

# Fenwick Technical IT Engineer Task

Script to deploy a Windows IIS Server on Azure with the following specifications:

1. Pick an appropriate Windows Server image to support Hot patching.
2. Pick an appropriate size for a small IIS server (1-5 users, static website) with very low average CPU.
3. Deploy within the Australia East region.
4. Use an appropriate subnetting scheme for approximately 20 related machines.
5. Make sure the machine is secure with only secure public web access.
6. Create and apply an appropriate backup policy.

## PowerShell script execution screenshots (PowerShell Script CLI & Azure Portal UI)

- **Resource group creation:**

```
PS C:\WINDOWS\system32> $resourceGroupName = "rG01"
$locationName = "australiaeast"
New-AzResourceGroup
-Name $resourceGroupName `
-Location $locationName

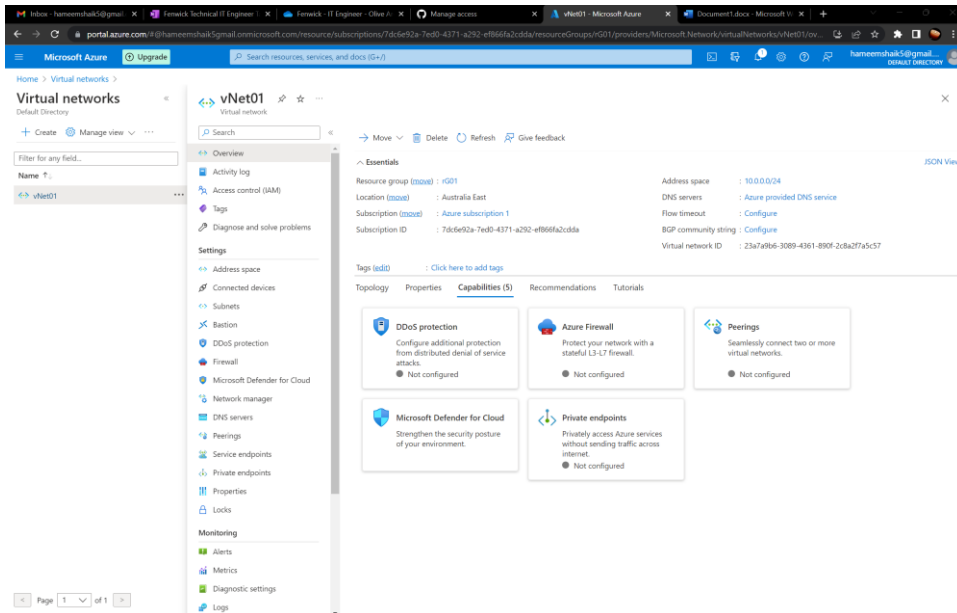
ResourceGroupName : rG01
Location           : australiaeast
ProvisioningState   : Succeeded
Tags               :
ResourceId          : /subscriptions/7dc6e92a-7ed0-4371-a292-ef866fa2cdda/resourceGroups/rG01
```

Name	Type	Location
rNIC01	Network interface	Australia East
rNSG01	Network security group	Australia East
pIP01	Public IP address	Australia East
vau01	Recovery Services vault	Australia East
vM01	Virtual machine	Australia East
vM01	Network interface	Australia East
vM01_CoDisk_1	Disk	Australia East
vNet01	Virtual network	Australia East

- Virtual network creation:

```
PS C:\WINDOWS\system32> Get-AzVirtualNetwork
```

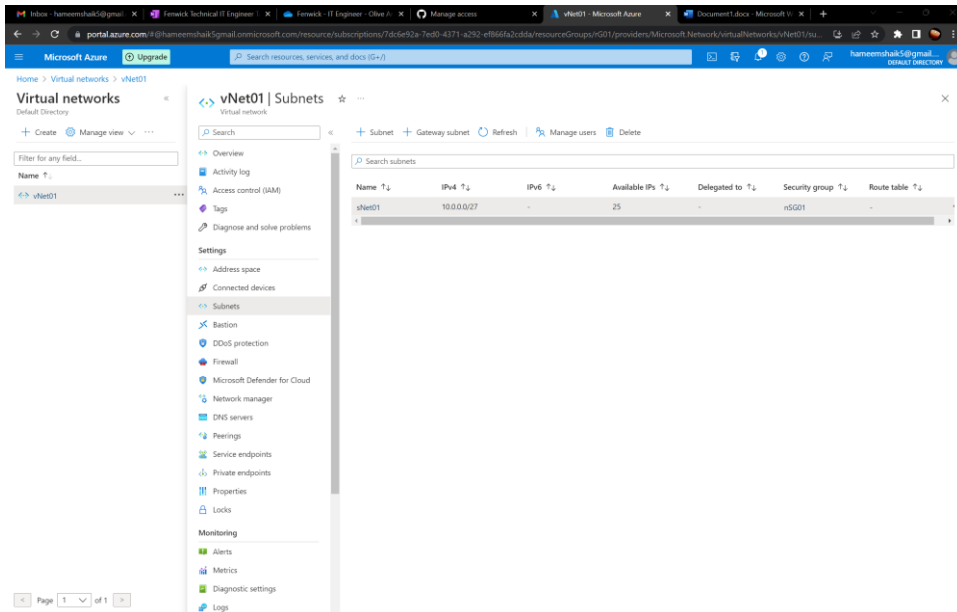
ResourceGroupName	Name	Location	ProvisioningState	EnableDdosProtection
rg01	vNet01	australiaeast	Succeeded	False



- Subnet creation:

```
PS C:\WINDOWS\system32> $subnetName = "sNet01"
Get-AzVirtualNetworkSubnetConfig -Name $subnetName -VirtualNetwork $vNet01 <# Shows the created subnet #>
```

AddressPrefix	Name	NetworkSecurityGroup	Name	RouteTable	Name	NatGateway	Name	ProvisioningState	PrivateEndpointNetworkPolicies
{10.0.0.0/27}	sNet01								Disabled



- Public IP address creation:

```
PS C:\WINDOWS\system32> Get-AzPublicIpAddress -# Shows all available public IP addresses. #->
```

ResourceGroupName	Name	Location	PublicIpAllocationMethod	IpAddress	PublicIpAddressVersion	IdleTimeoutInMinutes	ProvisioningState
rg01	pip01	australiaeast	Static	68.218.42.62	IPv4	4	Succeeded

The screenshot shows the Microsoft Azure portal interface. The top navigation bar includes the Microsoft Azure logo and a search bar. The main content area displays the details of a Public IP address named 'pip01'.

**Public IP addresses**  
Default Directory

**pip01**  
Public IP address

**Overview**

Activity log

Access control (IAM)

Tags

**Settings**

Configuration

Properties

Locks

**Monitoring**

Insights

Alerts

Metrics

Diagnostic settings

**Automation**

Tasks (preview)

Export template

Support + troubleshooting

New Support Request

**Essentials**

Resource group (rg01) : rg01

Location (australiaeast) : Australia East

Subscription (azure) : Azure subscription 1

Subscription ID : 7d6e92a-7ed0-4371-a292-ef866a2cdda

SKU : Standard

Tier : Regional

IP address : 68.218.42.62

DNS name : -

Associated to : vm01

Virtual machine : vm01

Routing preference : Microsoft network

**Tags (add)** : Click here to add tags

**Get started** Properties Tutorials

**Use public IP addresses for public connections to Azure resources**

Associate and configure public IP addresses to various Azure resources [Learn more](#)

**Associate to a resource**

Associate your public IP address to an Azure resource such as an Azure Load Balancer or a network interface.

**Configure a public IP address**

Configure a DNS name, name, and alias record for your public IP address.

**Protect IP address**

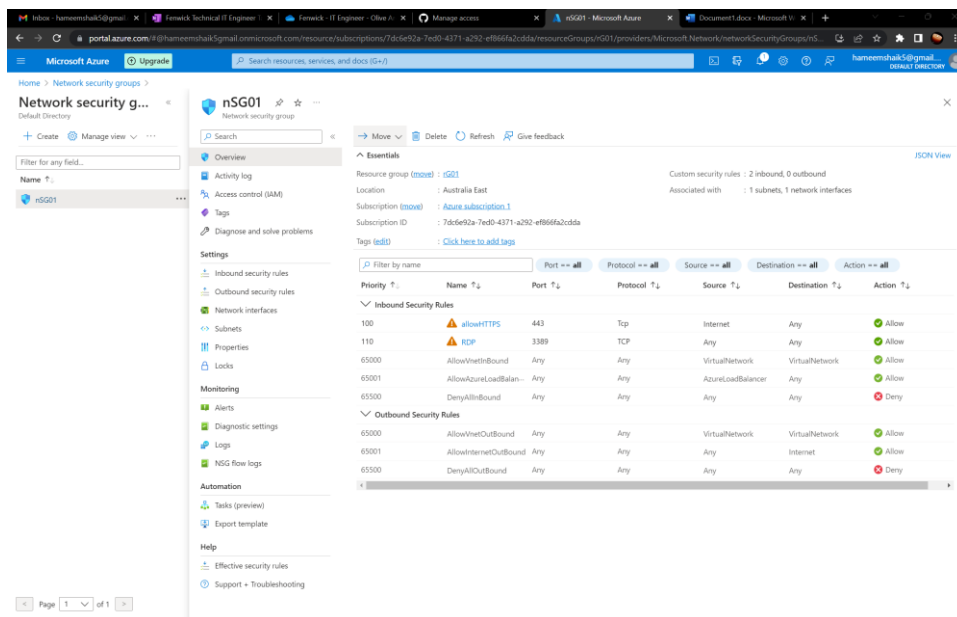
Choose the right DDoS protection level for your IP address.

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- Network security group creation:

```
New-AzNetworkSecurityGroup
    -Name $networkSecurityGroupName
    -ResourceGroupName $resourceGroupName
    -Location $location

ResourceGroupName Name Location ProvisioningState
-----
rg01 nsg01 australiaeast Succeeded
```



- **Associating network security group: nSG01 to the subnet: sNet01:**

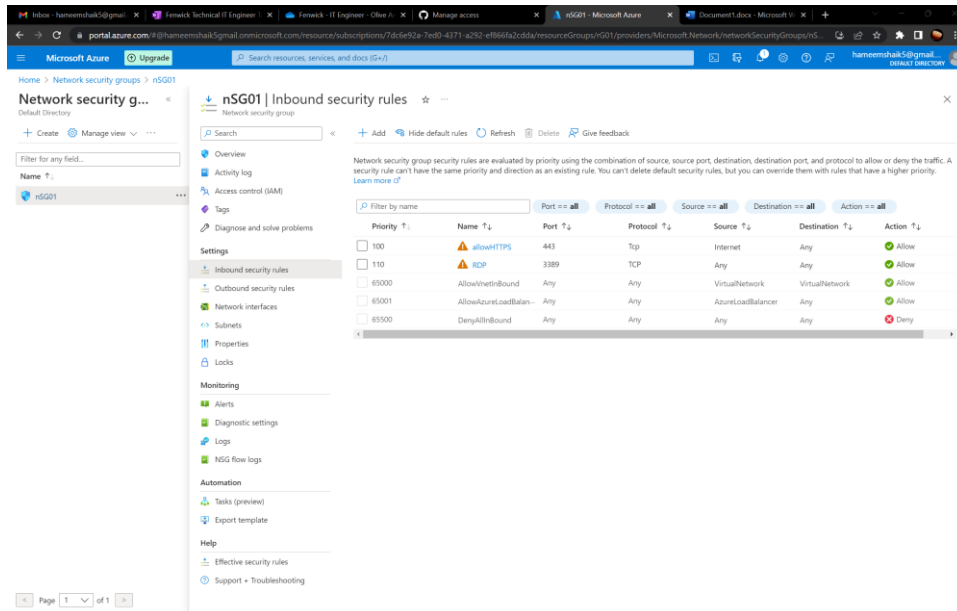
The screenshot shows the Microsoft Azure portal interface. The left sidebar contains the 'Network security g...' menu with options like 'Create', 'Manage view', and a search bar. The main content area is titled 'nSG01 | Subnets' and includes a search bar and an 'Associate' button. Below this is a table listing subnets.

Name	Address range	Virtual network
sNet01	10.0.0.0/27	vNet01

- Adding a rule to the network security group:

```
PS C:\WINDOWS\system32> Get-AzNetworkSecurityRuleConfig -NetworkSecurityGroup $nsg01 <# Shows all available network security rules #>

Protocol Name      Access Priority Direction ProvisioningState
-----
Tcp        allowHTTPS Allow 100      Inbound
```



- Create a virtual network interface:

PS C:\WINDOWS\system32> Get-AzNetworkInterface -f shows all available network interfaces. #>

ResourceGroupName	Name	Location	MacAddress	Primary	EnableAcceleratedNetworking	EnableIPForwarding	DisableTcpStateTracking	ProvisioningState	VnetEncryptionSupported	AuxiliaryMode
rg01	nic01	AustraliaEast	00-22-48-93-1F-58	True	False	False	False	Succeeded	False	
rg01	vm01	AustraliaEast						Succeeded	False	

The screenshot shows the Microsoft Azure portal interface for a Network Interface (NIC) named 'nic01'. The left sidebar shows the 'Network interfaces' section with a search bar and a list of interfaces. The main content area displays the 'Overview' tab for 'nic01', which includes details such as Resource group (rg01), Location (Australia East), Subscription (Azure subscription 1), and Accelerated networking (Disabled). The right sidebar shows the 'Essentials' section with a list of properties including Private IPv4 address (10.0.0.4), Public IPv4 address, Private IPv6 address, Public IPv6 address, Attached to, and Type (Regular).



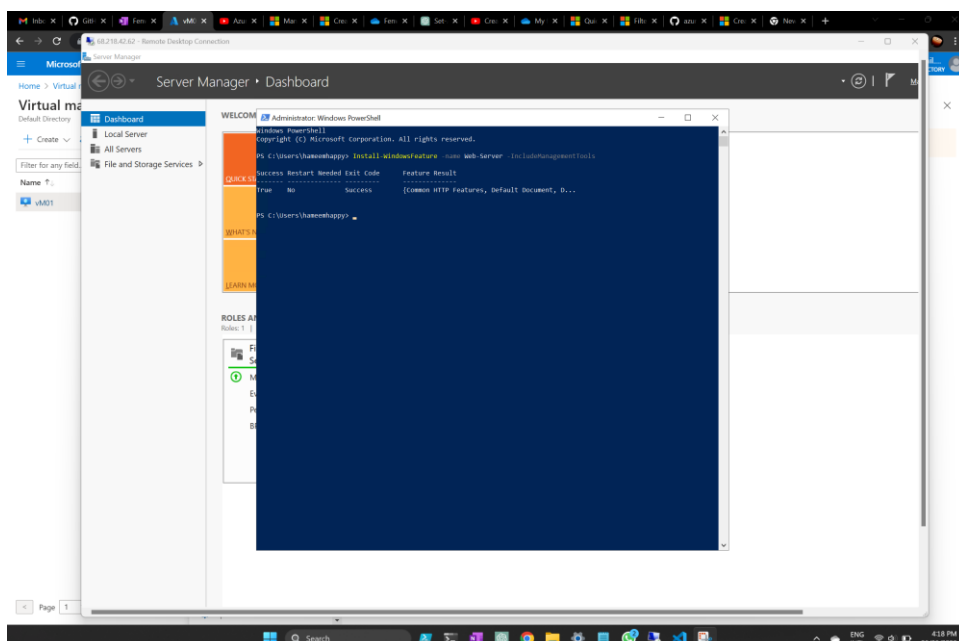
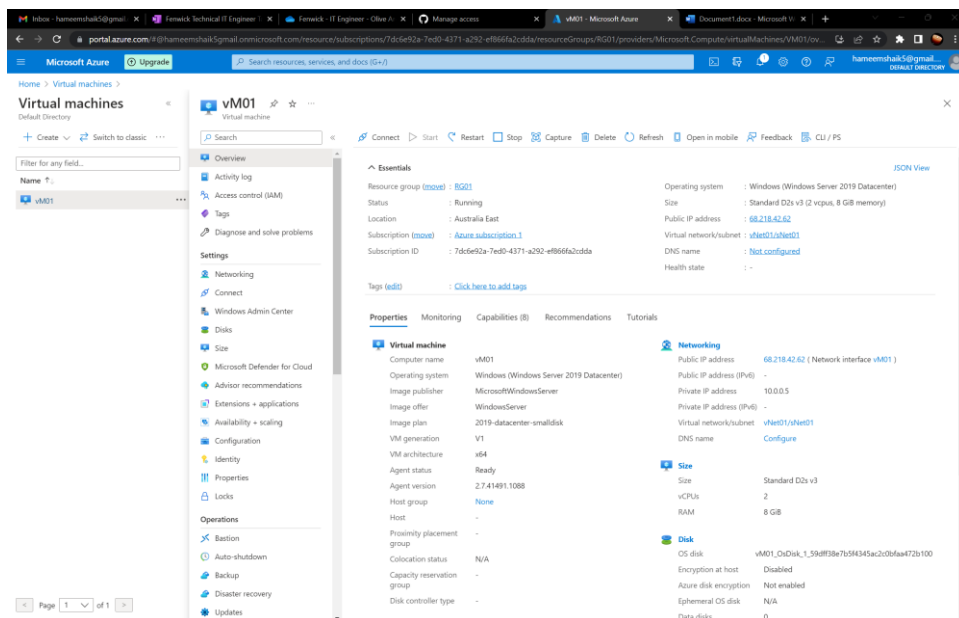
- Virtual machine creation:

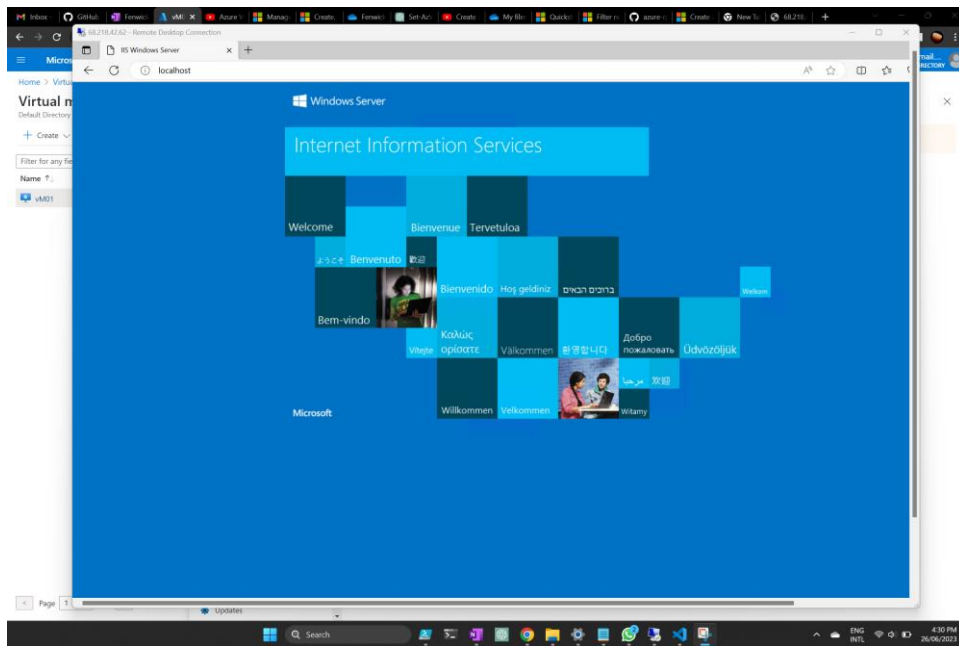
```
PS C:\WINDOWS\system32> Get-AzVM

ResourceGroupName Name      Location      VmSize  OsType  NIC ProvisioningState Zone
-----
RG01              VM01  australiaeast Standard_D2s_v3 Windows VM01 Succeeded
```

```
PS C:\WINDOWS\system32> $PSVersionTable.PSVersion

Major Minor Build Revision
-----
5      1      22621  1778
```

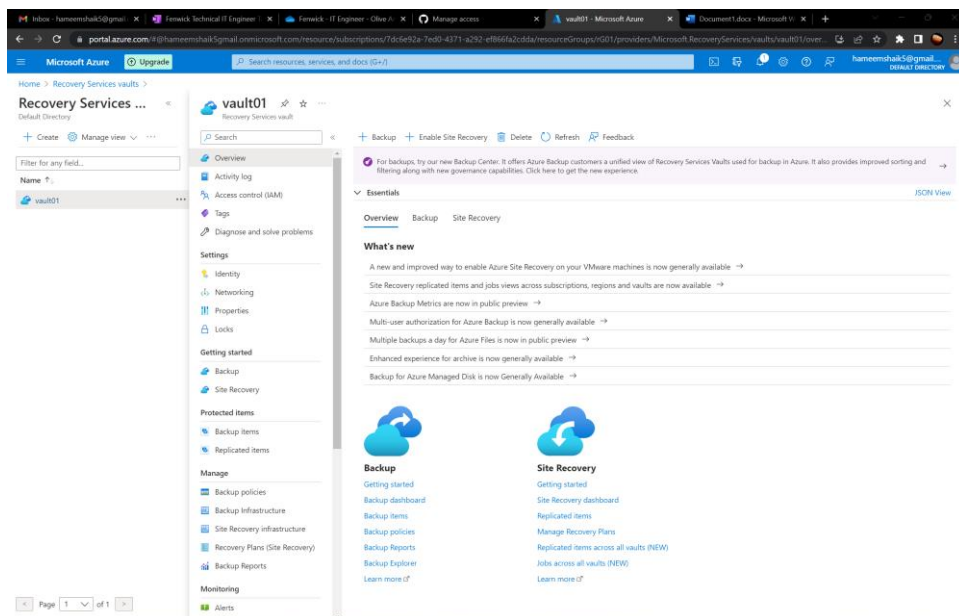




- **Backup process:**

```
PS C:\WINDOWS\system32> Get-AzRecoveryServicesVault

Name                : vault01
ID                  : /subscriptions/7dc6e92a-7ed0-4371-a292-ef866fa2cdda/resourceGroups/rG01/providers/Microsoft.RecoveryServices/vaults/vault01
Type                : Microsoft.RecoveryServices/vaults
Location            : australiaeast
ResourceGroupName   : rG01
SubscriptionId      : 7dc6e92a-7ed0-4371-a292-ef866fa2cdda
Properties           : Microsoft.Azure.Commands.RecoveryServices.ARSVaultProperties
Identity            :
```



```
PS C:\WINDOWS\system32> $BackupPolicy01 = Get-AzRecoveryServicesBackupProtectionPolicy -Name "DefaultPolicy"

PS C:\WINDOWS\system32> $resourceGroupName = "rg01"
$locationName = "australiaeast" <# 3. Deploy within the Australia East region. #>
$virtualNetworkName = "vNet01"
$subnetName = "subnet01"
$publicIPName = "pip01"
$publicIPAllocationMethod = "Static"
$networkSecurityGroupName = "nsg01"
$ruleName = "allowHTTPS"
$networkInterfaceCardName = "NIC01"
$vmImage = "MicrosoftWindowsServer:WindowsServer:2019-datacenter-smalldisk:latest" <# 1. Appropriate Windows Server image which supports Hotpatching. #>
$vmName = "vm01"
Enable-AzRecoveryServicesBackupProtection -Policy $BackupPolicy01 -Name $vmName -ResourceGroupName $resourceGroupName

WorkloadName      Operation      Status      StartTime      EndTime
-----
vm01              ConfigureBackup Completed      26/06/2023 8:11:25 AM 26/06/2023 8:12:26 AM
```

workloadName	Operation	Status	StartTime	EndTime
vm01	ConfigureBackup	Completed	26/06/2023 8:11:25 AM	26/06/2023 8:12:26 AM

```
PS C:\WINDOWS\system32> Backup-AzRecoveryServicesBackupItem -Item $item

WorkloadName      Operation      Status      StartTime      EndTime      JobID
-----
vm01              Backup         InProgress      26/06/2023 8:20:59 AM 26/06/2023 8:20:59 AM 0f536bce-175a-423d-bd62-28369ea5fd6b
```

```
PS C:\WINDOWS\system32> Get-AzRecoveryServicesBackupJob

WorkloadName      Operation      Status      StartTime      EndTime      JobID
-----
vm01              Backup         InProgress      26/06/2023 8:20:59 AM 26/06/2023 8:20:59 AM 0f536bce-175a-423d-bd62-28369ea5fd6b
vm01              ConfigureBackup Completed      26/06/2023 8:11:25 AM 26/06/2023 8:12:26 AM b3403b43-c891-46b8-a79b-29cd52fd272c
```

