

Module 6: Assignment- 4

Tasks To Be Performed:

1. Use the previously created Linux VM
2. Install Apache2 on this VM
3. Create a Network Security Group to the subnet in which VM has been deployed
4. Open NSG rules for subnet and VM on port 80
5. Verify if you can see the Apache2 page

The screenshot displays the Azure portal interface for a virtual machine named 'vmwest'. The left sidebar shows the 'Virtual machines' section with 'vmwest' selected. The main pane shows the 'Network settings' for the VM. Under 'Network interface / IP configuration', the primary interface 'vmwest971_1' is listed with a public IP address of 20.197.47.121 and a private IP address of 10.0.0.4. The 'Rules' section shows a network security group 'vmwest-nsg' attached to the network interface. A table of inbound port rules is displayed, including SSH (port 22), HTTP (port 80), and HTTPS (port 443).

Priority	Name	Source	Destination	Protocol	Port	Action
100	SSH	Any	Any	TCP	22	Allow
65000	AllowVnetInbound	Any	Any	Any	Any	Allow
65001	AllowAzureLoadBalancerInBound	Any	Any	Any	Any	Allow
65002	DenyAllInBound	Any	Any	Any	Any	Deny

The screenshot shows the terminal output of the 'az vm extension add' command for the 'vmwest' virtual machine. The output indicates that the 'NetworkSecurityGroupExtension' was successfully installed. A notification pane on the right side of the screen shows a list of events, including 'Created a new network security group' and 'Deployment succeeded'.

```
Enabling module authn_file.
Enabling module authz_user.
Enabling module alias.
Enabling module dir.
Enabling module autoindex.
Enabling module env.
Enabling module mime.
Enabling module negotiation.
Enabling module setenvif.
Enabling module filter.
Enabling module deflate.
Enabling module status.
Enabling module reqtimeout.
Enabling conf charset.
Enabling conf localized-error-pages.
Enabling conf other-headers-access-log.
Enabling conf security.
Enabling conf serve-cgi-bin.
Enabling site 000-default.
Created symlink /etc/systemd/system/multi-user.target.wants/apache2.service → /lib/systemd/system/apache2.service.
Created symlink /etc/systemd/system/multi-user.target.wants/apache-htcacheclean.service → /lib/systemd/system/apache-htcacheclean.service.
Processing triggers for ufw (0.36-6ubuntu1.1) ...
Processing triggers for systemd (245.4-4ubuntu3.23) ...
Processing triggers for man-db (2.9.1-1) ...
Processing triggers for libc-bin (2.31-0ubuntu9.14) ...
az vm extension add --name NetworkSecurityGroupExtension --publisher Microsoft --type NetworkSecurityGroupExtension --resource-group Project_Resource --vm-name vmwest --location westus --tags vmwest-nsg --debug
Server version: Apache/2.4.41 (Ubuntu)
Server built: 2024-01-17T03:00:27
az vm extension add --name NetworkSecurityGroupExtension --publisher Microsoft --type NetworkSecurityGroupExtension --resource-group Project_Resource --vm-name vmwest --location westus --tags vmwest-nsg --debug
```

Module 6: Assignment- 4

Virtual machines

Default Directory (azuresk2outlook.onmicrosoft.com)

vmwest | Network settings

Public IP address: 20.197.47.121
Private IP address: 10.0.0.4
Admin security rules: 0 (Configure)
Network security group: vmwest-nsg
Accelerated networking: Disabled
Effective security rules: 0

Rules

Inbound port rules (5)

Priority	Name	Source	Destination	Port	Protocol	Action	Source
300	SSH	Any	Any	22	TCP	Allow	Any
310	AllowAnyHTTPIInbound	Any	Any	80	TCP	Allow	Any
65000	AllowVNetInBound	Any	Any	Any	Any	Allow	VirtualNetwork
65001	AllowAzureLoadBalancerInBound	Any	Any	Any	Any	Allow	AzureLoadBalancer
65500	DenyAllInBound	Any	Any	Any	Any	Deny	Any

Outbound port rules (3)

Notifications

- Created security rule: Successfully created security rule 'AllowAnyHTTPIInbound'. a few seconds ago
- Executed delete command on 1 selected items: Succeeded: 1, Failed: 0, Cancelled: 0. 4 minutes ago
- Deployment succeeded: Deployment 'CreateVm-canonical.0001-com-ubuntu-server-focal-2-20240325173048' to resource group 'Project_Resource' was successful. Go to resource. Pin to dashboard. 5 minutes ago
- Updated network interface: Successfully updated network interface 'nicforpreviousvm'. 25 minutes ago
- Deployment succeeded: Deployment 'NICConfigUpdateDeployment-1711368776089' to resource group 'Project_Resource' was successful. 27 minutes ago
- Executed start command on 1 selected items: Succeeded: 1, Failed: 0, Cancelled: 0. 29 minutes ago
- Updated network interface: Successfully updated network interface 'nicforpreviousvm'. 30 minutes ago

Apache2 Ubuntu Default Page

ubuntu

It works!

This is the default welcome page used to test the correct operation of the Apache2 server after installation on Ubuntu systems. It is based on the equivalent page on Debian, from which the Ubuntu Apache packaging is derived. If you can read this page, it means that the Apache HTTP server installed at this site is working properly. You should **replace this file** (located at `/var/www/html/index.html`) before continuing to operate your HTTP server.

If you are a normal user of this web site and don't know what this page is about, this probably means that the site is currently unavailable due to maintenance. If the problem persists, please contact the site's administrator.

Configuration Overview

Ubuntu's Apache2 default configuration is different from the upstream default configuration, and split into several files optimized for interaction with Ubuntu tools. The configuration system is **fully documented in /usr/share/doc/apache2/README.Debian.gz**. Refer to this for the full documentation. Documentation for the web server itself can be found by accessing the **manual** if the `apache2-doc` package was installed on this server.

The configuration layout for an Apache2 web server installation on Ubuntu systems is as follows:

```
/etc/apache2/  
|-- apache2.conf  
|   |-- ports.conf  
|   |-- mods-enabled  
|   |   |-- *.Load  
|   |   |-- *.conf  
|   |-- conf-enabled  
|   |   |-- *.conf  
|   |-- sites-enabled  
|   |   |-- *.conf
```

- apache2.conf is the main configuration file. It puts the pieces together by including all remaining configuration files when starting up the web server.
- ports.conf is always included from the main configuration file. It is used to determine the