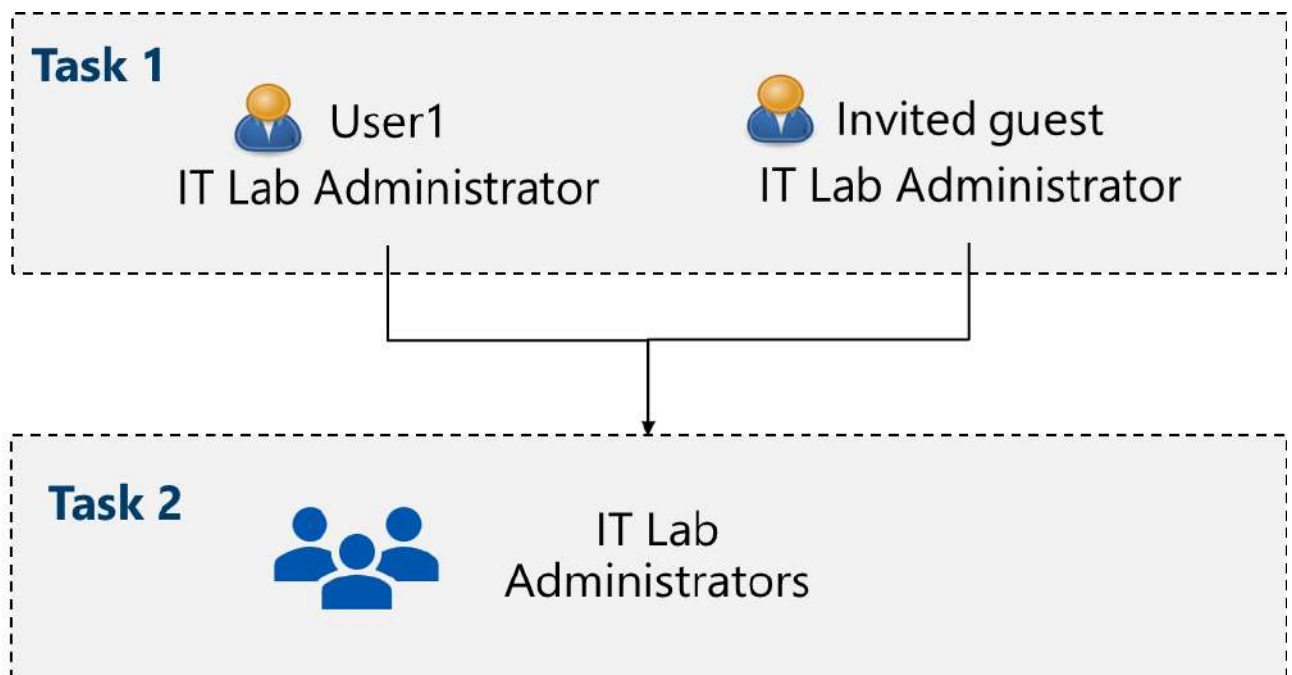


Lab 01 - Manage Microsoft Entra ID Identities

Lab scenario

Your organization is building a new lab environment for pre-production testing of apps and services. A few engineers are being hired to manage the lab environment, including the virtual machines. To allow the engineers to authenticate by using Microsoft Entra ID, you have been tasked with provisioning users and groups. To minimize administrative overhead, membership of the groups should be updated automatically based on job titles.

Architecture diagram



Job skills

- Task 1: Create and configure user accounts.
- Task 2: Create groups and add members.

Task 1: Create and configure user accounts

Noto624879

Create new user

Create a new internal user in your organization

Basics

User principal nameaz104-user1@kosarsofia0909gmail.onmicrosoft.com

Display nameaz104-user1

Mail nicknameaz104-user1

Password

.....

Account enabledYes

Properties

Country or regionUnited States

User typeMember

Job titleIT Lab Administrator

DepartmentIT

Usage locationUnited States

Assignments

Administrative units

Create

< Previous

Next >

2 users found

| <input type="checkbox"/> | Display name ↑ | User principal name ↑↓ | User type | Is Agent | On-premises sy... | Ide |
|--------------------------|-------------------------------------|---------------------------------|-----------|----------|-------------------|-----|
| <input type="checkbox"/> | <div><div>A</div>az104-user1</div> | az104-user1@kos... <div></div> | Member | No | No | ko: |
| <input type="checkbox"/> | <div><div>CK</div>София Косап</div> | kosarsofia0909_g... <div></div> | Member | No | No | Mi |

Invite external user

Invite an external user to collaborate with your organization

Basics Properties Assignments Review + invite

Basics

| | |
|---------------------|---|
| Email | romanwdwd@gmail.com |
| Display name | Roman |
| Send invite message | Yes |
| Message | Welcome to Azure and our group project |
| Cc recipient | |
| Invite redirect URL | https://myapplications.microsoft.com/?tenantid=dc8e1fa9-78a0-4c7f-aabb-56aba4175e7f |

Properties

| | |
|----------------|----------------------|
| User type | Guest |
| Job title | IT Lab Administrator |
| Department | IT |
| Usage location | United States |

Assignments

Invite

< Previous

Next >

| <input type="checkbox"/> | Display name ↑ | User principal name ↑ | User type | Is Agent | On-premises sy... | Identities | Company name | Cr |
|--------------------------|---|---|-----------|----------|-------------------|---------------------------|--------------|-----|
| <input type="checkbox"/> |  az104-user1 | az104-user1@kos...  | Member | No | No | kosarsofia0909gmail.on... | | |
| <input type="checkbox"/> |  Roman | romanwdwd_gma...  | Guest | No | No | kosarsofia0909gmail.on... | | In |
| <input type="checkbox"/> |  Софія Косар | kosarsofia0909_g...  | Member | No | No | MicrosoftAccount | | irr |

Task 2: Create groups and add members

| <input type="checkbox"/> | Name ↑ | Object Id | Group type | Membership type | Email |
|--------------------------|---|--------------------------------------|------------|-----------------|-------|
| <input type="checkbox"/> |  IT Lab Administrators | e4c84715-c15d-4240-a93f-4adadd8afa9c | Security | Assigned | |

Basic information

IL

IT Lab Administrators

Administrators that manage the IT lab

| | | | |
|-----------------|--------------------------------------|----------------------|---|
| Membership type | Assigned | Total direct members | 2 |
| Source | Cloud | User(s) | 2 |
| Type | Security | Group(s) | 0 |
| Object ID | e4c84715-c15d-4240-a93f-4adadd8afa9c | Device(s) | 0 |
| Created on | 12/3/2025, 10:00 PM | Other(s) | 0 |

Feed

Group memberships

0

View group memberships

Owners

1

View group owners

Total members

2

View group members

Lab 02a - Manage Subscriptions and RBAC

Lab introduction

In this lab, you learn about role-based access control. You learn how to use permissions and scopes to control what actions identities can and cannot perform. You also learn how to make subscription management easier using management groups.

This lab requires an Azure subscription. Your subscription type may affect the availability of features in this lab. You may change the region, but the steps are written using **East US**.

| ↑↓ Name | Type | ID | ↑↓ Total subscriptions |
|----------------------|------------------|--------------------------------------|------------------------|
| Tenant Root Group | Management group | dc8e1fa9-78a0-4c7f-aabb-56aba4175e7f | 1 |
| Azure subscription 1 | Subscription | b29d18bc-0e3d-4b78-857a-dec951168752 | |
| az104-mg1 | Management group | az104-mg1 | 0 |

Check access **Role assignments** Roles Deny assignments

Search by name or email

Type: All

Role: All

Scope: All scopes

Group by: Role

All (3) Job function roles (1) Privileged administrator roles (2)

| Name ↑↓ | Type ↑↓ | Role ↑↓ | Scope ↑↓ | Condition ↑↓ |
|---|---------|-------------------------------------|------------------|--------------|
| Owner (1) | | | | |
| Софія Косар e2501cdb-06b0-43c9-80d3-4... | User | Owner | This resource | Add |
| Classic Virtual Machine Contributor (1) | | | | |
| IT Lab Administrators e4c84715-c15d-4240-a93f-4... | Group | Classic Virtual Machine Contributor | This resource | Add |
| User Access Administrator (1) | | | | |
| Софія Косар e2501cdb-06b0-43c9-80d3-4... | User | User Access Administrator | Root (Inherited) | None |

Lab 02b - Manage Governance via Azure Policy

Lab introduction

In this lab, you learn how to implement your organization's governance plans. You learn how Azure policies can ensure operational decisions are enforced across the organization. You learn how to use resource tagging to improve reporting.

This lab requires an Azure subscription. Your subscription type may affect the availability of features in this lab. You may change the region, but the steps are written using **East US**.

Task 1: Assign tags via the Azure portal

[All services](#) >

Create a resource group ... ×

Basics

Tags

Review + create

[Automation Link](#)

Basics

| | |
|---------------------|----------------------|
| Subscription | Azure subscription 1 |
| Resource group name | az104-rg2 |
| Region | East US |

Tags

| | |
|-------------|-----|
| Cost Center | 000 |
|-------------|-----|

Microsoft Azure

Search resources, services, and docs (G+/I)

Copilot

All services > Policy | Definitions >

Require a tag and its value on resources

...

✕

Policy definition

Assign policy

Edit definition

Duplicate definition

Select version (preview)

Delete definition

^ Essentials

| | |
|--|---|
| Name | Definition location |
| Require a tag and its value on resources | -- |
| Version (preview) | Definition ID |
| 1.0.1 | /providers/Microsoft.Authorization/policyDefinitions/1e30110... |
| Description | Type |
| Enforces a required tag and its value. Does not apply to resour... | Built-in |
| Available Effects | Mode |
| Deny | Indexed |
| Category | |
| Tags | |

Definition

Assignments (0)

Parameters (2)

1 {

2 "properties": {

3 "displayName": "Require a tag and its value on resources",

4 "policyType": "BuiltIn",

5 "mode": "Indexed",

6 "description": "Enforces a required tag and its value. Does not apply to resource grou

7 "metadata": {

1

2

3

4

5

6

7

Give feedback

Microsoft Azure

Search resources, services, and docs (G+/I)

Copilot

All services > Show portal menu > >

Require a tag and its value on resources

Policy definition

Assign policy

Edit definition

Duplicate definition

Select version (previous)

Essentials

| | |
|--|---|
| Name | Definition location |
| Require a tag and its value on resources | -- |
| Version (preview) | Definition ID |
| 1.0.1 | /providers/Microsoft.Authorization/policyDefinitions/1e30110... |
| Description | Type |
| Enforces a required tag and its value. Does not apply to resour... | Built-in |
| Available Effects | Mode |
| Deny | Indexed |
| Category | |
| Tags | |

Definition

Assignments (0)

Parameters (2)

1

{

2

"properties": {

3

"displayName": "Require a tag and its value on resources",

4

"policyType": "BuiltIn",

5

"mode": "Indexed",

6

"description": "Enforces a required tag and its value. Does not apply to resource grou

7

"metadata": {

Give feedback

https://portal.azure.com/?quickstart=True#

Microsoft Azure

Search resources, services, and docs (G+)

Copilot

All services > Storage center | Blob Storage >

Create a storage account

Validation failed. View error details →

BasicsAdvancedNetworking

View automation template

Basics

Subscription

Azure subscription

Resource group

az104-n

Location

East US

Storage account name

laba

Preferred storage type

Performance

Standard

Replication

Read-across

Advanced

Enable hierarchical namespace

Disabled

Enable SFTP

Disabled

Enable network file system v3

Disabled

Allow cross-tenant replication

Disabled

Previous

Next

Create

Errors

SummaryRaw Error

Copy Full Error

ERROR VIEW

^

Preflight validation failed. Please refer to the details for the specific errors. (Code: PreflightValidationCheckFailed)

The storage account named laba is already taken. (Code: StorageAccountAlreadyTaken, Target: laba)

WAS THIS HELPFUL?

Explain with Copilot

Troubleshooting Options

New Support Request

Give Feedback

Tell us about your experience with the Errors page

Microsoft Azure

Search resources, services, and docs (G+)

Copilot

All services > Policy

Policy | Assignments

Search

Assign policyAssign initiative

OverviewComplianceRemediationEventsAuthoring

Successfully deleted assignment

Successfully deleted 'Require Cost Center tag and its value on resources' from 'Azure subscription 1'. Please note that the change takes around 30 minutes to take effect.

Search

Filter by name or ID...

Scope : Azure subscription 1Definition type : All definition types

Total AssignmentsInitiative Assignments

All services > Policy

Policy | Assignments

Search

Assign policyAssign initiative

Search

Filter by name or ID...

Scope : Azure subscription 1Definition type

Total Assignments 1

Policy Assignments 1

OverviewComplianceRemediationEventsAuthoringDefinitionsAssignmentsMachine ConfigurationExemptions

Remediation task creation succeeded

Creating remediation task 'fe0694a7bb124c618cef0388' was successful.

Role Assignments creation succeeded

All role assignments were created successfully.

Creating policy assignment succeeded

Creating policy assignment 'Inherit the Cost Center tag and its value 000 from the resource group if missing' in 'Azure subscription 1' was successful. Please note that the assignment takes around 5-15 minutes to take effect.

Edit columns

Export to CSV

Microsoft Azure

Search resources, services, and docs (G+/I)

Copilot

Home >

laba2_1764797502088 | Overview

Deployment

Search

DeleteCancelRedeploy

OverviewInputsOutputsTemplate

✓ Your deployment is complete

Deployment n...Subscription:...Resource gro...Start time: 12/3/2025,...Correlation ID: 0656bb2

Deployment detailsNext steps

Go to resource

Give feedback

Tell us about your experience with deployment

Deployment succeeded

Deployment 'laba2_1764797502088' to resource group 'az104-rg2' was successful.

Go to resourcePin to dashboard

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 who can help manage your assets on Azure and be your first line of support.

Find an Azure expert >

Add or remove favorites by pressing Ctrl+Shift+F

| Lock name | Lock t... | Scope | Notes |
|-----------|-----------|-----------|-------|
| rg-lock | Delete | az104-rg2 | Edit |

Microsoft Azure

Search resources, services, and docs (G+/)

Copilot

Home

Search

az104-rg2

1 resources being deleted across 1 subscriptions, 1 resource groups

All dependent resources, including hidden types, are shown

| Name | Resource type | Subscription | Resource Group |
|-------|-----------------|----------------------|----------------|
| laba2 | Storage account | Azure subscription 1 | az104-rg2 |

Enter resource group name to confirm deletion *

az104-rg2

DeleteCancel

Lab 03 - Manage Azure resources by using Azure Resource Manager Templates

Task 1: Create an Azure Resource Manager template

Microsoft Azure

Search resources, services, and docs (G+)

Copilot

Home > Storage center | Azure Disks >

Create a managed disk ...

Validation passed

Basics

Encryption

Networking

Advanced

Tags

Review + create

Basics

Subscription

Resource group

Region

Disk name

Availability zone

Source type

VM architecture

Azure subscription 1

(new) az104-rg3

East US

az104-disk1

No infrastructure redundancy required

None

x64

Size

Size

Performance tier

Storage type

32 GiB

P4 - 120 IOPS, 25 MB/s (default)

Premium SSD LRS

Encryption

Create

< Previous

Next >

Download a template for automation

Give feedback

Home > CreateDiskBlade-20251203233948 | Overview > az104-disk1



az104-disk1 | Export template



Generate and explain Bicep configuration for this resource.

+2



Search



Download



Copy content



Deploy



Feedback

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Resource visualizer

Settings

Monitoring

Automation

CLI / PS

Tasks

Export template

Help

ARM Template

Bicep

Terraform

☒ Include parameters ⓘ

Template

Parameters

i To export all resources in this resource group, navigate to the "Export template" experience under "Automation" on the left menu of the resource group.

```
1 {
2   "$schema": "https://schema.management.azure.com/schemas/
3   deploymentParameters.json#",
4   "contentVersion": "1.0.0.0",
5   "parameters": {
6     "disks_az104_disk1_name": {
7       "value": null
8     }
9   }
}
```

Microsoft Azure

Search resources, services, and docs (G+)

Copilot

Home > Custom deployment >

Edit template

Edit your Azure Resource Manager template

+ Add resource

↑ Quickstart template

↑ Load file

↓ Download

1 {

2 "\$schema": "https://schema.management.azure.com/schemas/2019-04-01/deploymentTemplate.json#",

3 "contentVersion": "1.0.0.0",

4 "parameters": {

5 "disk_name": {

6 "defaultValue": "az104-disk2",

7 "type": "string"

8 }

9 },

10 "variables": {},

11 "resources": [

12 {

13 "type": "Microsoft.Compute/disks",

14 "apiVersion": "2025-01-02",

15 "name": "[parameters('disk_name')]",

16 "location": "eastus",

17 "sku": {

18 "name": "Premium_LRS",

19 "tier": "Premium"

20 },

21 "properties": {

22 "creationData": {

23 "createOption": "Empty"

24 },

25 "diskSizeGB": 32.

Save

Discard

Microsoft Azure

Search resources, services, and docs (G+)

Copilot

Home > Microsoft.Template-20251203234920 | Overview

Deployment

Search

Delete Cancel Redeploy

Deployment succeeded

Deployment 'Microsoft.Template-20251203234920' to resource group 'az104-rg3' was successful.

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

Overview

Inputs

Outputs

Template

Deployment is in progress

Deployment name : Microsoft.Template-20251203234920

Subscription : Azure subscription 1

Resource group : az104-rg3

Start time : 12/3/2025, 11:49:20 PM

Correlation ID : 5c9a1a77-cbc2-425b-aeef-80085df419da

Deployment details

| Resource | Type | Status |
|-------------|------|--------|
| az104-disk2 | Disk | OK |

Give feedback

Tell us about your experience with deployment

Microsoft Defender for Cloud

Secure your apps and infrastructure

https://portal.azure.com/?quickstart=True#home

Home > Microsoft.Template-20251203234920 | Overview >

az104-rg3 Resource group

Generate Bicep code to duplicate this resource group. +2

Search

Create Manage view Delete resource group Group by none

Essentials

JSON View

Resources

Recommendations

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

| Name ↑ | Type | Location |
|-------------|------|----------|
| az104-disk1 | Disk | East US |
| az104-disk2 | Disk | East US |

Overview

Activity log

Access control (IAM)

Tags

Resource visualizer

Events

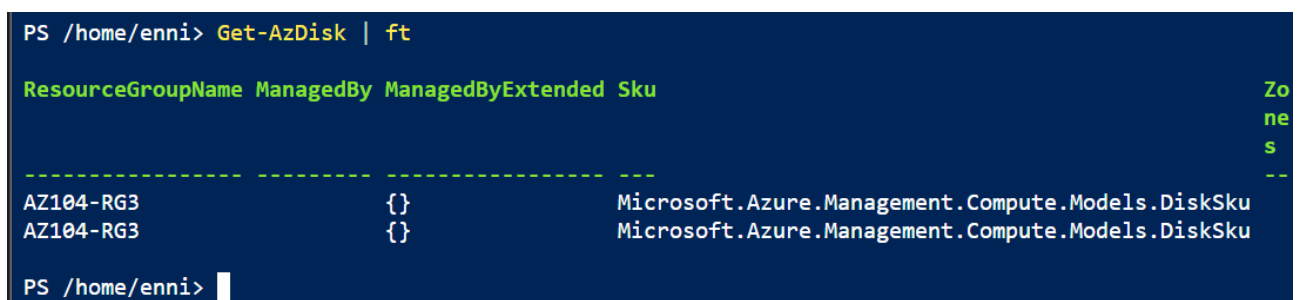
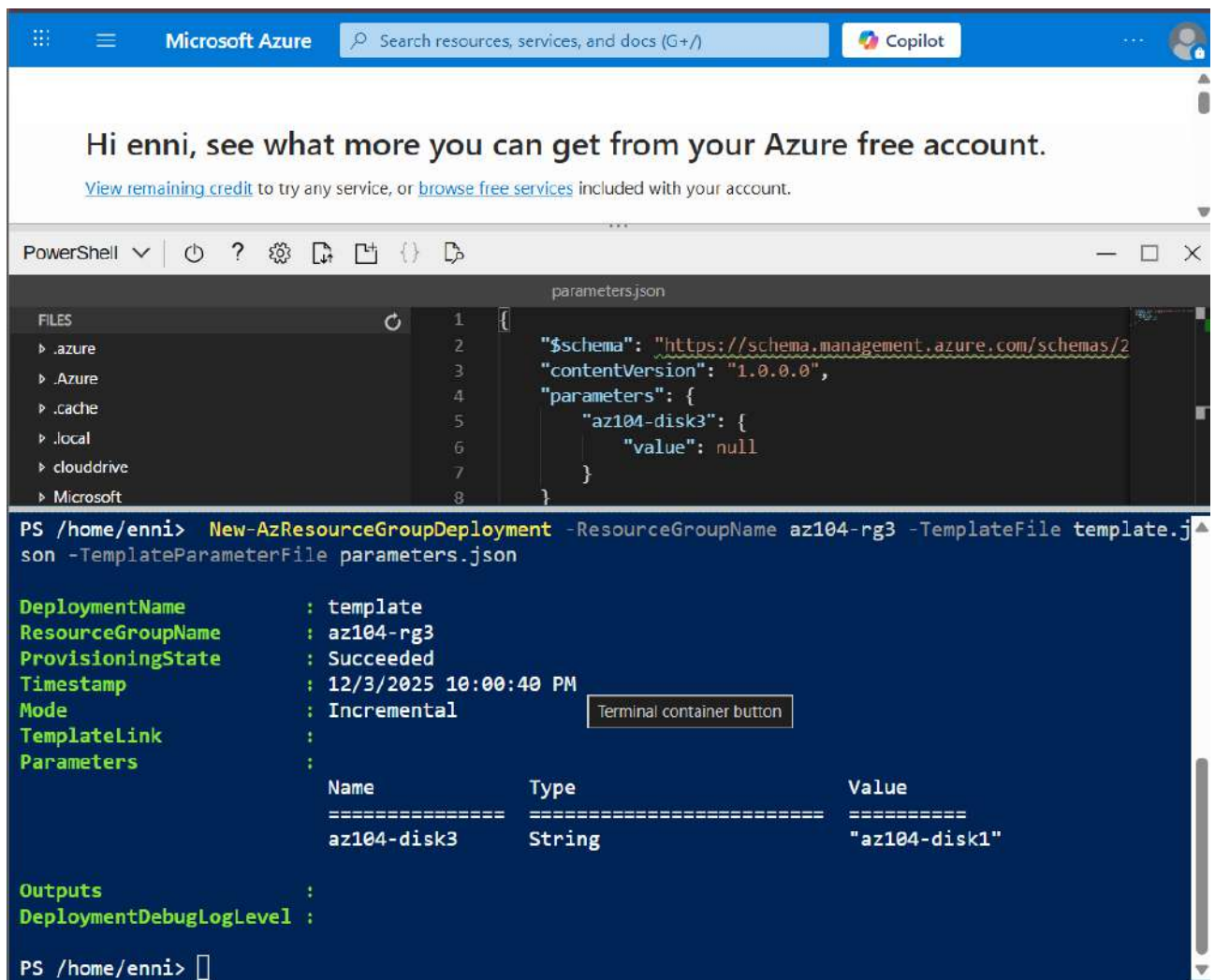
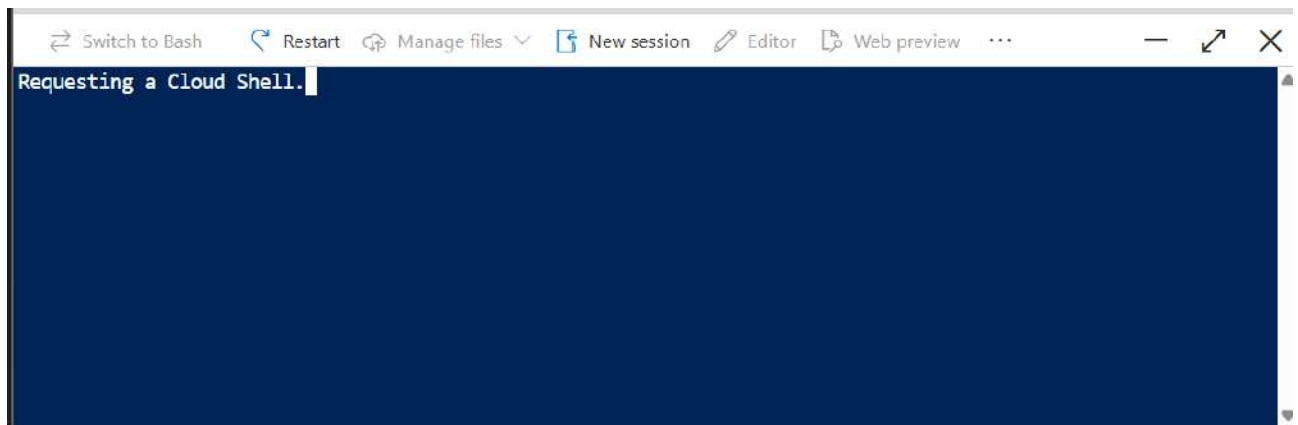
Settings

Deployments

Security

Deployment stacks

Task 3: Configure the Cloud Shell and deploy a template with PowerShell



Task 4: Deploy a template with the CLI

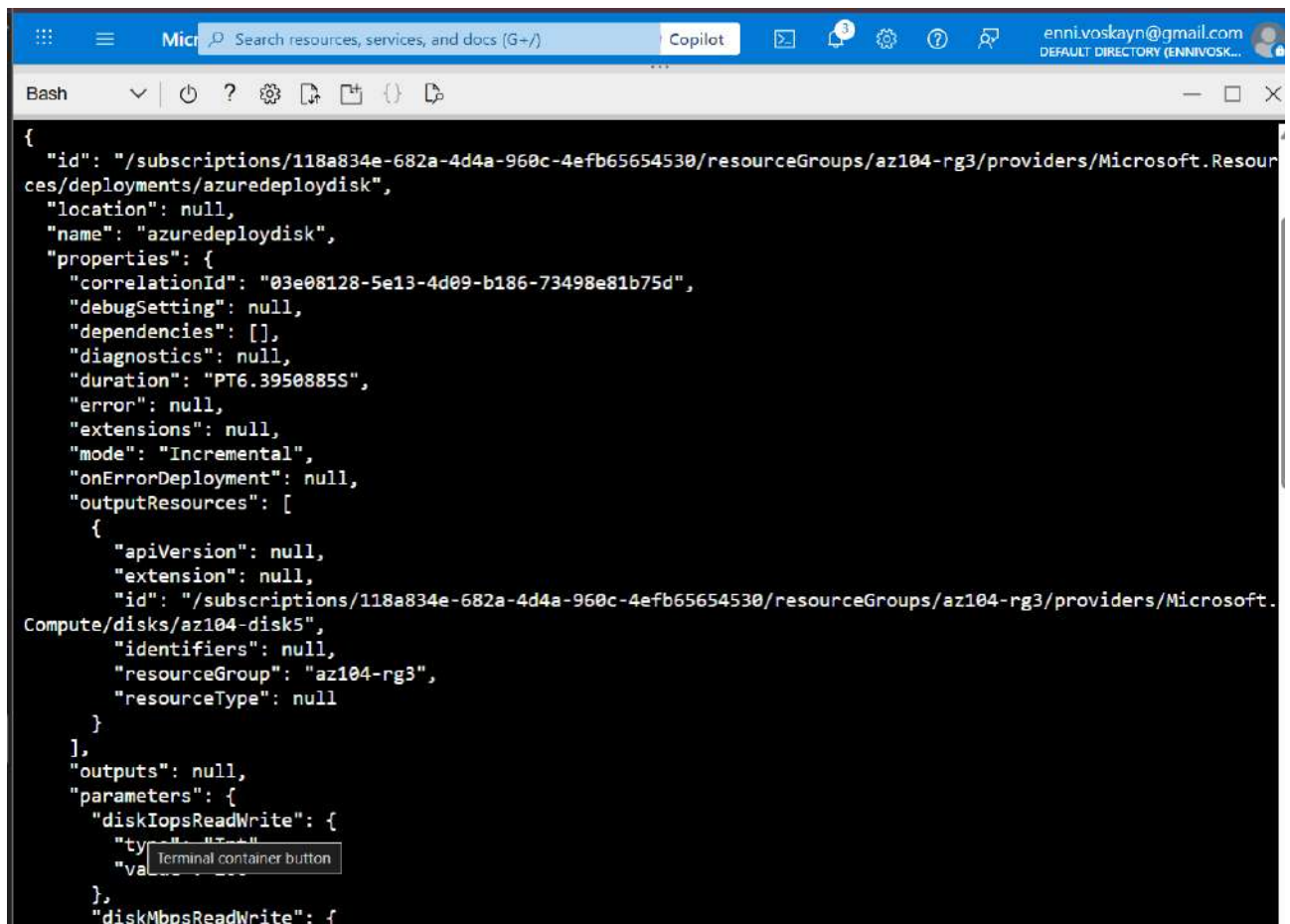

```
}
enni [ ~ ]$ az disk list --resource-group az104-rg3 --output table
Name                ResourceGroup  Location  Zones  Sku          SizeGb  ProvisioningState
-----
az104-disk1         az104-rg3     eastus    az1    Premium_LRS  32      Succeeded
az104-disk2         az104-rg3     eastus    az1    Premium_LRS  32      Succeeded
enni [ ~ ]$
```

Task 5: Deploy a resource by using Azure Bicep

The screenshot shows a web browser window with the Azure portal URL `portal.azure.com/?quickstart=True#home`. The browser's address bar and tabs are visible. Below the browser, a terminal window titled "Bash" is open, displaying a Bicep deployment script named `azuredeploydisk.bicep`. The script defines parameters for a managed disk, including its name, size, IOPS, throughput, and location, and then deploys the resource `Microsoft.Compute/disks@2020-09-30`.

```
1 @description('Name of the managed disk to be copied')
2 param managedDiskName string = 'az104-disk5'
3
4 @description('Disk size in GiB')
5 @minValue(4)
6 @maxValue(65536)
7 param diskSizeinGiB int = 32
8
9 @description('Disk IOPS value')
10 @minValue(100)
11 @maxValue(160000)
12 param diskIopsReadWrite int = 100
13
14 @description('Disk throughput value in MBps')
15 @minValue(1)
16 @maxValue(2000)
17 param diskMbpsReadWrite int = 10
18
19 @description('Location for all resources.')
20 param location string = resourceGroup().location
21
22 resource managedDisk 'Microsoft.Compute/disks@2020-09-30' = {
23   name: managedDiskName
24   location: location
25   sku: {
26     name: 'StandardSSD_LRS'
27   }
28 }
```

Below the script, a message indicates that the storage fileshare subscription is not registered to Microsoft CloudShell. The message reads: "Storage fileshare subscription 118a834e-682a-4d4a-960c-4efb65654530 is not registered to Microsoft CloudShell Namespace. Please follow these instructions "https://aka.ms/RegisterCloudShell" to register. In future, unregistered subscriptions will have restricted access to CloudShell service."



```
{
  "id": "/subscriptions/118a834e-682a-4d4a-960c-4efb65654530/resourceGroups/az104-rg3/providers/Microsoft.Resources/deployments/azuredeploydisk",
  "location": null,
  "name": "azuredeploydisk",
  "properties": {
    "correlationId": "03e08128-5e13-4d09-b186-73498e81b75d",
    "debugSetting": null,
    "dependencies": [],
    "diagnostics": null,
    "duration": "PT6.3950885S",
    "error": null,
    "extensions": null,
    "mode": "Incremental",
    "onErrorDeployment": null,
    "outputResources": [
      {
        "apiVersion": null,
        "extension": null,
        "id": "/subscriptions/118a834e-682a-4d4a-960c-4efb65654530/resourceGroups/az104-rg3/providers/Microsoft.Compute/disks/az104-disk5",
        "identifiers": null,
        "resourceGroup": "az104-rg3",
        "resourceType": null
      }
    ],
    "outputs": null,
    "parameters": {
      "diskIopsReadWrite": {
        "type": "String",
        "value": "Terminal container button"
      },
      "diskMbpsReadWrite": {
```

Lab 04 - Implement Virtual Networking

Task 1: Create a virtual network with subnets using the portal

Home > Network foundation | Virtual networks >

Create virtual network

BasicsSecurityIP addressesTagsReview + create

☐ Allocate using IP address pools. [Learn more](#)

+ Add a subnet

10.20.0.0/16Delete address space

10.20.0.0/16

10.20.0.0 - 10.20.255.25565 536 addresses

| Subnets | IP address range | Size | NAT gateway |
|--------------------------------------|---------------------------|---------------------|-------------|
| SharedServicesSubnet | 10.20.10.0 - 10.20.10.255 | /24 (256 addresses) | - |
| DatabaseSubnet | 10.20.20.0 - 10.20.20.255 | /24 (256 addresses) | - |

Add IPv4 address space

PreviousNextReview + create

Give feedback

Microsoft Azure

Search resources, services, and docs (G+I)

Copilot

Home >

CoreServicesVnet-1764800813181 | Overview

Deployment

Search

DeleteCancelRedeployDownloadRefresh

OverviewInputsOutputsTemplate

✓ Your deployment is complete

Deployment name : CoreServicesVnet-1764800813181

Subscription : Azure subscription 1

Resource group : az104-rg4

Start time : 12/4/2025, 12:27:23 AM

Correlation ID : 329158e3-81a0-4f1f-8d48-9cc2dbac14a0

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.

Task 2: Create a virtual network and subnets using a template

Edit template ...



Edit your Azure Resource Manager template

[+](#) Add resource [↑](#) Quickstart template [↑](#) Load file [↓](#) Download

```
1  {
2    "$schema": "https://schema.management.azure.com/schemas/2019-04-01/
deploymentTemplate.json#",
3    "contentVersion": "1.0.0.0",
4    "parameters": {
5      "virtualNetworks_ManufacturingVnet_name": {
6        "defaultValue": "ManufacturingVnet",
7        "type": "String"
8      }
9    },
10   "variables": {},
11   "resources": [
12     {
13       "type": "Microsoft.Network/virtualNetworks",
14       "apiVersion": "2024-07-01",
15       "name": "[parameters('virtualNetworks_ManufacturingVnet_name')]",
16       "location": "eastus",
17       "properties": {
18         "addressSpace": {
19           "addressPrefixes": [
20             "10.30.0.0/16"
21           ]
22         },
23         "encryption": {
24           "enabled": false.
```

Save

Discard

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

Home >

Microsoft.Template-20251204004747

Deployment

Search

Overview

- Inputs
- Outputs
- Template

Deployment succeeded

Deployment 'Microsoft.Template-20251204004747' to resource group 'az104-rg4' was successful.

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

✓ Your deployment is complete

Deployment name : Microsoft.Template-20251204004747

Subscription : Azure subscription 1

Resource group : az104-rg4

Start time : 12/4/2025, 12:47:51 AM

Correlation ID : fd37f7c9-1200-405d-971f-4992b92c7a35

> Deployment details

✓ Next steps

Go to resource group

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

Add or remove favorites by pressing Ctrl+Shift+F

Task 3: Create and configure communication between an Application Security Group and a Network Security Group

Show portal menu

Search resources, services, and docs (G+)

Copilot

Home >

CreateApplicationSecurityGroupBladeViewModel | Ov...

...

×

Deployment

Search

×

«

🗑️ Delete

⌛ Cancel

🔄 Redeploy

⬇️ Download

🔄 Refresh

Overview

Inputs

Outputs

Template

✓ Your deployment is complete

Deployment name : CreateApplicationSecurityGroupBladeViewModel

Subscription : Azure subscription 1

Resource group : az104-rg4

Start time : 12/4/2025, 12:50:07 AM

Correlation ID : 72e6ec31-c90a-4216-8549-572731526013

> 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

https://portal.azure.com/?quickstart=True#

Microsoft Azure

Search resources, services, and docs (G+)

Copilot

Home >

CreateNetworkSecurityGroupBladeV2-2025120400511...

Deployment

Search

DeleteCancelRedeployDownloadRefresh

Overview

Inputs

Outputs

Template

✓ Your deployment is complete

Deployment name : CreateNetworkSecurityGroupBladeV2-2025120...

Subscription : Azure subscription 1

Resource group : az104-rg4

Start time : 12/4/2025, 12:51:42 AM

Correlation ID : 5914523d-aedc-4c82-b3b0-6ce12ac33de9

> 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

Add or remove favorites by pressing Ctrl+Shift+F

Microsoft Azure

Search resources, services, and docs (G+)

Copilot

Home > CreateNetworkSecurityGroupBladeV2-20251204005112

myNSGSecure | Subnets

Network security group

Search

Associate

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

✓ Saving subnet

Successfully saved network security group for subnet 'SharedServicesSubnet'.

Search subnets

| Name | Address range | Virtual network |
|----------------------|---------------|------------------|
| SharedServicesSubnet | 10.20.10.0/24 | CoreServicesVnet |

Give feedback

Home > CreateNetworkSecurityGroupBladeV2-20251204005112

myNSGSecure | Inbound security

Network security group

Search

⌵ ⌵

+ Add

👁 Hide default rules

🔄 Refresh

🗑 Delete

⋮

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Resource visualizer

Settings

Inbound security rules

Outbound security rules

Network security group security rules are evaluated by priority using the combination of source, source port, destination, destination port, and protocol to allow or deny the traffic. A security rule can't have the same priority and direction as an existing rule. You can't delete default security rules, but you can override them with rules that have a higher priority. [Learn more](#)

Filter by name

Port == allProtocol == allSource == all

Destination == allAction == all

| Priority | Name | Port |
|----------|----------|--------|
| 100 | AllowASG | 80,443 |

Microsoft Azure

Search resources, services, and docs (G+)

Copilot

⋮

👤

Home > CreateNetworkSecurityGroupBladeV2-20251204005112

myNSGSecure | Outbound security

Network security group

Search

⌵ ⌵

+ Add

👁 Hide default rules

🔄 Refresh

🗑 Delete

⋮

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Resource visualizer

Settings

Inbound security rules

Outbound security rules

Network security group security rules are evaluated by priority using the combination of source, source port, destination, destination port, and protocol to allow or deny the traffic. A security rule can't have the same priority and direction as an existing rule. You can't delete default security rules, but you can override them with rules that have a higher priority. [Learn more](#)

Filter by name

Port == allProtocol == allSource == all

Destination == allAction == all

| Priority | Name | Port |
|----------|----------------------|------|
| 4096 | DenyInternetOutbound | Any |

Task 4: Configure public and private Azure DNS zones

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

Home > contosoc.com_1764802625901 | C
Deployment

Search x << Delete Cancel

Overview
Inputs
Outputs
Template

Deployment succeeded
Deployment 'contosoc.com_1764802625901' to resource group 'az104-rg4' was successful.
Go to resource Go to resource group

✓ Your deployment is complete

Deployment name : contosoc.com_1764802625901
Subscription : Azure subscription 1
Resource group : az104-rg4
Start time : 12/4/2025, 12:57:10 AM
Correlation ID : 15091f67-9f28-4b2b-85c3-ae5ac91b4cc2

> Deployment details
✓ Next steps
Go to resource

ns1-02.azure-dns.com.

Home > contosoc.com_1764802625901 | Overview > contosoc.com_1764802625901 | Recordsets
DNS zone

Search <> << + Add Refresh Delete Give feedback

Overview
Activity log
Access control (IAM)

✓ Create record set
Successfully created record set 'www'

A record set is a collection of records in a zone that have the same name and are the same type. You can search for record sets that have been loaded on this page. If you don't see what you're looking for, you can try scrolling to allow more record sets to load. [Learn more](#)

```
PS /home/enni> nslookup www.contosoc.com ns1-02.azure-dns.com
Server:      ns1-02.azure-dns.com
Address:     13.107.236.2#53

Name:   www.contosoc.com
Address: 10.1.1.4

PS /home/enni> 
```

Home >



private.contoso.com_1764803205

Deployment

Search



Delete



Cancel

Deployment succeeded

Deployment 'private.contoso.com_1764803205117' to resource group 'az104-rg4' was successful.

Go to resource

Go to resource group



Overview



Inputs



Outputs



Template



Your deployment is complete



Deployment name : private.contoso.com_1764803205117

Subscription : Azure subscription 1

Resource group : az104-rg4

Start time : 12/4/2025, 1:06:49 AM

Correlation ID : 3c32c7ef-248a-47da-85a8-c03433f72b79



Deployment details



Next steps

Go to resource



Add



Refresh

Upgrade to a Pay-As-You-Go subscription.



Search virtual network links

Fetches 1 virtual Network link(s).

0 Virtual Network links selected

Link Name

Link Status

Virtual Network

manufacturing-link

InProgress

ManufacturingVnet

Home > private.contoso.com

private.contoso.com | Recordsets

Private DNS zone

Search

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Resource visualizer

Settings

DNS Management

Recordsets

Virtual Network Links

Monitoring

Automation

Help

Create record set

Successfully created record set 'sensorvm'

+ Add

Refresh

Delete

Give feedback

A record set is a collection of records in a zone that have the same name and are the same type. Record Sets will be automatically fetched in batches of 100 as you scroll through the existing record sets. [Learn more](#)

Search

Fetches 2 record set(s).

0 record sets selected

| Name | Type | TTL | Value |
|----------|------|------|---|
| sensorvm | A | 3600 | 10.1.1.4 |
| @ | SOA | 3600 | Email: azu host.micr Host: azu Refresh: 3 Retry: 300 Expire: 24 Minimum Serial nur |

Lab 05 - Implement Intersite Connectivity

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

Zxc123@zxCzxC

Home >

CreateVm-MicrosoftWindowsServer

Deployment

Search

- Overview
- Inputs
- Outputs
- Template

Deployment succeeded

Deployment 'CreateVm-MicrosoftWindowsServer.WindowsServer-201-20251204104423' to resource group 'az104-rg5' was successful.

Go to resource Pin to dashboard

Your deployment is complete

Deployment name: CreateVm-MicrosoftWindowsServer.WindowsSe...
Subscription: [Azure subscription 1](#)
Resource group: [az104-rg5](#)
Start time: 12/4/2025, 10:50:17 AM
Correlation ID: 9a98c58f-975f-47d8-a1ee-976eee7adfe0

Deployment details

Next steps

- [Setup 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

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

Microsoft Azure

Search resources, services, and docs (G+)

Copilot

Home >

CreateVm-MicrosoftWindowsServer

Deployment

Search

Overview

Inputs

Outputs

Template

Deployment succeeded

Deployment 'CreateVm-MicrosoftWindowsServer.WindowsServer-201-20251204105158' to resource group 'az104-rg5' was successful.

Go to resource

Pin to dashboard

✓ Your deployment is complete

Deployment name: CreateVm-MicrosoftWindowsServer.WindowsSe...

Subscription: [Azure subscription 1](#)

Resource group: [az104-rg5](#)

Start time: 12/4/2025, 10:55:10 AM

Correlation ID: 8f5d19c2-3a48-4fd8-860c-c0c8de39db5d

Deployment details

Next steps

[Setup 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

Give feedback

[Tell us about your experience with deployment](#)

Cost Management

Add or remove favorites by pressing Ctrl+Shift+F

10:55 04.12.2025

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






Results

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

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

[Export to CSV](#)

Diagnostic tests

| Test | Status | Details |
|------------------|---|---|
| Connectivity ... |  Unreacha | Probes sent: 316, p See details |
| Outbound N... |  Deny | There are failed tes See details <ul style="list-style-type: none">• CoreServicesVM |
| Inbound NS... |  Deny | There are failed tes See details <ul style="list-style-type: none">• Manufacturing\ |
| Next hop (fr... |  Success | Next hop type: Nor Route table: System |
| Destination ... |  Reachable | |

Connectivity test shows **Unreachable**. This makes sense because the virtual machines are in different virtual networks.

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

Home > CoreServicesVnet

CoreServicesVnet | Peerings

Virtual network

Search

Settings

- Address space
- Connected devices
- Subnets
- Bastion
- DDoS protection
- Firewall
- Microsoft Defender for Cloud
- Network manager
- DNS
- Peerings**

Added virtual network peering
Successfully added virtual network peering 'ManufacturingVnet-to-CoreServicesVnet' to 'ManufacturingVnet'.

+ Add Refresh Export to CSV Delete Sync

Virtual network peering enables you to seamlessly connect two or more virtual networks in Azure. The virtual networks appear as one for connectivity purposes. [Learn more](#)

Filter by name...

Showing all 1 items

| <input type="checkbox"/> | Name ↑↓ | Peering s... ↑↓ | Peeri... ↑↓ | Remo... ↑↓ | Virtu... ↑↓ |
|--------------------------|------------|--------------------|-------------|------------|-------------|
| <input type="checkbox"/> | CoreSer... | Fully Synchronized | Connected | Manufac... | Disabled |

Home > ManufacturingVnet

ManufacturingVnet | Peerings

Virtual network

Search

Tags

Diagnose and solve problems

Resource visualizer

Settings

- Address space
- Connected devices
- Subnets
- Bastion
- DDoS protection

Virtual network peering enables you to seamlessly connect two or more virtual networks in Azure. The virtual networks appear as one for connectivity purposes. [Learn more](#)

Filter by name...

Showing all 1 items

| <input type="checkbox"/> | Name ↑↓ | Peering s... ↑↓ | Peeri... ↑↓ | Remo... ↑↓ | Virtu... ↑↓ |
|--------------------------|------------|--------------------|-------------|------------|-------------|
| <input type="checkbox"/> | Manufac... | Fully Synchronized | Connected | CoreSer... | Disabled |

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

Private IP address

10.0.0.4

Run Command Script

RunPowerShellScript

Script execution complete

PowerShell Script

1

Test-NetConnection 10.0.0.4 -port 3389

Run

Output

ComputerName : 10.0.0.4
RemoteAddress : 10.0.0.4
RemotePort : 3389
InterfaceAlias : Ethernet
SourceAddress : 172.16.0.4
TcpTestSucceeded : True

Task 6: Create a custom route

| <input type="checkbox"/> | Name ↑ | IPv4 | IPv6 | Available IP |
|--------------------------|-----------|-------------|------|--------------|
| <input type="checkbox"/> | Core | 10.0.0.0/24 | - | 250 |
| <input type="checkbox"/> | perimeter | 10.0.1.0/24 | - | 251 |

Microsoft ...

Search resources, services, and docs (G+/)

Copilot

Home >

Microsoft.RouteTable-20251204111203 | Overview

Deployment

Search

Delete Cancel Redeploy Download Refresh

Overview

Inputs

Outputs

Template

✔ Your deployment is complete

Deployment name : Microsoft.RouteTable-20251204111203

Subscription : Azure subscription 1

Resource group : az104-rg5

Start time : 12/4/2025, 11:12:51 AM

Correlation ID : 341aa520-ee94-446c-a16b-616e2ef195bc

> Deployment details

✔ Next steps

Go to resource

Microsoft ...

Search resources, services, and docs (G+/)

Copilot

Home > Microsoft.RouteTable-20251204111203 | Overview > a

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

Search routes

| Name ↑↓ | Address prefix ↑↓ | Next hop type ↑↓ |
|-----------------|-------------------|------------------|
| PerimetertoCore | 10.0.0.0/16 | VirtualAppliance |

✔ Successfully added route

Successfully added route 'PerimetertoCore' to route table 'rt-CoreServices'.

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

Home > Microsoft.RouteTable-20251204111203 | Overview > a

rt-CoreServices | Subnets ☆ ...

Route table

Search Associate

Overview
Activity log
Access control (IAM)
Tags
Diagnose and solve problems
Resource visualizer

Search subnets

| Name ↑↓ | Address range ↑↓ | Virtual network ↑↓ | Se |
|---------|------------------|--------------------|----|
| Core | 10.0.0.0/24 | CoreServicesVnet | - |

Lab 06 - Implement Network Traffic Management

Task 1: Use a template to provision an infrastructure

Microsoft Azure

Search resources, services, and docs (G+)

Copilot

Home >

Microsoft.Template-20251204095619

Deployment

Search

Delete

Cancel

Pin to dashbo...

Go to resource gr...

Overview

Inputs

Outputs

Template

✓

Deployment succeeded

Deployment 'Microsoft.Template-20251204095619' to resource group 'az104-rg6' was successful.

✓

Your deployment is complete

Deployment name : Microsoft.Template-20251204095619

Subscription : Azure subscription 1

Resource group : az104-rg6

Start time : 12/4/2025, 9:56:23 AM

Correlation ID : 0ed7ee88-d258-40b8-9c86-9e6702630d39

>

Deployment details

✓

Next steps

Go to resource group

Give feedback

Tell us about your experience with deployment

\$

Cost management

Get notified to stay within your budget and prevent unexpected charges on

Task 2: Configure an Azure Load Balancer

Microsoft Azure

Search resources, services, and docs (G+)

Copilot

Home > Load balancing and content delivery | Load balancers > Create load balancer >

Add backend pool

Name *

az104-be

Virtual network ⓘ

az104-06-vnet1 (az104-rg6) ▾

ⓘ

The dropdown only shows virtual networks in the same subscription and location as the load balancer. If you don't see the one you're looking for, it's either in another subscription or location or you don't have access to it.

Backend Pool Configuration

☒ NIC

☐ IP address

IP configurations

IP configurations associated to virtual machines and virtual machine scale sets must be in same location as the load balancer and be in the same virtual network.

+ Add

|

✕ Remove

| | Resource Name | Resourc... | Type | IP confi... | IP Addr... | Availabi... | |
|--------------------------|---------------|------------|--------------|-------------|------------|-------------|--|
| <input type="checkbox"/> | az104-06-vm0 | az104-rg6 | Virtual mach | ipconfig1 | 10.60.0.4 | - | |
| | az104-06-vm1 | az104-rg6 | Virtual mach | ipconfig1 | 10.60.1.4 | - | |

Save

Cancel

Give feedback

Microsoft Azure

Search resources, services, and docs (G+)

Copilot

Home >

CreateLoadBalancerBladeV2-20251204100431

Deployment

Search

Overview

Inputs

Outputs

Template

Deployment succeeded

Deployment 'CreateLoadBalancerBladeV2-20251204100431' to resource group 'az104-rg6' was successful.

Go to resource

Pin to dashboard

Your deployment is complete

Deployment name : CreateLoadBalancerBladeV2-20251204100431

Subscription : Azure subscription 1

Resource group : az104-rg6

Start time : 12/4/2025, 10:08:12 AM

Correlation ID : 25e2b9df-a381-4ea4-ae02-8159afebf73e

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

Add or remove favorites by pressing Ctrl+Shift+F

Microsoft Azure

Search resources, services, and docs (G+)

Copilot

Home > CreateLoadBalancerBladeV2-20251204100431 | Overview

az104-lb | Load balancing rules

Load balancer

Search

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Resource visualizer

Settings

Frontend IP configuration

Saved load balancer rule

Successfully saved load balancer rule 'az104-lbrule'.

+ Add

Refresh

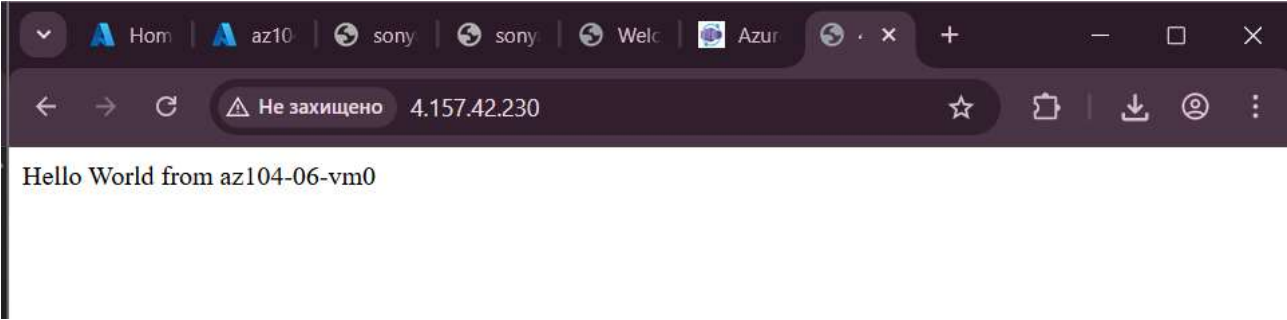
Export to CSV

Delete

A load balancer rule is used to define how incoming traffic is distributed to all the instances within the backend pool. A load-balancing rule maps a given frontend IP configuration and port to multiple backend IP addresses and ports. An example would be a rule created on port 80 to load balance web traffic. [Learn more.](#)

Filter by name...

| | Name ↑↓ | Prot... ↑↓ | Backen... ↑↓ | Health ... ↑↓ | Heal... |
|--|----------------|------------|--------------|---------------|--------------------------|
| | az104-lbrule.. | TCP/80 | az104-be | az104-hp | View det |



Task 3: Configure an Azure Application Gateway

Microsoft Azure

Search resources, services, and docs (G+/)

Copilot

Home > Network foundation | Virtual networks > az104-06-vnet1

az104-06-vnet1 | Subnets

Virtual network

Search

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Resource visualizer

Settings

Address space

Connected devices

Subnets

+ Subnet

Refresh

Manage users

Delete

Create subnets to segment the virtual network address space into smaller ranges for use by your applications. When you deploy resources into a subnet, Azure assigns the resource an IP address from the subnet.

Search subnets

| | Name ↑ | IPv4 | IPv6 | Available IP |
|--------------------------|--------------|----------------|------|--------------|
| <input type="checkbox"/> | subnet0 | 10.60.0.0/24 | - | 250 |
| <input type="checkbox"/> | subnet1 | 10.60.1.0/24 | - | 250 |
| <input type="checkbox"/> | subnet2 | 10.60.2.0/24 | - | 250 |
| <input type="checkbox"/> | subnet-ap... | 10.60.3.224/27 | - | 27 |

Path-based routing

You can route traffic from this rule's listener to different backend targets based on the URL path of the request. You can also apply a different set of Backend settings based on the URL path.

Path based rules

| Path | Target name | Backend setting name | Backend pool |
|----------|-------------|----------------------|-------------------|
| /image/* | images | az104-http | az104-imagebe ... |
| /video/* | videos | az104-http | az104-videobe ... |

Add multiple targets to create a path-based rule

Add

Cancel

Microsoft Azure

Search resources, services, and docs (G+)

Copilot

Home >

Microsoft.ApplicationGateway-20251204101426

Deployment

Search

×

«

Overview

Inputs

Outputs

Template

Delete

Cancel

Deployment succeeded

Deployment 'Microsoft.ApplicationGateway-20251204101426' to resource group 'az104-rg6' was successful.

Pin to dashbo...

Go to resource gr...

✓ Your deployment is complete

Deployment name : Microsoft.ApplicationGateway-20251204101426

Subscription : Azure subscription 1

Resource group : az104-rg6

Start time : 12/4/2025, 10:22:35 AM

Correlation ID : 12fa46e1-5e78-4b03-aa3b-954f875b610f

> Deployment details

✓ Next steps

Go to resource group

Give feedback

Tell us about your experience with deployment

Home > Microsoft.ApplicationGateway-20251204101426 | Overview > az104-rg6 > az104-appgw

♥ az104-appgw | Backend health

Application gateway

Search

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Resource visualizer

Settings

Monitoring

Alerts

Metrics

Diagnostic settings

Logs

Advisor recommendations

Insights

Backend health

Connection troubleshoot

Refresh

Feedback

By default, Azure Application Gateway probes backend servers to check their health and whether they're ready to serve requests. You can also create custom [Health Probes](#) to mention a specific hostname and path to be probed or a response code to be accepted as Healthy.

The Backend health report is updated based on the respective probe's refresh interval and doesn't depend on the page refresh.

All

♥ 4

out of 4

Healthy

✔ 4

out of 4

Search backend health

| Server (backend...↑↓ | Status | Port (Backend s...↑↓ | Prc |
|-------------------------|-----------|----------------------|-----|
| 10.60.1.4 (az104-app... | ✔ Healthy | 80 (az104-http) | Htt |
| 10.60.2.4 (az104-app... | ✔ Healthy | 80 (az104-http) | Htt |
| 10.60.2.4 (az104-vid... | ✔ Healthy | 80 (az104-http) | Htt |
| 10.60.1.4 (az104-ima... | ✔ Healthy | 80 (az104-http) | Htt |

Ho | az1 | sor | sor | We | Azi | 4.1

← → ↻ ⚠ Не захищено 20.242.173.250/image/ ☆ 📄 ⬇ 👤 ⋮

Image from: az104-06-vm1

Ho | az1 | sor | sor | We | Azi | 4.1

← → ↻ ⚠ Не захищено 20.242.173.250/video/ ☆ 📄 ⬇ 👤 ⋮

Перегляд інформації про сайт

Video from: az104-06-vm2

Lab 07 - Manage Azure Storage

Task 1: Create and configure a storage account.

The screenshot shows the Azure portal interface. At the top, there's a navigation bar with 'Home >' and a search bar. Below the navigation bar, the main heading is 'sonya_1764808105451 | Overview' with a 'Deployment' icon. A sidebar on the left contains links for 'Overview', 'Inputs', 'Outputs', and 'Template'. A top-right notification banner states 'Deployment succeeded' with a close button. Below this, a large green checkmark icon is followed by the text 'Your deployment is complete'. The deployment details listed are: Deployment name: sonya_1764808105451, Subscription: Azure subscription 1, Resource group: az104-rg7, Start time: 12/4/2025, 2:28:34 AM, and Correlation ID: bad9db85-3d9b-4fc3-be6f-f7c9ea65a395. There are buttons for 'Go to resource' and 'Pin to dashboard'. Below the deployment details, there are sections for 'Deployment details' and 'Next steps', with a 'Go to resource' button. At the bottom, there's a 'Give feedback' section with a link to 'Tell us about your experience with deployment'. A 'Cost Management' section is partially visible at the bottom right.

Home >

sonya_1764808105451 | Overview

Deployment

Search

Overview

Inputs

Outputs

Template

Deployment succeeded

Deployment 'sonya_1764808105451' to resource group 'az104-rg7' was successful.

Go to resource

Pin to dashboard

✓ Your deployment is complete

Deployment name: sonya_1764808105451

Subscription: Azure subscription 1

Resource group: az104-rg7

Start time: 12/4/2025, 2:28:34 AM

Correlation ID: bad9db85-3d9b-4fc3-be6f-f7c9ea65a395

Deployment details

Next steps

Go to resource

Give feedback

Tell us about your experience with deployment

Cost Management

The screenshot shows the Azure portal interface for the 'sonya' storage account. The navigation bar shows 'Home > sonya_1764808105451 | Overview > sonya'. The main heading is 'sonya | Lifecycle management' with a 'Storage account' icon. A sidebar on the left contains links for 'Access keys', 'Shared access signature', 'Encryption', 'Microsoft Defender for Cloud', 'Data management', 'Storage Actions', 'Redundancy', 'Data protection', 'Object replication', 'Blob inventory', and 'Static website'. A top-right notification banner states 'Successfully updated lifecycle management policy' with a close button. Below this, there's a section for 'Lifecycle management' with a description: 'Lifecycle management offers a rich, rule-based policy for general purpose v2 and blob storage accounts. Use the policy to transition your data to the appropriate access tiers or expire at the end of the data's lifecycle. A new or updated rule can take up to 24 hours to go into effect. Learn more'. There are buttons for 'Add a rule', 'Enable', 'Disable', 'Refresh', and 'Delete'. Below this, there's a 'List View' section with a table showing the lifecycle management rules. The table has columns for 'Name', 'Status', and 'Blob type'. The first rule is 'Movetocool', which is 'Enabled' and applies to 'Block' blob type. There's also a checkbox for 'Enable access tracking'.

Home > sonya_1764808105451 | Overview > sonya

sonya | Lifecycle management

Storage account

Search

Access keys

Shared access signature

Encryption

Microsoft Defender for Cloud

Data management

Storage Actions

Redundancy

Data protection

Object replication

Blob inventory

Static website

Successfully updated lifecycle management policy

Successfully updated lifecycle management policy for storage account 'sonya'.

Add a rule

Enable

Disable

Refresh

Delete

Lifecycle management offers a rich, rule-based policy for general purpose v2 and blob storage accounts. Use the policy to transition your data to the appropriate access tiers or expire at the end of the data's lifecycle. A new or updated rule can take up to 24 hours to go into effect. [Learn more](#)

List View



Code View

Enable access tracking

| Name | Status | Blob type |
|------------|---------|-----------|
| Movetocool | Enabled | Block |

Only show active containers ☐

Showing all 2 items

| <input type="checkbox"/> | Name | Last modified | Anonymous |
|--------------------------|--|----------------------|-----------|
| <input type="checkbox"/> |  \$logs | 04.12.2025, 02:29:00 | Private |
| <input type="checkbox"/> |  data | 04.12.2025, 02:33:46 | Private |

| Identifier | Scope | Retention interval | State |
|----------------------|-----------|--------------------|----------|
| Time-based retention | Container | 180 days | Unlocked |

Home - Microsoft | data - Microsoft A | sonya.blob.core.wi

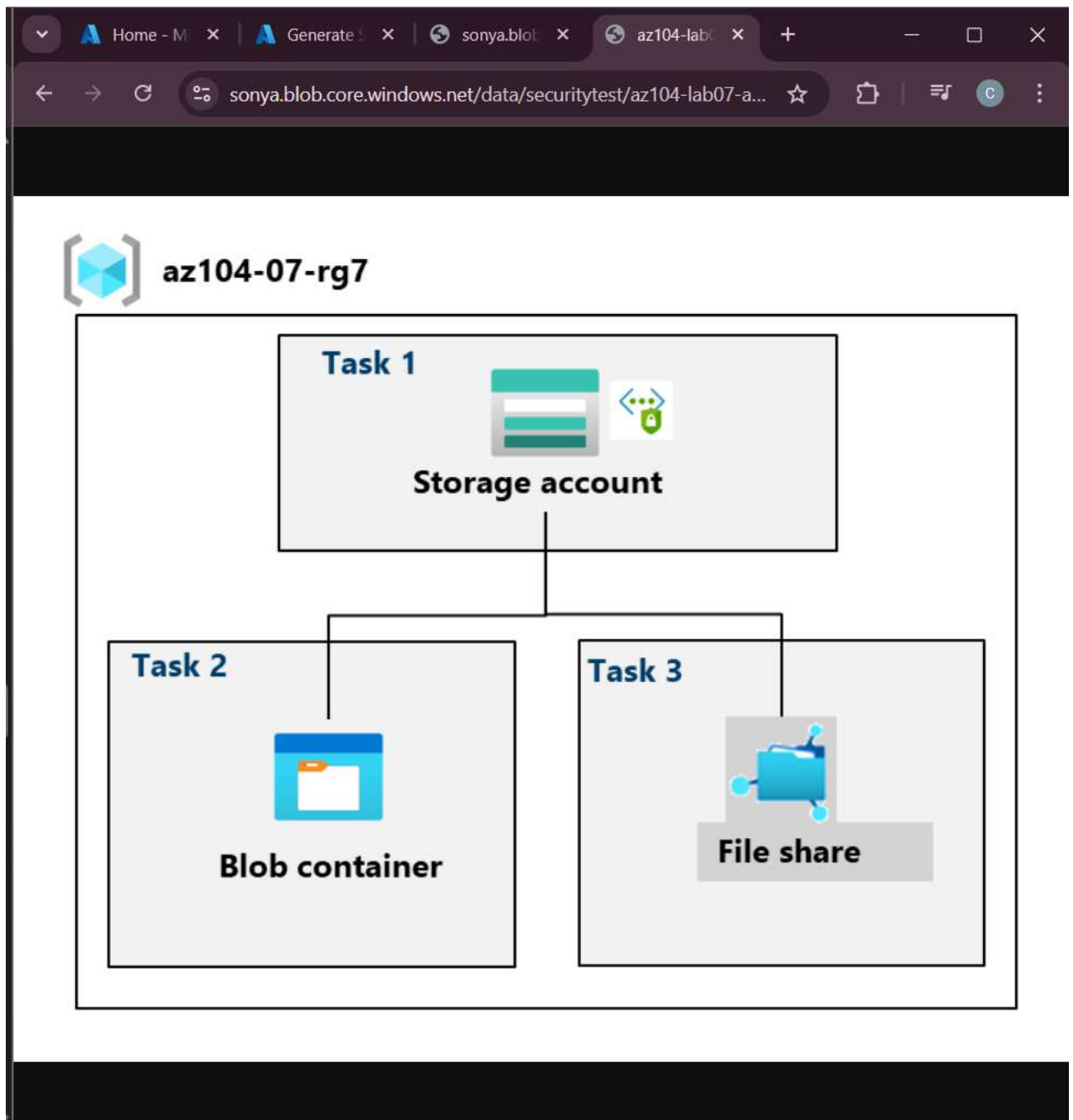
sonya.blob.core.windows.net/data/securitytest/az104-lab07-a...

Натисніть, щоб перейти далі; утримуйте, щоб переглянути історію

This XML file does not appear to have any style information associated with it. The document tree is shown below.

```
<?xml version="1.0" encoding="utf-8" ?>
<Error>
  <Code>PublicAccessNotPermitted</Code>
  <Message>Public access is not permitted on this storage account. RequestId:77bb3e65-501e-0014-2cb6-649700000000 Time:2025-12-04T00:38:17.0274353Z</Message>
</Error>
```

<https://sonya.blob.core.windows.net/data/securitytest/az104-lab07-architecture-diagram.png?sp=r&st=2025-12-03T00:23:56Z&se=2025-12-05T08:38:56Z&spr=https&sv=2024-11-04&sr=b&sig=fAsQJwCeciPqmB3dURbKzVNWet26GhH51oBipn6SD%2Bo%3D>



Task 3: Create and configure an Azure File storage

Home > sonya_1764808105451 | Overview > sonya | File shares

share1 SMB File share

Search

Connect Upload Refresh Add directory

Overview

- Diagnose and solve problems
- Access Control (IAM)

Successfully created storage file share

Backup is not enabled for file share 'share1'. Click here to enable.

Enable Backup for file share "share1" to protect your data. [Learn more](#)

Essentials

Storage account: sonya

JSON View

Upload files

✓ Successfully uploaded file(s)

Successfully uploaded 1 file(s).



Drag and drop files here

or

[Browse for files](#)

☐ Overwrite if files already exist

Upload

Current uploads

Dismiss: [Completed](#) [All](#)

az104-lab07-architecture...

✓ 33.08 KiB / 33.08 KiB

Microsoft Azure

Search resources, services, and docs (G+/)

Copilot

Home >

vnet1-1764809131848 | Overview

Deployment

Delete

Cancel

Overview

Inputs

Outputs

Template

✓ Deployment succeeded

Deployment 'vnet1-1764809131848' to resource group 'az104-rg7' was successful.

[Go to resource](#) [Pin to dashboard](#)

✓ Your deployment is complete

Deployment name : vnet1-1764809131848

Subscription : [Azure subscription 1](#)

Resource group : [az104-rg7](#)

Start time : 12/4/2025, 2:45:35 AM

Correlation ID : 779feed8-5d26-4775-82eb-e829aab661da

> Deployment details

✓ Next steps

[Go to resource](#)



vnet1 | Service endpoints

Virtual network

✓ Updated virtual network

Successfully saved service endpoint 'Microsoft.Storage' for virtual network 'vnet1'

Search

+ Add Refresh

- Address space
- Connected devices
- Subnets
- Bastion
- DDoS protection

Filter service endpoints

| Service | Subnet | Status |
|---------|--------|--------|
|---------|--------|--------|

| | | |
|---------------------|---|--|
| > Microsoft.Storage | 1 | |
|---------------------|---|--|



sonya | Storage browser

Storage account

Search

- Overview
- Activity log
- Tags
- Diagnose and solve problems
- Access Control (IAM)
- Data migration
- Events

Storage browser

- Storage Mover
- Partner solutions
- Resource visualizer
- ▼ Data storage
 - Containers
 - File shares
 - Queues
 - Tables

▼ Security + networking

Add or remove favorites by pressing Ctrl+Shift+F

This request is not authorized to perform this operation.

Summary

Session ID
908b7dd02a7f4314b6fd7513eb567a16

Resource ID
/subscriptions/118a834e-682a-4d4a-...

Extension
Microsoft_Azure_Storage

Content
BlobsBlade

Error code
403

Storage Request ID
42a599bc-c01e-0016-2cb8-6429b800...

Details

- This request is not authorized to perform this operation.
RequestId:42a599bc-c01e-0016-2cb8-6429b8000000

Lab 08 - Manage Virtual Machines

[Home](#) > [Compute infrastructure | Virtual machines](#) > [Create a virtual machine](#) >

Select a VM size ...



vCPUs : **0-1**

RAM (GiB) : **All**

Display cost : **Monthly**

Add filter

Showing 15 of 1091 VM sizes.

Subscription: Azure subscription 1

Region: East US

Image: Windows Server 2019 Datacenter

[Learn more about VM sizes](#)

Group by series

| VM Size ↑↓ | Type ↑↓ | vCPUs ↑↓ | RAM (GiB) ↑↓ | Data disks ↑↓ |
|---------------------------------|----------------------|--|--------------|---------------|
| ➤ Size not available | | See the info bubble next to a size for details on availability | | |
| ▼ Unsupported availability zone | | Sizes are not supported in zone 1,2. Change your availability | | |
| DC1ds_v3 ⓘ | Confidential compute | 1 | 8 | 4 |
| DC1s_v3 ⓘ | Confidential compute | 1 | 8 | 4 |

Lab 09a - Implement Web Apps

Task 1: Create and configure an Azure web app

Microsoft Azure

Search resources, services, and docs (G+)

Copilot

Home >

Microsoft.Web-WebApp-Portal-d83e34b5-94b9 | Ove...

...

×

Deployment

Search

×

«

Delete

Cancel

Redeploy

Download

Refresh

Overview

Inputs

Outputs

Template

✓ Your deployment is complete

Deployment name : Microsoft.Web-WebApp-Portal-d83e34b5-94b9

Subscription : [Azure subscription 1](#)

Resource group : [az104-rg9](#)

Start time : 12/4/2025, 1:21:32 PM

Correlation ID : be10af95-3471-41a5-ace0-cba61d3c52a6

> Deployment details

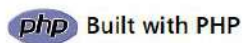
✓ Next steps

Go to resource



Your web app is running and waiting for your content

Your web app is live, but we don't have your content yet. If you've already deployed, it could take up to 5 minutes for your content to show up, so come back soon.



Home > sonya



sonya | Deployment slots ☆ ...

Web App

Search

Save Discard Add Swap Logs Refresh ...

- Overview
- Activity log
- Access control (IAM)
- Tags
- Diagnose and solve problems
- Microsoft Defender for Cloud
- Events (preview)

Deployment slots are live apps with their own hostnames. App content and configurations elements can be swapped between two deployment slots, including the production slot.

| Name | Status | App service plan | Traffic |
|-------------------------|---------|-------------------|---------|
| sonya PRODUCTION | Running | ASP-az104rg9-9c26 | 100 |
| sonya-staging | Running | ASP-az104rg9-9c26 | 0 |

Home > sonya | Deployment slots > staging (sonya/staging)

staging (sonya/staging) | Deployment Center

App Service (Slot)

Search

Settings Containers (new) Logs FTPS Credentials

Settings

- Environment variables
- Configuration (preview)
- Instances
- Authentication
- Identity
- Backups
- Custom domains
- Certificates
- Networking
- WebJobs
- Service Connector
- Locks

> Performance

> App Service plan

> Development Tools

Save Discard Refresh Browse Sync Send us your feedback

Deploy and build code from your preferred source and build provider. [Learn more](#)

Source External Git [Disconnect](#)

Repository <https://github.com/Azure-Samples/php-docs-hello-world>

Branch [master](#)

Build

Build provider App Service Build Service

Runtime stack PHP

Version 8.2

sonya-staging-d2dzh3bvgfdjh4ec.southafricanorth-01.azurewebsites.net

Hello World!

Task 4: Swap deployment slots

sonya-fzadzcg3achrhf.southafricanorth-01.azurewebsites.net

Hello World!

Home > App Services > sonya

sonya | Scale out

Web App

Search

Refresh

Send us your feedback

Tags

Diagnose and solve problems

Microsoft Defender for Cloud

Events (preview)

Resource visualizer

Deployment

Deployment slots

Deployment Center

Settings

Performance

App Service plan

App Service plan

Scale up

Scale out

Development Tools

API

Monitoring

Scaling

When scaling demand changes, you can manually scale your resource to a specific instance count, or via a custom Autoscale rule based policy that scales based on metric(s) thresholds, or schedule instance count which scales during designated time windows. You can also use Automatic Scaling features which enables platform managed scale in and scale out for your apps based on incoming HTTP traffic. [Learn more about Azure Autoscale, Automatic Scaling or view the how-to video.](#)

Scale out method

☒ Manual

Maintain a constant instance count for your application

☐ Automatic

Platform managed scale out and in based on traffic

Automatic scaling requires a Premium v2 or Premium v3 App Service Plan. Upgrade your App Service Plan to enable this feature. [See recommended pricing plan](#)

☐ Rules Based

User defined rules to scale on a schedule or based on any app metric

Instance count

1

Save

Discard

Home >

Microsoft.CloudNativeTesting176484885184

Deployment

Search

Delete

Cancel

Redeploy

Overview

Inputs

Outputs

Template

Deployment succeeded

Deployment 'Microsoft.CloudNativeTesting1764848851841' to resource group 'az104-rg9' was successful.

Go to resource

Go to resource group

✓ Your deployment is complete

Deployment name : Microsoft.CloudNativeTesting1764848851841

Subscription : Azure subscription 1

Resource group : az104-rg9

Start time : 12/4/2025, 1:47:52 PM

Correlation ID : 74f00fa6-c7c5-4c38-a706-42a37a789229

> Deployment details

✓ Next steps

Go to resource

Create Web App ...



✖ deploymentName: Microsoft.Web-WebApp-Portal-d8f55ee8-b282
deploymentStatusCode: -1
details: {"code":"InvalidTemplateDeployment","message":"The template deployment 'Microsoft.Web-WebApp-Portal-d8f55ee8-b282' is not valid according to the validation procedure. The tracking id is 'ee5729af-307c-470b-a150-8f0c03361304'. See inner errors for details.", "details":[{"code":"ValidationForResourceFailed","message":"Validation failed for a resource. Check 'Error.Details[0]' for more information.", "details":[{"code":"SubscriptionIsOverQuotaForSku","message":"Operation cannot be completed without additional quota. \r\n\r\nAdditional details - Location: \r\n\r\nCurrent Limit (PremiumMV3 VMs): 0 \r\n\r\nCurrent Usage: 0\r\n\r\nAmount required for this deployment (PremiumMV3 VMs): 1 \r\n\r\n(Minimum) New Limit that you should request to enable this deployment: 1. \r\n\r\nNote that if you experience multiple scaling operations failing (in addition to this one) and need to accommodate the aggregate quota requirements of these operations, you will need to request a higher quota limit than the one currently displayed."}]}}}
error: {"code":"InvalidTemplateDeployment","details":[{"code":"ValidationForResourceFailed","message":"Validation failed for a resource. Check 'Error.Details[0]' for more information.", "details":[{"code":"SubscriptionIsOverQuotaForSku","message":"Operation cannot be completed without additional quota. \r\n\r\nAdditional details - Location: \r\n\r\nCurrent Limit (PremiumMV3 VMs): 0 \r\n\r\nCurrent Usage: 0\r\n\r\nAmount required for this deployment (PremiumMV3 VMs): 1 \r\n\r\n(Minimum) New Limit that you should request to enable this deployment: 1. \r\n\r\nNote that if you experience multiple scaling operations failing (in addition to this one) and need to accommodate the aggregate quota requirements of these operations, you will need to request a higher quota limit than the one currently displayed."}]}}], "message":"The template deployment 'Microsoft.Web-WebApp-Portal-d8f55ee8-b282' is not valid according to the validation procedure. The tracking id is 'ee5729af-307c-470b-a150-8f0c03361304'. See inner errors for details."}
expected: true
location: East US
notificationTimestamp: "2025-12-04T01:12:16.048Z"
resourceGroupName: az104-rg9
stage: 6
subscriptionId: 118a834e-682a-4d4a-960c-4efb65654530



- Basics
- Database
- Deployment
- Networking
- Monitor + secure
- Tags
- Review + create

Summary

Create

< Previous

Next >

[Download a template for automation](#)

Dashboard > All resources > sonya >

TestRun_12/4/2025_1:54:00 PM

Last updated by: enni.voskayn@gmail.com | Initiated on: 04.12.2025, 13:54:01

View all test runs

Stop

Delete

Configure server side metrics

Download

Share

Test run feedback How was your experience running a load test with Azure Load Testing?

Executing

Start time : 04.12.2025, 13:54:04

End time : --

Duration : --

Engine instances : 1

Virtual users (Max) : -

Virtual user hours : -

Test run ID : 38d95d58-1b3b-47ee-8150-66d67d8bf030

Baseline : [Set baseline](#)

AI insights

Client side metrics

Server side metrics

Engine health

AI summary and insights : AI-powered insights will be available after the test run is completed and artifacts are available. [Learn more](#)

Server-side metrics aren't configured. [Configure them now](#) to unlock deeper AI-based insights and results. [Learn more](#)

Client-side metrics

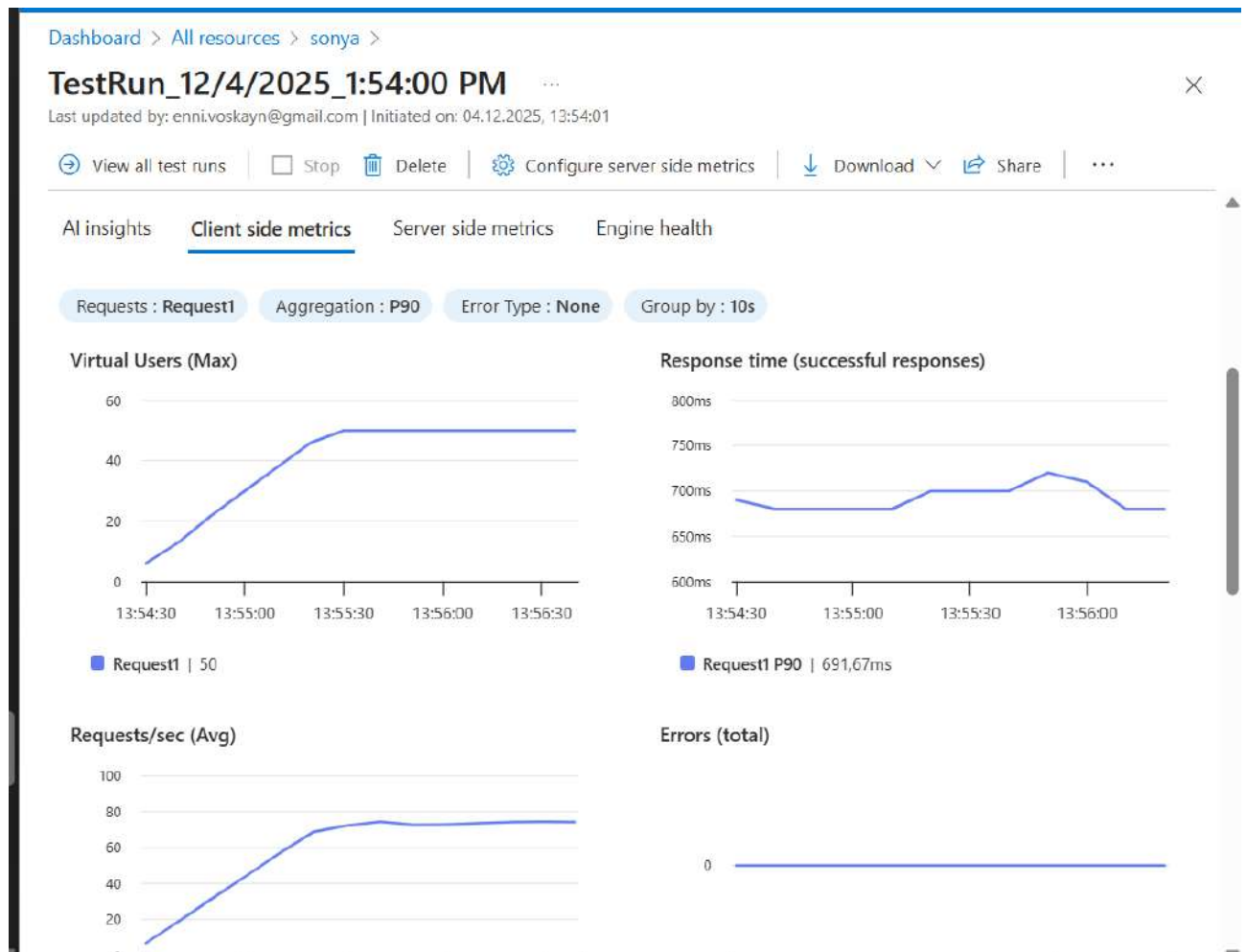
Requests : Request1

Aggregation : P90

Error Type : None

Group by : 10s





Lab 09b - Implement Azure Container Instances

Task 1: Deploy an Azure Container Instance using a Docker image

Home >



Microsoft.ContainerInstances-20251204031851

Deployment

Search

Overview

Inputs

Outputs

Template

Delete Cancel

Deployment succeeded

Deployment 'Microsoft.ContainerInstances-20251204031851' to resource group 'az104-rg9' was successful.

Go to resource

Pin to dashboard

Your deployment is complete



Deployment name : Microsoft.ContainerInstances-20251204031851

Subscription : Azure subscription 1

Resource group : az104-rg9

Start time : 12/4/2025, 3:21:17 AM

Correlation ID : 89df4b3b-3c0b-40aa-8d04-04b52676c304

> 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

Add or remove favorites by pressing Ctrl+Shift+F

Home > Microsoft.ContainerInstances-20251204031851 | Overview >



az104-c1

Container instances

Search

Overview

Activity log

Access control (IAM)

Tags

Resource visualizer

Start Restart Stop Delete Refresh



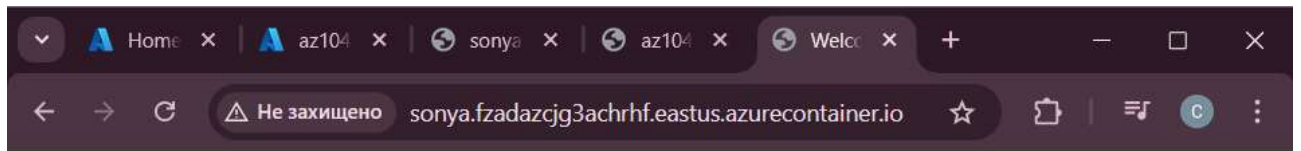
Please be aware that Docker Hub has recently introduced a pull rate limit on Docker images. When specifying an image from the Docker Hub registry, this may impact your container instance. [Learn more](#)

Essentials

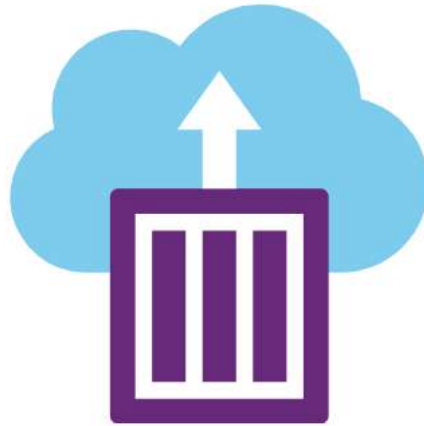
JSON View

Resource group (move) : az104-rg9

Status : Running



Welcome to Azure Container Instances!



Home > Microsoft.ContainerInstances-20251204031851 | Overview > az104-c1

az104-c1 | Containers ☆ ... ×

Container instances

Search ◇ « ↻ Refresh 🗨 Give feedback

- Overview
- Activity log
- Access control (IAM)
- Tags
- Resource visualizer
- Settings
- Containers ☆**
 - Identity
 - Properties
 - Locks
 - > Monitoring
 - > Automation
 - > Help

1 container and 0 init containers

| Name | Image | State | Pr |
|----------|-------------------------|---------|----|
| az104-c1 | mcr.microsoft.com/az... | Running | - |

```

64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/142.0.0.0 S
afari/537.36"
::ffff:10.92.0.5 - - [04/Dec/2025:01:24:54 +0000] "GET / HTT
P/1.1" 304 - "-" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) A
ppleWebKit/537.36 (KHTML, like Gecko) Chrome/142.0.0.0 Safar
i/537.36"
::ffff:10.92.0.5 - - [04/Dec/2025:01:24:55 +0000] "GET / HTT
P/1.1" 304 - "-" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) A
ppleWebKit/537.36 (KHTML, like Gecko) Chrome/142.0.0.0 Safar
i/537.36"
::ffff:10.92.0.4 - - [04/Dec/2025:01:25:02 +0000] "GET / HTT
P/1.1" 304 - "-" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) A
ppleWebKit/537.36 (KHTML, like Gecko) Chrome/142.0.0.0 Safar
i/537.36"
::ffff:10.92.0.4 - - [04/Dec/2025:01:25:04 +0000] "GET / HTT
P/1.1" 304 - "-" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) A
ppleWebKit/537.36 (KHTML, like Gecko) Chrome/142.0.0.0 Safar
i/537.36"

```

<https://portal.azure.com/?quickstart=True#...>

Lab 09c - Implement Azure Container Apps

Task 1: Create and configure an Azure Container App and environment

The screenshot shows the Microsoft App Container App Portal interface. At the top, there's a navigation bar with a search bar and a 'Copilot' button. Below the navigation bar, the page title is 'Microsoft.App-ContainerApp-Portal-18691503-ae30 | ...'. The left sidebar contains a 'Deployment' section with a search bar and a list of tabs: 'Overview' (selected), 'Inputs', 'Outputs', and 'Template'. The main content area displays a green checkmark icon and the text 'Your deployment is complete'. Below this, there's a table of deployment details:

| | |
|-----------------|--|
| Deployment name | : Microsoft.App-ContainerApp-Portal-18691503-... |
| Subscription | : Azure subscription 1 |
| Resource group | : az104-rg9 |
| Start time | : 12/4/2025, 3:28:42 AM |
| Correlation ID | : 5f8e6d4f-a1ad-44f4-bf35-ed0e0df3dbcf |

Below the table, there are two expandable sections: 'Deployment details' and 'Next steps'. At the bottom of the main content area, there is a blue button labeled 'Go to resource'.

The screenshot shows a web browser window with multiple tabs. The active tab is titled 'my-app' and shows the URL 'my-app.grayisland-2a56b0c2.eastus.azurecontainerapps.io'. The browser's address bar and navigation buttons are visible.



Your container app is running with a Hello World image

Azure Container Apps is a serverless container solution for apps and microservices that helps you:

- Simplify your container deployments
- Manage less infrastructure
- Scale automatically on demand

[Learn more.](#)

Lab 10 - Implement Data Protection

Task 1: Use a template to provision an infrastructure

The screenshot displays the Microsoft Azure portal interface. At the top, the header includes the Microsoft logo, a search bar, and a Copilot button. The main content area shows a deployment page for 'Microsoft.Template-20251211005204'. A notification banner at the top right states 'Deployment succeeded' with a green checkmark, indicating that the deployment to resource group 'az104-rg-region1' was successful. Below this, a large green checkmark and the text 'Your deployment is complete' are visible. The deployment details section lists the following information:

- Deployment name : Microsoft.Template-20251211005204
- Subscription : Azure subscription 1
- Resource group : az104-rg-region1
- Start time : 12/11/2025, 12:52:10 AM
- Correlation ID : ad7be659-8232-4e9a-8105-bde7cf8c3268

Below the details, there are links for 'Deployment details' and 'Next steps', along with a 'Go to resource group' button. At the bottom, there is a 'Give feedback' section with a link to 'Tell us about your experience with deployment' and a 'Cost management' section with a link to 'Get notified to stay within your budget and prevent unexpected charges'.

Microsoft A...

Search resources, services, and docs (G+/)

Copilot

Home >

Microsoft.RecoveryServicesV2-1765407333697 | Ove...

Deployment

Search

×

<<

🗑️ Delete

⌛ Cancel

🔄 Redeploy

⬇️ Download

🔄 Refresh

👤 Overview

🖥️ Inputs

📋 Outputs

📄 Template

✅ Your deployment is complete

📖

Deployment name : Microsoft.RecoveryServicesV2-1765407333...

Subscription : [Azure subscription 1](#)

Resource group : [az104-rg-region1](#)

Start time : 12/11/2025, 12:56:01 AM

Correlation ID : b32bca33-9340-4270-b22f-81b4ac81d6d1

> Deployment details

✓ Next steps

Go to resource

Microsoft Azure

Search resources, services, and docs (G+/)

Copilot

Home >

ConfigureProtection-1765407695209 | Overview

Deployment

Search

Delete

Cancel

Redeploy

Deployment succeeded

Deployment 'ConfigureProtection-1765407695209' to resource group 'az104-rg-region1' was successful.

Go to resource

Go to resource group

Overview

Inputs

Outputs

Template

✓

Your deployment is complete

Deployment name : ConfigureProtection-1765407695209

Subscription : Azure subscription 1

Resource group : az104-rg-region1

Start time : 12/11/2025, 1:01:39 AM

Correlation ID : 69455050-76ac-45d1-b059-8710c0bf2928

> Deployment details

✓ Next steps

Go to resource

\$

Cost management

Get notified to stay within your budget and prevent unexpected charges on your bill.

Set up cost alerts >

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

Home > **sonya_1765407931163 | Overview**

Deployment

Deployment succeeded
Deployment 'sonya_1765407931163' to resource group 'az104-rg-region1' was successful.

Go to resource | Pin to dashboard

Search | Delete | Cancel | Redeploy

Overview

Inputs

Outputs

Template

✓ Your deployment is complete

Deployment name: sonya_1765407931163
Subscription: Azure subscription 1
Resource group: az104-rg-region1
Start time: 12/11/2025, 1:05:45 AM
Correlation ID: f8433516-cafd-42d3-8232-c3aad26ff331

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 >

Add or remove favorites by pressing Ctrl+Shift+F

Home > Recovery Services vaults > az104-rsv-region2

az104-rsv-region2 | Replicated items

Recovery Services vault

Search | Refresh | Replicate | Columns | Filter | Feedback

Last refreshed at: 12/11/2025, 1:31:31 AM

Finished loading data from service.

Filter items...

| Name | Replication Health | Status | Active location |
|--------------|--------------------|---------------------|--------------------|
| az104-10-vm0 | Healthy | Enabling protection | South Africa North |

Showing 1 - 1 of 1 results.

Lab 11 - Implement Monitoring


Task 1: Use a template to provision an infrastructure

Microsoft ...

Up Search resources, services, and docs (G+)

Copilot

Home >

 **Microsoft.Template-20251211014446** | Overview

Deployment

Search

Delete Cancel Redeploy

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

Overview

Inputs

Outputs

Template

✓ **Your deployment is complete**

Deployment name : Microsoft.Template-20251211014446

Subscription : Azure subscription 1

Resource group : az104-rg11

Start time : 12/11/2025, 1:44:53 AM

Correlation ID : a33c95f8-30fe-4ff7-8ad1-99fd209d43dd


> Deployment details

✓ Next steps

Go to resource group

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.

Deployment succeeded

Deployment 'Microsoft.Template-20251211014446' to resource group 'az104-rg11' was successful.

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

Add or remove favorites by pressing Ctrl+Shift+F

Microsoft ...

Up Search resources, services, and docs (G+)

Copilot

Home > Monitor | Alerts >

Create an alert rule ...

Scope

Condition

Actions

Details

Tags

Review + create

An action group is a set of actions that can be applied to an alert rule. [Learn more](#)

Select actions

☐ Use quick actions (preview)
Select one or more of the quick actions.

☒ Use action groups
Add an existing action group or create a new one.

☐ None

Action groups

| Action group name | Contains actions |
|---------------------------|------------------|
| Alert the operations team | 1 Email |

Manage action groups

Review + create

Previous

Next: Details >

Microsoft ...

Up Search resources, services, and docs (G+)

Copilot

Home > Monitor

Monitor | Alerts

Which alerts require my immediate attention?

Search

View as timeline (preview)

Create

Alert rules

Action groups

Overview

Activity log

Alerts

Issues (preview)

Metrics

Logs

Change Analysis

Service health

Workbooks

Dashboards with Grafana (preview)

Total alerts

Critical

Error

Warning

Informational

Verbose

1

0

1

0

0

0

No grouping

Name

Severity

Affected resource

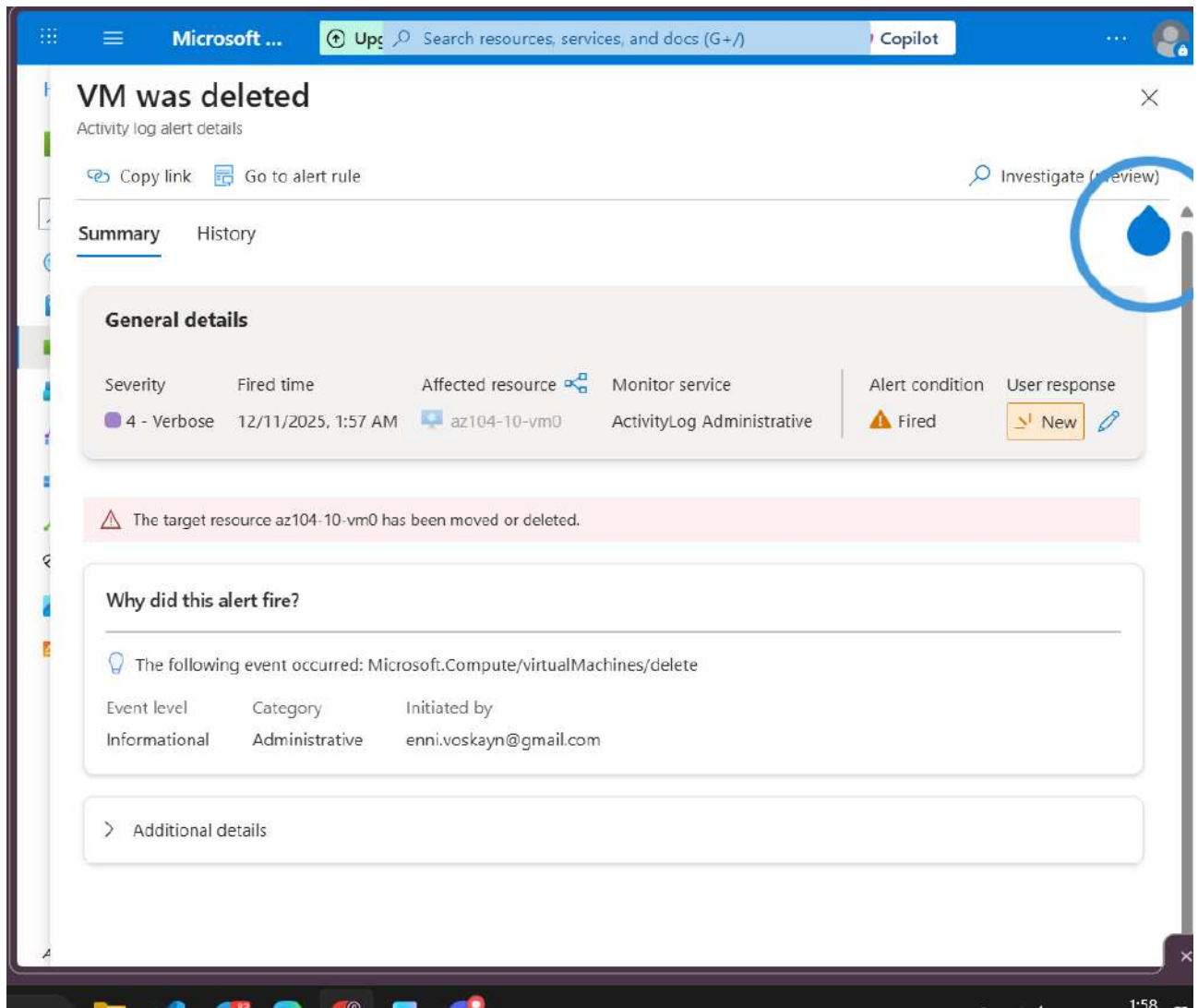
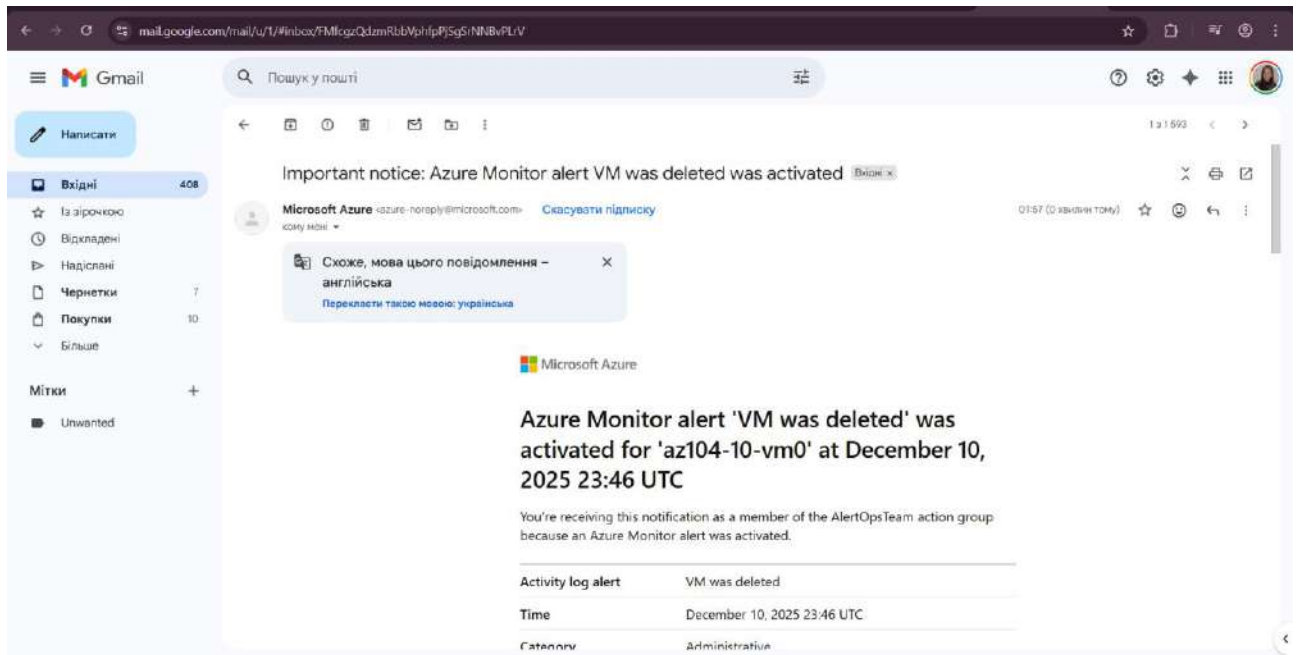
Alert condition

EnableDr - Failed.

1 - Error

az104-rsv-region2

Fired



Alert processing rules

[+ Create](#) [≡ Columns](#) [↺ Refresh](#) [🔗 Open query](#) | [🗑 Delete](#) [▶ Enable](#)

[+🔗 Add tag filter](#)

[▼ More \(5\)](#)

| Name ↑↓ | Scope | Filter | Rule type ↑↓ | Scheduling | Status ↑↓ |
|--|----------------------|--------|---------------------------|--------------------|------------------------|
| <input type="checkbox"/> Planned Maintenance | Azure subscription 1 | | Suppression | At a specific time | ✔ Enabled |

\$197.61 credit remaining

Subscription 'Azure subscription 1' has a remaining credit of \$197.61.

[Upgrade to a Pay-As-You-Go subscription.](#)

