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Section: A

LAB: 04

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

The screenshot shows the 'Create virtual network' wizard in the Microsoft Azure portal. The 'Review + create' step is selected. The configuration details are as follows:

- 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:** None

At the bottom, there are 'Previous', 'Next', and 'Create' buttons, along with a 'Download a template for automation' link and a 'Give feedback' button.

The screenshot shows the 'CoreServicesVnet' virtual network overview page in the Microsoft Azure portal. The 'Capabilities' tab is selected. Key details shown include:

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

Other tabs visible include 'Overview', 'Activity log', 'Access control (IAM)', 'Tags', 'Diagnose and solve problems', 'Resource visualizer', 'Settings', 'Monitoring', 'Automation', and 'Help'. There are also links for 'DDoS protection', 'Azure Firewall', 'Peering', and 'Microsoft Defender for Cloud'.

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

Screenshot 1: Microsoft Azure - CoreServicesVnet | Export template

The screenshot shows the Azure portal interface for a virtual network named "CoreServicesVnet". The left sidebar has "Automation" selected under "Export template". The main area displays the ARM template code for the virtual network:

```

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 }

```

Screenshot 2: Microsoft Azure - Custom deployment

The screenshot shows the "Custom deployment" wizard. The "Review + create" step is active. The "Basics" section includes:

- Subscription: Azure for Students
- Resource group: azRg-04

At the bottom, there are "Previous", "Next", and "Create" buttons.

The screenshot shows the Microsoft Azure Resource Group Overview page for 'azRg-04'. The top navigation bar includes 'Search resources, services, and docs (G+)', 'Copilot', and user information. The main content area displays the resource group's details: Subscription (move) to 'Azure for Students', Subscription ID '2abc1374-49a7-48c3-b0a8-366511eba3ea', Deployments '2 Succeeded', Location 'Central India', and Tags 'Add tags'. Below this, the 'Resources' section lists two virtual networks: 'CoreServicesVnet' and 'ManufacturingVnet', both of which are of type 'Virtual network' and located in 'Central India'. A sidebar on the left provides links to Activity log, Access control (IAM), Tags, Resource visualizer, Events, Settings, Cost Management, Monitoring, Automation, and Help.

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

The screenshot shows the 'Create an application security group' page. A green banner at the top indicates 'Validation passed'. The page has tabs for 'Basics', 'Tags', and 'Review + create', with 'Basics' selected. Under 'Basics', fields are filled with 'Subscription' (Azure for Students), 'Resource group' (azRg-04), 'Location' (Central India), and 'Name' (asg-web). The 'Tags' tab shows 'Add tags'. The 'Review + create' tab is visible at the bottom. The top navigation bar includes 'Search resources, services, and docs (G+)', 'Copilot', and user information.

The screenshot shows the Microsoft Azure Application security group overview page for 'asg-web'. The top navigation bar includes 'Search resources, services, and docs (G+)', 'Copilot', and user information. The main content area displays the application security group's details: Resource group (move) 'azRg-04', Location 'Central India', Subscription (move) 'Azure for Students', Subscription ID '2abc1374-49a7-48c3-b0a8-366511eba3ea', Provisioning state 'Succeeded', and Tags 'Add tags'. Below this, it shows '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.' A table at the bottom lists 'Private IP address', 'Network interface', 'Attached to', and 'Resource type'. A note at the bottom states 'No items found'.

Microsoft Azure

Search resources, services, and docs (G+)

Copilot

bsse2280134@szabist.pk

DEFAULT DIRECTORY (BSSE22801)

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

Microsoft Azure

Search resources, services, and docs (G+)

Copilot

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DEFAULT DIRECTORY (BSSE22801)

Home > CreateNetworkSecurityGroupBladeV2-20251212193741 | Overview >

myNSGSecure

Network security group

Search

Move Delete Refresh Give feedback

Overview

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

Essentials

Resource group : azRg-04
Location : Central India
Subscription : Azure for Students
Subscription ID : 2abc1374-49a7-48c3-b0a8-366511eba2ea
Tags : Add tags

Custom security rules : 0 inbound, 0 outbound

Associated with : 0 subnets, 0 network interfaces

JSON View



Inbound Security Rules

| Priority ↑ | Name ↑ | Port ↑ | Protocol ↑ | Source ↑ | Destination ↑ | Action ↑ |
|------------|-------------------------------|--------|------------|-------------------|----------------|----------|
| 65000 | AllowInInBound | Any | Any | VirtualNetwork | VirtualNetwork | Allow |
| 65001 | AllowAzureLoadBalancerInBo... | Any | Any | AzureLoadBalancer | Any | Allow |
| 65500 | DenyAllInBound | Any | Any | Any | Any | Deny |

Outbound Security Rules

| Priority ↑ | Name ↑ | Port ↑ | Protocol ↑ | Source ↑ | Destination ↑ | Action ↑ |
|------------|-----------------------|--------|------------|----------------|----------------|----------|
| 65000 | AllowNetOutBound | Any | Any | VirtualNetwork | VirtualNetwork | Allow |
| 65001 | AllowInternetOutBound | Any | Any | Any | Internet | Allow |
| 65500 | DenyAllOutBound | Any | Any | Any | Any | Deny |

Microsoft Azure

Search resources, services, and docs (G+)

Copilot

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DEFAULT DIRECTORY (BSSE22801)

Home > CreateNetworkSecurityGroupBladeV2-20251212193741 | Overview > myNSGSecure

myNSGSecure | Subnets

Network security group

Search

+ Associate

Search subnets

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

...

Give feedback

Settings

Inbound security rules
Outbound security rules
Network interfaces



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

Copilot

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?

DEFAULT DIRECTORY (BSSE22801...)

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Home > CreateNetworkSecurityGroupBladeV2-20251212193741 | Overview > myNSGSecure

myNSGSecure | Inbound security rules

Network security group

Search

+ Add Hide default rules Refresh Delete Give feedback

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

| Priority ↑ | Name ↑ | Port ↑ | Protocol ↑ | Source ↑ | Destination ↑ |
|------------|-------------------------|--------|------------|-------------------|----------------|
| 100 | AllowASG | 80443 | TCP | ASG-WEB | Any |
| 65000 | AllowVnetInBound | Any | Any | VirtualNetwork | VirtualNetwork |
| 65001 | AllowAzureLoadBalanc... | Any | Any | AzureLoadBalancer | Any |
| 65500 | DenyAllInBound | Any | Any | Any | Any |

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

Copilot

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?

DEFAULT DIRECTORY (BSSE22801...)

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Home > CreateNetworkSecurityGroupBladeV2-20251212193741 | Overview > myNSGSecure

myNSGSecure | Outbound security rules

Network security group

Search

+ Add Hide default rules Refresh Delete Give feedback

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](#)

Created security rule

Successfully created security rule 'DenyInternetOutbound'.

Filter by name

| 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 |

Task 4: Configure public and private Azure DNS zones

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)

| 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: azuredns-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 | | |

```

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:    10.1.1.4

Name:  www.coontoso.com
Address: 10.1.1.4

sh-5.2$ []

```

Microsoft Azure Search resources, services, and docs (G+) Copilot bsse2280134@szabist.pk DEFAULT DIRECTORY (BSSE22801...)

Home > Private DNS zones > Create Private DNS Zone

Validation passed

Basics Private DNS Zone Editor Virtual Network Links Tags Review + 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)

| | |
|--------------------------------|---------------------------|
| Numer of Virtual Network Links | 0 virtual network link(s) |
|--------------------------------|---------------------------|

Create < Previous Next > Give feedback

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Home > private.contoso.com_1765591257497 | Overview

private.contoso.com Private DNS zone

Import Export Move Refresh Delete Give feedback

Overview

Activity log : azRg-04 Resource group (move) : 1 Recordsets : 1

Access control (IAM) Location : Global Virtual Network Links : 0

Tags Subscription (move) : Azure for Students Virtual Network Link... : 0

Diagnose and solve problems Subscription ID : 2abc1374-49a7-48c3-b0a8-366511eba3ea

Resource visualizer Tags (edit) : Add tags

Monitoring Capabilities Tutorials Tools + SDKs Recommendations (0)

Azure Monitor Tools

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Home > private.contoso.com_1765591257497 | Overview > private.contoso.com

private.contoso.com | Virtual Network Links Private DNS zone

Add Refresh Delete Give feedback

Search virtual network links

Fetched 1 virtual Network link(s). 0 Virtual Network links selected

| Link Name | Link Status | Virtual Network | Auto-Registration | Fallback to Internet |
|--------------------|-------------|-------------------|-------------------|----------------------|
| manufacturing-link | Completed | ManufacturingVnet | Disabled | Disabled |

Microsoft Azure Search resources, services, and docs (G+) Copilot bsse2280134@szabist.pk DEFAULT DIRECTORY (BSSE22801...)

Home > private.contoso.com_1765591257497 | Overview > private.contoso.com

private.contoso.com | Recordsets ... Create record set Successfully created record set 'sensorvm'

Private DNS zone

Search + 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 Fetched 2 record set(s). 0 record sets selected

| Name | Type | TTL | Value | Auto registered | Edit | Delete |
|----------|------|------|---|-----------------|-------------------|---------------------|
| sensorvm | A | 3600 | 10.1.1.4 | False | Edit | Delete |
| @ | SOA | 3600 | Email: azureprivatedns-host.microsoft.com Host: azureprivatedns.net Refresh: 3600 Retry: 300 Expire: 2419200 Minimum TTL: 10 Serial number: 1 | False | Edit | Delete |