

Lab 5: Azure Application Gateway

Objective

1. Provision an Application Gateway
2. Add Custom domain and secure communication.
3. Adding redirection for HTTP to HTTPS

Note:

1. All the steps are to be done within Azure Portal.
2. There will be breakout rooms assigned and each room will have a group number [1-5]
3. Login into Azure Portal
 - a. Go to <https://portal.azure.com>
 - b. Login with the supplied credentials (username and password).
 - i. Each group has a unique integer for their login [1-5] eg. usergroup[1-5]
 - ii. For example, group number 5 will have
 1. Username: usergroup5@makecloudwork.com
 2. Password: will be provided during the class.
 - c. You will then see the landing Azure homepage. Dismiss any popups/message boxes

It's important that you enter all the resource names same as mentioned.

Section 1: Provision an Application Gateway

Steps

1. Type **"Application gateways"** on the search bar and select **"Application gateways"** from the drop down. You will be redirected to **"Application gateways"** under **"Load Balancing Services"**.
2. Click on **" +Create "** button
3. **Basics Tab**
 - a. Select the resource group from the dropdown.
 - b. Give name to Application Gateway as **"appgatewaysb"+"group number"** add your group number as suffix e.g. if your group number is 4, name the resource as **"appgatewaysb4"**
 - c. Region: Choose **(US) East US**
 - d. Tier: Choose **"Standard V2"**
 - e. Enable autoscaling: Select **"Yes"**
 - f. Minimum instance count: Enter **"0"**

- g. Maximum instance count: Enter **"5"**
 - h. Availability Zone: Select **"None"**
 - i. HTTP2: Choose **"Disabled"**
 - j. Virtual Network: Select the existing one. You will receive an error on the subnet. Click on **"Manage subnet configuration"**. Virtual Network blade will open.
 - i. Click on **"Subnet"**
 - 1. Name: **"appgatewaysubnet"**
 - 2. Subnet address range: **Select the default range given**
 - 3. Accept all the other defaults and click on **"Save"**
 - ii. Click on **"Create application gateway"** link on top right to go back to continue to create Application gateway.
 - k. Once back in the basics tab, choose the new subnet from the dropdown.
 - l. Click on **"Next : Frontends"**
- 4. Frontends Tab**
- a. Frontend IP address type: select **"Public"**
 - b. **Public IP address: Click on "Add new"**
 - i. **Name:** Give name to Public IP as **"appgatewaypiptsb"+"group number"** add your group number as suffix e.g. if your group number is 4, name the resource as **"appgatewaypiptsb4"**
 - c. Leave the defaults and click on **"Next: Backends"**.
- 5. Backends Tab**
- a. Click on **"Add a backend pool"**
 - We will add the Virtual machine with the web app (Lab1) to the backend pool.
 - i. **Name: Enter "be_vmpool"**
 - b. Target Type: Select **"Virtual Machine"**
 - c. Target: Select the VM shown.
 - d. Click on **"Add"**
 - e. Click on **"Next : Configuration"**
- 6. Configuration Tab**
- a. Click on **"Add a routing rule"**
 - i. Rule name: Enter **"rule_http_vm"**
 - ii. Priority: **"100"**
 - iii. Listener
 - 1. Listener name: **"listen_http_vm"**
 - 2. Frontend IP: Select **"Public"**
 - 3. Protocol: Select **"HTTP"**
 - 4. Port: **"80"**
 - 5. Listener type: Select **"Basic"**
 - iv. Backend targets
 - 1. Target type: Select **"Backend pool"**
 - 2. Backend target: Select **"be_vmpool"** from the drop down.
 - 3. Backend settings: Click on **"Add new"**
 - a. Backend settings name: Enter **"be_setting_http_vm"**
 - b. Backend protocol: Select **"HTTP"**

- c. Backend port: Enter **"80"**
 - d. Don't change the other defaults and click on **"Add"**
 - v. Click on **"Add"**
- b. Click on **"Next : Tags"**
- 7. Tags Tab**
 - a. Click on **"Next : Review + create"**
- 8. Review+Create Tab**
 - a. Let the validation run and pass.
 - b. Click on **"Create"** and wait for the deployment to complete
 - c. Click on **"Go to resource"**. This will take you to the overview page of the newly created Application Gateway

Observations

1. Copy the public IP of Application Gateway and paste it in a browser. You should see the nginx homepage on HTTP.

Section 2: Add Custom Domain and secure communications

Steps

1. Login into Azure Portal
2. Type **"Application gateways"** on the search bar and select **"Application gateways"** from the drop down. You will be redirected to **"Application gateways"** page.
3. Go to the newly create Application gateway.
4. Share the name of the Application Gateway along with its public IP in chat for me to complete the DNS entry.
5. Once that is completed, you may call the Application gateway on [http://appgatewaysb\[1-5\].makecloudwork.com](http://appgatewaysb[1-5].makecloudwork.com) . You should see the nginx homepage.
6. The next step is to upload the certificate.
7. Click on **Listeners** under Settings
 - a. Change SSL Policy
 - i. Selected SSL Policy: Click on **"change"**
 1. Select **"Custom"**. Ensure that Min protocol version is **"TLSv1_2"**
 2. Click on **"Save"**
 - b. Click on **"+ Add listener"**
 - i. Listener
 1. Listener name: **"listen_https_vm"**
 2. Frontend IP: Select **"Public"**
 3. Protocol: Select **"HTTPS"**
 4. Port: **"443"**
 5. **Https Settings**
 - a. Upload a certificate
 - b. Cert name: Enter **"appgatewaycert"**

- c. From the Github repo, download the cert file from App Gateway Certs folder with the name as application gateway with your group number and upload it on Azure portal.
 - d. Github Repo: <https://github.com/AshMinDI/SecureAzureApps>
 - e. Password: Enter **"Welcome123"**
6. Click on **"Add"**
8. Click on **Rules** under Settings
 - a. Click on **"rule_http_vm"** and change the listener from **"listen_http_vm"** to **"listen_https_vm"**
 - b. Click on **"Save"**
9. Once that is completed, you may call the Application gateway on [https://appgatewaysb\[1-5\].makecloudwork.com](https://appgatewaysb[1-5].makecloudwork.com) . You should see the secured nginx homepage.

Observations

1. Discuss why did we had to change the listener for that Rule.
2. Can you still reach the nginx homepage by calling the http for application gateway
3. Is the end-to-end communication secure?

Section 3: Adding redirection for HTTP to HTTPS

Steps

1. Within the Application Gateway, click on **Rules** under Settings
 - a. Click on **"rule_http_vm"**
 - i. Change the listener back from **"listen_https_vm"** to **"listen_http_vm"**
 - b. Click on **"Backend targets"**
 - i. Target Type: Select **"Redirection"**
 - ii. Redirection type: Select **"Permanent"**
 - iii. Redirection target: Select **"listener"**
 - iv. Target listener: Select **"listen_https_vm"**
 - c. Click on **"Save"**
2. Within the Application Gateway, click on **Rules** under Settings
3. Click on **" + Routing rule "**
 - a. Rule name: Enter **"rule_https_vm"**
 - b. Priority: **"101"**
 - i. Listener
 1. Select **"listen_https_vm"** from the drop down.
 - ii. Backend targets
 1. Target type: Select **"Backend pool"**
 2. Backend target: Select **"be_vmpool"** from the drop down.
 3. Backend settings: Select **"be_setting_http_vm"**

- c. Click on **"Add"**

Observations

1. Once that is completed, you may call the Application gateway on <http://appgatewaysb1-51.makecloudwork.com> and should be redirected to https. You should see the secured nginx homepage.

End of Lab.