

## Use case

### Set up Python + Boto3, and Start/Stop EC2 instances

## Use case description

### Set up Python + Boto3, and Start/Stop EC2 instances using CLI

#### 1. Create an EC2 instance ( MyInstance1 )

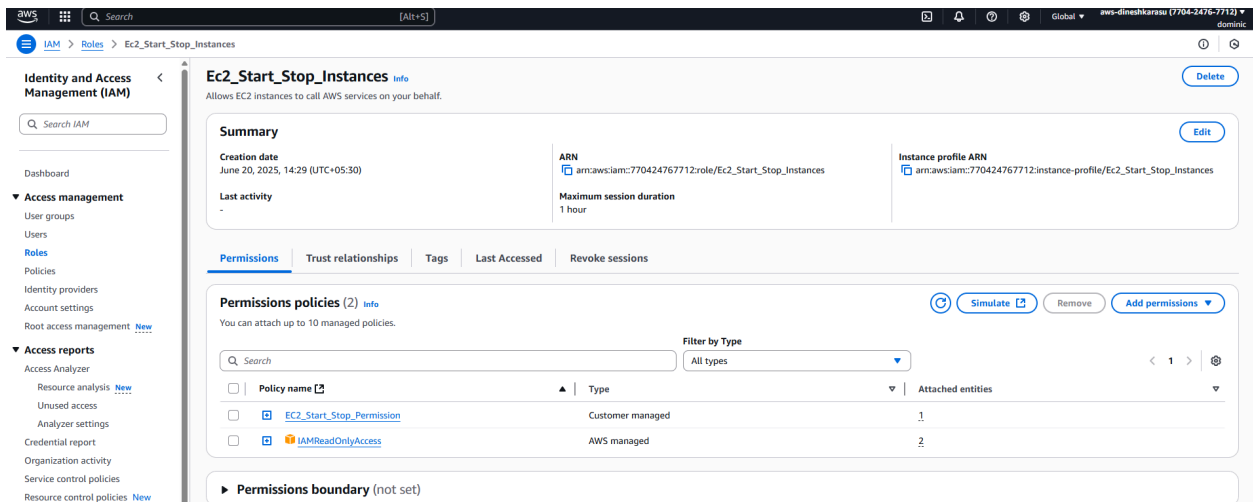
The screenshot shows the AWS Management Console interface for the 'Instances' page. The left sidebar contains navigation links for EC2, including Dashboard, EC2 Global View, Events, and various instance types. The main content area displays a table of instances with columns for Name, Instance ID, Instance state, Instance type, Status check, Alarm status, Availability Zone, Public IPv4 DNS, Public IPv4 address, Elastic IP, and IPV6 IPs. The instance 'MyInstance1' is listed with ID 'i-08e8320dfe9223ff2' and state 'Running'. Below the table, the 'Details' tab for 'MyInstance1' is expanded, showing various attributes: Instance ID, IPv6 address, Hostname type, Answer private resource DNS name, Auto-assigned IP address, IAM Role, IMDSv2, Public IPv4 address, Instance state, Private IP DNS name (IPv4 only), Instance type, VPC ID, Subnet ID, Instance ARN, Private IPv4 addresses, Public DNS, Elastic IP addresses, AWS Compute Optimizer finding, Auto Scaling Group name, and Managed state.

#### 2. Create a policy with Ec2: start instances and stop instances permission. We also need describe instances permission as we will be reading the status of the instance

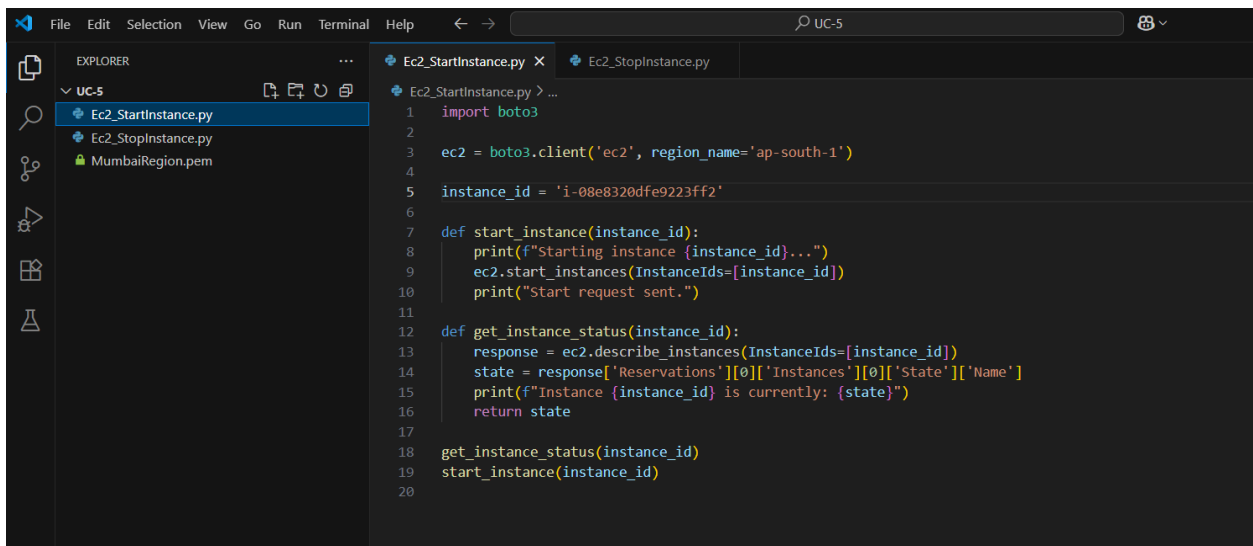
The screenshot shows the AWS Management Console interface for the 'Policies' page under 'IAM'. The left sidebar contains navigation links for Identity and Access Management (IAM), including Dashboard, Access management, Policies, Identity providers, Account settings, Root access management, Access reports, and Access analyzer. The main content area displays the details for the policy 'EC2\_Start\_Stop\_Permission'. The 'Policy details' section shows the Type as 'Customer managed', Creation time as 'June 20, 2025, 14:30 (UTC+05:30)', Edited time as 'June 20, 2025, 14:30 (UTC+05:30)', and ARN as 'arn:aws:iam::770424767712:policy/EC2\_Start\_Stop\_Permission'. The 'Permissions' tab is selected, showing the 'Permissions defined in this policy' section. The policy document is displayed in a code editor, showing the following JSON:

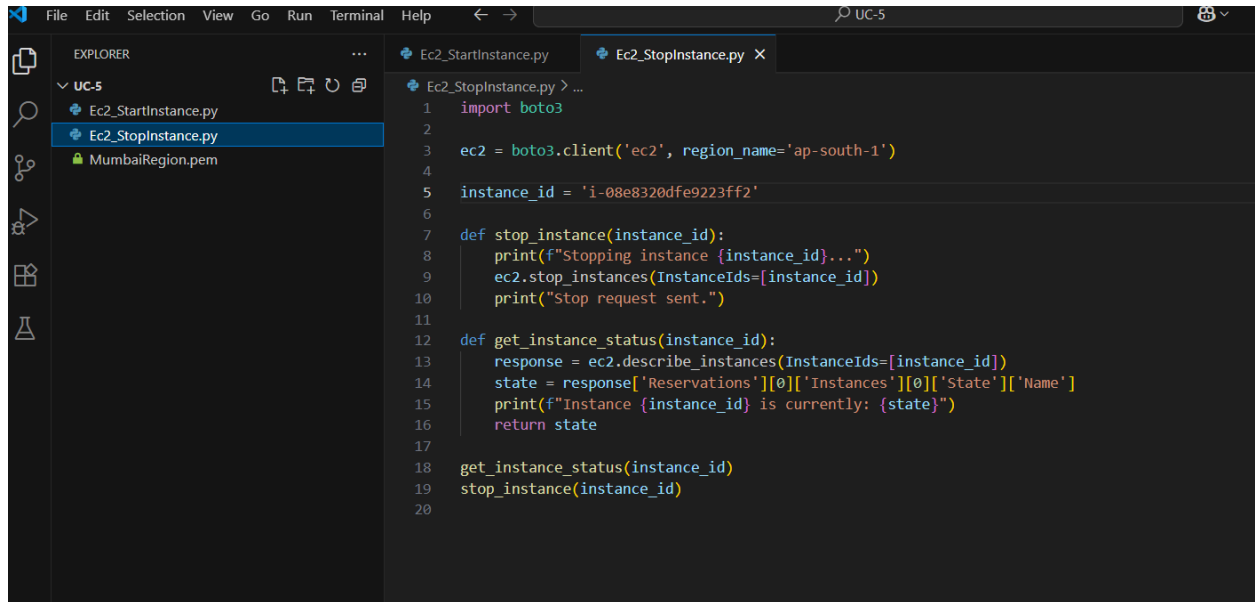
```
1 {
2   "Version": "2012-10-17",
3   "Statement": [
4     {
5       "Sid": "VisualEditor0",
6       "Effect": "Allow",
7       "Action": [
8         "ec2:DescribeInstances",
9         "ec2:StartInstances",
10        "ec2:StopInstances"
11      ],
12      "Resource": "*"
13    }
14  ]
15 }
```

### 3. Attach policy to a new role and assign the IAM role to the newly created instance



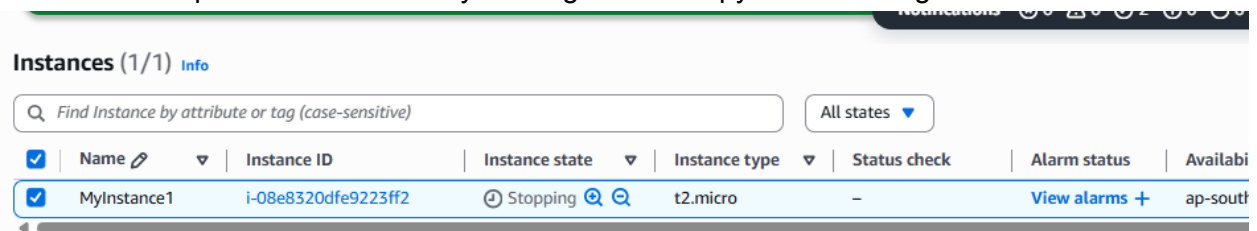
### 4. Now, write the python code to start instance and stop instance in your local machine where your .pem file is located





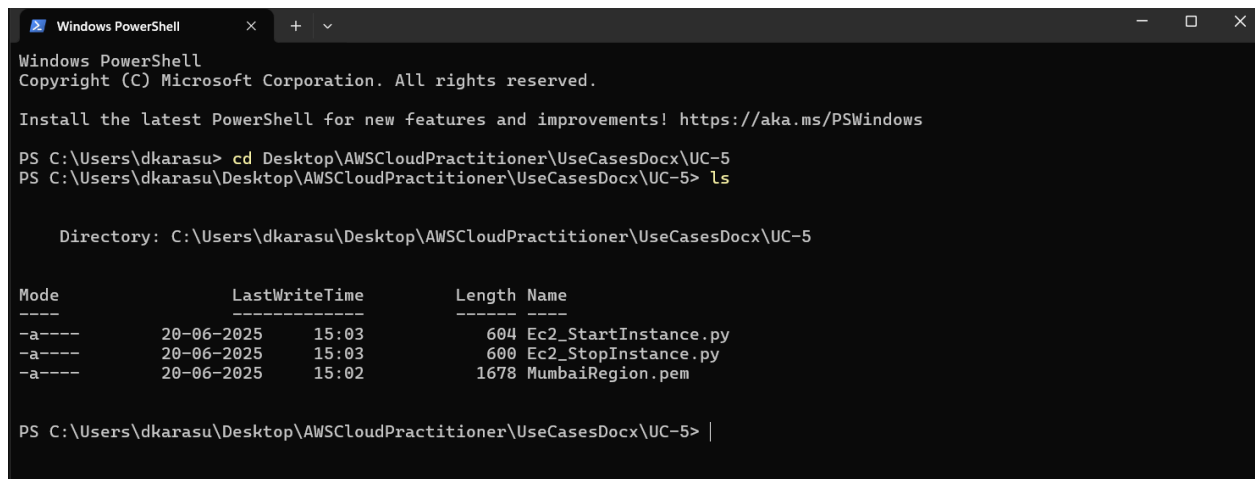
```
1 import boto3
2
3 ec2 = boto3.client('ec2', region_name='ap-south-1')
4
5 instance_id = 'i-08e8320dfe9223ff2'
6
7 def stop_instance(instance_id):
8     print(f"Stopping instance {instance_id}...")
9     ec2.stop_instances(InstanceIds=[instance_id])
10    print("Stop request sent.")
11
12 def get_instance_status(instance_id):
13    response = ec2.describe_instances(InstanceIds=[instance_id])
14    state = response['Reservations'][0]['Instances'][0]['State']['Name']
15    print(f"Instance {instance_id} is currently: {state}")
16    return state
17
18 get_instance_status(instance_id)
19 stop_instance(instance_id)
20
```

5. Lets stop the instance and try starting it with out python file using AWS CLI



Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability
MyInstance1	i-08e8320dfe9223ff2	Stopping	t2.micro	-	View alarms +	ap-south

6. Open windows powershell and navigate to where your .pem file is located



```
Windows PowerShell
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Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\dkarasu> cd Desktop\AWSCloudPractitioner\UseCasesDocx\UC-5
PS C:\Users\dkarasu\Desktop\AWSCloudPractitioner\UseCasesDocx\UC-5> ls

Directory: C:\Users\dkarasu\Desktop\AWSCloudPractitioner\UseCasesDocx\UC-5

Mode                LastWriteTime         Length Name
----                -
-a----           20-06-2025   15:03           604 Ec2_StartInstance.py
-a----           20-06-2025   15:03           600 Ec2_StopInstance.py
-a----           20-06-2025   15:02          1678 MumbaiRegion.pem

PS C:\Users\dkarasu\Desktop\AWSCloudPractitioner\UseCasesDocx\UC-5> |
```

7. Run StartInstance python file that we have created earlier as below

```

Windows PowerShell
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Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\dkarasu> cd Desktop\AWScloudPractitioner\UseCasesDocx\UC-5
PS C:\Users\dkarasu\Desktop\AWScloudPractitioner\UseCasesDocx\UC-5> ls

Directory: C:\Users\dkarasu\Desktop\AWScloudPractitioner\UseCasesDocx\UC-5


Mode                LastWriteTime         Length Name
----                -
-a----             20-06-2025      15:03           604 Ec2_StartInstance.py
-a----             20-06-2025      15:03           600 Ec2_StopInstance.py
-a----             20-06-2025      15:02          1678 MumbaiRegion.pem

PS C:\Users\dkarasu\Desktop\AWScloudPractitioner\UseCasesDocx\UC-5> python .\Ec2_StartInstance.py
Instance i-08e8320dfe9223ff2 is currently: stopped
Starting instance i-08e8320dfe9223ff2...
Start request sent.
PS C:\Users\dkarasu\Desktop\AWScloudPractitioner\UseCasesDocx\UC-5> |

```

8. The instance starts automatically, check in aws console

Instances (1/1) [Info](#)

All states ▾

<input checked="" type="checkbox"/>	Name <a href="#">↗</a> ▾	Instance ID	Instance state ▾	Instance type ▾	Status check	Alarm
<input checked="" type="checkbox"/>	MyInstance1	i-08e8320dfe9223ff2	<span>✔ Running</span> <a href="#">🔍</a> <a href="#">🔍</a>	t2.micro	<span>🕒</span> Initializing	<a href="#">View</a>

- To stop the instance we have to do it in SSH where we do not have the StopInstance python file, for that we need to copy it from our local machine

10. Safe Copy the file using SCP command as below

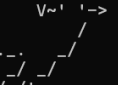
```

PS C:\Users\dkarasu\Desktop\AWSCloudPractitioner\UseCasesDocx\UC-5> scp -i .\MumbaiRegion.pem .\Ec2_StopInstance.py ec2-user@3.110.119.6
1 file(s) copied.
PS C:\Users\dkarasu\Desktop\AWSCloudPractitioner\UseCasesDocx\UC-5> |

```

## 11. Now, SSH into our EC2 instance

```
PS C:\Users\dkarasu\Desktop\AWSCloudPractitioner\UserCasesDocx\UC-5> ssh -i .\MumbaiRegion.pem ec2-user@3.110.119.6
The authenticity of host '3.110.119.6 (3.110.119.6)' can't be established.
ED25519 key fingerprint is SHA256:mxdqjZntoF1qqHeuOKe5UOlfYawNz76Lf9VRGRZzo.
This host key is known by the following other names/addresses:
C:\Users\dkarasu/.ssh/known_hosts:9: 3.111.32.60
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '3.110.119.6' (ED25519) to the list of known hosts.
```



```
#_
I _ ##### Amazon Linux 2023
NN \##### 
NN \###|
NN \|#/ --- https://aws.amazon.com/linux/amazon-linux-2023
    V_-' -->
      /-
     /--
    /--
   /---
  /----
 /-----
/m/'
```

Last login: Fri Jun 20 09:55:43 2025 from 103.183.203.20  
[ec2-user@ip-172-31-0-232 ~]\$

## 12. Run the stop instance python file in the CLI

```
[ec2-user@ip-172-31-0-232 ~]$ ls
Ec2_StartInstance.py  Ec2_StopInstance.py
[ec2-user@ip-172-31-0-232 ~]$ python3
.cache/               .local/               .ssh/                  Ec2_StartInstance.py  Ec2_StopInstance.py
[ec2-user@ip-172-31-0-232 ~]$ python3 Ec2_StopInstance.py
Instance i-08e8320dfe9223ff2 is currently: running
Stopping instance i-08e8320dfe9223ff2...
Stop request sent.
[ec2-user@ip-172-31-0-232 ~]$
Broadcast message from root@ip-172-31-0-232.ap-south-1.compute.internal (Fri 2025-06-20 10:18:04 UTC):

The system will power off now!

Connection to 3.110.119.6 closed by remote host.
Connection to 3.110.119.6 closed.
PS C:\Users\dkarasu\Desktop\AWSCloudPractitioner\UseCasesDocx\UC-5> |
```

Instances (1/1) [Info](#) Last updated less than a minute ago

All states ▾

<input checked="" type="checkbox"/>	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4
<input checked="" type="checkbox"/>	MyInstance1	i-08e8320dfe9223ff2	Stopped	t2.micro	-	<a href="#">View alarms +</a>	ap-south-1b	-

## 13. The instance has been stopped

### Key Takeaways :

We can directly start or stop instances from AWS CLI without using python by running the following command

For single instance :

```
aws ec2 start-instances --instance-ids Your Instance ID --region Region Code
aws ec2 stop-instances --instance-ids Your Instance ID --region Region Code
```

For multiple instances :

```
aws ec2 start-instances \
  --instance-ids instanceid1 instanceid2 instanceid3 \
  --region region-code

aws ec2 stop-instances \
  --instance-ids instanceid1 instanceid2 instanceid3 \
  --region region-code
```