Starting and Provisioning an EC2 Instance

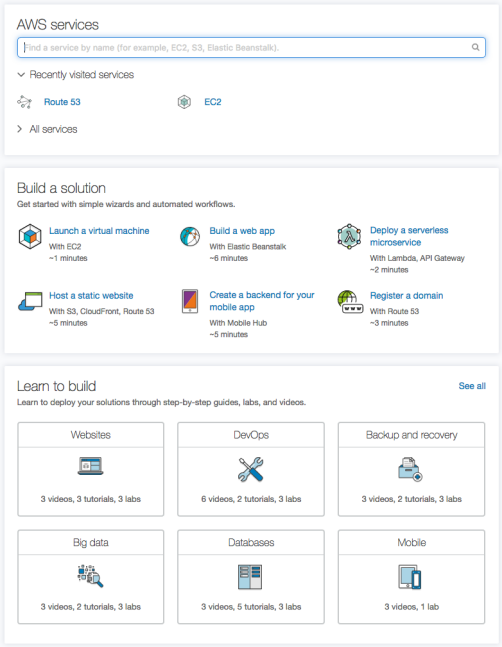
Aim

This course will be taught using Jupyter [1] notebooks hosted on an Amazon Web Services (AWS) Elastic Cloud Compute (EC2) instance. The aim of these instructions is to: Start an EC2 instance with the correct access permissions and use the key provided to log in, run some pre-defined scripts to provision the EC2 instance with Anaconda Python [2] and the tools required for the course and, finally, to start the Jupyer notebook server and connect to it using a web browser.

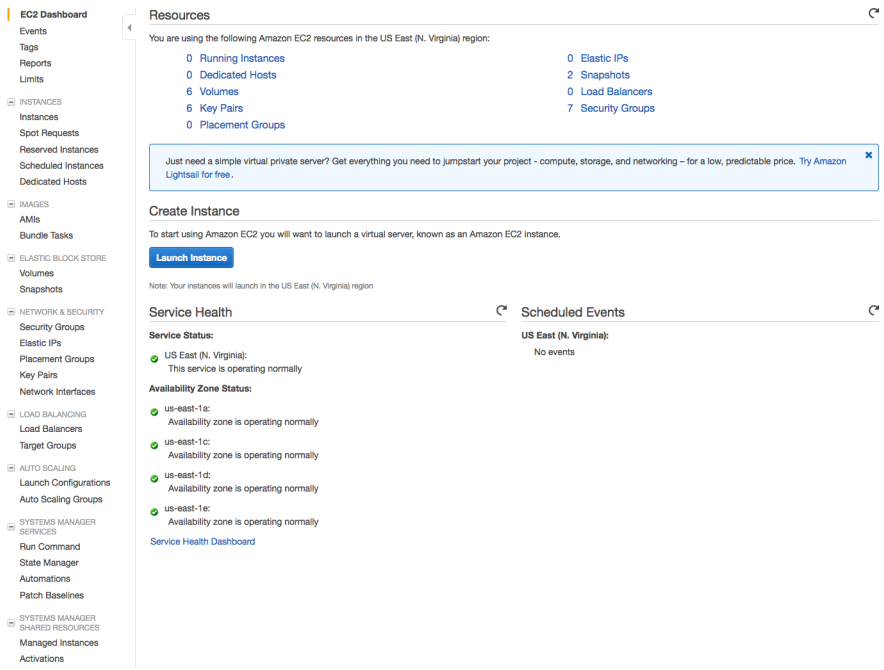
First: Stanting an EC2 instance

1. Point your browser at https://aws.amazon.com/ and click "sign into the console" in the top right hand corner.

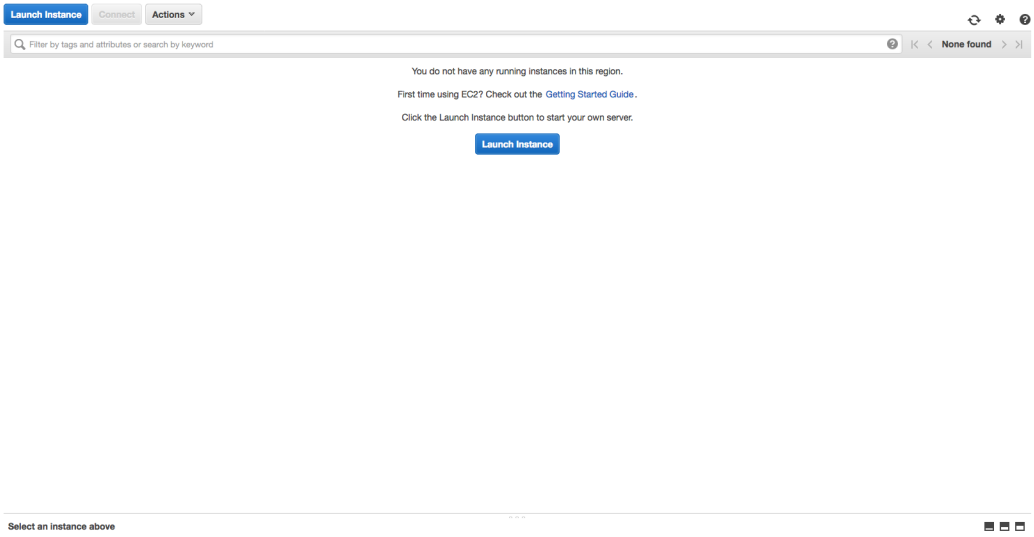
2) Log in with the credentials you generated using the pre-course instructions, once authenticated this will take you to the console which will look *similar* to this:



3) Type "ec2" into the text box under "AWS services" and click the first option in the drop down box. This will land you on a page that looks similar to this (of course you will not have existing snapshots etc...):

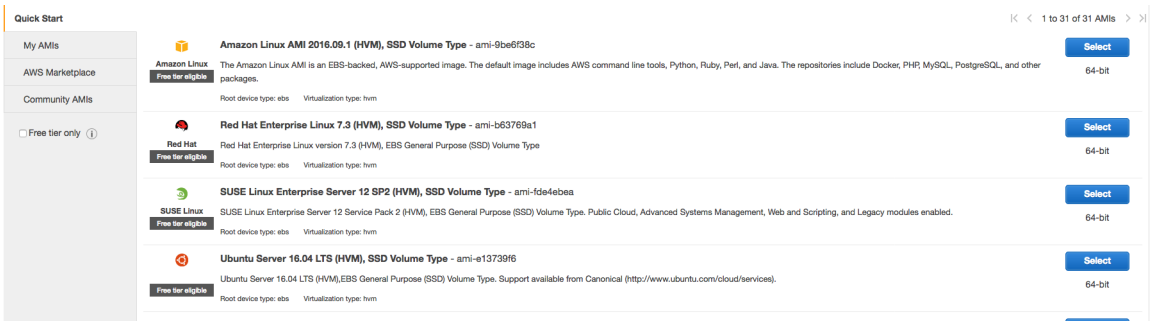


3. If it is not expanded out already (ie there is a "+" sign) click on "Instances" and in the menu below it click on "Instances" and you will be greeted by this screen:



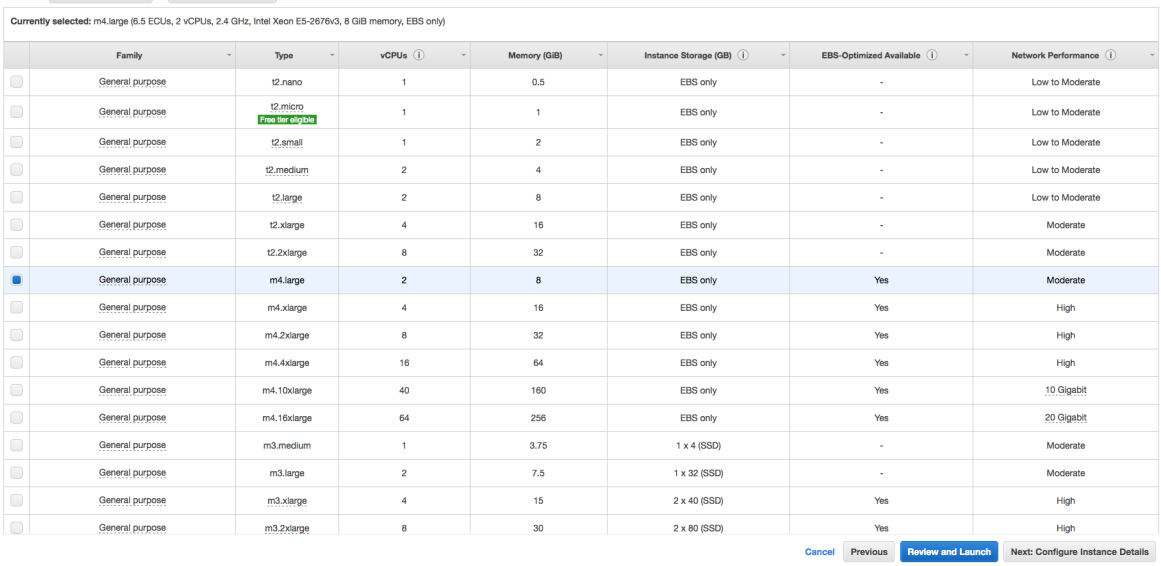
You can now click on "Launch Instance" on either blue and white button.

4. You will be greeted by a page that looks like this:



click select next to the "Ubuntu Server 16.04 LTS (HVM), SSD Volume Type" option. The next page asks you to click a radio button next to the "size" of the machine you want to start. **While you are**

experimenting use "t2.micro" which gives you a 1GB 1CPU EC2 instance. **For the course** 1GB will not cut it, select "m4.large". The on demand pricing [3] is 10.8 cents an hour.



Currently selected: m4.large (6.5 ECUs, 2 vCPUs, 2.4 GHz, Intel Xeon E5-2676v3, 8 GiB memory, EBS only)

	Family	Type	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance
☐	General purpose	t2.nano	1	0.5	EBS only	-	Low to Moderate
☐	General purpose	t2.micro Free tier eligible	1	1	EBS only	-	Low to Moderate
☐	General purpose	t2.small	1	2	EBS only	-	Low to Moderate
☐	General purpose	t2.medium	2	4	EBS only	-	Low to Moderate
☐	General purpose	t2.large	2	8	EBS only	-	Low to Moderate
☐	General purpose	t2.xlarge	4	16	EBS only	-	Moderate
☐	General purpose	t2.2xlarge	8	32	EBS only	-	Moderate
☑	General purpose	m4.large	2	8	EBS only	Yes	Moderate
☐	General purpose	m4.xlarge	4	16	EBS only	Yes	High
☐	General purpose	m4.2xlarge	8	32	EBS only	Yes	High
☐	General purpose	m4.4xlarge	16	64	EBS only	Yes	High
☐	General purpose	m4.10xlarge	40	160	EBS only	Yes	10 Gigabit
☐	General purpose	m4.16xlarge	64	256	EBS only	Yes	20 Gigabit
☐	General purpose	m3.medium	1	3.75	1 x 4 (SSD)	-	Moderate
☐	General purpose	m3.large	2	7.5	1 x 32 (SSD)	-	Moderate
☐	General purpose	m3.xlarge	4	15	2 x 40 (SSD)	Yes	High
☐	General purpose	m3.2xlarge	8	30	2 x 80 (SSD)	Yes	High

Cancel | Previous | Review and Launch | Next: Configure Instance Details

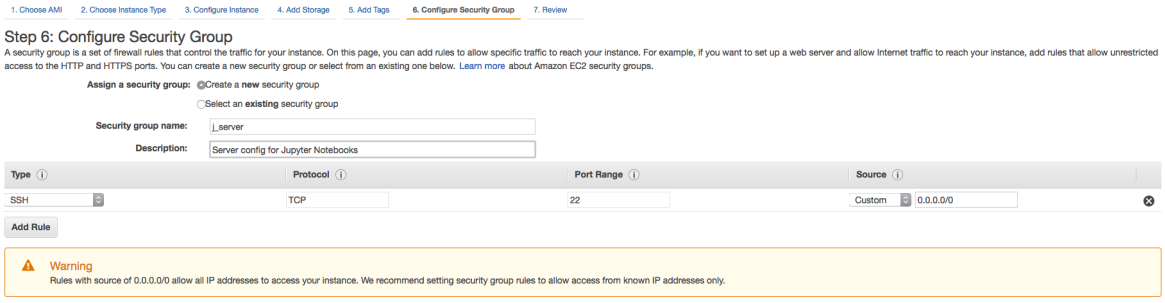
Once your selection has been made click the **gray** button "Next: Configure Instance Details".

5) The next page can be left as all defaults... Click the **gray** button "Next: Add Storage"

6) Again, this can be left as all defaults. Click the **gray** button "Next: Add Tags"

7) *Again*, no need to add tags for the purposes of this course... Once more click the **gray** button "Next: configure Security Group"

8) Now we have work to do! We need to configure our instance to be able to serve the Jupyter notebook via HTTPS on port 8888. You will see a page similar to that below. Make sure "Create a new security group" is checked, later you can select "select and existing group" to save you time! Enter a simple name for the Security group name like "j_sever". Enter something descriptive for the Description.



1. Choose AMI | 2. Choose Instance Type | 3. Configure Instance | 4. Add Storage | 5. Add Tags | 6. Configure Security Group | 7. Review

Step 6: Configure Security Group

A security group is a set of firewall rules that control the traffic for your instance. On this page, you can add rules to allow specific traffic to reach your instance. For example, if you want to set up a web server and allow Internet traffic to reach your instance, add rules that allow unrestricted access to the HTTP and HTTPS ports. You can create a new security group or select from an existing one below. Learn more about Amazon EC2 security groups.

Assign a security group: ◉ Create a **new** security group

○ Select an **existing** security group

Security group name: j_server

Description: Server config for Jupyter Notebooks

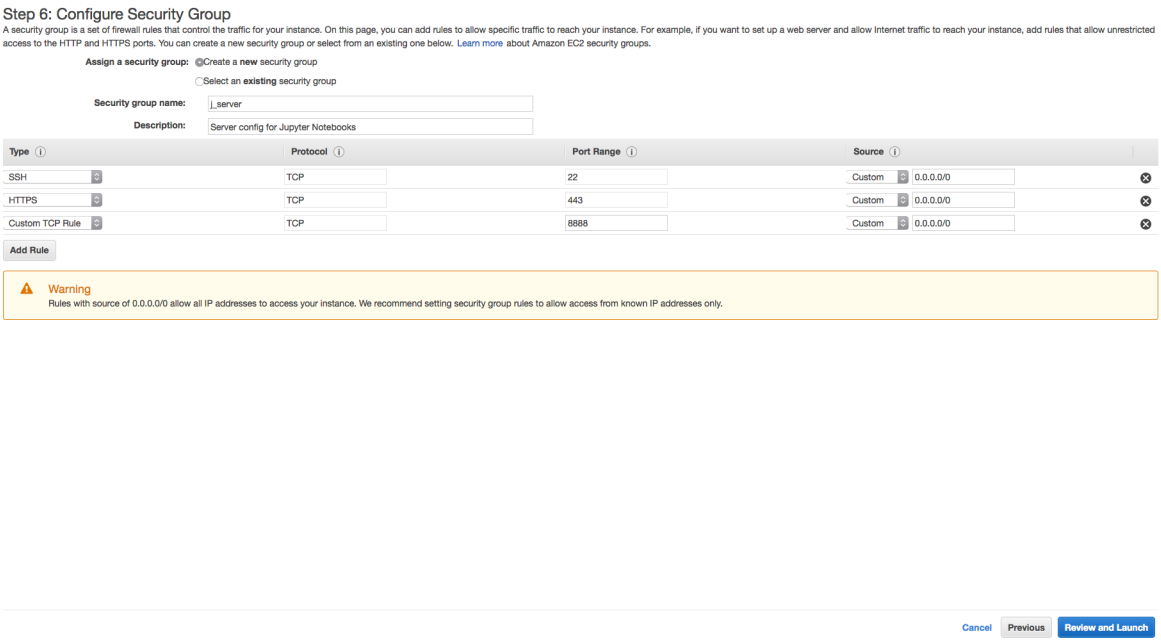
Type	Protocol	Port Range	Source
SSH	TCP	22	Custom 0.0.0.0/0

Add Rule

⚠ Warning

Rules with source of 0.0.0.0/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only.

We need to configure to allow connections from any IP to ports 443 (HTTPS) and 8888 (where Jupyter listens). Click "Add Rule". This will create a new row. On the new row the drop down box on the left will default to "Custom TCP Rule". Click it and select "HTTPS". Then click "Add Rule" again but this time, in the new row leave the drop down on "Custom TCP Rule". In that same, third, row enter "8888" into "Port Range" column and "0.0.0.0/0" in the source column. Once done it should look like this:



Now we can click the **blue** button "Review and Launch".

[1]

[2]

[3] https://aws.amazon.com/ec2/pricing/on-demand/