

Lab 1

In the following we'll take you through launching an EC2 instance using the AWS Web Console.

1. AWS Console Login.

Log in with your AWS credentials. Leave the *MFA Token* option unchecked. If you haven't already signed in you'll be asked to change your password.



Account:

User Name:

Password:

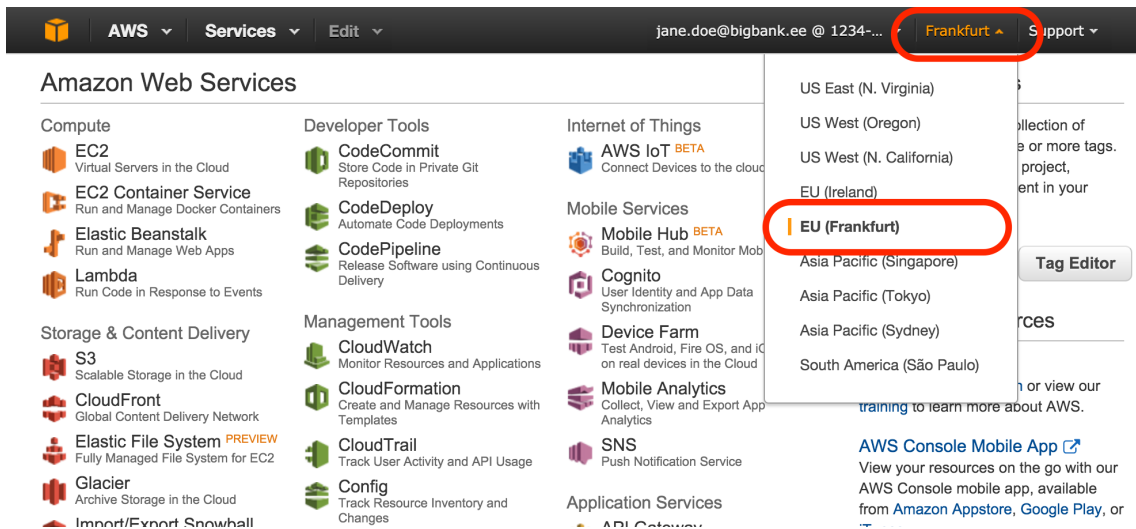
☐ I have an MFA Token [\(more info\)](#)

Sign In

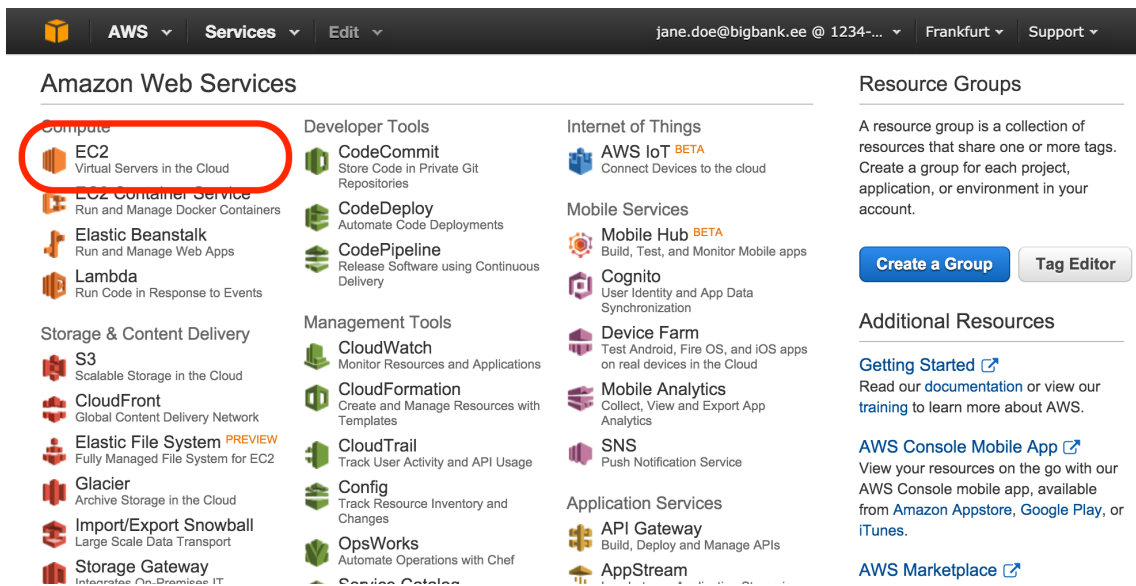
[Sign-in using root account credentials](#)

English 

2. Switch to the Frankfurt Region.

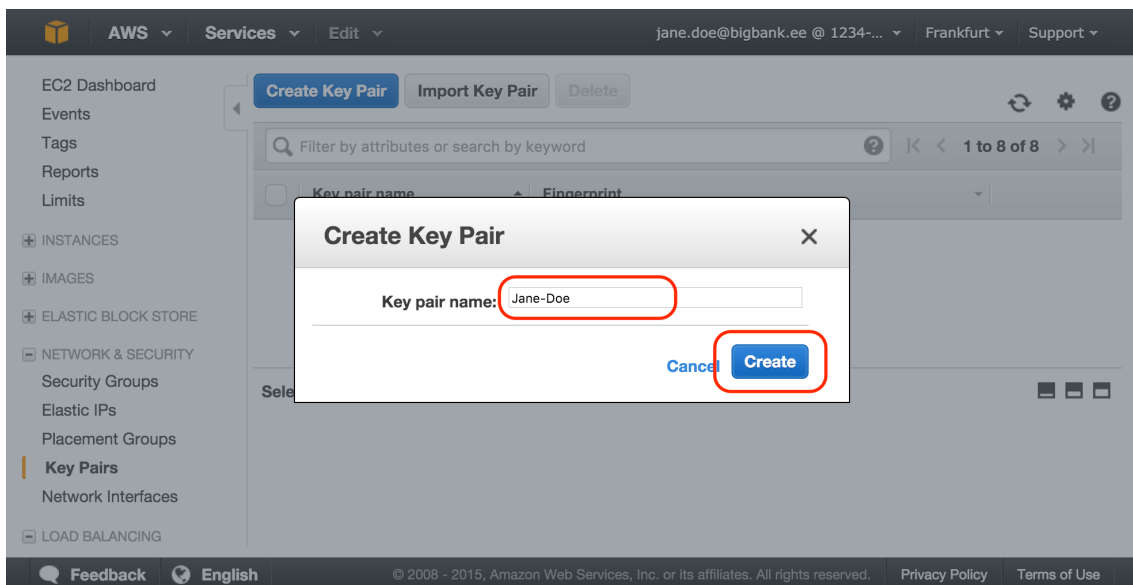
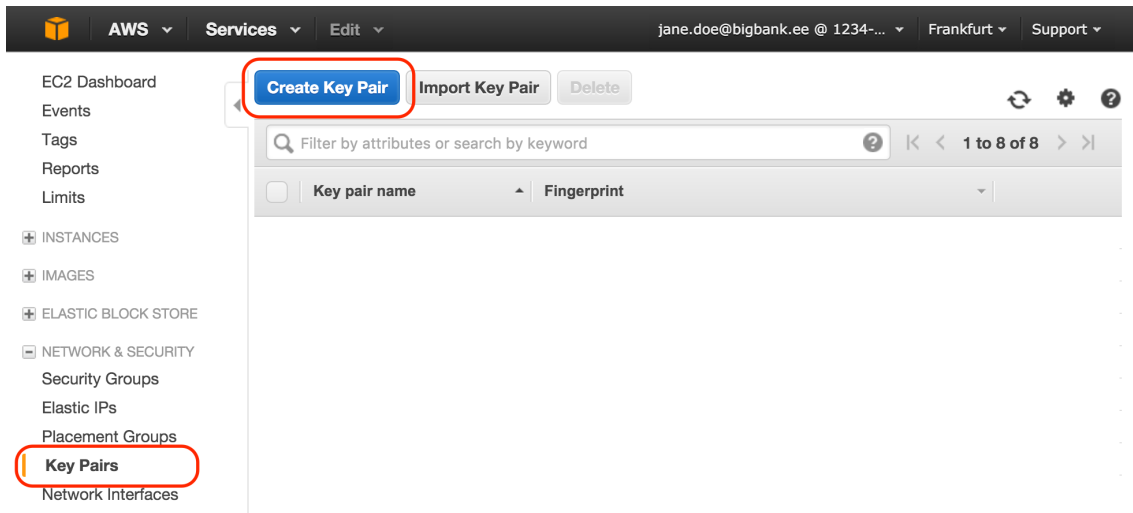


3. Choose EC2 from the list of Web Services. This takes you to the EC2 dashboard.



4. Create and download your Key Pair.

Choose Key Pairs from the menu and then click Create Key Pair. Choose a name for the Key Pair, we recommend you use your name. Once you hit the Create button a .pem file should be downloaded.



Note to Linux and OS X users that you have to change permissions on the Downloaded .pem file before you can use it with ssh. You need to run:
`chmod 0600 /path/to/Jane-Doe.pem.`

Note to Windows users. You have to use the PuTTYgen program to convert the .pem file into a key format that PuTTY can use.

5. Return back to the EC2 Dashboard and choose Launch Instance. This starts the launch wizard process.

The screenshot shows the AWS Management Console interface. At the top, there's a navigation bar with the AWS logo, 'AWS' dropdown, 'Services' dropdown, 'Edit' dropdown, and user information 'jane.doe@bigbank.ee @ 1234-...' with a dropdown, 'Frankfurt' dropdown, and 'Support' dropdown. The left sidebar shows the 'EC2 Dashboard' with a tree view including 'Events', 'Tags', 'Reports', 'Limits', 'INSTANCES' (with sub-items 'Instances', 'Spot Requests', 'Reserved Instances'), 'IMAGES' (with sub-items 'AMIs', 'Bundle Tasks'), 'ELASTIC BLOCK STORE' (with sub-items 'Volumes', 'Snapshots'), and 'NETWORK & SECURITY' (with sub-items 'Security Groups', 'Elastic IPs'). The main content area is titled 'Resources' and shows 'You are using the following Amazon EC2 resources in the EU Central (Frankfurt) region:'. It lists various resource counts: 0 Running Instances, 0 Elastic IPs, 0 Volumes, 0 Snapshots, 0 Key Pairs, 0 Load Balancers, 0 Placement Groups, and 0 Security Groups. Below this is a blue box with a message about deploying applications using Chef recipes and managing SSH users, with a 'Try OpsWorks now.' link and a 'Hide' button. Underneath is the 'Create Instance' section, which says 'To start using Amazon EC2 you will want to launch a virtual server, known as an Amazon EC2 instance.' and features a blue 'Launch Instance' button that is circled in red. At the bottom, a note states 'Note: Your instances will launch in the EU Central (Frankfurt) region'. On the right side, there's an 'Account Attributes' section with links for 'Supported Platforms' (VPC), 'Default VPC' (vpc-40eb2429), and 'Additional Information' (Getting Started Guide, Documentation, All EC2 Resources, Forums, Pricing, Contact Us).

6. Choose the latest Amazon Linux AMI.

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

Step 1: Choose an Amazon Machine Image (AMI) [Cancel and Exit](#)

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. You can select an AMI provided by AWS, our user community, or the AWS Marketplace; or you can select one of your own AMIs.


Quick Start

My AMIs

AWS Marketplace

Community AMIs


☐ Free tier only ⓘ

 **Amazon Linux AMI 2015.09.1 (HVM), SSD Volume Type** - ami-bc5b48d0 **Select**

Free tier eligible

The Amazon Linux AMI is an EBS-backed, AWS-supported image. The default image includes AWS command line tools, Python, Ruby, Perl, and Java. The repositories include Docker, PHP, MySQL, PostgreSQL, and other packages.

Root device type: ebs Virtualization type: hvm

 **Red Hat Enterprise Linux 7.1 (HVM), SSD Volume Type** - ami-dafdcfc7 **Select**

Free tier eligible

Red Hat Enterprise Linux version 7.1 (HVM), EBS General Purpose (SSD) Volume Type

Root device type: ebs Virtualization type: hvm

7. Choose the t2.micro instance type . And choose Next: Configure Instance Details to continue with the launch wizard.

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

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 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	m4.xlarge	16	64	EBS only	Yes	High

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

5

8. Open the Advanced Details section. Edit the User data field and enter the text from the file lab-1/user_data.txt. This example is basically a simple bash script that gets executed when the instance boots. Then again Next.

The screenshot shows the 'Step 3: Configure Instance Details' page in the AWS Management Console. The 'User data' field is highlighted with a red box, and the 'Next: Add Storage' button is also highlighted with a red box.

Step 3: Configure Instance Details

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

Purchasing option: ☐ Request Spot instances

Network: vpc-40eb2429 (172.31.0.0/16) (default) [Create new VPC](#)

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

Advanced Details

User data: ☒ As text ☐ As file ☐ Input is already base64 encoded

(Optional)

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

9. We'll pretty much skip the storage settings i.e. go with the defaults. So just hit Next.

The screenshot shows the 'Step 4: Add Storage' page in the AWS Management Console. The 'Next: Tag Instance' button is highlighted with a red box.

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.

Type	Device	Snapshot	Size (GiB)	Volume Type	IOPS	Delete on Termination	Encrypted
Root	/dev/xvda	snap-f1a95375	8	General Purpose (SSD)	24 / 3000	<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](#)

10. Set the name of the instance by creating the Name tag. Choose something you'll remember as the value as you need this to find your instance at a later point.

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)
Name	Lab-1-Jane-Doe

Create Tag (Up to 10 tags maximum)

Cancel Previous **Review and Launch** Next: Configure Security Group

11. Choose the Security Group Bootcamp-Security-Group. Here you also have an opportunity to take a look at the rules that we have defined for this Security Group.

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 ID	Name	Description	Actions
<input checked="" type="checkbox"/> sg-1452237d	Bootcamp-Security-Group	Allow access from the Bootcamp lab environment	Copy to new

Inbound rules for sg-1452237d (Selected security groups: sg-1452237d)

Type	Protocol	Port Range	Source
HTTP	TCP	80	88.106.238.220/20

Cancel Previous **Review and Launch**

12. Now you have the opportunity to go over the configuration of your instance

Step 7: Review Instance Launch

Please review your instance launch details. You can go back to edit changes for each section. Click **Launch** to assign a key pair to your instance and complete the launch process.

▼ AMI Details [Edit AMI](#)

Amazon Linux AMI 2015.09.1 (HVM), SSD Volume Type - ami-bc5b48d0

The Amazon Linux AMI is an EBS-backed, AWS-supported image. The default image includes AWS command line tools, Python, Ruby, Perl, and Java. The repositories include Docker, PHP, MySQL, PostgreSQL, and other packages.

Root Device Type: ebs Virtualization type: hvm

▼ Security Groups [Edit security groups](#)

Security Group ID	Name	Description
sn-1452237d	Bootcamp-Security-Group	Allow access from the Bootcamp lab environment

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

13. Now this part is very important as you won't be able to access your instance if you don't get this right. Choose the Key Pair you created earlier from the list. And hit Launch.

Step 7: Review Instance Launch

Please review your instance launch details. You can go back to edit changes for each section. Click **Launch** to assign a key pair to your instance and complete the launch process.

▼ AMI Details [Edit AMI](#)

Amazon Linux AMI 2015.09.1 (HVM), SSD Volume Type - ami-bc5b48d0

The Amazon Linux AMI is an EBS-backed, AWS-supported image. The default image includes AWS command line tools, Python, Ruby, Perl, and Java. The repositories include Docker, PHP, MySQL, PostgreSQL, and other packages.

Root Device Type: ebs Virtualization type: hvm

▼ Instance Type [Edit instance type](#)

Instance Type

t2.micro

▼ Security Groups [Edit security groups](#)

Security Groups

sn-1452237d Bootcamp-Security-Group Allow access from the Bootcamp lab environment

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

Select an existing key pair or create a new key pair

A key pair consists of a **public key** that AWS stores, and a **private key file** that you store. Together, they allow you to connect to your instance securely. For Windows AMIs, the private key file is required to obtain the password used to log into your instance. For Linux AMIs, the private key file allows you to securely SSH into your instance.

Note: The selected key pair will be added to the set of keys authorized for this instance. Learn more about [removing existing key pairs from a public AMI](#).

Choose an existing key pair

Select a key pair

Jane-Doe

☒ I acknowledge that I have access to the selected private key file (kadi.kink.pem), and that without this file, I won't be able to log into my instance.

[Cancel](#) [Launch Instances](#)

14. Return to the EC2 Dashboard and navigate to the Instances page. Use the search to find the instance you just created and select the instance. On the Description tab find the Public DNS of your instance.

The screenshot shows the AWS Management Console interface. In the left-hand navigation pane, the 'Instances' link under the 'INSTANCES' section is highlighted. The main content area displays a list of EC2 instances. A search bar at the top of the list shows 'Name : Lab-1-Jane-Doe'. Below the search bar, a table lists instances. The first instance, 'Lab-1-Jane-...', is selected. The 'Description' tab is active, showing details for instance 'i-67b11ddb'. The instance state is 'running', and the public DNS address is 'ec2-52-29-123-240.eu-central-1.compute.amazonaws.com'.

Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks
Lab-1-Jane-...	i-67b11ddb	t2.micro	eu-central-1b	running	Initializing

Instance: i-67b11ddb (Lab-1-Jane-Doe) Public DNS: ec2-52-29-123-240.eu-central-1.compute.amazonaws.com

Public DNS: ec2-52-29-123-240.eu-central-1.compute.amazonaws.com

Public IP: 52.29.123.240

Note that the instance boot might take a couple of minutes. You can see the Instance State on the page. Even if it has switched to running then the OS boot might still take a few more minutes. One way to check the progress is to choose from the Actions menu go to Instance Settings and then choose Get System Log. This is the OS console output.

15. Now SSH into you instance using the hostname and your Key Pair. The user name is ec2-user. So on Linux/OS X.

```
$ ssh -i /path/to/Jane-Doe.pem ec2-user@ec2-52-28-24-189.eu-central-1.compute.amazonaws.com
```

16. Run some commands.

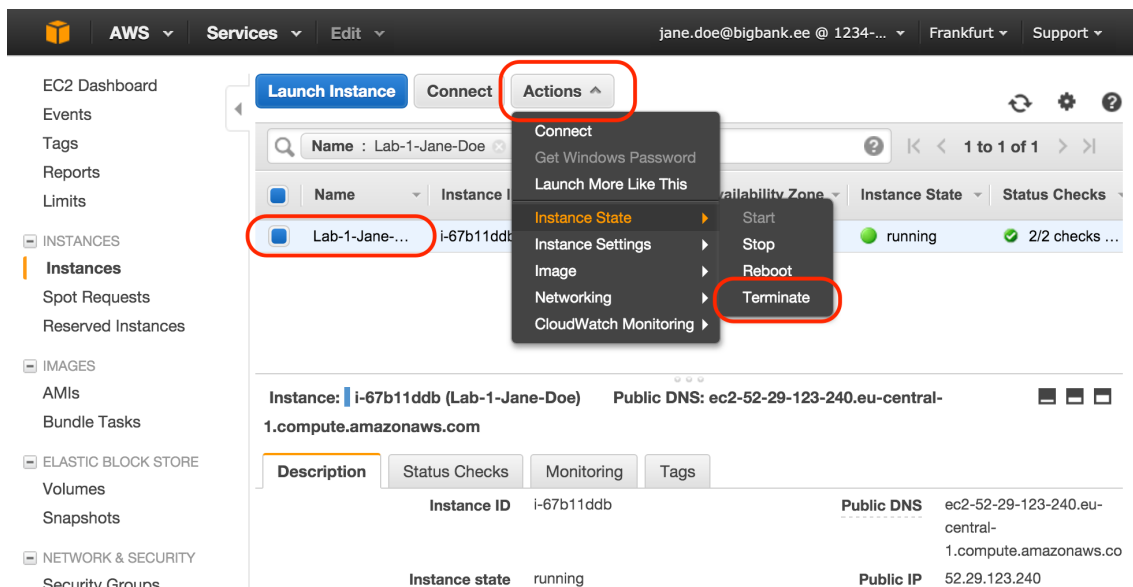
One thing to check is that the User Data installation script worked as intended. So you could try making the `cowsay` cow say a few thing.

```
[ec2-user@ip-172-31-25-189 ~]$ echo 'I <3 AWS' | cowsay
```

For extra points you could take a look at the [Instance Metadata and User Data](https://docs.aws.amazon.com/AWSEC2/latest/UserGuide/InstanceMetadata.html)¹ page in AWS docs and try some commands. For example:

```
[ec2-user@ip-172-31-25-189 ~]$ curl http://169.254.169.254/latest/meta-data/hostname
```

17. Return to the AWS Web Console windows. Use instructions from step 14. to find your instance if you have to. Select you instance and from the Actions menu choose Terminate.



¹ <http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/ec2-instance-metadata.html>