

How to Install ESX 4.0 on Workstation 6.5.2 as a VM

Title: How to Install ESX 4.0 on Workstation 6.5.2 as a VM
Author(s): Xtravirt (Paul Buckle)
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Content Overview:

- Step by step install guide for VMware ESX 4.0 as a virtual machine within VMware Workstation 6.5.2
- Why this is useful as a portable demo or training environment

1.0 Introduction

Being able to run VMware ESX 4.0 under VMware Workstation as a VM gives users and professionals in the IT community great flexibility when it comes to learning, experimenting or even demonstrating the product. Needless to say, this is not an officially supported deployment.

The approach is fundamentally no different to that previously devised for VMware ESX 3.5, the main difference simply being the change in minimum hardware requirements.

2.0 Pre-Requisites

The minimum hardware requirements for the machine running VMware Workstation are:

- 2GB RAM
- A 64-bit x86 Intel VT-x or AMD-V capable processor (with the feature enabled in the BIOS)
- 1 Ethernet NIC
- 16GB disk space

The following software is required:

- VMware Workstation 6.5.2 (Build 156735) – presumed to already be installed
- VMware ESX Server 4.0 (Build 164009) ISO image

This installation was tested on a Lenovo T60 laptop computer with the following specification:

- Intel Mobile Core 2 Duo T5600 1.83GHz CPU
- 2GB RAM
- Intel PRO/1000PL Ethernet NIC
- Windows XP Professional with SP3
- VMware Workstation 6.5.2 (Build 156735)

Note: The VMware ESX 4.0 installer will abort if it detects less than 2GB RAM, so the machine running VMware Workstation must have a minimum of this amount of RAM installed. If, as in this example, 2GB RAM is all that is installed, it will also be necessary to configure VMware Workstation to allow most of the VM's RAM requirements to be swapped out to disk. See section 2.1 below.

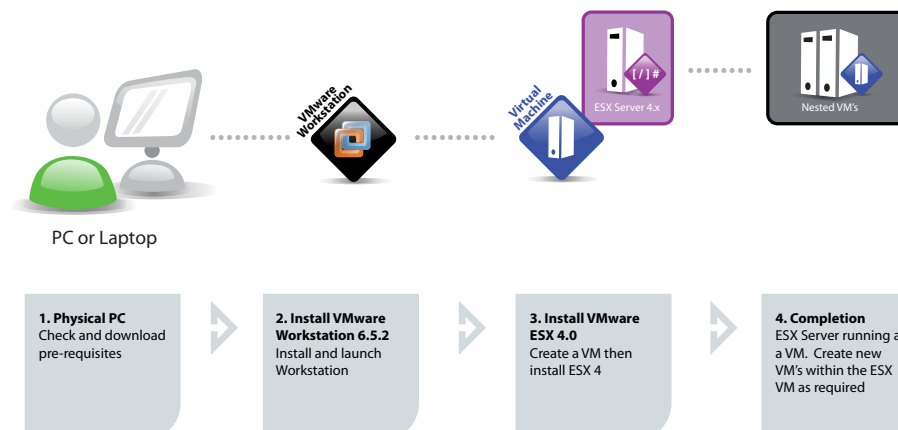


Illustration 1-1: Solution Overview

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2.1 VMware Workstation Configuration

1. Start VMware Workstation and go to **Edit** -> **Preferences**. Select to the **Memory** tab, select the **Allow most virtual machine memory to be swapped** radio button. Click **OK**.

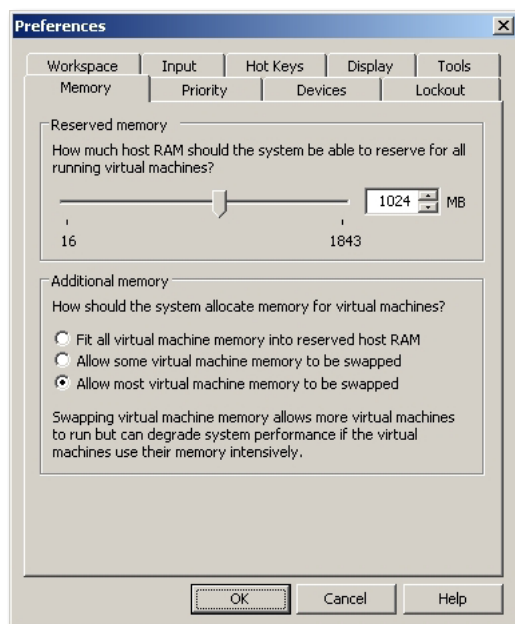


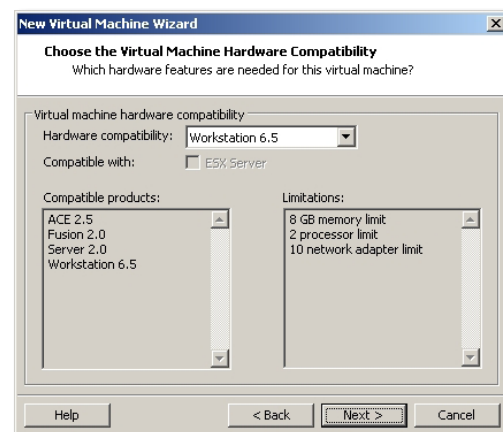
Figure 2-1: Allow most VM memory to be swapped

3.0 Define the VMware ESX 4.0 Virtual Machine

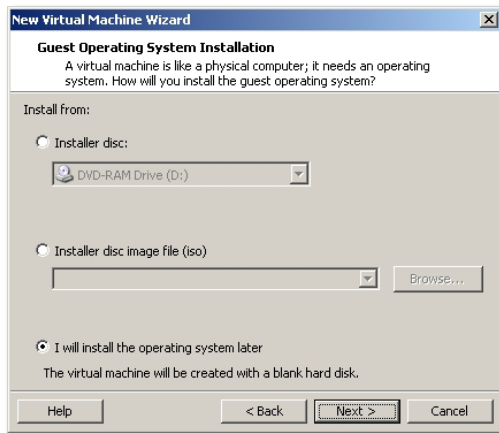
1. Start VMware Workstation and go **File** -> **New** -> **Virtual Machine**. Select the Custom radio button and click **Next**.



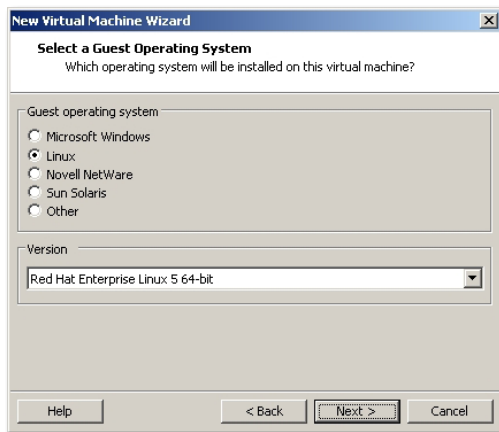
2. Choose the Virtual Machine Hardware Compatibility. Ensure that **VMware Workstation 6.5** is selected in the Hardware Compatibility field. Click **Next**.



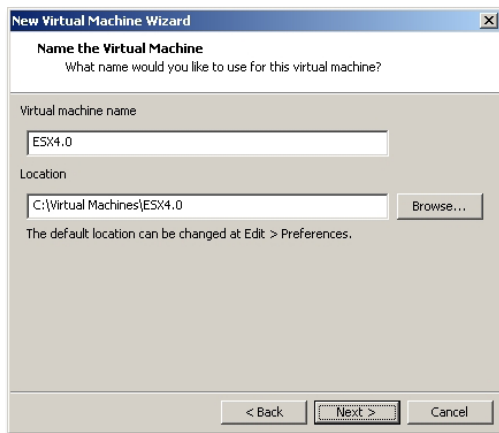
3. Guest Operating System Installation. Select **I will install the operating system later** option. Click **Next**.



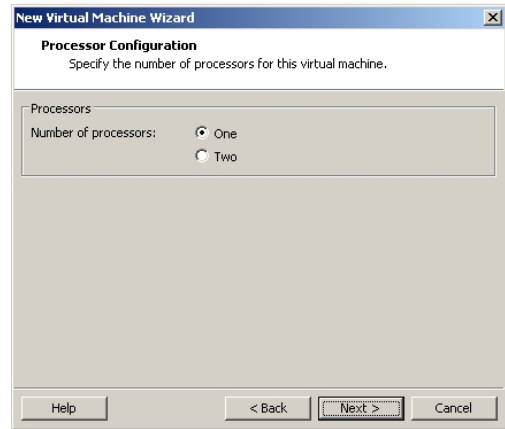
4. Select a Guest Operating System. Select **Linux**, then in the Version field select **Red Hat Enterprise Linux 5 64-bit**. Click **Next**.



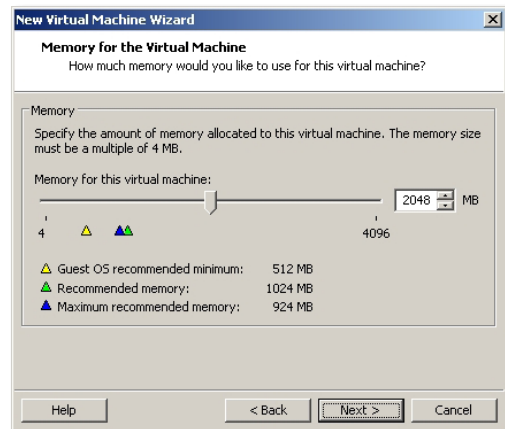
5. Name the Virtual Machine. Enter a VM name and specify a location to store VM files. Click **Next**.



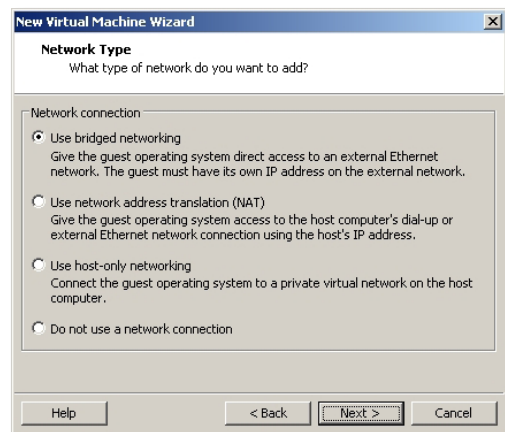
6. Processor Configuration. Select **One**. Click **Next**.



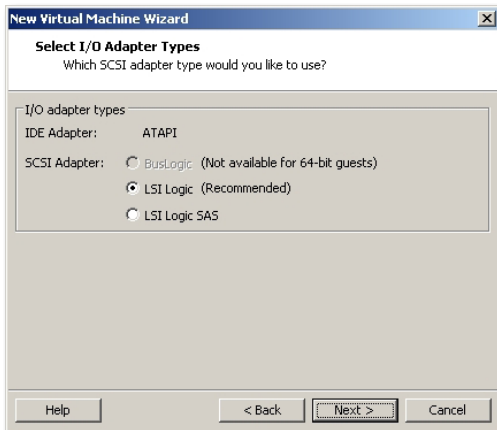
7. Memory for the Virtual Machine. Select a minimum of **2048MB**. Click **Next**.



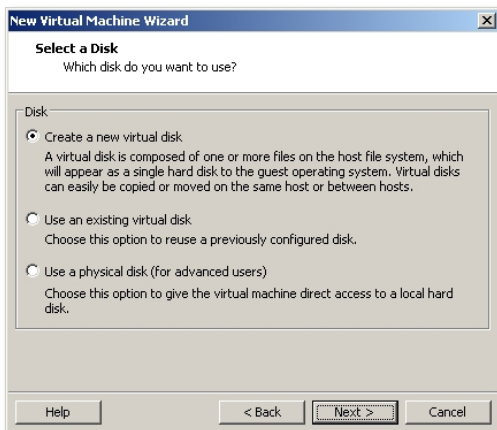
8. Network Type. For this example the **Use bridged networking** option was selected. Click **Next**.



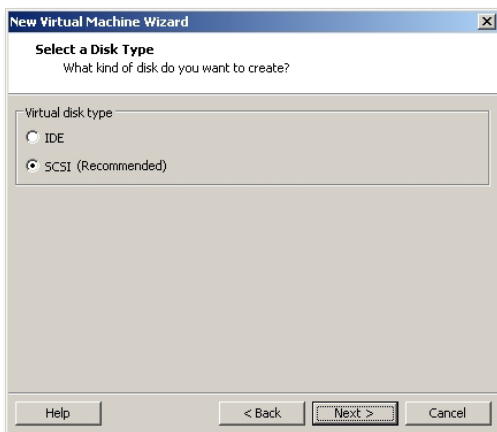
9. Select I/O Adapter Types. Select **LSI Logic**. Click **Next**.



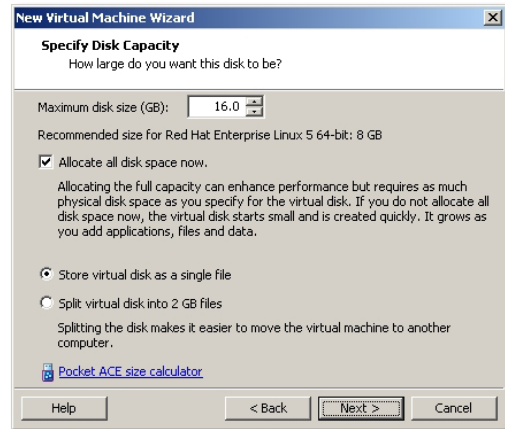
10. Select a Disk. Select **Create a new virtual disk**. Click **Next**.



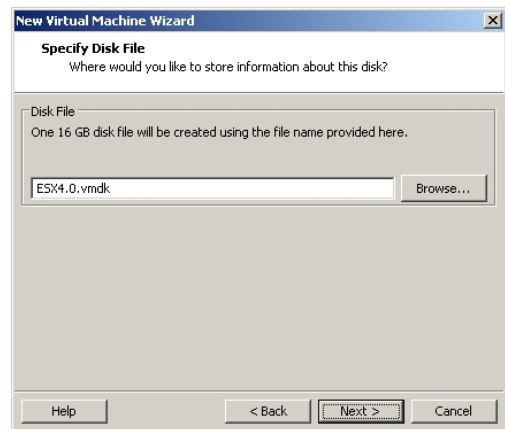
11. Select a Disk Type. Select **SCSI**. Click **Next**.



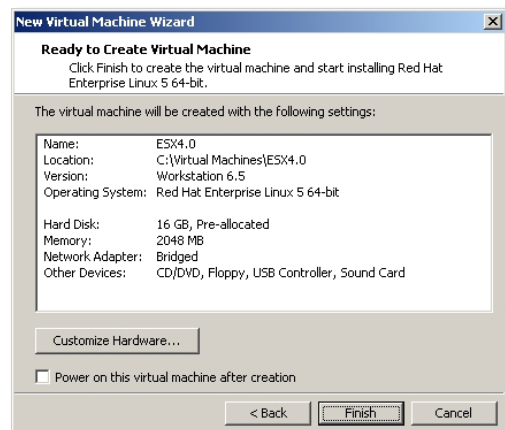
12. Specify Disk Capacity. **16GB** was used in this example. Select the **Allocate all disk space now** checkbox and also select **Store virtual disk as a single file**. Click **Next**.



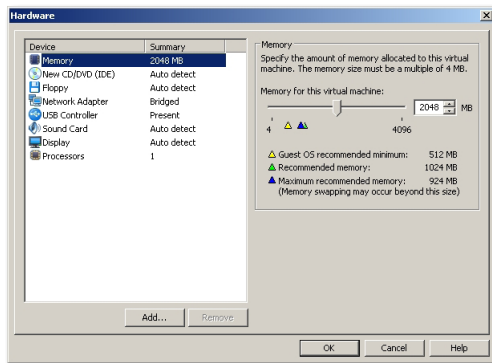
13. Specify Disk File. Rename the disk file if required. Click **Next**.



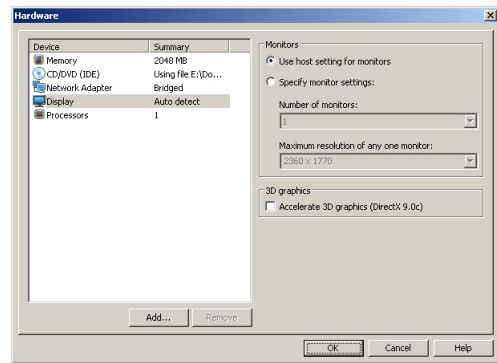
14. Ready to Create Virtual Machine. Deselect the **Power on this virtual machine after creation** checkbox. Click **Customize Hardware**.



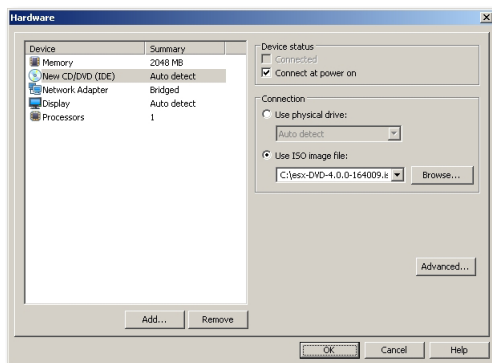
15. Hardware. Remove the following hardware: **Floppy, USB Controller, Sound Card.**



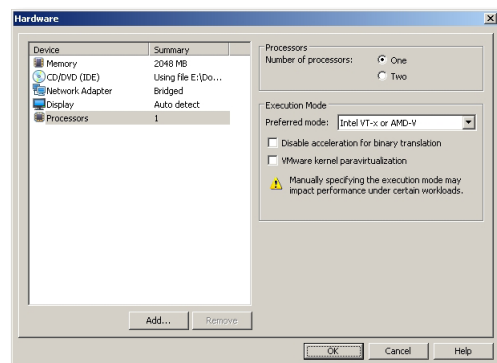
18. Hardware. Select **Display**. Deselect the **Accelerate 3D graphics** checkbox.



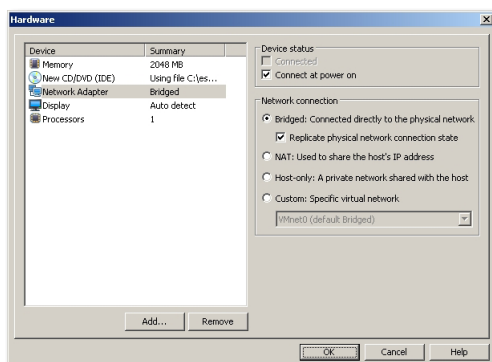
16. Hardware. Select **CD/DVD (IDE)**. Select **Connect at power on** and in the Use ISO image file field, browse to the location of the VMware ESX 4.0 ISO previously downloaded. Click **OK**.



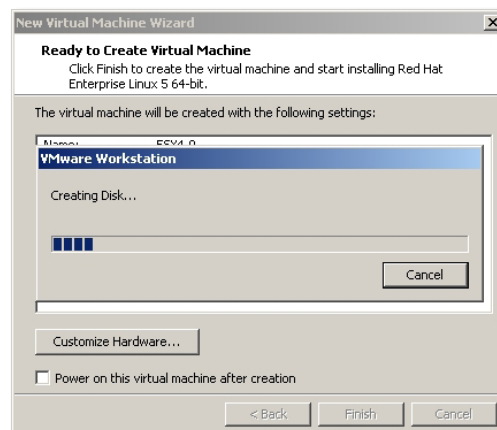
19. Hardware. Select **Processors**. In the Preferred Mode field select the **Intel-VT-x or AMD-V** option. Click **OK**.



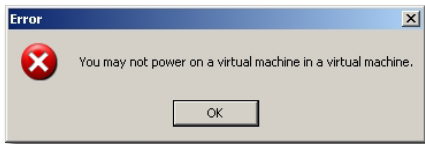
17. Hardware. Select **Network Adapter**. Tick **Replicate physical network connection state**.



20. Click **Finish**. The virtual disk will be allocated. This step may take some time.



- To enable nested VMs, a line needs to be added to the .vmx file for this virtual machine. Without it, you won't be able to power on a VM under VMware ESX4 and will see the following message:



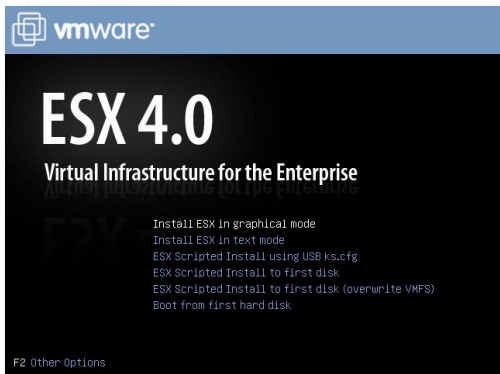
- The name and location of the .vmx file is show in the **VMware Workstation GUI**. Edit the .vmx file using Notepad. Add the following line, **monitor_control.restrict_backdoor = "TRUE"**. Save the file and close.

```

ESX4.0.vmx - Notepad
File Edit Format View Help
.encoding = "windows-1252"
config.version = "8"
virtualHW.version = "7"
vcpu.hotadd = "TRUE"
maxvcpus = "4"
scsi0.present = "TRUE"
scsi0.virtualDev = "lsilogic"
memsize = "2048"
mem.hotadd = "TRUE"
scsi0:0.present = "TRUE"
scsi0:0.fileName = "ESX4.0.vmdk"
ide1:0.present = "TRUE"
ide1:0.fileName =
"C:\esx-dvd-4.0.0-164009.iso"
ide1:0.deviceType = "cdrom-image"
floppy0.present = "FALSE"
ethernet0.present = "TRUE"
ethernet0.virtualDev = "e1000"
ethernet0.wakeOnPcktRcv = "FALSE"
mks.enable3d = "TRUE"
pciBridge0.present = "TRUE"
pciBridge4.present = "TRUE"
pciBridge4.virtualDev = "pciRootPort"
pciBridge4.functions = "8"
pciBridge5.present = "TRUE"
pciBridge5.virtualDev = "pciRootPort"
pciBridge5.functions = "8"
pciBridge6.present = "TRUE"
pciBridge6.virtualDev = "pciRootPort"
pciBridge6.functions = "8"
pciBridge7.present = "TRUE"
pciBridge7.virtualDev = "pciRootPort"
pciBridge7.functions = "8"
vmci0.present = "TRUE"
monitor.virtualMmu = "software"
monitor.virtualExec = "hardware"
monitor_control.restrict_backdoor = "TRUE"
roamingVM.exitBehavior = "go"
displayName = "ESX4.0"
guestOS = "rhel5-64"
nvram = "ESX4.0.nvram"
virtualHW.productCompatibility = "hosted"
    
```

4.0 Install VMware ESX 4.0

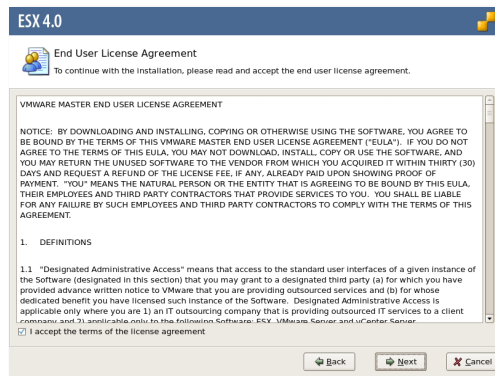
- Initial ESX Installer screen. Select **Install ESX in graphical mode** and press **Enter**.



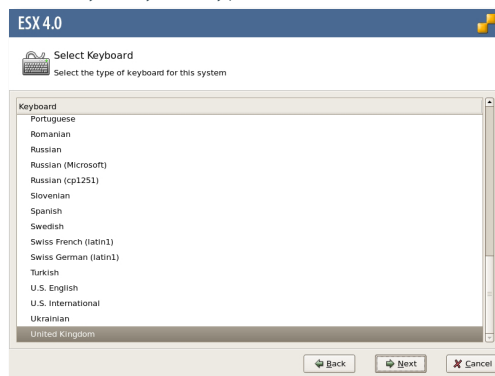
- Welcome to the ESX Installer. Click **Next**.



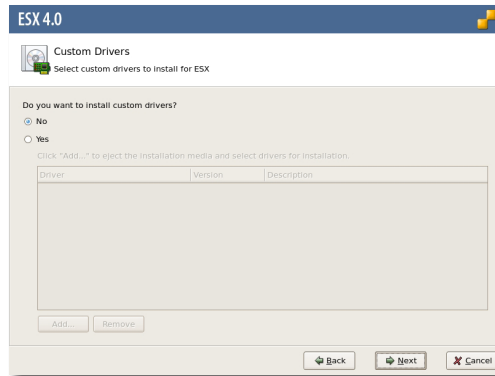
- End User License Agreement. Review the license agreement and select the **I accept the terms of the license agreement** checkbox. Click **Next**.



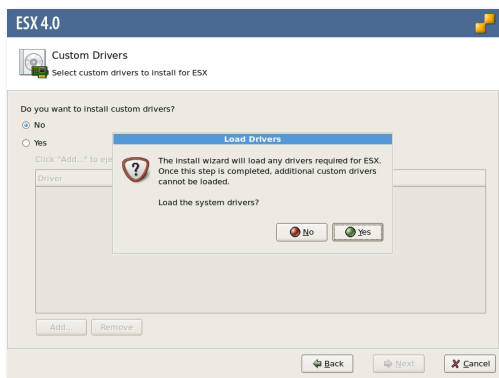
- Select Keyboard. Select the appropriate **keyboard** for your system type. Click **Next**.



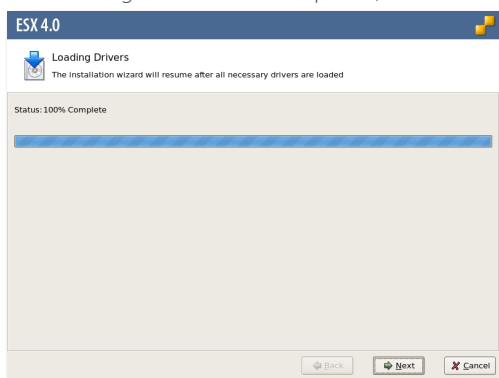
- Custom Drivers. Select **No**. Click **Next**.



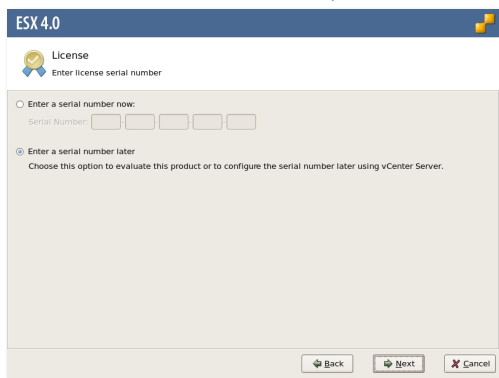
6. Load Drivers. Click **Yes**.



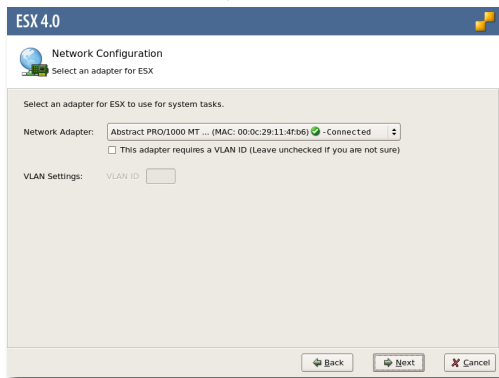
7. Loading Drivers. Once completed, Click **Next**.



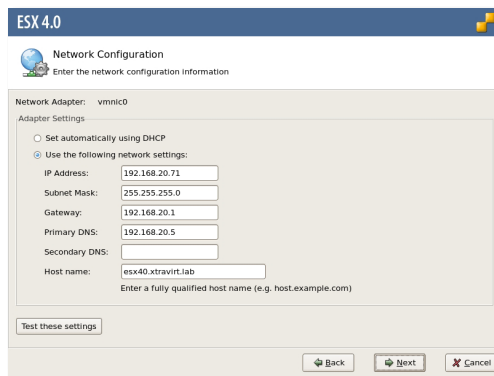
8. License. If you have one, enter a **serial number**, otherwise select the **Enter a serial number later** radio button to evaluate the product. Click **Next**.



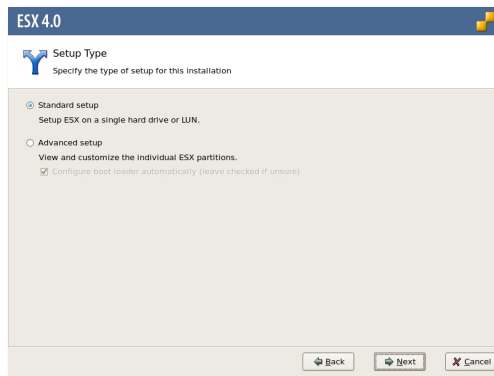
9. Network Configuration. Select the required **network adapter** for ESX system tasks. Click **Next**.



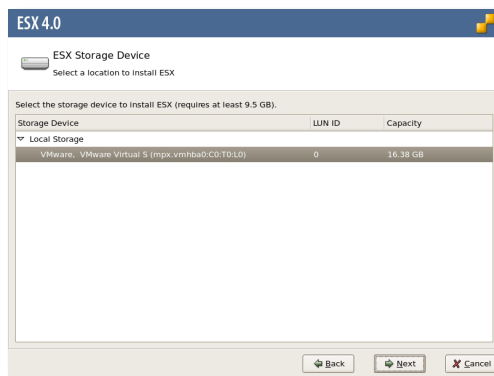
10. Network Configuration. Enter the required **network configuration information**. Click **Next**.



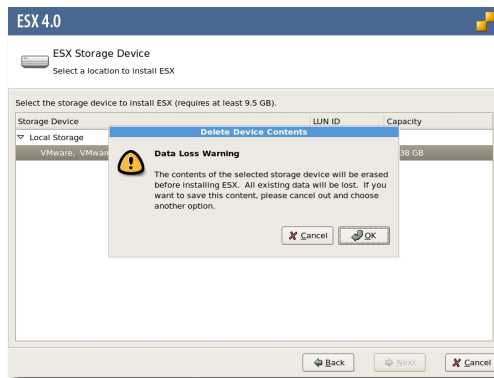
11. Setup Type. Select the **Standard setup** radio button. Click **Next**.



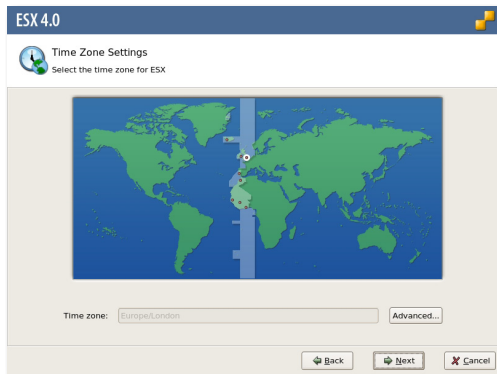
12. ESX Storage Device. Select the required **storage device**. Click **Next**.



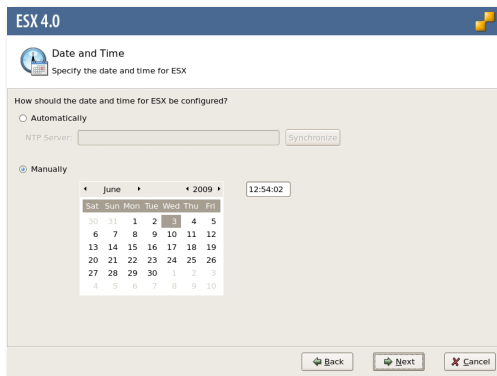
13. Data Loss Warning. Click **OK**.



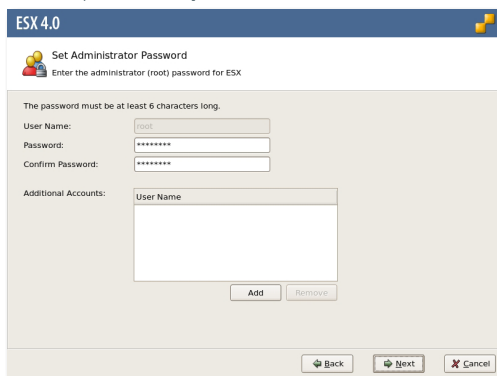
14. Time Zone Settings. Select the required **Time zone**. Click **Next**.



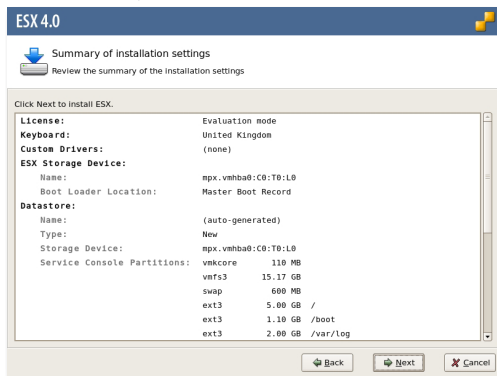
15. Date and Time. Configure the **current date and time**. Click **Next**.



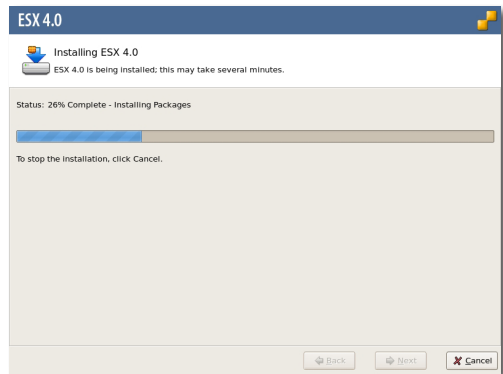
16. Set Administrator Password. Enter and confirm the required **root password**. Click **Next**.



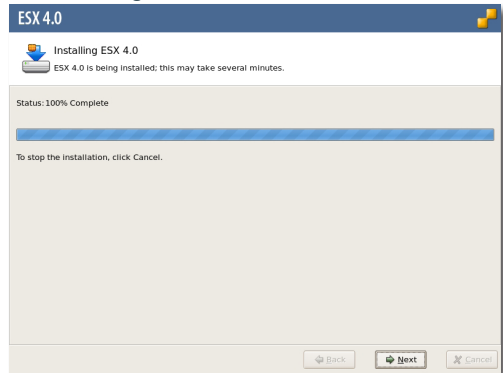
17. Summary of installation settings. Click **Next**.



18. Installing ESX 4.0. The installation will proceed and may take a few minutes to complete.



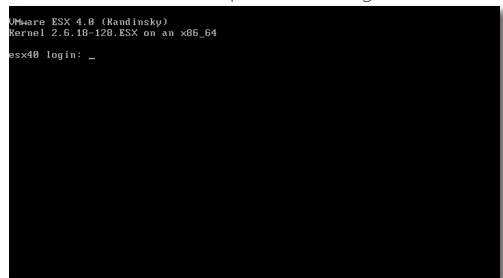
19. Installing ESX 4.0 Click **Next**.



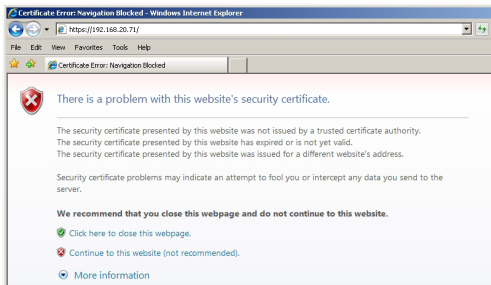
20. ESX 4.0 Installation Complete. Click **Finish**.



21. The ESX server will now reboot and the ISO image can be unmounted from the VM. After the splash screen appears it may take a few minutes for ESX to complete loading. Check by pressing **ALT-F1** in the ESX VM console – if you see a login prompt then ESX has completed booting.



- Using your Internet browser (IE8 in this case), navigate to the IP address of your ESX VM, eg: <https://192.168.20.71>. If using DHCP, press **ALT-F11** in the ESX VM console to show the assigned IP address. Elect to ignore any website certificate warnings, eg: **Continue to this website**.



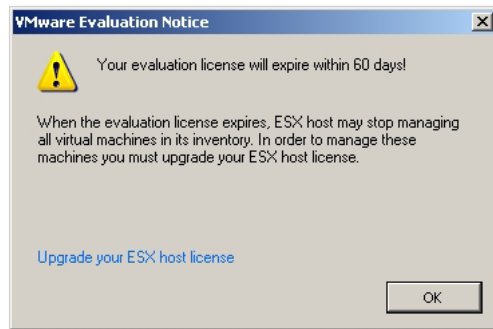
- Click **Download vSphere Client**. Follow the installation prompts to install the vSphere Client.



- Once complete, launch the **vSphere Client**, enter the **ESX IP address**, **root username** and its **password**. Click **Login**.

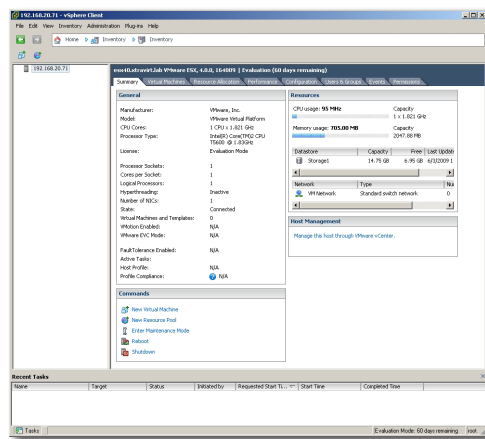


- If using ESX in evaluation mode, click **OK** to acknowledge the number of days remaining.

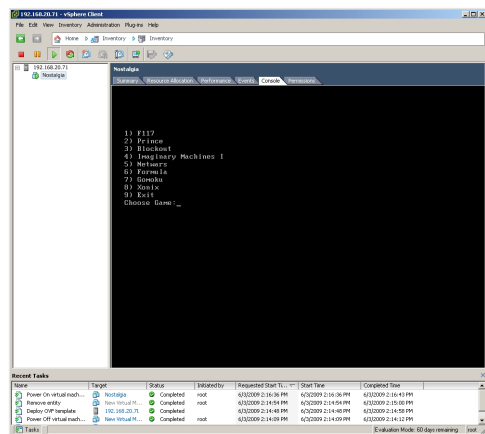


5.0 Define a Nested Virtual Machine

- From the vSphere Client **Home** page, select **Hosts and Clusters**.



- Go **File -> Browse VA Marketplace** and select a VM. **Nostalgia** was selected as it is only a 6MB download. Follow the import wizard and the VM will download and register with the VMware ESX VM. Power on the VM. The screenshot below shows the VM having started up.



3. And lastly, a game in progress.



This concludes the white paper on how to install VMware ESX 4.0 on VMware Workstation 6.5.2 as a VM.

About Xtravirt

Xtravirt is a knowledge-based company that delivers its expertise in virtualization online and in person. We have developed a reputation for astute leadership and expertise through our work with an impressive array of organisations. It is this real-world experience that drives our ability to provide independent, current and free advice online.

We work with organisations whose IT staff are frustrated with how hard it is to find detailed information and skills around virtualisation. We help our clients deliver the true benefits of virtualization, resulting in cost and time savings.

For more information contact:

Dorset House, Regent Park
297 Kingston Road, Leatherhead
Surrey KT22 7PL
t +44 (0) 1372 824 296
f +44 (0) 1372 824 576
e information@xtravirt.com
w www.xtravirt.com

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References

1. Nil.

Useful Links

1. VMware vSphere Downloads, <http://www.vmware.com/download/vsphere/>

Tags

VMware, vSphere, ESX 4, Workstation 6.5, Install Guide, Intel VT, AMD-V, VI in a box, demo, training