Manage Virtual Machines

Task 1: Deploy zone-resilient Azure virtual machines by using the Azure portal.

Virtual machines:

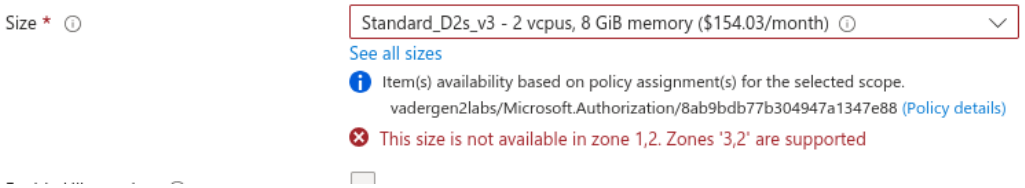

Figure 1. Creating a VM.

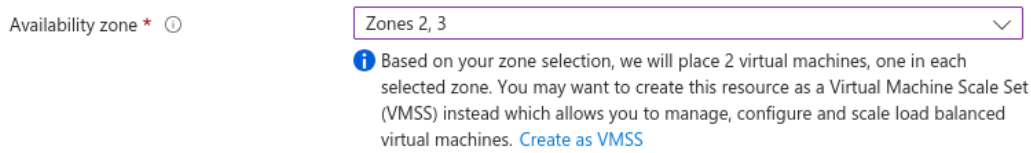

Figure 2. Zone.

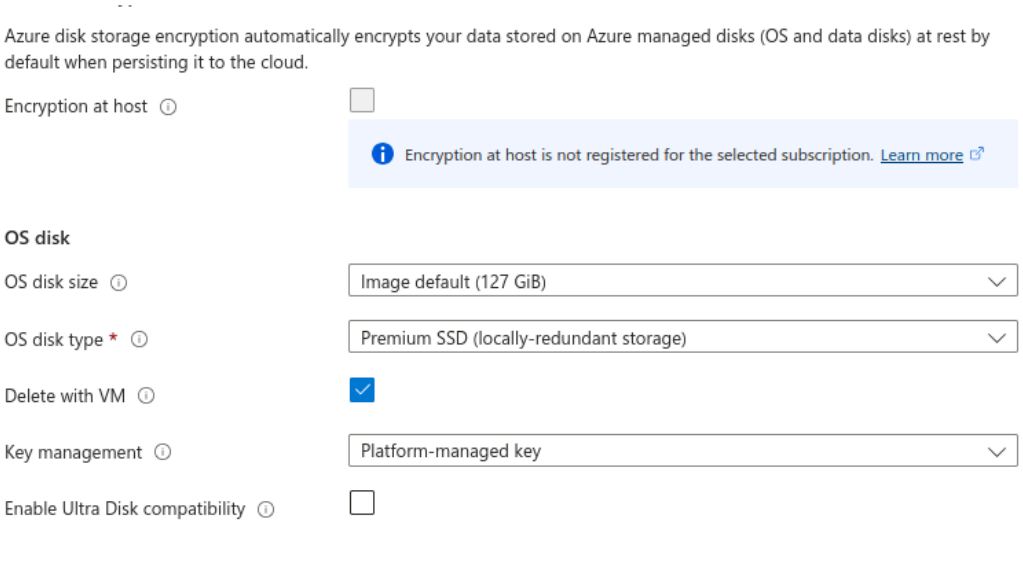

Figure 3. Configuring disk type.

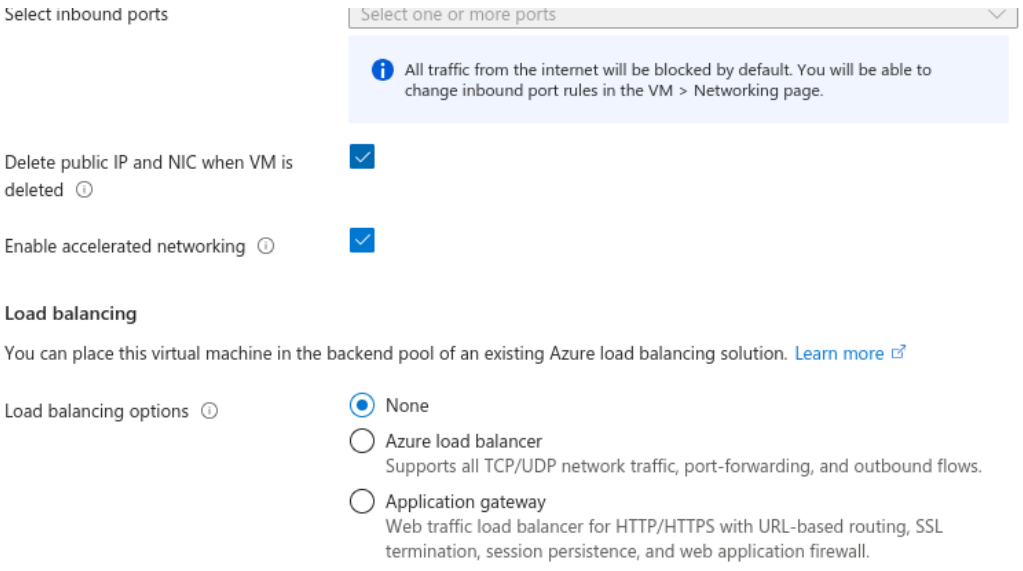

Figure 4. No load balancing.

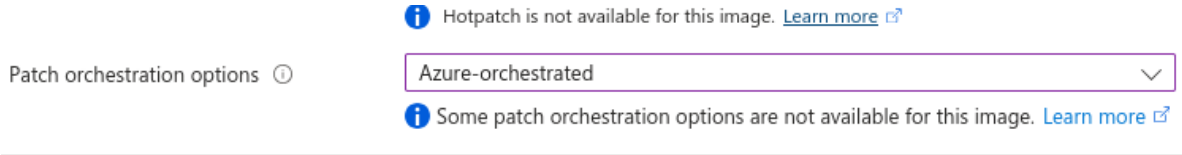

Figure 5. Patch orchestration.

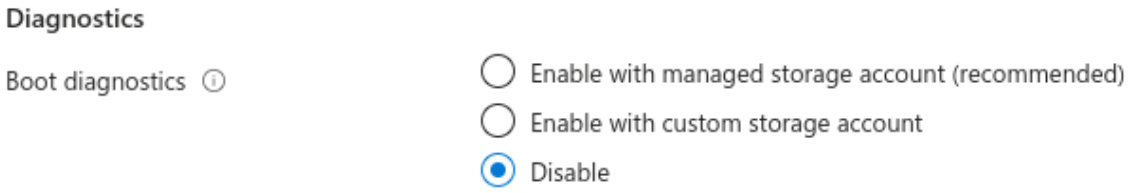

Figure 6. Diagnostics.

Price

2 X Standard D2s v3
by Microsoft
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Subscription credits apply

0.4220 USD/hr
Pricing for other VM sizes

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Associated resources

Virtual machines	(new) myVm-1, myVm-2
Public IPs	(new) myVm-1-ip, myVm-2-ip

Basics

Subscription	P9-Real Hands-On Labs
Resource group	1-98472184-playground-sandbox
Region	South Central US
Availability options	Availability zone
Zone options	Self-selected zone
Availability zone	2, 3

Figure 7. Review creating.

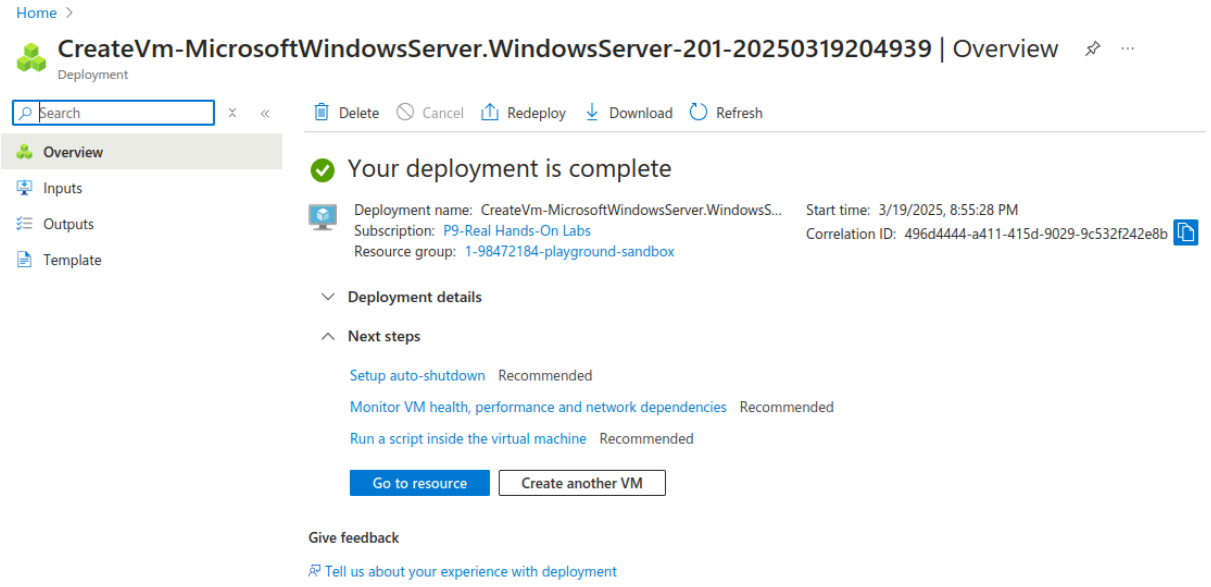

Figure 8. Complete deployment.

Task 2: Manage compute and storage scaling for virtual machines.

Availability + scale:

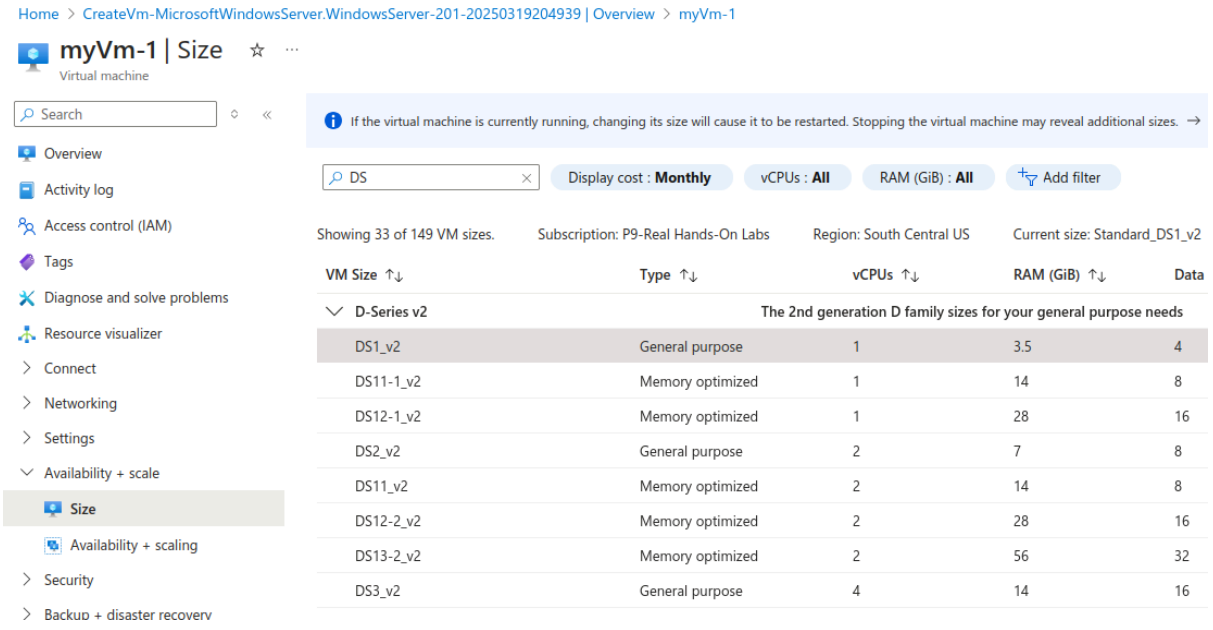

Figure 9. VM size.

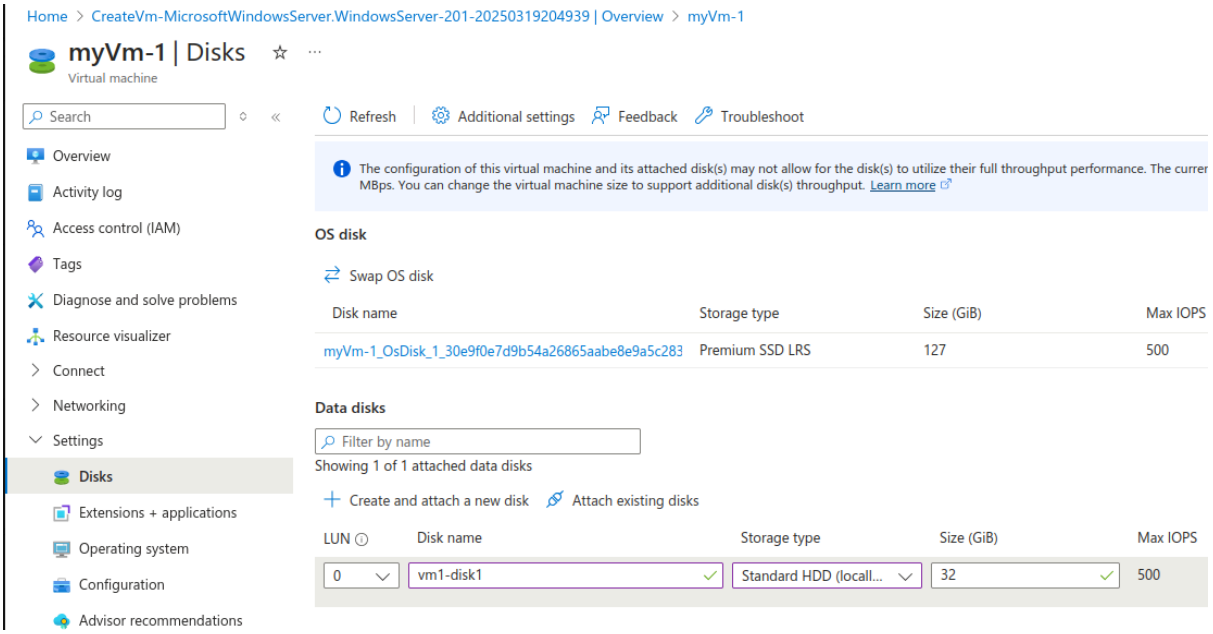

Figure 10. VM disks.

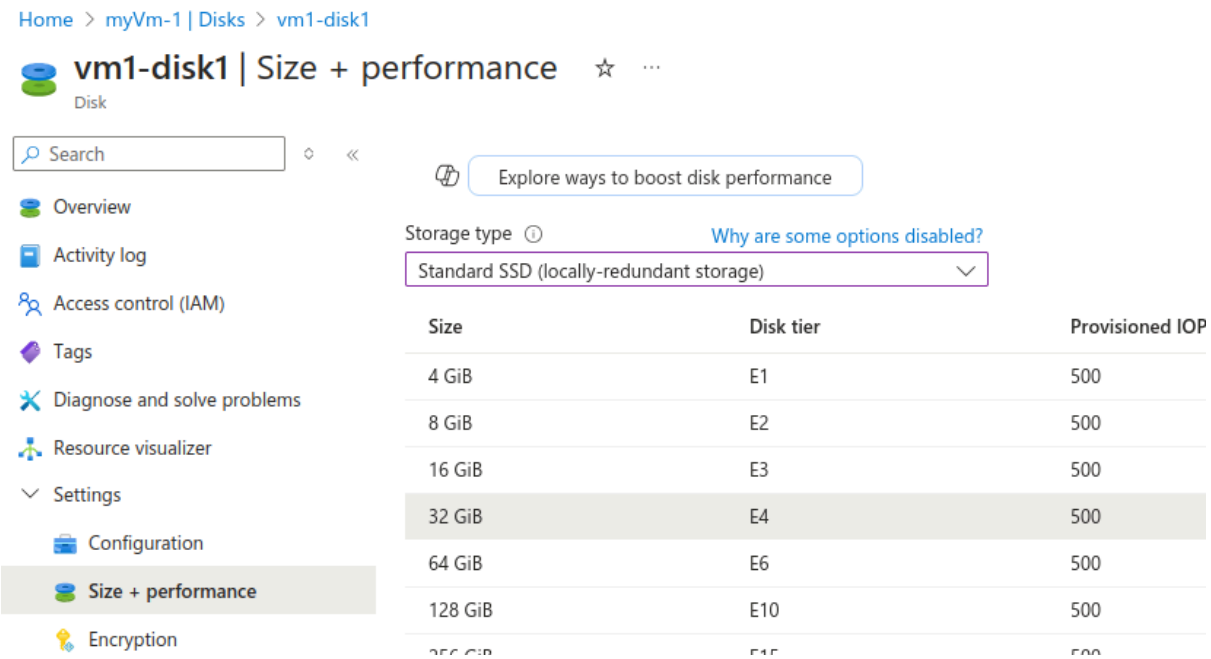

Figure 11. Setting standard SSD.

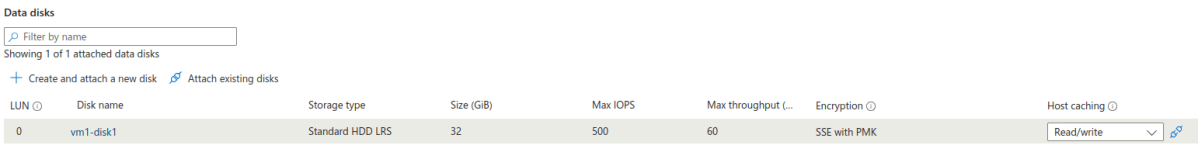

Figure 12. Reseted disk.

Task 3: Create and configure Azure Virtual Machine Scale Sets.

Virtual machine scale sets:

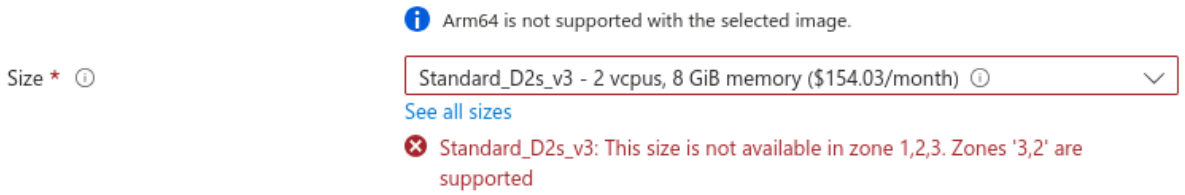

Figure 13. VM creating scale set.

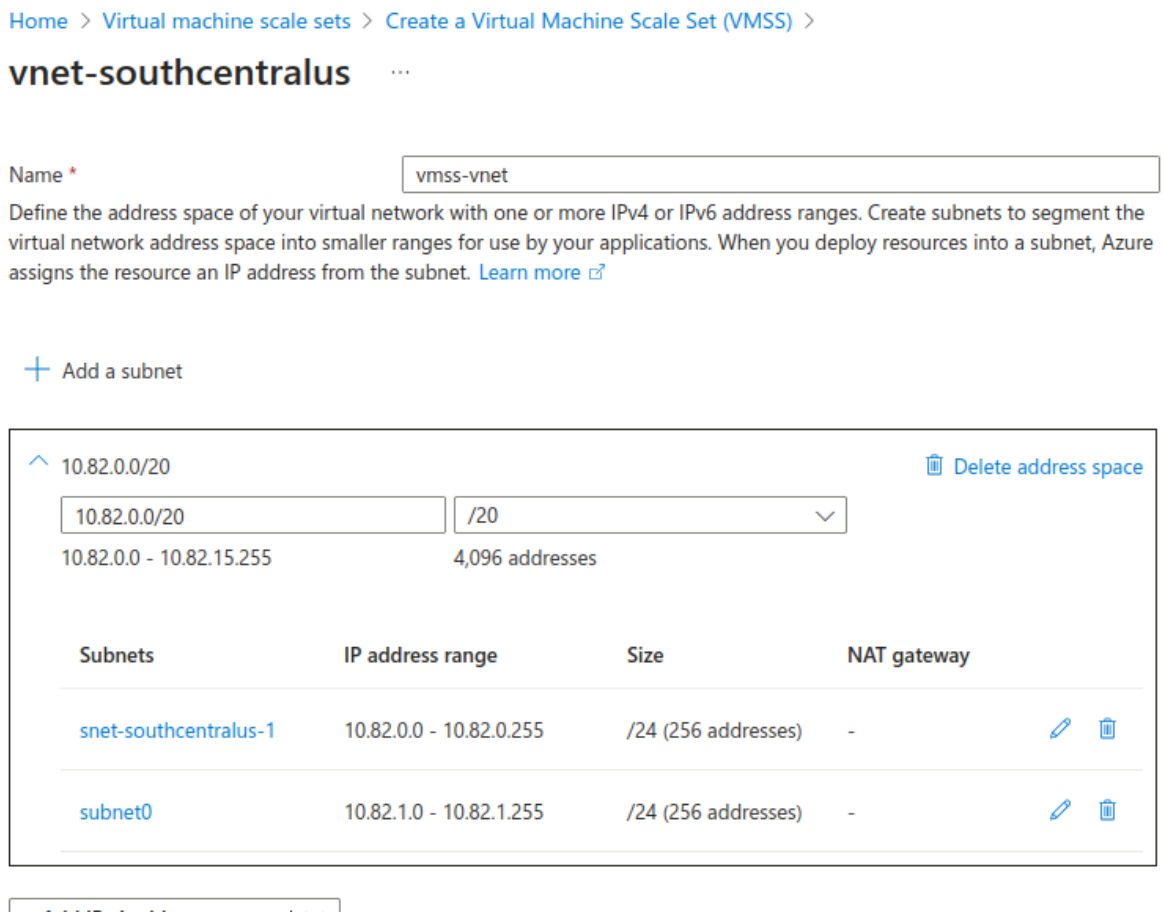

Figure 14. Creating vnet.

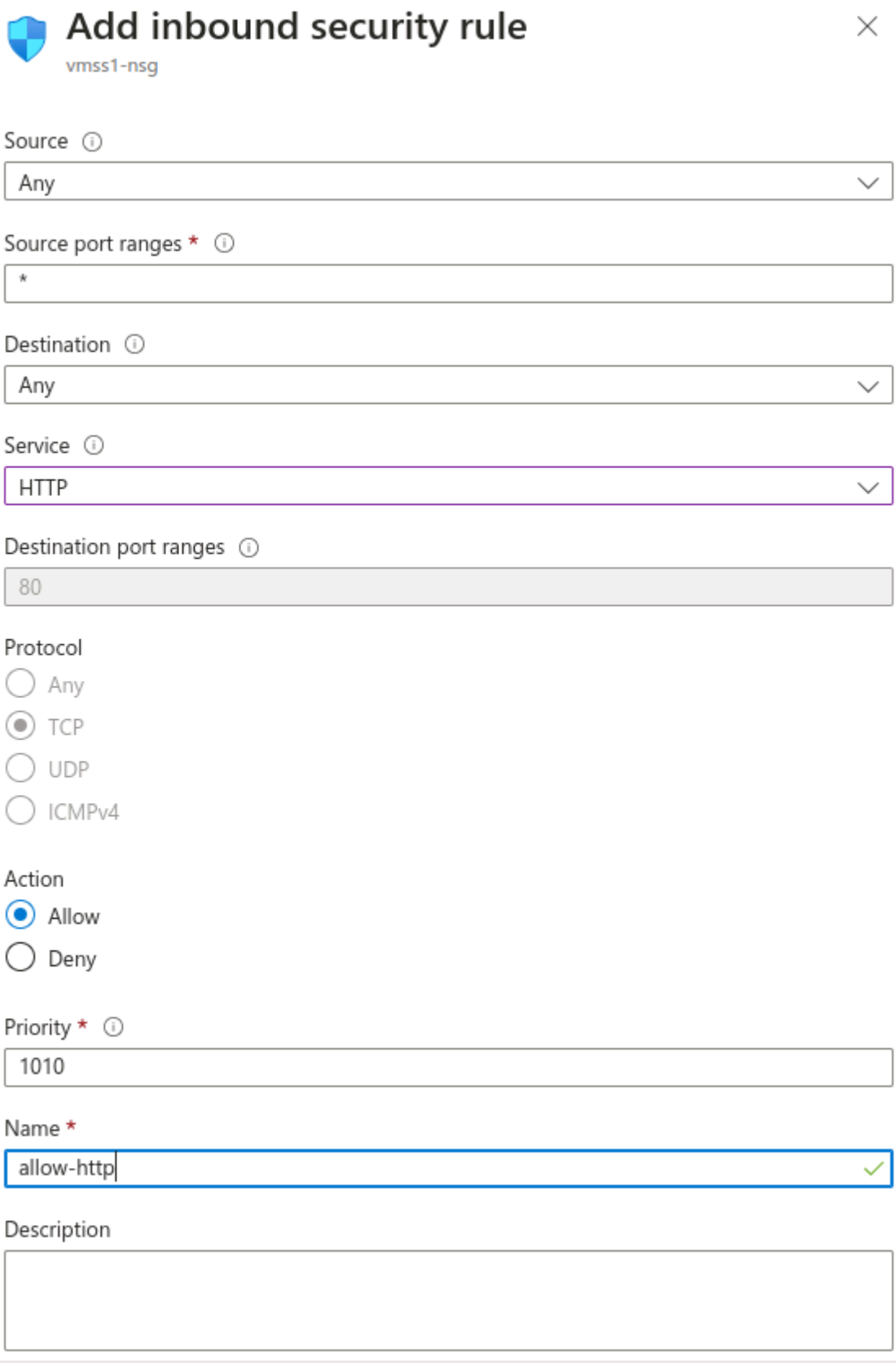

Figure 15. Add inbound rule.

Create network security group ...

Name *

vmss1-nsg

Inbound rules

1000: default-allow-ssh
Any
SSH (TCP/22)

1010: allow-http
Any
HTTP (TCP/80)

+ Add an inbound rule

Outbound rules

No results.

+ Add an outbound rule

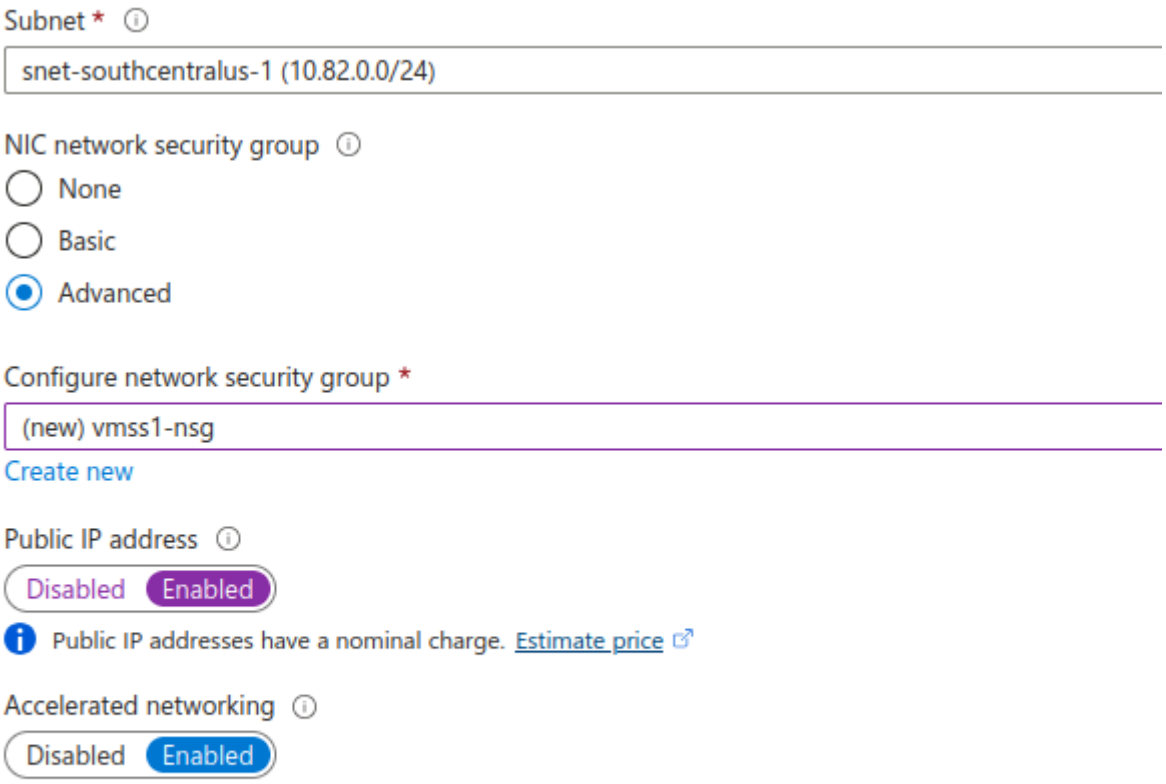

Figure 16. Creating a subnet.

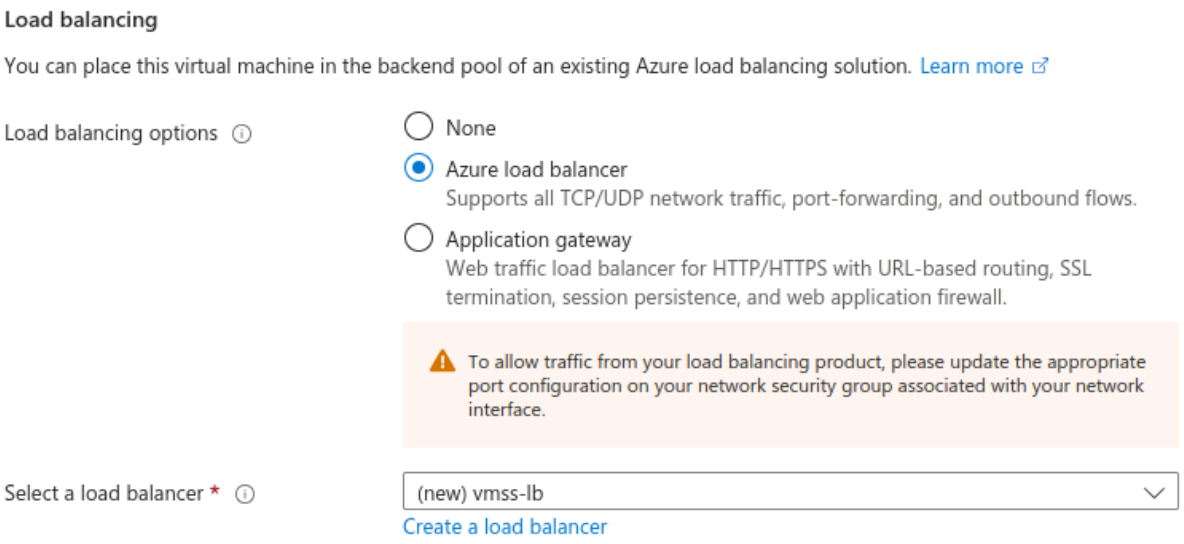

Figure 17. Select a load balancer.

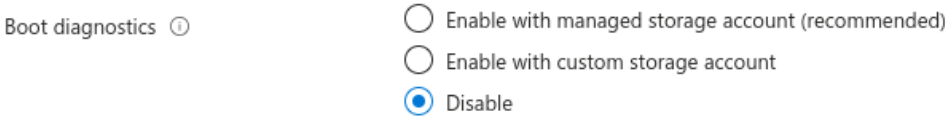

Figure 18. Selecting boot diagnostics.

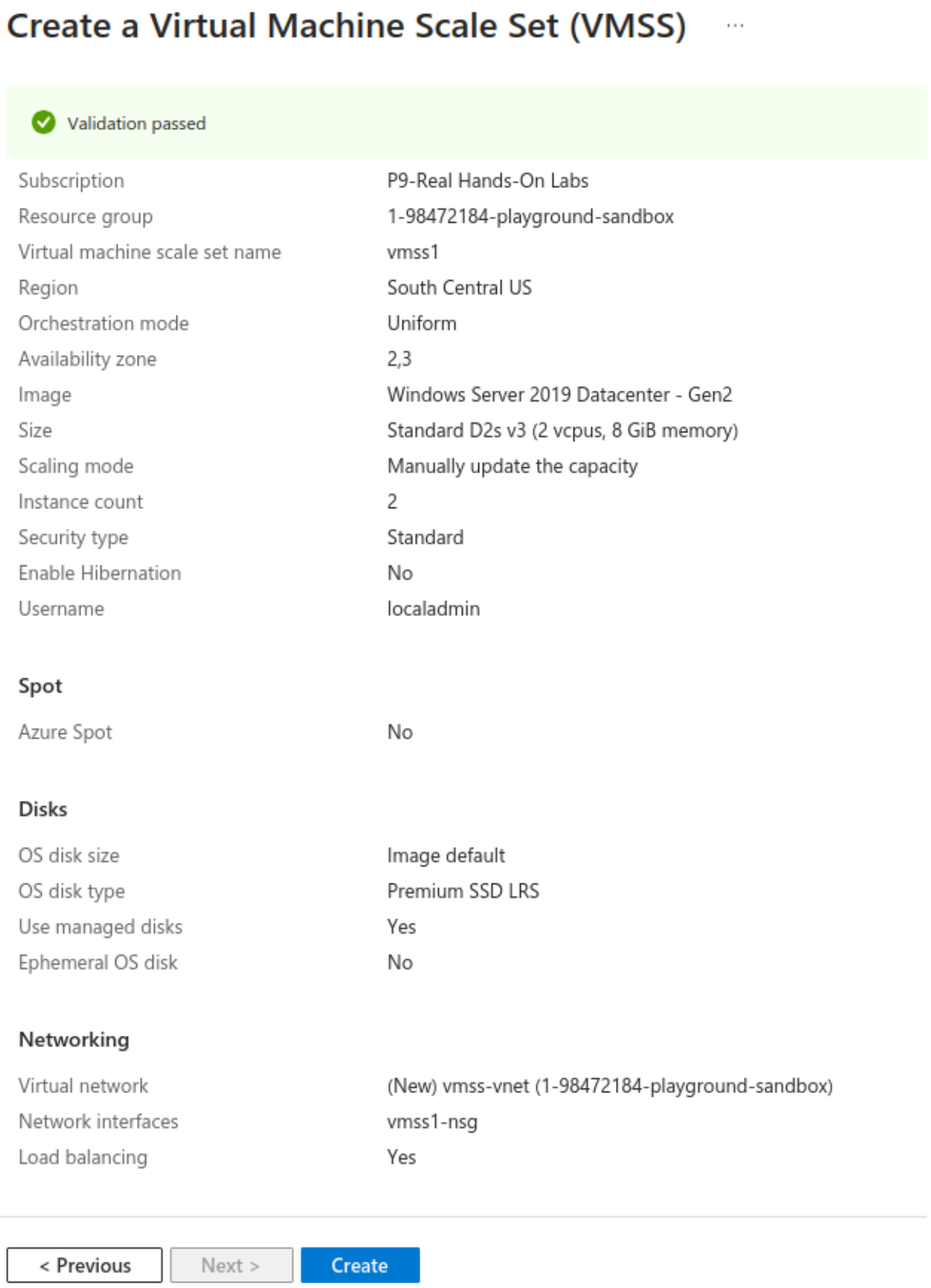

Figure 19. Created VM scale set.

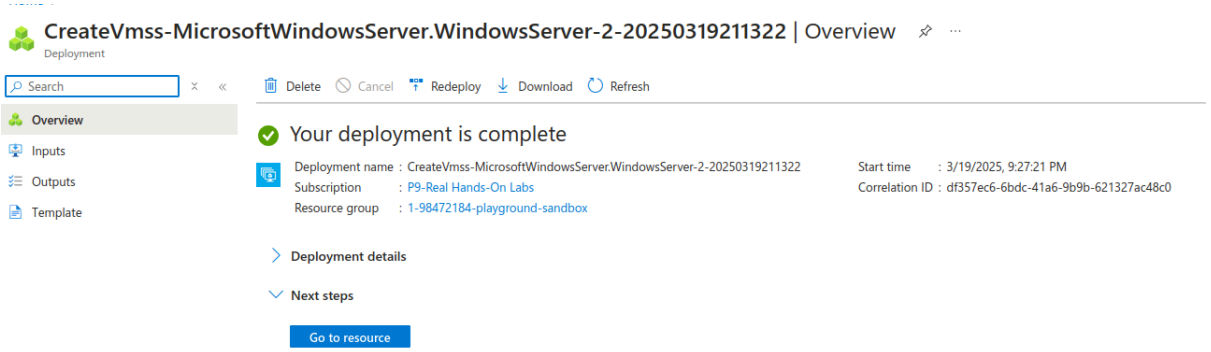

Figure 20. Completed deployment.

Task 4: Scale Azure Virtual Machine Scale Sets.

Scale out rule:

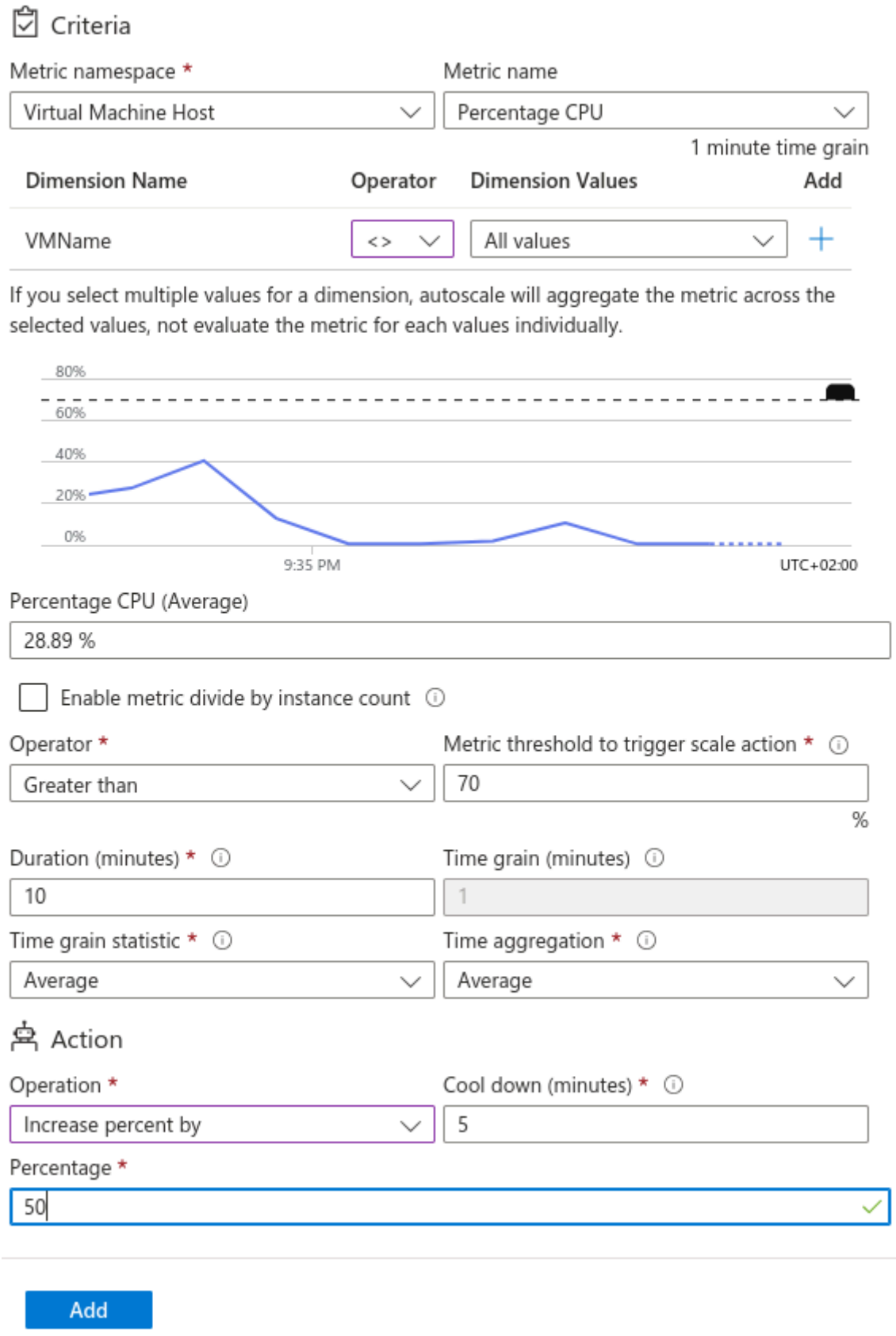

Figure 21. Configuring scale out rule.

Scale in rule:

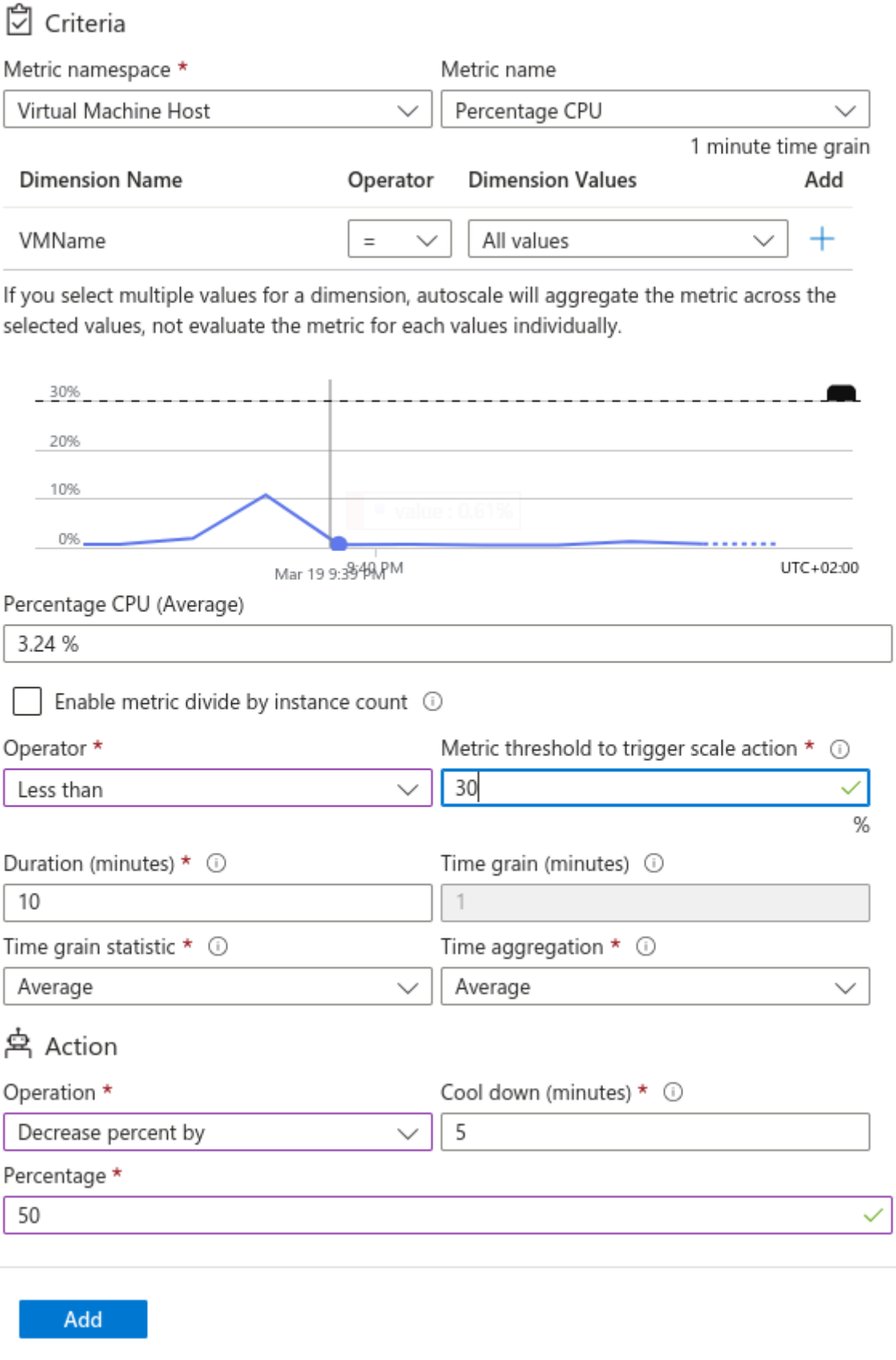

Figure 23. Configuring scale in rule.

Figure 24. Instance limits.

Task 5: Create a virtual machine using Azure PowerShell (optional 1).

Cloud Shell:

```
PS /home/cloud> New-AzVM `  -ResourceGroupName '1-98472184-playground-sandbox' `  -Name 'myPSVM' `  -Location 'East US' `  -Image 'Win2019Datacenter' `  -Zone '1' `  -Size 'Standard_D2s_v3' `  -Credential (Get-Credential)

PowerShell credential request
Enter your credentials.
User: vlad
Password for user vlad: **************

You can reference https://aka.ms/findImagePS on how to find VM Images using PowerShell.


ResourceGroupName        : 1-98472184-playground-sandbox
Id                       : /subscriptions/28e1e42a-4438-4c30-9a5f-7d7b488fd883/resourceGroups/1-98472184-playground-sandbox/providers/Microsoft.Compute/virtualMachines/myPSVM
VmId                     : 345fd136-cd2f-405f-af29-6916fc2b77b1
Name                     : myPSVM
Type                     : Microsoft.Compute/virtualMachines
Location                 : eastus
Tags                     : {}
HardwareProfile          : {VmSize}
NetworkProfile           : {NetworkInterfaces}
OSProfile                : {ComputerName, AdminUsername, WindowsConfiguration, Secrets, AllowExtensionOperations, RequireGuestProvisionSignal}
ProvisioningState        : Succeeded
StorageProfile           : {ImageReference, OsDisk, DataDisks}
Zones                    : {1}
FullyQualifiedDomainName : mypsvm-991249.East US.cloudapp.azure.com
TimeCreated              : 3/19/2025 8:01:00 PM
Etag                     : "2"
```

Figure 25. Creating a VM.

```
PS /home/cloud> Get-AzVM `  -ResourceGroupName '1-98472184-playground-sandbox' `  -Status

ResourceGroupName              Name       Location         VmSize  OsType          NIC Provisioning Zone PowerState MaintenanceAllowed
-----------------              ----       --------         ------  ------          --- ------------ ---- ---------- ------------------
1-98472184-playground-sandbox myPSVM        eastus Standard_D2s_v3 Windows       myPSVM    Succeeded    1 VM running
1-98472184-playground-sandbox myVm-1 southcentralus Standard_DS1_v2 Windows myvm-1278_z2    Succeeded    2 VM running
1-98472184-playground-sandbox myVm-2 southcentralus Standard_D2s_v3 Windows myvm-1792_z3    Succeeded    3 VM running

PS /home/cloud>
```

Figure 26. Created a VM.

```
PS /home/cloud> Stop-AzVM `  -ResourceGroupName '1-98472184-playground-sandbox' `  -Name 'myPSVM'

Virtual machine stopping operation
This cmdlet will stop the specified virtual machine. Do you want to continue?
[Y] Yes  [N] No  [S] Suspend  [?] Help (default is "Y"): Y

OperationId : 7dd029e0-5062-4568-abc4-28509e46d062
Status      : Succeeded
StartTime   : 3/19/2025 8:03:48 PM
EndTime     : 3/19/2025 8:04:36 PM
Error       :

PS /home/cloud>
```

Figure 27. Stop a VM.

```
PS /home/cloud> Get-AzVM `  -ResourceGroupName '1-98472184-playground-sandbox' `  -Status

ResourceGroupName              Name       Location         VmSize  OsType          NIC Provisioning Zone     PowerState MaintenanceAllowed
-----------------              ----       --------         ------  ------          --- ------------ ----     ---------- ------------------
1-98472184-playground-sandbox myPSVM        eastus Standard_D2s_v3 Windows       myPSVM    Succeeded    1 VM deallocated
1-98472184-playground-sandbox myVm-1 southcentralus Standard_DS1_v2 Windows myvm-1278_z2    Succeeded    2     VM running
1-98472184-playground-sandbox myVm-2 southcentralus Standard_D2s_v3 Windows myvm-1792_z3    Succeeded    3     VM running
```

Figure 28. Checking a status.

Task 6: Create a virtual machine using the CLI (optional 2).

Bash:

```
Your Cloud Shell session will be ephemeral so no files or system changes will persist beyond your current session.
cloud [ ~ ]$  az vm create --name myCLIVM --resource-group 1-98472184-playground-sandbox --image Ubuntu2204 --admin-username localadmin --generate-ssh-keys
SSH key files '/home/cloud/.ssh/id_rsa' and '/home/cloud/.ssh/id_rsa.pub' have been generated under ~/.ssh to allow SSH access to the VM. If using machines without
a safe location.
{
  "fqdns": "",
  "id": "/subscriptions/28e1e42a-4438-4c30-9a5f-7d7b488fd883/resourceGroups/1-98472184-playground-sandbox/providers/Microsoft.Compute/virtualMachines/myCLIVM",
  "location": "southcentralus",
  "macAddress": "00-0D-3A-77-15-CD",
  "powerState": "VM running",
  "privateIpAddress": "10.0.0.6",
  "publicIpAddress": "104.210.152.57",
  "resourceGroup": "1-98472184-playground-sandbox",
  "zones": ""
}
cloud [ ~ ]$
```

Figure 29. Creating a VM.


```
"plan": null,
"platformFaultDomain": null,
"powerState": "VM running",
"priority": null,
"privateIps": "10.0.0.6",
"provisioningState": "Succeeded",
"proximityPlacementGroup": null,
"publicIps": "104.210.152.57",
"resourceGroup": "1-98472184-playground-sandbox",
"resources": null,
"scheduledEventsPolicy": null,
"scheduledEventsProfile": null,
"securityProfile": {
  "encryptionAtHost": null,
  "encryptionIdentity": null,
  "proxyAgentSettings": null,
  "securityType": "TrustedLaunch",
  "uefiSettings": {
    "secureBootEnabled": true,
    "vTpmEnabled": true
  }
```


Figure 30. Created a VM.

```
cloud [ ~ ]$ az vm deallocate --resource-group 1-98472184-playground-sandbox --name myCLIVM
cloud [ ~ ]$
```

Figure 31. Delocating a VM.

```
},
"plan": null,
"platformFaultDomain": null,
"powerState": "VM deallocated",
"priority": null,
"privateIps": "10.0.0.6",
"provisioningState": "Succeeded",
"proximityPlacementGroup": null,
"publicIps": "104.210.152.57",
"resourceGroup": "1-98472184-playground-sandbox",
"resources": null,
"scheduledEventsPolicy": null,
"scheduledEventsProfile": null,
"securityProfile": {
  "encryptionAtHost": null,
  "encryptionIdentity": null,
  "proxyAgentSettings": null,
  "securityType": "TrustedLaunch",
  "uefiSettings": {
    "secureBootEnabled": true,
    "vTpmEnabled": true
  }
```


Figure 32. Checking a status.