# Lab Answer Key: Module 8: Implementing PaaS cloud services

# Lab: Implementing PaaS cloud services

## Exercise 1: Deploying a PaaS cloud service

#### Task 1: Create a linked resource for a PaaS cloud service

1. Ensure that the MIA-CL1 lab virtual machine is running, and then sign in as **Student** with the password **Pa$$w0rd**.
2. Start Windows PowerShell as an Administrator.
3. Type the following command, and then press Enter.

Add-AzureAccount

1. Sign in with the user credentials associated with your Azure account.
2. Type the following command, and then press Enter.

Get-AzureLocation | Select-Object Name

1. From the list of Azure regions, identify the one closest to your location, and then note the region's name.
2. Type the following command, and then press Enter.

New-AzureSqlDatabaseServer -AdministratorLogin 'yourname' -AdministratorLoginPassword 'Pa$$w0rd' -Location 'YourRegion'

Replace *yourname* with your first name and *Your Region* with the Azure region you noted in step 6.

1. Type the following command, and then press Enter.

Get-AzureSqlDatabaseServer

1. Note the server name of the Azure SQL Database server you created in step 7.
2. Launch Windows Internet Explorer, navigate to https://portal.azure.com, and then sign in with the service administrator account of your Azure subscription.
3. In the left navigation bar, click **Browse**, and then in the blade that is being displayed, click **SQL databases**.
4. In the SQL Database blade, click **Add**.
5. In the **Database name** box, type **CloudServiceProdDB**.
6. Ensure that the name of the server you created in step 7 appears in the **Server** entry.
7. In the SQL Database blade, click **Create**.
8. Switch to Windows PowerShell, type the following command, and then press Enter.

New-AzureStorageAccount -StorageAccountName 'cloudappprodxxx' -Location 'Your Region'

Replace *xxx* with a unique sequence of characters (digits or lowercase letters), and replace *Your region* with the Azure region you noted in step 6. If the cmdlet fails because the storage account name you chose is already in use, try a different one.

To test if the storage account name is already in use, type the following command, and then pressing Enter.

Test-AzureName -Storage 'cloudappprodxxx'

Replace *xxx* with a unique sequence of characters (digits or lowercase letters). An output of **False** indicates that the name has not been assigned yet and is available for you to use.

#### Task 2: Configure the service definition file

1. On the Taskbar, click **Visual Studio 2015**.
2. Click **File**, click **Open**, and then click **File**.
3. Browse to D:08 Production.
4. Click **ServiceConfiguration.Cloud.cscfg**, and then click **Open**.
5. Locate the **<Role>** element with the name set to **AdatumAdsWebRole**.
6. Within that **<Role**> element, locate the **<Instances>** element.
7. In the **<Instances>** element, set the **count** attribute to **2**.
8. Locate the **<Role>** element with the name set to **AdatumAdsWorkerRole**.
9. Within that **<Role**> element, locate the **<Instances>** element.
10. In the **<Instances>** element, set the **count** attribute to **2**.
11. Launch Internet Explorer, navigate to https://manage.windowsazure.com, and then if prompted, sign in with the service administrator account of your Azure subscription.
12. In the Azure classic portal, in the navigation bar on the left, click **STORAGE**.
13. On the **storage** page, in the list of storage accounts, click **cloudappprod***xxx*.
14. In the command bar at the bottom, click **MANAGE ACCESS KEYS**.
15. To the right of the **PRIMARY ACCESS KEY** box, click **Copy**, and then click **Allow access**.
16. In the Manage Access Keys window, click **OK**.
17. Click the large left arrow at the upper-left side of the window.
18. Switch to Microsoft Visual Studio.
19. In the ServiceConfigurationCloud.cscfg file, locate the **<Role>** element with the name **AdatumAdsWebRole**.
20. Within that **<Role>** element, locate the **<Setting>** element with the name set to **StorageConnectionString**.
21. Delete the string in the **value** attribute, leaving the leading and trailing quotation marks, and then type the following text in its place (on a single line).

DefaultEndPointsProtocol=https;AccountName=cloudappprodxxx;AccountKey=

1. In the preceding text, **cloudappprod***xxx* is the name of the storage account you created in the previous task.
2. Place the cursor at the end of the text you just typed, and then press Ctrl+V to paste the storage account primary key.
3. Locate the **<Role>** element with the name **AdatumAdsWorkerRole**.
4. Within that **<Role>** element, locate the **<Setting>** element with the name **StorageConnectionString**.
5. Delete the string in the **value** attribute, leaving the leading and trailing quotation marks, and then type the following text in its place (on a single line).

DefaultEndPointsProtocol=https; AccountName=cloudappprodxxx;AccountKey=

1. In the preceding text, **cloudappprod***xxx*\*\*\*\*is the name of the storage account you created in the previous task.
2. Place the cursor at the end of the text you just typed, and then press Ctrl+V to paste the storage account primary key.
3. Locate the **<Role>** element with the name **AdatumAdsWebRole**.
4. Within that **<Role>** element, locate the **<Setting>** element with the name set to **Microsoft.WindowsAzure.** **Plugins.Diagnostics.ConnectionString**.
5. Delete the string in the **value** attribute, leaving the leading and trailing quotation marks, and then type the following text in its place (on a single line).

DefaultEndPointsProtocol=https; AccountName=cloudappprodxxx;AccountKey=

1. In the preceding text, **cloudappprod***xxx* is the name of the storage account you created in the previous task.
2. Place the cursor at the end of the text you just typed, and then press Ctrl+V to paste the storage account primary key.
3. Locate the **<Role>** element with the name **AdatumAdsWorkerRole**.
4. Within that **<Role>** element, locate the **<Setting>** element with the name set to **Microsoft.WindowsAzure.** **Plugins.Diagnostics.ConnectionString**.
5. Delete the string in the **value** attribute, leaving the leading and trailing quotation marks, and then type the following text in its place (on a single line).

DefaultEndPointsProtocol=https; AccountName=cloudappprodXXX;AccountKey=

1. In the preceding text, **cloudappprod***xxx* is the name of the storage account you created in the previous task
2. Place the cursor at the end of the text you just typed, and then press Ctrl+V to paste the storage account primary key.
3. Switch to the Internet Explorer window displaying the Azure portal.
4. In the CloudServiceProdDB blade, click **Show database connection strings.**
5. In the Database connection strings blade, click **Copy** next to the ADO.NET box, and then when prompted, click **Allow access.**
6. Switch back to Visual Studio.
7. Locate the **<Role>** element with the name **AdatumAdsWorkerRole**.
8. Within that **<Role>** element, locate the **<Setting>** element with the name set to **AdatumAdsDbConnectionString**.
9. Delete the string in the **value** attribute, leaving the leading and trailing quotation marks.
10. Press Ctrl+V to paste the connection string you copied to the Clipboard.
11. In the connection string you just pasted, locate the text **{your\_username\_here}**.
12. Delete the located text, and then replace it with the administrator login username specified in Task 1 **your\_name**.
13. In the connection string you just pasted, locate the text **{your\_password\_here}**.
14. Delete the located text, and then replace it with **Pa$$w0rd**.
15. Click **File**, and then click **Save ServiceConfiguration.Cloud.cscfg**.

#### Task 3: Deploy the PaaS cloud service

1. In the Internet Explorer window displaying the Azure classic portal, in the left navigation bar, click **CLOUD SERVICES**.
2. On the toolbar at the bottom, click **NEW**, and then click **CUSTOM CREATE**.
3. In the **URL** box, type your name followed by today's date in the MMDDYY format. If a green check mark does not appear, try another name.
4. In the **REGION OR AFFINITY GROUP** drop-down list, select the same Azure region you used in task 1.
5. Select the **Deploy a cloud service package** check box, and then click **Next**.
6. In the **DEPLOYMENT NAME** box, type **AdatumAdsProd**.
7. Next to the **PACKAGE** box, click **FROM LOCAL**.
8. Browse to D:08.
9. Click **AdatumAds.cspkg**, and then click **Open**.
10. Next to the **CONFIGURATION** box, click **FROM LOCAL**.
11. Click **ServiceConfiguration.Cloud.cscfg**, and then click **Open**.
12. Click **Complete** (check mark).

**Note:** The deployment process for the platform as a service (PaaS) cloud service can take several minutes to complete. Watch the **cloud services** page. Wait for the **Service Status** column to display **Created** and the **Production** column to display **Running** before you continue to the next task.

**Result**: You created a storage account and a SQL database, edited the service configuration file, and deployed the cloud service to the production slot.

## Exercise 2: Configuring deployment slots and RDP

#### Task 1: Perform a staged deployment of a PaaS cloud service

1. In the Azure classic portal in the Internet Explorer window, on the **cloud services** page, in the list of cloud services, click the name of the PaaS cloud service you created in the first exercise.
2. Under **Deployment settings**, click **New staging deployment**.
3. In the Upload a package window, in the **DEPLOYMENT LABEL** box, type **AdatumAdsStage**.
4. To the right of the **PACKAGE** box, click **FROM LOCAL**.
5. Browse to D:08.
6. Click **AdatumAds.cspkg**, and then click **Open**.
7. To the right of the **CONFIGURATION** box, click **FROM LOCAL**.
8. Browse to D:08.
9. Click **ServiceConfiguration.Cloud.cscfg**, and then click **Open**.
10. Click **OK** (check mark).
11. Click the large arrow pointing to the left to return to the **cloud services** page.

**Note:** The deployment process for the PaaS cloud service can take several minutes to complete. Watch the **cloud services** page. Wait for the **Staging** column to display **Running** before you continue to the next task.

#### Task 2: Configure RDP access

1. In the Azure classic portal in the Internet Explorer window, on the **cloud services** page, in the list of cloud services, click the name of the PaaS cloud service you created in the first exercise.
2. Click **CONFIGURE**, and then ensure that the **PRODUCTION** deployment is displayed. If not, click the **PRODUCTION** tab.
3. On the toolbar at the bottom, click **REMOTE**.
4. With **(All)** in the **ROLE** drop-down list, select the **Enable Remote Desktop** check box.
5. In the **USER NAME** box, type **RDPAdmin**.
6. In the **NEW PASSWORD** box, type **Pa$$w0rd**.
7. In the **CONFIRM PASSWORD** box, type **Pa$$w0rd**.
8. In the **EXPIRES ON** box, select a date one month from today's date.
9. Click **Complete** (check mark).
10. Wait until the configuration operation is complete.

#### Task 3: Test connectivity

1. In the Azure classic portal in the Internet Explorer window, on the **CONFIGURE** tab of the PaaS cloud service you created in the first exercise, click **DASHBOARD**, and then ensure that the **PRODUCTION** deployment is displayed. If not, click the **PRODUCTION** tab.
2. Under **quick glance**, click **SITE URL**. The cloud service home page opens in a new Internet Explorer tab.
3. Leave the new Internet Explorer tab open. You will use it in the next exercise.
4. On the cloud service dashboard, click **STAGING**.
5. Under **quick glance**, click **SITE URL**. The cloud service staging home page opens in a new Internet Explorer tab.
6. Close the new Internet Explorer tab.
7. At the top of the portal, click **INSTANCES**, and then click **PRODUCTION**.
8. In the list of instances, click **AdatumAdsWebRole\_IN\_0**.
9. On the toolbar at the bottom, click **CONNECT**, and then click **Open**.
10. In the **Remote Desktop Connection** dialog box, click **Connect**.
11. In the **Password** box, type **Pa$$w0rd**, and then click **OK**.
12. In the **Remote Desktop Connection** dialog box, click **Yes**. The Remote Desktop Protocol (RDP) client displays the desktop for the first instance of the web role.
13. Close the remote desktop connection.
14. In the Remote Desktop Connection window, click **OK**.

**Result**: At the end of this exercise, you will be able to:Perform a staging deployment of a PaaS cloud service.Enable RDP access to a PaaS cloud service.Connect to production and staging instances via HTTP and via RDP.

## Exercise 3: Monitoring cloud services

#### Task 1: Add metrics to the PaaS cloud service monitoring

1. In the Azure classic portal in the Internet Explorer window, on the **INSTANCES** tab of the PaaS cloud service you created in the first exercise, click **MONITOR**. and then click **PRODUCTION**.
2. On the toolbar at the bottom, click **ADD METRICS**.
3. Expand the **NETWORK** **IN** section.
4. Select Role Name **AdatumAdsWebRole** with Scope **Aggregate**.
5. Click **Yes**.
6. In the list of metrics, select the **Network** **In** metric for the **AdatumAdsWebRole** role.
7. To the left of the metric, click the circle to add the metric to the graph.

#### Task 2: Create an alert

1. In the list of metrics, select the **Network** **In** metric for the aggregate of the AdatumAdsWebRole role.
2. In the command bar at the bottom, click **ADD RULE**.
3. In the **NAME** box, type **Network** **In Alert**, and then click **Next**.
4. In the **THRESHOLD VALUE** box, type **1**.
5. Under **ACTIONS**, select **Specify the email address for another administrator**.
6. In the **ADDRESS** box, type the email address of the service administrator account of your Azure subscription.
7. Click **Complete**.
8. After the rule has been created, click **DISMISS COMPLETED**.
9. Switch to the Internet Explorer tab showing the **PRODUCTION** deployment of the PaaS cloud service. Refresh the page several times.

**Note:** It might take a few minutes before the alert is triggered.

#### Task 3: Monitor an active cloud service

1. In the Azure classic portal in the Internet Explorer window, on the **MONITOR** tab of the PaaS cloud service you created in the first exercise with the **PRODUCTION** deployment selected, in the list of metrics, select the **Network** **In** metric for the AdatumAdsWebRole role.
2. On the right on the metric, click **1 rules configured**.
3. In the list of rules, click **Network** **In Alert**.
4. Inspect the data for the alert.
5. Open a new browser tab in Internet Explorer.
6. On the address bar, type **www.outlook.com**, and then press Enter.
7. If you are prompted to sign in, use the user name and password of the service administrator account of your Azure subscription.
8. In the list of emails, click **Microsoft Azure Alerts**.
9. Inspect the details of the alert.
10. Close Internet Explorer.

#### Task 4: Reset the environment

1. Close all open applications without saving any files.
2. On the taskbar, right-click **Windows PowerShell**, and then click **Run as administrator**. In the **User Account Control** dialog box, click **Yes**.
3. Type the following command, and then press Enter.

Reset-Azure

1. When prompted, sign in by using the Microsoft account associated with your Azure subscription.
2. If you have multiple Azure subscriptions, select the one you want the script to target.
3. When prompted for confirmation, type **y**.

**Note:** This script removes Azure services from your subscription. It is therefore recommended that you use an Azure trial pass that was provisioned specifically for this course and not your own Azure account. The script takes 5-10 minutes to reset your Microsoft Azure environment so that it is ready for the next lab. The script removes all storage, virtual machines, virtual networks (VNETs), cloud services, and resource groups. **Important**: The script might not be able to get exclusive access to a storage account to delete it. (If this occurs, you will see an error.) If you find objects remaining after the reset script is complete, you can rerun the **Reset-Azure** script or use the Azure portal and the Azure classic portal to manually delete all the objects in your Azure subscriptionâ€”with the exception of the default directory.

**Result**: At the end of this exercise, you will have configured monitoring for a PaaS cloud service with new metrics and an alert.

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