

Lab 08 - Manage Virtual Machines

Student lab manual

Task 7: Scale compute and storage for Azure virtual machine scale sets

The screenshot displays the Azure portal interface for managing a virtual machine scale set named 'az10408vmss0'. The left sidebar shows the navigation menu with options like 'Instances', 'Networking', 'Scaling', 'Disks', 'Operating system', 'Microsoft Defender for Cloud', 'Guest + host updates', 'Size', 'Extensions + applications', 'Continuous delivery', 'Configuration', 'Upgrade policy', 'Health and repair', 'Identity', 'Properties', 'Locks', 'Monitoring', and 'Insights'. The main content area is divided into two tabs: 'Size' and 'Instances'.

Size Tab: This tab shows the current size of the scale set and provides options to change it. It includes a search bar for VM sizes, filters for vCPUs, RAM, and display cost, and a table of recommended sizes. The table lists various VM sizes (D1s_v2, D2s_v3, D2as_v4, D52_v2, D4s_v3, D53_v2) with their respective vCPUs, RAM, data disks, and max IOPS. A 'Resize' button is available at the bottom.

VM Size	Type	vCPUs	RAM (GiB)	Data disks	Max IOPS
D1s_v2	General purpose	1	3.5	4	3200
D2s_v3	General purpose	2	8	4	3200
D2as_v4	General purpose	2	8	4	3200
D52_v2	General purpose	2	7	8	6400
D4s_v3	General purpose	4	16	8	6400
D53_v2	General purpose	4	14	16	12800

Instances Tab: This tab shows the current instances of the scale set. It includes a search bar for virtual machine instances and a table of instances. The table lists the instance name, computer name, status, protection policy, provisioning state, health state, and latest status. Two instances are shown: 'az10408vmss0_0' and 'az10408vmss0_1', both in a 'Running' state.

Instance	Computer name	Status	Protection policy	Provisioning sta...	Health state	Latest
az10408vmss0_0	az10408vm000000	Running		Succeeded		Yes
az10408vmss0_1	az10408vm000001	Running		Succeeded		Yes

az10408vmss0 | Scaling

Virtual machine scale set

Search

Tags

Diagnose and solve problems

Settings

Instances

Networking

Scaling

Disks

Operating system

Microsoft Defender for Cloud

Guest + host updates

Size

Extensions + applications

Continuous delivery

Configuration

Upgrade policy

Health and repair

Identity

Save Discard Refresh Logs Feedback

New! Autoscale has added another powerful feature. Predictive autoscale [Learn more about Predictive autoscale.](#)

Configure Scale-In Policy Predictive charts Run history JSON Notify Diagnostic settings

Autoscale is a built-in feature that helps applications perform their best when demand changes. You can choose to scale your resource manually to a specific instance count, or via a custom Autoscale policy that scales based on metric(s) thresholds, or schedule instance count which scales during designated time windows. Autoscale enables your resource to be performant and cost effective by adding and removing instances based on demand. [Learn more about Azure Autoscale](#) or [view the how-to video.](#)

Choose how to scale your resource

Manual scale

Custom autoscale

Custom autoscale

Autoscale setting name * az10408vmss0-Autoscale-757

Resource group az104-08-rg02

Predictive autoscale

Mode Disabled

Pre-launch setup of instances (minutes) 0

Enable Forecast only or Predictive autoscale. [Learn more about Predictive autoscale.](#)

az10408vmss0 | Scaling

Virtual machine scale set

Search

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Save Discard Refresh Logs Feedback

Predictive autoscale

Mode Disabled

Pre-launch setup of instances (minutes) 0

Enable Forecast only or Predictive autoscale. [Learn more about Predictive autoscale.](#)

Default * Auto created default scale condition

Delete warning

Scale mode

Rules

Scale out

When az10408vmss0 (Average) Network In Total > 10 Increase count by 1

Instance limits

Schedule

az10408vmss0 | Disks

Virtual machine scale set

Search

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Settings

Instances

Networking

Scaling

Disks

Operating system

Microsoft Defender for Cloud

Guest + host updates

Save Discard Refresh Additional settings Feedback

OS disk

Data disks

Showing 1 of 1 attached data disks

Create and attach a new disk

LUN Storage type Size (GiB) Max IOPS Max throughput (MBps) Encryption Host caching

0 Standard HDD (local... 32 500 60 Platform-managed key None

az10408vms0 | Instances

Virtual machine scale set

Search

Start

Restart

Stop

Reimage

Delete

Upgrade

Refresh

Protection Policy

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Settings

Search virtual machine instances

Instance	Computer name	Status	Protection policy
az10408vms0_0	az10408vm000000	Running	
az10408vms0_1	az10408vm000001	Running	
az10408vms0_2	az10408vm000002	Running	

More events in the activity log →

Dismiss all

Upgraded virtual machine instances

Successfully upgraded virtual machine instances az10408vms0_2, az10408vms0_1, az10408vms0_0.

a few seconds ago

Updated virtual machine scale set

Successfully updated virtual machine scale set 'az10408vms0'.

a few seconds ago

```
VERBOSE: Authenticating to Azure ...
VERBOSE: Building your Azure drive ...
PS /home/lyubomir> Set-Location -Path $HOME
PS /home/lyubomir>
PS /home/lyubomir> Get-Content -Path ./az104-08-configure_VMSS_disks.ps1 $rgName = 'az104-08-rg02'
$vmssName = 'az10408vmss0'
$vmss = Get-AzVmss `
    -ResourceGroupName $rgName `
    -VMSScaleSetName $vmssName
$publicSettings = @{
    "fileUri" = ("https://raw.githubusercontent.com/Azure-Samples/compute-automation-configurations/master/prepare_vm_disks.ps1");
    "commandToExecute" = "powershell -ExecutionPolicy Unrestricted -File prepare_vm_disks.ps1"
}
Add-AzVmssExtension -VirtualMachineScaleSet $vmss `
    -Name "customScript" `
    -Publisher "Microsoft.Compute" `
    -Type "CustomScriptExtension" `
    -TypeHandlerVersion 1.8 `
    -Setting $publicSettings
# Update the scale set and apply the Custom Script Extension to the VM instances
Update-AzVmss `
    -ResourceGroupName $rgName `
    -Name $vmssName `
    -VirtualMachineScaleSet $vmss
PS /home/lyubomir> []
```

```

PS /home/lyubomir> Get-Content -Path ./az104-08-configure_VMSS_disks.ps1
$rgName = 'az104-08-rg02'
$vmssName = 'az10408vmss0'
$vmss = Get-AzVmss `
    -ResourceGroupName $rgName `
    -VMSSetName $vmssName

$publicSettings = @{
    "fileUri" = (,"https://raw.githubusercontent.com/Azure-Samples/compute-automation-configurations/master/prepare_vm_disks.ps1");
    "commandToExecute" = "powershell -ExecutionPolicy Unrestricted -File prepare_vm_disks.ps1"
}

Add-AzVmssExtension -VirtualMachineScaleSet $vmss `
    -Name "customScript" `
    -Publisher "Microsoft.Compute" `
    -Type "CustomScriptExtension" `
    -TypeHandlerVersion 1.8 `
    -Setting $publicSettings

# Update the scale set and apply the Custom Script Extension to the VM instances
Update-AzVmss `
    -ResourceGroupName $rgName `
    -Name $vmssName `
    -VirtualMachineScaleSet $vmss

PS /home/lyubomir> ./az104-08-configure_VMSS_disks.ps1

ResourceGroupName      : az104-08-rg02
Sku                    :
Name                  : Standard_DS1_v2
Tier                  : Standard
Capacity              : 3
UpgradePolicy          :

```

az10408vmss0 | Instances ☆ ...

Virtual machine scale set

Search

Start Restart Stop Reimage Delete Upgrade Refresh Protection Policy

Search virtual machine instances

Instance	Computer name	Status	Protection policy	Provisioning state	Health state	Latest model
az10408vmss0_0	az10408vm000000	Running		Succeeded		No
az10408vmss0_1	az10408vm000001	Running		Succeeded		No
az10408vmss0_2	az10408vm000002	Running		Succeeded		No

Overview
Activity log
Access control (IAM)
Tags
Diagnose and solve problems
Settings
Instances
Networking
Scaling

```

VERBOSE: Authenticating to Azure ...
VERBOSE: Building your Azure drive ...
PS /home/lyubomir> rm ~\az104-08*

PS /home/lyubomir> Get-AzResourceGroup -Name 'az104-08*'

ResourceGroupName : az104-08-rg02
Location           : uksouth
ProvisioningState  : Succeeded
Tags               :
ResourceId          : /subscriptions/3b42ed89-1120-4053-a858-c2baec72c542/resourceGroups/az104-08-rg02

ResourceGroupName : az104-08-rg01
Location           : eastus
ProvisioningState  : Succeeded
Tags               :
ResourceId          : /subscriptions/3b42ed89-1120-4053-a858-c2baec72c542/resourceGroups/az104-08-rg01

PS /home/lyubomir> Get-AzResourceGroup -Name 'az104-08*' | Remove-AzResourceGroup -Force -AsJob

Id      Name      PSJobTypeName State      HasMoreData Location
--      -
2      Long Running O... AzureLongRunni... Running      True      localhost
3      Long Running O... AzureLongRunni... Running      True      localhost

PS /home/lyubomir>

```