

Azure Virtual Machine Scale Sets

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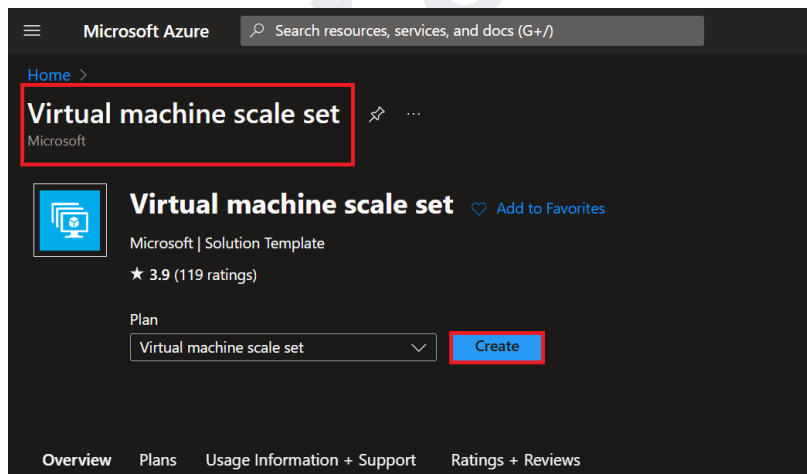
Azure Virtual Machine Scale Sets provide scalable and efficient management for applications running across multiple virtual machines (VMs). They enable automatic resource scaling and distribute workloads using built-in load balancing mechanisms.

Benefits of Using Virtual Machine Scale Sets

- Automatically scale your application as resource demand changes.
- Improve high availability and application resiliency.
- Simplify the creation and management of multiple VMs.

Creating Virtual Machine Scale Sets

1. In the [Azure Portal](#)
2. Search for **Virtual Machine Scale Set** and select from **Marketplace**.
3. Select Create on the VMSS page.



4. Fill in the basic settings:
 - Subscription: **ABCOFCLOUD**
 - Resource group: **Sarah-RG**

Microsoft Azure

Home > Sarah-RG > Marketplace >

Create a Virtual Machine Scale Set (VMSS)

Basics Spot Disks Networking Management Health Advanced Tags Review + create

At no added cost, a VMSS offers automatic scaling and performance optimization, infrastructure flexibility, and options to mix VM sizes, zones, and fault domains—all with simple, centralized group VM management. Already have VMs? Just create a new flexible VMSS, and attach existing VMs to your new scale set to get enhanced availability, resiliency, and capacity and cost optimization. [Learn more about VMSS](#)

Project details

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription * ABCOFCLOUD

Resource group * Sarah-RG [Create new](#)

5. Scale set details:

- Virtual machine scale set name: Techbysara-VMSS
- Region: East US
- Availability zone: None

Scale set details

Virtual machine scale set name * Techbysara-VMSS

Region * (US) East US

Availability zone ⓘ None

- **Orchestration mode:** Select Uniform
 - **Flexible:** Supports a mix of VM types with improved availability (up to 1,000 VMs).
 - **Uniform:** Deploys identical instances using a defined VM profile.
- Security type: Trusted launch virtual machine
- Scaling mode: Manual
- Instance count: 2

Orchestration

A scale set has a "scale set model" that defines the attributes of virtual machine instances (size, number of data disks, etc). As the number of instances in the scale set changes, new instances are added based on the scale set model. [Learn more about the scale set model](#)

Orchestration mode * ⓘ

☐ **Flexible:** achieve high availability at scale with identical or multiple virtual machine types

☒ **Uniform:** optimized for large scale stateless workloads

Security type ⓘ

Trusted launch virtual machines ▼

[Configure security features](#)

Scaling

Scaling mode ⓘ

☒ **Manually update the capacity:** Maintain a fixed amount of instances.

☐ **Autoscaling:** Scaling based on a CPU metric, on any schedule.

☐ No scaling profile: manual attach virtual machines after deployment

☒ Improve your availability by selecting multiple zones

Instance count * ⓘ

2 ✓

[Configure scaling options](#)

6. Instance details:

- Image: Select your preferred OS image
- VM architecture: x64
- Size: Choose based on your workload

7. Administrator account:

- Username: Techbysara
- Password: Use a strong password (minimum 12 characters).

Instance details

Image * ⓘ

Windows Server 2022 Datacenter: Azure Edition - x64 Gen2 ▼

[See all images](#) | [Configure VM generation](#)

VM architecture ⓘ

☐ Arm64

☒ **x64**

Arm64 is not supported with the selected image.

Size * ⓘ

Standard_D4s_v3 - 4 vcpus, 16 GiB memory (US\$140.16/month) ▼

[See all sizes](#)

Enable Hibernation ⓘ

☐

Hibernate does not currently support Uniform Orchestration mode. [Learn more](#)

Administrator account

Username * ⓘ

Techbysara ✓

Password * ⓘ

..... ✓

Confirm password * ⓘ

..... ✓

Licensing

Save up to 49% with a license you already own using Azure Hybrid Benefit. [Learn more](#)

Would you like to use an existing Windows Server license? ⓘ

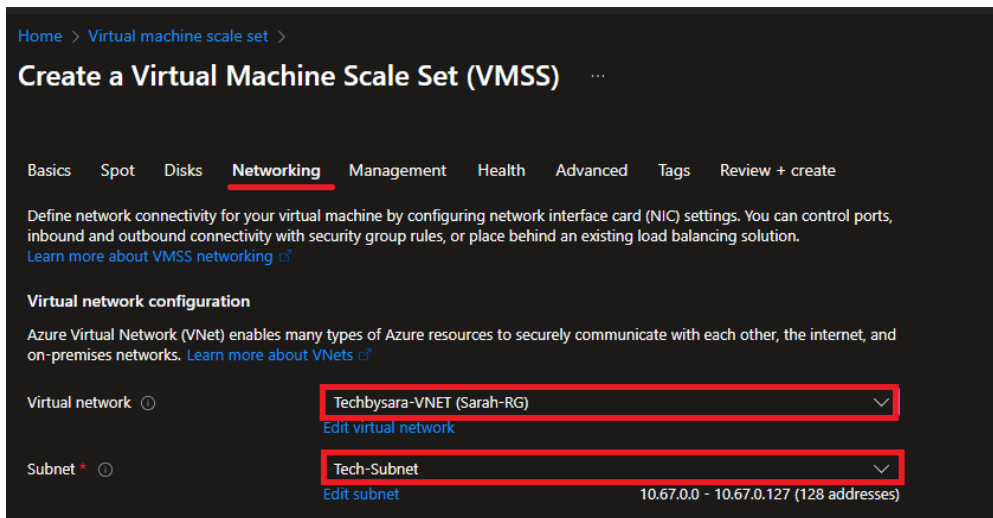
☐

For this article, we will leave the Spot, Disks, Management, Health and Advanced tabs in their default configurations.

8. Select Next: Networking

➤ Virtual network configuration:

- Virtual network: Click the dropdown > Select your preferred virtual network (e.g., Techbysara-VNET).
- Subnet: Select your preferred subnet from the dropdown (e.g., Tech-Subnet).



The screenshot shows the 'Create a Virtual Machine Scale Set (VMSS)' page in the Azure portal, specifically the 'Networking' tab. The breadcrumb navigation at the top reads 'Home > Virtual machine scale set >'. The page title is 'Create a Virtual Machine Scale Set (VMSS)'. Below the title are tabs for 'Basics', 'Spot', 'Disks', 'Networking' (which is selected and highlighted with a red underline), 'Management', 'Health', 'Advanced', 'Tags', and 'Review + create'. A descriptive paragraph states: '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 about VMSS networking](#)'. Below this is the 'Virtual network configuration' section, which explains that 'Azure Virtual Network (VNet) enables many types of Azure resources to securely communicate with each other, the internet, and on-premises networks. [Learn more about VNets](#)'. The 'Virtual network' dropdown is set to 'Techbysara-VNET (Sarah-RG)' with a red box around it and a link to 'Edit virtual network'. The 'Subnet' dropdown is set to 'Tech-Subnet' with a red box around it and a link to 'Edit subnet'. Below the subnet dropdown, the address range '10.67.0.0 - 10.67.0.127 (128 addresses)' is displayed.

➤ Network Interface:

- Click + Create new NIC
- Name: Enter your preferred name for the NIC (e.g., TechbysaraVMSS-NIC).
- NSG: Select Basic.
- Public Inbound ports: None
- Public IP address: Disabled
- Accelerated networking: Disabled
- Select Save

Home > Virtual machine scale set > Create a Virtual Machine Scale Set (VMSS) >

Create network interface

Network interface

Name

Virtual network

Subnet

NIC network security group

☐ None

☒ Basic

☐ Advanced

Public inbound ports

☒ None

☐ Allow selected ports

Select inbound ports

Select one or more ports

All traffic from the internet will be blocked by default. You will be able to change inbound port rules in the VM > Networking page.

Public IP address

☒ Disabled ☐ Enabled

Accelerated networking

☒ Disabled ☐ Enabled

- Proceed to Next: Review + create
- Ensure Validation passed
- Select Create

To check the number of VMs running, select **Instances** under **Techbysara-VMSS** page.

Microsoft Azure

Search resources, services, and docs (G+/I)

Copilot

sarah@abcofdo
DEFAULT DIRECTORY

Home > Create VMSS: MicrosoftWindowsServer.WindowsServer-2-20250731035909 | Overview > Sarah-RG > Techbysara-VMSS

Techbysara-VMSS Instances

Virtual machine scale set

Search

Start Restart Stop Hibernate Reimage Delete Upgrade Refresh Protection

Search virtual machine instances

Instance	Computer name	Status	Protection policy	Provisioning state	Health state	Latest model
☐ Techbysara-VMSS_0	techbysar000000	Running		Succeeded		Yes
☐ Techbysara-VMSS_1	techbysar000001	Running		Succeeded		Yes

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Instances

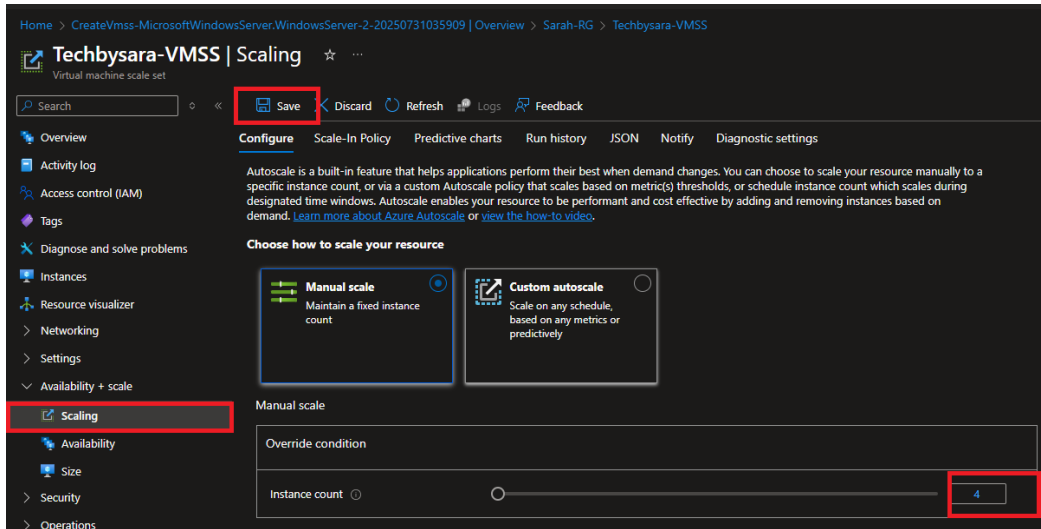
Resource visualizer

Techbysara-VMSS has been successfully created.

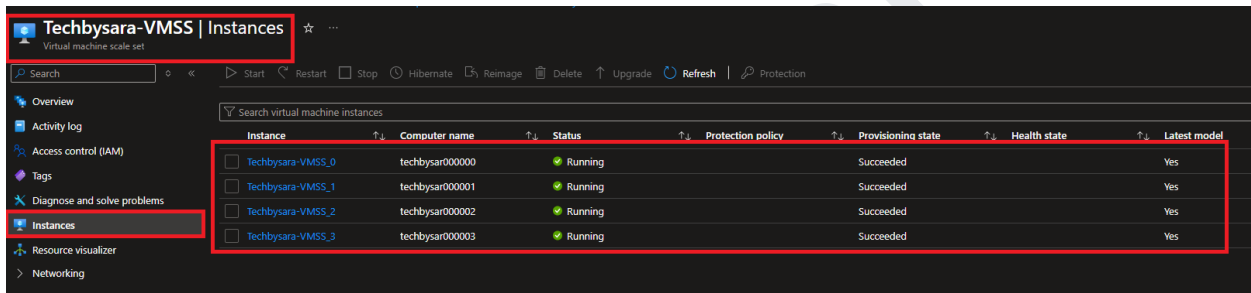
Configure Scaling on VMSS

When creating the VMSS, we selected **Manual Scaling**.

- From the VMSS page, click on **Availability + scale**
- Select **Scaling**
- Use the slider to increase **Instance Count** (e.g., from 2 to 4)
- Select Save



View added **Instance count**



Four Instances successfully running.

Configure Autoscale

To enable autoscaling based on performance metrics:

- In the Scaling page, select **Custom autoscale**
 - Autoscale setting name: Enter your preferred name (e.g., Techbysara-VMSS-Autoscale).
 - Resource group: Select your existing resource group (e.g., Sarah-RG).
- **Scaling mode:** Select Scale based on a metric.
- Select **Add rule**
 - Configure rules for Scale out and Scale in based on CPU usage or other metrics.
 - Select **Add**
 - **Instance limits:** Select your preferred “**Minimum**” and “**Maximum**” instances.
 - Select **Save**

Techbysara-VMSS | Scaling
Virtual machine scale set

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 videos](#).

Choose how to scale your resource

☐ Manual scale
Maintain a fixed instance count

☒ Custom autoscale
Scale on any schedule, based on any metrics or predictively

Custom autoscale

Autoscale setting name: Techbysara-VMSS-Autoscale

Resource group: Sarah-RG

Predictive autoscale: Mode: Disabled, Pre-launch setup of instances (minutes):

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

Default Auto created default scale condition

Delete warning: 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

Scale out			
When	Techbysara-VMSS	(Average) Percentage CPU > 70	Increase count by 1

Scale in			
When	Techbysara-VMSS	(Average) Percentage CPU < 70	Decrease count by 3

+ Add a rule

Instance limits

Minimum: 1, Maximum: 4, Default: 4

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

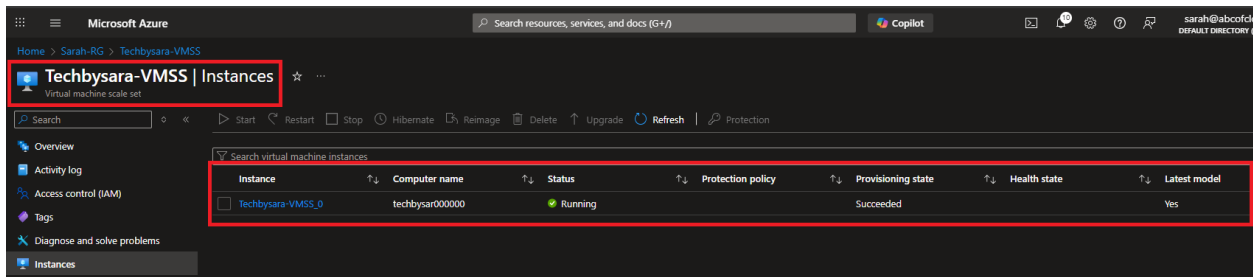
➤ Confirm the configured **Instances** are working:

Techbysara-VMSS | Instances
Virtual machine scale set

Search virtual machine instances

Instance	Computer name	Status	Protection policy	Provisioning sta...	Health state	Latest r
☐ Techbysara-VMSS_0	techbysar000000	Running		Succeeded		Yes
☐ Techbysara-VMSS_1	techbysar000001	Deleting		Deleting		Yes
☐ Techbysara-VMSS_2	techbysar000002	Deleting		Deleting		Yes
☐ Techbysara-VMSS_3	techbysar000003	Deleting		Deleting		Yes

- Based on the rules configured, if CPU usage falls below 70%, VMSS will automatically reduce instance count.



Techbysara-VMSS automatic scaling successfully executed.

Conclusion

Azure Virtual Machine Scale Sets are a powerful way to automate and scale workloads across multiple VMs with consistency, performance, and ease of management.