Automating Testing Using Windows Virtual PC

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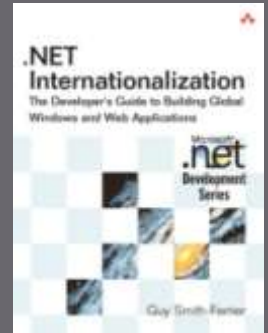guy@guysmithferrier.com

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About…

- Author of .NET Internationalization
  - Visit http://www.dotneti18n.com to download the complete source code

- The .NET Developer Network
  - http://www.dotnetdevnet.com
  - Free user group for .NET developers, architects and IT Pros based in Bristol

- DDD South West 2
  - http://www.dddsouthwest.com
  - Saturday 5th June 2010
  - Call For Speakers soon

What's This Session About ?

- What's in:-
  - Windows Virtual PC
  - Windows Virtual PC COM API
  - C#

- What's not in:-
  - Virtual PC 2007, Virtual Server, Hyper-V
  - VMWare, Virtual Box etc.
  - Visual Studio 2010 Team System Lab Management
  - VBScript
  - PowerShell

The Goal

- To automate a virtual machine to:-
  - Start up
  - Log in
  - Run unit tests
  - Shut down

Information Resources (1 of 2)

- Download Windows Virtual PC
  - http://www.microsoft.com/windows/virtual-pc/download.aspx
- Windows Virtual PC Home
  - http://www.microsoft.com/windows/virtual-pc/
- Windows Virtual PC Blog
  - http://blogs.technet.com/windows_vpc/
- Windows Virtual PC Reference
  - http://msdn.microsoft.com/en-us/library/dd796758(VS.85).aspx

Information Resources (2 of 2)

- TechNet Script Center Gallery
  - http://gallery.technet.microsoft.com/scriptcenter/en-us/
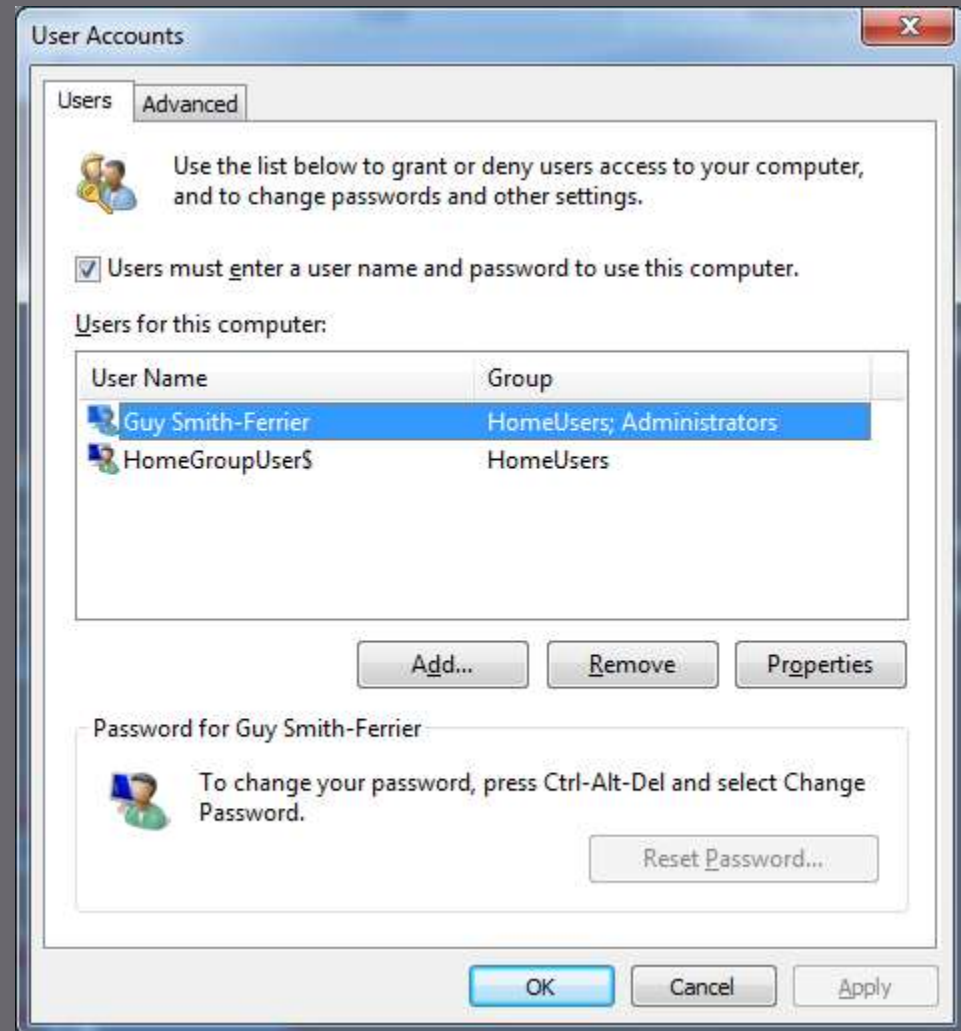- Professional Microsoft Virtual Server 2005
  - Ben Armstrong, Wrox Press
- Virtualization For Developers – What, Why, Where with Liam Westley
  - http://video.nunney.me.uk/ddd7/Virtualisation_for_Developers_What_Why_Where.wmv

Demo

Automating Windows Virtual PC Using The COM API

Setting Up Automatic Login

- In Windows XP, Vista and Windows 7 run the following command:-
  - control userpasswords2
- Uncheck the "Users must enter a user name and password to use this computer" checkbox

Creating And Initializing Virtual Hard Disks Manually

- From the Start menu right click Computer, select Manage to bring up the Computer Management application
- Under Storage select Disk Management, right click it and either:-
  - select Create VHD, enter details and click OK or...
  - select Attach VHD and select an existing VHD to attach
- When the new disk appears right click the "Not Initialized" section and select Initialize Disk
- Right click the newly initialized disk and select "New Simple Volume…". Click Next 4 times and click Finish.

Creating And Initializing Virtual Hard Disks Automatically

- Windows Virtual PC has an API method for creating a virtual hard disk but has no way to initialize it

- To initialize it you need to use DiskPart:-

```
select vdisk file="My Virtual Hard Disk.vhd"
attach vdisk
create partition primary
format fs=ntfs label="New Volume" quick
assign letter z
```

VHDMount (1 of 2)

- VHDMount is a Virtual Server stand alone utility for mounting virtual hard drives on the host operating system
  - It provides equivalent VHD functionality to DiskPart for operating systems prior to Windows 7
- The following command mounts the virtual hard disk as drive Z (without an undo disk)

```
VHDMount /m /f "c:\VirtualServer\My Virtual Hard Disk.vhd" z
```

- VHDMount works fine with Virtual PC 2007
  - To install Virtual Server's VHDMount for Virtual PC 2007:-

```
msiexec.exe /i "Virtual Server 2005 Install.msi" /qn
ADDLOCAL=VHDMount
```

- VHDMount is unable to load all volumes
  - http://support.microsoft.com/kb/943487
- To get more debugging information:-

```
SET VHD_MOUNT_TRACE=1
```

MSBuild Extension Pack

- MSBuild Extension Pack is a library of msbuild tasks
    - http://www.codeplex.com/MSBuildExtensionPack
    - From version 3.5.5.0 (December 2009) it includes Windows Virtual PC msbuild tasks
- SDC Tasks is a library of msbuild tasks
    - http://www.codeplex.com/sdctasks
    - It does not and will not include Windows Virtual PC msbuild tasks
    - It includes Virtual Server 2005 msbuild tasks

Pre-Installed Virtual Hard Disks

- VHD Test Drive Program
  - http://technet.microsoft.com/en-us/bb738372.aspx
- VHDs with Internet Explorer:-
  - http://www.microsoft.com/Downloads/details.aspx?FamilyID=21eabb90-958f-4b64-b5f1-73d0a413c8ef&displaylang=en
  - IE6-XPSP3.exe contains a Windows XP SP3 with IE6 VHD
  - IE7-XPSP3.exe contains a Windows XP SP3 with IE7 VHD
  - IE8-XPSP3.exe contains a Windows XP SP3 with IE8 VHD
  - IE7-VIS1.exe+IE7-VIS2.rar+IE7-VIS3.rar contain a Vista Image with IE7 VHD
  - IE8-VIS1.exe+IE8-VIS2.rar+IE8-VIS3.rar+IE8-VIS4.rar contain a Vista Image with IE8 VHD

Summary

- The Windows Virtual PC COM API allows you to control virtual machines
  - The issue of logging on is best solved by telling Windows to automatically logon
  - To copy the tests to the virtual machine use either:-
    - a file share
    - a virtual hard disk
  - To run the unit tests use either:-
    - the keyboard to invoke the Run command
    - a scheduled task using WMI
    - add a batch file to the Startup menu