

Brainhack ATL 2019 - Using AWS

1. Each user will receive an email with the steps to follow for login.
The email contains the sign-in URL and your username.
 - a. **Sign In URL:** <https://teamname.signin.aws.amazon.com/console>
 - b. **Username:** <<username>>
2. You'll receive your password and a CSV file containing your credentials for programmatic access of AWS services in the next email. This is an autogenerated password and you need to change your password upon login.
3. On consecutive logins, if you see a screen like the one below, type your Team Name in the text box and you'll be redirected to the original login page where you can use your username and password.



Sign in 

Email address of your AWS account

Or to sign in as an IAM user, enter your [account ID](#) or [account alias](#) instead.

Next

New to AWS?

Create a new AWS account



AWS Accounts Include
12 Months of Free Tier Access

Including use of Amazon EC2,
Amazon S3, and Amazon DynamoDB

Visit aws.amazon.com/free for full offer terms

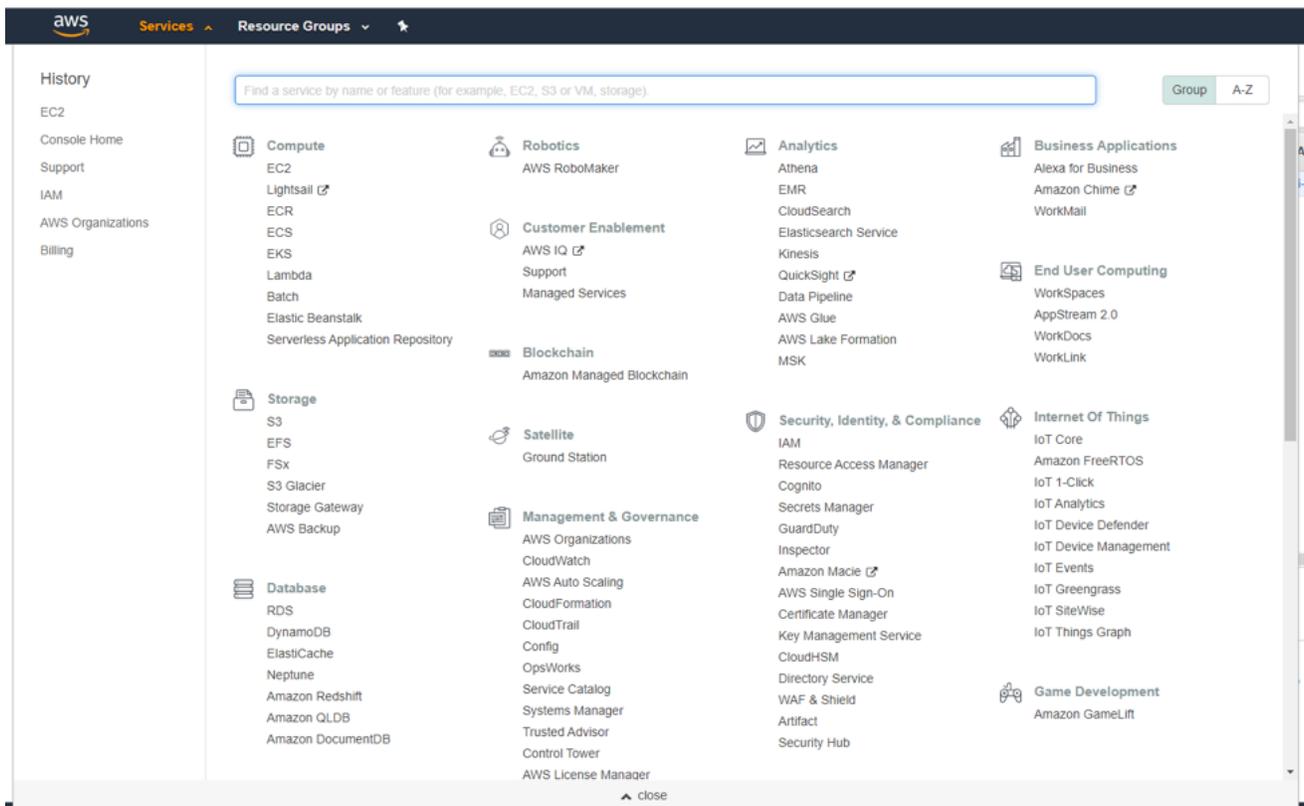
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4. After login, you can see your AWS Console. Feel free to explore the different Services provided by AWS they are **AWESOME**. You can find all the services here. Some businesses run their whole workload just of few services.



5. Please refer to the guide linked below from AWS on EC2 instances. You do not need to create new IAM users. An IAM user is created for you upon joining a team.

Guide: <https://tinyurl.com/y9x4ysu3>



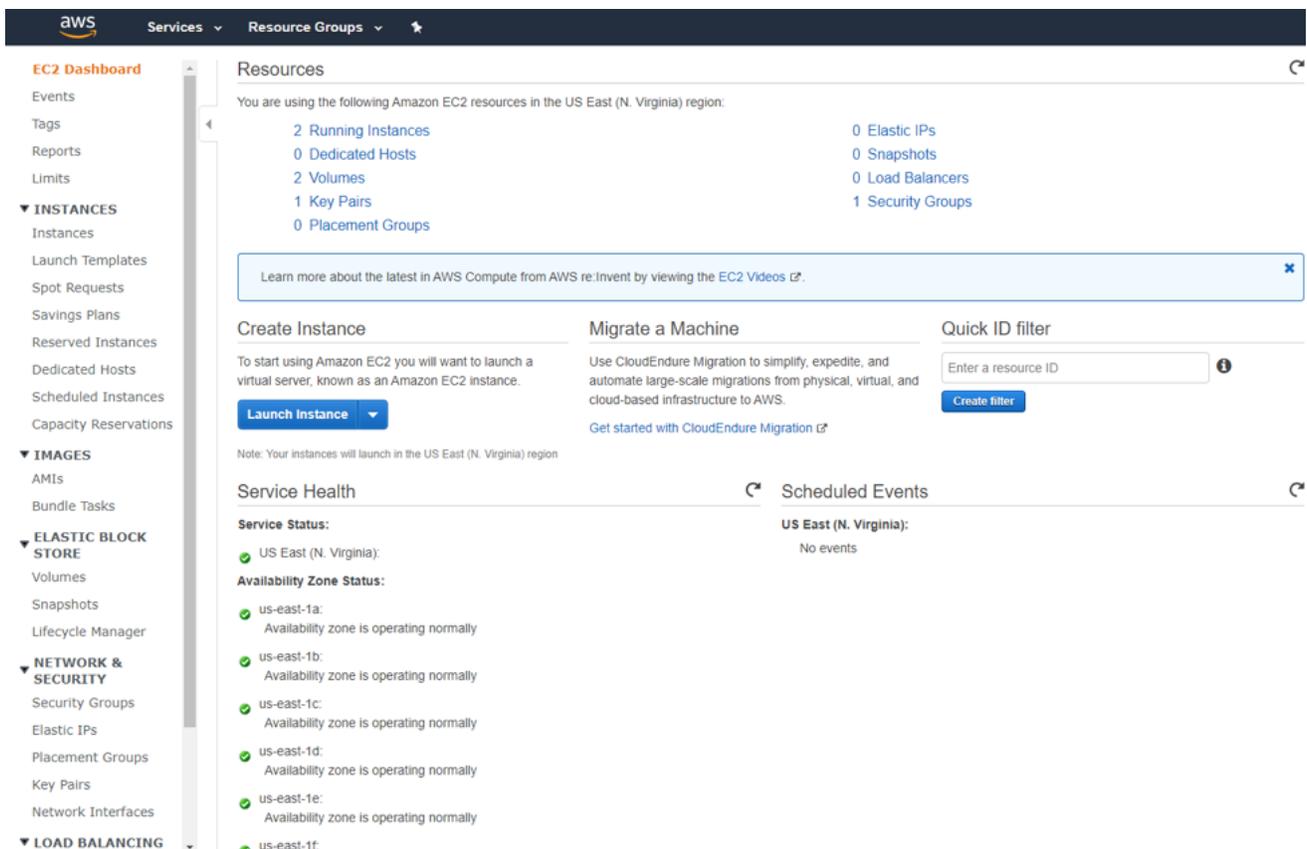
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6. By default, with your team account, each user (you) are assigned an Administrator role. This gives you access to (almost) everything on the team account. You can start creating EC2 instances.

7. Go to EC2 service under the compute section of the services. Alternatively, you can search for services on the search bar.

8. This will take to EC2 dashboard which looks like this.



The screenshot shows the AWS Management Console for the EC2 service in the US East (N. Virginia) region. The left-hand navigation pane includes sections for EC2 Dashboard, INSTANCES, IMAGES, ELASTIC BLOCK STORE, NETWORK & SECURITY, and LOAD BALANCING. The main content area displays the following information:

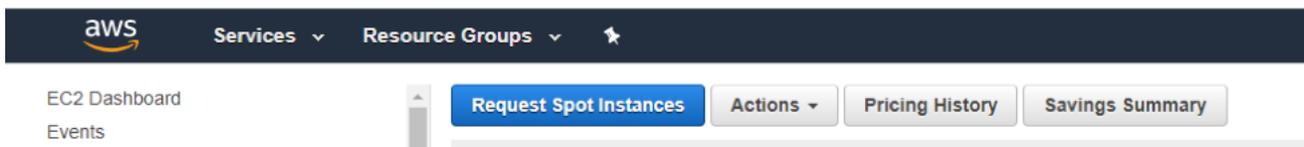
- Resources:** You are using the following Amazon EC2 resources in the US East (N. Virginia) region:
 - 2 Running Instances
 - 0 Elastic IPs
 - 0 Dedicated Hosts
 - 0 Snapshots
 - 2 Volumes
 - 0 Load Balancers
 - 1 Key Pairs
 - 1 Security Groups
 - 0 Placement Groups
- Create Instance:** To start using Amazon EC2 you will want to launch a virtual server, known as an Amazon EC2 instance. Includes a "Launch Instance" button.
- Migrate a Machine:** Use CloudEndure Migration to simplify, expedite, and automate large-scale migrations from physical, virtual, and cloud-based infrastructure to AWS. Includes a "Create filter" button.
- Service Health:** Shows the service status for US East (N. Virginia) as "OK" and lists the availability zone status for all zones (us-east-1a through us-east-1f), all of which are "operating normally".
- Scheduled Events:** Shows "No events" for the US East (N. Virginia) region.



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LAUNCHING A SPOT INSTANCE

1. For BrainHack ATL, we'll be using only spot instances. Please refrain from launching on demand instances.
2. On the left panel under the Instances tab, select Spot Requests.
3. Click on the Request Spot Instances.



4. Use Flexible Workloads Option.

[EC2](#) > [Spot Requests](#) > [Request Spot Instances](#)

Request Spot Instances

Tell us your application or task need

To help us identify the most appropriate compute capacity for your job, select the closest match for your application or task need.

Load balancing workloads

Launch instances of the same size, in any Availability Zone.
Good for running web services.

Flexible workloads

Launch instances of any size, in any Availability Zone.
Good for running batch and CI/CD jobs.

Configure your instances



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LAUNCHING A SPOT INSTANCE

5. Next step is to configure your instance. Your screen looks like this for configuring an Instance.

Configure your instances

Use a launch template to quickly set instance launch parameters (you can still modify some parameters). Improve your access to Spot capacity by including multiple Availability Zones.

Launch template

None (Default version) Create launch template

AMI

Amazon Linux 2 AMI (HVM), SSD Volume Type (ami-009d6802948d06e52) Search for AMI

Minimum compute unit as specs as an instance type

c3.large (2 vCPU, 3.75 GiB 2 x 16 SSD) Change instance type

Network

vpc-efbbe95 (172.31.0.0/16) (default) Create new VPC

Availability Zone

No preference (balance across all Availability Zones)

Key pair name

(optional) Create new key pair

Additional configurations Modify or use the default values

- Leave the Launch Template as **None**. If you're familiar with templates, please use this to launch your AMI
- For the AMI please use the default AWS AMI or Ubuntu if you have a preference. **(Ideally, I want to provide users with pre-installed software so that they need not install all by themselves. I'm working on it. This Part will change)**
- For **Minimum Compute Unit**, you've the option to select **as specs** or **as an instance type**. Select as instance type and click **change instance type** to see all the available instance types. You can filter Instance types based on your need. Please keep in mind the price of each instance type, you may want to check the **dollar limit** on each team.



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LAUNCHING A SPOT INSTANCE

Select instance types

Supports dedicated tenancy

Instance type	vCPUs	Memory (GiB)	Storage (GB)	Network	Spot price	Spot savings
All instance types	1	(Any)	(Any)	Any network		
All instance types	1	2	EBS only	Up to 10 Gigabit	\$0.0084	67%
Micro instances	2	4	EBS only	Up to 10 Gigabit	\$0.0168	67%
General purpose	4	8	EBS only	Up to 10 Gigabit	\$0.0373	63%
Compute optimized	8	16	EBS only	Up to 10 Gigabit	\$0.0671	67%
FPGA instances	16	32	EBS only	Up to 10 Gigabit	\$0.172	58%
GPU graphics	16	32	EBS only	Up to 10 Gigabit	\$0.1343	67%
GPU instances	2	3.75	2 x 16 SSD	Moderate	\$0.0294	72%
GPU compute	4	7.5	2 x 40 SSD	Moderate	\$0.0588	72%
Memory optimized	8	15	2 x 80 SSD	High	\$0.1327	68%
Storage optimized	16	30	2 x 160 SSD	High	\$0.2697	68%

Cancel Select

d. Unless you're familiar with Networking please use the defaults for Network and Availability Zone.

e. For **Key pair name**, select the keypair that you have created already. If this is the first instance that you're creating, or you've lost or do not have access to your previous KeyPair, click on **create new KeyPair**.

Refer to **Creating New Key Pair** section. If you've created your keypair and cannot find in the drop-down list, click on the refresh button.

f. Click on Additional Configurations



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LAUNCHING A SPOT INSTANCE

Additional configurations Modify or use the default values

EBS volumes ?

Device <small>?</small>	Snapshot	Size (GiB)	Volume type	IOPS	Delete <small>?</small>	Encrypt
Root: /dev/xvda	snap-05c184ed39d0ecd7b	8	General Purpose (SSD)		<input checked="" type="checkbox"/>	Not Encrypted

No additional EBS volumes configured

g. Change the Size of the volume to appropriate size. For example, 200 GiB. You can modify this size once per every 6 hours after the instance is launched.

h. You can enable EBS-Optimized if it makes any difference for your application.

[+ Add new volume](#)

EBS-optimized ?

Launch EBS-optimized instances

Instance store ?

Attach at launch

Monitoring ?

Enable CloudWatch detailed monitoring

Tenancy ?

Default - run a shared hardware instance

Security groups ?

default

[Create new security group](#)

Auto-assign IPv4 public IP ?

Use subnet setting (Enable)

IAM instance profile ?

(optional)

[Create new IAM profile](#)



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LAUNCHING A SPOT INSTANCE

- i. For **Instance Store**, **Monitoring**, and **Tenancy** leave the default values.
- j. Under **security groups**, select the **default**
- k. For **IAM Instance Profile**, you can leave it as optional or you can create an IAM policy for this instance. Please refer to this guide linked below from AWS.

Guide: <https://tinyurl.com/yyzj3p5u>

- l. Under the Instance Tags, please make sure you have a tag called `team_name` with value as your team name as shown below

Instance tags ⓘ

Key	Value
team_name	bha_team01

+ Add new tag

- 6. Next step is to select the number of instances you'll need. **For BrainHack ATL, we'll limit ourselves to less than 5.** Also, select **Maintain Target Capacity.**

Tell us how much capacity you need

Set your total target capacity (number of instances or vCPUs) to launch. If you specified a launch template, you can allocate part of the target capacity as On-Demand. The number of On-Demand Instances always

Total target capacity ⓘ instances ▾

Optional On-Demand portion [Learn more](#) ⓘ instances

Maintain target capacity

Interruption behavior ⓘ

Only requests that specify a launch template are eligible for On-Demand

- 7. Under the **Fleet Recommendations**, unselect **Apply Recommendations**

- 8. Then, **Select Instance Types** button and select the Instance type that you've selected in the **step 5.C.**



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LAUNCHING A SPOT INSTANCE

9. Leave the rest as default and click the Launch Button at the end of the page

Your fleet request at a glance

Total target capacity 1 instances <small>(maintain capacity)</small>	Instance configuration Custom <small>2 vCPU, 3 GiB (min) 6 Availability Zones</small>	Fleet strength Strong <small>6 instance pools</small>	Estimated price ~\$0.045/hr <small>at target capacity</small> 70% savings <small>compared to On-Demand</small>
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[JSON config](#) [Cancel](#) [Launch](#)

Previous version of Request Spot Instances

9. Leave the rest as default and click the Launch Button at the end of the page
10. If successful, this should take you to the page showing your Spot Requests.

EC2 Dashboard

- Events
- Tags
- Reports
- Limits
- INSTANCES**
- Instances

Request Spot Instances | Actions | Pricing History | Savings Summary

Request type: all | State: all | Search by keyword

Request Id	Request type	Instance type	State	Capacity	Status	Persistence	Created	Max price
sf-207422ac-aa84-...	fleet	g4dn.2xlarge.t3...	active	1 of 1	fulfilled	request	3 hours ago	\$0.752
sf-d44299dc-e1de-...	fleet	t3a.medium,t3...	active	1 of 1	fulfilled	request	12 days ago	\$0.0928

11. When you click on the **Instances** on the left panel, you should see your running instances.

[Launch Instance](#) [Connect](#) [Actions](#)

Filter by tags and attributes or search by keyword

Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	Put
Codalab Inst...	i-0c2f0a81ec7f43d91	t3a.medium	us-east-1a	running	2/2 checks ...	None	ec2
BrainHackATL	i-0f5d1e50d59b66065	t3.2xlarge	us-east-1c	running	2/2 checks ...	None	ec2



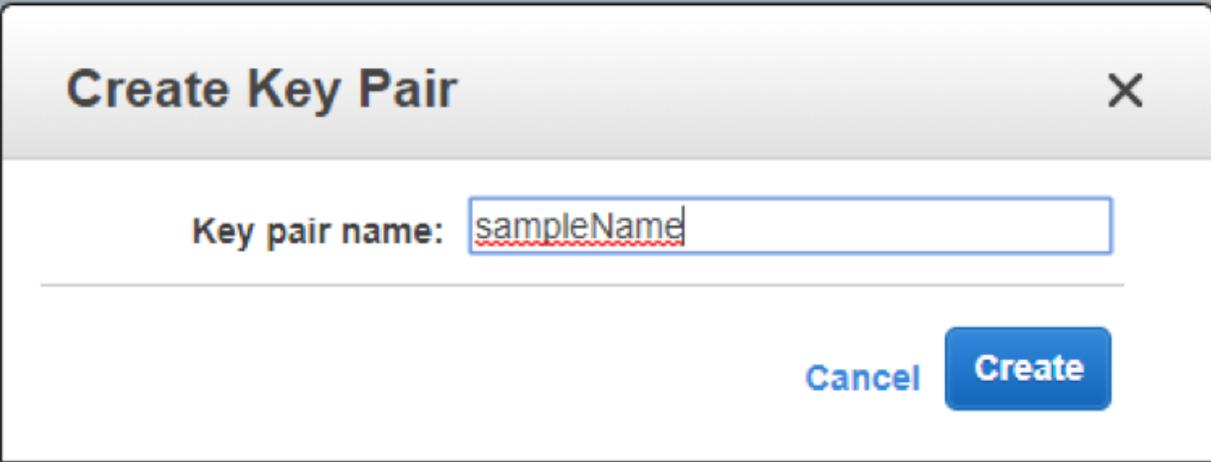
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12. Once you see the **Status Checks** as **2/2 Checks Passed**, you are ready to **Connect to the Instance**.

CREATING NEW KEYPAIR

1. **(Skip this step if you're following from step 5.E)** To create a new KeyPair, go to EC2 Dashboard, from the left panel under the Network & Security click on the Key Pairs.
2. Select Create Key Pair and give any name.



The screenshot shows a dialog box titled "Create Key Pair" with a close button (X) in the top right corner. Below the title bar, there is a label "Key pair name:" followed by a text input field containing the text "sampleName". At the bottom right of the dialog, there are two buttons: "Cancel" and "Create".

3. Click **Create**. This will download a **.PEM file**. Save this file for Connecting to the Instance.



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CONNECTING TO INSTANCES

1. From the EC2 dashboard, select your Instance you want to Connect and on the Top Menu click **Connect**. Follow the Instructions provided. For Example,

Connect To Your Instance



I would like to connect with

- A standalone SSH client
- EC2 Instance Connect (browser-based SSH connection)
- A Java SSH Client directly from my browser (Java required)

To access your instance:

1. Open an SSH client. (find out how to [connect using PuTTY](#))
2. Locate your private key file (Codalab.pem). The wizard automatically detects the key you used to launch the instance.
3. Your key must not be publicly viewable for SSH to work. Use this command if needed:

```
chmod 400 Codalab.pem
```

4. Connect to your instance using its Public DNS:

```
ec2-100-25-255-202.compute-1.amazonaws.com
```

Example:

```
ssh -i "Codalab.pem" ec2-user@ec2-100-25-255-202.compute-1.amazonaws.com
```

Please note that in most cases the username above will be correct, however please ensure that you read your AMI usage instructions to ensure that the AMI owner has not changed the default AMI username.

If you need any assistance connecting to your instance, please see our [connection documentation](#).

Close

