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Section: B

Lab 06 - Secure Network Traffic

Task 1 – Create a Virtual Machine

The screenshot shows the Microsoft Azure 'Create a virtual machine' interface. The user is on the 'Basics' tab. At the top, there are three help buttons: 'Help me create a low cost VM', 'Help me create a VM optimized for high availability', and 'Help me choose the right VM size for my workload'. Below these are tabs for 'Basics', 'Disks', 'Networking', 'Management', 'Monitoring', 'Advanced', 'Tags', and 'Review + create'. A note says, 'Create a virtual machine that runs Linux or Windows. Select an image from Azure marketplace or use your own customized image. Complete the Basics tab then Review + create to provision a virtual machine with default parameters or review each tab for full customization.' A link to 'Learn more' is provided. On the right, a Microsoft account sidebar shows the user 'bsse2280151@szabist.pk' and a 'Sign out' button. At the bottom, there are navigation buttons: '< Previous', 'Next : Disks >', and 'Review + create'.

The screenshot shows the Microsoft Azure 'Create a virtual machine' interface. The user is on the 'Disks' tab. At the top, there are three help buttons: 'Help me create a low cost VM', 'Help me create a VM optimized for high availability', and 'Help me choose the right VM size for my workload'. Below these are tabs for 'Basics', 'Disks', 'Networking', 'Management', 'Monitoring', 'Advanced', 'Tags', and 'Review + create'. A note says, 'Select a storage account to store your VM's data. You can choose an existing storage account or create a new one. If you choose a new storage account, it will be created in the same resource group as your VM.' A link to 'Learn more' is provided. On the right, a Microsoft account sidebar shows the user 'bsse2280151@szabist.pk' and a 'Sign out' button. At the bottom, there are navigation buttons: '< Previous', 'Next : Disks >', and 'Review + create'.

Create a virtual machine

Availability zone * ⓘ Zone 2 You can now select multiple zones. Selecting multiple zones will create one VM per zone. [Learn more](#)

Security type ⓘ Trusted launch virtual machines Configure security features

Image * ⓘ Windows Server 2019 Datacenter - x64 Gen2 See all images | Configure VM generation

VM architecture ⓘ Arm64 x64 ⓘ Arm64 is not supported with the selected image.

Run with Azure Spot discount ⓘ

< Previous Next : Disks > Review + create Give feedback

Create a virtual machine

Run with Azure Spot discount ⓘ

Size * ⓘ Standard_D2s_v3 - 2 vcpus, 8 GB memory (\$143.81/month) See all sizes ⓘ Hibernate is not supported by the size that you have selected. Choose a size that is compatible with Hibernate to enable this feature. [Learn more](#)

Administrator account

Username * ⓘ osamauser

Password * ⓘ

Confirm password * ⓘ

Inbound port rules

< Previous Next : Disks > Review + create Give feedback

Create a virtual machine

Help me create a low cost VM Help me create a VM optimized for high availability Help me choose the right VM size for my workload

Password * ⓘ Confirm password * ⓘ

Inbound port rules

Select which virtual machine network ports are accessible from the public internet. You can specify more limited or granular network access on the Networking tab.

Public inbound ports * ⓘ None Allow selected ports

Select inbound ports Select one or more ports ⓘ All traffic from the internet will be blocked by default. You will be able to change inbound port rules in the VM > Networking page.

< Previous Next : Disks > Review + create Give feedback

Create a virtual machine

Virtual network (New) vnet-centralindia (Lab06-RG)
Edit virtual network

Subnet * (New) snet-centralindia-1
Edit subnet 172.16.0.0 - 172.16.0.255 (256 addresses)

Public IP Create new

NIC network security group None

⚠️ All ports on this virtual machine may be exposed to the public internet. This is a security risk. Use a network security group to limit public access to specific ports. You can also select a subnet that already has network security groups defined or remove the public IP address.

< Previous Next : Management > Review + create Give feedback

Create a virtual machine

Basics Disks Networking Management **Monitoring** Advanced Tags Review + create

Configure monitoring options for your VM.

Alerts

Enable recommended alert rules

Diagnostics

Boot diagnostics Enable with managed storage account (recommended)
 Enable with custom storage account
 Disable

Enable OS guest diagnostics

< Previous Next : Advanced > Review + create Give feedback

Create a virtual machine

Validation passed

Help me create a low cost VM Help me create a VM optimized for high availability Help me choose the right VM size for my workload

Basics Disks Networking Management Monitoring Advanced Tags **Review + create**

Price

1 X Standard D2s v3 by Microsoft Subscription credits apply
0.1970 USD/hr Pricing for other VM sizes

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

< Previous Next > Create Download a template for automation Give feedback

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

Copilot

All services > CreateVm-MicrosoftWindowsServer.WindowsServer-201-20251030153743

Deployment

Search Delete Cancel Redeploy Download Refresh

Overview

Your deployment is complete

Deployment name : CreateVm-MicrosoftWindowsServer.WindowsServer-201-20251030153743
Subscription : Azure for Students
Resource group : Lab06-RG
Start time : 10/30/2025, 3:44:55 PM
Correlation ID : f1f746cf-e194-4dae-b9e4-effcae586fa2

Deployment details

Next steps

Set up auto-shutdown Recommended
Monitor VM health, performance, and network dependencies Recommended
Run a script inside the virtual machine Recommended

Go to resource Create another VM Scale out your VM

Sign in with a different account Go to reso... Pin to dash... a few seconds ago

bsse2280151@szabist.pk DEFAULT DIRECTORY

Notifications

More events in the activity log → Dismiss all

Deployment succeeded

Deployment 'CreateVm-MicrosoftWindowsServer.WindowsServer-201-20251030153743' to resource group 'Lab06-RG' was successful.

Go to reso... Pin to dash... a minute ago

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

Copilot

All services > CreateVm-MicrosoftWindowsServer.WindowsServer-201-20251030153743 | Overview > SimpleWinVM

SimpleWinVM | Network settings

Virtual machine

Search Overview Activity log Access control (IAM) Tags Diagnose and solve problems Resource visualizer Connect Networking Network settings Load balancing Application security groups Network manager

Network interface / IP configuration simplewinvm972_z2 (primary) / ipconfig1 (primary)

Essentials

Network interface	Load balancers
simplewinvm972_z2	0 (Configure)

Virtual network / subnet	Application security groups
vnet-centralindia / snet-centralindia-1	0 (Configure)

Public IP address	Network security group
4.240.100.118	-

Private IP address	Accelerated networking
172.16.0.4	Enabled

Admin security rules	Effective security rules
0 (Configure)	0

Sign in with a different account Go to reso... Pin to dash... a few seconds ago

Task 2: Create a Network Security Group

The screenshot shows the Microsoft Azure portal interface. The top navigation bar includes the Microsoft Azure logo, a search bar, and various navigation icons. On the right, the user's email (bsse2280151@szabist.pk) and account information are displayed, along with a 'Sign out' button. The main content area has a title 'Network foundation | Network security groups' with a 'Preview' link. A sidebar on the left lists network-related services: Overview, Virtual network (Virtual Network overview, Virtual networks), NAT gateways, Public IP addresses, Network interfaces, Network security groups (which is selected and highlighted in grey), Application security groups, Bastions, and Route tables. A message at the top of the main area says 'You are viewing a new version of Browse experience. Click here to access the old experience.' Below this, there is a search bar and filter options ('Subscription equals all', 'Resource Group equals all', 'Location equals'). A large shield icon is centered with the text 'No network security groups to display'. A descriptive message below the icon reads: 'Create a network security group with rules to filter inbound traffic to, and outbound traffic from, virtual machines and subnets.' A blue 'Create' button is located at the bottom of this section. Other buttons include 'Learn more' and 'Give feedback'.

The screenshot shows the 'Create network security group' wizard. The top navigation bar and user information are identical to the previous screenshot. The main form is titled 'Create network security group'. It has three tabs: 'Basics' (selected), 'Tags', and 'Review + create'. Under 'Project details', the 'Subscription' dropdown is set to 'Azure for Students' and the 'Resource group' dropdown is set to 'Lab06-RG' (with a 'Create new' option). Under 'Instance details', the 'Name' field is 'myNSGSecure' and the 'Region' is 'Central India'. At the bottom of the form are buttons for 'Review + create', '< Previous' (disabled), 'Next : Tags >', and 'Download a template for automation'.

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

All services > Network foundation | Network security groups > Create network security group

Validation passed

Basics Tags Review + create

Basics

Subscription: Azure for Students
Resource group: Lab06-RG
Region: Central India
Name: myNSGSecure

Tags

None

Create < Previous Next > Download a template for automation

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

All services > CreateNetworkSecurityGroupBladeV2-20251030155437 | Overview

Deployment

Search Delete Cancel Redeploy Download Refresh

Your deployment is complete

Deployment name: CreateNetworkSecurityGroupBladeV2-20251030155437 Start time: 10/30/2025, 3:56:26 PM
Subscription: Azure for Students Correlation ID: 3c813048-1cdb-4ba0-80a5-7f9...
Resource group: Lab06-RG

Deployment details
Next steps

Go to resource Give feedback Tell us about your experience with deployment

Sign in with a different account Get notified to stay within your budget and prevent unexpected charges on your bill. Set up cost alerts >

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

All services > CreateNetworkSecurityGroupBladeV2-20251030155437 | Overview > myNSGSecure

Network security group

Search Associate Refresh Dissociate

Search network interfaces

Name ↑	Public IP address ↑↓
No results.	

Associate network interface

myNSGSecure

Network interface associations * simplewinvm972_z2

OK

Add or remove favorites by pressing Ctrl+Shift+F

The screenshot shows the Microsoft Azure portal interface for managing a Network Security Group (NSG). The top navigation bar includes 'Microsoft Azure', a search bar, and user account information ('bsse2280151@szabist.pk DEFAULT DIRECTORY'). The main content area is titled 'myNSGSecure | Network interfaces' and displays a table of network interfaces. The table has columns for Name, Public IP address, and Private IP address. One row is shown: 'simplewinvm972_z2' with Public IP 4.240.100.118 and Private IP 172.16.0.4. On the left, a sidebar menu lists various NSG management options, with 'Network interfaces' currently selected. A bottom status bar indicates 'Add or remove favorites by pressing Ctrl+Shift+F'.

Task 3: Configure Inbound Security Rule (Allow RDP)

The screenshot shows the Microsoft Azure portal interface for connecting to a virtual machine (VM). The top navigation bar includes 'Microsoft Azure', a search bar, and user account information ('bsse2280151@szabist.pk DEFAULT DIRECTORY'). The main content area is titled 'SimpleWinVM | Connect' and shows a 'Remote Desktop Connection' dialog box. The dialog box contains an error message: 'Remote Desktop can't connect to the remote computer for one of these reasons: 1) Remote access to the server is not enabled 2) The remote computer is turned off 3) The remote computer is not available on the network'. It also includes a note: 'Make sure the remote computer is turned on and connected to the network, and that remote access is enabled.' Below the dialog, there are fields for 'Source IP address' (set to 'Allow from my network'), 'Destination port' (set to '80'), 'VM port' (set to '3389'), and 'VM access' (radio button selected for 'Check inbound NSG rules'). There is also a 'Check access' button. On the left, a sidebar menu lists 'Connect' options like 'Bastion' and 'Windows Admin Center', with 'Connect' currently selected. A bottom status bar indicates 'Edit settings'.

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

All services > SimpleWinVM

SimpleWinVM | Network settings

Virtual machine

Network security group myNSGSecure (attached to networkInterface: simplewinvm972_z2) Impacts 0 subnets, 1 network interfaces

Search rules Source == all Destination == all Protocol == all Action == all Port

Prio...	Name	Port	Protocol	Source
65000	AllowVnetInBound	Any	Any	VirtualNetwork
65001	AllowAzureLoadBalancerInB...	Any	Any	AzureLoadBalancer
65500	DenyAllInBound	Any	Any	Any

Inbound port rules (3)

Outbound port rules (3)

Sign in with a different account

bsse2280151@szabist.pk DEFAULT DIRECTORY Sign out

Microsoft

bsse2280151@szabist.pk My Microsoft account Switch directory ...

Search Tags Diagnose and solve problems Resource visualizer Connect Networking Network settings Load balancing Application security groups Network manager Settings Availability + scale

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

All services > SimpleWinVM

SimpleWinVM | Network settings

Virtual machine

Private IP address 172.16.0.4

Admin security rules 0 (Configure)

Rules Collapse all

Network security group myNSGSecure (attached to networkInterface: simplewinvm972_z2) Impacts 0 subnets, 1 network interfaces

Search rules Source == all Destination == all

Prio...	Name
65000	AllowVnetInBound
65001	AllowAzureLoadBalancerInB...

Add inbound security

myNSGSecure

Source Any

Source port ranges * 3389

Destination Any

Service Custom

Destination port ranges 3389

Protocol Any TCP

Add Cancel Give feedback

bsse2280151@szabist.pk DEFAULT DIRECTORY Sign out

Microsoft

bsse2280151@szabist.pk My Microsoft account Switch directory ...

Sign in with a different account

Search Tags Diagnose and solve problems Resource visualizer Connect Networking Network settings Load balancing Application security groups Network manager Settings Availability + scale

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

All services > SimpleWinVM

SimpleWinVM | Network settings

Virtual machine

Private IP address: 172.16.0.4

Admin security rules: 0 (Configure)

Rules: Network security group myNSGSecure (attached to networkInterface: simplewinvm972_z2) Impacts 0 subnets, 1 network interfaces

Inbound port rules (3):

Prio...	Name	Port	Protocol	Source	Destination	Action
300	AllowRDP	3389	TCP	Any	Any	Allow
65000	AllowVnetInBound	Any	Any	VirtualNetwork	VirtualNetwork	Allow
65001	AllowAzureLoadBalancerInB...	Any	Any	AzureLoadBalancer	Any	Allow

Add inbound security rule

myNSGSecure

Action: Allow

Priority: 300

Name: AllowRDP

Description:

Sign in with a different account

bsse2280151@szabist.pk My Microsoft account Switch directory

Sign out

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

All services > SimpleWinVM

SimpleWinVM | Network settings

Virtual machine

Network security group myNSGSecure (attached to networkInterface: simplewinvm972_z2) Impacts 0 subnets, 1 network interfaces

Search rules: Source == all, Destination == all, Protocol == all, Action == all, Port

Inbound port rules (4):

Prio...	Name	Port	Protocol	Source	Destination	Action
300	AllowRDP	3389	TCP	Any	Any	Allow
65000	AllowVnetInBound	Any	Any	VirtualNetwork	VirtualNetwork	Allow
65001	AllowAzureLoadBalancerInB...	Any	Any	AzureLoadBalancer	Any	Allow
65500	DenyAllInBound	Any	Any	Any	Any	Deny

Outbound port rules (3):

Sign in with a different account

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Sign out

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

All services > Resource Manager | All resources >

SimpleWinVM Virtual machine

Overview

- Activity log
- Access control (IAM)
- Tags
- Diagnose and solve problems
- Resource visualizer
- Connect
- Networking
- Network settings
- Load balancing
- Application security groups
- Network manager

Help me copy this VM in any region Manage this VM with Azure CLI

Remote Desktop Connection security warning

The publisher of this remote connection can't be identified. Do you want to connect anyway?

This remote connection could harm your local or remote computer. Do not connect unless you know where this connection came from or have used it before.

Publisher: Unknown publisher Type: Remote Desktop Connection Remote computer: 4.240.100.118

Don't ask me again for connections to this computer

Show Details Connect Cancel

1 associated public IPs

Virtual network/subnet vnet-centralindia/snet-centralindia-1

DNS name Not configured

Health state

Time created 10/20/2023 10:45 AM UTC

Sign in with a different account

bsse2280151@szabist.pk My Microsoft account Switch directory

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

All services > Resource Manager | All resources >

SimpleWinVM Virtual machine

Overview

- Activity log
- Access control (IAM)
- Tags
- Diagnose and solve problems
- Resource visualizer
- Connect
- Networking
- Network settings
- Load balancing
- Application security groups

Help me copy this VM in any region Manage this VM with Azure CLI

Windows Security

Enter your credentials

These credentials will be used to connect to 4.240.100.118.

osamauser

Password

Remember me

More choices OK Cancel

Sign in with a different account

bsse2280151@szabist.pk My Microsoft account Switch directory

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

All services > Resource Manager | All resources >

SimpleWinVM Virtual machine

Overview

- Activity log
- Access control (IAM)
- Tags
- Diagnose and solve problems
- Resource visualizer
- Connect
- Networking
- Network settings
- Load balancing

Help me copy this VM in any region Manage this VM with Azure CLI

Remote Desktop Connection

The identity of the remote computer cannot be verified. Do you want to connect anyway?

The remote computer could not be authenticated due to problems with its security certificate. It may be unsafe to proceed.

Certificate name Name in the certificate from the remote computer: SimpleWinVM

Certificate errors The following errors were encountered while validating the remote computer's certificate:

⚠ The certificate is not from a trusted certifying authority.

Do you want to connect despite these certificate errors?

Don't ask me again for connections to this computer

View certificate... Yes No

Sign in with a different account

bsse2280151@szabist.pk My Microsoft account Switch directory



ACCESSED:



Task 4: Configure Outbound Security Rule (Deny Internet)

Microsoft Azure | Resource Manager | Resource groups | Lab06-RG | SimpleWinVM

SimpleWinVM | Network settings

Virtual machine

1 / 2.16.0.4

Admin security rules
0 (Configure)

Rules

Network security group myNSGSecure (attached to networkInterface: simplewinvm972_z2)
Impacts 0 subnets, 1 network interfaces

+ Create port rule

Inbound port rule
Outbound port rule

Source == all
Destination == all
Protocol == all
Action == all
Port == all

Prio... ↑ Name Port Protocol Source Destination Action

Network security group myNSGSecure (attached to networkInterface: simplewinvm972_z2)
Impacts 0 subnets, 1 network interfaces

Source == all
Destination == all
Protocol == all
Action == all
Port == all

Prio... ↑ Name Port Protocol Source Destination Action

Inbound port rules (4)

300 AllowRDP
65000 AllowVnetInBound

Add

Microsoft Azure | Resource Manager | Resource groups | Lab06-RG | SimpleWinVM

SimpleWinVM | Network settings

Virtual machine

1 / 2.16.0.4

Admin security rules
0 (Configure)

Rules

Network security group myNSGSecure (attached to networkInterface: simplewinvm972_z2)
Impacts 0 subnets, 1 network interfaces

Source == all
Destination == all
Protocol == all
Action == all
Port == all

Prio... ↑ Name Port Protocol Source Destination Action

Add outbound security rule

myNSGSecure

Source: Any
Source port ranges: *

Destination: Service Tag
Destination service tag: Internet
Service: Custom
Destination port ranges: *

Protocol:

Add Cancel Give feedback

Microsoft Azure | Resource Manager | Resource groups | Lab06-RG | SimpleWinVM

SimpleWinVM | Network settings

Virtual machine

1 / 2.16.0.4

Admin security rules
0 (Configure)

Rules

Network security group myNSGSecure (attached to networkInterface: simplewinvm972_z2)
Impacts 0 subnets, 1 network interfaces

Source == all
Destination == all
Protocol == all
Action == all
Port == all

Prio... ↑ Name Port Protocol Source Destination Action

Inbound port rules (4)

300 AllowRDP
65000 AllowVnetInBound

Add outbound security rule

myNSGSecure

Action: Deny

Priority: 4000
Name: DenyInternet

Description:

Add Cancel Give feedback

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

All services > Resource Manager | Resource groups > Lab06-RG > SimpleWinVM

SimpleWinVM | Network settings

Virtual machine

Impacts 0 subnets, 1 network interfaces

Search rules

Prio...	Name	Port	Protocol	Source
4000	DenyInternet	Any	TCP	Any
65000	AllowVnetOutBound	Any	Any	VirtualNetwork
65001	AllowInternetOutBound	Anv	Anv	Internet

Sign out

bsse2280151@szabist.pk

My Microsoft account

Switch directory

Sign in with a different account

SUCCESS

Unable to access:

SIMPLEWINVM - 4.240.100.118:3389 - Remote Desktop Connection

www.microsoft.com

https://www.microsoft.com

Hmmm... can't reach this page

www.microsoft.com took too long to respond

Try:

- Checking the connection
- [Checking the proxy and the firewall](#)

ERR_CONNECTION_TIMED_OUT

Refresh

Microsoft

bsse2280151@szabist.pk

My Microsoft account

Switch directory

Sign in with a different account

Internet	Deny
VirtualNetwork	Allow
Internet	Allow
Any	Deny