

REPORT ON MICROSOFT AZURE FUNDAMENTALS

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1)Sandbox:

Create a Linux virtual machine and install Nginx

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LEVEL 8 16775 /23599 XP

Task 1: Create a Linux virtual machine and install Nginx

Use the following Azure CLI commands to create a Linux VM and install Nginx. After your VM is created, you'll use the Custom Script Extension to install Nginx. The Custom Script Extension is an easy way to download and run scripts on your Azure VMs. It's just one of the many ways you can configure the system after your VM is up and running.

1. From Cloud Shell, run the following `az vm create` command to create a Linux VM:

```
Azure CLI Copy
az vm create \
  --resource-group "learn-68797899-87b7-4f43-a298-da165d66623c" \
  --name my-vm \
  --public-ip-sku Standard \
  --image Ubuntu2204 \
  --admin-username azureuser \
```

```
Azure Cloud Shell
Switch to PowerShell Restart Manage files New session
Requesting a Cloud Shell.Succeeded.
Connecting terminal...

Welcome to Azure Cloud Shell

Type "az" to use Azure CLI
Type "help" to learn about Cloud Shell

rupadharshinin [ ~ ]$ az vm create --resource-group "learn-68797899-87b7-4f43-a298-da165d66623c" --name my-vm --public-ip-sku Standard --image Ubuntu2204 --admin-username azureuser --generate-ssh-keys
SSH key files '/home/rupadharshinin/.ssh/id_rsa' and '/home/rupadharshinin/.ssh/id_rsa.pub' have been generated under ~/.ssh to allow SSH access to the VM. If using machines without permanent storage, back up your keys to a safe location.
{
  "fqdns": "",
  "id": "/subscriptions/66934742-a2f4-4f94-ad7b-07a47d83d2bc/resourceGroups/learn-68797899-87b7-4f43-a298-da165d66623c/providers/Microsoft.Compute/virtualMachines/my-vm",
  "location": "westus",
  "macAddress": "60-45-BD-0A-13-49",
  "powerState": "VM running",
  "tags": {},
  "timeCreated": "2024-08-10T08:21:45.678470+00:00",
  "type": "Microsoft.Compute/virtualMachines",
  "userData": null,
  "virtualMachineScaleSet": null,
  "vmId": "fb66667a-6d6d-4232-bb54-d90ec135f9c4",
  "zones": null
}
rupadharshinin [ ~ ]$
```

Access your web server

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Task 1: Access your web server

In this procedure, you get the IP address for your VM and attempt to access your web server's home page.

1. Run the following `az vm list-ip-addresses` command to get your VM's IP address and store the result as a Bash variable:

```
Azure CLI Copy
IPADDRESS=$(az vm list-ip-addresses \
  --resource-group "learn-68797899-87b7-4f43-a298-da165d66623c" \
  --name my-vm \
  --query "[].virtualMachine.network.publicIpAddresses[*].ipAddress" \
  --output tsv)
```

2. Run the following `curl` command to download the home page:

```
Bash Copy
```

```
Azure Cloud Shell
Switch to PowerShell Restart Manage files New session
},
"tags": {},
"timeCreated": "2024-08-10T08:21:45.678470+00:00",
"type": "Microsoft.Compute/virtualMachines",
"userData": null,
"virtualMachineScaleSet": null,
"vmId": "fb66667a-6d6d-4232-bb54-d90ec135f9c4",
"zones": null
}
rupadharshinin [ ~ ]$ IPADDRESS=$(az vm list-ip-addresses --resource-group "learn-68797899-87b7-4f43-a298-da165d66623c" --name my-vm --query "[].virtualMachine.network.publicIpAddresses[*].ipAddress" --output tsv)
rupadharshinin [ ~ ]$ curl --connect-timeout 5 http://$IPADDRESS
curl: (28) Failed to connect to 13.93.153.168 port 80 after 5002 ms: Timeout was reached
rupadharshinin [ ~ ]$ echo $IPADDRESS
13.93.153.168
rupadharshinin [ ~ ]$ az network nsg list --resource-group "learn-68797899-87b7-4f43-a298-da165d66623c" --query '[].name' --output tsv
my-vmNSG
rupadharshinin [ ~ ]$
```

List the current network security group rules

d. Keep this browser tab open for later.

Task 2: List the current network security group rules

Your web server wasn't accessible. To find out why, let's examine your current NSG rules.

1. Run the following `az network nsg list` command to list the network security groups that are associated with your VM:

```
Azure CLI Copy
az network nsg list \
  --resource-group "learn-68797899-87b7-4f43-a298-da165d66623c" \
  --query '[] .name' \
  --output tsv
```

You see this output:

```
Azure Cloud Shell
Switch to PowerShell Restart Manage files New session
{"id": "/subscriptions/66934742-a2f4-4f94-ad7b-07a47d83d2bc/resourceGroups/learn-68797899-87b7-4f43-a298-da165d66623c/providers/Microsoft.Network/networkSecurityGroups/my-vmNSG/securityRules/default-allow-ssh",
 "name": "default-allow-ssh",
 "priority": 1000,
 "protocol": "Tcp",
 "provisioningState": "Succeeded",
 "resourceGroup": "learn-68797899-87b7-4f43-a298-da165d66623c",
 "sourceAddressPrefix": "*",
 "sourceAddressPrefixes": [],
 "sourcePortRange": "*",
 "sourcePortRanges": [],
 "type": "Microsoft.Network/networkSecurityGroups/securityRules"
}
]
rupadharshinin [ ~ ]$ az network nsg rule list --resource-group "learn-68797899-87b7-4f43-a298-da165d66623c" --nsg-name my-vmNSG --query '[] .{Name:name, Priority:priority, Port:destinationPortRange, Access:access}' --output table
Name          Priority  Port  Access
-----
default-allow-ssh 1000    22    Allow
rupadharshinin [ ~ ]$
```

Create the network security rule

Task 3: Create the network security rule

Here, you create a network security rule that allows inbound access on port 80 (HTTP).

1. Run the following `az network nsg rule create` command to create a rule called `allow-http` that allows inbound access on port 80:

```
Azure CLI Copy
az network nsg rule create \
  --resource-group "learn-68797899-87b7-4f43-a298-da165d66623c" \
  --nsg-name my-vmNSG \
  --name allow-http \
  --protocol tcp \
  --priority 100 \
  --destination-port-range 80 \
  --access Allow
```

```
Azure Cloud Shell
Switch to PowerShell Restart Manage files New session
{"id": "/subscriptions/66934742-a2f4-4f94-ad7b-07a47d83d2bc/resourceGroups/learn-68797899-87b7-4f43-a298-da165d66623c/providers/Microsoft.Network/networkSecurityGroups/my-vmNSG/securityRules/allow-http",
 "name": "allow-http",
 "priority": 100,
 "protocol": "Tcp",
 "provisioningState": "Succeeded",
 "resourceGroup": "learn-68797899-87b7-4f43-a298-da165d66623c",
 "sourceAddressPrefix": "*",
 "sourceAddressPrefixes": [],
 "sourcePortRange": "*",
 "sourcePortRanges": [],
 "type": "Microsoft.Network/networkSecurityGroups/securityRules"
}
rupadharshinin [ ~ ]$ az network nsg rule list --resource-group "learn-68797899-87b7-4f43-a298-da165d66623c" --nsg-name my-vmNSG --query '[] .{Name:name, Priority:priority, Port:destinationPortRange, Access:access}' --output table
Name          Priority  Port  Access
-----
default-allow-ssh 1000    22    Allow
allow-http     100     80    Allow
rupadharshinin [ ~ ]$
```

Access your web server again

Task 4: Access your web server again

Now that you configured network access to port 80, let's try to access the web server a second time.

Note

After you update the NSG, it may take a few moments before the updated rules propagate. Retry the next step, with pauses between attempts, until you get the desired results.

1. Run the same `curl` command that you ran earlier:

```
Bash Copy
curl --connect-timeout 5 http://$IPADDRESS
```

You see this response:

```
Azure Cloud Shell
Switch to PowerShell Restart Manage files New session
...
.../my-vmNSG/securityRules/allow-http",
  "name": "allow-http",
  "priority": 100,
  "protocol": "Tcp",
  "provisioningState": "Succeeded",
  "resourceGroup": "learn-68797899-87b7-4f43-a298-da165d66623c",
  "sourceAddressPrefix": "*",
  "sourceAddressPrefixes": [],
  "sourcePortRange": "*",
  "sourcePortRanges": [],
  "type": "Microsoft.Network/networkSecurityGroups/securityRules"
}
rupadharshinin [ ~ ]$ az network nsg rule list --resource-group "learn-68797899-87b7-4f43-a298-da165d66623c" --nsg-name my-vmNSG --query '[].{Name:name, Priority:priority, Port:destinationPortRange, Access:access}' --output table
Name          Priority  Port  Access
-----
default-allow-ssh 1000    22   Allow
allow-http     100     80   Allow
rupadharshinin [ ~ ]$ curl --connect-timeout 5 http://$IPADDRESS
<html><body><h2>Welcome to Azure! My name is my-vm.</h2></body></html>
rupadharshinin [ ~ ]$
```

Final Output :



Welcome to Azure! My name is my-vm.

2)Creation of Virtual Machine

Microsoft Azure

Search resources, services, and docs (G+)

Copilot

rupadharshinin@gmail...
DEFAULT DIRECTORY

Home >

Virtual machines

Default Directory

Create

Switch to classic

Reservations

Manage view

Refresh

Export to CSV

Open query

Assign tags

Start

Restart

Stop

Delete

Filter for any field...

Subscription equals all

Type equals all

Resource group equals all

Location equals all

Add filter

Showing 1 to 1 of 1 records.

No grouping

List view

Name	Subscription	Resource group	Location	Status	Operating system	Size	Public IP address	Dis
Rubadharshini-N	Azure for Students	Ruba	Central India	Running	Linux	Standard_D2s_v3	20.235.240.17	1

< PreviousPage 1 of 1Next >

Give feedback

Switch to PowerShellRestartManage filesNew sessionEditorWeb previewSettingsHelp

Connecting terminal...
Welcome to Azure Cloud Shell
Type "az" to use Azure CLI
Type "help" to learn about Cloud Shell
Your Cloud Shell session will be ephemeral so no files or system changes will persist beyond your current session.
ruba [~]\$ ssh Rubadharshini-N@20.235.240.17

Activate Windows
Go to Settings to activate Windows.

Properties of Virtual Machine

PropertiesMonitoringCapabilities (7)RecommendationsTutorials

Virtual machine

Computer name

Rubadharshini-N

Operating system

Linux (ubuntu 24.04)

VM generation

V2

VM architecture

x64

Agent status

Ready

Agent version

2.11.1.4

Hibernation

Disabled

Host group

-

Host

-

Proximity placement group

-

Colocation status

N/A

Capacity reservation group

-

Networking

Public IP address

20.235.240.17 (Network rubadharshini-)
interface n320_z1

Public IP address (IPv6) -

Private IP address

10.1.0.4

Private IP address (IPv6)

-

Virtual network/subnet

project-vnet/default

DNS name

Configure

Size

Size

Standard D2s v3

vCPUs

2

RAM

8 GiB

Source image details

Activate Windows
Go to Settings to activate Windows.

Hosting my portfolio using Azure Cloud Services

← → ↻ ⚠ Not secure 20.235.240.17 ☆ 📁 R ⋮

Gmail YouTube Maps Ⓜ All Bookmarks

RESUME

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HI, I AM

RUBADHARSHINI N.

UI/UX DESIGNER AND WEB DEVELOPER

Download Resume

Activate Windows
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SKILLS

ADOBE PHOTOSHOP

90%

ADOBE ILLUSTRATOR

85%

ADOBE AFTER EFFECTS

97%

SKETCH

90%

HTML 5

90%

CSS 3 ANIMATION

85%

COMMUNICATION

97%

CREATIVITY

90%

Activate Windows
Go to Settings to activate Windows.

6

3)Cost Management In Azure

Pricing calculator(Estimation) :

ExportedEstimate (3) - Excel (Product Activation Failed)

Service category	Service type	Custom name	Region	Description	Estimated monthly cost	Estimated unit
Compute	Virtual Machines		West US	2 D2 v3 (2 vCPUs, 8 GB RAM) x 730 Hours (Pay as you go), Windows (License included), OS Only; 0 managed disks – S4; Inter Region transfer type, 5 GB outbound data transfer from West US to East Asia	\$305.14	\$0.00
Networking	Application Gateway		West US	Web Application Firewall tier, Medium Instance size: 2 Gateway hours instance(s) x 730 Hours, 1 TB Data processed unit(s), 5 GB Zone unit(s)	\$206.04	\$0.00
Databases	Azure SQL Database		West US	Single Database, vCore, General Purpose, Provisioned, Standard-series (Gen 5), Primary or Geo replica Disaster Recovery, Locally Redundant, 1 - 8 vCore Database(s) x 730 Hours, 32 GB Storage, SQL License (Pay as you go), RA-GRS Backup Storage Redundancy, 0 GB Point-In-Time Restore, 0 x 5 GB Long Term Retention	\$1,567.39	\$0.00
Support			Support		\$0.00	\$0.00
			Licensing Program	Microsoft Customer Agreement (MCA)		
			Billing Account			
			Billing Profile			
			Total		\$4,667.33	\$0.00

Activate Windows
Go to Settings to activate Windows.

Total Cost of Ownership (TCO) Calculator :

Total Cost of Ownership (TCO) Calculator

Estimate the cost savings you can realize by migrating your workloads to Azure

My saved reports
 Sign In

Over 3 year(s) with Microsoft Azure, your estimated cost savings could be as much as

\$608,414

Total on-premises vs. Azure cost over time

Savings from running workloads in Azure accrue over time. The following shows how those savings add up over years.

4)Azure Storage Services :

Creation of storage blob

The screenshot shows the Microsoft Azure portal interface. The top navigation bar includes the Microsoft Azure logo, a search bar, and user information for 'rupadharshini@gmail.com'. The breadcrumb trail indicates the path: Home > rubadharshini_1723280099221 | Overview > rubadharshini. The main heading is 'rubadharshini | Containers', with 'Storage account' listed below it. A left-hand sidebar contains a list of navigation options: Overview, Activity log, Tags, Diagnose and solve problems, Access Control (IAM), Data migration, Events, Storage browser, Storage Mover, Partner solutions, Data storage, Containers (selected), File shares, and Shares. The main content area features a search bar, a '+ Container' button, and links for 'Change access level', 'Restore containers', 'Refresh', 'Delete', and 'Give feedback'. Below these is a 'Search containers by prefix' input field and a 'Show deleted containers' toggle. A table lists the containers:

	Name	Last modified	Anonymous access level	Lease state	
<input type="checkbox"/>	\$logs	8/10/2024, 2:26:06 PM	Private	Available	...
<input type="checkbox"/>	container1	8/10/2024, 2:26:40 PM	Private	Available	...

An 'Activate Windows' watermark is visible in the bottom right corner of the screenshot.

Uploading a files

The screenshot shows the Microsoft Azure portal interface for the 'container1' container. The top navigation bar is consistent with the previous screenshot. The breadcrumb trail is: Home > rubadharshini_1723271929791 | Overview > rubadharshini | Containers > container1. The main heading is 'container1', with 'Container' listed below it. The left-hand sidebar shows navigation options: Overview (selected), Diagnose and solve problems, Access Control (IAM), and Settings. The main content area includes a search bar, an 'Upload' button, and links for 'Change access level', 'Refresh', 'Delete', 'Change tier', 'Acquire lease', 'Break lease', 'View snapshots', and 'Create snapshot'. Below these is an 'Authentication method' section showing 'Access key (Switch to Microsoft Entra user account)' and a 'Location' section showing 'container1'. A 'Search blobs by prefix (case-sensitive)' input field and a 'Show deleted blobs' toggle are also present. A table lists the blobs:

	Name	Modified	Access tier	Archive status	Blob type	Size	Lease state	
<input type="checkbox"/>	pic.webp	8/10/2024, 1:21:05 PM	Hot (Inferred)		Block blob	41.83 KiB	Available	...

Properties of files

Microsoft Azure

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

rupadharshini@gmail...
MICROSOFT LEARN SANDBOX

Home > rubadharshini_1723276870311 | Overview > rubadharshini | Containers > container1 >

container1
Container

Search

Upload Change access level

Overview

Diagnose and solve problems

Access Control (IAM)

Settings

Authentication method: Access key (Switch to Microsoft Entra user account)

Location: container1

Search blobs by prefix (case-...)

Show deleted blobs

Add filter

Name

pic.webp

pic.webp
Blob

Save Discard Download Refresh Delete Change tier Acquire lease

Overview Versions Snapshots Edit Generate SAS

Properties

URL

LAST MODIFIED

CREATION TIME

VERSION ID

TYPE

SIZE

ACCESS TIER

ACCESS TIER LAST MODIFIED

ARCHIVE STATUS

REHYDRATE PRIORITY

SERVER ENCRYPTED

ETAG

VERSION-LEVEL IMMUTABILITY POLICY

Activate Windows
Go to Settings to activate Windows.

Final Output :

