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Section: A

LAB: 04

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

Microsoft Azure

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Home > Network foundation | Virtual networks >

## Create virtual network

Validation passed

Basics Security IP addresses Tags **Review + create**

[View automation template](#)

### Basics

Subscription	Azure for Students
Resource Group	azRg-04
Name	CoreServicesVnet
Region	Central India

### Security

Azure Bastion	Disabled
Azure Firewall	Disabled
Azure DDoS Network Protection	Disabled

### IP addresses

Address space	10.20.0.0/16 (65,536 addresses)
Subnet	SharedServicesSubnet (10.20.10.0/24) (256 addresses)
Subnet	DatabaseSubnet (10.20.20.0/24) (256 addresses)

### Tags

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## CoreServicesVnet

Virtual network

Check health of virtual network Analyze traffic within this network Diagnose my virtual network

Search

Move Delete Refresh Give feedback

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Resource visualizer

Settings

Monitoring

Automation

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### Essentials

Resource group	: <a href="#">azRg-04</a>	Address space	: 10.20.0.0/16
Location	: Central India	Subnets	: 2 subnets
Subscription	: <a href="#">Azure for Students</a>	DNS servers	: <a href="#">Azure provided DNS service</a>
Subscription ID	: 2abc1374-49a7-48c3-b0a8-366511eba3ea	BGP community string	: <a href="#">Configure</a>
Virtual network ID			: 81ffef2f-43bf-45c3-b12a-c16089b0e545

Tags: [Add tags](#)

Topology Properties **Capabilities (5)** Recommendations Tutorials

DDoS protection Azure Firewall Peerings Microsoft Defender for Cloud

JSON View

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

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CoreServicesVnet | Export template

Generate and explain Terraform configuration for this resource. Can I duplicate this resource with CLI? Generate and explain Bicep configuration for this resource.

Search

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CLI / PS

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ARM Template Bicep Terraform

☒ Include parameters

Template Parameters

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

Parameters (1)

Variables (0)

Resources (3)

parameters('virtualNetworks\_Cor (Microsoft.Network/virtualNetwork

[concat(parameters('virtualNetwoi (/DatabaseSubnet)] (Microsoft.Network/virtualNetwork

[concat(parameters('virtualNetwoi (/SharedServicesSubnet)] (Microsoft.Network/virtualNetwork

```
1 {
2   "$schema": "https://schema.management.azure.com/schemas/2019-04-01/deploymentTemplate.json#",
3   "contentVersion": "1.0.0.0",
4   "parameters": {
5     "virtualNetworks_CoreServicesVnet_name": {
6       "defaultValue": "CoreServicesVnet",
7       "type": "String"
8     }
9   },
10  "variables": {},
11  "resources": [
12    {
13      "type": "Microsoft.Network/virtualNetworks",
14      "apiVersion": "2024-07-01",
15      "name": "[parameters('virtualNetworks_CoreServicesVnet_name')]",
16      "location": "CentralIndia",
17      "properties": {
18        "addressSpace": {
19          "addressPrefixes": [
20            "10.20.0.0/16"
21          ]
22        }
23      }
24    }
25  ]
26 }
```

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Home >

Custom deployment

Deploy from a custom template

How do ARM templates work? Difference between ARM Template, Terraform & Bicep? Generate a cheatsheet for deploying resources with CLI

Select a template Basics Review + create

Summary

Customized template

3 resources

Terms

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Basics

Subscription Azure for Students

Resource group azRg-04

Previous Next Create

Microsoft Azure

Home > Microsoft.Template-20251212193236 | Overview

azRg-04  
Resource group

Search

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

Overview

Activity log

Access control (IAM)

Tags

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Essentials

Subscription (move) : Azure for Students

Subscription ID : 2abc1374-49a7-48c3-b0a8-366511eba3ea

Deployments : 2 Succeeded

Location : Central India

Tags (edit) : Add tags

Resources Recommendations

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

Name	Type	Location
CoreServicesVnet	Virtual network	Central India
ManufacturingVnet	Virtual network	Central India

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

Microsoft Azure

Home > Network foundation | Application security groups

Create an application security group

Validation passed

Basics Tags Review + create

Basics

Subscription : Azure for Students

Resource group : azRg-04

Location : Central India

Name : asg-web

Microsoft Azure

Home > CreateApplicationSecurityGroupBladeViewModel | Overview

asg-web  
Application security group

Search

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Resource visualizer

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Essentials

Resource group (move) : azRg-04

Location (move) : Central India

Subscription (move) : Azure for Students

Subscription ID : 2abc1374-49a7-48c3-b0a8-366511eba3ea

Provisioning state : Succeeded

Tags (edit) : Add tags

Showing the network interfaces linked to this application security group. Only the primary IP address of each network interface is shown. You can add or remove one or more network interfaces associated with asg-web in this virtual network.

+ Add - Remove

Private IP address	Network interface	Attached to	Resource type
No items found			

Home > Network foundation | Network security groups >

Create network security group

Validation passed

Basics Tags Review + create

Basics

Subscription Azure for Students  
Resource group azRg-04  
Region Central India  
name myNSGSecure

Tags

None

Home > CreateNetworkSecurityGroupBladeV2-20251212193741 | Overview >

myNSGSecure

Network security group

How do I create an alert to track firewall metric failures Diagnose connectivity issues related to this security group Analyze security rules for this network security group

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Resource visualizer

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Essentials

Resource group (move) : azRg-04  
Location : Central India  
Subscription (move) : Azure for Students  
Subscription ID : 2abc1374-49a7-48c3-b0a9-366511eba3ea  
Tags (edit) : Add tags

Custom security rules : 0 inbound, 0 outbound  
Associated with : 0 subnets, 0 network interfaces

Priority	Name	Port	Protocol	Source	Destination	Action
Inbound Security Rules						
65000	AllowVnetInBound	Any	Any	VirtualNetwork	VirtualNetwork	Allow
65001	AllowAzureLoadBalancerInBo	Any	Any	AzureLoadBalancer	Any	Allow
65500	DenyAllInBound	Any	Any	Any	Any	Deny
Outbound Security Rules						
65000	AllowVnetOutBound	Any	Any	VirtualNetwork	VirtualNetwork	Allow
65001	AllowInternetOutBound	Any	Any	Any	Internet	Allow
65500	DenyAllOutBound	Any	Any	Any	Any	Deny

Home > CreateNetworkSecurityGroupBladeV2-20251212193741 | Overview > myNSGSecure

myNSGSecure | Subnets

Network security group

Search

Associate

Access control (IAM)

Tags

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Inbound security rules

Outbound security rules

Network interfaces

Name	Address range	Virtual network
SharedServicesSubnet	10.20.10.0/24	CoreServicesVnet

Give feedback

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myNSGSecure | Inbound security rules

Network security group

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«

+ Add

Hide default rules

Refresh

Delete

Give feedback

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Outbound security rules

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Subnets

Properties

Locks

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 == allDestination == allAction == all

Priority	Name	Port	Protocol	Source	Destination
100	AllowASG	80,443	TCP	ASG-WEB	Any
65000	AllowVnetInBound	Any	Any	VirtualNetwork	VirtualNetwork
65001	AllowAzureLoadBalancerInBound	Any	Any	AzureLoadBalancer	Any
65500	DenyAllInBound	Any	Any	Any	Any

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Home > CreateNetworkSecurityGroupBladeV2-20251212193741 | Overview > myNSGSecure

myNSGSecure | Outbound security rules

Network security group

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+ Add

Hide default rules

Refresh

Delete

Give feedback

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Properties

Locks

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 == allDestination == allAction == all

Priority	Name	Port	Protocol	Source	Destination
4096	DenyInternetOutbound	Any	Any	Any	Internet
65000	AllowVnetOutBound	Any	Any	VirtualNetwork	VirtualNetwork
65001	AllowInternetOutBound	Any	Any	Any	Internet
65500	DenyAllOutBound	Any	Any	Any	Any

Created security rule

Successfully created security rule 'DenyInternetOutbound'.

## Task 4: Configure public and private Azure DNS zones

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Home > DNS zones >

### Create a DNS Zone

Validation passed

Basics DNS Zone Editor Tags **Review + Create**

[View automation template](#)

**Basics**

Subscription Azure for Students  
Resource group azRg-04  
Resource group location Central India  
Name coontoso.com

**DNS Zone Record Set(s)**

Number of record sets 0 record set(s)

Microsoft Azure

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Home > coontoso.com

### coontoso.com | Recordsets

DNS zone

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Resource visualizer  
Settings  
DNS Management  
**Recordsets**  
DNSSEC  
Monitoring  
Automation  
Help

Search

Fetches 3 record set(s).

Name	Type	TTL	Value	Alias resource type	Alias target
@	NS	172800	ns1-06.azure-dns.com. ns2-06.azure-dns.net. ns3-06.azure-dns.org. ns4-06.azure-dns.info.		
@	SOA	3600	Email: azure-dns-hostmaster.microsoft.com Host: ns1-06.azure-dns.com. Refresh: 3600 Retry: 300 Expire: 2419200 Minimum TTL: 300 Serial number: 1		
www	A	3600	10.1.1.4		

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Home >

### coontoso.com

DNS zone

Search

Switch to PowerShell Restart Manage files New session Editor Web preview Settings Help

Requesting a Cloud Shell. **Succeeded.**  
Connecting terminal...

Welcome to Azure Cloud Shell

Type "az" to use Azure CLI  
Type "help" to learn about Cloud Shell

**Your Cloud Shell session will be ephemeral so no files or system changes will persist beyond your current session.**

```
zainab [ ~ ]$ sh
sh-5.2$ nslookup www.coontoso.com ns1-06.azure-dns.com.
Server:      ns1-06.azure-dns.com.
Address:     13.107.236.6#53

Name:   www.coontoso.com
Address: 10.1.1.4

sh-5.2$
```

Microsoft Azure

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Home > Private DNS zones >

Create Private DNS Zone

Validation passed

BasicsPrivate DNS Zone EditorVirtual Network LinksTagsReview + Create

Basics

Subscription

Azure for Students

Resource group

azRg-04

Resource group location

Central India

Name

private.contoso.com

DNS Zone Record Set(s)

Number of record sets

0 record set(s)

Virtual network link(s)

Number of Virtual Network Links

0 virtual network link(s)

Create< PreviousNext >

Give feedback

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Home > private.contoso.com\_1765591257497 | Overview >

private.contoso.com

Private DNS zone

Search

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ImportExportMoveRefreshDeleteGive feedback

Essentials

Resource group (...)

azRg-04

Location

Global

Subscription (move)

Azure for Students

Subscription ID

2abc1374-49a7-48c3-b0a8-366511eba3ea

Tags (edit)

Add tags

Recordsets

1

Virtual Network Links

0

Virtual Network Link...

0

Monitoring

CapabilitiesTutorialsTools + SDKsRecommendations (0)

Azure Monitor Tools

Microsoft Azure

Search resources, services, and docs (G+)

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Home > private.contoso.com\_1765591257497 | Overview > private.contoso.com

private.contoso.com

Private DNS zone

Search

OverviewActivity logAccess control (IAM)TagsDiagnose and solve problemsResource visualizerSettings

AddRefreshDeleteGive feedback

Search virtual network links

Fetches 1 virtual Network link(s).

0 Virtual Network links selected

Link Name	Link Status	Virtual Network	Auto-Registratio	Fallback to Intern
manufacturing-link	Completed	ManufacturingVnet	Disabled	Disabled

Microsoft Azure

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private.contoso.com | Recordsets ☆ ⋮

Private DNS zone

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**Recordsets**

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Create record set

Successfully created record set 'sensorvm'

×

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	Auto registered		
sensorvm	A	3600	10.1.1.4	False		
Ⓜ	SOA	3600	Email: azureprivatedns-host.microsoft.com Host: azureprivatedns.net Refresh: 3600 Retry: 300 Expire: 2419200 Minimum TTL: 10 Serial number: 1	False		