

55247A PowerShell Setup Guide

(Microsoft Azure or Windows Server or Windows Client)

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Introduction

This guide can be used by training centers and instructors to prepare student machines for the 55247A class. Each student machine will be configured during the introductory module (Module 0) and may take from 2 to 3 hours to complete. Because this is a Microsoft Azure class, one of the options presented will be to create a virtual machine in Azure. All that will be needed in such a case is a computer with a good Internet connection. Students and trainers may also decide to use their personal computers for the class if they meet the minimum class requirements.

You may use a Windows client or server for a student machine. Because you have the option of using VMs in Azure, any computer that can connect to the Internet with a modern browser will meet class requirements. A working knowledge of PowerShell will be helpful in completing the setup. This course has a PowerShell tutorial in appendix B and you can take advantage of free resources on <http://www.technet.com> and other sites to learn more.

55247 Server Setup

There are three options available for creating the student machines used for this class:

1. Microsoft Azure PowerShell
2. Azure Cloud Shell
3. Standalone Machine

Hardware Requirements

All student computers should meet the minimum hardware requirements below regardless of which setup option is chosen. Classroom machines must be 64-bit and meet the following minimum requirements:

- Intel Virtualization Technology (Intel VT) or AMD Virtualization (AMD-V) processor
- Dual 200 GB hard disks 7200 RPM SATA or better (100GB free space on the C: Drive)
- 8 GB RAM (16 GB RAM recommended)
- DVD drive
- Network adapter (Internet connectivity is required for this class)
- Super VGA (SVGA) 17-inch monitor
- Microsoft Mouse or compatible pointing device
- Sound card with amplified speakers
- Projection display device that supports SVGA 1024 x 768 pixels (16-bit colors)

Microsoft Azure PowerShell

This is the most popular solution for students wanting to use a virtual machine to perform class labs. **55247AzureSetup.ps1** is used to configure a Windows Server running SQL Server. If you elect to use Azure VMs for the class labs, Azure PowerShell cmdlets must be installed on the host machine. **Any computer used for class exercises must have the following PowerShell modules installed.** They can be done before or as a part of the exercises in Module 0:

- Import-Module AzureRM (Azure Resource Manager)
- Import-Module Azure (Azure Service Management)
- Import-Module MSONline (Azure Active Directory)
- Import-Module SQLServer (SQL Server)
- Install-Module PowerShellGet (PowerShellGet Module)

Class setup files are available from the Courseware Marketplace (<http://shop.courseware-marketplace.com>) or Skillpipe (<http://skillpipe.courseware-marketplace.com>). They can also be copied from the Student CD that comes with the course manual. **Create a folder named Labfiles on the C: drive of the host machine. Extract all the files and folders from 55247A-ENU_PowerShellSetup.zip to the C:\Labfiles folder.** The

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55247AzureSetup.zip file should also be expanded after it is extracted from 55247A-ENU_PowerShellSetup.zip.

The following variables in the C:\Labfiles\55247AzureSetup.ps1 file should be configured before running the script:

- **\$SubscriptionName:** The “Subscription Name” of your Azure account
- **\$workFolder:** Change if C:\Labfiles cannot be used for the setup files.
- **\$namePrefix:** Change this variable to the user’s personal initials
- **\$Location** Change the Azure region if the one specified is not supported
- **\$TimeZone:** You may change “Eastern Standard Time” to the local time zone

The script is mostly automatic and will only ask for your Azure subscription credentials at the beginning of the process. The VM should be created in less than 30 minutes. When the script is finished, a text file named 55247AzureSetup[DateTime].txt will be created in the \$WorkFolder location (preferably C:\Labfiles). The Internet IP addresses for the VMs can be located in this file. Use the Remote Desktop application to connect to the virtual machines using their Internet IPs. An Azure PowerShell tutorial can be found in Appendix B.

Here are a few recommendations to keep in mind when working with Microsoft Azure virtual machines:

1. Regularly check your balance on the Azure Portal to ensure there are enough funds for future labs.
2. Store unrelated objects in separate Resource Groups.
3. Make sure that Storage Account names are in lower case.
4. Only delete resources if they won’t be used in a future lab. If they use a lot of resources that are using up Azure subscription funds, stop them in the Azure Portal or deallocate them.
5. The PowerShell scripts provided make it easy to recreate objects when necessary.

[open the scripts and enter the info into the Portal... ?](#)

Create Azure Virtual Machines

Verify that files in the C:\Labfiles\55247A-ENU_PowerShellSetup.zip archive have been extracted to the C:\Labfiles folder. Perform all the following steps with administrator credentials:

1. From an “Administrator: Command Prompt”, start a PowerShell session and execute the script **C:\Labfiles\55247AzureSetup.ps1**. The script should not be interrupted. Do not proceed until the script is finished. This may take about 30 minutes.
2. When the previous step is successful and complete, connect to the student machine (VM55247A) using the Remote Desktop Connection application. Instead of using the computer name, use the Internet IP address specified in the C:\Labfiles\55247AzureSetup[DateTimeStamp].txt file. Connect using the Admin1 user account with a password of Pa\$\$w0rd.
3. If there were problems during the setup, verify the parameters in the script and the information in this section of the setup before proceeding. Once the problems have been fixed, delete the existing virtual machines in the Azure Portal or with PowerShell and create new ones using the

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55247AzureSetup.ps1 script. Azure VMs can be restarted using the **Restart-AzureRMVM cmdlet**. **Get-AzureRMVM** will provide the status of existing VMs.

4. If the previous step is unsuccessful in fixing problems during setup, verify that your network supports connectivity to Azure and Azure VMs using PowerShell. If the setup completed partially, try connecting to the virtual machine using the information in Step 2 above, but use the local machine Adminz user account and a password of \$Pa\$\$w0rdPa\$\$w0rd. If this is not successful, you need to troubleshoot and fix any connectivity problems to Azure before proceeding with this setup method. If you continue to have problems connecting, use the Azure Portal to change the password of the Admin1 or Adminz accounts so you can login and manually complete the configuration. You may also decide to restart the setup. If you are successful in connecting to the Azure VM, you may manually complete the configuration by using the following steps:

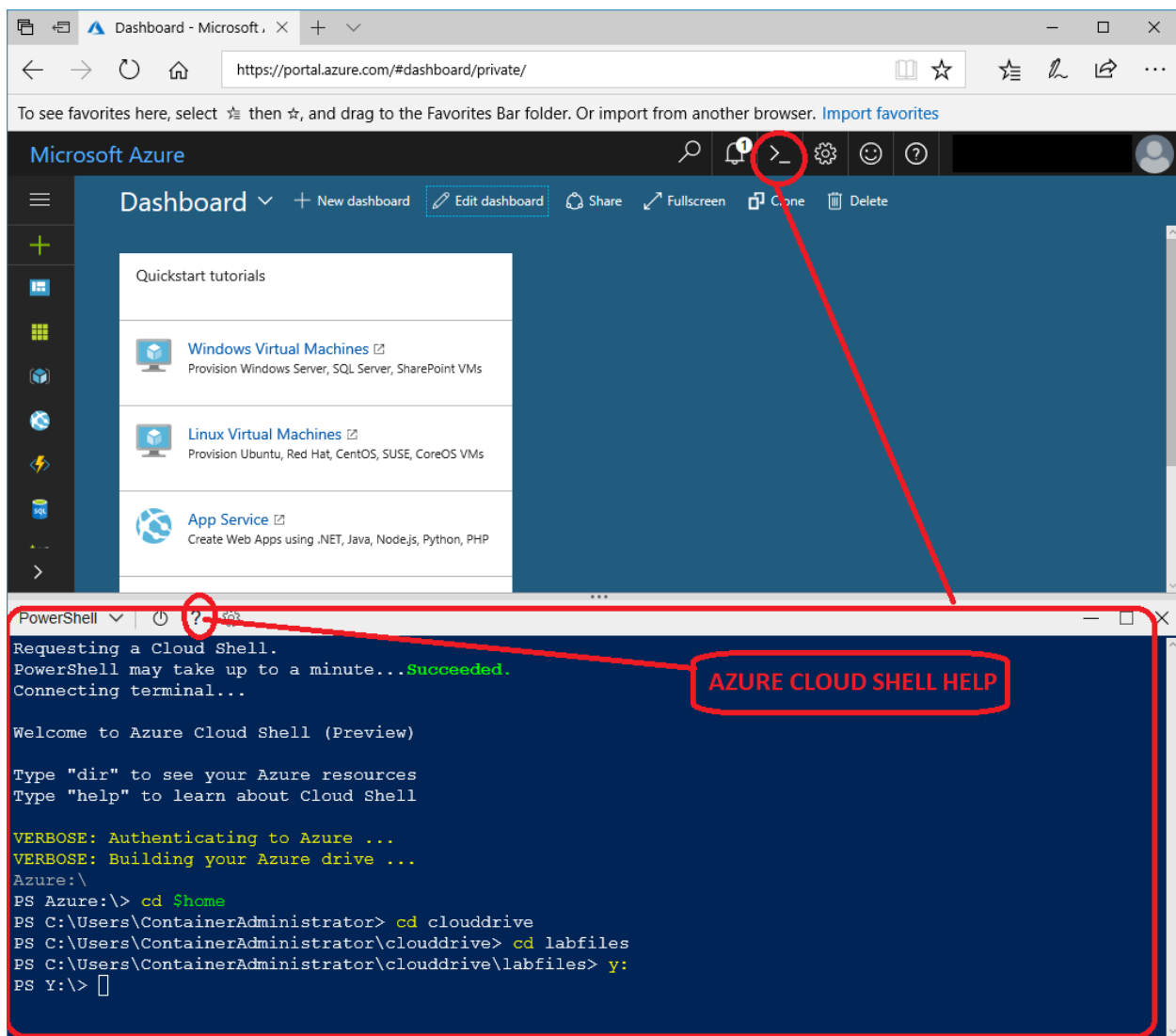
configure the
VM - note
if any are
same
steps done
locally..

- Use the Internet connection on the VM to copy all the archive files (*.zip) & 55247ConfigAZVM.ps1 from your local machine's C:\Labfiles folder to a newly created C:\Labfiles folder on the virtual machine.
- Extract all the files and folders from the *.zip files into the C:\Labfiles folder.
- Execute the C:\Labfiles\55247ConfigAZVM.ps1 script on the VM.
- Go back to Step 2 above and continue with the setup instructions provided there.

Azure Cloud Shell

This is the fastest and easiest solution for student setup that takes advantage of your Microsoft Azure subscription. No virtual machine is required to do the class labs. Instead, the Azure Portal is opened in a supporting web browser and the Azure Cloud Shell is used to perform lab exercises.

1. Follow the instructions under “Microsoft Azure PowerShell” above for getting the student files. You will need to create a “CloudDrive” for your subscription, if one does not already exist, by using the Azure Portal to open a new Azure Cloud Shell session. Then run *55247CloudShellSetup.ps1* to copy student files to your Azure Subscription “CloudDrive” (You may also use the Microsoft Azure Storage Explorer from the Azure Portal). These files will persist in your Azure Cloud Shell, so they can be used for any of the labs wherever you use the Azure Portal. The location of the class files in the Cloud Shell will be Y:\Labfiles or C:\Users\ContainerAdministrator\Clouddrive\Labfiles or \$Home\Clouddrive\Labfiles.



Azure Cloud Shell in Azure Portal

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For this class configuration to work, students must be able to install and use the applications called for in Module 0 on a computer they have easy access to, or to a virtual machine (VM). The `55247AzureSetup_cs.ps1` script can be used to create a new Azure VM from the Cloud Shell. The `55247AzureSetup.ps1` script can be used to create a new Azure VM from your computer. All labs can be done using the Cloud Shell, but verification or setup steps needed in other applications (e.g. SQL Server Management Studio or Power BI) must be done on a compatible system or in Azure.

The PowerShell scripts used for the labs in the Cloud Shell have been renamed with a “_cs” suffix so they can be easily identified. For example, the lab exercise that calls for the `55247AzureSetup.ps1` script would use `55247AzureSetup_cs.ps1` file instead when using the Cloud Shell. The main differences between the older scripts and the Cloud Shell files is the disabling of the login process (since authentication is done automatically based on Azure Portal credentials) and the modification of script variables for the new environment (example, \$Labfiles uses the Azure share created for your Clouddrive). The \$SubscriptionName variable uses “Azure Subscription” by default. This can be changed manually in each script, or you may modify your subscription name in the Azure Portal accordingly so all the scripts can run as they are.

As Microsoft makes changes to the Cloud Shell, the way commands and scripts are run may need to be changed. Knowing how to change the execution policy (*Set-ExecutionPolicy*) and unblock executable scripts (*Unblock-File*) will be useful. As of this writing, the idle timeout setting for the Azure Portal is 20 minutes and cannot be modified. See the trainer preparation guide for more details about running scripts in the Cloud Shell console.

Standalone Machine

Any Windows 8 or 10 computer system that meets the minimum hardware requirements may be configured as a student machine.

As with the other setup methods, a folder named C:\Labfiles should be created and the setup files (**55247A-ENU_PowerShellSetup.zip**) be copied there and extracted in that folder. In addition:

1. Verify that the edition of Windows you are running is either Professional or Enterprise.
2. Verify that PowerShell is installed and configured properly. You may install the Azure modules here or wait until the lab for Module 0.

If you are not running a Windows 8 or 10 system, you may still use the Azure setup strategy to create your virtual machine in Microsoft Azure and use a remote desktop tool to connect to it and do lab exercises. This strategy will also work for students that use a non-Windows client computer. The **Microsoft Remote Desktop** app supports Mac, iPad and Android devices in addition to various Windows-based clients. There are a number of Remote Desktop tools available for Linux systems and some of them are browser-based.

