

REPORT ON MICROSOFT AZURE FUNDAMENTALS

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1)Sandbox:

Create a Linux virtual machine and install Nginx

learn.microsoft.com/en-us/training/modules/describe-azure-compute-networking-services/3-exercise-create-azure-virtual-machine

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Your VM takes a few moments to come up. You named the VM `my-vm`. You use this name to refer to the VM in later steps.

2. Run the following `az vm extension set` command to configure Nginx on your VM:

```
Azure CLI
az vm extension set \
  --resource-group "learn-4f0f2d38-d05e-4d3d-aa28-e0926477c27c" \
  --vm-name my-vm \
  --name customScript \
  --publisher Microsoft.Azure.Extensions \
  --version 2.1 \
  --settings '{"fileUri":["https://raw.githubusercontent.com/MicrosoftDocs/mslearn-welcome-to-azure/master/configure-nginx.sh"]}' \
  --protected-settings '{"commandToExecute": "./configure-nginx.sh"}'
```

This command uses the Custom Script Extension to run a Bash script on your VM. The script is stored on GitHub. While the command runs, you can choose to [examine the Bash script](#) from a separate browser tab. To summarize, the script:

- Runs `apt-get update` to download the latest package information from the internet. This step helps ensure that the next command can locate the latest version of the Nginx package.
- Installs Nginx.
- Sets the home page `/var/www/html/index.html` to print a welcome message that

Azure Cloud Shell

```
Switch to PowerShell Restart Manage files New session Editor ...
{"forceUpdateTag": null,
 "id": "/subscriptions/9d9bf5f6-2cad-4cbb-84e1-11eb71d2236b/resourceGroups/learn-4f0f2d38-d05e-4d3d-aa28-e0926477c27c/providers/Microsoft.Compute/virtualMachines/my-vm/extensions/customScript",
 "instanceView": null,
 "location": "westus",
 "name": "customScript",
 "protectedSettings": null,
 "protectedSettingsFromKeyVault": null,
 "provisionAfterExtensions": null,
 "provisioningState": "Succeeded",
 "publisher": "Microsoft.Azure.Extensions",
 "resourceGroup": "learn-4f0f2d38-d05e-4d3d-aa28-e0926477c27c",
 "settings": {
   "fileUri": [
     "https://raw.githubusercontent.com/MicrosoftDocs/mslearn-welcome-to-azure/master/configure-nginx.sh"
   ]
 },
 "suppressFailures": null,
 "tags": null,
 "type": "Microsoft.Compute/virtualMachines/extensions",
 "typeHandlerVersion": "2.1",
 "typePropertiesType": "customScript"
}
vishal [ ~ ]$
```

Access your web server

Create a resource - Microsoft A Exercise - Configure network ac 23.99.82.179

learn.microsoft.com/en-us/training/modules/describe-azure-compute-networking-services/9-exercise-configure-network-access

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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
IPADDRESS=$(az vm list-ip-addresses \
  --resource-group "learn-4f0f2d38-d05e-4d3d-aa28-e0926477c27c" \
  --name my-vm \
  --query "[].virtualMachine.network.publicIpAddresses[*].ipAddress" \
  --output tsv)
```

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

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

The `--connect-timeout` argument specifies to allow up to five seconds for the connection to occur. After five seconds, you see an error message that states that the

Azure Cloud Shell

```
Switch to PowerShell Restart Manage files New session Editor ...
learn-4f0f2d38-d05e-4d3d-aa28-e0926477c27c/providers/Microsoft.Compute/disks/my-vm_disk1_0ed1a441e6e24c8b88bd5elc8ee2272c",
 "resourceGroup": "learn-4f0f2d38-d05e-4d3d-aa28-e0926477c27c",
 "securityProfile": null,
 "storageAccountType": "Premium_LRS"
 },
 "name": "my-vm_disk1_0ed1a441e6e24c8b88bd5elc8ee2272c",
 "osType": "Linux",
 "vhd": null,
 "writeAcceleratorEnabled": null
 },
 "tags": {},
 "timeCreated": "2024-08-10T08:20:25.132053+00:00",
 "type": "Microsoft.Compute/virtualMachines",
 "userData": null,
 "virtualMachineScaleSet": null,
 "vmId": "6382402c-9c8c-4494-97f5-e1dd9b28eeb1",
 "zones": null
 }
}
vishal [ ~ ]$ IPADDRESS=$(az vm list-ip-addresses --resource-group "learn-4f0f2d38-d05e-4d3d-aa28-e0926477c27c" --name my-vm --query "[].virtualMachine.network.publicIpAddresses[*].ipAddress" --output tsv)
vishal [ ~ ]$ curl --connect-timeout 5 http://$IPADDRESS
<html><body><h2>Welcome to Azure! My name is my-vm.</h2></body></html>
vishal [ ~ ]$ echo $IPADDRESS
23.99.82.179
vishal [ ~ ]$
```

List the current network security group rules

The screenshot shows the Microsoft Learn training page for 'Task 2: List the current network security group rules'. The page includes a navigation bar with 'Learn', 'Discover', 'Product documentation', 'Development languages', and 'Topics'. The main content area has a title 'Task 2: List the current network security group rules' and a sub-header 'Your web server wasn't accessible. To find out why, let's examine your current NSG rules.' Below this, there is a numbered list of steps. Step 1 instructs the user to run the command 'az network nsg list' to list the network security groups associated with their VM. A code block shows the command: 'az network nsg list --resource-group "learn-4f0f2d38-d05e-4d3d-aa28-e0926477c27c" --query '[].name' --output tsv'. Below the code block, it says 'You see this output:' and shows the output: 'my-vmNSG'. To the right of the main content, there is an 'Azure Cloud Shell' window showing the command 'az network nsg rule list --resource-group "learn-4f0f2d38-d05e-4d3d-aa28-e0926477c27c" --nsg-name my-vmNSG --query '[].(Name:priority, Port:destinationPortRange, Access:access)' --output table' and its output, which is a table with columns 'Name', 'Priority', 'Port', and 'Access'. The table shows two rules: 'default-allow-ssh' with priority 1000, port 22, and access 'Allow'; and 'allow-http' with priority 100, port 80, and access 'Allow'.

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:

```
az network nsg list \
--resource-group "learn-4f0f2d38-d05e-4d3d-aa28-e0926477c27c" \
--query '[].name' \
--output tsv
```

You see this output:

```
my-vmNSG
```

Azure Cloud Shell

```
Switch to PowerShell Restart Manage files New session Editor ...
```

```
"destinationAddressPrefix": "*",
"destinationAddressPrefixes": [],
"destinationPortRange": "80",
"destinationPortRanges": [],
"direction": "Inbound",
"etag": "W/\"96cf231a-bbe0-42e2-a55f-51dba7062ac3\"",
"id": "/subscriptions/9d9bf5f6-2cad-4cbb-84e1-11eb71d2236b/resourceGroups/learn-4f0f2d38-d05e-4d3d-aa28-e0926477c27c/providers/Microsoft.Network/networkSecurityGroups/my-vmNSG/securityRules/allow-http",
"name": "allow-http",
"priority": 100,
"protocol": "tcp",
"provisioningState": "Succeeded",
"resourceGroup": "learn-4f0f2d38-d05e-4d3d-aa28-e0926477c27c",
"sourceAddressPrefix": "*",
"sourceAddressPrefixes": [],
"sourcePortRange": "*",
"sourcePortRanges": [],
"type": "Microsoft.Network/networkSecurityGroups/securityRules"
}

vishal [ ~ ]$ az network nsg rule list --resource-group "learn-4f0f2d38-d05e-4d3d-aa28-e0926477c27c" --nsg-name my-vmNSG --query '[].(Name:priority, Port:destinationPortRange, Access:access)' --output table
Name                Priority  Port  Access
-----
default-allow-ssh    1000    22    Allow
allow-http          100     80    Allow

vishal [ ~ ]$
```

Create the network security rule

The screenshot shows the Microsoft Learn training page for 'Create the network security rule'. The page includes a navigation bar with 'Learn', 'Discover', 'Product documentation', 'Development languages', and 'Topics'. The main content area has a title 'Create the network security rule' and a sub-header 'For learning purposes, here you set the priority to 100. In this case, the priority doesn't matter. You would need to consider the priority if you had overlapping port ranges.' Below this, there is a numbered list of steps. Step 1 instructs the user to run the command 'az network nsg rule create' to create a new network security rule. A code block shows the command: 'az network nsg rule create --resource-group "learn-4f0f2d38-d05e-4d3d-aa28-e0926477c27c" --nsg-name my-vmNSG --name allow-http --protocol tcp --priority 100 --destination-port-range 80 --access Allow'. Below the code block, it says 'You see both the default-allow-ssh rule and your new rule, allow-http:'. To the right of the main content, there is an 'Azure Cloud Shell' window showing the command 'az network nsg rule list --resource-group "learn-4f0f2d38-d05e-4d3d-aa28-e0926477c27c" --nsg-name my-vmNSG --query '[].(Name:priority, Port:destinationPortRange, Access:access)' --output table' and its output, which is a table with columns 'Name', 'Priority', 'Port', and 'Access'. The table shows two rules: 'default-allow-ssh' with priority 1000, port 22, and access 'Allow'; and 'allow-http' with priority 100, port 80, and access 'Allow'.

Create the network security rule

For learning purposes, here you set the priority to 100. In this case, the priority doesn't matter. You would need to consider the priority if you had overlapping port ranges.

2. To verify the configuration, run `az network nsg rule list` to see the updated list of rules:

```
az network nsg rule list \
--resource-group "learn-4f0f2d38-d05e-4d3d-aa28-e0926477c27c" \
--nsg-name my-vmNSG \
--query '[].(Name:priority, Port:destinationPortRange, Access:access)' \
--output table
```

You see both the `default-allow-ssh` rule and your new rule, `allow-http`:

```
Output
```

Azure Cloud Shell

```
Switch to PowerShell Restart Manage files New session Editor ...
```

```
"access": "Allow",
"destinationAddressPrefix": "*",
"destinationAddressPrefixes": [],
"destinationPortRange": "80",
"destinationPortRanges": [],
"direction": "Inbound",
"etag": "W/\"4dab174e-03f9-4968-b3d8-2648125df6af\"",
"id": "/subscriptions/9d9bf5f6-2cad-4cbb-84e1-11eb71d2236b/resourceGroups/learn-4f0f2d38-d05e-4d3d-aa28-e0926477c27c/providers/Microsoft.Network/networkSecurityGroups/my-vmNSG/securityRules/allow-http",
"name": "allow-http",
"priority": 100,
"protocol": "tcp",
"provisioningState": "Succeeded",
"resourceGroup": "learn-4f0f2d38-d05e-4d3d-aa28-e0926477c27c",
"sourceAddressPrefix": "*",
"sourceAddressPrefixes": [],
"sourcePortRange": "*",
"sourcePortRanges": [],
"type": "Microsoft.Network/networkSecurityGroups/securityRules"
}

vishal [ ~ ]$ az network nsg rule list --resource-group "learn-4f0f2d38-d05e-4d3d-aa28-e0926477c27c" --nsg-name my-vmNSG --query '[].(Name:priority, Port:destinationPortRange, Access:access)' --output table
Name                Priority  Port  Access
-----
default-allow-ssh    1000    22    Allow
allow-http          100     80    Allow

vishal [ ~ ]$
```

Access your web server again

The screenshot shows a web browser window with the URL `learn.microsoft.com/en-us/training/modules/describe-azure-compute-networking-services/9-exercise-configure-network-access`. The browser displays the text "Welcome to Azure! My name is my-vm." in a simple font. To the right, the Azure Cloud Shell is open, showing the command `az network nsg rule list --resource-group "learn-4f0f2d38-d05e-4d3d-aa28-e0926477c27c" --nsg-name my-vmNSG --query '[{Name:name, Priority:priority, Port:destinationPortRange, Access:access}]' --output table` and its output:

Name	Priority	Port	Access
default-allow-ssh	1000	22	Allow
allow-http	100	80	Allow

The Cloud Shell also shows the command `curl --connect-timeout 5 http://$IPADDRESS` and its output, which is the same "Welcome to Azure! My name is my-vm." message.

Final output:

The screenshot shows a web browser window with the URL `23.99.82.179`. The browser displays the text "Welcome to Azure! My name is my-vm." in a simple font. The browser's address bar shows the IP address `23.99.82.179` and the status "Not secure".

2) Azure Academic Services: Azure for Students

Creation of resource groups

Resource groups

Dr N.G.P.Institute of Technology (dmgpita.ac.in)

Filter for any field... Subscription equals all Location equals all Add filter

Showing 1 to 4 of 4 records.

Name	Subscription	Location
cloud-shell-storage-centralindia	Azure for Students	Central India
dr	Azure for Students	Central India
NetworkWatcherRG	Azure for Students	Central India
rg	Azure for Students	Central India

Navigation: < Previous Page 1 of 1 Next >

System tray: ENG US, 14:29:41, 10-08-2024

Creation of Virtual Machine

Virtual machines

Dr N.G.P.Institute of Technology (dmgpita.ac.in)

Filter for any field... Subscription equals all Type equals all Resource group equals all Location equals all Add filter

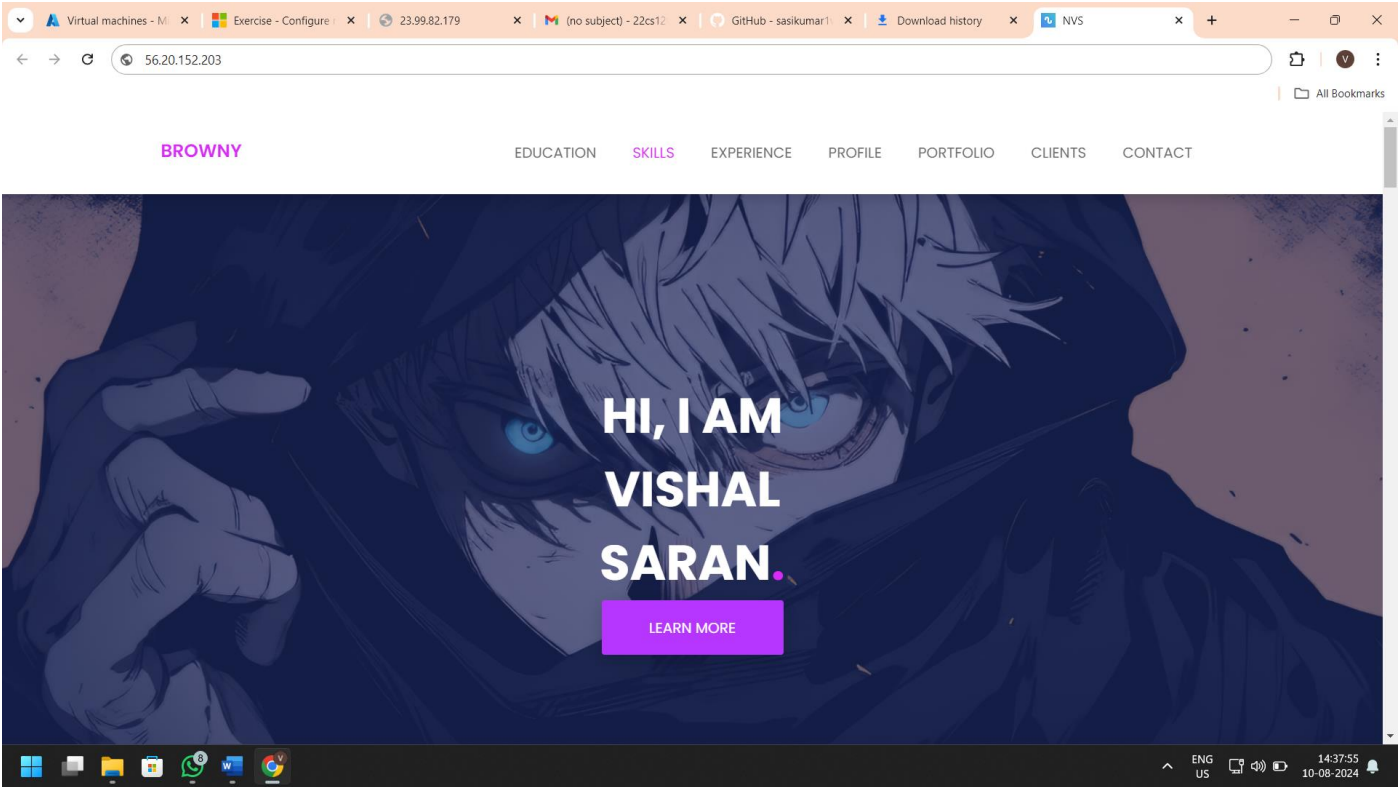
Showing 1 to 3 of 3 records.

Name	Subscription	Resource group	Location	Status	Operating system	Size	Public IP address	Disks
Divakar	Azure for Students	dr	Central India	Running	Linux	Standard_E2s_v3	20.40.51.156	1
ryl	Azure for Students	rg	Central India	Stopped (deallocated)	Linux	Standard_D2s_v3	4.213.225.112	1
sasim	Azure for Students	NetworkWatcherRG	Central India	Running	Linux	Standard_D2s_v3	4.188.73.143	1

Navigation: < Previous Page 1 of 1 Next >

System tray: ENG US, 14:30:27, 10-08-2024

Hosting my portfolio using Azure Cloud Services



Pricing calculator

Microsoft Azure Estimate						
Service category	Service type	Custom name	Region	Description	Estimated monthly cost	Estimated upfront cost
Compute	Virtual Machines		East US	1 D2 v3 (2 vCPUs, 8 GB RAM) x 730 Hours (Pay as you go), Windows (License included), OS Only; 0 managed disks – \$4; Inter Region transfer type, 5 GB outbound data transfer from East US to East Asia	\$137.24	\$0.00
Support			Support		\$0.00	\$0.00
			Licensing Program	Microsoft Customer Agreement (MCA)		
			Billing Account			
			Billing Profile			
			Total		\$137.24	\$0.00
Disclaimer						
All prices shown are in United States – Dollar (\$) USD. This is a summary estimate, not a quote. For up to date pricing information please visit https://azure.microsoft.com/pricing/calculator/						
This estimate was created at 8/9/2024 4:04:33 AM UTC.						

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 5 year(s) with Microsoft Azure, your estimated cost savings could be as much as **\$158,081**

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.

Creation of container

Microsoft Azure

Home > nvsblob

nvsblob | Containers

Search containers by prefix

Name	Last modified	Anonymous access level	Lease state
<input type="checkbox"/> \$logs	8/8/2024, 1:59:25 PM	Private	Available
<input type="checkbox"/> nvs	8/10/2024, 2:45:07 PM	Private	Available
<input type="checkbox"/> nvscontainer	8/8/2024, 2:05:56 PM	Blob	Available

Microsoft Azure portal interface showing the 'nvscontainer' container overview. The breadcrumb navigation is 'Home > nvsblob | Containers > nvscontainer'. The left sidebar includes 'Overview', 'Diagnose and solve problems', 'Access Control (IAM)', and 'Settings'. The main content area shows the 'Authentication method' as 'Access key' and 'Location' as 'nvscontainer'. A search bar is present with the text 'Search blobs by prefix (case-sensitive)'. Below the search bar is a table with columns: Name, Modified, Access tier, Archive status, Blob type, Size, and Lease state. The table contains one entry: 'Jujutsu Kaisen Shoko GIF - Jujutsu kaisen Shoko Geto - Discover & S...' with a modified date of '8/8/2024, 2:24:05 PM', access tier of 'Hot (Inferred)', blob type of 'Block blob', size of '751.58 KiB', and lease state of 'Available'.

Microsoft Azure portal interface showing the 'Jujutsu Kaisen Shoko GIF - Jujutsu kaisen Shoko Geto - Discover & Share GIFs.gif' blob properties. The breadcrumb navigation is 'Home > nvsblob | Containers > nvscontainer > Jujutsu Kaisen Shoko GIF - Jujutsu kaisen Shoko Geto - Discover & Share GIFs.gif'. The left sidebar is the same as the previous screenshot. The main content area shows the 'Overview' tab for the blob. The 'Properties' section lists various attributes: 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, CACHE-CONTROL, CONTENT-TYPE, CONTENT-MD5, CONTENT-ENCODING, and CONTENT-LANGUAGE. A 'Snipping Tool' window is overlaid on the bottom right, displaying a screenshot of the blob properties and a message: 'Screenshot copied to clipboard and saved. Select here to mark up and share.'

Virtual machines - MExercise - Configure23.99.82.179Dr.N.G.P. Institute ofGitHub - sasikumarDownload historyNVS

portal.azure.com/#browse/Microsoft.Compute%2FVirtualMachines

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Microsoft Azure

Search resources, services, and docs (G+)

Copilot

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DR.N.G.P.INSTITUTE OF TECHNO...

Home >

Virtual machines

Dr.N.G.P.Institute of Technology (drngpit.ac.in)

Create

Switch to classic

Reservations

Manage view

Refresh

Export to CSV

Open query

Assign tags

Start

Restart

Stop

Delete

Services

Maintenance

Filter for any field...

Subscription equals all

Type equals all

Resource group equals all

Location equals all

Add filter

Showing 1 to 3 of 3 records.

No grouping

List view

<input type="checkbox"/> Name ↑↓	Subscription ↑↓	Resource group ↑↓	Location ↑↓	Status ↑↓	Operating system ↑↓	Size ↑↓	Public IP address ↑↓	Disks ↑↓	
<input type="checkbox"/> Divakar	Azure for Students	dr	Central India	Running	Linux	Standard_E2s_v3	20.40.51.156	1	...
<input type="checkbox"/> ryl	Azure for Students	rg	Central India	Stopped (deallocated)	Linux	Standard_D2s_v3	4.213.225.112	1	...
<input type="checkbox"/> sasivm	Azure for Students	NetworkWatcherRG	Central India	Running	Linux	Standard_D2s_v3	4.188.73.143	1	...

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Give feedback

ENG US

15:04:00
10-08-2024