# Module 10: DevOps in Azure

# Lab: Deploying Templated Environments Using the Cloud Shell

### Scenario

Now that you have created many of the resources that you will use in your Azure application, you have decided to automate the creation of your assets in Azure. Some of your administrators are Windows experts and would prefer to automate using PowerShell while others use Linux and would prefer to automate from the command line. Due to this requirement, you will try and implement automation using PowerShell and separately using the CLI interface.

### Objectives

After you complete this lab, you will be able to:

* Use the Cloud Shell to Deploy an ARM Template

### Lab Setup

* *Estimated Time*: 90 minutes

Before starting this lab, you must complete the lab in Module 2. For the lab in this module, you will use the available host machine. Also, you must complete the following steps:

1. On the host computer, click **Start**, type **Remote**, and then click **Remote Desktop Connection**.
2. In Remote Desktop Connection, provide the name of your virtual machine in the **Computer** box by using the following format:
   * **[Your VM IP Address]:[*Your VM RDP Port*]**

* **Note:** The name and port for your virtual machine might be saved in the Computer drop-down list. If this is the case, use this value instead of typing it in manually. If you are unsure about your virtual machine’s RDP port, use either of the Azure portals to find your virtual machine’s endpoints. The endpoint with the name **Remote Desktop** is the correct port for RDP. This port is randomized to protect your virtual machine from unauthorized access.

1. In Remote Desktop Connection, click **Connect**. Wait until the RDP client accesses the virtual machine.
2. If necessary, sign in by using the following credentials:
   * User name: **Student**
   * Password: **AzurePa$$w0rd**
3. Verify that you received the credentials to sign in to the Azure portal from your training provider. You will use these credentials and the Azure account throughout the labs in this course.

## Exercise 1: Start the Cloud Shell

#### Task 1: Sign in to the Azure Portal

1. Sign in to the Azure Portal (https://portal.azure.com).
2. If this is your first time logging in to the Azure portal, you will see a dialog with a tour of the portal. Click Get Started.

#### Task 2: Create Resource Group & Resources

1. Open a new **Cloud Shell** instance.
2. Create a new **Resource Group** with the following details:
   * Name: MOD10MNUL
   * Location: EastUS

* az group create --name MOD10MNUL --location eastus

1. Create a new **Azure Cosmos DB Account** with the following details:
   * Name: csms20532[Your Name Here]
   * Resource Group: MOD10MNUL

* az cosmosdb create --name csms20532[Your Name Here] --resource-group MOD10MNUL

1. Display and record the **Endpoint Uri** of the newly created **Azure Cosmos DB Account**.

* az cosmosdb show --name csms20532[Your Name Here] --resource-group MOD10MNUL --query 'documentEndpoint' --output tsv

1. Display and record the **Key** of the newly created **Azure Cosmos DB Account**.

* az cosmosdb list-keys --name csms20532[Your Name Here] --resource-group MOD10MNUL --query 'primaryMasterKey' --output tsv

1. Create a new **SQL Server** with the following details:
   * Name: srvr20532[Your Name Here]
   * Resource Group: MOD10MNUL
   * Admin Username: testuser
   * Admin Password: TestPa$$w0rd
   * Location: East US

* az sql server create --name srvr20532[Your Name Here] --resource-group MOD10MNUL --admin-user testuser --admin-password TestPa$$w0rd --location eastus

1. Once the **SQL Server** is created add a *firewall rule* to allow all Azure-originating IP ranges to access your server.

* az sql server firewall-rule create --name AllowAllWindowsAzureIps --server srvr20532[Your Name Here] --resource-group MOD10MNUL --start-ip-address 0.0.0.0 --end-ip-address 0.0.0.0

1. Create a new **SQL Database** with the following details:
   * Name: ContosoDB
   * Server: srvr20532[Your Name Here]
   * Resource Group: MOD10MNUL
   * Pricing Tier: Basic

* az sql db create --name ContosoDB --server srvr20532[Your Name Here] --resource-group MOD10MNUL --edition Basic

1. Once the **SQL Database** is created, view your **Connection String**. Record this value as you will need to use it later in this lab. Be sure to replace the placeholder values for <username> and <password> with the values **testuser** and **TestPa$$w0rd** respectively.

* az sql db show-connection-string --name ContosoDB --server srvr20532[Your Name Here] --client ado.net --output tsv
* **Note**: For example, if your copied connection string is Server=tcp:sv20532microsoft.database.windows.net,1433;Initial Catalog=db20532;Persist Security Info=False;User ID=<username>;Password=<password>;MultipleActiveResultSets=False;Encrypt=True;TrustServerCertificate=False;Connection Timeout=30;, your updated connection string would be Server=tcp:sv20532microsoft.database.windows.net,1433;Initial Catalog=db20532;Persist Security Info=False;User ID=testuser;Password=TestPa$$w0rd;MultipleActiveResultSets=False;Encrypt=True;TrustServerCertificate=False;Connection Timeout=30;:

1. Create an **App Service Plan** with the following details:
   * Name: contosoPlan
   * Resource Group: MOD10MNUL
   * Pricing Tier: S1

* az appservice plan create --name contosoPlan --resource-group MOD10MNUL --sku S1

1. Create an **Web App** with the following details:
   * Name: webp20532[Your Name Here]
   * Resource Group: MOD10MNUL
   * App Service Plan: contosoPlan

* az webapp create --name webp20532[Your Name Here] --resource-group MOD10MNUL --plan contosoPlan

1. Configure the newly created **Web App** to enable the **Always On** feature.

* az webapp config set --name webp20532[Your Name Here] --resource-group MOD10MNUL --always-on true

1. Set the Connection String for the **Web App**. Remember to replace the [SQL Database Connection String] placeholder the **Connection String** from the **SQL Database** instance you created earlier in this lab:

* az webapp config connection-string set --name webp20532[Your Name Here] --resource-group MOD10MNUL --connection-string-type SQLAzure --settings EventsContextConnectionString='[SQL Database Connection String]'

1. Update the **App Setting** of the **Web App**'s with the following details:
   * Setting: CosmosSettings:EndpointUrl
   * CosmosSettings:EndpointUrl Value: '[Azure Cosmos DB Endpoint Uri]'

* az webapp config appsettings set --name webp20532[Your Name Here] --resource-group MOD10MNUL --settings CosmosSettings:EndpointUrl='[Azure Cosmos DB Endpoint Uri]'
* Note: Remember to replace the [Azure Cosmos DB Endpoint Uri] placeholder the **Endpoint Uri** from the **Azure Cosmos DB** account you created earlier in this lab.

1. Update the **App Setting** of the **Web App**'s with the following details:
   * Setting: CosmosSettings:AuthorizationKey
   * CosmosSettings:AuthorizationKey Value: '[Azure Cosmos DB Key]'

* az webapp config appsettings set --name webp20532[Your Name Here] --resource-group MOD10MNUL --settings CosmosSettings:AuthorizationKey='[Azure Cosmos DB Key]'
* Note: Remember to replace the [Azure Cosmos DB Key] placeholder the **Key** from the **Azure Cosmos DB** account you created earlier in this lab.

#### Task 4: Deploy Web Application Manually

1. Open the **Contoso.Events.sln** solution found in **Allfiles (F):\Mod10\Labfiles\Starter**.
2. Publish the **Contoso.Events.Web** project with the following details:
   * Publish Target: Existing App Service
   * View: Resource Group
   * Search: webp20532. Select the **web app** instance that has the preview listed.
3. Wait for the deployment to complete. Visual Studio will automatically open the deployed web application in a browser window.
4. In the deployed web application, observe the events listed on the home page of the application.

## Exercise 2: Use the Cloud Shell to Deploy an ARM Template

#### Task 1: Create Resource Group

1. Create a new **Resource Group** with the following details:
   * Name: MOD10ARMG
   * Location: The region closest to your current location

#### Task 2: Create Deployment

1. Create a **Template Deployment** with the following details.
   * Custom Deployment: **Allfiles (F):\Mod10\Labfiles\Starter\azuredeploy.json**
   * New Resource Group: MOD10ARMG
2. Wait for the creation task to complete before moving on with this lab.

#### Task 3: Validate Deployment

1. Access the newly created **Web App** within the **MOD10ARMG** resource group with a prefix of **webp**.
2. Browse the **Web App** to verify it displays a list of events.
3. Select any of hte events on the list and Click the **Register Now** button.
4. Complete and submit the registration form.
5. Close the browser window/tab that is displaying the website.

## Exercise 3: Cleanup Subscription

#### Task 1: Open Cloud Shell

1. At the top of the portal, click the **Cloud Shell** icon to open a new shell instance.
2. In the **Cloud Shell** command prompt at the bottom of the portal, type in the following command and press **Enter** to list all resource groups in the subscription:

* az group list

1. Type in the following command and press **Enter** to view a list of possible CLI commands to *delete a Resource Group*:

* az group delete --help

#### Task 2: Delete Resource Groups

1. Type in the following command and press **Enter** to delete the **MOD10MNUL** *Resource Group*:

* az group delete --name MOD10MNUL --no-wait --yes

1. Type in the following command and press **Enter** to delete the **MOD10ARMG** *Resource Group*:

* az group delete --name MOD10ARMG --no-wait --yes

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

#### Task 3: Close Active Applications

1. Close the currently running web browser application.
2. Close the currently running **Visual Studio** application.

**Review**: In this exercise, you "cleaned up your subscription" by removing the **Resource Groups** used in this lab.

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