² SOME TECHNICAL ASPECTS:

It is worth spending a little time to understand the technical aspects of the following key features of the VM environment:

VIRTUAL HARD DISK:

When a VM is created it is configured with a VIRTUAL HARD DISK. The size of the VHD is initially determined by the space required for the OS and other software installed in the VM. However, it is a dynamic virtual disk which will automatically expand to accommodate any additions or changes made to the VM within the limits of the physical drive. We select the option to have a fixed size virtual hard disk of 15Gb.

MEMORY:

Memory is limited to what is physically installed in the PC (currently 1Gb). When a VM is created an amount of memory is allocated for it exclusively. This reduces the amount of memory available to the HOST which is also running in the background. We allocate 1024 Mb of RAM to the VM leaving another 1024 Mb for the HOST.

HOST SHARED FOLDERS:

These are equally accessible to the HOST and to the VM. Any folders or files placed in the C:\Host Shared Folders can be accessed when the VM is running. Each VM has its own sub-folder to manage files for the different groups. The folders for General Use VMs are purged nightly. Those for Group Use are purged only if the VM is set to be Refreshed by the Trainer. Data can therefore be kept from session to session.

DRIVERS:

The VM uses driver emulation for the components of the PC and does not install drivers specific to the physical hardware. Details of the emulations are available in the technical references need not be detailed here. When the VM uses the emulated driver for the network card, for example, you actually operate on the network as if you were using the specific driver in the HOST. What matters is that it works.

The CPU is an exception. The driver for the CPU is virtualised, not emulated, and is specific to the PC on which the VM was created. If you create a VM on a PC with an Intel processor and you then try to use the VM on a PC with an AMD processor you MAY need to repair or re-install the OS which was installed on the VM. This has not been our experience so far but it something you need to be aware of especially if you plan to use the VMs from the PCUG for preparation of sessions. **The Training Room PCs are equipped with AMD processors.**

CD-ROM

Virtual PC only supports the **reading** of data from CD-Rs, CD-RWs, DVDs, and DVD-ROMs. Virtual PC only emulates a CD-ROM or DVD-ROM drive.

Virtual PC **does not support burning** CD-Rs, CD-RWs, DVDs, or DVD-ROMs even if the Host has the appropriate hardware and software to do so. Virtual PC also does not support the use of Windows-based CD-ROM or DVD burning software.

At this time we only have Nero software licenses on the Media Room PCs which could be used by transferring data via the network.

TRAINING DOCUMENT   Page 2 of 4
Title: Create a Virtual Machine from Scratch
Author: Ben Cauchi
Revision Date: 01 May 2009

2 CREATING A VM FROM SCRATCH:

Any OS designed for 32-bit x86-based PCs (eg DOS) can be installed as a VM using MS Virtual PC. Essentially, it is the same as installing an Operating System on a new PC but all the files are saved in a virtual hard disk as a single file. When the VM is run the file is opened and used in a similar way to a physical hard drive. Each VM also has a small configuration file which is used to initialise the VM. The need to create a VM from scratch should rarely arise as we have several templates which can be used to clone new VMs. Hence these instructions have been kept brief. They refer specifically to the environment at PCUG but they should also be useful if you want to build a VM on your home PC.
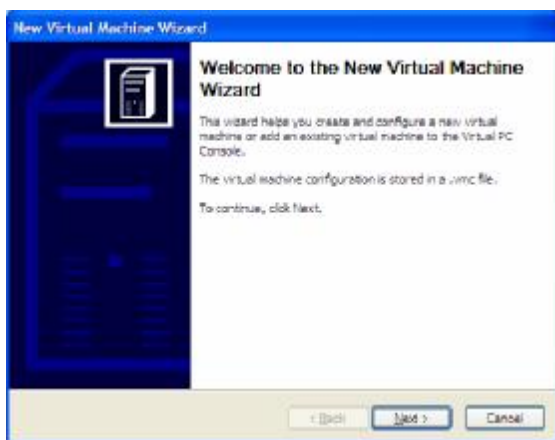
You will need the Installation CD or DVD for the Operating System you are creating and the appropriate Product Key.

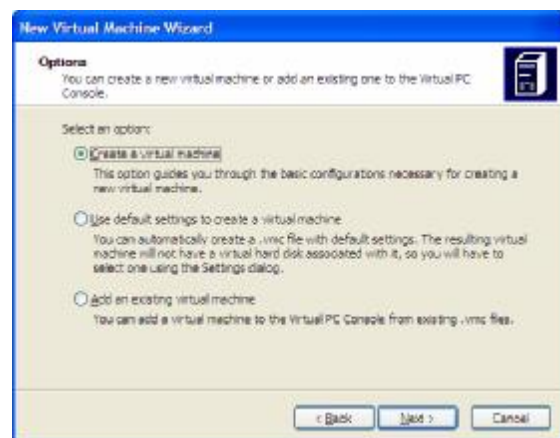Start the MS VPC Console

Click NEW
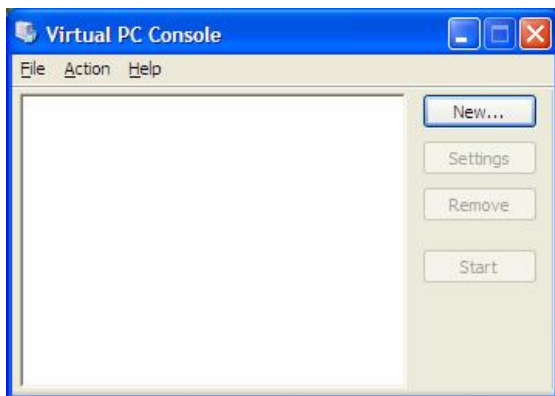
Click NEXT

Ensure the button for the first option
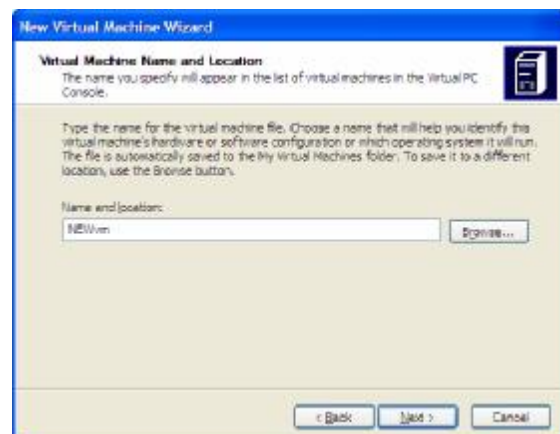Create a virtual machine is selected

Click NEXT

Type a name for the Virtual Machine and browse to the folder Q:\vmBUILD.
Click SAVE.
Until the VM is completely built and tested it must not be placed in the default location with the working VMs as it may interfere with scripts.

Click NEXT

Select the Operating system you want from the drop-down menu. The default hardware selection will vary with the OS you select. All machines in the TR have adequate hardware for any OS you select.
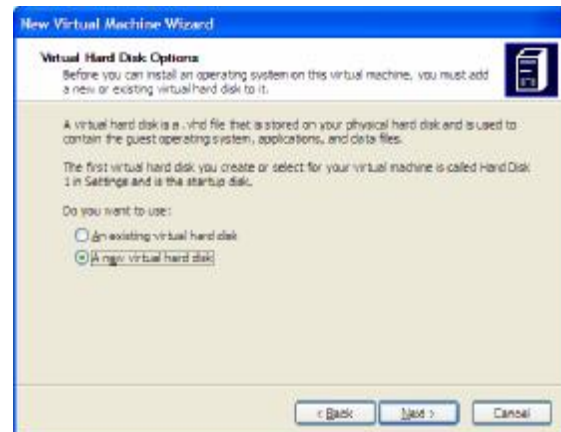
Click NEXT
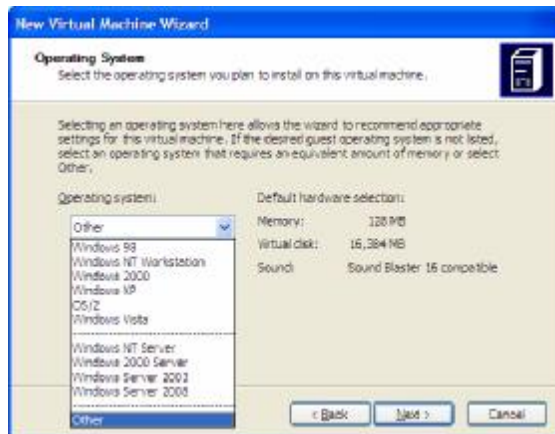
In the Memory configuration dialog box select Adjusting the RAM option and change the RAM to 1024 MB.

Click NEXT

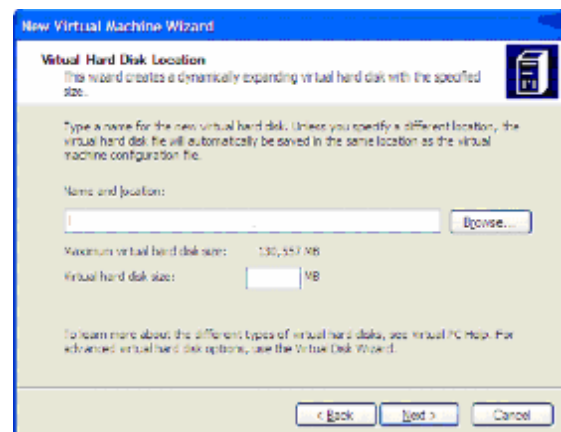From the Virtual Hard Disk Options select A new virtual hard disk.

Click NEXT

Accept the information about the location and size of the virtual hard disk.

In Virtual hard disk size type 15000
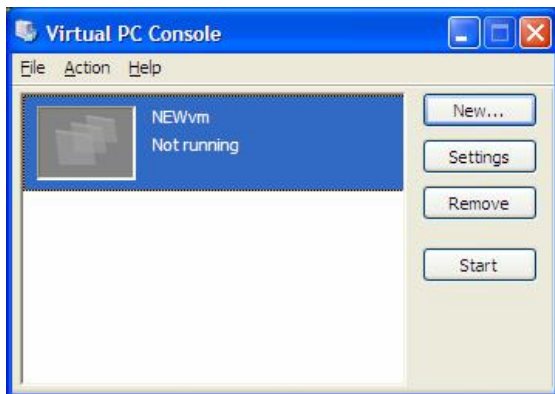
Click NEXT

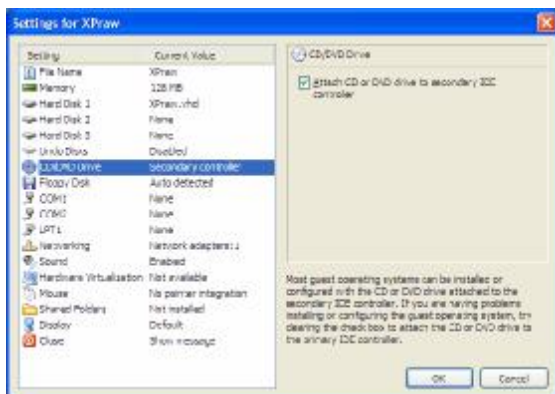Click FINISH

You are returned to Virtual PC Console.

Select the New VM

Click SETTINGS

In the left panel drill down to the setting
CD/DVD Drive and ensure that in the right
panel the box is ticked for Attach CD or
DVD drive to secondary IDE controller

Click OK to close the *Settings* window

Ensure your installation CD or DVD is in
the drive.

In the Virtual PC Console select the New
VM

Click START.

The VM will simulate the boot process of
a PC.

Install the Operating System in the normal
way and accept whatever defaults are
offered.

Only use the username STUDENT
and the password **O**perat**1**ng
(the letter O is upper case and the t is
followed by the number one)

Do not use X or Y as the first letter of the
computer name.

A name of less than 9 characters makes it
easier for Scripting.

When the OS installation is complete
install VM Additions to enable interaction
between HOST and VM.

From the Action Menu in VPC
Select Install or Update Virtual machine
Additions

Browse to where MS Virtual PC is
installed and select VMAdditions.iso

E:\Program Files\Microsoft Virtual
PC\Virtual Machine
Additions\VMAdditions.iso

Install any Service Packs

Change the screen resolution as needed

Ensure Automatic Updates is turned OFF

The rest of the configuration is the same as
for a VM which had been cloned. Please
see detailed instructions in the document
Cloning a Virtual Machine.

Help is available if you encounter any
problems.

Please contact the Training Co-ordinator