

REPORT ON

MICROSOFT AZURE FUNDAMENTALS

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1)Sandbox:

Create a Linux virtual machine and install Nginx

The screenshot shows a Microsoft Learn exercise titled "Exercise - Create an Azure virtual machine". The exercise is part of "Unit 3 of 14". A progress bar indicates "100 XP" completed. The main content area displays the JSON configuration for creating a custom script extension on a Linux VM. The JSON includes details like the resource group, VM name, and the URL for the custom script file. Below the JSON, a terminal window shows the command `sanjay_savitha05 [~]\$`.

```
"id": "/subscriptions/f26515d9-3bc6-4a50-8192-cb816a833f54/resourceGroups/learn-7fd8bb72-53fe-4738-a98f-d6cf81a9fe45/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-7fd8bb72-53fe-4738-a98f-d6cf81a9fe45",  
"settings": {  
    "fileUris": [  
        "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"  
}  
sanjay_savitha05 [ ~ ]$
```

Access your web server

The screenshot shows a Microsoft Learn exercise titled "Exercise - Configure network access". The exercise is part of "Unit 9 of 14". A progress bar indicates "100 XP" completed. The main content area displays the JSON configuration for a virtual machine, specifically setting the OS type to Linux. Below the JSON, a terminal window shows the command `sanjay_savitha05 [~]\$` followed by several curl commands to test connectivity and print the IP address.

```
"osType": "Linux",  
"vhd": null,  
"writeAcceleratorEnabled": null  
},  
"tags": {},  
"timeCreated": "2024-08-10T04:23:43.494000+00:00",  
"type": "Microsoft.Compute/virtualMachines",  
"userData": null,  
"virtualMachineScaleSet": null,  
"vmId": "d5671813-aabf-4acb-b770-2adc0b7fb5d1",  
"zones": null  
}  
sanjay_savitha05 [ ~ ]$ IPADDRESS=$(az vm list-ip-addresses --resource-group "learn-7fd8bb72-53fe-4738-a98f-d6cf81a9fe45" --name my-vm --query "[].virtualMachine.network.publicIpAddresses[*].ipAddress" --output tsv)  
sanjay_savitha05 [ ~ ]$ curl --connect-timeout 5 http://$IPADDRESS  
curl: (28) Failed to connect to 40.86.175.142 port 80 after 5002 ms: Timeout was reached  
sanjay_savitha05 [ ~ ]$ echo $IPADDRESS  
40.86.175.142  
sanjay_savitha05 [ ~ ]$
```

List the current network security group rules

The screenshot shows a Microsoft Edge browser window with several tabs open. The active tab is titled "Exercise - Configure network" and contains the URL learn.microsoft.com/en-us/training/modules/describe-azure-compute-networking-services/9-exercise-configure-network/. The page content includes a section titled "Task 2: List the current network security group rules". It instructs users to run the command `az network nsg list --resource-group "learn-7fd8bb72-53fe-4738-a98f-d6cf81a9fe45" --query '[].name' --output tsv` to list the network security groups associated with their VM. Below this, a note says "You see this output:" followed by a screenshot of the Azure Cloud Shell output. The output shows a single row of data: "default-allow-ssh".

```
sourceGroups/learn-7fd8bb72-53fe-4738-a98f-d6cf81a9fe45/providers/Microsoft.Network/networkSecurityGroups/my-vmNSG/securityRules/default-allow-ssh
  "name": "default-allow-ssh",
  "priority": 1000,
  "protocol": "Tcp",
  "provisioningState": "Succeeded",
  "resourceGroup": "learn-7fd8bb72-53fe-4738-a98f-d6cf81a9fe45"
  ,
  "sourceAddressPrefix": "*",
  "sourceAddressPrefixes": [],
  "sourcePortRange": "*",
  "sourcePortRanges": [],
  "type": "Microsoft.Network/networkSecurityGroups/securityRule"
}
]
sanjay_savitha05 [ ~ ]$ az network nsg rule list --resource-group "learn-7fd8bb72-53fe-4738-a98f-d6cf81a9fe45" --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
sanjay_savitha05 [ ~ ]$
```

Create the network security rule

The screenshot shows a Microsoft Edge browser window with several tabs open. The active tab is titled "Exercise - Configure network" and contains the URL learn.microsoft.com/en-us/training/modules/describe-azure-compute-networking-services/9-exercise-configure-network/. The page content includes a section titled "Task 3: Create the network security rule". It instructs users to run the command `az network nsg rule create --resource-group "learn-7fd8bb72-53fe-4738-a98f-d6cf81a9fe45" --nsg-name my-vmNSG --name allow-http --protocol tcp --priority 100` to create a rule called "allow-http" that allows inbound access on port 80 (HTTP). Below this, a note says "You see this output:" followed by a screenshot of the Azure Cloud Shell output. The output shows two rows of data: "default-allow-ssh" and "allow-http".

```
"etag": "W/\"59c42625-674a-440c-bc3b-e7839d22354a\"",
  "id": "/subscriptions/f26515d9-3bc6-4a50-8192-cb816a833f54/resourceGroups/learn-7fd8bb72-53fe-4738-a98f-d6cf81a9fe45/providers/Microsoft.Network/networkSecurityGroups/my-vmNSG/securityRules/allow-http",
  "name": "allow-http",
  "priority": 100,
  "protocol": "Tcp",
  "provisioningState": "Succeeded",
  "resourceGroup": "learn-7fd8bb72-53fe-4738-a98f-d6cf81a9fe45",
  "sourceAddressPrefix": "*",
  "sourceAddressPrefixes": [],
  "sourcePortRange": "*",
  "sourcePortRanges": [],
  "type": "Microsoft.Network/networkSecurityGroups/securityRules"
}
]
sanjay_savitha05 [ ~ ]$ az network nsg rule list --resource-group "learn-7fd8bb72-53fe-4738-a98f-d6cf81a9fe45" --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
sanjay_savitha05 [ ~ ]$
```

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.

- Run the same `curl` command that you ran earlier:

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

```
ow-http",
  "name": "allow-http",
  "priority": 100,
  "protocol": "Tcp",
  "provisioningState": "Succeeded",
  "resourceGroup": "learn-7fd8bb72-53fe-4738-a98f-d6cf81a9fe45",
  "sourceAddressPrefix": "*",
  "sourceAddressPrefixes": [],
  "sourcePortRange": "*",
  "sourcePortRanges": [],
  "type": "Microsoft.Network/networkSecurityGroups/securityRules"
}
sanjay_savitha05 [ ~ ]$ az network nsg rule list --resource-group
"learn-7fd8bb72-53fe-4738-a98f-d6cf81a9fe45" --nsg-name my-vmNSG
--query '[].{Name:name, Priority:priority, Port:destinationPortR
ange, Access:access}' --output table
Name          Priority    Port    Access
-----
default-allow-ssh 1000        22     Allow
allow-http      100         80     Allow
sanjay_savitha05 [ ~ ]$ curl --connect-timeout 5 http://$IPADDRES
S
<html><body><h2>Welcome to Azure! My name is my-vm.</h2></body></
html>
sanjay_savitha05 [ ~ ]$
```

Final output:

Welcome to Azure! My name is my-vm.

2) Azure Academic Services: Azure for Students

Microsoft Academic Verification Process

The screenshot shows the Microsoft Academic Verification process. At the top, there's a navigation bar with links for Home, FAQ, and Support. Below it, a section titled "Take advantage of your academic status" explains that 'school' includes schools, universities, colleges, technical/STEM schools, and other academic schools. A progress bar at the bottom indicates four steps: Profile information (checkmark), Security Check (checkmark), Additional information (circle), and Verifying (checkmark). The "Verifying" step is currently active.

Congratulations!

Your academic status has been successfully verified.

[Continue](#)

[Consumer Health Privacy](#) [Privacy](#) [Terms of use](#) [Trademark](#)

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Creation of resource groups

The screenshot shows the Microsoft Azure portal's Resource groups page. The URL in the address bar is portal.azure.com/#browse/resourcegroups. The page displays a list of existing resource groups:

Name	Subscription	Location
NetworkWatcherRG	Azure for Students	Central India
rg	Azure for Students	Central India
smk	Azure for Students	Central India

At the bottom, it says "Showing 1 - 3 of 3. Display count: 10".

Creation of Virtual Machine

The screenshot shows the Microsoft Azure Virtual Machines dashboard. At the top, there are several browser tabs open, including 'SanjayKumarSS-6181', 'Virtual machines - Mi...', 'Inbox (3,435) - sanja...', 'internet speed test -', '40.86.175.142', and 'azure academic serv...'. The main page title is 'Virtual machines' under 'Microsoft Azure'. A search bar at the top right says 'Search resources, services, and docs (G+/-)'. Below the title, it says 'Default Directory' and shows a list of one VM: 'saniav' (Subscription: Azure for Students, Resource group: smk, Location: Central India, Status: Running, Operating system: Linux, Size: Standard D2s v3, Public IP address: 20.235.243.111). There are buttons for 'Create', 'Switch to classic', 'Reservations', 'Manage view', 'Refresh', 'Export to CSV', 'Open query', 'Assign tags', 'Start', 'Restart', 'Stop', and '...'. Below the list, there are filters for 'Subscription equals all', 'Type equals all', 'Resource group equals all', 'Location equals all', and an 'Add filter' button. It also shows 'No grouping' and 'List view' options. At the bottom, there are navigation buttons for '< Previous', 'Page 1 of 1', and 'Next >'. A feedback link 'Give feedback' is also present.

Hosting my portfolio using Azure Cloud Services

The screenshot shows a dark-themed website portfolio. At the top, the URL '20.235.243.111' is visible in the address bar, with a note '(Not Secure)'. The top navigation bar includes links for 'About', 'Services', 'Journal', 'Contact', and a large orange 'Let's Work Together' button. Below the navigation, a bio reads 'Hello, I'm Sanjay Kumar S S'. The main headline is 'I am a student at Dr N.G.P Institute of Technology'. To the right of the text is a portrait photo of a woman with dark hair looking upwards. On the left side of the main content area, there are three thin horizontal lines.

Pricing calculator

The screenshot shows a Microsoft Excel spreadsheet titled "Microsoft Azure Estimate". The top menu bar includes "Home", "Insert", "Draw", "Page Layout", "Formulas", "Data", "Review", "View", and "Automate". The ribbon tabs are "General", "Conditional Formatting", "Insert", "Delete", "Cell Styles", "Format", "Sort & Filter", "Find & Select", "Add-ins", and "Analyse Data". The main content area displays a table with the following data:

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

Below the table, there are several rows of disclaimer text:

- 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.

The status bar at the bottom shows "Your Estimate" and "Accessibility: Investigate".

Total Cost of Ownership (TCO) Calculator

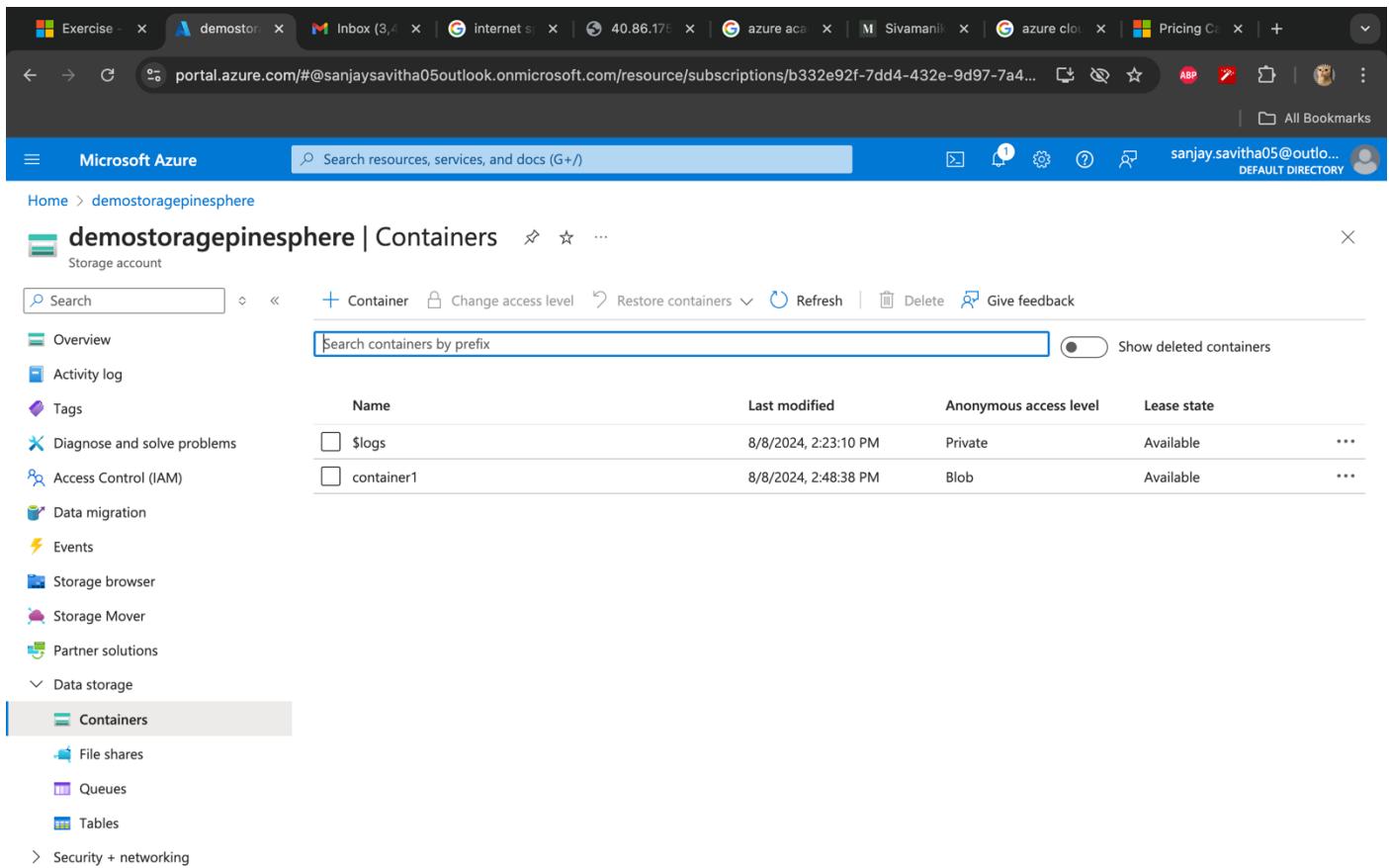
The screenshot shows a PDF document titled "tco azure.pdf" with "Page 1 of 12". The document is a "Total Cost of Ownership (TCO) Calculator". It features a header with the Microsoft logo and the title "Total Cost of Ownership (TCO) Calculator". Below the header, it says "Estimate the cost savings you can realize by migrating your workloads to Azure". On the right side, there are two buttons: "My saved reports" and "Sign In". The main content area contains the following text:

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.

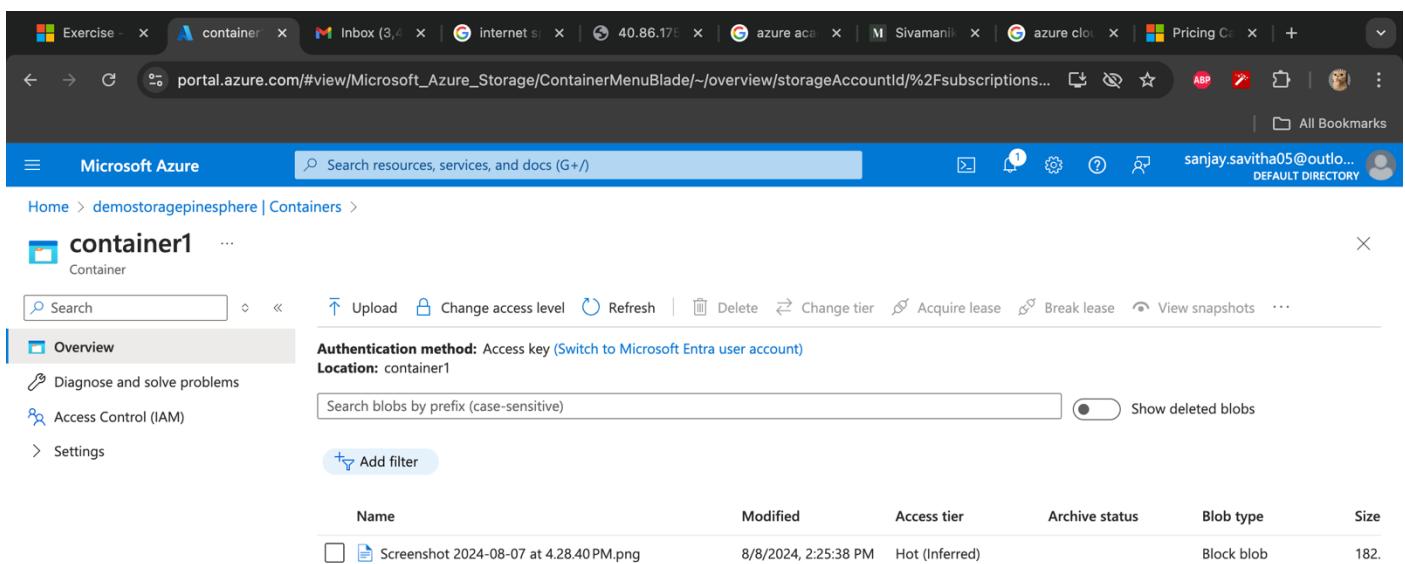
Creation of container



The screenshot shows the Microsoft Azure portal interface for managing storage containers. The left sidebar navigation is open, showing options like Overview, Activity log, Tags, Diagnose and solve problems, Access Control (IAM), Data migration, Events, Storage browser, Storage Mover, Partner solutions, and Data storage. Under Data storage, the 'Containers' option is selected, indicated by a grey background. The main content area displays a table of existing containers:

Name	Last modified	Anonymous access level	Lease state
\$logs	8/8/2024, 2:23:10 PM	Private	Available
container1	8/8/2024, 2:48:38 PM	Blob	Available

At the top of the main content area, there are buttons for '+ Container' (to add a new container), 'Change access level', 'Restore containers', 'Refresh', 'Delete', and 'Give feedback'. A search bar at the top right says 'Search containers by prefix'.



The screenshot shows the Microsoft Azure portal interface for a specific storage container named 'container1'. The left sidebar navigation is open, showing Overview, Diagnose and solve problems, Access Control (IAM), and Settings. The 'Overview' option is selected. The main content area displays the container's details:

Authentication method: Access key ([Switch to Microsoft Entra user account](#))
Location: container1

A search bar at the top right says 'Search blobs by prefix (case-sensitive)'. Below it is a button 'Show deleted blobs'.

Below the blob list, there is a 'Add filter' button.

Name	Modified	Access tier	Archive status	Blob type	Size
Screenshot 2024-08-07 at 4.28.40 PM.png	8/8/2024, 2:25:38 PM	Hot (Inferred)		Block blob	182

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

Screenshot of the Microsoft Azure Storage Blob Properties blade for container1.

Overview (selected)

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

Location: container1

Name: Screenshot 2024-08-07 at 4.28.40 PM.png

Properties

Property	Value
URL	https://demostorageaccount1.blob.core.windows.net/container1/Screenshot%202024-08-07%20at%204.28.40%20PM.png
LAST MODIFIED	8/8/2024, 2:25:38 PM
CREATION TIME	8/8/2024, 2:25:38 PM
VERSION ID	-
TYPE	Block blob
SIZE	182.95 KiB
ACCESS TIER	Hot (Inferred)
ACCESS TIER LAST MODIFIED	N/A
ARCHIVE STATUS	-
REHYDRATE PRIORITY	-
SERVER ENCRYPTED	true
ETAG	0x8DCB787E0325253
VERSION-LEVEL IMMUTABILITY POLICY	Disabled
CACHE-CONTROL	(empty)
CONTENT-TYPE	image/png
CONTENT-LINE	D1orchQ/Hlwkt77/convnsv

The screenshot shows the Azure portal interface for managing virtual machines. At the top, there's a navigation bar with various tabs like 'Exercise', 'Screens', 'Inbox', 'internet', '40.86.1', 'azure a', 'Sivamal', 'azure c', 'Pricing', and 'Screens'. Below the navigation bar is a search bar containing the URL of a blob storage file.

The main content area has a breadcrumb trail 'Home > Virtual machines'. The title 'Virtual machines' is displayed with a 'Create' button and a three-dot ellipsis menu. A 'Default Directory' link is also present.

Below the title is a toolbar with several icons: 'Create', 'Switch to classic', 'Reservations', 'Manage view', 'Refresh', 'Export to CSV', 'Open query', 'Assign tags', 'Start', 'Restart', 'Stop', and a three-dot ellipsis.

There are four filter buttons: 'Filter for any field...', 'Subscription equals all', 'Type equals all', and 'Resource group equals all'. There's also an 'Add filter' button with a plus sign.

The results section shows one record: 'Showing 1 to 1 of 1 records.' The table has columns: Name (with a checkbox), Subscription, Resource group, Location, Status, Operating system, Size, and Public IP address. The VM details are as follows:

Name	Subscription	Resource group	Location	Status	Operating system	Size	Public IP address
<input type="checkbox"/> demopinesphere	Azure for Students	rg	Central India	Stopped (deallocated)	Linux	Standard_D2s_v3	20.244.110.255