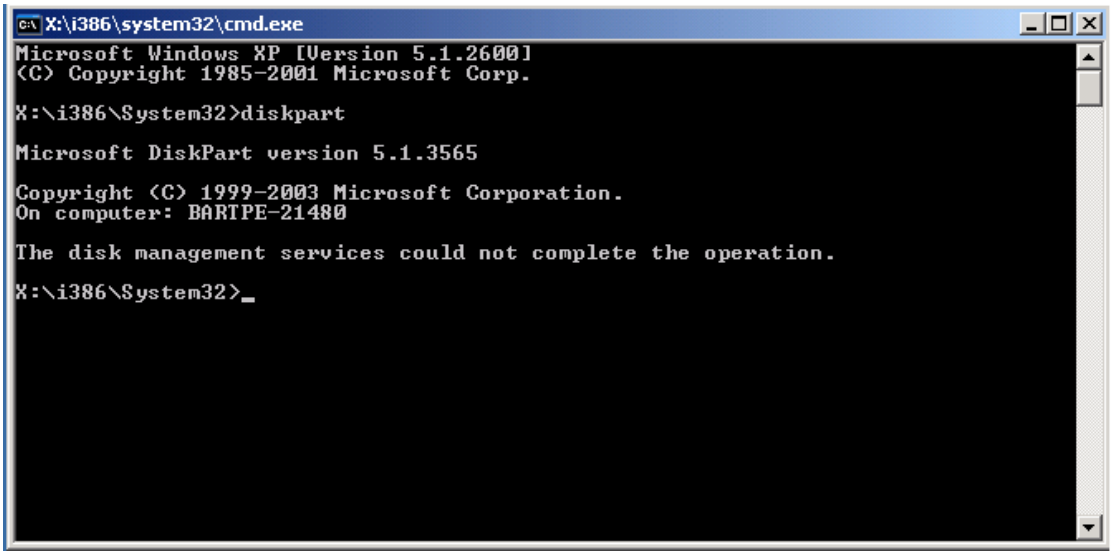
Performing a System Reconfiguration of Virtual Machine with Qui Hong's Fix VMSCSI

- Now for the really clever bit…
- You are now ready to inject the LSILogic or VMware SCSI "BusLogic" driver into the VM.
- Which driver you will use will depend very much on whether you have kept VMware's own defaults – or whether you have changed them.
- This guide assumes you sticking with the default SCSI driver for your operating system.
- Although BartPE has helped us clone the physical disk to the virtual disk – BartPE is not aware of the new disk – and will not have assigned a drive letter to make it accessible. Normally, **a reboot would fix this problem** – but we are lazy and don't want to have to do anymore reboots than strictly necessary.

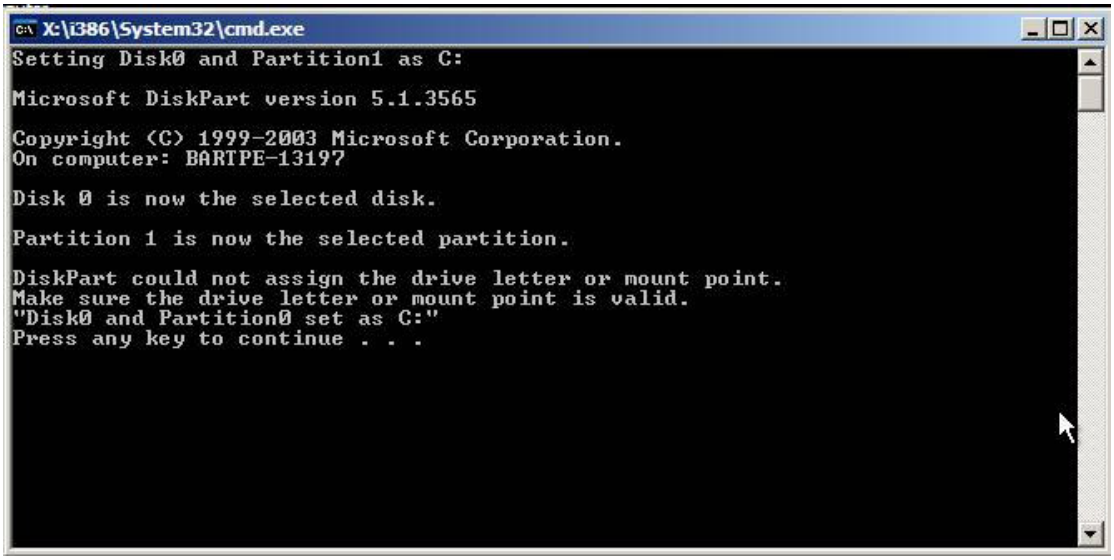
- **Warning:**

  Windows XP+SP2 has been shown to not support Diskpart without error.

  The errors look like this:

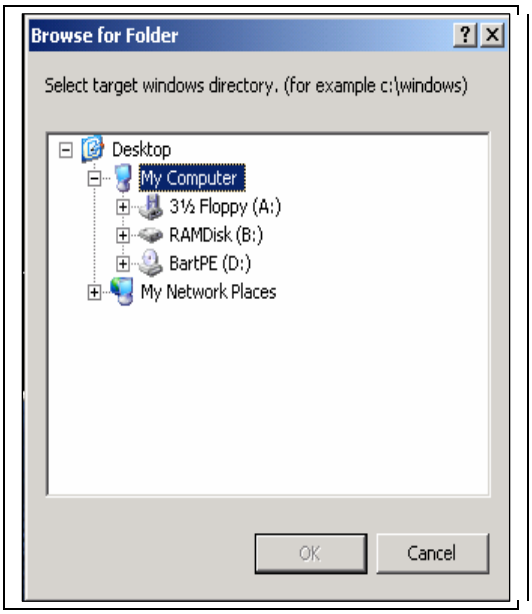


  and



Your only option if you use Windows XP as the basis of your BartPE disc is to reboot. ☹

- Windows 2003 does not appear to suffer from the same errors as above.☺
- We can use the Microsoft's **DiskPart** utility to make BartPE aware of the disk/partition. If you want to learn more about this cute little tool see this support article http://support.microsoft.com/kb/300415/en-us .
- Without this, the FIX-VMSCSI plug-in would not display the newly Ghosted boot partition in its utility, as shown in this diagram here:

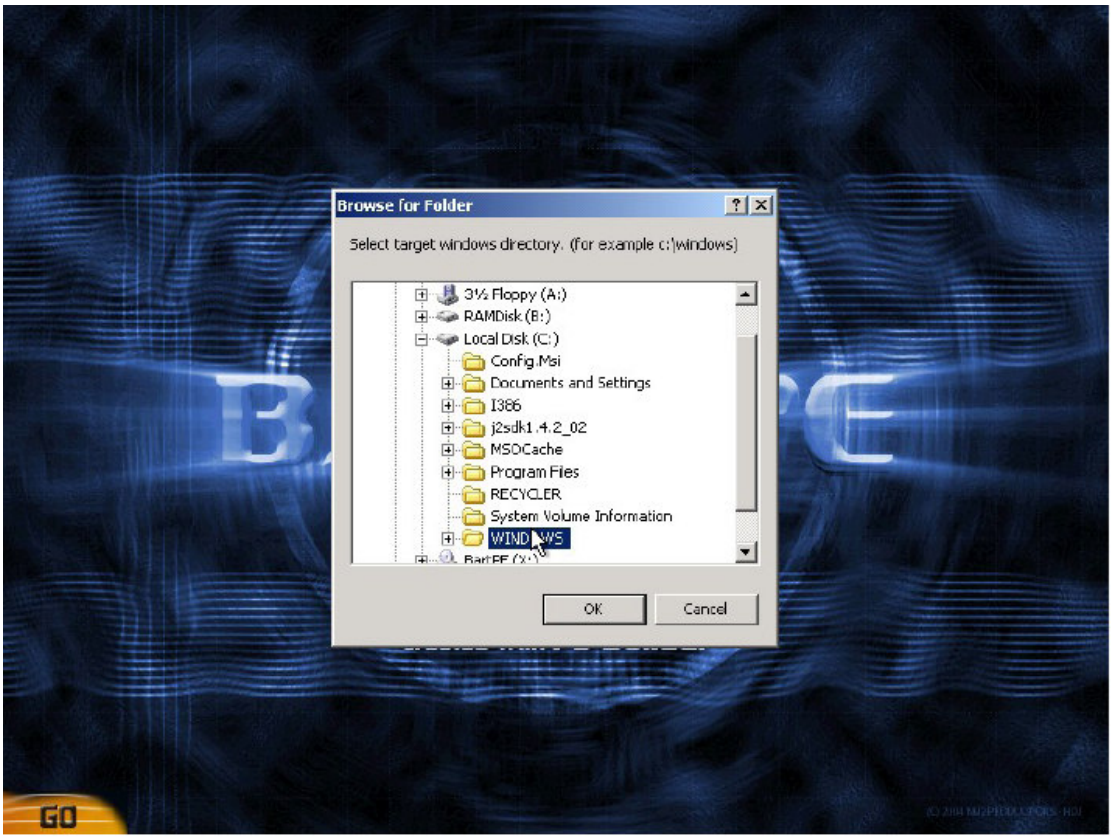


1. Click on the **GO** button, **Programs**, **FIX-VMSCSI**
2. **In the menu** choose **Set Disk0 and Partition1 to be C:**

   Note:
   This runs the diskpart command on disk0, partition1 and assigns a drive letter of c:

3. Now we are ready to fix the boot problems.
4. Click on the **GO** button, **Programs, FIX-VMSCSI,**

5. **In the menu** choose **Select Set OS Target Root (current=).**
6. **Browse to C:** and Select the directory that your Windows is installed under, i.e. WINNT, WINDOWS and click **OK**.



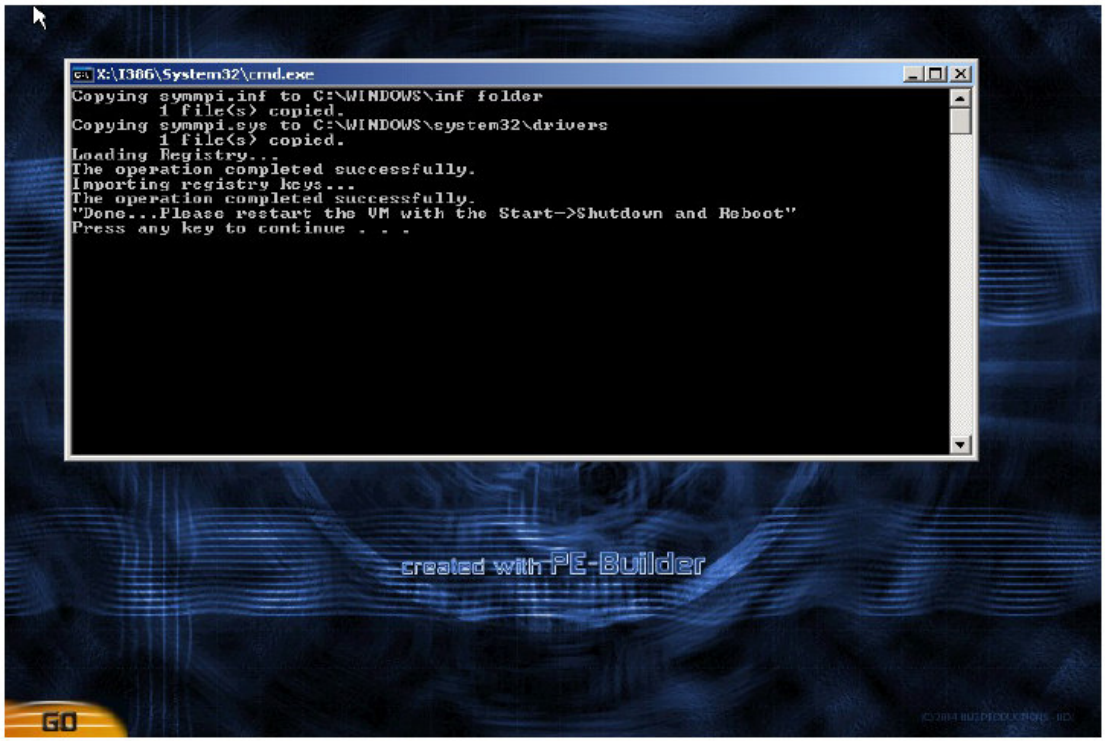
7. **If you go back to the FIXVMSCSI plug-in, you'll notice that the other options are now available.**

   Depending on your OS and whether you have obeyed the defaults from VMware choose:

   Windows 2000 – (P2V) – ADD VMSCSI (BusLogic)
   Windows 2003 – (P2V) – ADD LSILogic SCSI
   Windows XP - (P2V) – ADD LSILogic SCSI
   Windows NT - (P2V) – ADD BusLogic SCSI Windows NT

   Note:
   Qui Hung's plug-in will work if you have deviated from the default VMware settings when you created your virtual machine. Notice also, that there are options for **V2P** – however, currently only Compaq/HP Raid Controller drivers are supported.

   I was P2V'ing a Windows 2003 physical machine, so I am going to use (P2V) -ADD LSILogic SCSI Windows XP/2000/2003. This is what it does:



8. The "**system reconfiguration**" process is now over. Choose **GO**, and **Shutdown** and **Shutdown**

Post-Configuration Stages

- The next steps are up to you…
- Personally I would
    1. Switch over to vmxnet
    2. Install VMware Tools
    3. Configure a static IP address
    4. Remove Stale Software
    5. Remote Stale Hardware
    6. Change the ACPI Settings as appropriate – downgrade/upgrade ACPI and HAL.DLL appropriate to Uni-Processor or Multi-Processor VM
- These post-configuration stages are documented in the main P2V Document from both VMware and in RTFM Education Guides.
- Additionally you may wish to look at scripting the above bulleted list. Sample scripts are available on http://www.rtfm-ed.co.uk in the White Papers section.

Credits & Acknowledgements (Again!)

Qui Hung – the developer – the brains behind FIX-VMSCSI
Chris Huss and **Mike Laverick** – Joint Authors of this White Paper