Azure Administrator (AZ-104) | Lab Guide

Version 22.9

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LinkedIn

Contents

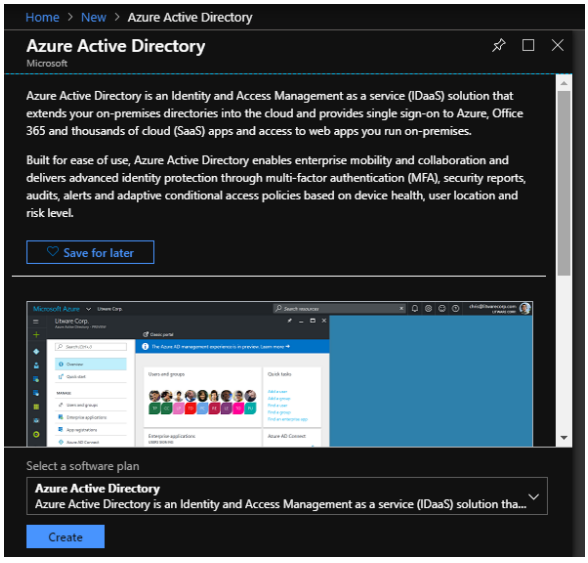
Identity in the Cloud

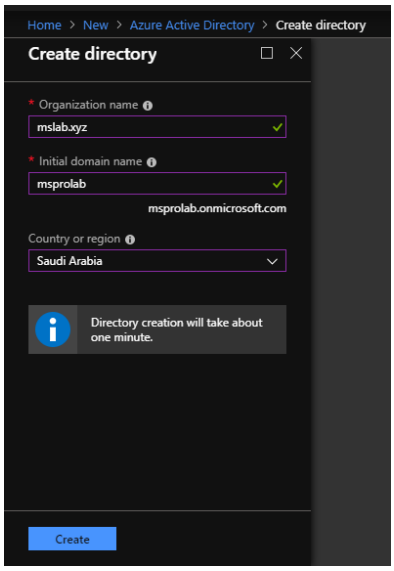
Important Note: As of now, everything related to Azure AD has been updated to Microsoft Entra ID. The configurations and functionalities remain the same.

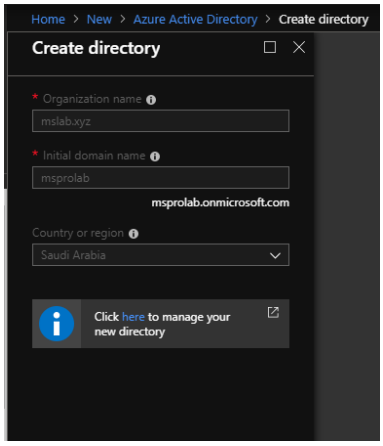
AAD is a cloud-based directory and identity management service that provides application access management and identity protection. It's often referred to as **IaaS**.

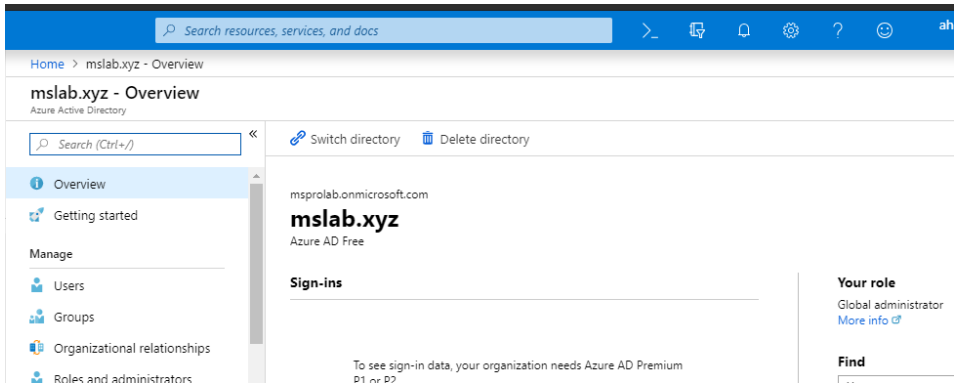
- **Azure Active Directory Free:** Basic identity and access management features for users and groups.
- **Azure Active Directory Basic:** Enhanced user productivity with application access and self-service capabilities.
- **Azure Active Directory Premium P1:** Advanced identity protection, self-service, and access management features.
- **Azure Active Directory Premium P2:** Comprehensive identity protection, advanced monitoring, and security governance.

Creating a new directory (Tenant)

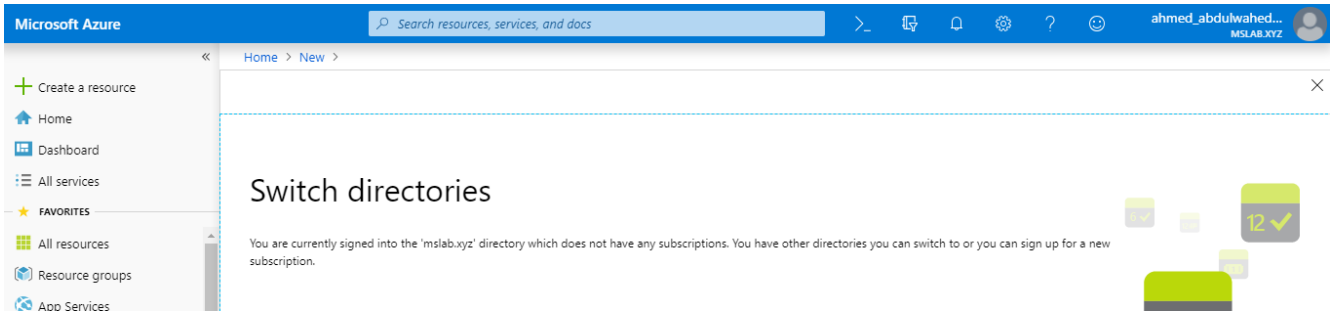




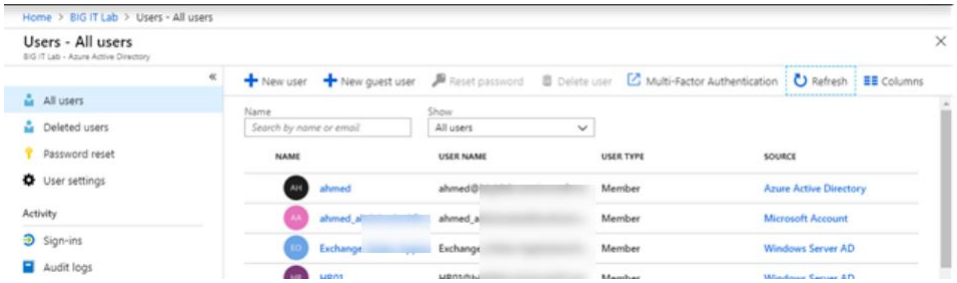


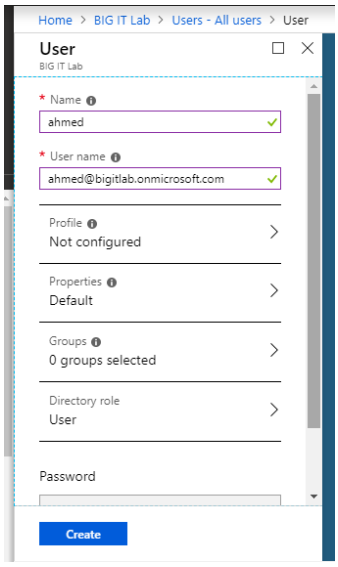


Now you can switch to the new tenant

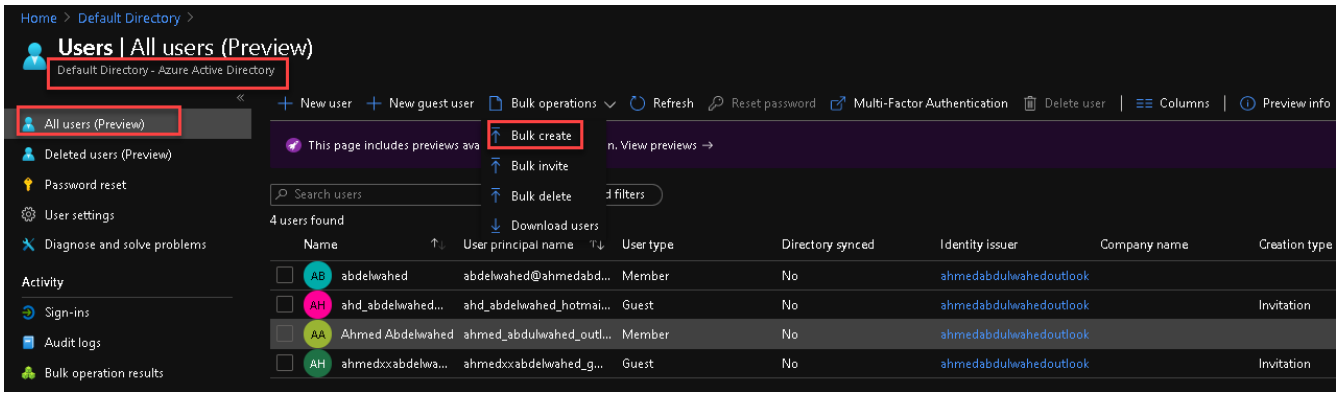


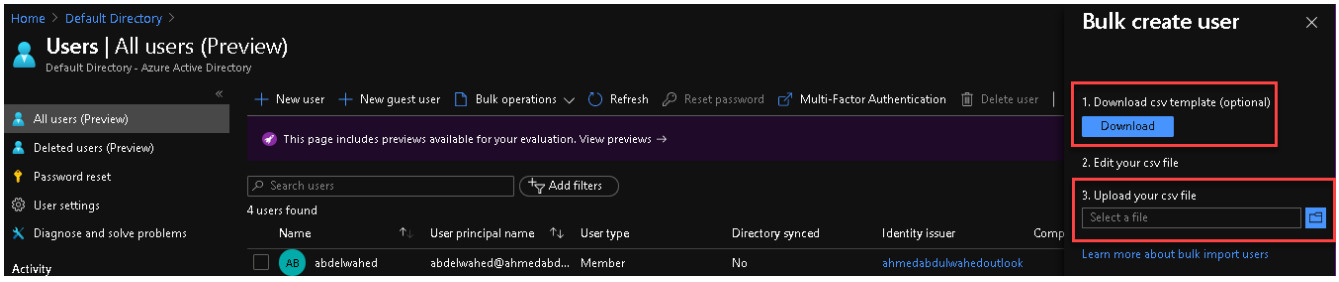
Creating a new user



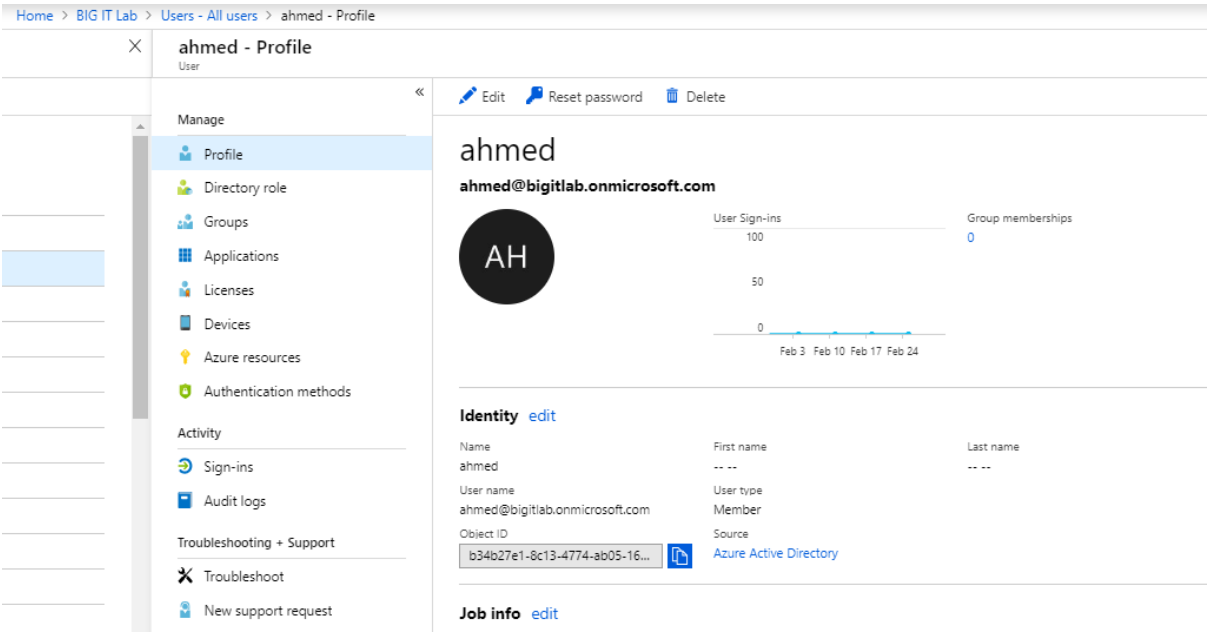


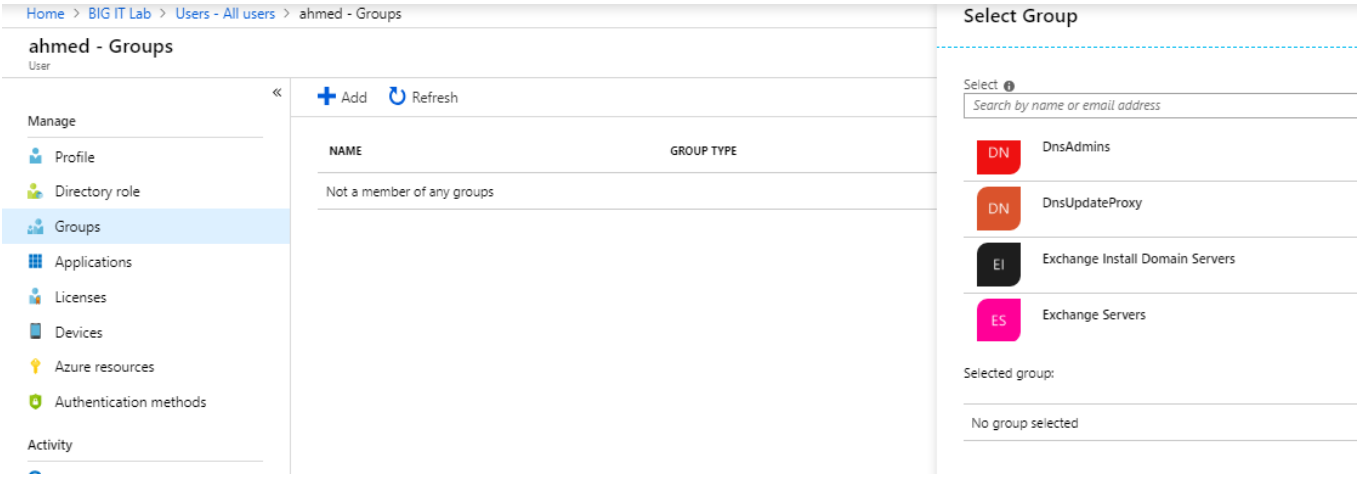
Bulk User Creation

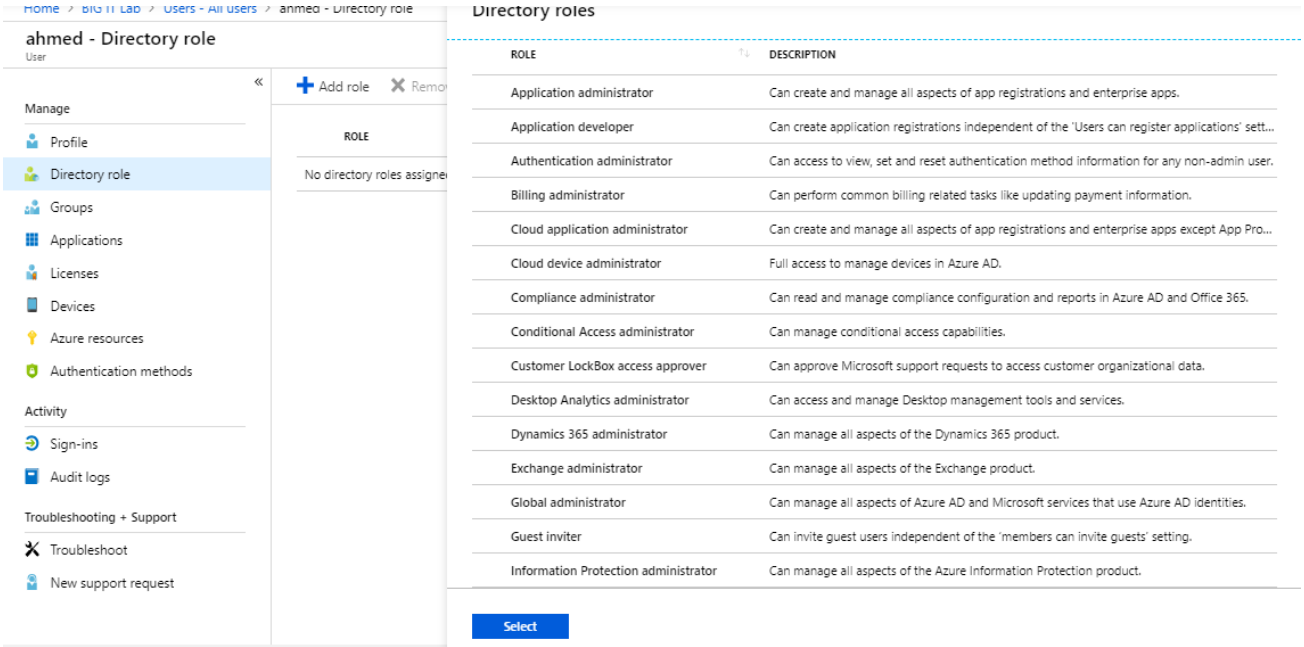




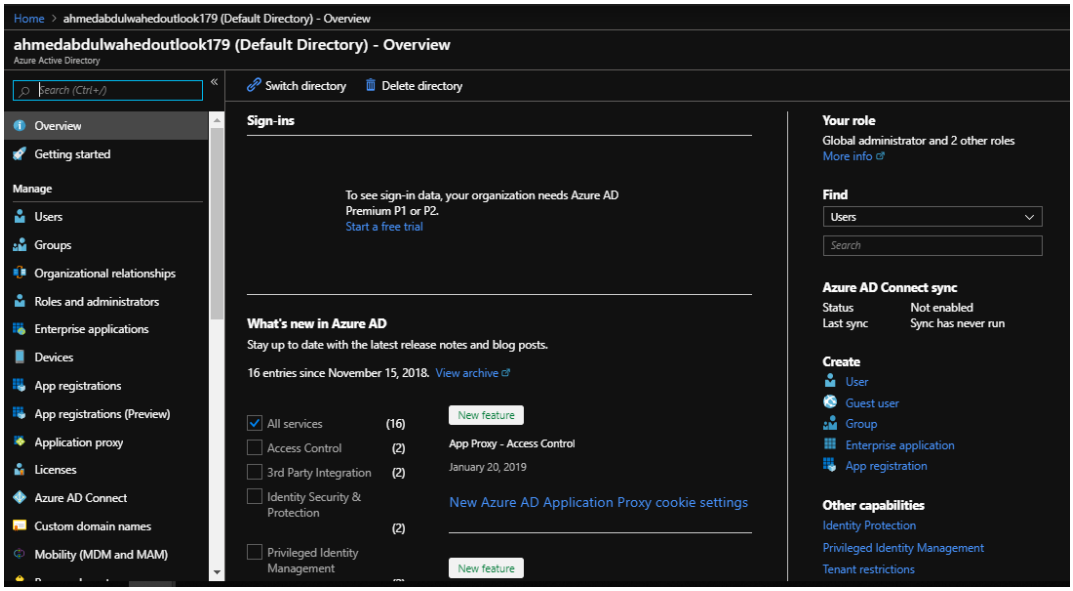
Managing user options and permissions

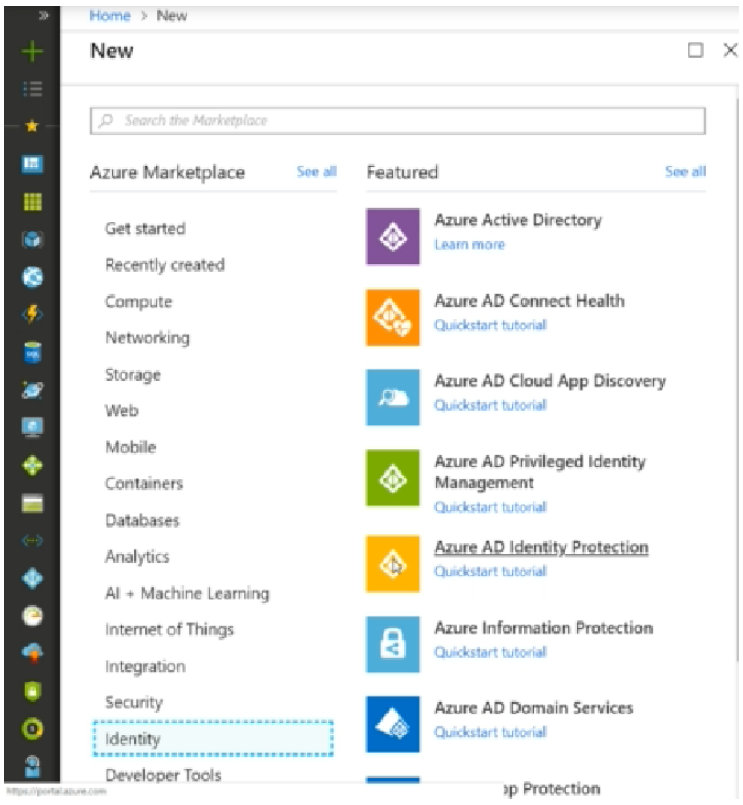


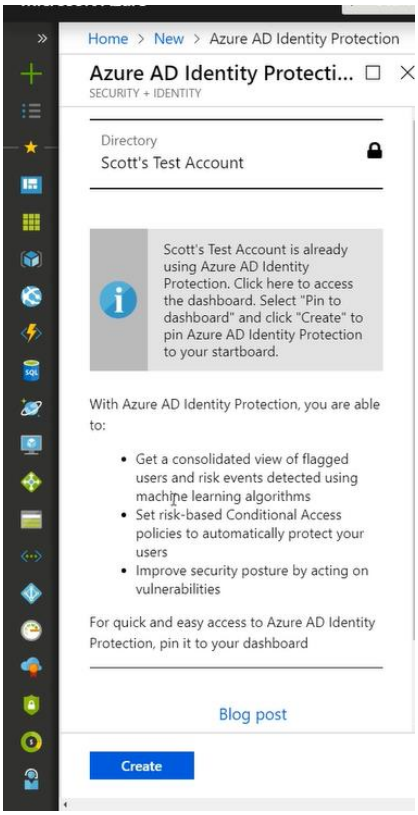

Home > BIG IT Lab > Users - All users > ahmed - Groups
ahmed - Groups
User
Add
Refresh
Manage
Profile
Directory role
Groups
Applications
Licenses
Devices
Azure resources
Authentication methods
Activity
NAME
GROUP TYPE
Not a member of any groups
Select Group
Select
Search by name or email address
DN
DnsAdmins
DN
DnsUpdateProxy
EI
Exchange Install Domain Servers
ES
Exchange Servers
Selected group:
No group selected

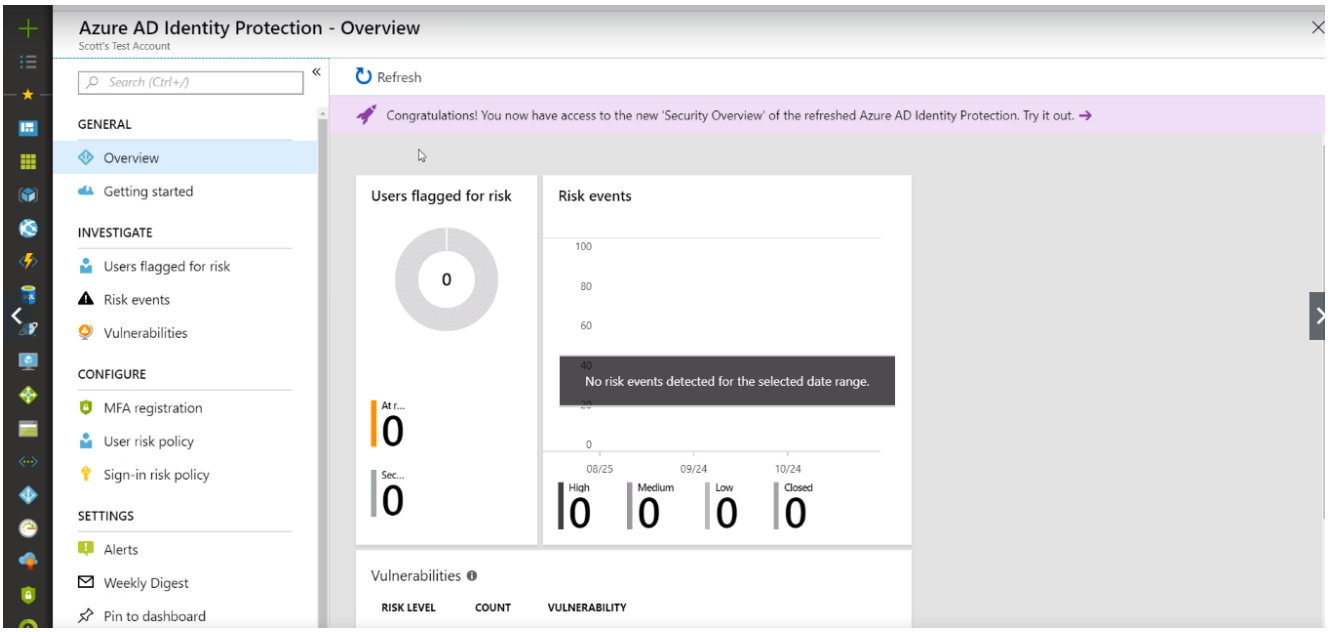

ahmed - Directory role
User
Add role
Manage
Profile
Directory role
Groups
Applications
Licenses
Devices
Azure resources
Authentication methods
Activity
Sign-ins
Audit logs
Troubleshooting + Support
Troubleshoot
New support request
ROLE
No directory roles assigned
Directory roles
ROLE
DESCRIPTION
Application administrator
Can create and manage all aspects of app registrations and enterprise apps.
Application developer
Can create application registrations independent of the 'Users can register applications' sett...
Authentication administrator
Can access to view, set and reset authentication method information for any non-admin user.
Billing administrator
Can perform common billing related tasks like updating payment information.
Cloud application administrator
Can create and manage all aspects of app registrations and enterprise apps except App Pro...
Cloud device administrator
Full access to manage devices in Azure AD.
Compliance administrator
Can read and manage compliance configuration and reports in Azure AD and Office 365.
Conditional Access administrator
Can manage conditional access capabilities.
Customer LockBox access approver
Can approve Microsoft support requests to access customer organizational data.
Desktop Analytics administrator
Can access and manage Desktop management tools and services.
Dynamics 365 administrator
Can manage all aspects of the Dynamics 365 product.
Exchange administrator
Can manage all aspects of the Exchange product.
Global administrator
Can manage all aspects of Azure AD and Microsoft services that use Azure AD identities.
Guest inviter
Can invite guest users independent of the 'members can invite guests' setting.
Information Protection administrator
Can manage all aspects of the Azure Information Protection product.
Select

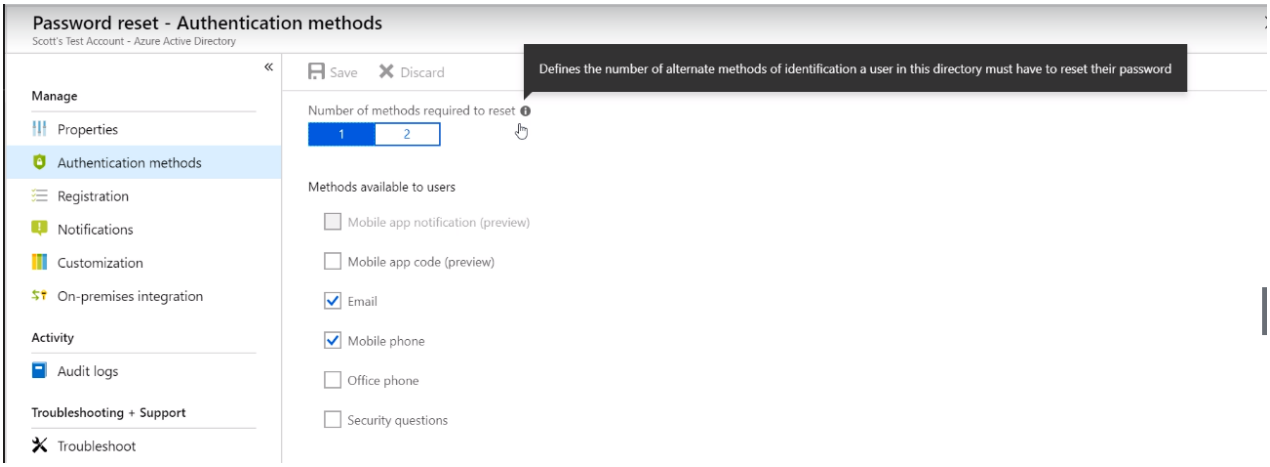
Upgrade Azure AD to Premium P2

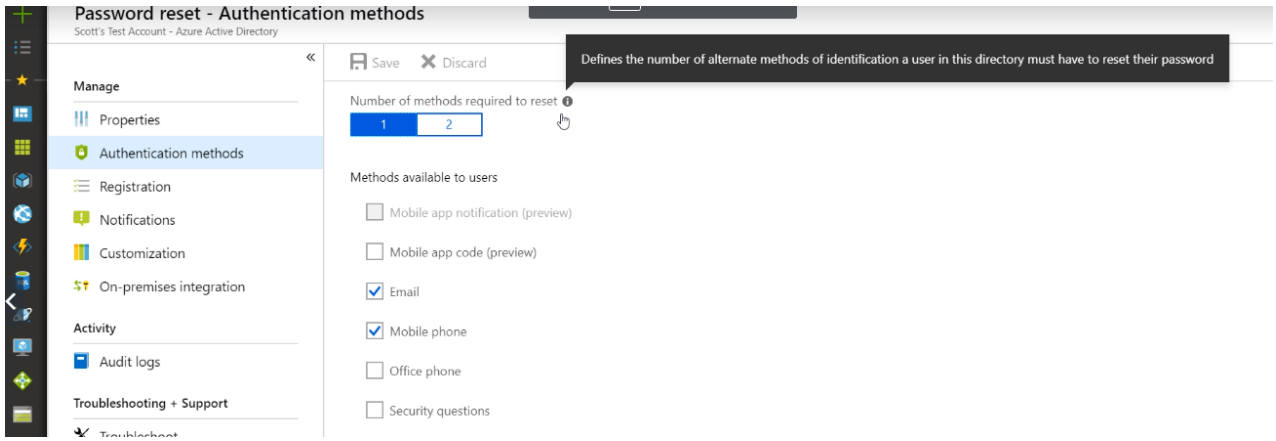







Azure AD Identity Protection - Overview
Scott's Test Account
Search (Ctrl+/)
Refresh
GENERAL
Overview
Getting started
INVESTIGATE
Users flagged for risk
Risk events
Vulnerabilities
CONFIGURE
MFA registration
User risk policy
Sign-in risk policy
SETTINGS
Alerts
Weekly Digest
Pin to dashboard
Congratulations! You now have access to the new 'Security Overview' of the refreshed Azure AD Identity Protection. Try it out.
Users flagged for risk
0
Risk events
100
80
60
No risk events detected for the selected date range.
0
08/25
09/24
10/24
High
0
Medium
0
Low
0
Closed
0
Vulnerabilities
RISK LEVEL
COUNT
VULNERABILITY


Password reset - Authentication methods
Scott's Test Account - Azure Active Directory
Manage
Properties
Authentication methods
Registration
Notifications
Customization
On-premises integration
Activity
Audit logs
Troubleshooting + Support
Troubleshoot
Save
Discard
Defines the number of alternate methods of identification a user in this directory must have to reset their password
Number of methods required to reset
1
2
Methods available to users
Mobile app notification (preview)
Mobile app code (preview)
Email
Mobile phone
Office phone
Security questions


Password reset - Authentication methods
Scott's Test Account - Azure Active Directory
Manage
Properties
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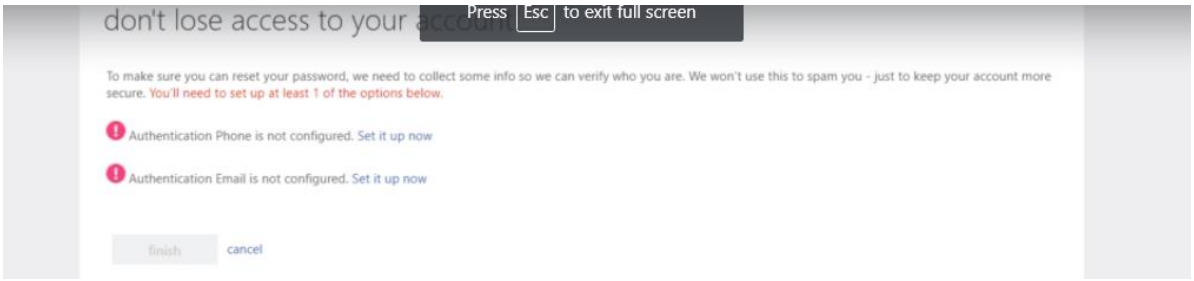
Discard
Defines the number of alternate methods of identification a user in this directory must have to reset their password
Number of methods required to reset
1
2
Methods available to users
Mobile app notification (preview)
Mobile app code (preview)
Email
Mobile phone
Office phone
Security questions

First time you try to access with that user , you asked to setup MFA

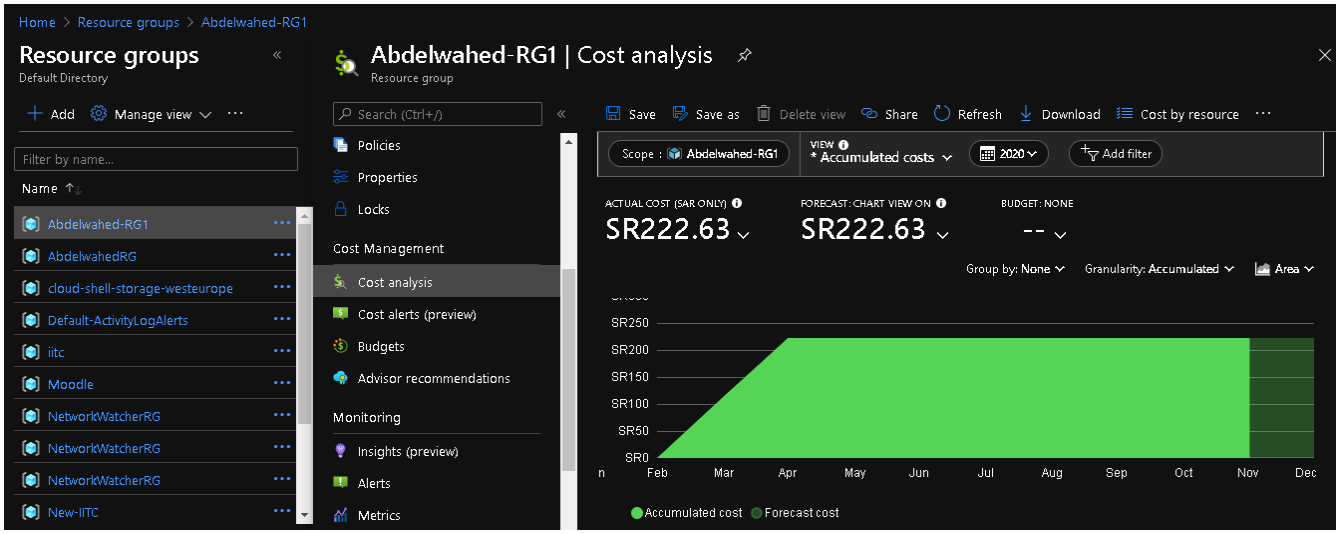


Governance and Compliance

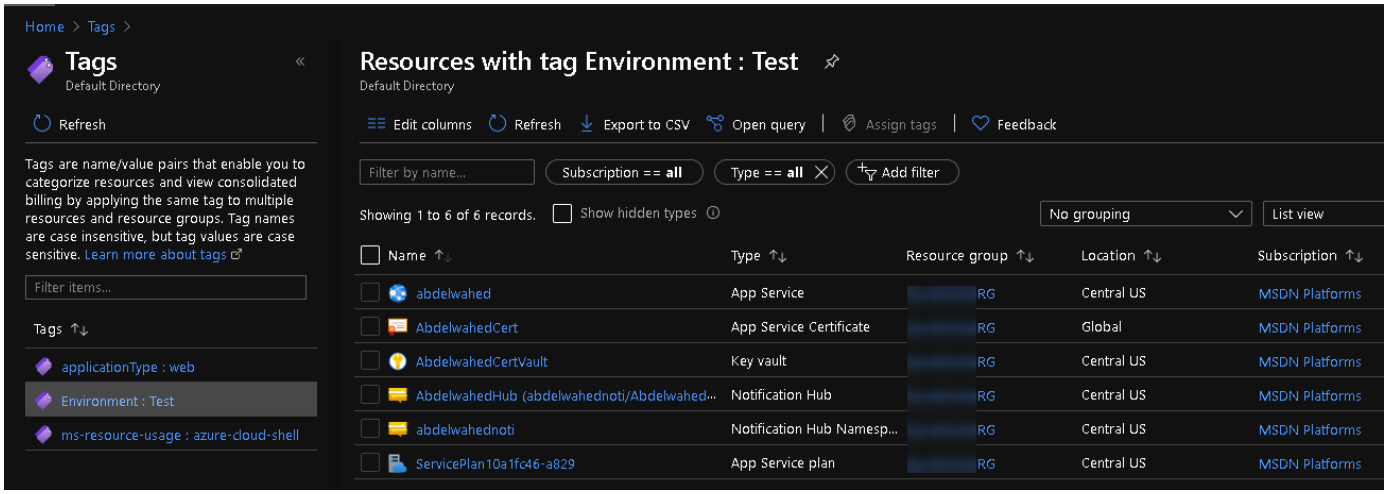
Azure subscription types

- Sponsored subscriptions
- Pay as you go
- Enterprise subscriptions
-Azure for Students subscription (100$ per month for 12 months)

Cost Management

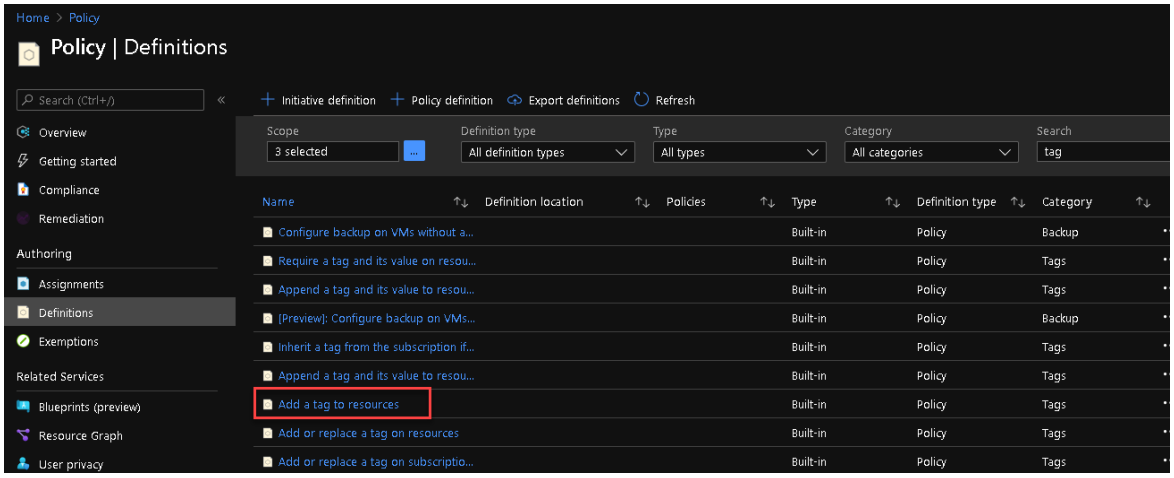


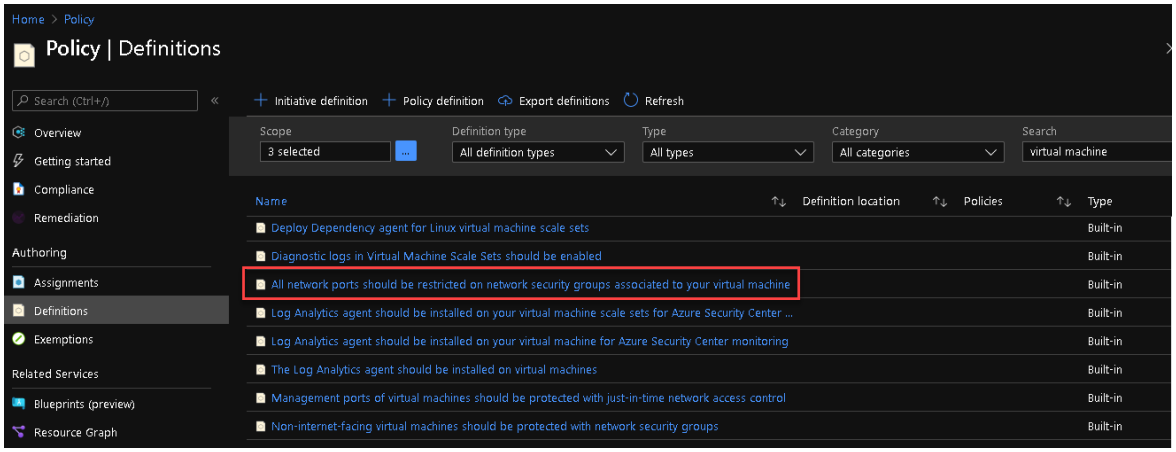
Resource Tags (Azure resources to logically organize)

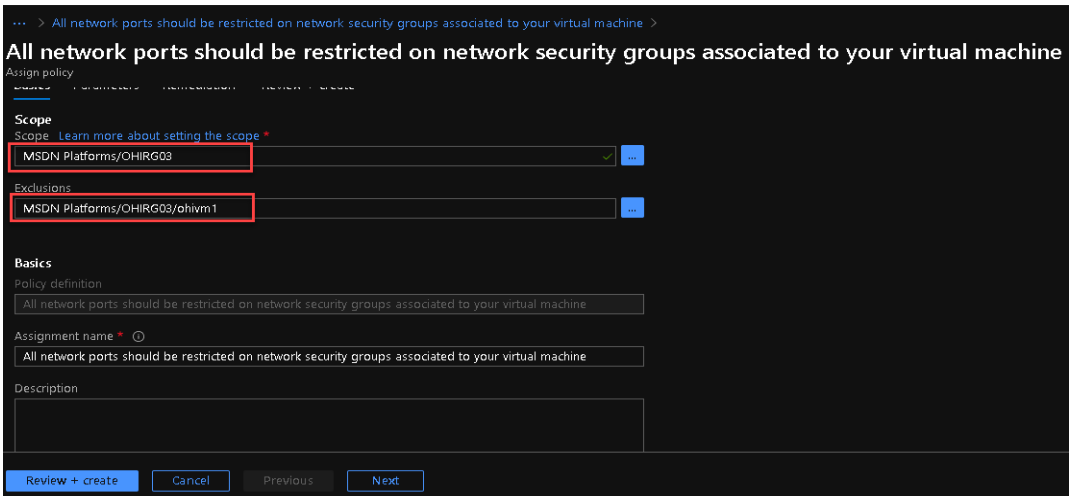


Azure Policy

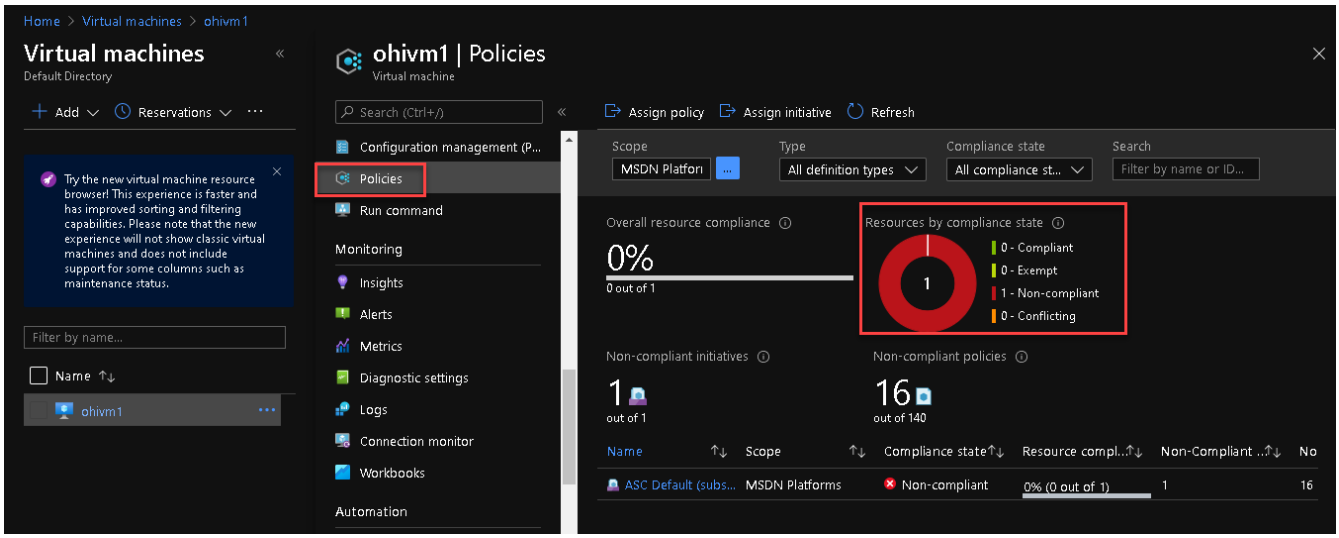
add your company governance through azure policies so you can detect any non-compliant resource easily.



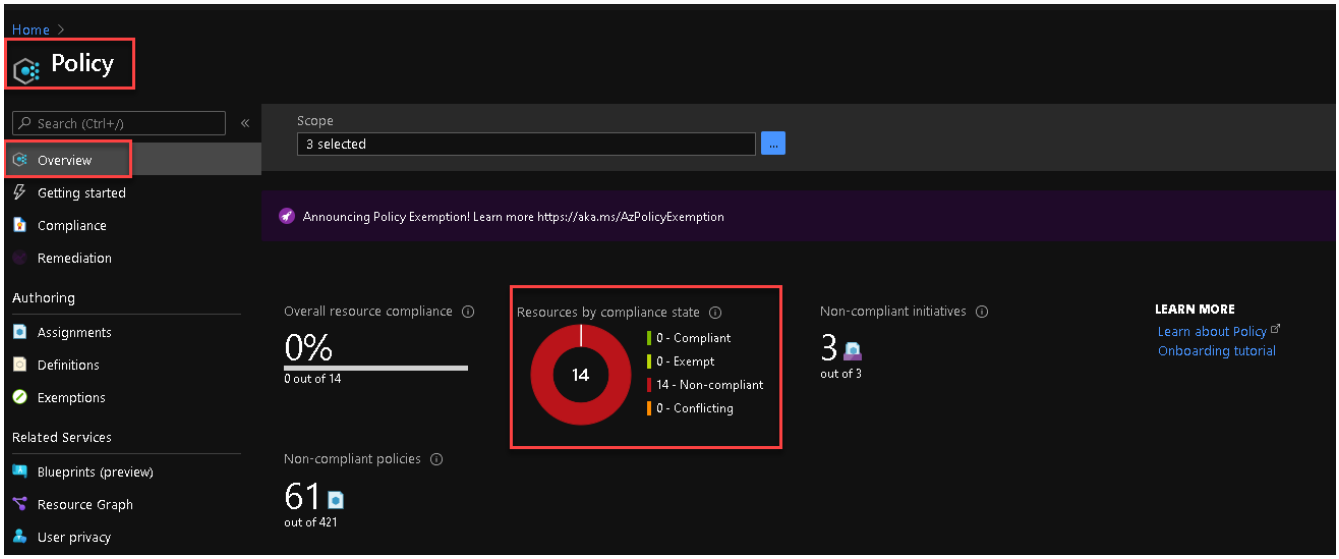




Now you can see policy stat from resource portal

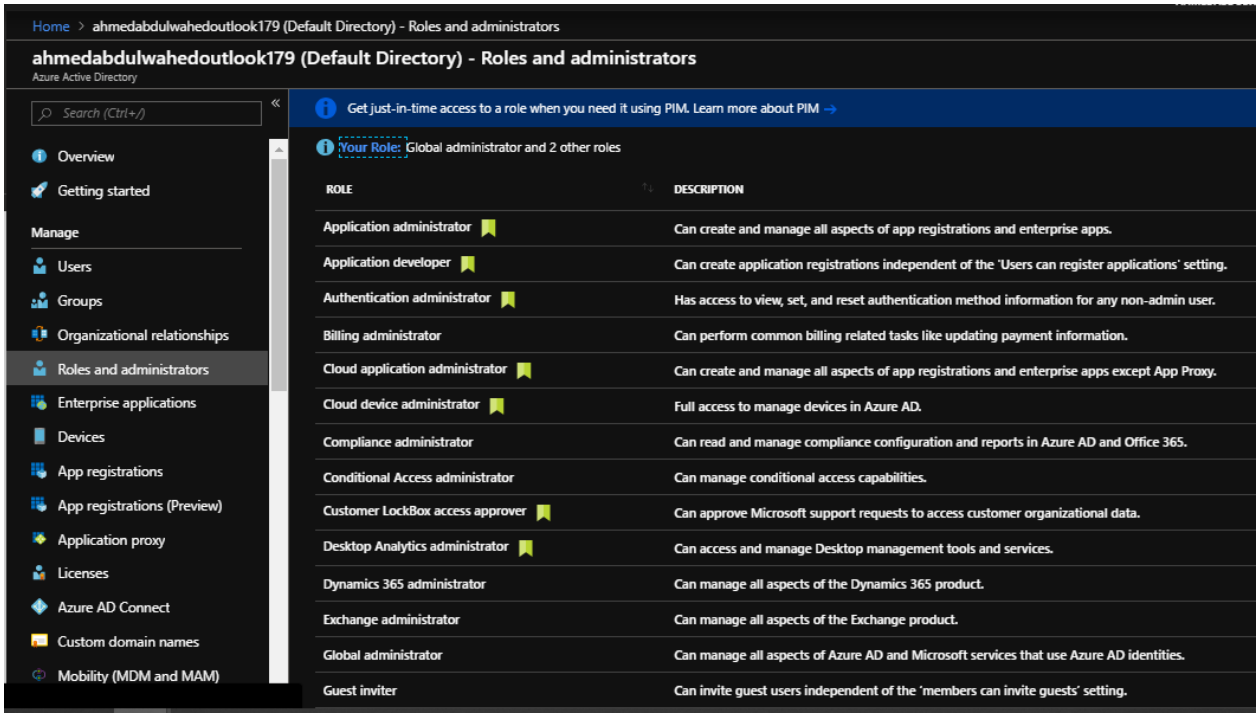


Also, from policy overview you can see summary for your all policies.

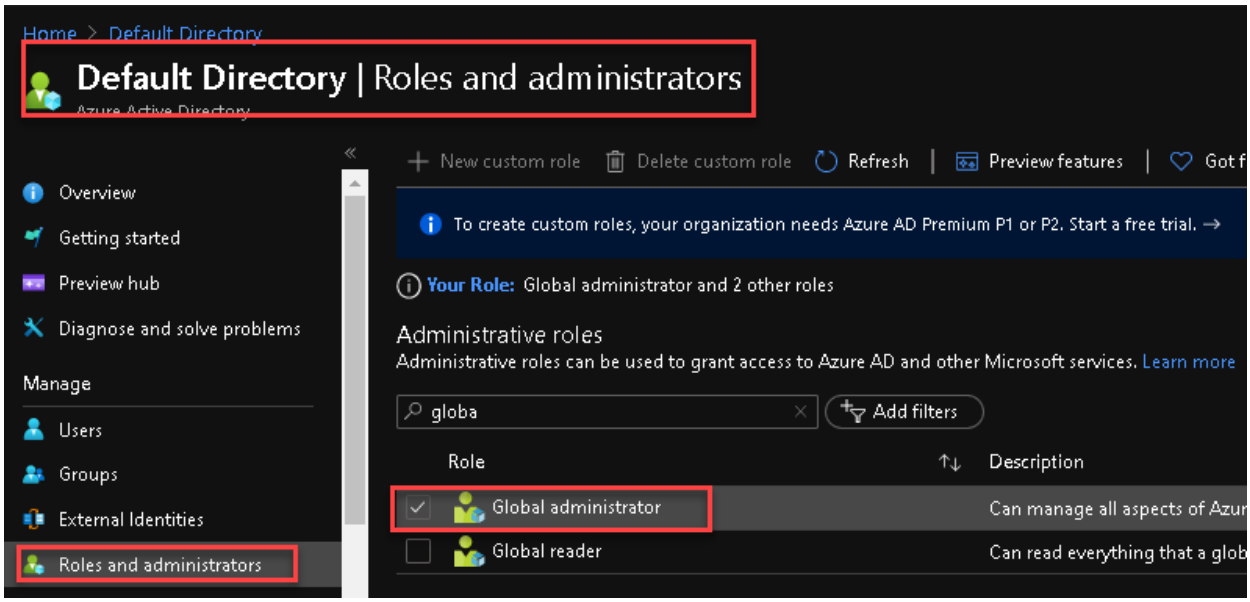


Role-based access control (RBAC)

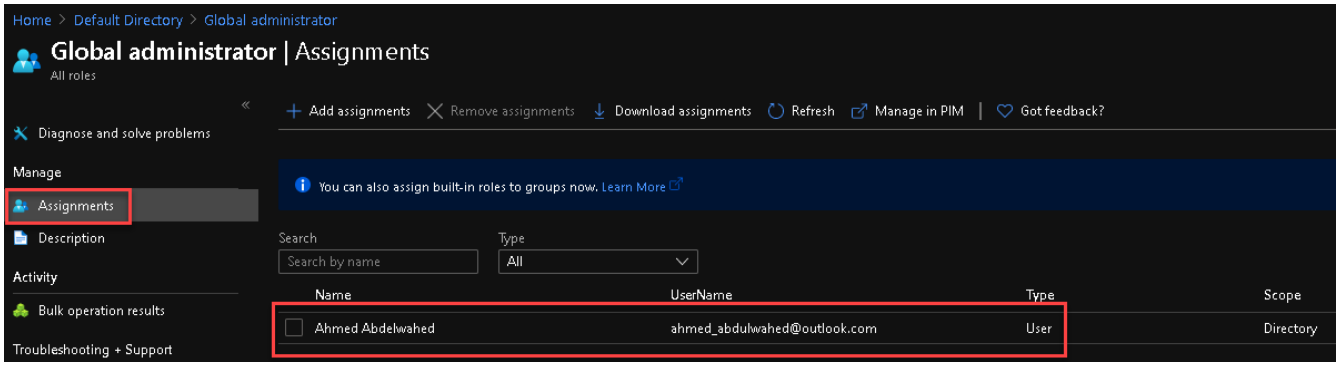
is a system that provides fine-grained access management of Azure resources. Using Azure RBAC, you can segregate duties within your team and grant only the amount of access to users that they need to perform their jobs.



All members of Global admins



through assignments tab you can see which user has this role.



Assign RBAC using Azure PowerShell and CLI

When you have large numbers of role assignments, you may prefer to use Azure PowerShell or the CLI.

```
#Role assignment properties
$roleName = “Contributor”
$assigneeName = ahmed@abdelwahed.me
$resourceGroupName = “DBRG”
```

Azure PowerShell

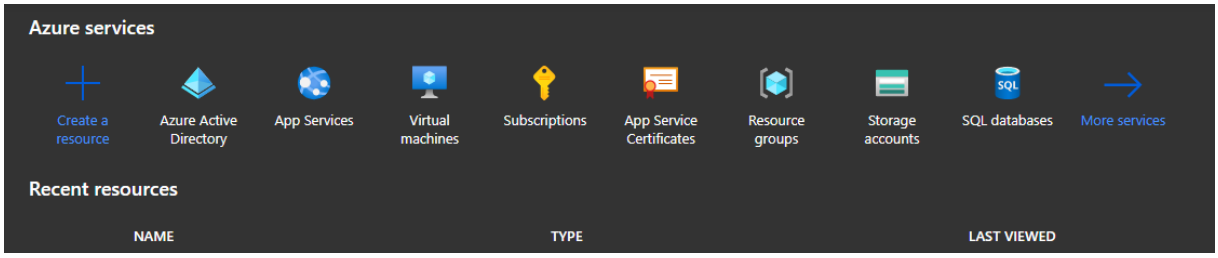
```
New-AzureRmRoleAssignment -RoleDefinitionName $roleName -SignInName $assigneeName -
ResourceGroupName $resourceGroupName
```

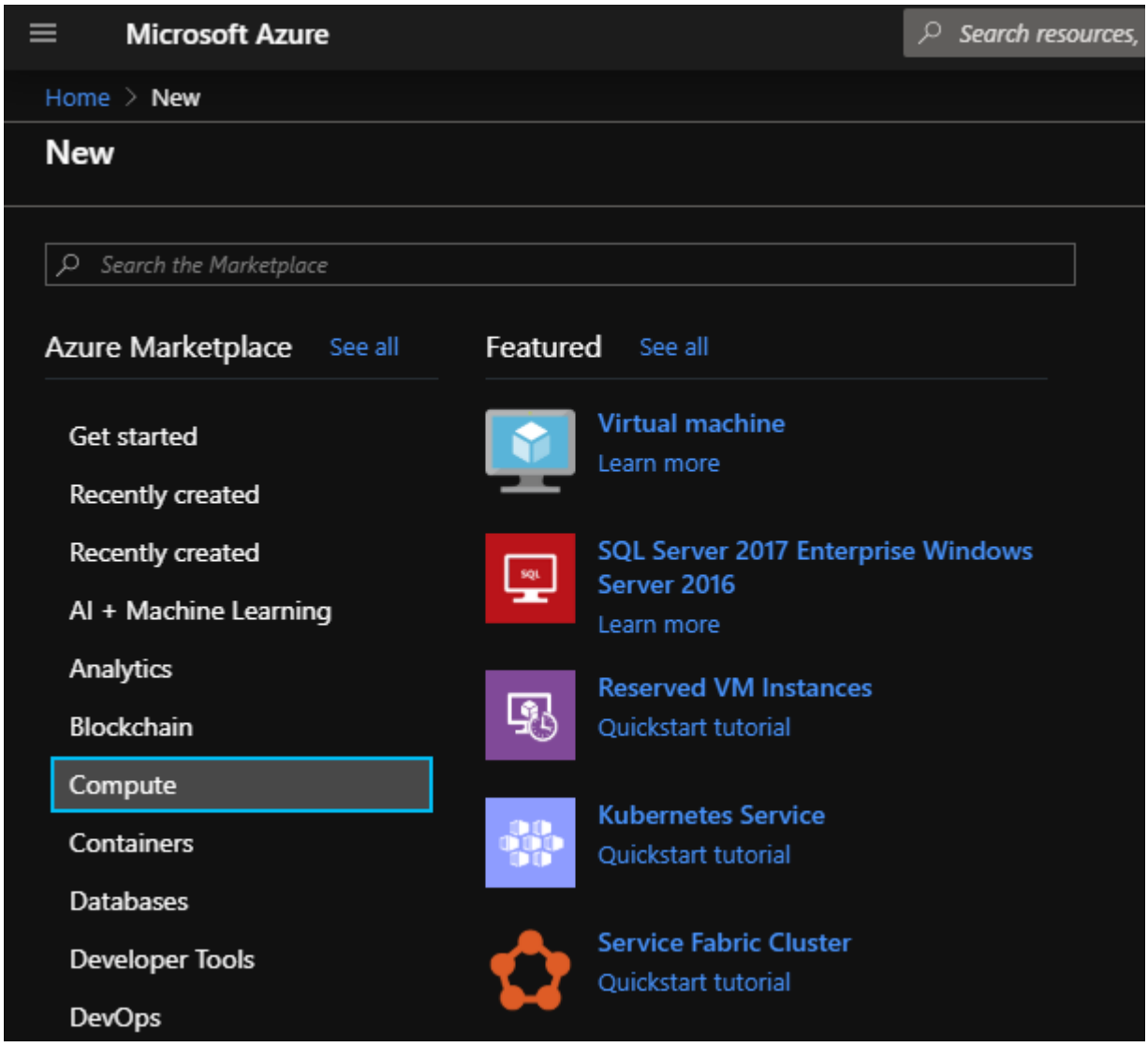
CLI

```
az role assignment create –role $roleName –assignee $assigneeName –resource-group $resourceGroupName
```

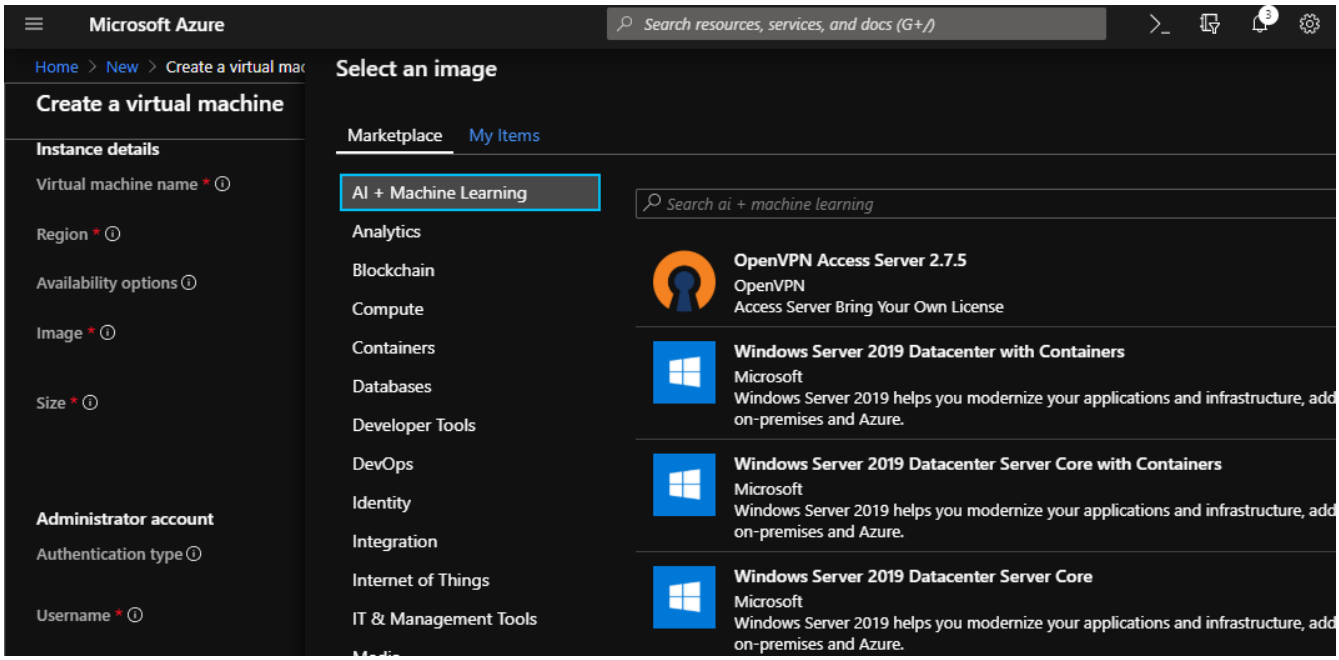
Azure Virtual Machines

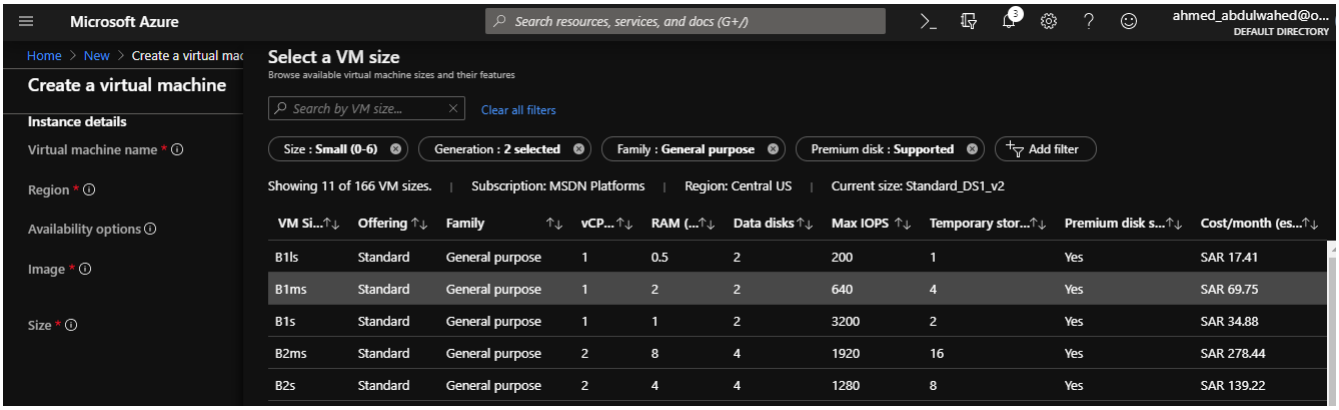
Creating Virtual Machines in the Portal

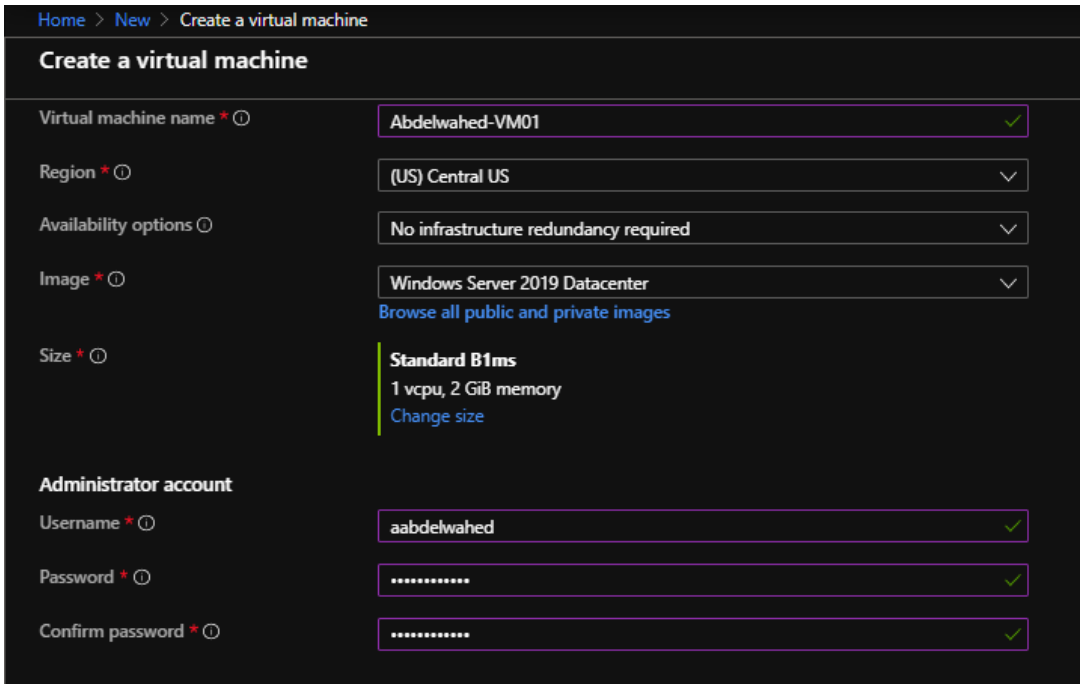


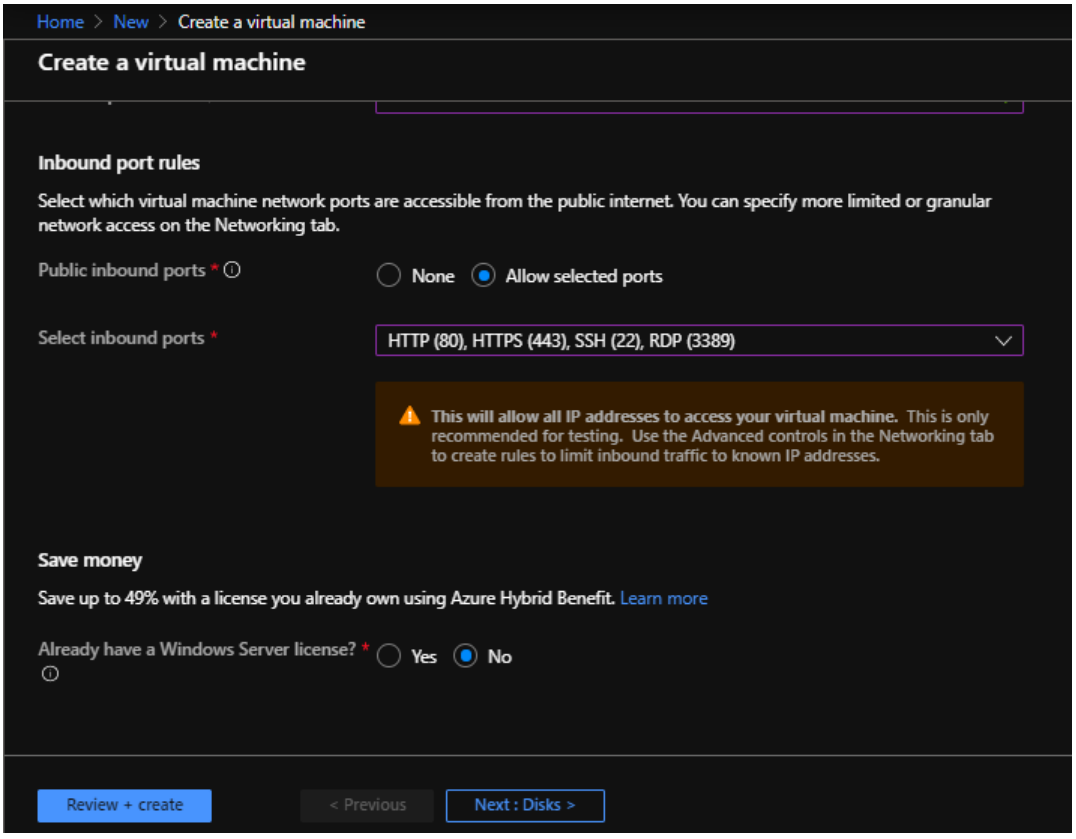


in first page fil the requested info starting with resource group, VM name, Image source, user name and password to access and VM size

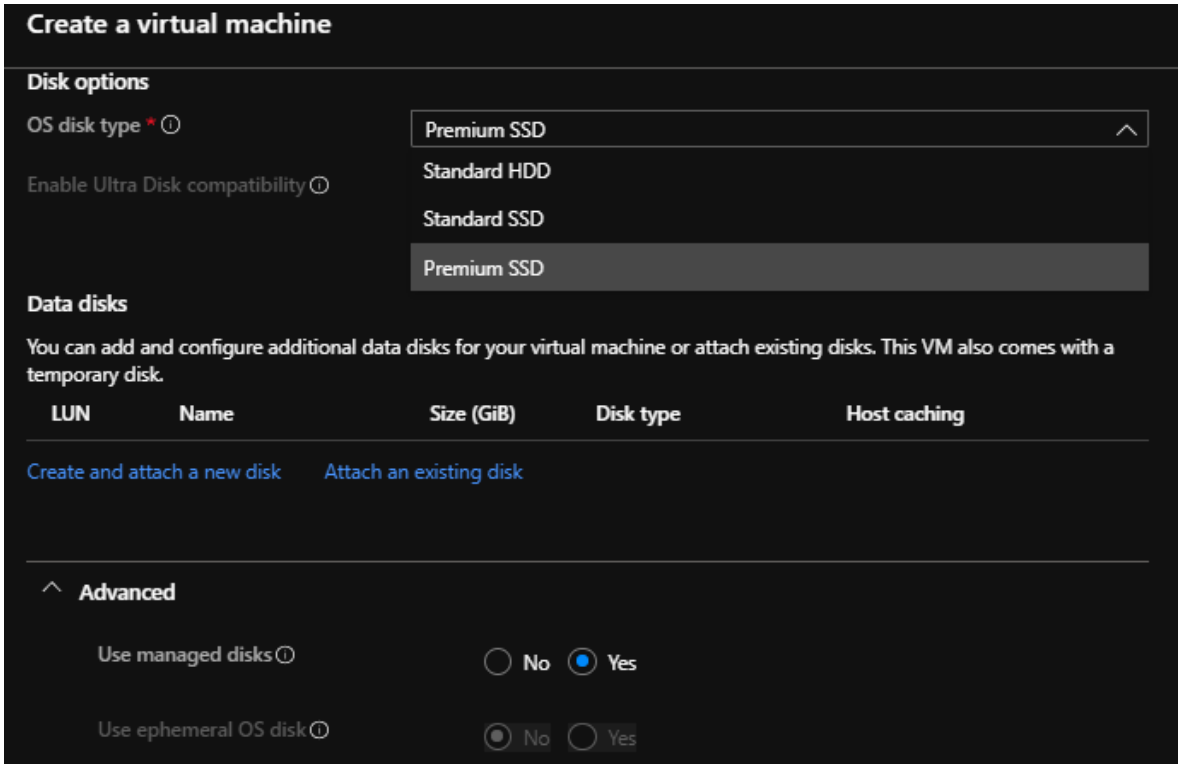




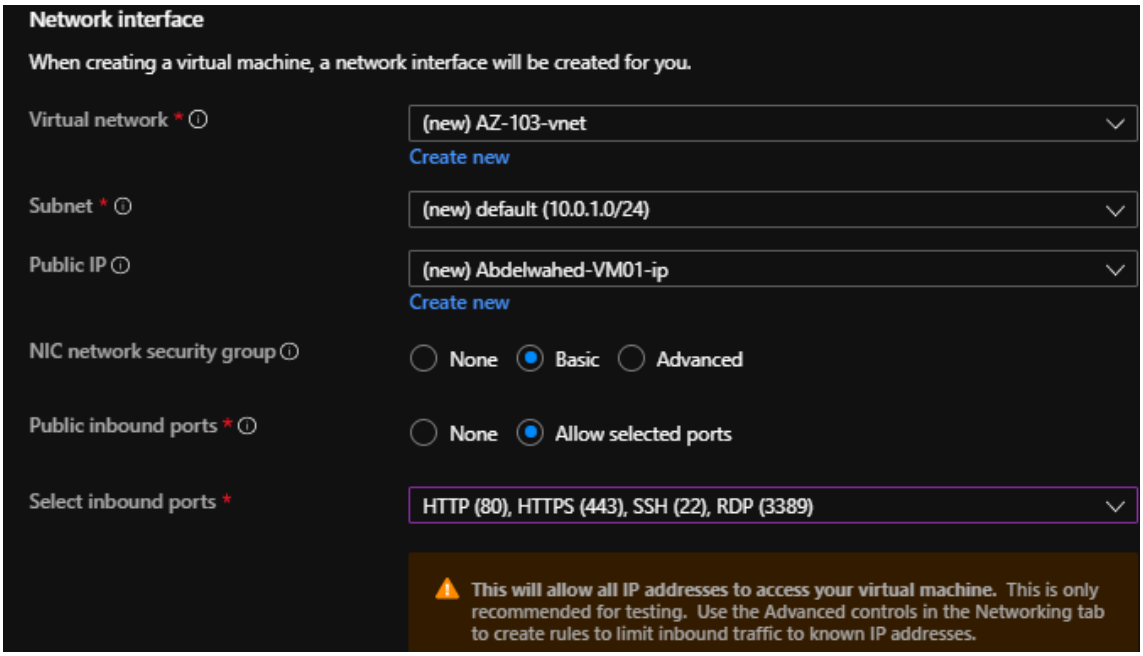

Home > New > Create a virtual machine
Create a virtual machine
Virtual machine name * Abdelwahed-VM01
Region * (US) Central US
Availability options No infrastructure redundancy required
Image * Windows Server 2019 Datacenter
Browse all public and private images
Size * Standard B1ms
1 vcpu, 2 GiB memory
Change size
Administrator account
Username * aabdelwahed
Password *
Confirm password *

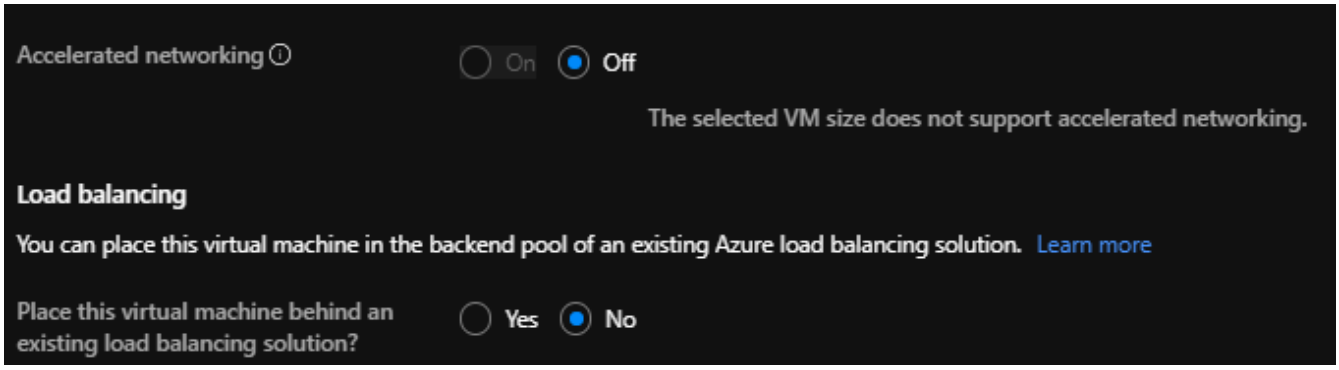

Home > New > Create a virtual machine
Create a virtual machine
Inbound port rules
Select which virtual machine network ports are accessible from the public internet. You can specify more limited or granular network access on the Networking tab.
Public inbound ports * None Allow selected ports
Select inbound ports * HTTP (80), HTTPS (443), SSH (22), RDP (3389)
This will allow all IP addresses to access your virtual machine. This is only recommended for testing. Use the Advanced controls in the Networking tab to create rules to limit inbound traffic to known IP addresses.
Save money
Save up to 49% with a license you already own using Azure Hybrid Benefit. Learn more
Already have a Windows Server license? * Yes No
Review + create
< Previous
Next : Disks >

Next Page its related for Disks options, you can add data disk from here or you can add it later

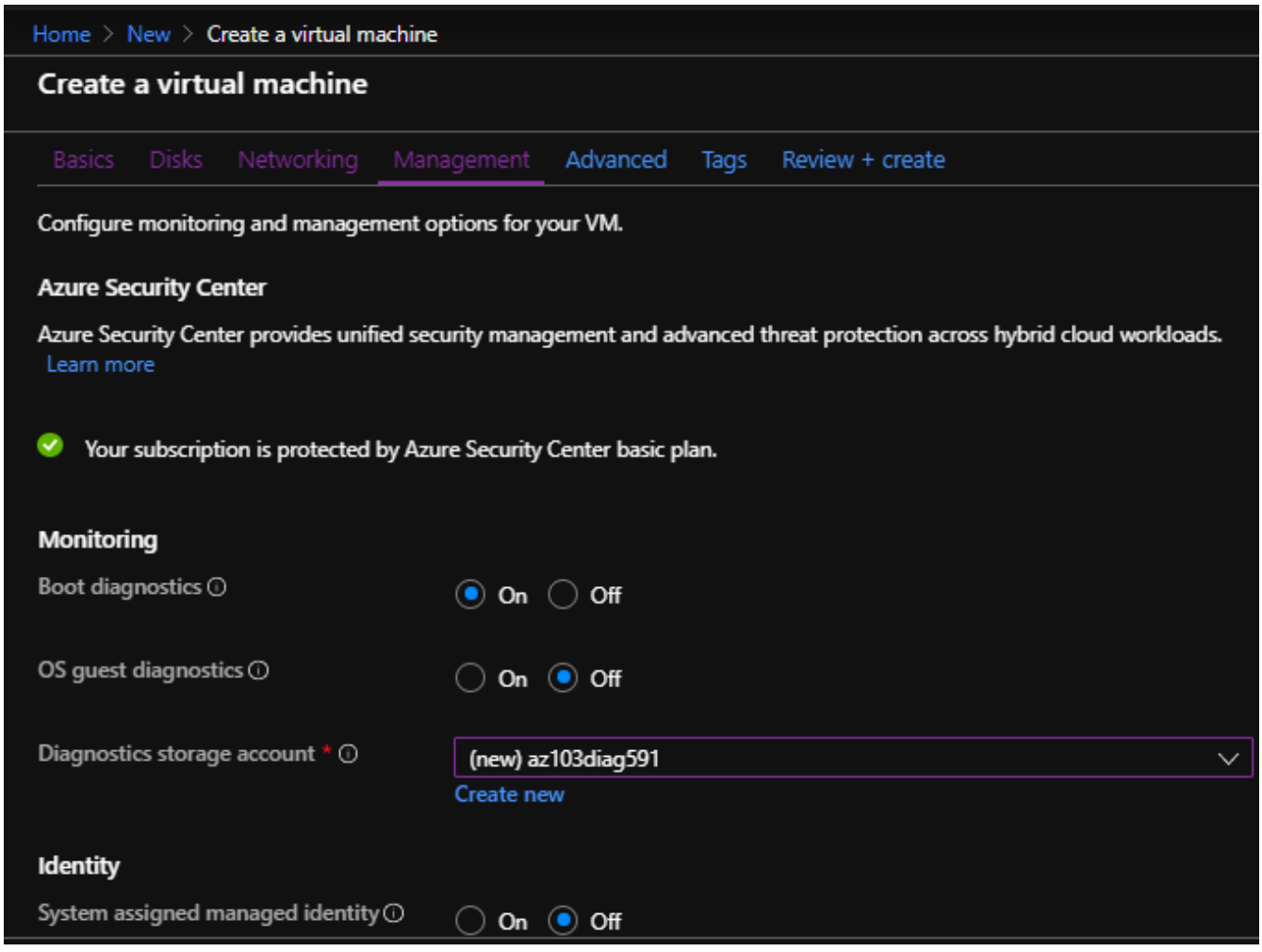


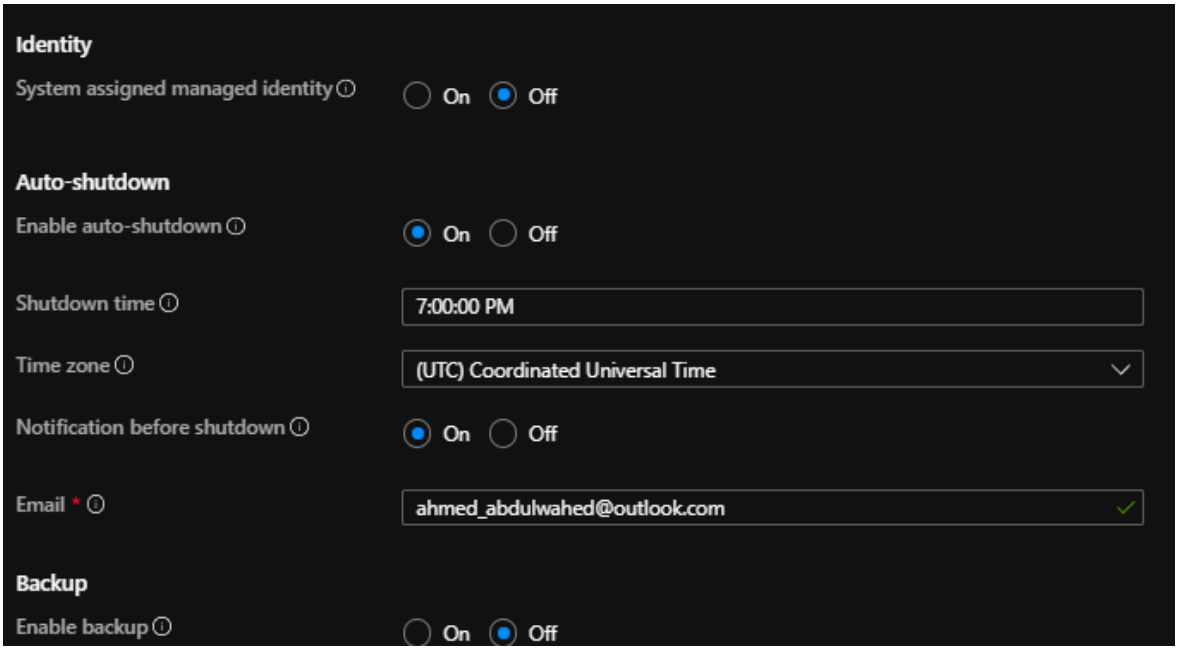
Next page for network options



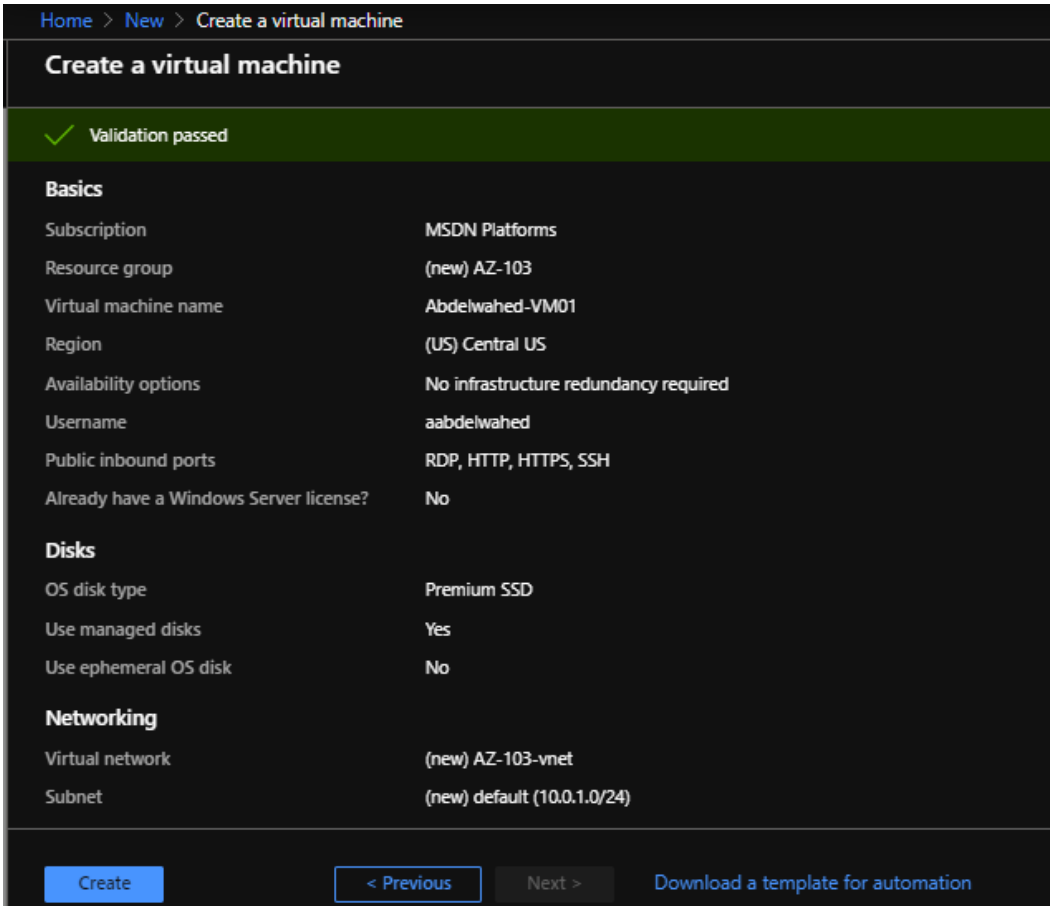


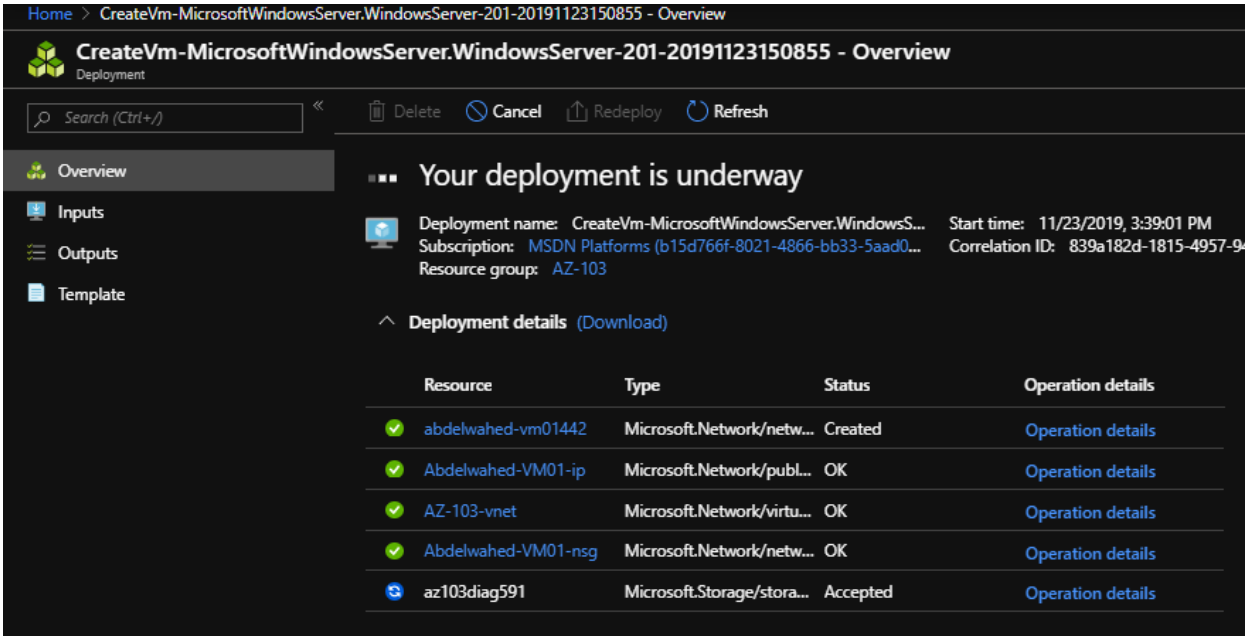
Next page is to add some management options like automatic shutdown machine

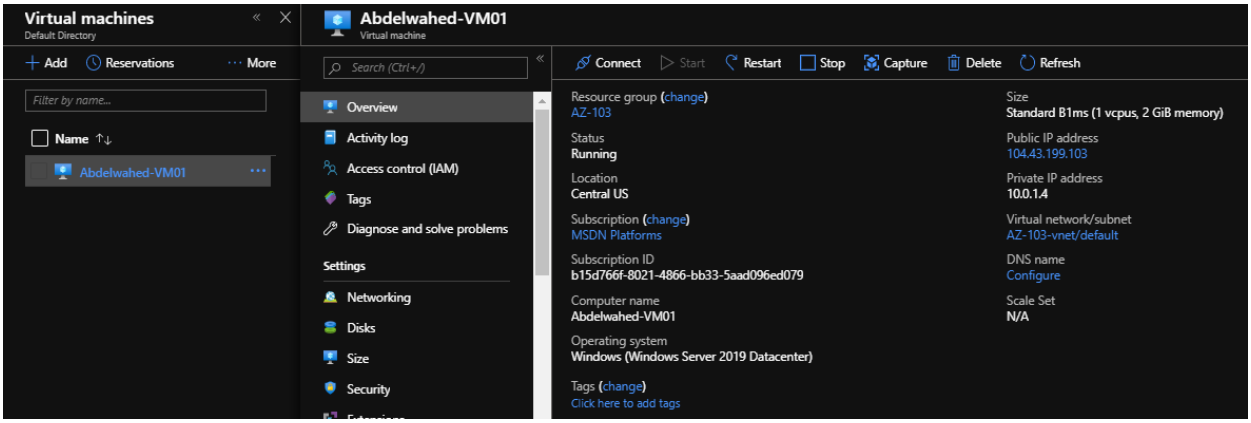




Now you can go direct to review your configuration and start deployment

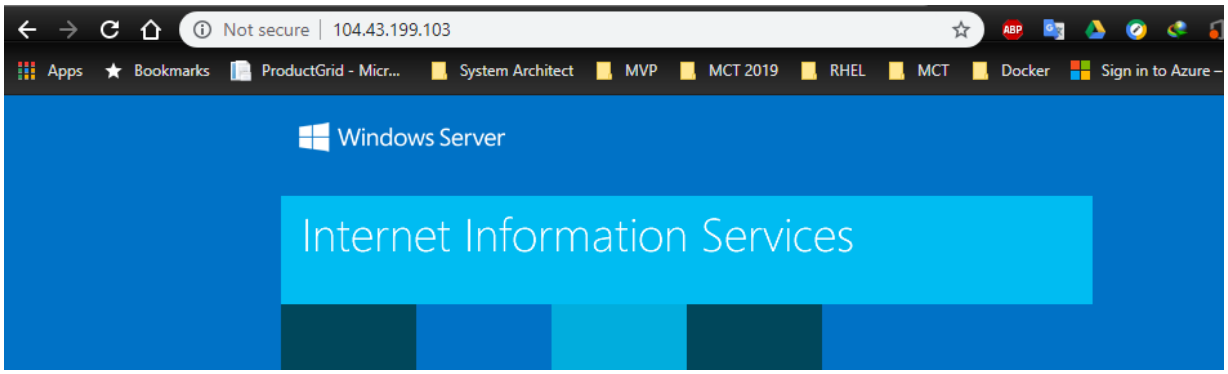






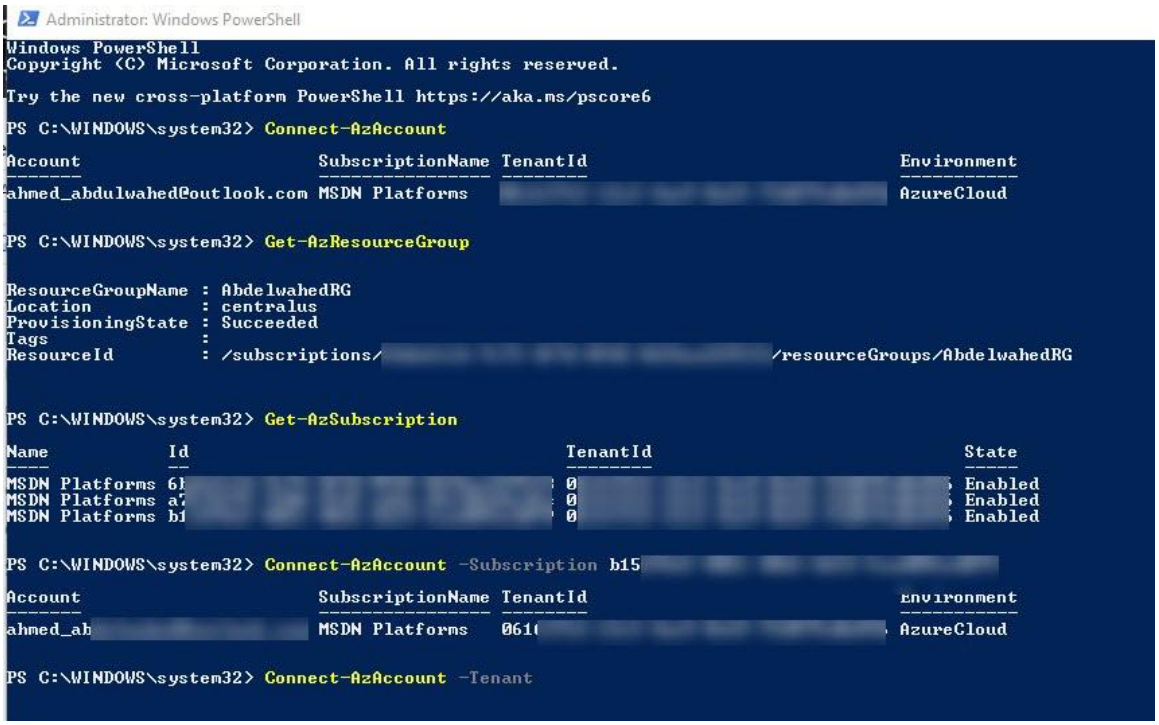
now you can connect to it by RDP and install different services you need, in the following example will add web server role

```
Install-WindowsFeature -name Web-Server -IncludeManagementTools
```



Creating a Virtual Machine with PowerShell

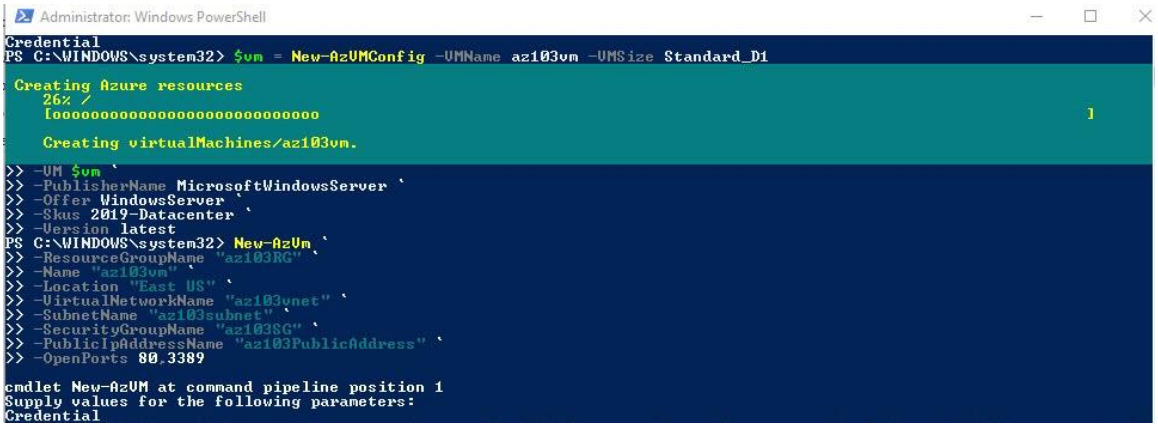
First connect to your account using Connect-AzAccount and select specific subscribtion

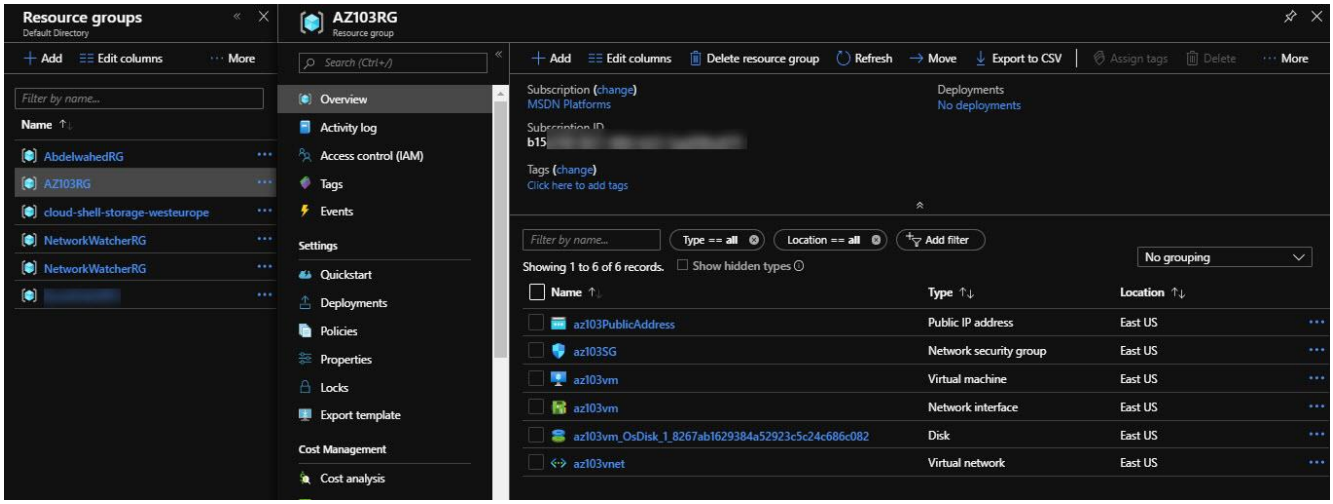



```
$cred = Get-Credential
$vm = New-AzVMConfig -VMName az103vm -VMSize Standard_D1
$vm = Set-AzVMOperatingSystem `
>> -VM $vm `
>> -Windows `
>> -ComputerName az103vm `
>> -Credential $cred `
>> -ProvisionVMAgent -EnableAutoUpdate
$vm = Set-AzVMSourceImage `
>> -VM $vm `
>> -PublisherName MicrosoftWindowsServer `
>> -Offer WindowsServer `
>> -Skus 2016-Datacenter `
>> -Version latest

New-AzVm `
>> -ResourceGroupName "az103RG" `
>> -Name "az103vm" `
>> -Location "East US" `
>> -VirtualNetworkName "az103vnet" `
>> -SubnetName "az103subnet" `
 >> -SecurityGroupName "az103SG" `
>> -PublicIpAddressName "az103PublicAddress" `
```

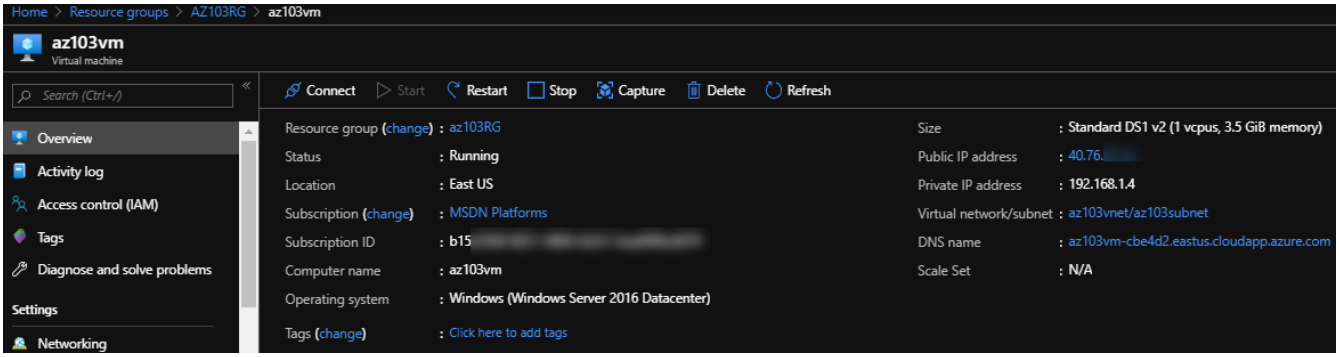
```
>> -OpenPorts 80,3389
```

Finally, you will ask to provide login credential





try to connect vm using mstsc /v:PublicIP



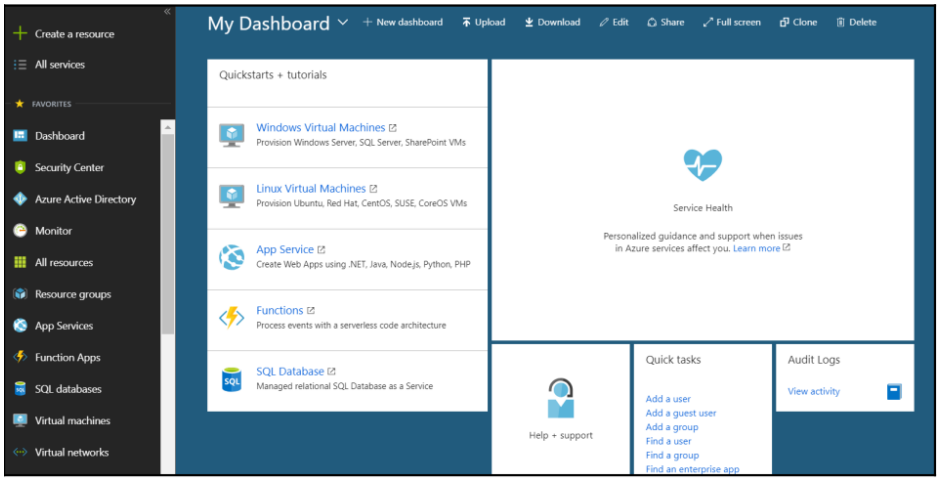
to clean up your resources use Remove-AzResourceGroup -Name AZ103RG

Azure Administration

Azure Resource Manager

Azure Resource Manager enables you to work with the resources in your solution as a group. You can deploy, update, or delete all the resources for your solution in a single, coordinated operation. You use a template for deployment and that template can work for different environments such as testing, staging, and production. Resource Manager provides security, auditing, and tagging features to help you manage your resources after deployment.

https://portal.azure.com



ARM templates, Microsoft stepped up and really changed cloud business. In the cloud and in DevOps, the **Infrastructure as code** (**IaC**) concept is very important and that was exactly what ARM templates were. You are able to create an ARM template and reuse it multiple times to create similar environments. By doing so, you automated your infrastructure deployment steps and removed possible mistakes in the deployment and configuration process.

Managing Resources from ARM

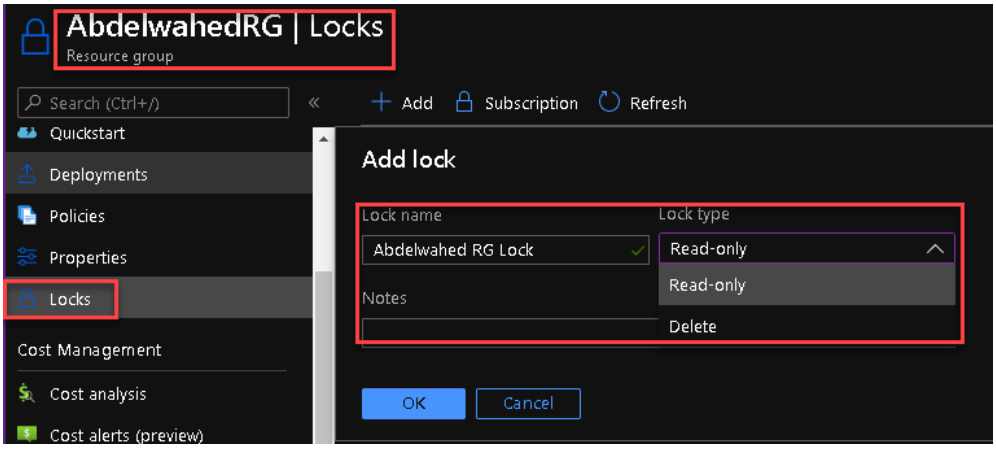
Resource Manager Locks

Lock types

There are two types of resource locks.

- **Read-Only locks**, which prevent any changes to the resource.
- **Delete locks**, which prevent deletion.

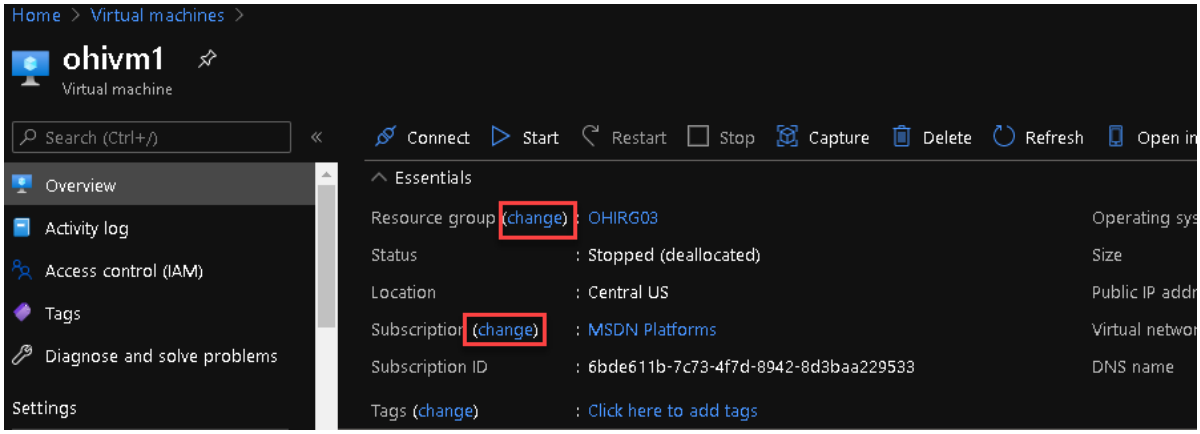
✔ Only the Owner and User Access Administrator roles can create or delete management locks.



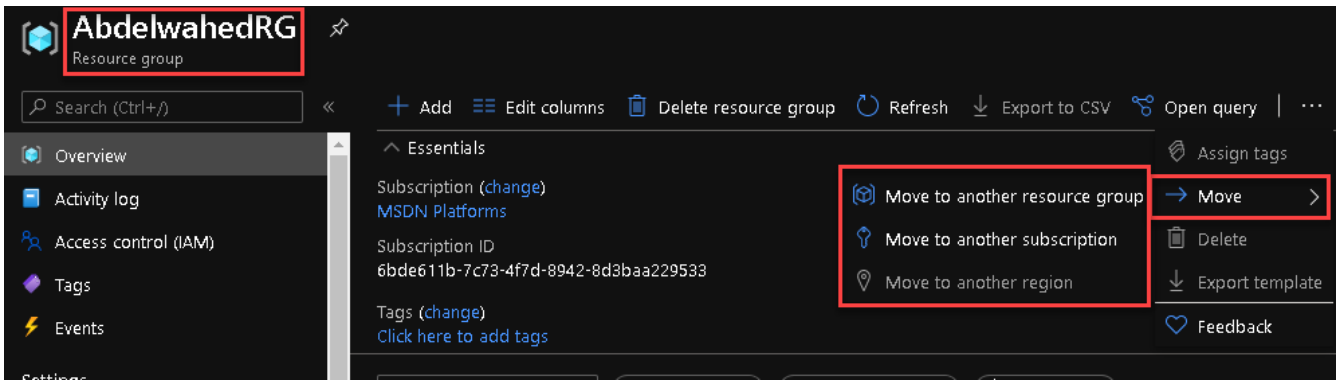
Moving Resources

Sometimes you may need to move resources to either a new subscription or a new resource group in the same subscription.

The following way from resource.

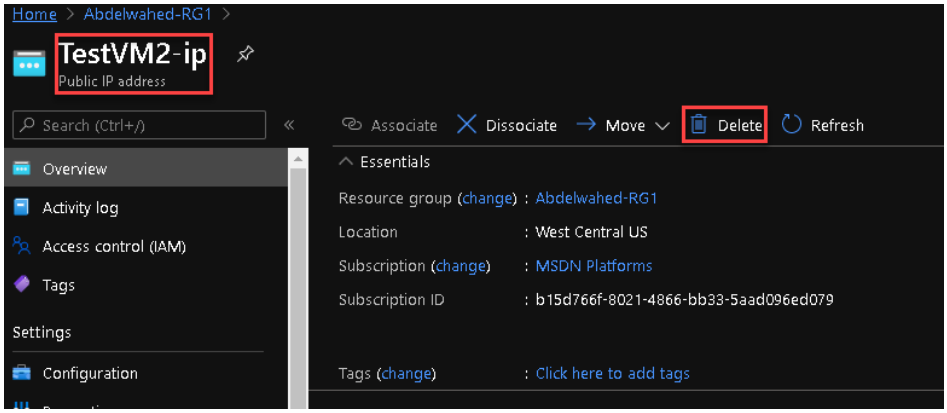


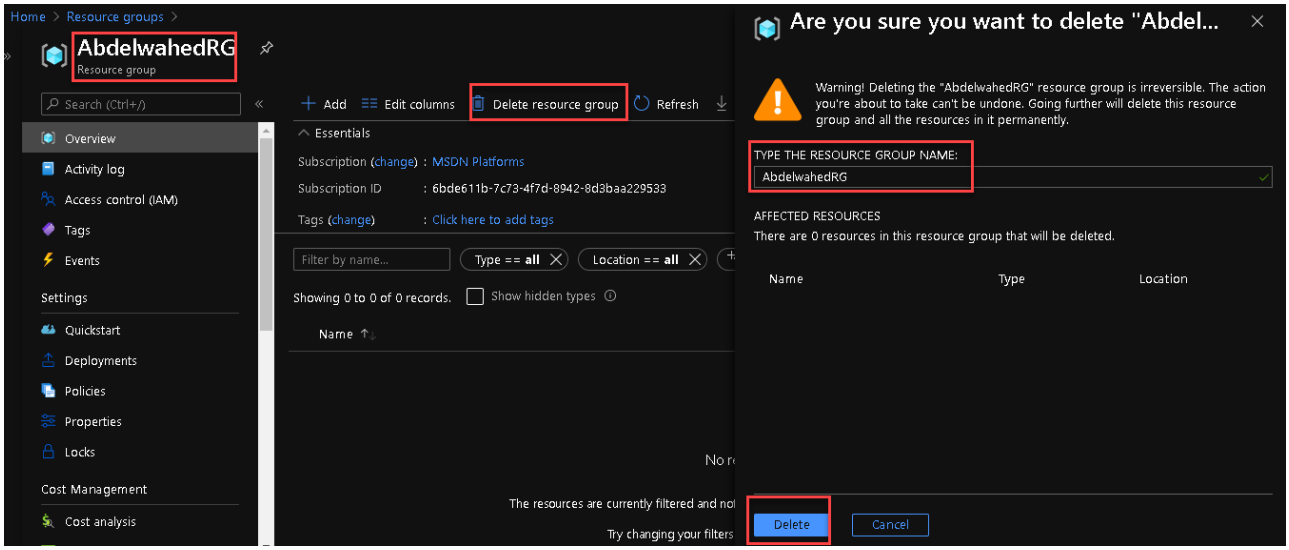
Another way from resource group as shown down.



Removing Resources and Resource Groups

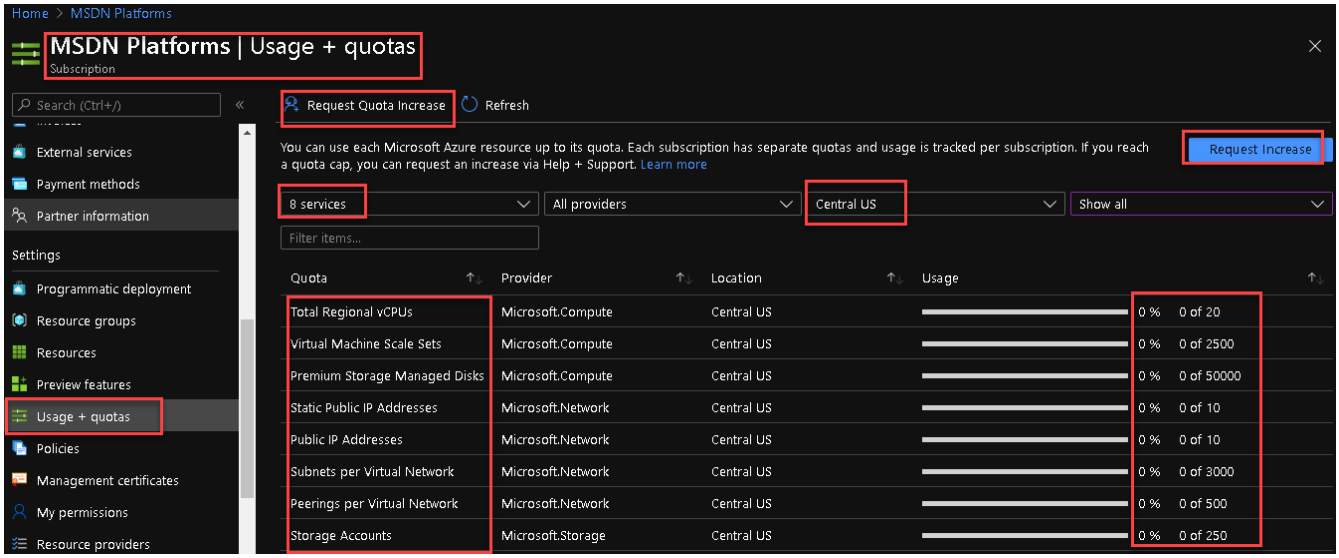
If you delete RG all resources included will removed also. Or you can delete some resources inside resource group.





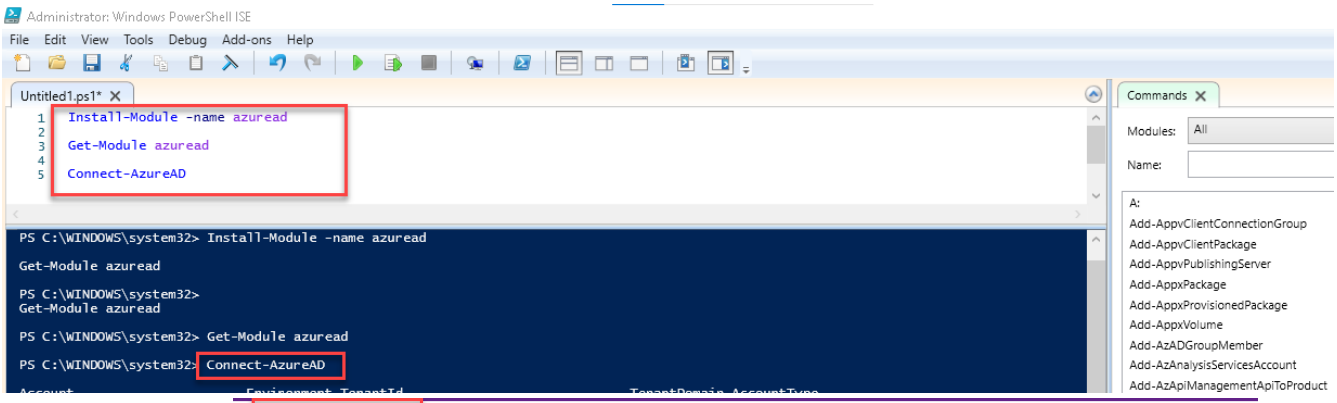
Resource Limits

You can use each Microsoft Azure resource up to its quota. Each subscription has separate quotas and usage is tracked per subscription. If you reach a quota cap, you can request an increase via Help + Support.



Manage Azure Resources using cloud shell

connect from local PowerShell

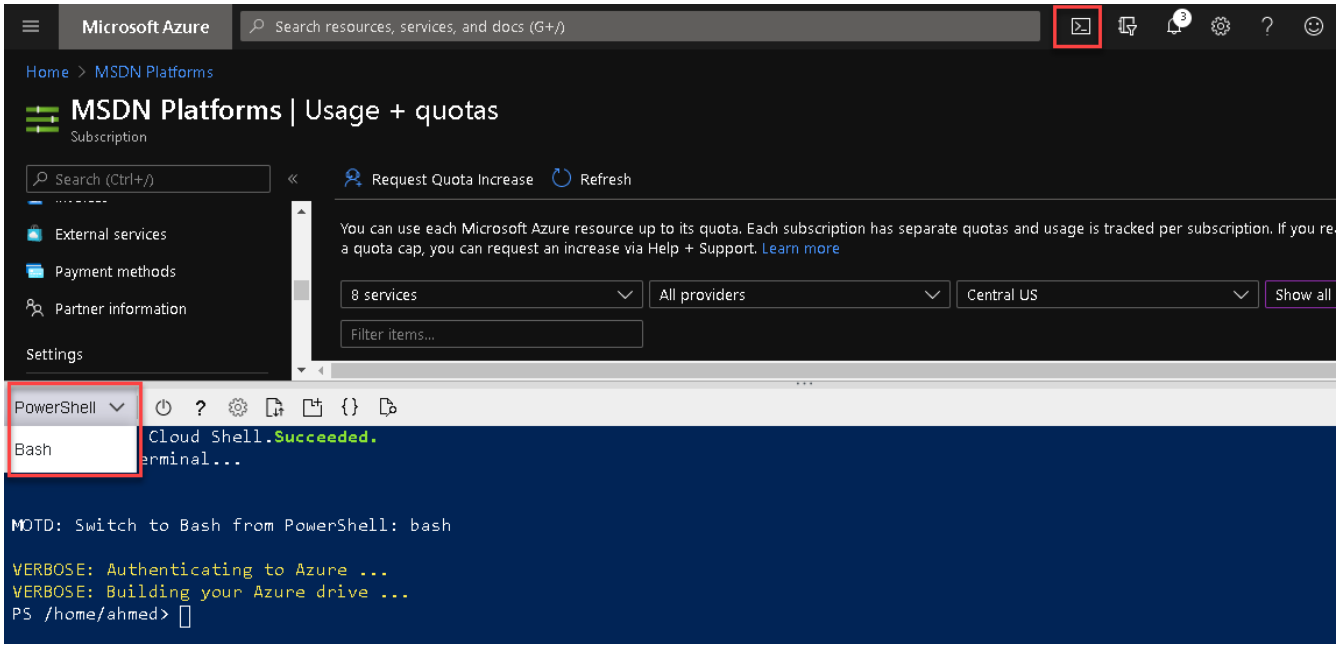



```
1  Get-AzureADUser
```

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

ObjectId                             DisplayName          UserPrincipalName
--------                             -----------          -----------------
ca351d00-8ca5-4b96-a431-95f40a77ca56 Ahmed Abdelwahed     ahmed@IITCLab10.onmicrosoft.com
00d5b105-24fb-47f1-989b-74d423f7ed05 Ali Mohamed          ali@iitclab10.onmicrosoft.com
584875fc-38a2-4e88-bea3-0c251164d46c HR01                 hr01@IITCLab10.onmicrosoft.com
498d9341-1f0b-40fa-898f-1a06dc73dd8a HR02                 hr02@IITCLab10.onmicrosoft.com
a7243505-6756-43ce-b76a-57d9e89c6054 HR03                 hr03@IITCLab10.onmicrosoft.com
a7ff0ce1-c34c-4a17-8b3a-ce267777f402 HR04                 hr04@IITCLab10.onmicrosoft.com
8039effb-4b54-45c1-89b4-c78f4831393f HR05                 hr05@IITCLab10.onmicrosoft.com
a5e45c1a-57e6-4a63-96df-e6b0854ee2ba IT01                 it01@IITCLab10.onmicrosoft.com
3d90cbc5-a650-4dd0-8237-a84a95a96939 IT02                 it02@IITCLab10.onmicrosoft.com
b86f1ba9-f514-49d5-9f4a-f53c87946fb2 IT03                 it03@IITCLab10.onmicrosoft.com
da051d88-2cba-4628-bc5a-b9195336f20c IT04                 it04@IITCLab10.onmicrosoft.com
```

- Get-AzureRmSubscription| gm
- help Get-AzureRmTenant -examples
- Get-AzureRmTenant
- Get-AzureRmNetworkUsage
- Get-Module -ListAvailable
- **Get-azurerm, commands start with azureRm**
- Install-Module az, install azure module
- Login-azureRmAccount

Through cloud shell



- az account list

Azure CLI and Working with Azure CLI Locally

Azure CLI is a command-line program to connect to Azure and execute administrative commands on Azure resources. It runs on Linux, macOS, and Windows, and allows administrators and developers to execute their commands through a terminal or a command-line prompt, (or script!) instead of a web browser. For example, to restart a VM, you would use a command such as the following:

You can download this tool https://aka.ms/installazurecliwindows and install it.

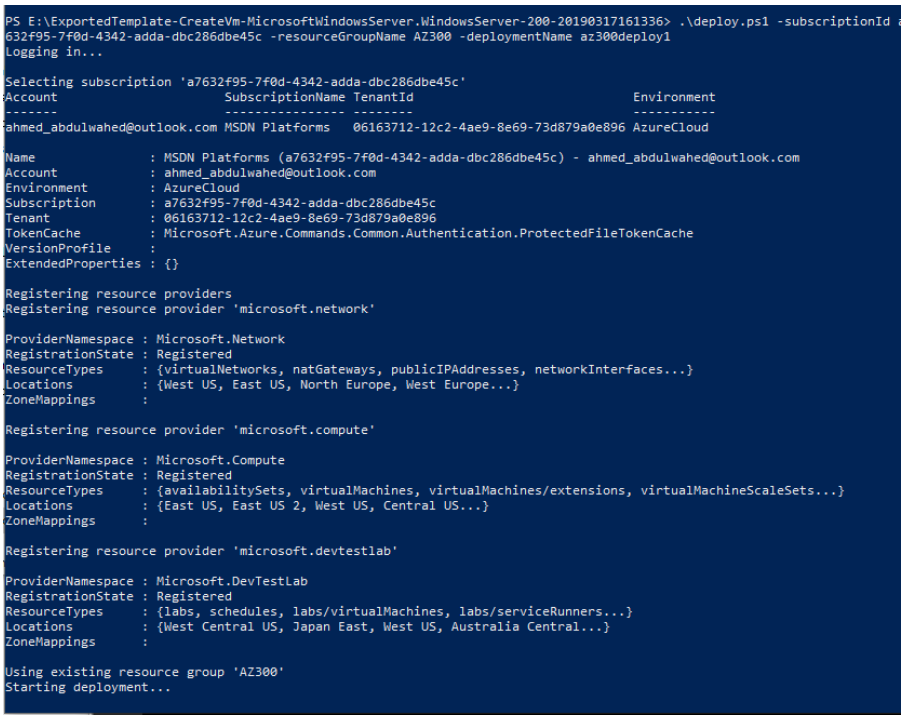
- Az login
- Az account list
- az group list
- az vm list
- Az storage list
- Az vm create
- Az group create

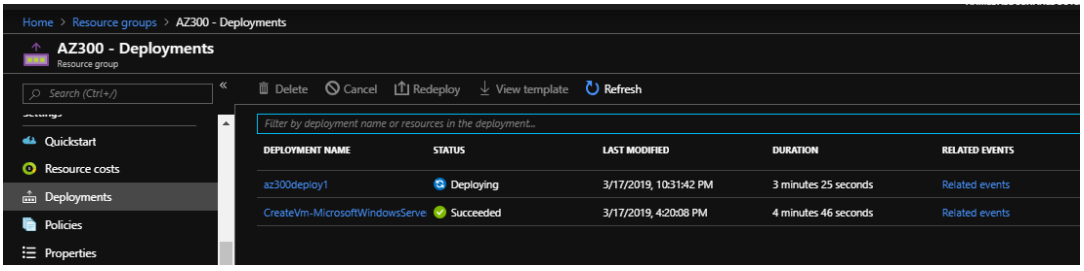
ARM Templates

There are two ways to deploy resource using ARM template

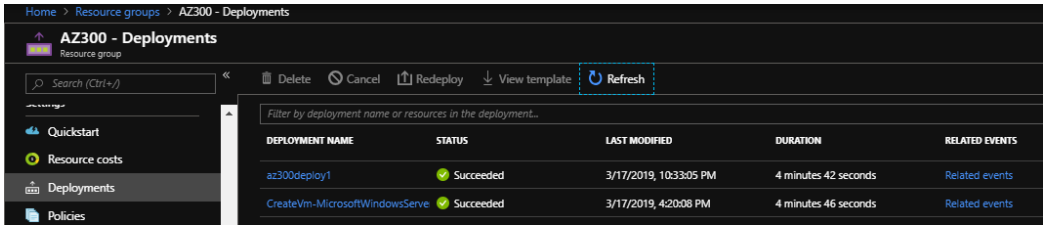
1- Download resource template and follow instruction below

```
Install-Module AzureRM
Install-Module Azure
Download and install Azure Cli
Set-ExecutionPolicy -Scope process -ExecutionPolicy Bypass
cd E:\ExportedTemplate
.\deploy.ps1 -subscriptionId a7632f95-7f0d-4342-adda-dbc286dbe45c -resourceGroupName AZ300RG  -
deploymentName az300deploy1
```

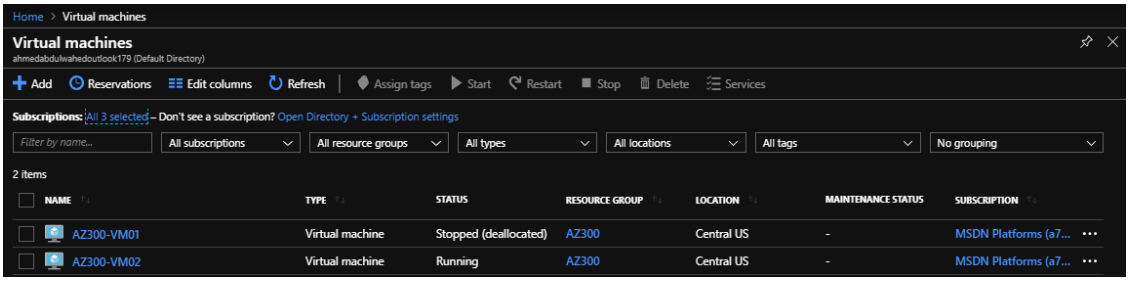




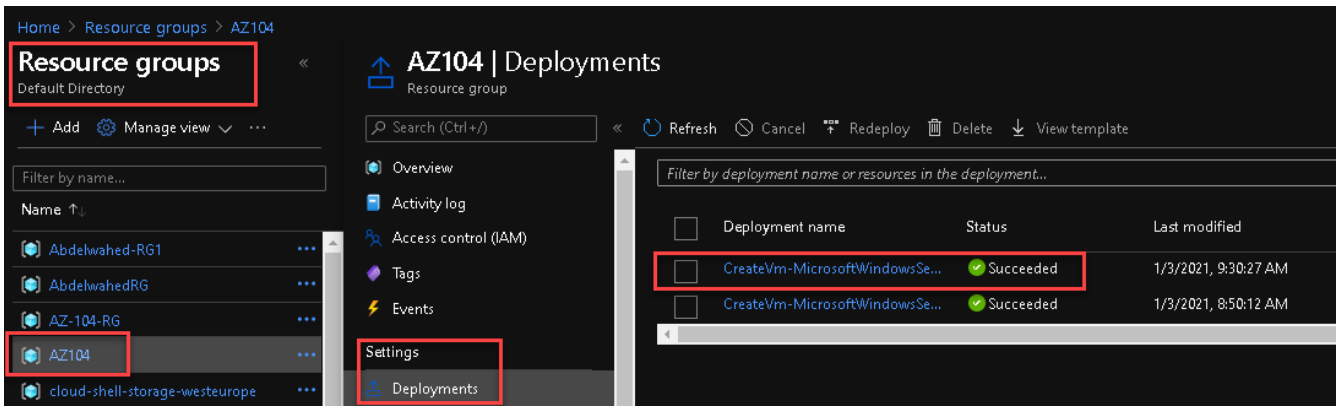
```
                        "name": "RDP",
                        "properties": {
                          "priority": 360,
                          "protocol": "TCP",
                          "access": "Allow",
                          "direction": "Inbound",
                          "sourceAddressPrefix": "*",
                          "sourcePortRange": "*",
                          "destinationAddressPrefix": "*",
                          "destinationPortRange": "3389"
                        }
                      }
                    ]
                    subnetName       String                    default
                    virtualNetworkName  String                   AZ300-vnet
                    addressPrefixes  Array                     [
                      "10.0.0.0/24"
                    ]
                    subnets          Array                     [
                      {
                        "name": "default",
                        "properties": {
                          "addressPrefix": "10.0.0.0/24"
                        }
                      }
                    ]
                    publicIpAddressName  String                    AZ300-VM02-ip
                    publicIpAddressType  String                    Dynamic
                    publicIpAddressSku  String                     Basic
                    virtualMachineName  String                     AZ300-VM02
                    virtualMachineRG  String                      AZ300
                    osDiskType       String                       Standard_LRS
                    virtualMachineSize  String                     Standard_B1ms
                    adminUsername    String                       aabdelwahed
                    adminPassword    SecureString
                    autoShutdownStatus  String                     Enabled
                    autoShutdownTime  String                      19:00
                    autoShutdownTimeZone  String                     UTC
                    autoShutdownNotificationStatus  String                   Disabled
                    autoShutdownNotificationLocale  String                   en

Outputs                 : {[adminUsername,
                          Microsoft.Azure.Commands.ResourceManager.Cmdlets.SdkModels.DeploymentVariable]}
OutputsString           :
                          Name             Type                       Value
                          ===============  =========================  ==========
                          adminUsername    String                     aabdelwahed
```

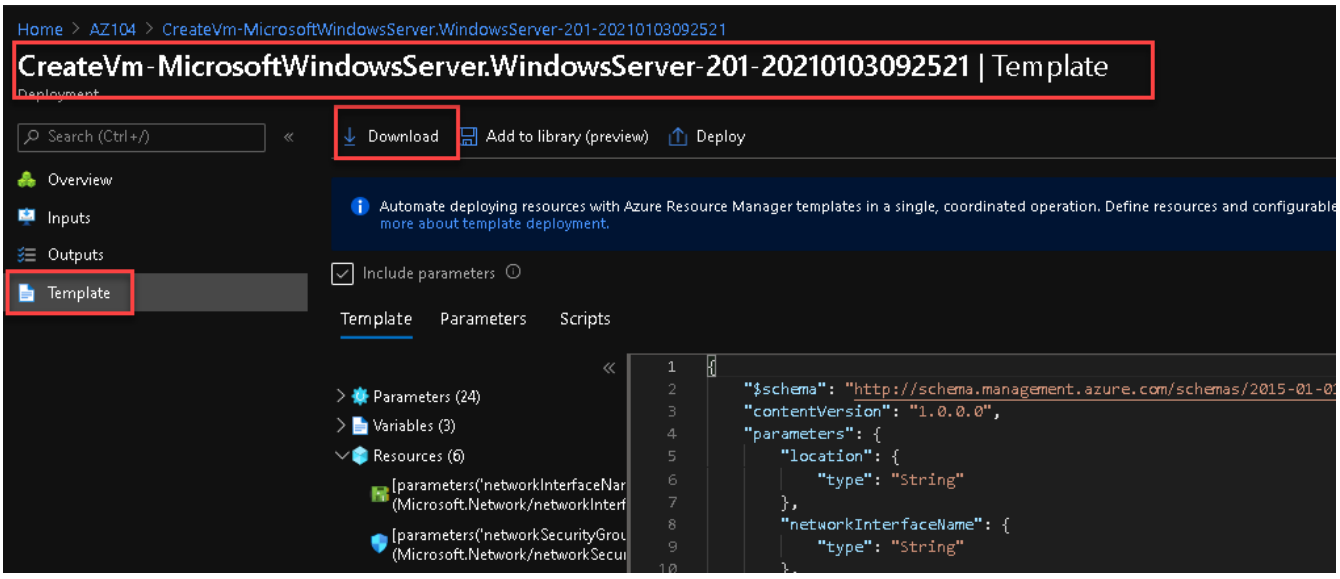


az vm image list --output table



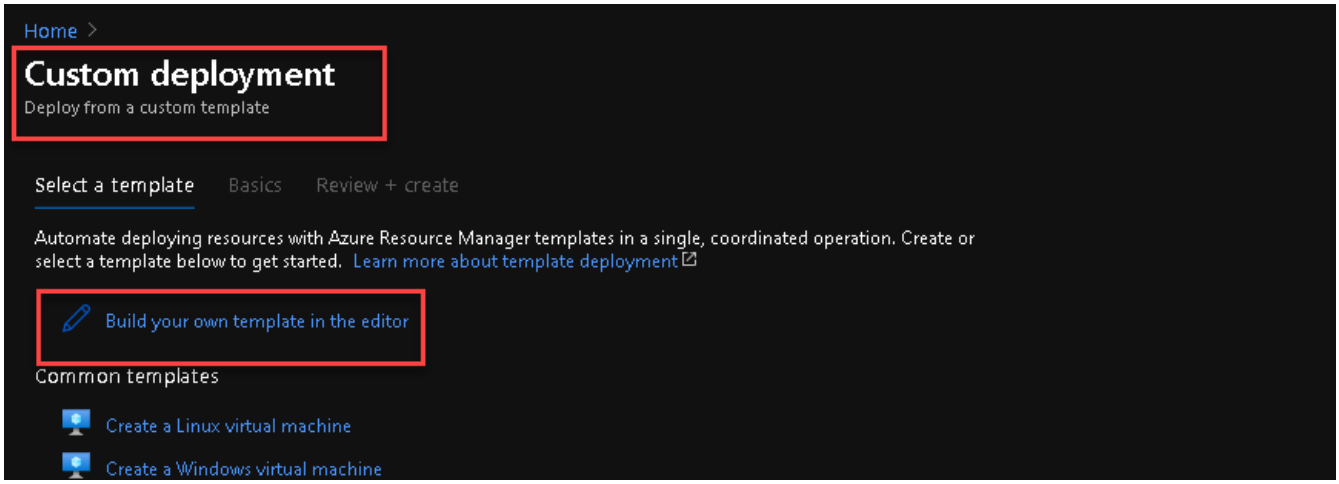
2- after deploy resource follow the instruction below

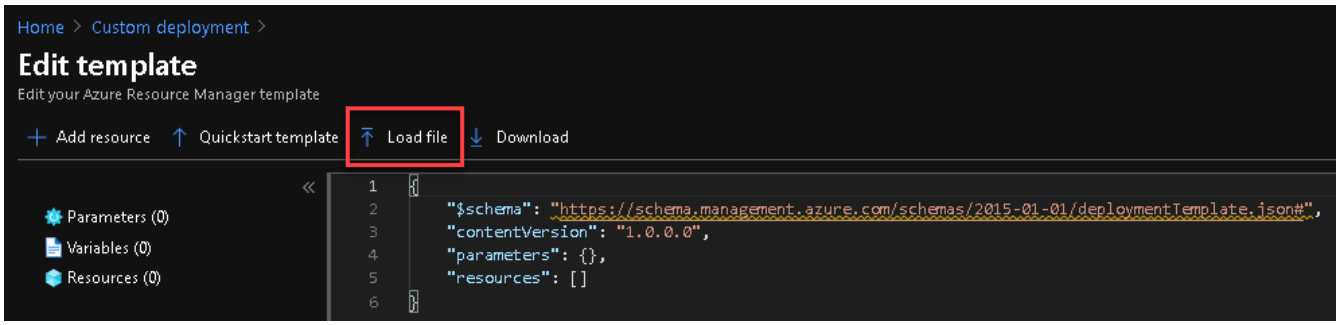




edit your Json file

search for **Custom deployment** in azure portal





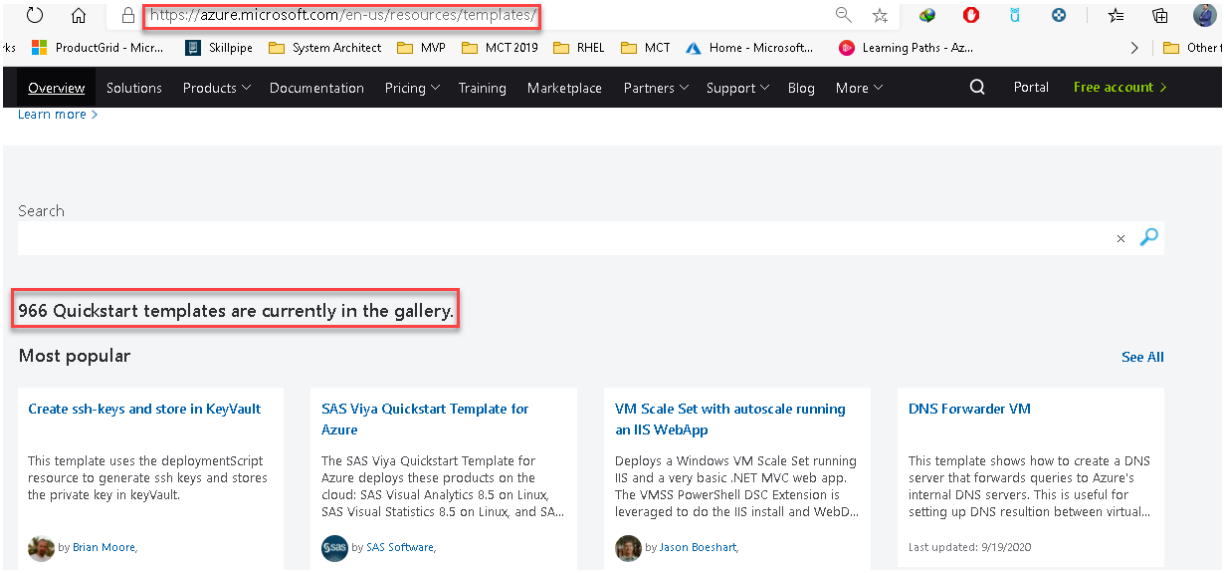
And upload the .Json file and edit it

3- Using QuickStart Templates

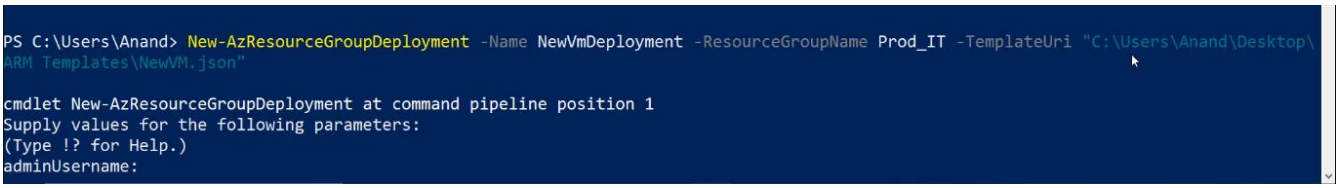
are Resource Manager templates provided by the Azure community?

[Azure Quickstart Templates (microsoft.com)]

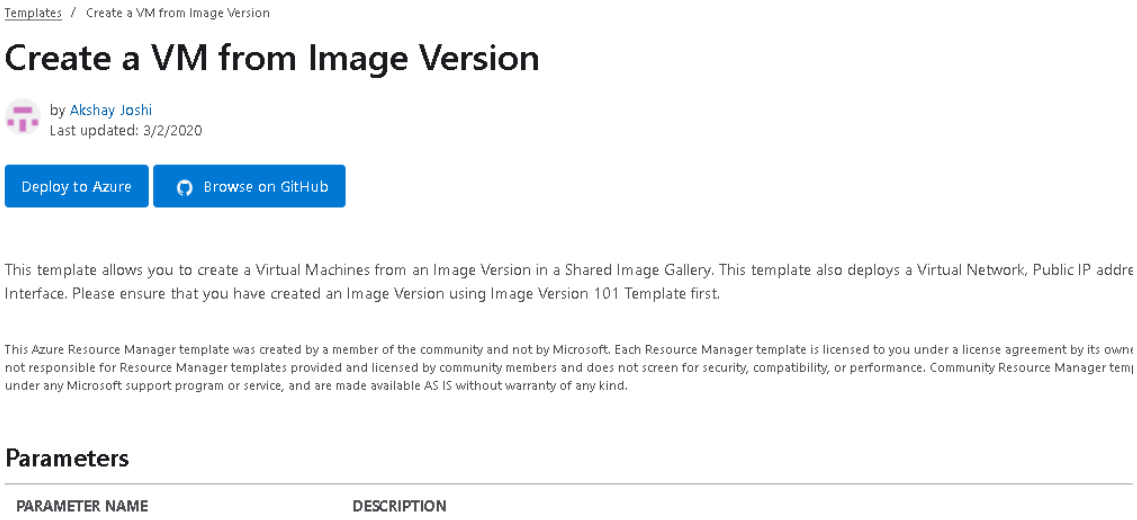
Select template

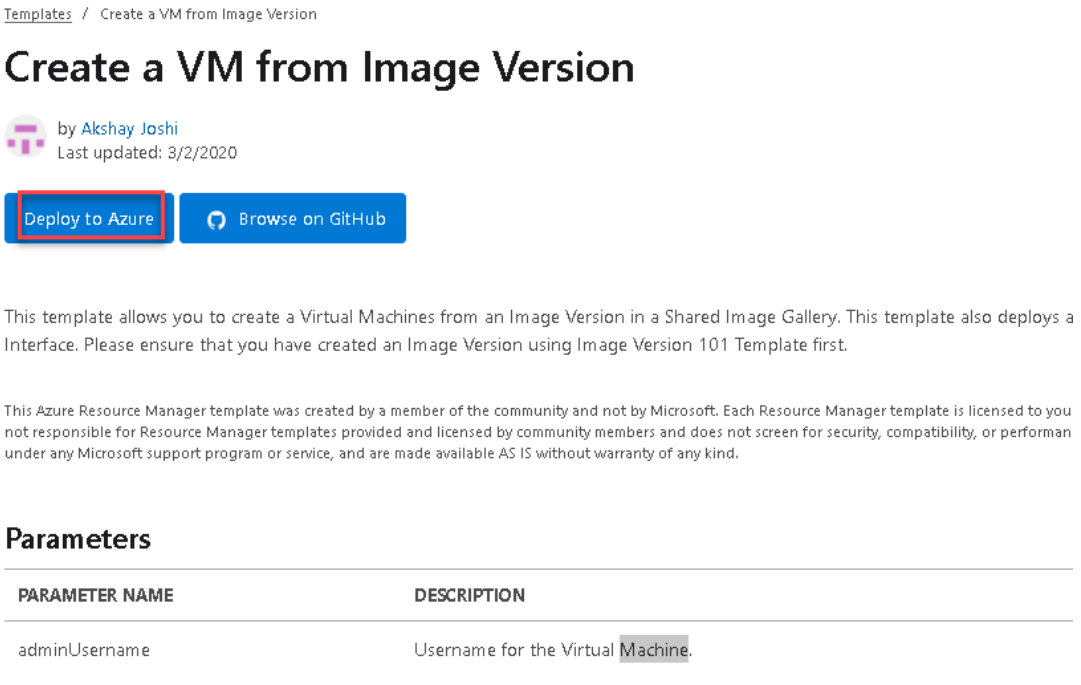


So, you can

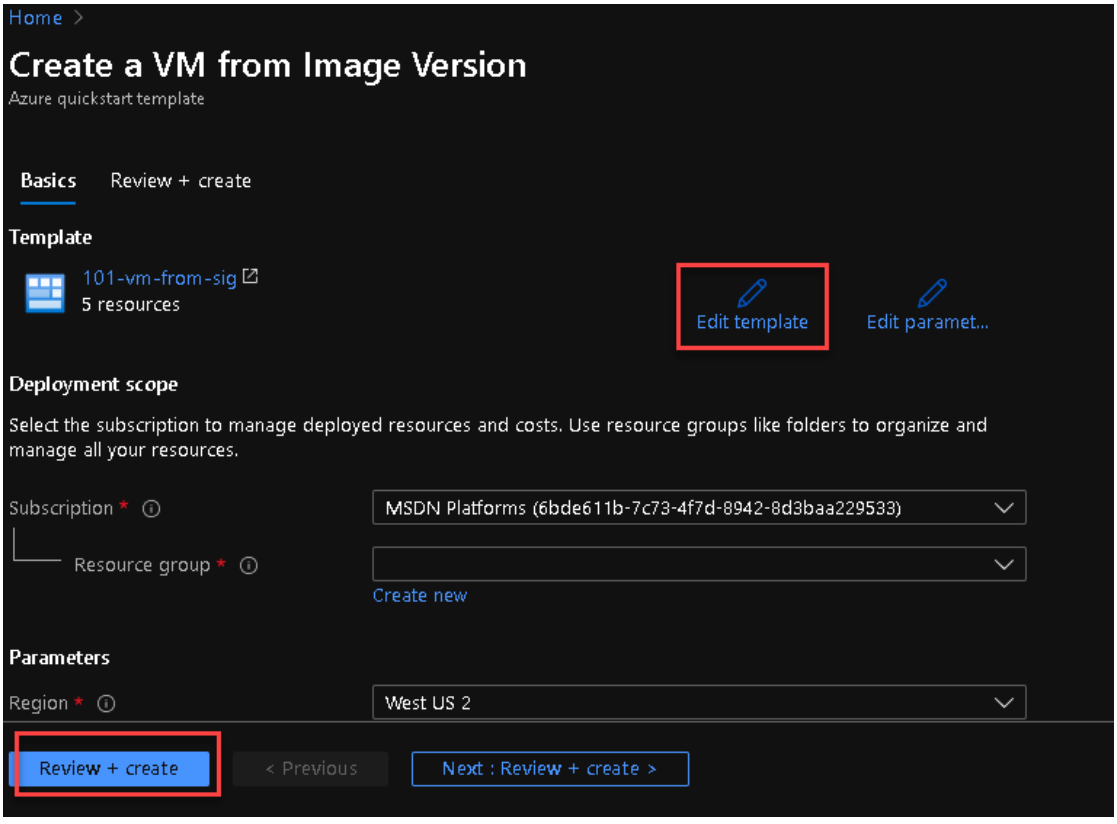


deploy directly to azure





Also, you can edit the selected template to meet your goal.



Intersite Connectivity

Virtual Network Peering – VNet Peering

You can connect virtual networks to each other with virtual network peering. Once virtual networks are peered, resources in both virtual networks can communicate with each other, with the same latency and bandwidth as if the resources were in the same virtual network.

Peering lab

Create 2 subnets inside one virtual network

Virtual network: 192.168.0.0/16

Subnet1: 192.168.10.0/24

Subnet2: 192.168.20.0/24

Now create 2 VMs:

VM1: is webserver1 connected to subnet1

VM2: is webserver2 connected to subne2

Now test connectivity between both VMs (connected), this because the default NSG rule (check NSG rules)

There is default routing between all subnets in same VNet

There are two types of VNet peering.

- **Regional VNet peering** connects Azure virtual networks in the same region.
- **Global VNet peering** connects Azure virtual networks in different regions.

VNet1: 192.168.0.0/24

Subnet1: 192.168.10.0/24

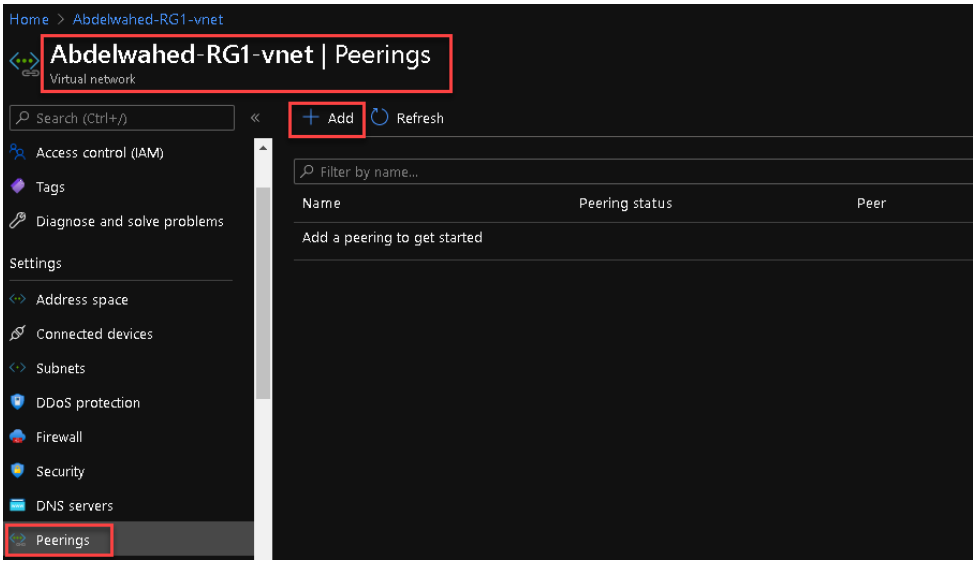
Location: CentralUS

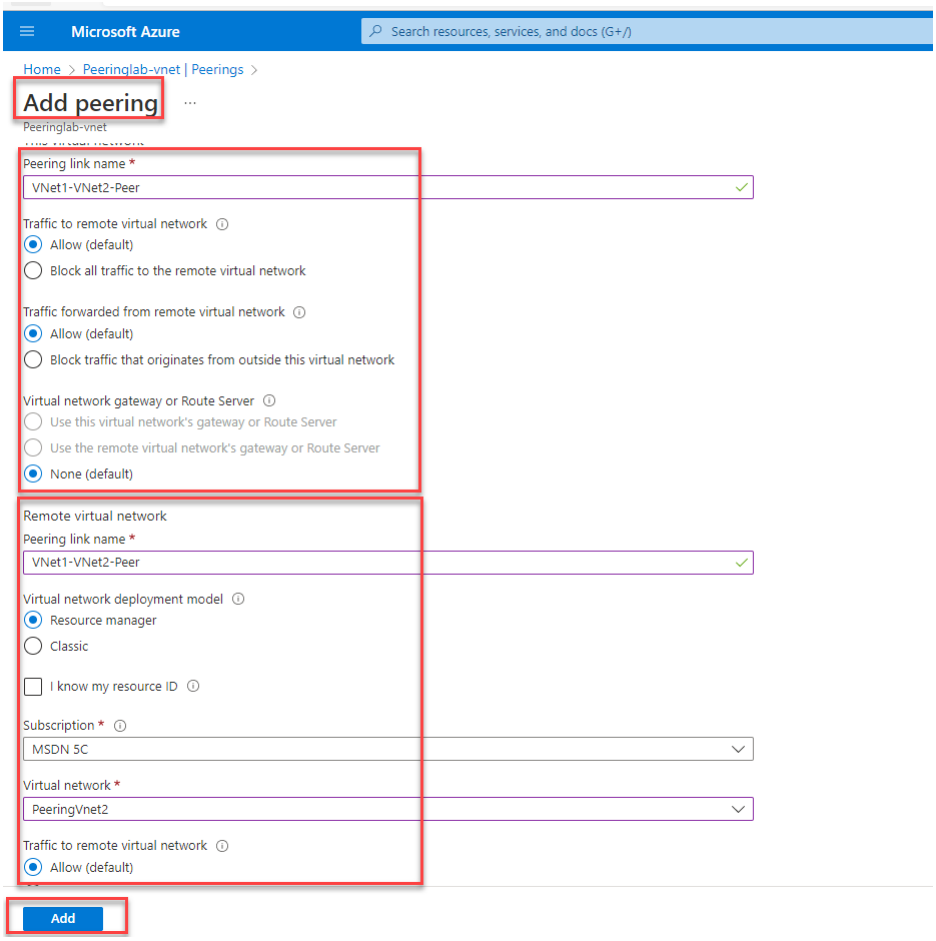
VNet2: 10.0.0.0/8

Subnet1: 10.0.0.0/8

Location: South Africa

You can connect these VNets using VNet peering as explained below


Home > Abdelwahed-RG1-vnet
Abdelwahed-RG1-vnet | Peerings
Virtual network
Search (Ctrl+/)
Add
Refresh
Access control (IAM)
Tags
Diagnose and solve problems
Settings
Address space
Connected devices
Subnets
DDoS protection
Firewall
Security
DNS servers
Peerings
Filter by name...
Name
Peering status
Peer
Add a peering to get started


Microsoft Azure
Search resources, services, and docs (G+/)
Home > Peeringlab-vnet | Peerings >
Add peering
Peeringlab-vnet
Peering link name *
VNet1-VNet2-Peer
Traffic to remote virtual network
Allow (default)
Block all traffic to the remote virtual network
Traffic forwarded from remote virtual network
Allow (default)
Block traffic that originates from outside this virtual network
Virtual network gateway or Route Server
Use this virtual network's gateway or Route Server
Use the remote virtual network's gateway or Route Server
None (default)
Remote virtual network
Peering link name *
VNet1-VNet2-Peer
Virtual network deployment model
Resource manager
Classic
I know my resource ID
Subscription *
MSDN 5C
Virtual network *
PeeringVnet2
Traffic to remote virtual network
Allow (default)
Add

Network Traffic Management

Network Routing

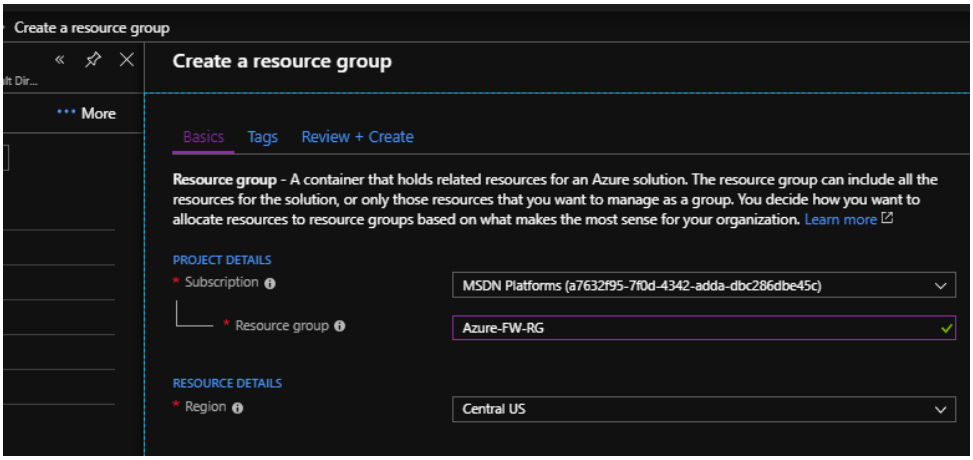
First, we will create firewall as a virtual appliance then we will learn how to route all traffic to it

Azure Firewall is a managed, cloud-based network security service that protects Azure Virtual Network resources. It is **Firewall as a Service** with built-in high availability and scalability.
With Azure Firewall, you can create, enforce, and log application and network connectivity policies. Static public IP addresses for your virtual network resources allow outside firewalls to identify traffic originating from your virtual network. The service is integrated with Azure Monitor for logging and analytics.

Configuring Azure Firewall

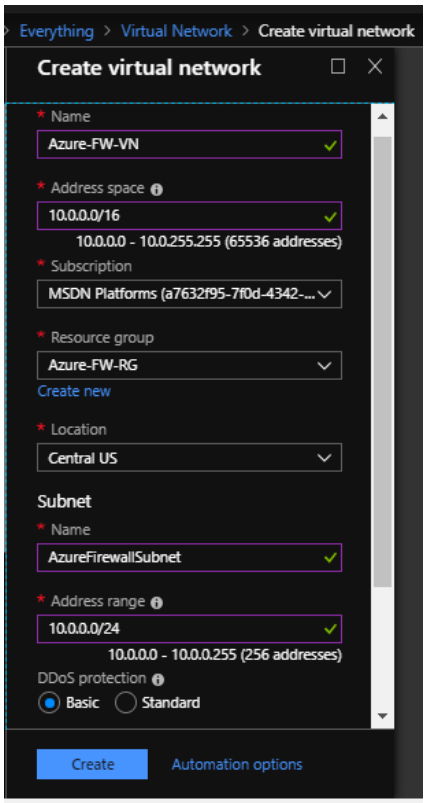
- Set up a network environment (Create Resource group, VNet and VM)
- Deploy a firewall
- Create a default route
- Configure RDP and internet through the firewall rules

Create a resource group

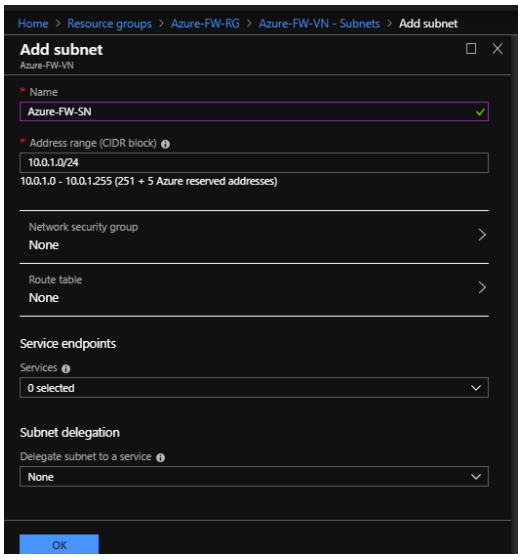


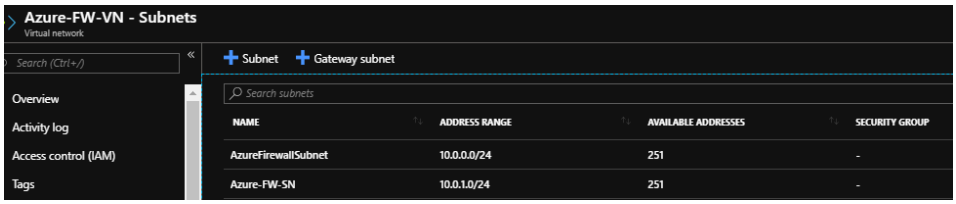
Create a VNet

The minimum size of the AzureFirewallSubnet subnet is /26.

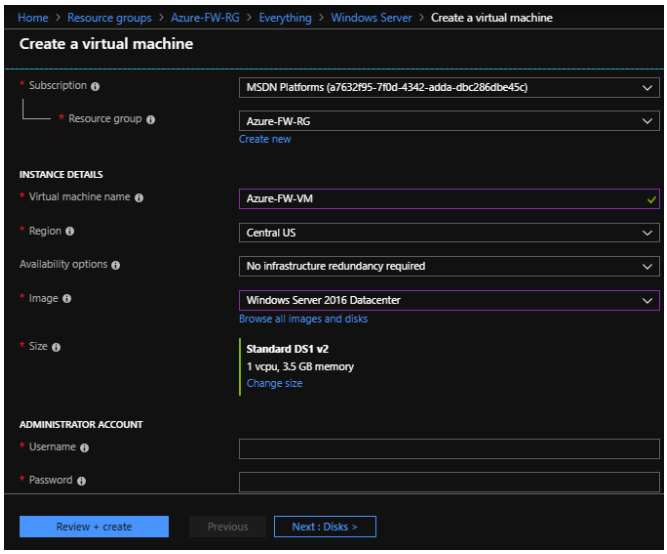


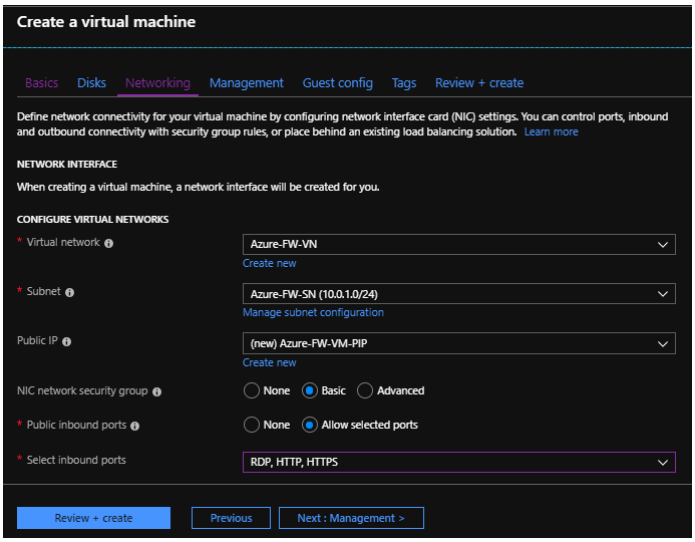
Create additional subnets to associate it with firewall





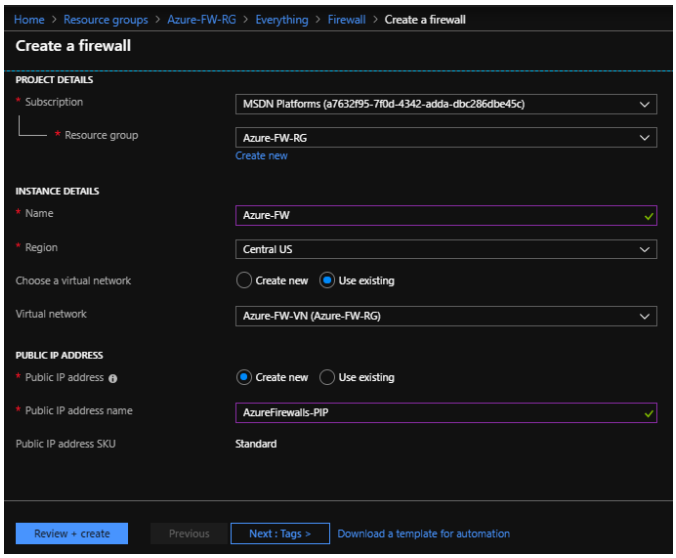
Create virtual machines

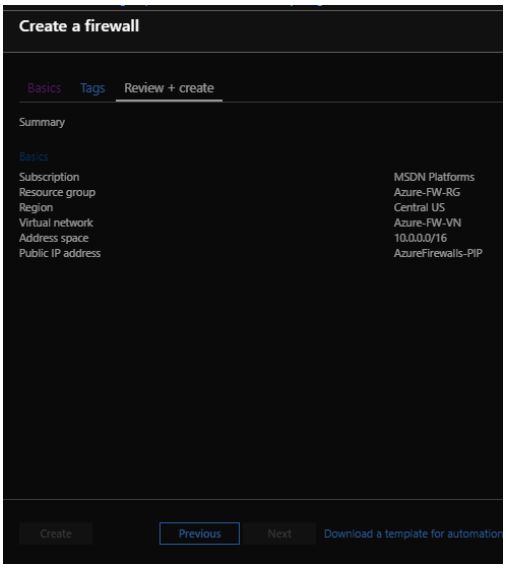


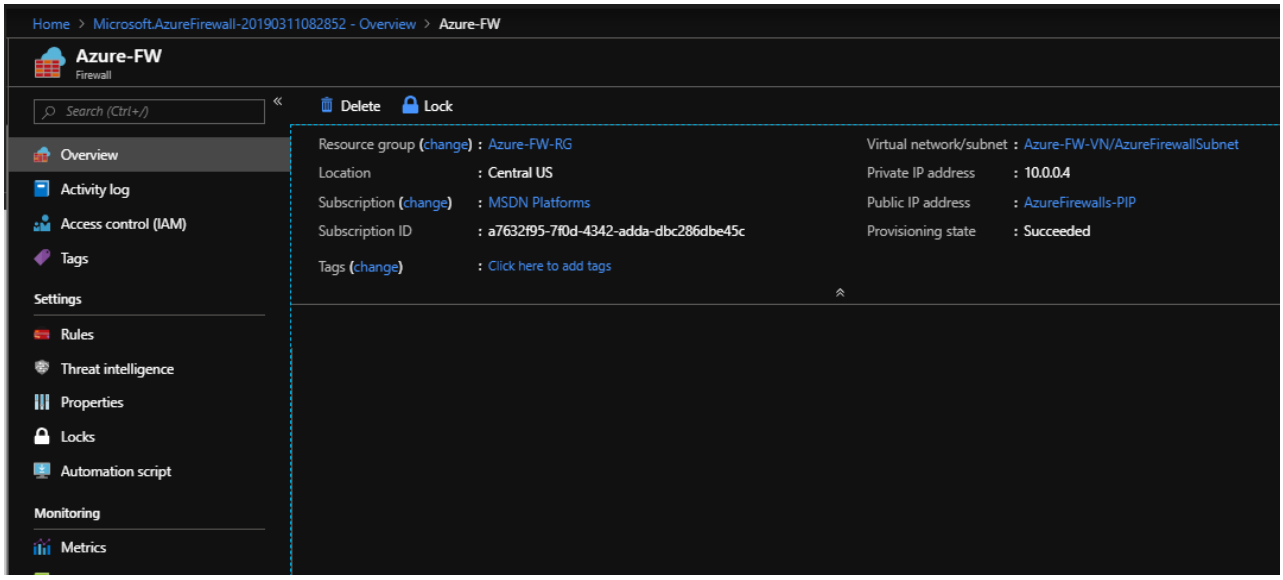


Note the private IP address. You'll use it later when you create the default route.

Deploy the firewall

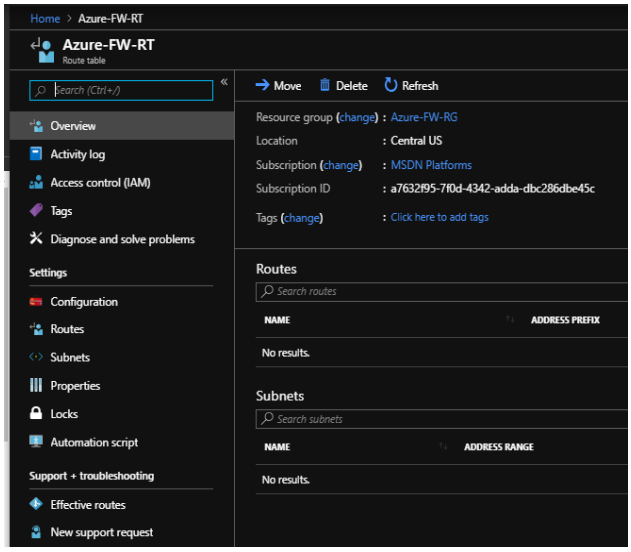


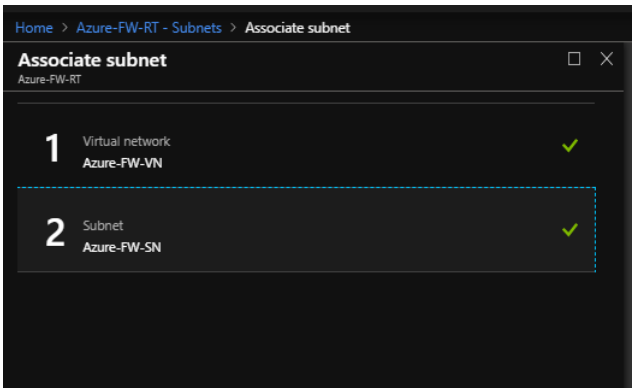




Create a default route

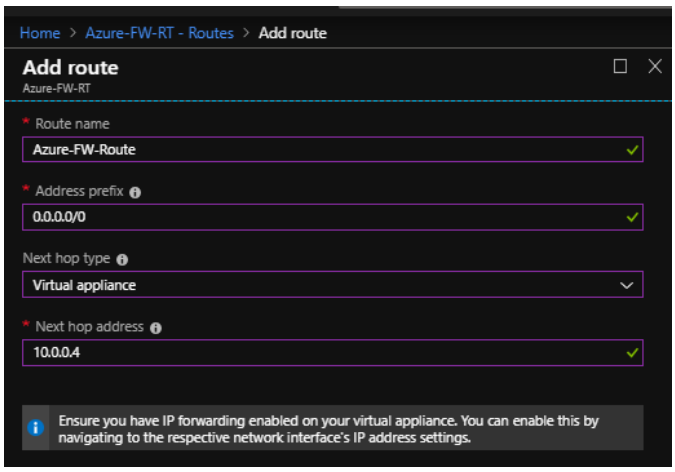
From all services serach for route table and after create Click **Refresh** then Click **Subnets** > **Associate**

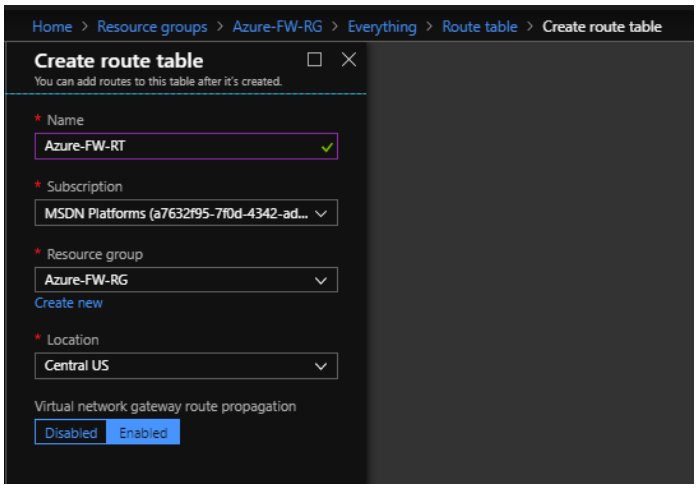




Now all incoming traffic will forwarded to the firewall so, now you can allow or deny network traffic coming to that subnet.

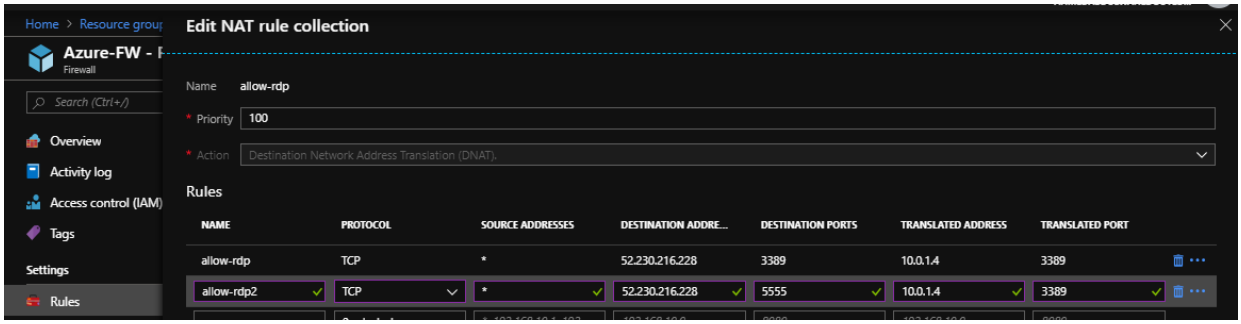
Click **Routes** > **Add**.



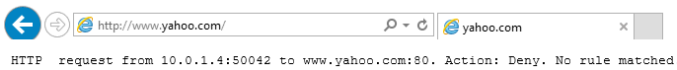


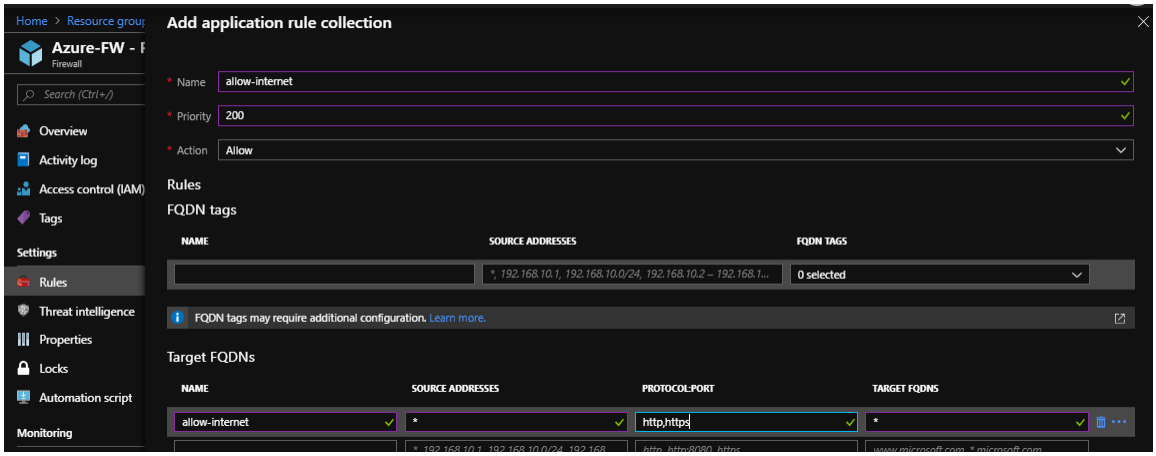
Configure an application rule

From firewall under setting select Rules, n this lab allows incoming RDP. Also change rdp port from 3389 to 5555



also internet is blocked, so we have to alloe httpa nd https traffic.





Network Routing and Endpoints

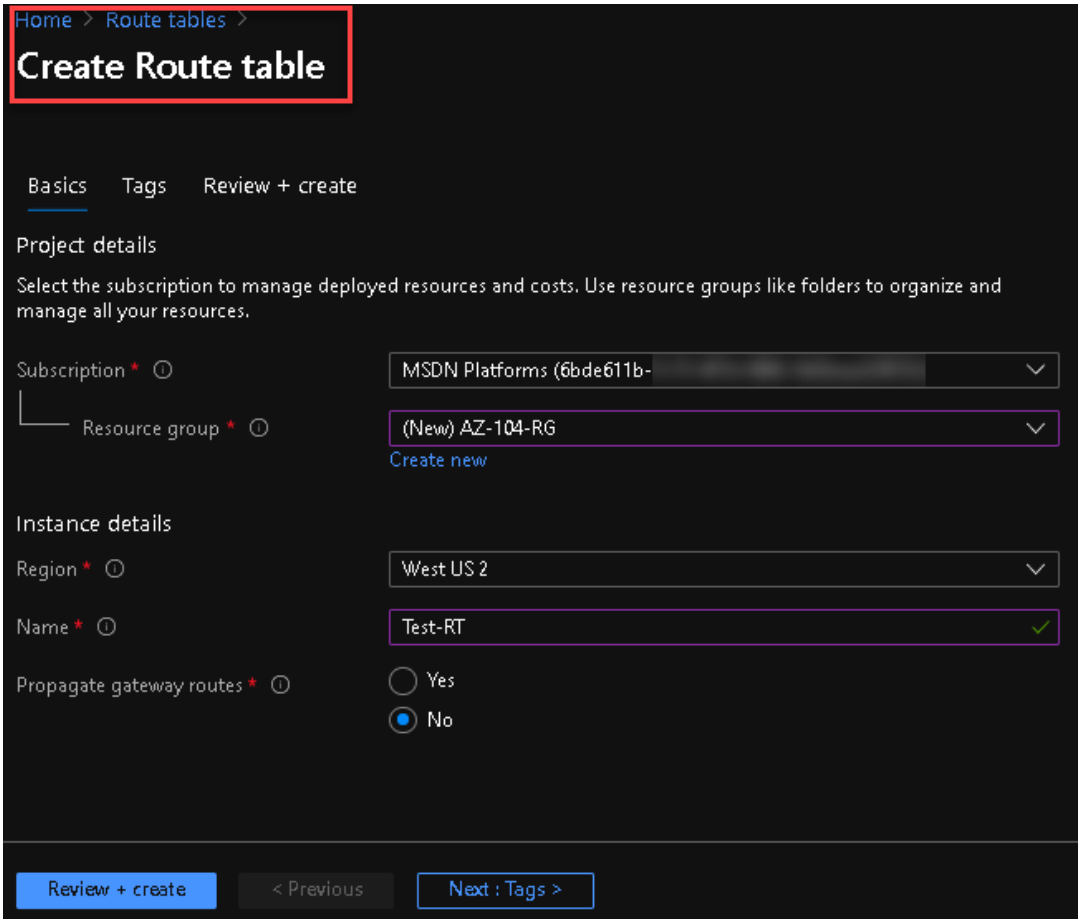
System Routes

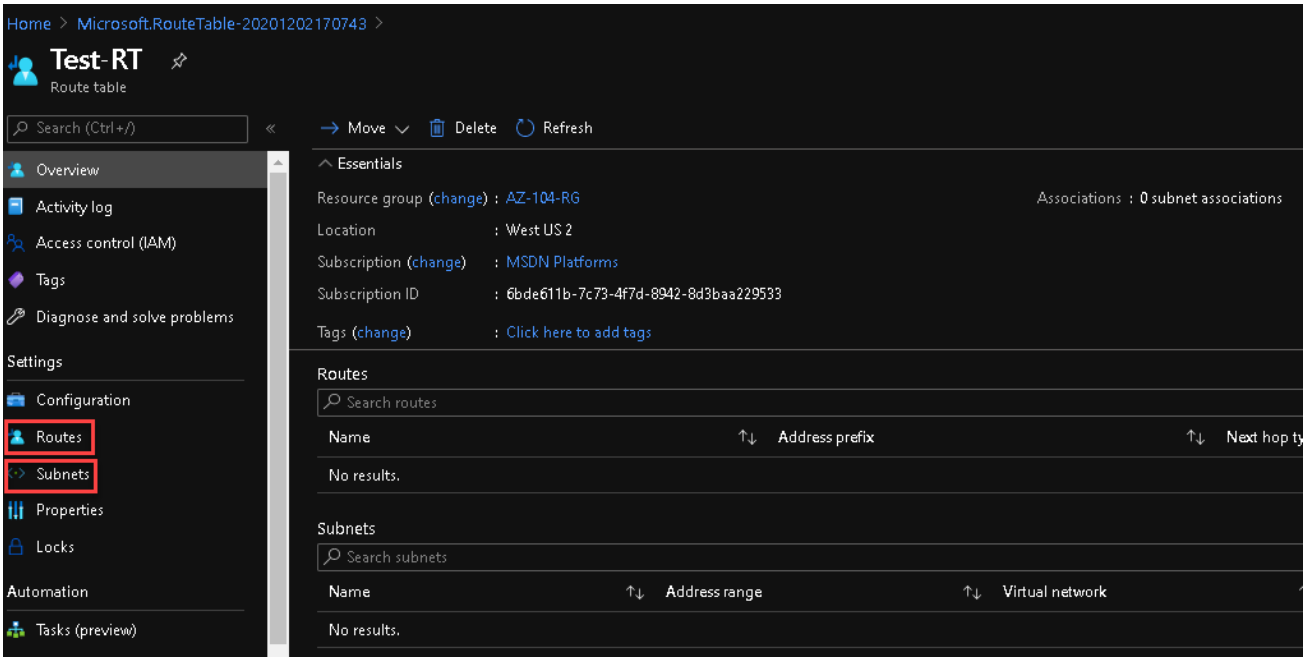
Azure uses **system routes** to direct network traffic between virtual machines, on-premises networks, and the Internet. The following situations are managed by these system routes:

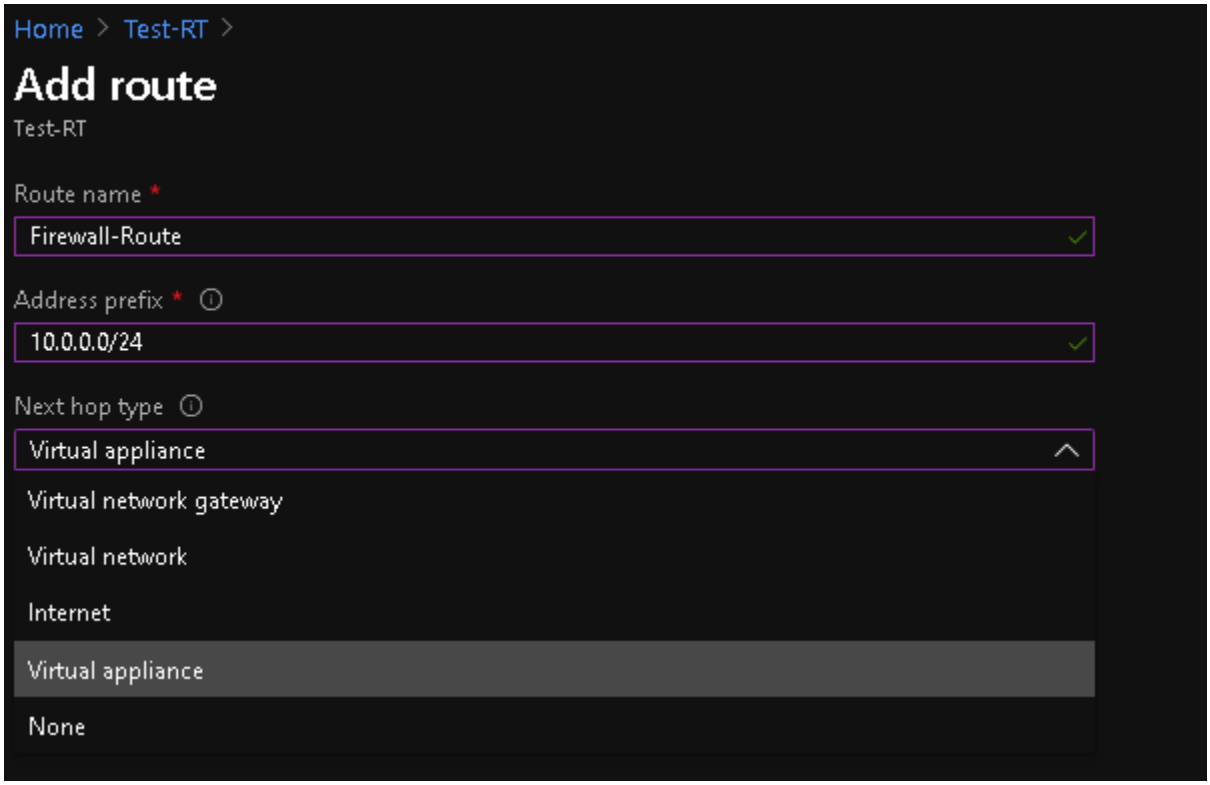
- Traffic between VMs in the same subnet.
- Between VMs in different subnets in the same virtual network.
- Data flow from VMs to the Internet.
- Site-to-Site and ExpressRoute communication through the VPN gateway.

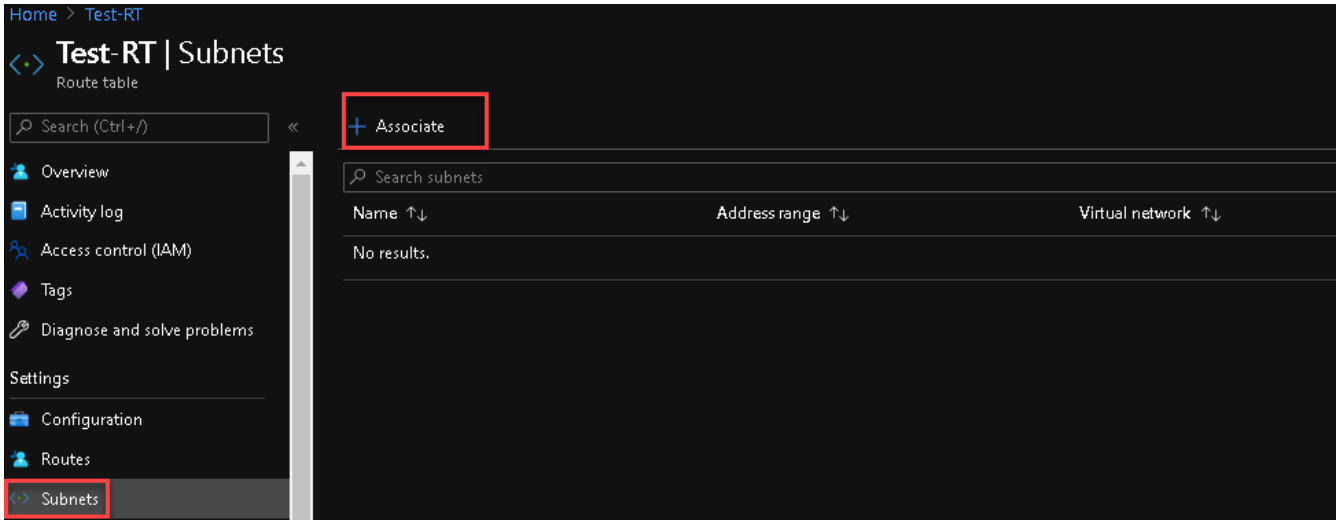
Creating User defined Route

1- First create the routing table
2- Create routes

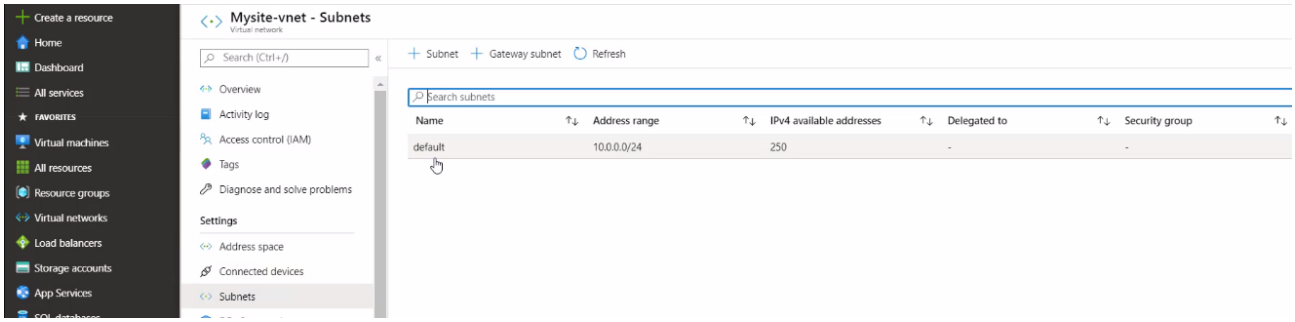


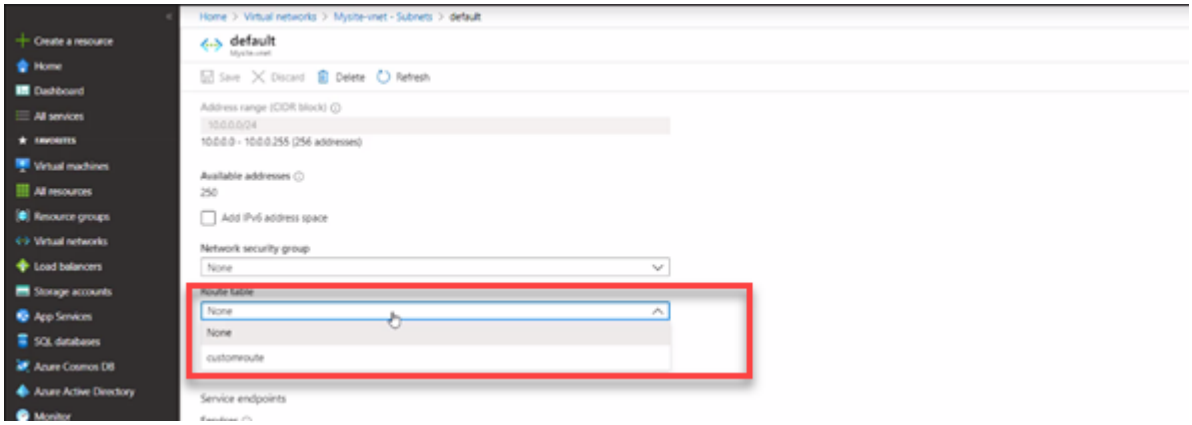

Home > Microsoft.RouteTable-20201202170743 >
Test-RT
Route table
Search (Ctrl+/)
Move
Delete
Refresh
Overview
Activity log
Access control (IAM)
Tags
Diagnose and solve problems
Settings
Configuration
Routes
Subnets
Properties
Locks
Automation
Tasks (preview)
Essentials
Resource group (change) : AZ-104-RG
Location : West US 2
Subscription (change) : MSDN Platforms
Subscription ID : 6bde611b-7c73-4f7d-8942-8d3baa229533
Tags (change) : Click here to add tags
Associations : 0 subnet associations
Routes
Search routes
Name
Address prefix
No results.
Subnets
Search subnets
Name
Address range
Virtual network
No results.


Home > Test-RT >
Add route
Test-RT
Route name *
Firewall-Route
Address prefix *
10.0.0.0/24
Next hop type
Virtual appliance
Virtual network gateway
Virtual network
Internet
Virtual appliance
None



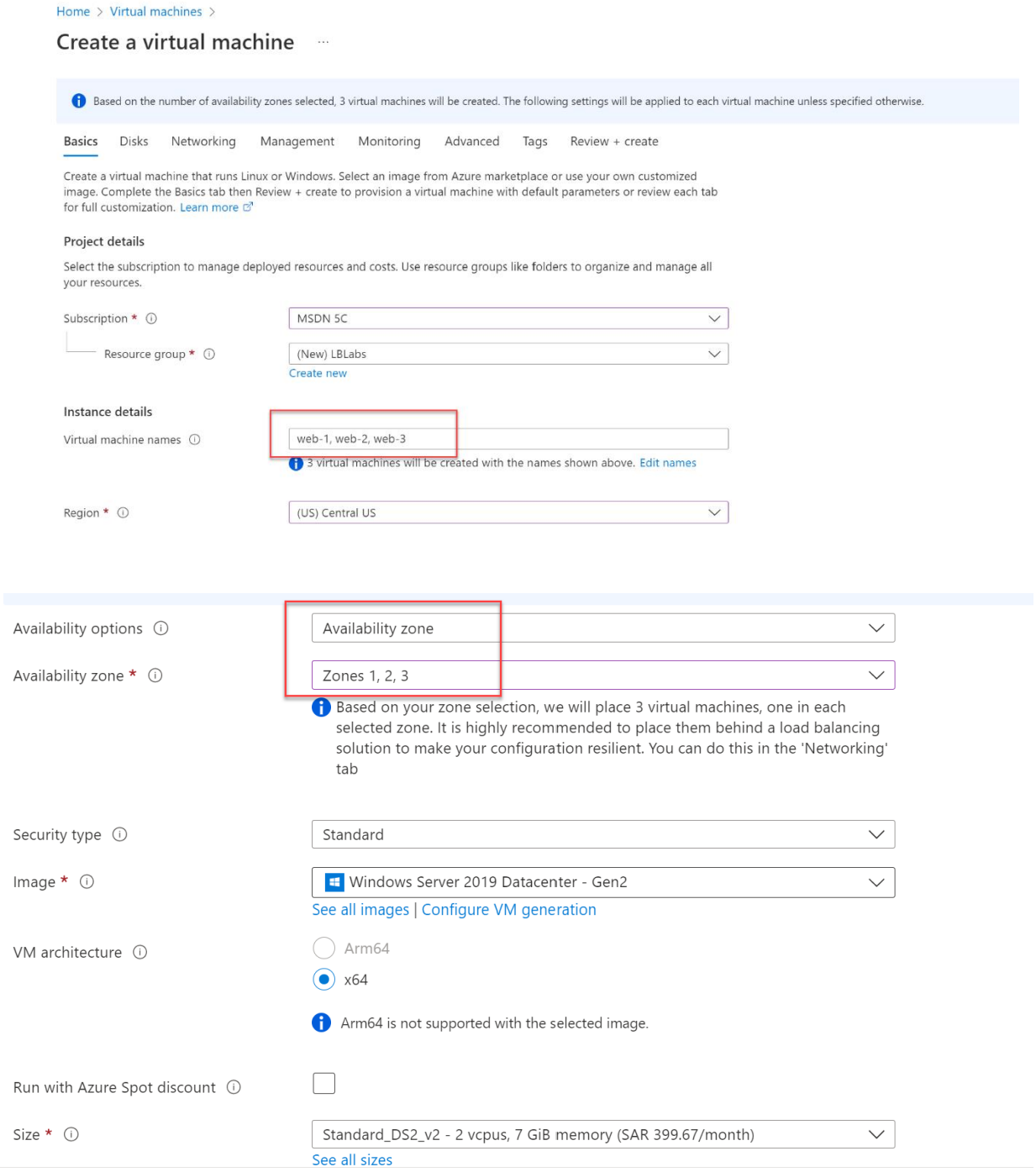
or from VNet select subnet you want to associate to the new custom route

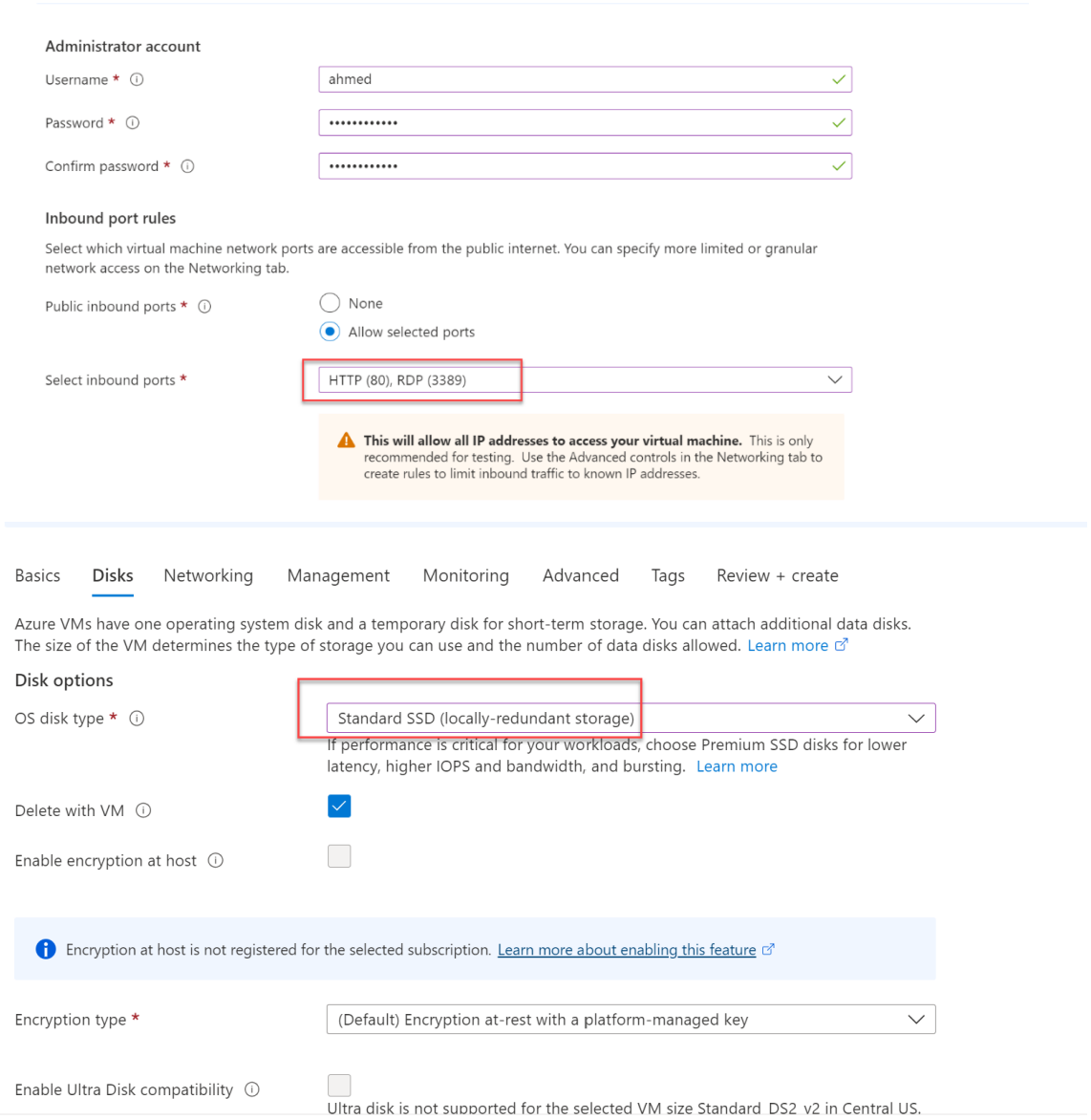


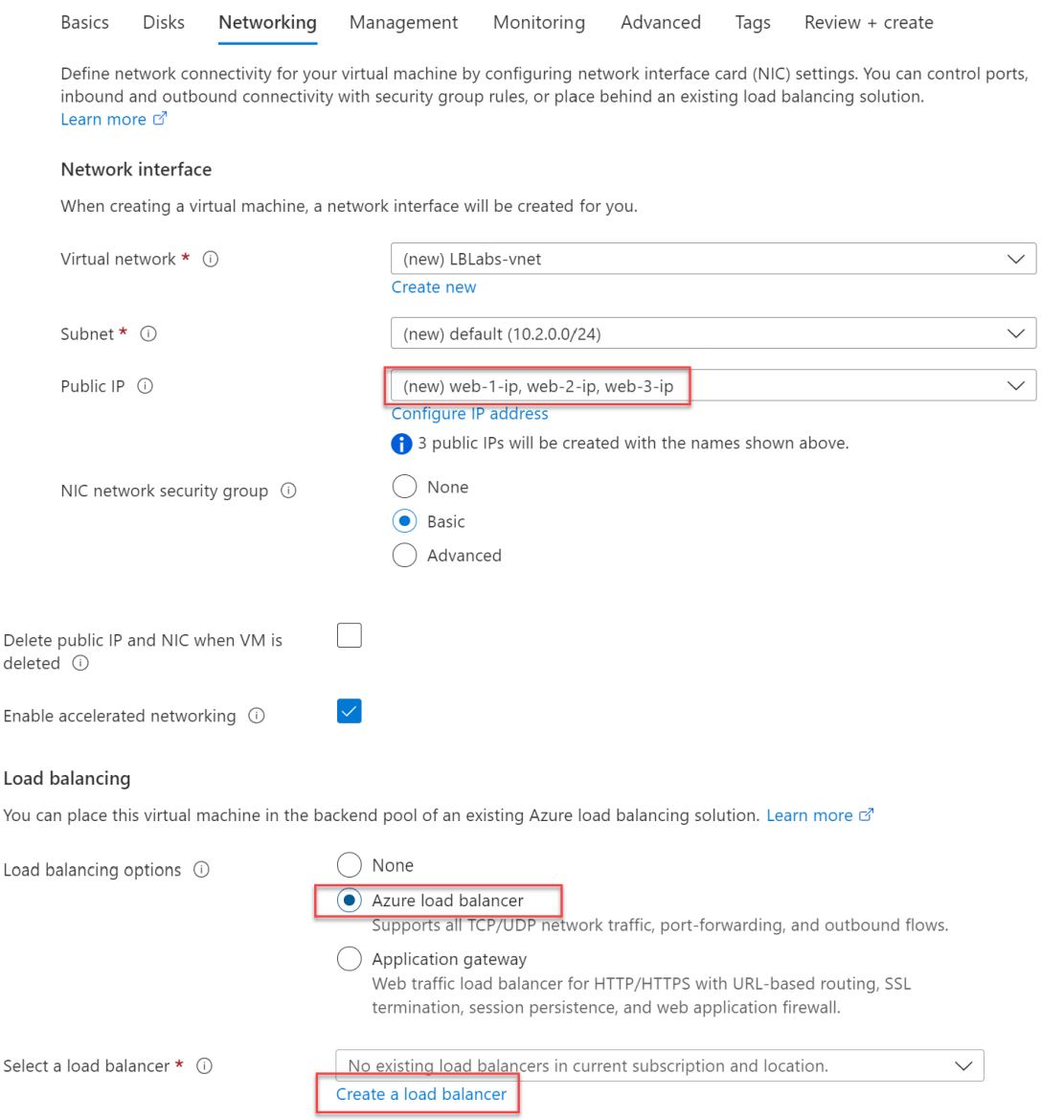


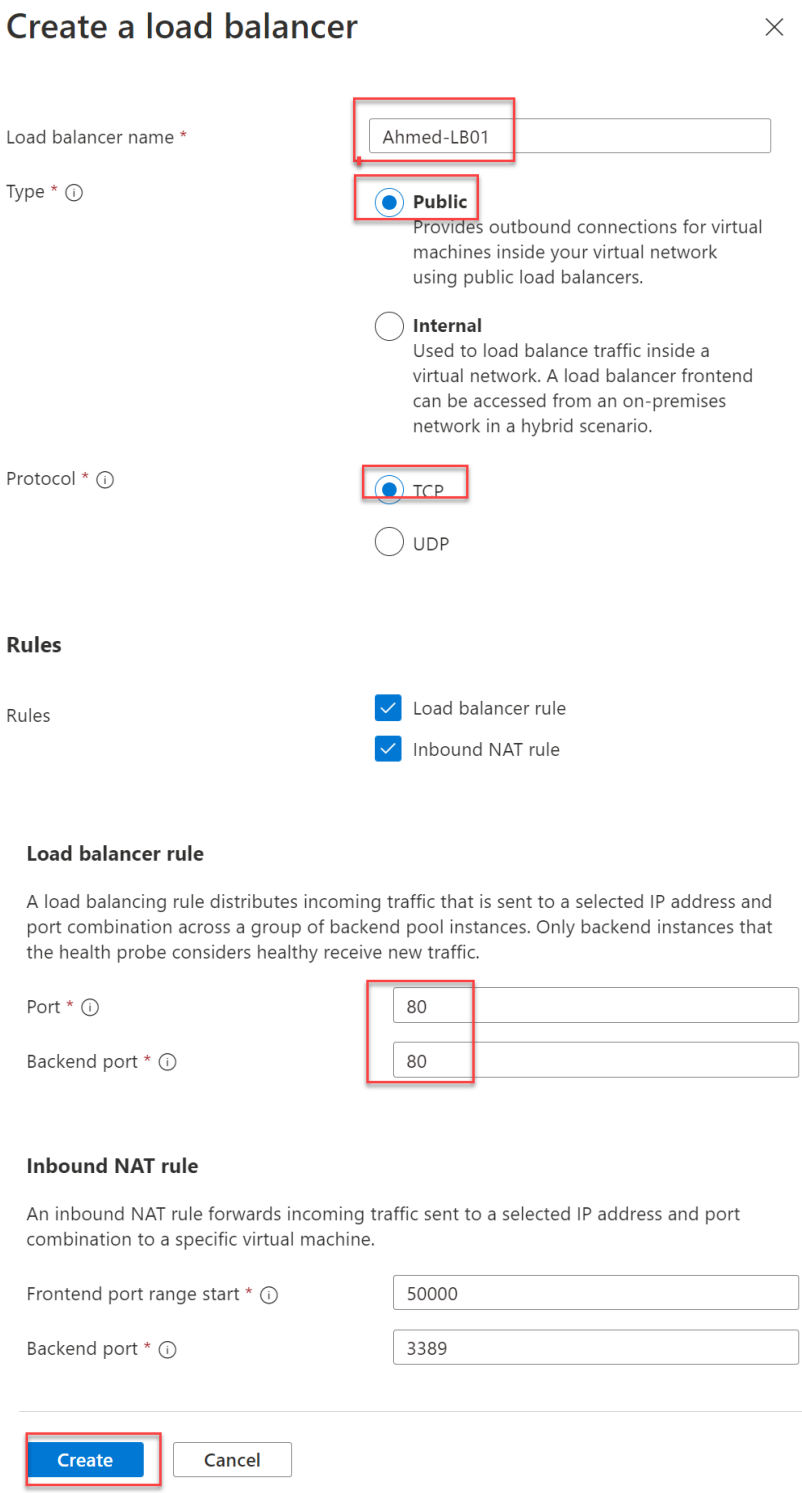
Azure Load Balancers

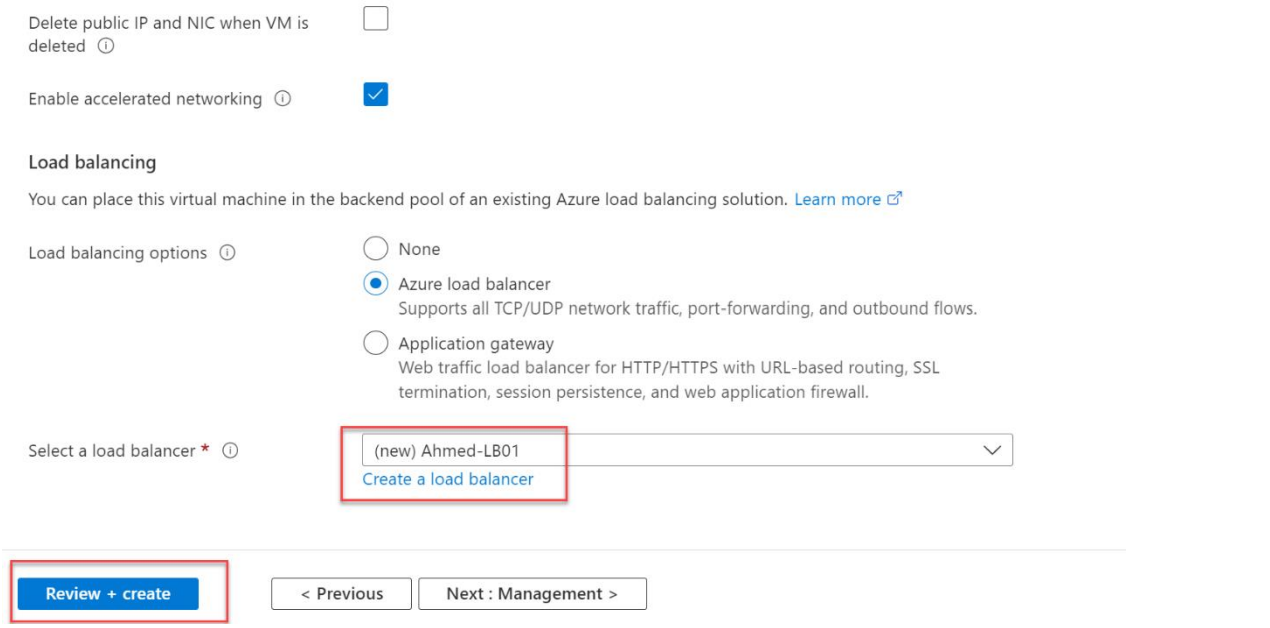
Create 3 VMs to host web server

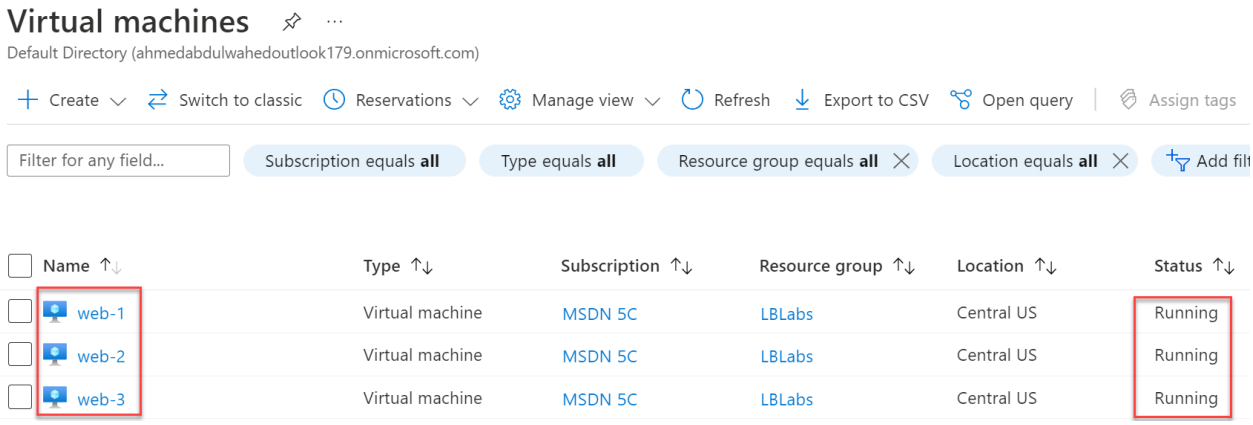



Administrator account
Username *
ahmed
Password *
Confirm password *
Inbound port rules
Select which virtual machine network ports are accessible from the public internet. You can specify more limited or granular network access on the Networking tab.
Public inbound ports *
None
Allow selected ports
Select inbound ports *
HTTP (80), RDP (3389)
This will allow all IP addresses to access your virtual machine. This is only recommended for testing. Use the Advanced controls in the Networking tab to create rules to limit inbound traffic to known IP addresses.
Basics
Disks
Networking
Management
Monitoring
Advanced
Tags
Review + create
Azure VMs have one operating system disk and a temporary disk for short-term storage. You can attach additional data disks. The size of the VM determines the type of storage you can use and the number of data disks allowed. Learn more
Disk options
OS disk type *
Standard SSD (locally-redundant storage)
If performance is critical for your workloads, choose Premium SSD disks for lower latency, higher IOPS and bandwidth, and bursting. Learn more
Delete with VM
Enable encryption at host
Encryption at host is not registered for the selected subscription. Learn more about enabling this feature
Encryption type *
(Default) Encryption at-rest with a platform-managed key
Enable Ultra Disk compatibility
Ultra disk is not supported for the selected VM size Standard_DS2_v2 in Central US.

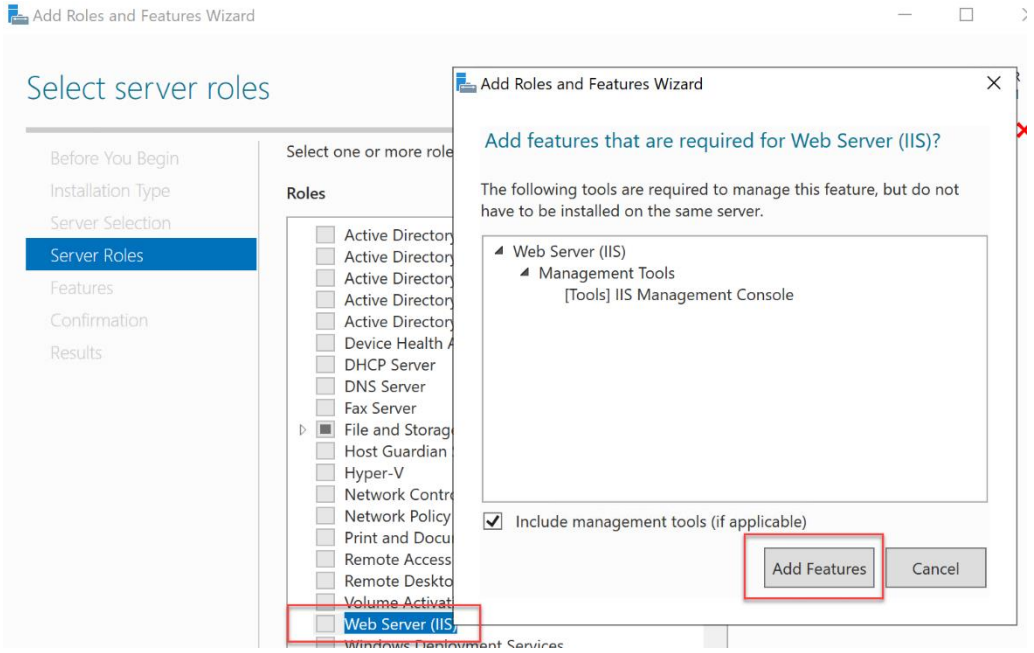

Basics
Disks
Networking
Management
Monitoring
Advanced
Tags
Review + create
Define network connectivity for your virtual machine by configuring network interface card (NIC) settings. You can control ports, inbound and outbound connectivity with security group rules, or place behind an existing load balancing solution.
Learn more
Network interface
When creating a virtual machine, a network interface will be created for you.
Virtual network *
(new) LBLabs-vnet
Create new
Subnet *
(new) default (10.2.0.0/24)
Public IP
(new) web-1-ip, web-2-ip, web-3-ip
Configure IP address
3 public IPs will be created with the names shown above.
NIC network security group
None
Basic
Advanced
Delete public IP and NIC when VM is deleted
Enable accelerated networking
Load balancing
You can place this virtual machine in the backend pool of an existing Azure load balancing solution. Learn more
Load balancing options
None
Azure load balancer
Supports all TCP/UDP network traffic, port-forwarding, and outbound flows.
Application gateway
Web traffic load balancer for HTTP/HTTPS with URL-based routing, SSL termination, session persistence, and web application firewall.
Select a load balancer *
No existing load balancers in current subscription and location.
Create a load balancer

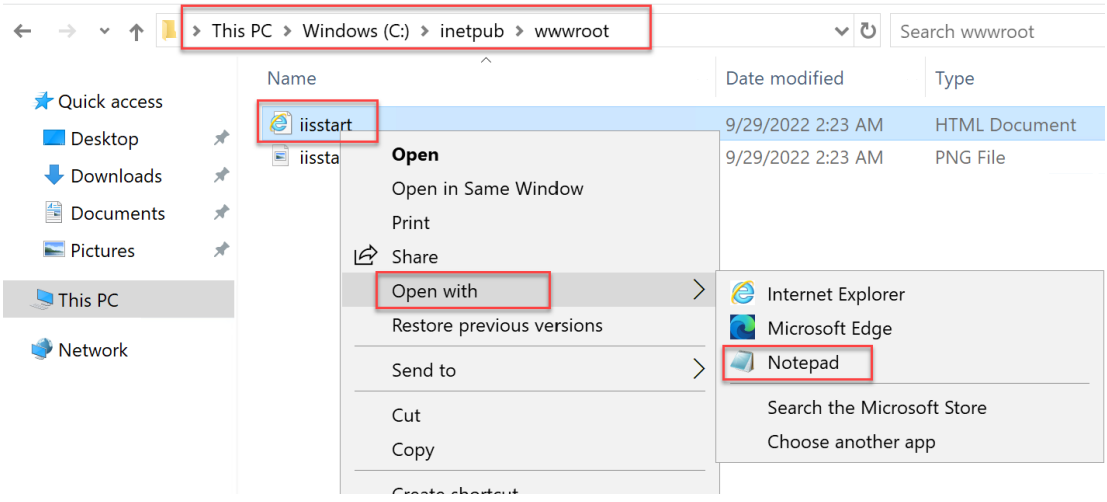

Create a load balancer
Load balancer name *
Ahmed-LB01
Type *
Public
Provides outbound connections for virtual machines inside your virtual network using public load balancers.
Internal
Used to load balance traffic inside a virtual network. A load balancer frontend can be accessed from an on-premises network in a hybrid scenario.
Protocol *
TCP
UDP
Rules
Rules
Load balancer rule
Inbound NAT rule
Load balancer rule
A load balancing rule distributes incoming traffic that is sent to a selected IP address and port combination across a group of backend pool instances. Only backend instances that the health probe considers healthy receive new traffic.
Port *
80
Backend port *
80
Inbound NAT rule
An inbound NAT rule forwards incoming traffic sent to a selected IP address and port combination to a specific virtual machine.
Frontend port range start *
50000
Backend port *
3389
Create
Cancel

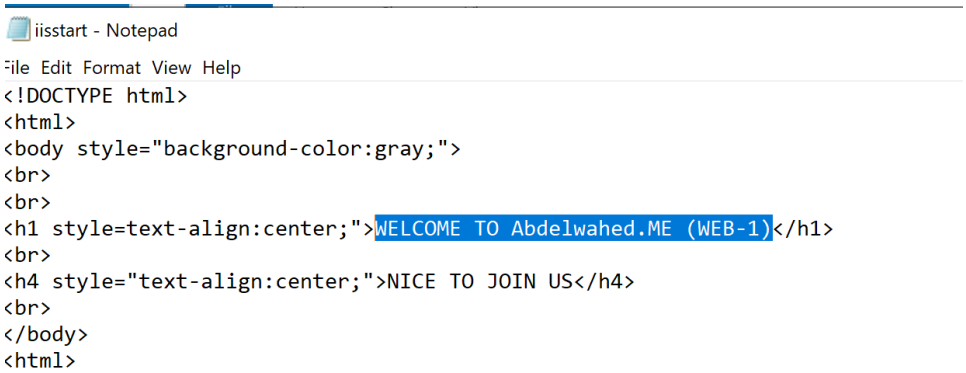

Delete public IP and NIC when VM is deleted
Enable accelerated networking
Load balancing
You can place this virtual machine in the backend pool of an existing Azure load balancing solution. Learn more
Load balancing options
None
Azure load balancer
Supports all TCP/UDP network traffic, port-forwarding, and outbound flows.
Application gateway
Web traffic load balancer for HTTP/HTTPS with URL-based routing, SSL termination, session persistence, and web application firewall.
Select a load balancer *
(new) Ahmed-LB01
Create a load balancer
Review + create
< Previous
Next : Management >


Virtual machines
Default Directory (ahmedabdulwahedoutlook179.onmicrosoft.com)
Create
Switch to classic
Reservations
Manage view
Refresh
Export to CSV
Open query
Assign tags
Filter for any field...
Subscription equals all
Type equals all
Resource group equals all
Location equals all
Name
Type
Subscription
Resource group
Location
Status
web-1
Virtual machine
MSDN 5C
LBLabs
Central US
Running
web-2
Virtual machine
MSDN 5C
LBLabs
Central US
Running
web-3
Virtual machine
MSDN 5C
LBLabs
Central US
Running

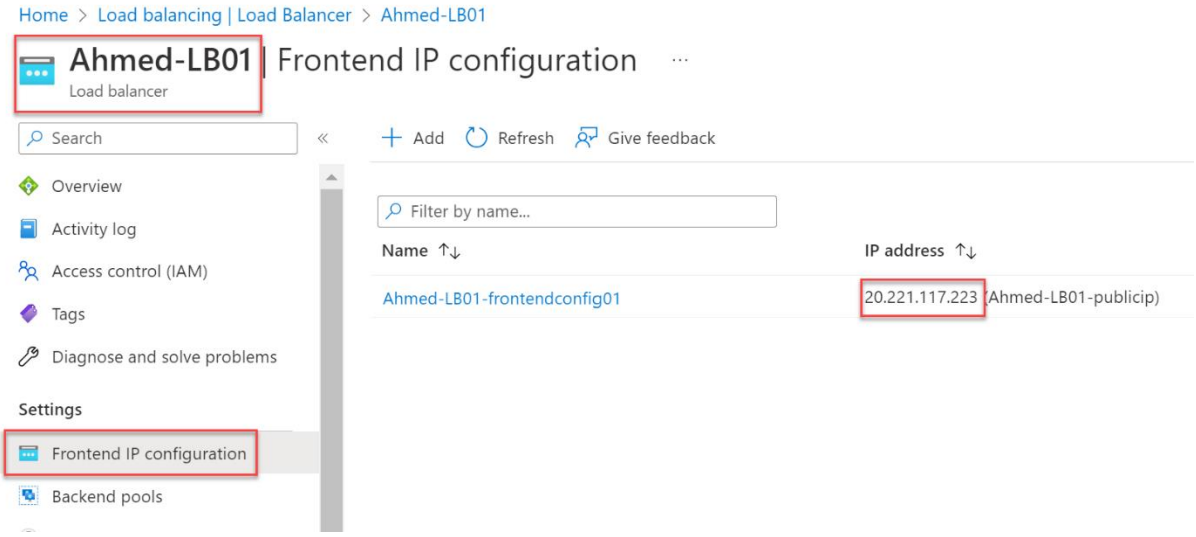
Now, access each server to add and configure web server (iis) using default installation settings.

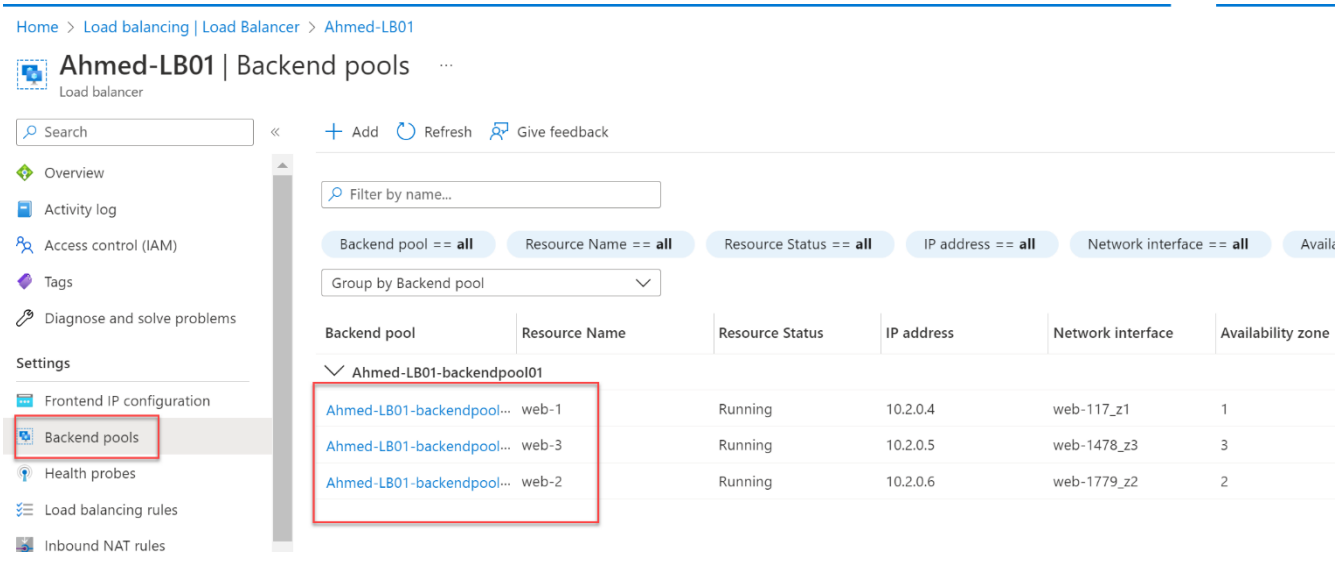


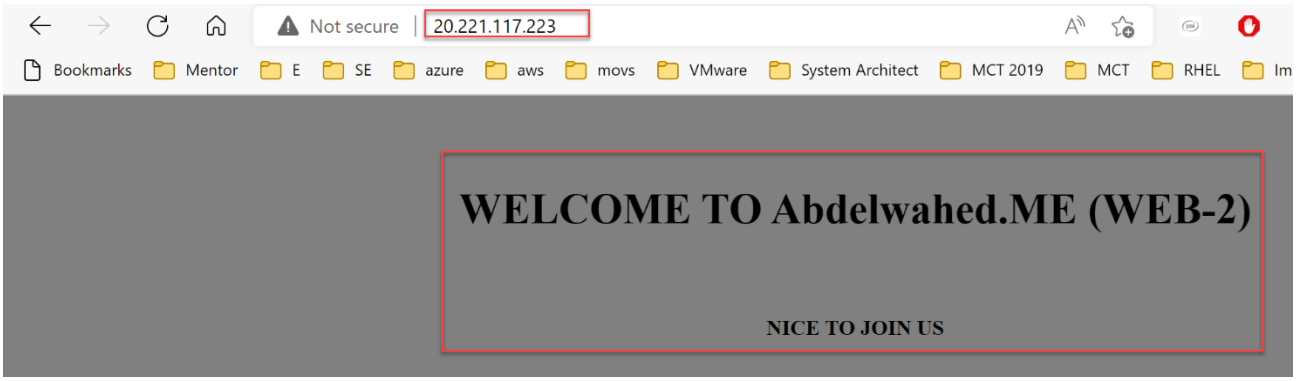




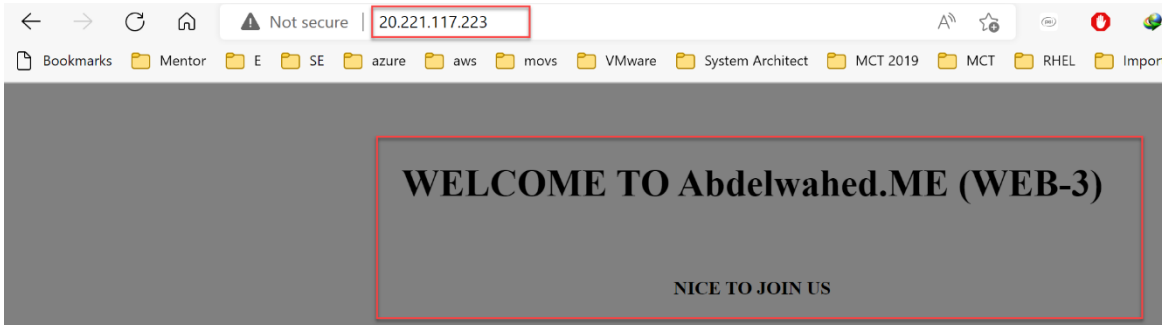
Using Load balancer public IP address, you can access web service in these 3 servers







To test load balancer refresh or shutdown web-2 and try to access using load balancer IP address



Azure Storage

Azure Storage is a service that you can use to store files, messages, tables, and other types of information. You can use Azure storage on its own—for example as a file share—but it is often used by developers as a store for working data. Such stores can be used by websites, mobile apps, desktop applications, and many other types of custom solutions. Azure storage is also used by IaaS virtual machines, and PaaS cloud services. You can generally think of Azure storage in three categories.

Storage for Virtual Machines

This includes disks and files. Disks are persistent block storage for Azure IaaS virtual machines. Files are fully managed file shares in the cloud.

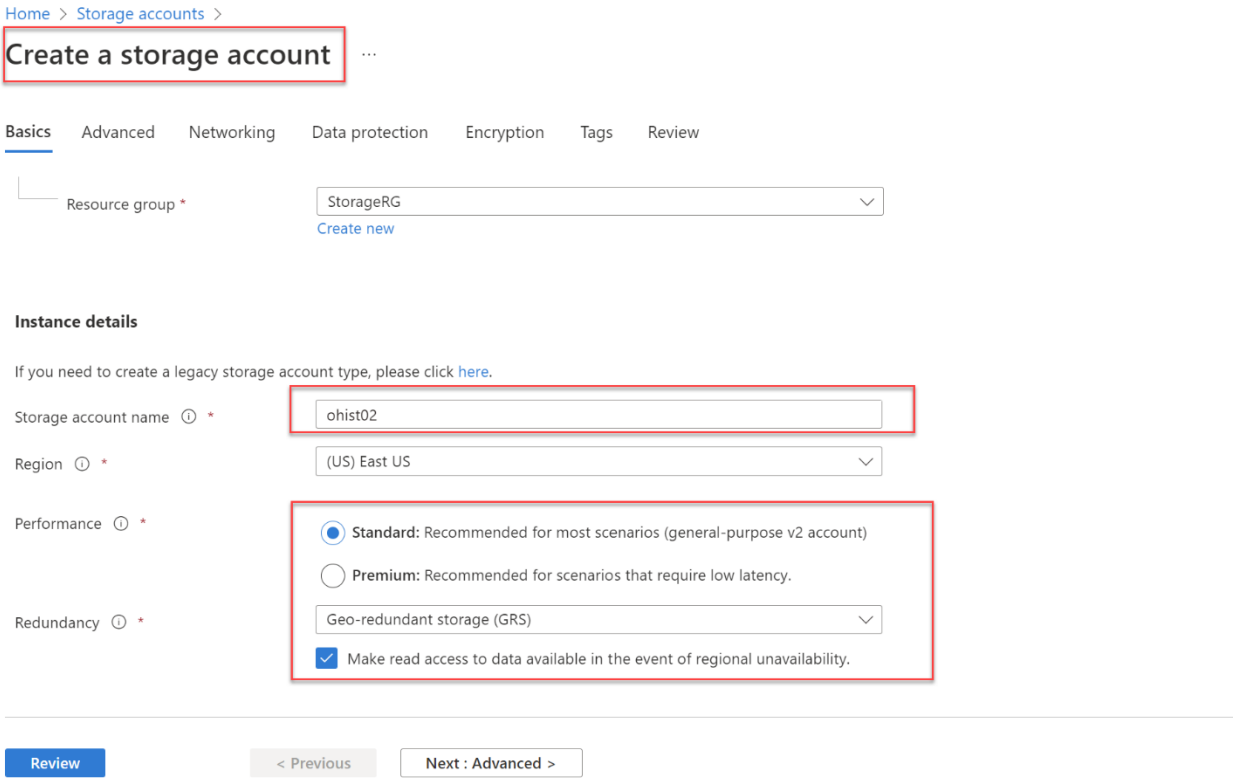
Unstructured Data

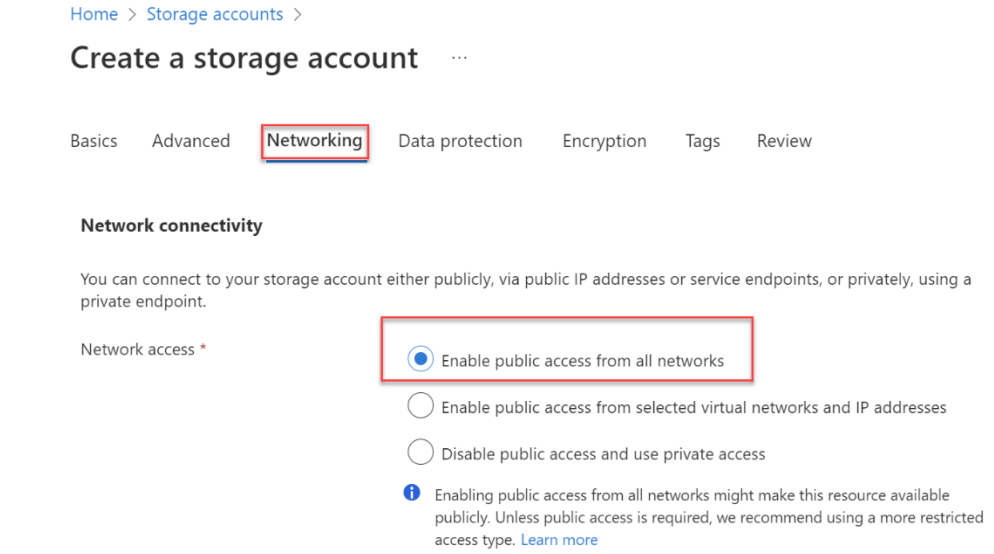
This includes Blobs and Data Lake Store. Blobs are highly scaleable, REST based cloud object store. Data Lake Store is Hadoop Distributed File System (HDFS) as a service.

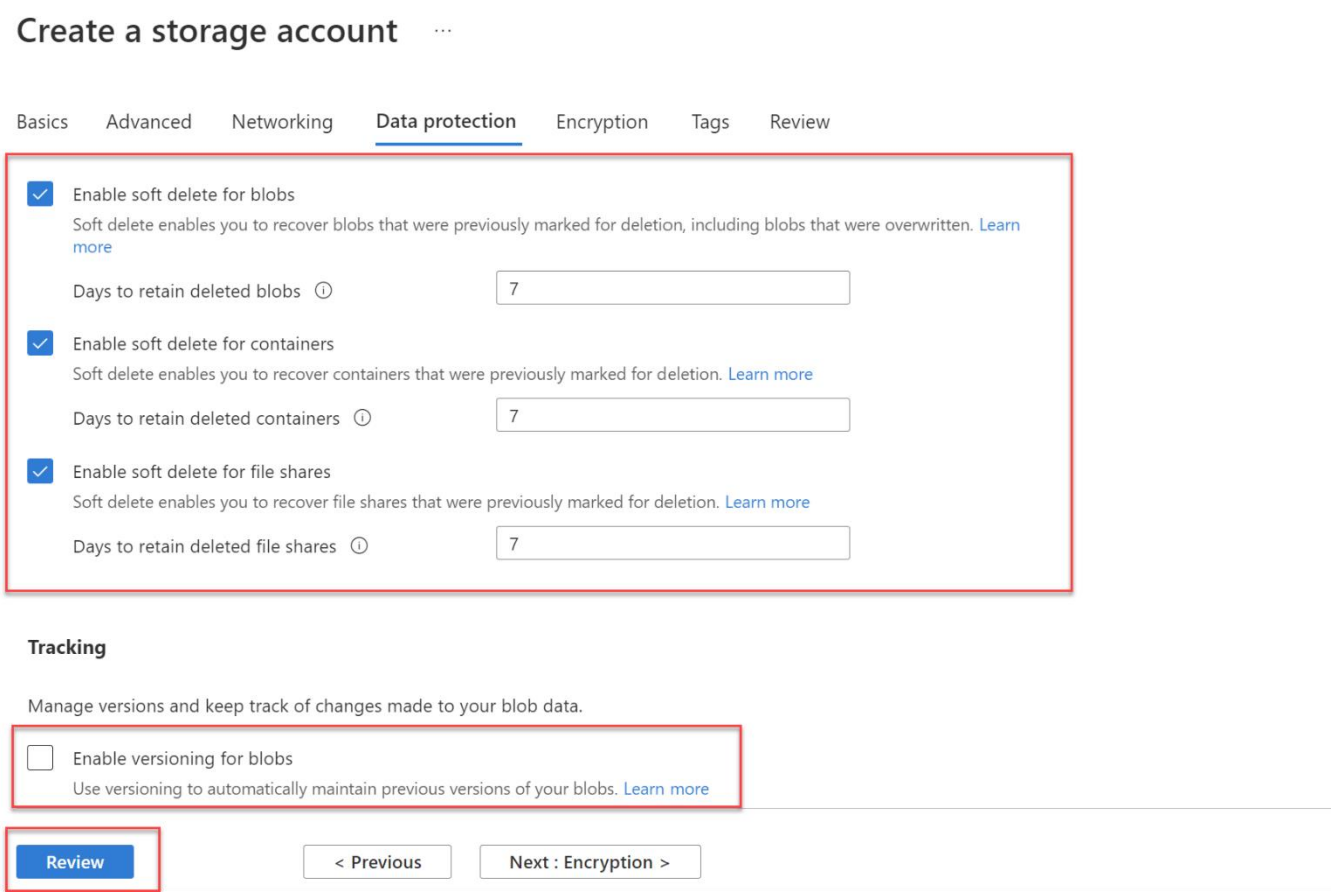
Structured Data

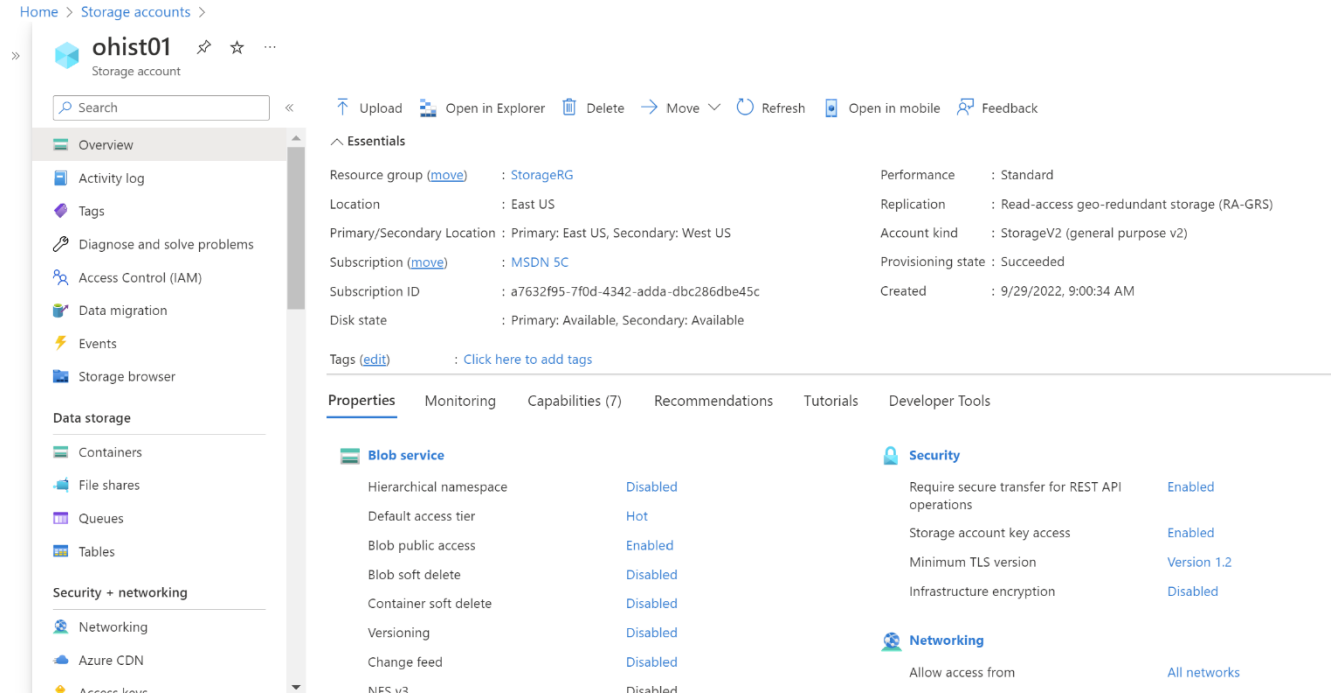
This includes Tables, Cosmos DB, and Azure SQL DB. Tables are a key/value, auto-scaling NoSQL store. Cosmos DB is a globally distributed database service. Azure SQL DB is a fully managed database-as-a-service built on SQL

Creating an Azure Storage account

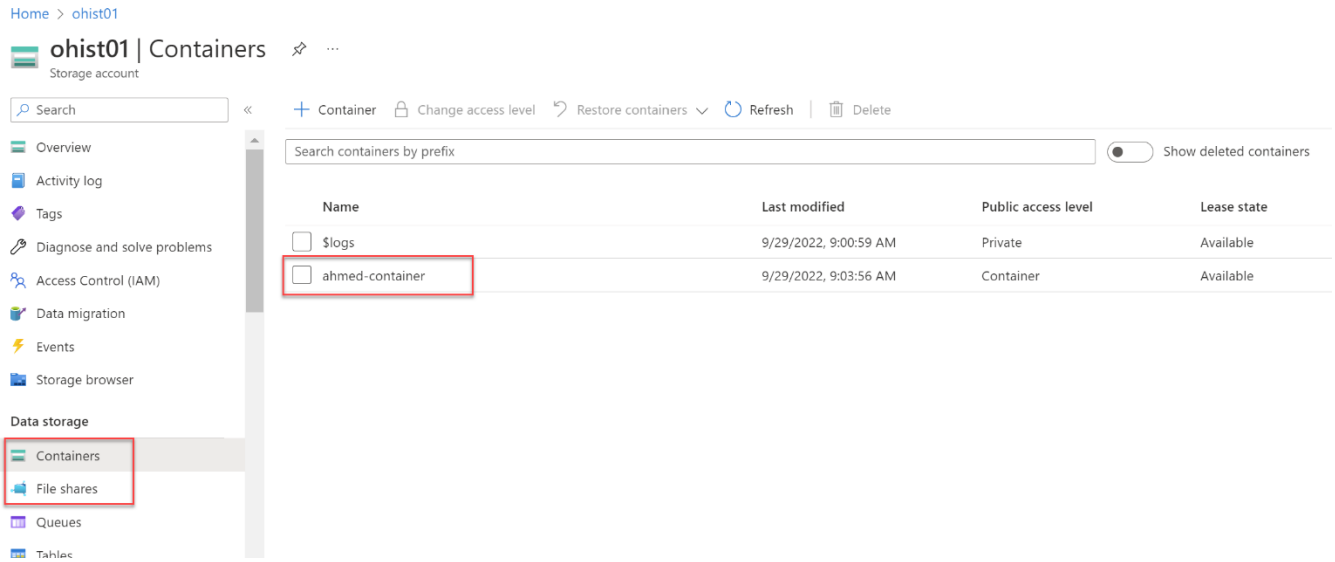


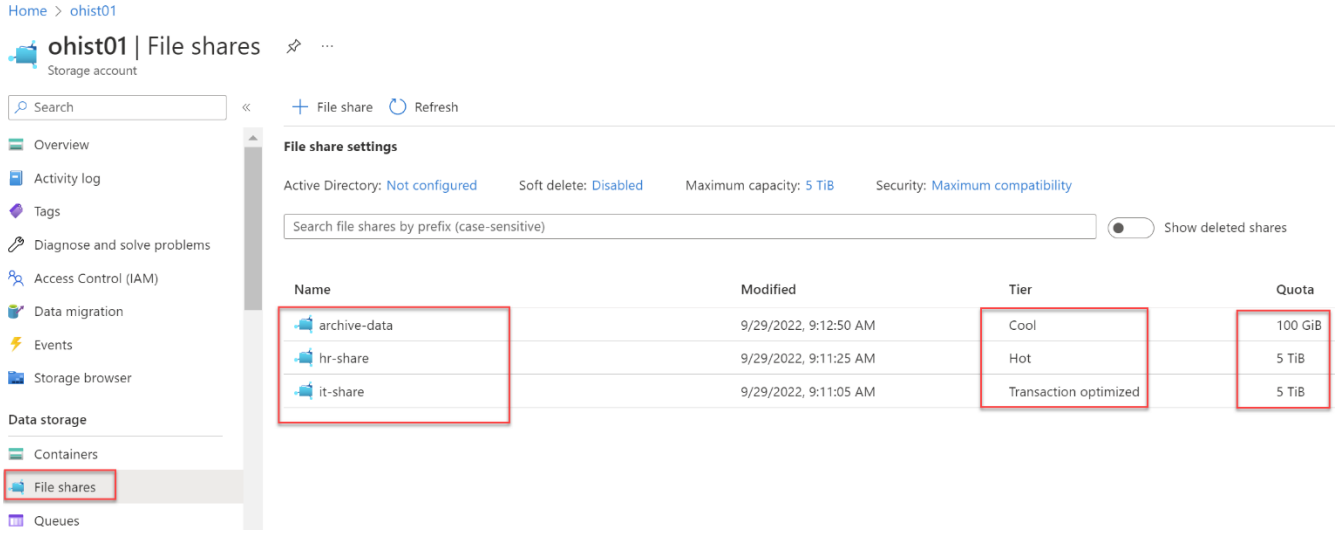

Home > Storage accounts >
Create a storage account
Basics
Advanced
Networking
Data protection
Encryption
Tags
Review
Network connectivity
You can connect to your storage account either publicly, via public IP addresses or service endpoints, or privately, using a private endpoint.
Network access *
Enable public access from all networks
Enable public access from selected virtual networks and IP addresses
Disable public access and use private access
Enabling public access from all networks might make this resource available publicly. Unless public access is required, we recommend using a more restricted access type. Learn more


Create a storage account
Basics
Advanced
Networking
Data protection
Encryption
Tags
Review
Enable soft delete for blobs
Soft delete enables you to recover blobs that were previously marked for deletion, including blobs that were overwritten. Learn more
Days to retain deleted blobs
7
Enable soft delete for containers
Soft delete enables you to recover containers that were previously marked for deletion. Learn more
Days to retain deleted containers
7
Enable soft delete for file shares
Soft delete enables you to recover file shares that were previously marked for deletion. Learn more
Days to retain deleted file shares
7
Tracking
Manage versions and keep track of changes made to your blob data.
Enable versioning for blobs
Use versioning to automatically maintain previous versions of your blobs. Learn more
Review
< Previous
Next : Encryption >

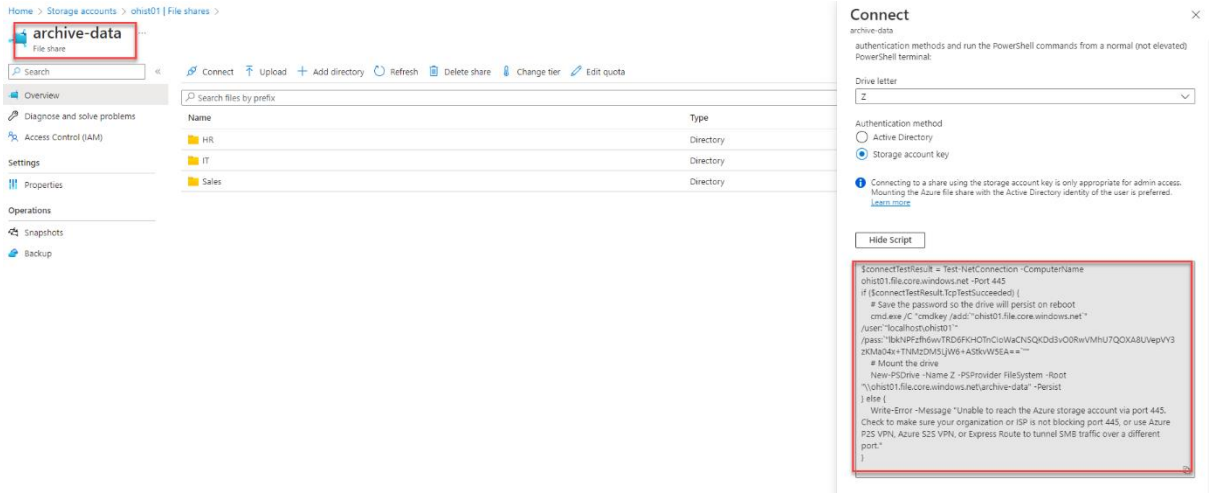


Create Container and File Share

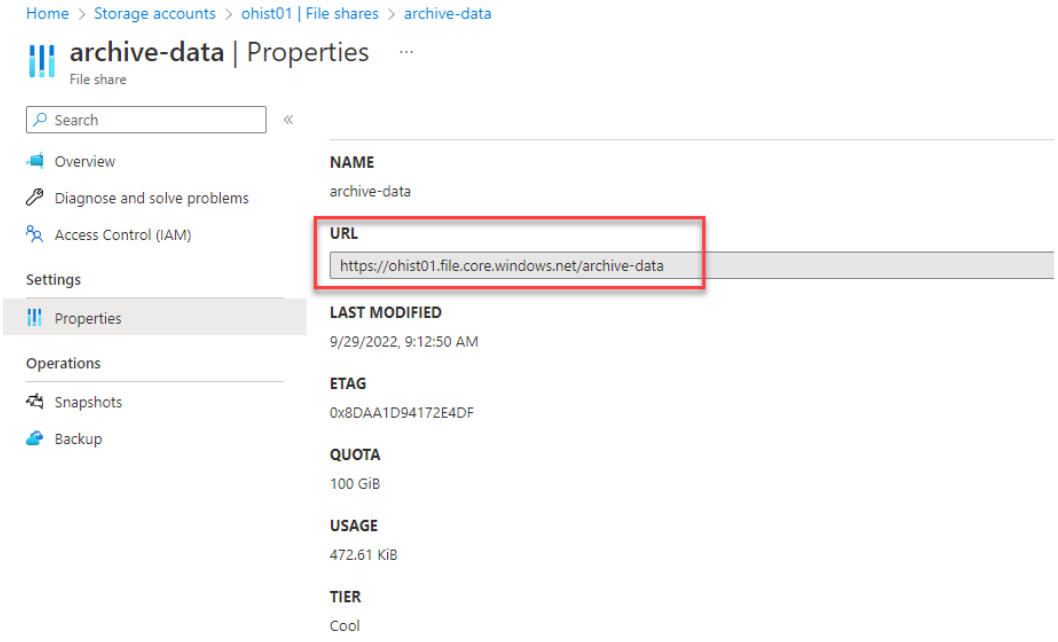


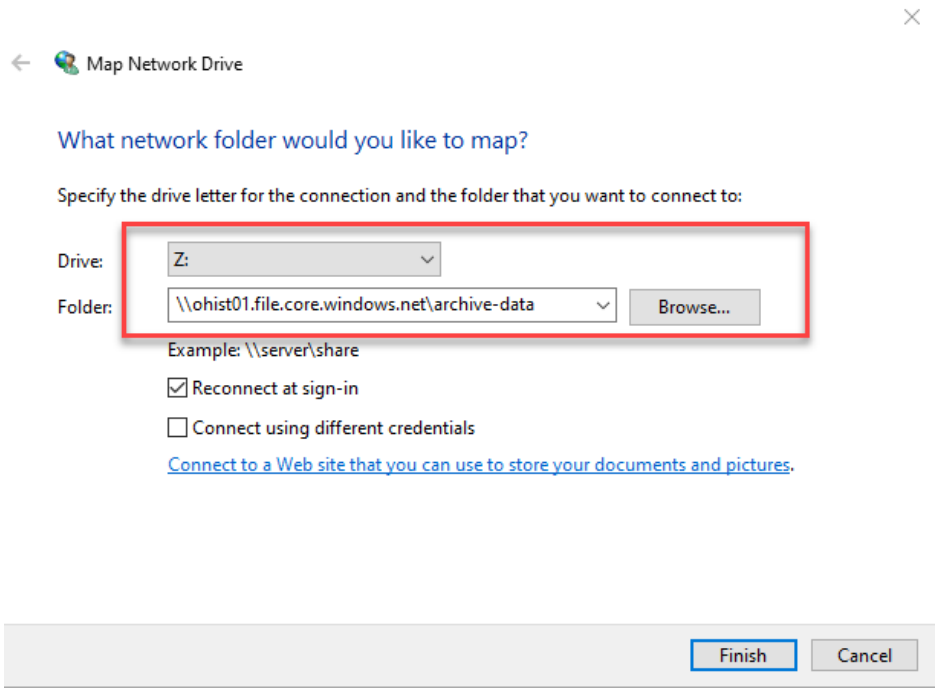


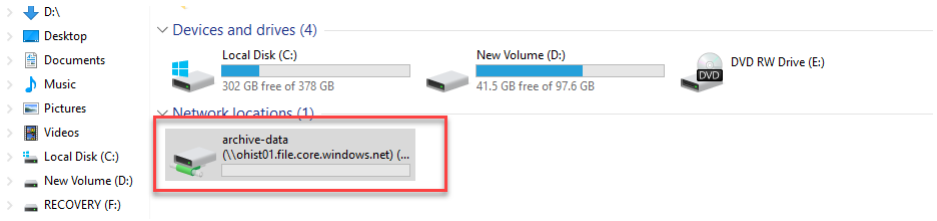
Connect to file share



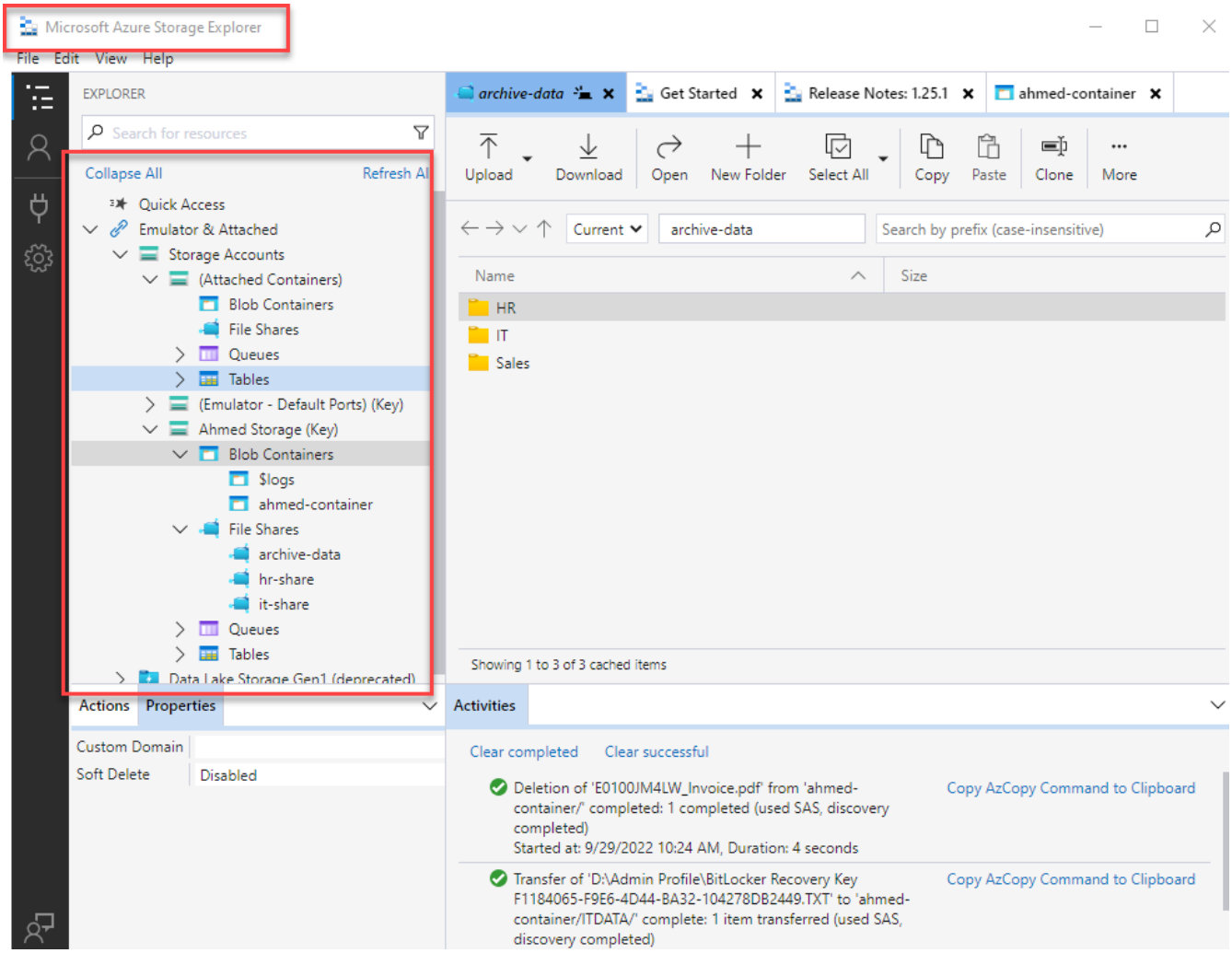

```
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Try t

form PowerShell https://aka.ms/pscore6

PS C:\Windows\system32> netsh advfirewall set all
F                                                    Ok.

PS C:\Windows\system32> $connectTestResult = Test-NetConnection -ComputerName ohist01.file.core.windows.net -Port 4
S C:\Windows\system32> if ($connectTestResult.TcpTestSucceeded) {
>>     # Save the password so the drive will persist on reboot
>>     cmd.exe /C "cmdkey /add:`"ohist01.file.core.windows.net`" /user:`"localhost\ohist01`" /pass:`"lbkNPFzfh6wvTRD6FKHOTnCIoWaCNSQKDd3vO0RwVMhU7QOXA8UVepV
jW6+AStkvW5EA==`""
>>     # Mount the drive
>>     New-PSDrive -Name Z -PSProvider FileSystem -Root "\\ohist01.file.core.windows.net\archive-data" -Persist
>> } else {
>>     Write-Error -Message "Unable to reach the Azure storage account via port 445. Check to make sure your organization or ISP is not blocking port 445, o
N, Azure S2S VPN, or Express Route to tunnel SMB traffic over a different port."
>> }

MDKEY: Credential added successfully.

Name           Used (GB)     Free (GB) Provider      Root                                                                    CurrentLocation
----           ---------     --------- --------      ----                                                                    ---------------
Z                   0.00        100.00 FileSystem    \\ohist01.file.core.windows.net\...
```


Home > Storage accounts > ohist01 | File shares > archive-data
archive-data | Properties
File share
Search
Overview
Diagnose and solve problems
Access Control (IAM)
Settings
Properties
Operations
Snapshots
Backup
NAME
archive-data
URL
https://ohist01.file.core.windows.net/archive-data
LAST MODIFIED
9/29/2022, 9:12:50 AM
ETAG
0x8DAA1D94172E4DF
QUOTA
100 GiB
USAGE
472.61 KiB
TIER
Cool


Map Network Drive
What network folder would you like to map?
Specify the drive letter for the connection and the folder that you want to connect to:
Drive:
Z:
Folder:
\\ohist01.file.core.windows.net\archive-data
Browse...
Example: \\server\share
Reconnect at sign-in
Connect using different credentials
Connect to a Web site that you can use to store your documents and pictures.
Finish
Cancel



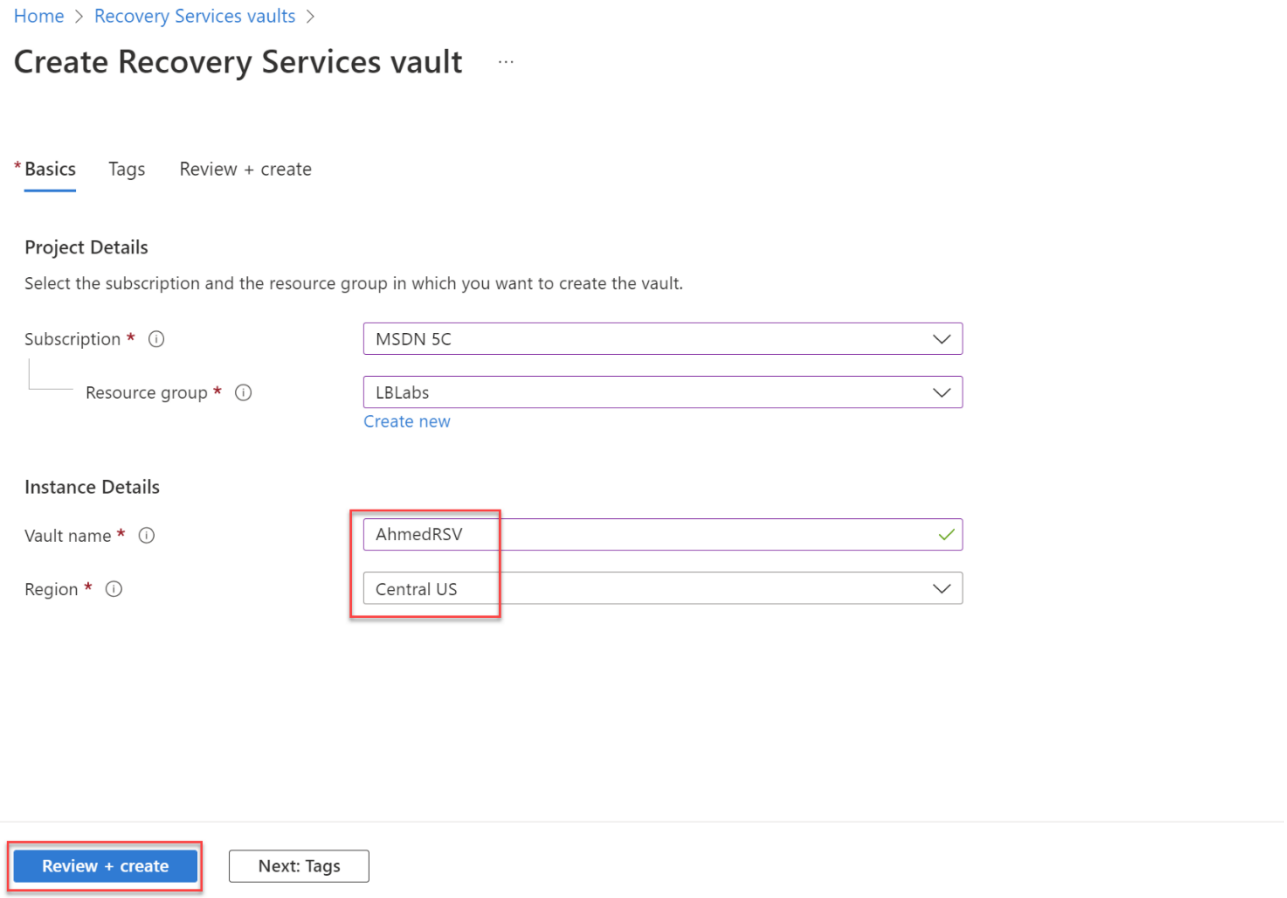
[Access all storage account items using Microsoft storage explorer]



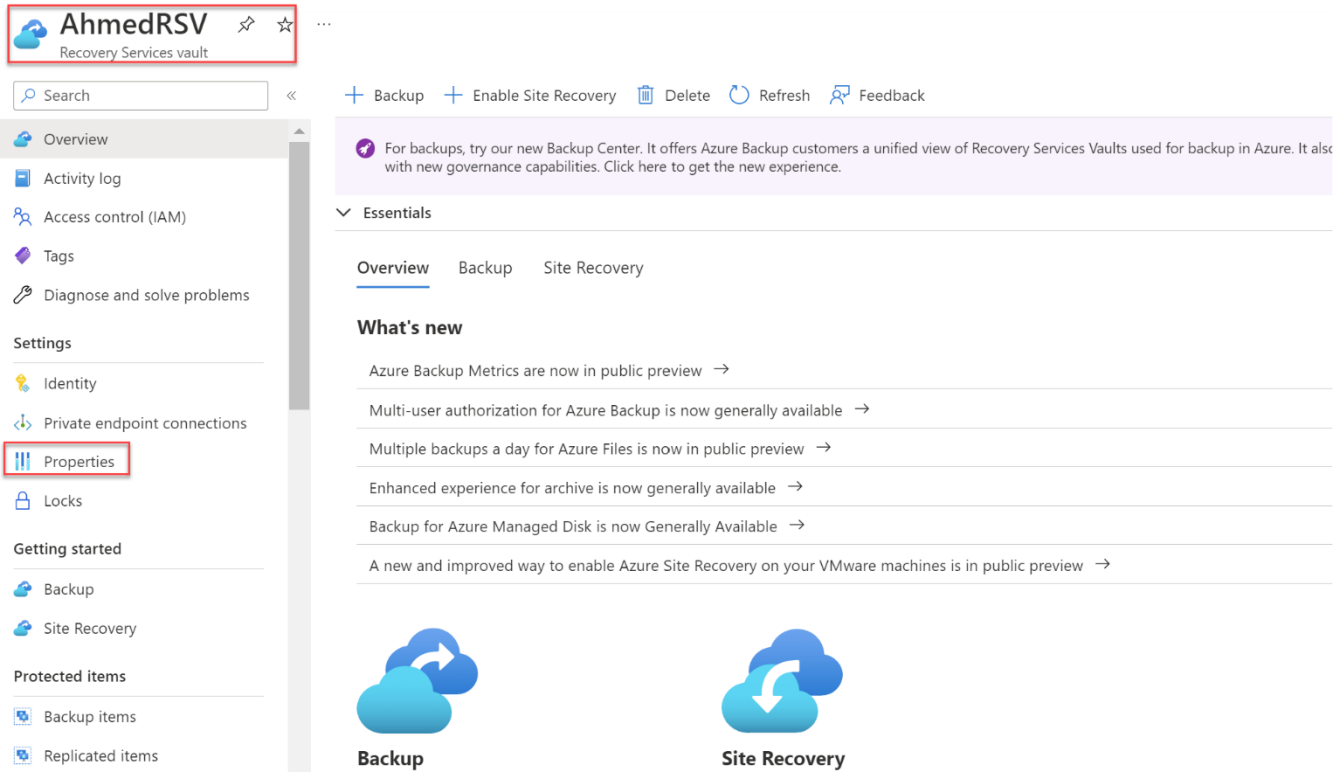
Data Protection

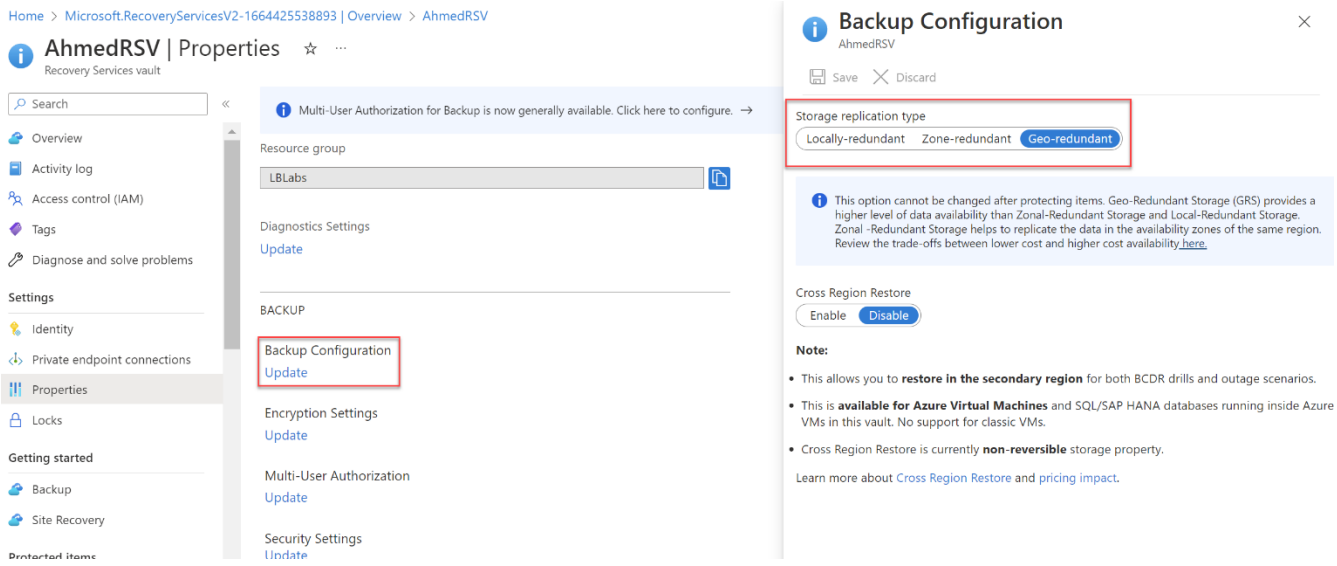
Backup Azure VMs

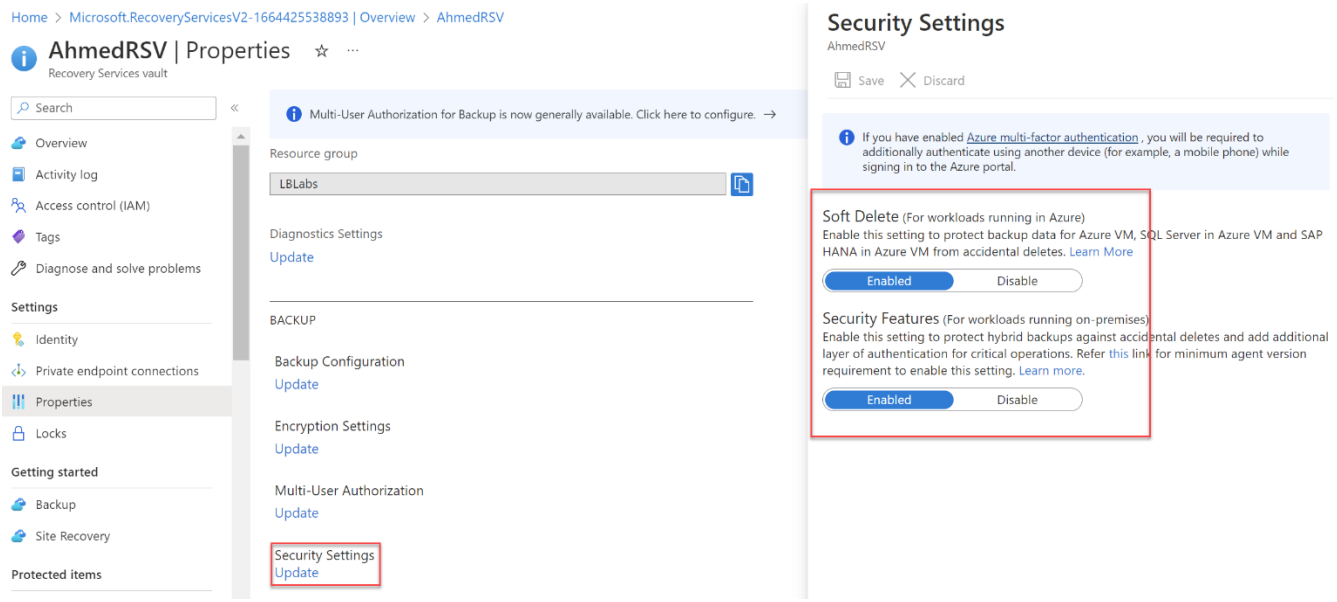
We have to create recovery service vault



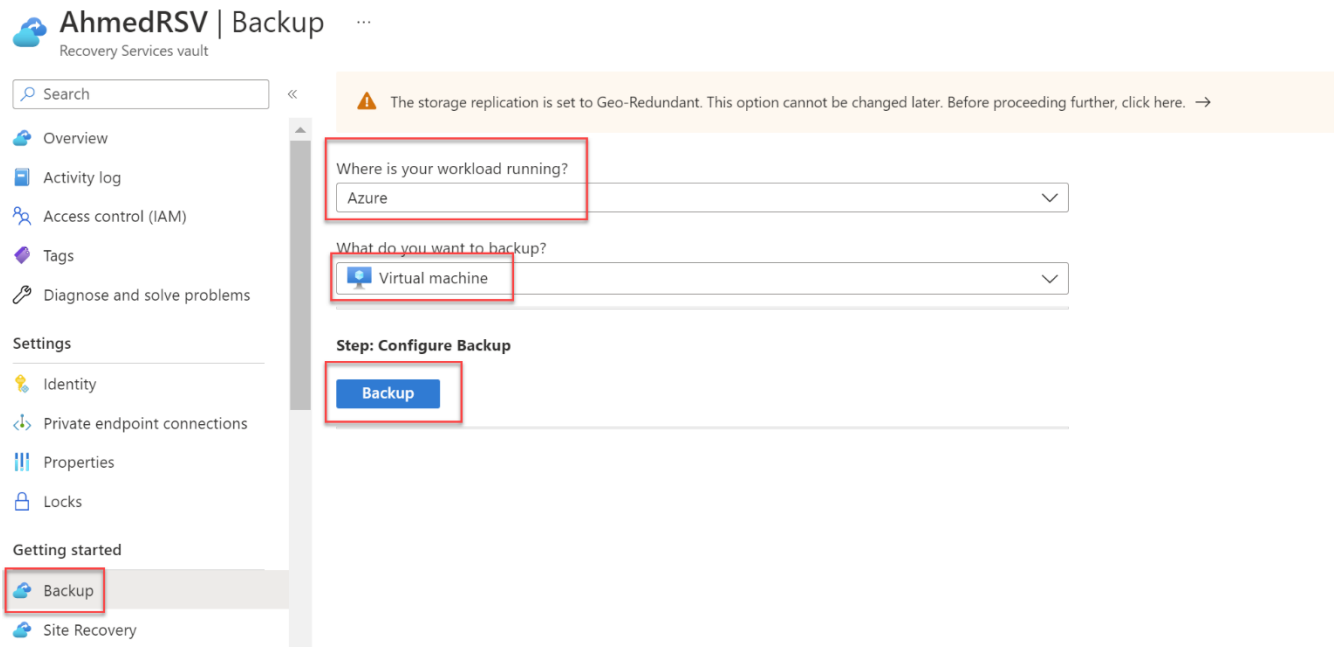
Go for properties to check vault configuration

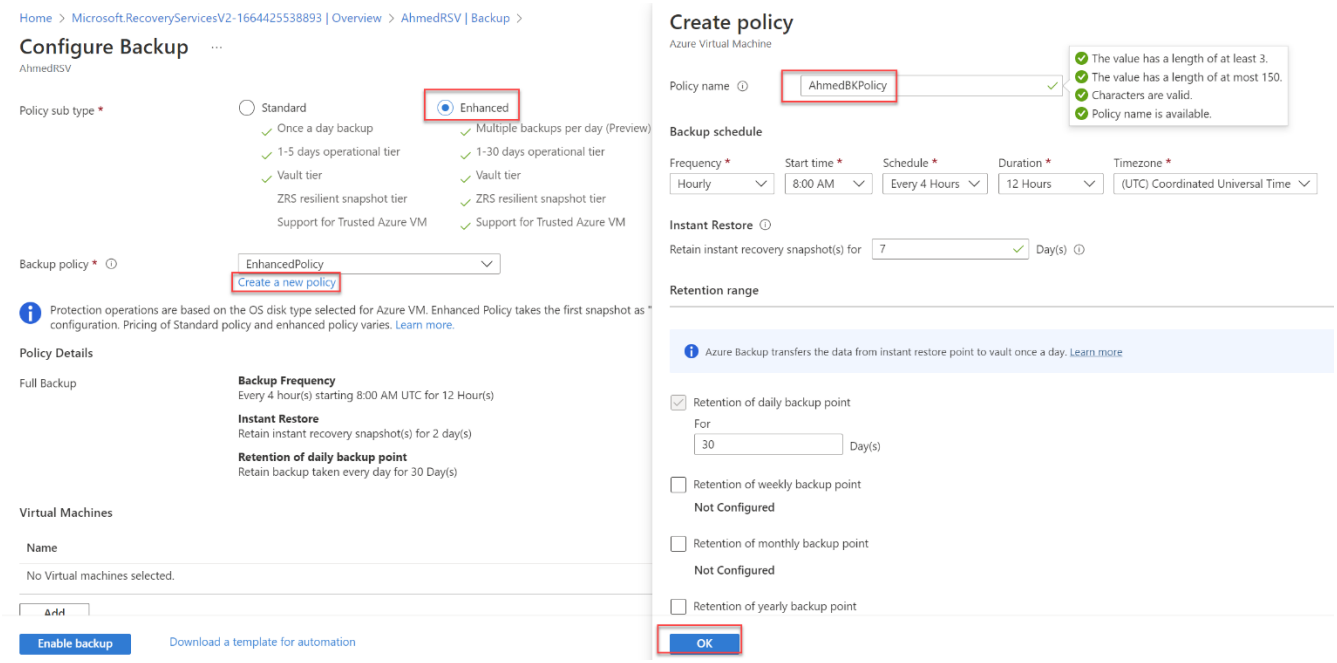


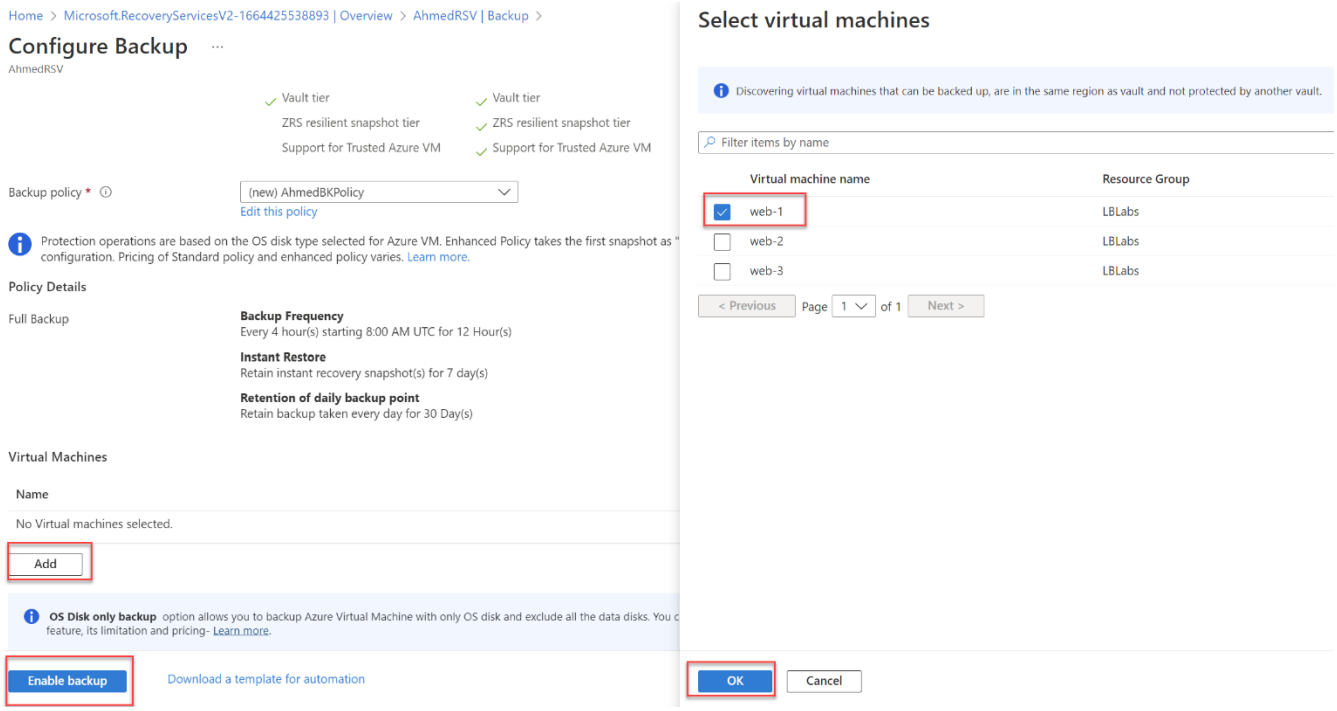


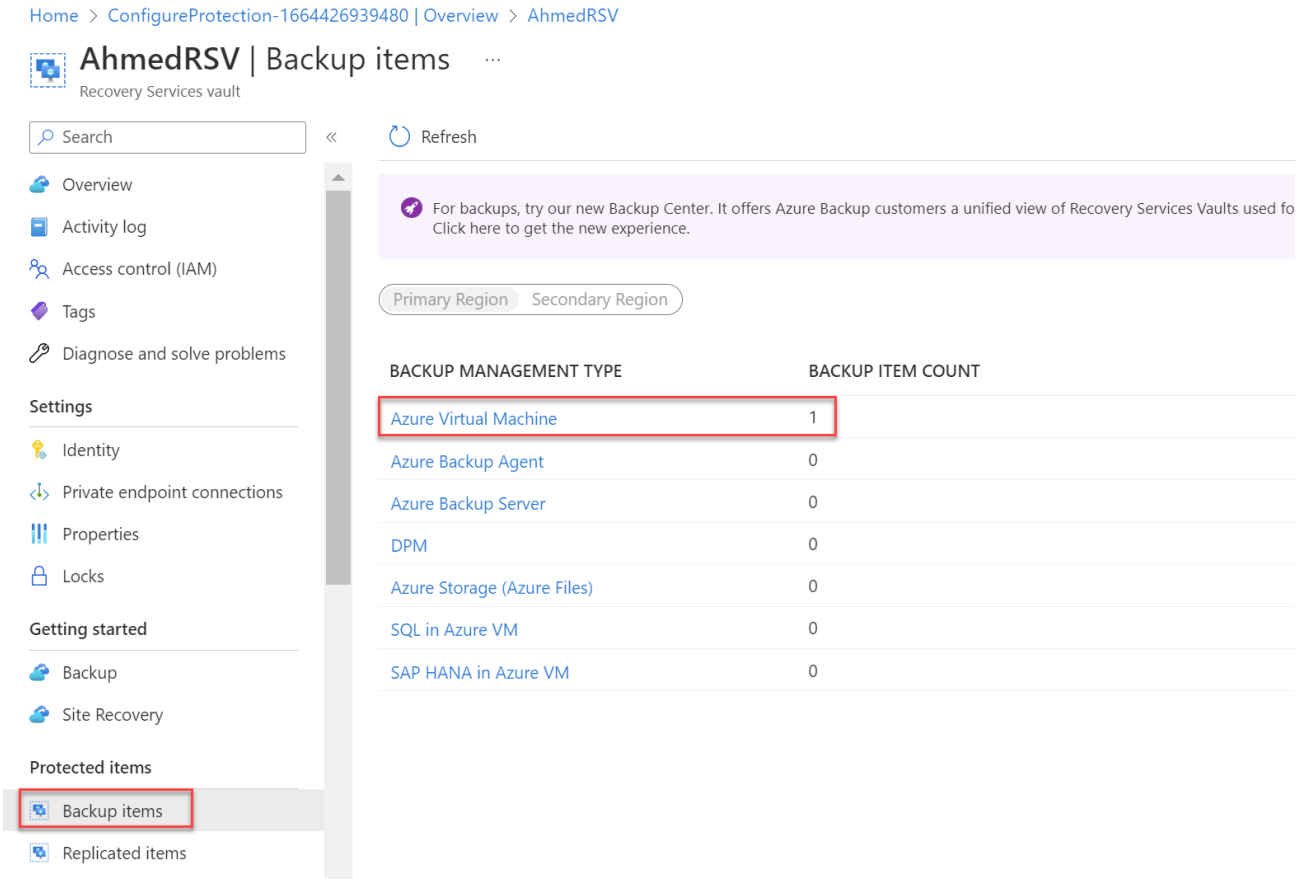


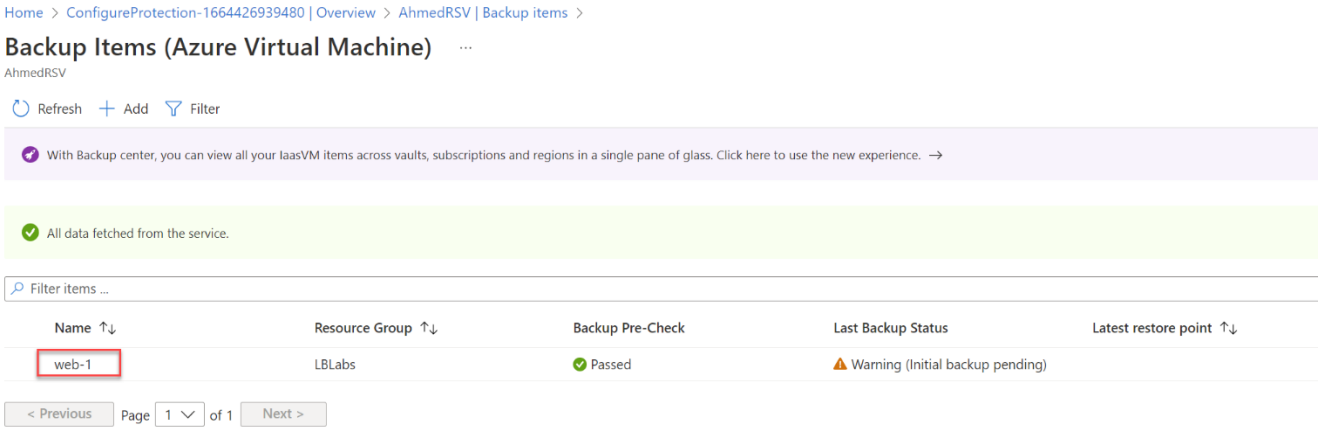
Start VM backup

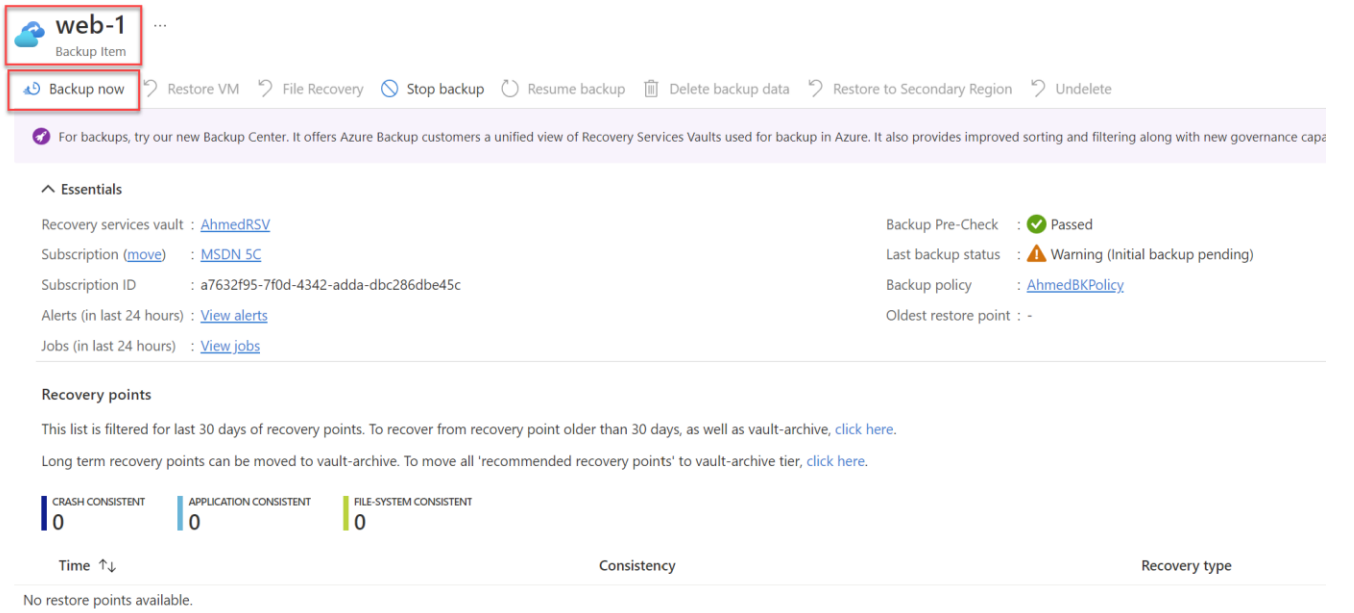


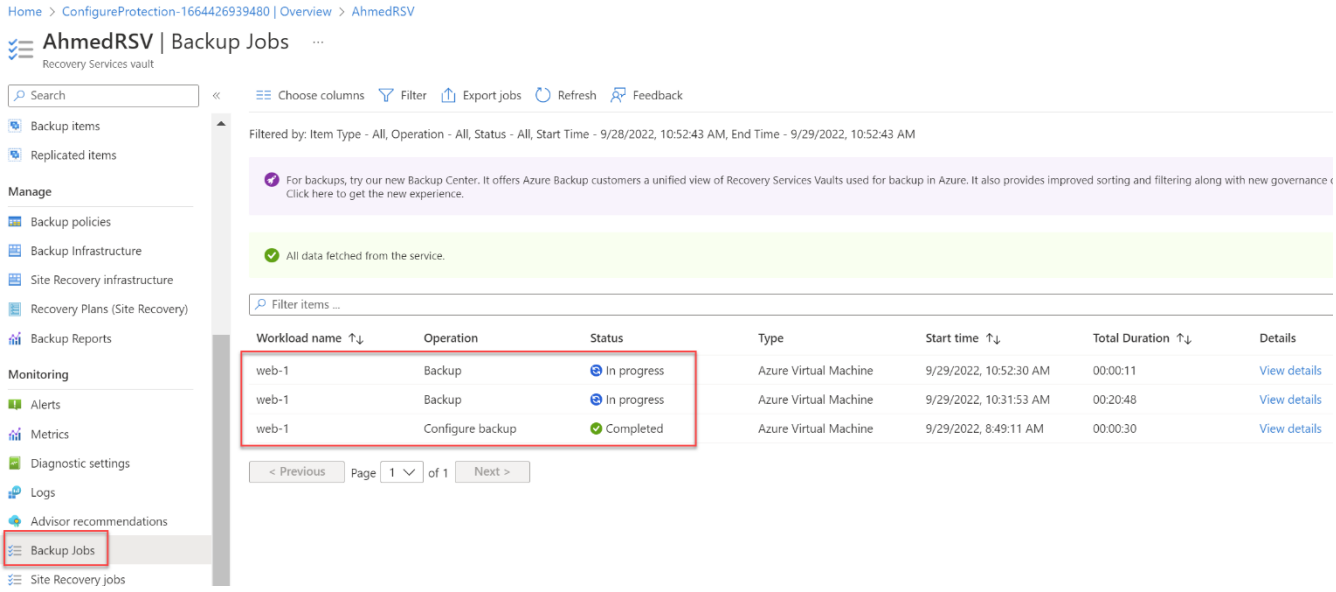

Home > Microsoft.RecoveryServicesV2-1664425538893 | Overview > AhmedRSV | Backup >
Configure Backup
AhmedRSV
Policy sub type *
Standard
Enhanced
Once a day backup
Multiple backups per day (Preview)
1-5 days operational tier
1-30 days operational tier
Vault tier
Vault tier
ZRS resilient snapshot tier
ZRS resilient snapshot tier
Support for Trusted Azure VM
Support for Trusted Azure VM
Backup policy *
EnhancedPolicy
Create a new policy
Protection operations are based on the OS disk type selected for Azure VM. Enhanced Policy takes the first snapshot as "
configuration. Pricing of Standard policy and enhanced policy varies. Learn more.
Policy Details
Full Backup
Backup Frequency
Every 4 hour(s) starting 8:00 AM UTC for 12 Hour(s)
Instant Restore
Retain instant recovery snapshot(s) for 2 day(s)
Retention of daily backup point
Retain backup taken every day for 30 Day(s)
Virtual Machines
Name
No Virtual machines selected.
Add
Enable backup
Download a template for automation
Create policy
Azure Virtual Machine
Policy name
AhmedBKPolicy
The value has a length of at least 3.
The value has a length of at most 150.
Characters are valid.
Policy name is available.
Backup schedule
Frequency *
Hourly
Start time *
8:00 AM
Schedule *
Every 4 Hours
Duration *
12 Hours
Timezone *
(UTC) Coordinated Universal Time
Instant Restore
Retain instant recovery snapshot(s) for
7
Day(s)
Retention range
Azure Backup transfers the data from instant restore point to vault once a day. Learn more
Retention of daily backup point
For
30
Day(s)
Retention of weekly backup point
Not Configured
Retention of monthly backup point
Not Configured
Retention of yearly backup point
OK


Home > Microsoft.RecoveryServicesV2-1664425538893 | Overview > AhmedRSV | Backup >
Configure Backup
AhmedRSV
Vault tier
Vault tier
ZRS resilient snapshot tier
ZRS resilient snapshot tier
Support for Trusted Azure VM
Support for Trusted Azure VM
Backup policy *
(new) AhmedBKPolicy
Edit this policy
Protection operations are based on the OS disk type selected for Azure VM. Enhanced Policy takes the first snapshot as "
configuration. Pricing of Standard policy and enhanced policy varies. Learn more.
Policy Details
Full Backup
Backup Frequency
Every 4 hour(s) starting 8:00 AM UTC for 12 Hour(s)
Instant Restore
Retain instant recovery snapshot(s) for 7 day(s)
Retention of daily backup point
Retain backup taken every day for 30 Day(s)
Virtual Machines
Name
No Virtual machines selected.
Add
OS Disk only backup option allows you to backup Azure Virtual Machine with only OS disk and exclude all the data disks. You c
feature, its limitation and pricing- Learn more.
Enable backup
Download a template for automation
Select virtual machines
Discovering virtual machines that can be backed up, are in the same region as vault and not protected by another vault.
Filter items by name
Virtual machine name
Resource Group
web-1
LBLabs
web-2
LBLabs
web-3
LBLabs
< Previous
Page
1
of 1
Next >
OK
Cancel

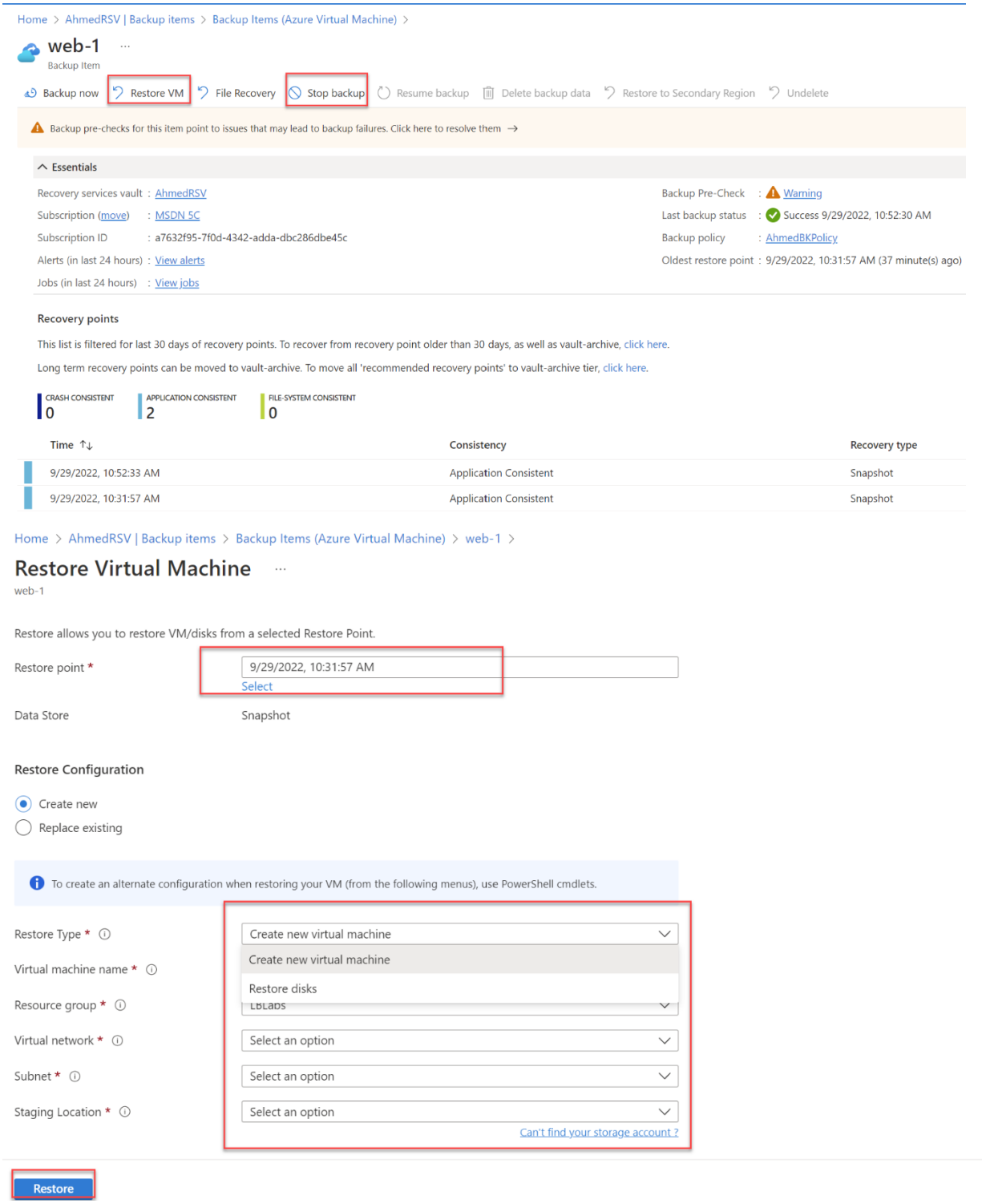

Home > ConfigureProtection-1664426939480 | Overview > AhmedRSV
AhmedRSV | Backup items
Recovery Services vault
Search
Refresh
Overview
Activity log
Access control (IAM)
Tags
Diagnose and solve problems
Settings
Identity
Private endpoint connections
Properties
Locks
Getting started
Backup
Site Recovery
Protected items
Backup items
Replicated items
For backups, try our new Backup Center. It offers Azure Backup customers a unified view of Recovery Services Vaults used fo
Click here to get the new experience.
Primary Region
Secondary Region
BACKUP MANAGEMENT TYPE
BACKUP ITEM COUNT
Azure Virtual Machine 1
Azure Backup Agent 0
Azure Backup Server 0
DPM 0
Azure Storage (Azure Files) 0
SQL in Azure VM 0
SAP HANA in Azure VM 0


Home > ConfigureProtection-1664426939480 | Overview > AhmedRSV | Backup items >
Backup Items (Azure Virtual Machine)
AhmedRSV
Refresh
Add
Filter
With Backup center, you can view all your IaasVM items across vaults, subscriptions and regions in a single pane of glass. Click here to use the new experience.
All data fetched from the service.
Filter items ...
Name
Resource Group
Backup Pre-Check
Last Backup Status
Latest restore point
web-1
LBLabs
Passed
Warning (Initial backup pending)
< Previous
Page 1 of 1
Next >

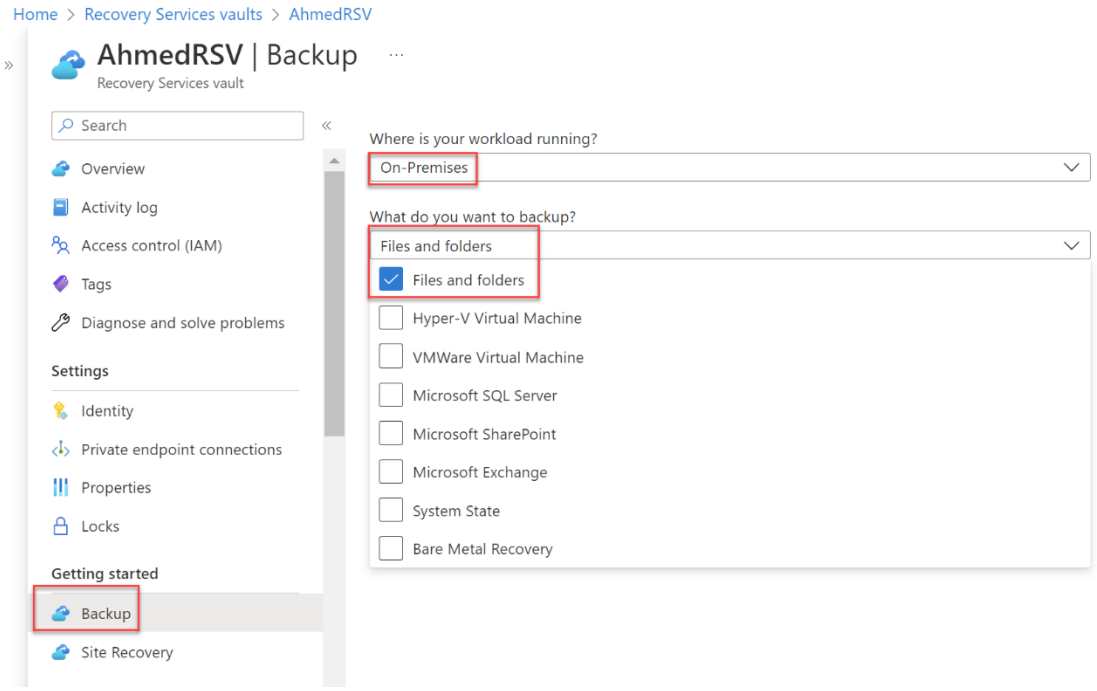

web-1
Backup Item
Backup now
Restore VM
File Recovery
Stop backup
Resume backup
Delete backup data
Restore to Secondary Region
Undelete
For backups, try our new Backup Center. It offers Azure Backup customers a unified view of Recovery Services Vaults used for backup in Azure. It also provides improved sorting and filtering along with new governance capa
Essentials
Recovery services vault : AhmedRSV
Subscription (move) : MSDN 5C
Subscription ID : a7632f95-7f0d-4342-adda-dbc286dbe45c
Alerts (in last 24 hours) : View alerts
Jobs (in last 24 hours) : View jobs
Backup Pre-Check : Passed
Last backup status : Warning (Initial backup pending)
Backup policy : AhmedBKPolicy
Oldest restore point : -
Recovery points
This list is filtered for last 30 days of recovery points. To recover from recovery point older than 30 days, as well as vault-archive, click here.
Long term recovery points can be moved to vault-archive. To move all 'recommended recovery points' to vault-archive tier, click here.
CRASH CONSISTENT
0
APPLICATION CONSISTENT
0
FILE-SYSTEM CONSISTENT
0
Time
Consistency
Recovery type
No restore points available.

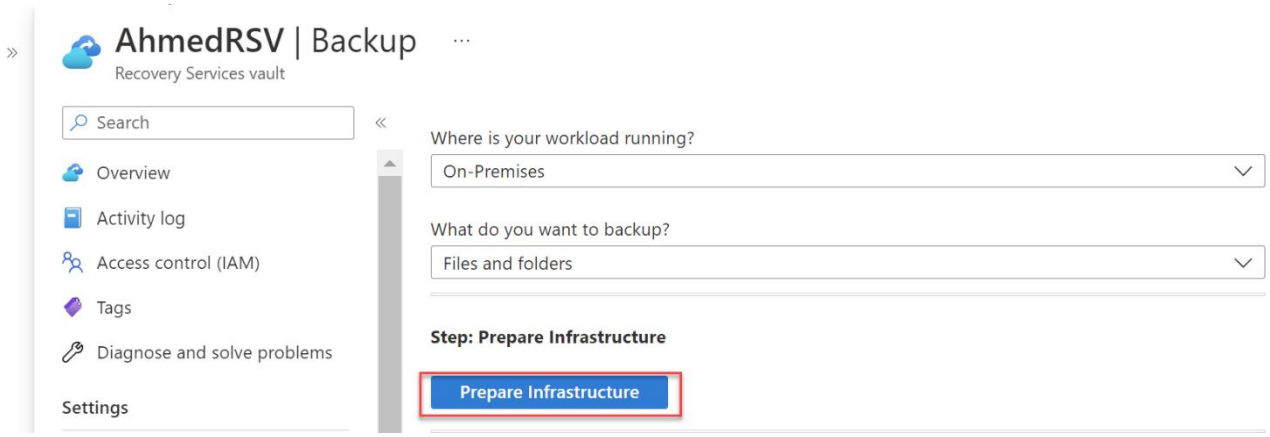

Home > ConfigureProtection-1664426939480 | Overview > AhmedRSV
AhmedRSV | Backup Jobs
Recovery Services vault
Search
Backup items
Replicated items
Manage
Backup policies
Backup Infrastructure
Site Recovery infrastructure
Recovery Plans (Site Recovery)
Backup Reports
Monitoring
Alerts
Metrics
Diagnostic settings
Logs
Advisor recommendations
Backup Jobs
Site Recovery jobs
Choose columns
Filter
Export jobs
Refresh
Feedback
Filtered by: Item Type - All, Operation - All, Status - All, Start Time - 9/28/2022, 10:52:43 AM, End Time - 9/29/2022, 10:52:43 AM
For backups, try our new Backup Center. It offers Azure Backup customers a unified view of Recovery Services Vaults used for backup in Azure. It also provides improved sorting and filtering along with new governance
Click here to get the new experience.
All data fetched from the service.
Filter items ...
Workload name
Operation
Status
Type
Start time
Total Duration
Details
web-1 Backup In progress Azure Virtual Machine 9/29/2022, 10:52:30 AM 00:00:11 View details
web-1 Backup In progress Azure Virtual Machine 9/29/2022, 10:31:53 AM 00:20:48 View details
web-1 Configure backup Completed Azure Virtual Machine 9/29/2022, 8:49:11 AM 00:00:30 View details
< Previous
Page 1 of 1
Next >

Now you can restore and stop the backup

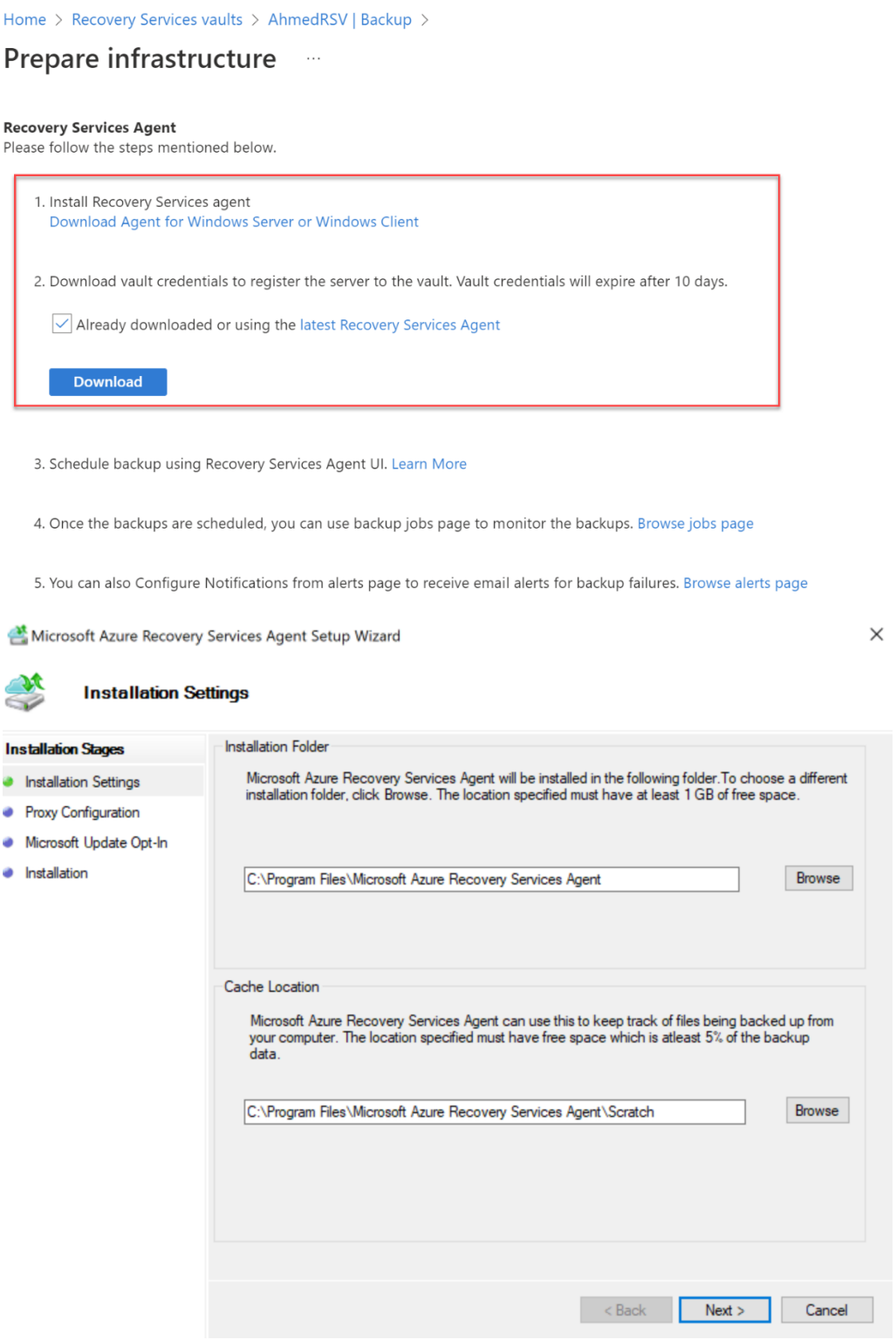


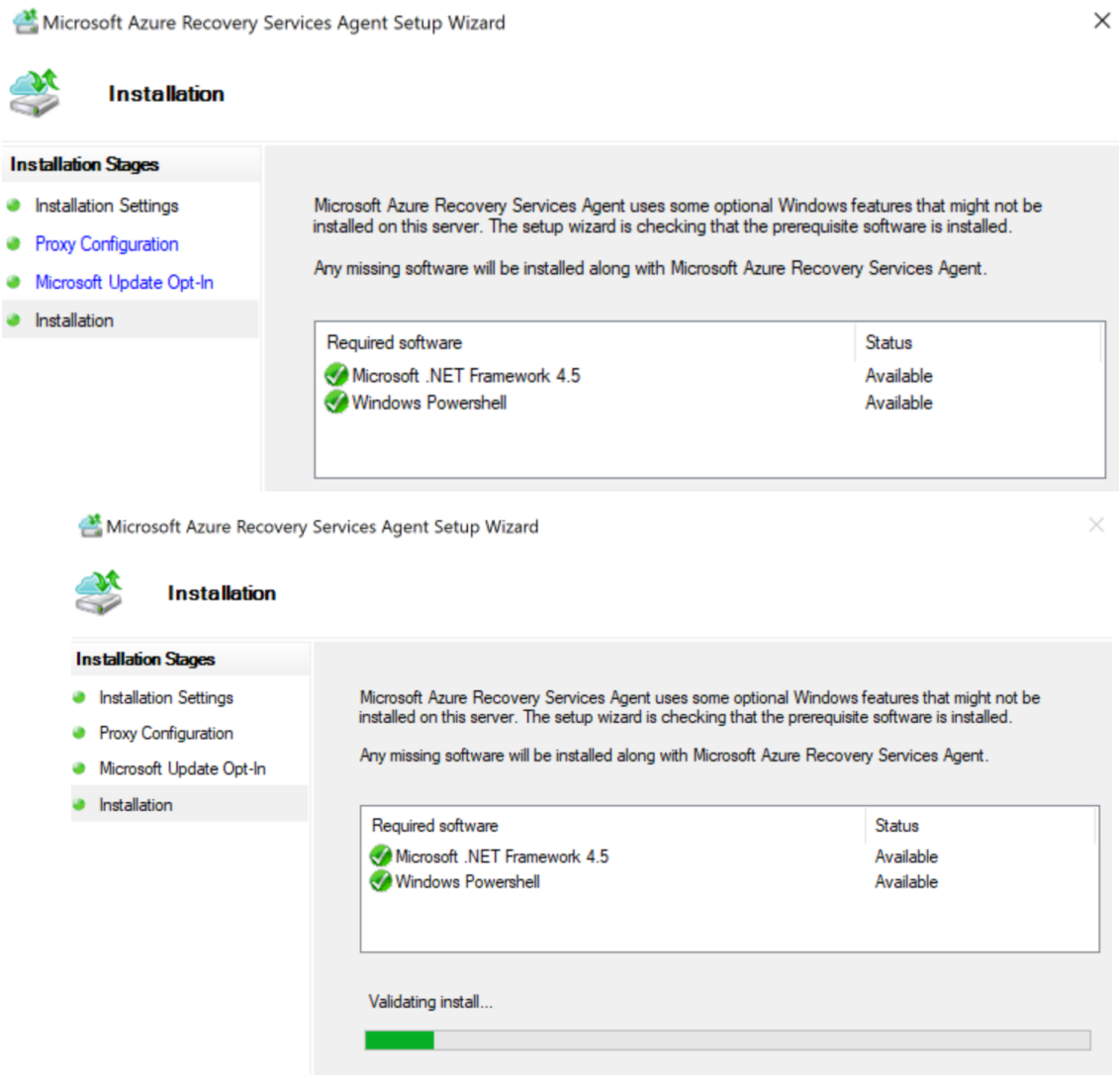
Backup files and folders

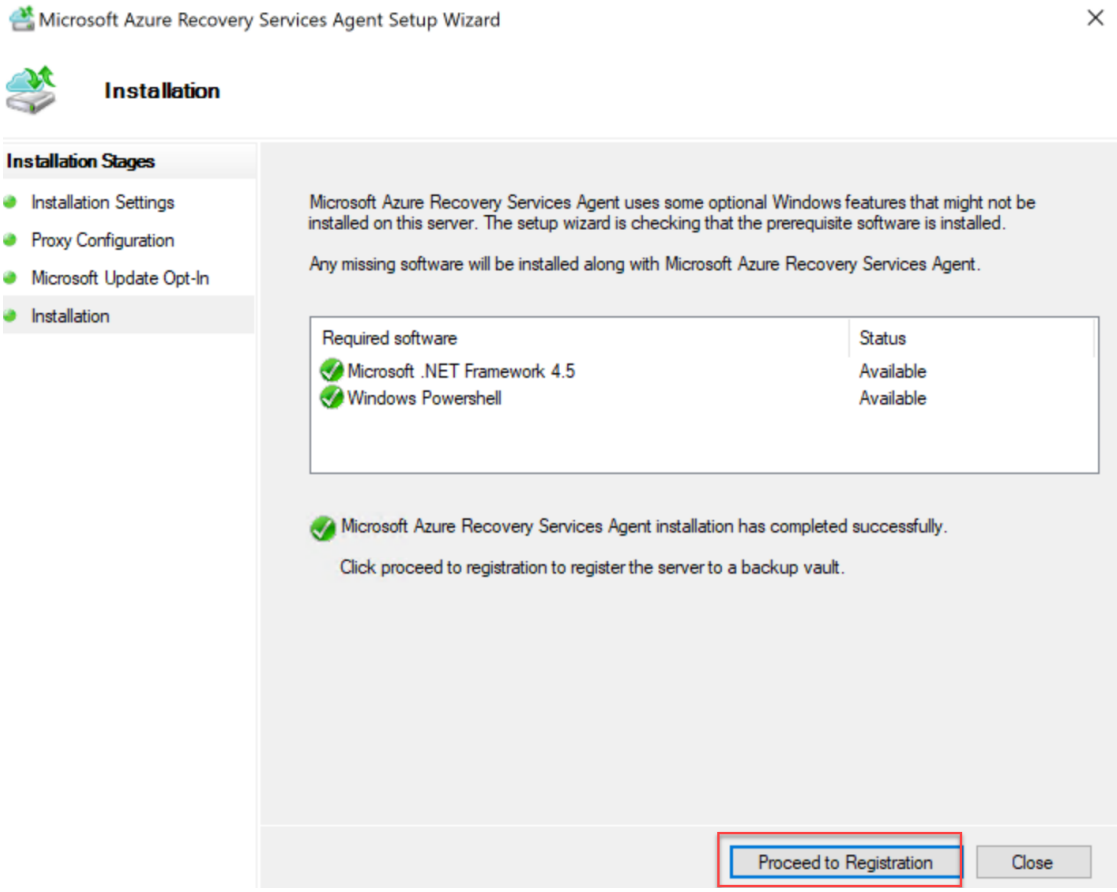


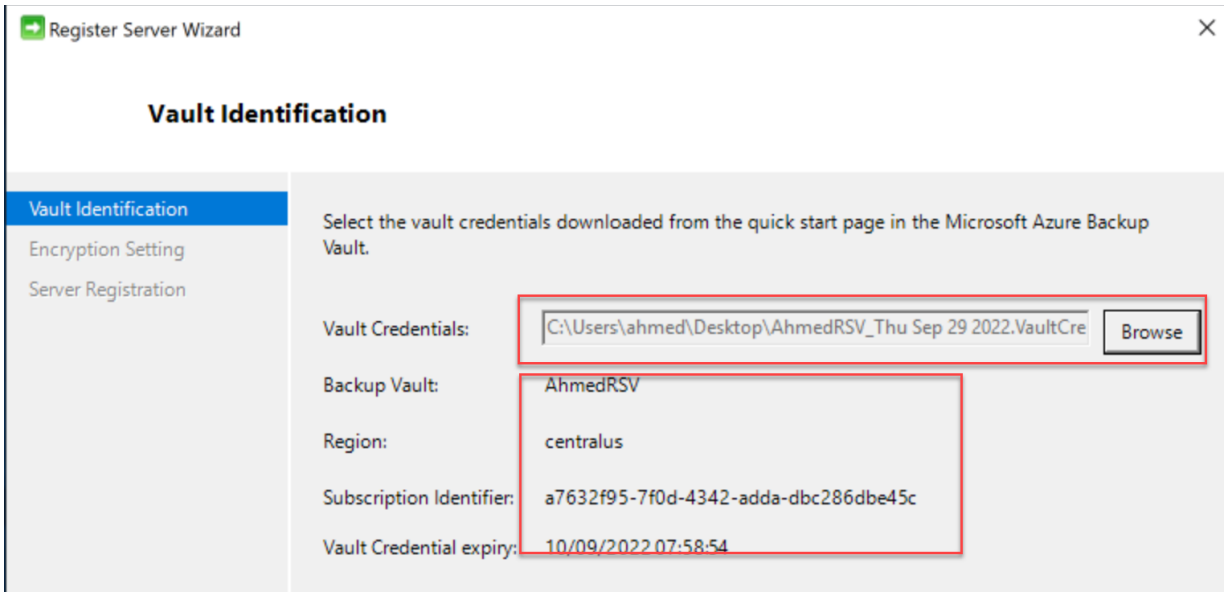


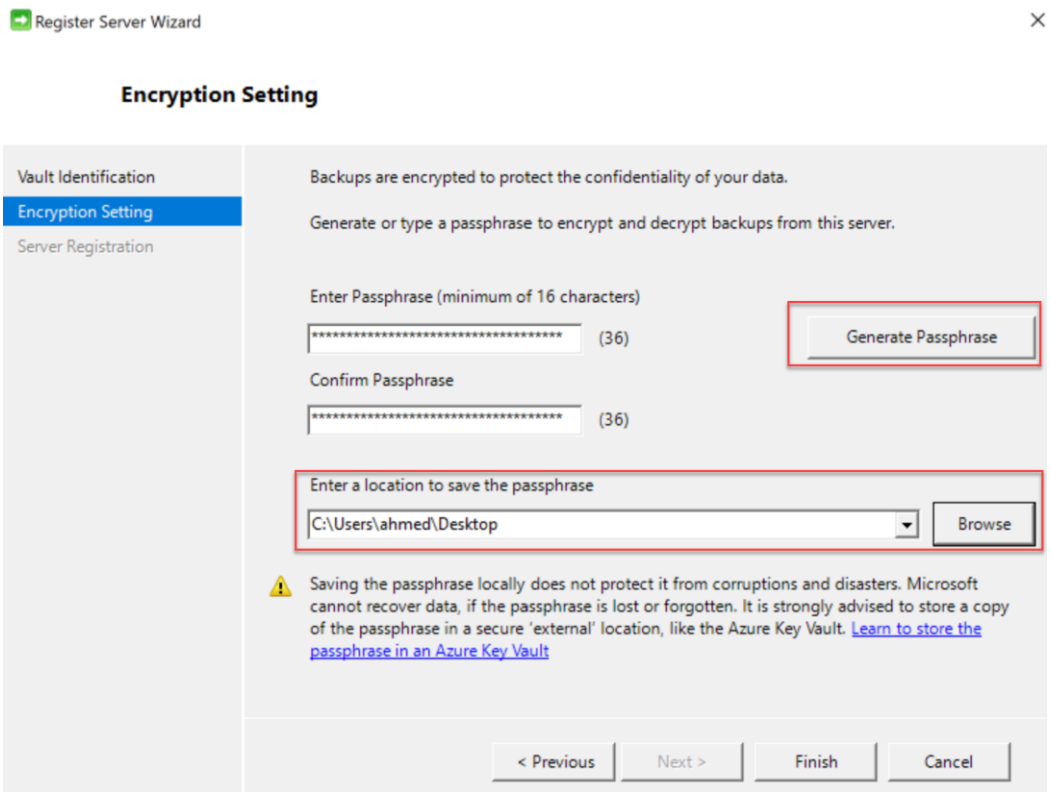
Download both of backup agent and vault credentials to the server you want to backup (I'll use web-2 VM)


Home > Recovery Services vaults > AhmedRSV | Backup >
Prepare infrastructure
Recovery Services Agent
Please follow the steps mentioned below.
1. Install Recovery Services agent
Download Agent for Windows Server or Windows Client
2. Download vault credentials to register the server to the vault. Vault credentials will expire after 10 days.
Already downloaded or using the latest Recovery Services Agent
Download
3. Schedule backup using Recovery Services Agent UI. Learn More
4. Once the backups are scheduled, you can use backup jobs page to monitor the backups. Browse jobs page
5. You can also Configure Notifications from alerts page to receive email alerts for backup failures. Browse alerts page
Microsoft Azure Recovery Services Agent Setup Wizard
Installation Settings
Installation Stages
Installation Settings
Proxy Configuration
Microsoft Update Opt-In
Installation
Installation Folder
Microsoft Azure Recovery Services Agent will be installed in the following folder.To choose a different installation folder, click Browse. The location specified must have at least 1 GB of free space.
C:\Program Files\Microsoft Azure Recovery Services Agent
Browse
Cache Location
Microsoft Azure Recovery Services Agent can use this to keep track of files being backed up from your computer. The location specified must have free space which is atleast 5% of the backup data.
C:\Program Files\Microsoft Azure Recovery Services Agent\Scratch
Browse
< Back
Next >
Cancel

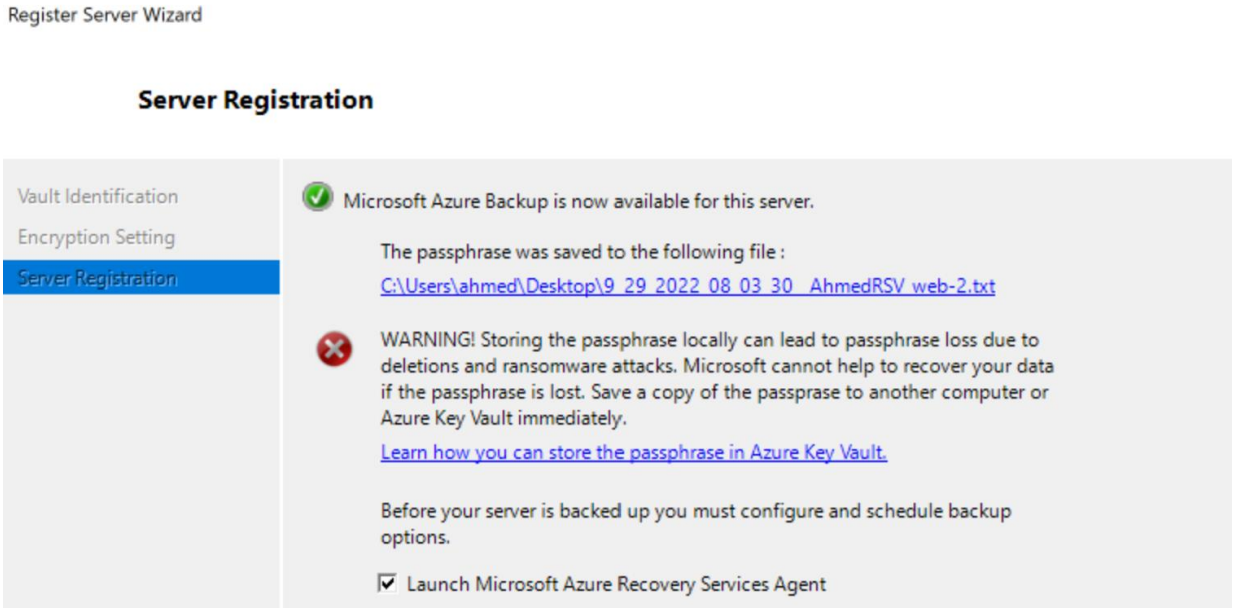

Microsoft Azure Recovery Services Agent Setup Wizard
Installation
Installation Stages
Installation Settings
Proxy Configuration
Microsoft Update Opt-In
Installation
Microsoft Azure Recovery Services Agent uses some optional Windows features that might not be installed on this server. The setup wizard is checking that the prerequisite software is installed.
Any missing software will be installed along with Microsoft Azure Recovery Services Agent.
Required software
Status
Microsoft .NET Framework 4.5
Available
Windows Powershell
Available
Microsoft Azure Recovery Services Agent Setup Wizard
Installation
Installation Stages
Installation Settings
Proxy Configuration
Microsoft Update Opt-In
Installation
Microsoft Azure Recovery Services Agent uses some optional Windows features that might not be installed on this server. The setup wizard is checking that the prerequisite software is installed.
Any missing software will be installed along with Microsoft Azure Recovery Services Agent.
Required software
Status
Microsoft .NET Framework 4.5
Available
Windows Powershell
Available
Validating install...


Microsoft Azure Recovery Services Agent Setup Wizard
Installation
Installation Stages
Installation Settings
Proxy Configuration
Microsoft Update Opt-In
Installation
Microsoft Azure Recovery Services Agent uses some optional Windows features that might not be installed on this server. The setup wizard is checking that the prerequisite software is installed.
Any missing software will be installed along with Microsoft Azure Recovery Services Agent.
Required software
Status
Microsoft .NET Framework 4.5
Available
Windows Powershell
Available
Microsoft Azure Recovery Services Agent installation has completed successfully.
Click proceed to registration to register the server to a backup vault.
Proceed to Registration
Close

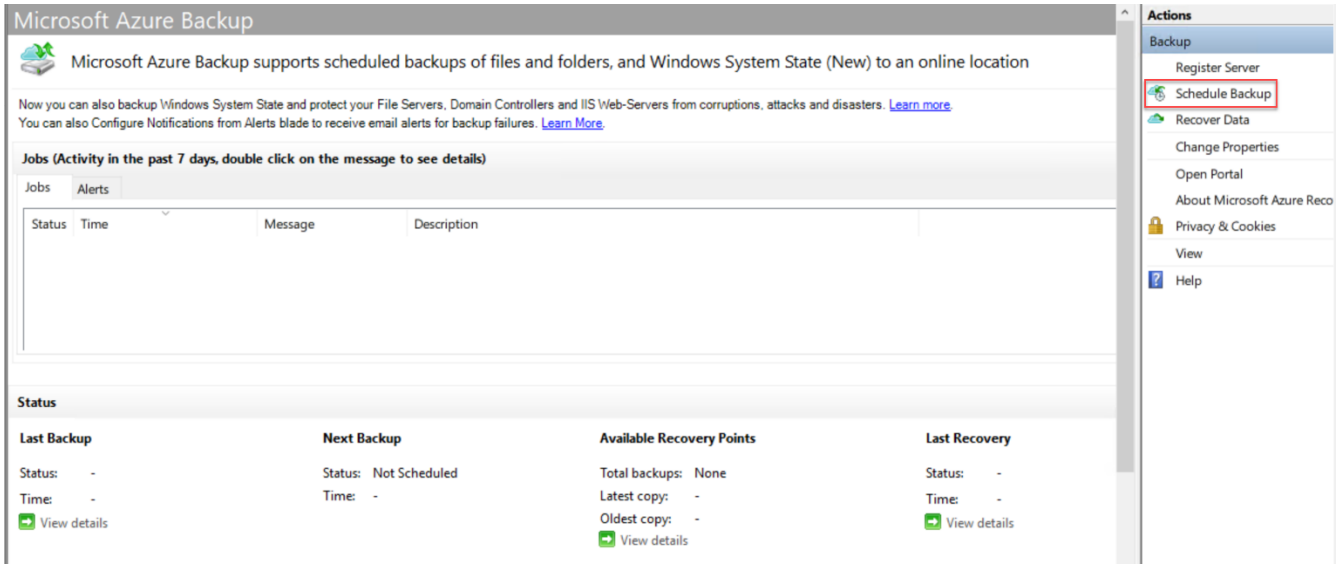

Register Server Wizard
Vault Identification
Vault Identification
Encryption Setting
Server Registration
Select the vault credentials downloaded from the quick start page in the Microsoft Azure Backup Vault.
Vault Credentials:
C:\Users\ahmed\Desktop\AhmedRSV_Thu Sep 29 2022.VaultCre
Browse
Backup Vault:
AhmedRSV
Region:
centralus
Subscription Identifier:
a7632f95-7f0d-4342-adda-dbc286dbe45c
Vault Credential expiry:
10/09/2022 07:58:54

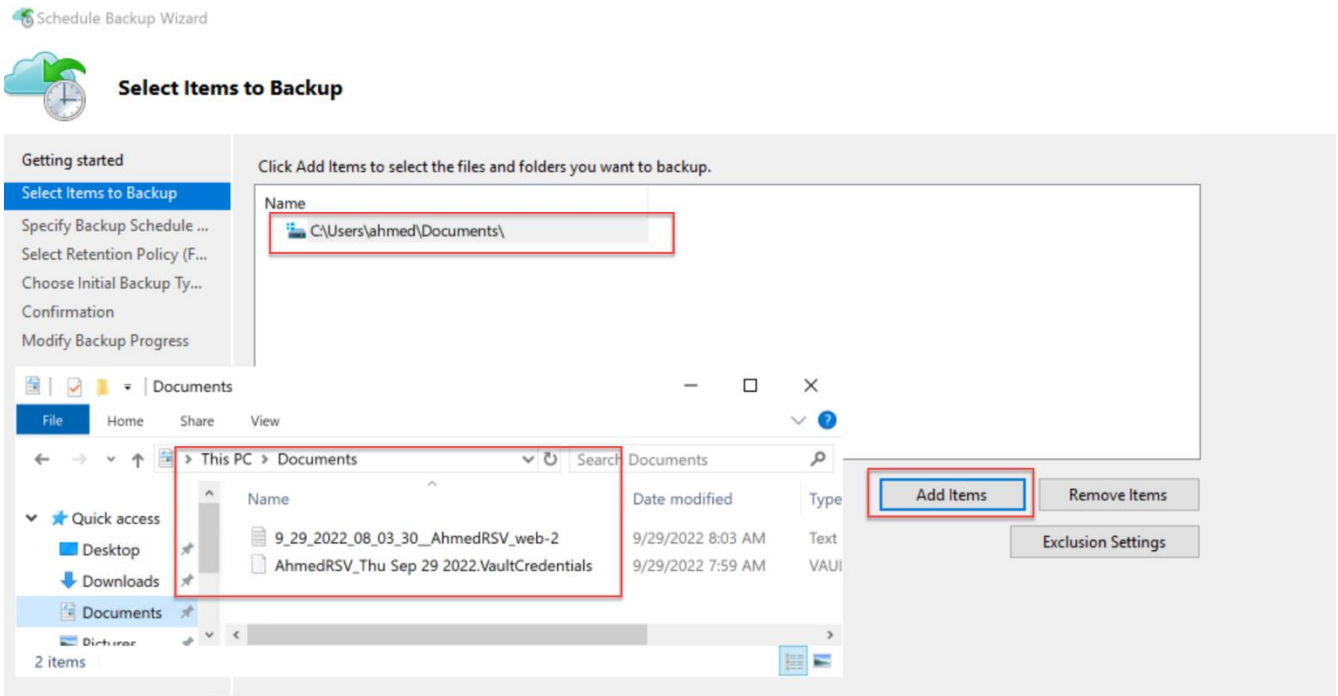


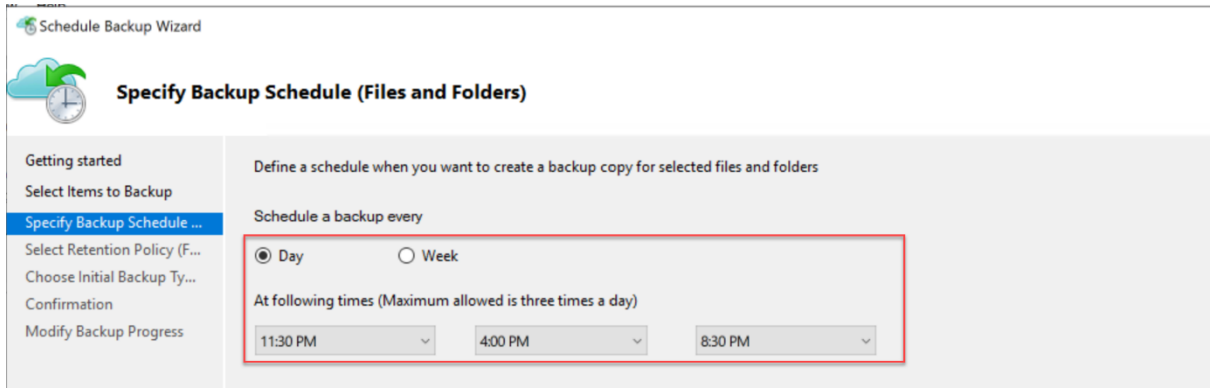
Now server registered and we can back up our files

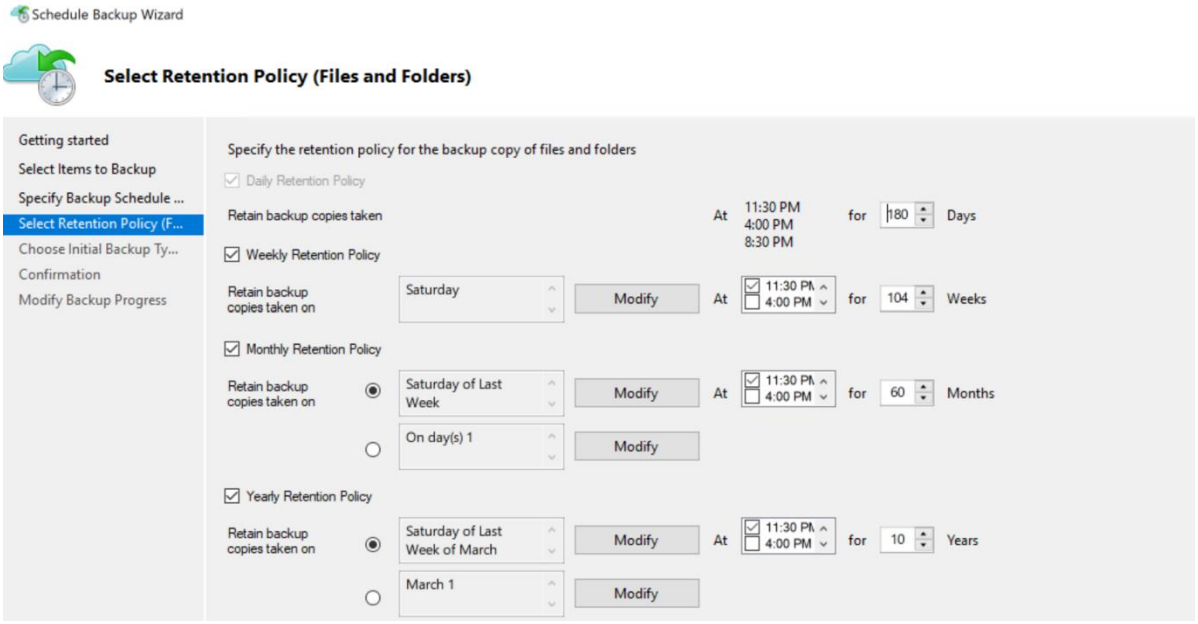


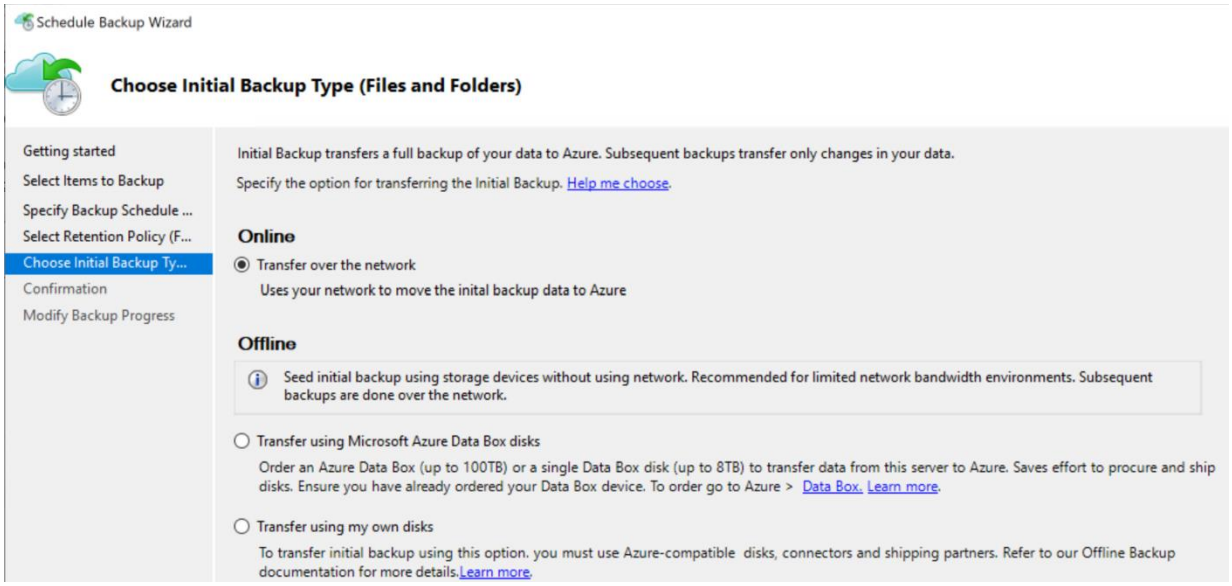
Now going to back up user documents

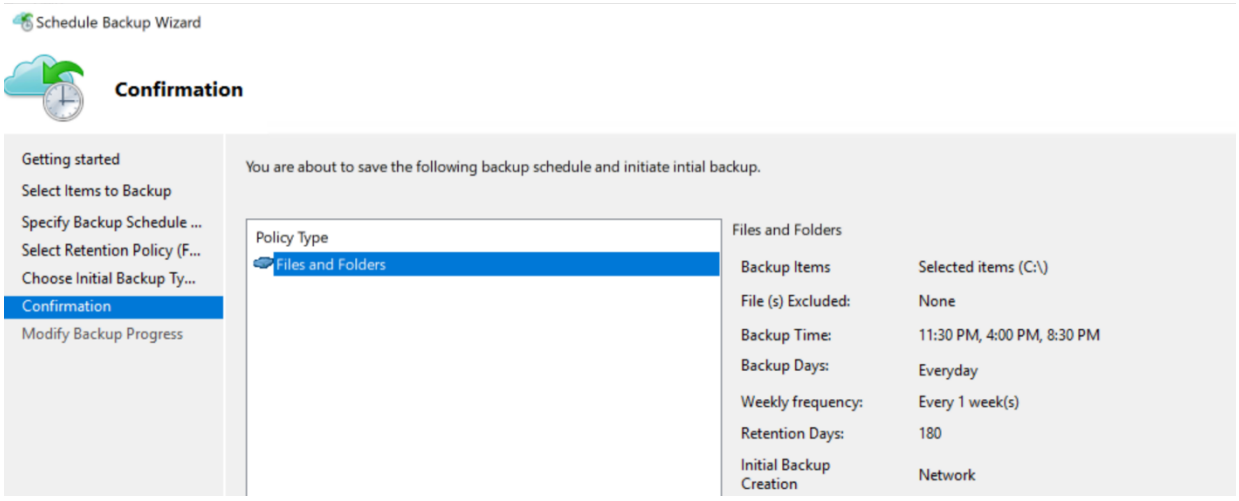


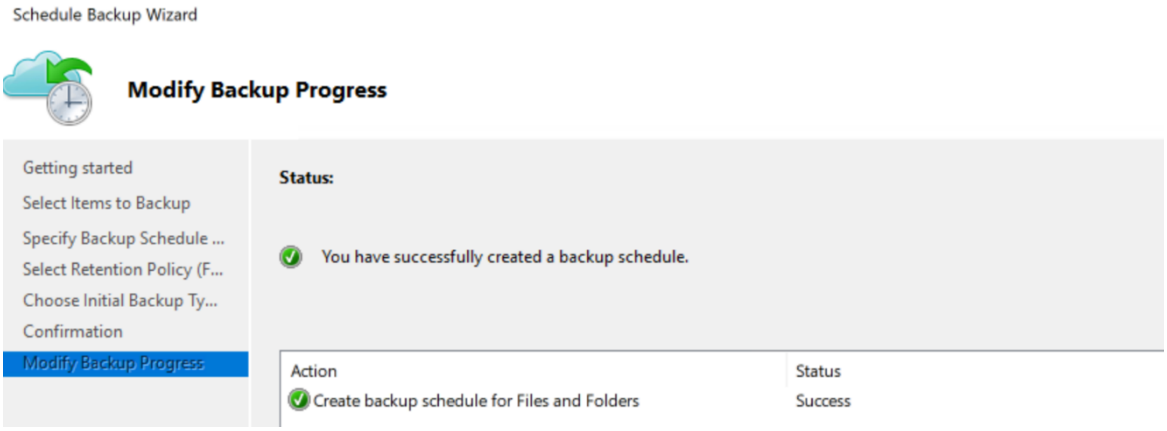



Schedule Backup Wizard
Specify Backup Schedule (Files and Folders)
Getting started
Select Items to Backup
Specify Backup Schedule ...
Select Retention Policy (F...
Choose Initial Backup Ty...
Confirmation
Modify Backup Progress
Define a schedule when you want to create a backup copy for selected files and folders
Schedule a backup every
Day
Week
At following times (Maximum allowed is three times a day)
11:30 PM
4:00 PM
8:30 PM

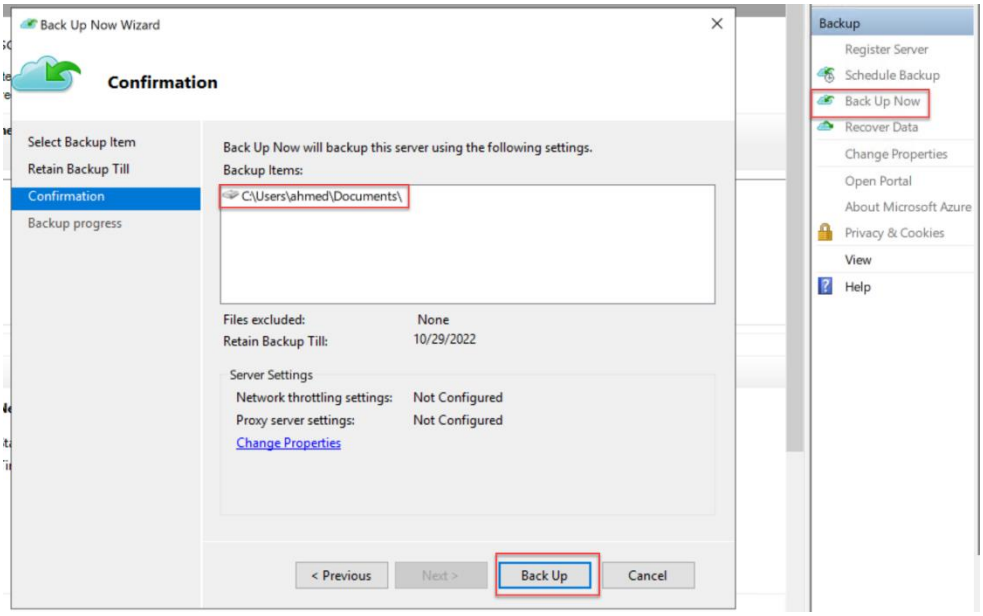

Schedule Backup Wizard
Select Retention Policy (Files and Folders)
Getting started
Select Items to Backup
Specify Backup Schedule ...
Select Retention Policy (F...
Choose Initial Backup Ty...
Confirmation
Modify Backup Progress
Specify the retention policy for the backup copy of files and folders
Daily Retention Policy
Retain backup copies taken
At
11:30 PM
4:00 PM
8:30 PM
for
180
Days
Weekly Retention Policy
Retain backup copies taken on
Saturday
Modify
At
11:30 PM
4:00 PM
for
104
Weeks
Monthly Retention Policy
Retain backup copies taken on
Saturday of Last Week
Modify
At
11:30 PM
4:00 PM
for
60
Months
On day(s) 1
Modify
Yearly Retention Policy
Retain backup copies taken on
Saturday of Last Week of March
Modify
At
11:30 PM
4:00 PM
for
10
Years
March 1
Modify

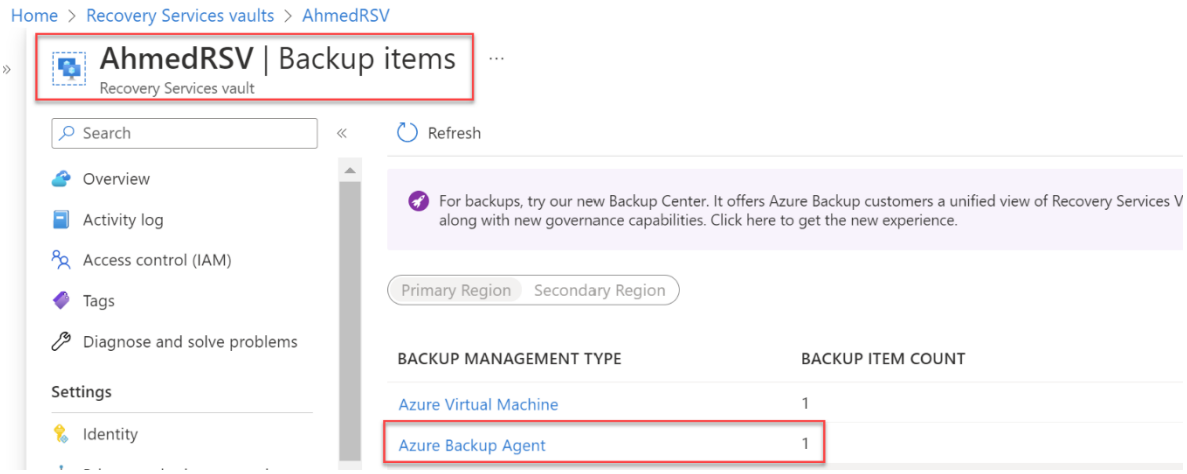

Schedule Backup Wizard
Choose Initial Backup Type (Files and Folders)
Getting started
Select Items to Backup
Specify Backup Schedule ...
Select Retention Policy (F...
Choose Initial Backup Ty...
Confirmation
Modify Backup Progress
Initial Backup transfers a full backup of your data to Azure. Subsequent backups transfer only changes in your data.
Specify the option for transferring the Initial Backup. Help me choose.
Online
Transfer over the network
Uses your network to move the inital backup data to Azure
Offline
Seed initial backup using storage devices without using network. Recommended for limited network bandwidth environments. Subsequent backups are done over the network.
Transfer using Microsoft Azure Data Box disks
Order an Azure Data Box (up to 100TB) or a single Data Box disk (up to 8TB) to transfer data from this server to Azure. Saves effort to procure and ship disks. Ensure you have already ordered your Data Box device. To order go to Azure > Data Box. Learn more.
Transfer using my own disks
To transfer initial backup using this option. you must use Azure-compatible disks, connectors and shipping partners. Refer to our Offline Backup documentation for more details. Learn more.

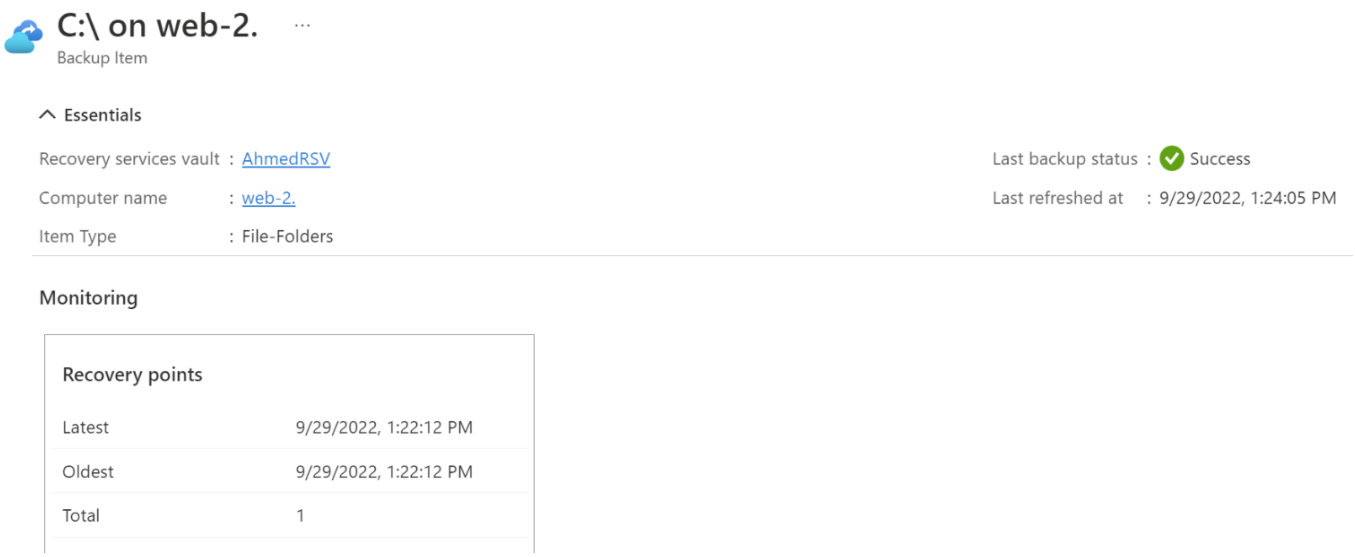




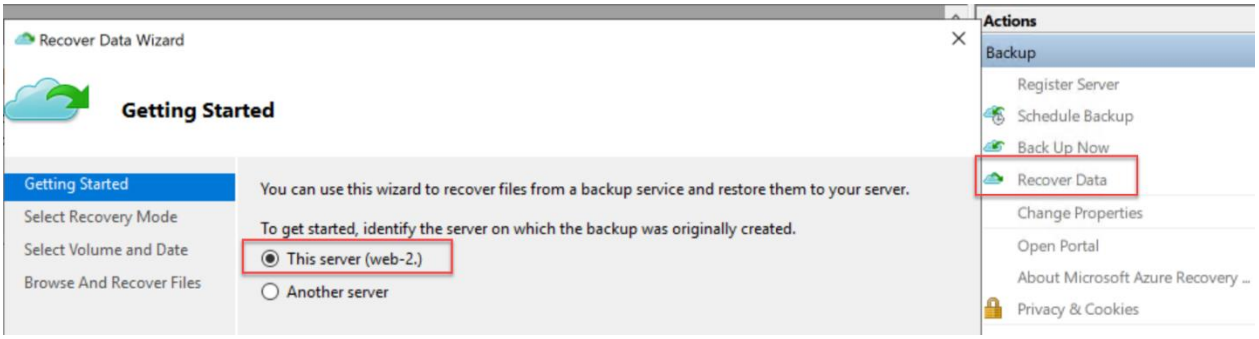
You can also backup now

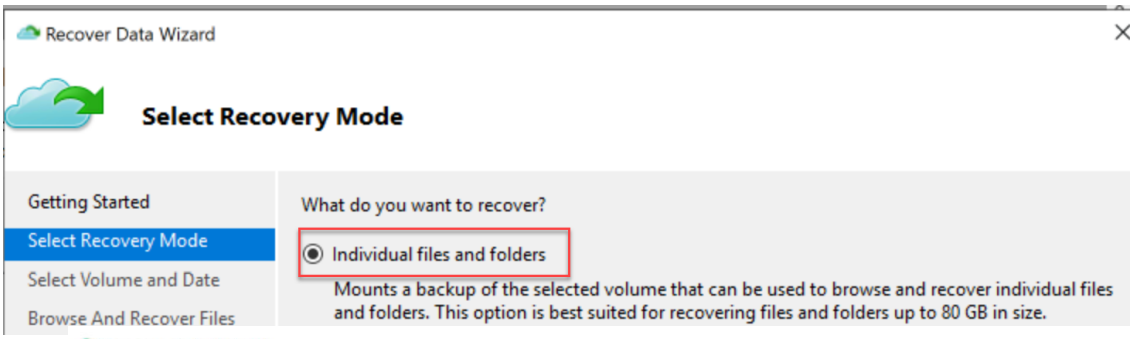


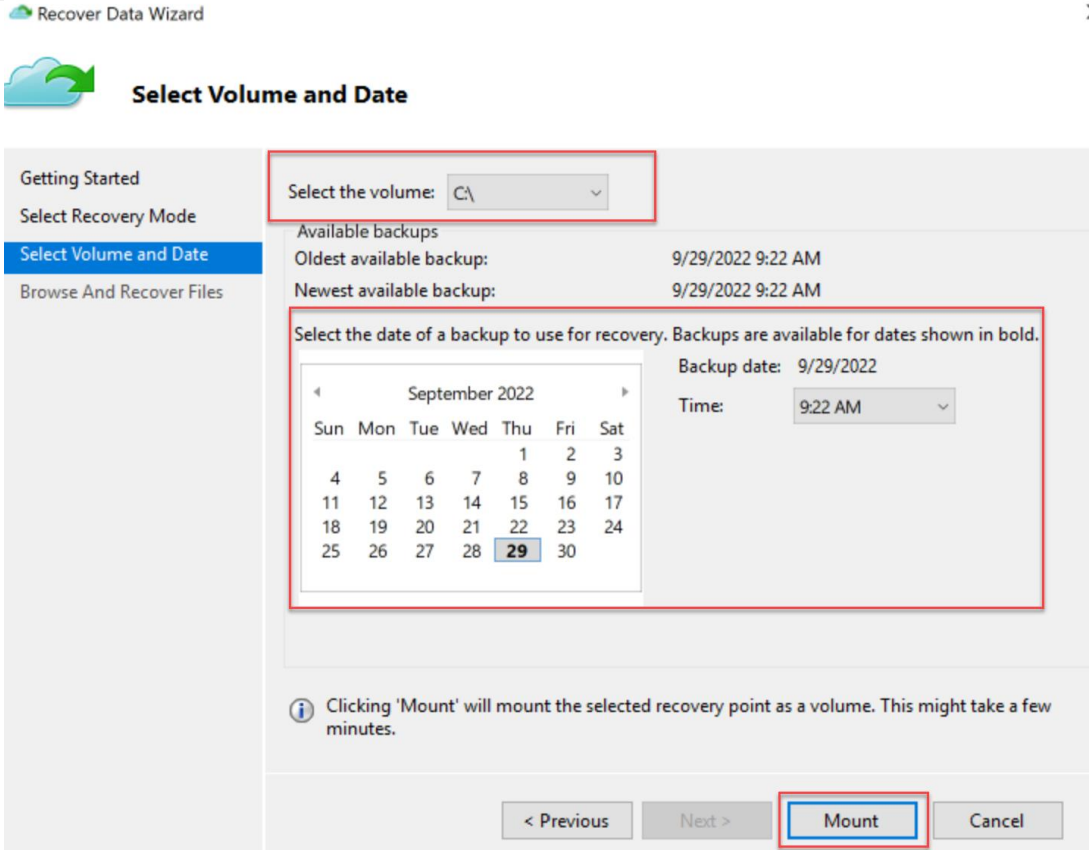

Home > Recovery Services vaults > AhmedRSV
AhmedRSV | Backup items
Recovery Services vault
Search
Refresh
Overview
Activity log
Access control (IAM)
Tags
Diagnose and solve problems
Settings
Identity
For backups, try our new Backup Center. It offers Azure Backup customers a unified view of Recovery Services V
along with new governance capabilities. Click here to get the new experience.
Primary Region
Secondary Region
BACKUP MANAGEMENT TYPE
BACKUP ITEM COUNT
Azure Virtual Machine
1
Azure Backup Agent
1

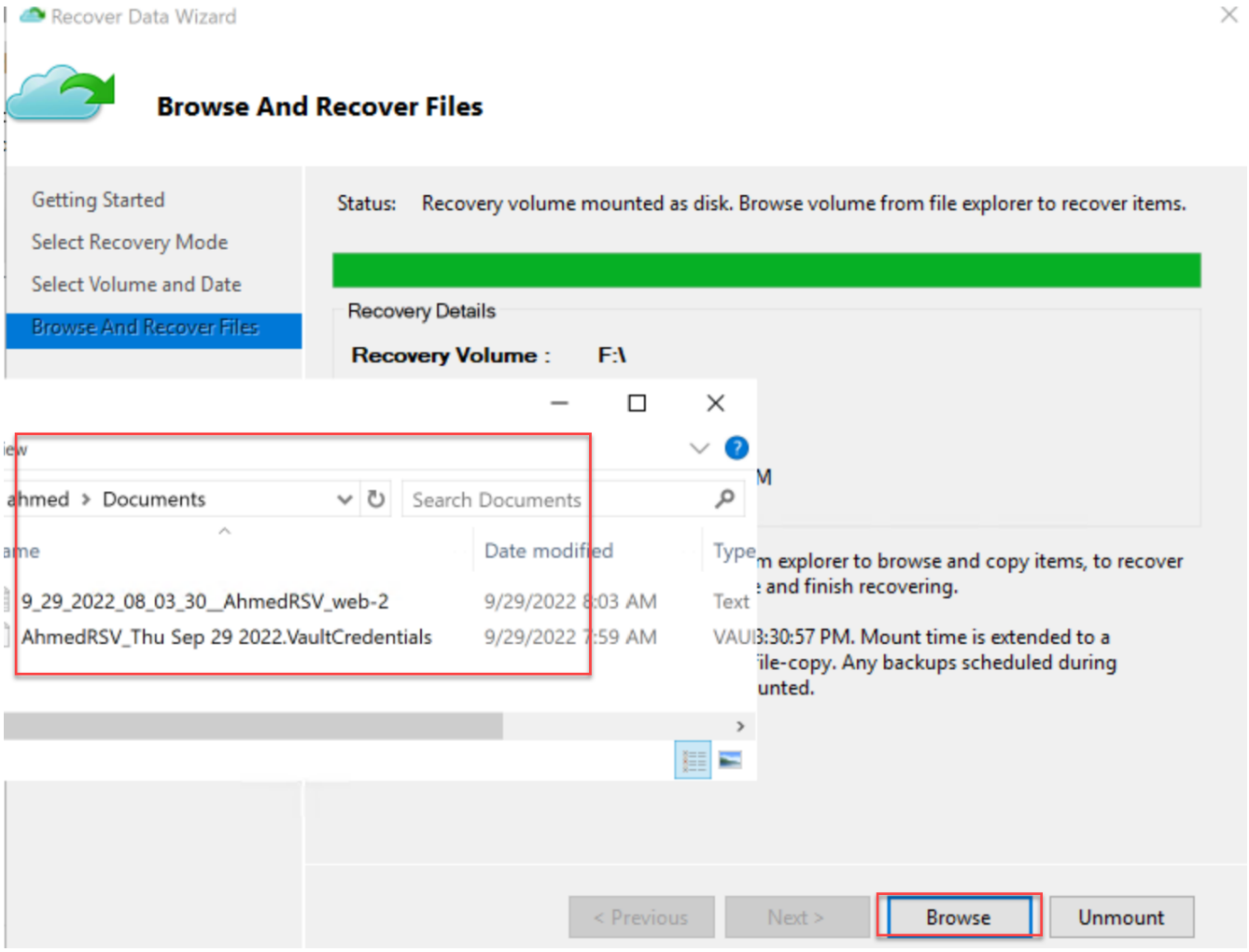

Home > Recovery Services vaults > AhmedRSV | Backup items > Backup Items (Azure Backup Agent) >
C:\ on web-2.
Backup Item
Essentials
Recovery services vault : AhmedRSV
Computer name : web-2.
Item Type : File-Folders
Last backup status : Success
Last refreshed at : 9/29/2022, 1:24:05 PM
Monitoring
Recovery points
Latest 9/29/2022, 1:22:12 PM
Oldest 9/29/2022, 1:22:12 PM
Total 1

To recover these data, you have to recover from azure backup agent





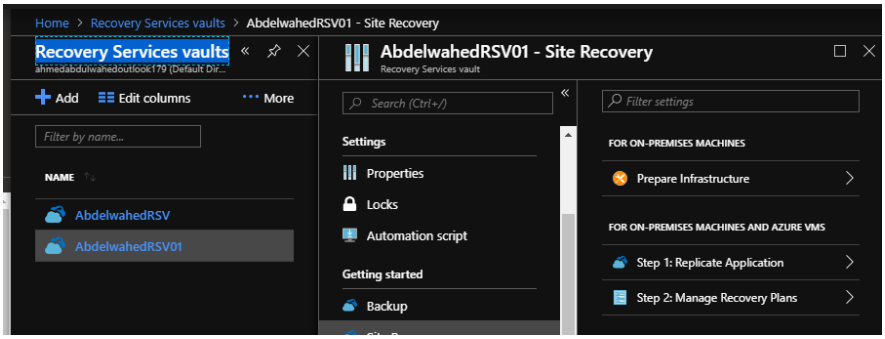


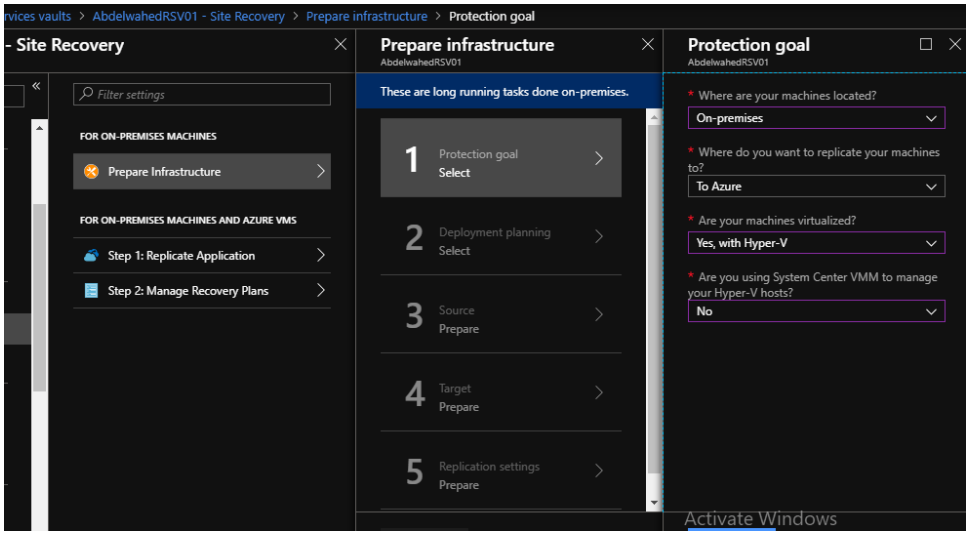

Recover Data Wizard
Browse And Recover Files
Getting Started
Select Recovery Mode
Select Volume and Date
Browse And Recover Files
Status: Recovery volume mounted as disk. Browse volume from file explorer to recover items.
Recovery Details
Recovery Volume : F:\
ahmed > Documents
Search Documents
Date modified
Type
9_29_2022_08_03_30__AhmedRSV_web-2
9/29/2022 8:03 AM
Text
AhmedRSV_Thu Sep 29 2022.VaultCredentials
9/29/2022 7:59 AM
m explorer to browse and copy items, to recover
and finish recovering.
3:30:57 PM. Mount time is extended to a
ile-copy. Any backups scheduled during
unted.
< Previous
Next >
Browse
Unmount

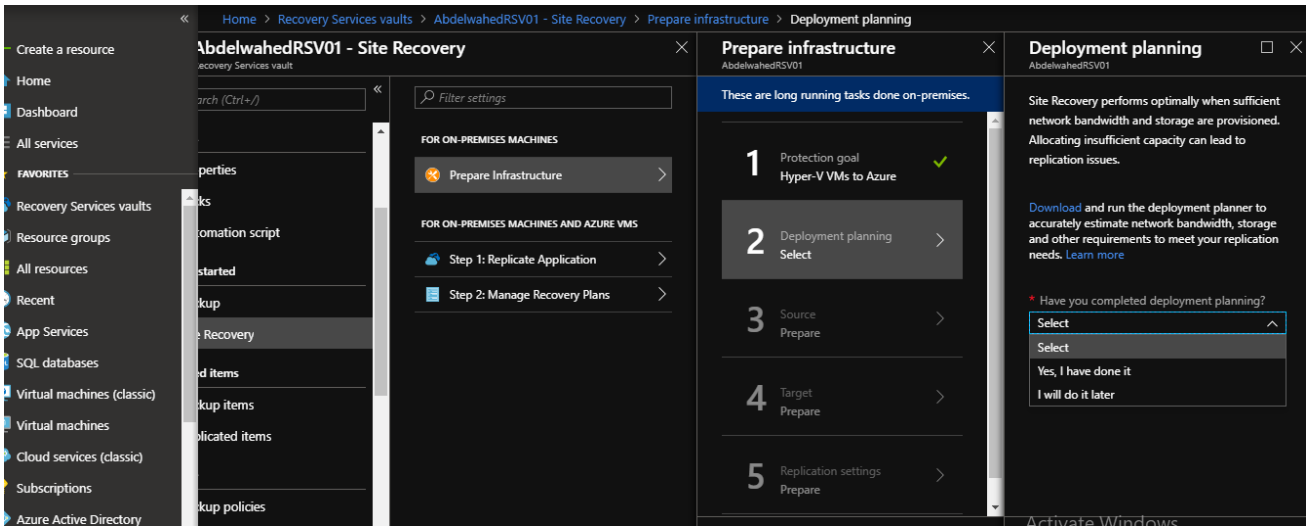
Azure Site Recovery

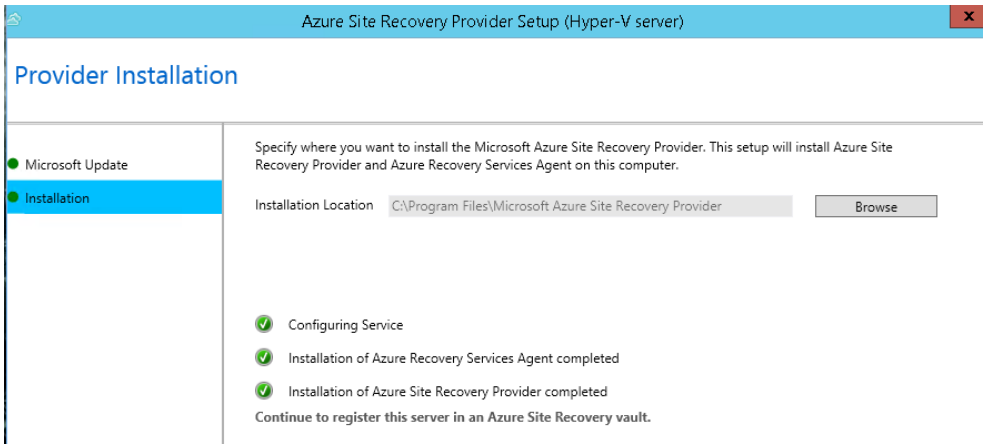
Configuring ASR for on-premises resources

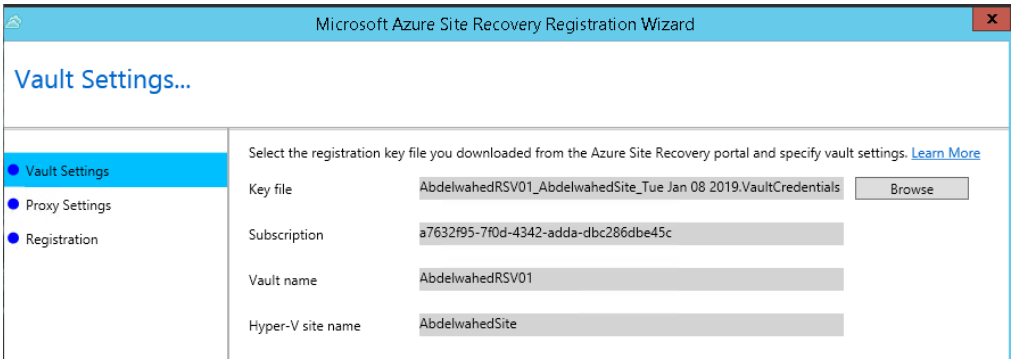
1. Prepare Infrastructure
2. Replicate Application
3. Manage Recovery Plans

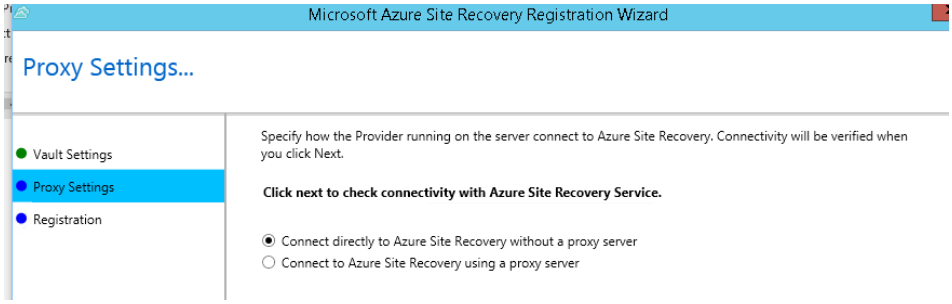


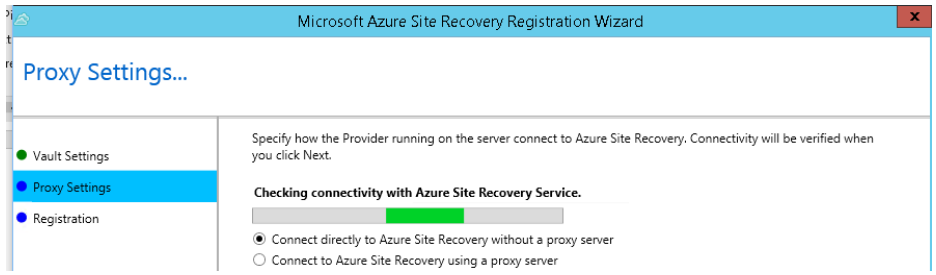


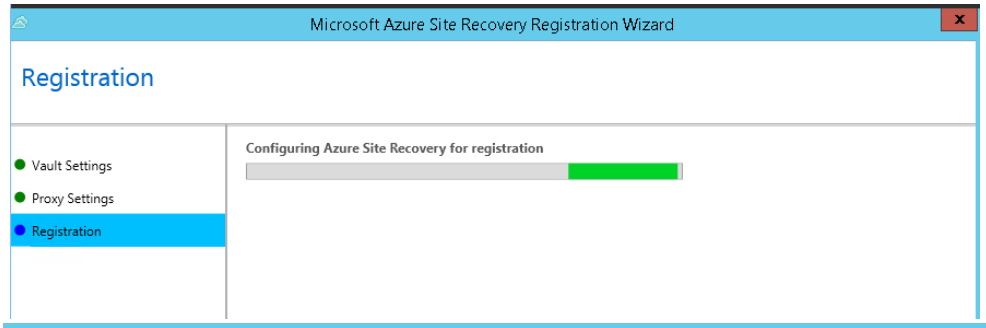

Home > Recovery Services vaults > AbdelwahedRSV01 - Site Recovery > Prepare infrastructure > Deployment planning
Create a resource
Home
Dashboard
All services
FAVORITES
Recovery Services vaults
Resource groups
All resources
Recent
App Services
SQL databases
Virtual machines (classic)
Virtual machines
Cloud services (classic)
Subscriptions
Azure Active Directory
AbdelwahedRSV01 - Site Recovery
Filter settings
FOR ON-PREMISES MACHINES
Prepare Infrastructure
FOR ON-PREMISES MACHINES AND AZURE VMS
Step 1: Replicate Application
Step 2: Manage Recovery Plans
Prepare infrastructure
AbdelwahedRSV01
These are long running tasks done on-premises.
1 Protection goal Hyper-V VMs to Azure
2 Deployment planning Select
3 Source Prepare
4 Target Prepare
5 Replication settings Prepare
Deployment planning
AbdelwahedRSV01
Site Recovery performs optimally when sufficient network bandwidth and storage are provisioned. Allocating insufficient capacity can lead to replication issues.
Download and run the deployment planner to accurately estimate network bandwidth, storage and other requirements to meet your replication needs. Learn more
* Have you completed deployment planning?
Select
Select
Yes, I have done it
I will do it later

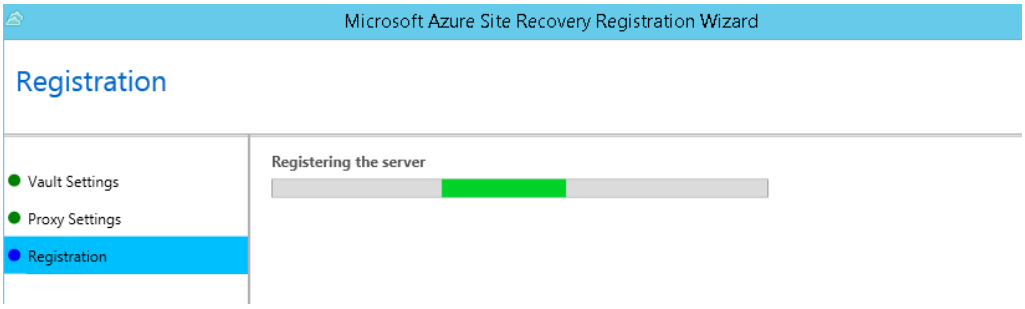

Azure Site Recovery Provider Setup (Hyper-V server)
Provider Installation
Microsoft Update
Installation
Specify where you want to install the Microsoft Azure Site Recovery Provider. This setup will install Azure Site Recovery Provider and Azure Recovery Services Agent on this computer.
Installation Location
C:\Program Files\Microsoft Azure Site Recovery Provider
Browse
Configuring Service
Installation of Azure Recovery Services Agent completed
Installation of Azure Site Recovery Provider completed
Continue to register this server in an Azure Site Recovery vault.


Microsoft Azure Site Recovery Registration Wizard
Vault Settings...
Vault Settings
Proxy Settings
Registration
Select the registration key file you downloaded from the Azure Site Recovery portal and specify vault settings. Learn More
Key file
AbdelwahedRSV01_AbdelwahedSite_Tue Jan 08 2019.VaultCredentials
Browse
Subscription
a7632f95-7f0d-4342-adda-dbc286dbe45c
Vault name
AbdelwahedRSV01
Hyper-V site name
AbdelwahedSite

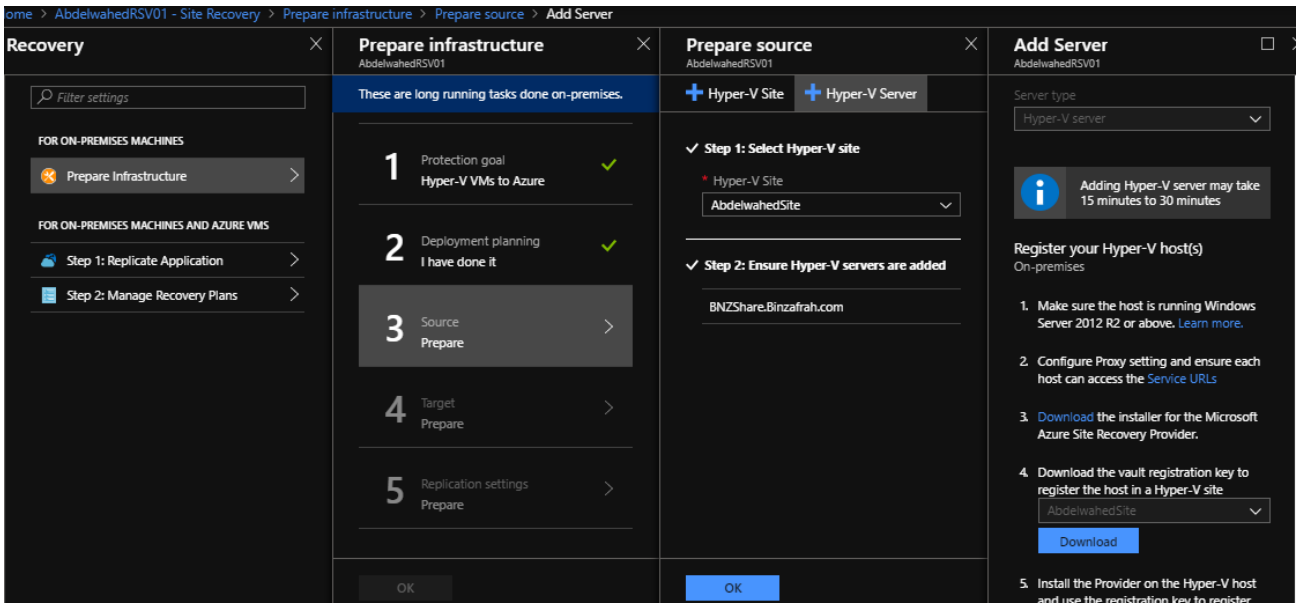

Microsoft Azure Site Recovery Registration Wizard
Proxy Settings...
Vault Settings
Proxy Settings
Registration
Specify how the Provider running on the server connect to Azure Site Recovery. Connectivity will be verified when you click Next.
Click next to check connectivity with Azure Site Recovery Service.
Connect directly to Azure Site Recovery without a proxy server
Connect to Azure Site Recovery using a proxy server

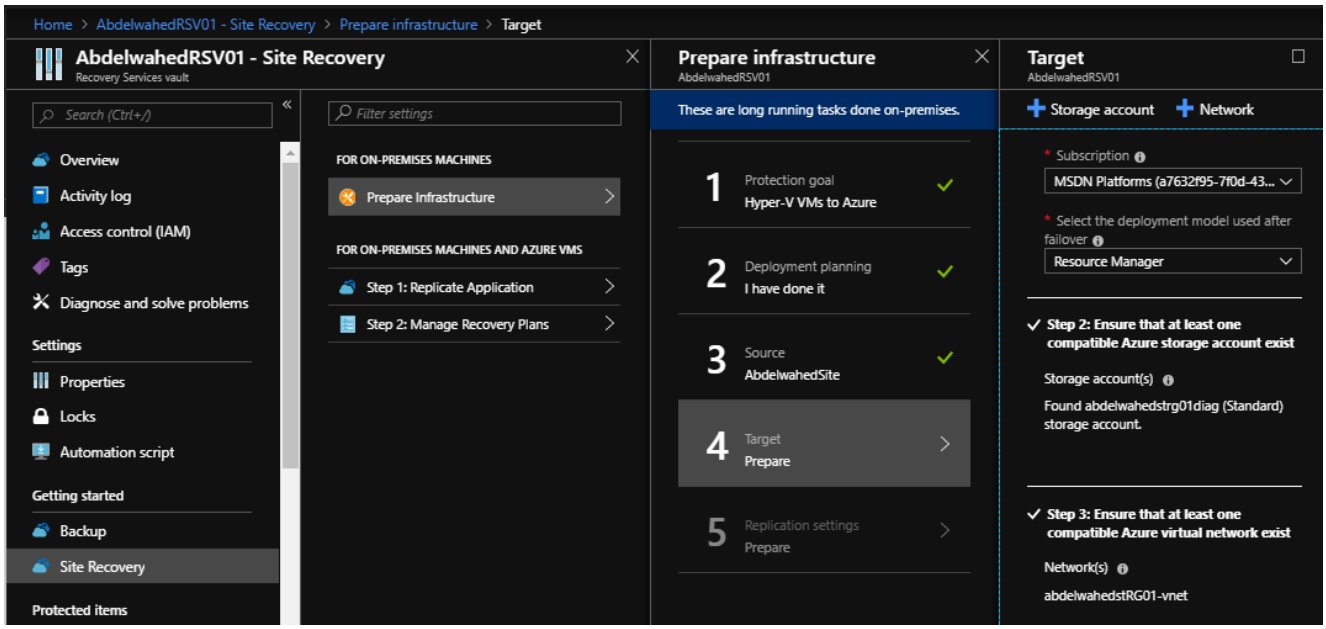

Microsoft Azure Site Recovery Registration Wizard
Proxy Settings...
Vault Settings
Proxy Settings
Registration
Specify how the Provider running on the server connect to Azure Site Recovery. Connectivity will be verified when you click Next.
Checking connectivity with Azure Site Recovery Service.
Connect directly to Azure Site Recovery without a proxy server
Connect to Azure Site Recovery using a proxy server

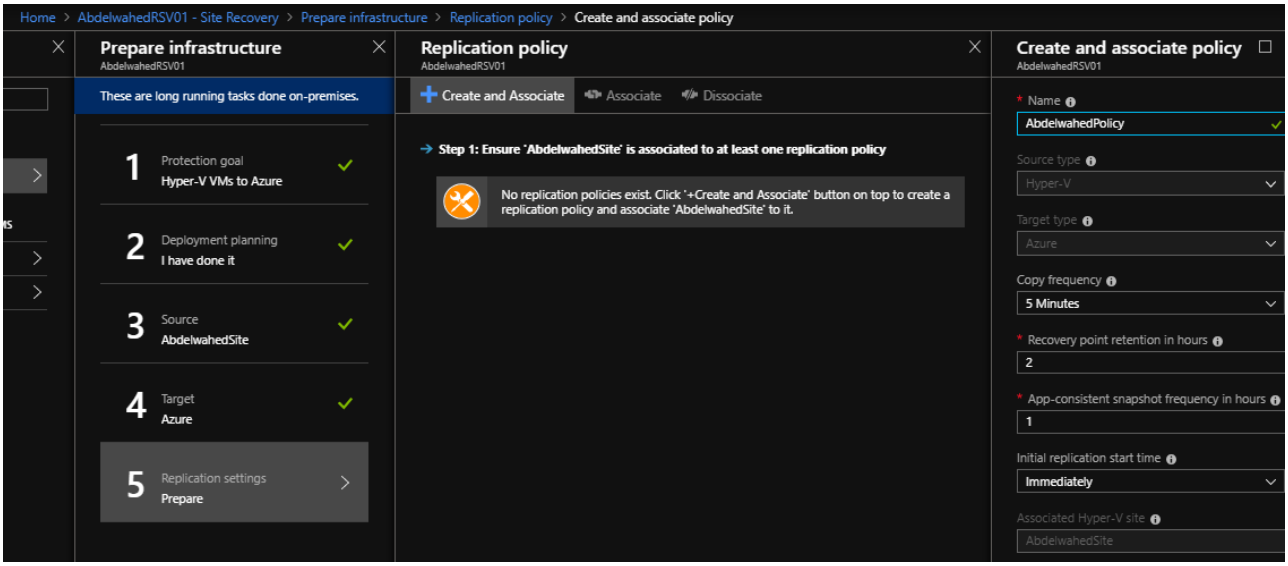

Microsoft Azure Site Recovery Registration Wizard
Registration
Vault Settings
Proxy Settings
Registration
Configuring Azure Site Recovery for registration

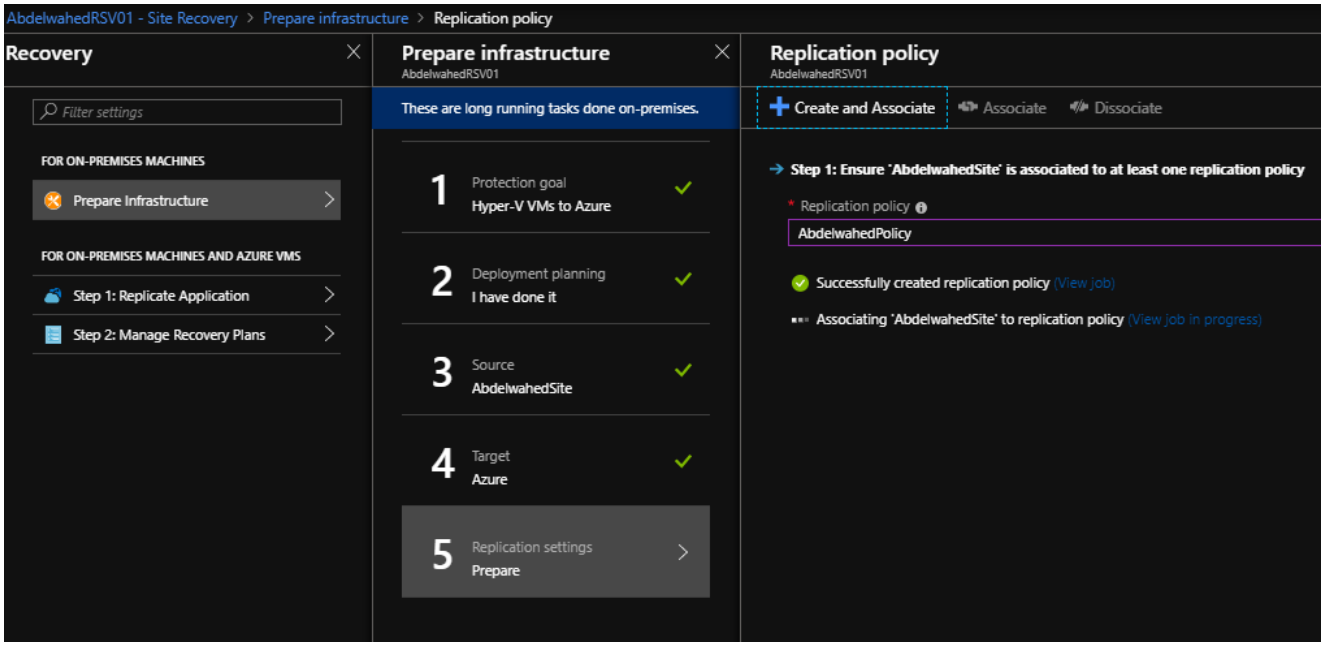

Microsoft Azure Site Recovery Registration Wizard
Registration
Vault Settings
Proxy Settings
Registration
Registering the server

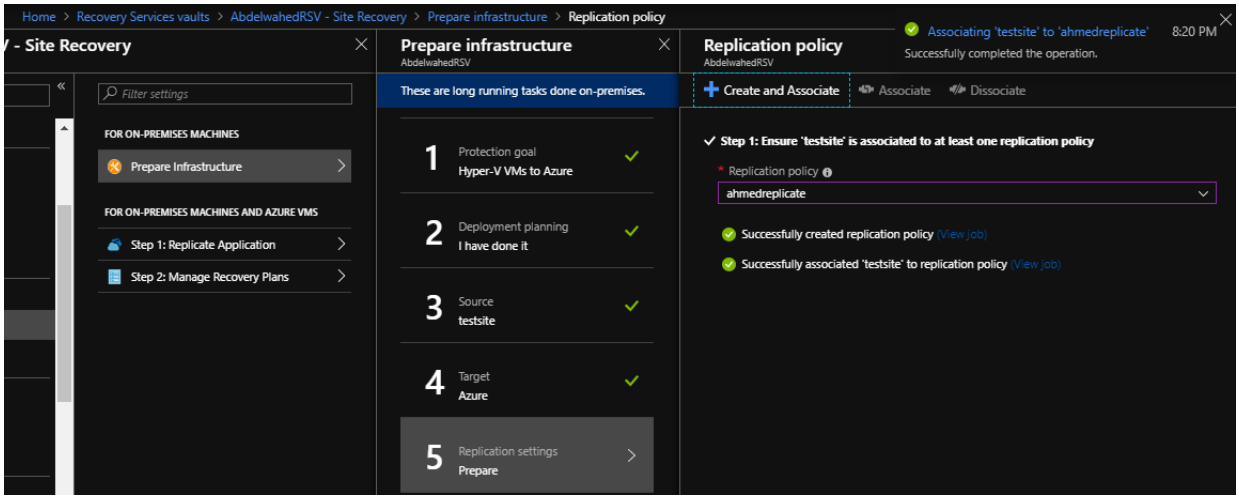

Microsoft Azure Site Recovery Registration Wizard
Registration
Vault Settings
Proxy Settings
Registration
The server was registered in the Azure Site Recovery vault

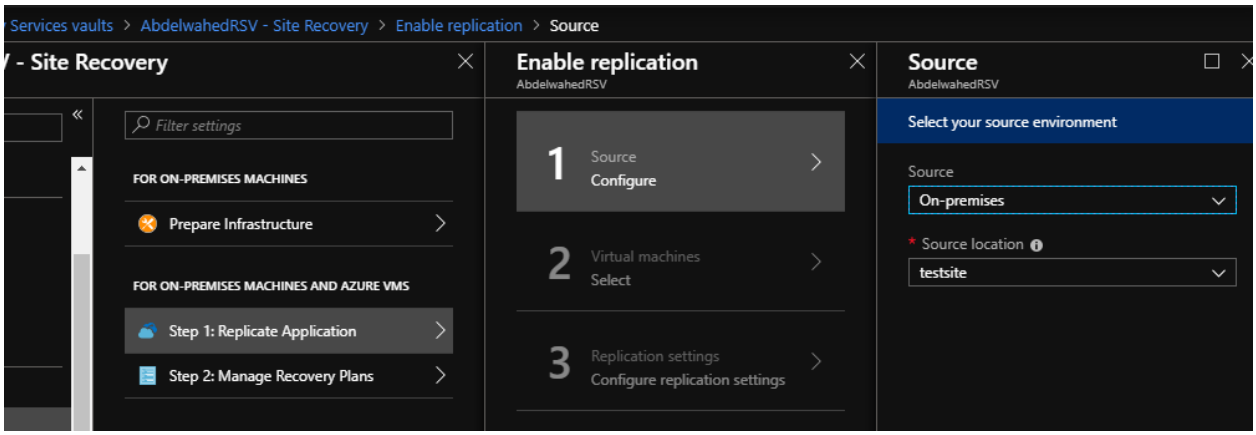

ome > AbdelwahedRSV01 - Site Recovery > Prepare infrastructure > Prepare source > Add Server
Recovery
Filter settings
FOR ON-PREMISES MACHINES
Prepare Infrastructure
FOR ON-PREMISES MACHINES AND AZURE VMS
Step 1: Replicate Application
Step 2: Manage Recovery Plans
Prepare infrastructure
AbdelwahedRSV01
These are long running tasks done on-premises.
1 Protection goal Hyper-V VMs to Azure
2 Deployment planning I have done it
3 Source Prepare
4 Target Prepare
5 Replication settings Prepare
OK
Prepare source
AbdelwahedRSV01
Hyper-V Site
Hyper-V Server
Step 1: Select Hyper-V site
Hyper-V Site
AbdelwahedSite
Step 2: Ensure Hyper-V servers are added
BNZShare.Binzafrah.com
OK
Add Server
AbdelwahedRSV01
Server type
Hyper-V server
Adding Hyper-V server may take 15 minutes to 30 minutes
Register your Hyper-V host(s)
On-premises
1. Make sure the host is running Windows Server 2012 R2 or above. Learn more.
2. Configure Proxy setting and ensure each host can access the Service URLs
3. Download the installer for the Microsoft Azure Site Recovery Provider.
4. Download the vault registration key to register the host in a Hyper-V site
AbdelwahedSite
Download
5. Install the Provider on the Hyper-V host

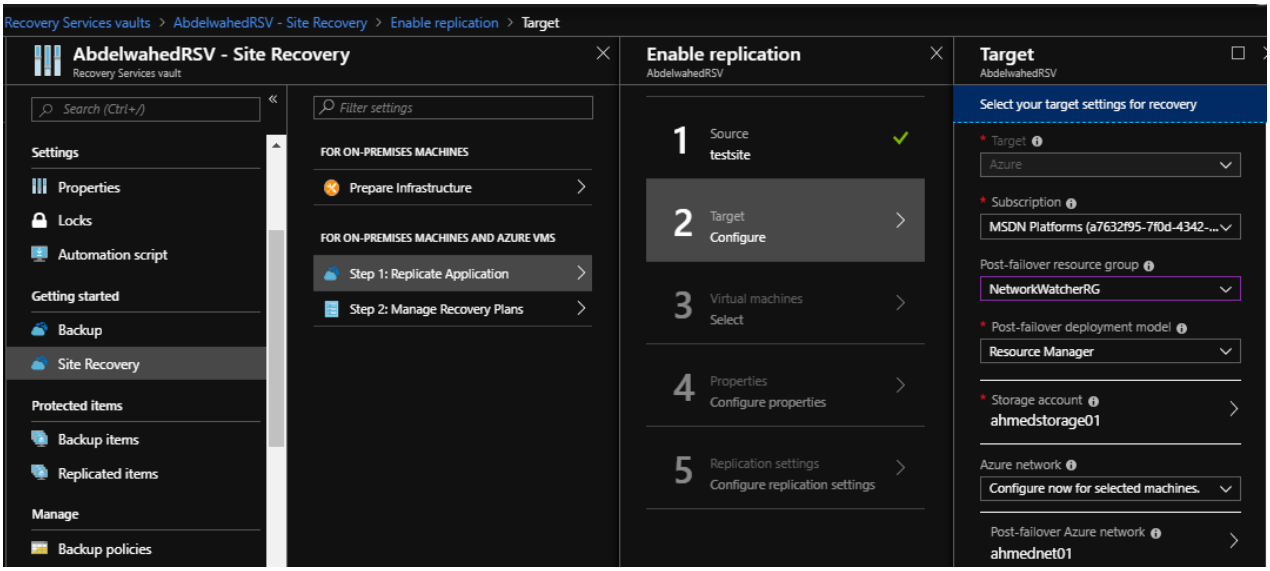

Home > AbdelwahedRSV01 - Site Recovery > Prepare infrastructure > Target
AbdelwahedRSV01 - Site Recovery
Recovery Services vault
Search (Ctrl+/)
Overview
Activity log
Access control (IAM)
Tags
Diagnose and solve problems
Settings
Properties
Locks
Automation script
Getting started
Backup
Site Recovery
Protected items
Filter settings
FOR ON-PREMISES MACHINES
Prepare Infrastructure
FOR ON-PREMISES MACHINES AND AZURE VMS
Step 1: Replicate Application
Step 2: Manage Recovery Plans
Prepare infrastructure
AbdelwahedRSV01
These are long running tasks done on-premises.
1 Protection goal Hyper-V VMs to Azure
2 Deployment planning I have done it
3 Source AbdelwahedSite
4 Target Prepare
5 Replication settings Prepare
Target
AbdelwahedRSV01
Storage account
Network
Subscription
MSDN Platforms (a7632f95-7f0d-43...
Select the deployment model used after failover
Resource Manager
Step 2: Ensure that at least one compatible Azure storage account exist
Storage account(s)
Found abdelwahedstrg01diag (Standard) storage account.
Step 3: Ensure that at least one compatible Azure virtual network exist
Network(s)
abdelwahedstRG01-vnet

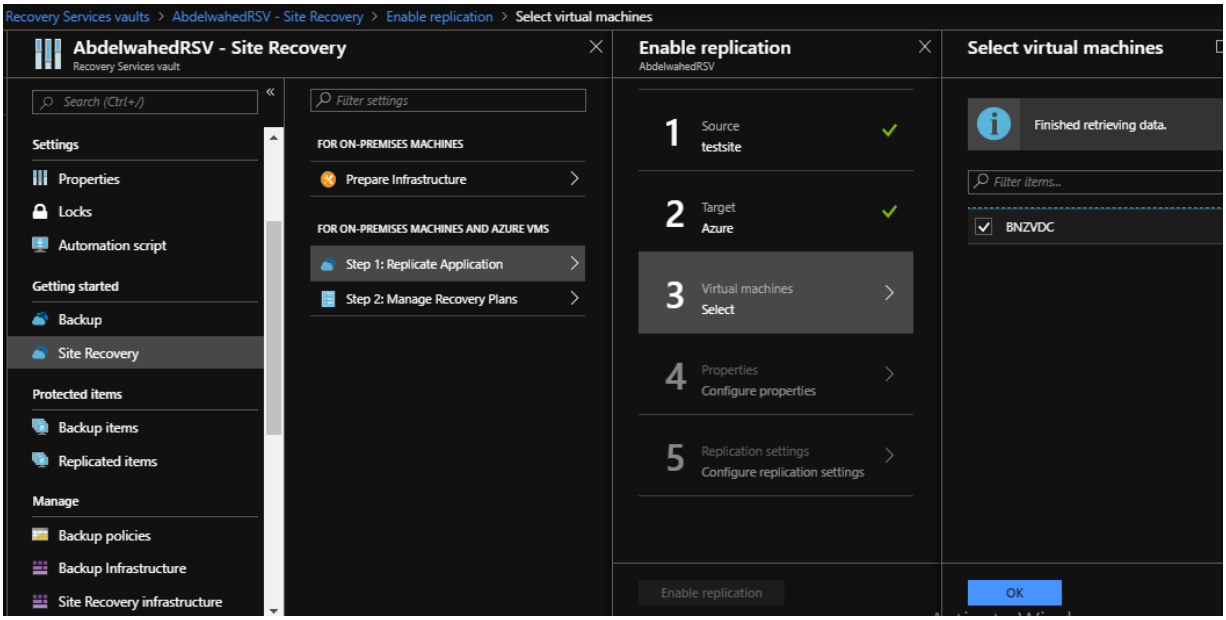

Home > AbdelwahedRSV01 - Site Recovery > Prepare infrastructure > Replication policy > Create and associate policy
Prepare infrastructure
AbdelwahedRSV01
These are long running tasks done on-premises.
1 Protection goal
Hyper-V VMs to Azure
2 Deployment planning
I have done it
3 Source
AbdelwahedSite
4 Target
Azure
5 Replication settings
Prepare
Replication policy
AbdelwahedRSV01
Create and Associate
Associate
Dissociate
Step 1: Ensure 'AbdelwahedSite' is associated to at least one replication policy
No replication policies exist. Click '+Create and Associate' button on top to create a replication policy and associate 'AbdelwahedSite' to it.
Create and associate policy
AbdelwahedRSV01
Name
AbdelwahedPolicy
Source type
Hyper-V
Target type
Azure
Copy frequency
5 Minutes
Recovery point retention in hours
2
App-consistent snapshot frequency in hours
1
Initial replication start time
Immediately
Associated Hyper-V site
AbdelwahedSite

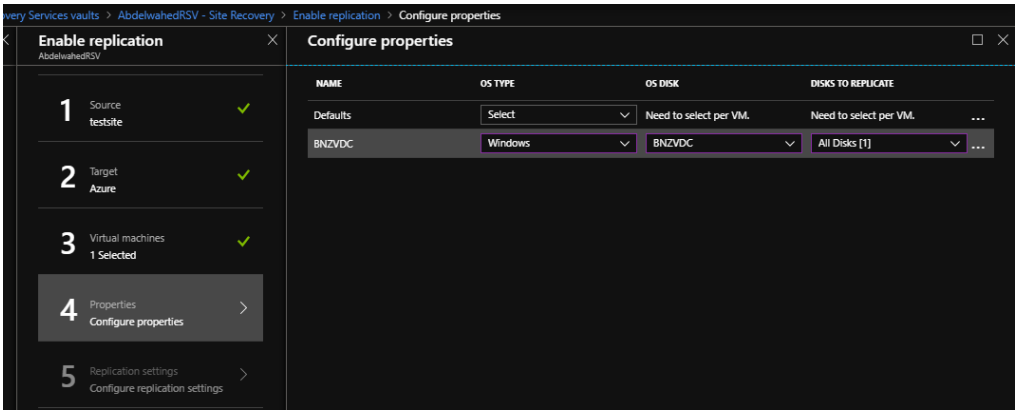

AbdelwahedRSV01 - Site Recovery > Prepare infrastructure > Replication policy
Recovery
Filter settings
FOR ON-PREMISES MACHINES
Prepare Infrastructure
FOR ON-PREMISES MACHINES AND AZURE VMS
Step 1: Replicate Application
Step 2: Manage Recovery Plans
Prepare infrastructure
AbdelwahedRSV01
These are long running tasks done on-premises.
1 Protection goal
Hyper-V VMs to Azure
2 Deployment planning
I have done it
3 Source
AbdelwahedSite
4 Target
Azure
5 Replication settings
Prepare
Replication policy
AbdelwahedRSV01
Create and Associate
Associate
Dissociate
Step 1: Ensure 'AbdelwahedSite' is associated to at least one replication policy
Replication policy
AbdelwahedPolicy
Successfully created replication policy (View job)
Associating 'AbdelwahedSite' to replication policy (View job in progress)


Home > Recovery Services vaults > AbdelwahedRSV - Site Recovery > Prepare infrastructure > Replication policy
- Site Recovery
Filter settings
FOR ON-PREMISES MACHINES
Prepare Infrastructure
FOR ON-PREMISES MACHINES AND AZURE VMS
Step 1: Replicate Application
Step 2: Manage Recovery Plans
Prepare infrastructure
AbdelwahedRSV
These are long running tasks done on-premises.
1 Protection goal Hyper-V VMs to Azure
2 Deployment planning I have done it
3 Source testsite
4 Target Azure
5 Replication settings Prepare
Replication policy
AbdelwahedRSV
Create and Associate
Associate
Dissociate
Step 1: Ensure 'testsite' is associated to at least one replication policy
Replication policy
ahmedreplicate
Successfully created replication policy (View job)
Successfully associated 'testsite' to replication policy (View job)
Associating 'testsite' to 'ahmedreplicate'
Successfully completed the operation.
8:20 PM

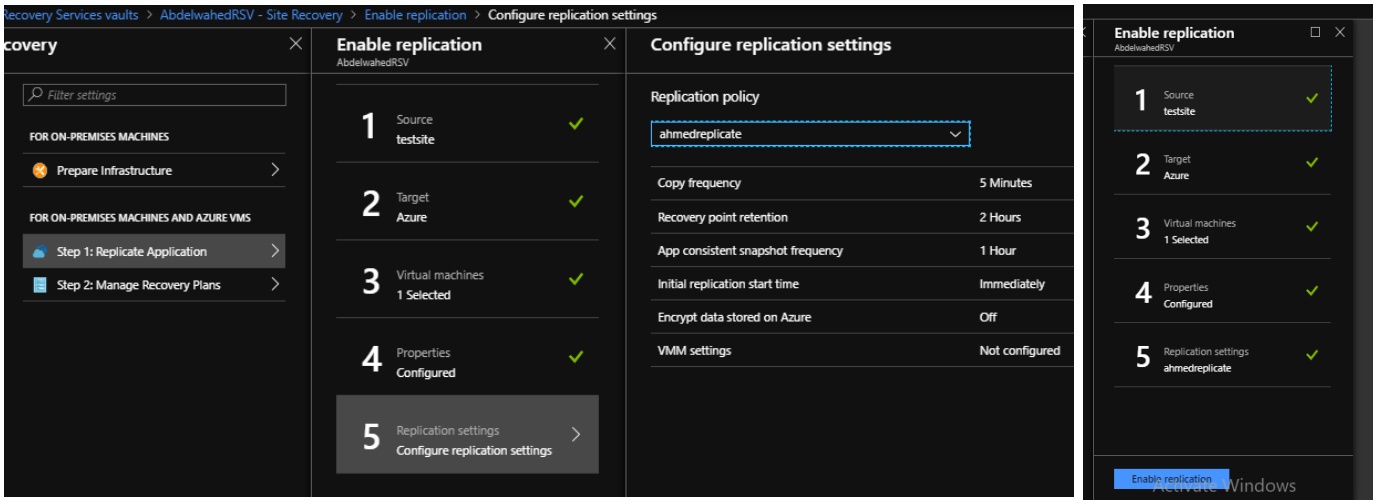

Services vaults > AbdelwahedRSV - Site Recovery > Enable replication > Source
- Site Recovery
Filter settings
FOR ON-PREMISES MACHINES
Prepare Infrastructure
FOR ON-PREMISES MACHINES AND AZURE VMS
Step 1: Replicate Application
Step 2: Manage Recovery Plans
Enable replication
AbdelwahedRSV
1 Source Configure
2 Virtual machines Select
3 Replication settings Configure replication settings
Source
AbdelwahedRSV
Select your source environment
Source
On-premises
Source location
testsite

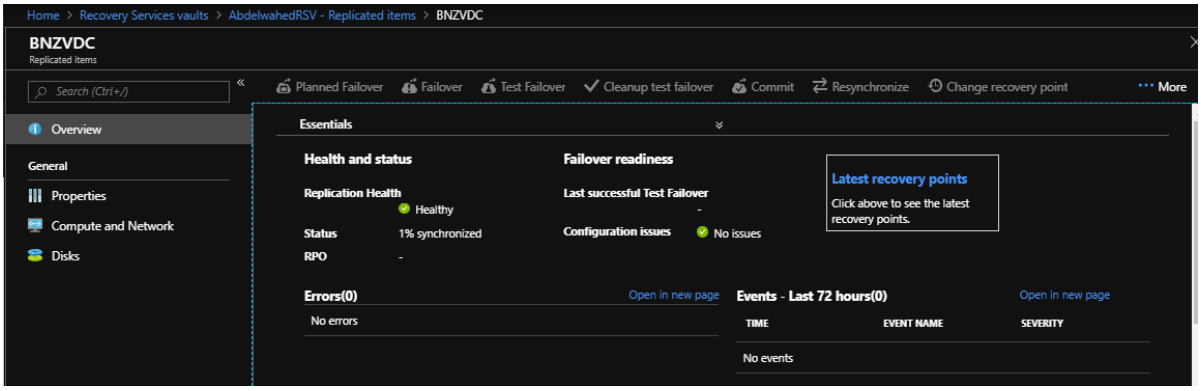

Recovery Services vaults > AbdelwahedRSV - Site Recovery > Enable replication > Target
AbdelwahedRSV - Site Recovery
Recovery Services vault
Search (Ctrl+/)
Settings
Properties
Locks
Automation script
Getting started
Backup
Site Recovery
Protected items
Backup items
Replicated items
Manage
Backup policies
Filter settings
FOR ON-PREMISES MACHINES
Prepare Infrastructure
FOR ON-PREMISES MACHINES AND AZURE VMS
Step 1: Replicate Application
Step 2: Manage Recovery Plans
Enable replication
AbdelwahedRSV
1 Source testsite
2 Target Configure
3 Virtual machines Select
4 Properties Configure properties
5 Replication settings Configure replication settings
Target
AbdelwahedRSV
Select your target settings for recovery
Target
Azure
Subscription
MSDN Platforms (a7632f95-7f0d-4342-...
Post-failover resource group
NetworkWatcherRG
Post-failover deployment model
Resource Manager
Storage account
ahmedstorage01
Azure network
Configure now for selected machines.
Post-failover Azure network
ahmednet01

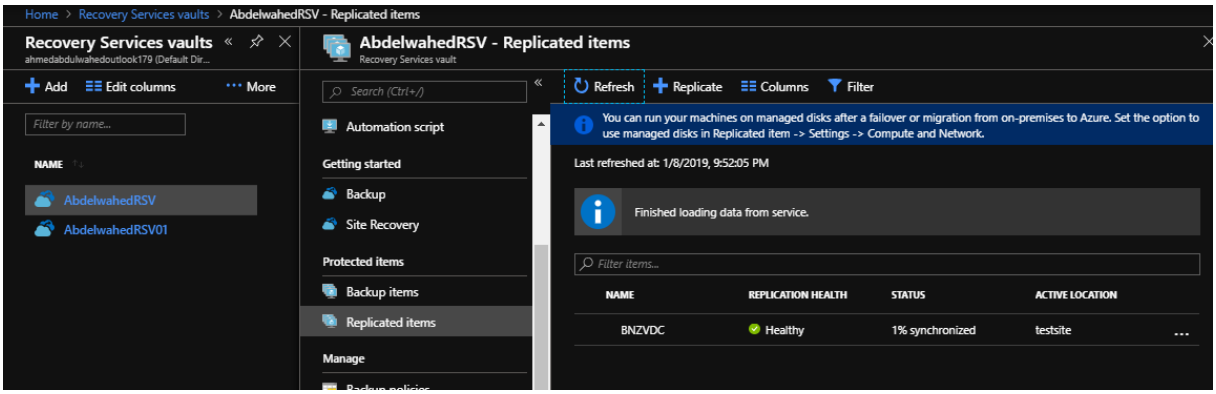


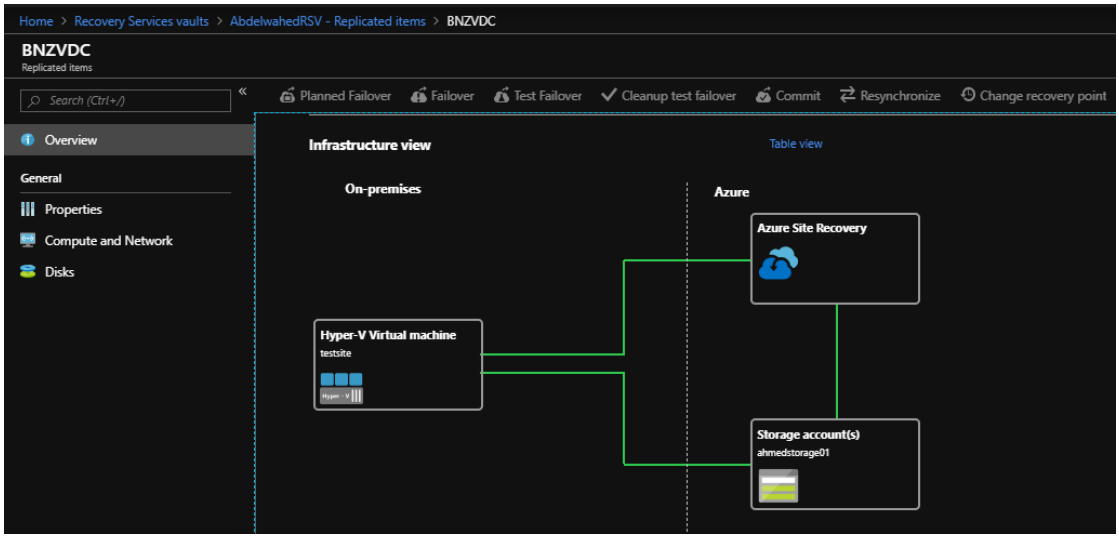


set replication policy




Home > Recovery Services vaults > AbdelwahedRSV - Replicated items > BNZVDC
BNZVDC
Replicated items
Search (Ctrl+/)
Planned Failover
Failover
Test Failover
Cleanup test failover
Commit
Resynchronize
Change recovery point
More
Overview
General
Properties
Compute and Network
Disks
Essentials
Health and status
Replication Health
Healthy
Status
1% synchronized
RPO
-
Failover readiness
Last successful Test Failover
-
Configuration issues
No issues
Latest recovery points
Click above to see the latest recovery points.
Errors(0)
Open in new page
No errors
Events - Last 72 hours(0)
Open in new page
TIME
EVENT NAME
SEVERITY
No events


Home > Recovery Services vaults > AbdelwahedRSV - Replicated items
Recovery Services vaults
Add
Edit columns
More
Filter by name...
NAME
AbdelwahedRSV
AbdelwahedRSV01
AbdelwahedRSV - Replicated items
Recovery Services vault
Search (Ctrl+/)
Automation script
Getting started
Backup
Site Recovery
Protected items
Backup items
Replicated items
Manage
Refresh
Replicate
Columns
Filter
You can run your machines on managed disks after a failover or migration from on-premises to Azure. Set the option to use managed disks in Replicated item -> Settings -> Compute and Network.
Last refreshed at: 1/8/2019, 9:52:05 PM
Finished loading data from service.
Filter items...
NAME
REPLICATION HEALTH
STATUS
ACTIVE LOCATION
BNZVDC
Healthy
1% synchronized
testsite


Home > Recovery Services vaults > AbdelwahedRSV - Replicated items > BNZVDC
BNZVDC
Replicated items
Search (Ctrl+/)
Planned Failover
Failover
Test Failover
Cleanup test failover
Commit
Resynchronize
Change recovery point
Overview
General
Properties
Compute and Network
Disks
Infrastructure view
Table view
On-premises
Azure
Azure Site Recovery
Hyper-V Virtual machine
testsite
Storage account(s)
ahmedstorage01

Failover and migrating the VM