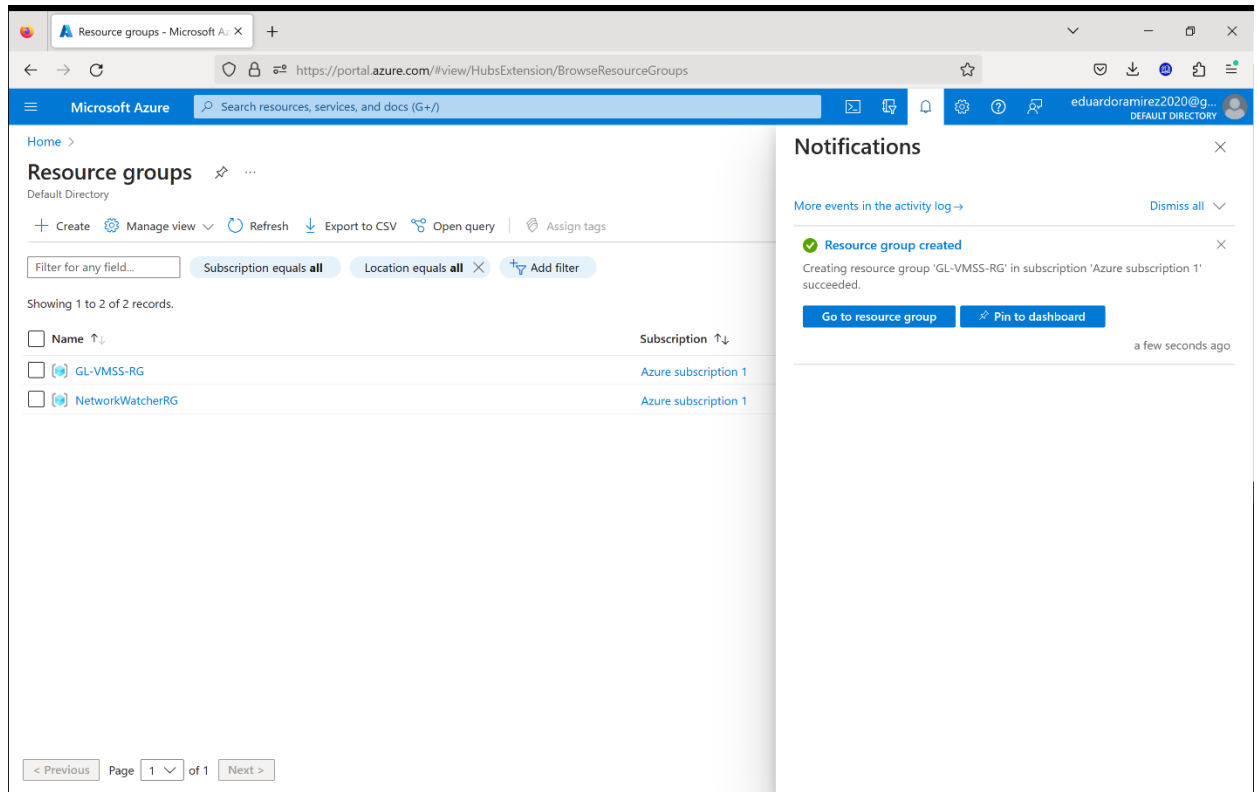


AZURE-TIO-VMSS-v1

The Goal

1. Create a resource group.
2. Understand the process of creating a virtual machine scale set.
3. Deploy a custom application using a bootstrap script
4. Create firewall rules to allow port 22 and 80.
5. Access the custom application using a web browser

A. Create a resource group



B. Create Virtual Machine Scale Set.

Create a virtual machine scale set

Changing Basic options may reset selections you have made. Review all options prior to creating the virtual machine.

Basics Spot Disks Networking Scaling Management Health Advanced Tags Review + create

Azure virtual machine scale sets let you create and manage a group of load balanced VMs. The number of VM instances can automatically increase or decrease in response to demand or a defined schedule. Scale sets provide high availability to your applications, and allow you to centrally manage, configure, and update a large number of VMs.
[Learn more about virtual machine scale sets](#)

Project details

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

Subscription * Azure subscription 1

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

Scale set details

Virtual machine scale set name * HandsOnSS

Region * (US) East US

Availability zone ⓘ Zones 1, 2, 3

☒ Autoscaling can help you respond to an outage by scaling out new instances in another zone. Turn on Autoscaling in the [Scaling tab](#).

[Review + create](#) < Previous Next : Spot > [Give feedback](#)

go.microsoft.com/fwlink/?LinkId=2106494

Create a virtual machine scale set

Changing Basic options may reset selections you have made. Review all options prior to creating the virtual machine.

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 with identical instances

Security type ⓘ Trusted launch virtual machines
[Configure security features](#)

Instance details

Image * ⓘ Ubuntu Server 20.04 LTS - x64 Gen2
[See all images](#) | [Configure VM generation](#)

VM architecture ⓘ ☐ Arm64
☒ x64

Run with Azure Spot discount ⓘ ☐

Size * ⓘ Standard_D2s_v3 - 2 vcpus, 8 GiB memory (\$70.08/month)
[See all sizes](#)

[Review + create](#) < Previous Next : Spot > [Give feedback](#)

go.microsoft.com/fwlink/?LinkId=2106494

C. Create Virtual Machine Scale Set: Networking

Create a virtual machine scale set

Basics Spot Disks **Networking** Scaling Management Health Advanced Tags Review + create

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](#)

Virtual network configuration

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](#)

Virtual network * (New) GL-VMSS-RG-vnet (recommended) [Create virtual network](#)

Network interface

A network interface enables an Azure virtual machine to communicate with internet, Azure, and on-premises resources. A VM can have one or more network interfaces.

+ Create new nic - Delete

NAME	CREATE PUBL...	SUBNET	NETWORK SECU...	ACCELERATED N...
GL-VMSS-RG-vnet-nic01	Yes	default (10.0.0.0/20)	Basic	On

Load balancing

You can place this virtual machine in the backend pool of an existing Azure load balancing solution. [Learn more](#)

Load balancing options (None selected)

☐ None

☒ Azure load balancer

[Review + create](#) < Previous Next : Scaling > [Give feedback](#)

Create a virtual machine scale set

Basics Spot Disks **Networking** Scaling Management Health Advanced Tags Review + create

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](#)

Virtual network configuration

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](#)

Virtual network * (New) GL-VMSS-RG-vnet (recommended) [Create virtual network](#)

Network interface

A network interface enables an Azure virtual machine to communicate with internet, Azure, and on-premises resources. A VM can have one or more network interfaces.

+ Create new nic - Delete

NAME	CREATE PUBL...	SUBNET	NETWORK SECU...	ACCELERATED N...
GL-VMSS-RG-vnet-nic01	Yes	default (10.0.0.0/20)	Basic	On

Load balancing

You can place this virtual machine in the backend pool of an existing Azure load balancing solution. [Learn more](#)

Load balancing options (None selected)

☐ None

☒ Azure load balancer
Supports all TCP/UDP network traffic, port-forwarding, and outbound flows.

☐ Application gateway
Web traffic load balancer for HTTP/HTTPS with URL-based routing, SSL termination, session persistence, and web application firewall.

Warning: To allow traffic from your load balancing product, please update the appropriate port configuration on your network security group associated with your network interface.

Select a load balancer * (new) handsOnLB [Create a load balancer](#)

[Review + create](#) < Previous Next : Scaling > [Give feedback](#)

D. Create Virtual Machine Scale Set: Scaling

Create a virtual machine scale set

Basics Spot Disks Networking **Scaling** Management Health Advanced Tags Review + create

An Azure virtual machine scale set can automatically increase or decrease the number of VM instances that run your application. This automated and elastic behavior reduces the management overhead to monitor and optimize the performance of your application. [Learn more about VMSS scaling](#)

Initial instance count * 2

Scaling

Scaling policy ☐ Manual ☒ Custom

Minimum number of instances * 2 ✓

Maximum number of instances * 5 ✓

Scale out

CPU threshold (%) * 75

Duration in minutes * 10

Number of instances to increase by * 1 ✓

Scale in

CPU threshold (%) * 25

[Review + create](#) < Previous Next : Management > [Give feedback](#)

E. Create Virtual Machine Scale Set: Health

Create a virtual machine scale set

Basics Spot Disks Networking Scaling Management **Health** Advanced Tags Review + create

You can configure health monitoring on an application endpoint to update the status of the application on that instance. This instance status is required to enable platform managed upgrades like automatic OS updates and virtual machine instance upgrades. [Learn more about application health monitoring](#)

Health

Enable application health monitoring ☒

Health monitor configuration

Type: Application health extension
Protocol: HTTP
Port number: 80
Path: /health.html
[Configure](#)

⚠ The Application Health extension will probe the application health endpoint and update the status of the application. When the health endpoint is not set up correctly the status of the application will be reported as unhealthy. [Learn more](#)

Automatic repair policy

Before enabling the automatic repairs policy, review the requirements for opting in. [Learn more about automatic repair policy](#)

Enable automatic repairs ☐

Grace period (min) 10

[Review + create](#) < Previous Next : Advanced > [Give feedback](#)

<https://portal.azure.com/#>

F. Create Virtual Machine Scale Set: Advanced

Create a virtual machine scale set

Home > Virtual machine scale sets

Create a virtual machine scale set

VM applications contain application files that are securely and reliably downloaded on your VM after deployment. In addition to the application files, an install and uninstall script are included in the application. You can easily add or remove applications on your VM after create. [Learn more](#)

+ Add

Install order	Application name	Azure compute g...	Version number	Treat as failure
Click 'Add' to get started with VM applications.				

Custom data and cloud init

Pass a cloud-init script, configuration file, or other data into the virtual machine **while it is being provisioned**. The data will be saved on the VM in a known location. [Learn more about custom data for VMSS](#)

Custom data

```
#!/bin/bash
APP_NAME=LiftShift-Application
apt update -y && apt -y install python3-pip zip
cd /opt
wget https://d6opu47qoi4ee.cloudfront.net/loadbalancer/simuapp-v1.zip
unzip simuapp-v1.zip
rm -f simuapp-v1.zip
```

Custom data on the selected image will be processed by cloud-init.

[Learn more about custom data for VMSS](#)

User data

Pass a script, configuration file, or other data that will be accessible to your applications **throughout the lifetime of the virtual machine**. Don't use user data for storing your secrets or passwords. [Learn more about user data for VMSS](#)

Enable user data

☐

Review + create

< Previous

Next : Tags >

[Give feedback](#)

Deployment of resource

Microsoft Azure

Home > CreateVmss-canonical.0001-com-ubuntu-server-focal-20231023065427 | Overview

Deployment

Search

Delete Cancel Redeploy Download Refresh

✓ Your deployment is complete

Deployment name : CreateVmss-canonical.0001-com-ubun... Start time : 10/23/2023, 7:13:04 AM
 Subscription : Azure subscription 1 Correlation ID : 09d38211-52cc-4442-844d-4032fae31f...
 Resource group : GL-VMSS-RG

> Deployment details

< Next steps

[Go to resource](#)

Give feedback

[Tell us about your experience with deployment](#)

✓ Deployment succeeded
 Deployment 'CreateVmss-canonical.0001-com-ubuntu-server-focal-20231023065427' to resource group 'GL-VMSS-RG' was successful.
[Go to resource](#) [Pin to dashboard](#)

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 >](#)

G. Configure Networking Rules

Microsoft Azure

Home > CreateVmss-canonical.0001-com-ubuntu-server-focal-20231023065427 | Overview > HandsOnSS

HandsOnSS | Networking

Virtual machine scale set

Search

Feedback Add network interface Remove network interface

Diagnose and solve problems

Settings

- Instances
- Networking
- Scaling
- Disks
- Operating system
- Microsoft Defender for Cloud
- Size
- Extensions + applications
- Configuration
- Upgrade policy
- Health and repair
- Identity
- Properties
- Locks
- Monitoring
- Alerts

GL-VMSS-RG-vnet-nic01

IP configuration

GL-VMSS-RG-vnet-nic01-defaultipCo...

Network Interface: GL-VMSS-RG-vnet-nic01 [Topology](#)

Virtual network/subnet: GL-VMSS-RG-vnet/default Accelerated networking: **Disabled**

Inbound port rules Outbound port rules Load balancing

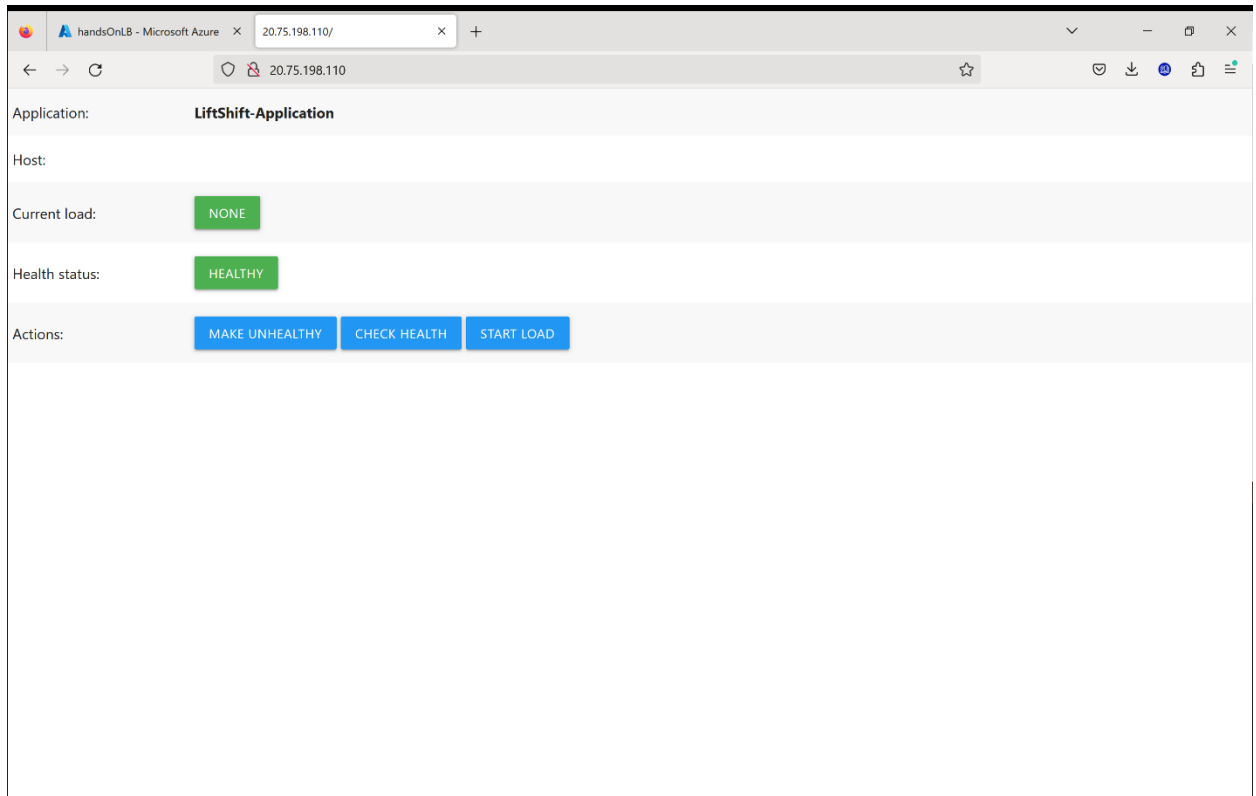
Network security group **basicNsgGL-VMSS-RG-vnet-nic01** (attached to network interface: GL-VMSS-RG-vnet-nic01)
 Impacts 0 subnets, 2 network interfaces

[Add inbound port rule](#)

Priority	Name	Port	Protocol	Source	Destination	Action
100	Port_80	80	TCP	Any	Any	Allow
110	Port_22	22	TCP	Any	Any	Allow
300	Tcp	80	TCP	Any	Any	Allow
65000	AllowVnetInBound	Any	Any	VirtualNetwork	VirtualNetwork	Allow
65001	AllowAzureLoadBalancerInBound	Any	Any	AzureLoadBalancer	Any	Allow
65500	DenyAllInBound	Any	Any	Any	Any	Deny

Need help?

H. Access Application



I. Terminate Resources

GL-VMSS-RG - Microsoft Azure

https://portal.azure.com/#@eduardoramirez2020gmail.onmicrosoft.com/resource/subscriptions/69d7ff57-5a0c-42d6-...

Microsoft Azure

Search resources, services, and docs (G+)

eduardoramirez2020@...
DEFAULT DIRECTORY

Home > Resource groups >

Resource groups

Default Directory

+ Create

Manage view

...

Filter for any field...

Name ↑

NetworkWatcherRG

Overview

Activity log

Access control (IAM)

Tags

Resource visualizer

Events

Settings

Deployments

Security

Deployment stacks

Policies

Properties

Locks

Cost Management

Cost analysis

Cost alerts (preview)

Budgets

Advisor recommendations

GL-VMSS-RG

Resource group

Search

+ Create

Manage view

...

Overview

Essentials

Resources

Recommendations

Subscription (move)
Azure subscription 1

Subscription ID
69d7ff57-5a0c-42d6-8217-94fc4c35adda

Tags (edit)
Add tags

Filter for any field...

Type e

Showing 1 to 14 of 14 records.

List view

☐

Name ↑

☐

basicNsgGL-VMSS-RG-vnet-ni

☐

GL-VMSS-RG-vnet

☐

GL-VMSS-RG-vnet-nic01-ct069

☐

GL-VMSS-RG-vnet-nic01-f264f

Page 1 of 1

Notifications

Dismiss all

More events in the activity log →

Deleted resource group GL-VMSS-RG

Deleted resource group GL-VMSS-RG

a minute ago

Created security rule

Successfully created security rule 'Port_22'.

8 minutes ago

Created security rule

Successfully created security rule 'Port_80'.

9 minutes ago

Deployment succeeded

Deployment 'CreateVmss-canonical.0001-com-ubuntu-server-focal-20231023065427' to resource group 'GL-VMSS-RG' was successful.

Go to resource

Pin to dashboard

17 minutes ago

Resource group created

Creating resource group 'GL-VMSS-RG' in subscription 'Azure subscription 1' succeeded.

Go to resource group

Pin to dashboard

39 minutes ago