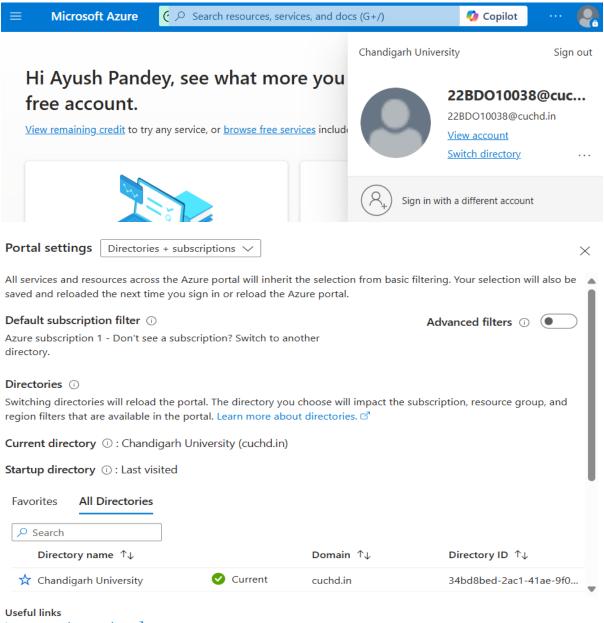
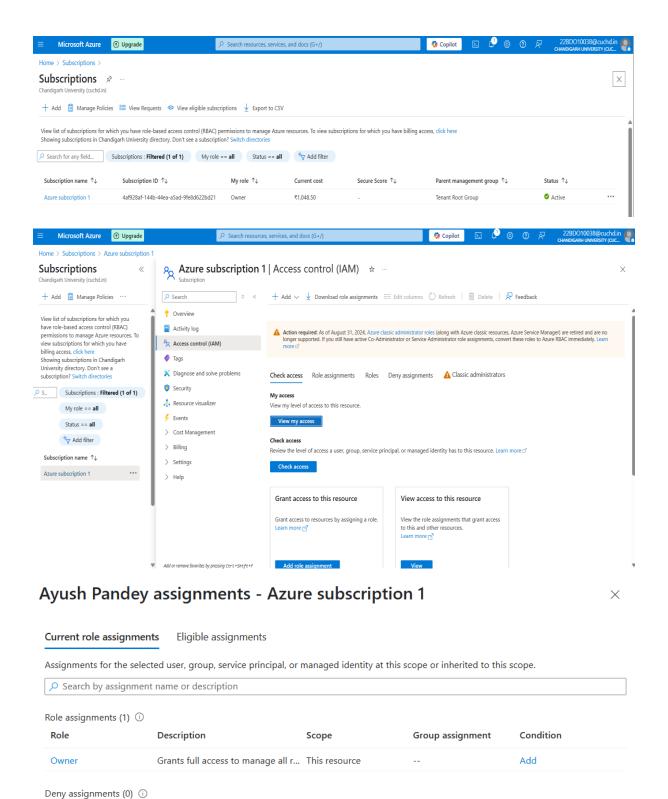
Azure infra

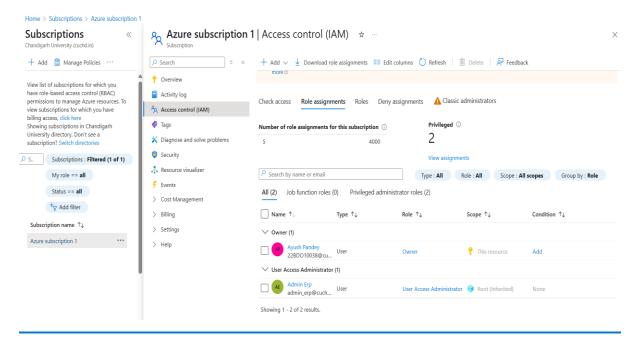
 Observe assigned Subscriptions Observe Azure Entra ID or create own Azure Entra ID in personal Azure account Create test users and groups Assign a RBAC role to user and test Create a custom role and assigned to users and test



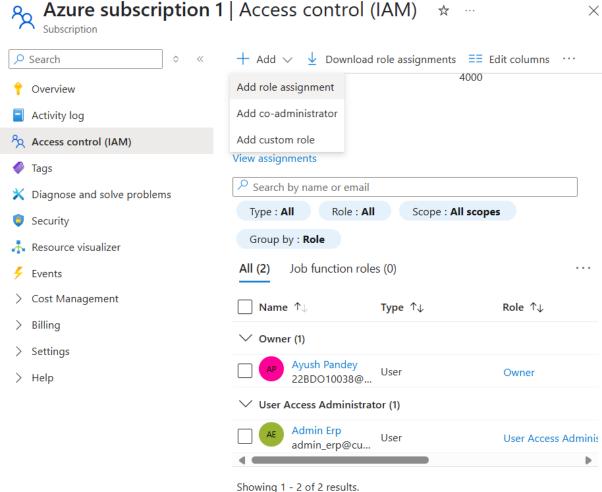
Learn more about settings
Safelist URLs
Microsoft partner network
Privacy Statement
More Azure resources
Provide feedback



Classic administrators (0) ①



Home > Subscriptions > Azure subscription 1



Home > Subscriptions > Azure subscription 1 | Access control (IAM) > Add role assignment \times Role Members Conditions Review + assign Role Reader Scope /subscriptions/4af928af-144b-44ea-a5ad-9fe8d622bd21 Members Object ID Name Type Ayush Pandey f690c25f-0b31-454f-a018-4186adefea67 User Description No description Review + assign Previous Next Feedback Home > Subscriptions > Azure subscription 1 Azure subscription 1 | Access control (IAM) * ... \times Subscription Search + Add \vee $\underline{\downarrow}$ Download role assignments $\equiv \exists$ Edit columns \cdots Overview View assignments Activity log Search by name or email Access control (IAM) Type : All Role : All Scope : All scopes Tags Group by : Role Diagnose and solve problems All (3) Job function roles (1) Security Name ↑↓ Role ↑↓ Type ↑↓ Resource visualizer Events Owner (1) > Cost Management Ayush Pandey Owner 22BDO10038@... > Billing Reader (1)

Showing 1 - 3 of 3 results.

Ayush Pandey

22BDO10038@...

User Access Administrator (1)

Admin Erp

admin_erp@cu...

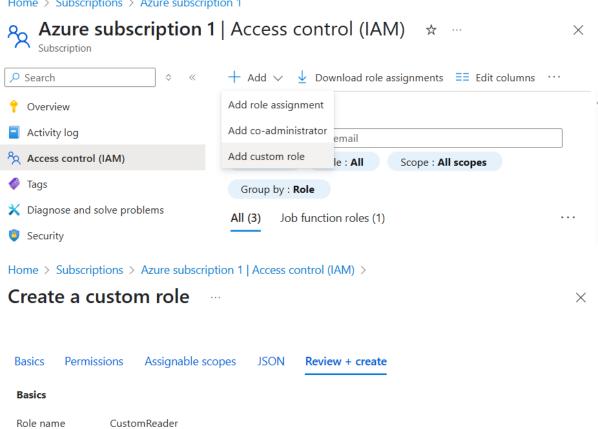
Reader

User Access Adminis

> Settings

> Help

Home > Subscriptions > Azure subscription 1



Permissions

Role description

Action Microsoft.Resources/subscriptions/resourceGroups/read

No role description provided

Microsoft.Compute/virtualMachines/read Action

Assignable Scopes

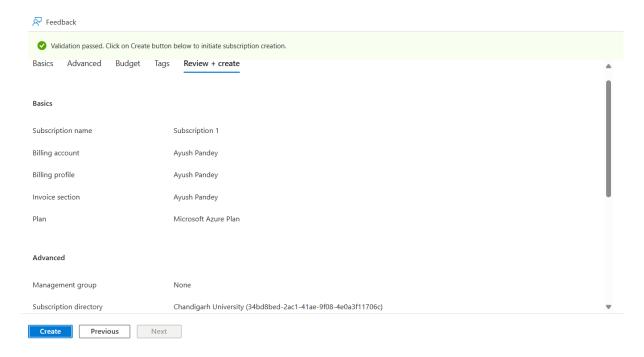
/subscriptions/4af928af-144b-44ea-a5ad-9fe8d622bd21 Scope

Create

Previous

Feedback

Create a subscription



2. Create Virtual maching and Vnet from Azure CLI

```
A VMCUlazdi

A VMCUlazdi

az group create --name vmcli --location eastus

az network vnet create --resource-group vmcli --name vnetcli --address-prefix 10.0.0.0/16 --subnet-name subnetcli --subnet-prefix 10.0.1.0/24

az network public-ip create --resource-group vmcli --name publicipcli

az network nsg create --resource-group vmcli --name nsgcli

az network nsg rule create --resource-group vmcli --name nsgcli --name AllowSSH --protocol tcp --priority 1000 /

--destination-port-ranges 22 --access Allow --direction Inbound

az network nic create --resource-group vmcli --name niccli --vnet-name vnetcli --subnet subnetcli --network-security-group nsgcli /

--public-ip-address publicipcli

az network nic show --resource-group vmcli --name niccli

az vm create --resource-group vmcli --name niccli

az vm create --resource-group vmcli --name vm1 --nics niccli --image Ubuntu2204 --admin-username azureuser --generate-ssh-keys --size Standard_BIs

az vm show --resource-group vmcli --name vm1 --show-details --query publicIps --output tsv

ssh azureuser@172.178.17_32
```

```
az>> az group create --name vmcli --location eastus
{
    "id": "/subscriptions/4af928af-144b-44ea-a5ad-9fe8d622bd21/resourceGroups/vmcli",
    "location": "eastus",
    "managedBy": null,
    "name": "vmcli",
    "properties": {
        "provisioningState": "Succeeded"
    },
    "tags": null,
    "type": "Microsoft.Resources/resourceGroups"
}
```

"sku": { "name": "Standard", "tier": "Regional"

}, "type": "Microsoft.Network/publicIPAddresses"

```
te --resource-group vmcli --nsg-name nsgcli --name AllowSSH --protocol tcp --priority 1000 --destination-port-ranges 22 --access Allow --direction Inbound {
    "access": "Allow",
    "destinationAddressPrefix": "*",
    "destinationAddressPrefixes": [],
    "destinationPortRanges": *22",
    "destinationPortRanges": [],
    "direction": 'Inbound",
    "etag": "W/\"8bad17e7-cda3-478a-a0de-59cc153f9dc4\\"",
    "id": "/subscriptions/Haf928af-144b-44ea-a5ad-9fe8d622bd21/resourceGroups/vmcli/providers/Microsoft.Network/networkSecurityGroups/nsgcli/securityRules/AllowSSH",
    "name": "AllowSSH",
    "priority": 1800,
    "protocol": "Tcp",
    "provisioningState": "Succeeded",
    "resourceGroup": "wmcli",
    "sourceAddressPrefixe": "*",
    "sourceAddressPrefixes": [],
    "sourcePortRanges": [],
    "type": "Microsoft.Network/networkSecurityGroups/securityRules"
}
```

```
ork nic create --resource-group vmcli --name niccli --vnet-name vnetcli --subnet subnetcli --network-security-group nsgcli --public-ip-address publicipcli 
"memulic"; "mone",
    "auxilianyMude": "Mone",
    "auxilianyMude": "Mone",
    "disablefcpStateTracking": false,
    "dnsSettings": [1,
    "dnsSettings": [1,
    "dnsSettings": [1,
    "dnsSettings": [1,
    "internalDomainManeSuffix": "aaxqzamxsepeSlcuyfeGcwtppg.bx.internal.cloudapp.net"
},
    "enableAcceleratedNetworking": false,
    "id": ""y*subscriptions/Waf928af-14Wb-4Wea-a5ad-9fe8d622bd21/resourceGroups/vmcli/providers/Microsoft.Network/networkInterfaces/niccli/ipConfigurations/ipconfigi":
    "name": "ipconfigil",
    "privateIPAddress": "10.0.1 u",
    "privateIPAddress": "10.0.1 u",
    "privateIPAddress": "Succeeded",
    "privateIPAddress*': Succeeded",
    "privateIPAddress*': Succeeded",
    "privateIPAddress*': Succeeded",
    "privateIPAddress*': "Succeeded",
    "privateIPAddress*': Succeeded",
    "privateIPAddress*': Succeeded",
    "privateIPAddress*': Succeeded",
    "privateIPAddress*': Succeeded",
    "privateIPAddress*': Succeeded",
    "privateIPAddress*': Succee
```

```
ush [ ~ ]$ az vm create --resource-group vmcli --name vm1 --nics niccli --image Ubuntu2204 --admin-username azureuser --generate-ssh-keys --size Standard_B
 "fqdns": "",
 "id": "/subscriptions/4af928af-144b-44ea-a5ad-9fe8d622bd21/resourceGroups/vmcli/providers/Microsoft.Compute/virtualMachines/vm1",
 "id": "/subscriptions/4af928af-144b
"location": "eastus",
"macAddress": "00-00-3A-4F-C3-6E",
"powerState": "VM running",
"privateIpAddress": "10.0.1.4",
"publicIpAddress": "172.178.17.32",
"resourceGroup": "vmcli",
"zones": ""
ayush [ ~ ]$ az vm show --resource-group vmcli --name vm1 --show-details --query publicIps --output tsv
ayush [ ~ ]$
ayush [ ~ ]$ ssh azureuser@172.178.17.32
The authenticity of host '172.178.17.32 (172.178.17.32)' can't be established.
ED25519 key fingerprint is SHA256:eyXCvySABtptpqSiuhTvAJNaCrciTmt4i7awvWzpDVo.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '172.178.17.32' (ED25519) to the list of known hosts.
Welcome to Ubuntu 22.04.5 LTS (GNU/Linux 6.8.0-1029-azure x86 64)
 * Documentation: https://help.ubuntu.com
 * Management:
                        https://landscape.canonical.com
 * Support:
                        https://ubuntu.com/pro
 System information as of Sat Jun 7 19:52:13 UTC 2025
                                                                         105
   System load: 0.03
                                           Processes:
                    5.3% of 28.89GB Users logged in:
  Usage of /:
                                           IPv4 address for eth0: 10.0.1.4
  Memory usage: 30%
   Swap usage:
 * Strictly confined Kubernetes makes edge and IoT secure. Learn how MicroK8s
    just raised the bar for easy, resilient and secure K8s cluster deployment.
    https://ubuntu.com/engage/secure-kubernetes-at-the-edge
Expanded Security Maintenance for Applications is not enabled.
0 updates can be applied immediately.
Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status
The list of available updates is more than a week old.
```

3. Create and assign a any policy at subscription level

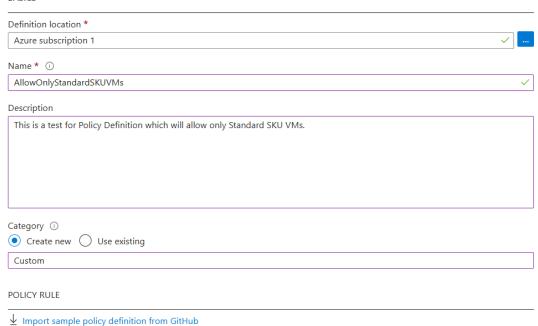
To check for new updates run: sudo apt update

Home > Policy | Definitions >

Policy definition

New Policy definition

BASICS



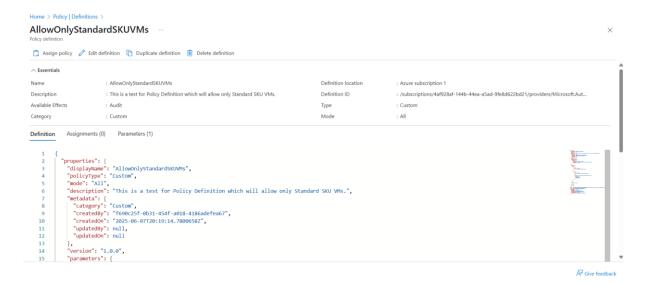
Policy definition

Learn more about policy definition structure

New Policy definition

```
14
             "anyOf": [
15
16
                 "not": {
17
                   "field": "location",
"in": "[parameters('allowedLocations')]"
18
19
20
21
               },
22
                 "allOf": [
23
24
                     "field": "type",
25
                     "equals": "Microsoft.Compute/virtualMachines"
26
27
28
                     "field": "Microsoft.Compute/virtualMachines/sku.name",
29
                      "notIn": [
30
                        "Standard_B1ls",
31
                        "Standard_B2s",
32
33
                        "Standard_D2s_v3"
34
35
36
                 ]
37
38
          },
"then": {
39
40
```

```
{ } policyrule.json > ...
         "mode": "All",
         "parameters": {
           "allowedLocations": {
             "type": "Array",
             "metadata": {
               "description": "The list of allowed locations for resources.",
               "displayName": "Allowed locations",
               "strongType": "location"
         "policyRule": {
           "if": {
             "any0f": [
                 "not": {
                   "field": "location",
                   "in": "[parameters('allowedLocations')]"
                 "allOf": [
                     "field": "type",
                     "equals": "Microsoft.Compute/virtualMachines"
                     "field": "Microsoft.Compute/virtualMachines/sku.name",
                     "notIn": [
                       "Standard B11s",
                       "Standard_B2s",
                       "Standard_D2s_v3"
           "then": {
             "effect": "audit"
```



Home > Policy | Assignments >

Assign policy ...

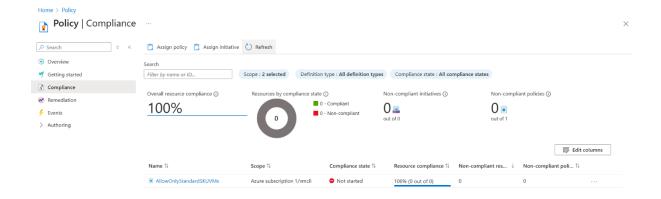
Basics	Parameters	Remediation	Non-compliance messages	Review + create	
Basics					
Scope		Azure	Azure subscription 1/vmcli		
Exclusions					
Policy definition		Allow	AllowOnlyStandardSKUVMs		
Assignment name		Allow	AllowOnlyStandardSKUVMs		
Description					
Policy enforcement		Defau	Default		
Assigned by		Ayush	Ayush Pandey		
Advanced					
Resource selectors		No se	No selectors associated with this assignment.		
Overrides		No ov	No overrides associated with this assignment.		
Parameters					

["eastus"]

Remediation

Allowed locations





4. Create an Azure key vault and store secrets. Configure access policies for the Key Vault to allow authorized users or applications to manage keys and secrets. retrieve secret from key vault using azure CLI

```
ayush [ ~ ]$ az provider show -n Microsoft.KeyVault -o table
Namespace RegistrationPolicy RegistrationState
------
Microsoft.KeyVault RegistrationRequired Registered
ayush [ ~ ]$
```

```
ush [ \sim ]^{$} az keyvault create --name keyvault12442 --resource-group keyrg --location eastu
--sku standard
"id": "/subscriptions/4af928af-144b-44ea-a5ad-9fe8d622bd21/resourceGroups/keyrg/providers/Microsoft.KeyVault/vaults/keyvault12442",
"location": "eastus",
"name": "keyvault12442",
"properties": {
    "accessPolicies": [],
   "createMode": null,
   'enablePurgeProtection": null,
   "enableRbacAuthorization": true,
   "enableSoftDelete": true,
   "enabledForDeployment": false,
   "enabledForDiskEncryption": null,
   "enabledForTemplateDeployment": null,
   "hsmPoolResourceId": null,
   "networkAcls": null,
   "privateEndpointConnections": null,
   "provisioningState": "Succeeded", "publicNetworkAccess": "Enabled",
   'sku": {
     "family": "A",
"name": "standard"
  },
"softDeleteRetentionInDays": 90,
  "tenantId": "34bd8bed-2ac1-41ae-9f08-4e0a3f11706c", "vaultUri": "https://keyvault12442.vault.azure.net/"
},
"resourceGroup": "keyrg",
"systemData": {
    "createdAt": "2025-06-07T21:14:31.688000+00:00",
    "createdBy": "22BD010038@cuchd.in",
  "createdByType": "User",
"lastModifiedAt": "2025-06-07T21:14:31.688000+00:00",
```

```
ayush [ ~ ]$ az account show --query user

{
    "cloudshellID": true,
    "name": "2280018938@cuchd.in",
    "type": "user"
}

ayush [ ~ ]$ az role assignment create --assignee "2280018938@cuchd.in" --role "Key Vault Secrets Officer" --scope $(az keyvault show --name keyvault12442 --query id -o tsv)

{
    "condition": null,
    "createdBy": null,
    "createdBy": null,
    "createdBy": null,
    "createdBy": null,
    "delsgatePanagedIdentityResourceId": null,
    "description": null,
    "description": null,
    "id": "subscriptions/laf928af-1440-44ea-a5ad-9fe8d622bd21/resourceGroups/keyrg/providers/Microsoft.KeyVault/vaults/keyvault12442/providers/Microsoft.Authorization/roleAssignments/40ff14
    "acca-949d-a4df-409123914e2b",
    "name": "40ff14fa-cbca-949d-a4df-409123914e2b",
    "principalItye": "User",
    "resourceGroup": "keyrg",
    "roleDefinitionId": "(50bscriptions/4af928af-144b-44ea-a5ad-9fe8d622bd21/providers/Microsoft.Authorization/roleDefinitions/b86a8fed-44ce-4948-aee5-eccb2c155cd7",
    "scope": "/subscriptions/daf928af-144b-44ea-a5ad-9fe8d622bd21/providers/Microsoft.KeyVault/vaults/keyvault12442",
    "scope": "/subscriptions/daf928af-144b-44ea-a5ad-9fe8d622bd21/providers/Microsoft.KeyVault/vaults/keyvault12442",
    "updatedBy": "f690c25f-6031-454f-a818-4186adefea67",
    "updatedBy": "f690c25f-6031-454f-a818-4186adefea67",
    "updatedBy": "690c25f-6031-454f-a818-4186adefea67",
    "updatedBy": "690c25f-6031-454f-a818-4186adefea67",
    "updatedBy": "890c25f-6031-454f-a818-4186adefea67",
    "
```

```
ayush [ ~ ]$ az keyvault secret set --vault-name keyvault12442 --name secretname --value "MySecretValue"
{
   "created": "2025-06-07T21:28:03+00:00",
   "enabled": true,
   "expires": null,
   "notBefore": null,
   "recoverableDays": 90,
   "recoveryLevel": "Recoverable+Purgeable",
   "updated": "2025-06-07T21:28:03+00:00"
},
   "contentType": null,
   "id": "https://keyvault12442.vault.azure.net/secrets/secretname/8dd2a8ff0ef34fc0b499edc810153fc9",
   "kid": null,
   "managed": null,
   "name": "secretname",
   "tags": {
        "file-encoding": "utf-8"
        },
   "value": "MySecretValue"
}
```

```
ayush [ \sim ]$ az keyvault secret show --name secretname --vault-name keyvault12442 --query value --output tsv MySecretValue ayush [ \sim ]$
```

5. Create a VM from Powershell

```
PS /home/ayush> New-AzResourceGroup -Name powerRg -Location EastUS

ResourceGroupName : powerRg
Location : eastus

ProvisioningState : Succeeded

Tags :

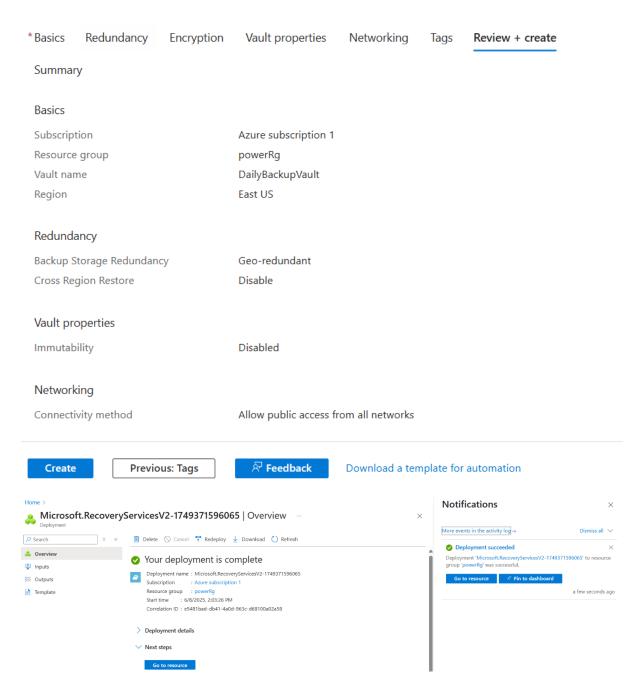
ResourceId : /subscriptions/4af928af-144b-44ea-a5ad-9fe8d622bd21/resourceGroups/powerRg

PS /home/ayush> $vnet = New-AzVirtualNetwork -ResourceGroup "powerRg" -Location "EastUS" -Name "powervmvnet" -AddressPrefix "10.0.0.0/16"
```

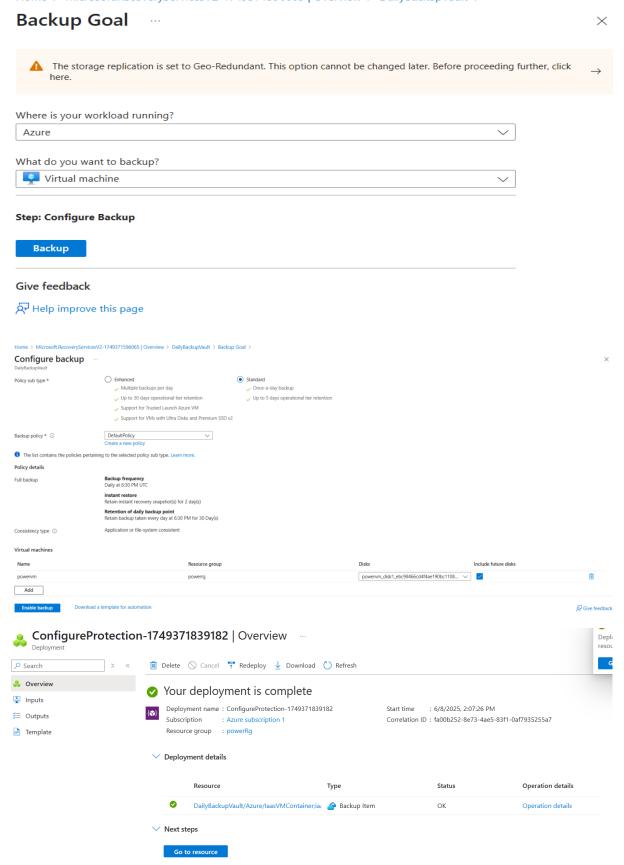
```
/home/ayush> Add-AzVirtualNetworkSubnetConfig
ResourceGroupName Name
                                             Location ProvisioningState EnableDdosProtection
                          powervmvnet eastus Succeeded
PS /home/ayush> $vnet | Set-AzVirtualNetwork
ResourceGroupName Name
                                             Location ProvisioningState EnableDdosProtection
                         powervmvnet eastus Succeeded
PS /home/ayush> SpublicIP = New-AzPublicIpAddress -ResourceGroupName '
PS /home/ayush> $nsgRule = New-AzNetworkSecurityRuleConfig -Name "Allow-RDP" -Protocol "Tcp" -Direction "Inbound" -Priority 1000 -SourceAddressPrefix ":" -SourcePortRange
  *" -DestinationAddressPrefix "*" -DestinationPortRange 3389 -Access "Allow"
PS /home/ayush> $nsq = New-AzNetworkSecurityGroup -ResourceGroupName "powerRq" -Location "EastUS" -Name "powervmnsq" -SecurityRules $nsqRule
PS /home/ayush> $nic = New-AzNetworkInterface -ResourceGroupName "powerRg" -Location "EastUS" -Name "powerwmic" -SubnetId "/subscriptions/4af920af-144b-44ea-a5ad-9fe
      resourceGroups/powerRp/providers/Microsoft.Network/virtualNetworks/powerwmwnet/subnets/powerwmsubnet" -PublicInAddressId SpublicIP.Id -NetworkSecurityGroupId Snsq.Id
PS /home/ayush> \text{\text{VMConfig}} = New-AzVMConfig} -VMName "powervm" -VMSize "Standard DS1 v2" | Set-AzVMCoperatingSystem -Windows -ComputerName "powervm" -Credential \text{\text{Scred}} -Provi
 onVMAgent -EnableAutoUpdate | Set-AzVMSourceImage -PublisherName "MicrosoftWindowsServer" -Offer "WindowsServer" -Skus "2019-Datacenter" -Version "latest" | Add-AzVMNetwo
rkInterface -Id $nic.Id
                                                      -OpenPorts 3389 -Image "W
 mmdlet New-AZVM at command pipeline position 1
Supply values for the following parameters:
Tredential
 Password for user azureuser: ***********
 You can reference https://aka.ms/findImagePS on how to find VM Images using PowerShell.
No Size value has been provided. The VM will be created with the default size Standard_D2s_v3.
  esourceGroupName
                           : powerRg
: /subscriptions/4af928af-144b-44ea-a5ad-9fe8d622bd21/reso
 irceGroups/powerRg/providers/Microsoft.Compute/virtualMachines/powervm
mId : 5defa391-2ff8-48ea-a3b9-3aef70d7fb8f
 rovisioningstate : Succeeded : (ImageReference, OsDisk, DataDisks) torageProfile : (ImageReference, OsDisk, DataDisks) tullyQualifiedDomainName : powervm-2a8c76-EastUS.cloudapp.azure.com : 6/8/2025 8:18:10 AM : "2"
PS /home/ayush>
```

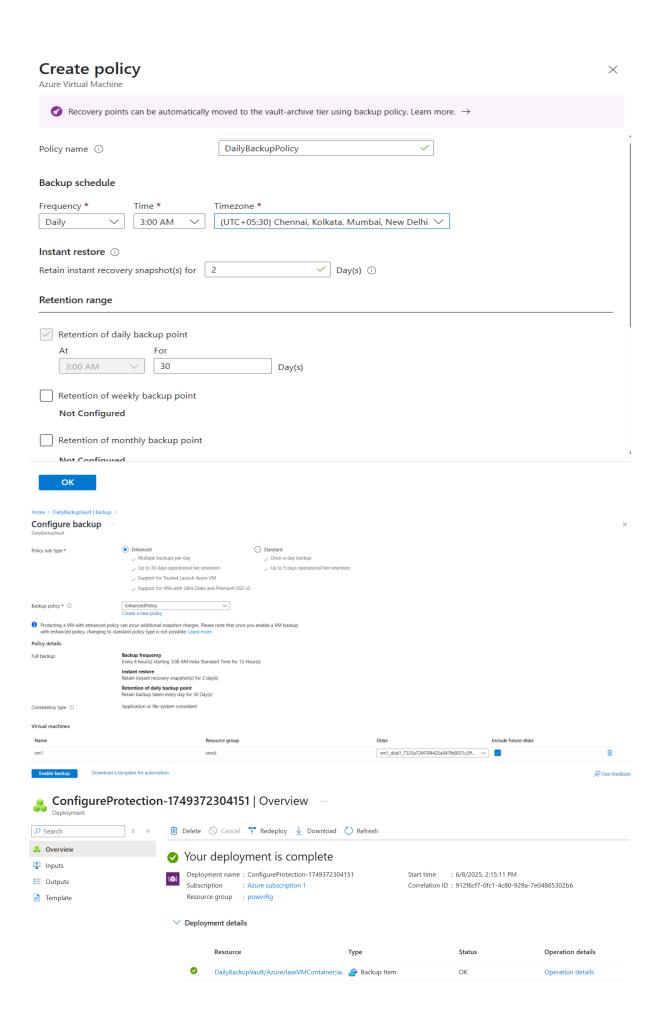
6. A. Schedule a Daily backup of VM at 3:AM using vault 1. Create an Alert rule for VM CPU percentage: Criteria: CPU% MoreThan 80 There Should be analert on Email." B.Provision backups in backup center 2. Schedule a Daily backup of VM at 3:AM using vault. Configure Retention period in backup policy and retain an old backup

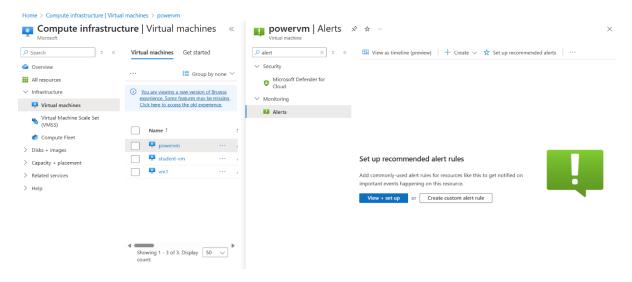
Create Recovery Services vault



 \times

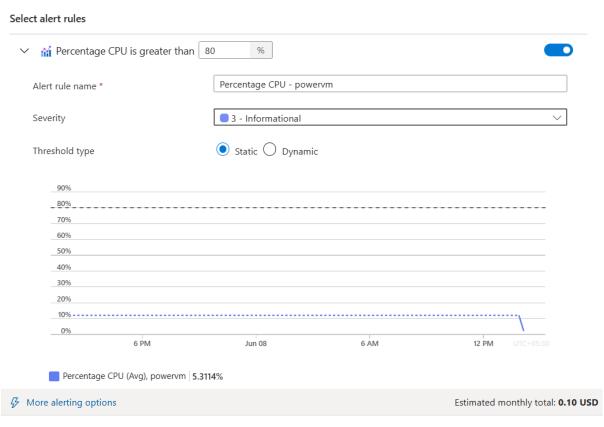






 \times

Set up recommended alert rules



Save Cancel