

2 INTRODUCTION:

The Training Room is located in the premises of PCUG in the Grant Cameron Community Centre, Level 2A, 27 Mulley Street, Holder ACT 2611. It is a valuable resource used by and for Members as a core contributor to the PCUG's purpose of "Users Helping Users". In addition to formal Training Courses, the computers are also used by individual members for a variety of purposes, by Special Interest Groups (SIGs) and at Main Monthly Meetings.

2 BACKGROUND:

In response to comments from users, the Committee undertook to change the Training Room environment to one which is functional, current, low-maintenance and provides users with a high degree of flexibility and freedom to operate. This objective also promotes the growing wish of the PCUG to widen the use of its resources within the community and facilitate the use of the Training Room by other organisations to benefit our Members.

2 DOCUMENT AIM:

The document is intended for users to gain a functional over-view of the design and operation of the Training Room. It is not a technical reference but contains enough technical information to give the user an understanding of the processes which can be used and changed while using the Training Room PCs. It aims to provide an understanding of the PC environment in the Training Room and a short effective path to Training Delivery.

For a deeper knowledge on technical aspects of Virtual Machines a number of documents are referenced at the end. Not least of these is MS Virtual PC's own Help.

2 TARGET AUDIENCE:

The audience for this document includes anyone who uses and supports the Training Room PCs including Members and Trainers. Casual Trainers in particular should benefit by quickly becoming familiar with the design and operation of the Training Room and become equipped to deliver training in this environment. A single page document for users is also available at each desk for those who just want to get up and running without the need for this detail.

2 SUPPORT:

The Training Room now requires minimal attention of the LAN Manager and promotes self-sufficiency amongst the Trainers / Members without relying on support staff. When needed, support is provided by the Office Manager, the Network and Domain Administrators and other volunteers. The primary contact is the Training Co-ordinator who reports to the Committee and ensures that all stake-holders are informed and consulted as necessary.

Contact is best by email to training@pcug.org.au but if urgent you may contact the Training Co-ordinator by phone: [6255 7601](tel:62557601) or [0429 343 966](tel:0429343966) between 8am and 8pm daily.

2 HARDWARE:

The Training Room is equipped with 12 PCs with identical hardware purchased in 2006. They are connected to the PCUG Network and to the Internet. They are equipped with AMD Athlon 64 3000+ Socket 939 CPUs, 2Gb of Memory and 2 SATA 130Gb hard drives. They have a standard operating environment (SOE) which we want to maintain. Machine "Train01" is the Master PC with an additional 1TB drive for storage and software tools used by the Training Co-ordinator to manage the SOE and by Trainers to create and maintain the VMs as well as for distribution of the VMs to the other machines.

2 OPERATING SYSTEMS:

Our users mainly need either Windows or Linux Operating Systems (OS). Both are installed on each PC but on separate hard drives to ensure both types of users can operate freely and independently of each other. By default the PCs boot from the Western Digital drive on Ch 2, into Windows. Windows users therefore, need do nothing but turn the PC on and let it load.

Linux users should press the F12 key during the computer boot sequence and drill down to select the drive on Ch 3 – ST3160812AS - to boot from the Linux hard drive. The Linux SIG Leaders can provide further instructions beyond this point if required.

Windows partitions created on the Linux drive may be visible, but will not be accessible, to users on the Windows drive. Windows users therefore, cannot make changes to Linux drives.

2 WINDOWS ENVIRONMENT:

The Windows environment on the PCs consists of the PHYSICAL OS – the **HOST** – and VIRTUAL OSs – the GUESTs [or VIRTUAL MACHINES which are referred to as **VMs**]

The Windows hard drive has 2 partitions with the following structure:

C: Drive:

- ✓ HOST Operating System
- ✓ Connection to the PCUG Network
- ✓ Connection to the Internet
- ✓ All HOST applications: AVG Anti-virus Program; Acrobat Reader, Ccleaner etc
[ONLY MS Virtual PC is installed on Drive E]

Other than XP's built-in facility, CD burning software is installed on the Media PCs.

✓ HOST Shared Folders:

These folders are accessible to both HOST and VMs. There is a sub-folder for each VM which is seen as the Z: Drive from the VM. From Train01, Trainers have the facility to manage these folders and can send a batch of contents to all PCs. The contents of the Host Shared Folders for Group use VMs can be left there for subsequent sessions. When the contents are no longer required Trainers can purge them. For General use VMs the folders are purged nightly.

E: Drive:

- ✓ MS Virtual PC Application [E:\Program Files\MS Virtual PC]
All other HOST applications are installed on the C: Drive
- ✓ VM Script activity logs [E:\vmLOGS]
- ✓ VM Menu [E:\vmMENU]
- ✓ General use VM Master copies [E:\vmMASTER] Used for Local Refresh.
- ✓ Virtual Machines [E:\PCUG Virtual Machines]

General Use:	XPO3	XP Pro SP3 + Office 2003 Pro
	XPO7	XP Pro SP3 + Office 2007 Pro
	VBO7	Vista Business + Office 2007 Pro + PSP
Group Use:	BegSIG	Beginners Special Interest Group (XPO3)
	DigSIG	Digital Special Interest Group (VBO7)
	COURSE	Current Scheduled Course (XPO7)

The General Use VMs are refreshed nightly. Any changes made by the users are therefore lost when the VM files are over-written by a fresh copy. Trainers have a facility on Train01 to stop the refresh for Group Use VMs if they want to keep the changes made in a session for subsequent sessions. They can switch the process on again when they want a fresh VM.

The Group Use VMs are built from the General Use VMs as indicated in brackets. The Vista VMs are still to be built. Meanwhile, the DigSIGvm is built on XP. The default COURSEvm is built from XPO7vm as this is expected to meet most course needs but any course requirements can be met by installing an appropriate VM from the set of CORE VMs stored as templates on Train01.

² VM FUNCTIONALITY:

To increase the functionality of all VMs, the following Freeware or Open Source applications are installed in addition to a full version of MS Office Pro and Internet Explorer 7:

PowerToys	Firefox Browser	Foxit PDF Reader
Google Toolbar for IE	Google Toolbar for FireFox	Chrome Browser
Google Apps	Google Desktop	PaintNet
PicassaWeb	Irfanview	Irfanview Plugins

Virtual PC does not support CD Burning. Nero software is installed on the Media Room PCs. A solution to USB access will be trialled and installed soon. The solution must allow users to automatically see their USB devices in the VM without user interaction with the HOST.

Printing from VMs is handled in the normal way but in keeping with PCUG policy it is not installed. If there are particular printing needs please contact the Training Co-ordinator.

The flexibility of the virtual environment is a major attraction. Our objectives are to reduce the maintenance effort, create Trainer-managed resources, uniform PCs for training delivery and the needs of our diverse group of users. The number of VMs needs to be carefully controlled and managed both because of the large amount of space they take and because of the work involved in deployment. While a large effort has been put into making the machine look identical each VM had to be given its own identity. It therefore has to be stored, backed-up and managed individually. You can not simply take the VM from one PC and copy it to another on a networked system without having problems. The number and structures of VMs have therefore been designed to meet most of our needs for some time based on user input and there are routines and tools for easy maintenance. It should not be necessary for any major changes or additions but and suggestions for improvements are most welcome.

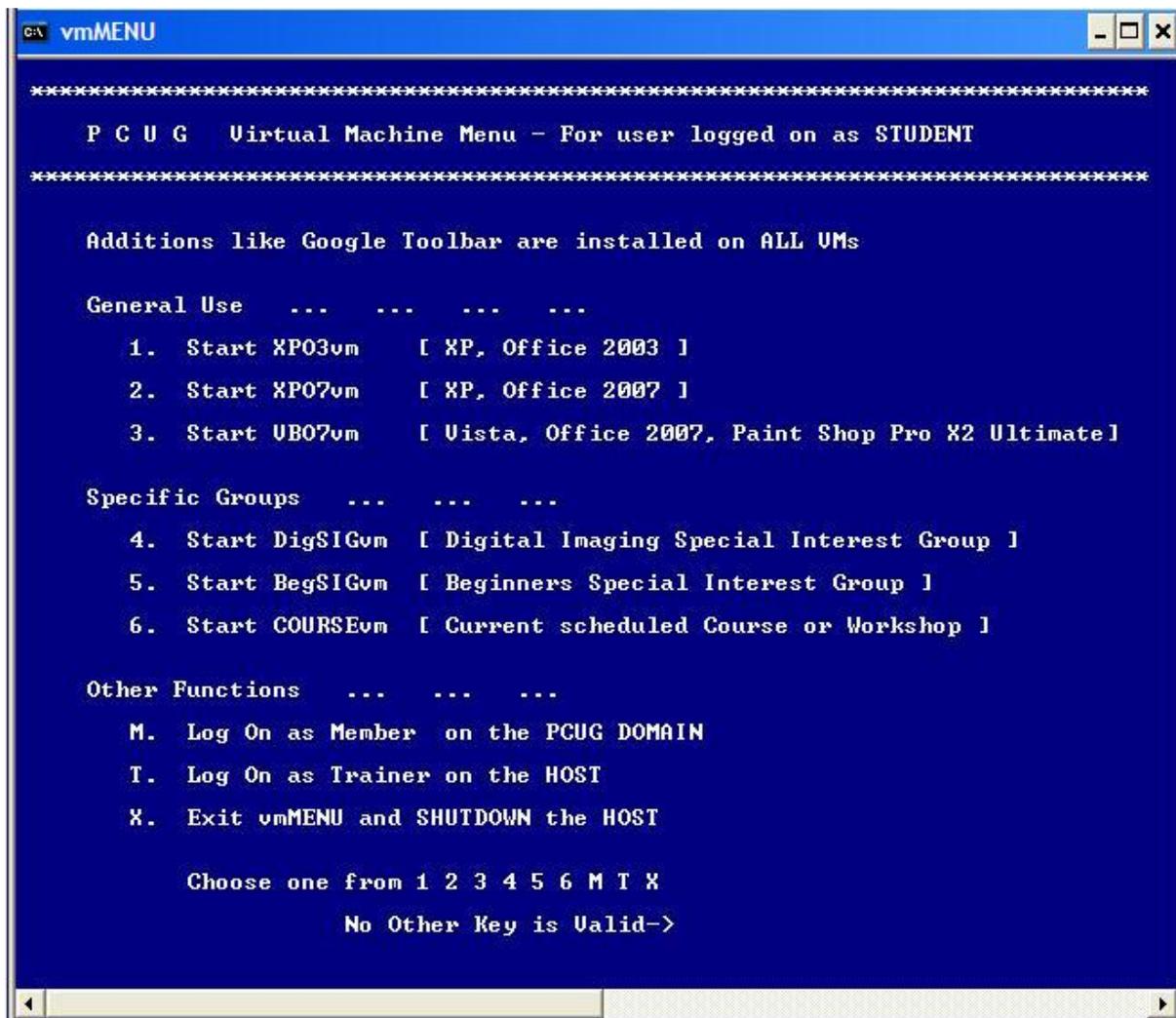
² USAGE RIGHTS SUMMARY

LOCAL MACHINE			PCUG DOMAIN
UserName	Log On to HOST	Log On to VM	
TRAINER	Administrator	Administrator	User rights ONLY
STUDENT	User rights ONLY	Administrator	No Access
MEMBER	User rights ONLY	No access	User rights ONLY
ADMINISTRATOR	Administrator	Administrator	Administrator

Generally the HOST can be regarded as a shell to contain the VMs and it should not be necessary for anyone, other than the LAN Manager or Training Co-ordinator, to make any changes to the HOST. Users who log on as STUDENT or MEMBER do not have Administrator privileges and are restricted if they try to make any significant changes to the HOST. When logged on as TRAINER you have Administrative rights to enable you to manage the VMs but you should still avoid making any changes to the HOST and you should operate within a VM whenever possible. If it becomes essential for you to make changes on the HOST please keep accurate records and notify details to training@pcug.org.au.

2 VMMENU - ACCESS FOR STUDENTS & CASUAL USERS:

Access for Students and Casual Users has been simplified through a Menu which loads at startup when the user logs on as Student. This also discourages use of the Host. It offers a single-key selection of any of the VMs as well as the options to log on as either Member on the Domain or Trainer on the Host. Access to the PCUG Domain and the facilities provided for Members on the PCUG Centre's network are beyond the scope of this document. They are mentioned here for completeness. Exit from the Menu will automatically shutdown the computer. Printed instructions are placed at each PC.



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C:\ vmMENU
*****
P C U G   Virtual Machine Menu - For user logged on as STUDENT
*****

Additions like Google Toolbar are installed on ALL VMs

General Use   ...   ...   ...   ...
  1. Start XP03vm   [ XP, Office 2003 ]
  2. Start XP07vm   [ XP, Office 2007 ]
  3. Start UB07vm   [ Uista, Office 2007, Paint Shop Pro X2 Ultimate]

Specific Groups   ...   ...   ...
  4. Start DigSIGvm [ Digital Imaging Special Interest Group ]
  5. Start BegSIGvm [ Beginners Special Interest Group ]
  6. Start COURSEvm [ Current scheduled Course or Workshop ]

Other Functions   ...   ...   ...
  M. Log On as Member on the PCUG DOMAIN
  T. Log On as Trainer on the HOST
  X. Exit vmMENU and SHUTDOWN the HOST

Choose one from 1 2 3 4 5 6 M T X
                No Other Key is Valid->
  
```

2 VM ACCESS FOR TRAINERS:

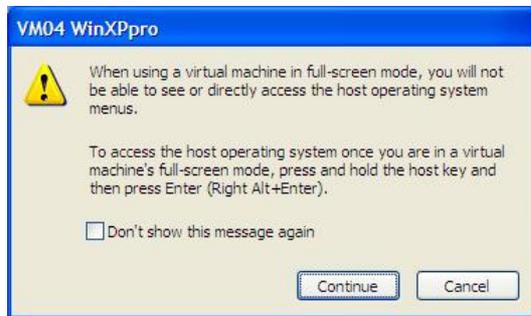
To deliver a session, it is best for Trainers to log on as Students when they can use the vmMENU and experience an identical environment to the participants. Trainers can log on to any PC as Trainer but the vmMENU is not automatically loaded and as Trainer they will have Administrative rights on the HOST. This may be needed to fix problems on a Student's PC and will be needed on Train01 for Trainers to access their VM Management Tools.

When logged on as Trainer on any PC access to the VMs is via the MS Virtual PC Console. The only visible difference on Train01 is an icon on the desktop for vmMANAGER in addition to the icon for MS Virtual PC Console.

Double click on the icon to open the MS Virtual PC Console. You can select to Start or Remove any of the available VMs or add a New one to the Console or you can view and edit the Settings. Separate documents deal with the detail of Adding and Removing VMs and the Settings need only be changed when Creating or Cloning VMs which is also covered in another document.

≈ SWITCHING BETWEEN HOST AND VM:

All VMs whether they are started via **vmMenu** or via the **MS Virtual PC Console** are set to start **Maximised**. When Trainers need to interact with the HOST or to use the VM's Menus they can do so by switching the VM into a window. The keys to change the VM from Maximised to Windowed are the **Right Alt key + Enter**. The same combination is used to Maximise the VM. An dialog box appears to explain this process.



The HOST key is the **Right ALT** key

≈ VPC HOST OPERATING SYSTEM MENUS & TOOLBAR:

The Host Operating System menu bar and tool bar are only visible in MS Virtual PC when the VM is windowed. These are features are used to interact between the HOST and the VM. A Toolbar at the bottom left of the VM window shows the status of the items with which the VM may interact. It shows icons for the Hard Drive, CD/DVD-ROM, Floppy Disk, Shared Folders and Network.

The tools available via the Menubar and Toolbar should be of no interest to the user but they are important to the Trainer. They are discussed in detail in other documents dealing with the Creation, Cloning, Setting up and Management of VMs.



≈ VM FOLDERS:

On each PC there are four folders which store VM related data files.

E:\vmLOGS	VM activity Log files
E:\vmMENU	Files to operate the vmMENU
E:\vmMASTER	Master copies of the General Use VMs
E:\PCUG Virtual Machines	Working copies of all VMs
E:\Program Files	MS Virtual PC is installed to this folder.

Each of the VMs consists of 2 files - a Configuration file (**.VMC**) and a Virtual Hard Disk file (**.VHD**) which, like a physical hard drive, contains the operating system, complete with Registry and any other software installed within that VM.

The Master PC, TRAIN01 has an additional physical hard drive **Q:** **vmQUEUE** including:

Q:\vmBUILD	Temporary location for VMs being Cloned
Q:\vmCONFIG	Information needed to configure HOST and VMs
Q:\vmCORE	The original CORE templates from which all VMs are built
Q:\vmDOCS	Local copy of the Training Documents on our web site
Q:\vmFLAGS	Files used to Flag a condition or status to Manage VMs
Q:\vmIMAGES	Images of the hard drives at various stages of build
Q:\vmLOGS	Copies of all the Logs on all PCs and Master PC activity Logs
Q:\vmMASTER	Master copies of all Deployed VMs
Q:\vmMEDIA	Contents of CDs and other installation files used to build VMs
Q:\vmSCRIPT	Master copies of Scripts held on the C: E: and Q: Drives
Q:\vmSEND	Temporary storage for files to be sent to Shared folders
Q:\vmSIGs	Temporary storage of SIG files for distribution at later sessions

≈ VM CHANGES AND REFRESH:

Because the VM hard drive is a file, any changes made during use of the VM are physically and immediately made to that file. The settings allow such changes to be retained so when you next Start that VM the changes should still be there. This is ideal for Training sessions which run beyond a single day. Students can return and pick up where they left off. Users have Administrative rights and they can make any changes within the VM.

On the other hand, a Refresh of all VMs is programmed to run nightly. When a VM is refreshed by over-writing a copy of the original VM all the changes will be lost. This is the case with the General Use VMs which are Refreshed nightly and a reminder is provided for the casual user on the desktop background of those VMs. For the Group VMs the Trainer has the facility to turn Refresh on or off from Train01. The Refresh process also includes purging the contents of the Host Shared Folders (Z: Drive) so any documents placed there will be lost unless the Refresh has been turned off by the Trainer for Group VMs.

If users want to keep documents they create in VMs they must copy them to removable media. A separate document gives instructions on using removable USB media in VMs.

≈ ADDING AND REMOVING VMs:

The topic of Adding and Removing VMs from the Console is detailed in a separate document. It is mentioned here because when opening the Virtual PC Console a message may appear should a .vmc file go missing or become corrupt. It warns that the VM could not be found and gives the option to Continue or Remove the listing from the Console. Please do not turn off the warning message as this alert may need the attention of the Training Co-ordinator

≈ VM UPDATES:

The Training Co-ordinator will periodically update the VMs, store them as Masters and distribute them to all the PCs. Please email the Training Co-ordinator with any suggestions for permanent changes to VMs. Automatic Updates are turned off on the VMs. If users manually update a VM it will be over-written when it is refreshed and the updates lost. The Training Co-ordinator will monitor updates for the OS and for AVG on the HOSTS

√ ACKNOWLEDGEMENT:

As time progressed in creating a standard virtual operating environment for the Training Room the list of people who have contributed has grown considerably. It reflects the concept of Users Helping Users and we would like to gratefully acknowledge their help and support.
