

AWS(Cloud Computing)

History:

- First service to start is SQS (Amazon Simple Queue Service) -2004
- AWS Officially started in 2006
- AWS started certifications in 2013

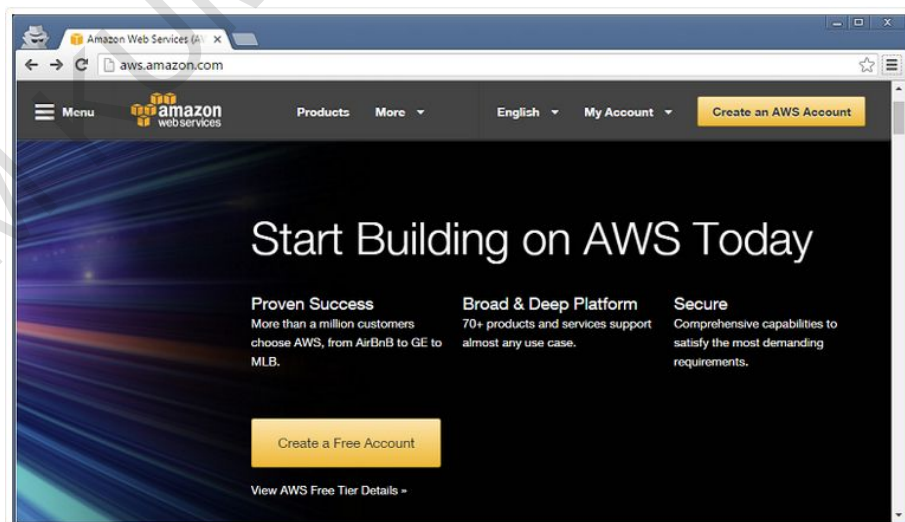
AWS Features :

- Largest public cloud Vendor
- Availability of 99.99 %
- More than 1100 + Services
- Free Tier Account policy
- Pay-Per-User model

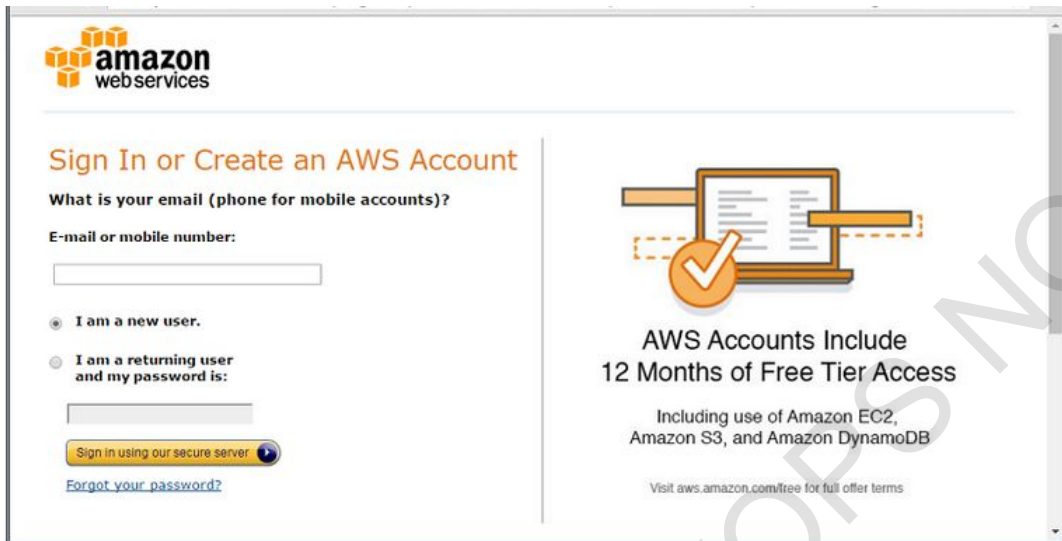
AWS account creation:

Step1: Go to the [Amazon Web Services home page](https://aws.amazon.com). Choose Create an AWS Account.

Note: If you've signed in to AWS recently, the button might say Sign In to the Console.

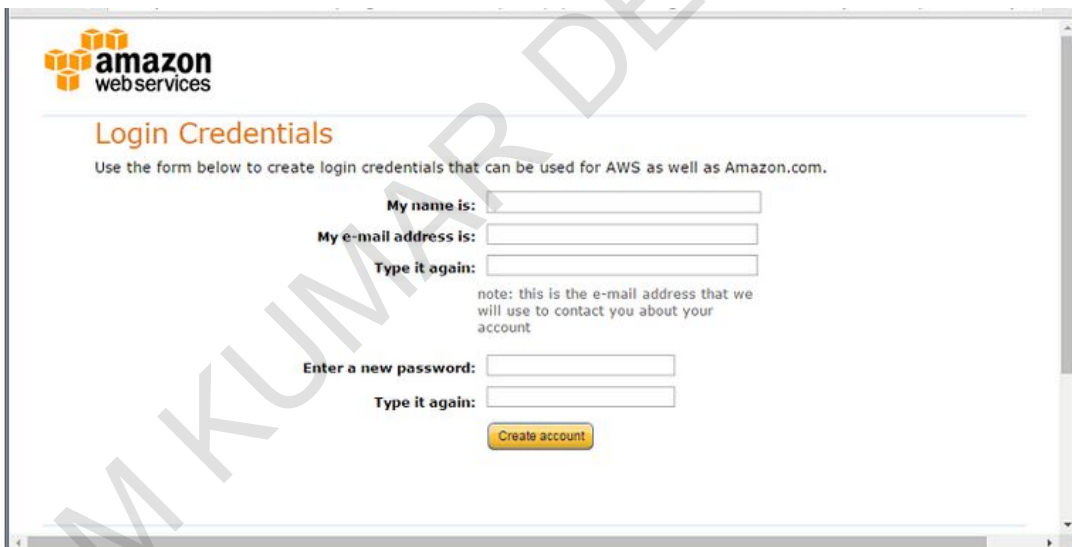


Step 2: Enter your email address. You may use an existing Amazon account (i.e. an account you use for shopping at amazon.com) if you have one or select I am a new user.



The screenshot shows the AWS 'Sign In or Create an AWS Account' page. On the left, there is a form with the heading 'What is your email (phone for mobile accounts)?'. Below this is a text input field labeled 'E-mail or mobile number:'. There are two radio button options: 'I am a new user.' and 'I am a returning user and my password is:'. Below the second option is another text input field. A yellow button labeled 'Sign in using our secure server' and a blue link 'Forgot your password?' are at the bottom of the form. On the right, there is a graphic of a laptop with a checkmark and the text 'AWS Accounts Include 12 Months of Free Tier Access'. Below this, it says 'Including use of Amazon EC2, Amazon S3, and Amazon DynamoDB' and a link 'Visit aws.amazon.com/free for full offer terms'.

Step 3: Enter the requested information and click Create Account.



The screenshot shows the AWS 'Login Credentials' page. It has the heading 'Login Credentials' and a sub-heading 'Use the form below to create login credentials that can be used for AWS as well as Amazon.com.'. The form contains several input fields: 'My name is:', 'My e-mail address is:', 'Type it again:', 'Enter a new password:', and 'Type it again:'. A note states 'note: this is the e-mail address that we will use to contact you about your account'. A yellow button labeled 'Create account' is at the bottom of the form.

Step 4: Select Personal Account, enter your contact information, and complete the security check. Click Create Account and Continue when finished.

Contact Information

☐ Company Account ☒ Personal Account

* Required Fields

Full Name*

Country*


Address*

City*

State / Province or Region*

Postal Code*

Phone Number*

Security Check 

[Refresh Image](#)

Please type the characters as shown above

AWS Customer Agreement

☐ Check here to indicate that you have read and agree to the terms of the [AWS Customer Agreement](#)

Step 5: Enter payment information and click Continue. Your credit card will not be charged until you begin using services above and beyond the Free Tier (if applicable) and any AWS credit codes entered into your account.

Payment Information

Please enter your payment information below. You will be able to try a broad set of AWS products for free via the Free Usage Tier. We will only bill your credit or debit card for usage that is not covered by our Free Usage Tier.

AWS Free Usage Tier	Compute Amazon EC2	Storage Amazon S3	Database Amazon RDS
free for 1 year	750hrs/month*	5GB	750hrs/month*

[*View full offer details](#)

Credit/Debit Card Number Expiration Date
 01/2065

Cardholder's Name

☒ Use my contact address
☐ Use a new address

[Continue](#)

Step 6: Provide a phone number for Identity Verification and click Call Me Now. You must be able to receive a voice call from Amazon's automated identity verification system. A PIN will be displayed on your screen. Enter the PIN number when prompted by the identity verification system.

Identity Verification

You will be called immediately by an automated system and prompted to enter the PIN number provided.

1. Provide a telephone number

Please enter your information below and click the "Call Me Now" button.

Country Code Phone Number Ext

[Call Me Now](#)

2. Call in progress

3. Identity verification complete

Step 7: Once this process is completed, you will be able to continue the registration process.

The screenshot shows a progress bar at the top with five steps: Contact Information, Payment Information, Identity Verification, Support Plan, and Confirmation. The Identity Verification step is currently active and highlighted. Below the progress bar, the title "Identity Verification" is displayed. A message states: "You will be called immediately by an automated system and prompted to enter the PIN number provided." Below this message, there is a list of three steps: 1. Provide a telephone number ✓, 2. Call in progress ✓, and 3. Identity verification complete. Under step 3, it says "Your identity has been verified successfully". At the bottom of the section, there is a yellow button labeled "Continue to select your Support Plan".

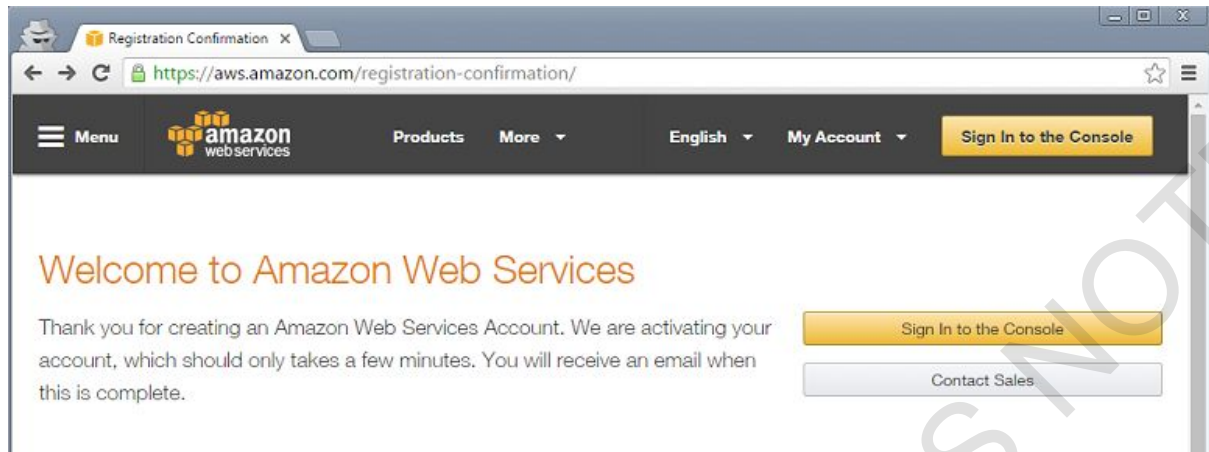
Step 8: Select a Support Plan and click Continue. Most students will use the Basic (free) level. Support fees are not eligible for coverage by AWS credits.

The screenshot shows a progress bar at the top with five steps: Contact Information, Payment Information, Identity Verification, Support Plan, and Confirmation. The Support Plan step is currently active and highlighted. Below the progress bar, the title "Support Plan" is displayed. A message states: "All customers receive free support. Choosing a paid support plan will allow you to receive one-on-one technical assistance from experienced engineers and access many other support features. Please see below." Below this message, there is a section titled "Please Select One" with four radio button options:

- Basic (Free)**: Contact Customer Service for account and billing questions, receive help for resources that don't pass system health checks, and access the AWS Community Forums.
- Developer (\$49/month)**: Get started on AWS - ask technical questions and get a response to your web case within 12 hours during local business hours.
- Business (Starting at \$100/month - Pricing Example) - Recommended**: 24/7/365 real-time assistance by phone and chat, a 1 hour response to web cases, and help with 3rd party software. Access AWS Trusted Advisor to increase performance, fault tolerance, security, and potentially save money.
- Enterprise**: 15 minute response to web cases, an assigned technical account manager (TAM) who is an expert in your use case, and white-glove case handling that notifies your TAM and the service engineering team of a critical issue.

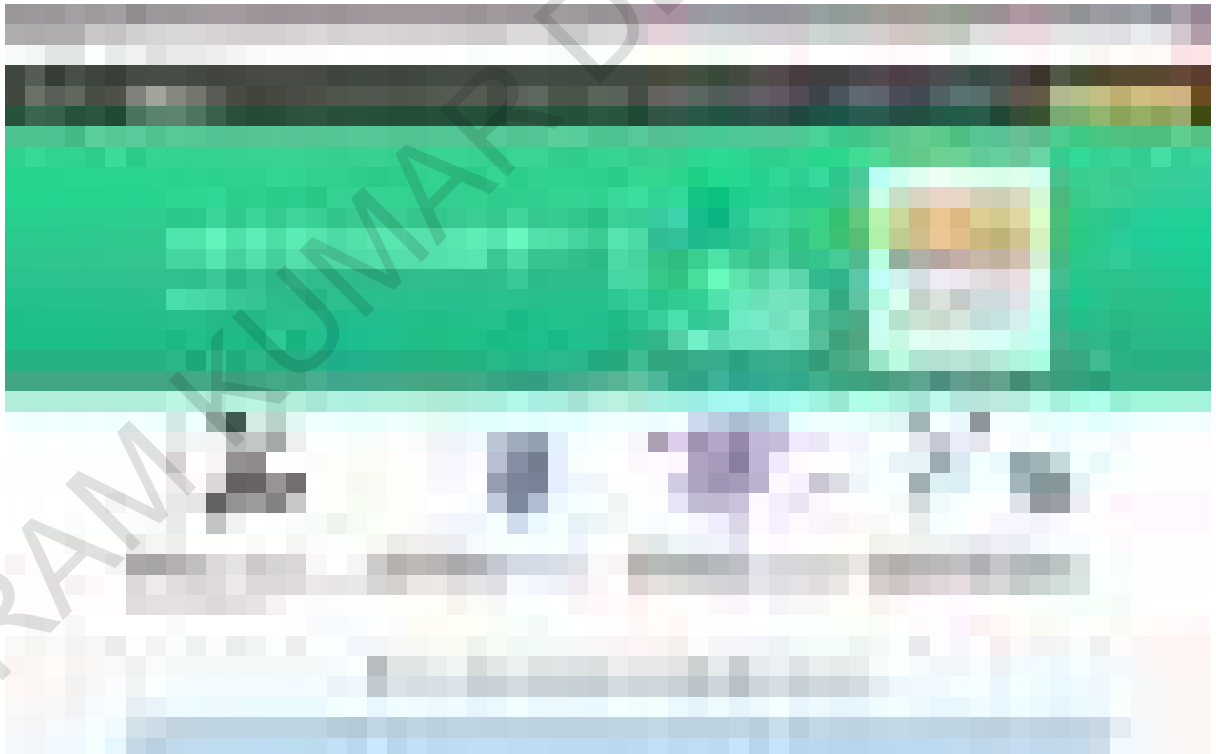
Below the options, there is a note: "If you select this option, you will not be charged immediately. We will contact you to discuss your needs and finalize the signup." At the bottom of the section, there is a yellow button labeled "Continue".

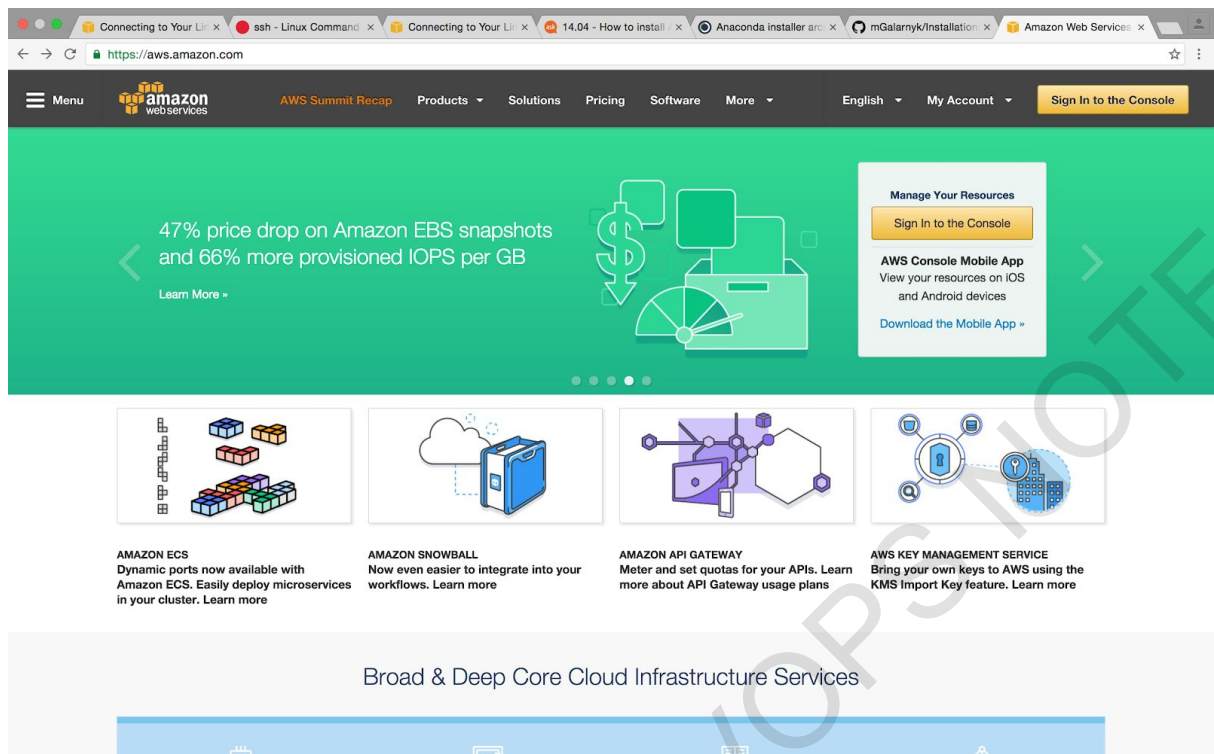
Step 9: You will be returned to the AWS login screen. Click Sign in to the Console. After logging using the account you just created



EC2 Instance Creation :

- Go to Amazon Web Services' Website.





2. Sign in if you have account, if not make one



amazon web services

Sign In or Create an AWS Account

What is your email (phone for mobile accounts)?

E-mail or mobile number:

mgalarny@eng.ucsd.edu

☐ I am a new user.

☒ I am a returning user and my password is:

Sign in using our secure server

[Forgot your password?](#)

Run Production Docker Workloads with

Amazon EC2 Container Service

Try Today

Learn more about [AWS Identity and Access Management](#) and [AWS Multi-Factor Authentication](#), features that provide additional security for your AWS Account. View full [AWS Free Usage Tier](#) offer terms.

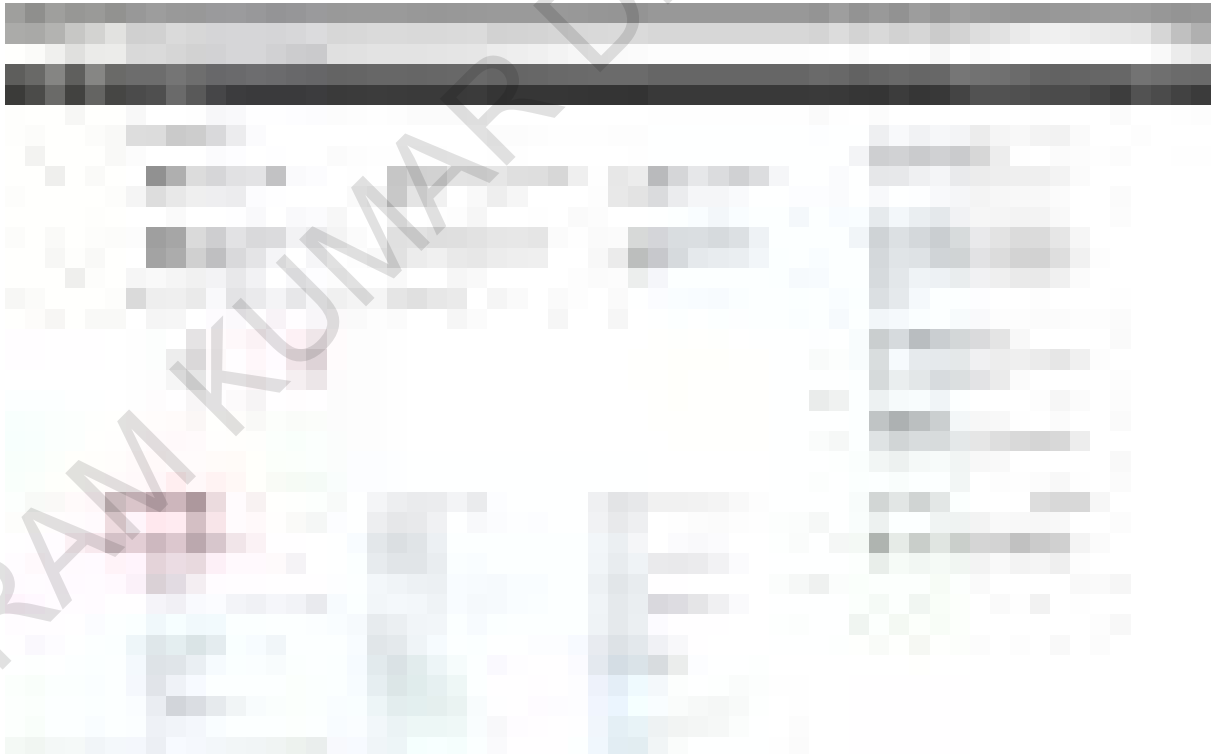
About Amazon.com Sign In

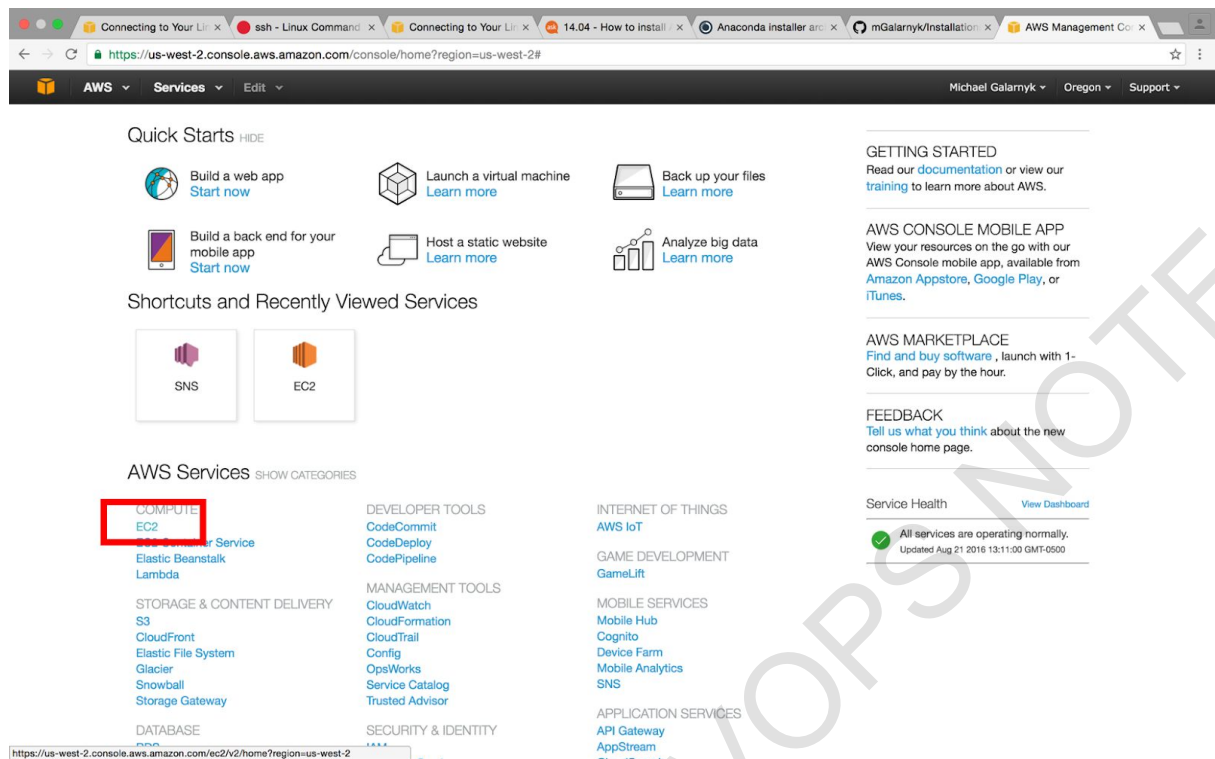
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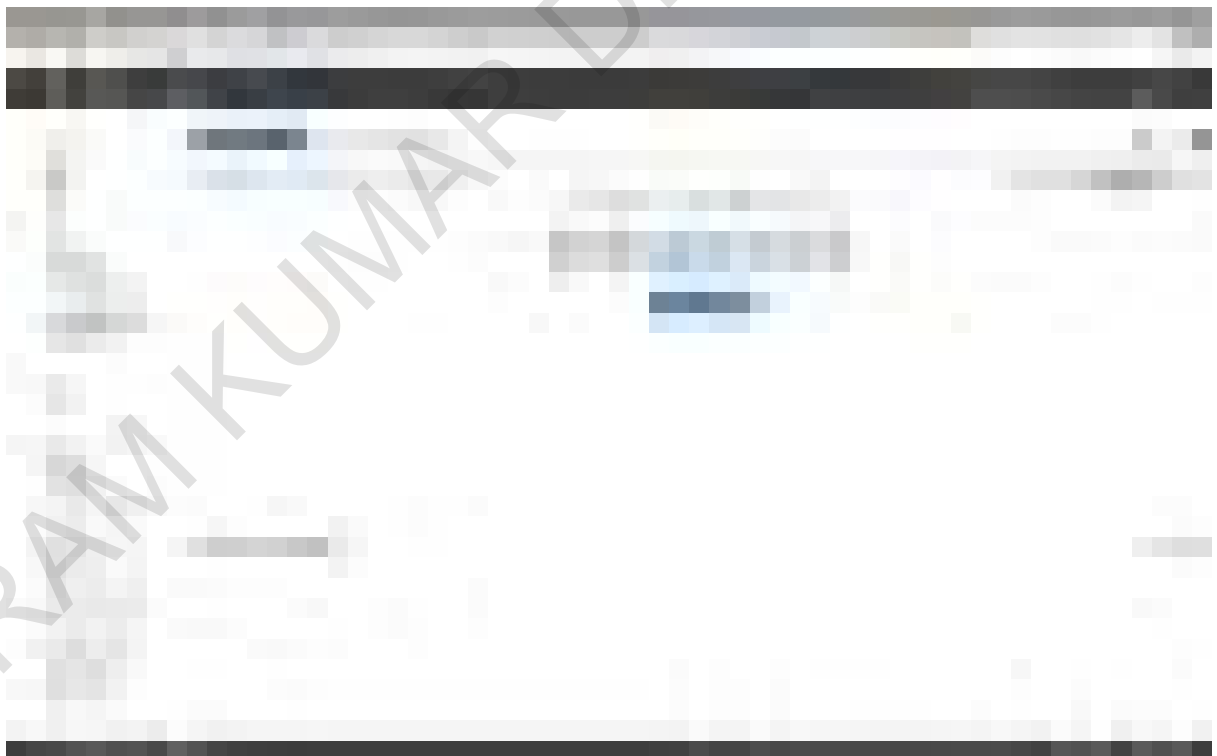
An amazon.com company

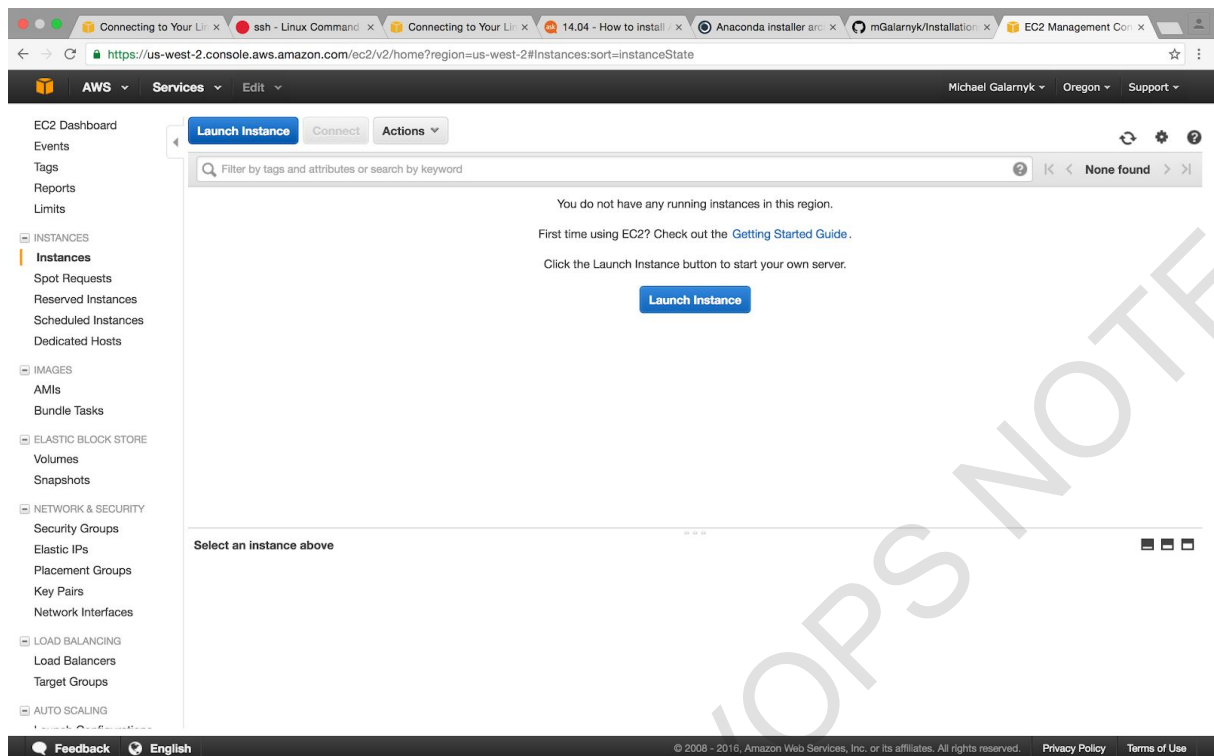
3. Click on EC2



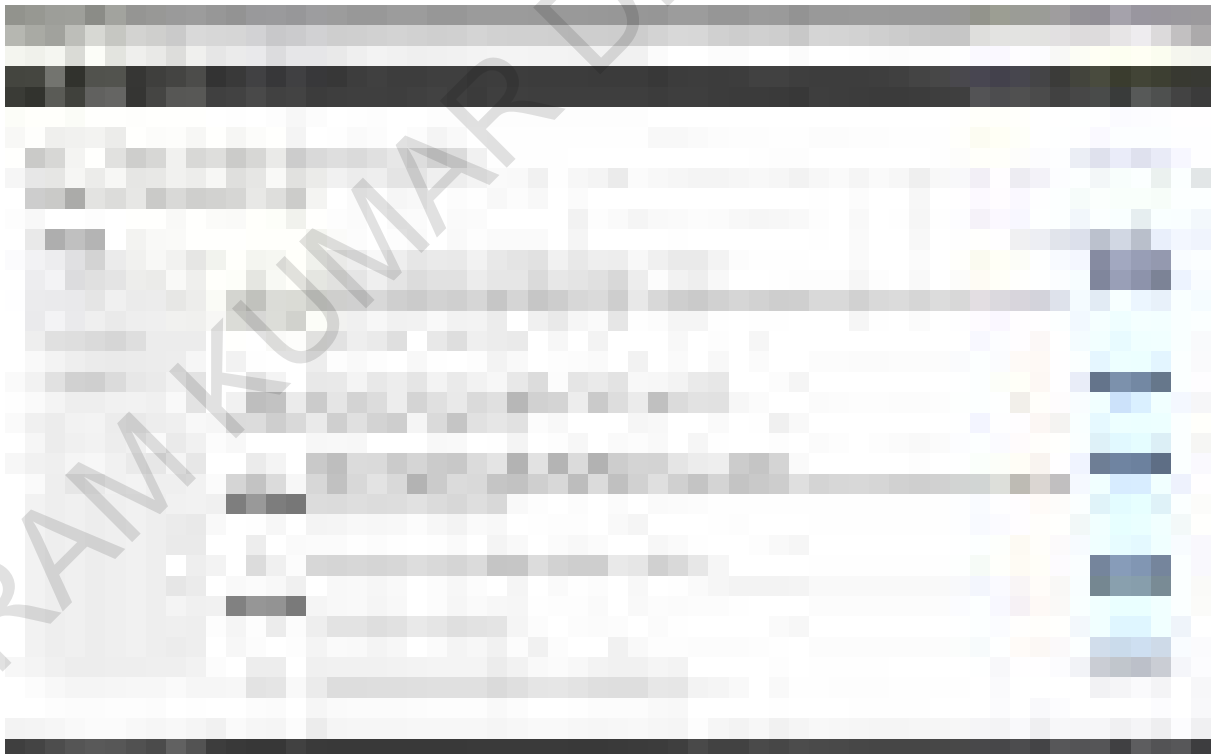


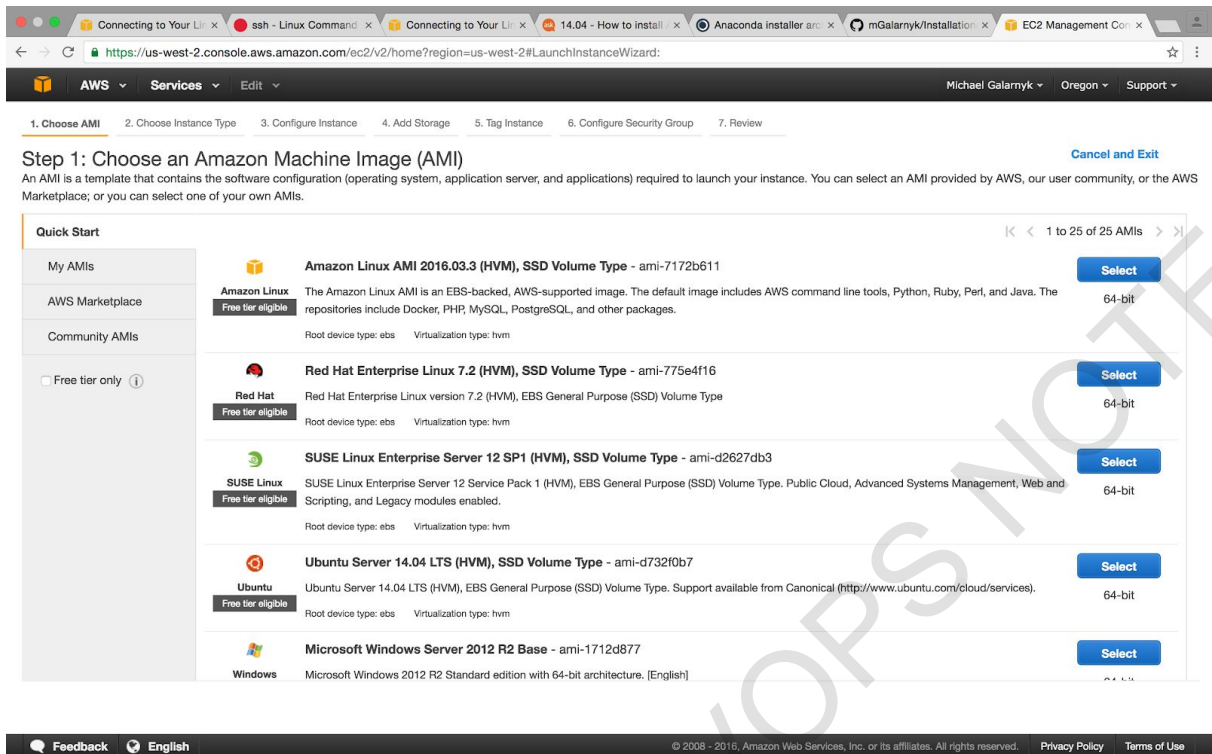
4. Click on Launch Instance





5. Select AML of your choice

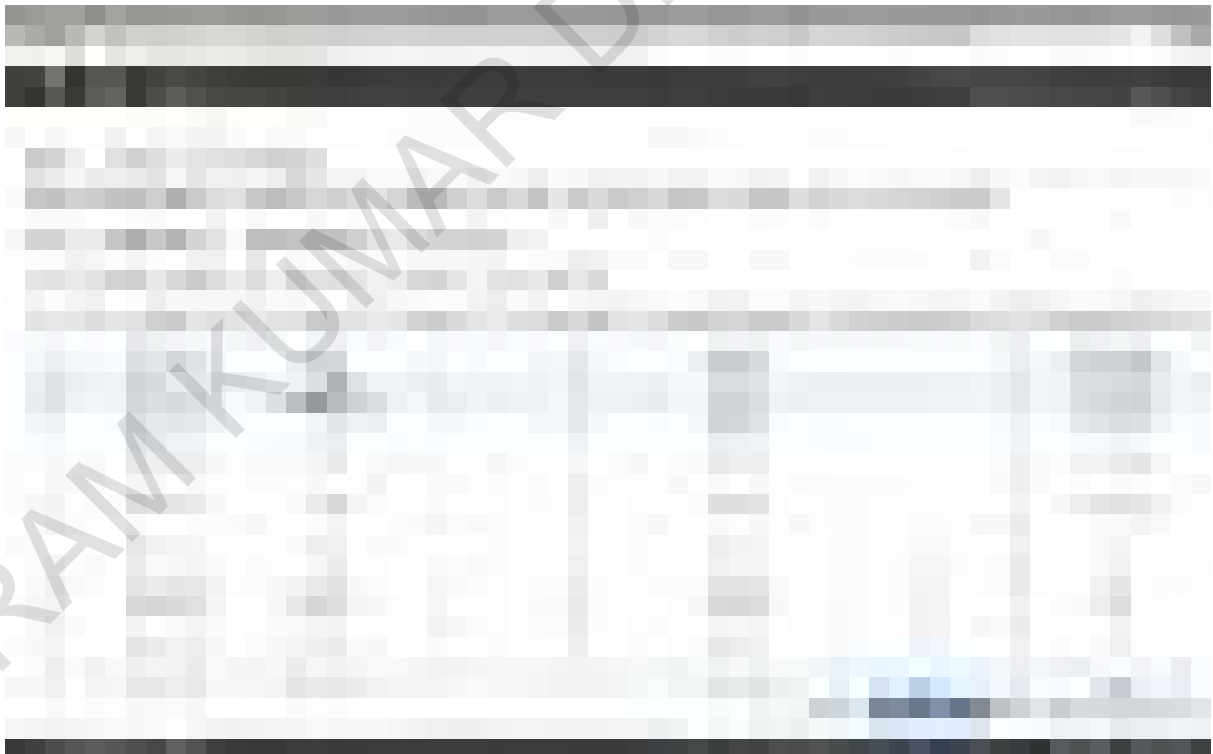




The screenshot shows the AWS Management Console interface for the 'Launch Instance Wizard'. The first step is 'Choose an Amazon Machine Image (AMI)'. The page explains that an AMI is a template containing the operating system, application server, and applications. It lists several AMIs available for selection, including Amazon Linux, Red Hat Enterprise Linux, SUSE Linux, Ubuntu Server, and Microsoft Windows Server. The 'Free tier eligible' filter is selected, and the '64-bit' architecture is chosen. The 'Select' button is visible for each AMI.

AMI Name	AMI ID	Architecture
Amazon Linux AMI 2016.03.3 (HVM), SSD Volume Type	ami-7172b611	64-bit
Red Hat Enterprise Linux 7.2 (HVM), SSD Volume Type	ami-775e4f16	64-bit
SUSE Linux Enterprise Server 12 SP1 (HVM), SSD Volume Type	ami-d2627db3	64-bit
Ubuntu Server 14.04 LTS (HVM), SSD Volume Type	ami-d732f0b7	64-bit
Microsoft Windows Server 2012 R2 Base	ami-1712d877	64-bit

6. Select Free Tier t2 micro



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](#)

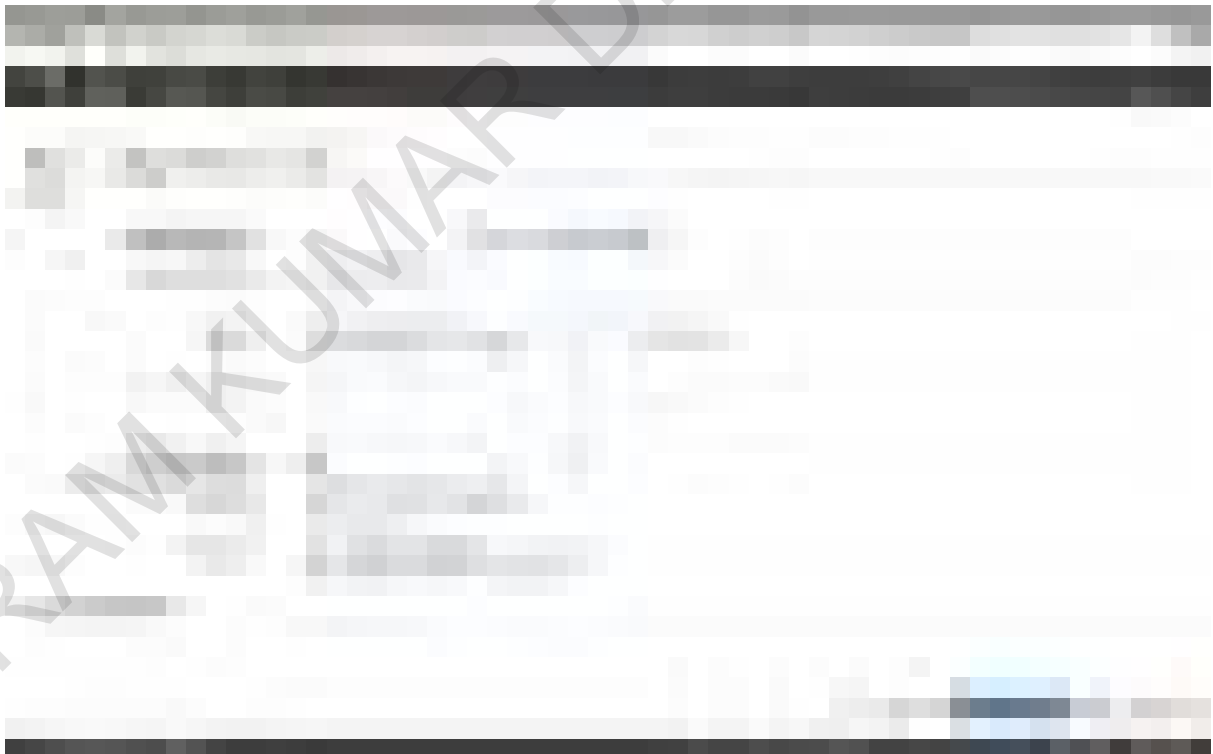
Currently selected: t2.micro (Variable ECUs, 1 vCPUs, 2.5 GHz, Intel Xeon Family, 1 GiB memory, EBS only)

	Family	Type	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance
<input type="checkbox"/>	General purpose	t2.nano	1	0.5	EBS only	-	Low to Moderate
<input checked="" type="checkbox"/>	General purpose	t2.micro Free tier eligible	1	1	EBS only	-	Low to Moderate
<input type="checkbox"/>	General purpose	t2.small	1	2	EBS only	-	Low to Moderate
<input type="checkbox"/>	General purpose	t2.medium	2	4	EBS only	-	Low to Moderate
<input type="checkbox"/>	General purpose	t2.large	2	8	EBS only	-	Low to Moderate
<input type="checkbox"/>	General purpose	m4.large	2	8	EBS only	Yes	Moderate
<input type="checkbox"/>	General purpose	m4.xlarge	4	16	EBS only	Yes	High
<input type="checkbox"/>	General purpose	m4.2xlarge	8	32	EBS only	Yes	High
<input type="checkbox"/>	General purpose	m4.4xlarge	16	64	EBS only	Yes	High
<input type="checkbox"/>	General purpose	m4.10xlarge	40	160	EBS only	Yes	10 Gbps

[Cancel](#) [Previous](#) [Review and Launch](#) [Next: Configure Instance Details](#)

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7. Configure Instance Details



Step 3: Configure Instance Details

Configure the instance to suit your requirements. You can launch multiple instances from the same AMI, request Spot instances to take advantage of the lower pricing, assign an access management role to the instance, and more.

Number of instances: 1 [Launch into Auto Scaling Group](#)

Purchasing option: ☐ Request Spot instances

Network: vpc-511e3635 (172.31.0.0/16) (default) [Create new VPC](#)

Subnet: No preference (default subnet in any Availability Zone) [Create new subnet](#)

Auto-assign Public IP: Use subnet setting (Enable)

IAM role: None [Create new IAM role](#)

Shutdown behavior: Stop

Enable termination protection: ☐ Protect against accidental termination

Monitoring: ☐ Enable CloudWatch detailed monitoring
[Additional charges apply.](#)

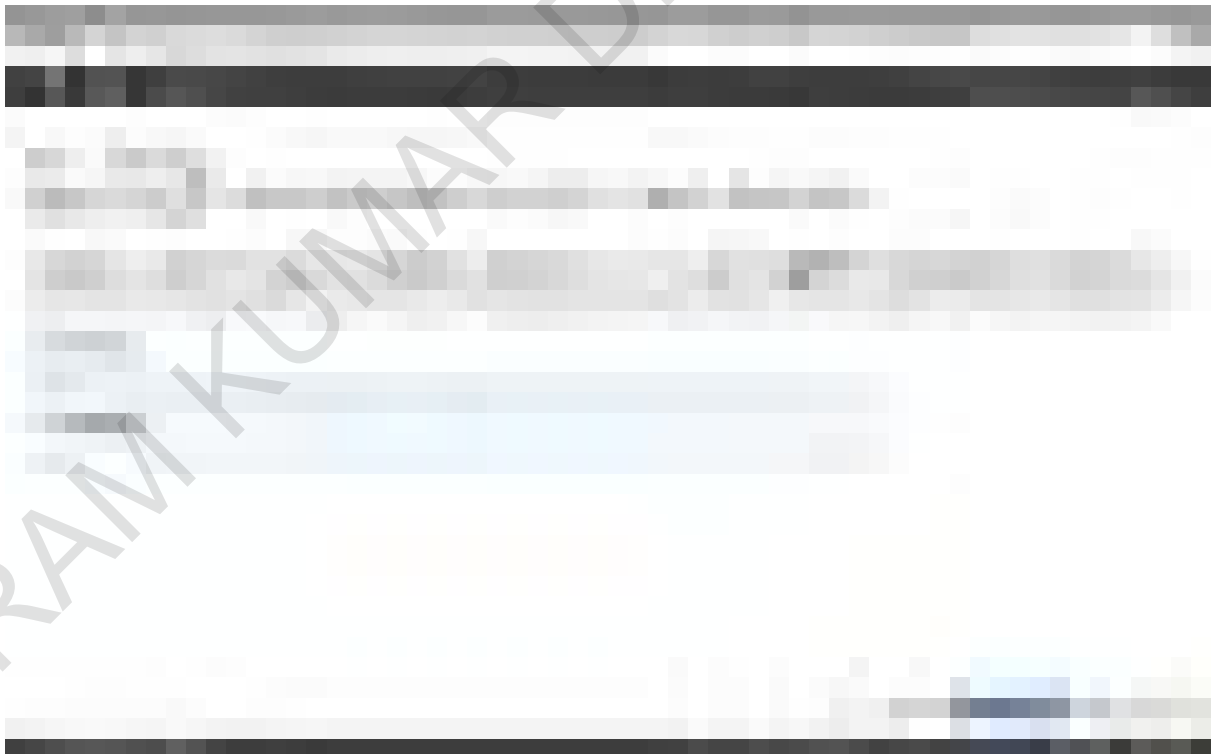
Tenancy: Shared - Run a shared hardware instance
[Additional charges will apply for dedicated tenancy.](#)

Advanced Details

[Cancel](#) [Previous](#) [Review and Launch](#) [Next: Add Storage](#)

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8. Add Storage if you need it



The screenshot shows the AWS Management Console interface for the 'Add Storage' step of the EC2 instance launch wizard. The breadcrumb navigation at the top indicates the steps: 1. Choose AMI, 2. Choose Instance Type, 3. Configure Instance, 4. Add Storage (current step), 5. Tag Instance, 6. Configure Security Group, and 7. Review. The main heading is 'Step 4: Add Storage'. Below this, a paragraph explains that the instance will be launched with the following storage device settings and that additional EBS volumes can be attached. A table lists the storage configuration for the root volume: Volume Type (Root), Device (/dev/sda1), Snapshot (snap-47713105), Size (8 GiB), Volume Type (General Purpose SSD (GP2)), IOPS (100 / 3000), Throughput (N/A), Delete on Termination (checked), and Encrypted (Not Encrypted). There is an 'Add New Volume' button and a note about free tier eligibility. At the bottom, there are 'Cancel', 'Previous', 'Review and Launch', and 'Next: Tag Instance' buttons. The footer includes 'Feedback', 'English', and copyright information.

Connecting to Your Linux x ssh - Linux Command x Connecting to Your Linux x 14.04 - How to install x Anaconda installer arc x mGalarmyk/Installation x EC2 Management Console x

https://us-west-2.console.aws.amazon.com/ec2/v2/home?region=us-west-2#LaunchInstanceWizard:

AWS Services Edit Michael Galarmyk Oregon Support

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

Step 4: Add Storage

Your instance will be launched with the following storage device settings. You can attach additional EBS volumes and instance store volumes to your instance, or edit the settings of the root volume. You can also attach additional EBS volumes after launching an instance, but not instance store volumes. [Learn more](#) about storage options in Amazon EC2.

Volume Type	Device	Snapshot	Size (GiB)	Volume Type	IOPS	Throughput (MB/s)	Delete on Termination	Encrypted
Root	/dev/sda1	snap-47713105	8	General Purpose SSD (GP2)	100 / 3000	N/A	<input checked="" type="checkbox"/>	Not Encrypted

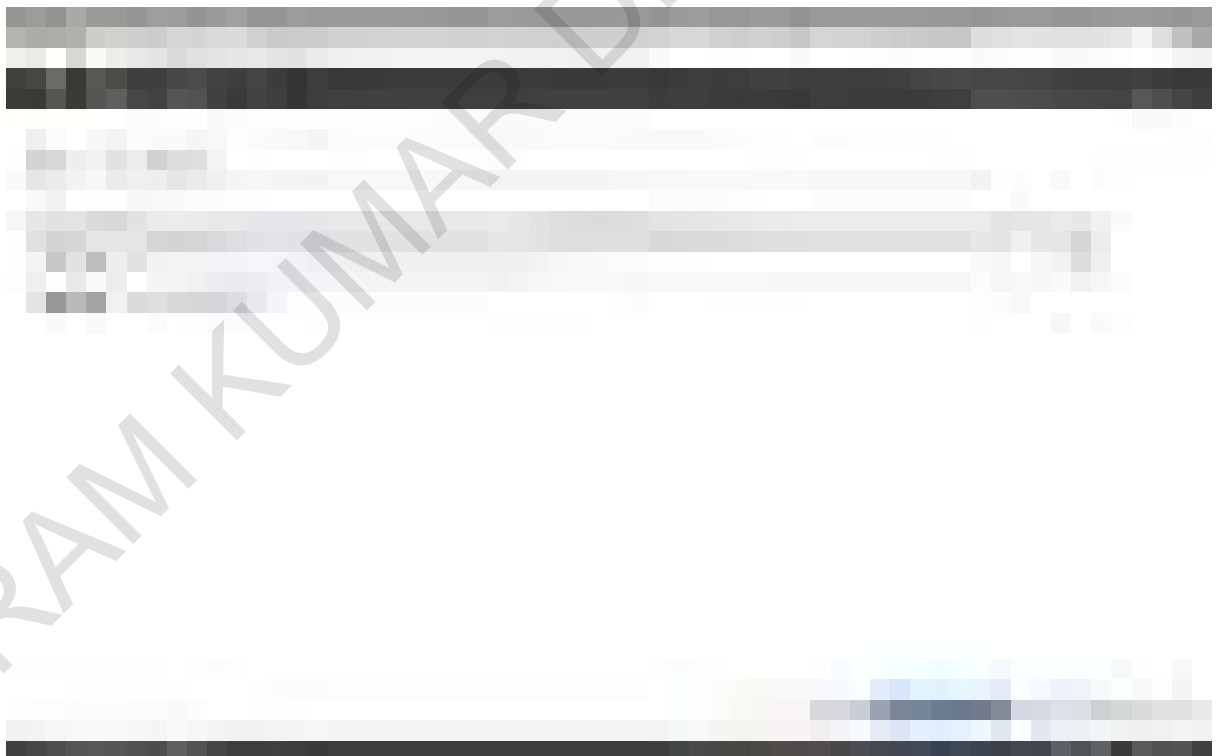
[Add New Volume](#)

Free tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage. [Learn more](#) about free usage tier eligibility and usage restrictions.

[Cancel](#) [Previous](#) [Review and Launch](#) [Next: Tag Instance](#)

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9. Add a tag if you want to



Connecting to Your Lin x ssh - Linux Command x Connecting to Your Lin x 14.04 - How to install x Anaconda installer arc x mGalarlyk/Installation x EC2 Management Con x

← → ↻ <https://us-west-2.console.aws.amazon.com/ec2/v2/home?region=us-west-2#LaunchInstanceWizard> ☆ ⋮

AWS ▾ **Services** ▾ Edit ▾ Michael Galarlyk ▾ Oregon ▾ Support ▾

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

Step 5: Tag Instance

A tag consists of a case-sensitive key-value pair. For example, you could define a tag with key = Name and value = Webserver. [Learn more](#) about tagging your Amazon EC2 resources.

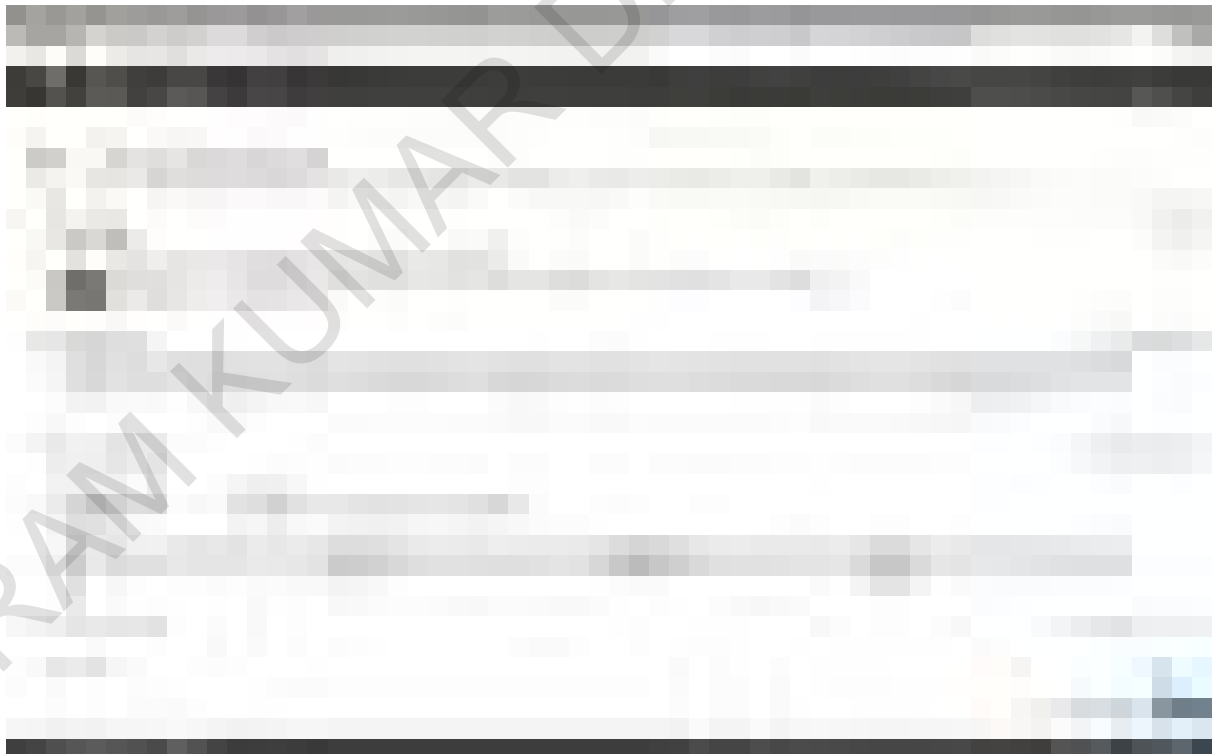
Key (127 characters maximum)	Value (255 characters maximum)
<input type="text" value="Test_Instance"/>	<input type="text"/>

Create Tag (Up to 50 tags maximum)

[Cancel](#) [Previous](#) [Review and Launch](#) [Next: Configure Security Group](#)

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10. Launch your instance



Step 7: Review Instance Launch

You can also open additional ports in your security group to facilitate access to the application or service you're running, e.g., HTTP (80) for web servers. [Edit security groups](#)

AMI Details [Edit AMI](#)

Ubuntu Server 14.04 LTS (HVM), SSD Volume Type - ami-d732f0b7

Free tier eligible

Ubuntu Server 14.04 LTS (HVM), EBS General Purpose (SSD) Volume Type. Support available from Canonical (<http://www.ubuntu.com/cloud/services>).

Root Device Type: ebs Virtualization type: hvm

Instance Type [Edit instance type](#)

Instance Type	ECUs	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance
t2.micro	Variable	1	1	EBS only	-	Low to Moderate

Security Groups [Edit security groups](#)

Security group name launch-wizard-3

Description launch-wizard-3 created 2016-08-21T13:13:26.054-05:00

Type	Protocol	Port Range	Source
SSH	TCP	22	0.0.0.0/0

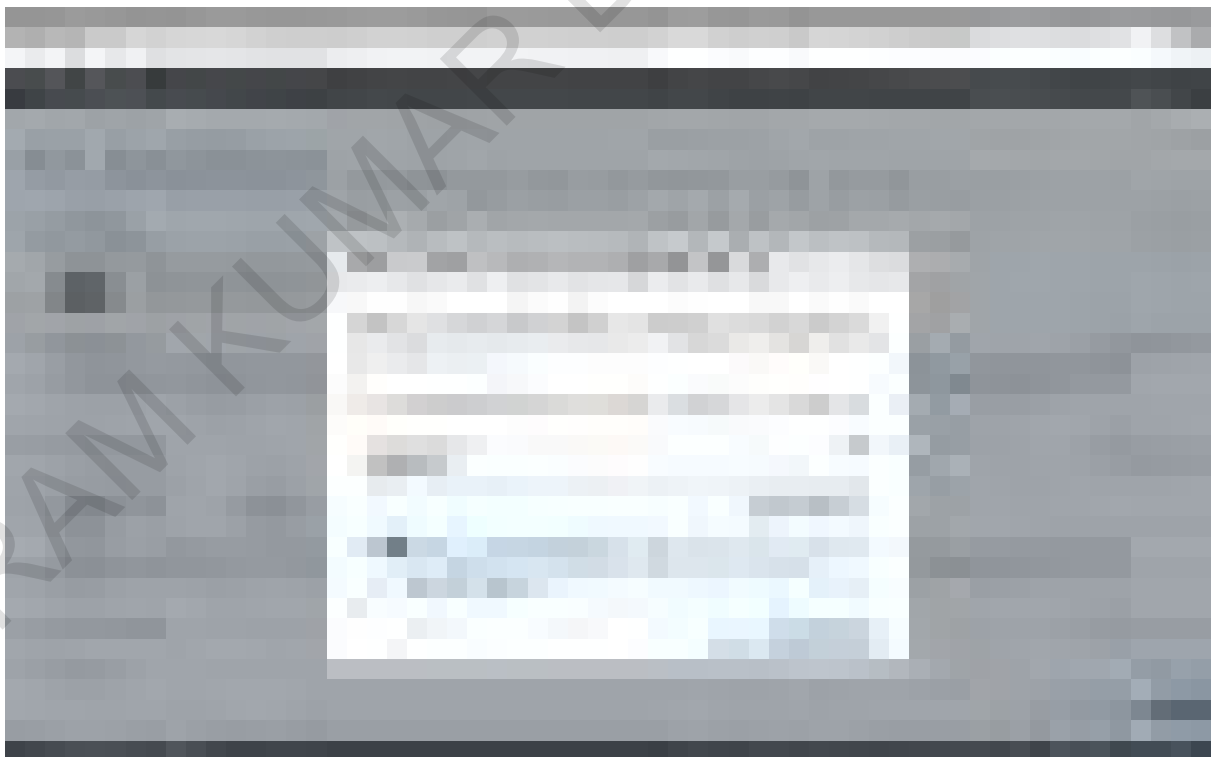
Instance Details [Edit instance details](#)

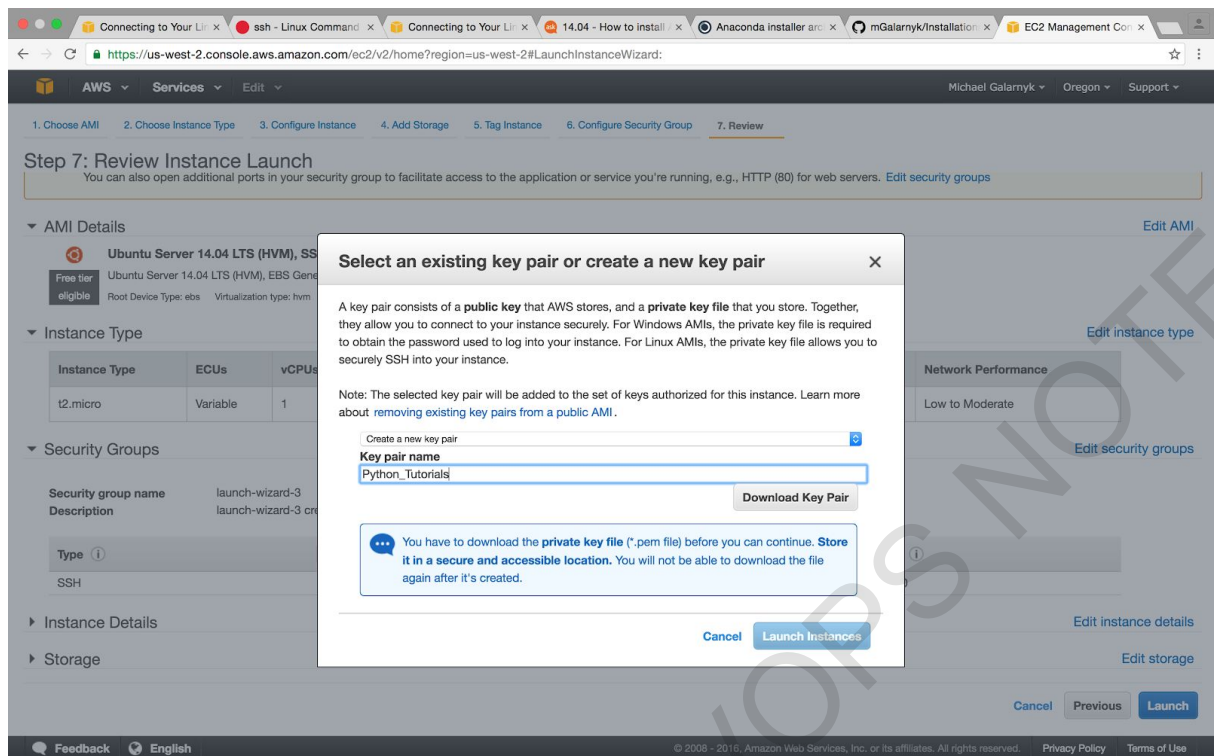
Storage [Edit storage](#)

[Cancel](#) [Previous](#) [Launch](#)

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11. Create a key pair and make sure to save it somewhere safe. You won't be able to replace it.





12. Launch the instance. Done!

Windows server, Linux server, Web server:

Windows server	Linux server	Web server
Windows Server is basically a Microsoft product and is a brand name for a group of server operating systems.	Linux is basically an open-source software operating system that builds around the Linux kernel.	It is a computer program that accepts the request for data and sends the specified documents.
Windows servers use graphic user interface to implement the operations	Linux is mainly based on command line mode of operation	Web server is useful or fitted for static content.
It is vulnerable to security threats and cyber crimes	It is very secured and less prone to any cyber threats	Web server consumes or utilizes less resources.
It is user-friendly and based on graphical user interface approach	It's not that user-friendly when compared to that of windows servers	Web servers arrange the run environment for web applications.

It is not a favorable option from the multi-user perspective.	It supports multitasking functionality	In web servers, multithreading is not supported.
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Load balancer:

- A load balancer distributes incoming application traffic across multiple EC2 instances in multiple Availability Zones.
- This increases the fault tolerance of your applications.
- Elastic Load Balancing detects unhealthy instances and routes traffic only to healthy instances.
- load balancer serves as a single point of contact for clients. This increases the availability of your application.
- You can add and remove instances from your load balancer as your needs change, without disrupting the overall flow of requests to your application.