Module 2: Building Application Infrastructure in Azure

Lab: Creating an Azure Virtual Machine for Development and Testing

Exercise 1: Creating a Network and Resource Container

Task 1: Sign in to the Azure Portal

1. On the Start screen, click the **Internet Explorer** tile.
2. Go to **https://portal.azure.com <https://portal.azure.com>**
3. Enter the email address of your Microsoft account. Click **Continue**.
4. Enter the password for your Microsoft account.
5. Click **Sign In**.

Task 2: Create a Resource Group

1. In the navigation pane on the left side of the Azure Portal, scroll down, and then click **More Services**.
2. In the **Browse** blade that displays, click **Resource groups**.
3. In the **Resource groups** blade that displays, view your list of resource groups.
4. At the top of the **Resource groups** blade, click the **Add** button.
5. In the **Resource group** blade, perform the following steps:

   a. In the **Resource group name** dialog box, provide the value **20532**.

b. In the **Resource group location** list, select the region that is closest to your current location.

6. In the **Resource group** blade, click **Create**.

Task 3: Create a Virtual Network

1. In the navigation pane on the left side of the Azure Portal, scroll down, and then click **More Services**.
2. In the **Browse** blade that displays, click **Virtual networks**.
3. In the **Virtual networks** blade that displays, view your list of virtual network instances.
4. At the top of the **Virtual networks** blade, click the **Add** button.
5. In the **Create virtual network** blade, perform the following steps:

   a. In the **Name** dialog box, provide the value **vnet20532**.

   b. In the **Location** list, select the region that is closest to your current location.

   c. Ensure that the **Address space** box has the value **10.0.0.0/16**.

   d. In the **Subnet name** box, provide the value **Apps**.

   e. Ensure that the **Subnet address range** box has the value **10.0.0.0/24**.

   f. In the **Resource group** section, select the **Use existing** option.

   g. In the **Resource group** section, locate the dialog box and provide the value **20532**.

6. In the **Create virtual network** blade, click **Create**.

> **Results:** After completing this exercise, you will have a new virtual network and resource group in Azure

Exercise 2: Creating a Development Virtual Machine

Task 1: Create a storage account

1. In the navigation pane on the left side of the Azure Portal, scroll down, and click **More Services**.
2. In the **Browse** blade that displays, click **Storage Accounts**.
3. In the **Storage accounts** blade that displays, view your list of Storage instances.
4. At the top of the **Storage accounts** blade, click the **Add** button.
5. In the **Create storage account** blade that displays, perform the following steps:

   a. In the **Name** box, provide the value **stor20532[your name in lowercase here]**.

   b. In the **Deployment model** section, ensure that the *Resource manager* option is selected.

   c. In the **Account kind** list, ensure that the *General purpose* option is selected.

   d. In the **Performance** section, ensure that the *Standard* option is selected.

   e. Click on the **Replication** list and select the **Locally-redundant storage (LRS)** option.

   f. In the **Storage service encryption** section, ensure that the *Disabled* option is selected.

   g. In the **Resource group** section, select the **Use existing** option.

   h. In the **Resource group** section, locate the dialog box and provide the value **20532**.

   i. In the **Location** list, select the region closest to your current location.

   j. Ensure that the **Pin to Dashboard** option is selected.

   k. Click **Create**.

   > **Note** Wait for Azure to finish creating the storage account prior to moving forward with the lab. You will receive a notification when the *Storage Account* is created and you will see the Storage Account's blade.

Task 2: Create a virtual machine

1. In the navigation pane on the left side of the Azure Portal, scroll down, and click **More Services**.
2. In the **Browse** blade that displays, click **Virtual machines**.
3. In the **Virtual machines** blade that displays, view your list of Virtual Machine instances.
4. At the top of the **Virtual machines** blade, click the **Add** button.
5. In the **Virtual Machines** blade that displays, search for and select the following template:
    - Visual Studio Community 2017 on Windows Server 2016 (x64)

    > **Note:** Ensure that you select this specific template as all further lab instructions assume that you are using this exact Azure SDK version, OS and Visual Studio version.
6. In the **Visual Studio Community 2017 on Windows Server 2016 (x64)** blade, ensure that the **Resource Manager** deployment model is selected and click the **Create** button.
7. In the **Create virtual machine** blade that displays, click **Basics** and perform the following steps:

    a. In the **Name** dialog box, provide the value **vm20532**.

    b. In the **VM disk type** list, select the value **HDD**.

    c. In the **User Name** dialog box, provide the value **Student**.

    d. In the **Password** and **Confirm Password** dialog boxes, provide the value **AzurePa$$w0rd**

    e. In the **Subscription** section, select the subscription you wish to use.

    f. In the **Resource Group** section, locate the **Use existing** option, and then select the **20532** resource group.

    g. In the **Location** list, select the region closest to your current location.

h. Click **OK**.

8. In the **Create Virtual Machine** blade that displays, click **Size** and perform the following steps:

   a. Locate and click the **View all** hyperlink.

   b. Locate and select the **F4 Standard** option.

   c. Click the **Select** button.

9. In the **Create Virtual Machine** blade that displays, click **Settings** and perform the following steps:

   a. Under the **Storage > Use managed disks** section, select the **No** option.

   b. Click the **Storage Account** section and then select **stor20532[your name here]**.

   c. Click the **Virtual Network** section and then select **vnet20532**.

   d. Click the **Subnet** section and then select **Apps**.

   e Leave default values for **Public IP Address**, **Network Security Group (firewall)**, **Extensions** and **High Availability**.

   f. Under the **Monitoring > Boot diagnostics** section, select the **Disabled** option.

   g. Under the **Monitoring > Guest OS diagnostics** section, select the **Disabled** option.

   h. Scroll down and click **OK**.

10. In the **Create Virtual Machine** blade that displays, click **Summary** and click **OK** to create the virtual machine using your specified configuration.

    > **Note:** The creation of a new virtual machine can take anywhere between 10 to 15 minutes. You will see a notification on the Dashboard (home screen) when your virtual machine is created and running.

11. Select the newly created virtual machine from your Dashboard.

12. In the **vm20532** blade, locate the **Settings** section.

13. In the **Settings** section, select the **Disks** option.
14. In the **Disks** blade, click **Add data disk**.
15. In the **Attach a new disk** blade, perform the following steps:

    a. In the **name** box, provide **vm20532-AllFiles**

    b. For **Source type**, select **New (empty disk)**

    c. For **Account type**, select **Standard (HDD)**.

    c. In the **Size (GiB)** dialog box, provide the value, **128**.

    d. In the **Storage container** section, click on **Browse** and then from the **Storage account** blade, select the previously created storage account, **stor20532[Your Name Here]**

    e. In the **Containers** blade, select **vhds** container and click **Select**.

    f. To create the second disk, click **Save**.

    > **Note:** Wait about five minutes for the empty disk to be attached to the virtual machine.

16. Select the **Overview** option to return to the **vm20532** blade.
17. Click **Connect** at the top of the screen.
18. In the **Internet Explorer download** dialog box, click **Open**.
19. In the **Remote Desktop Connection** dialog box, perform the following steps:

    a. Click **Don’t ask me again for connections to this computer** to prevent this dialog box from displaying again.

    b. Click **Connect**.

20. In the **Windows Security** dialog box, perform the following steps:

    a. For the **User name** dialog box, provide the value, **Student**.

    >

> **Note:** If you computer is on a domain, you may need to add a backslash before the username to "escape" the domain.

b. For the **Password** dialog box, provide the value, **AzurePa$$w0rd**.

c. Click **OK**.

21. In the **Remote Desktop Connection** dialog box, perform the following steps:

    a. Verify if the Remote certificate name matches the name of your virtual machine.

    b. Click **Don’t ask me again for connections to this computer** to prevent this dialog box from displaying again.

    c. Click **Yes**.

22. When you are prompted to allow your network connection to discover external devices, click **Yes**.

> **Results:** After completing this exercise, you will have a new virtual machine stored in a new storage account.

Exercise 3: Configuring the Virtual Machine for Development

Task 1: Disable IE Enhanced Security Configuration

1. On the Start screen, click the **Server Manager** tile.
2. In the navigation pane on the left side, click **Local Server**.
3. In the **Properties** box, click the **IE Enhanced Security Configuration** option that is currently set to **On**.
4. In the **Internet Explorer Enhanced Security Configuration** dialog box, perform the following steps:

    a. Under *Administrators*, select **Off**.

    b. Under *Users*, select **Off**.

c. Click **OK**.

Task 2: Create an AllFiles Drive

1. Press the `Windows logo key + W` to open **Universal Search – Settings**.
2. In the **Search** dialog box, provide the value **disk**.
3. Click **Create and format hard disk partitions**.
4. In the **Initialize Disk** dialog box, perform the following steps:

   a. Verify that **Disk 2** is selected for initialization.

   b. Verify that **MBR (Master Boot Record)** is the selected partition style.

   c. Click **OK**.
5. In the lower-half of the Disk Management window, perform the following steps:

   a. Scroll down and find **Disk 2** that was previously initialized.

   b. Right-click the unallocated partition, and then click **New Simple Volume**.
6. In the **New Simple Volume** wizard, perform the following steps:

   a. Click **Next**.

   b. Verify that the **Simple volume size in MB** is a number greater than **100000**.

   c. Click **Next**.

   d. In the **Assign the following drive letter** list, click **F**.

   e. Click **Next**.

   f. Verify that the **File System** setting is set to **NTFS**.

   g. In the **Volume Label** dialog box, provide the value **AllFiles**.

   h. Click **Next**.

   i. Click **Finish** to close the dialog box, and then create the partition.

> **Note:** If a dialog box displays stating that “You need to format the disk in drive F: before you can use it.”, you can safely close it because you already formatted the disk.

Task 3: Download the AllFiles Content

1. On the Start screen, click the **Internet Explorer** tile.
2. If you are prompted to set up Internet Explorer 11, perform the following steps:

   a. Select **Use recommended security, privacy and compatibility settings**.

   b. Click **OK**.
3. Go to (**https://github.com/MicrosoftLearning/20532-DevelopingMicrosoftAzureSolutions/releases/latest <https://github.com/MicrosoftLearning/20532-DevelopingMicrosoftAzureSolutions/releases/latest>**).
4. Scroll down the screen until you find the **allfiles** download link.
5. Click the link to download the AllFiles compressed folder.
6. In the **Internet Explorer** download dialog box, click **Save**.

   > **Note:** The download of the AllFiles executable typically takes around five minutes.
7. Click the **Windows File Explorer** icon in your Taskbar.
8. On the left navigation bar, expand the **This PC** node and click the **Downloads** node:
9. Right-click the **allfiles** compressed folder and select the **Properties** option.
10. In the **allfiles Properties** dialog box, do the following:

    a. Click **Unblock** if present.

    b. Click **OK**.
11. Right-click the **allfiles** compressed folder and select the **Extract all** option.

12. In the **Extract Compressed (Zipped) Folders** dialog box, do the following:

    a. In the **Files will be extracted to this folder:** dialog, provide the value **F:**.

    b. Ensure that the **Show extracted files when complete** checkbox is not selected.

    c. Click **Extract**.

13. Wait for the extraction process to complete.

Task 4: Add your Azure subscription to Visual Studio

1. On the Start screen, locate and click the **Visual Studio 2017** tile.

    > **Note:** You might have to use the down arrow to locate the Visual Studio 2017 tile on your Start screen.

2. You will be prompted to sign-in using a **Microsoft Account**. Perform the following steps:

    a. Click the **Sign in** button.

    b. Enter the email address of your Microsoft account. Click **Continue**.

    c. Ensure that the **Keep me signed in** option is selected.

    d. Enter the password for your Microsoft account.

    e. Click **Sign In**.

    > **Note:** You may be prompted by Internet Explorer to remember this password. You can safely close and ignore this dialog.

3. If you have never used **Visual Studio** in the past, you will be prompted to configure your Microsoft Account. Perform the following steps:

    a. Select your **country\region** from the provided list.

    b. Leave the remaining fields set to their default values.

    c. Click the **Continue** button.

4. If you have never used **Visual Studio** in the past, you will also be prompted to configure the apperance of your IDE. Perform the following steps:

   a. Leave all fields set to their default values.

   b. click the **Start Visual Studio** button.

5. Wait for *Visual Studio* to finish **preparing for first use**.

   > **Note:** This process typically takes between 2 to 5 minutes.

6. Validate that you can see the Visual Studio **Start Page**.

> **Results:** After completing this exercise, your development virtual machine will have your lab files installed. Your virtual machine will also have Visual Studio, Azure PowerShell, and the Azure SDK installed.