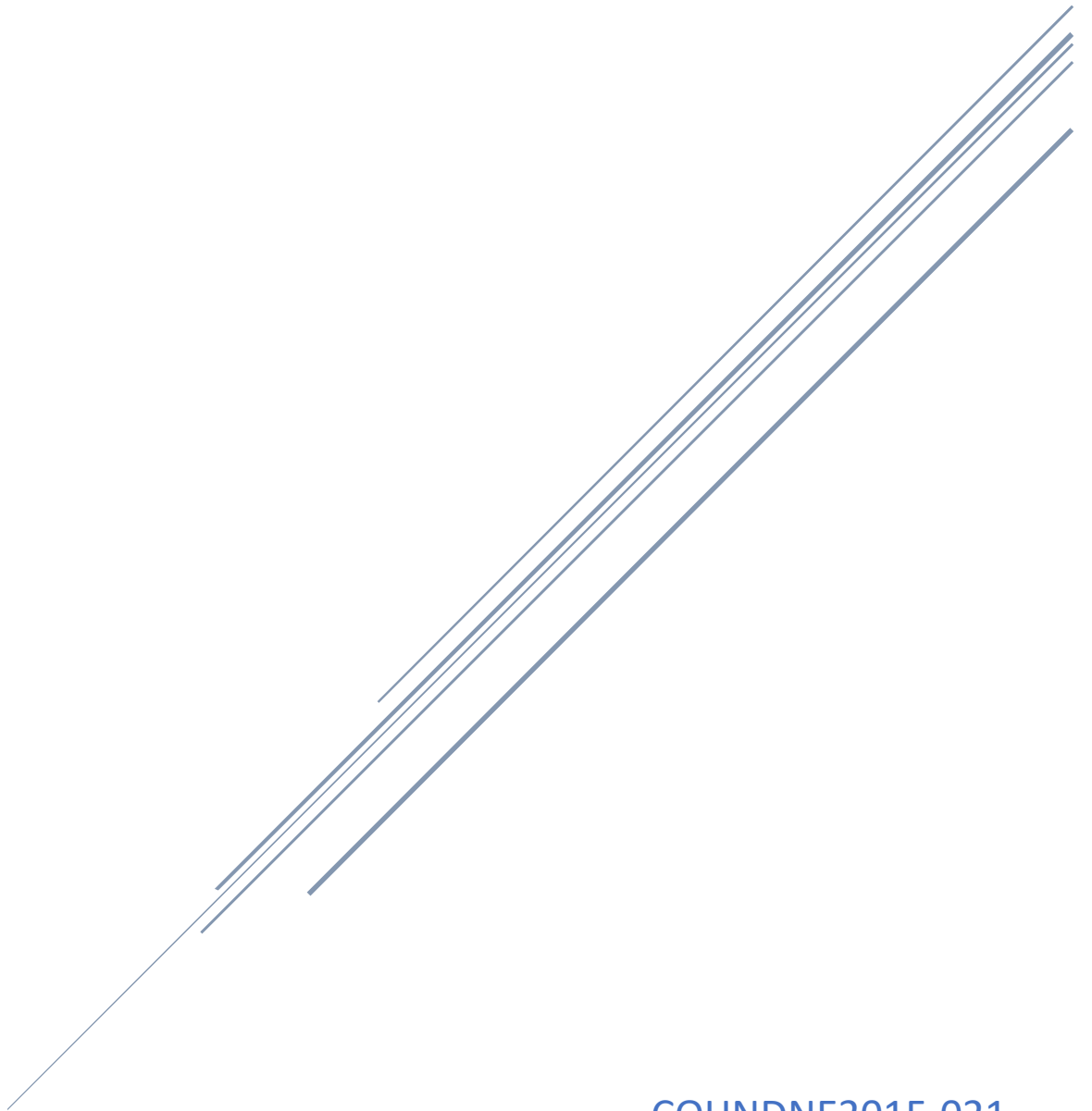


COURSE WORK

Azure Firewall



COHNDNE201F-021
Jadhusan M.S

CREATING RESOURCE GROUP

The screenshot shows the 'Create a resource group' wizard in the Microsoft Azure portal. The left sidebar displays the 'Resource groups' section with a search bar and a list of existing groups, including 'NetworkWatcherRG'. The main content area is titled 'Create a resource group' and has three tabs: 'Basics', 'Tags', and 'Review + create'. The 'Basics' tab is active, showing a description of a resource group and the following configuration details:

- Project details:**
 - Subscription: Azure for Students
 - Resource group: RG
- Resource details:**
 - Region: (Asia Pacific) Southeast Asia

At the bottom, there are navigation buttons: 'Review + create', '< Previous', and 'Next : Tags >'. The page footer indicates 'Page 1 of 1'.

VALIDATION PASSED

The screenshot shows the 'Create a resource group' wizard in the Microsoft Azure portal, now in the 'Review + create' tab. A green banner at the top indicates 'Validation passed.' The 'Review + create' tab is active, showing a summary of the configuration details:

- Basics:**
 - Subscription: Azure for Students
 - Resource group: RG
 - Region: Southeast Asia
- Tags:**
 - None

At the bottom, there are navigation buttons: 'Create', '< Previous', 'Next >', and a link to 'Download a template for automation'. The page footer indicates 'Page 1 of 1'.

CREATE VIRTUAL NETWORK

The screenshot shows the Microsoft Azure portal interface. The top navigation bar includes the Microsoft Azure logo, a search bar, and user information. The left sidebar shows the 'Virtual networks' section with a 'Create' button. The main content area is titled 'Create virtual network' and has tabs for 'Basics', 'IP Addresses', 'Security', 'Tags', and 'Review + create'. The 'Basics' tab is active. It contains a description of Azure Virtual Network (VNet) and a 'Project details' section with dropdowns for 'Subscription' (Azure for Students) and 'Resource group' (RG). Below this is the 'Instance details' section with input fields for 'Name' (vnet1) and 'Region' ((Asia Pacific) Southeast Asia). At the bottom, there are buttons for 'Review + create', '< Previous', 'Next : IP Addresses >', and a link to 'Download a template for automation'.

Microsoft Azure Search resources, services, and docs (G+/I)

Home > Virtual networks >

Virtual networks

National Institute of Business Management (nibm...

+ Create Manage view ...

Filter for any field...

Name ↑

No virtual networks to display

Create a virtual network to securely connect your Azure resources to each other. Connect your virtual network to your on-premises network using an Azure VPN Gateway or ExpressRoute.

Learn more

Create virtual network

Create virtual network

Basics IP Addresses Security Tags Review + create

Azure Virtual Network (VNet) is the fundamental building block for your private network in Azure. VNet enables many types of Azure resources, such as Azure Virtual Machines (VM), to securely communicate with each other, the internet, and on-premises networks. VNet is similar to a traditional network that you'd operate in your own data center, but brings with it additional benefits of Azure's infrastructure such as scale, availability, and isolation. [Learn more about virtual network](#)

Project details

Subscription * Azure for Students

Resource group * RG

Create new

Instance details

Name * vnet1

Region * (Asia Pacific) Southeast Asia

Review + create < Previous Next : IP Addresses > Download a template for automation

ASSIGN IP ADDRESS TO VNET

The screenshot shows the Microsoft Azure portal interface, specifically the 'IP Addresses' step of the 'Create virtual network' wizard. The 'Basics' tab is still selected, but the 'IP Addresses' tab is active. It contains a description of the virtual network's address space and a table for 'IPv4 address space' with two entries: '192.168.1.0/24' and '192.168.10.0/24'. Below this is a section for 'Add IPv6 address space' which is currently unchecked. The 'Subnet' section is also visible, showing a table with columns for 'Subnet name', 'Subnet address range', and 'NAT gateway'. At the bottom, there are buttons for 'Review + create', '< Previous', 'Next : Security >', and a link to 'Download a template for automation'.

Microsoft Azure Search resources, services, and docs (G+/I)

Home > Virtual networks >

Virtual networks

National Institute of Business Management (nibm...

+ Create Manage view ...

Filter for any field...

Name ↑

No virtual networks to display

Create a virtual network to securely connect your Azure resources to each other. Connect your virtual network to your on-premises network using an Azure VPN Gateway or ExpressRoute.

Learn more

Create virtual network

Create virtual network

Basics IP Addresses Security Tags Review + create

The virtual network's address space, specified as one or more address prefixes in CIDR notation (e.g. 192.168.1.0/24).

IPv4 address space

192.168.1.0/24	192.168.1.0 - 192.168.1.255 (256 addresses)	
192.168.10.0/24	192.168.10.0 - 192.168.10.255 (256 addresses)	

☐ Add IPv6 address space

The subnet's address range in CIDR notation (e.g. 192.168.1.0/24). It must be contained by the address space of the virtual network.

+ Add subnet Remove subnet

Subnet name	Subnet address range	NAT gateway
<input type="checkbox"/> subnet1	192.168.1.0/26	-
<input type="checkbox"/> subnet2	192.168.1.64/26	-
<input type="checkbox"/> subnet3	192.168.10.0/26	-

Review + create < Previous Next : Security > Download a template for automation

VALIDATION PASSED

Microsoft Azure

Search resources, services, and docs (G+/J)

Home > Virtual networks >

Virtual networks

National Institute of Business Management (nibm...

+ Create

Manage view

...

Filter for any field...

Name ↑

No virtual networks to display

Create a virtual network to securely connect your Azure resources to each other. Connect your virtual network to your on-premises network using an Azure VPN Gateway or ExpressRoute.

Learn more

Create virtual network

Create virtual network

Validation passed

Basics

IP Addresses

Security

Tags

Review + create

Basics

Subscription: Azure for Students

Resource group: RG

Name: vnet1

Region: Southeast Asia

IP addresses

Address space: 192.168.1.0/24,192.168.10.0/24

Subnet: subnet1 (192.168.1.0/26),subnet2 (192.168.1.64/26),subnet3 (192.168.10.0/26)

Tags

None

Create

< Previous

Next >

Download a template for automation

VERIFICATION

Microsoft Azure

Search resources, services, and docs (G+/J)

Home > Virtual networks > vnet1

Virtual networks

National Institute of Business Management (nibm...

+ Create

Manage view

...

Filter for any field...

Name ↑

< vnet1

...

vnet1 | Subnets

Virtual network

+ Subnet

+ Gateway subnet

Refresh

Manage users

Delete

Search (Ctrl+/)

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Settings

Address space

Connected devices

Subnets

DDoS protection

Firewall

Security

DNS servers

Peerings

Service endpoints

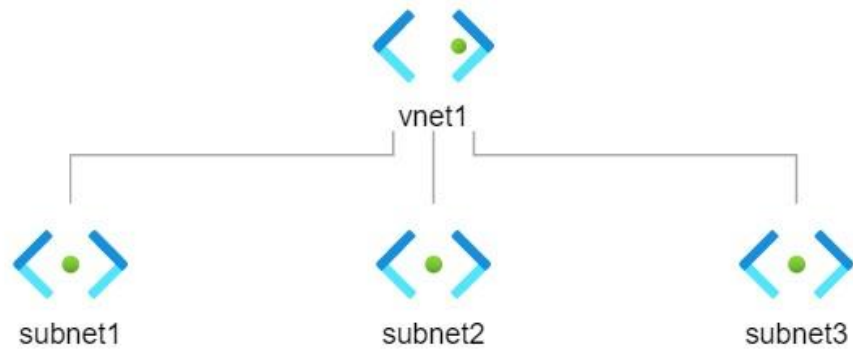
Private endpoints

Search subnets

Name ↑↓	IPv4 ↑↓	IPv6 ↑↓	Available IPs ↑↓	Delegated to ↑↓
subnet1	192.168.1.0/26	-	59	-
subnet2	192.168.1.64/26	-	59	-
subnet3	192.168.10.0/26	-	59	-

Page 1 of 1

DIAGRAM OF SUBNETs



MAKING VIRTUAL MACHINE THROUGH POWERSHELL

```
New-AzVm `
-ResourceGroupName "RG" `
-Name "VM1" `
-Location "Southeast Asia" `
-VirtualNetworkName "vnet1" `
-SubnetName "subnet1" `
-PublicIpAddressName "vm1PubAdd" `
-OpenPorts 3389 `
-Image "Win2012R2Datacenter" `
-Size "Standard_DS1_v2"
```

New-AzVm `

-ResourceGroupName "RG" `

-Name "VM2" `

-Location "Southeast Asia" `

-VirtualNetworkName "vnet1" `

-SubnetName "subnet2" `

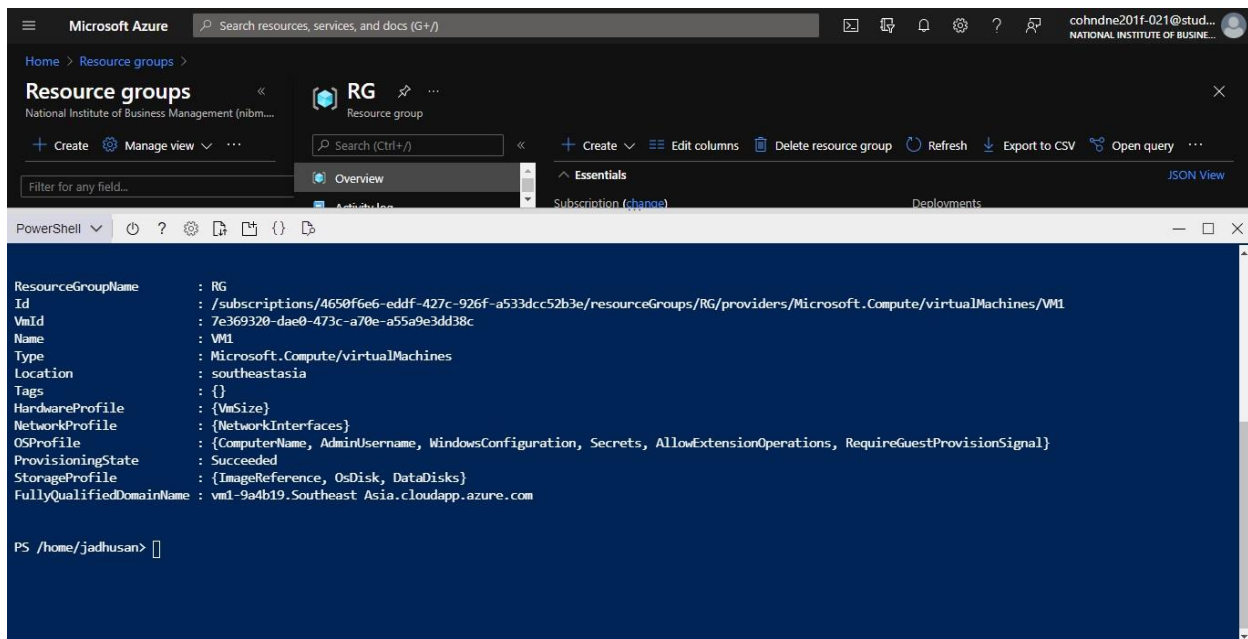
-PublicIpAddressName "vm2PubAdd" `

-OpenPorts 3389 `

-Image "Win2012R2Datacenter" `

-Size "Standard_DS1_v2"

VIRTUAL MACHINE 1



The screenshot shows the Microsoft Azure portal interface. At the top, there's a search bar and navigation links. Below, the 'Resource groups' section is active, showing a resource group named 'RG'. A PowerShell terminal window is open at the bottom, displaying the output of the 'New-AzVm' command. The output lists various properties of the newly created virtual machine, including its ID, name, type, location, and provisioning state.

```
ResourceGroupName : RG
Id                : /subscriptions/4650f6e6-eddf-427c-926f-a533dcc52b3e/resourceGroups/RG/providers/Microsoft.Compute/virtualMachines/VM1
VmId              : 7e369320-dae0-473c-a70e-a55a9e3dd38c
Name              : VM1
Type              : Microsoft.Compute/virtualMachines
Location          : southeastasia
Tags              : {}
HardwareProfile   : {VmSize}
NetworkProfile    : {NetworkInterfaces}
OSProfile          : {ComputerName, AdminUsername, WindowsConfiguration, Secrets, AllowExtensionOperations, RequireGuestProvisionSignal}
ProvisioningState  : Succeeded
StorageProfile    : {ImageReference, OsDisk, DataDisks}
FullyQualifiedDomainName : vm1-9a4b19.Southeast Asia.cloudapp.azure.com

PS /home/jadhusan>
```

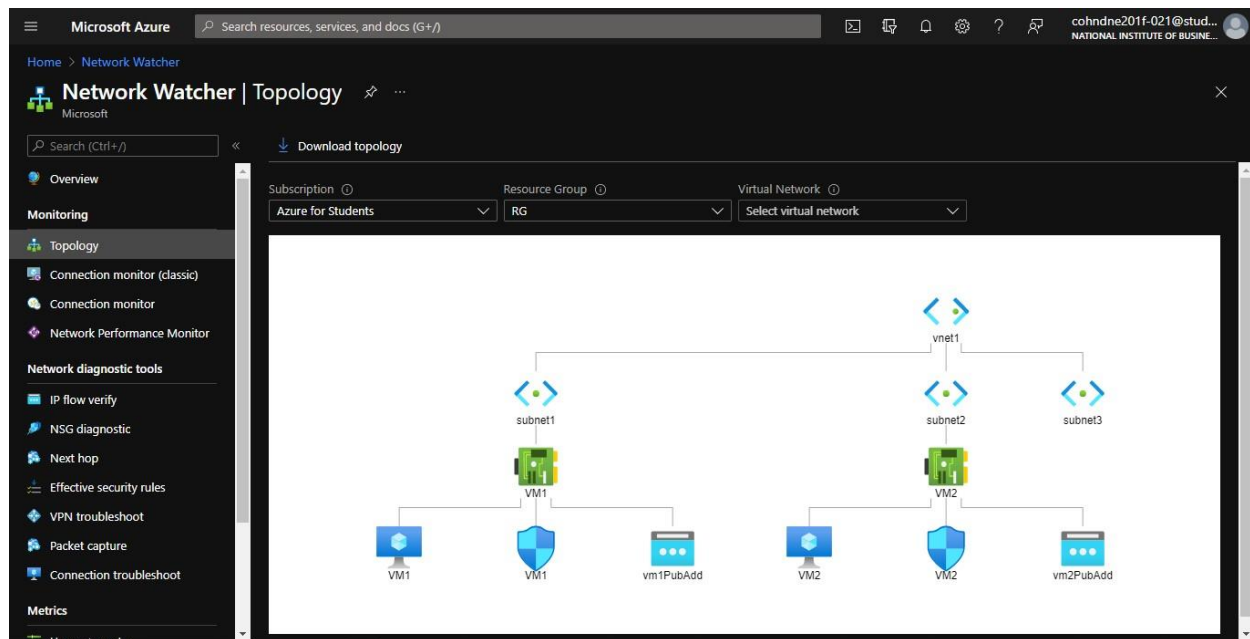
VIRTUAL MACHINE 2

The screenshot shows the Microsoft Azure portal interface. The top navigation bar includes the Microsoft Azure logo, a search bar, and the user's profile. The main content area displays the 'Resource groups' page for a resource group named 'RG'. The 'Overview' tab is selected, showing the VM's details in a PowerShell console.

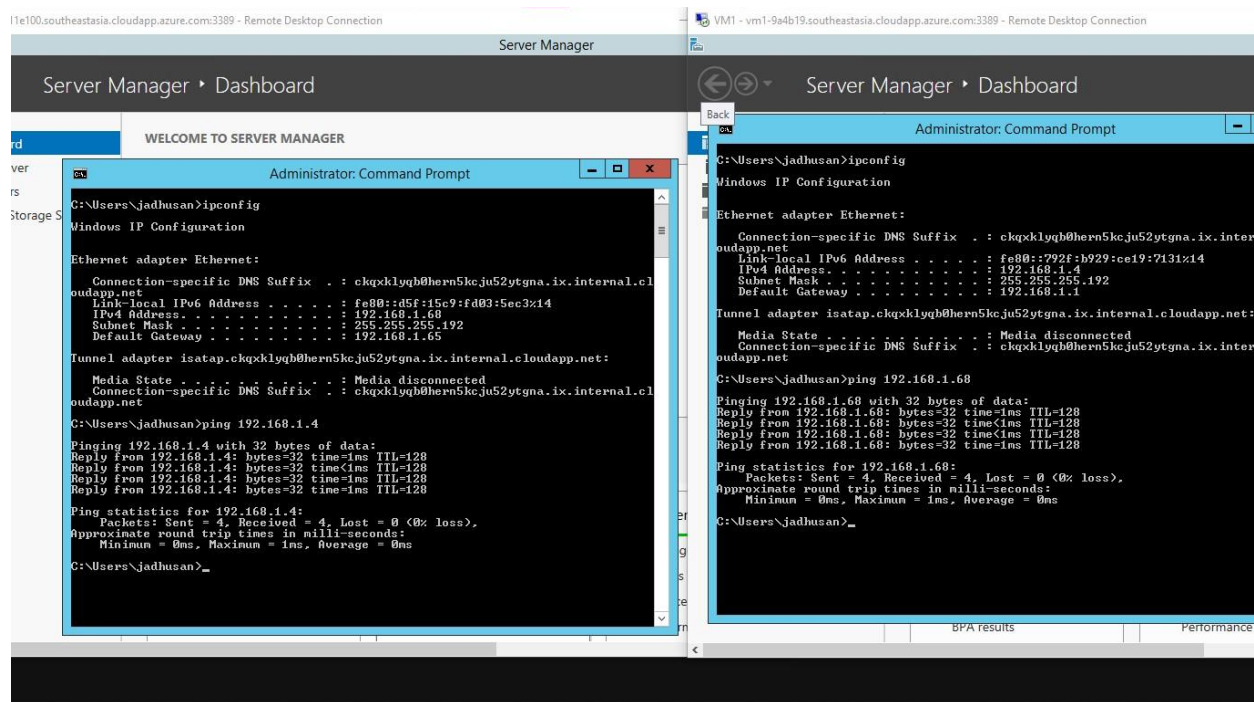
```
ResourceGroupName : RG
Id                : /subscriptions/4650f6e6-eddf-427c-926f-a533dcc52b3e/resourceGroups/RG/providers/Microsoft.Compute/virtualMachines/VM2
VmId              : 9ea974ca-c504-4d82-ad4d-8908d89699b8
Name              : VM2
Type              : Microsoft.Compute/virtualMachines
Location          : southeastasia
Tags              : {}
HardwareProfile   : {VmSize}
NetworkProfile    : {NetworkInterfaces}
OSProfile         : {ComputerName, AdminUsername, WindowsConfiguration, Secrets, AllowExtensionOperations, RequireGuestProvisionSignal}
ProvisioningState : Succeeded
StorageProfile    : {ImageReference, OsDisk, DataDisks}
FullyQualifiedDomainName : vm2-11e100.Southeast Asia.cloudapp.azure.com

PS /home/jadhusan>
```

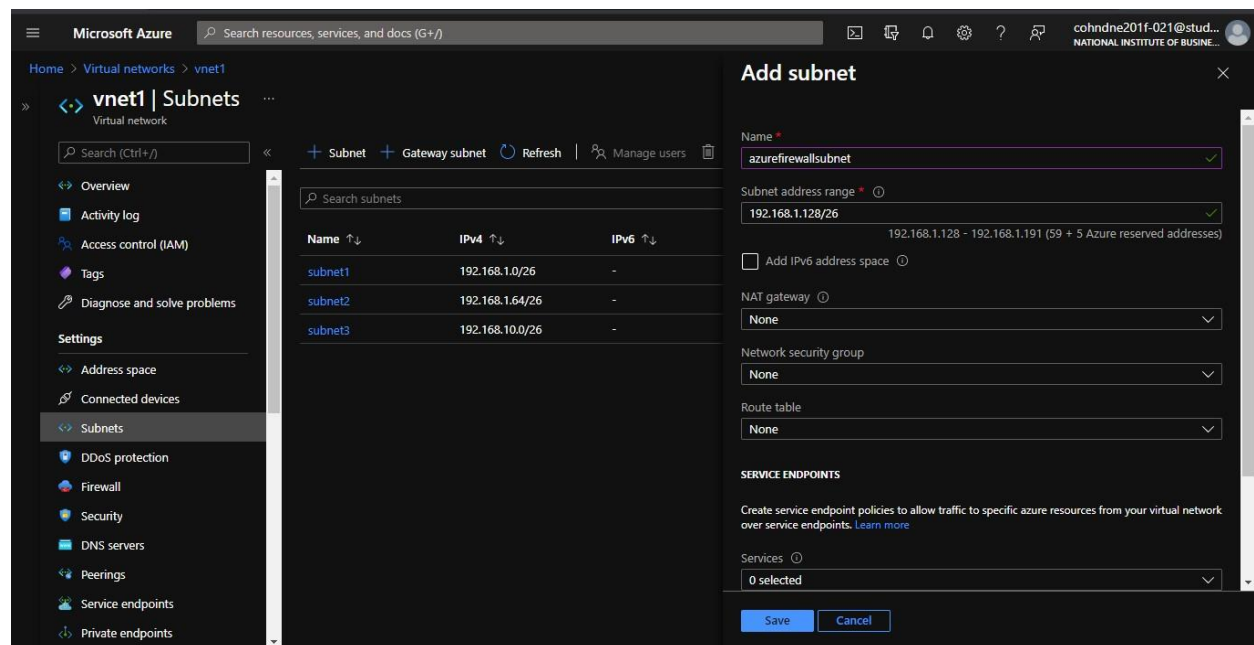
CURRENT TOPOLOGY VIEW



CONNECTION BETWEEN SUBNET IN VIRTUAL MACHINE



FIRST YOU MUST ADD FIREWALL SUBNET



VALIDATION

Microsoft Azure Search resources, services, and docs (G+)

Home > Firewalls >

Create a firewall

Validation passed

Basics Tags **Review + create**

Summary

Basics

Subscription	Azure for Students
Resource group	RG
Region	Southeast Asia
Azure Firewall Sku	Standard
Virtual network	vnet1
Address space	192.168.1.0/24, 192.168.10.0/24
Firewall public IP address	fwpubip
Availability zone	None

Tags

Resource type	Name	Value
No results		

Create Previous Next Download a template for automation

CREATE THE ROUTE TABLE.

Microsoft Azure Search resources, services, and docs (G+)

Home > Route tables >

Route tables

National Institute of Business Management (nibm...

+ Create Manage view

Filter for any field...

Name ↑

No route tables to display

Create a route table when you need to override Azure's default routing. For example, you can route traffic to a network virtual appliance or to your on-premises network for inspection. A route table contains routes and is associated to one or more subjects.

Learn more

Create Route table

Basics Tags Review + create

Project details

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription * Azure for Students

Resource group * RG

Create new

Instance details

Region * Southeast Asia

Name * rt1

Propagate gateway routes * Yes

Review + create < Previous Next : Tags >

VALIDATION

Create Route table ...

✓ Validation Passed

BasicsTagsReview + create

TERMS

By clicking "Create", I (a) agree to the legal terms and privacy statement(s) associated with the Marketplace offering(s) listed above; (b) authorize Microsoft to bill my current payment method for the fees associated with the offering(s), with the same billing frequency as my Azure subscription; and (c) agree that Microsoft may share my contact, usage and transactional information with the provider(s) of the offering(s) for support, billing and other transactional activities. Microsoft does not provide rights for third-party offerings. See the [Azure Marketplace Terms](#) for additional details.

Basics

Subscription	Azure for Students
Resource group	RG
Region	Southeast Asia
Name	rt1
Propagate gateway routes	Yes

Create


< Previous

Next

[Download a template for automation](#)

VERIFICATION

✓ Your deployment is complete

 Deployment name: Microsoft.RouteTable-20210616181902
Subscription: [Azure for Students](#)
Resource group: [RG](#)

Start time: 6/16/2021, 6:20:24 PM
Correlation ID: 6145326a-28da-40f9-a7f0-6aabb2375ef9

Deployment details [\(Download\)](#)

Resource	Type	Status	Operation details
✓ rt1	Microsoft.Network/routeTa...	OK	Operation details

Next steps

Go to resource

ROUTE TABLE 1 SUBNETS

The screenshot displays the Microsoft Azure portal interface. The top navigation bar includes the 'Microsoft Azure' logo, a search bar, and user information for 'cohndne201f-021@stud... NATIONAL INSTITUTE OF BUSINE...'. The breadcrumb trail shows the path: Home > Microsoft.RouteTable-20210616181902 > rt1. The main content area is titled 'rt1 | Subnets' and shows a 'Route table' with a search bar and a '+ Associate' button. Below this, a table with columns 'Name' and 'Address range' displays 'No results.'.

On the right side, the 'Associate subnet' dialog is open for route table 'rt1'. It contains two dropdown menus: 'Virtual network' with 'vnet1' selected, and 'Subnet' with 'subnet1' selected. An 'OK' button is located at the bottom of the dialog.

Microsoft Azure Search resources, services, and docs (G+/)

Home > Microsoft.RouteTable-20210616181902 > rt1

rt1 | Subnets ...
Route table

Search (Ctrl+/) « + Associate

Search subnets

Name ↑↓	Address range ↑↓
No results.	

Associate subnet rt1

Virtual network ⓘ
vnet1

Subnet ⓘ
subnet1

OK

ADDING THE ROUTE.

Microsoft Azure

Search resources, services, and docs (G+)

[Home](#) > [Microsoft.RouteTable-20210616181902](#) > [rt1](#) >

Add route

rt1

Route name *

rt1

Address prefix * ⓘ

0.0.0.0/0

Next hop type ⓘ

Virtual appliance

Next hop address * ⓘ

192.168.1.132

i Ensure you have IP forwarding enabled on your virtual appliance. You can enable this by navigating to the respective network interface's IP address settings.

OK

VERIFYING IP ADDRESS

Migrate to firewall policy ▾ Delete Lock

Migrate to Azure Firewall Policy for a centralized management experience. →

^ Essentials

Resource group (change) : RG

Location : Southeast Asia

Subscription (change) : Azure for Students

Subscription ID : 4650f6e6-eddf-427c-926f-a533dcc52b3e

Virtual network : vnet1

Provisioning state : Succeeded

Firewall sku : Standard

Firewall subnet : azurefirewallsubnet

Firewall public IP : fwpubip

Firewall private IP : 192.168.1.132

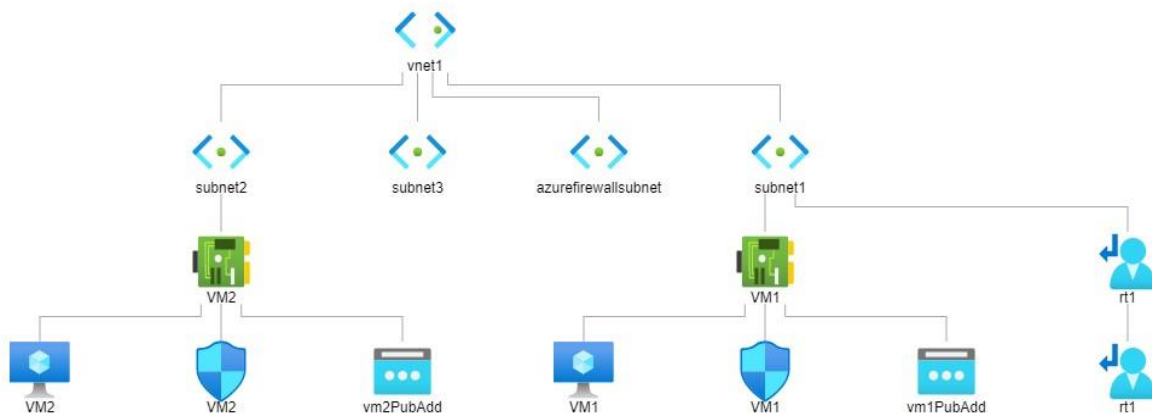
Management subnet : -

Management public IP : -

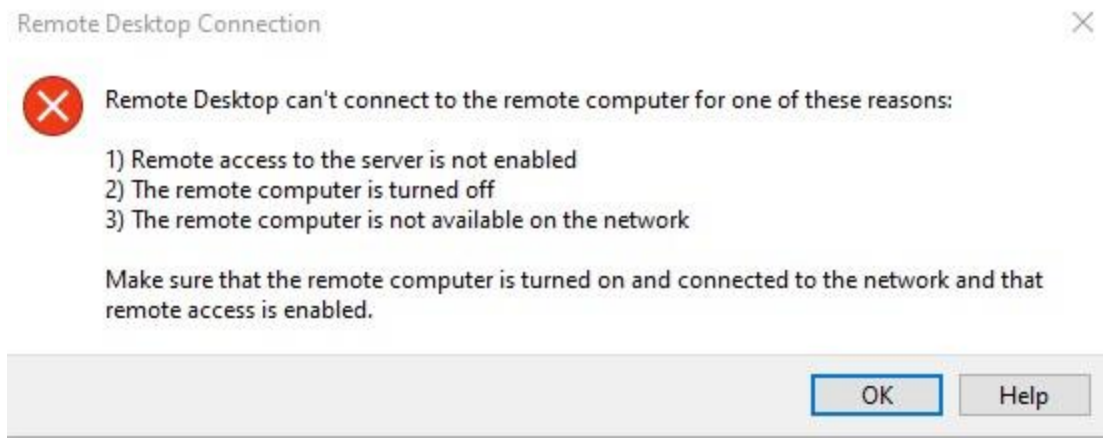
Private IP Ranges : IANA RFC 1918

Tags (change) : Click here to add tags

DIAGRAM AFTER FIREWALL

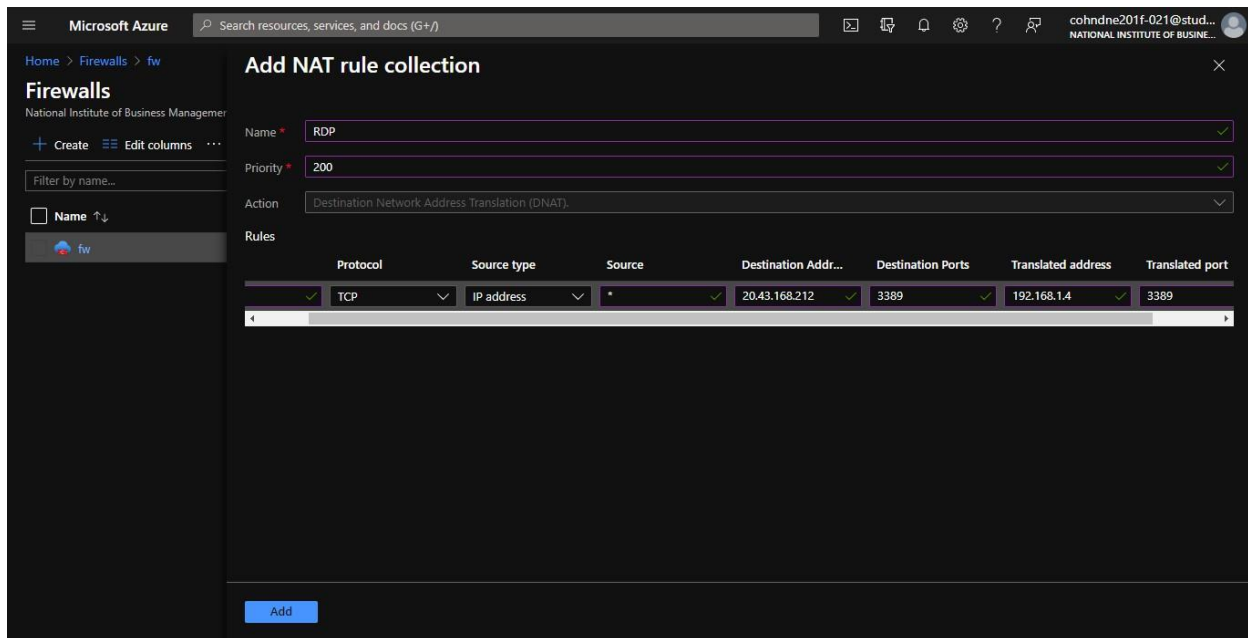


BY DEFAULT, ALL THE TRAFFIC IS DENIED



ADDING NAT RULE

FOR RDP



ADDING LAYER 7 RULE

Add application rule collection

Name: ✓

Priority: ✓

Action: ✓

Rules

FQDN tags

name	Source type	Source	FQDN tags
	IP address	*, 192.168.10.1, 192.168.10.0/24, 192.1...	0 selected

FQDN tags may require additional configuration. [Learn more.](#)

Target FQDNs

name	Source type	Source	Protocol:Port	Target FQDNs
allowgoogle ✓	IP address	*	http,https ✓	www.google.lk ✓

mssql: SQL should be enabled in proxy mode. This may require additional configuration. [Learn more.](#)

VERIFYING

fw | Rules (classic)

Search (Ctrl+/) Refresh

NAT rule collection Network rule collection Application rule collection

[+ Add application rule collection](#)

Priority	Name	Action	Rules
110	allowhttp	Allow	> 1 rule.

20.43.168.212 - Remote Desktop Connection

Google