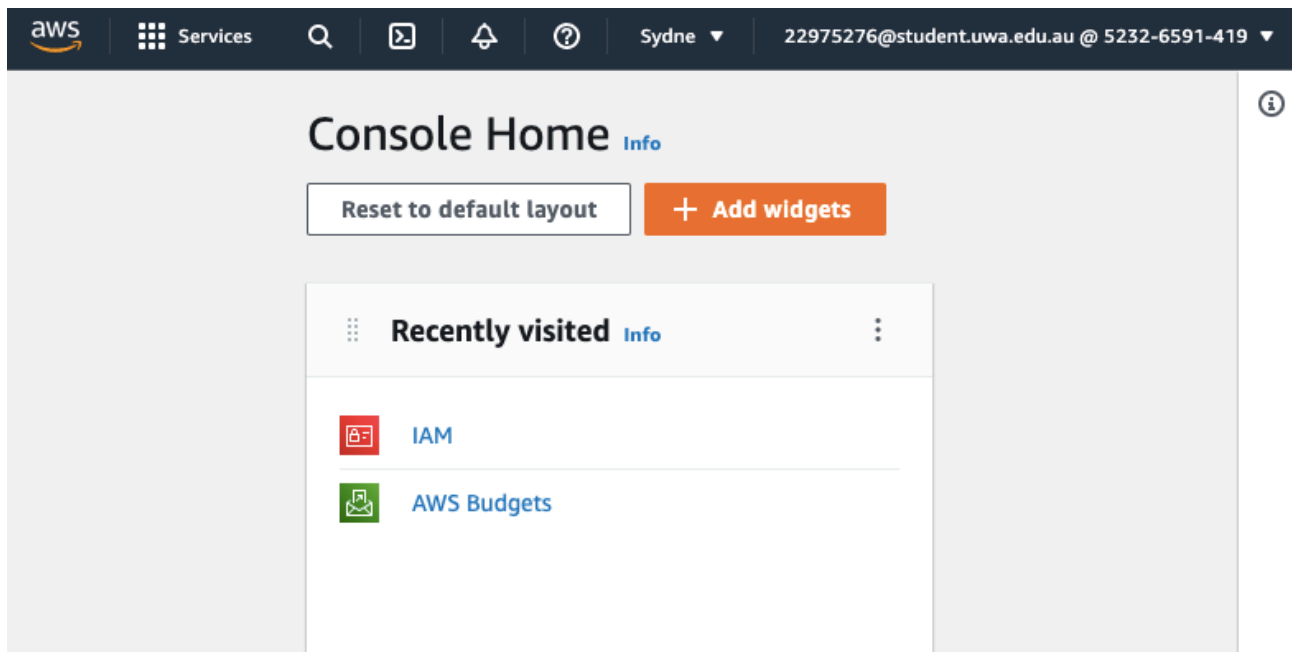


1. Register for an AWS account and explore the user interface



## 2. Obtain API keys and secret

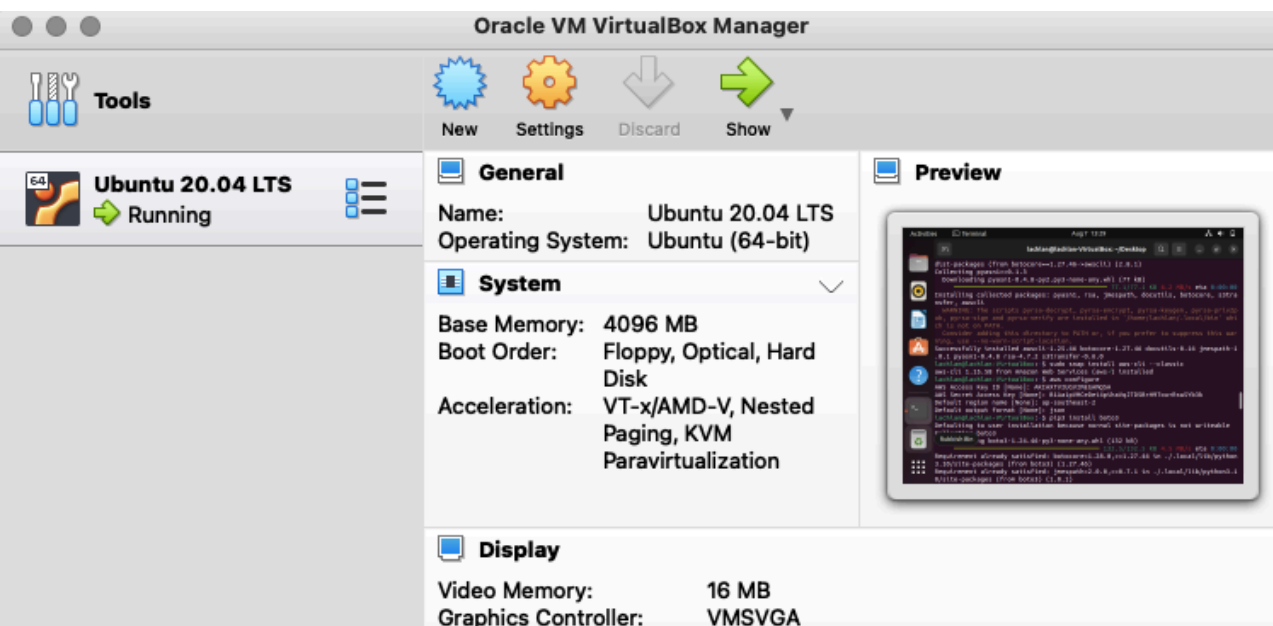
**Access key ID**

AKIAXTVIUGVIEVF3MPNV 

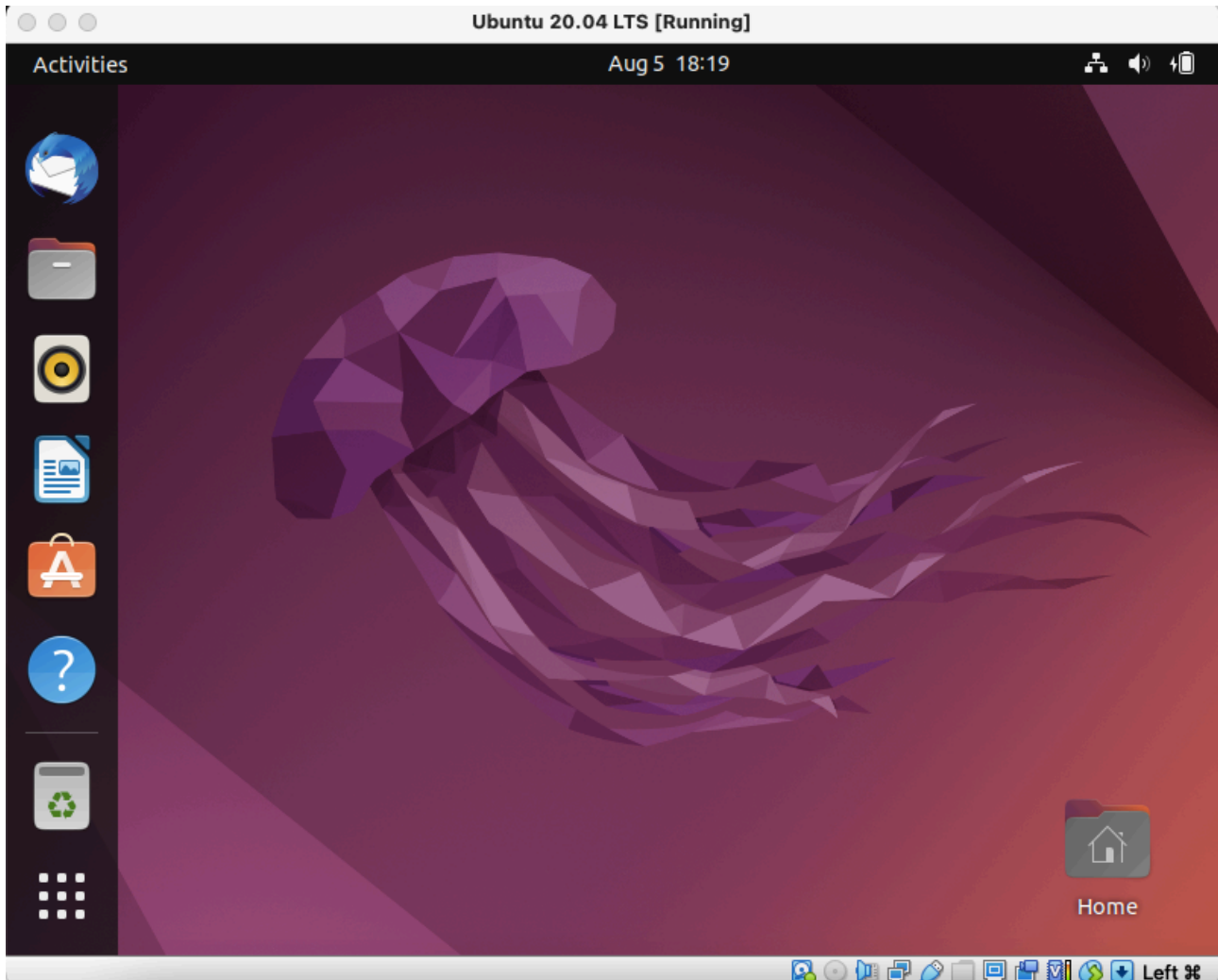
**Secret access key**

[Show secret access key](#)

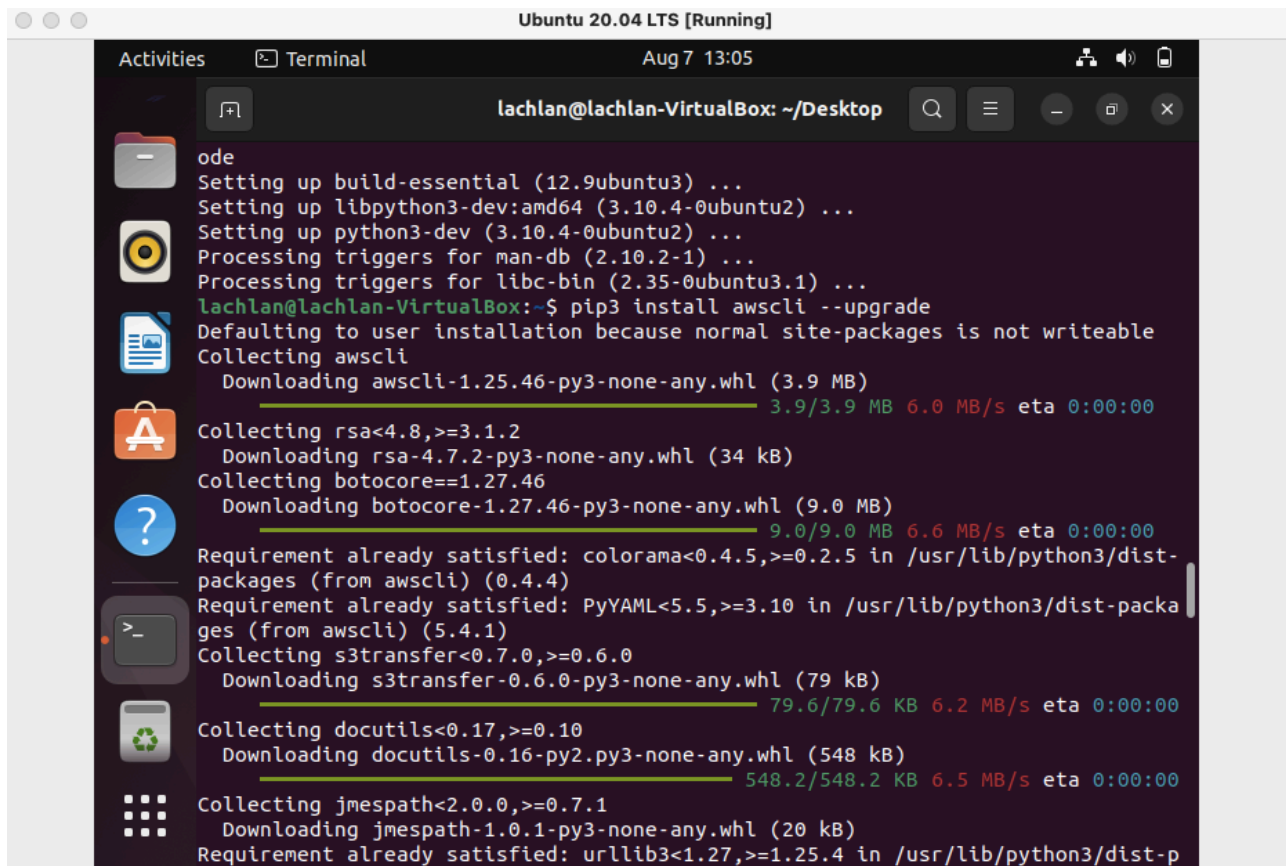
### 3. Install VirtualBox and an Ubuntu 20.04 LTS VM



#### 4. On the Ubuntu 20.04 LTS instance



## 5. Install AWS CLI on VM



The screenshot shows a terminal window titled "Ubuntu 20.04 LTS [Running]" with a timestamp of "Aug 7 13:05". The terminal is running the command `pip3 install awscli --upgrade`. The output shows the installation progress for various dependencies and the main `awscli` package. The terminal window has a sidebar with icons for Activities, Terminal, and a file manager. The terminal text is as follows:

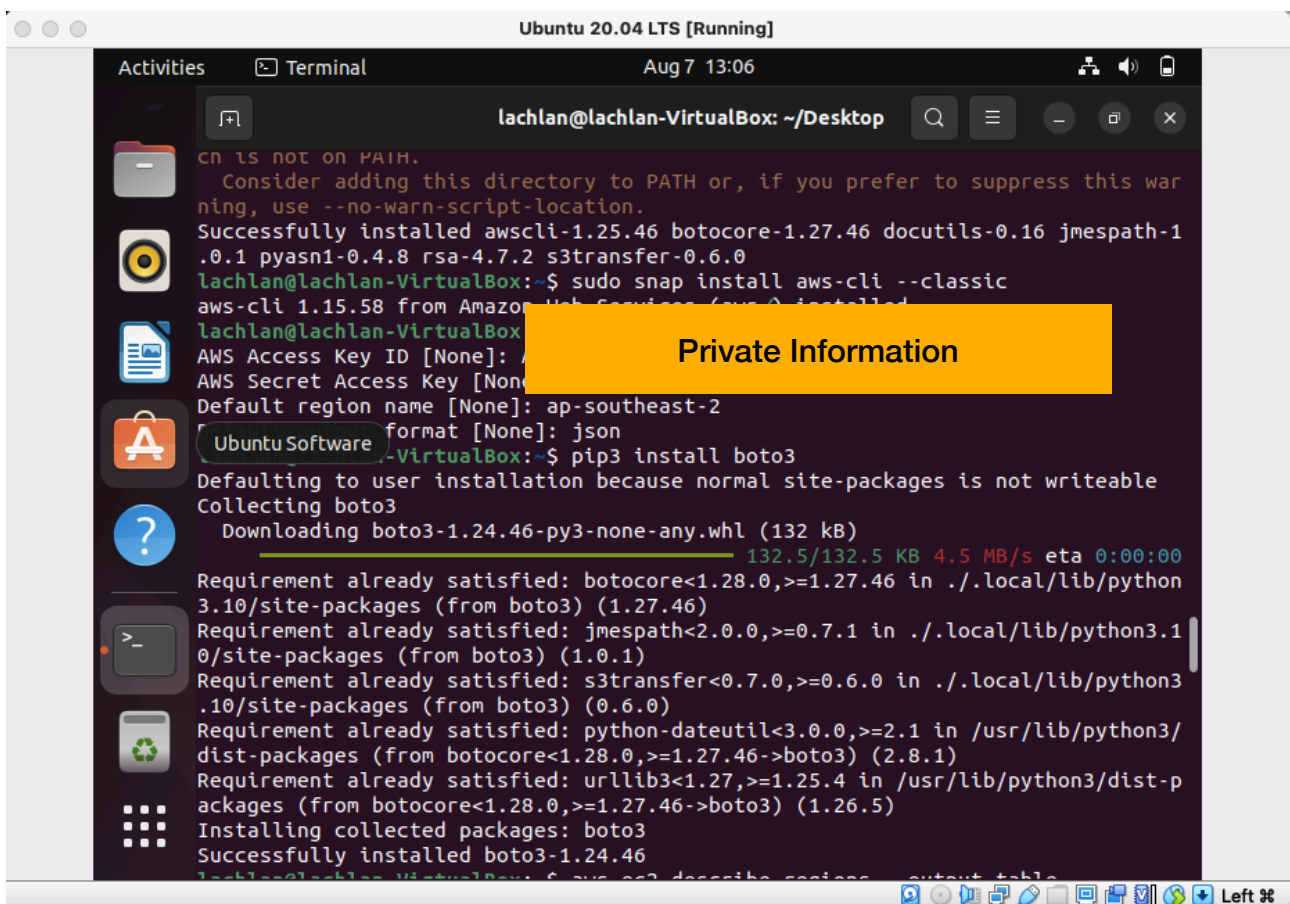
```
ode
Setting up build-essential (12.9ubuntu3) ...
Setting up libpython3-dev:amd64 (3.10.4-0ubuntu2) ...
Setting up python3-dev (3.10.4-0ubuntu2) ...
Processing triggers for man-db (2.10.2-1) ...
Processing triggers for libc-bin (2.35-0ubuntu3.1) ...
lachlan@lachlan-VirtualBox:~$ pip3 install awscli --upgrade
Defaulting to user installation because normal site-packages is not writeable
Collecting awscli
  Downloading awscli-1.25.46-py3-none-any.whl (3.9 MB)
    3.9/3.9 MB 6.0 MB/s eta 0:00:00
Collecting rsa<4.8,>=3.1.2
  Downloading rsa-4.7.2-py3-none-any.whl (34 kB)
Collecting botocore==1.27.46
  Downloading botocore-1.27.46-py3-none-any.whl (9.0 MB)
    9.0/9.0 MB 6.6 MB/s eta 0:00:00
Requirement already satisfied: colorama<0.4.5,>=0.2.5 in /usr/lib/python3/dist-packages (from awscli) (0.4.4)
Requirement already satisfied: PyYAML<5.5,>=3.10 in /usr/lib/python3/dist-packages (from awscli) (5.4.1)
Collecting s3transfer<0.7.0,>=0.6.0
  Downloading s3transfer-0.6.0-py3-none-any.whl (79 kB)
    79.6/79.6 KB 6.2 MB/s eta 0:00:00
Collecting docutils<0.17,>=0.10
  Downloading docutils-0.16-py2.py3-none-any.whl (548 kB)
    548.2/548.2 KB 6.5 MB/s eta 0:00:00
Collecting jmespath<2.0.0,>=0.7.1
  Downloading jmespath-1.0.1-py3-none-any.whl (20 kB)
Requirement already satisfied: urllib3<1.27,>=1.25.4 in /usr/lib/python3/dist-p
```

## 6. Install a virtual environment with Python 3.6

```
lachlan@lachlan-VirtualBox:~$ sudo apt -y upgrade
[sudo] password for lachlan:
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Calculating upgrade... Done
The following packages have been kept back:
  python3-distupgrade ubuntu-release-upgrader-core
  ubuntu-release-upgrader-gtk
0 to upgrade, 0 to newly install, 0 to remove and 3 not to upgrade.
lachlan@lachlan-VirtualBox:~$ sudo apt install -y python3-pip
```

```
lachlan@lachlan-VirtualBox:~$ sudo snap install aws-cli --classic
aws-cli 1.15.58 from Amazon Web Services (aws✓) installed
```

## 7. Configure the AWSCLI environment with API details and default region



The screenshot shows a terminal window titled "Ubuntu 20.04 LTS [Running]" with the date and time "Aug 7 13:06". The user is logged in as "lachlan" at "lachlan-VirtualBox" and is in the directory "~/Desktop". The terminal output shows the following commands and their results:

```
lachlan@lachlan-VirtualBox: ~/Desktop
$ sudo snap install awscli --classic
Successfully installed awscli-1.25.46 botocore-1.27.46 docutils-0.16 jmespath-1.0.1 pyasn1-0.4.8 rsa-4.7.2 s3transfer-0.6.0
$ sudo snap install awscli --classic
awscli 1.15.58 from Amazon Web Services (aws) installed
$ aws configure
AWS Access Key ID [None]: 
AWS Secret Access Key [None]: 
Default region name [None]: ap-southeast-2
Default output format [None]: json
$ pip3 install boto3
Defaulting to user installation because normal site-packages is not writeable
Collecting boto3
  Downloading boto3-1.24.46-py3-none-any.whl (132 kB)
    132.5/132.5 KB 4.5 MB/s eta 0:00:00
Requirement already satisfied: botocore<1.28.0,>=1.27.46 in ~/.local/lib/python3.10/site-packages (from boto3) (1.27.46)
Requirement already satisfied: jmespath<2.0.0,>=0.7.1 in ~/.local/lib/python3.10/site-packages (from boto3) (1.0.1)
Requirement already satisfied: s3transfer<0.7.0,>=0.6.0 in ~/.local/lib/python3.10/site-packages (from boto3) (0.6.0)
Requirement already satisfied: python-dateutil<3.0.0,>=2.1 in /usr/lib/python3/dist-packages (from botocore<1.28.0,>=1.27.46->boto3) (2.8.1)
Requirement already satisfied: urllib3<1.27,>=1.25.4 in /usr/lib/python3/dist-packages (from botocore<1.28.0,>=1.27.46->boto3) (1.26.5)
Installing collected packages: boto3
Successfully installed boto3-1.24.46
```

A yellow rectangular box with the text "Private Information" is overlaid on the terminal output, specifically covering the AWS Access Key ID and AWS Secret Access Key fields.

8. Verify awscli is working and write a python boto script to emulate a awscli command

```
lachlan@lachlan-VirtualBox:~$ python3
Python 3.10.4 (main, Jun 29 2022, 12:14:53) [GCC 11.2.0] on linux
Type "help", "copyright", "credits" or "license" for more information.
```

### Syntax Errors

```
>>> import boto3
>>> ec2 = boto3.client('ec2')
>>> response = ec2.describe_regions()
>>> print(response)
{'Regions': [{'Endpoint': 'ec2.eu-north-1.amazonaws.com', 'RegionName': 'eu-nor
th-1', 'OptInStatus': 'opt-in-not-required'}, {'Endpoint': 'ec2.ap-south-1.amaz
onaws.com', 'RegionName': 'ap-south-1', 'OptInStatus': 'opt-in-not-required'},
{'Endpoint': 'ec2.eu-west-3.amazonaws.com', 'RegionName': 'eu-west-3', 'OptInSt
atus': 'opt-in-not-required'}, {'Endpoint': 'ec2.eu-west-2.amazonaws.com', 'Reg
ionName': 'eu-west-2', 'OptInStatus': 'opt-in-not-required'}, {'Endpoint': 'ec2
.eu-west-1.amazonaws.com', 'RegionName': 'eu-west-1', 'OptInStatus': 'opt-in-no
t-required'}, {'Endpoint': 'ec2.ap-northeast-3.amazonaws.com', 'RegionName': 'a
p-northeast-3', 'OptInStatus': 'opt-in-not-required'}, {'Endpoint': 'ec2.ap-nor
theast-2.amazonaws.com', 'RegionName': 'ap-northeast-2', 'OptInStatus': 'opt-in
-not-required'}, {'Endpoint': 'ec2.ap-northeast-1.amazonaws.com', 'RegionName':
'ap-northeast-1', 'OptInStatus': 'opt-in-not-required'}, {'Endpoint': 'ec2.sa-
east-1.amazonaws.com', 'RegionName': 'sa-east-1', 'OptInStatus': 'opt-in-not-re
quired'}, {'Endpoint': 'ec2.sa-central-1.amazonaws.com', 'RegionName': 'sa-cent
```