Online Lab - Deploying Resources with Azure Resource Manager

Topic: Getting Started with Azure Resource Manager Templates and Azure Building Blocks

Before we start

1. Ensure that you are logged in to your Windows 10 lab virtual machine using the following credentials:
    - Username: **Admin**
    - Password: **Pa55w.rd**
2. Review Taskbar located at the bottom of your Windows 10 desktop. The Taskbar contains the icons for the common applications you will use in the labs:
    - Microsoft Edge
    - File Explorer
    - Visual Studio Code
    - Microsoft Azure Storage Explorer
    - Bash on Ubuntu on Windows
    - Windows PowerShell

    Note: You can also find shortcuts to these applications in the **Start Menu**.

Exercise 1: Deploy core Azure resources by using an Azure Resource Manager Template from the Azure portal

Task 1: Open the Azure Portal

1. On the Taskbar, click the **Microsoft Edge** icon.
2. In the open browser window, navigate to the **Azure Portal** (https://portal.azure.com).
3. If prompted, authenticate with the user account account that has the owner role in the Azure subscription you will be using in this lab.

Task 2: Deploy an Azure virtual network from the Azure portal by using an Azure Resource Manager template

1. In the upper left corner of the Azure portal, click **Create a resource**.
2. At the top of the **New** blade, in the **Search the Marketplace** text box, type **Template Deployment** and press **Enter**.
3. On the **Everything** blade, in the search results, click **Template deployment**.
4. On the **Template deployment** blade, click the **Create** button.
5. On the **Custom deployment** blade, click the **Build your own template in the editor** link.
6. On the **Edit template** blade, click **Load file**.
7. In the **Choose File to Upload** dialog box, navigate to the **F:\Labfiles\Mod02\Starter** folder, select the **vnet-simple-template.json** file, and click **Open**. This will load the following content into the template editor pane:

```
{ "$schema": "https://schema.management.azure.com/schemas/2015-01-
01/deploymentTemplate.json#", "contentVersion": "1.0.0.0",
"parameters": { "vnetNamePrefix": { "type": "string", "defaultValue":
"vnet-", "metadata": { "description": "Name prefix of the vnet" } },
"vnetIPPrefix": { "type": "string", "defaultValue": "10.2.0.0/16",
"metadata": { "description": "IP address prefix of the vnet" } },
"subnetNamePrefix": { "type": "string", "defaultValue": "subnet-",
"metadata": { "description": "Name prefix of the subnets" } },
"subnetIPPrefix": { "type": "string", "defaultValue": "10.2.0.0/24",
"metadata": { "description": "IP address prefix of the first subnet" }
} }, "variables": { "vnetName": "[concat(parameters('vnetNamePrefix'),
resourceGroup().name)]", "subnetNameSuffix": "0" }, "resources": [ {
"apiVersion": "2018-02-01", "name": "[variables('vnetName')]", "type":
"Microsoft.Network/virtualNetworks", "location":
"[resourceGroup().location]", "scale": null, "properties": {
"addressSpace": { "addressPrefixes": [ "[parameters('vnetIPPrefix')]" ]
}, "subnets": [ { "name": "[concat(parameters('subnetNamePrefix'),
variables('subnetNameSuffix'))]", "properties": { "addressPrefix":
"[parameters('subnetIPPrefix')]" } } ], "virtualNetworkPeerings": [],
"enableDdosProtection": false, "enableVmProtection": false },
"dependsOn": [] } ] }
```

8. Click the **Save** button to persist the template.
9. Back on the **Custom deployment** blade, perform the following tasks:
    - Leave the **Subscription** drop-down list entry set to its default value.
    - In the **Resource group** section, select the **Create new** option and, in the text box, type **AADesignLab0201-RG**.
    - In the **Location** drop-down list, select the Azure region to which you want to deploy resources in this lab.
    - Leave the **vnetNamePrefix** text box set to its default value.
    - Leave the **vnetIPPrefix** text box set to its default value.
    - Leave the **subnetNamePrefix** text box set to its default value.
    - Leave the **subnetIPPrefix** text box set to its default value.

    - In the **Terms and Conditions** section, select the **I agree to the terms and conditions stated above** checkbox.
    - Click the **Purchase** button.
10. Wait for the deployment to complete before you proceed to the next task.

Task 3: View deployment metadata

1. In the hub menu of the Azure portal, click **Resource groups**.
2. On the **Resource groups** blade, click the entry representing the resource group to which you deployed the template in the previous task.
3. With the **Overview** selection active, on the resource group blade, click the **Deployments** link.
4. On the resulting blade, click the latest deployment to view its metadata in a new blade.
5. Within the deployment blade, observe the information displayed in the **Operation details** section.

Review: In this exercise, you deployed an Azure virtual network by using an Azure Resource Manager template from the Azure portal

Exercise 2: Deploy core Azure resources by using Azure Building Blocks from the Azure Cloud Shell

Task 1: Open Cloud Shell

1. At the top of the portal, click the **Cloud Shell** icon to open a new shell instance.

   Note: The **Cloud Shell** icon is a symbol that is constructed of the combination of the *greater than* and *underscore* characters.

2. If this is your first time opening the **Cloud Shell** using your subscription, you will see a wizard to configure **Cloud Shell** for first-time usage. When prompted, in the **Welcome to Azure Cloud Shell** pane, click **Bash (Linux)**.

   Note: If you do not see the configuration options for **Cloud Shell**, this is most likely because you are using an existing subscription with this course's labs. If so, proceed directly to the next task.

3. In the **You have no storage mounted** pane, click **Show advanced settings**, perform the following tasks:

- Leave the **Subscription** drop-down list entry set to its default value.
- In the **Cloud Shell region** drop-down list, select the Azure region matching or near the location where you deployed resources in this lab
- Resource group: ensure that the **Create new** option is selected and, in the text box, type **AADesignLab0202-RG**.
- In the **Storage account** section, ensure that the **Create new** option is selected and then, in the text box below, type a unique name consisting of a combination of between 3 and 24 characters and digits.
- In the **File share** section, ensure that the **Create new** option is selected and then, in the text box below, type **cloudshell**.
- Click the **Create storage** button.

4. Wait for the **Cloud Shell** to finish its first-time setup procedures before you continue to the next task.

Task 2: Install the Azure Building Blocks npm package in Azure Cloud Shell

1. At the **Cloud Shell** command prompt at the bottom of the portal, type in the following command and press **Enter** to create a local directory to install the Azure Building Blocks npm package:

   ```
   mkdir ~/.npm-global
   ```

2. At the **Cloud Shell** command prompt, type in the following command and press **Enter** to update the npm configuration to include the new local directory:

   ```
   npm config set prefix '~/.npm-global'
   ```

3. At the **Cloud Shell** command prompt, type in the following command and press **Enter** to open the ~./bashrc configuration file for editing:

   ```
   vi ~/.bashrc
   ```

4. At the **Cloud Shell** command prompt, in the vi editor interface, scroll down to the bottom of the file (or type **G**), scroll to the right to the right-most character on the last line (or type **$**), type **a** to enter the **INSERT** mode, press **Enter** to start a new line, and then type the following to add the newly created directory to the system path:

   ```
   export PATH="$HOME/.npm-global/bin:$PATH"
   ```

5. At the **Cloud Shell** command prompt, in the vi editor interface, to save your changes and close the file, press **Esc**, press **:**, type **wq!** and press **Enter**.

6. At the **Cloud Shell** command prompt, type in the following command and press **Enter** to install the Azure Building Blocks npm package:

   ```
   npm install -g @mspnp/azure-building-blocks
   ```

7. At the **Cloud Shell** command prompt, type in the following command and press **Enter** to exit the shell:

   ```
   exit
   ```

8. In the **Cloud Shell timed out** pane, click **Reconnect**.

   Note: You need to restart Cloud Shell for the installation of the Buliding Blocks npm package to take effect.

Task 3: Deploy an Azure virtual network from Cloud Shell by using Azure Building Blocks

1. At the **Cloud Shell** command prompt, type in the following command and press **Enter** to download the GitHub repository containing the Azure Building Blocks templates:

   ```
   git clone https://github.com/mspnp/template-building-blocks.git
   ```

2. At the **Cloud Shell** command prompt, type in the following command and press **Enter** to view the content of the Azure Building Block parameter file you will use for this deployment:

   ```
   cat ./template-building-blocks/scenarios/vnet/vnet-simple.json
   ```

3. At the **Cloud Shell** command prompt, type in the following command and press **Enter** to create a variable which value designates the name of your Azure subscription:

   ```
   SUBSCRIPTION_ID=$(az account list --query "[0].id" | tr -d '"')
   ```

4. At the **Cloud Shell** command prompt, type in the following command and press **Enter** to create a variable which value designates the name of the resource group you created earlier in this exercise:

   ```
   RESOURCE_GROUP='AADesignLab0202-RG'
   ```

5. At the **Cloud Shell** command prompt, type in the following command and press **Enter** to create a variable which value designates the Azure region you will use for the deployment:

```
LOCATION=$(az group list --query "[?name == 'AADesignLab0201-
RG'].location" --output tsv)
```

6. At the **Cloud Shell** command prompt, type in the following command and press **Enter** to deploy a virtual network by using the Azure Building Blocks:

```
azbb -g $RESOURCE_GROUP -s $SUBSCRIPTION_ID -l $LOCATION -p ./template-
building-blocks/scenarios/vnet/vnet-simple.json --deploy
```

7. Wait for the deployment to complete before you proceed to the next task.

Task 4: View deployment metadata

1. On the left side of the portal, click the **Resource groups** link.
2. On the **Resource groups** blade, click the entry representing the resource group you created earlier in this exercise.
3. With the **Overview** selection active, on the resource group blade, click the **Deployments** link.
4. On the resulting blade, click the latest deployment to view its metadata in a new blade.
5. Within the deployment blade, observe the information displayed in the **Operation details** section.
6. Close the **Cloud Shell** pane.

Review: In this exercise, you deployed an Azure virtual network by using an Azure Resource Manager template from the Azure portal

Exercise 3: Remove lab resources

Task 1: Open Cloud Shell

1. At the top of the portal, click the **Cloud Shell** icon to open the Cloud Shell pane.
2. At the **Cloud Shell** command prompt at the bottom of the portal, type in the following command and press **Enter** to list all resource groups you created in this lab:

```
az group list --query "[?starts_with(name,'AADesignLab02')]".name --
output tsv
```

3. Verify that the output contains only the resource groups you created in this lab. These groups will be deleted in the next task.

Task 2: Delete resource groups

1. At the **Cloud Shell** command prompt, type in the following command and press **Enter** to delete the resource groups you created in this lab

```
az group list --query "[?starts_with(name,'AADesignLab02')]".name --
output tsv | xargs -L1 bash -c 'az group delete --name $0 --no-wait --
yes'
```

2. Close the **Cloud Shell** prompt at the bottom of the portal.

Review: In this exercise, you removed the resources used in this lab.