# Lab Answer Key: Module 1: Introduction to Microsoft Azure

# Lab: Managing Microsoft Azure

## Exercise 1: Using the Azure portals

#### Task 1: Use the Azure portal

1. Ensure that you are signed in to MIA-CL1 as **Student** with the password **Pa55w.rd**.
2. Start Microsoft Edge, browse to [**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.
3. On the **Dashboard** page, at the top of the screen, click **Edit**.
4. On the **Dashboard** page, right-click the **All resources** tile, and then click **6x4**.
5. On the **Dashboard** page, move the **Service health** tile and the **Marketplace** tile such that they remain adjacent but their top edge aligns with the bottom edge of the **Quickstart tutorials** tile.
6. Click **Done customizing**.
7. Review the results, then click **Edit** again.
8. Right-click unoccupied area of the dashboard and, in the right-click menu, click **Reset to default state**. When prompted to confirm, click **Yes**.

**Note**: This will remove all customizations of your current Dashboard.

1. Click **Done customizing**.
2. On the **Dashboard** page, in the hub menu, click **All services**, and then, in the service menu, click the star beside **Tags**. Close the service menu and verify that the **Tags** entry appears at the bottom of the hub menu.
3. In the hub menu, click **All services**, and then, in the service menu, click **Subscriptions**.
4. On the **Subscriptions** blade, click the entry representing your Azure subscription.
5. On the blade representing your subscription, in the **Overview** section, note the **Directory** entry, referencing the Azure Active Directory tenant associated with your subscription. In addition, note the **Change directory** entry in the toolbar, which allows you to switch the association to a different tenant.
6. Leave the Microsoft Edge window open.

#### Task 2: Use the Azure account portal

1. Click **Manage** on yout subscription blade
2. On the summary page, review the billing summary for your subscription.
3. On the summary page, on the right side of the screen, click **Download usage details**.
4. Click **Download Usage** and then click **Version 2 - Preview**.
5. In Microsoft Edge, when prompted whether to open or save the .csv file, click **Save** and then click **Open**.
6. When prompted **How do you want to open this file?**, click **Notepad**, uncheck the checkbox **Always use this app to open .csv files**, and then click **OK**.
7. View the contents of the file in Notepad. Note that this is intended to simply review its content – typically to analyze it in more details, you would use Microsoft Excel or other program capable of parsing csv files. The file might not include any data at this point if you have not yet deployed any resources into your subscription.
8. Close Notepad.
9. Close the Microsoft Edge window.

**Result**: After completing this exercise, you should have used the Azure portals.

## Exercise 2: Using the Azure Resource Manager features in the Azure portal

#### Task 1: Create and manage a resource group

1. Switch back to the Microsoft Edge window displaying the Azure portal at [**https://portal.azure.com**](https://portal.azure.com).
2. In the Azure portal, in the hub menu, click **Resource groups**.
3. On the **Resource groups** blade, click **Add**.
4. On the **Resource groups** blade, type the following values, and then click **Create**:

* Resource group name: **20533E0101-LabRG**
* Subscription: the name of your Azure subscription
* Resource group location: the Azure region closest to the lab location

1. Wait until the resource group is provisioned. This should take only a few seconds.

#### Task 2: Create Azure resources

1. In the Azure portal, click **+ Create resource**, click **Networking**, and then click **Route table**.
2. On the **Route table** blade, specify the following settings and click **Create**:

* Name: **20533E0101-rt**
* Subscription: the same Azure subscription in which you created the resource group
* Resource group name: click **Use existing** and select **20533E0101-LabRG** from the drop-down list
* Location: the same Azure region in which you created the resource group
* BGP route propagation: **Disabled**

#### Task 3: Configure tagging

1. In the Azure portal, in the hub menu, click **Resource groups**.
2. On the Resource groups blade, click **20533E0101-LabRG**, and then, on the resource group blade, click **Tags**.
3. On the **20533E0101-LabRG - Tags** blade, in the **Name** box, type **project**, and then in the **Value** box, type **test**. Click **Save**.
4. Click **Overview** and, in the list of resources, click the Route table resource you created in the previous task.
5. On the **20533E0101-rt** blade, click **Tags**.
6. On the **20533E0101-rt - Tags** blade, in the **Name** text box, select **project** from the drop-down list, and then in the **Value** drop-down list, select **test**. Click **Save**.
7. In the hub menu, click **Tags**
8. On the **Tags** blade, click **project : test**. This will display the **project : test** blade showing both the resource group and the route table resource you created.
9. click the pin icon in the upper right corner of the **project : test** blade.
10. In the Azure portal, in the upper left corner, click **Microsoft Azure** to display Dashboard.
11. On the **Dashboard** page, click the **project : test** tile. View again the resources associated with this tag.

#### Task 4: Configure RBAC

1. In the Azure portal, in the hub menu, click the **Resource groups** entry.
2. On the **Resource groups** blade, click **20533E0101-LabRG**.
3. On the 20533E0101-LabRG resource group blade, click **Access control (IAM)**.
4. On the access control (IAM) blade of the resource group, click **Add**.
5. On the **Add permissions** blade, in the **Role** drop-down list, click **Contributor**. Leave the default entry in the **Assign access to** drop-down list.
6. On the **Add permissions** blade, in the **Select** text box, type a valid Microsoft account name, click the entry representing that account appearing underneath the text box, and click **Save**.

**Result**: After completing this exercise, you should have used the Azure Resource Manager features in the Azure portal.

## Exercise 3: Using Azure PowerShell

#### Task 1: Connect to your Azure subscription by using Azure PowerShell

1. 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**.
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. In the Windows PowerShell ISE window, in the console pane, type the following cmdlet and then press Enter:

Get-AzureRmSubscription

1. In the Windows PowerShell ISE window, in the console pane, type the following cmdlet and then press Enter:

Get-AzureRmResourceProvider

1. Examine the output, including Azure resource providers, their registration status, their resource types, and the Azure regions where these resources are available.

#### Task 2: Manage Azure resources and resource groups by using Azure PowerShell

1. In the Windows PowerShell ISE window, open the **F:\Labfiles\Lab01\Starter\Set-20533E0101Lab.ps1** file.
2. In the **# Variables** section, note the values of predefined variables. They need to match the names of resource and the resource group you created in the previous exercise.
3. Under the line that states **# Identify the location of the resource group containing the resource**, type the following:

$locName = (Get-AzureRmResourceGroup -Name $rg1Name).Location

1. Select all of code in the file, including the line you just typed, right-click it, and then click **Run selection**.
2. Under the line that states **# Create a new resource group in the same location**, type the following:

$rg2 = New-AzureRmResourceGroup -Name $rg2Name -Location $locName

1. Select the line you just typed, right-click it, and then click **Run selection**.
2. Under the line that states **# Retrieve an object representing the resource and store it in a variable**, type the following:

$res = Get-AzureRmResource -Name $resName -ResourceGroupName $rg1Name

1. Select the line you just typed, right-click it, and then click **Run selection**.
2. Under the line that states **# Move the resource to the new resource group**, type the following:

Move-AzureRmResource -DestinationResourceGroupName $rg2Name -ResourceId $res.ResourceId

1. Select the line you just typed, right-click it, and then click **Run selection**. When prompted to confirm, click **Yes**. Wait until the move operation completes.
2. Under the line that states **# View resources in the new resource group**, type the following:

Get-AzureRmResource | Where-Object {$\_.ResourceGroupName -eq $rg2Name}

1. Select the line you just typed, right-click it, and then click **Run selection**. Verify that the route table was moved to the new resource group.

**Result**: After completing this exercise, you should have used Azure PowerShell to manage Azure resources and resource groups.

## Exercise 4: Using Azure CLI

#### Task 1: Connect to your Azure subscription by using Azure CLI

1. On MIA-CL1, click **Start**, in the Start menu, expand the **Windows System** folder, right-click **Command Prompt**, click **More**, and click **Run as administrator**. When prompted by User Account Control for confirmation, click **Yes**.
2. From **Administrator: Command Prompt**, type the following command and then press Enter:

az login

1. You will be presented with the message instructing you to open a browser at the page [**https://aka.ms/devicelogin**](https://aka.ms/devicelogin) and provide the code included in the message to authenticate. Start Microsoft Edge and browse to [**https://aka.ms/devicelogin**](https://aka.ms/devicelogin).
2. On the **Device Login** page, type the code included in the message. This will identify Microsoft Azure Cross-platform Command Line Interface as the application publisher. Click **Continue**.
3. In the sign-in windows that appears, sign in by using the Microsoft account that is the Service Administrator of your Azure subscription.
4. Note the message stating that you have signed in to the Microsoft Azure Cross-platform Command Line Interface application on your device. Close the Microsoft Edge window.
5. From **Administrator: Command Prompt**, type the following command and then press Enter:

az account show

1. Take note of the value of the **id** parameter, representing your Azure subscription ID. You will need it in the next task.
2. From **Administrator: Command Prompt**, type the following command and then press Enter:

az provider list --output tsv

1. Examine the output, including Azure resource providers, their registration status, and their resource types,

#### Task 2: Manage Azure resources and resource groups by using Azure CLI

1. From **Administrator: Command Prompt**, type the following command and then press Enter:

az group show --name 20533E0101-LabRG

1. From **Administrator: Command Prompt**, type the following command and then press Enter:

az resource list --resource-group 20533E0102-LabRG

1. In the output of the previous command, at **Administrator: Command Prompt**, note the value of the **id** property of the **20533E0101-rt**. You will use this value in the next command.
2. From **Administrator: Command Prompt**, type the following command (replace ***guid*** with **ID** of your Azure subscrption) and then press Enter:

az resource move --ids "/subscriptions/{guid}/resourceGroups/20533E0102-LabRG/providers/Microsoft.Network/routeTables/20533E0101-rt" --destination-group "20533E0101-LabRG"

1. Wait for the operation to complete.
2. From **Administrator: Command Prompt**, type the following command and then press Enter:

az resource list --resource-group 20533E0101-LabRG

1. Verify that the route table was moved back to the original resource group.

#### 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**. Wait for the script to complete.
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**: After completing this exercise, you should have used Azure CLI to manage Azure resources and resource groups.

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