# Lab Answer Key: Module 6: Planning and implementing Azure Storage

# Lab: Implementing Azure Storage

## Exercise 1: Creating and configuring Azure Storage

#### Task 1: Create a storage account

1. Ensure that you are signed in to MIA-CL1 as **Student** with the password **Pa55w.rd** and that the setup script that you ran in the previous demonstration to prepare the environment has completed.
2. Start Microsoft Edge, and then browse to [**https://portal.azure.com**](https://portal.azure.com). When prompted, sign in by using the Microsoft account that is the Service Administrator of your Microsoft Azure subscription.
3. In the hub menu, click **+ Create a resource**, and then click **Storage**.
4. On the New blade, click **Storage account - blob, file, table, queue**.
5. On the Create storage account blade, apply the following settings, and then click **Create**:

* Name: a valid, unique name consisting of between 3 and 24 lower case characters or digits
* Deployment model: **Resource Manager**
* Account kind: **Storage (general purpose v1)**
* Location: the same Azure region that you chose when running the provisioning script at the beginning of this module
* Replication: **Locally-redundant storage (LRS)**
* Performance: **Standard**
* Secure transfer required: **Disabled**
* Subscription: the name of your Azure subscription
* Resource group: ensure that **Create new** is selected and, in the textbox below, type **20533E0602-LabRG**.
* Configure virtual networks: **Disabled**

1. Wait until the storage account is provisioned.
2. In the hub menu, click **All services**, and then, in the list of services, click **Storage accounts**.
3. On the **Storage accounts** blade, click the storage account that you just created.
4. On the storage account blade, click the **Blobs** tile.
5. On the **Blob service** blade, click **+ Container** in the toolbar.
6. In the **New container** section, specify the following settings, and then click **OK**:

* Name: **asset-images**
* Access type: **Private (no anonymous access)**

#### Task 2: Install AzCopy

1. In Microsoft Edge, open a new tab, and then browse to [**http://aka.ms/AzCopy**](http://aka.ms/AzCopy).
2. In the **Download and install AzCopy** section, click the **latest version of AzCopy on Windows** link.
3. When prompted, click **Save**. Wait until the download completes and then click **Run**. This will automatically launch the setup wizard. Use the wizard to install AzCopy with the default settings. During the setup, when prompted, in the User Account Control dialog box, click **Yes**.
4. On MIA-CL1, click **Start**, in the Start menu, expand the **Windows PowerShell** folder, right-click **Windows PowerShell ISE**, click **More**, and then click **Run as administrator**. When prompted by User Account Control for confirmation, click **Yes**.
5. In the **Administrator: Windows PowerShell ISE** window, if the script pane is not visible, click **View** and then, in the **View** menu, click **Show Script Pane**.
6. In the script pane, type **Set-Location -Path 'C:\Program Files (x86)\Microsoft SDKs\Azure\AzCopy'** and then press the **F5** key.
7. In the console pane, type **.\AzCopy /?** and then press Enter.
8. Scroll through the syntax information displayed in the console pane.

#### Task 3: Use AzCopy to upload blobs

1. In the **Administrator: Windows PowerShell ISE** window, in the script pane, type:

.\AzCopy.exe /Dest:https://<storage-account-name>.blob.core.windows.net/asset-images /destkey:<access-key> /Source:F:\Labfiles\Lab06\Starter\asset-images

1. Switch to the Microsoft Edge window displaying the Azure portal, scroll back to the blade for your storage account, and click **Access keys**.
2. On the access keys blade, click the **Click to copy** icon next to **Storage account name**. If prompted to allow access to Clipboard, click **Allow access**.
3. Switch to the **Administrator: Windows PowerShell ISE** window and replace the ***<storage-account-name>*** entry with the content of Clipboard.
4. Switch to the Microsoft Edge window and, on the access keys blade, click the **Click to copy** icon next to **key1**.
5. Switch to the **Administrator: Windows PowerShell ISE** window and replace the ***<access-key>*** entry with the content of Clipboard.
6. Press the **F5** key to execute the command in the script pane.

**Note**: If you execute the command and it fails, make note of the error message and the directory in which the journal files are located. Temporary data files are put into the journal file folder with the default path **"%LocalAppData%"** and need to be deleted before running the command again.

1. Examine the output in the console pane and verify that the content of the **F:\Labfiles\Lab06\Starter\asset-images** folder was copied to the Azure Storage account container **asset-images**.
2. In the Azure portal, on the storage account blade, click **Overview**.
3. In the **Services** section of the blade, click the **Blobs** tile.
4. On the **Blob service** blade, click the **asset-images** container.
5. On the **asset-images** blade, verify that there are six new blobs.

**Result**: At the end of this exercise, you should have created a new Azure storage account with a container named **asset-images** and copied files from your local computer to that container by using the **AzCopy** utility.

## Exercise 2: Using Azure File storage

#### Task 1: Create a file share and upload files

1. Switch to the **Administrator: Windows PowerShell ISE** window.
2. In the Windows PowerShell Integrated Scripting Environment (ISE), in the console pane, type the following cmdlet and then press Enter:

Add-AzureRmAccount

1. In the sign-in windows that appears, sign in by using the Microsoft account that is the Service Administrator of your Azure subscription.
2. If you have multiple subscriptions associated with your Microsoft account, to identify the subscription in which you are going to create a virtual network, type the following command, and then press Enter:

Get-AzureRmSubscription

1. Note the value of the ***Id*** property for each subscription in the output of the previous command. To specify the subscription in which you are going to create a virtual network, type the following commands, and then press Enter (replace ***SubscriptionId*** with the actual SubscriptionId property of that subscription):

Set-AzureRmContext -SubscriptionId 'SubscriptionId'

1. Click **File**, and then click **Open**.
2. In the **Open** dialog box, browse to **F:\Labfiles\Lab06\Starter\**, click **New-20533E06FileShare.ps1**, and then click **Open**.
3. In the script pane, in the **$storageAccountName** variable declaration at the beginning, replace the ***<storage-account-name>*** value with the name of the Azure storage account that you created in the previous exercise.
4. Review the script, noting that it:

* Sets the values of variables named **$shareName** and **$directoryName** for the file share and the directory to create in the Azure Storage account
* Uses the **Get-AzureRmStorageAccountKey** cmdlet to retrieve the access key for your storage account.
* Uses the **New-AzureStorageContext** cmdlet to create a security context for connections to the target storage account based on the key you retrieved
* Uses the **New-AzureStorageShare** cmdlet to create an Azure Storage account file share
* Uses the **New-AzureStorageDirectory** cmdlet to create a directory in the share
* Sets the location of the folder hosting source files to be copied to the Azure Storage file share directory
* Loops through the files in the source folder and uses the **Set-AzureStorageFileContent** cmdlet to copy each of them the folder in the Azure file share.

1. Save the script and then press the **F5** key.
2. Observe the script as it runs. When you finish, close Windows PowerShell ISE.

**Note:** Script produces no output on success

#### Task 2: Access a file share from an Azure VM

1. From the MIA-CL1 lab VM, in Microsoft Edge, on the Azure portal, click **All services**, click **Virtual machines**.
2. On the **Virtual machines** blade, click ellipsis to the right of the **20533E0601-vm1** entry and click **Connect**.
3. On the **Connect to virtual machine** blade, click **Download RDP File**. When prompted, click **Open**.
4. If a Remote Desktop Connection warning message displays, select **Don't ask me again for connections to this computer**, and then click **Connect**.
5. In the **Windows Security** dialog box, type the following credentials, and then click **OK**:

* User name: **Student**
* Password: **Pa55w.rd1234**

1. If another Remote Desktop Message displays, select the **Don't ask me again for connections to this computer** checkbox, and then click **Yes**.
2. If prompted in the Remote Desktop session whether to allow your PC to be discoverable, click **No**.
3. Wait for the Server Manager window to open, then click **Local Server**, on the **Local Server** page, click the **On** link next to the **IE Enhanced Security Configuration** entry, click **Off** for Administrators, and then click **OK**.
4. In the 20533E0601-vm1 Remote Desktop window, click the **Internet Explorer** icon on the taskbar. If prompted to set up Internet Explorer, ensure that the **Use recommended security, privacy, and compatibility settings** option is selected, and then click **OK**.
5. Browse to [**https://portal.azure.com**](https://portal.azure.com), and then sign in by using the Microsoft account that is the Service Administrator of your Azure subscription.
6. In the hub menu, click **All services**, and then click **Storage accounts**.
7. On the **Storage accounts** blade, click the storage account that you created in the previous exercise, and then on the blade for your storage account, click the **Files** tile.
8. On the **File service** blade, click **assets**.
9. On the **assets** blade, click **Connect** in the toolbar.
10. On the **Connect** blade, click the **Click to Copy** icon next to the top code listing appearing in the **Connecting from Windows** section. If prompted whether to allow the webpage to access your Clipboard, click **Allow access**.
11. Click **Start**, right-click **Windows PowerShell ISE**, in the right-click menu, click **More** and click **Run as administrator**.
12. In the **Administrator: Windows PowerShell ISE** window, if the script pane is not visible, click **View** and then, in the **View** menu, click **Show Script Pane**.
13. In the script pane, paste the content of Clipboard.
14. Run the script by pressing the F5 key
15. Start File Explorer, click **This PC**, and verify that the command executed successfully, resulting in creation of the **Z:** drive mapping.
16. Back in the Windows PowerShell ISE window, in the console pane, run the following command to view the contents of the invoices folder on the Z: drive, which is now mapped to the assets file share that you created in a previous task:

Get-ChildItem -Path 'Z:\invoices'

1. Verify that invoice documents are listed.
2. Close the Windows PowerShell ISE window and Internet Explorer, and then sign out of the Remote Desktop session to 20533E0601-vm1.

#### Task 3: Remove the lab environment

1. On MIA-CL1, close all open windows without saving any files.
2. On the taskbar, right-click the **Windows PowerShell** icon, and then click **Run as Administrator**. In the User Account Control dialog box, click **Yes**.
3. Type the following command, and then press **Enter**:

Remove-20533EEnvironment

1. When prompted, sign in by using the Microsoft account that is the Service Administrator of your Azure subscription.
2. If you have multiple Azure subscriptions, select the one you want the script to target.
3. If prompted, specify the current lab number.
4. When prompted for confirmation, type **y**.
5. Start Microsoft Edge, browse to the Azure portal at [**https://portal.azure.com**](https://portal.azure.com), and sign in by using the Microsoft account that is the Service Administrator of your Azure subscription.
6. In the Azure portal, on Dashboard, click **Edit**.
7. Right-click unoccupied area of the dashboard and, in the right-click menu, click **Reset to default state**. When prompted to confirm, click **Yes**.
8. Click **Done customizing**.
9. Close all open windows.

**Result**: At the end of this exercise, you should have created an Azure storage account file share named **assets** that contains a folder named **invoices** with copies of invoice documents. You should have also mapped a drive from an Azure VM to the file share.

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