

Міністерство освіти і науки України
Карпатський національний університет
імені В.Стефаника

Факультет математики та інформатики
Кафедра інформаційних технологій

Інформатика і програмування

Лабораторна робота No 7

Тема: Implement Intersite Connectivity

Виконав: Прокутко В.В
Група ІПЗ-43
Дата: 12 грудня 2025
Викладач: Поварчук Д.Д

Івано-Франківськ – 2025

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

In this task, you create a core services virtual network with a virtual machine.

The screenshot displays the Microsoft Azure portal interface. The browser's address bar shows the URL `portal.azure.com/?l=en-en-gb#view/HubsExtension/DeploymentDetailsBlade/~/_o...`. The page title is "CreateVm-MicrosoftWindowsServer.WindowsServer-201-2025121300...". The main content area features a green checkmark icon and the text "Your deployment is complete". Below this, deployment details are listed: "Deployment name: Create...", "Subscription: Azure subscri...", "Resource group: az104-rg5", "Start time: 13/12...", and "Correlation ID: 126". A section titled "Next steps" includes links for "Setup auto-shutdown", "Monitor VM health, performance and network dependencies", and "Run a script inside the virtual machine", all marked as "Recommended". At the bottom of this section are buttons for "Go to resource" and "Create another VM". On the right side, there are three promotional cards: "Cost Management" (Get notified to stay within your budget...), "Microsoft Defender for Cloud" (Secure your apps and infrastructure...), and "Free Microsoft tutorials" (Start learning today...). The left sidebar contains navigation links for "Overview", "Inputs", "Outputs", and "Template". The footer text reads "Add or remove favorites by pressing Ctrl+Shift+F".

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

In this task, you create a manufacturing services virtual network with a virtual machine.


Properties

Monitoring

Capabilities (8)

Recommendations

Tutorials



Virtual machine

Computer name

ManufacturingVM

Operating system

Windows

VM generation

V2

VM architecture

x64

Agent status

Not Ready

Agent version

Unknown

Hibernation

Disabled

Host group

-

Host

-

Proximity placement group

-

Colocation status


N/A

Capacity reservation group

-

Disk controller type

SCSI




Azure Spot

Azure Spot

-

Azure Spot eviction policy

-




Availability + scaling

Availability zone [\(edit\)](#)


1

Extended zone

-



Networking

Public IP address 

20.83.147.72 (Network interface [manufacturingvm764_z1](#))

1 associated public IPs

Public IP address (IPv6)

-

Private IP address

172.16.0.4

Private IP address (IPv6)


-

Virtual network/subnet

[ManufacturingVnet/Manufacturing](#)

DNS name

[Configure](#)



Size

Size


Standard D2s v3

vCPUs

2

RAM

8 GiB



Source image details

Source image publisher


MicrosoftWindowsServer

Source image offer

WindowsServer

Source image plan

2019-datacenter-gensecond



Disk

OS disk

ManufacturingVM_OsDisk_1_917989a36b8847ffa696225079c58f

Encryption at host

Disabled

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

In this task, you verify that resources in peered virtual networks can communicate with each other. Network Watcher will be used to test the connection. Before continuing, ensure both virtual machines have been deployed and are running.

Microsoft Azure portal screenshot showing the Network Watcher | Connection troubleshoot page. The page displays diagnostic tests for connectivity, NSG, and next hop, with results indicating a failure in the connectivity test and NSG diagnostics.

Network Watcher | Connection troubleshoot

Diagnostic tests * ⓘ

Connectivity, NSG diagnostic, Next hop, Port scanner

Run diagnostic tests

Results

Test(s) ran: Connectivity, NSG diagnostic, Next hop, Port scanner

Source: [CoreServicesVM](#) Destination: [ManufacturingVM](#)

[Export to CSV](#)

Test	Status	Details
Connectivity test	Unreachable	Probes sent: 316, probes fa See details
Outbound NSG diagnostic	Deny	There are failed tests in the CoreServicesVM-nsg See details
Inbound NSG diagnostic	Deny	There are failed tests in the ManufacturingVM-nsg See details
Next hop (from source)	Success	Next hop type: None Route table: System Route
Destination port accessible	Reachable	

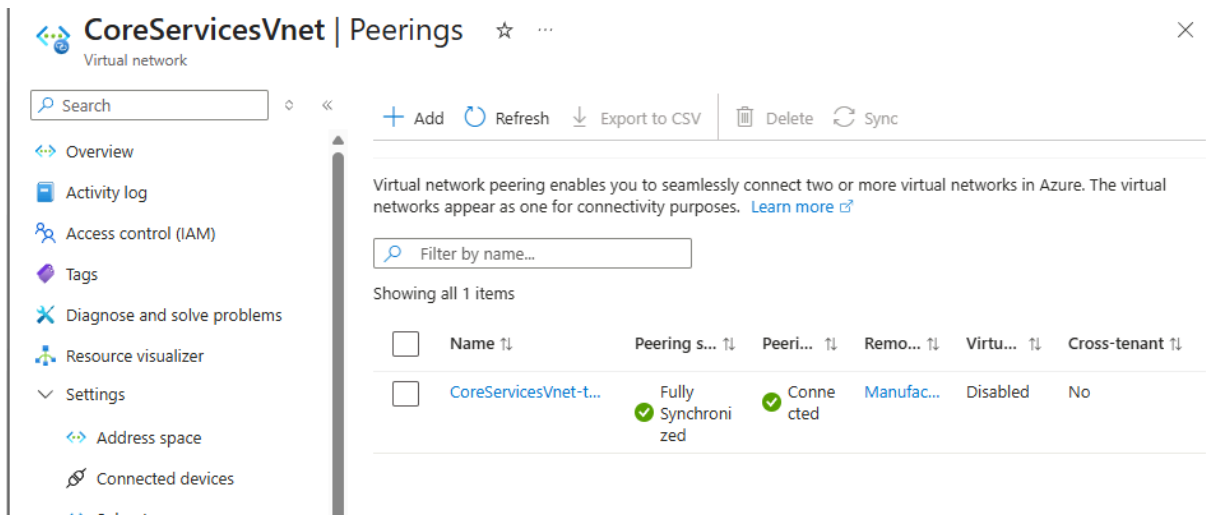
Still can't connect?

[Troubleshooting documentation](#) [Contact support](#)

[Give feedback](#)

Task 4: Configure virtual network peerings between virtual networks

In this task, you create a virtual network peering to enable communications between resources in the virtual networks.



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

In this task, you retest the connection between the virtual machines in different virtual networks.

there is error, idk why

Output

```
WARNING: TCP connect to (10.0.0.4 : 3389) failed
WARNING: Ping to 10.0.0.4 failed with status: TimedOut

ComputerName      : 10.0.0.4
RemoteAddress     : 10.0.0.4
RemotePort        : 3389
InterfaceAlias    : Ethernet
SourceAddress     : 172.16.0.4
PingSucceeded     : False
PingReplyDetails (RTT) : 0 ms
TcpTestSucceeded  : False
```

Task 6: Create a custom route

In this task, you want to control network traffic between the perimeter subnet and the internal core services subnet. A virtual network appliance will be installed in the perimeter subnet and all traffic should be routed there.

Microsoft Azure

Search resources, services, and docs (G+)

Copilot

Home >

Microsoft.RouteTable-20251213013326 | Overview

Deployment

Search

Delete

Cancel

Redeploy

Download

Deployment succeeded

Deployment 'Microsoft.RouteTable-20251213013326' to resource group 'az104-rg5' was successful.

Pin to dashbo...Go to resource gr...

Overview

Inputs

Outputs

Template

✓ Your deployment is complete

Deployment name : Microsoft.RouteTable-20251213013326

Subscription : Azure subscription 1

Resource group : az104-rg5

Start time : 13/12/2025, 01:34:02

Correlation ID : 48e3fbb0-804d-4d4e-9c65-c33fa6d4f0ab

> 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 >

Add or remove favorites by pressing Ctrl+Shift+F

rt-CoreService xlab007unique x10.60.2.4 x10.60.2.4 xhttps://sp=rt x+portal.azure.com/?l=en.en-gb#@vladkeeksgmail.onmicrosoft.com/resource/subsc...

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

Home > Network foundation | Route tables > rt-CoreServices

rt-CoreServices | Routes ☆ ...

Route table

Search

+ Add ↺ Refresh | 🗨 Give feedback

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Resource visualizer

Settings

Configuration

Routes

Subnets

Properties

Locks

> Monitoring

> Automation

> Help

Search routes

Name ↑↓	Address prefix ↑↓	Next hop type ↑↓	Next hop IP address ↑↓	
PerimertertoCore	10.0.0.0/16	VirtualAppliance	10.0.1.7	...

Add or remove favorites by pressing Ctrl+Shift+F

rt-CoreServicelab007unique10.60.2.410.60.2.4https://sp=rtportal.azure.com/?l=en.en-gb#@vladkeeksgmail.onmicrosoft.com/resource/subsc...

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

Home > Network foundation | Route tables > rt-CoreServices

rt-CoreServices | SubnetsRoute table

SearchAssociate

OverviewActivity logAccess control (IAM)TagsDiagnose and solve problemsResource visualizerSettingsConfigurationRoutesSubnetsPropertiesLocksMonitoringAutomationHelp

Search subnets

Name ↑↓	Address range ↑↓	Virtual network ↑↓	Security group ↑↓
Core	10.0.0.0/24	CoreServicesVnet	-

Saved route table for subnetSuccessfully saved route table for subnet 'Core'.

Give feedback

Add or remove favorites by pressing Ctrl+Shift+F

az104-rg5 Resource group

How to manage these changes more efficiently with deployment tools? Export resource groups using Bicep or Terraform +1

Search Create Manage view Delete resource group Refresh Export to CSV Open query Assign tags Group by none

Overview Activity log Access control (IAM) Tags Resource visualizer Events Settings Deployments Security Deployment stacks Policies Properties Locks Cost Management Monitoring Automation Help

Essentials Subscription (move) : [Azure subscription 1](#) Deployments : 3 Succeeded
Subscription ID : 9889ebc0-ca1f-4e0d-8116-0764f6dbd196 Location : East US
Tags (edit) : Add tags

Resources Recommendations

Filter for any field... Type equals all Location equals all Add filter

Name ↑	Type	Location
CoreServicesVM	Virtual machine	East US
CoreServicesVM-ip	Public IP address	East US
CoreServicesVM-nsg	Network security group	East US
coreservicesvm323_z1	Network Interface	East US
CoreServicesVM_OsDisk_1_27346d54babe4b39a9f94c6efef2e34	Disk	East US
CoreServicesVnet	Virtual network	East US
ManufacturingVM	Virtual machine	East US
ManufacturingVM-ip	Public IP address	East US
ManufacturingVM-nsg	Network security group	East US
manufacturingvm764_z1	Network Interface	East US
ManufacturingVM_OsDisk_1_917989a36b8847ffa696225079c58f46	Disk	East US
ManufacturingVnet	Virtual network	East US
rt-CoreServices	Route table	East US

Showing 1 - 13 of 13. Display count: auto

Give feedback

Costs:

Влад Прокутко Billing account

Get started Summary Tutorials & What's new

Overview Access control (IAM) Billing scopes Diagnose and solve problems Cost management Cost analysis Cost alerts Budgets Advisor recommendations Billing Invoices Payment methods Payment history Reservation transactions Billing profiles Benefits (preview) Products + services Settings Support + troubleshooting

Amount due US\$0.00 No payment needed View invoices

Upcoming invoices Available on 09/01/2026 Billing period 01/12/2025 - 31/12/2025 Pre-tax total so far US\$0.00

Invoices over time No invoices in last 6 months Total amount 0.00

Spending rate and forecast Current charge US\$1.57 Forecast 14/12 21/12 28/12 View details

This month's top products by charges Virtual Machines Dv1 Series VM... US\$0.94 Application Gateway Standard... US\$0.40 Premium SSD Managed Disks... US\$0.21 Other purchases US\$0.02 View details

Billing alerts (0) No billing alerts to display

Shortcuts Download usage and prices Manage payment methods View billing subscriptions Share monthly invoice by email View your support plan Give feedback

Credits remaining US\$198.43 US\$1.57 used of US\$200 Used Amount remaining View credits

Add or remove favorites by pressing Ctrl + Shift + F