

# WEEK 8: Assignment 2: Azure Firewall

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CS-CNS06-24062

## Introduction

In this lab, we will explore the deployment and configuration of Azure Firewall, a critical component in enhancing network security within Azure environments. Azure Firewall is a managed, cloud-based network security service that helps protect your virtual networks by controlling both inbound and outbound traffic. By setting up a virtual network with subnets, virtual machines, and specific firewall rules, we will learn how to manage and secure traffic effectively. This lab focuses on using Azure Firewall to allow or restrict access to specific applications and services, ensuring that our network traffic is tightly controlled.

## Objectives

1. Deploy a Virtual Network and Subnets: Create a virtual network with two subnets—one for the workload and one for the jump host—where we will deploy virtual machines.
2. Deploy an Azure Firewall: Install Azure Firewall into the virtual network, which will act as a security barrier for network traffic.
3. Create a Default Route: Configure a custom route that forces all outbound traffic from the workload subnet to pass through the Azure Firewall.
4. Configure Firewall Rules: Set up application and network rules in Azure Firewall to manage outbound traffic. Specifically, we will allow access to certain websites and DNS servers while blocking others.
5. Test the Firewall Configuration: Validate the configuration by testing access to allowed and blocked websites from the deployed virtual machines.

**Deploy the Lab Environment:** Using an ARM template, you will deploy a virtual network with two subnets and virtual machines, setting the stage for firewall configuration.

Custom deployment - Microsoft

portal.azure.com/#create/Microsoft.Template

Microsoft Azure

Search resources, services, and docs (G+)

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### Custom deployment

Deploy from a custom template

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Subscription \* ⓘ Azure subscription 1

Resource group \* ⓘ (New) AZ500LAB08  
[Create new](#)

Instance details

Region \* ⓘ East US 2

Admin Username localadmin ✓

Admin Password \* \*\*\*\*\* ✓

Virtual Machines\_Srv\_Jump\_name Srv-Jump ✓

Virtual Machines\_Srv\_Work\_name Srv-Work ✓

Previous Next Review + create

Microsoft.Template-202408081

portal.azure.com/#view/HubsExtension/DeploymentDetailsBlade/~/\_overview/id/%2Fsubscriptions%2F2937888e-617f-47fb-bf0b-40eea672b...

Microsoft Azure

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### Microsoft.Template-20240808183740 | Overview

Deployment

Search

Delete Cancel Redeploy Download Refresh

Overview

Inputs

Outputs

Template

✓ Your deployment is complete

Deployment name : Microsoft.Template-202408081... Start time : 8/8/2024, 6:38:00 PM

Subscription : Azure subscription 1 Correlation ID : e2d4d63a-2593-46a6-aacd-ef4...

Resource group : AZ500LAB08

Deployment details

Next steps

Go to resource group

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The next step is creating a firewall

Create a firewall - Microsoft Azure

portal.azure.com/#create/Microsoft.AzureFirewall-Arm

Microsoft Azure

Home > Firewall Manager | Azure Firewalls >

## Create a firewall

virtual network. The service is fully integrated with Azure Monitor for logging and analytics. [Learn more](#)

**Project details**

Subscription \* Azure subscription 1

Resource group \* AZ500LAB08 [Create new](#)

**Instance details**

Name \* Test-FW01

Region \* East US

Availability zone ① None

[Premium firewalls support additional capabilities, such as SSL termination and IDPS. Additional costs may apply. \[Learn more\]\(#\)](#)

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Microsoft.AzureFirewall-202408190929 | Overview

Deployment

Search

Delete Cancel Redeploy Download Refresh

**Overview**

Inputs

Outputs

Template

**Your deployment is complete**

Deployment name : Microsoft.AzureFirewall-202408190929 Start time : 8/8/2024, 7:10:08 PM

Subscription : Azure subscription 1 Correlation ID : 005c9c5f-b311-4b70-83d9-4f6...

Resource group : AZ500LAB08

> Deployment details

> Next steps

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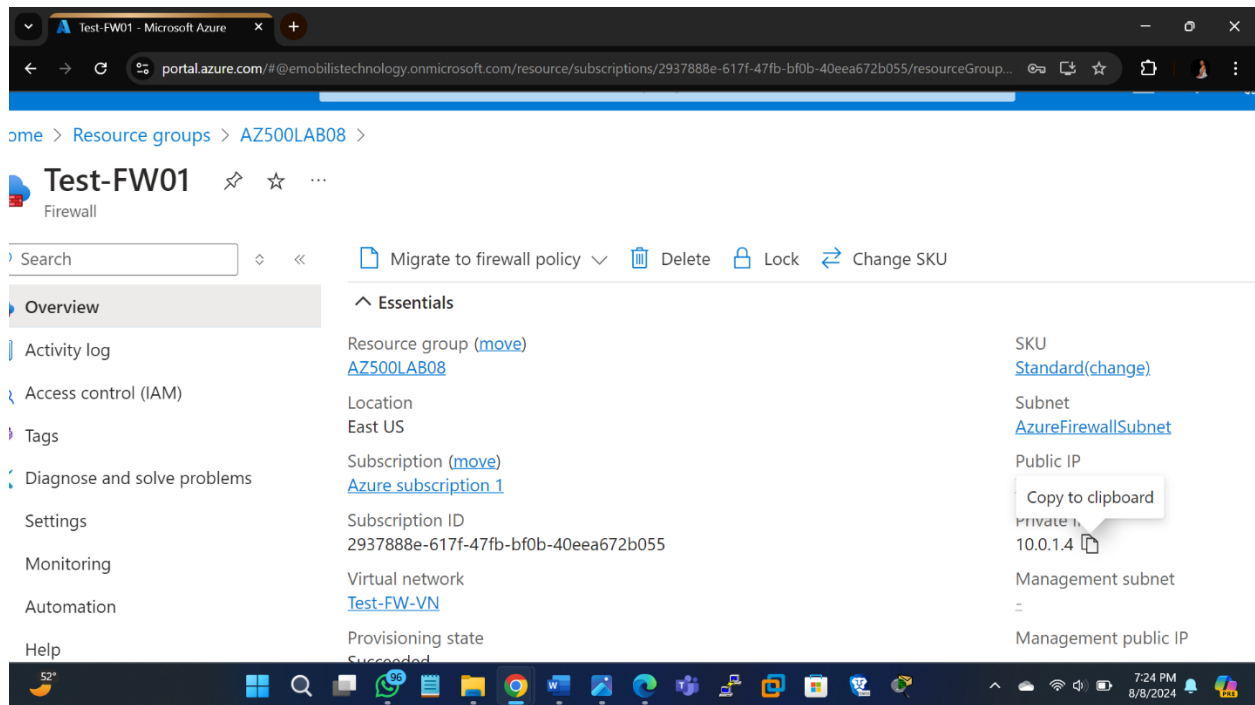
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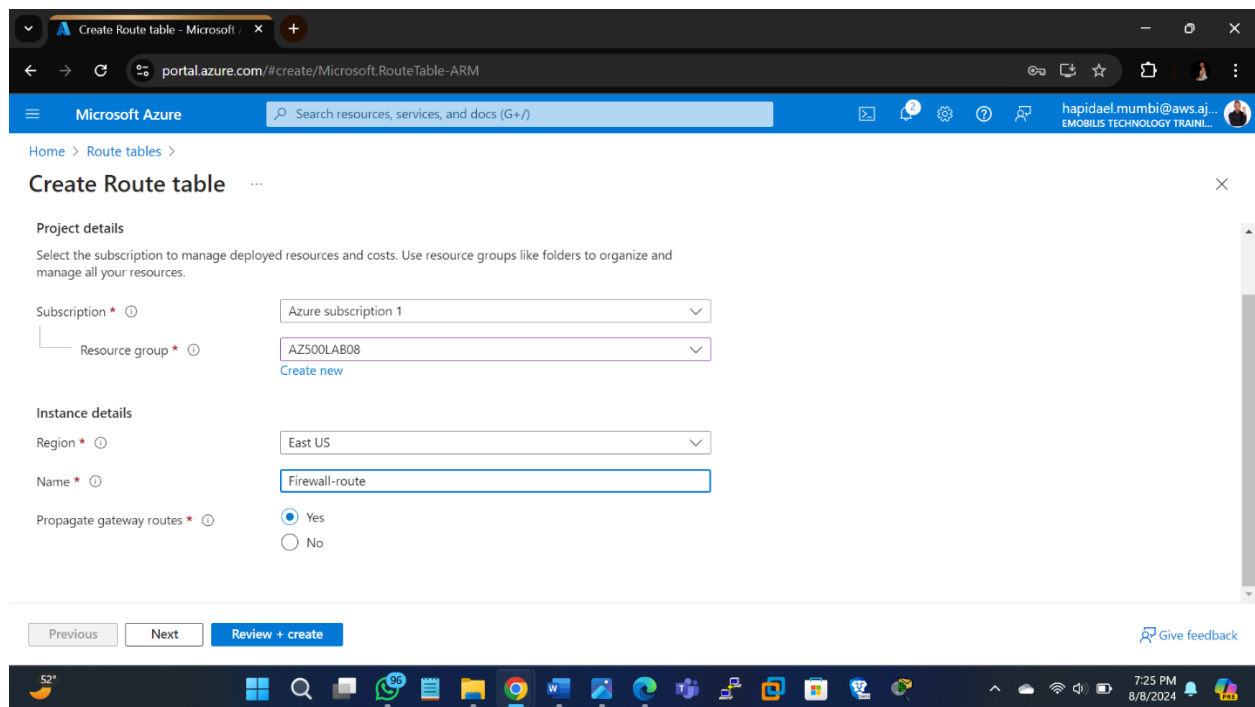
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Below you can see the private ip address that was assigned to the firewall



Here I will create a default route for the **Workload-SN** subnet. This route will configure outbound traffic through the firewall.



Microsoft.Azure portal.azure.com

Microsoft.RouteTable-20240808192518 | Overview

Deployment

Search

Overview

Inputs

Outputs

Template

✓ Your deployment is complete

Deployment name : Microsoft.RouteTable-20240808192518 Start time : 8/8/2024, 7:26:44 PM

Subscription : Azure subscription 1 Correlation ID : 390d4b5b-545d-4226-976b-cd...

Resource group : AZ500LAB08

> Deployment details

Next steps

Go to resource

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## Associating the firewall to the virtual network subnet

Associate subnet - Microsoft Azure

portal.azure.com

Microsoft.Azure

Search resources, services, and docs (G+)

Home > Microsoft.RouteTable-20240808192518 | Overview > Firewall-route

Firewall-route | Subnets

Route table

Search

Associate

Search subnets

Name ↑↓ Address range ↑↓

No results.

Associate subnet

Firewall-route

Virtual network

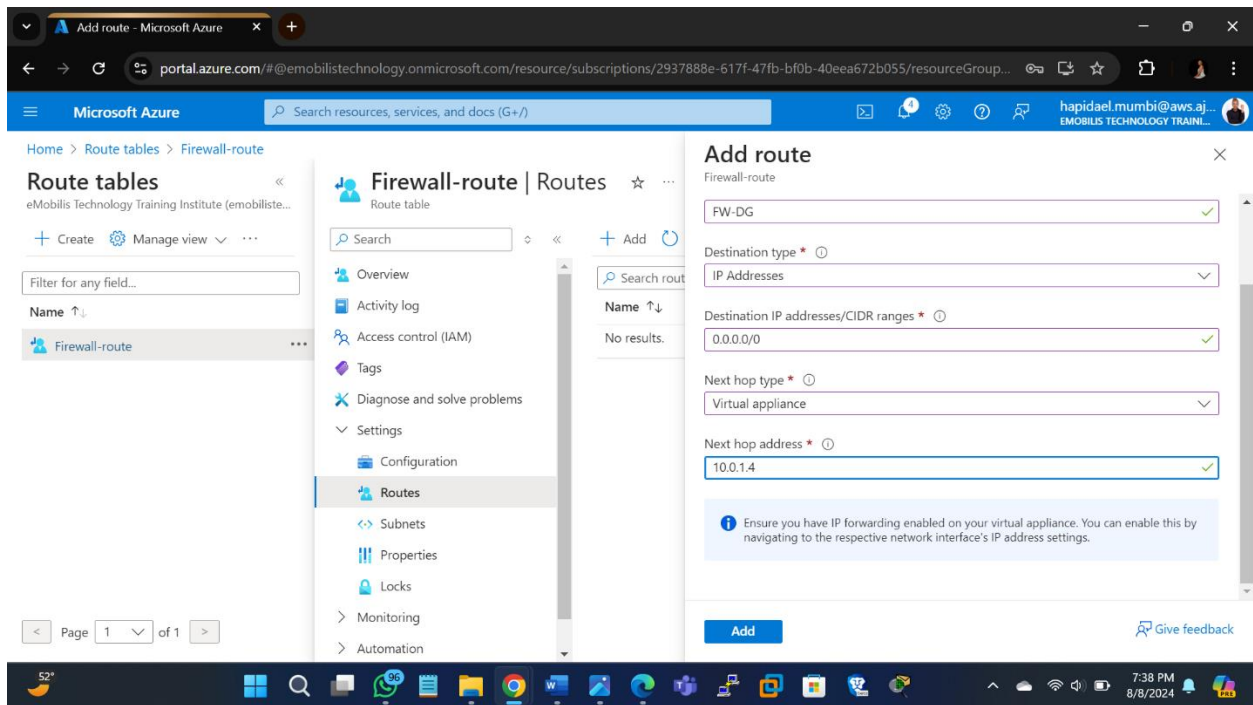
Test-FW-VN (AZ500LAB08)

Subnet

Workload-SN

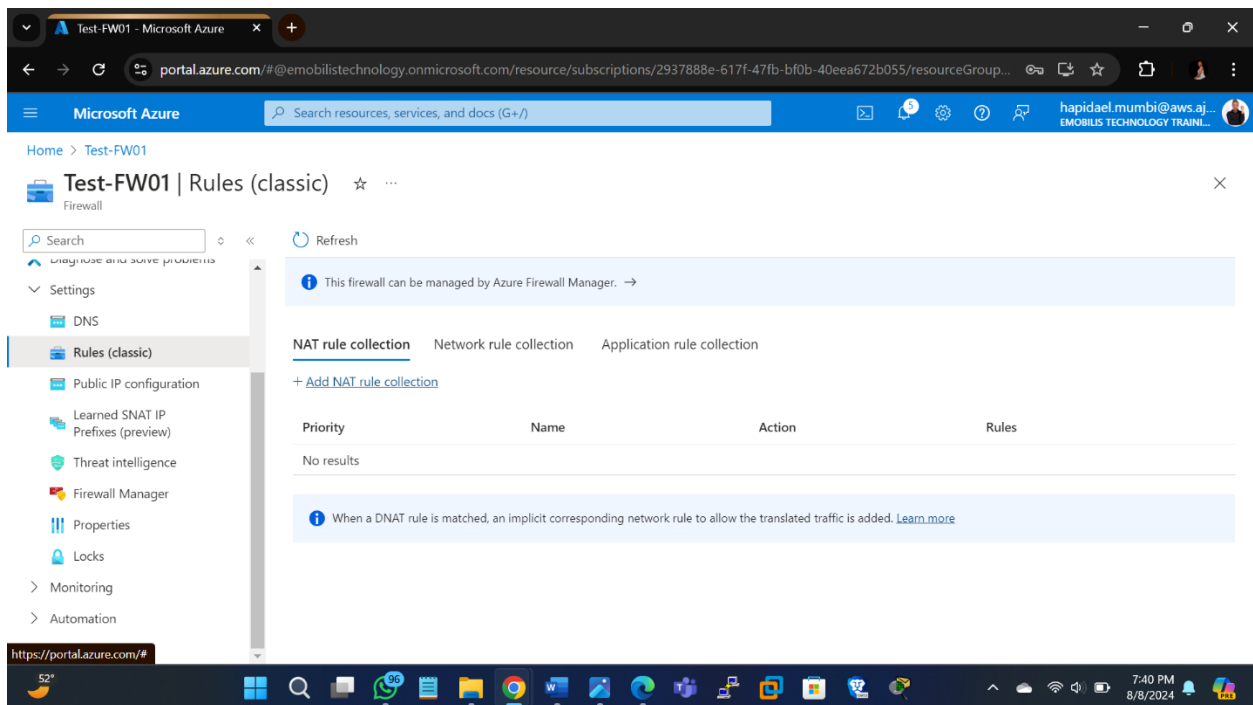
OK

Give feedback

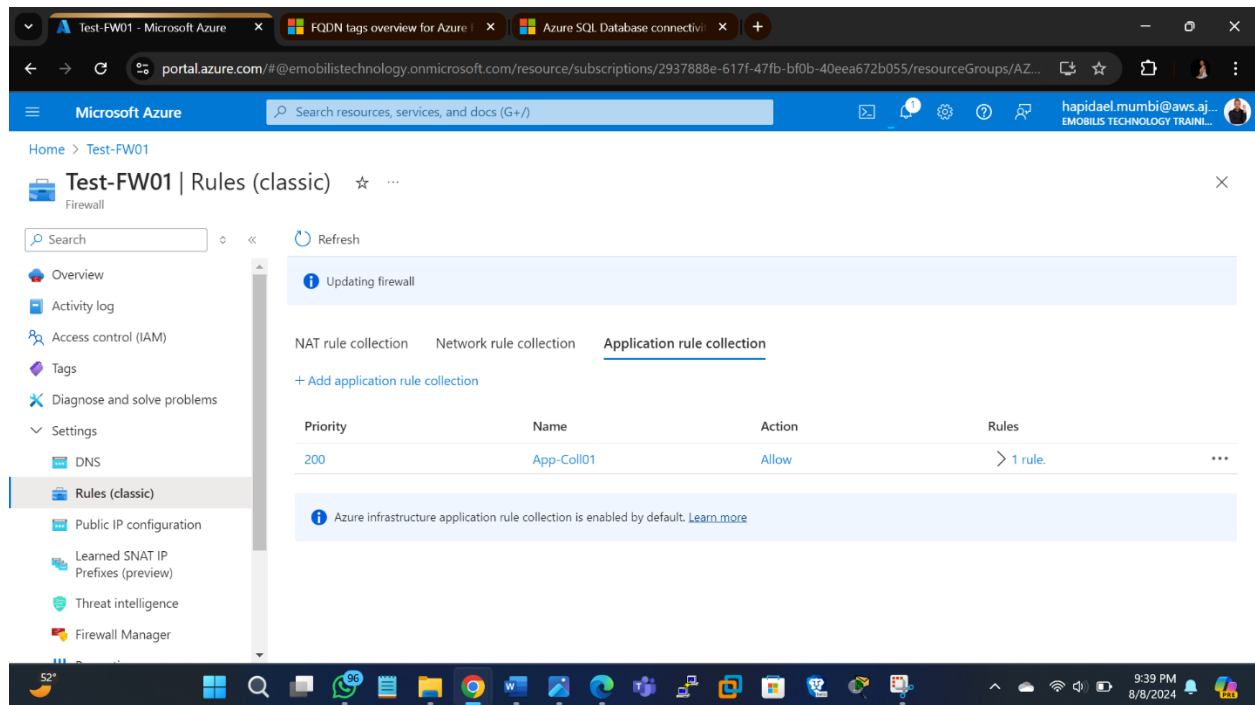


## Task 4: Configure an application rule

In this task I will create an application rule that allows outbound access to [www.bing.com](https://www.bing.com).



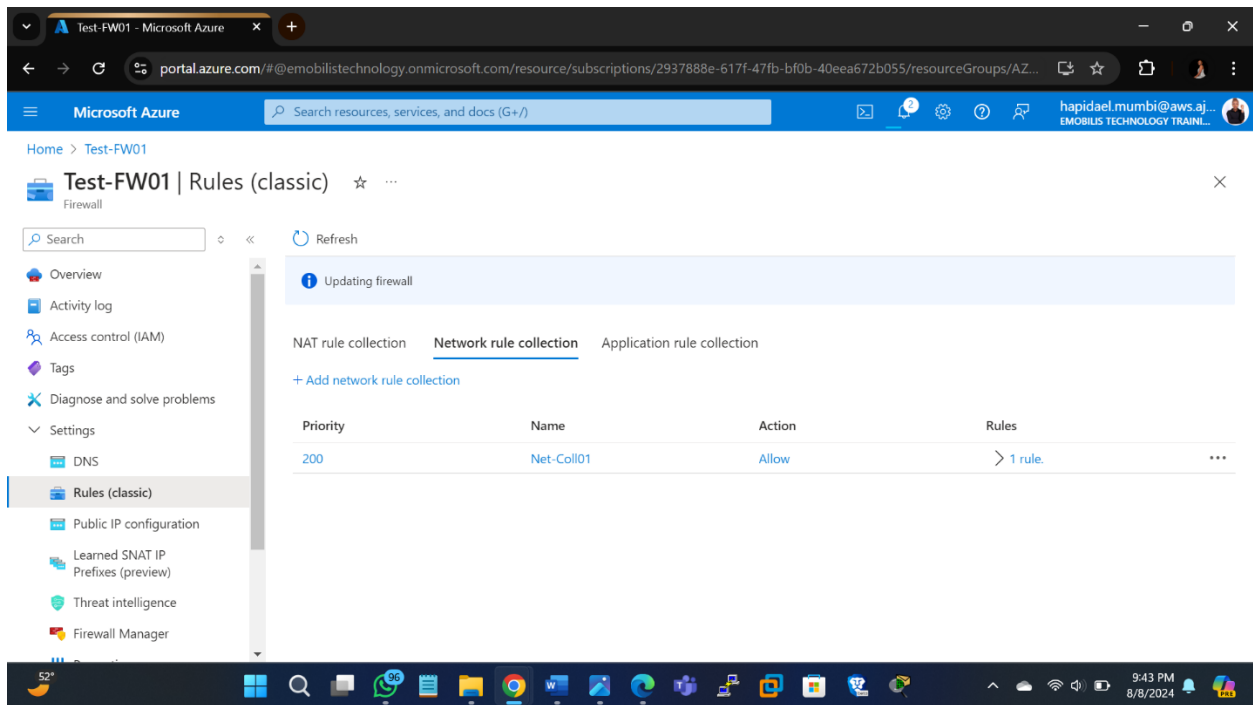
## Adding an application rule



## Task 5: Configure a network rule

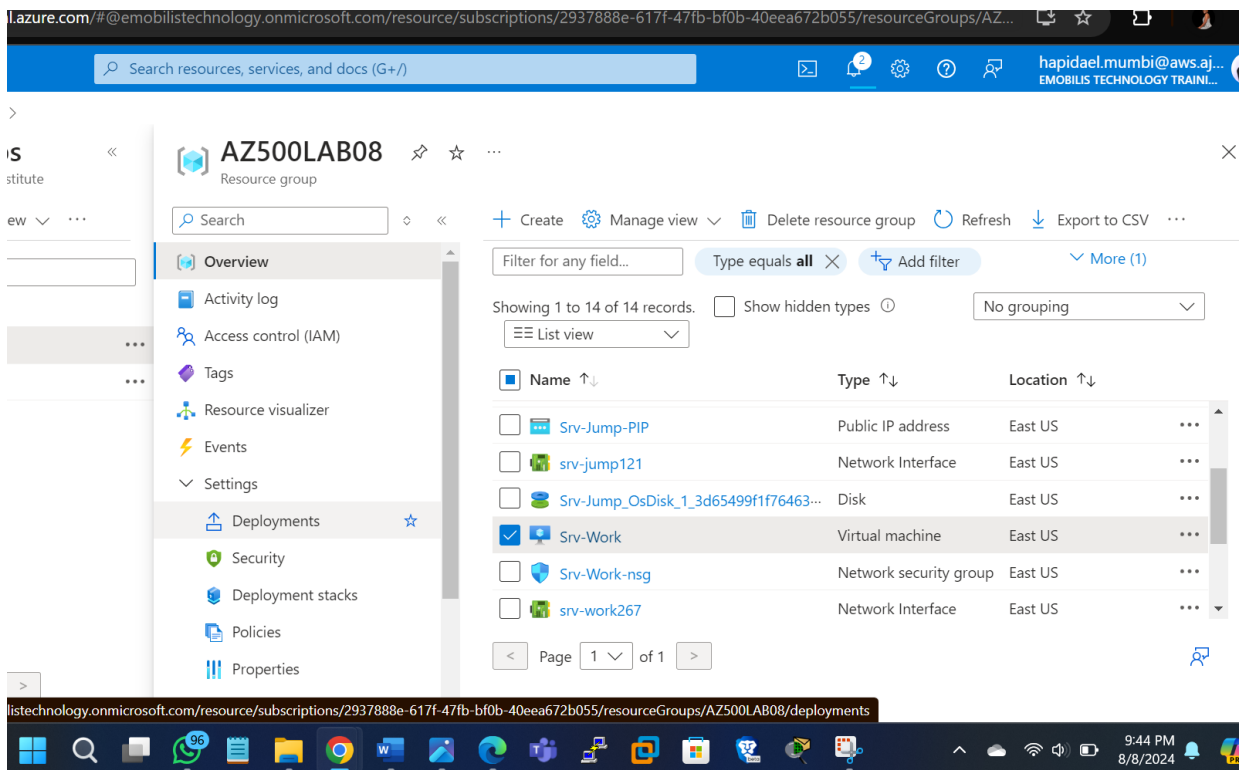
In this task, I will create a network rule that allows outbound access to two IP addresses on port 53 (DNS).

I added a network rule collection



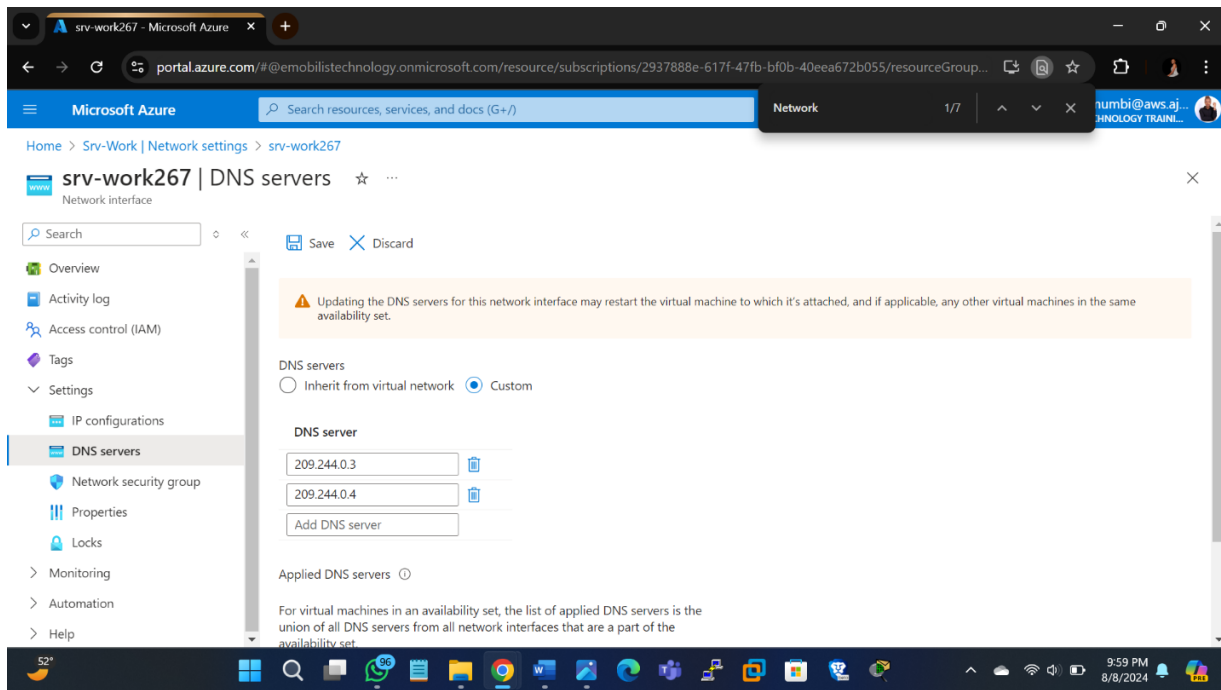
## Task 6: Configure the virtual machine DNS servers

In this task, you will configure the primary and secondary DNS addresses for the virtual machine. This is not a firewall requirement.



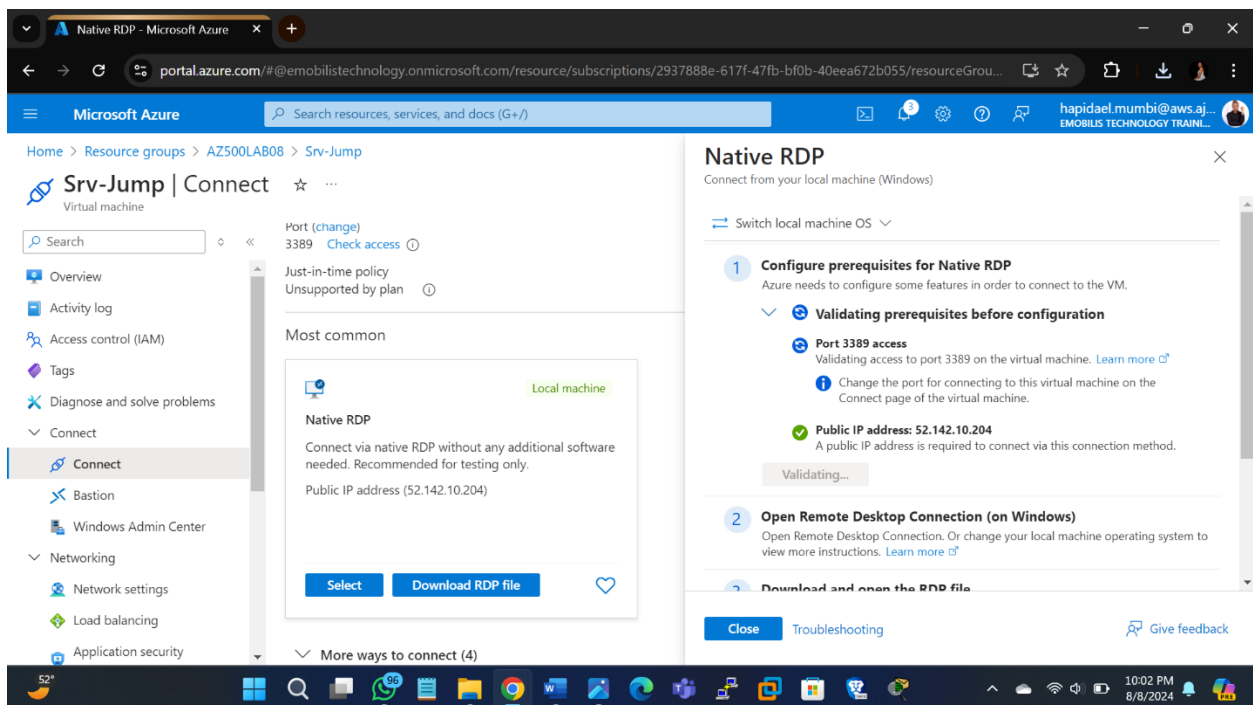


Adding the DNS servers **209.244.0.3** and **209.244.0.4**,

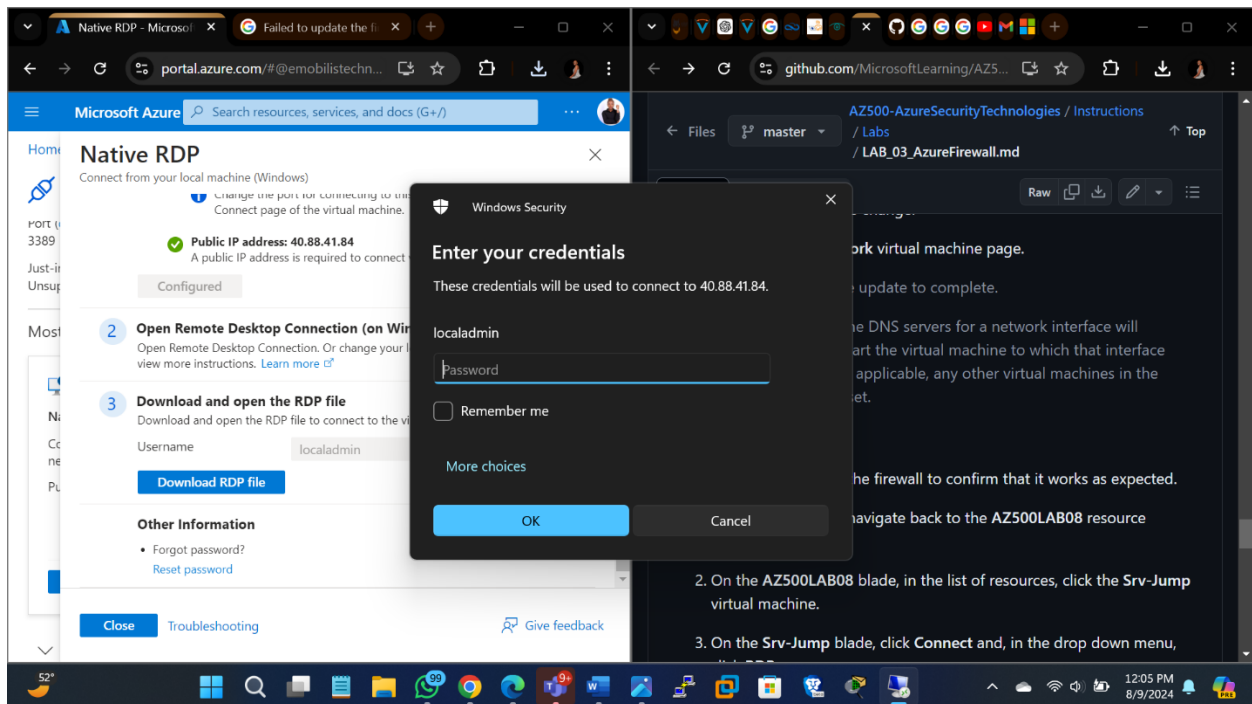


## Task 7: Test the firewall

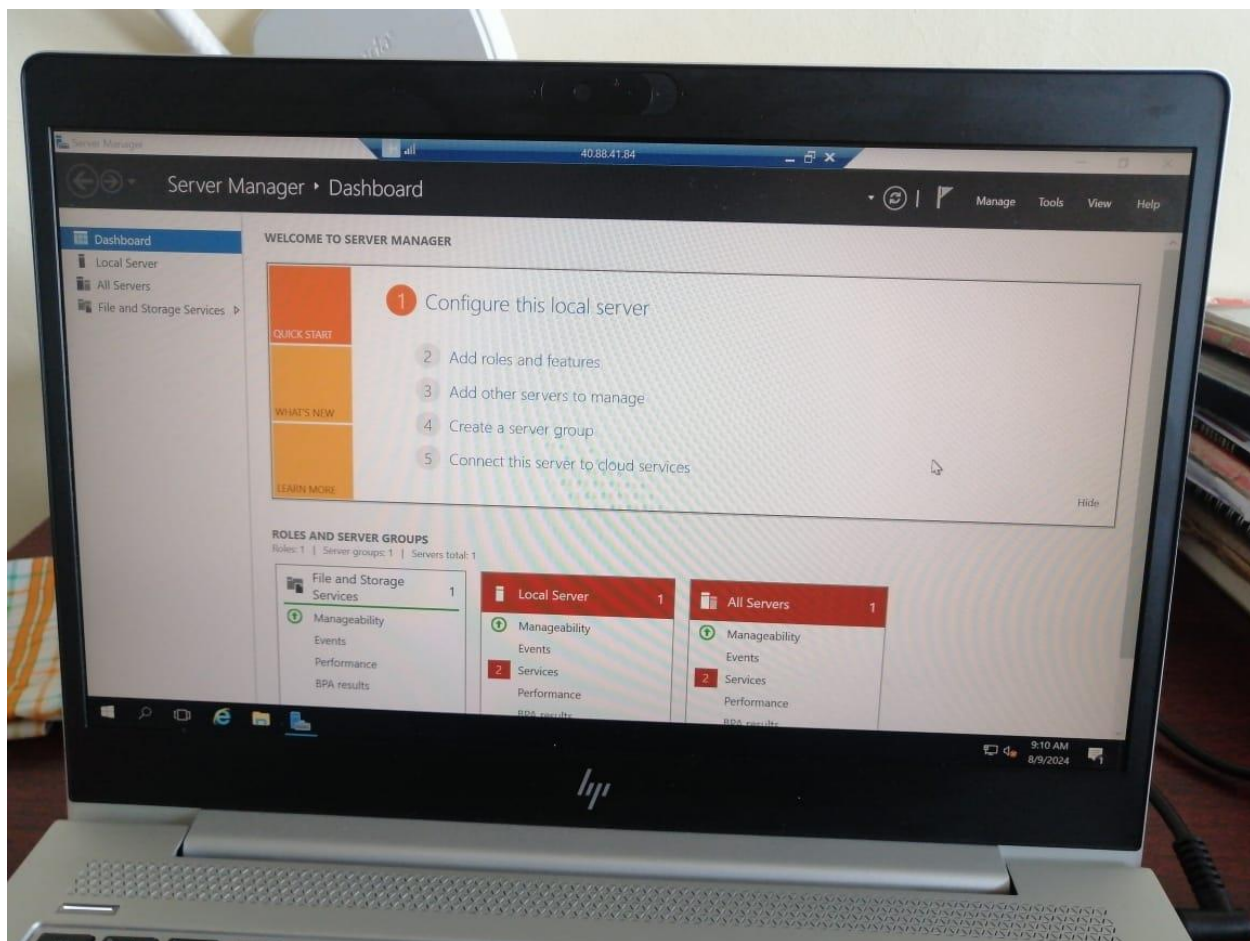
In this task, I will test the firewall to confirm that it works as expected.

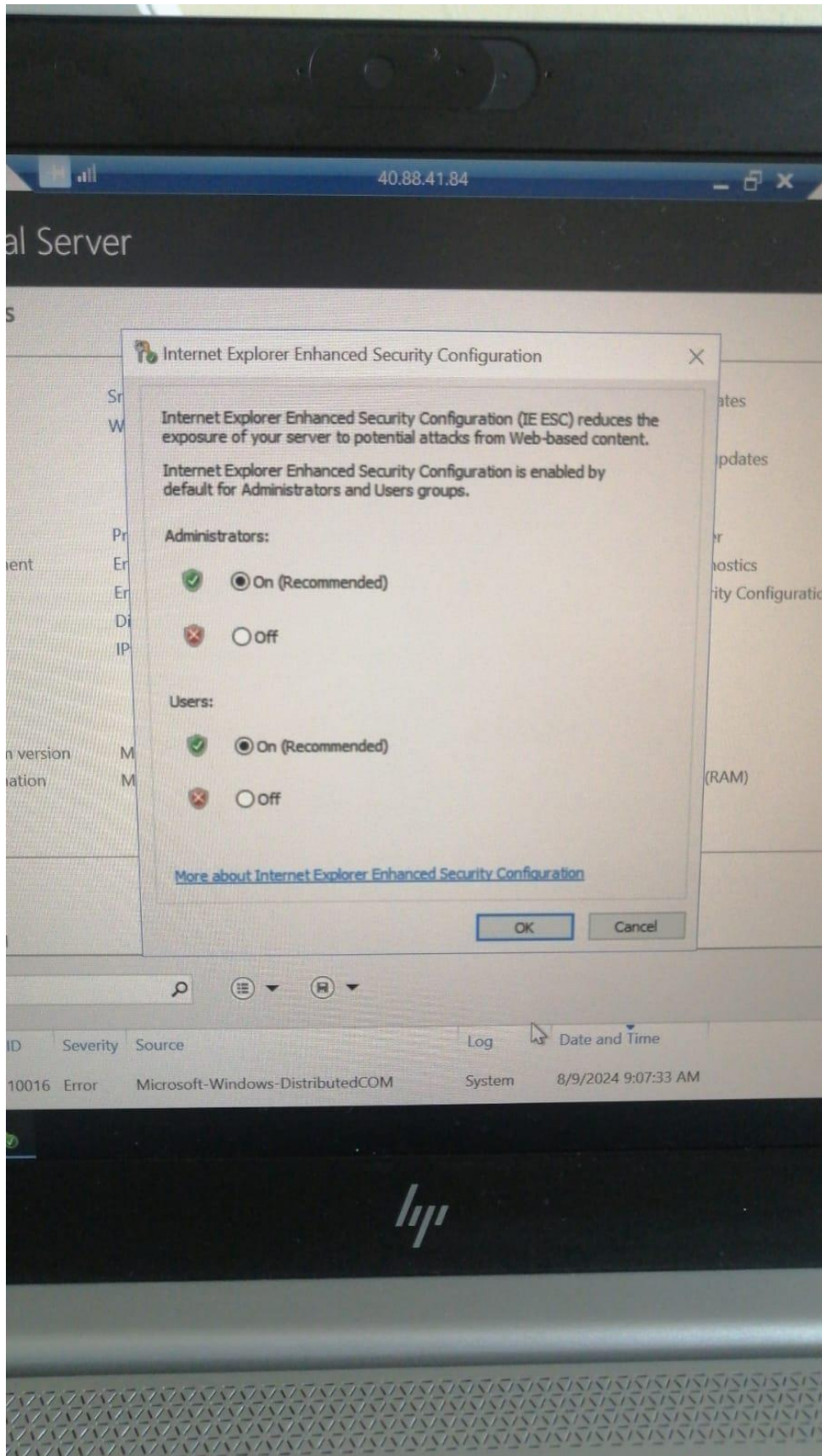


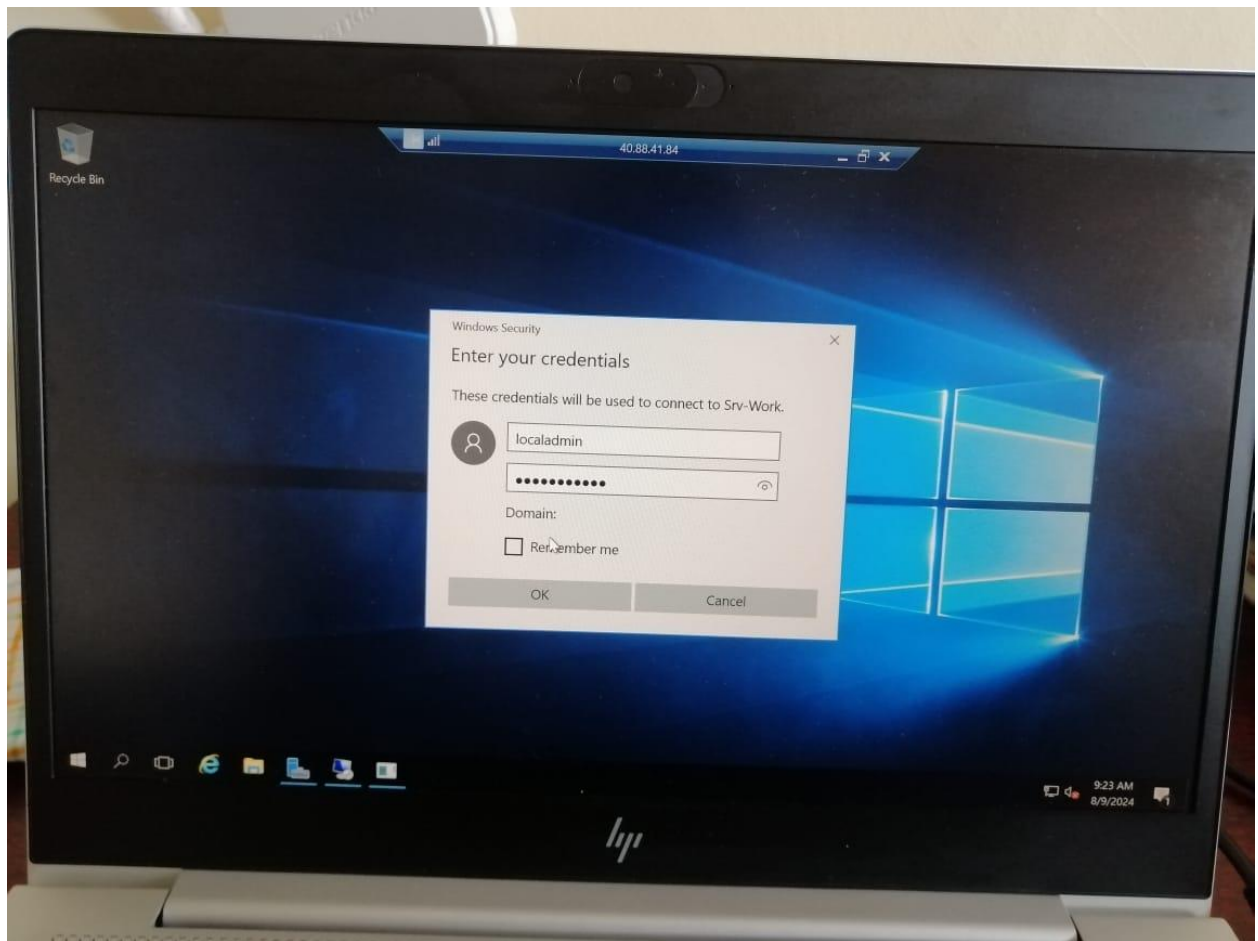
After downloading the RDP file I'll use it to connect srv-jump azure vm via Remote desktop



Within the Remote Desktop session to Srv-Work, in Server Manager, I'll click Local Server and then click IE Enhanced Security Configuration as show in the figures below

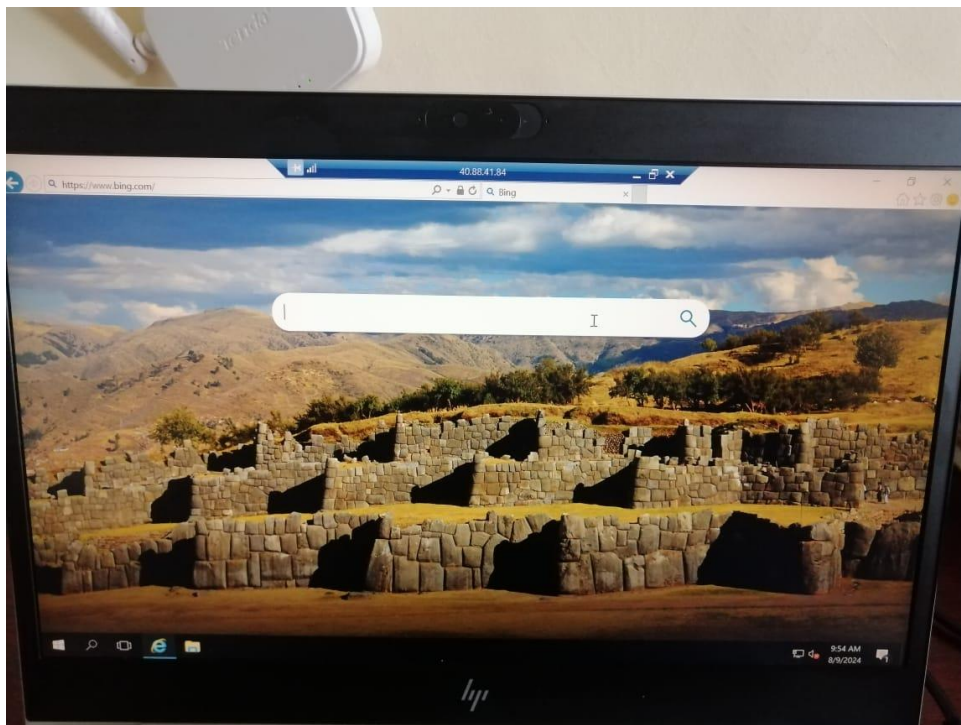
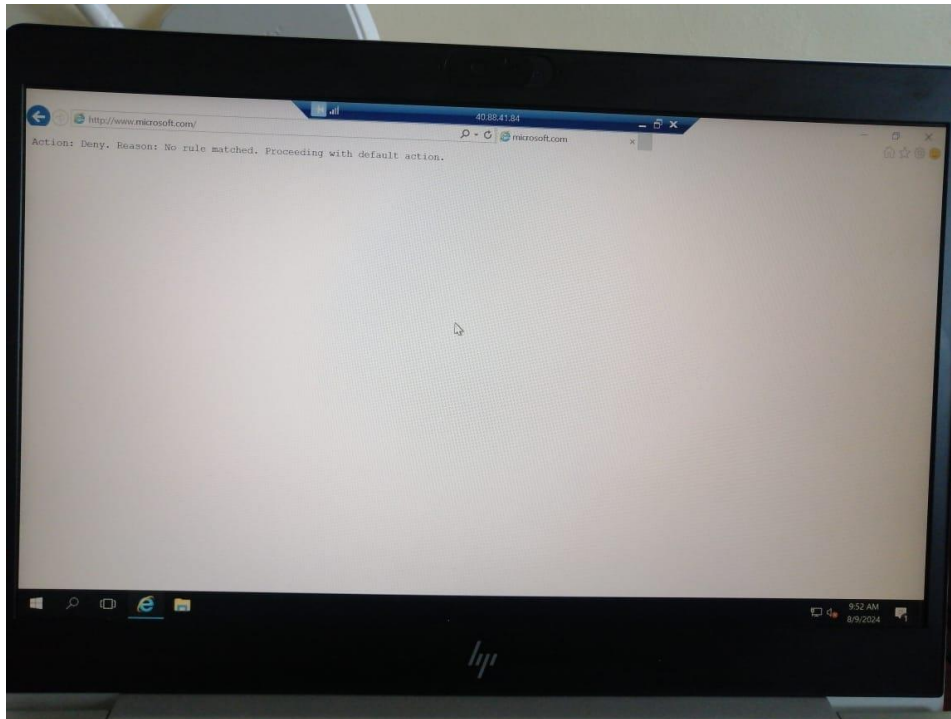








From the explore I'll Browse to <http://www.microsoft.com/> and <http://www.microsoft.com/> as shown in the diagrams below.



## **Conclusion**

By practicing this lab, I have gained hands-on experience with deploying and configuring Azure Firewall to manage network traffic within an Azure environment.

Also understood how to set up a secure virtual network, create custom routes, and implement firewall rules to control outbound and inbound traffic.

Additionally, I have learnt how to validate the firewall's effectiveness through practical testing