✷ INTRODUCTION:

The easiest way of creating an additional Virtual Machine is to use an existing one and create a Clone which can then be customised with the required changes. At PCUG copies of the VMs were made at progressive stages of build. To create a Clone select the Core VM which best matches your specifications and make a copy of it to customise. This process in itself is simple however when it comes to using the new VM throughout the Training Room a problem arises because several VMs which are identical appear on the network simultaneously. Every VM requires its own identity and these procedures cover that.

✷ OFF-SITE COPIES OF VIRTUAL MACHINES:

Trainers may find it convenient to use a copy of a PCUG VM on their own home machines to prepare for a Training session. Because the home PC will only have one instance of the VM running at any time the problem mentioned above would not apply. The Core VMs in the Training Room should function on another PC because the drivers used in VMs are emulated. The only exception is the driver for the CPU which is virtualised and is specific to the PC on which the VM was created. The notes warn that a VM created on a PC with one brand of processor may need to have the OS repaired for it to work on a PC with another brand but this has not been our experience. The PCUG PCs have AMD processors.

The other caveat is the matter of licensing and the PCUG VMs should not be used other than for what has been specified here.

It is essential that any VMs taken for off-site use are given a name different to the original and that Trainers make arrangements with the Training Co-ordinator before taking off-site copies.

✷ CORE VIRTUAL MACHINES:

The Core VMs are stored on Train01 in the folder Q:\vmCORE:

XPraw	Windows XP Pro – as installed straight from the CD
XPos	XPdraw + SP3 + All Updates to 19/04/2009
XPxt	XPos + Extras
XPO3	XPxt + Office Pro 2003 + All Updates to 19/04/2009
XPO7	XPxt + Office Pro 2007 + All Updates to 19/04/2009
VBraw	Vista Business – as installed straight from the DVD
VBos	VBraw + All Updates to 19/04/2009
VBxt	VBos + Extras
VBO7	VBxt + Office Pro 2007 + All Updates to 19/04/2009 waiting build
VBO7ps	VBO7 + Paint Shop Pro II Ultimate waiting build

✷ CLONE AN EXISTING VIRTUAL MACHINE:

These activities are all automated through the vmCloneDeployMaster tool but they are detailed here for completeness and to provide a manual alternative. The Core VMs have been made specifically with Cloning in mind and should be regarded as templates to build further VMs. Please do not make changes directly to these VMs and do not use any other VMs for Cloning.

The steps to Clone VMs are: (Steps 1-3 can be run from vmCloneDeployMaster to avoid errors)

1   SELECT the appropriate VM from the folder Q:\vmCORE
2   COPY the .vhd file only of the selected VM to the folder Q:\BUILD
3   RENAME the new VM (The new Name **must not start** with either **X or V**)
4   ADD the new VM to the MS Virtual PC Console (see procedure below)
5   CUSTOMISE the new VM

TRAINING DOCUMENT   Page 2 of 4
Title: Cloning Virtual Machines
Author: Ben Cauchi
Revision Date: 01 May 2009

ADD THE NEW VM TO MS VIRTUAL PC CONSOLE (STEP 4):

A VM is made up of two files – the .vmc file contains the configuration and the .vhd file is the virtual hard disk. We now need to create a .vmc file for the virtual hard disk we have Cloned.

1. Start MS Virtual PC and click on NEW
2. In the *Welcome* dialog box click NEXT
3. In the *Options* dialog box, select the second option "Use default settings to create a virtual machine" and click NEXT
4. In the *Name and Location* dialog box, browse to the folder Q:\vmBUILD and type in the name of the new .vhd file you created. When you click NEXT the full path and file name with the .vmc extension appears. Click NEXT
5. In the *Completing the New Virtual Machine Wizard* dialog box, click FINISH
   The *Settings* window will open
6. In the left panel select the *Close* setting then in the right panel
   a. select Automatically close without a message and
   b. from the drop-down menu select Shutdown
7. In the left panel select the *Display* setting then in the right panel
   a. select Always start this machine in full-screen mode and
   b. from the drop-down menu select Use guest operating system screen resolution
8. In the left panel select the *Memory* setting then in the right panel
   a. Increase the RAM to 1024 MB
9. In the left panel select the *Virtual hard Disk 1* setting then in the right panel
   a. Select the Virtual hard disk file then Browse
      The browser should take you back to the folder Q:\vmBUILD
   b. Select the appropriate .vhd file and click OPEN
10. Click OK to close the Settings window

The .vmc file for the new VM is now created with these settings.
On the HOST folder C:\Host Shared Folders create a subfolder with the same name as the new VM. It will automatically inherit the rights of the parent folder and be shared.

CUSTOMISE THE NEW VM:

The new VM should be fully functional with the features of the Core VM from which it was cloned. When you log on to the VM you have full Administrative rights and can customise any part of the Operating System as well as install or remove any applications. Start the VM.

- Keep an accurate record of the changes you make
- Edit the Desktop background with MS Paint to reflect the name of new VM
     Store it in C:\Windows\Web\Wallpaper\ and activate it in the Desktop properties
- Change the name of the Virtual Machine
     Start | My Computer | Properties | Computer Name | new name | OK and re-boot
     When you re-start the VM it should show the new name
- Install any new applications and test, check related desktop / taskbar icons
- Be mindful of licensing issues
- Sort by Name the All Programs Menu in Start (Start | All Programs | right click)
- Re-boot and ensure that the changes you made had indeed taken effect

DEPLOY THE NEW VM:

The new VM can not yet be used by multiple users. It must remain as a unique master template. Remove it from the MS Virtual PC Console so that when you Deploy it to Train01 it will go through the same process as other PCs.

The MAC Address is created by MS Virtual PC when the .vmc file is created. It gives the virtual network card a unique identity which must not be duplicated on the network. Before you Distribute the VM to other PCs you must remove the MAC address shown in the .vmc file. When the VM is started on the other PC is will automatically allocate a new address for the virtual network card of that VM.

The .vmc file is an xml file which is editable. Right click on the .vmc file and select Send to Notepad. A short way down you will see an entry for the MAC Address shown as a 12 character string followed by the words </ethernet_card_address>. Delete the 12 character string AND NOTHING ELSE. In the example below the 12 character string is shown in bold.

BEFORE

<ethernet_card_address type="bytes">**0003FFBB4D72**</ethernet_card_address>

AFTER

<ethernet_card_address type="bytes"></ethernet_card_address>

```
<?xml version="1.0" encoding="UTF-16"?>
<!-- Microsoft Virtual Machine Options and Settings -->
<preferences>
        <version type="string">2.0</version>
        <alerts>
                <notifications>
                        <no_boot_disk type="boolean">true</no_boot_disk>
                </notifications>
        </alerts>
        <hardware>
                <memory>
                        <ram_size type="integer">128</ram_size>
                </memory>
                <pci_bus>
                        <ethernet_adapter>
                                <controller_count type="integer">1</controller_count>
                                <ethernet_controller id="0">
                                        <virtual_network>
                                                <id
 type="bytes">ECD7E142B5F811DC8329A8A53B60CC0C</id>
                                                <name type="string">Realtek RTL8139/810x
 Family Fast Ethernet NIC</name>
                                        </virtual_network>
                                        <ethernet_card_address
 type="bytes">0003FFBB4D72</ethernet_card_address>
```

The new VM is now ready to Deploy to the other PCs and again the process is best dealt with through the tool in vmCloneDeployMaster. The manual process is mentioned here for completeness and to provide an alternative to using the script. Both the modified .vmc file and the .vhd file are copied to the E:\PCUG Virtual Machine folder on each PC. Be aware that this is a lengthy process which will run over several hours. Before Deployment you will have the option of creating a folder of the same name as the new VM under C:\Host Shared Folders on each PC. Although it need not be essential for all VMs it is recommended to take the option.

TRAINING DOCUMENT   Page 4 of 4
Title: Cloning Virtual Machines
Author: Ben Cauchi
Revision Date: 01 May 2009

² INDIVIDUALISE THE NEW VMs:

The following instructions must be followed on each PC.

1. Disconnect the Network Cable
2. Log on as Trainer
3. Start MS Virtual PC and click on NEW
4. In the *Welcome* dialog box click NEXT
5. In the *Options* dialog box, select the third option "Add an existing virtual machine" and click NEXT
6. In the *Name and Location* dialog box, browse to the folder C:PCUG Virtual Machines and select the new virtual machine you Deployed. When you click NEXT the full path and file name with the .vmc extension appears. Click NEXT
7. In the *Completing the New Virtual Machine Wizard* dialog box, click FINISH
   The *Settings* window will open
8. In the left panel select the *Virtual hard Disk 1* setting then in the right panel
   a. Select the Virtual hard disk file then Browse
      The browser should take you back to the folder C:\PCUG Virtual Machines
   b. Select the appropriate .vhd file and click OPEN
9. Click OK to close the *Settings* window
10. Start the VM. It should start Maximised
11. Press **Right Alt** + **Enter** to open the *Settings* window
12. In the left panel select *Shared folders* [You can only set this when VM is running]
    c. In the right panel select Share folder
    d. Select the folder with the new VM name under C:\Host Shared Folders
    e. The default Z: drive letter is shown. Tick the box for []Share every time
    f. Click OK and OK again to close the *Settings* window
13. On the Desktop right click on Start and select Explore
14. Browse down to C:\Program Files \NewSID
15. Double click NewSID.exe
16. Click NEXT and again click NEXT. The name given to the VM from which you cloned it will appear.
17. Tick the box [] Rename the computer to and enter the name of the VM + the number of the PC and click NEXT.
    eg: If you named the new VM MYOB and you are working on PC Train04 you should enter MYOB04. DO NOT INTERRUPT THIS PROCESS. The VM will automatically re-boot with a new name and new SID.
18. Reconnect the Network Cable and test Internet access.
19. Shut down the VM

² BACKUP, REFRESH AND MENU LISTING:

Immediately after the new VMs have been Individualised on all PCs they need to be copied to their respective folders in Q:\vmMASTER on Train01 to be included in the nightly Refresh routine. This is a very lengths process which will run over several hours. It would therefore be too cumbersome to run manually and a routine for it is included in the vmCloneDeployMaster script. Be aware of the time factor when running the script to ensure it does not cut across other planned uses of the Training Room.

Further the vmMENU on each PC may need to be amended to include the new VM and other scripts may also need to be checked. The Training Co-ordinator will handle these aspects.