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Section – 7B
LAB:06

06 - Secure network traffic (10 min)

In this walk-through, we will configure a network security group.

Task 1: Create a virtual machine

In this task, we will create a Windows Server 2019 Datacenter virtual machine.

1. Sign in to the [Azure portal](#).
2. From the **All services** blade, search for and select **Virtual machines**, and then click **+ Add, + Create, + New Virtual Machine**.
3. On the **Basics** tab, fill in the following information (leave the defaults for everything else):

Settings	Values
Subscription	Use default provided
Resource group	Create new resource group
Virtual machine name	SimpleWinVM
Region	(US) East US
Image	Windows Server 2019 Datacenter Gen 2
Size	Standard D2s v3
Administrator account username	azureuser
Administrator account password	Pa\$sw0rd1234
Inbound port rules	None

4. Switch to the **Networking** tab, and configure the following setting:

Settings	Values
NIC network security group	None

5. Switch to the **Management** tab, and in its **Monitoring** section, select the following setting:

Settings	Values
Boot diagnostics	Disable

6. Leave the remaining defaults and then click the **Review + create** button at the bottom of the page.
7. Once Validation is passed click the **Create** button. It can take about five minutes to deploy the virtual machine.
8. Monitor the deployment. It may take a few minutes for the resource group and virtual machine to be created.
9. From the deployment blade or from the Notification area, click **Go to resource**.

- On the **SimpleWinVM** virtual machine blade, click **Networking**, review the **Inbound port rules** tab, and note that there is no network security group associated with the network interface of the virtual machine or the subnet to which the network interface is attached.

The top screenshot shows the Microsoft Azure portal interface for a deployment named "CreateVm-MicrosoftWindowsServer.WindowsServer-202-20251107060713". The deployment is complete, and the page displays details such as the subscription (Azure for Students), resource group (CloudComputing), and deployment name. It also provides next steps like setting up auto-shutdown, monitoring VM health, and running scripts inside the virtual machine.

The bottom screenshot shows the "SimpleWinVM | Network settings" page. It displays the network interface configuration for "simplewinvm765 (primary) / ipconfig1 (primary)". The configuration details include the network interface name, virtual network (vnet-centralindia / subnet-centralindia-1), public IP address (4.213.100.230), private IP address (172.16.0.4), and admin security rules (0). It also shows that there are 0 load balancers, 0 application security groups, and 0 effective security rules associated with this interface.

Note: Identify the name of the network interface. You will need it in the next task.

Task 2: Create a network security group

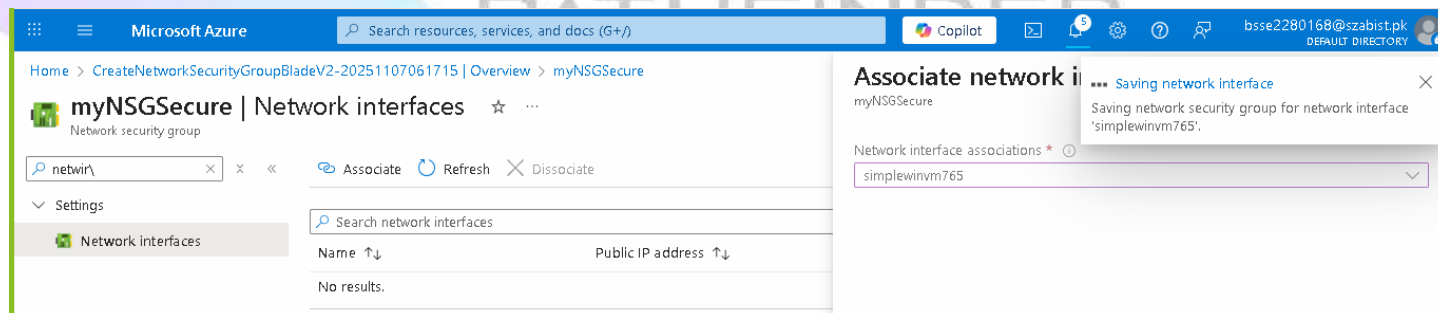
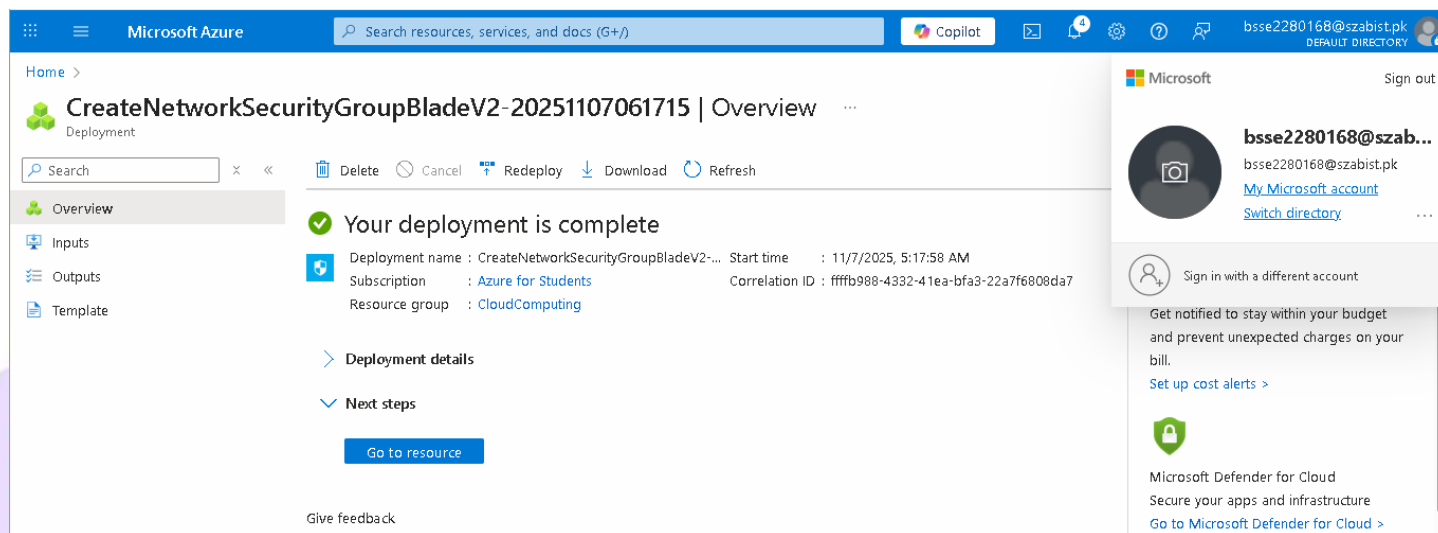
In this task, we will create a network security group and associate it with the network interface.

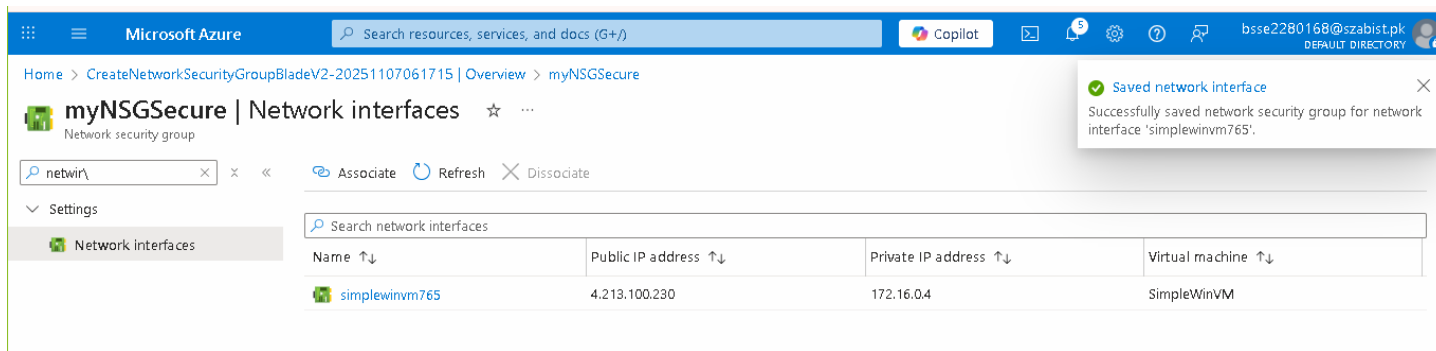
- From the **All services** blade, search for and select **Network security groups** and then click **+ Add, + Create, + New**

- On the **Basics** tab of the **Create network security group** blade, specify the following settings.

Setting	Value
Subscription	Use default subscription
Resource group	Select default from drop down
Name	myNSGSecure
Region	(US) East US

- Click **Review + create** and then after the validation click **Create**.
- After the NSG is created, click **Go to resource**.
- Under **Settings** click **Network interfaces** and then **** Associate****.
- Select the network interface you identified in the previous task.





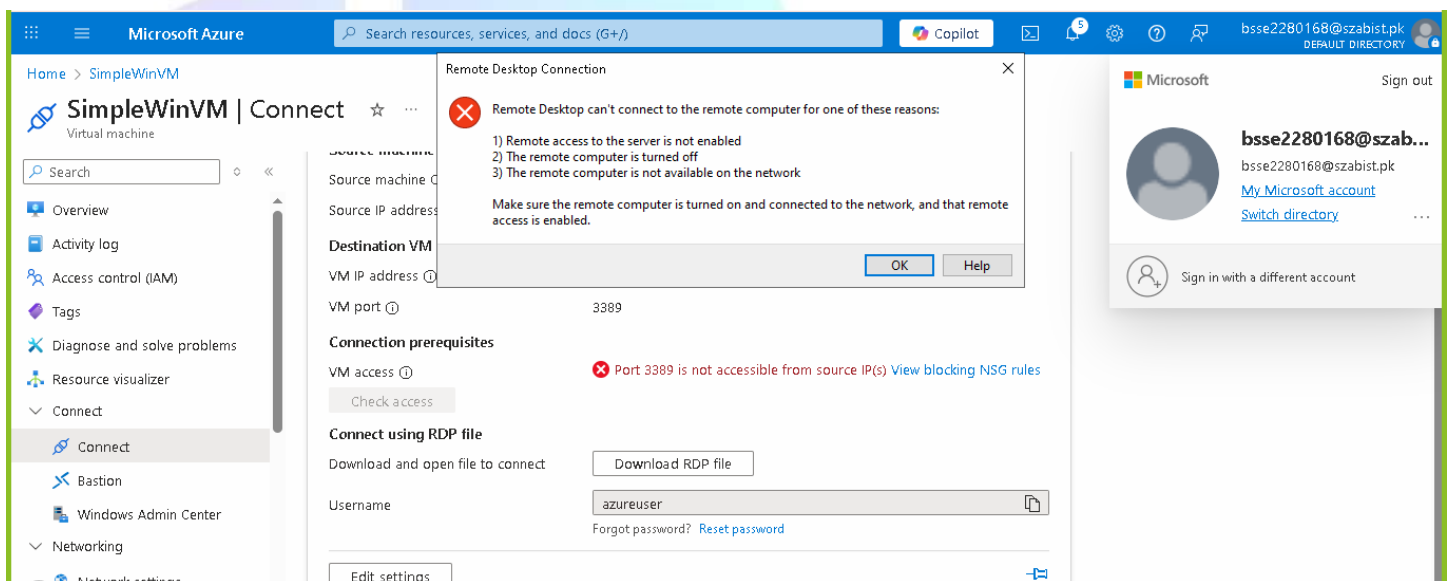
9.

10.

Task 3: Configure an inbound security port rule to allow RDP

In this task, we will allow RDP traffic to the virtual machine by configuring an inbound security port rule.

1. In the Azure portal, navigate to the blade of the **SimpleWinVM** virtual machine.
2. On the **Overview** pane, click **Connect**.
3. Attempt to connect to the virtual machine by selecting RDP and downloading an running the RDP file. By default the network security group does not allow RDP. Close the error window.



4.

5. On the virtual machine blade, scroll down to the **Settings** section, click on **Networking**, and notice the inbound rules for the **myNSGSecure (attached to network interface: myVMNic)** network security group denies all inbound traffic except traffic within the virtual network and load balancer probes.
6. On the **Inbound port rules** tab, click **Add inbound port rule** . Click **Add** when you are done.

Setting	Value
Source	Any
Source port ranges	*
Destination	Any

Destination port ranges **3389**

Setting	Value
Protocol	TCP
Action	Allow
Priority	300
Name	AllowRDP

7. Select **Add** and wait for the rule to be provisioned and then try again to RDP into the virtual machine by going back to **Connect** This time you should be successful. Remember the user is **azureuser** and the password is **Pa\$\$wOrd1234**.

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Home > SimpleWinVM

SimpleWinVM | Network settings

Virtual machine

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How can I make this VM secure? List all my network interfaces for this VM +1

List all my network interfaces for SimpleWinVM. What are the requirements for attaching or detaching a network interface? How

Attach network interface Detach network interface View topology Troubleshoot Refresh Give feedback

Network interface / IP configuration
simplewinvm765 (primary) / ipconfig1 (primary)

Essentials

Network interface	: simplewinvm765	Load balancers	: 0 (Configure)
Virtual network / subn...	: vnet-centralindia / subnet-centralindia-1	Application security ...	: 0 (Configure)
Public IP address	: 4.213.100.230	Network security gr...	: myNSGSecure
Private IP address	: 172.16.0.4	Accelerated network...	: Enabled
Admin security rules	: 0 (Configure)	Effective security rules	: 0

Rules Collapse all

Network security group myNSGSecure (attached to networkInterface: simplewinvm765)

8.

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Attach network interface Detach network interface View topology Troubleshoot Refresh Give feedback

Network interface / IP configuration
simplewinvm765 (primary) / ipconfig1 (primary)

Essentials

Network interface	: simplewinvm765	Load balancers	: 0 (Configure)
Virtual network / subn...	: vnet-centralindia / subnet-centralindia-1	Application security ...	: 0 (Configure)
Public IP address	: 4.213.100.230	Network security gr...	: myNSGSecure
Private IP address	: 172.16.0.4	Accelerated network...	: Enabled
Admin security rules	: 0 (Configure)	Effective security rules	: 0

Rules Collapse all

Network security group myNSGSecure (attached to networkInterface: simplewinvm765)

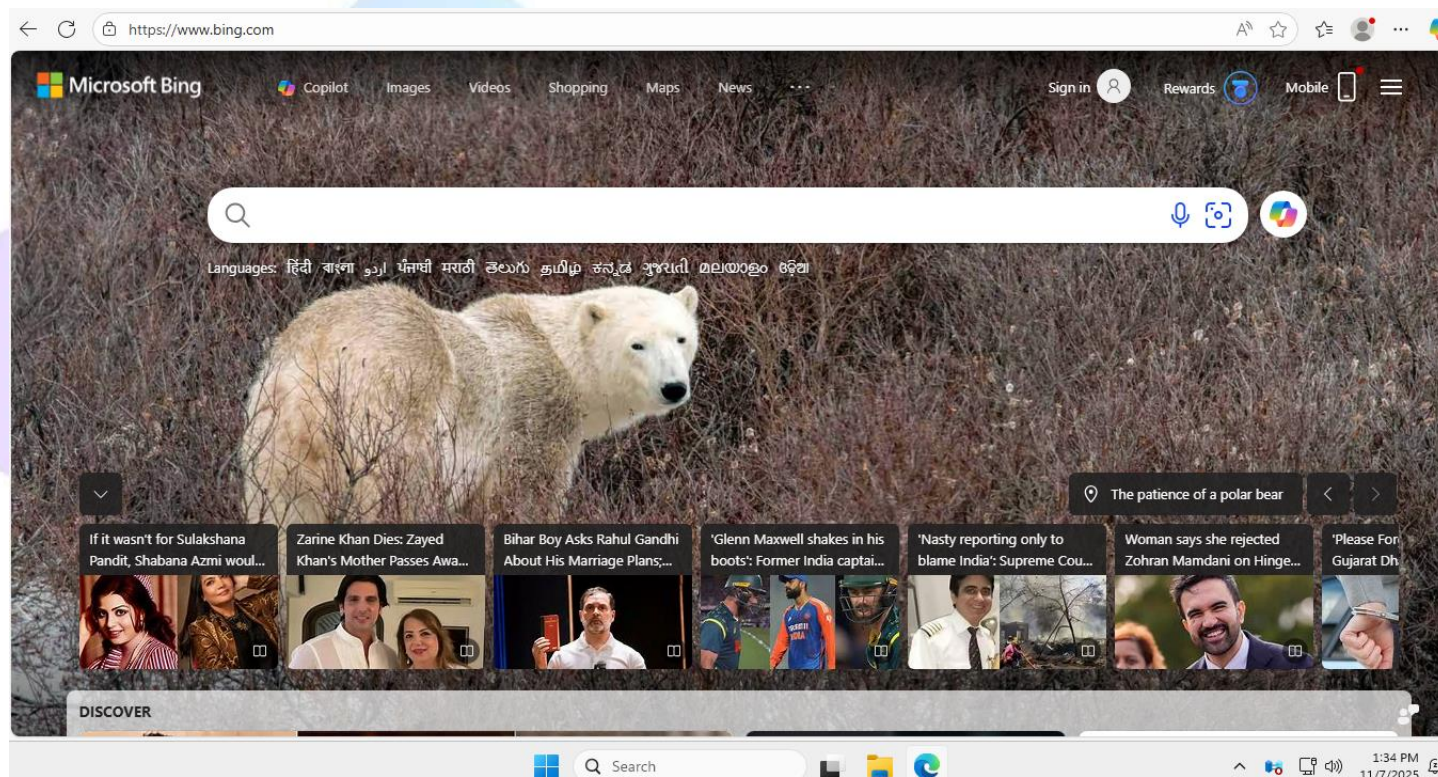
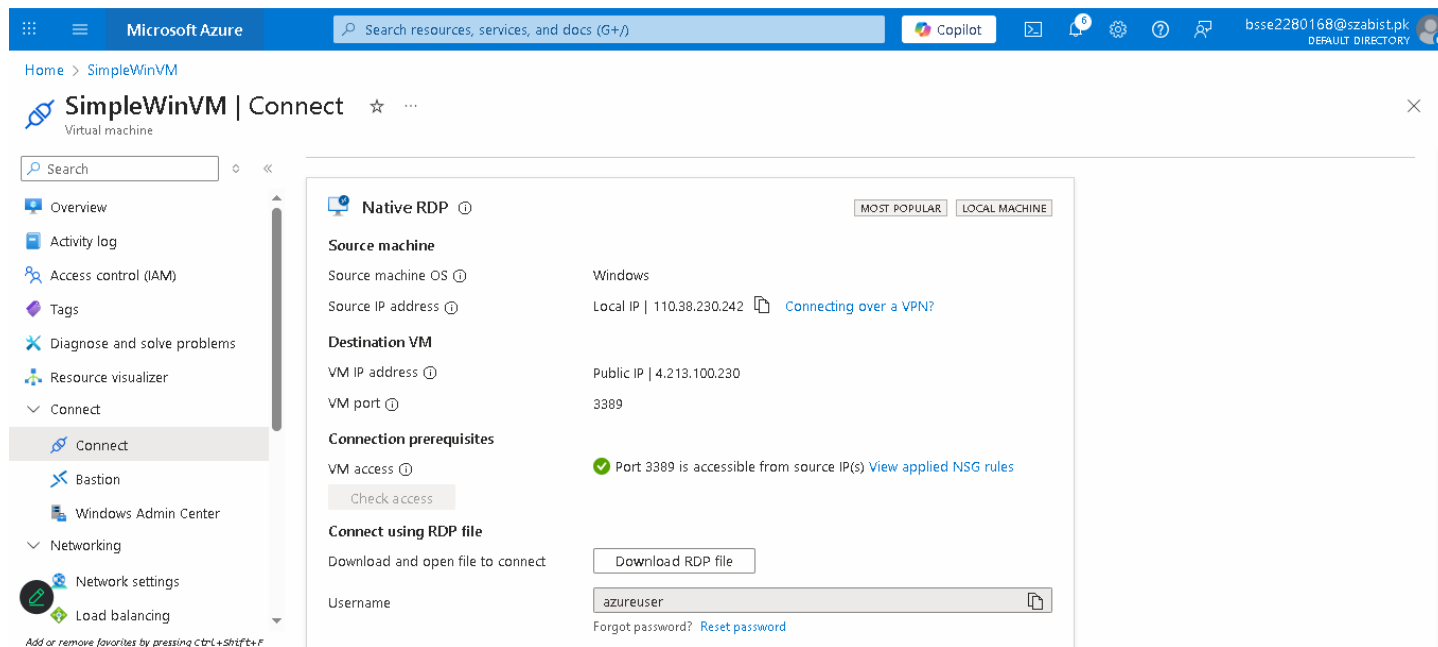
Impacts 0 subnets, 1 network interfaces

+ Create port rule

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

Priority ↑	Name	Port	Protocol	Source	Destination	Action
Inbound port rules (4)						
300	AllowRDP	3389	TCP	Any	Any	Allow
65000	AllowVnetInBound	Any	Any	VirtualNetwork	VirtualNetwork	Allow
65001	AllowAzureLoadBalancerInBo...	Any	Any	AzureLoadBalancer	Any	Allow
65500	DenyAllInBound	Any	Any	Any	Any	Deny
Outbound port rules (3)						

9.



Task 4: Configure an outbound security port rule to deny Internet access

In this task, we will create a NSG outbound port rule that will deny Internet access and then test to ensure the rule is working.

1. Continue in your virtual machine RDP session.
2. After the machine starts, open an **Internet Explorer** browser.

3. Verify that you can access <https://www.bing.com> and then close Internet Explorer. You will need to work through the IE enhanced security pop-ups.

Note: We will now configure a rule to deny outbound internet access.

4. Back in the Azure portal, navigate back to the blade of the **SimpleWinVM** virtual machine.
5. Under **Settings**, click **Networking**, and then **Outbound port rules**.
6. Notice there is a rule, **AllowInternetOutbound**. This is a default rule and cannot be removed.
7. Click **Add outbound port rule** to the right of the **myNSGSecure (attached to network interface: myVMNic)** network security group and configure a new outbound security rule with a higher priority that will deny internet traffic. Click **Add** when you are finished.

Setting	Value
Source	Any
Source port ranges	*
Destination	Service Tag
Destination service tag	Internet
Destination port ranges	*
Protocol	TCP
Action	Deny
Priority	4000
Name	DenyInternet

8. Click **Add** Return to the VM you RDP'd.
9. Browse to <https://www.microsoft.com>. The page should not display. You may need to work through additional IE enhanced security pop-ups.

Note: To avoid additional costs, you can optionally remove this resource group. Search for resource groups, click your resource group, and then click **Delete resource group**. Verify the name of the resource group and then click **Delete**. Monitor the **Notifications** to see how the delete is proceeding.

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Application security groups

Search rules

Source == all

Destination == all

Protocol == all

Action == all

Port == all

Prio...	Name	Port	Protocol	Source	Destination	Action
Inbound port rules (4)						
300	AllowRDP	3389	TCP	Any	Any	Allow
65000	AllowVnetInBound	Any	Any	VirtualNetwork	VirtualNetwork	Allow
65001	AllowAzureLoadBalancerInBound	Any	Any	AzureLoadBalancer	Any	Allow
65500	DenyAllInBound	Any	Any	Any	Any	Deny
Outbound port rules (3)						
65000	AllowVnetOutBound	Any	Any	VirtualNetwork	VirtualNetwork	Allow
65001	AllowInternetOutBound	Any	Any	Any	Internet	Allow
65500	DenyAllOutBound	Any	Any	Any	Any	Deny

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Application security groups

How can I make this VM secure?

What are the requirements for attaching and detaching disks?

Created security rule

Successfully created security rule 'DenyInternet'.

Priority	Name	Port	Protocol	Source	Destination	Action
Inbound port rules (4)						
300	AllowRDP	3389	TCP	Any	Any	Allow
65000	AllowVnetInBound		Any	Any	VirtualNetwork	Allow
65001	AllowAzureLoadBalancerInBound		Any	Any	AzureLoadBalancer	Allow
65500	DenyAllInBound		Any	Any	Any	Deny
Outbound port rules (4)						
4000	DenyInternet	8080	TCP	Any	Internet	Deny
65000	AllowVnetOutBound		Any	Any	VirtualNetwork	Allow
65001	AllowInternetOutBound		Any	Any	Internet	Allow
65500	DenyAllOutBound		Any	Any	Any	Deny

SimpleWinVM - 172.206.57.214:3389 - 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