

VMware ESX3i Guide

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RTFM Education

Beyond the Manual... with Mike Laverick

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Appendix B: ESX 3i

Version Information:

At the time of writing ESX3i has not even been released and currently is a beta product. The version of ESX3i I am working with is a version given to delegates at VMworld on a Kingston 1GB memory stick. Once ESX3i has been released under "General Availability" (GA) this document will be updated to reflect any changes in functionality.

It is intended that this chapter will be made available for free on www.vi3book.com when ESX3i is GA.



Already ESX3i has a number of unofficial names. On the boot screen you will see the words "VMvisor" and the Vi Client refers to ESX3i as "VMware Embedded ESX Server". Throughout this document I will refer to it as ESX3i. I assume the "i" stands for "Integrated".

Acknowledgements:

I would like to thank a number of people who were very helpful in the process of me constructing this guide. These people include:

Richard Garsthagen from <http://www.run-virtual.com>
Eric Sloof from <http://www.ntpro.nl>
David Davies from <http://www.happyrouter.com>
Thomas Bishop from <http://scalethemind.blogspot.com>

What is ESX3i

ESX3i (Integrated) is a version of ESX that ships with hardware. You can see it as an OEM edition of the product. In this guise ESX is embedded into your hardware in memory chips or ROM. ESX3i has a much smaller footprint than the initial release ESX3, as it does not include the Service Console piece of ESX3. There are a number of advantages to this approach including:

- **Reduced Patch Burden**

Most of the patches issued for ESX3 address problems in the Service Console, rather than VMKernel. By removing this part of the platform, VMware have instantaneously made your life easier. Additionally, as many of these patches address security vulnerabilities in the Service Console – ESX3i should be more secure as these security weaknesses simply don't exist.

Additionally, the ESX3i system has a "lockdown" mode. This lockdown mode prevents remote access to the command-line environment of the

ESX3i system. It can only be then managed via the ILO (referred to as the local console) or VirtualCenter

- **Rapid Provisioning**
Rather than having to install the ESX product to disks or invest some time in automating the ESX installation, ESX3i simply removes the install process – and eliminates much of the operator and business decisions required to deploy ESX. This said your networking and vSwitches still have to be created, although this process could be automated with Remote CLI Scripts
- **Greater Reliability**
With ESX3i being integrated to solid state components rather than on hard drives we no longer have to worry about the failure rate of physical disks unless you are creating local VMFS volumes
- **Hardware Monitoring**
Currently after installing ESX the operator must install vendor specific hardware management agents such as the HP System Insight Management agent or the IBM Director Agents. When ESX is upgrade from one release to another, generally you will find that have you have to download and install a new hardware agent. With ESX3i hardware monitoring is integrated into the system. Therefore no hardware monitoring agent needs to be manually installed

As with all products it's not without disadvantages and these generally present them to businesses that have been using ESX for sometime. They may have in recent years become dependant on the Service Console for various operations such as scripting various tasks. With the removal of the Service Console it is very unlikely that these "console" scripts are unlikely to work unmodified in ESX3i. This said the main ESX commands (covered in Chapter 12) that begin with esxcfg- prefix are still available.

Configuring ESX3i

By default when you boot a server with ESX3i it will default to a number of key settings:

- A default virtual switch called vSwitch0 is created with two port groups called VM Network and Management Network Portgroup. The Management Network portgroup replaces vswif0 and holds the IP settings of ESX3i
- The root account has no password assigned to it
- The default FQDN is vmvisor.vmware.com
- If the local disks are blank, a local VMFS volume called datastore1

Note:

Experience has shown that ESX3i will not wipe an existing server of its partition table. However, it is not recommended to use ESX3i with an existing server with local storage. Existing VMware documentation does not promise that your files will be still be there after booting to the ESX3i system.

This in mind the main changes you would have to make are to set a static IP address. Alternatively, you could use a DHCP service with "Client Reservations" this is where the same IP is leased to the ESX host based on MAC address. Additionally, you will want to name your ESX host and set a root password.

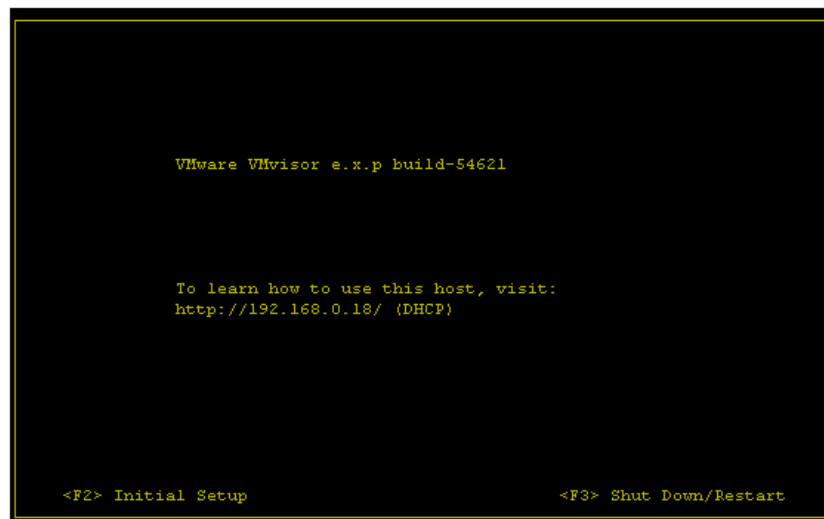
This post-configuration can be done via your servers ILO or remotely using the Vi Client. If you are using the ILO you should know that the colours currently used can be difficult to read. Figure B.1 shows the ESX 3i screen when making changes to the ESX3i

Figure B.1



After a short period of inactivity the screen changes to a much readable screen like so:

Figure B.2



For purposes of readability I have chosen to make all the screen grabs using the second colour scheme for readability.

To navigate the ESX3i Initial Setup screen you can use:

- The cursor keys to move up and down
 - [F2] to enter the Initial Setup
 - [Enter] to make and save changes
 - [ESC] to save your changes, exit and logout
 - [Spacebar] to select items in a list
-

You should find the post-configuration of an ESX3i very easy and simple. In effort for completeness I thought it would still be useful to walk you through the typical configuration changes required.

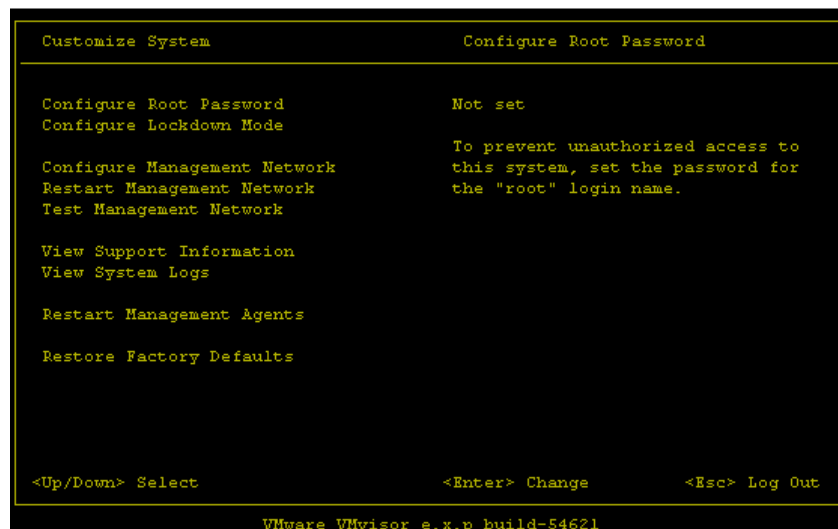
Set the ROOT password

1. Press **[F2]** on the keyboard to run the **"Initial Setup"**

Note:

Figure B.3 shows the main "Initial Setup" screen and hopefully it self explanatory

Figure B.3



2. Under **Customize System**, ensure **Configure Root Password** is selected and press **[Enter]** to set a root password
3. As the root password is currently blank, **press [Enter] accept the "Old Password" field**. In the **New Password** and **Confirm Password** fields type in two samples of your preferred password.

Note:

In the Configure Root Password screen you use the **[Enter]** key to move to the next field

Configure Management Network

The configure management network screen allows you to change 5 main settings:

- Set which Network Adapters are used by vSwitch0
- VLAN Settings
- IP Settings
- DNS Configuration
- Custom DNS Suffixes

Setting Network Adapters

As in the older ESX 2.x install, by default ESX3i select the first NIC for which it has a valid driver for as your management console network. This might not be the correct NIC for the network or VLAN from which you carry out management tasks.

1. Select **Configure Management Network** and press [**Enter**], Figure B.4 shows the Configure Management Network screen

Figure B.4

```

Configure Management Network      Network Adapters

Network Adapters                  vmnic0 (00:15:60:0e:a5:bc)
VLAN (optional)

IP Configuration                  The adapters listed here provide the
DNS Configuration                 default network connection to and
Custom DNS Suffixes              from this host. When two or more
                                  adapters are used, connections will
                                  be fault-tolerant and outgoing
                                  traffic will be load-balanced.

<Up/Down> Select                  <Enter> Change                  <Esc> Exit

VMware VMvisor e.x.p build-54621

```

2. Select **Network Adapters** and press [**Enter**]
3. The Network Adapters screen will show you the current VMnic used and the MAC addresses of each of the NICs. Figure B.5 shows four NICs. These are two dual port cards. My server has two on-board Broadcoms (00:15) and an external dual port Intel cards (00:11)

Figure B.5

```

Configure Management Network      Network Adapters

Network Adapters

Select the adapters for this host's default network connection. Use two
or more adapters for fault-tolerance and load-balancing.

Device Name  Hardware Label  Status
[ ] vmnic1   00:15:60:0e:a5:bb
[ ] vmnic2   00:11:0a:57:ed:30
[ ] vmnic3   00:11:0a:57:ed:31
[X] vmnic0   00:15:60:0e:a5:bc

<Up/Down> Select <Space> Toggle Selected      <Enter> OK <Esc> Cancel

VMware VMvisor e.x.p build-54621

```

4. Use the **cursor keys** and the **spacebar** to select the NIC(s) you would like to use
5. Finally, press [**Enter**] to save your changes

Setting the VLAN Identity

1. Select the **VLAN (Optional)** and press [**Enter**]
2. **Set the VLAN value using the appropriate value from 1-4094.** Figure B.6 shows the VLAN screen

Figure B.6

```
VLAN (optional)

If you are unsure how to configure or use a VLAN, it is safe to
leave this option unset.

VLAN ID (1-4094, or 4095 to access all VLANs):      [      ]

<Enter> OK <Esc> Cancel
```

IP and DNS Configuration

1. Select **IP Configuration** and press [Enter]
2. Cursor down to select "Use the following IP address and network settings" and press the Spacebar
3. **Modify the IP, Subnet Mask and Default Gateway appropriate to your network ranges.** Figure B.7 shows the IP Configuration screen

Figure B.7

```
IP Configuration

This host can obtain network settings automatically if your network
includes a DHCP server. If not, you must specify these settings.

( ) Obtain an IP Address and network settings automatically
(0) Use the following IP address and network settings:

IP Address           [ 192.168.0.104   ]
Subnet Mask          [ 255.255.255.0   ]
Default Gateway      [ 192.168.0.1     ]

<Up/Down> Select <Space> Mark Selected      <Enter> OK <Esc> Cancel
```

4. Press [Enter] to confirm your change
5. Next select **DNS Configuration** and press [Enter]
6. **Modify the fields to set your Primary and Secondary DNS**

Note:

Currently it is not possible to set tertiary DNS from the local console. Figure B.8 shows the DNS Configuration screen

Figure B.8

```
DNS Configuration

This host can only obtain DNS settings automatically if it also obtains
its IP configuration automatically

( ) Obtain DNS server addresses and a hostname automatically
(0) Use the following DNS server addresses and hostname:

Primary Server           [ 192.168.0.199   ]
Alternate Server         [ 192.168.0.200   ]
Hostname                  [ esx4.vi3book.com ]

<Up/Down> Select <Space> Mark Selected          <Enter> OK <Esc> Cancel
```

7. Press [**Enter**] to save your changes
8. Next select **Custom DNS Suffixes**, and type the appropriate DNS suffix search domain for your ESX host. Figure B.9 shows the Custom DNS Suffixes screen

Figure B.9

```
Custom DNS Suffixes

DNS queries will attempt to locate hosts by appending the
suffixes specified here to short, unqualified names.

Suffixes:                [ vi3book.com           ]

                           <Enter> OK <Esc> Cancel
```

9. Press [**ESC**] to save your changes, and choose **Y [Yes]** at “**Configure Management Network: Confirm**” screen to restart ESX3i network layer. Figure B.10 shows the Configure Management Network: Confirm screen

Figure B.10

```
Configure Management Network: Confirm

You have reconfigured this host's management network.
Before your changes take effect, they must be applied.

Note: Applying these changes may disconnect remote management
software.

Save changes and restart management network?

<Y> Yes <N> No
```

Testing the Management Network

You don't have to test the management network, and you can use conventional methods from your workstation to confirm these changes have been effective. The ESX3i "Initial Setup" does have its own network tests which confirm that the default gateway is up (and therefore checks your IP and Default Gateway settings are good too) and checks your DNS configuration works correctly.

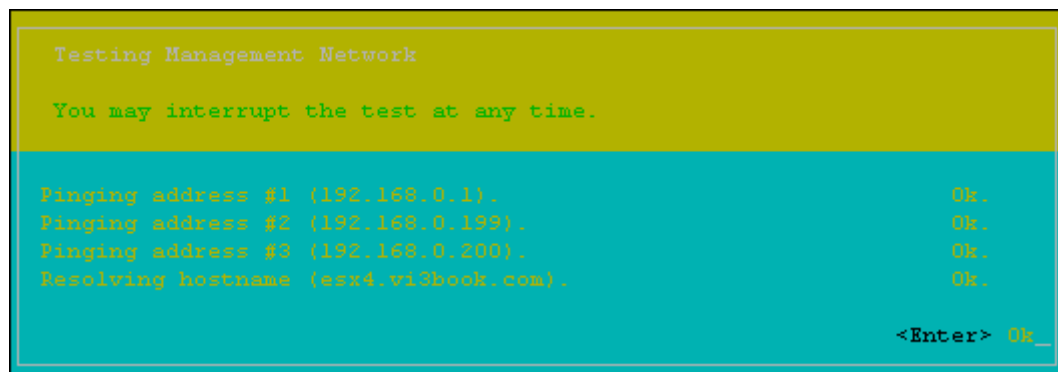
1. From main **Initial Setup** menu choose **Test Management Network** and press [**Enter**]
2. Press [**Enter**] again to confirm you would like to test all your settings

Note:

Although screen does have the option to select your settings using the cursor keys. This option does not have any function – as all your settings are tested.

Interestingly, in this case the test results screen never times out and changes colour. Hence Figure B.11 is in the full colour mode

Figure B.11



Viewing the System Logs

There are currently four system logs – Messages, Config, Management Agents (hostd) and VirtualCenter Agents (vpxa). These are rolling logs which are very similar to the Alt+F12 logging screen on a conventional ESX 3i host. The Initial Setup screen allows you to select "View System Logs". Each log is allocated a number from 1-4. Once you're viewing a system log you press [Q] to quit the log view and return to the main Initial Setup screen.

There are some logs that available during the boot process itself. When you see the message "Loading VMware Hypervisor" it is possible to press the [ESC] and see "hidden" aspects of the boot process.

Rebooting an ESX3i Host

The local console does state very clear that reboots and shutdowns should ideally be triggered from Vi Client. However, it can be also done from the local console as well.

1. At the main splash screen press [**F3**]
2. Press [**Enter**] to accept the use of the root account and supply the root password and press [**Enter**]
3. Press [**F11**] to trigger a reboot or [**F3**] to shutdown. Figure B.12 shows the main warning screen associated with a reboot/shutdown from the local

console

Figure B.12

```
Shut Down/Restart

We recommend using remote management software such as
VMware Infrastructure Client to safely shut down or
restart this host.

Unless your running virtual machines have been
configured to shut down gracefully with the system,
shutting down or restarting from this interface will
power them off without warning.

<F2> Shut Down <F11> Restart          <Esc> Cancel
```

Install & Using the ESX 3i Vi Client

Installing the ESX3i Vi Client

Note:

The ESX3i client requires the .NET Framework 2.0 to be installed. If it is not already installed the Vi Client installer will install it first, before then installing the Vi Client itself. This can take sometime.

1. Login to your Windows workstation
2. Open a web-browser and typing the URL of your ESX3i host
3. Click the **Download VMware Infrastructure Client** link and choose **Run**

Note:

This should run the Virtual Infrastructure Client 2.1 installation. Currently the 2.1 is client is NOT backwards compatible with VirtualCenter 2.0.2 or ESX 3.0.2

4. Once you have completed the installation load up the Vi Client and logon as root to your ESX host

Note:

On your first logon you will receive a number of prompts associated with certificates. The first dialog box prompts you to install a certificate for "localhost.localdomain". This is a built-in certificate created for the ESX3i which does not match the actually FQDN you have probably set.

Choose Yes, to accept the built-in certificate

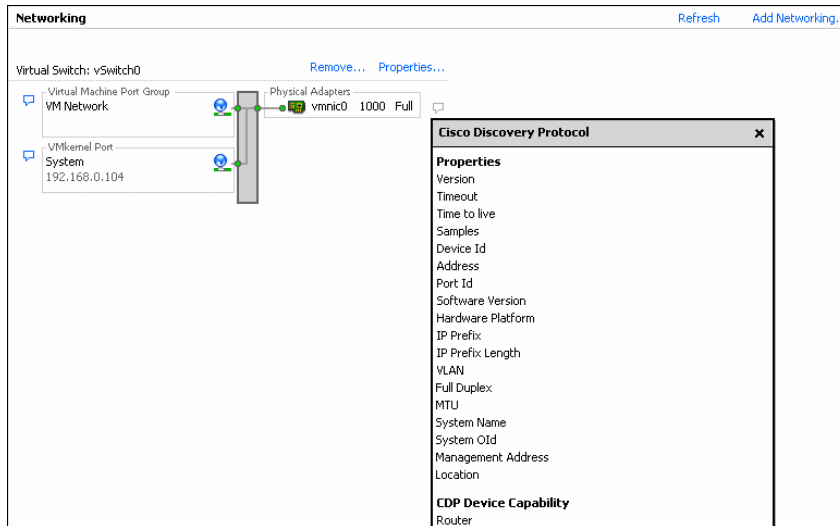
Next a second warning will appear indicating a problem because of this certificate/FQDN mismatch. In this case enable X Always ignore errors for this server and click the ignore button

What's New and Different - Networking

The first thing you will notice that is different about ESX3i is the networking section. References to vswif0 no longer exist because the Local Console is no longer dependent on the networking layer normally provided by the Service

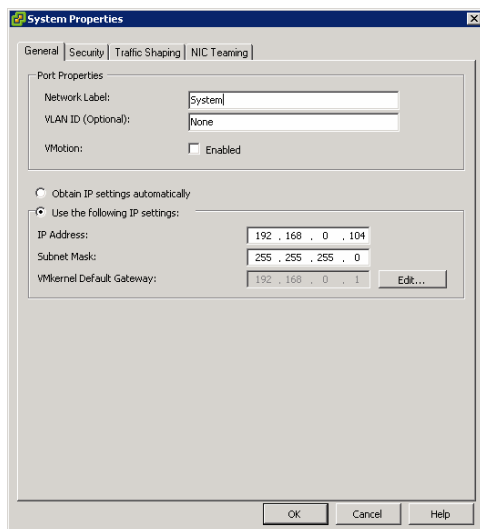
Console. Instead all management communications are directed through a VMkernel port group called "system". Figure B.13 shows the new networking layout

Figure B.13



Additionally, it is now possible to edit your IP settings directly from the Vi Client, and even return ESX3i to being DHCP client if you wish. Figure B.14 shows this option

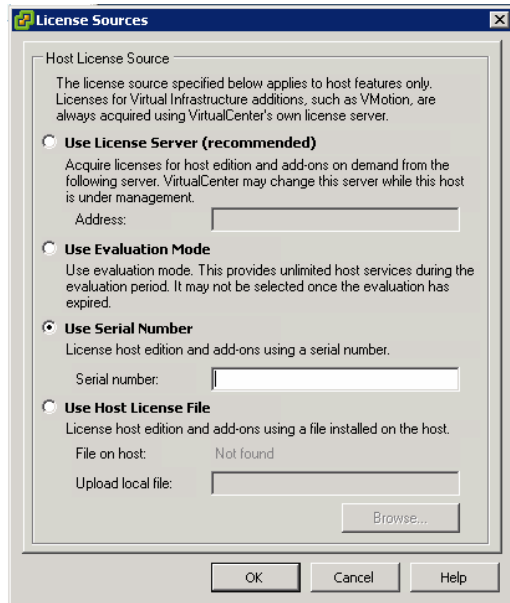
Figure B.14



What's New and Different - Licensing

There are no real functional changes in the licensing model for ESX3i. However, the dialog box has changed under Configuration and License Features and Figure B.15 shows the new options

Figure B.15



What's New and Different - Time Configuration

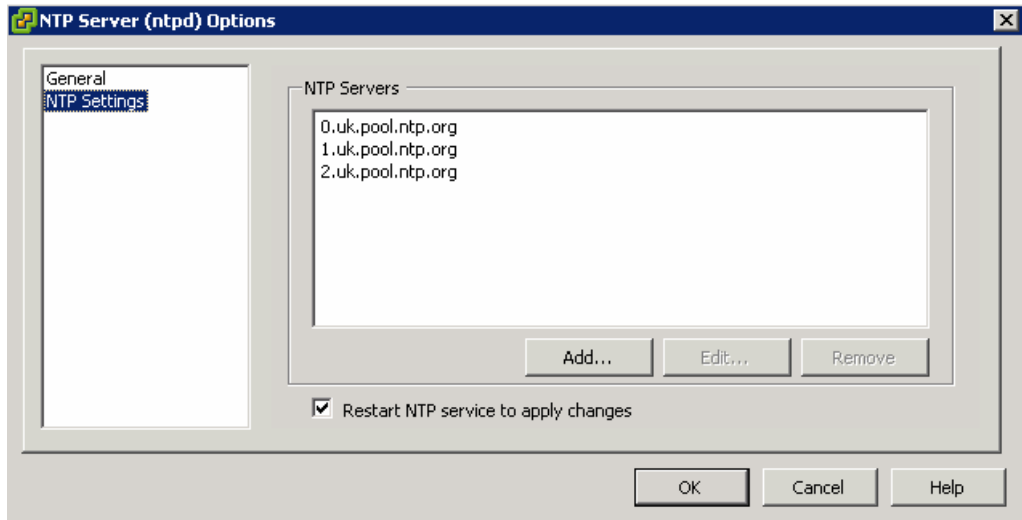
In contrast configuring NTP has changed significantly. You can now configure all your NTP settings from the Vi Client without the need for text editors such as nano or vi.

1. Select the **Configuration Tab**, and in the **Software pane** choose option **Time Configuration**
2. Click **Properties...** option on the right-hand side of the Vi Client
3. In the **Time Configuration** dialog box select the **Options...** button
4. In the **NTP Server (ntpd) options dialog**, select **General** and click the **Start** button
5. In the **NTP Server (ntpd) options dialog box** choose **Add**
6. **Type in the FQDN or IP addresses of the NTP services** you wish to synchronize with
7. Lastly **enable the option** to "Restart the NTP Service to apply changes" and Click **OK**

Note:

Figure B.16 shows the NTP Server NTPD options box

Figure B.16

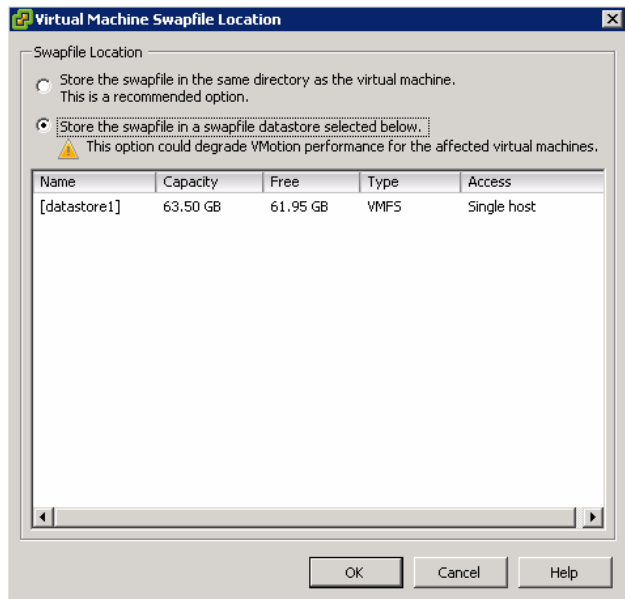


What's New and Different – VM SwapFile Location

As of ESX3 the location and nature of the VMkernel Swap file changed considerably. In ESX 2.x.x the VMkernel Swap file was manually created per-ESX host on local storage. In ESX 3.x.x the VMkernel swap is dynamically created per-VM based on the difference between the VMs "Limit" and "Reservation" value. So if you gave a VM a 1GB limit and 256MB reservation the swap file created would be 768MB in size. This VM-swap file would be created on the fly in the VMFS volume where the VMs VMX file is located. ESX3i allows this location to be modified. However, you must be careful where you relocate your swapfiles to, as this could affect VMotion. You can change the VMkernel Swap file location using the following steps:

1. Select the **Configuration Tab**, and in the **Software pane** choose option **Virtual Machine Swapfile Location**
2. Click the **Edit...** option on the right-hand corner of the Vi Client
3. In the dialog box select the option "**Store the swapfile in a swapfile datastore selected below**". Figure B.17 shows the Virtual Machine Swapfile Location dialog box

Figure B.17

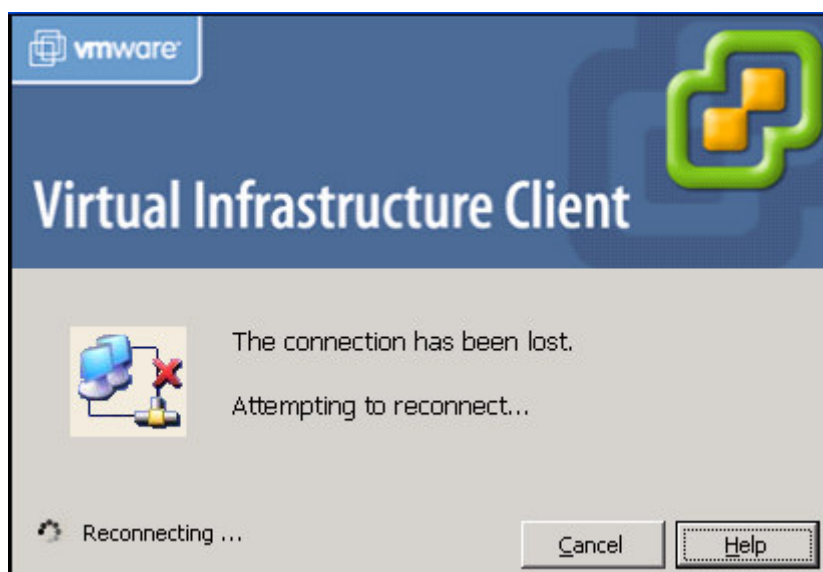


What's New & Different – Lost Connections

The maintenance mode and reboot procedure of ES3i is unchanged from ESX3. There is a new feature which will attempt to reconnect the VI Client when a network communications has temporarily been lost. Figure B.18 shows the reconnection dialog box.

This is not unlike the reconnect feature that operators have with Microsoft RDP or Citrix ICA connections. The intention of this feature is deal with a temporary network outage from the ESX host. It is NOT intended as feature design to reconnect after you have issued a server reboot! As with TS and Citrix sessions when a reboot signal is issued your session is destroyed, and therefore there is nothing to "reconnect" too! Currently, the default time out for the reconnect feature is currently set at 30 minutes.

Figure B.18



What's New & Different - DataStore Browser

Now there is no "Service Console" this means there is no SSH or SCP support anymore. So tool such as WinSCP and Veeam's FastSCP no longer function as intended. If you wish to upload an ISO file to your VMFS you can now do this from the DataStore Browser

1. **Right-click one of your VMFS** volumes
2. Choose **Browse DataStore**
3. Click the **Upload Icon** (Figure B.19 shows the icon)

Figure B.19

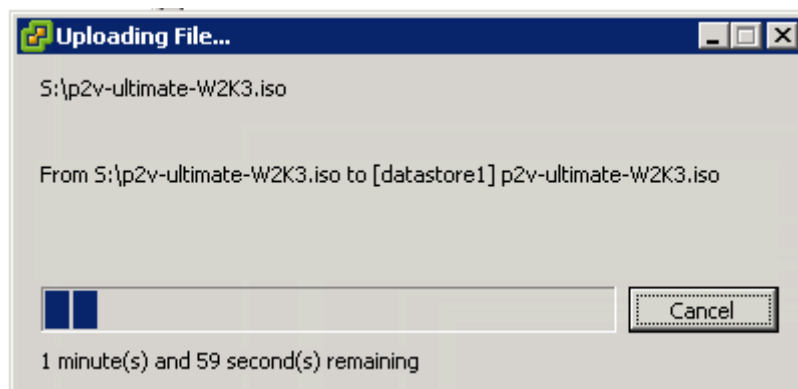


4. Select **Upload File...**
5. **Browse for the ISO** you need and Click **OK**
6. **Confirm the warning that this might replace files with the same name in the VMFS**

Note:

Then watch the pretty status bars

Figure B.20



Note:

The DataStore Browsers functionality has been enhanced in functionality.

You can now also

- Download files from an ESX host datastore to your workstation.
- Move files from one datastore to another
- Rename files

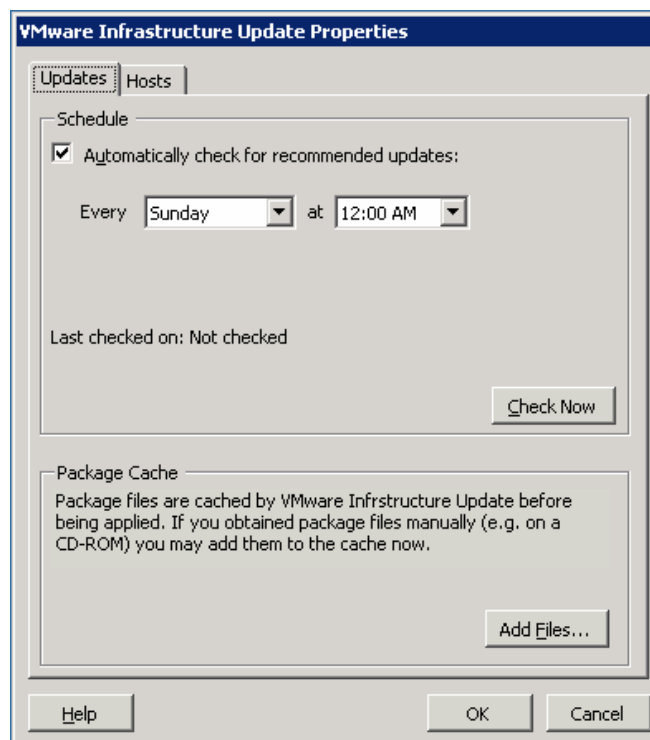
What's New & Different - VMware Update Services

Yes, you read that right. Kinda like Windows Update for VMware? Yes, you read that right too! This upgrades your ESX3i build to the latest version via the internet. I don't follow rigorous standards for internet security and if appropriately

configured my ESX host can have access to the internet. To trigger a VMware Update logon to your workstation

1. Choose **Start, Programs, VMware** and Select **VMware Update Services**
2. The **Updates tab** enable "**Automatically check for recommended updates**" and set a schedule that you feel comfortable with
3. In the **Host tab** enable the option to "**Check all hosts**"
4. Return to the **Updates tab**, and to trigger a manual update click the "**Check Now**" button. Figure B.21 shows the Update dialog box

Figure B.21



Note:

After a short while this should bring up the VMware Infrastructure Update dialog box. Click the **Install Updates** button. Figure 18.d shows the update dialog box; Figure B.22 shows the pretty download status bars and Figure B.22 shows the process in the Vi Client

Figure B.22

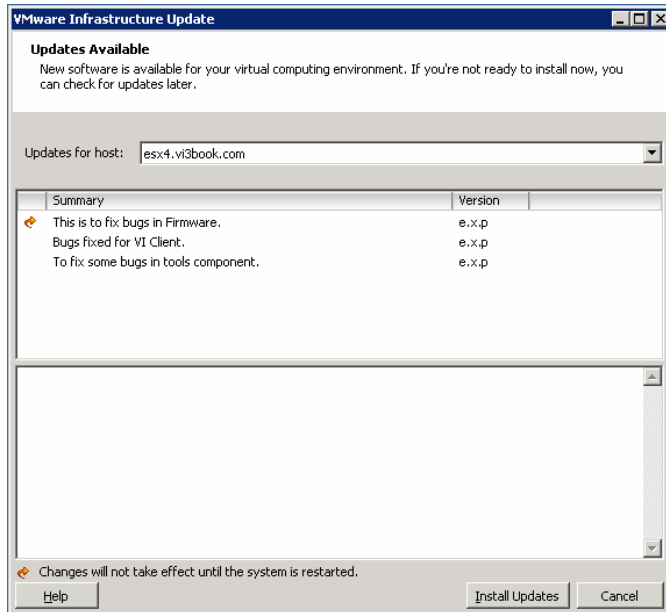


Figure B.23

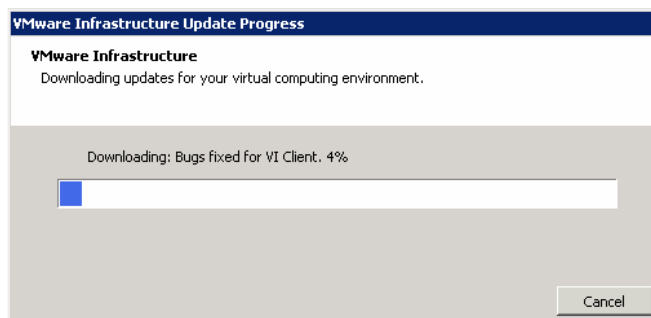


Figure B.24

Recent Tasks							
Name	Target	Status	Initiated by	Time	Start Time	Complete Time	
Install	esx4.vi3book.com	5%	root	10/3/2007 1:23:39 PM	10/3/2007 1:23:39 PM		
Manipulate System Related File Paths		Completed	root	10/3/2007 1:23:32 PM	10/3/2007 1:23:32 PM	10/3/2007 1:23:32 PM	
Install	esx4.vi3book.com	Completed	root	10/3/2007 1:21:44 PM	10/3/2007 1:21:44 PM	10/3/2007 1:23:26 PM	
Manipulate System Related File Paths		Completed	root	10/3/2007 1:21:38 PM	10/3/2007 1:21:38 PM	10/3/2007 1:21:38 PM	

- At the end of the download process – you must authenticate to the ESX host. As you can see from figure B.22 if there is major change in the Firmware (ESX3i itself) then a reboot is required to allow the update take affect

What's New and Different – Virtual Machines

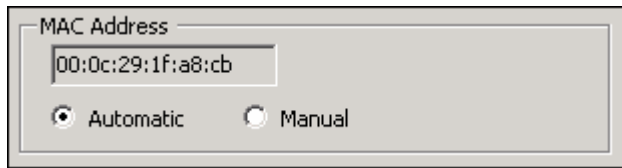
There are a number of subtle differences in the options for creating virtual machines. To some degree these are cosmetic changes that address minor annoyances. A quick look at the "Edit Settings" option on a VM will allow you to see the differences.

Set a static MAC address:

It is now possible to set a static MAC address on VM from the Vi Client. Prior to this you need to edit the VMX file of a virtual machine to change the settings. You can change the MAC address of a VM under the Hardware Tab and the Network Adapter of a VM

Figure B.25 shows the change in the edit settings dialog box

Figure B.25



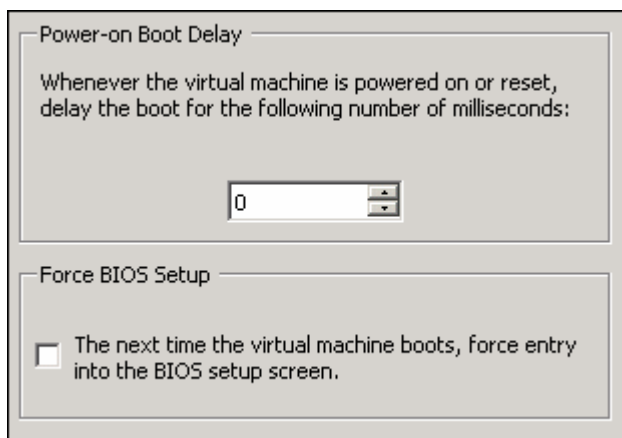
VMware Tools:

There are two new options associated with VMware Tools held within Edit Settings, Options Tab, VMware Tools. This includes the ability to check if VMware Tools is the correct version before power. Second option allows you set that VMware Tools synchronizes with the ESX host for time. Neither of these two options are not currently enabled by default

Power-On Boot Delay:

It is now possible to specify a delay to power on process and also force the VM to load the BIOS on the next reboot. Some people have found that the VM boot so quickly that they cannot press [ESC] or [F2] to adjust the boot process. Figure B.26 shows the new options available

Figure B.26



Paravirtualization (VMI) Support:

Paravirtualization is a virtualization approach where the guest OS is recompiled so that it is VM-aware. In other words the guest OS kernel knows it is running inside a virtual machine. This allows for enhancements in the performance of the guest OS. If you want to learn more about paravirtualization and VMware's support for it including its open-source VMI standard visit:

<http://www.vmware.com/interfaces/paravirtualization.html>

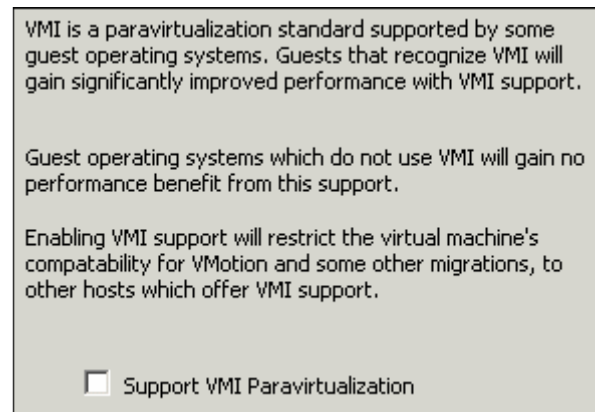
If you are looking for sample guest OS that support paravirtualization there are some downloads available here:

<http://www.vmware.com/interfaces/techpreview.html>

Right now the number of guest OS that are VMI aware is limited to mainly Linux distributions. Figure B.26 shows the tick off box that allows VMI to be enabled. Notice how this can introduce a possible VMotion incompatibility. At the moment ESX 3.0.2 and older do not support paravirtualization, so your ESX hosts would

have to be upgraded to a higher release. It is possible to cold migrate a VM between releases but this could reduce performance if the VM arrives on a destination host which is not yet paravirtualization aware.

Figure B.27



Fibre Channel NPIV Support:

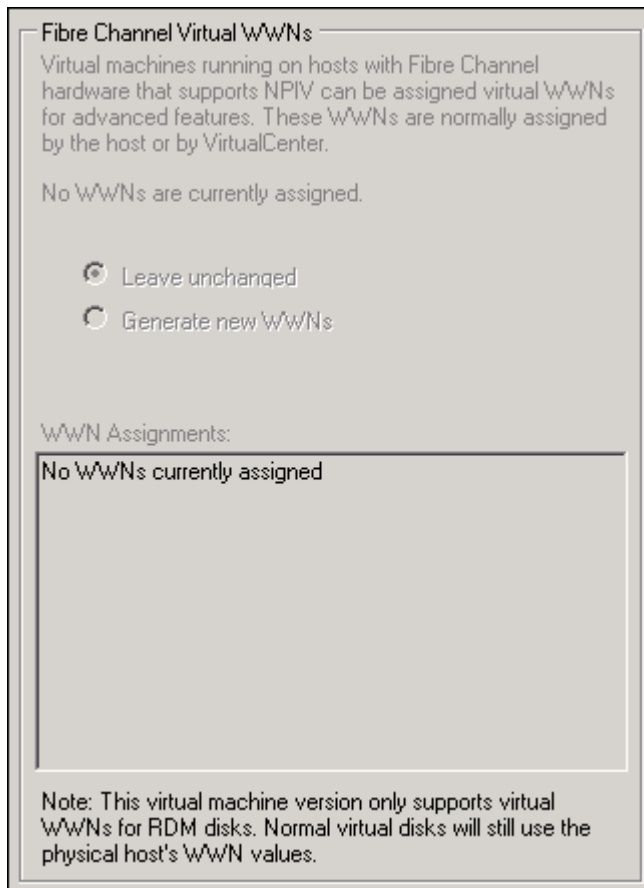
Up until NPIV it was the ESX administrators tasks to make sure the right VM's saw the right LUNs when using the RDM (Raw Device Mapping) feature. Essentially, ESX is adding a layer of abstraction between the hardware devices (the VMkernel's fibre-channel device driver) and the VM.

N-Port ID virtualization allows supported fibre-channel devices to present a WWN to a VM. With NPIV the VM is returned to the state of physical machine, as it can have allocated it own WWN. This means the people who manage the SAN are able to leverage features of the SAN directly to the VM. This includes such things as masking and zoning. If you want to learn more about NPIV from a VMware perspective a good place to look is at the "Providing LUN Security" pdf on VMware's website.

http://www.vmware.com/pdf/esx_lun_security.pdf

Unfortunately, none of my servers support NPVI so I am unable to experiment or use this feature right now. Figure B.28 shows the configuration dialog box

Figure B.28

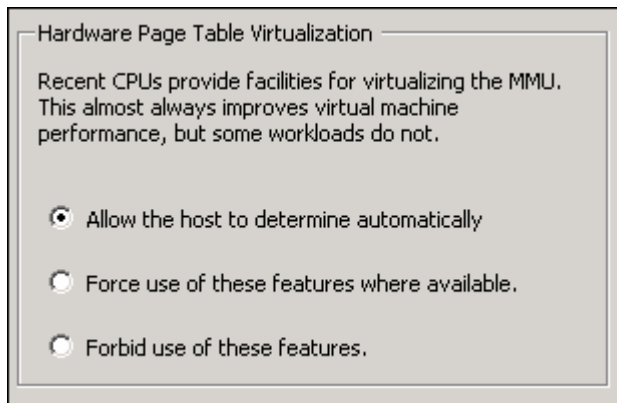


Virtualized MMU:

MMU stands for Memory Management Unit. VMware has for a long time supported in the VMkernel a feature called "Page Tables". This is a mapping of memory of the VM to actual physical memory. This allows for enhanced features such as Transparent Page Sharing where the VMkernel spots duplicate data within and between VMs – and produces a single read-only copy. Whilst this is a great advantage (it reclaims "lost" memory and is often enough to then reduce any memory overheads experienced in virtualization) it clearly makes the VMkernel harder to maintain these page tables.

This function of the VMkernel has now been ported to the newer CPUs. You can regard the virtualized MMU as being akin to other process assists such as Intel-VT and AMD-V enhancements. This feature is enabled by default in ESX3i. The default settings use a discovery process and basically states – if the CPU supports the virtualised MMU attribute – then use it. Other options include to hardcode the feature on or off. Figure B.29 shows the dialog box options, again my hardware does not support this feature currently so I cannot validate what the improvement in performance would be.

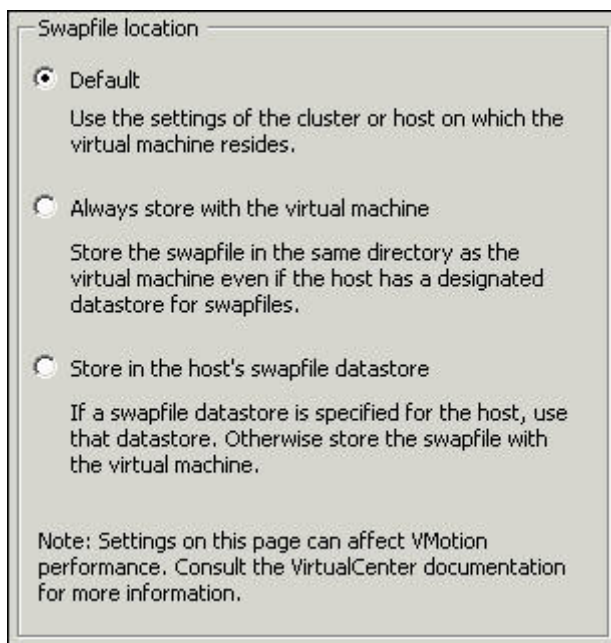
Figure B.29



Swap File Location:

Along side the global setting to relocate the per-VM VMkernel Swap file we also now have the possibility to set this value for each individual VM. Figure B.24f shows the main options available

Figure B.30



Duplicating ESX3i

The version of ESX3i I work with has been flashed to Kingston Memory stick. It is possible to take the memory stick and duplicate it to an image file (IMG) and mounted using an ILO's "Virtual Media" feature. First insert the memory stick into one into one of your existing ESX hosts or Linux server. Next work out the Linux Dev(ice) name. This is easy to do using the command **dmseg | grep 'removable disk'** (Note: The single ` ` quotes are required). This should return the following information

"Attached scsi removable disk **sdk** at scsi1, channel 0, id 0, and lun 0?"

The important part are the characters highlighted in bold. This is the /dev name of the USB stick.

Once you know the memory sticks device name you can use **fdisk -l /dev/sdk** to double check you have found the correct device/disk. Next use the dd command to duplicate the stick with **dd if=/dev/sdk of=/tmp/esx3i.img**. Finally you can upload the IMG file to shared location on a Windows file server and mounted it with your ILO's "Virtual Media" options using "Floppy Disk" as the type.

If you want to take this IMG file to make a new ESX3i memory stick you can use the command:

```
dd if=/tmp/esx3i.img of=/dev/sdk bs=500MB
```

The USB Stick version of ESX3i has been tested on the following USB sticks:

- Kingston 1gb usb 2.0 datatraveler ii
- Kingston 2gb usb 2.0 datatraveler ii
- Imation usb 1gb pocket flash drive
- Imation usb 2gb pocket flash drive
- Verbatim usb 2 2gb flash drive
- Sandisk 1gb ultra ii sd plus usb
- Sandisk 2gb cruzer freedom usb fd

Customizing your ESX3i Host

There are number of "hidden" options which are not enabled by default at the local console. These can be triggered during the boot process or made permanent available by using the Advanced Settings in the Vi Client. I would like to thank Richard Garsthagen's website run-virtual.com for this information.

Creating an Interactive Shell for the Local Console

1. Restart the ESX host
2. **At the main bootloader screen** where it states "**Press Tab to toggle verbose mode**" - press **shift+O**

Note:

This is O for orange on the keyboard, not 0 for zero on the keyboard. This enters the "Enter Advanced Options" session

3. Type the word: **shell**
4. Once the boot process has completed press **Alt+F1** and login

Note:

From this local console command-line you can type commands like `esxcfg-vswitch -l`. Remember ESX3i does not have all of the Linux commands available via the Service Console of ESX3, however internal commands like `ls` for directory listing still work as does the `cd` command. To quit the local console command-line shell, type the command `exit`

5. **To make this Local Console shell permanent** use the Vi Client and **Advanced Settings**

Login into the Vi Client

Select the **Configuration Tab**, and in the **Software pane** choose **Advanced Settings**

Open the VMkernel option and then the Boot list.

Scroll down to the **VMkernel.Boot.Shell** option and **enable the select box**

Note:

Figure B.31 shows the location in Advanced Settings of the Boot.Shell option

Figure B.31



Security Banners on the Local Console

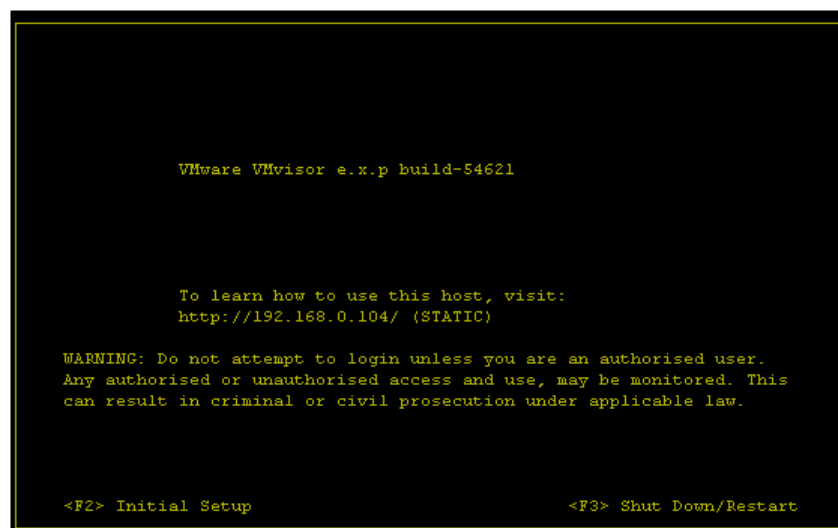
1. **Login into the Vi Client**
2. Select the **Configuration Tab**, and in the **Software pane** choose **Advanced Settings**
3. Select the **Annotations option**, in the corresponding edit field type in your banner such as:

WARNING: Do not attempt to login unless you are an authorised user. Any authorised or unauthorised access and use, may be monitored. This can result in criminal or civil prosecution under applicable law.

4. **To force this text to be updated**
5. **Login to the Initial Setup screen and then logout.** This will force the ESX3i host to reparse the Advanced Settings

Figure B.32 shows the welcome screen with annotations enabled

Figure B.32



Resetting a lost root password

1. Restart the ESX host
2. **At the main bootloader screen** where it states "**Press Tab to toggle verbose mode**" - press **shift+O**

Note:

This is O for orange on the keyboard, not 0 for zero on the keyboard. This enters the "Enter Advanced Options" session

3. Type the option **passwdReset=TRUE**

Note:

Advanced options piped to the interactive shell like this are case-sensitive.

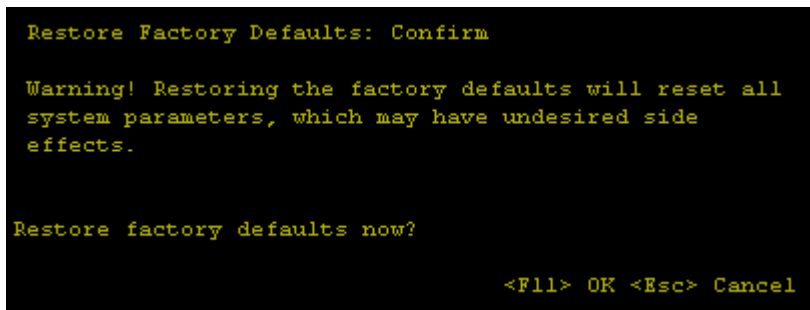
Restoring Factory Default ESX3i

If anything goes wrong with your ESX3i build it is very easy to reset the system to factory settings. This affectively erases any post-configuration tasks undertaken with the system.

1. At the main welcome screen press [**F2**] and login as root
2. From "**Customize System**" choose **Restore Factory Defaults** and press [**Enter**] and read the warning!
3. Press [**F11**] to restore a factory default

Figure B.33 shows the restoring factory settings warning screen

Figure B.33



```
Restore Factory Defaults: Confirm

Warning! Restoring the factory defaults will reset all
system parameters, which may have undesired side
effects.

Restore factory defaults now?

<F11> OK <Esc> Cancel
```

Using the Remote Command Line Interface

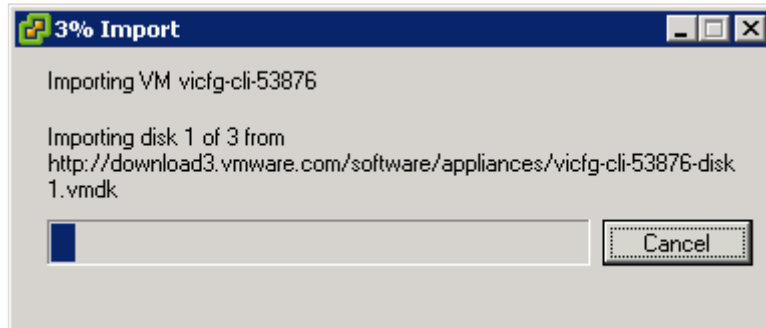
The Remote CLI is a virtual machine running a Linux distribution called Debian that runs on the ESX host which gives you access to the command-line interface of the ESX3i product. It is downloadable via the Vi Client only using the "Import Virtual Machine" feature from the VMTN marketplace. To setup the Remote CLI

1. Logon to the Vi Client
2. Click the **Getting Started tab** and **Select Import a Virtual Machine**
3. In the **Import a Virtual Machine Wizard** select "**Import from VMware VMTN**"
4. **Select from the list** of Virtual Appliances, the **Remote CLI Appliance**
5. Type a Virtual Machine name - the default is vicfg-cli-53876

Note:

This should initiate the download process with a pretty status bar to show you the progress. Time for me to get a shower and have some lunch I think. Ideally, not at the same time. Figure B.29 shows you the progress bar, gee isn't exciting.

Figure B.29



Note:

Once the import process has completed you should be able to power on the Remote CLI

6. Read the very lengthy EULA, or alternatively if your in a hurry hit **Q** to **quit and type yes** to accept the EULA
7. **Enter a password** for the **Remote CLI VM**
8. Choose **Y** to change your **Time Zone as needed**

Note:

By default the Remote CLI uses DHCP you can quite easily reconfigure the Virtual Appliance to be statically configured and also download updates to the appliance by visiting your Remote CLI webpage

<https://w.x.y.z:8080>

The user name to webpage is network and the password is what you set at step 7

9. From the Remote CLI command-line it is possible to run the same esxcfg-commands you can normally run at on any ESX host. The only difference is the syntax now requires a ESX host or VirtualCenter name or IP address, username and password.

So to list the network switches on an ESX3i host from the Remote CLI you would type something like this

```
esxcfg-vswitch -l --server esx4.vi3book.com --username root --password vmware
```

If the ESX host is part of VirtualCenter the syntax would change to

```
esxcfg-vswitch -l -h virtualcenter.vi3book.com --username administrator --password vmware
```