AWS EC2 INSTALLATION FOR ALGO TRADING

With TA-Lib

Indi Algo

https://twitter.com/indialgo https://t.me/IndiAlgo

Contents

Launching the EC2 Instance

Step 1: Logon to https://console.aws.amazon.com

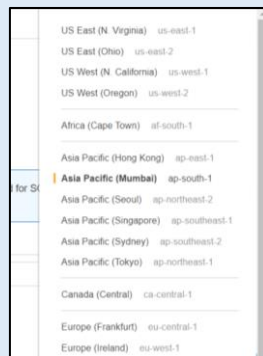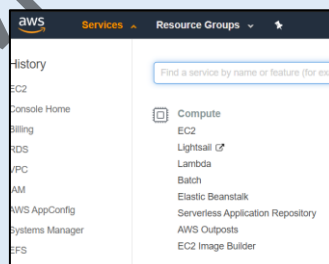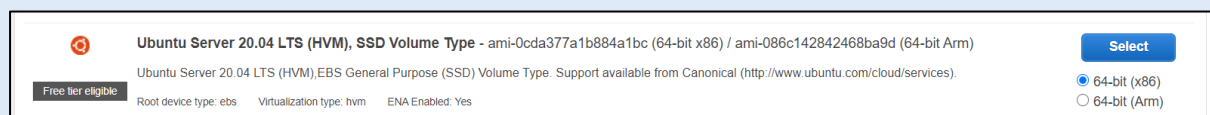Step2: Change your region to Mumbai

Figure 1 Change region in AWS console

Step 3: Click on services > EC2

Step 4: Click on Launch Instance (Launch is creating in AWS terminology)

Step 5: Select below OS AMI as below

Step 6: Select free tier eligible or choose as your plan.

Step 2: Choose an Instance Type
Amazon EC2 provides a wide selection of instance types optimized to fit different use cases. Instances are virtual servers that can run applications. They have varying combinations of CPU, memory, storage, and networking capacity, and give you the flexibility to choose the appropriate mix of resources for your applications. Learn more about instance types and how they can meet your computing needs.

Filter by: All instance types | Current generation | Show/Hide Columns

Currently selected: t2.micro (Variable ECUs, 1 vCPUs, 2.5 GHz, Intel Xeon Family, 1 GiB memory, EBS only)

	Family	Type	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance	IPv6 Support
☐	General purpose	t2.nano	1	0.5	EBS only	-	Low to Moderate	Yes
☑	General purpose	t2.micro _Free tier eligible_	1	1	EBS only	-	Low to Moderate	Yes

Step 7:
1. Configure Instance: don't change anything and proceed.
2. Add Storage: Size : 30 GB (by default it shows 8gb change it to 30GB)
3. Add Tags: can be skipped
4. Configure security Group : This is important keep as below snap only.
   Source should be Anywhere. I struggled a lot to set this without knowing.
   Problem was I was not able to login inside the server

5. Now here click on Review and Launch and after full summary is done click on Launch.
6. Saving Key pair is must otherwise forget VM logging inside
7. This completes the EC2 creation part.
8. You should be able to see below
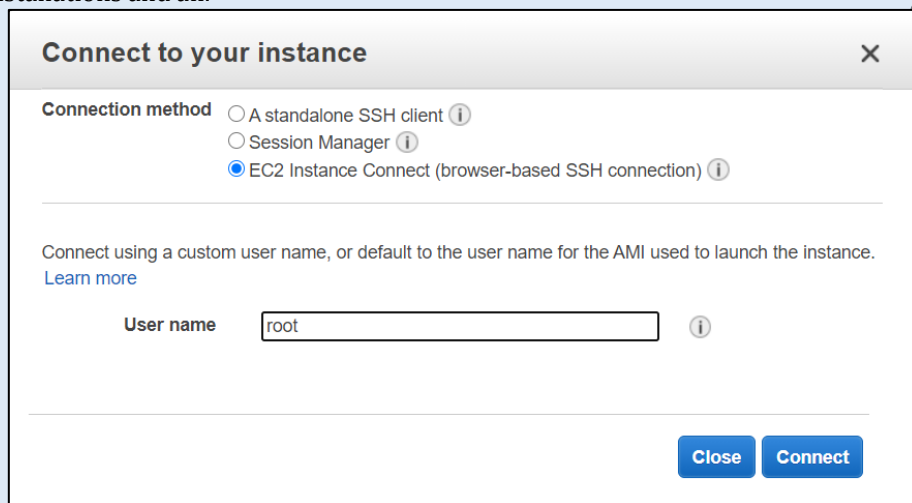
Step 8: You should be able to see your instance is running with green icon

Step 9: By selecting your VM click on Connect as shown in image.

Step 10: Here I've chosen browser based SSH to login. Make sure username to be <u>root</u> as we need to be root to do installations and all.

Connect to your instance ✕

Connection method
◯ A standalone SSH client ⓘ
◯ Session Manager ⓘ
⦿ EC2 Instance Connect (browser-based SSH connection) ⓘ

Connect using a custom user name, or default to the user name for the AMI used to launch the instance.
Learn more

User name | root | ⓘ

[Close] [Connect]

Step 11: If all steps above followed as mentioned you should see below image

```
 ap-south-1.           n.com/ec2/v2/connect/root/i-03
Welcome to Ubuntu 20.04.1 LTS (GNU/Linux 5.4.0-1024-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage

  System information as of Thu Sep 17 13:00:22 UTC 2020

  System load:  0.0               Processes:             99
  Usage of /:   16.6% of 7.69GB   Users logged in:       0
  Memory usage: 20%               IPv4 address for eth..
  Swap usage:   0%

1 update can be installed immediately.
0 of these updates are security updates.
To see these additional updates run: apt list --upgradable


The list of available updates is more than a week old.
To check for new updates run: sudo apt update


The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

root@ip-17
```

Installation of necessary tools

Step 12: System necessary development tools
Run below scripts in console window
```
sudo apt-get update
sudo apt-get install build-essential -y
sudo apt-get install gcc libpq-dev -y
sudo apt-get install python3-dev  python3-pip -y
sudo apt-get install python3-dev python3-pip python3-venv python3-wheel -y
pip3 install wheel
```

Above steps completes the system specific installations only
Step 13: Installation Confirmation
Check python version by typing below
```
python3 --version
```
You should get version below. I've python 3.8 in my case.

Step 14: Create python virtual env
Here I had algoenv as my environment name you name as you like in second line. And so will apply everywhere henceforth.
```
sudo apt install python3-venv -y
python3 -m venv algoenv
```

```
source algoenv/bin/activate
```

You should see below window so far till here
notice: algoenv in braces in left. This confirms you've activated the virtual environment.
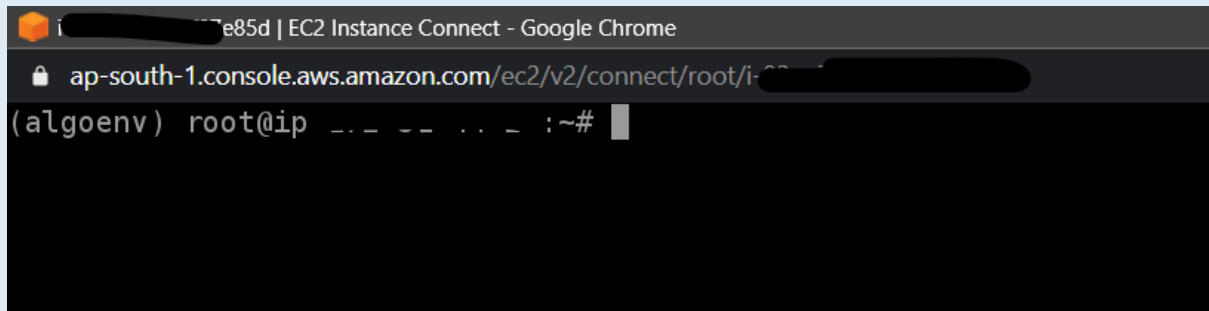
Step 13: Now here comes the place where we would install TA-Lib
Run below lines step-by-step
Stage 1
```
wget http://prdownloads.sourceforge.net/ta-lib/ta-lib-0.4.0-src.tar.gz
tar -xzf ta-lib-0.4.0-src.tar.gz
cd ta-lib/
#install
sudo ./configure
sudo make
sudo make install
```

Stage 2
```
pip install numpy pandas
export LD_LIBRARY_PATH=/usr/local/lib:$LD_LIBRARY_PATH
pip install ta-lib
```
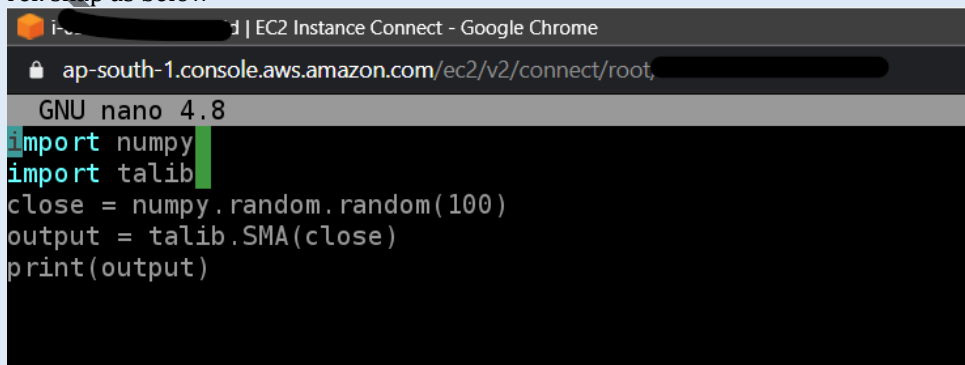
This completes the successful installation of TA-Lib

No similar to backtest we'll test installation was successful or not. 😊

Step 14: type `nano sample.py` and paste below code

```
import numpy
import talib
close = numpy.random.random(100)
output = talib.SMA(close)
print(output)
```

ref. snap as below

Press Ctrl X and Y and it saves it.

Step 15: run below line to see the output if all goes well. You'll see the output below 🚀🚀

Setting the Time zone

Setting the time zone to India is MUST. This saves your time a lot in conversion

When you type `date`

If you getting as below in IST Format then fine.

If NOT then follow steps as below

Run

`sudo dpkg-reconfigure tzdata`

once running, follow as per below snaps

1. Asia
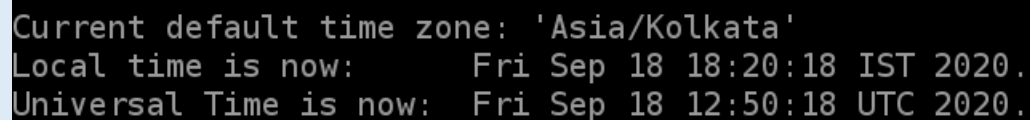
```
Africa
America
Antarctica
Australia
Arctic Ocean
Asia
Atlantic Ocean
Europe
Indian Ocean
Pacific Ocean
System V timezones
US
None of the above
```

2. Kolkata

```
Hovd
Irkutsk
Istanbul
Jakarta
Jayapura
Jerusalem
Kabul
Kamchatka
Karachi
Kashgar
Katmandu
Khandyga
Kolkata
Krasnoyarsk
Kuala Lumpur
Kuching
Kuwait
Macau
Magadan
Makassar
Manila
```

Once done you should see as below in console window.

```
Current default time zone: 'Asia/Kolkata'
Local time is now:      Fri Sep 18 18:20:18 IST 2020.
Universal Time is now:  Fri Sep 18 12:50:18 UTC 2020.
```

to re-check if it's not coming as above start from start again follow closely steps.

Scheduling your python scripts/files using CRONTAB

This was the reason we went to Cloud 😊 right? where we could automate to run continuously/scheduled tasks without any hindrances and manual intervention.

So now time has come to AUTOMATE it.

Follow below steps to schedule your first script. In this example I follow the file I've created.

I've used mono editor in my case for editing cron file

Step 1: If you want to choose editor of your choice type below script to do so.

```
select-editor

Select an editor.  To change later, run 'select-editor'.
  1. /bin/nano        <---- easiest
  2. /usr/bin/vim.basic
  3. /usr/bin/vim.tiny
  4. /bin/ed

Choose 1-4 [1]: █
```

Type 1 and press enter

And your default editor is now saved as mono. If you wish to change it follow step1 again.

Step 2: Editing the cronjob file and scheduling it.

Type `crontab -e` and schedule your job and shown below for hello.py

Press Ctrl X and Y and it saves it.

```
# email to the user the crontab file belongs to (unless redi
#
# For example, you can run a backup of all your user account
# at 5 a.m every week with:
# 0 5 * * 1 tar -zcf /var/backups/home.tgz /home/
#
# For more information see the manual pages of crontab(5) an
#
# m h  dom mon dow   command
* * * * * env/bin/python3 /hello.py >> resp.log



^G Get Help      ^O Write Out     ^W Where Is     ^K Cut Te
^X Exit          ^R Read File     ^\ Replace      ^U Paste
```

References:

- https://linuxize.com/post/how-to-create-python-virtual-environments-on-ubuntu-18-04/
- https://sachsenhofer.io/install-ta-lib-ubuntu-server/
- https://stackoverflow.com/questions/34819221/why-is-python-setup-py-saying-invalid-command-bdist-wheel-on-travis-ci
- https://mrjbq7.github.io/ta-lib/func.html
- https://stackoverflow.com/questions/45406361/importerror-libta-lib-so-0-cannot-open-shared-object-file-no-such-file-or-dir
- https://github.com/freqtrade/freqtrade/issues/1676
- https://www.cumulations.com/blogs/37/How-to-write-Cron-jobs-on-Amazon-Web-ServicesAWS-EC2-server
- https://stackoverflow.com/questions/15470016/how-to-write-cron-job-in-aws-ec2-server