

Lab 08 - Manage Virtual Machines
*For conciseness, *not every single* step of the assignment is included here*

Task 1: Deploy zone-resilient Azure virtual machines by using the Azure portal and an Azure Resource Manager template

1. VM created:

The screenshot shows the Azure portal interface for a virtual machine named "az104-08-vm0". The left sidebar contains navigation links for Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Settings (Networking, Connect, Windows Admin Center, Disks, Size, Microsoft Defender for Cloud, Advisor recommendations, Extensions + applications, Continuous delivery, Availability + scaling, Configuration, Identity, Properties, Locks), and a search bar. The main content area displays the "Essentials" section with the following details:

Setting	Value
Resource group (move)	az104-08-rg01
Status	Running
Location	East US (Zone 1)
Subscription (move)	Azure Pass - Sponsorship
Subscription ID	e29abe6c-d392-4ef5-9c66-5d25436f0796
Availability zone	1
Tags (edit)	Click here to add tags

Below the essentials section, there are tabs for Properties, Monitoring, Capabilities (8), Recommendations, and Tutorials. The Properties tab is selected, showing the "Virtual machine" section with the following details:

Setting	Value
Computer name	az104-08-vm0
Health state	-
Operating system	Windows (Windows Server 2019 Datacenter)
Publisher	MicrosoftWindowsServer

2. Deploying the custom template:

Microsoft Azu... Search resources, services, and docs (G+) ≡ ✉️ 🔔 ⚙️ ? ✖️ lizaliza9898@outlook.co... DEFAULT DIRECTORY (LIZALIZA9...)

Home > CreateVm-MicrosoftWindowsServer.WindowsServer-201-20230324225233 | Template >

Custom deployment

Deploy from a custom template

Validation Passed

Basics

Subscription	Azure Pass - Sponsorship
Resource group	az104-08-rg01
Region	East US
Location	eastus
Network Interface Name1	az104-08-vm1-nic1
Network Security Group Name	az104-08-vm0-nsg
Network Security Group Rules	[]
Subnet Name	subnet0
Virtual Network Name	az104-08-rg01-vnet
Address Prefixes	["10.80.0.0/20"]
Subnets	[{"name": "subnet0", "properties": {"addressPrefix": "10.80.0.0/24"}]}
Public Ip Address Name1	az104-08-vm1-ip
Public Ip Address Type	Static
Public Ip Address Sku	Standard
Pip Delete Option	Detach
Virtual Machine Name	az104-08-vm1
Virtual Machine Name1	az104-08-vm1
Virtual Machine Computer Name1	az104-08-vm1
Virtual Machine RG	az104-08-rg01
Os Disk Type	Premium_LRS
Os Disk Delete Option	Delete
Virtual Machine Size	Standard_D2s_v3
Nic Delete Option	Detach

Create < Previous Next >

Task 2: Configure Azure virtual machines by using virtual machine extensions

3. After configuring the script extension and editing the template, I waited for its deployment:

The screenshot shows the Microsoft Azure portal interface. At the top, there's a navigation bar with icons for search, notifications, and account information. Below it, the main header reads "Microsoft.Template-20230324231620 | Overview". On the left, a sidebar menu includes "Overview" (which is selected and highlighted in grey), "Inputs", "Outputs", and "Template". The main content area displays a green checkmark icon followed by the text "Your deployment is complete". Below this, deployment details are listed: Deployment name: Microsoft.Template-20230324231620, Start time: 3/24/2023, 11:23:45 AM, Subscription: Azure Pa..., Correlation ID: f0a69675-af... Resource group: az104-08-rg01. There are two expandable sections: "Deployment details" and "Next steps". Under "Next steps", a blue button labeled "Go to resource group" is visible. To the right of the main content, there are several promotional cards: "Cost Management" (with a dollar sign icon), "Microsoft Defender for Cloud" (with a shield icon), "Free Microsoft tutorials" (with a person icon), and "Work with an expert" (with a person icon).

4. Then, I used the command script to access the website on both **az104-08-vm0** and **az104-08-vm1**:

The screenshot shows the Microsoft Azure portal interface for a virtual machine named "az104-08-vm0". The left sidebar lists various management options like Bastion, Auto-shutdown, Backup, Disaster recovery, Updates, Inventory, Change tracking, Automanage, Configuration (Preview), Policies, and Run command. The "Run command" option is currently selected. The main content area is titled "Run Command Script" and shows the output of a PowerShell script. The output window displays the following JSON response:

```
StatusCode : 200
StatusDescription : OK
Content : az104-08-vm0

RawContent : HTTP/1.1 200 OK
Accept-Ranges: bytes
Content-Length: 14
Content-Type: text/html
Date: Fri, 24 Mar 2023 21:19:51 GMT
ETag: "79d6d4a1955ed91:0"
Last-Modified: Fri, 24 Mar 2023 21:14:34 GMT
Server...

Forms :
Headers : {[Accept-Ranges, bytes], [Content-Length, 14], [Content-Type, text/html], [Date, Fri, 24 Mar 2023 21:19:51 GMT]...}
Images :
InputFields :
Links :
ParsedHtml :
RawContentLength : 14
```

Microsoft Azu... Search resources, services, and docs (G+) 2 ? ? lizaliza9898@outlook.co... DEFAULT DIRECTORY (LIZALIZA9...)

Home > Virtual
az104- Virtual machine

RunPowerShellScript

Script execution complete

Run

Output

```
StatusCode      : 200
StatusDescription : OK
Content         : Hello World from az104-08-vml

RawContent      : HTTP/1.1 200 OK
                  Accept-Ranges: bytes
                  Content-Length: 31
                  Content-Type: text/html
                  Date: Fri, 24 Mar 2023 21:21:00 GMT
                  ETag: "332d937965ed91:0"
                  Last-Modified: Fri, 24 Mar 2023 21:18:44 GMT
                  Server:...

Forms           :
Headers         : {[Accept-Ranges, bytes], [Content-Length, 31], [Content-Type, text/html], [Date, Fri, 24 Mar 2023 21:21:00 GMT]...}
Images          : {}
InputFields     : {}
Links           : {}
ParsedHtml      :
RawContentLength : 31
```

Task 3: Scale compute and storage for Azure virtual machines

5. Changing the size of az104-08-vm0:

If the virtual machine is currently running, changing its size will cause it to be restarted. Stopping the virtual machine may reveal additional sizes.

Display cost : Monthly vCPUs : All RAM (GiB) : All Add filter

Showing 356 VM sizes. Subscription: Azure Pass - Sponsorship Region: East US Current size: Standard_DS1_v2

Learn more about VM sizes

VM Size ↑↓	Type ↑↓	vCPUs ↑↓	RAM (GiB) ↑↓	Data disk
DS1_v2 ↗	General purpose	1	3.5	4
D2s_v3 ↗	General purpose	2	8	4
D2as_v4 ↗	General purpose	2	8	4
B2s ↗	General purpose	2	4	4
B1s ↗	General purpose	1	1	2
B2ms ↗	General purpose	2	8	4
DS2_v2 ↗	General purpose	2	7	8
B4ms ↗	General purpose	4	16	8

Prices presented are estimates in EUR that include only Azure infrastructure costs and any discounts for the subscription and location. The prices don't include any applicable software costs. Final charges will appear in your local currency in cost analysis and billing views. [View Azure pricing calculator.](#)

Resize

6. Creating a drive Z with two disks:

Microsoft Azu... Search resources, services, and docs (G+) lizaliza9898@outlook.co... DEFAULT DIRECTORY (LIZALIZA9...)

Run Command Script

az104- Virtual machine

Script execution complete

```
1 New-VirtualDisk -StoragePoolFriendlyName storagepool1 -FriendlyName virtualdisk1
2
3
4 Initialize-Disk -VirtualDisk (Get-VirtualDisk -FriendlyName virtualdisk1)
5
6 New-Partition -DiskNumber 4 -UseMaximumSize -DriveLetter Z
7
8
```

Run

Output

```
FriendlyName OperationalStatus HealthStatus IsPrimordial IsReadOnly Size AllocatedSize
----- :----- :----- :----- :----- :----- :----- :-----
storagepool1 OK Healthy False False 2 TB 512 MB

ObjectId : {1}\az104-08-vm0\root\Microsoft\Windows\Storage\Providers_v2\S
PACES_VirtualDisk.Ob :jectId="{7ff9744c-ca81-11ed-8e88-806e6f6e6963}:VD:{d96ceed7-bca
2-4a9b-8e62-e766777b :d13e}{0e0d851f-e206-40a1-be7a-043c41a33004}"

PassThroughClass :
PassThroughIds :
PassThroughNamespace :
PassThroughServer :
UniqueId : 1F850D0E06E2A140BE7A043C41A33004
Access : Read/Write
AllocatedSize : 2196875771904
AllocationUnitSize : 1073741824
ColumnIsolation : PhysicalDisk
DetachedReason : None
FaultDomainAwareness : PhysicalDisk
FootprintOnPool : 2196875771904
FootprintSize : 512 MB
```

7. The new custom deployment of the template with two managed disks that are attached to **az104-08-vm1** is now ready:

The screenshot shows the Microsoft Azure portal interface. At the top, there's a navigation bar with 'Microsoft Azu...' and a search bar. On the right, it shows the user's email 'lizaliza9898@outlook.co...' and the 'DEFAULT DIRECTORY (LIZALIZA9...)'. Below the navigation bar, the URL 'Home > Virtual machines > az104-08-vm1' is visible.

The main content area shows a virtual machine named 'az104-08-vm1' with a status of 'Running'. To the right of the VM name is a 'Run command' button. A tooltip message says: 'Now it's possible to execute outputs. Scripts and parameters from the updated Run Command template can be helpful for troubleshooting and maintenance. Select a command to run.' Below this, a list of commands is shown:

Name
RunPowerShellScript
DisableNLA
DisableWindowsUpdate
EnableAdminAccount
EnableEMS
EnableRemotePS
EnableWindowsUpdate
IPConfig
RDPSettings
ResetRDPCert
SetRDPPort

On the left, a sidebar menu includes sections like 'Operations' (Bastion, Auto-shutdown, Backup, Disaster recovery, Updates, Inventory, Change tracking, Automanage, Configuration management (Preview), Policies, Run command), 'Monitoring' (Insights, Alerts, Metrics), and 'Logs'.

A notification bar at the top right displays a green checkmark icon and the text 'Deployment succeeded'. It also says 'Deployment 'Microsoft.Template-20230324232910' to resource group 'az104-08-rg01' was successful.'

The 'Notifications' pane on the right lists the following events:

- Deployment succeeded** (a minute ago)
- Updated virtual machine** (8 minutes ago)
- Successfully created disk** (8 minutes ago)
- Updated virtual machine** (8 minutes ago)
- Successfully created disk** (9 minutes ago)
- Resized virtual machine** (10 minutes ago)
- Deployment succeeded**

8. Creating drive Z with two new disks:

Microsoft Azu... Search resources, services, and docs (G+/) lizaliza9898@outlook.co... DEFAULT DIRECTORY (LIZALIZA9...)

Home > Virtual az104- Virtual machine

Run Command Script

RunPowerShellScript

Script execution complete

PowerShell Script

```
1 New-StoragePool -FriendlyName storagepool1 -StorageSubsystemFriendlyName "Windows Storage*" -PhysicalDis
2
3 New-VirtualDisk -StoragePoolFriendlyName storagepool1 -FriendlyName virtualdisk1 -Size 2046GB -Resilienc
4
5 Initialize-Disk -VirtualDisk (Get-VirtualDisk -FriendlyName virtualdisk1)
6
7 New-Partition -DiskNumber 4 -UseMaximumSize -DriveLetter Z
8
```

Run

Output

FriendlyName	OperationalStatus	HealthStatus	IsPrimordial	IsReadOnly	Size	AllocatedSize
storagepool1	OK	Healthy	False	False	2 TB	512 MB
ObjectID					: {1}\az104-08-vm1\root\Microsoft\Windows\Storage\Providers_v2\S	
PACES_VirtualDisk.Ob					jectId="{59d6d2cc-ca87-11ed-8e88-806e6f6e6963}:VD:{53ec8d14-f4c	
c-41f1-a52c-8cc899de					8f50}{3ecbfabc-10d6-4572-ad1e-f2d5ffa124d9}"	
PassThroughClass	:					
PassThroughIds	:					
PassThroughNamespace	:					
PassThroughServer	:					
UniqueId	:	BCFACB3ED6107245AD1EF2D5FFA124D9				
Access	:	Read/Write				
AllocatedSize	:	2196875771904				
AllocationUnitSize	:	1073741824				

Task 4: Register the Microsoft.Insights and Microsoft.AlertsManagement resource providers

9. Registering Microsoft.Insights and Microsoft.AlertsManagement providers through the Shell:

The screenshot shows the Azure Cloud Shell interface. The title bar says "Microsoft Azu..." and the search bar says "Search resources, services, and docs (G+/)". The user is "lizaliza9898@outlook.co..." in the default directory "(LIZALIZA9...)".

The main area shows a virtual machine named "az104-08-vm1". A message box says: "Now it's possible to execute multiple scripts at the same time, manage their progress and persist execution outputs. Scripts and parameters can now be used in ARM templates to automate deployment. Learn more about → the updated Run Command feature, now available through Azure CLI and PowerShell."

The terminal window shows the following PowerShell session:

```
PowerShell | ⚡ ? 🌐 🔍 { } 🔍 Requesting a Cloud Shell. Succeeded.
Connecting terminal...

MOTD: Azure Cloud Shell now includes Predictive IntelliSense! Learn more: https://aka.ms/CloudShell/I
ntelliSense

VERBOSE: Authenticating to Azure ...
VERBOSE: Building your Azure drive ...
PS /home/elizabet> Register-AzResourceProvider -ProviderNamespace Microsoft.Insights

ProviderNamespace : microsoft.insights
RegistrationState : Registering
ResourceTypes    : {components, components/query, components/metadata, components/metrics...}
Locations        : {East US, South Central US, North Europe, West Europe...}

PS /home/elizabet>
PS /home/elizabet> Register-AzResourceProvider -ProviderNamespace Microsoft.AlertsManagement

ProviderNamespace : Microsoft.AlertsManagement
RegistrationState : Registering
ResourceTypes    : {alerts, alertsSummary, smartGroups, smartDetectorAlertRules...}
Locations        : {global, North Central US, East US, East US 2...}

PS /home/elizabet> [ ]
```

The URL bar at the bottom shows "https://portal.azure.com/#"

Task 5: Deploy zone-resilient Azure virtual machine scale sets by using the Azure portal

10. Creating the VM scale set with the following settings:

The screenshot shows the 'Create a virtual machine scale set' wizard in the Azure portal. The top navigation bar includes 'Microsoft Azu...', a search bar, and user account information. The breadcrumb navigation shows 'Home > Virtual machine scale sets > Create a virtual machine scale set'. The main page title is 'Create a virtual machine scale set' with a close button.

A green validation message 'Validation passed' is displayed at the top left. Below it, the 'Review + create' tab is selected from a horizontal navigation bar.

The configuration is divided into sections:

- Basics**:
 - Subscription: Azure Pass - Sponsorship
 - Resource group: (new) az104-08-rg02
 - Virtual machine scale set name: az10408vmss0
 - Region: East US
 - Orchestration mode: Uniform
 - Availability zone: 1,2,3
 - Image: Windows Server 2019 Datacenter - Gen2
 - Size: Standard D2s v3 (2 vcpus, 8 GiB memory)
 - Security type: Standard
 - Username: Student
- Spot**:
 - Azure Spot: No
- Instance**:
 - Initial instance count: 2
 - Already have a Windows license?: No

At the bottom, there are buttons for 'Create' (highlighted in blue), '< Previous' and 'Next >', 'Download a template for automation', and 'Give feedback'.

Home > Virtual machine scale sets >

Create a virtual machine scale set



 Validation passed

Enable overprovisioning Off
Enable automatic OS upgrades Off

Scaling

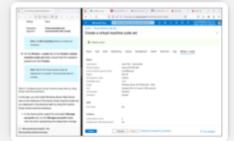
Scaling No
Scale-In policy Default

Health

Enable application health monitoring false

Advanced

Enable scaling beyond 100 instances Yes
Proximity placement group None
Spreading algorithm 5
Force strictly even balance across zones No
Extensions None
VM applications None
Cloud init No
User data No
Disk controller type SCSI
Capacity reservation group None



[Create](#)

[< Previous](#)

[Next >](#)

[Download a template for automation](#)

 [Give feedback](#)

Task 6: Configure Azure virtual machine scale sets by using virtual machine extensions

11. Installing the Windows Server Web Server role on the instances of the previously created VM scale set:

The screenshot shows the Azure Deployment blade for a completed deployment. The deployment name is "CreateVmss-MicrosoftWindowsServer.WindowsServer-2-20230324233...". The status message says "Your deployment is complete". Deployment details include:

- Deployment name: CreateVmss-MicrosoftWindowsServer.WindowsServer-2-20230324233...
- Start time: 3/24/2023
- Subscription: Azure Pass - Sp...
- Correlation ID: b5551...
- Resource group: az104-08-r...

Below the deployment summary, there are sections for "Deployment details" and "Next steps". A "Go to resource" button is available. On the right side, there are promotional links for Cost Management, Microsoft Defender for Cloud, Free Microsoft tutorials, and Work with an expert.

Microsoft Azu... Search resources, services, and docs (G+/) lizaliza9898@outlook.co... DEFAULT DIRECTORY (LIZALIZA9...)

Home > CreateVmss-MicrosoftWindowsServer.WindowsServer-2-20230324233... X

Deployment

Search

Delete Cancel Redeploy Download Refresh

Overview Inputs Outputs Template

✓ Your deployment is complete

Deployment name: CreateVmss-MicrosoftWindowsServer.WindowsServer-2-20230324233... Start time: 3/24/2023 Subscription: Azure Pass - Sp... Correlation ID: b5551... Resource group: az104-08-r...

Deployment details Next steps

Go to resource

Give feedback Tell us about your experience with deployment

Cost Management Get notified to stay within your budget and prevent unexpected charges on your bill. Set up cost alerts >

Microsoft Defender for Cloud Secure your apps and infrastructure Go to Microsoft Defender for Cloud >

Free Microsoft tutorials Start learning today >

Work with an expert Azure experts are service provider partners who can help manage your assets on Azure and be your first line of support. Find an Azure expert >

12. Microsoft.CustomScriptExtension deployment complete:

Microsoft Azu... Search resources, services, and docs (G+/) 4 lizaliza9898@outlook.co... DEFAULT DIRECTORY (LIZALIZA9...)

Home > Microsoft.CustomScriptExtension | Overview Deployment

Search Delete Cancel Redeploy Download Go to resource Go to resource group

Overview Inputs Outputs Template

Your deployment is complete

Deployment name:... Start time: 3/24/2023, 11:...
Subscription: Azure P... Correlation ID: d965e5bb-09...
Resource group: az1...

Deployment details Next steps

Go to resource

Deployment succeeded Deployment 'Microsoft.CustomScriptExtension' to resource group 'az104-08-rg02' was successful.

Cost Management Get notified to stay within your budget and prevent unexpected charges on your bill. Set up cost alerts >

Microsoft Defender for Cloud Secure your apps and infrastructure Go to Microsoft Defender for Cloud >

Free Microsoft tutorials Start learning today >

Work with an expert Azure experts are service provider partners who can help manage your assets on Azure and be your first line of support. Find an Azure expert >

13. Upgrading the instances of the scale set:

Microsoft Azu... Search resources, services, and docs (G+) 5 ? DEFAULT DIRECTORY (LIZALIZA9...

Home > Virtual machine scale sets > az10408vmss0

az10408vmss0 | Instances ...

Virtual machine scale set

Search Start Restart Stop Reimage Delete Upgrade Refresh ...

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

Properties

Locks

Monitoring

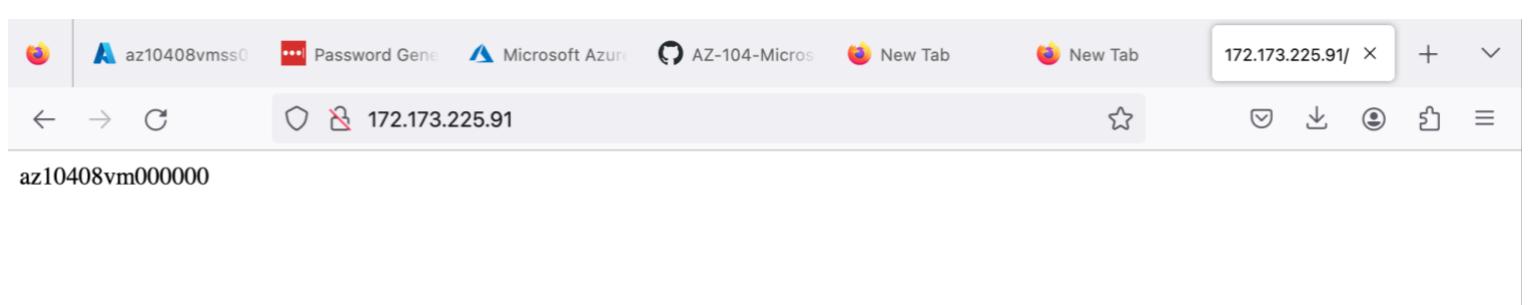
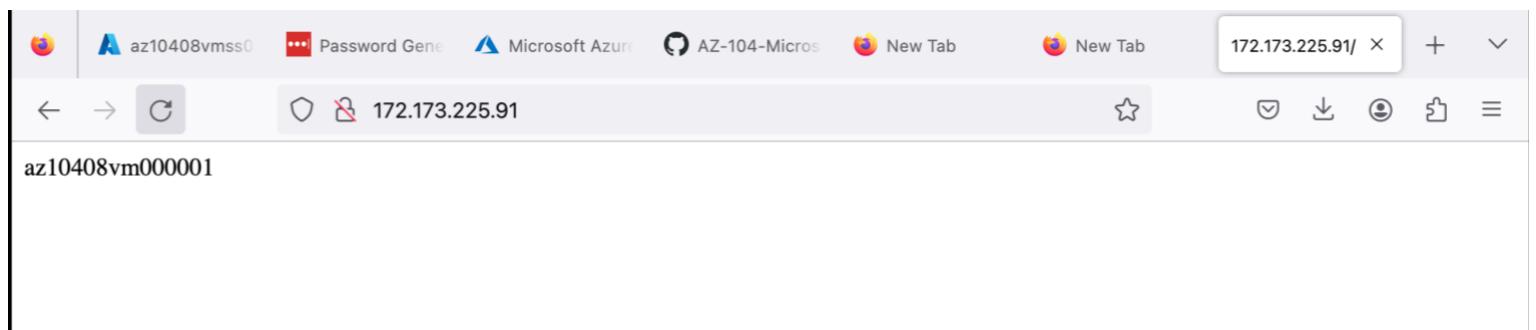
Upgraded virtual machine instances

Successfully upgraded virtual machine instances
az10408vmss0_0, az10408vmss0_1.

Instance	Computer name	Status	Protection policy	Provisioning
az10408vmss0_0	az10408vm000000	Running		Succeeded
az10408vmss0_1	az10408vm000001	Running		Succeeded

Give feedback

14. Verifying that the load balancer of the scale set works:



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

15. Resizing the scale set to **Standard_DS1_v2** and noting the different locations of the two instances:

The screenshot shows the Azure portal interface for managing a VM instance named 'az10408vmss0_0'. The instance is a 'Scale set instance' located in the 'East US (Zone 1)' region. It has a Public IP address of 20.51.226.10 and a Private IP address of 10.82.0.4. The SKU listed is 'Standard_DS1_v2'. The instance status is 'Running' (1 more). The portal includes a navigation bar at the top and a left sidebar with various monitoring and support options.

az10408vmss0_0

Scale set instance

Search

Connect Start Restart Stop Reimage Delete Refresh

Home > az10408vmss0 | Instances >

az10408vmss0_0

Scale set instance

Overview

Essentials

JSON View

Settings

- Networking
- Connect
- Disks
- Properties

Monitoring

- Insights
- Metrics

Support + troubleshooting

- Bastion
- Serial console
- Boot diagnostics
- Diagnose and solve problems
- New support request

Public IP address: 20.51.226.10
Private IP address: 10.82.0.4
Public IP address (IPv6): -
Private IP address (IPv6): -
Virtual network/subnet: az104-08-rg02-vnet/subnet0
Disk: az10408vmss0_az10408vmss0_0_OsDisk_1_64...
Protection Policy: -
Health state: -

Location: East US (Zone 1)

Provisioning state: Succeeded

Latest model applied: Yes

Computer name: az10408vm000000

Fault domains: 5

SKU: Standard_DS1_v2

Show data for last: 1 hour 6 hours 12 hours 1 day 7 days 30 days

CPU (average)

Give feedback

Microsoft Azu... Search resources, services, and docs (G+/) ... lizaliza9898@outlook.co... DEFAULT DIRECTORY (LIZALIZA9...)

Home > az10408vmss0 | Instances >

az10408vmss0_1

Scale set instance

Search Connect Start Restart Stop Reimage Delete Refresh ...

Overview JSON View

Essentials

Instance ID	1	Public IP address	172.174.233.204
Status	Running, 1 more	Private IP address	10.82.0.5
Location	East US (Zone 2)	Public IP address (IPv6)	-
Provisioning state	Succeeded	Private IP address (IPv6)	-
Latest model applied	Yes	Virtual network/subnet	az104-08-rg02-vnet/subnet0
Computer name	az10408vm000001	Disk	az10408vmss0_az10408vmss0_1_OsDisk_1_96...
Fault domains	5	Protection Policy	-
SKU	Standard_DS1_v2	Health state	-

Show data for last: 1 hour 6 hours 12 hours 1 day 7 days 30 days

CPU (average)

80%

Give feedback

16. Scaling based on a metric:

Microsoft Azu... Search resources, services, and docs (G+/) ≡ Save Autoscale settings Resource group Predictive auto Network In Total (Average) 111.68 kB Enable metric divide by instance count Operator * Metric threshold to trigger scale action * Greater than 10 bytes Delete warning Duration (minutes) * Time grain (minutes) 1 Time grain statistic * Time aggregation * Average Action Operation * Cool down (minutes) * Increase count by 5 instance count * 1 Add

az10408vmss0 | Scaling ...

Virtual machine scale set

Home > az10408vmss0

Search Save Autoscale settings

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

Size

Extensions + applications

Continuous delivery

Configuration

Upgrade policy

Health and repair

Identity

Scale rule

146.48KiB
97.66KiB
48.83KiB
0B

11:58 PM 15 30 UTC+02:00

Network In Total (Average)
111.68 kB

Enable metric divide by instance count

Default*

Operator * Metric threshold to trigger scale action * Greater than 10 bytes

Delete warning Duration (minutes) * Time grain (minutes) 1

Scale mode Setting a duration less than 5 minutes may generate transient metric spikes that leads to unexpected scaling actions. For best results, the duration should be set at least to 5 minutes.

Rules Time grain statistic * Time aggregation * Average

Action Operation * Cool down (minutes) * Increase count by 5

Instance limits instance count * 1

Add

The screenshot shows the Azure portal interface for managing a Virtual Machine Scale Set (VMSS). The left sidebar lists various settings such as Instances, Networking, and Configuration. The main content area is titled 'az10408vmss0 | Scaling' and shows a chart of 'Network In Total (Average)' over time. A 'Scale rule' is being configured, with specific parameters like 'Operator' (Greater than), 'Metric threshold' (10 bytes), and 'Duration' (1 minute). The 'Action' section specifies increasing the instance count by 5. A note in the 'Scale mode' section cautions against setting a duration less than 5 minutes due to potential transient metric spikes.

Microsoft Azu... Search resources, services, and docs (G+/) Home > az10408vmss0 az10408vmss0 | Scaling Virtual machine scale set

Save Discard Refresh Logs Feedback

Default* Auto created default scale condition [Edit](#)

Delete warning **Info** The very last or default recurrence rule cannot be deleted. Instead, you can disable autoscale to turn off autoscale.

Scale mode Scale based on a metric Scale to a specific instance count

Rules **Info** It is recommended to have at least one scale in rule. To create new rules, click [Add a rule](#)

Scale out When az10408vmss0 (Average) Network I... [Edit](#)

+ Add a rule

Instance limits Minimum * **Info** 1 Maximum * **Info** 3 Default * **Info** 1

Schedule **Info** This scale condition is executed when none of the other scale condition(s) match

+ Add a scale condition

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 Size Extensions + applications Continuous delivery Configuration Upgrade policy Health and repair Identity

17. Identifying the public IP addresses of the load balancer of the scale set:

The screenshot shows the Azure portal interface for managing a Virtual Machine Scale Set (az10408vmss0). The left sidebar shows navigation options like Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, and Settings. Under Settings, the 'Scaling' option is selected. The main content area is titled 'az10408vmss0 | Scaling' and shows the 'Configure' tab selected. A message box indicates that 'Autoscale has added another powerful feature: Predictive autoscale'. Below this, a section titled 'Choose how to scale your resource' offers two options: 'Manual scale' (selected) and 'Custom autoscale'. The 'Custom autoscale' option is described as scaling on any schedule based on metrics. At the bottom, a PowerShell terminal window displays a JSON object representing the scale set's configuration, including headers, images, input fields, links, raw content length, and relation link information.

```
PowerShell Date: Fri, 24 Mar 2023 22:01:12 GMT Content-Type: text/html Last-Modified: Fri, 24 Mar 2023 21:51:23 GMT Headers : {[Accept-Ranges, System.String[]], [ETag, System.String[]], [Server, System.String[]], [Date, System.String[]]} Images : {} InputFields : {} Links : {} RawContentLength : 17 RelationLink : {}
```

18. After creating an infinite loop of HTTP requests to the scale set instances, I noticed that a third instance is being provisioned:

The screenshot shows the Microsoft Azure portal interface for managing a Virtual Machine Scale Set. The left sidebar navigation bar includes 'Overview', 'Activity log', 'Access control (IAM)', 'Tags', 'Diagnose and solve problems', and a 'Settings' section with options like 'Instances' (which is selected), 'Networking', 'Scaling', 'Disks', 'Operating system', 'Microsoft Defender for Cloud', 'Guest + host updates', 'Size', 'Extensions + applications', 'Continuous delivery', and 'Configuration'. The main content area displays a table of virtual machine instances for the scale set 'az10408vmss0'. The table columns are 'Instance', 'Computer name', 'Status', 'Protection policy', and 'Provisioning'. The table rows show three instances: 'az10408vmss0_0' (az10408vm000000, Running, Succeeded), 'az10408vmss0_1' (az10408vm000001, Running, Succeeded), and 'az10408vmss0_2' (az10408vm000002, Creating (Running)). A red oval highlights the 'az10408vmss0_2' row.

Instance	Computer name	Status	Protection policy	Provisioning
az10408vmss0_0	az10408vm000000	Running		Succeeded
az10408vmss0_1	az10408vm000001	Running		Succeeded
az10408vmss0_2	az10408vm000002	Creating (Running)		Creating

19. With its location in yet another different than the rest zone:

Microsoft Azu... Search resources, services, and docs (G+/)

lizaliza9898@outlook.co... DEFAULT DIRECTORY (LIZALIZA9...)

Home > az10408vmss0 | Instances >

az10408vmss0_2 Scale set instance

Search Connect Start Restart Stop Reimage Delete Refresh ...

Overview

Essentials

Instance ID: 2
Status: [Running, 1 more](#)
Location: **East US (Zone 3)** (circled)
Provisioning state: Creating
Latest model applied: Yes
Computer name: az10408vm000002
Fault domains: 5
SKU: Standard_DS1_v2

Public IP address: 20.51.248.36
Private IP address: 10.82.0.6
Public IP address (IPv6): -
Private IP address (IPv6): -
Virtual network/subnet: az104-08-rg02-vnet/subnet0
Disk: az10408vmss0_az10408vmss0_2_OsDisk_1_77...

Show data for last: **30 days** (button highlighted)

JSON View Give feedback

PowerShell

```
PowerShell
```

20. Creating a new disk:

az10408vmss0 | Disks

Virtual machine scale set

OS disk

Image reference	Storage type	Size (GiB)	Max IOPS	Max throughput	Encryption
MicrosoftWindowsServer / ...	Premium SSD LRS	127	500	100	SSE v2

Data disks

Showing 1 of 1 attached data disks

Create and attach a new disk

N	Storage type	Size (GiB)	Max IOPS	Max throughput	Encryption
1	Standard HDD LRS	32	500	60	SSE v2

Disks

Operating system

Microsoft Defender for Cloud

Guest + host updates

Size

Extensions + applications

Continuous delivery

Configuration

Upgrade policy

Health and repair

Identity

Updated virtual machine scale set
Successfully updated virtual machine scale set 'az10408vmss0'.

21. Upgrading the instances:

The screenshot shows the Microsoft Azure portal interface for managing a virtual machine scale set named "az10408vmss0".

Header: Microsoft Azu... | Search resources, services, and docs (G+) | Home > az10408vmss0 | az10408vmss0 | Instances | Virtual machine scale set

Message Bar: Upgraded virtual machine instances | Successfully upgraded virtual machine instances az10408vmss0_0, az10408vmss0_1, az10408vmss0_2.

Toolbar: Search, Start, Restart, Stop, Reimage, Delete, Upgrade, Refresh, ...

Left Sidebar:

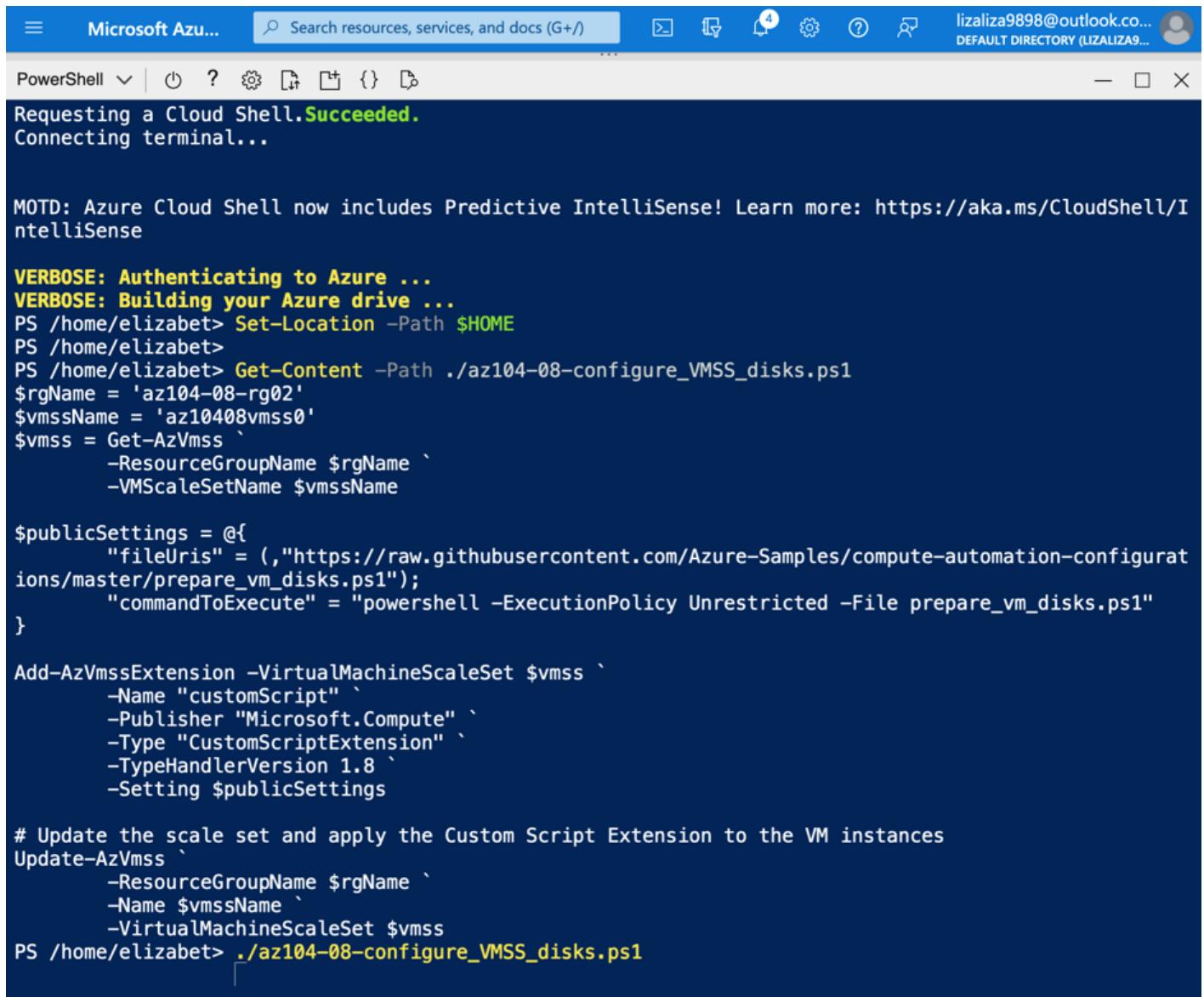
- Overview
- Activity log
- Access control (IAM)
- Tags
- Diagnose and solve problems
- Settings**
 - Instances (selected)
 - Networking
 - Scaling
 - Disks
 - Operating system
 - Microsoft Defender for Cloud
 - Guest + host updates
 - Size
 - Extensions + applications
 - Continuous delivery
 - Configuration
 - Upgrade policy
 - Health and repair
 - Identity

Table: Search virtual machine instances

Instance	Computer name	Status	Protection policy	Provisioning
az10408vmss0_0	az10408vm000000	Running		Succeeded
az10408vmss0_1	az10408vm000001	Running		Succeeded
az10408vmss0_2	az10408vm000002	Running		Succeeded

[Give feedback](#)

22. Uploading the \Allfiles\Jobs\08\az104-08-configure_VMSS_disks.ps1 file and displaying and executing the script:



The screenshot shows the Microsoft Azure Cloud Shell interface. At the top, there's a header bar with the Microsoft Azure logo, a search bar, and various icons. The main area is a terminal window titled "PowerShell". The terminal output shows the following sequence of events:

- Requesting a Cloud Shell. **Succeeded.**
- Connecting terminal...
- MOTD: Azure Cloud Shell now includes Predictive IntelliSense! Learn more: <https://aka.ms/CloudShell/IntelliSense>
- VERBOSE: Authenticating to Azure ...
- VERBOSE: Building your Azure drive ...
- PS /home/elizabet> Set-Location -Path \$HOME
- PS /home/elizabet>
- PS /home/elizabet> Get-Content -Path ./az104-08-configure_VMSS_disks.ps1
- \$rgName = 'az104-08-rg02'
- \$vmssName = 'az10408vmss0'
- \$vmss = Get-AzVmss `
- ResourceGroupName \$rgName `
- VMSScaleSetName \$vmssName
- \$publicSettings = @`
- "fileUris" = (,"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/elizabet> ./az104-08-configure_VMSS_disks.ps1

Microsoft Azu... Search resources, services, and docs (G+)

PowerShell | ⌂ ? ⚙️ 📁 { } ⏪

```
Subnet : 
  Id : /subscriptions/e29abe6c-d392-4ef5-9c66-5d25436f0796/re
sourceGroups/az104-08-rg02/providers/Microsoft.Network/virtualNetworks/az104-08-rg02-vnet/subnets/su
bnet0
  Primary : True
  PublicIPAddressConfiguration :
    Name : publicIp-az104-08-rg02-vnet-nic01
    IdleTimeoutInMinutes : 15
    PublicIPAddressVersion : IPv4
    PrivateIPAddressVersion : IPv4
    LoadBalancerBackendAddressPools[0] :
      Id : /subscriptions/e29abe6c-d392-4ef5-9c66-5d25436f0796/re
sourceGroups/az104-08-rg02/providers/Microsoft.Network/loadBalancers/az10408vmss0-lb/backendAddressP
ools/bepool
      LoadBalancerInboundNatPools[0] :
        Id : /subscriptions/e29abe6c-d392-4ef5-9c66-5d25436f0796/re
sourceGroups/az104-08-rg02/providers/Microsoft.Network/loadBalancers/az10408vmss0-lb/inboundNatPools
/natpool
        EnableIPForwarding : False
        DiagnosticsProfile :
          BootDiagnostics :
            Enabled : True
            StorageUri : https://newstoracc222.blob.core.windows.net/
        ExtensionProfile :
          Extensions[0] :
            Name : customScript
            Publisher : Microsoft.Compute
            Type : CustomScriptExtension
            TypeHandlerVersion : 1.8
            AutoUpgradeMinorVersion : False
            Settings : {"fileUris":["https://raw.githubusercontent.com/Azure-Samples/compute-automation-configurations/master/prepare_vm_disks.ps1"],"commandToExecute":"powershell -ExecutionPolicy Unrestricted -File prepare_vm_disks.ps1"}
        OrchestrationMode : Uniform
        TimeCreated : 3/24/2023 9:43:36 PM

PS /home/elizabet> []
```

23. And upgrading the instances of the scale set once again:

The screenshot shows the Microsoft Azure portal interface for managing a Virtual Machine Scale Set named 'az10408vmss0'. The left sidebar contains navigation links for Home, Virtual machine scale sets, and az10408vmss0. The main content area displays the 'Instances' tab for the scale set. A modal window titled 'Upgraded virtual machine instances' is open, stating 'Successfully upgraded virtual machine instances az10408vmss0_2, az10408vmss0_1, az10408vmss0_0.' Below the modal, a table lists three instances: az10408vmss0_0, az10408vmss0_1, and az10408vmss0_2, all in a 'Running' status with a green checkmark. The table includes columns for Instance, Computer name, Status, Protection policy, and Provisioning. The 'Instances' link in the sidebar is highlighted.

Instance	Computer name	Status	Protection policy	Provisioning
az10408vmss0_0	az10408vm000000	Running		Succeeded
az10408vmss0_1	az10408vm000001	Running		Succeeded
az10408vmss0_2	az10408vm000002	Running		Succeeded