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# LAB 05 - IMPLEMENT INTERSITE CONNECTIVITY

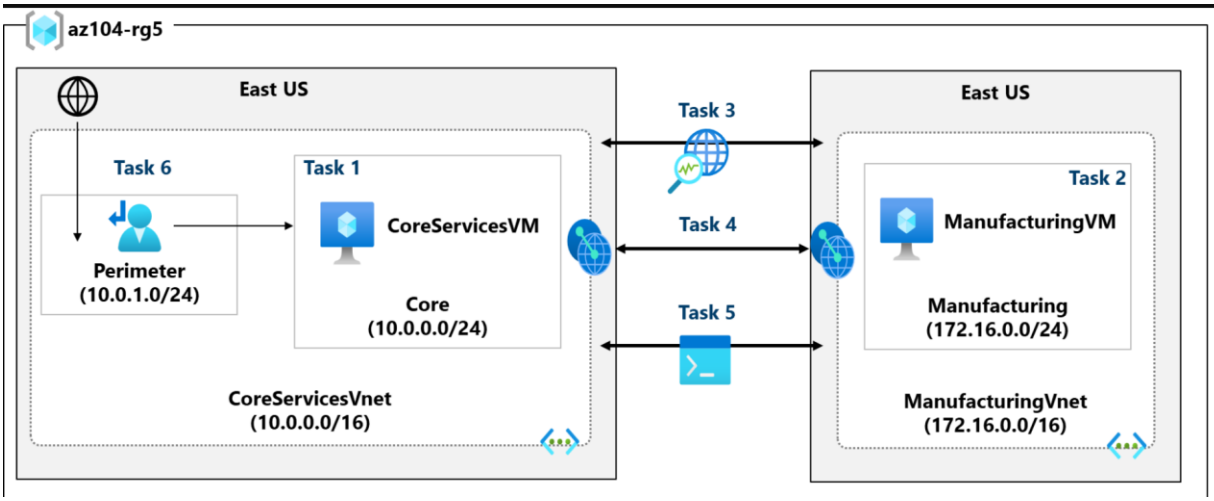
# INTRODUCTION

Inter-site connectivity means establishing connectivity between two sites. t's not necessarily that one is on-premises and the other is on the cloud. One can also establish private connectivity between two Azure regions as well. Each region can be considered as a site and establish connectivity between them

This report explores the communication between virtual networks demonstrated in different six task explained in the report. By configuration and implementation of virtual network peering and testing connections through different labs and also involve creating custom route.

This lab report in divided into six sections with the instruction on how to do the setup and full configuration that can help engineers to the full configuration. Task one involves Creating a virtual machine in a virtual network, task involves the process of creating and managing multiple VNets. Task three introduces the network watcher a vital diagnostic tool that test the connection between different virtual networks. Fourth task then delve into configuring VNet peering allowing seamless communication between virtual networks. Task five involves Using Azure PowerShell to test the connection between virtual machines this allows one to demonstrate how to use command-line tools in managing and monitoring network resources. Finally, the report show how to create custom route to refine and control the traffic flow. The routing rules demonstrates how the rules created can be improved to optimize network performance and security.

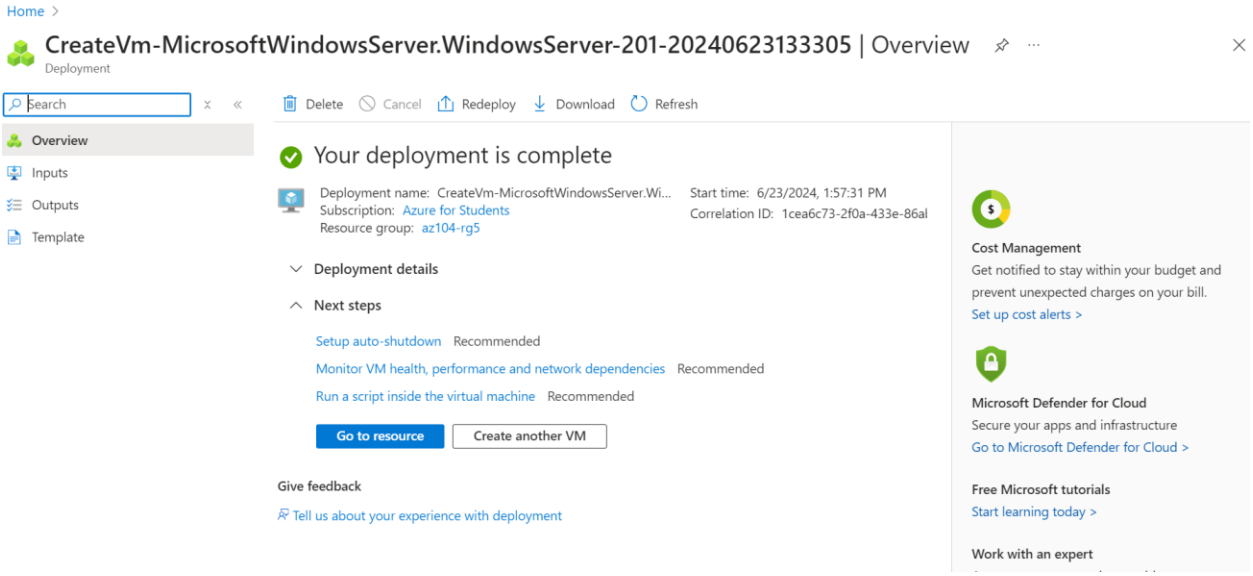
## Architecture diagram

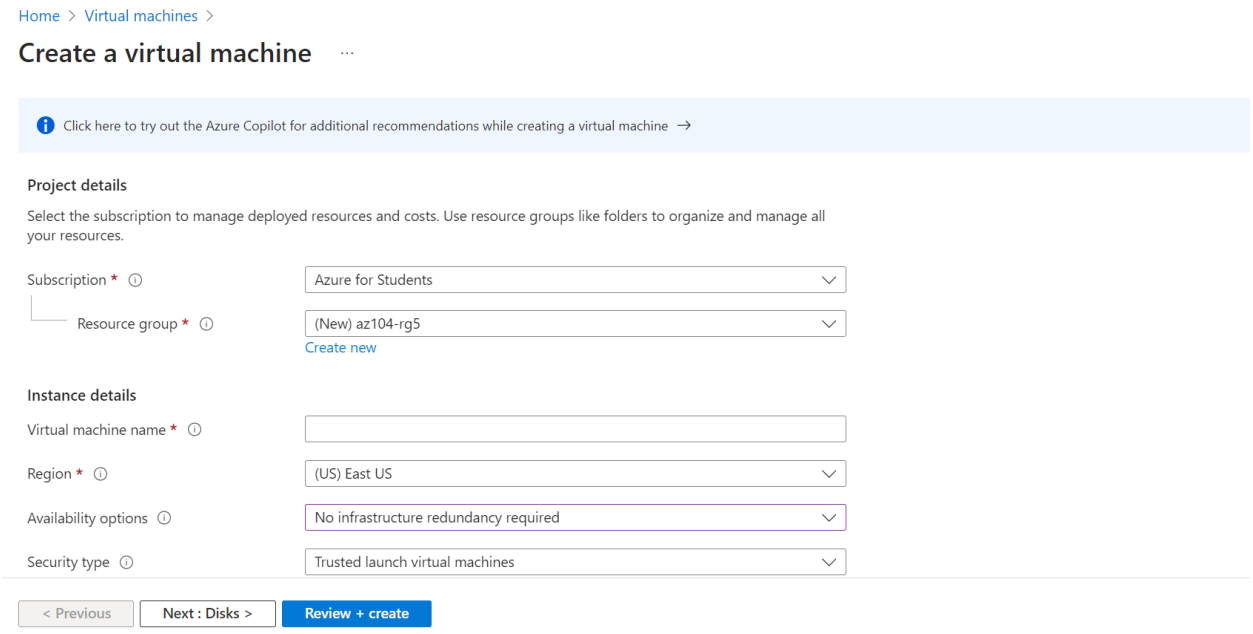



### Task 1: Create a core services virtual machine and virtual network

VMs allow you to more easily scale your apps by adding more physical or virtual servers to distribute the workload across multiple VMs

- **Instructions**
- Sign in to the Azure portal - https://portal.azure.com.
- Search for and select Virtual Machines.
- From the virtual machines page, select Create then select Azure Virtual Machine.
- On the Basics tab, use the following information to complete the form, and then select Next: Disks >. For any setting not specified, leave the default value
- Select the Monitoring tab. For Boot Diagnostics, select Disable.
- Select Review + Create, and then select Create.

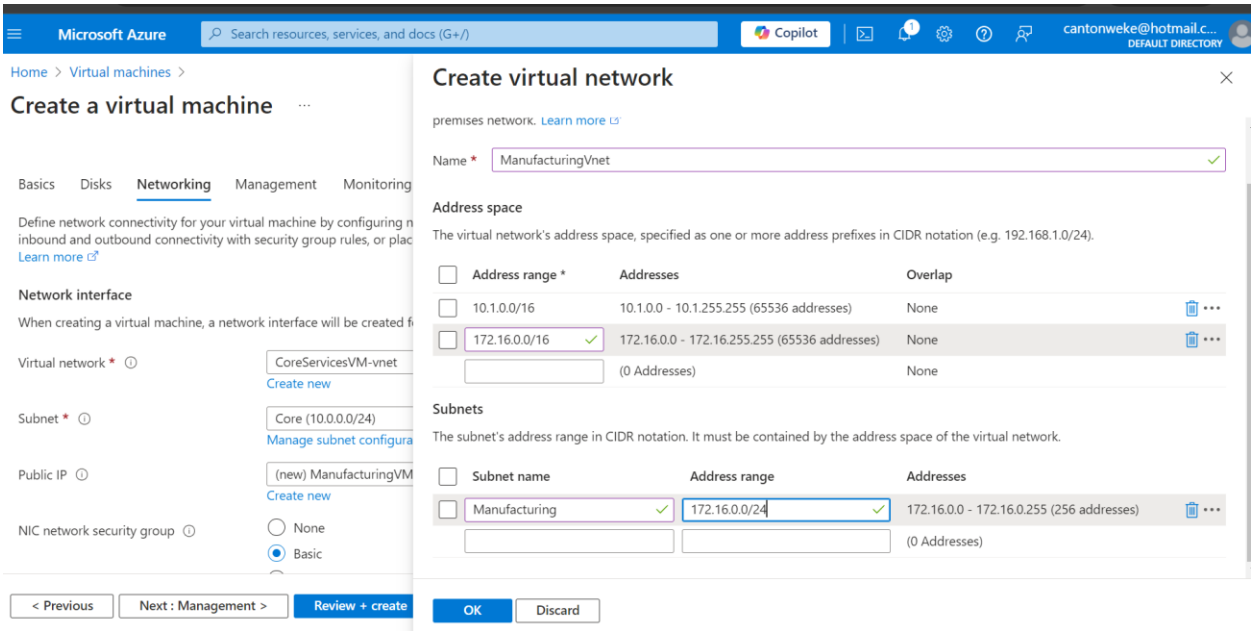


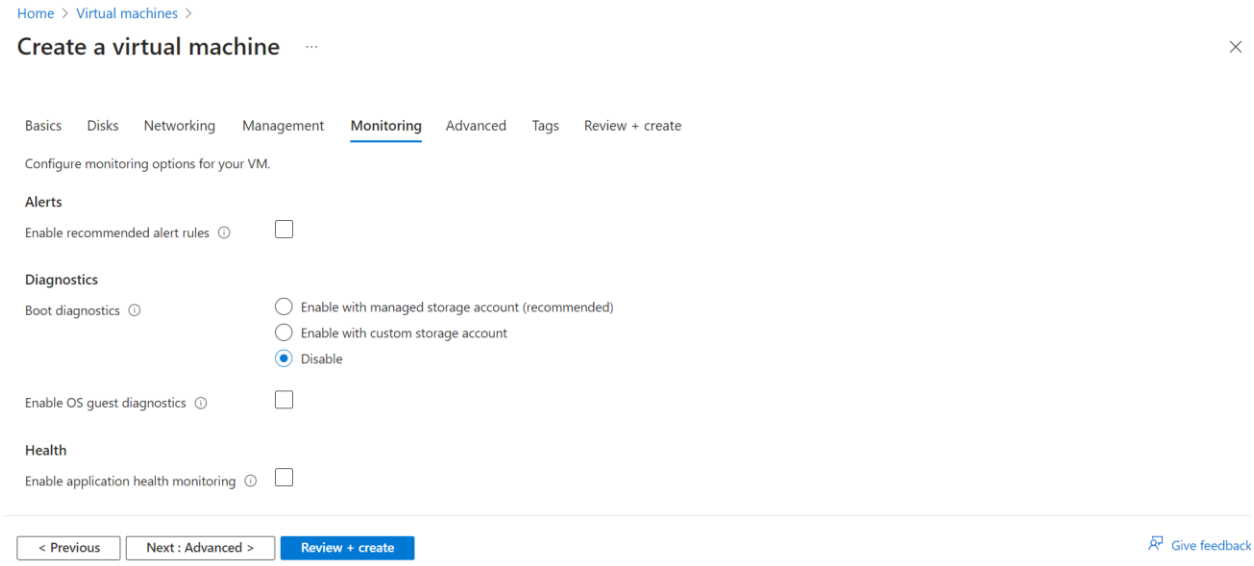

## Task 2: Create a virtual machine in a different virtual network

## Instructions and steps

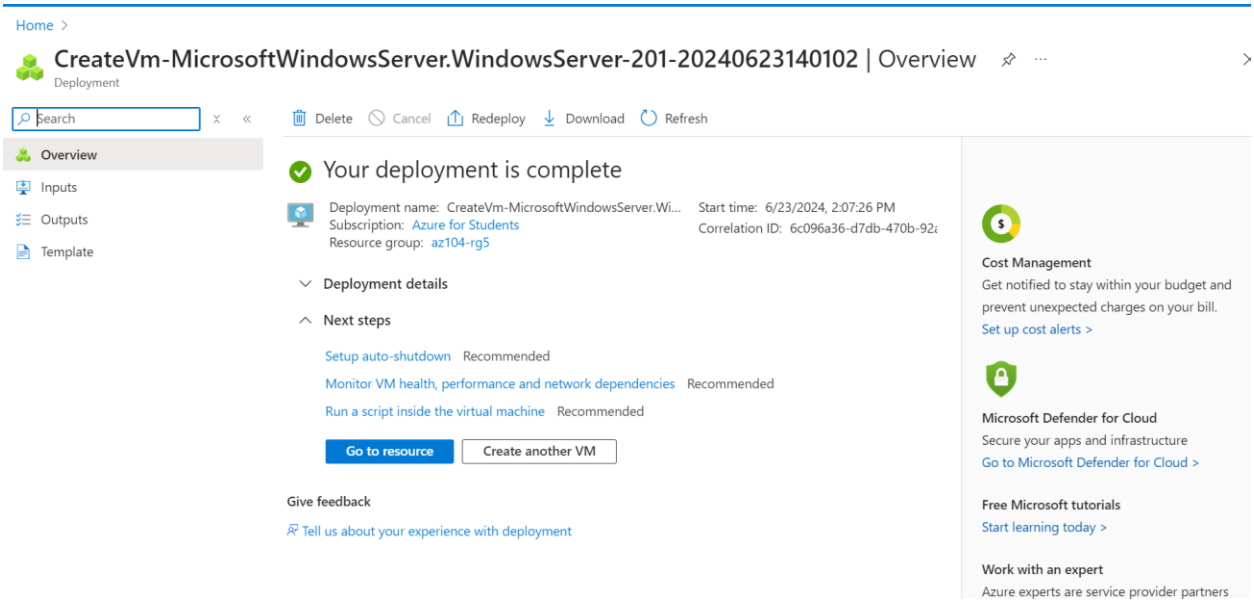
- From the Azure portal, search for and navigate to Virtual Machines.
- From the virtual machines page, select Create then select Azure Virtual Machine.
- On the Basics tab, use the following information to complete the form, and then select Next: Disks >. For any setting not specified, leave the default value.




- select the Monitoring tab. For Boot Diagnostics, select Disable.



Select Review + Create, and then select Create.

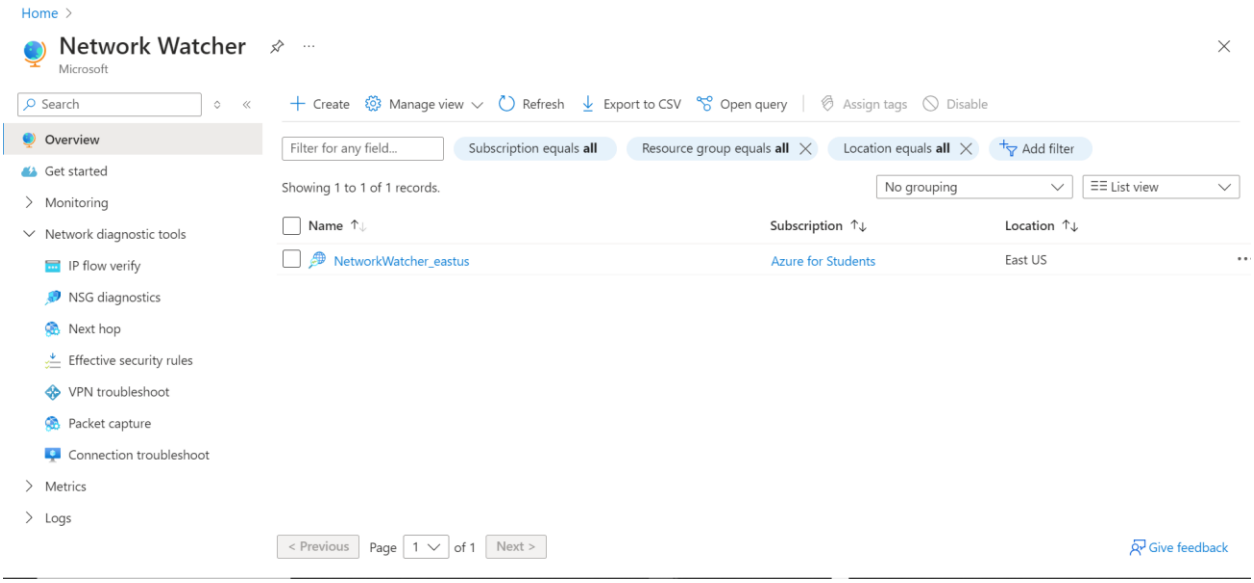



## Task 3: Use Network Watcher to test the connection between virtual machines

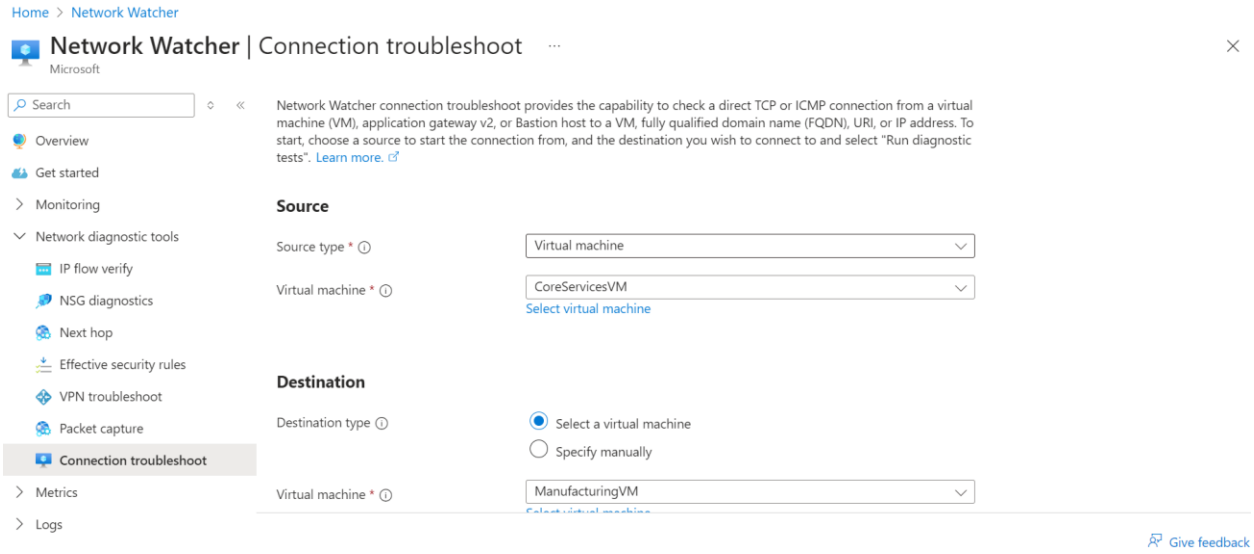
Network Watcher provides tools to monitor, diagnose, and view connectivity-related metrics for your Azure deployments.

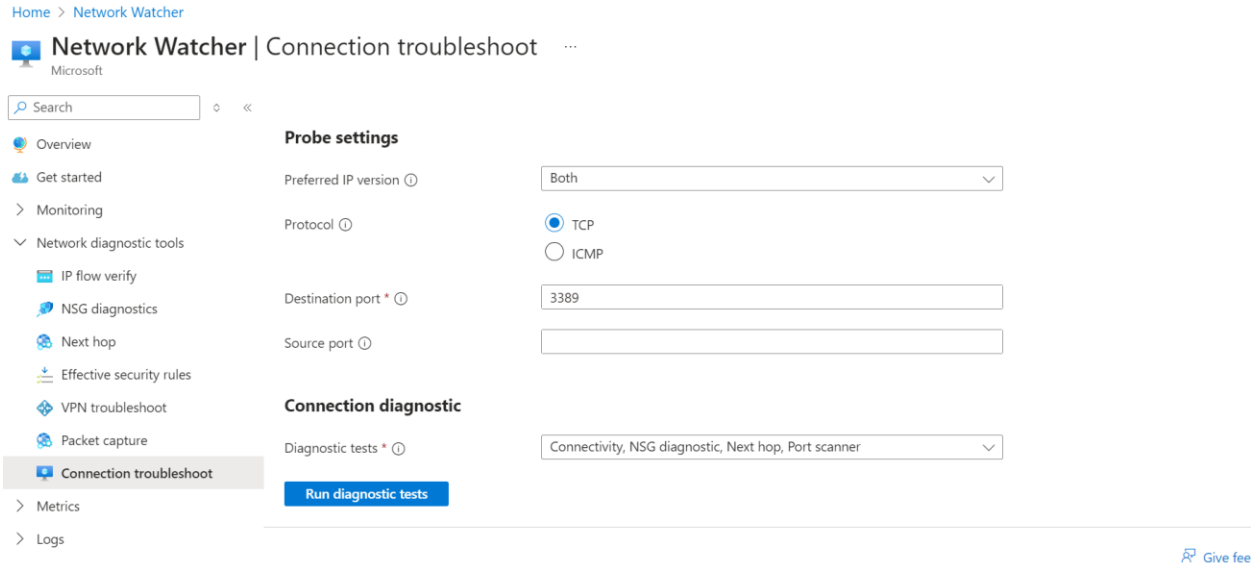
### Instructions

- From the Azure portal, search for and select Network Watcher.
- From Network Watcher, in the Network diagnostic tools menu, select Connection troubleshoot.

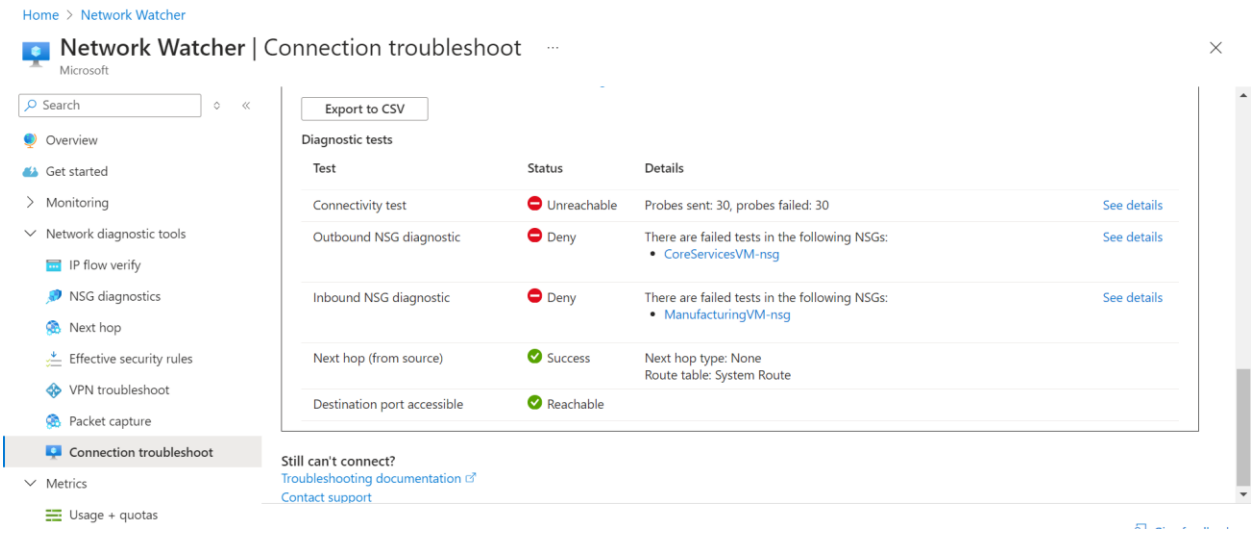



- Use the following information to complete the fields on the Connection troubleshoot page






- Run diagnostic tests.

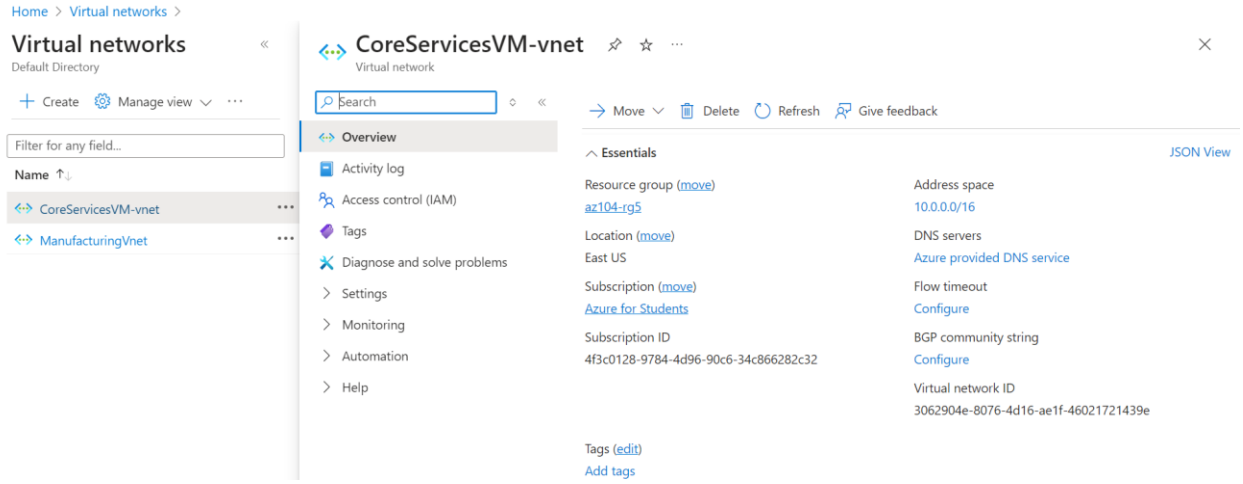


## Task 4: Configure virtual network peerings between virtual networks

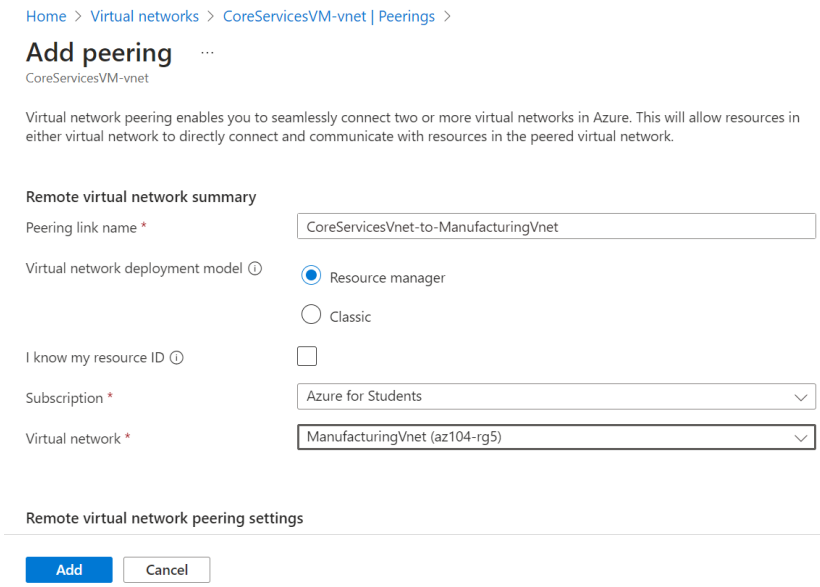
Azure Virtual Network Peering, allows can easy link two or more Virtual Networks together. For the sake of connectivity, the virtual networks appear to be one. Peer virtual networks use the Microsoft backbone architecture to transport traffic between virtual machines**.**

### Instructions and step to do the configuration

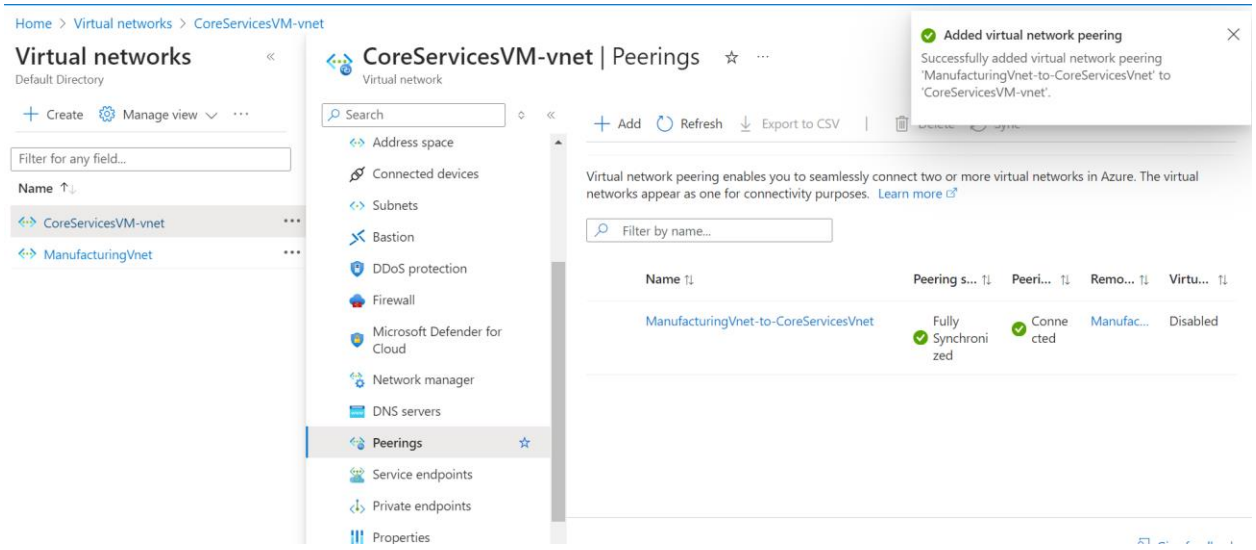
- In the Azure portal, select the CoreServicesVnet virtual network.




- In CoreServicesVnet, under Settings, select Peerings.
- Use the information in the following table to create the peering.
- On CoreServicesVnet Peerings, select + Add.



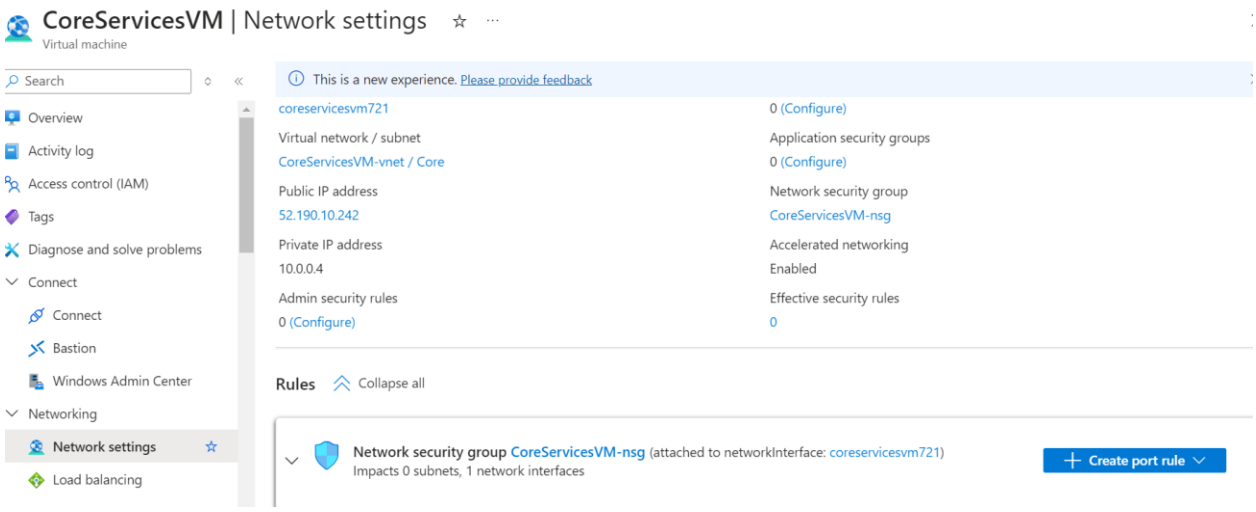

- In CoreServicesVnet Peerings, verify that the CoreServicesVnet-to-ManufacturingVnet peering is listed. Refresh the page to ensure the Peering status is Connected.
- Switch to the ManufacturingVnet and verify the ManufacturingVnet-to-CoreServicesVnet peering is listed. Ensure the Peering status is Connected

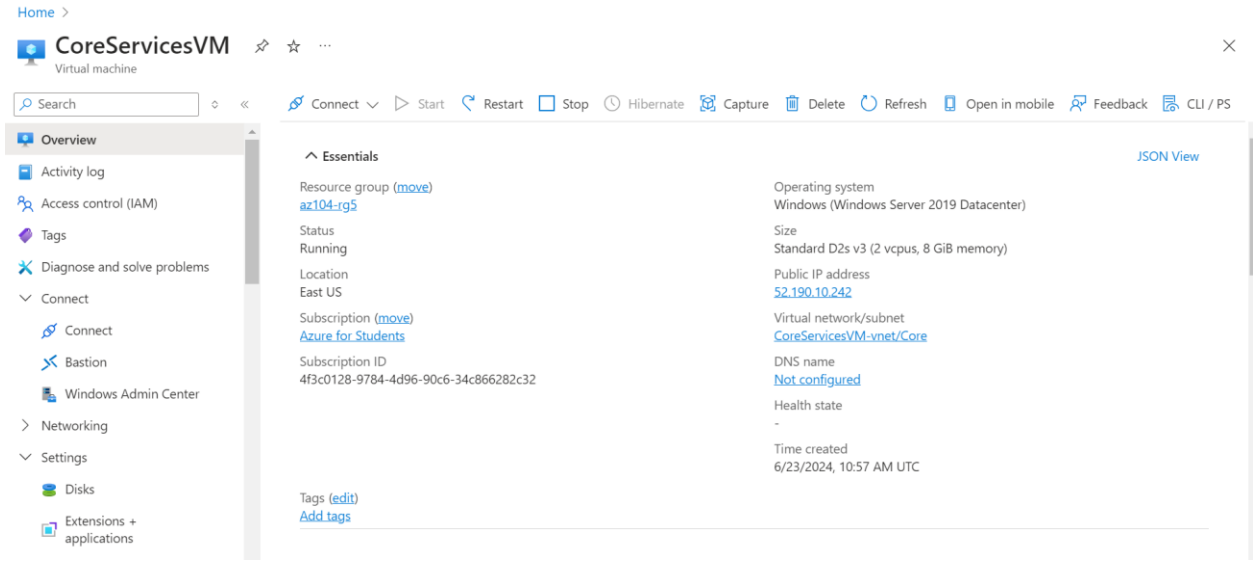


## Task 5: Use Azure PowerShell to test the connection between virtual machines

### Instruction and steps to the configuration

- In this task, you retest the connection between the virtual machines in different virtual networks.
- Verify the private IP address of the CoreServicesVM
- From the Azure portal, search for and select the CoreServicesVM virtual machine.
- On the Overview blade, in the Networking section, record the Private IP address of the machine. You need this information to test the connection.

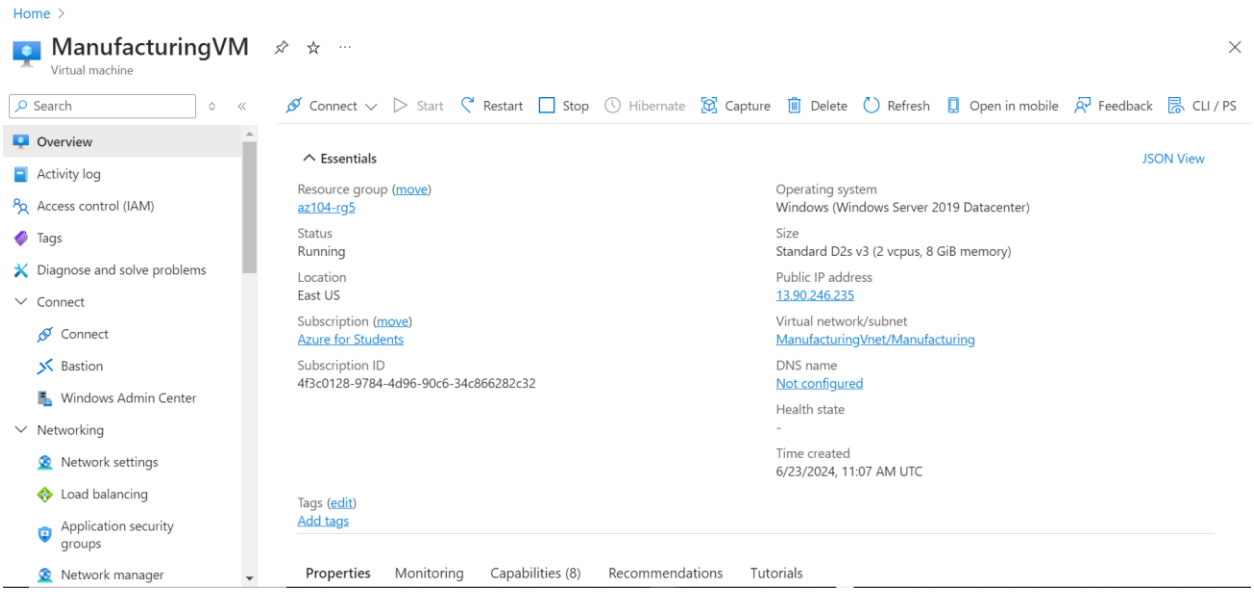


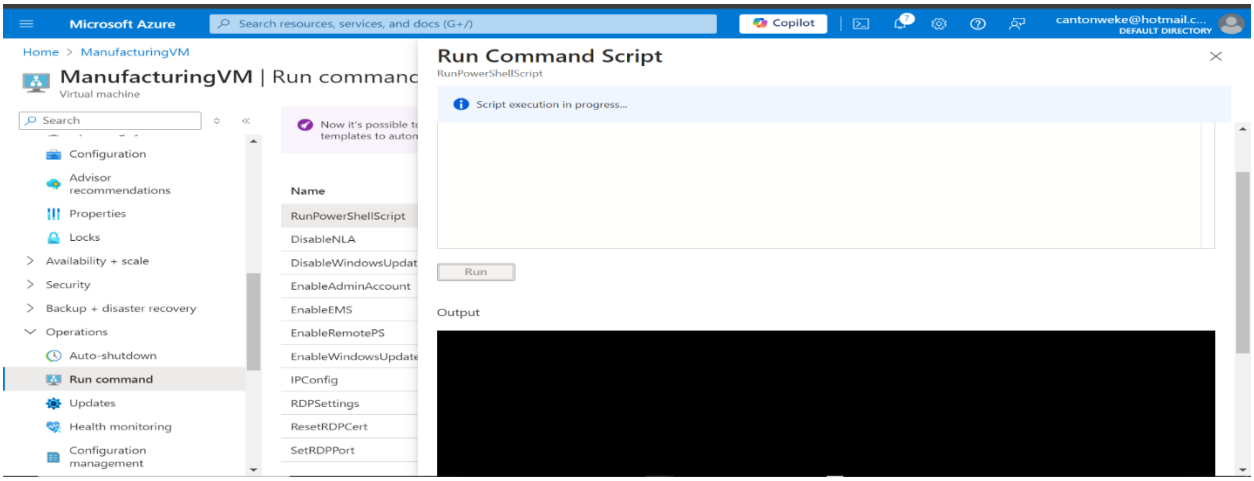
**Test the connection to the CoreServicesVM from the ManufacturingVM.**

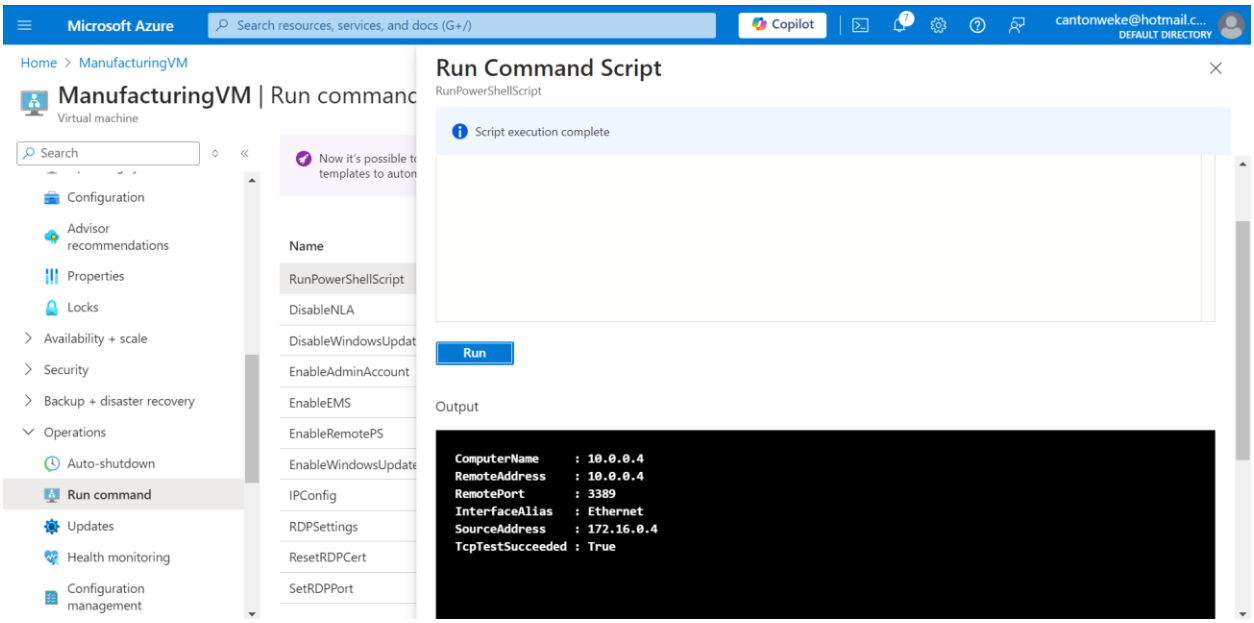
**intrusctions**

- Switch to the ManufacturingVM virtual machine.




- In the Operations blade, select the Run command blade.
- Select RunPowerShellScript and run the Test-NetConnection command. Be sure to use the private IP address of the CoreServicesVM.

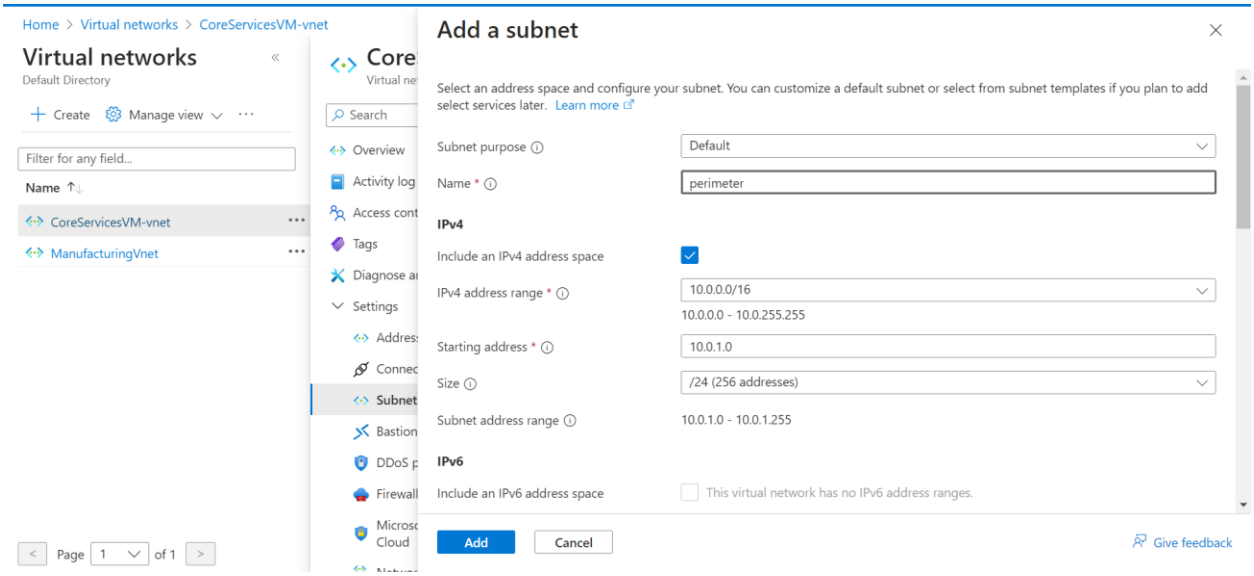




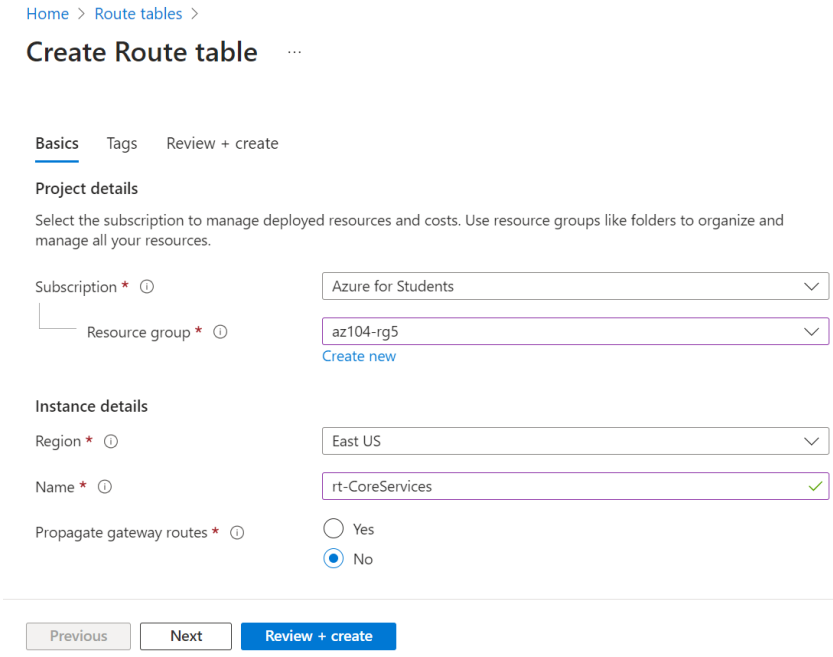

## Task 6: Create a custom route

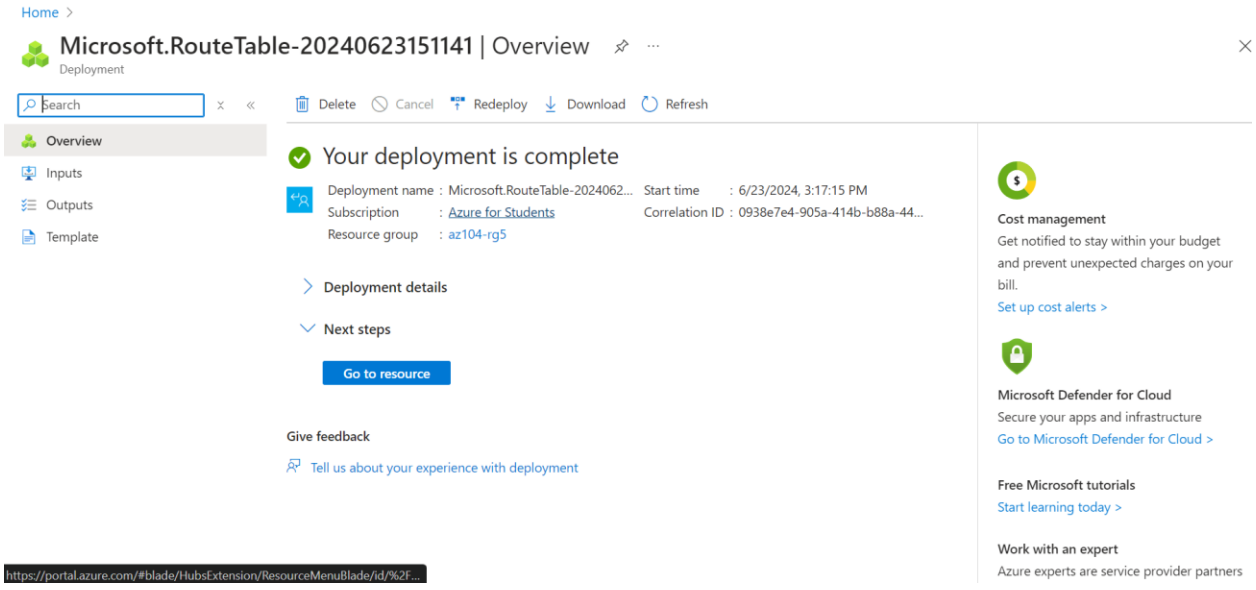
## Instructions

- Search for select the CoreServicesVnet.
- Select Subnets and then + Create. Be sure to Save your changes.

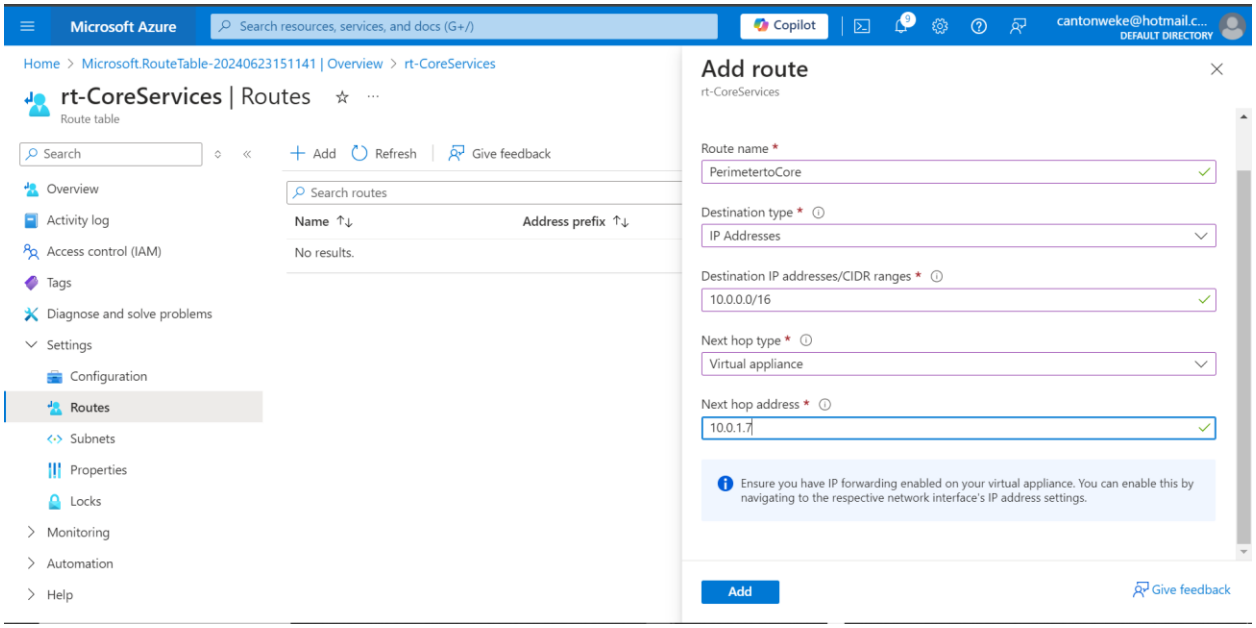


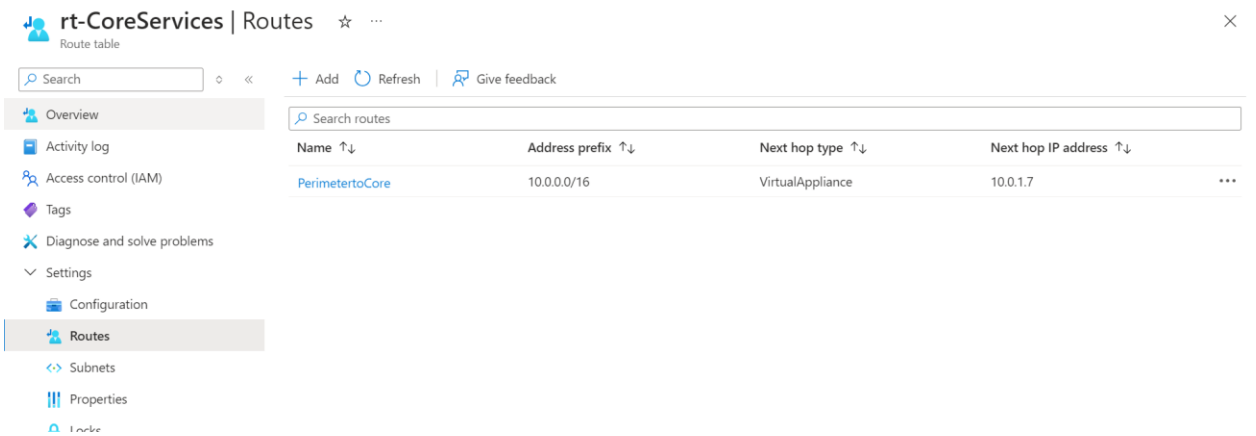

- **In the Azure portal, search for and select Route tables, and then select Create.**


Home > Route tables >
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 * az104-rg5
Create new
Instance details
Region * East US
Name * rt-CoreServices
Propagate gateway routes * Yes No
Previous
Next
Review + create

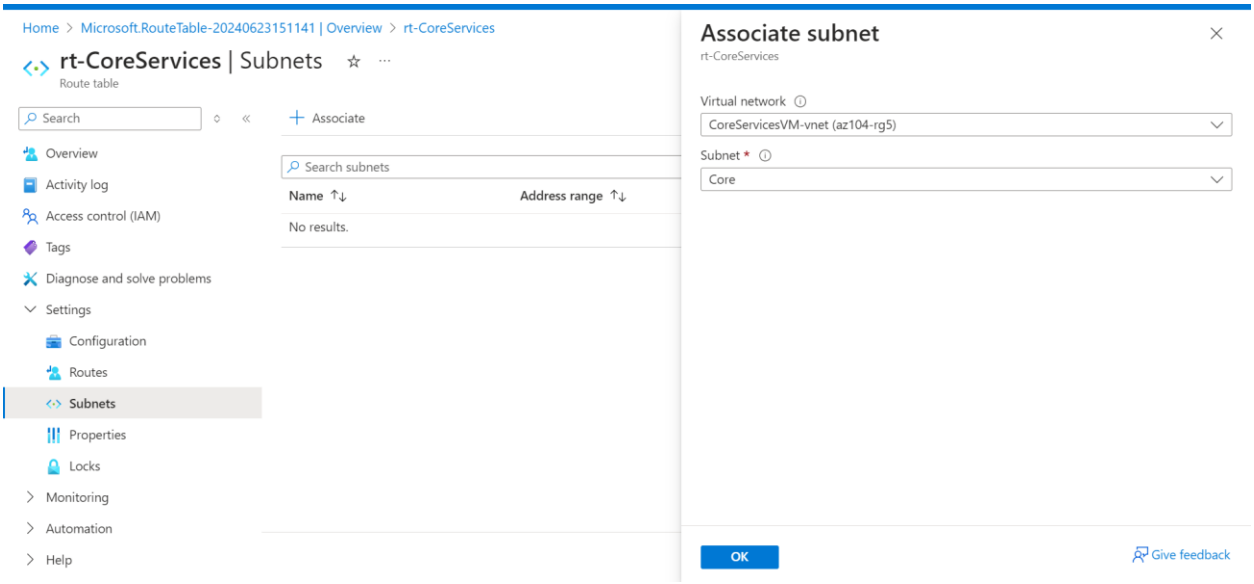

Home >
Microsoft.RouteTable-20240623151141 | Overview
Deployment
Search
Overview
Inputs
Outputs
Template
Delete
Cancel
Redeploy
Download
Refresh
Your deployment is complete
Deployment name : Microsoft.RouteTable-2024062...
Subscription : Azure for Students
Resource group : az104-rg5
Start time : 6/23/2024, 3:17:15 PM
Correlation ID : 0938e7e4-905a-414b-b88a-44...
Deployment details
Next steps
Go to resource
Give feedback
Tell us about your experience with deployment
Cost management
Get notified to stay within your budget and prevent unexpected charges on your bill.
Set up cost alerts >
Microsoft Defender for Cloud
Secure your apps and infrastructure
Go to Microsoft Defender for Cloud >
Free Microsoft tutorials
Start learning today >
Work with an expert
Azure experts are service provider partners
https://portal.azure.com/#blade/HubsExtension/ResourceMenuBlade/id/%2F...

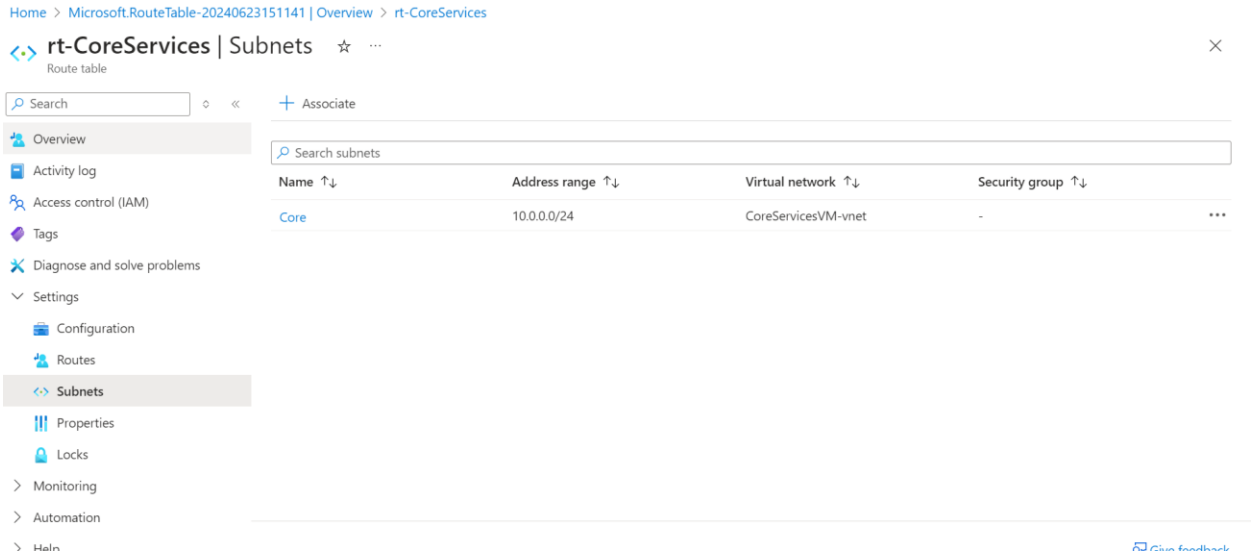
- After the route table deploys, select Go to resource.
- Select Routes and then + Add. Create a route from the future NVA to the CoreServices virtual network.



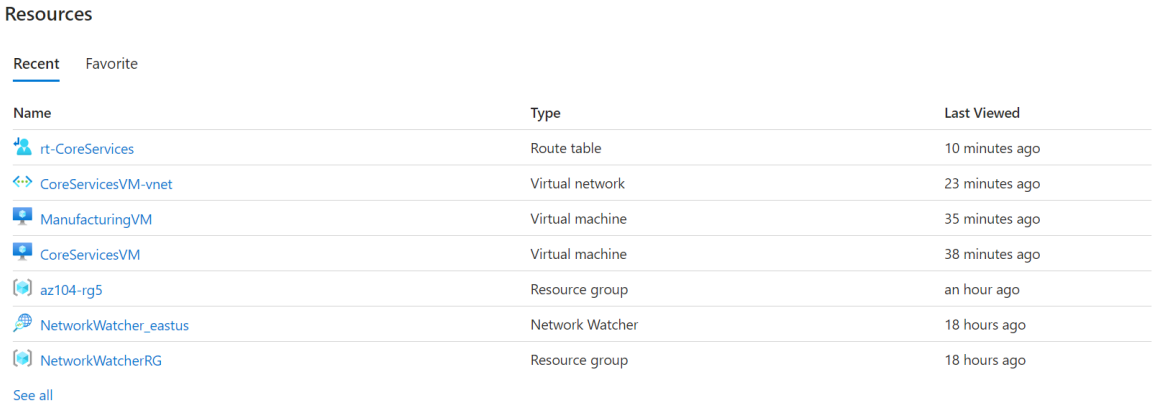



- Select + Add when the route is completed. The last thing to do is associate the route with the subnet.
- Select Subnets and then Associate. Complete the configuration.



## Overview of the resources




## Conclusion

This lab report provided a comprehensive grasp of virtual network management in Azure by covering not only how each activity is implemented but also the underlying ideas and recommended practices. The report allows one have the ability to manage intricate network designs in the cloud, the report also acts as manual for creating, testing, and setting up virtual networks and virtual machines (VMs).

The abilities and information obtained from this lab on administering Azure virtual networks and virtual machines are invaluable in real-world situations. Cloud environments are widely used by organizations to grow their operations and provide high availability. IT workers can deploy and segregate applications based on performance or security needs with efficiency if they are skilled in creating and managing virtual machines (VMs) within various VNets. In the real world, this segregation is essential because, in order to reduce security threats, sensitive data and services must be kept separate from applications that are visible to the public. It is equally important to be able to use tools such as Network Watcher to identify and fix connectivity problems, since poor communication between virtual machines can have a big influence on corporate activities, ranging from internal enterprise apps to e-commerce platforms.

In addition, setting up VNet peering and routes in an actual setting highlights the necessity of complicated network architectures that can accommodate intricate business requirements. For example, VNet peering enables smooth connectivity between different divisions or subsidiaries

inside a big business, promoting cooperation and data sharing without sacrificing security. Network traffic is directed effectively with custom routing, enhancing performance and upholding legal compliance. The automation of these setups and monitoring processes by Azure PowerShell shows how businesses can use scripting to improve workflow, lower manual error rates, and maintain a reliable cloud infrastructure. Essentially, the practical expertise gained in this lab offers a guide for administering safe, effective, and scalable cloud networks that meet modern corporate needs.