TASK A: Step-by-step guide to create a custom Amazon Machine Image (AMI) with the Ruby programming language pre-installed using a standard Amazon Linux EC2 instance as your base template:

1. Go to the AWS (Amazon Web Services) Management Console and sign in to your AWS account.

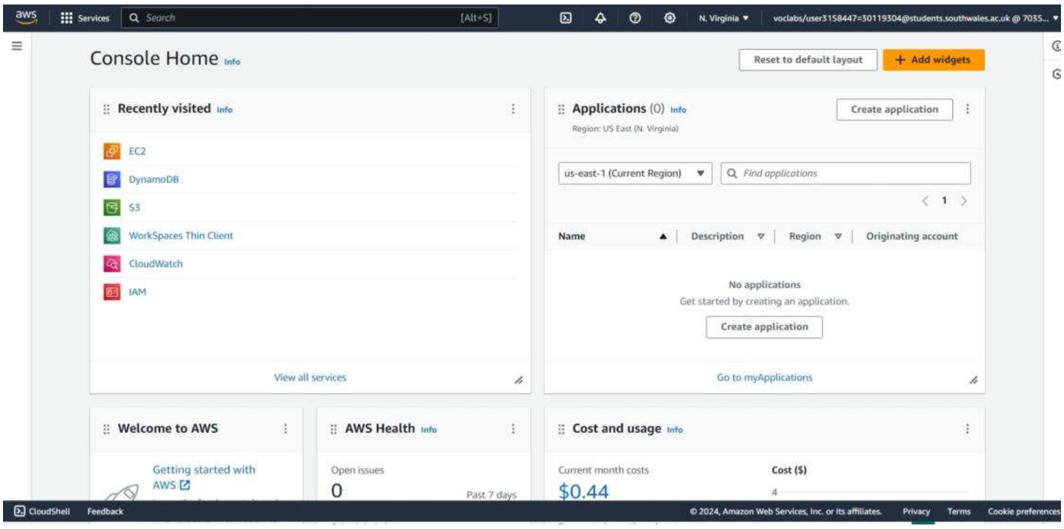


Fig 1: AWS home page

2. Check that the **N. Virginia (us-east-1)** region's resources are currently being managed by your EC2 console. Checking the drop-down option to the left of your username at the top of the screen will allow you to confirm this. Before moving on to the following stage, select the N. Virginia region from the region selection if it is not already shown.

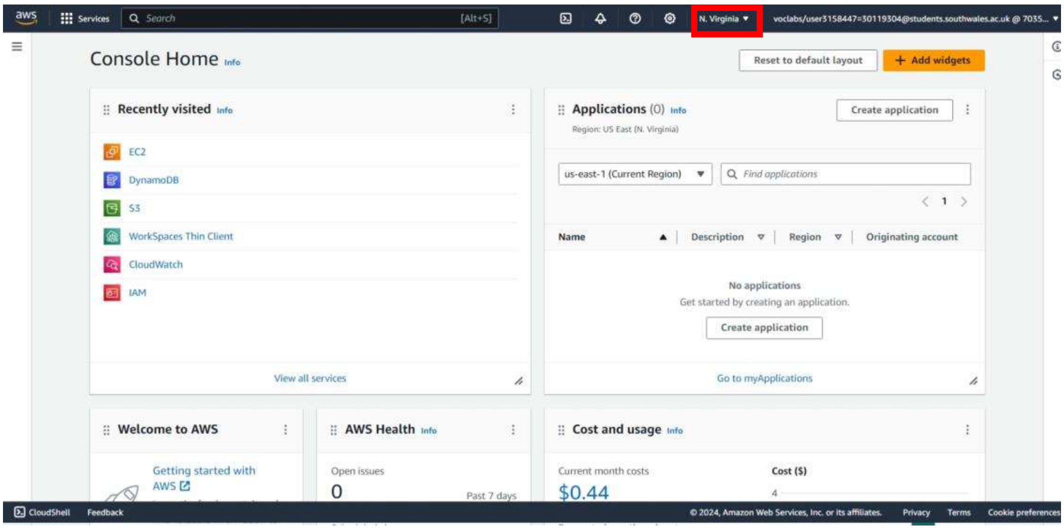
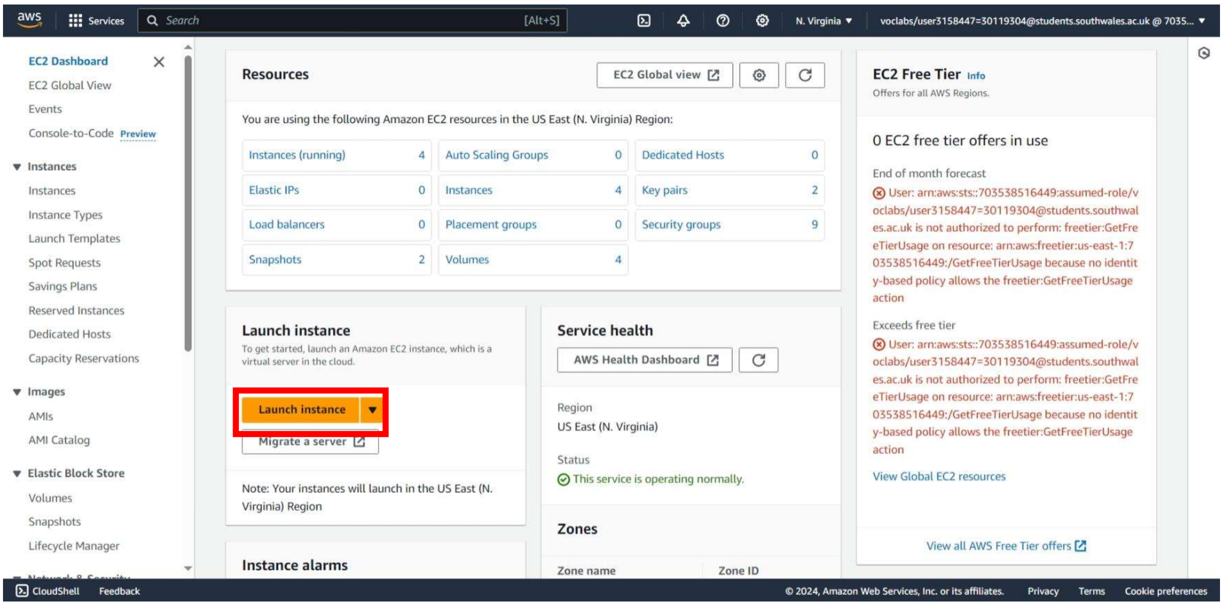


Fig 2: AWS home page

3. After logging in, use the AWS services search bar to search on **"EC2"** to access the EC2 Service.
4. Click on the **“launch instances”** button.



Resources

You are using the following Amazon EC2 resources in the US East (N. Virginia) Region:

Instances (running)	4	Auto Scaling Groups	0	Dedicated Hosts	0
Elastic IPs	0	Instances	4	Key pairs	2
Load balancers	0	Placement groups	0	Security groups	9
Snapshots	2	Volumes	4		

Launch instance

To get started, launch an Amazon EC2 instance, which is a virtual server in the cloud.

Note: Your instances will launch in the US East (N. Virginia) Region

Instance alarms

Service health

Region
US East (N. Virginia)

Status
This service is operating normally.

Zones

Zone name	Zone ID

EC2 Free Tier

Offers for all AWS Regions.

0 EC2 free tier offers in use

End of month forecast

User: arn:aws:sts::703538516449:assumed-role/voclabs/user3158447=30119304@students.southwales.ac.uk is not authorized to perform: freetier:GetFreeTierUsage on resource: arn:aws:freetier:us-east-1:703538516449:/GetFreeTierUsage because no identity-based policy allows the freetier:GetFreeTierUsage action

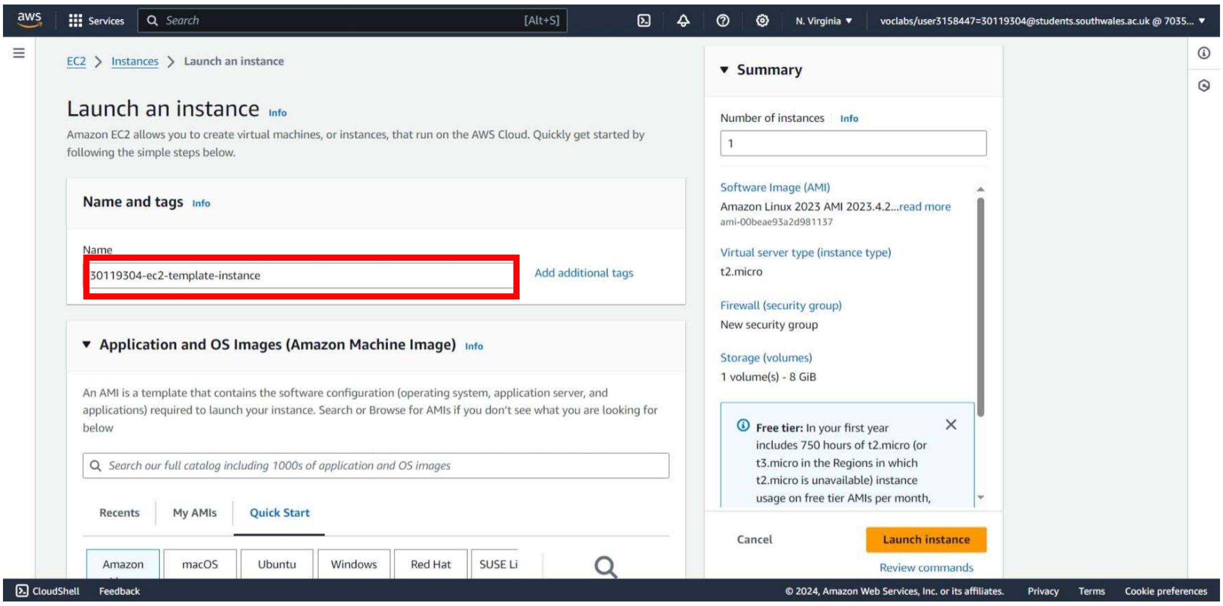
Exceeds free tier

User: arn:aws:sts::703538516449:assumed-role/voclabs/user3158447=30119304@students.southwales.ac.uk is not authorized to perform: freetier:GetFreeTierUsage on resource: arn:aws:freetier:us-east-1:703538516449:/GetFreeTierUsage because no identity-based policy allows the freetier:GetFreeTierUsage action

© 2024, Amazon Web Services, Inc. or its affiliates.

Fig 3: EC2 page

5. Configure the instances details
   - Name: 30119304-ec2-template-instance
   - Instance type: t2.nano
   - Key pair name: vockey
   - Configure the storage: 25 GB and root volume is gp3



EC2 > Instances > Launch an instance

Launch an instance Info

Amazon EC2 allows you to create virtual machines, or instances, that run on the AWS Cloud. Quickly get started by following the simple steps below.

Name and tags Info

Name: 30119304-ec2-template-instance

Add additional tags

Application and OS Images (Amazon Machine Image) Info

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below

Search our full catalog including 1000s of application and OS images

Recents | My AMIs | Quick Start

Amazon | macOS | Ubuntu | Windows | Red Hat | SUSE Li

Summary

Number of instances Info: 1

Software Image (AMI): Amazon Linux 2023 AMI 2023.4.2...read more
ami-00beae93a2d981137

Virtual server type (instance type): t2.micro

Firewall (security group): New security group

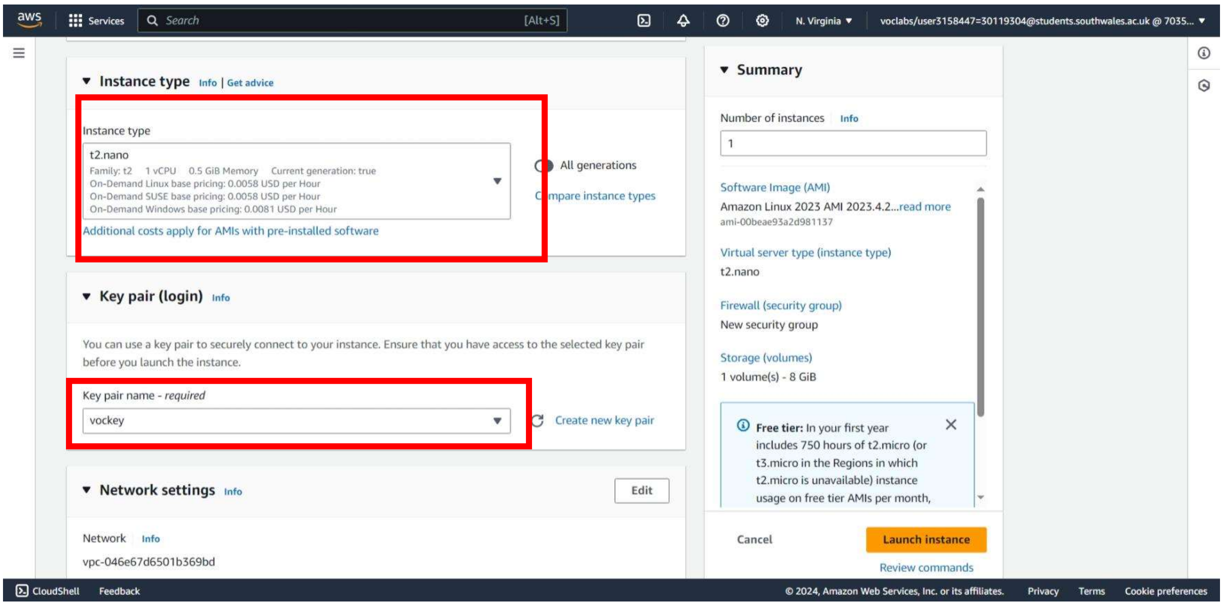
Storage (volumes): 1 volume(s) - 8 GiB

Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month,

Cancel | Launch instance | Review commands

aws
Services
Search
[Alt+S]
N. Virginia
voclabs/user3158447=30119304@students.southwales.ac.uk @ 7035...
CloudShell
Feedback
© 2024, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences

Fig 4: Launch an instance page



Instance type Info | Get advice

Instance type: t2.nano
Family: t2 1 vCPU 0.5 GiB Memory Current generation: true
On-Demand Linux base pricing: 0.0058 USD per Hour
On-Demand SUSE base pricing: 0.0058 USD per Hour
On-Demand Windows base pricing: 0.0081 USD per Hour

All generations

Compare instance types

Additional costs apply for AMIs with pre-installed software

Key pair (login) Info

You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.

Key pair name - *required*: vockey

Create new key pair

Network settings Info | Edit

Network Info: vpc-046e67d6501b369bd

Summary

Number of instances Info: 1

Software Image (AMI): Amazon Linux 2023 AMI 2023.4.2...read more
ami-00beae93a2d981137

Virtual server type (instance type): t2.nano

Firewall (security group): New security group

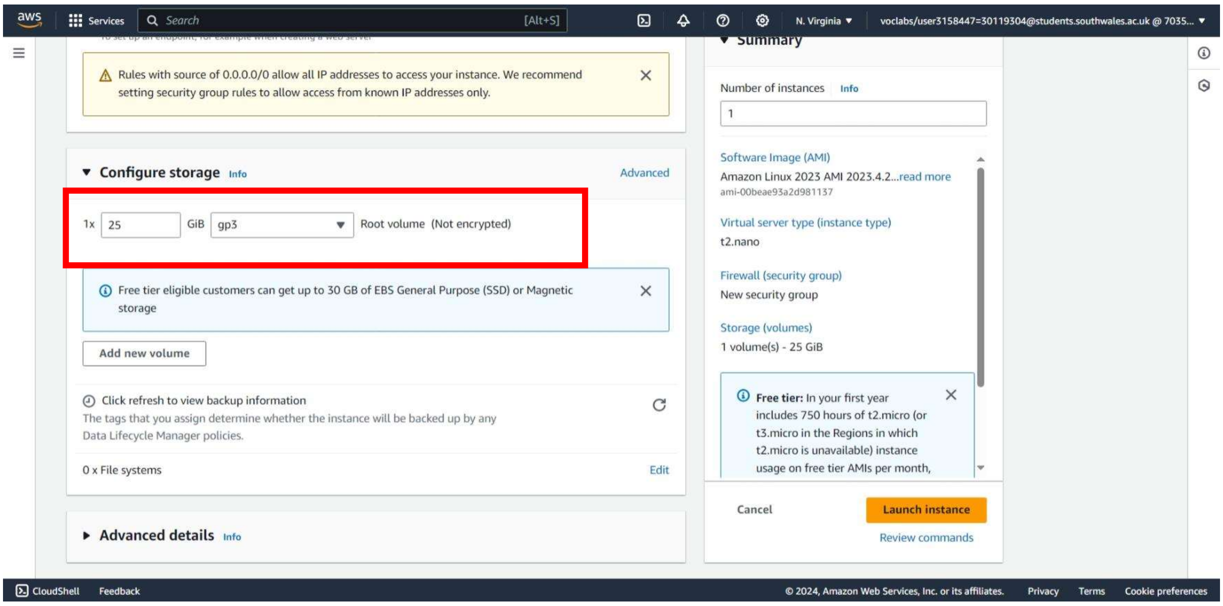
Storage (volumes): 1 volume(s) - 8 GiB

Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month,

Cancel | Launch instance | Review commands

aws
Services
Search
[Alt+S]
N. Virginia
voclabs/user3158447=30119304@students.southwales.ac.uk @ 7035...
CloudShell
Feedback
© 2024, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences

Fig 5: Launch an instance page



aws
Services
Search [Alt+S]
N. Virginia
voclabs/user3158447=30119304@students.southwales.ac.uk @ 7035...

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.

Configure storage Info Advanced

1x 25 GiB gp3 Root volume (Not encrypted)

Free tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage

Add new volume

Click refresh to view backup information
The tags that you assign determine whether the instance will be backed up by any Data Lifecycle Manager policies.

0 x File systems Edit

Advanced details Info

Summary

Number of instances Info
1

Software Image (AMI)
Amazon Linux 2023 AMI 2023.4.2...read more
ami-00beae93a2d981137

Virtual server type (instance type)
t2.nano

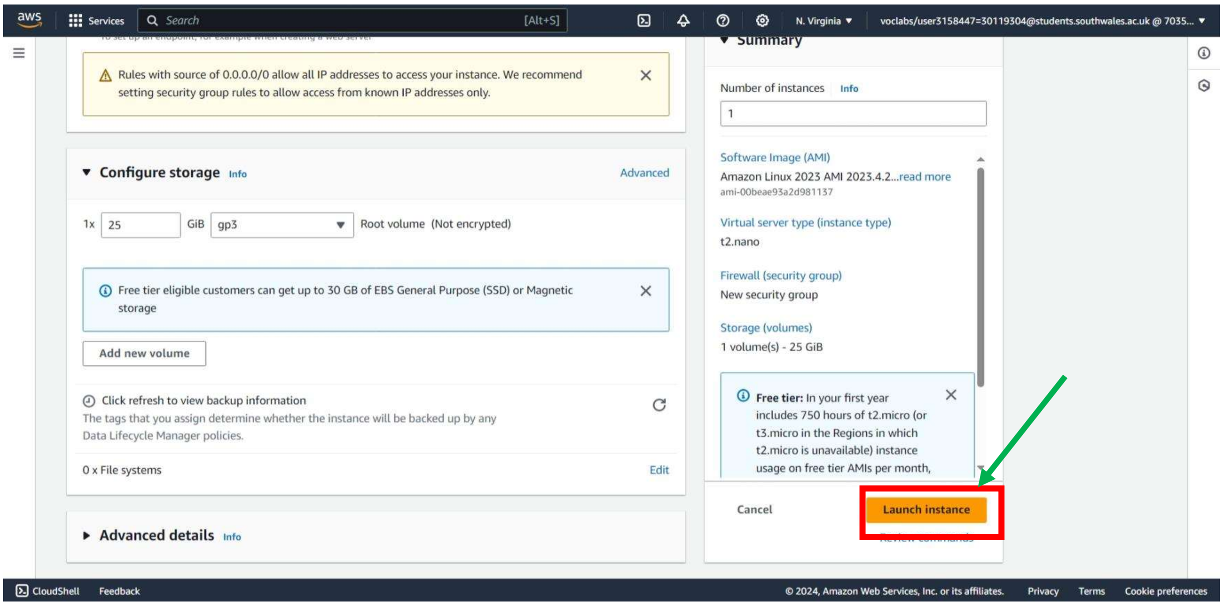
Firewall (security group)
New security group

Storage (volumes)
1 volume(s) - 25 GiB

Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month,

Fig 6: Launch an instance page

6. Review and click on the **"Launch instance"** button and after successful launch you will get notification on your screen.



aws
Services
Search [Alt+S]
N. Virginia
voclabs/user3158447=30119304@students.southwales.ac.uk @ 7035...

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.

Configure storage Info Advanced

1x 25 GiB gp3 Root volume (Not encrypted)

Free tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage

Add new volume

Click refresh to view backup information
The tags that you assign determine whether the instance will be backed up by any Data Lifecycle Manager policies.

0 x File systems Edit

Advanced details Info

Summary

Number of instances Info
1

Software Image (AMI)
Amazon Linux 2023 AMI 2023.4.2...read more
ami-00beae93a2d981137

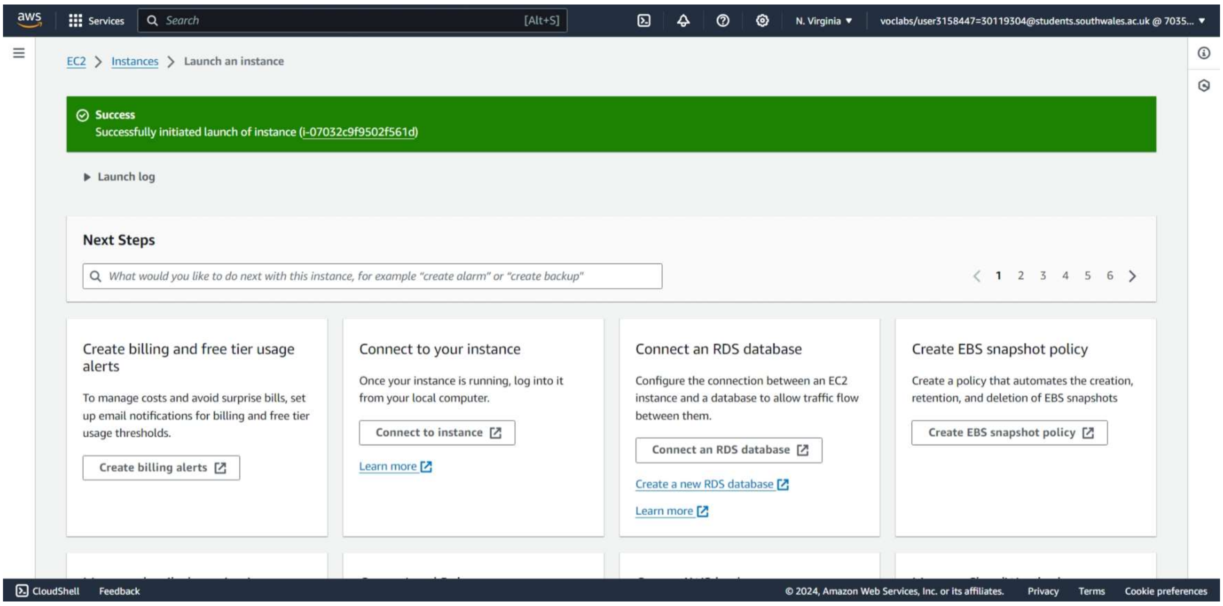
Virtual server type (instance type)
t2.nano

Firewall (security group)
New security group

Storage (volumes)
1 volume(s) - 25 GiB

Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month,

Fig 7: Launch an instance page


aws
Services
Search [Alt+S]
N. Virginia
voclabs/user3158447=30119304@students.southwales.ac.uk @ 7035...
EC2 > Instances > Launch an instance
Launch log
Next Steps
1 2 3 4 5 6
Create billing alerts
Connect to instance
Learn more
Connect an RDS database
Create a new RDS database
Learn more
Create EBS snapshot policy
CloudShell
Feedback
© 2024, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences

Success
Successfully initiated launch of instance (i-07032c9f9502f561d)

What would you like to do next with this instance, for example "create alarm" or "create backup"

Create billing and free tier usage alerts

To manage costs and avoid surprise bills, set up email notifications for billing and free tier usage thresholds.

Connect to your instance

Once your instance is running, log into it from your local computer.

Connect an RDS database

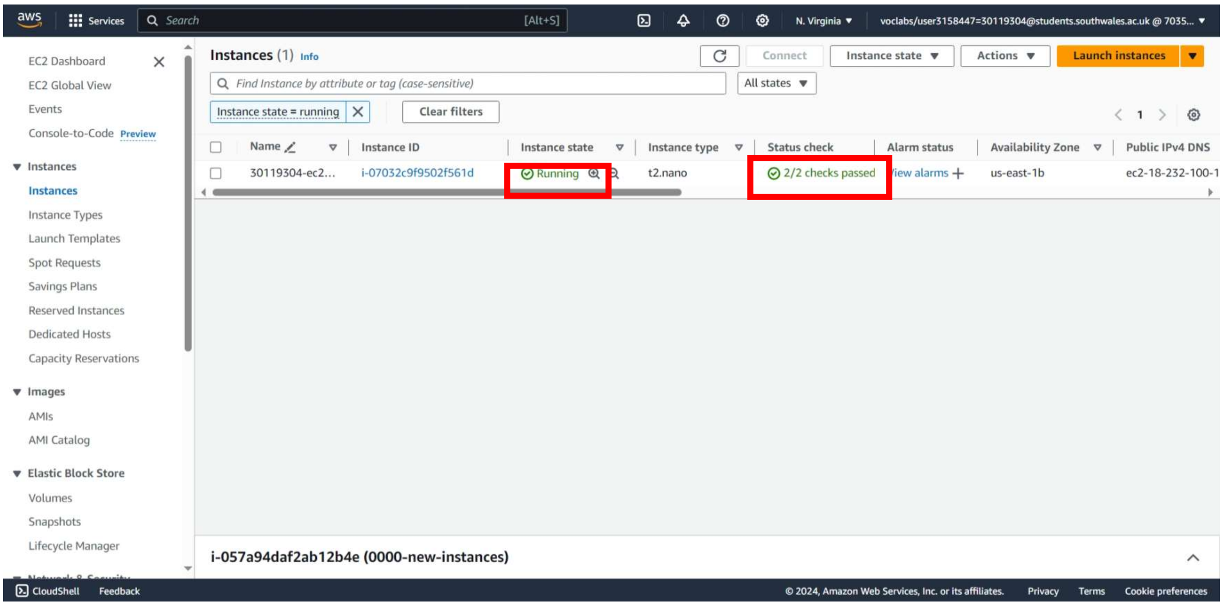
Configure the connection between an EC2 instance and a database to allow traffic flow between them.

Create EBS snapshot policy

Create a policy that automates the creation, retention, and deletion of EBS snapshots

Fig 8: Instance page

7. It will take few seconds to launch and before start to do anything make sure
   Instances type: Running
   Status check: 2/2 checks passed

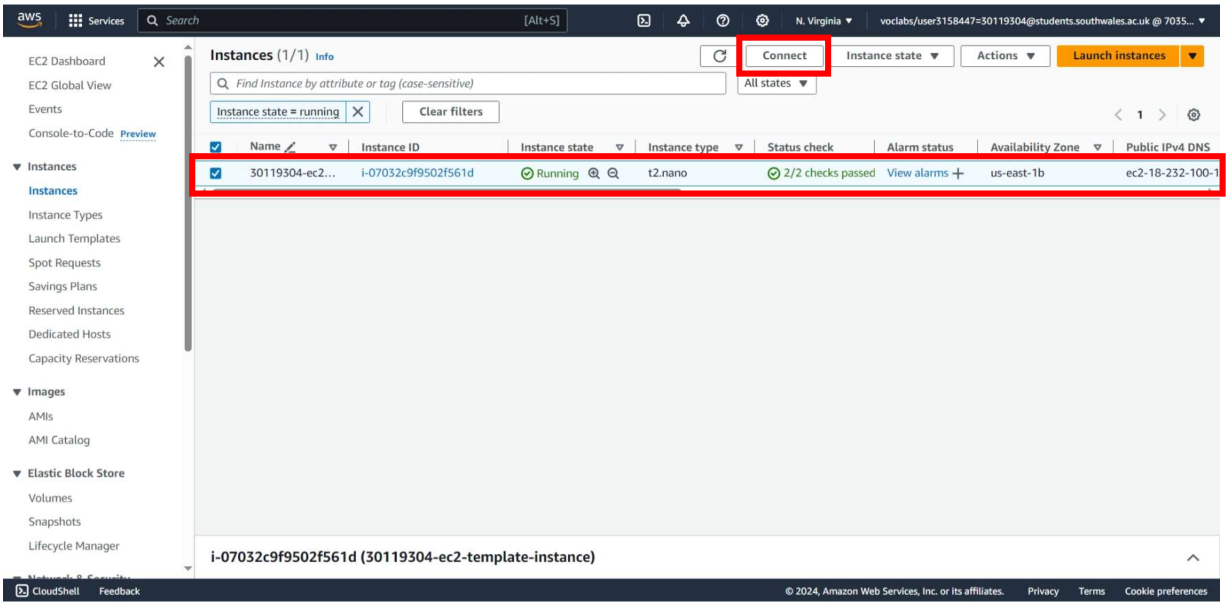


Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS
30119304-ec2...	i-07032c9f9502f561d	Running	t2.nano	2/2 checks passed	View alarms +	us-east-1b	ec2-18-232-100-1

i-057a94daf2ab12b4e (0000-new-instances)

Fig 9: Instance page

8. Connect to the instance via SSH after it has been launched. Select your **30119304-ec2-template-instance** on the right side and select **connect** button.



Instances (1/1)

Instance state = running

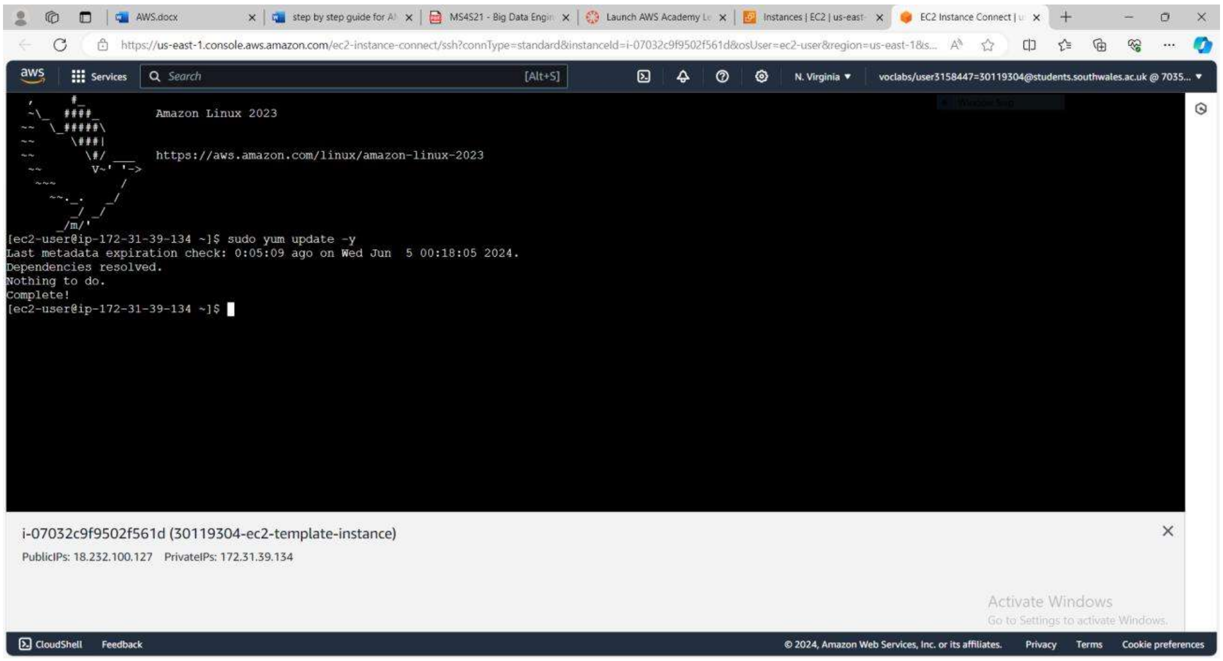
Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS
30119304-ec2...	i-07032c9f9502f561d	Running	t2.nano	2/2 checks passed	View alarms	us-east-1b	ec2-18-232-100-1

i-07032c9f9502f561d (30119304-ec2-template-instance)

Fig 10: Instance page

9. The new terminal will be open in that terminal run the following command to create a new Ruby file:

   - ➢ sudo yum update –y



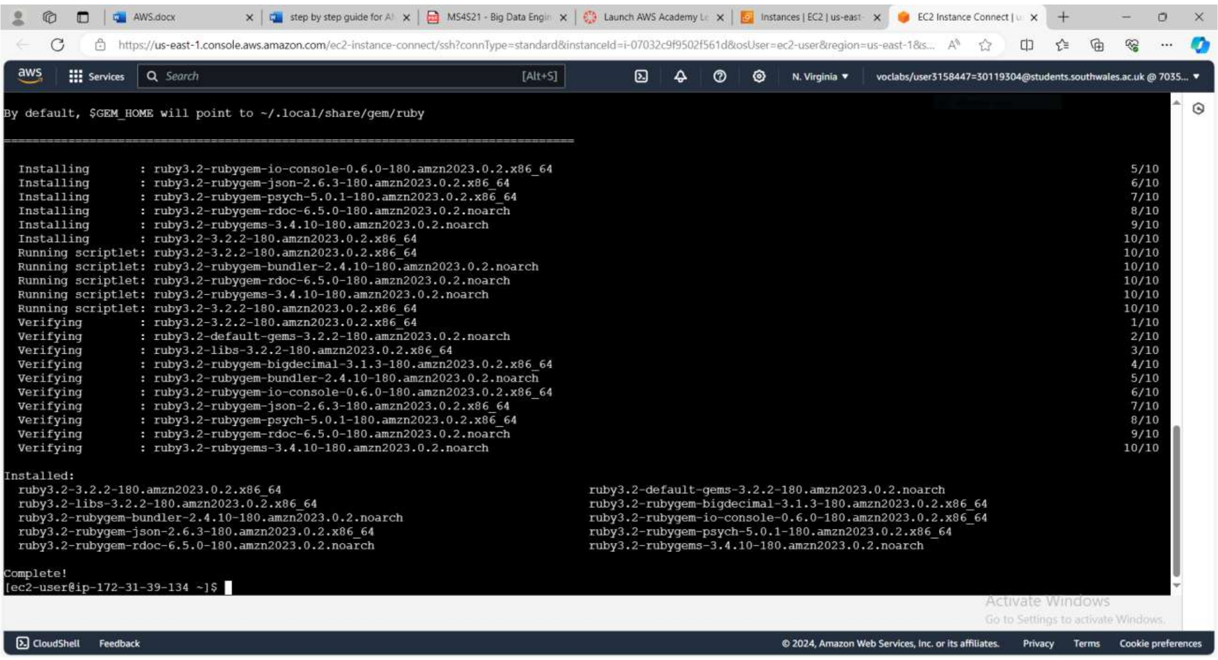
```
   ,     #_
   ~\_  ####_        Amazon Linux 2023
  ~~  \_#####\
  ~~     \###|
  ~~       \#/ ___   https://aws.amazon.com/linux/amazon-linux-2023
   ~~       V~' '->
    ~~~         /
      ~~._.   _/
         _/ _/
       _/m/'
[ec2-user@ip-172-31-39-134 ~]$ sudo yum update -y
Last metadata expiration check: 0:05:09 ago on Wed Jun  5 00:18:05 2024.
Dependencies resolved.
Nothing to do.
Complete!
[ec2-user@ip-172-31-39-134 ~]$ 
```

i-07032c9f9502f561d (30119304-ec2-template-instance)

PublicIPs: 18.232.100.127 PrivateIPs: 172.31.39.134

Fig 11: Terminal page

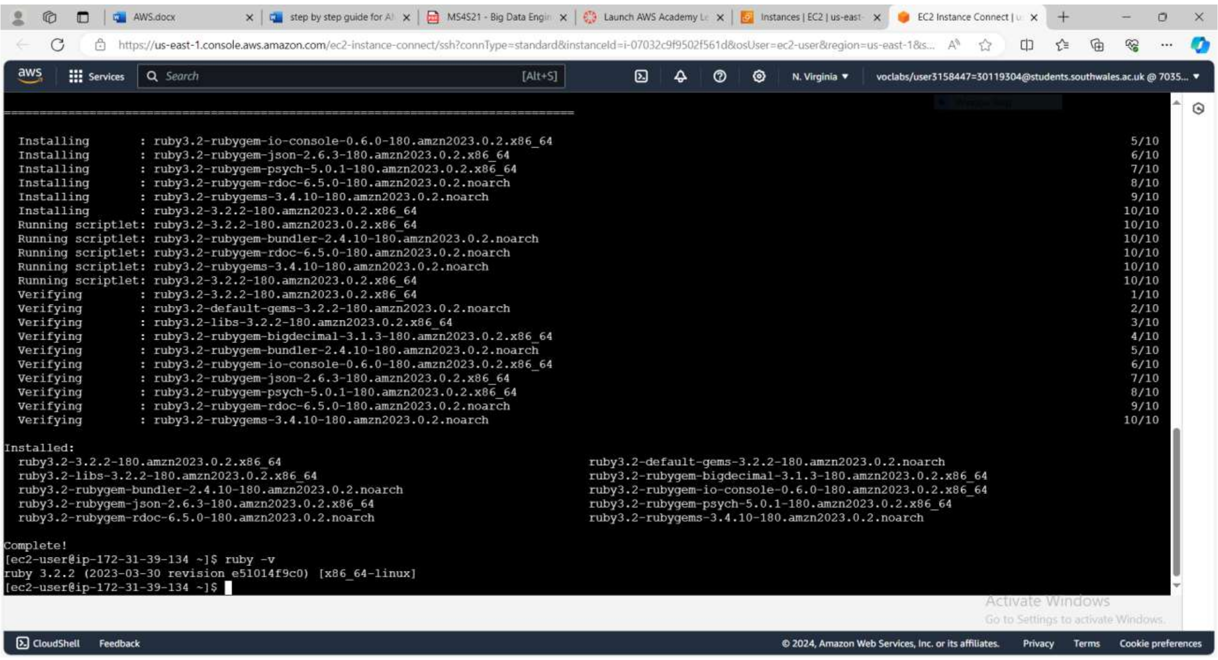
   - ➢ sudo yum install ruby –y



```
By default, $GEM_HOME will point to ~/.local/share/gem/ruby

================================================================================

  Installing       : ruby3.2-rubygem-io-console-0.6.0-180.amzn2023.0.2.x86_64                                  5/10
  Installing       : ruby3.2-rubygem-json-2.6.3-180.amzn2023.0.2.x86_64                                        6/10
  Installing       : ruby3.2-rubygem-psych-5.0.1-180.amzn2023.0.2.x86_64                                       7/10
  Installing       : ruby3.2-rubygem-rdoc-6.5.0-180.amzn2023.0.2.noarch                                        8/10
  Installing       : ruby3.2-rubygems-3.4.10-180.amzn2023.0.2.noarch                                           9/10
  Installing       : ruby3.2-3.2.2-180.amzn2023.0.2.x86_64                                                    10/10
  Running scriptlet: ruby3.2-3.2.2-180.amzn2023.0.2.x86_64                                                    10/10
  Running scriptlet: ruby3.2-rubygem-bundler-2.4.10-180.amzn2023.0.2.noarch                                   10/10
  Running scriptlet: ruby3.2-rubygem-rdoc-6.5.0-180.amzn2023.0.2.noarch                                       10/10
  Running scriptlet: ruby3.2-rubygems-3.4.10-180.amzn2023.0.2.noarch                                          10/10
  Running scriptlet: ruby3.2-3.2.2-180.amzn2023.0.2.x86_64                                                    10/10
  Verifying        : ruby3.2-3.2.2-180.amzn2023.0.2.x86_64                                                     1/10
  Verifying        : ruby3.2-default-gems-3.2.2-180.amzn2023.0.2.noarch                                        2/10
  Verifying        : ruby3.2-libs-3.2.2-180.amzn2023.0.2.x86_64                                                3/10
  Verifying        : ruby3.2-rubygem-bigdecimal-3.1.3-180.amzn2023.0.2.x86_64                                  4/10
  Verifying        : ruby3.2-rubygem-bundler-2.4.10-180.amzn2023.0.2.noarch                                    5/10
  Verifying        : ruby3.2-rubygem-io-console-0.6.0-180.amzn2023.0.2.x86_64                                  6/10
  Verifying        : ruby3.2-rubygem-json-2.6.3-180.amzn2023.0.2.x86_64                                        7/10
  Verifying        : ruby3.2-rubygem-psych-5.0.1-180.amzn2023.0.2.x86_64                                       8/10
  Verifying        : ruby3.2-rubygem-rdoc-6.5.0-180.amzn2023.0.2.noarch                                        9/10
  Verifying        : ruby3.2-rubygems-3.4.10-180.amzn2023.0.2.noarch                                          10/10

Installed:
  ruby3.2-3.2.2-180.amzn2023.0.2.x86_64                              ruby3.2-default-gems-3.2.2-180.amzn2023.0.2.noarch
  ruby3.2-libs-3.2.2-180.amzn2023.0.2.x86_64                         ruby3.2-rubygem-bigdecimal-3.1.3-180.amzn2023.0.2.x86_64
  ruby3.2-rubygem-bundler-2.4.10-180.amzn2023.0.2.noarch             ruby3.2-rubygem-io-console-0.6.0-180.amzn2023.0.2.x86_64
  ruby3.2-rubygem-json-2.6.3-180.amzn2023.0.2.x86_64                 ruby3.2-rubygem-psych-5.0.1-180.amzn2023.0.2.x86_64
  ruby3.2-rubygem-rdoc-6.5.0-180.amzn2023.0.2.noarch                 ruby3.2-rubygems-3.4.10-180.amzn2023.0.2.noarch

Complete!
[ec2-user@ip-172-31-39-134 ~]$
```

Fig 12: Terminal page

- ruby –v

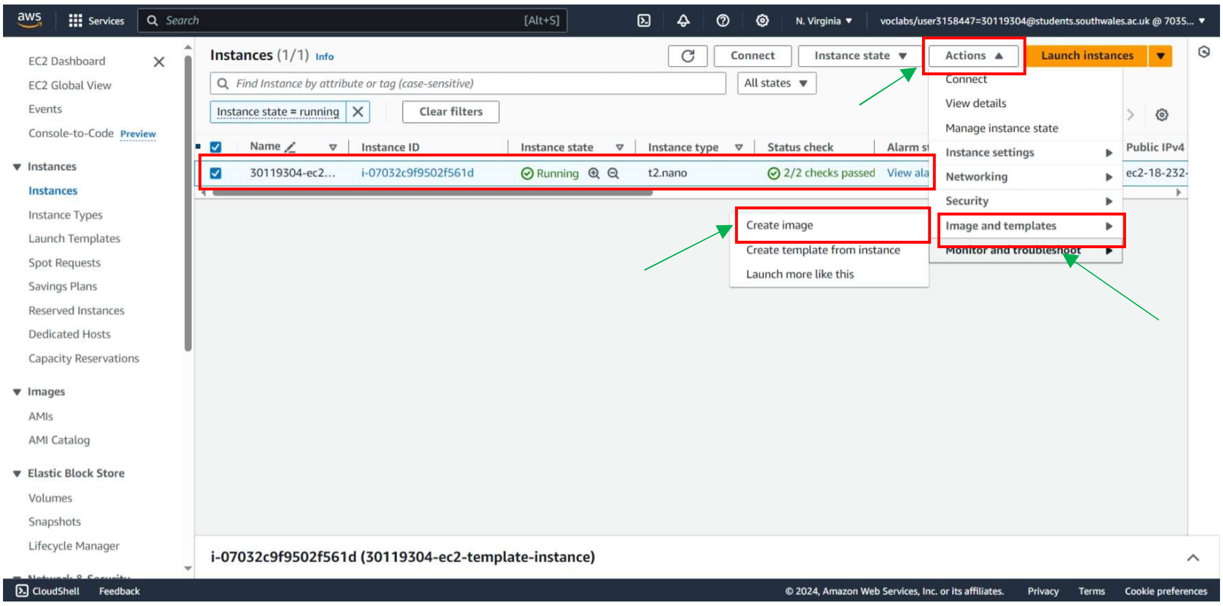


```
================================================================================

  Installing       : ruby3.2-rubygem-io-console-0.6.0-180.amzn2023.0.2.x86_64                                  5/10
  Installing       : ruby3.2-rubygem-json-2.6.3-180.amzn2023.0.2.x86_64                                        6/10
  Installing       : ruby3.2-rubygem-psych-5.0.1-180.amzn2023.0.2.x86_64                                       7/10
  Installing       : ruby3.2-rubygem-rdoc-6.5.0-180.amzn2023.0.2.noarch                                        8/10
  Installing       : ruby3.2-rubygems-3.4.10-180.amzn2023.0.2.noarch                                           9/10
  Installing       : ruby3.2-3.2.2-180.amzn2023.0.2.x86_64                                                    10/10
  Running scriptlet: ruby3.2-3.2.2-180.amzn2023.0.2.x86_64                                                    10/10
  Running scriptlet: ruby3.2-rubygem-bundler-2.4.10-180.amzn2023.0.2.noarch                                   10/10
  Running scriptlet: ruby3.2-rubygem-rdoc-6.5.0-180.amzn2023.0.2.noarch                                       10/10
  Running scriptlet: ruby3.2-rubygems-3.4.10-180.amzn2023.0.2.noarch                                          10/10
  Running scriptlet: ruby3.2-3.2.2-180.amzn2023.0.2.x86_64                                                    10/10
  Verifying        : ruby3.2-3.2.2-180.amzn2023.0.2.x86_64                                                     1/10
  Verifying        : ruby3.2-default-gems-3.2.2-180.amzn2023.0.2.noarch                                        2/10
  Verifying        : ruby3.2-libs-3.2.2-180.amzn2023.0.2.x86_64                                                3/10
  Verifying        : ruby3.2-rubygem-bigdecimal-3.1.3-180.amzn2023.0.2.x86_64                                  4/10
  Verifying        : ruby3.2-rubygem-bundler-2.4.10-180.amzn2023.0.2.noarch                                    5/10
  Verifying        : ruby3.2-rubygem-io-console-0.6.0-180.amzn2023.0.2.x86_64                                  6/10
  Verifying        : ruby3.2-rubygem-json-2.6.3-180.amzn2023.0.2.x86_64                                        7/10
  Verifying        : ruby3.2-rubygem-psych-5.0.1-180.amzn2023.0.2.x86_64                                       8/10
  Verifying        : ruby3.2-rubygem-rdoc-6.5.0-180.amzn2023.0.2.noarch                                        9/10
  Verifying        : ruby3.2-rubygems-3.4.10-180.amzn2023.0.2.noarch                                          10/10

Installed:
  ruby3.2-3.2.2-180.amzn2023.0.2.x86_64                              ruby3.2-default-gems-3.2.2-180.amzn2023.0.2.noarch
  ruby3.2-libs-3.2.2-180.amzn2023.0.2.x86_64                         ruby3.2-rubygem-bigdecimal-3.1.3-180.amzn2023.0.2.x86_64
  ruby3.2-rubygem-bundler-2.4.10-180.amzn2023.0.2.noarch             ruby3.2-rubygem-io-console-0.6.0-180.amzn2023.0.2.x86_64
  ruby3.2-rubygem-json-2.6.3-180.amzn2023.0.2.x86_64                 ruby3.2-rubygem-psych-5.0.1-180.amzn2023.0.2.x86_64
  ruby3.2-rubygem-rdoc-6.5.0-180.amzn2023.0.2.noarch                 ruby3.2-rubygems-3.4.10-180.amzn2023.0.2.noarch

Complete!
[ec2-user@ip-172-31-39-134 ~]$ ruby -v
ruby 3.2.2 (2023-03-30 revision e51014f9c0) [x86_64-linux]
[ec2-user@ip-172-31-39-134 ~]$
```

Fig 13: Terminal page

Note: You should see the Ruby version information displayed.

10. Make sure the instance is stable and that all required software is installed before generating an AMI.
11. Once the instance is ready, go to the **EC2 dashboard** in the AWS Management Console.
12. Select the instance you just configured.
    Note: make sure that you selected the right instances
13. In the top right corner select **“Actions”** and choose **"Image and templates"** and then select **“Create image”** option

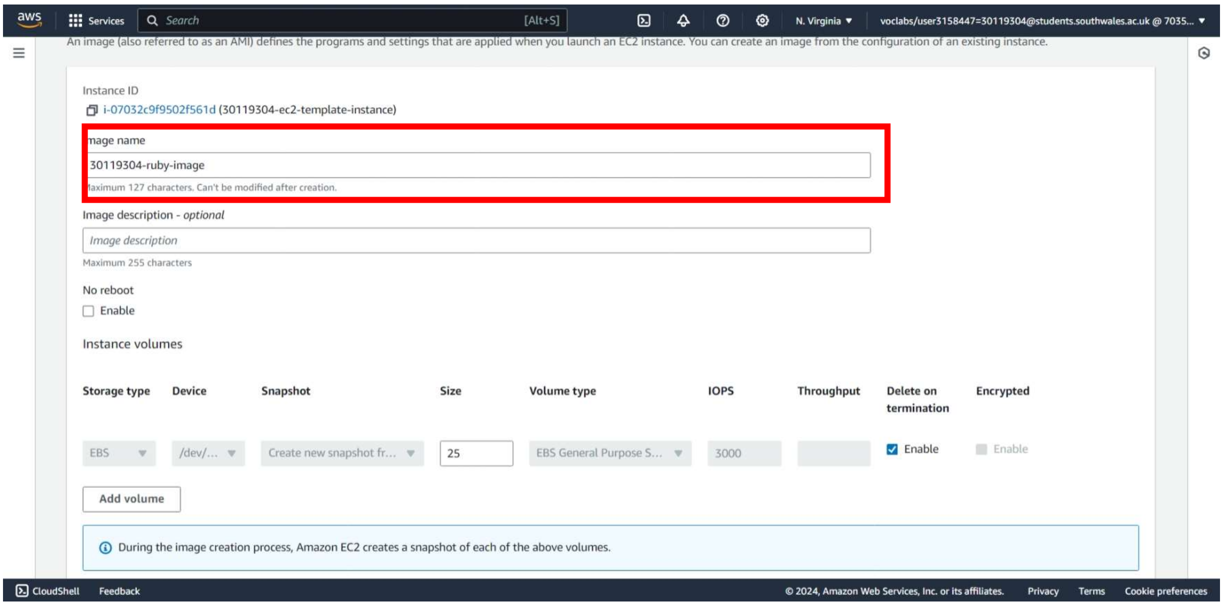


Name	Instance ID	Instance state	Instance type	Status check	Alarm st
30119304-ec2...	i-07032c9f9502f561d	Running	t2.nano	2/2 checks passed	View ala

i-07032c9f9502f561d (30119304-ec2-template-instance)

Fig 14: Instance page

14. Now configure the image details:
    - Image name: 30119304-ruby-image



An image (also referred to as an AMI) defines the programs and settings that are applied when you launch an EC2 instance. You can create an image from the configuration of an existing instance.

Instance ID
i-07032c9f9502f561d (30119304-ec2-template-instance)

mage name
30119304-ruby-image
laximum 127 characters. Can't be modified after creation.

Image description - *optional*
Image description
Maximum 255 characters

No reboot
□ Enable

Instance volumes

Storage type	Device	Snapshot	Size	Volume type	IOPS	Throughput	Delete on termination	Encrypted
EBS	/dev/...	Create new snapshot fr...	25	EBS General Purpose S...	3000		☑ Enable	□ Enable

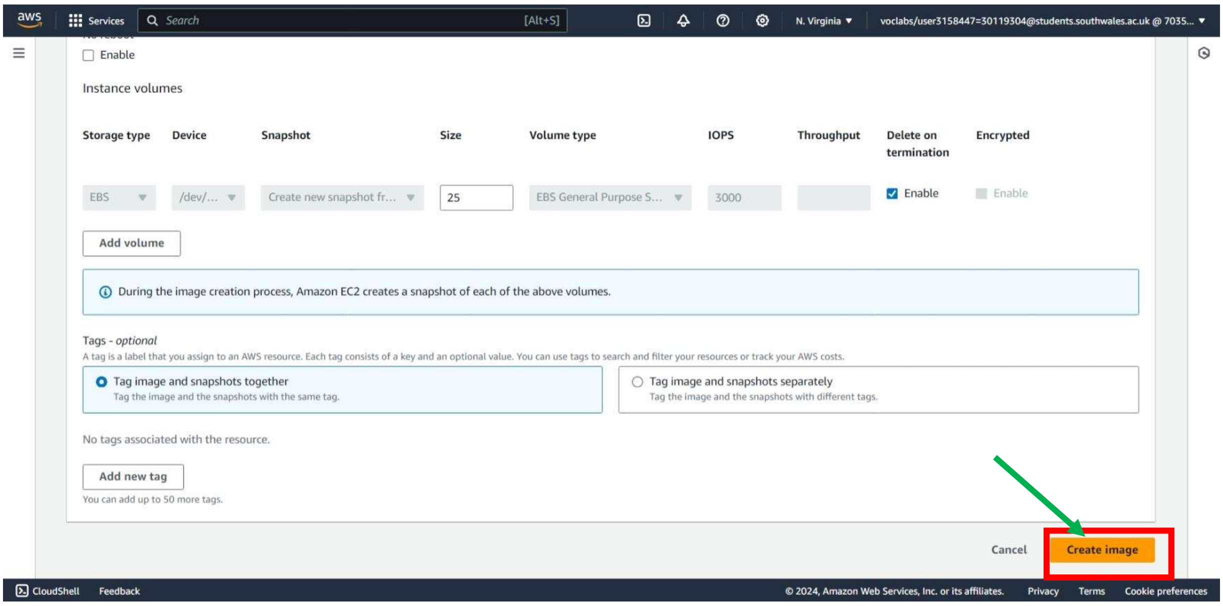
Add volume

During the image creation process, Amazon EC2 creates a snapshot of each of the above volumes.

aws
Services
Search
[Alt+S]
N. Virginia
voclabs/user3158447=30119304@students.southwales.ac.uk @ 7035...
CloudShell
Feedback
© 2024, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences

Fig 15: Image configures page

15. Click on the **"Create image"** button.



□ Enable

Instance volumes

Storage type	Device	Snapshot	Size	Volume type	IOPS	Throughput	Delete on termination	Encrypted
EBS	/dev/...	Create new snapshot fr...	25	EBS General Purpose S...	3000		☑ Enable	□ Enable

Add volume

During the image creation process, Amazon EC2 creates a snapshot of each of the above volumes.

Tags - *optional*
A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.

● Tag image and snapshots together
Tag the image and the snapshots with the same tag.

○ Tag image and snapshots separately
Tag the image and the snapshots with different tags.

No tags associated with the resource.

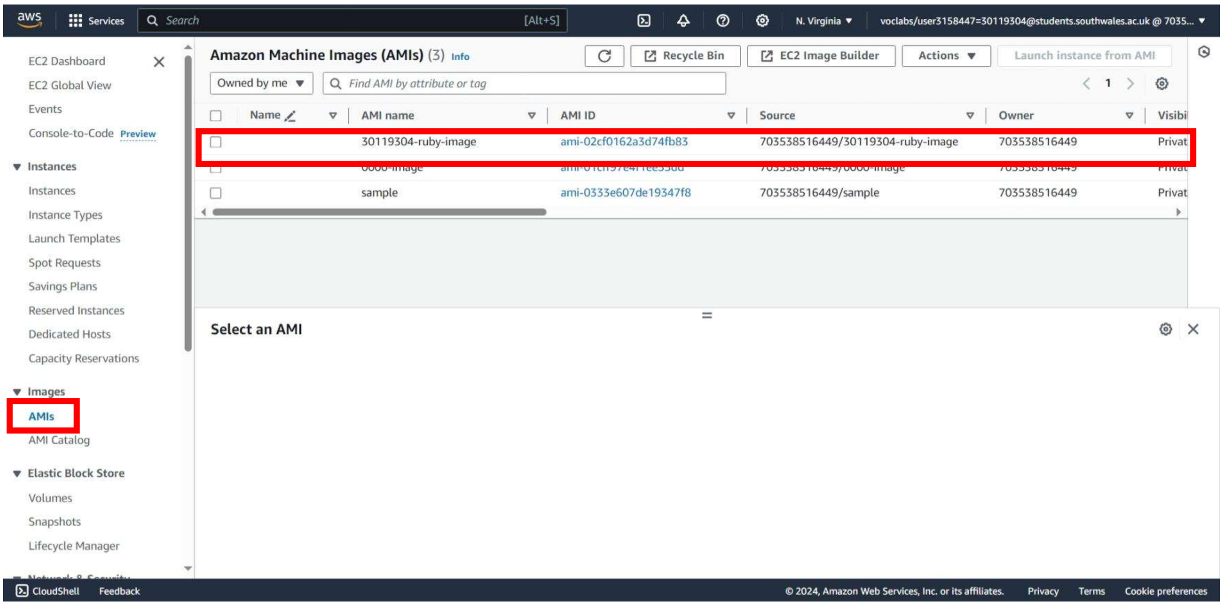
Add new tag
You can add up to 50 more tags.

Cancel Create image

aws
Services
Search
[Alt+S]
N. Virginia
voclabs/user3158447=30119304@students.southwales.ac.uk @ 7035...
CloudShell
Feedback
© 2024, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences

Fig 16: Image configures page

16. Check to see if the newly created AMI is visible in the EC2 dashboard's list of AMIs (Amazon Machine Image) (Amazon Machine Image) after the creation procedure is complete.



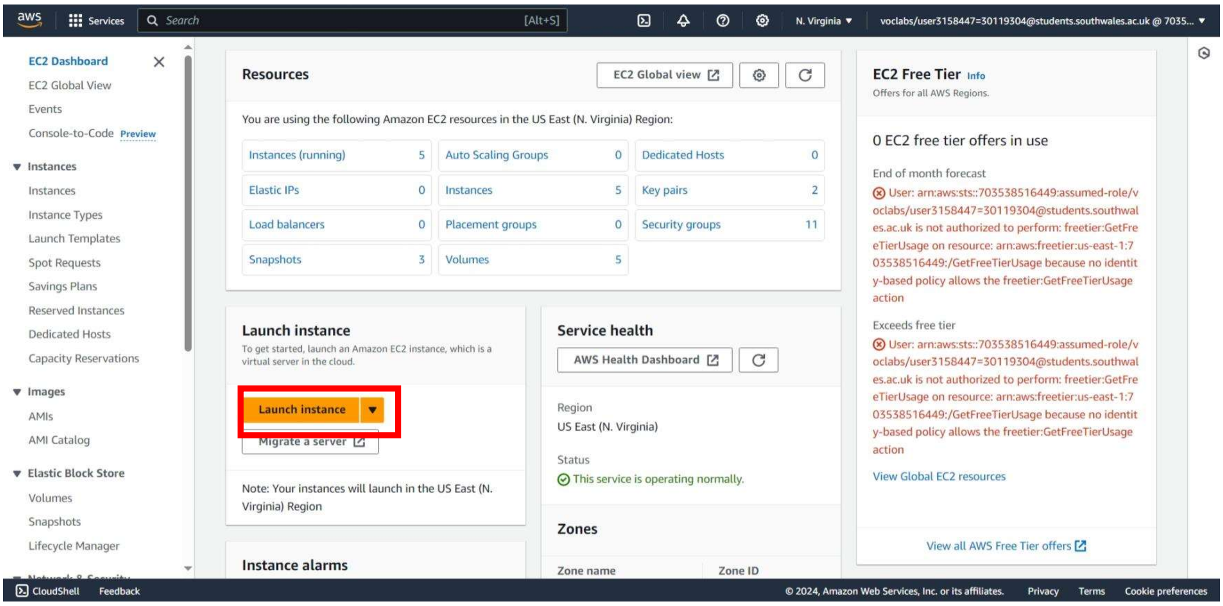
Amazon Machine Images (AMIs) (3) Info

□	Name	AMI name	AMI ID	Source	Owner	Visibi
□		30119304-ruby-image	ami-02cf0162a3d74fb83	703538516449/30119304-ruby-image	703538516449	Privat
□		0000-image	[illegible]	703538516449/0000-image	703538516449	Privat
□		sample	ami-0333e607de19347f8	703538516449/sample	703538516449	Privat

Select an AMI

Fig 17: AMIs page

17. Verify that all steps have been completed successfully. Ensure that the instance is running smoothly, and the Ruby installation is validated.
18. Launch EC2 Instance Using AMI, go to **"Instances"** click on the **"Launch instance"** button.



Resources

You are using the following Amazon EC2 resources in the US East (N. Virginia) Region:

Instances (running)	5	Auto Scaling Groups	0	Dedicated Hosts	0
Elastic IPs	0	Instances	5	Key pairs	2
Load balancers	0	Placement groups	0	Security groups	11
Snapshots	3	Volumes	5		

Launch instance

To get started, launch an Amazon EC2 instance, which is a virtual server in the cloud.

Note: Your instances will launch in the US East (N. Virginia) Region

Instance alarms

Service health

Region
US East (N. Virginia)

Status
This service is operating normally.

Zones

Zone name Zone ID

EC2 Free Tier Info
Offers for all AWS Regions.

0 EC2 free tier offers in use

End of month forecast

User: arn:aws:sts::703538516449:assumed-role/voclabs/user3158447=30119304@students.southwales.ac.uk is not authorized to perform: freetier:GetFreeTierUsage on resource: arn:aws:freetier:us-east-1:703538516449:/GetFreeTierUsage because no identity-based policy allows the freetier:GetFreeTierUsage action

Exceeds free tier

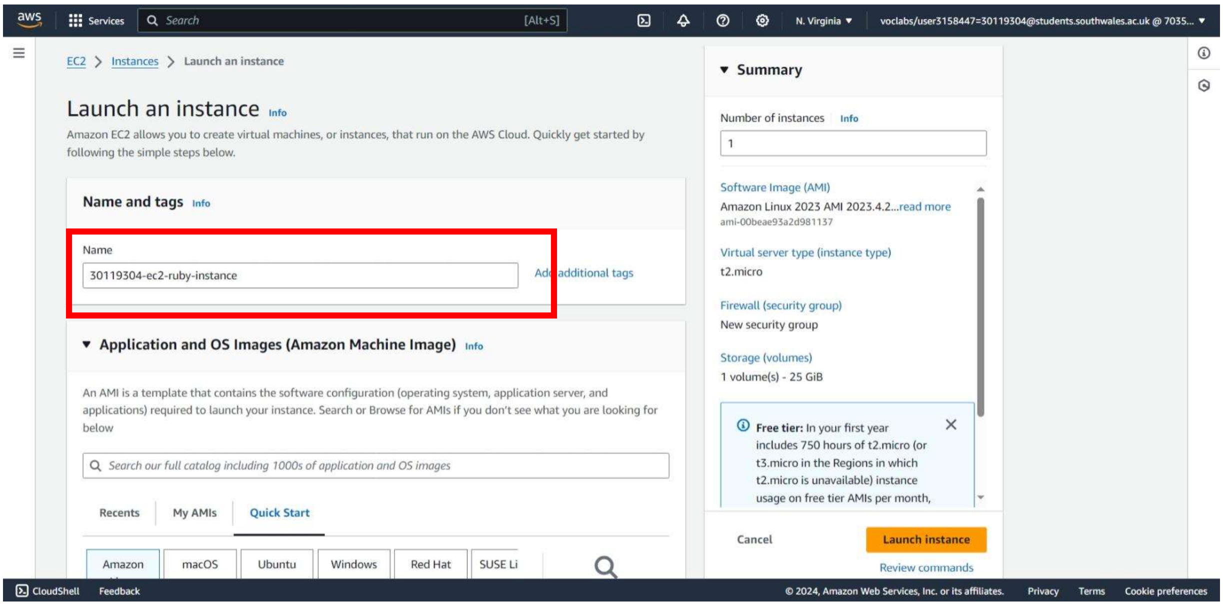
User: arn:aws:sts::703538516449:assumed-role/voclabs/user3158447=30119304@students.southwales.ac.uk is not authorized to perform: freetier:GetFreeTierUsage on resource: arn:aws:freetier:us-east-1:703538516449:/GetFreeTierUsage because no identity-based policy allows the freetier:GetFreeTierUsage action

Fig 18: Instance page

19. Begin to configure the instances details:
    - Name and tag: 30119304-ec2-ruby-instance
    - My AMIs:

      Amazon Machine Image: select 30119304-ruby-image

- Instances type: t2.nano
- Key pair name: vockey
- Configure the storage: 25 GB and root volume is gp3



Launch an instance

Amazon EC2 allows you to create virtual machines, or instances, that run on the AWS Cloud. Quickly get started by following the simple steps below.

Name and tags

Name: 30119304-ec2-ruby-instance

Add additional tags

Application and OS Images (Amazon Machine Image)

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below

Search our full catalog including 1000s of application and OS images

Summary

Number of instances: 1

Software Image (AMI): Amazon Linux 2023 AMI 2023.4.2...read more
ami-00beae93a2d981137

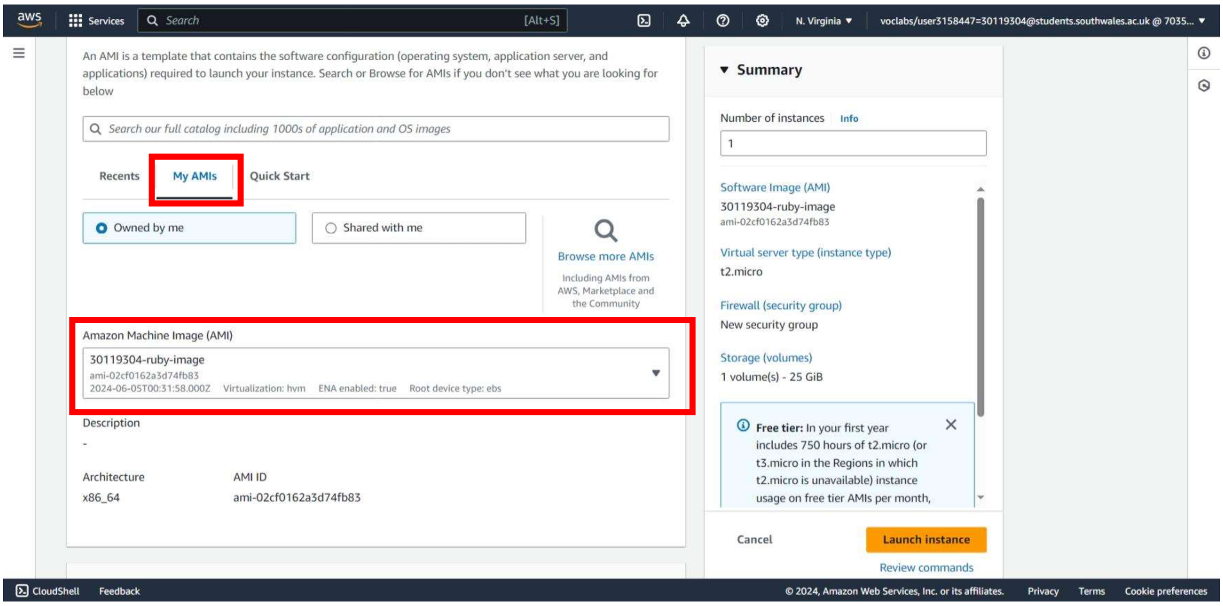
Virtual server type (instance type): t2.micro

Firewall (security group): New security group

Storage (volumes): 1 volume(s) - 25 GiB

Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month,

Fig 19: Instance page


aws
Services
Search
[Alt+S]
N. Virginia
voclabs/user3158447=30119304@students.southwales.ac.uk @ 7035...
Recents
My AMIs
Quick Start
Browse more AMIs
Including AMIs from AWS, Marketplace and the Community
Info
Cancel
Launch instance
Review commands
CloudShell
Feedback
© 2024, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below

Search our full catalog including 1000s of application and OS images

● Owned by me ○ Shared with me

Amazon Machine Image (AMI)
30119304-ruby-image
ami-02cf0162a3d74fb83
2024-06-05T00:31:58.000Z Virtualization: hvm ENA enabled: true Root device type: ebs

Description: -

Architecture: x86_64 AMI ID: ami-02cf0162a3d74fb83

Summary

Number of instances: 1

Software Image (AMI): 30119304-ruby-image
ami-02cf0162a3d74fb83

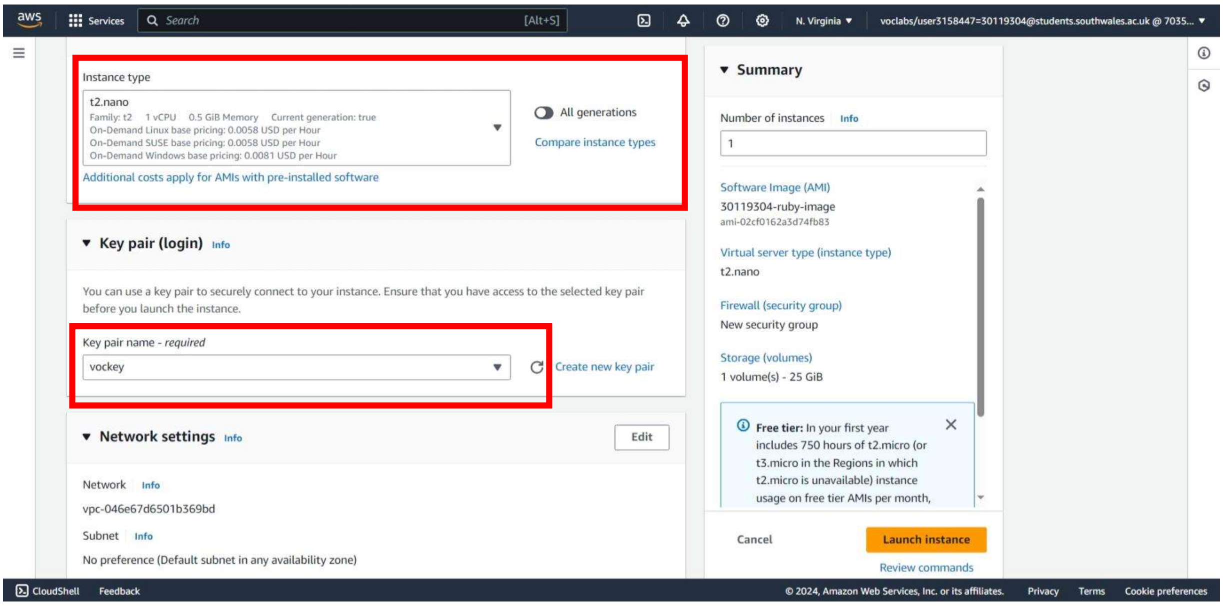
Virtual server type (instance type): t2.micro

Firewall (security group): New security group

Storage (volumes): 1 volume(s) - 25 GiB

Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month,

Fig 20: Instance page



aws
Services
Search [Alt+S]
N. Virginia
voclabs/user3158447=30119304@students.southwales.ac.uk @ 7035...

Instance type

t2.nano
Family: t2 1 vCPU 0.5 GiB Memory Current generation: true
On-Demand Linux base pricing: 0.0058 USD per Hour
On-Demand SUSE base pricing: 0.0058 USD per Hour
On-Demand Windows base pricing: 0.0081 USD per Hour

All generations

Compare instance types

Additional costs apply for AMIs with pre-installed software

Key pair (login) Info

You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.

Key pair name - *required*: vockey

Create new key pair

Network settings Info Edit

Network Info: vpc-046e67d6501b369bd

Subnet Info: No preference (Default subnet in any availability zone)

Summary

Number of instances Info: 1

Software Image (AMI): 30119304-ruby-image
ami-02cf0162a3d74fb83

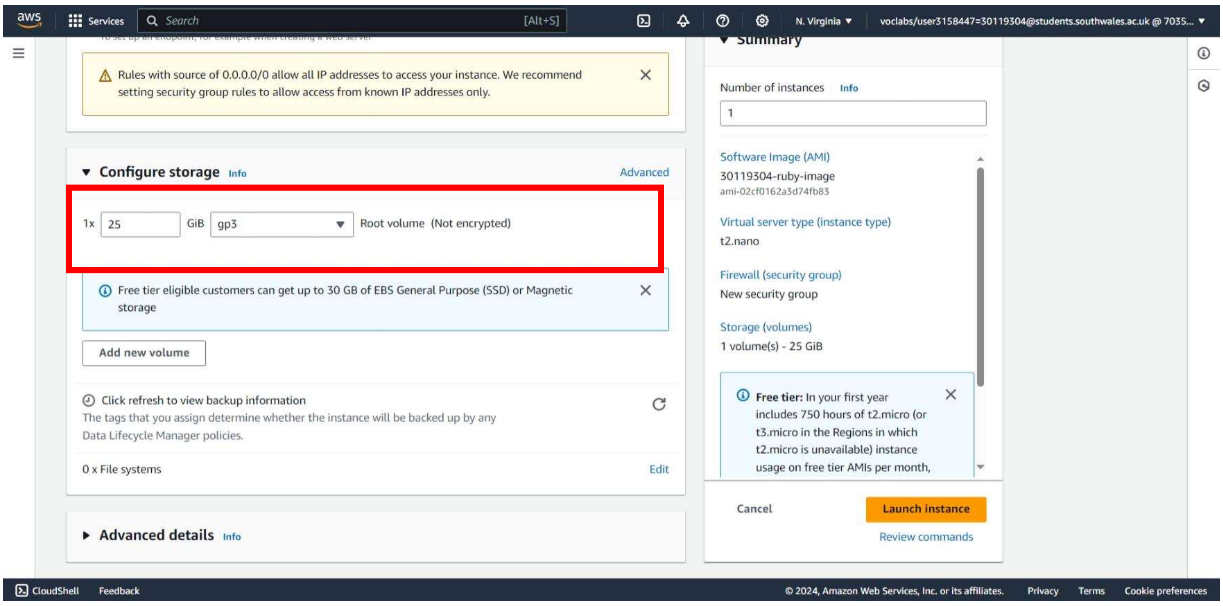
Virtual server type (instance type): t2.nano

Firewall (security group): New security group

Storage (volumes): 1 volume(s) - 25 GiB

Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month,

Fig 21: Instance page



aws
Services
Search [Alt+S]
N. Virginia
voclabs/user3158447=30119304@students.southwales.ac.uk @ 7035...

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.

Configure storage Info Advanced

1x 25 GiB gp3 Root volume (Not encrypted)

Free tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage

Add new volume

Click refresh to view backup information
The tags that you assign determine whether the instance will be backed up by any Data Lifecycle Manager policies.

0 x File systems Edit

Advanced details Info

Summary

Number of instances Info: 1

Software Image (AMI): 30119304-ruby-image
ami-02cf0162a3d74fb83

Virtual server type (instance type): t2.nano

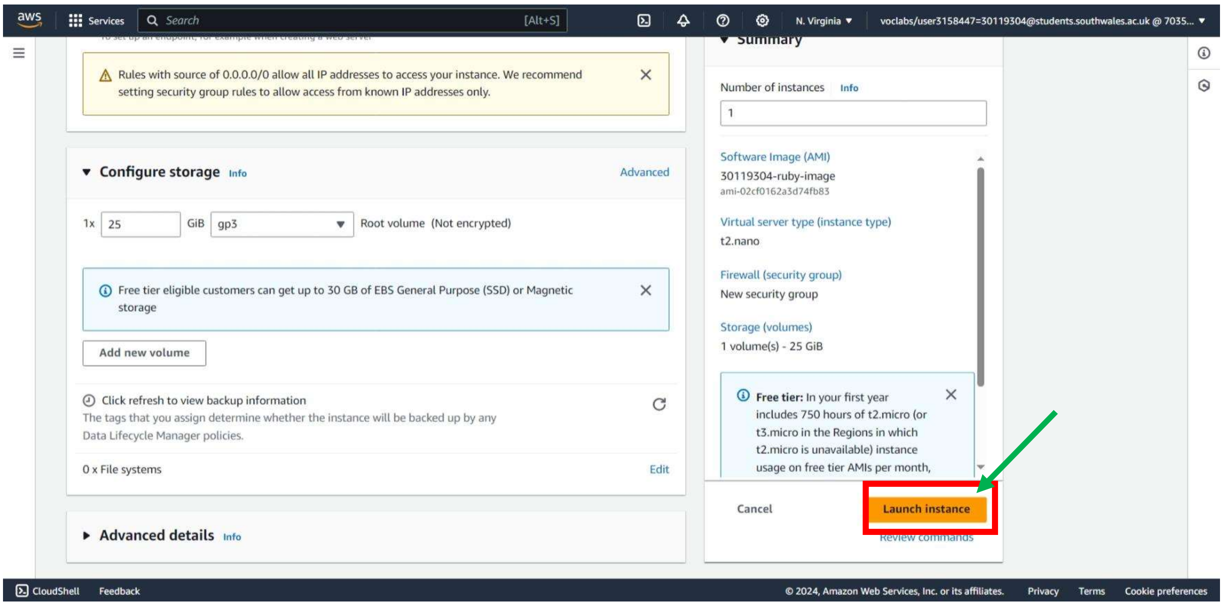
Firewall (security group): New security group

Storage (volumes): 1 volume(s) - 25 GiB

Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month,

Fig 22: Instance page

20. Review all the configurations and then click on the **"Launch instance"** button.


aws
Services
Search [Alt+S]
N. Virginia
voclabs/user3158447=30119304@students.southwales.ac.uk @ 7035...
CloudShell
Feedback
© 2024, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences

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.

▼ Configure storage Info — Advanced

1x 25 GiB gp3 Root volume (Not encrypted)

Free tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage

Add new volume

Click refresh to view backup information
The tags that you assign determine whether the instance will be backed up by any Data Lifecycle Manager policies.

0 x File systems — Edit

▶ Advanced details Info

▼ Summary

Number of instances Info: 1

Software Image (AMI): 30119304-ruby-image
ami-02cf0162a3d74fb83

Virtual server type (instance type): t2.nano

Firewall (security group): New security group

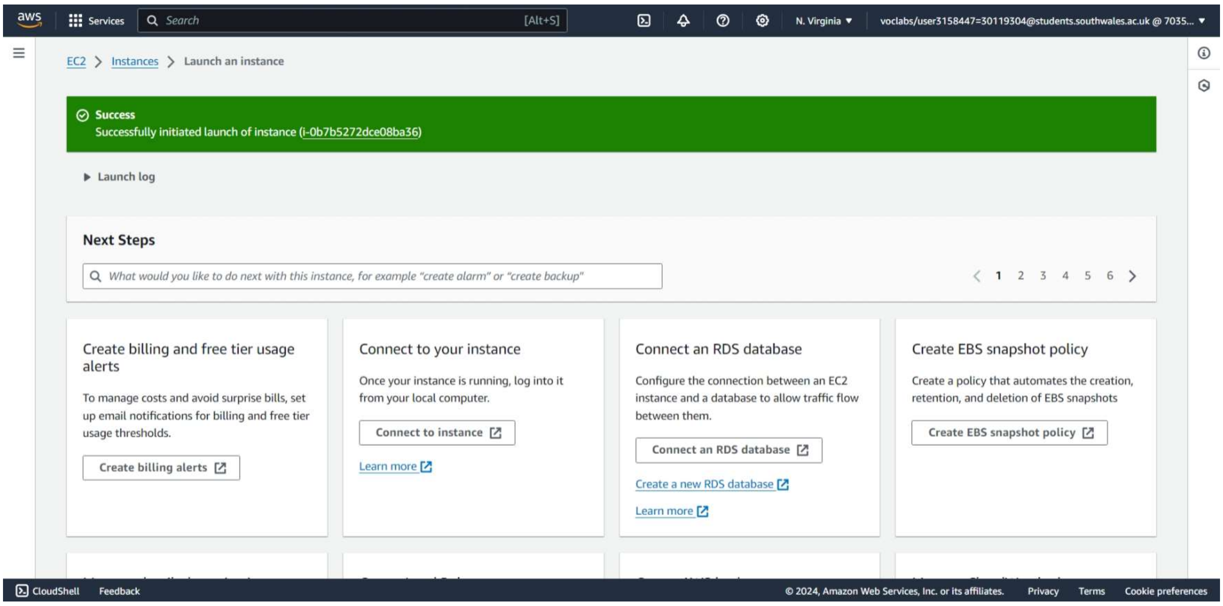
Storage (volumes): 1 volume(s) - 25 GiB

Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month,

Cancel — Launch instance

Review commands

Fig 23: Instance page


aws
Services
Search [Alt+S]
N. Virginia
voclabs/user3158447=30119304@students.southwales.ac.uk @ 7035...
CloudShell
Feedback
© 2024, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences

EC2 > Instances > Launch an instance

Success
Successfully initiated launch of instance (i-0b7b5272dce08ba36)

▶ Launch log

Next Steps

What would you like to do next with this instance, for example "create alarm" or "create backup"

< 1 2 3 4 5 6 >

Create billing and free tier usage alerts
To manage costs and avoid surprise bills, set up email notifications for billing and free tier usage thresholds.
Create billing alerts

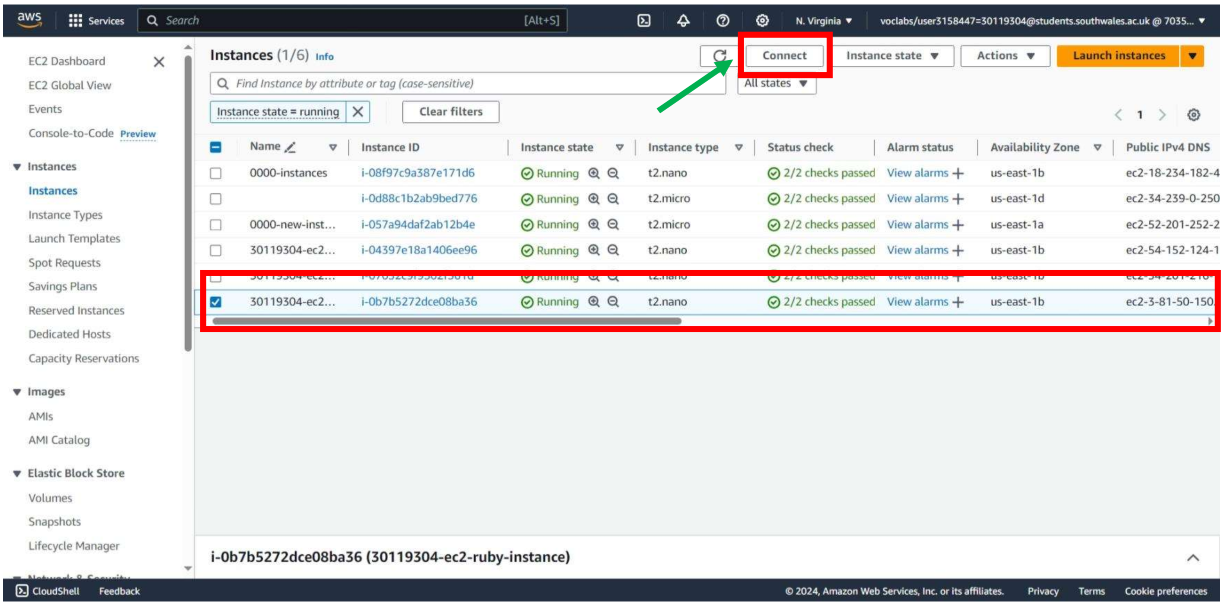
Connect to your instance
Once your instance is running, log into it from your local computer.
Connect to instance
Learn more

Connect an RDS database
Configure the connection between an EC2 instance and a database to allow traffic flow between them.
Connect an RDS database
Create a new RDS database
Learn more

Create EBS snapshot policy
Create a policy that automates the creation, retention, and deletion of EBS snapshots
Create EBS snapshot policy

Fig 24: Instance page

21. Navigate to instance select the **“30119304-ec2-ruby-instane"** and then click on the **“connect”** option.



Instances (1/6) Info

Find Instance by attribute or tag (case-sensitive)

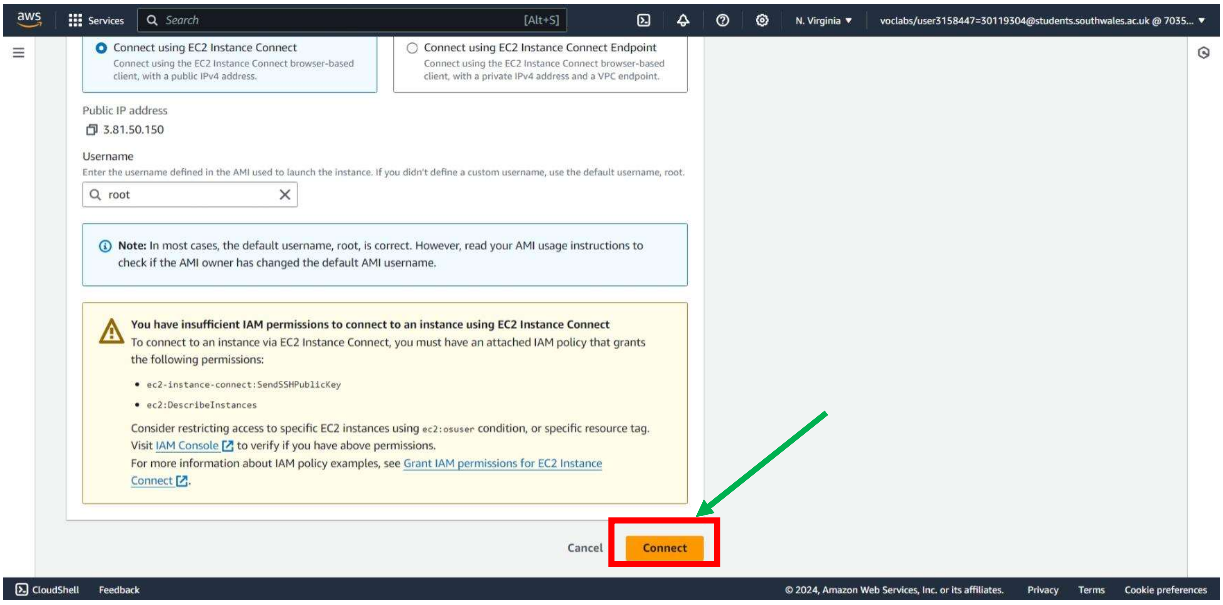
Instance state = running

	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS
□	0000-instances	i-08f97c9a387e171d6	Running	t2.nano	2/2 checks passed	View alarms +	us-east-1b	ec2-18-234-182-4
□		i-0d88c1b2ab9bed776	Running	t2.micro	2/2 checks passed	View alarms +	us-east-1d	ec2-34-239-0-250
□	0000-new-inst…	i-057a94daf2ab12b4e	Running	t2.micro	2/2 checks passed	View alarms +	us-east-1a	ec2-52-201-252-2
□	30119304-ec2…	i-04397e18a1406ee96	Running	t2.nano	2/2 checks passed	View alarms +	us-east-1b	ec2-54-152-124-1
□	[illegible]	[illegible]	Running	t2.nano	2/2 checks passed	View alarms +	us-east-1b	[illegible]
☑	30119304-ec2…	i-0b7b5272dce08ba36	Running	t2.nano	2/2 checks passed	View alarms +	us-east-1b	ec2-3-81-50-150

i-0b7b5272dce08ba36 (30119304-ec2-ruby-instance)

Fig 25: Instance page

22. Do not make any changes, just click on the **connect** button.



● Connect using EC2 Instance Connect
Connect using the EC2 Instance Connect browser-based client, with a public IPv4 address.

○ Connect using EC2 Instance Connect Endpoint
Connect using the EC2 Instance Connect browser-based client, with a private IPv4 address and a VPC endpoint.

Public IP address
3.81.50.150

Username
Enter the username defined in the AMI used to launch the instance. If you didn't define a custom username, use the default username, root.

root

Note: In most cases, the default username, root, is correct. However, read your AMI usage instructions to check if the AMI owner has changed the default AMI username.

You have insufficient IAM permissions to connect to an instance using EC2 Instance Connect
To connect to an instance via EC2 Instance Connect, you must have an attached IAM policy that grants the following permissions:

- `ec2-instance-connect:SendSSHPublicKey`
- `ec2:DescribeInstances`

Consider restricting access to specific EC2 instances using `ec2:osuser` condition, or specific resource tag.
Visit IAM Console to verify if you have above permissions.
For more information about IAM policy examples, see Grant IAM permissions for EC2 Instance Connect.

aws
Services
Search
[Alt+S]
N. Virginia
voclabs/user3158447=30119304@students.southwales.ac.uk @ 7035...
Cancel
Connect
CloudShell
Feedback
© 2024, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences

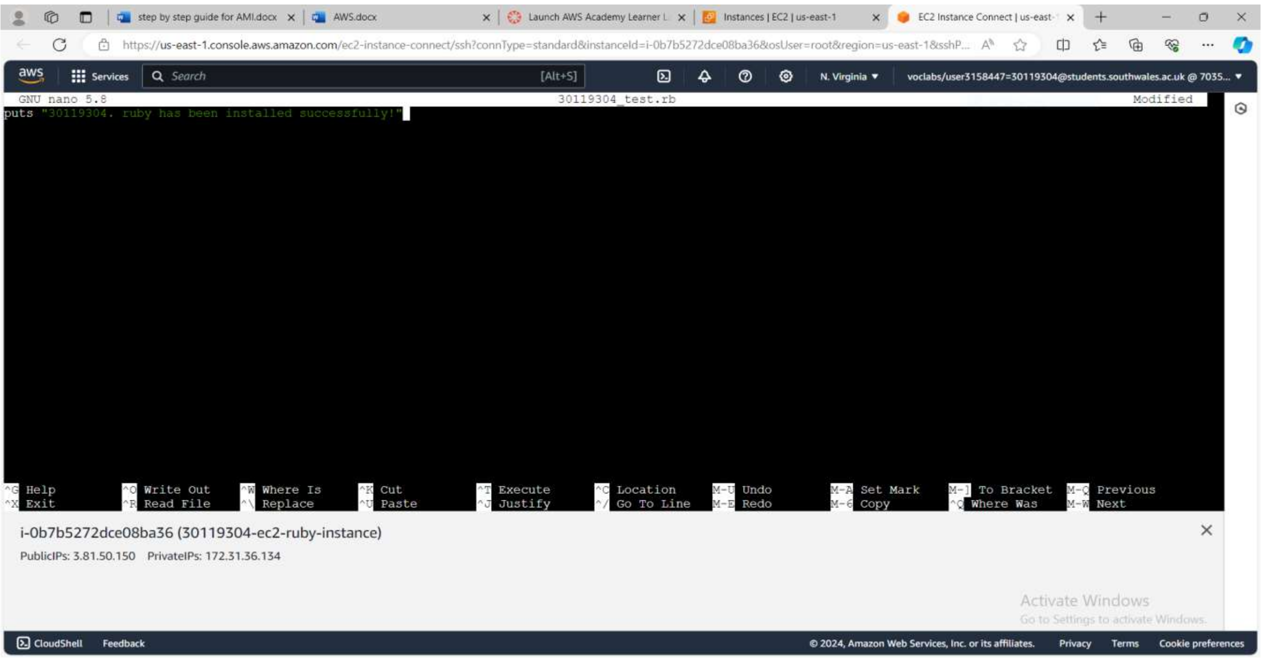
Fig 26: Instance page

23. The new terminal will open and run the following command in the new terminal.
    - **nano 30119304_test.rb**

      This will open a text editor. Enter the following line:

      puts "30119304. Ruby has been installed successfully!"

      To save the file, use ` **Ctrl + S** ` . To exit the text editor, press ` **Ctrl + X** ` .



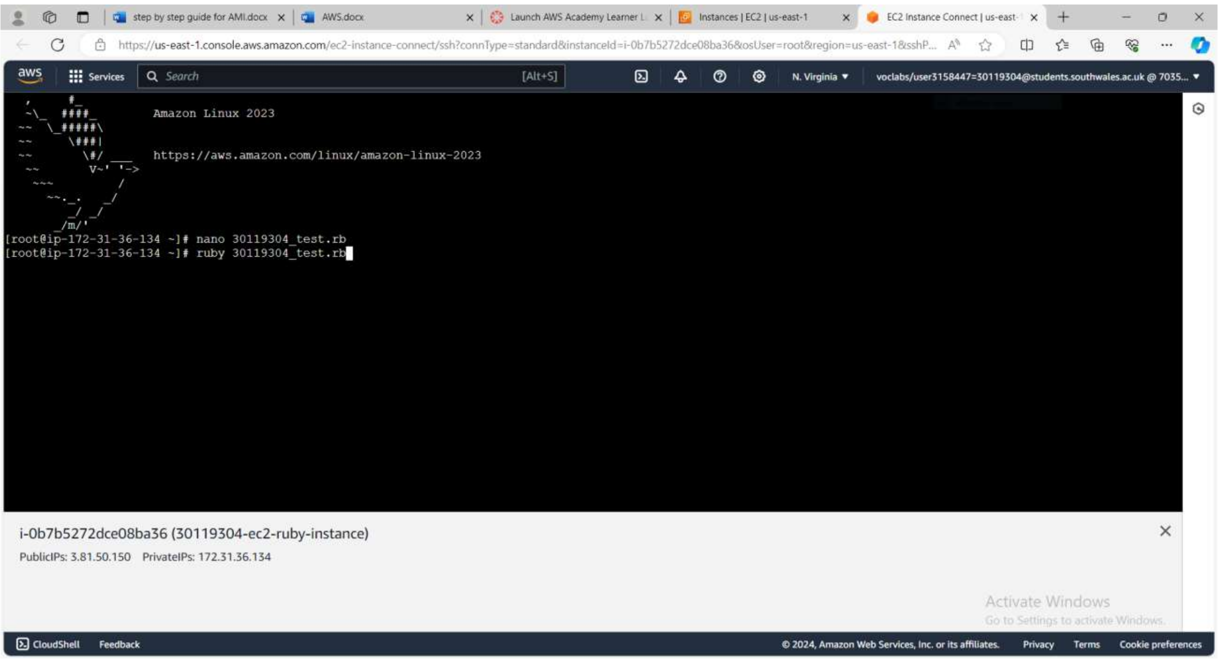
```
  GNU nano 5.8                              30119304_test.rb                              Modified
puts "30119304. ruby has been installed successfully!"




^G Help        ^O Write Out   ^W Where Is    ^K Cut         ^T Execute     ^C Location    M-U Undo       M-A Set Mark   M-] To Bracket M-Q Previous
^X Exit        ^R Read File   ^\ Replace     ^U Paste       ^J Justify     ^/ Go To Line  M-E Redo       M-6 Copy       ^Q Where Was   M-W Next
```

i-0b7b5272dce08ba36 (30119304-ec2-ruby-instance)

PublicIPs: 3.81.50.150 PrivateIPs: 172.31.36.134

Fig 27: Terminal page

- ruby 30119304_test.rb



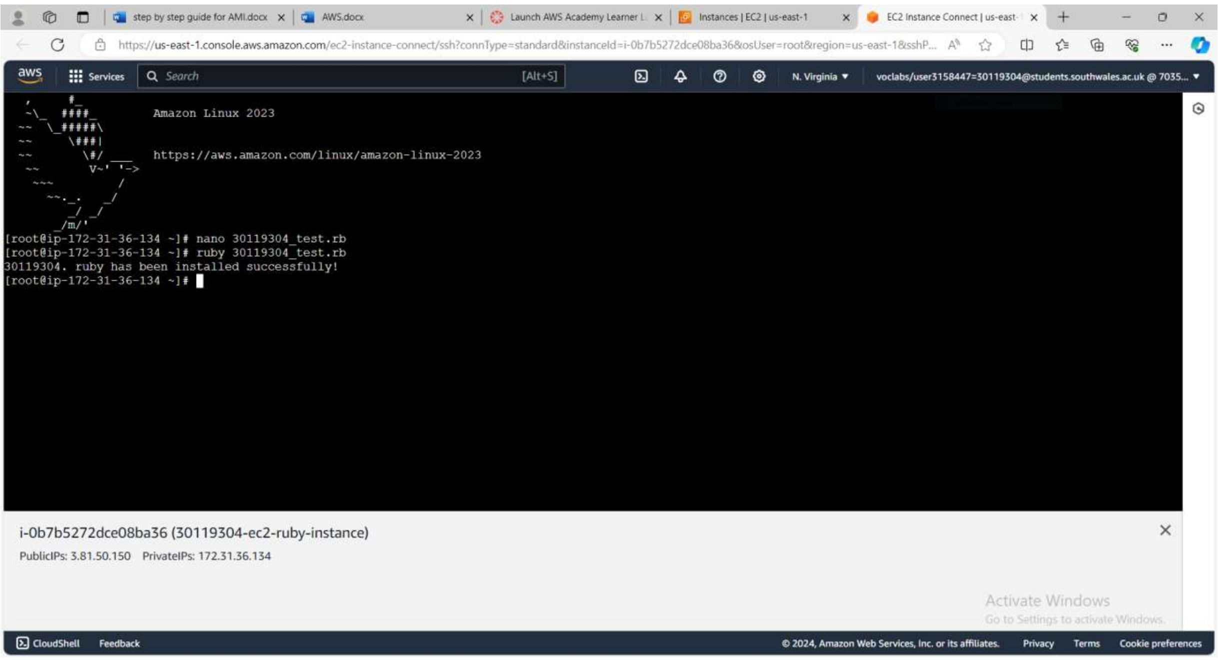
```
   ,     #_
   ~\_  ####_        Amazon Linux 2023
  ~~  \_#####\
  ~~     \###|
  ~~       \#/ ___   https://aws.amazon.com/linux/amazon-linux-2023
   ~~       V~' '->
    ~~~         /
      ~~._.   _/
         _/ _/
       _/m/'
[root@ip-172-31-36-134 ~]# nano 30119304_test.rb
[root@ip-172-31-36-134 ~]# ruby 30119304_test.rb
```

i-0b7b5272dce08ba36 (30119304-ec2-ruby-instance)

PublicIPs: 3.81.50.150 PrivateIPs: 172.31.36.134

Fig 28: Terminal page

You should see the output message confirming that Ruby has been installed successfully.



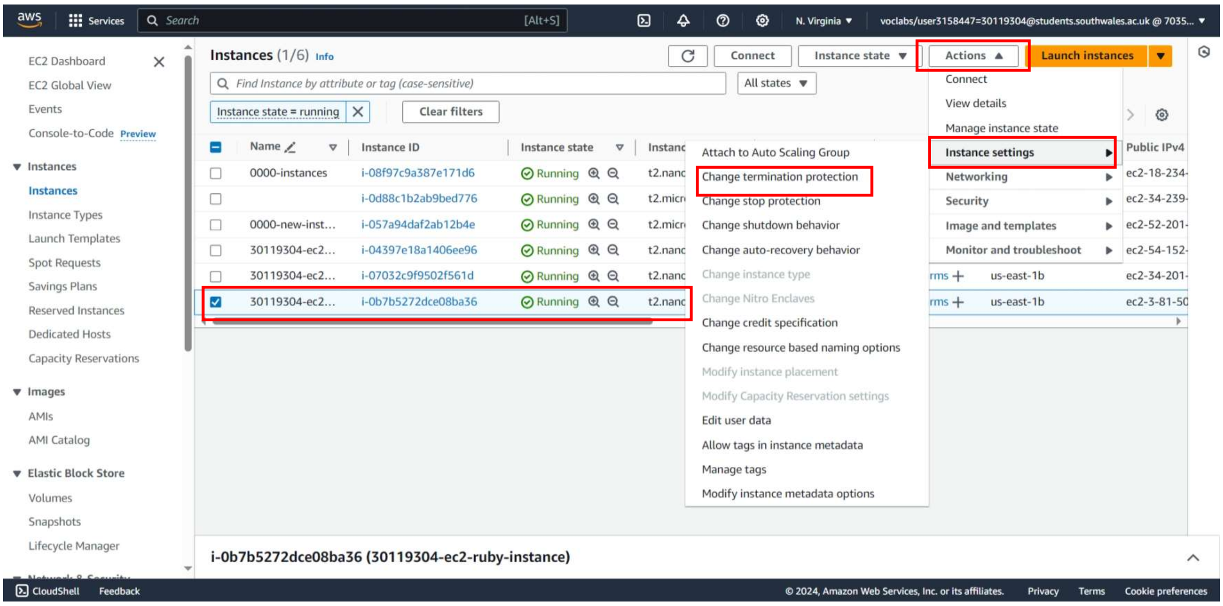
```
   ,     #_
   ~\_  ####_        Amazon Linux 2023
  ~~  \_#####\
  ~~     \###|
  ~~       \#/ ___   https://aws.amazon.com/linux/amazon-linux-2023
   ~~       V~' '->
    ~~~         /
      ~~._.   _/
         _/ _/
       _/m/'
[root@ip-172-31-36-134 ~]# nano 30119304_test.rb
[root@ip-172-31-36-134 ~]# ruby 30119304_test.rb
30119304. ruby has been installed successfully!
[root@ip-172-31-36-134 ~]# 
```

i-0b7b5272dce08ba36 (30119304-ec2-ruby-instance)

PublicIPs: 3.81.50.150 PrivateIPs: 172.31.36.134

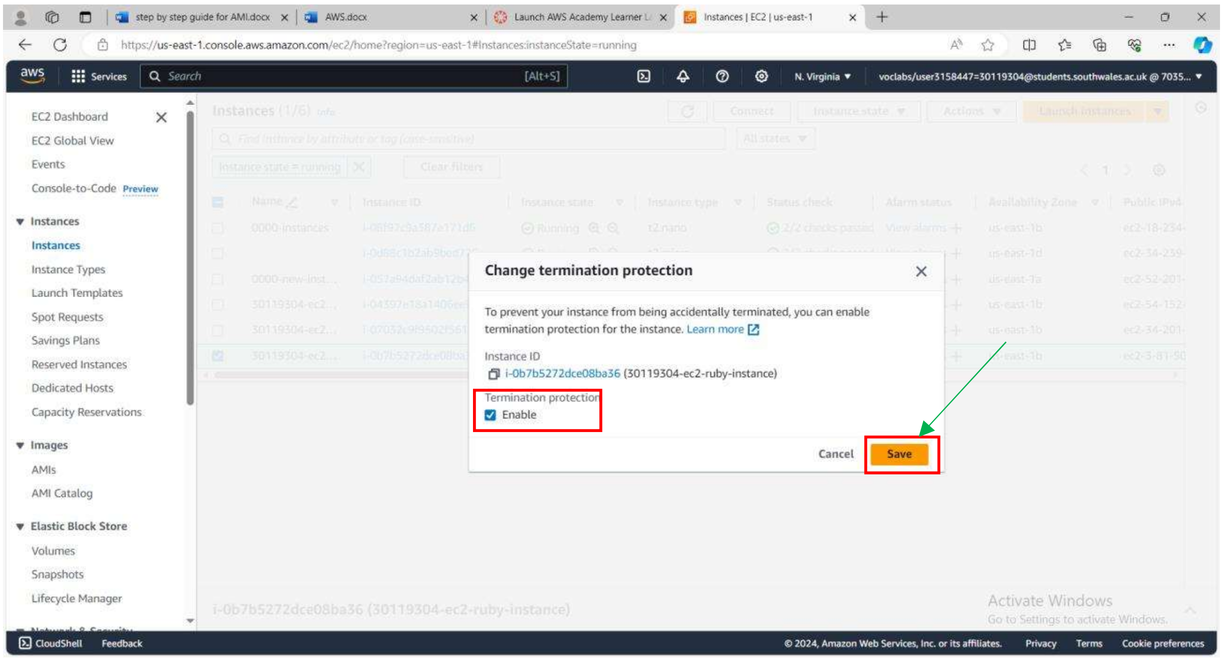
Fig 29: Terminal page

24. Ensure Instance Protection:
    - To prevent accidental termination of the instance, navigate to the **EC2** dashboard.
    - Select the instance **“30119304-ec2-ruby-instance"**.
    - From the **"Actions"** dropdown menu, choose **"Instance Settings"** > **"Change Termination Protection"**.
    - **Enable** termination protection for the instance.


Instances (1/6) Info
Connect
Instance state
Actions
Launch instances
Find Instance by attribute or tag (case-sensitive)
All states
Instance state = running
Clear filters
Connect
View details
Manage instance state
Instance settings
Networking
Security
Image and templates
Monitor and troubleshoot
Attach to Auto Scaling Group
Change termination protection
Change stop protection
Change shutdown behavior
Change auto-recovery behavior
Change instance type
Change Nitro Enclaves
Change credit specification
Change resource based naming options
Modify instance placement
Modify Capacity Reservation settings
Edit user data
Allow tags in instance metadata
Manage tags
Modify instance metadata options
i-0b7b5272dce08ba36 (30119304-ec2-ruby-instance)

Name	Instance ID	Instance state
0000-instances	i-08f97c9a387e171d6	Running
	i-0d88c1b2ab9bed776	Running
0000-new-inst...	i-057a94daf2ab12b4e	Running
30119304-ec2...	i-04397e18a1406ee96	Running
30119304-ec2...	i-07032c9f9502f561d	Running
☑ 30119304-ec2...	i-0b7b5272dce08ba36	Running

Fig 30: Instance page



Change termination protection

To prevent your instance from being accidentally terminated, you can enable termination protection for the instance. Learn more

Instance ID
i-0b7b5272dce08ba36 (30119304-ec2-ruby-instance)

Termination protection
☑ Enable

Fig 31: Instance page

Congratulations you successfully created a custom Amazon Machine Image (AMI) with the Ruby programming language pre-installed, using a standard Amazon Linux EC2 instance as your base template and I effectively validate the custom Amazon Machine Image (AMI) and ensure the instance cannot be accidentally terminated.