

TASKS ON TERRAFORM

❖ **NAME:** S.MUZZAMMIL HUSSAIN

❖ **DATE:** 26/07/2025

❖ **BATCH:** 11

❖ **NO.OF TASKS:** 1

Task 1 . Create resource group and virtual machine using Azure CLI, create a subscription also.

Go to azure portal using portal.azure.com and click on CLI of the virtual machine we have terraform and azure CLI installed in it

```
muzzammil [ ~ ]$ terraform -v
Terraform v1.12.2
on linux_amd64
muzzammil [ ~ ]$ az -v
azure-cli                                2.75.0

core                                    2.75.0
telemetry                                1.1.0

Extensions:
ml                                        2.37.2
ssh                                       2.0.6

Dependencies:
msal                                     1.33.0b1
azure-mgmt-resource                     23.3.0

Python location '/usr/bin/python3.12'
Config directory '/home/muzzammil/.azure'
Extensions directory '/home/muzzammil/.azure/cliextensions'
Extensions system directory '/usr/lib/python3.12/site-packages/azure-cli-extensions'

Python (Linux) 3.12.9 (main, Jun 12 2025, 19:38:44) [GCC 13.2.0]

Legal docs and information: aka.ms/AzureCliLegal

Your CLI is up-to-date.
muzzammil [ ~ ]$
```

Run the command **az login** which gives a **URL** (<https://microsoft.com/devicelogin>) click on **URL**, copy the **code** that is needed to **authenticate**

```
muzzammil [ ~ ]$ az login
Cloud Shell is automatically authenticated under the initial account signed-in with. Run 'az login' only if you need to use a different account
To sign in, use a web browser to open the page https://microsoft.com/devicelogin and enter the code H9Z37DR4G to authenticate.
```

Paste the code here and click on **Next**



Enter code to allow access

Once you enter the code displayed on your app or device, it will have access to your account.

Do not enter codes from sources you don't trust.

H9Z37DR4G

Next

Click on **Continue**



shaikhussain752@gmail.com

Are you trying to sign in to Microsoft Azure CLI?

Only continue if you downloaded the app from a store or website that you trust.

Cancel

Continue

It will give the subscriptions present in the azure, click on Enter as it is Default.

```
muzzammil ~ % $ az login
Cloud Shell is automatically authenticated under the initial account signed-in with. Run 'az login' only if you need to use a different account
To sign in, use a web browser to open the page https://microsoft.com/devicelogin and enter the code H9237DR4G to authenticate.

Retrieving tenants and subscriptions for the selection...

[Tenant and subscription selection]

No      Subscription name      Subscription ID      Tenant
-----
[1] *   Azure subscription 1  6b09f008-6934-4533-97f5-79266f544b0b  Default Directory

The default is marked with an *; the default tenant is 'Default Directory' and subscription is 'Azure subscription 1' (6b09f008-6934-4533-97f5-79266f544b0b).

Select a subscription and tenant (Type a number or Enter for no changes):

Tenant: Default Directory
Subscription: Azure subscription 1 (6b09f008-6934-4533-97f5-79266f544b0b)

[Announcements]
With the new Azure CLI login experience, you can select the subscription you want to use more easily. Learn more about it and its configuration at https://go.microsoft.com/fwlink/?linkid=2271236

If you encounter any problem, please open an issue at https://aka.ms/azclibug

[Warning] The login output has been updated. Please be aware that it no longer displays the full list of available subscriptions by default.

muzzammil ~ %
```

To check the resource groups present in azure run command **az group list -o table**

```
muzzamill [ ~ ]$ az group list -o table
```

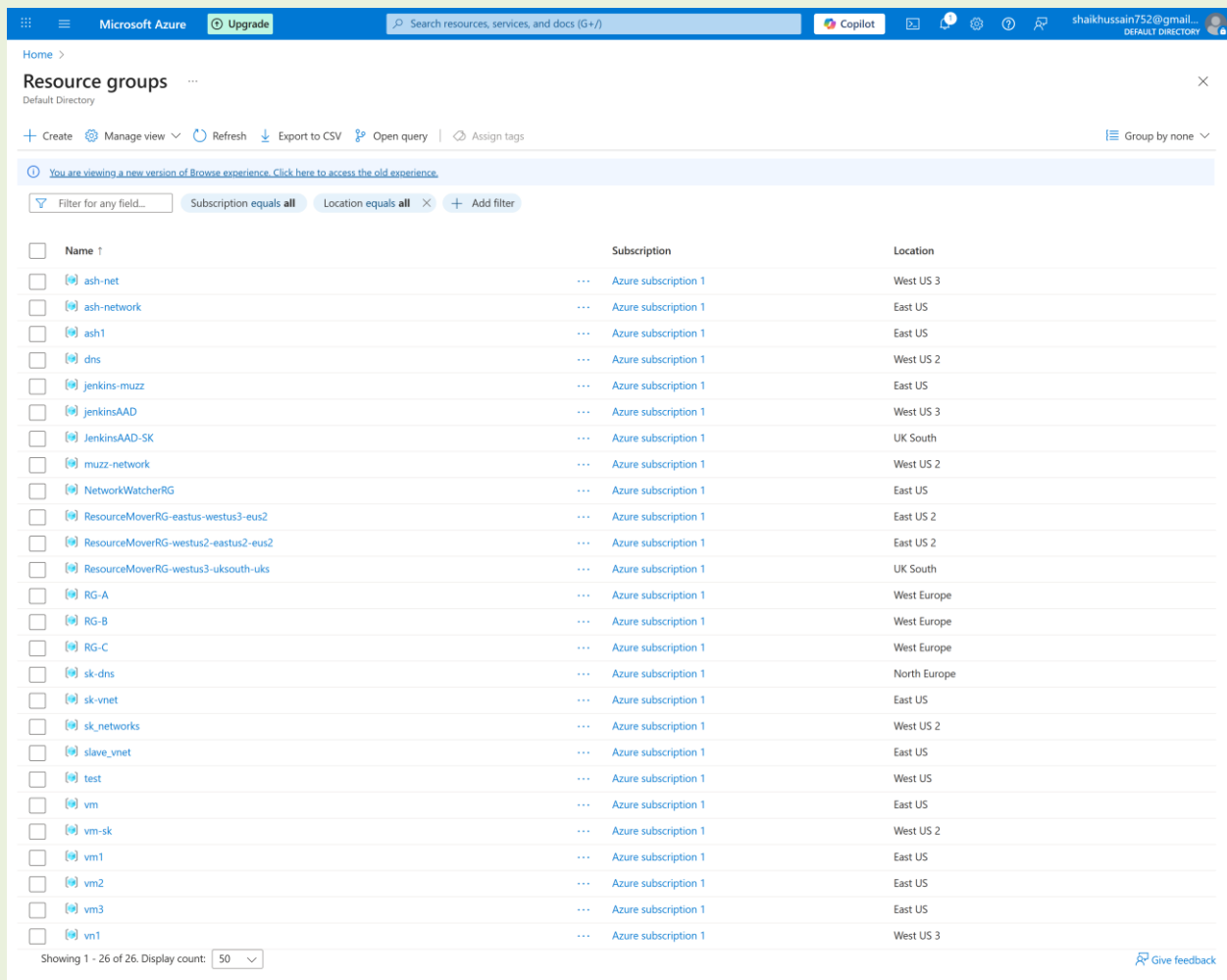
Name	Location	Status
ResourceMoverRG-westus3-uksouth-uks	uksouth	Succeeded
JenkinsAAD-SK	uksouth	Succeeded
ResourceMoverRG-westus2-eastus2-eus2	eastus2	Succeeded
ResourceMoverRG-eastus-westus3-eus2	eastus2	Succeeded
jenkins-muzz	eastus	Succeeded
NetworkWatcherRG	eastus	Succeeded
vm	eastus	Succeeded
vm1	eastus	Succeeded
vm2	eastus	Succeeded
vm3	eastus	Succeeded
sk-vnet	eastus	Succeeded
slave_vnet	eastus	Succeeded
ash1	eastus	Succeeded
ash-network	eastus	Succeeded
sk-dns	northeurope	Succeeded
vm-sk	westus2	Succeeded
muzz-network	westus2	Succeeded
sk_networks	westus2	Succeeded
vn1	westus3	Succeeded
dns	westus2	Succeeded
jenkinsAAD	westus3	Succeeded
ash-net	westus3	Succeeded
RG-A	westeurope	Succeeded
RG-B	westeurope	Succeeded
RG-C	westeurope	Succeeded

```
muzzamill [ ~ ]$
```

To create a resource run the command **az group create -n test -l westus**, here we are giving group name as **test** and location as **westus**

```
muzzamill [ ~ ]$ az group create -n test -l westus
{
  "id": "/subscriptions/6b09f008-6934-4533-97f5-79266f544b0b/resourceGroups/test",
  "location": "westus",
  "managedBy": null,
  "name": "test",
  "properties": {
    "provisioningState": "Succeeded"
  },
  "tags": null,
  "type": "Microsoft.Resources/resourceGroups"
}
muzzamill [ ~ ]$
```

The resource group **test** is created



Name ↑	Subscription	Location
<input type="checkbox"/> ash-net	--- Azure subscription 1	West US 3
<input type="checkbox"/> ash-network	--- Azure subscription 1	East US
<input type="checkbox"/> ash1	--- Azure subscription 1	East US
<input type="checkbox"/> dns	--- Azure subscription 1	West US 2
<input type="checkbox"/> jenkins-muzz	--- Azure subscription 1	East US
<input type="checkbox"/> jenkinsAAD	--- Azure subscription 1	West US 3
<input type="checkbox"/> JenkinsAAD-SK	--- Azure subscription 1	UK South
<input type="checkbox"/> muzz-network	--- Azure subscription 1	West US 2
<input type="checkbox"/> NetworkWatcherRG	--- Azure subscription 1	East US
<input type="checkbox"/> ResourceMoverRG-eastus-westus3-eus2	--- Azure subscription 1	East US 2
<input type="checkbox"/> ResourceMoverRG-westus2-eastus2-eus2	--- Azure subscription 1	East US 2
<input type="checkbox"/> ResourceMoverRG-westus3-uksouth-uks	--- Azure subscription 1	UK South
<input type="checkbox"/> RG-A	--- Azure subscription 1	West Europe
<input type="checkbox"/> RG-B	--- Azure subscription 1	West Europe
<input type="checkbox"/> RG-C	--- Azure subscription 1	West Europe
<input type="checkbox"/> sk-dns	--- Azure subscription 1	North Europe
<input type="checkbox"/> sk-vnet	--- Azure subscription 1	East US
<input type="checkbox"/> sk_networks	--- Azure subscription 1	West US 2
<input type="checkbox"/> slave_vnet	--- Azure subscription 1	East US
<input type="checkbox"/> test	--- Azure subscription 1	West US
<input type="checkbox"/> vm	--- Azure subscription 1	East US
<input type="checkbox"/> vm-sk	--- Azure subscription 1	West US 2
<input type="checkbox"/> vm1	--- Azure subscription 1	East US
<input type="checkbox"/> vm2	--- Azure subscription 1	East US
<input type="checkbox"/> vm3	--- Azure subscription 1	East US
<input type="checkbox"/> vn1	--- Azure subscription 1	West US 3

Showing 1 - 26 of 26. Display count: 50

To check the VM in the azure run the command **az vm list -o table**

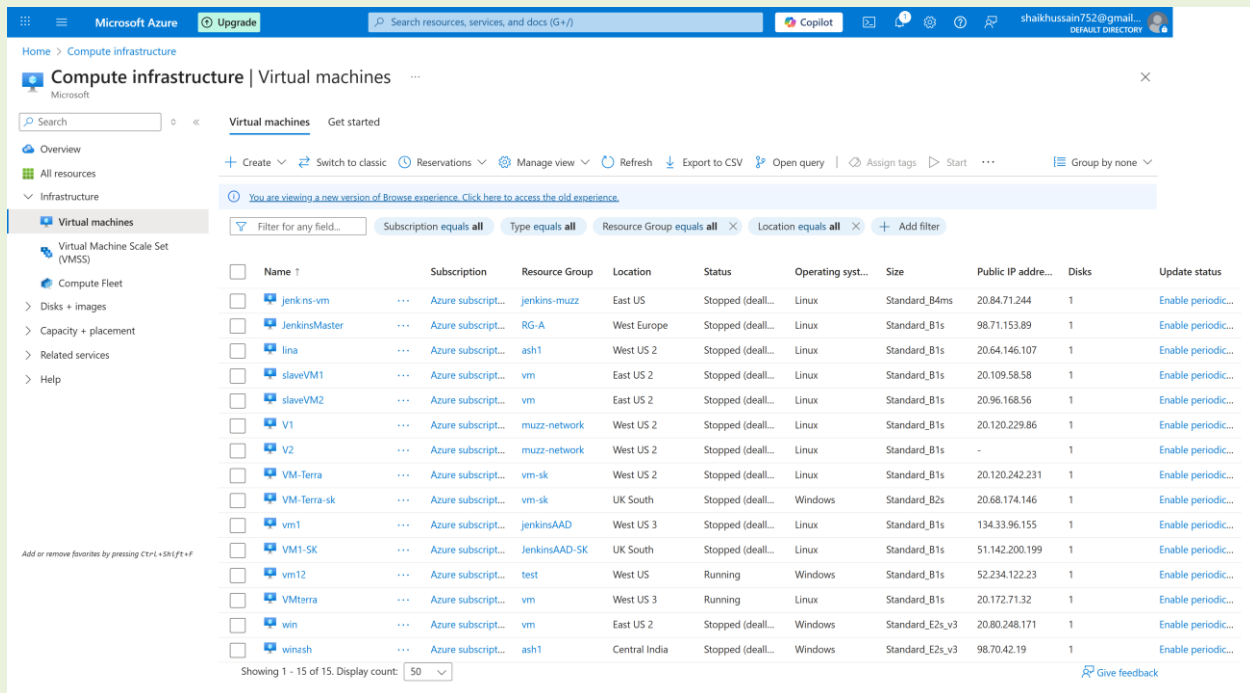
```
muzzamill [ ~ ]$ az vm list -o table
Name      ResourceGroup  Location  Zones
-----
Jenkins-vm  JENKINS-MUZZ  eastus    1
slaveVM1    VM             eastus2   1
slaveVM2    VM             eastus2   1
win         VM             eastus2   2
JenkinsMaster  RG-A          westeurope 2
winash      ASH1           westus2    3
Tina        MUZZ-NETWORK  westus2    3
V1          MUZZ-NETWORK  westus2    3
V2          VM-SK          westus2    3
VM-Terra    VM-SK          westus2    3
VM1-SK      JENKINSAAD-SK uksouth    1
VM-Terra-sk VM-SK          uksouth    1
vm1         JENKINSAAD    westus3    1
VMterra     VM             westus3    1
muzzamill [ ~ ]$
```

Create a VM using command **az vm create -g test -n vm12 --size Standard_B1s**, here the group name is **test** and VM name is **vm12** and size we are giving as **Standard B1s**

```
muzzammil [ ~ ]$ az vm create -g test -n vm12 --size Standard_B1s
The default value of '--size' will be changed to 'Standard_D2s_v5' from 'Standard_D51_v2' in a future release.

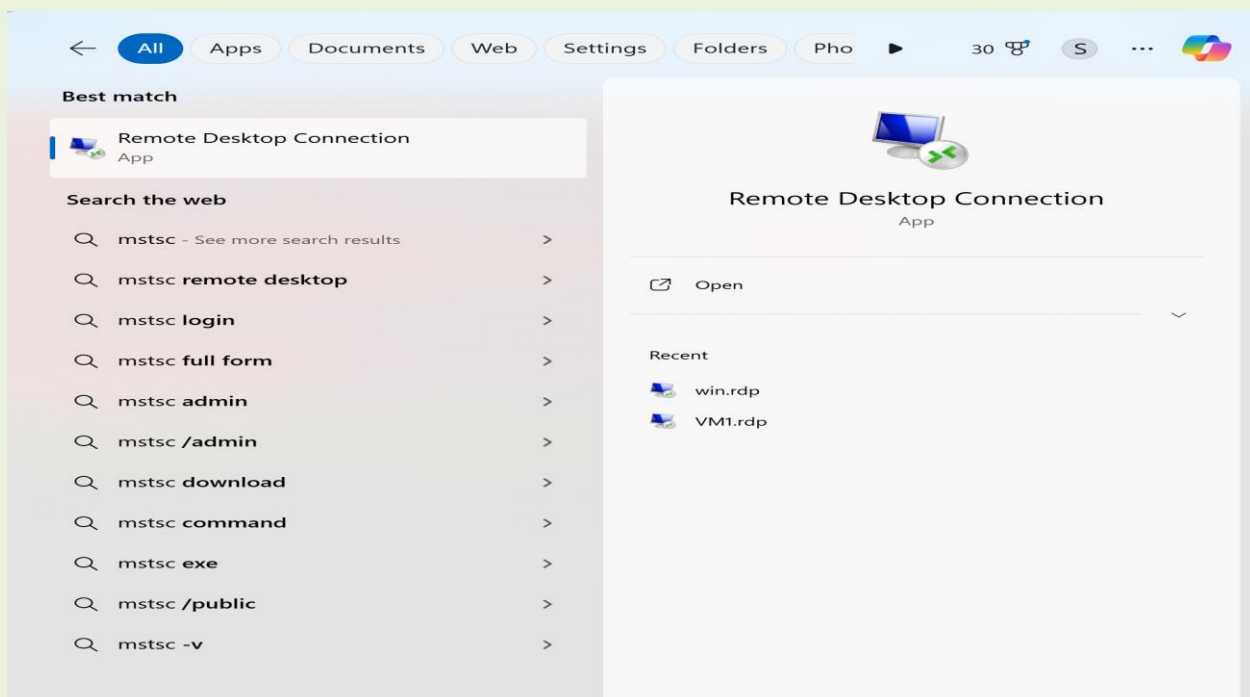
Admin Password:
Confirm Admin Password:
{
  "fqdns": "",
  "id": "/subscriptions/6b09f008-6934-4533-97f5-79266f544b0b/resourceGroups/test/providers/Microsoft.Compute/virtualMachines/vm12",
  "location": "westus",
  "macAddress": "00-0D-3A-59-64-63",
  "powerState": "VM running",
  "privateIpAddress": "10.0.0.4",
  "publicIpAddress": "52.234.122.23",
  "resourceGroup": "test"
}
muzzammil [ ~ ]$
```

The VM **vm12** is created




Name	Subscription	Resource Group	Location	Status	Operating syst...	Size	Public IP addre...	Disks	Update status
jenkins-vm	Azure subscript...	jenkins-muzz	East US	Stopped (deall...	Linux	Standard_B4ms	20.84.71.244	1	Enable periodic...
JenkinsMaster	Azure subscript...	RG-A	West Europe	Stopped (deall...	Linux	Standard_B1s	98.71.153.89	1	Enable periodic...
jina	Azure subscript...	ash1	West US 2	Stopped (deall...	Linux	Standard_B1s	20.64.146.107	1	Enable periodic...
slaveVM1	Azure subscript...	vm	East US 2	Stopped (deall...	Linux	Standard_B1s	20.109.58.58	1	Enable periodic...
slaveVM2	Azure subscript...	vm	East US 2	Stopped (deall...	Linux	Standard_B1s	20.96.168.56	1	Enable periodic...
V1	Azure subscript...	muzz-network	West US 2	Stopped (deall...	Linux	Standard_B1s	20.120.229.86	1	Enable periodic...
V2	Azure subscript...	muzz-network	West US 2	Stopped (deall...	Linux	Standard_B1s	-	1	Enable periodic...
VM-Terra	Azure subscript...	vm-sk	West US 2	Stopped (deall...	Linux	Standard_B1s	20.120.242.231	1	Enable periodic...
VM-Terra-sk	Azure subscript...	vm-sk	UK South	Stopped (deall...	Windows	Standard_B2s	20.68.174.146	1	Enable periodic...
vm1	Azure subscript...	jenkinsAAD	West US 3	Stopped (deall...	Linux	Standard_B1s	134.33.96.155	1	Enable periodic...
VM1-SK	Azure subscript...	JenkinsAAD-SK	UK South	Stopped (deall...	Linux	Standard_B1s	51.142.200.199	1	Enable periodic...
vm12	Azure subscript...	test	West US	Running	Windows	Standard_B1s	52.234.122.23	1	Enable periodic...
VMterra	Azure subscript...	vm	West US 3	Running	Linux	Standard_B1s	20.172.71.32	1	Enable periodic...
win	Azure subscript...	vm	East US 2	Stopped (deall...	Windows	Standard_E2s_v3	20.80.248.171	1	Enable periodic...
winash	Azure subscript...	ash1	Central India	Stopped (deall...	Windows	Standard_E2s_v3	98.70.42.19	1	Enable periodic...

Search for Remote desktop connection using **mstsc** in search



Enter the Credentials and give password and click on **Ok**

 Windows Security ✕

Enter your credentials

These credentials will be used to connect to 52.234.122.23.

muzzammil

Password

☐ Remember me

[More choices](#)

OK

Cancel

To delete the VM run the command **az vm delete -g test -n vm12**, here the group name is **test** and VM name is **vm12**

```
muzzammil [ ~ ]$ az vm delete -g test -n vm12
Are you sure you want to perform this operation? (y/n): y
muzzammil [ ~ ]$ az vm list -o table
Name      ResourceGroup Location Zones
-----
jenkins-vm JENKINS-MUZZ eastus 1
slaveVM1  VM eastus2 1
slaveVM2  VM eastus2 1
win       VM eastus2 2
JenkinsMaster RG-A westeurope
winash    ASH1 centralindia 2
lina      ASH1 westus2 3
V1        MUZZ-NETWORK westus2 3
V2        MUZZ-NETWORK westus2 3
VM-Terra  VM-SK westus2 3
VM1-SK    JENKINSAAD-SK uksouth
VM-Terra-sk VM-SK uksouth 1
vm1       JENKINSAAD westus3 1
VMterra   VM westus3 1
muzzammil [ ~ ]$
```

The VM **vm12** is deleted

Microsoft Azure Upgrade Search resources, services, and docs (G+/I) Copilot shalkhussain752@gmail... shalkhussain752@gmail... DEFAULT DIRECTORY

Home > Compute infrastructure

Compute infrastructure | Virtual machines

Search

Virtual machines Get started

Overview All resources Infrastructure Virtual machines Virtual Machine Scale Set (VMSS) Compute Fleet Disks + images Capacity + placement Related services Help

+ Create + Switch to classic Reservations Manage view Refresh Export to CSV Open query Assign tags Start Group by none

You are viewing a new version of Browse experience. Click here to access the old experience.

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

Name	Subscription	Resource Group	Location	Status	Operating syst...	Size	Public IP addre...	Disks	Update status
jenkins-vm	Azure subscript...	jenkins-muzz	East US	Stopped (deall...	Linux	Standard_B4ms	20.84.71.244	1	Enable periodic...
JenkinsMaster	Azure subscript...	RG-A	West Europe	Stopped (deall...	Linux	Standard_B1s	98.71.153.89	1	Enable periodic...
lina	Azure subscript...	ash1	West US 2	Stopped (deall...	Linux	Standard_B1s	20.64.146.107	1	Enable periodic...
slaveVM1	Azure subscript...	vm	East US 2	Stopped (deall...	Linux	Standard_B1s	20.109.58.58	1	Enable periodic...
slaveVM2	Azure subscript...	vm	East US 2	Stopped (deall...	Linux	Standard_B1s	20.96.168.56	1	Enable periodic...
V1	Azure subscript...	muzz-network	West US 2	Stopped (deall...	Linux	Standard_B1s	20.120.229.86	1	Enable periodic...
V2	Azure subscript...	muzz-network	West US 2	Stopped (deall...	Linux	Standard_B1s	-	1	Enable periodic...
VM-Terra	Azure subscript...	vm-sk	West US 2	Stopped (deall...	Linux	Standard_B1s	20.120.242.231	1	Enable periodic...
VM-Terra-sk	Azure subscript...	vm-sk	UK South	Stopped (deall...	Windows	Standard_B2s	20.68.174.146	1	Enable periodic...
vm1	Azure subscript...	jenkinsAAD	West US 3	Stopped (deall...	Linux	Standard_B1s	134.33.96.155	1	Enable periodic...
VM1-SK	Azure subscript...	JenkinsAAD-SK	UK South	Stopped (deall...	Linux	Standard_B1s	51.142.200.199	1	Enable periodic...
VMterra	Azure subscript...	vm	West US 3	Running	Linux	Standard_B1s	20.172.71.32	1	Enable periodic...
win	Azure subscript...	vm	East US 2	Stopped (deall...	Windows	Standard_E2s_v3	20.80.248.171	1	Enable periodic...
winash	Azure subscript...	ash1	Central India	Stopped (deall...	Windows	Standard_E2s_v3	98.70.42.19	1	Enable periodic...

Showing 1 - 14 of 14. Display count: 50

Give feedback

To check the accounts run the command **az account list**

Run the command

az ad sp create-for-rbac --role="Contributor" --scopes="/subscriptions/ 6b09f008-6934-4533-97f5-79266f544b0b"

The command is used to create a new Azure Active Directory service principal and immediately assign it the Contributor role scoped to the specified subscription

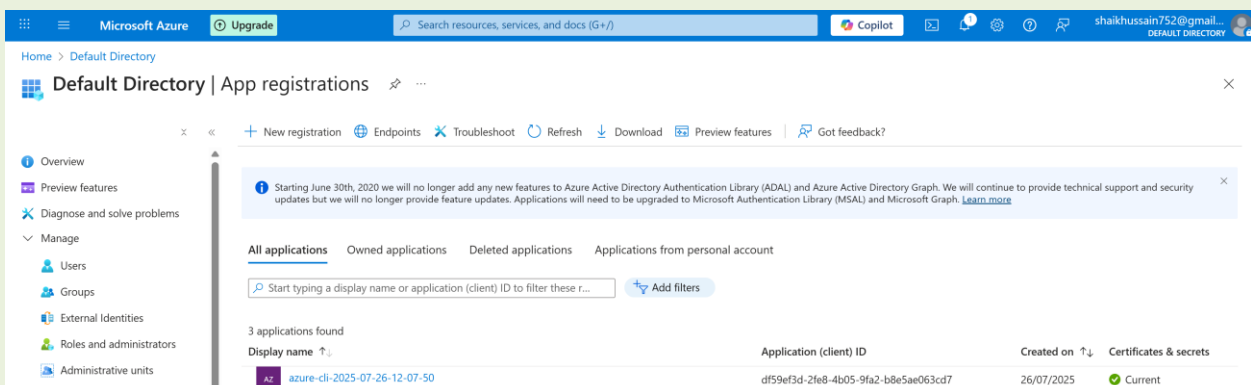
```
muzzammil [ ~ ]$ az account list
[
  {
    "cloudName": "AzureCloud",
    "homeTenantId": "358ece45-8c96-48ac-a4b2-cc1af1a729a6",
    "id": "6b09f008-6934-4533-97f5-79266f544b0b",
    "isDefault": true,
    "managedByTenants": [],
    "name": "Azure subscription 1",
    "state": "Enabled",
    "tenantDefaultDomain": "shaikhussain752gmail.onmicrosoft.com",
    "tenantDisplayName": "Default Directory",
    "tenantId": "358ece45-8c96-48ac-a4b2-cc1af1a729a6",
    "user": {
      "name": "shaikhussain752@gmail.com",
      "type": "user"
    }
  }
]
muzzammil [ ~ ]$ az ad sp create-for-rbac --role="Contributor" --scopes="/subscriptions/6b09f008-6934-4533-97f5-79266f544b0b"
Creating 'Contributor' role assignment under scope '/subscriptions/6b09f008-6934-4533-97f5-79266f544b0b'
The output includes credentials that you must protect. Be sure that you do not include these credentials in your code or check the credentials into your source control. For more information, see https://aka.ms/azadsp-cli
{
  "appId": "df59ef3d-2fe8-4b05-9fa2-b8e5ae063cd7",
  "displayName": "azure-cli-2025-07-26-12-07-50",
  "password": "wxL8Q~7wNI--SBmPObmdi_Ift5h-hHl39iXy5cfz",
  "tenant": "358ece45-8c96-48ac-a4b2-cc1af1a729a6"
}
muzzammil [ ~ ]$
```

```
{
  "appId": "df59ef3d-2fe8-4b05-9fa2-b8e5ae063cd7",
  "displayName": "azure-cli-2025-07-26-12-07-50",
  "password": "wxL8Q~7wNI--SBmPObmdi_Ift5h-hHl39iXy5cfz",
  "tenant": "358ece45-8c96-48ac-a4b2-cc1af1a729a6"
}
```

Assign the **environmental variables** as follows

```
export ARM_CLIENT_ID="df59ef3d-2fe8-4b05-9fa2-b8e5ae063cd7"
export ARM_CLIENT_SECRET="nEr8Q~pVgPMH2z0u-w3CURUct21wvt1Y9Vvk7cti"
export ARM_TENANT_ID="358ece45-8c96-48ac-a4b2-cc1af1a729a6"
export ARM_SUBSCRIPTION_ID="6b09f008-6934-4533-97f5-79266f544b0b"
```

We can see the Directory is created



The screenshot shows the Microsoft Azure portal interface. The top navigation bar includes the Microsoft Azure logo, an 'Upgrade' button, a search bar, and a user profile for 'shaikhussain752@gmail.com'. The main content area is titled 'Default Directory | App registrations'. On the left, there is a sidebar with navigation links: Overview, Preview features, Diagnose and solve problems, Manage (Users, Groups, External Identities, Roles and administrators, Administrative units), and a search bar. The main area shows a list of applications. A notification banner at the top states: 'Starting June 30th, 2020 we will no longer add any new features to Azure Active Directory Authentication Library (ADAL) and Azure Active Directory Graph. We will continue to provide technical support and security updates but we will no longer provide feature updates. Applications will need to be upgraded to Microsoft Authentication Library (MSAL) and Microsoft Graph. Learn more'. Below the notification, there are tabs for 'All applications', 'Owned applications', 'Deleted applications', and 'Applications from personal account'. A search bar is present with the text 'Start typing a display name or application (client) ID to filter these r...'. The results show '3 applications found'. The first application is 'azure-cli-2025-07-26-12-07-50' with Application (client) ID 'df59ef3d-2fe8-4b05-9fa2-b8e5ae063cd7', created on '26/07/2025', and status 'Current'.

Display name	Application (client) ID	Created on	Certificates & secrets
azure-cli-2025-07-26-12-07-50	df59ef3d-2fe8-4b05-9fa2-b8e5ae063cd7	26/07/2025	Current