

AWS tutorial Data Engineering

Tom Vermeire
Dieter Devlaminck

AWS Educate: login

The screenshot shows a web browser window with the URL aws.amazon.com/education/awseducate/. The page is titled "aws educate" and features a large blue background with white text. At the top, there's a navigation bar with links for Products, Solutions, Pricing, Documentation, Learn, Partner Network, AWS Marketplace, Customer Enablement, Events, Explore More, and a search icon. On the right side of the header are links for Contact Sales, Support, English, My Account, and a prominent orange "Sign In to the Console" button. The main content area has a large "aws educate" logo and the tagline "Teach Tomorrow's Cloud Workforce Today". Below this, a paragraph explains the initiative: "With the increasing demand for cloud employees, AWS Educate provides an academic gateway for the next generation of IT and cloud professionals. AWS Educate is Amazon's global initiative to provide students and educators with the resources needed to accelerate cloud-related learning." Two buttons are present: a yellow "Join AWS Educate" button and a red-bordered blue "Login to AWS Educate" button.

Join Hundreds of Thousands of Students, over 10,000 Educators, and More
Than 2,400 Institutions Who Use AWS Educate

Sign in

A screenshot of a web browser window displaying the AWS Educate sign-in page. The URL in the address bar is <https://www.awseducate.com/signin/SiteLogin>. The page features the AWS Educate logo with a graduation cap icon. Below the logo, the text "hello :)" is displayed. Two input fields are present: one containing the email "tom.vermeire@student.uantwerpen.be" and another containing a redacted password. A "SIGN IN" button is located at the bottom right of the form, with a red box highlighting it. Below the form, there are links for "Forgot password?" and "Not an AWS Educate member? Apply now."

https://www.awseducate.com/signin/SiteLogin

awseducate.com/signin/SiteLogin

Apps Jupyter Notebook S...

awseducate

hello :)

tom.vermeire@student.uantwerpen.be

.....

SIGN IN

Forgot password?

Not an AWS Educate member? [Apply now.](#)

Home x + awseducate.com/student/s/ – □ X

Apps Jupyter Notebook S...

aws educate My Classrooms Portfolio Career Pathways Badges Jobs AWS Account Logout

 **Tom Vermeire** Consecutive Days: **1** Pathways Completed: **0** Badges Earned: **0** Preferred Language: English

Cloud technology is everywhere, creating over 18 million cloud jobs worldwide (source: Wanted Analytics). AWS Educate introduces you to lucrative cloud-enabled careers through more than 25 learning pathways, each with content from industry professionals, learning activities and labs, opportunities to earn AWS Educate Badges and Certificates of Completion, and access to the AWS Educate Job Board. Coupled with courses at your school or through online providers, AWS Educate puts you on the pathway to your dream job in the clouds.

[Begin your journey today!](#)



Suggested Jobs

Analyst Experience - Technology
Slalom

[more about this opportunity](#)

Software Engineering Analyst
Slalom

[more about this opportunity](#)

Analyst Cloud Enablement February 2020
Slalom

[more about this opportunity](#)

My Classrooms awseducate.com/student/s/classrooms

aws[®] educate

Tom Vermeire Consecutive Days: 1 Pathways Completed: 0 Badges Earned: 0 Preferred Language: English

My Classrooms

View your list of Classroom invitations and accept or decline the invitation. Access a Classroom by clicking Go to my classroom.

Course Name	Description	Educator	Course End Date	Credit Allocated Per Student	Status
Data Engineering	This course is an introduction to the technical toolboxes that a data scientist needs access to. At the end of the course the student will have a broad set of practical data analytical skills, that can be used for storing, accessing, analysing, visualising and interpreting data. We will look at both the basic technologies such as SQL to access data, as well as analysing data that are too big to fit in memory, and the use of cloud computing to take advantage of currently available massive processing power. In this course the focus is on the understanding of available technologies, and the rigour in which one can apply these. These all come together in a large case where students work on massive unstructured data to provide visualisations and insights.	Dieter Devlaminck	09/01/2020	\$50	Go to classroom

FAQs | AWS Support Forum | Contact Us | Terms and Conditions © 2019, Amazon Web Services, Inc. or its affiliates. All rights reserved.

My Classrooms

Workbench

labs.vocareum.com/main/main.php?m=editor&nav=1&asnid=109095&stepid=109096

Vocareum

My Classes Help tom.vermeire@student.uantwerpen.be

Welcome to your AWS Educate Account

AWS Educate provides you with access to a wide variety of AWS Services for you to get your hands on and build on AWS! To get started, click on the AWS Console button to log in to your AWS console.

Please read the FAQ below to help you get started on your Starter Account.

- What are the list of services supported?
- What regions are supported with Starter Accounts or Classroom Accounts?
- I can't start any resources. What happened?
- Can I create users within my Starter or Classroom Account for others to access?
- Can I create my own IAM policy within Starter Account or Classroom?
- Can I use marketplace software with my Starter Account or Classrooms?
- Are there any restrictions on AWS services in my AWS Educate Account?
- Are FPGA Instances Supported?
- How do I share image with my students?
- Can I access the billing and cost console?

Your AWS Account Status

	Active full access (tom.vermeire@student.uantwerpen.be)
	\$49.99 remaining credits (estimated)
	2:60 session time

Account Details AWS Console

Please use AWS Educate Account responsibly. Remember to shut down your instances when not in use to make the best use of your credits. And, don't forget to logout once you are done with your work!

AWS console: Launch EC2 instance

The screenshot shows the AWS Management Console interface. The top navigation bar includes tabs for AWS Account, Workbench, and AWS Management Console. Below the navigation bar, the URL is displayed as `console.aws.amazon.com/console/home?region=us-east-1#`. The main content area is titled "AWS services". On the left, there's a sidebar with sections for "Recently visited services" and "All services". The "All services" section is expanded, showing various AWS services. The "Compute" section contains links for EC2, Lightsail, ECR, ECS, EKS, Lambda, Batch, Elastic Beanstalk, Serverless Application Repository, AWS Outposts, and EC2 Image Builder. The "Storage" section contains links for S3, EFS, FSx, and S3 Glacier. The "Blockchain" section contains links for Amazon Managed Blockchain and Ground Station. The "Quantum Technologies" section contains a link for Amazon Braket. The "Management & Governance" section contains links for AWS Organizations, CloudWatch, AWS Auto Scaling, CloudFormation, CloudTrail, Config, and OpsWorks. The "Security, Identity, & Compliance" section contains links for IAM, Resource Access Manager, Cognito, Secrets Manager, GuardDuty, Inspector, Amazon Macie, AWS Single Sign-On, Certificate Manager, Key Management Service, CloudHSM, Directory Service, WAF & Shield, Artifact, Security Hub, and Detective. On the right side, there are three main sections: "Access resources on the go" (with a link to the AWS Console Mobile App), "Explore AWS" (with sections for Amazon DynamoDB, AWS Security Hub, Free Digital Training, and Amazon Aurora Machine Learning), and "Add-ons" (with a link to Jupyter Notebook S...).

AWS services

Find Services
You can enter names, keywords or acronyms.
Example: Relational Database Service, database, RDS

Recently visited services

All services

- Compute
 - EC2
 - Lightsail
 - ECR
 - ECS
 - EKS
 - Lambda
 - Batch
 - Elastic Beanstalk
 - Serverless Application Repository
 - AWS Outposts
 - EC2 Image Builder
- Storage
 - S3
 - EFS
 - FSx
 - S3 Glacier
- Blockchain
 - Amazon Managed Blockchain
- Satellite
 - Ground Station
- Quantum Technologies
 - Amazon Braket
- Management & Governance
 - AWS Organizations
 - CloudWatch
 - AWS Auto Scaling
 - CloudFormation
 - CloudTrail
 - Config
 - OpsWorks
- Security, Identity, & Compliance
 - IAM
 - Resource Access Manager
 - Cognito
 - Secrets Manager
 - GuardDuty
 - Inspector
 - Amazon Macie
 - AWS Single Sign-On
 - Certificate Manager
 - Key Management Service
 - CloudHSM
 - Directory Service
 - WAF & Shield
 - Artifact
 - Security Hub
 - Detective

AWS Account Workbench Security groups | EC2 Management

console.aws.amazon.com/ec2/home?region=us-east-1#Home:

Apps Jupyter Notebook S...

aws Services Resource Groups

New EC2 Experience Learn more

EC2 Dashboard New

- Events
- Tags
- Reports
- Limits

INSTANCES

- Instances
- Instance Types
- Launch Templates New
- Spot Requests
- Savings Plans
- Reserved Instances
- Dedicated Hosts
- Scheduled Instances
- Capacity Reservations

IMAGES

- AMIs
- Bundle Tasks

ELASTIC BLOCK STORE

- Volumes
- Snapshots

Resources

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

Running instances	0	Elastic IPs	0
Dedicated Hosts	0	Snapshots	0
Volumes	0	Load balancers	0
Key pairs	0	Security groups	2
Placement groups	0		

Launch instance

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

Launch instance ▾

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

Service health

Service Health Dashboard

Region	Status
US East (N. Virginia)	Status This service is operating normally

Account attributes

- Supported platforms
- VPC

Default VPC vpc-437f5e39

Console experiments

Settings

Explore AWS

Easily launch third-party AMI products

AWS Marketplace has thousands of third-party AMI products that you can find, buy, and deploy with 1-click using the Amazon EC2 console [Learn more](#)

Additional information

AWS Account | Workbench | Launch instance wizard | EC2 Main

console.aws.amazon.com/ec2/home?region=us-east-1#LaunchInstanceWizard:

Apps Jupyter Notebook S...

Services Resource Groups

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

Step 1: Choose an Amazon Machine Image (AMI)

Red Hat Red Hat Enterprise Linux version 8 (HVM), EBS General Purpose (SSD) Volume Type
Free tier eligible
Root device type: ebs Virtualization type: hvm ENA Enabled: Yes
 64-bit (x86)
 64-bit (Arm)

SUSE Linux SUSE Linux Enterprise Server 15 SP1 (HVM), SSD Volume Type - ami-0547b1fd62b28a111 (64-bit x86) / ami-008a07c569b8da5ca (64-bit Arm)
Free tier eligible
Root device type: ebs Virtualization type: hvm ENA Enabled: Yes
 64-bit (x86)
 64-bit (Arm)

Ubuntu Server 18.04 LTS (HVM), SSD Volume Type - ami-04b9e92b5572fa0d1 (64-bit x86) / ami-0bba96c31d87e65d9 (64-bit Arm)
Free tier eligible
Root device type: ebs Virtualization type: hvm ENA Enabled: Yes
 64-bit (x86)
 64-bit (Arm)

Amazon RDS Are you launching a database instance? Try Amazon RDS.
Amazon Relational Database Service (RDS) makes it easy to set up, operate, and scale your database on AWS by automating time-consuming database management tasks. With RDS, you can easily deploy **Amazon Aurora, MariaDB, MySQL, Oracle, PostgreSQL, and SQL Server** databases on AWS. **Aurora** is a MySQL- and PostgreSQL-compatible, enterprise-class database at 1/10th the cost of commercial databases. [Learn more about RDS](#)
[Launch a database using RDS](#)

Ubuntu Server 16.04 LTS (HVM), SSD Volume Type - ami-04763b3055de4860b (64-bit x86) / ami-02ca3cadbcb293e21 (64-bit Arm)
Free tier eligible
 64-bit (x86)

AWS Account | Workbench | Launch instance wizard | EC2 Mar | +

console.aws.amazon.com/ec2/home?region=us-east-1#LaunchInstanceWizard:

Apps Jupyter Notebook S...

aws Services Resource Groups

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 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	IPv6 Support
<input type="checkbox"/>	General purpose	t2.nano	1	0.5	EBS only	-	Low to Moderate	Yes
<input checked="" type="checkbox"/>	General purpose	t2.micro Free tier eligible	1	1	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	General purpose	t2.small	1	2	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	General purpose	t2.medium	2	4	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	General purpose	t2.large	2	8	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	General purpose	t2.xlarge	4	16	EBS only	-	Moderate	Yes
<input type="checkbox"/>	General purpose	t2.2xlarge	8	32	EBS only	-	Moderate	Yes

Cancel Previous Review and Launch Next: Configure Instance Details

Create new role: grant permissions

The screenshot shows the AWS Launch Instance Wizard at Step 3: Configure Instance Details. The browser tabs include 'AWS Account', 'Workbench', and 'Launch instance wizard | EC2 Mai'. The main interface shows fields for instance configuration, with the 'IAM role' field highlighted by a red rectangle.

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

Purchasing option: Request Spot instances

Network: vpc-437f5e39 (default)

Subnet: No preference (default subnet in any Availability Zone)

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

Placement group: Add instance to placement group

Capacity Reservation: Open

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.

AWS Account | Workbench | Launch instance wizard | IAM Management Console

console.aws.amazon.com/iam/home?region=us-east-1#/roles

Apps Jupyter Notebook S...

Services Resource Groups

Identity and Access Management (IAM)

Roles

What are IAM roles?

IAM roles are a secure way to grant permissions to entities that you trust. Examples of entities include the following:

- IAM user in another account
- Application code running on an EC2 instance that needs to perform actions on AWS resources
- An AWS service that needs to act on resources in your account to provide its features
- Users from a corporate directory who use identity federation with SAML

IAM roles issue keys that are valid for short durations, making them a more secure way to grant access.

Additional resources:

- [IAM Roles FAQ](#)
- [IAM Roles Documentation](#)
- [Tutorial: Setting Up Cross Account Access](#)
- [Common Scenarios for Roles](#)

Create role **Delete role**

Search Showing 14 results

Role name	Trusted entities	Last activity
aws-ec2-role	Amazon VPC	2023-07-10 12:00:00
aws-ec2-role-1	Amazon VPC	2023-07-10 12:00:00
aws-ec2-role-2	Amazon VPC	2023-07-10 12:00:00
aws-ec2-role-3	Amazon VPC	2023-07-10 12:00:00
aws-ec2-role-4	Amazon VPC	2023-07-10 12:00:00
aws-ec2-role-5	Amazon VPC	2023-07-10 12:00:00
aws-ec2-role-6	Amazon VPC	2023-07-10 12:00:00
aws-ec2-role-7	Amazon VPC	2023-07-10 12:00:00
aws-ec2-role-8	Amazon VPC	2023-07-10 12:00:00
aws-ec2-role-9	Amazon VPC	2023-07-10 12:00:00
aws-ec2-role-10	Amazon VPC	2023-07-10 12:00:00
aws-ec2-role-11	Amazon VPC	2023-07-10 12:00:00
aws-ec2-role-12	Amazon VPC	2023-07-10 12:00:00
aws-ec2-role-13	Amazon VPC	2023-07-10 12:00:00
aws-ec2-role-14	Amazon VPC	2023-07-10 12:00:00

Search IAM

AWS Account | Workbench | Launch instance wizard | EC2 Manager | IAM Management Console

console.aws.amazon.com/iam/home?region=us-east-1#/roles\$new?step=type

Apps Jupyter Notebook S...

Services Resource Groups

Create role

Select type of trusted entity

1 2 3 4

AWS service EC2, Lambda and others

Another AWS account Belonging to you or 3rd party

Web identity Cognito or any OpenID provider

SAML 2.0 federation Your corporate directory

Allows AWS services to perform actions on your behalf. [Learn more](#)

Choose the service that will use this role

EC2 Allows EC2 instances to call AWS services on your behalf.

Lambda Allows Lambda functions to call AWS services on your behalf.

API Gateway	CodeBuild	EKS	KMS	RoboMaker
AWS Backup	CodeDeploy	EMR	Kinesis	S3
AWS Chatbot	CodeStar Notifications	ElastiCache	Lambda	SMS
AWS Support	Comprehend	Elastic Beanstalk	Lex	SNS
Amplify	Config	Elastic Container Service	License Manager	SWF
AppStream 2.0	Connect	Elastic Transcoder	Machine Learning	SageMaker
AppSync	DMS	Elastic Load Balancing	Macie	Security Hub

* Required

Cancel Next: Permissions

AWS Account | Workbench | Launch instance wizard | EC2 Manager | IAM Management Console

console.aws.amazon.com/iam/home?region=us-east-1#/roles\$new?step=type

Apps Jupyter Notebook S...

Services Resource Groups

vocstartsoft/user571797=tom.... Global Support

Create role

1 2 3 4

Select type of trusted entity

AWS service EC2, Lambda and others

Another AWS account Belonging to you or 3rd party

Web identity Cognito or any OpenID provider

SAML 2.0 federation Your corporate directory

Allows AWS services to perform actions on your behalf. [Learn more](#)

Choose the service that will use this role

EC2
Allows EC2 instances to call AWS services on your behalf.

Lambda
Allows Lambda functions to call AWS services on your behalf.

API Gateway	CodeBuild	EKS	KMS	RoboMaker
AWS Backup	CodeDeploy	EMR	Kinesis	S3
AWS Chatbot	CodeStar Notifications	ElastiCache	Lambda	SMS
AWS Support	Comprehend	Elastic Beanstalk	Lex	SNS
Amplify	Config	Elastic Container Service	License Manager	SWF
AppStream 2.0	Connect	Elastic Transcoder	Machine Learning	SageMaker
AppSync	DMS	Elastic Load Balancing	Macie	Security Hub

* Required

Cancel Next: Permissions

Access to S3 services

The screenshot shows the AWS IAM Management Console with the URL `console.aws.amazon.com/iam/home?region=us-east-1#/roles$new?step=permissions&commonUseCase=EC2%2BEC2&selectedUseCase=EC2`. The page is titled "Create role" and is at step 2 of 4. It displays a list of policies to attach to the new role. A search bar with "s3" is highlighted with a red box. The "AmazonS3FullAccess" policy is selected, indicated by a checked checkbox and a red box around the row. Other policies listed are "AmazonS3ReadOnlyAccess" and "QuickSightAccessForS3StorageManagementAnalyticsReadOnly". The "Permissions policy (2)" label is also highlighted with a red box. At the bottom, a red box highlights the "Next: Tags" button.

Create role

Attach permissions policies

Choose one or more policies to attach to your new role.

Create policy

Filter policies ▾

s3

Showing 4 results

Policy name	Used as
AmazonS3FullAccess	Permissions policy (2)
AmazonS3ReadOnlyAccess	None
QuickSightAccessForS3StorageManagementAnalyticsReadOnly	None

Set permissions boundary

* Required

Cancel Previous Next: Tags

AWS Account | Workbench | Launch instance wizard | EC2 Manager | IAM Management Console

console.aws.amazon.com/iam/home?region=us-east-1#/roles\$new?step=tags&commonUseCase=EC2%2BEC2&selectedUseCase=EC2&policies=arn:aws:iam::aws:policy%2FAmazonS3FullAccess&policies=a...

Apps Jupyter Notebook S...

Services Resource Groups

Create role

Add tags (optional)

IAM tags are key-value pairs you can add to your role. Tags can include user information, such as an email address, or can be descriptive, such as a job title. You can use the tags to organize, track, or control access for this role. [Learn more](#)

Key	Value (optional)	Remove
<input type="text" value="Add new key"/>		

You can add 50 more tags.

1 2 3 4

Cancel

Previous

Next: Review

AWS Account | Workbench | Launch instance wizard | IAM Management Console

console.aws.amazon.com/iam/home?region=us-east-1#/roles\$new?step=review&commonUseCase=EC2BEC2&selectedUseCase=EC2&policies=arn:aws:iam::aws:policy%2FAmazonS3FullAccess

Apps Jupyter Notebook S...

Services Resource Groups

vocstartsoft/user571797=tom... Global Support

Create role

1 2 3 4

Review

Provide the required information below and review this role before you create it.

Role name*

data_engineering_role

Use alphanumeric and '+=_,@_-' characters. Maximum 64 characters.

Role description

Allows EC2 instances to call AWS services on your behalf.

Maximum 1000 characters. Use alphanumeric and '+=_,@_-' characters.

Trusted entities AWS service: ec2.amazonaws.com

Policies  AmazonS3FullAccess

Permissions boundary Permissions boundary is not set

No tags were added.

* Required

Cancel

Previous

Create role

Screenshot of the AWS IAM Management Console showing a list of roles. A red box highlights the browser tab title "Launch instance wizard | EC2 Mar...".

The screenshot shows the AWS IAM Management Console interface. The left sidebar contains navigation links for Identity and Access Management (IAM), including Dashboard, Access management, Roles, Policies, Identity providers, Account settings, Access reports, Access analyzer, Archive rules, Analyzer details, Credential report, Organization activity, Service control policies (SCPs), and a search bar. The main content area displays a table of roles with columns for Role name, Trusted entities, and Last activity. The table lists 13 results, including Service-Linked roles for various AWS services like Cloud9, CloudWatch Events, ElastiCache, Organizations, Support, Trusted Advisor, EC2, EMR, and Greengrass, as well as two specific accounts (vocareum and vocstartsoft) which require permissions.

Role name	Trusted entities	Last activity
AWSServiceRoleForAWSCloud9	AWS service: cloud9 (Service-Linked role)	None
AWSServiceRoleForCloudWatchEvents	AWS service: events (Service-Linked role)	None
AWSServiceRoleForElastiCache	AWS service: elasticache (Service-Linked role)	None
AWSServiceRoleForOrganizations	AWS service: organizations (Service-Linked r...)	None
AWSServiceRoleForSupport	AWS service: support (Service-Linked role)	None
AWSServiceRoleForTrustedAdvisor	AWS service: trustedadvisor (Service-Linked ...)	None
data_engineering_role	AWS service: ec2	None
EMR_AutoScaling_DefaultRole	AWS service: elasticmapreduce and 1 more	None
EMR_DefaultRole	AWS service: elasticmapreduce	None
EMR_EC2_DefaultRole	AWS service: ec2	None
robomaker_students	AWS service: greengrass and 3 more	None
vocareum	Account: 166482294049	You need permissions
vocstartsoft	Account: 166482294049	You need permissions

Selected created role

The screenshot shows the AWS Launch Instance Wizard at Step 3: Configure Instance Details. The browser tabs include AWS Account, Workbench, Launch instance wizard | EC2 Ma..., and IAM Management Console. The main interface shows fields for Number of instances (1), Purchasing option (Request Spot instances), Network (vpc-437f5e39 (default)), Subnet (No preference (default subnet in any Availability Zone)), Auto-assign Public IP (Use subnet setting (Enable)), Placement group (Add instance to placement group), Capacity Reservation (Open), and IAM role (None). A red box highlights the 'Create new IAM role' button next to the 'None' dropdown.

AWS Account | Workbench | Launch instance wizard | EC2 Ma... | IAM Management Console

console.aws.amazon.com/ec2/home?region=us-east-1#LaunchInstanceWizard:

Apps Jupyter Notebook S...

Services Resource Groups

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

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 Launch into Auto Scaling Group [i](#)

Purchasing option Request Spot instances

Network [C Create new VPC](#)

Subnet [Create new subnet](#)

Auto-assign Public IP

Placement group Add instance to placement group

Capacity Reservation [C Create new Capacity Reservation](#)

IAM role [C Create new IAM role](#)

Shutdown behavior

Enable termination protection Protect against accidental termination

Monitoring Enable CloudWatch detailed monitoring
Additional charges apply.

Cancel Previous Review and Launch Next: Add Storage

AWS Account | Workbench | Launch instance wizard | EC2 Management Console | IAM Management Console

console.aws.amazon.com/ec2/home?region=us-east-1#LaunchInstanceWizard:

Apps Jupyter Notebook S...

aws Services Resource Groups

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

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-437f5e39 (default) [Create new VPC](#)

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

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

Placement group: Add instance to placement group

Capacity Reservation: Open [Create new Capacity Reservation](#)

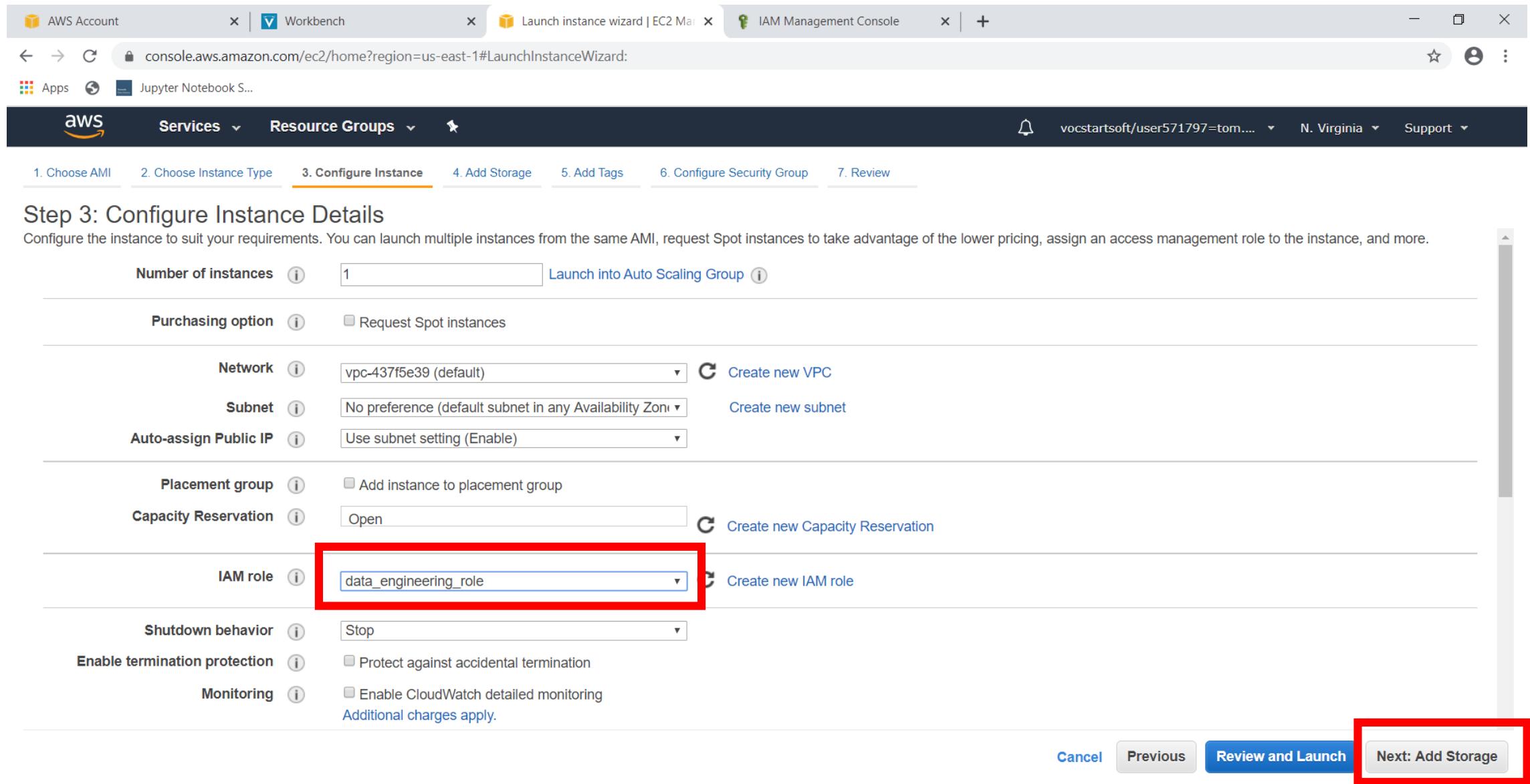
IAM role: data_engineering_role [Create new IAM role](#)

Shutdown behavior: Stop

Enable termination protection: Protect against accidental termination

Monitoring: Enable CloudWatch detailed monitoring
Additional charges apply.

Cancel Previous **Review and Launch** Next: Add Storage



Add additional storage

The screenshot shows the AWS Launch Instance Wizard interface. The top navigation bar includes tabs for AWS Account, Workbench, Launch instance wizard | EC2, and IAM Management Console. Below the navigation is a browser address bar with the URL console.aws.amazon.com/ec2/home?region=us-east-1#LaunchInstanceWizard:. The main header has sections for Services, Resource Groups, and a user profile. A progress bar at the top indicates steps 1 through 7, with step 4 highlighted.

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	Encryption
Root	/dev/sda1	snap-02e105f83f77cd917	20	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.

At the bottom right, there are buttons for Cancel, Previous, Review and Launch, and Next: Add Tags. The Next: Add Tags button is highlighted with a red box.

AWS Account Workbench Launch instance wizard | EC2 IAM Management Console

console.aws.amazon.com/ec2/home?region=us-east-1#LaunchInstanceWizard:

Apps Jupyter Notebook S...

Services Resource Groups

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

Step 5: Add Tags

A tag consists of a case-sensitive key-value pair. For example, you could define a tag with key = Name and value = Webserver.

A copy of a tag can be applied to volumes, instances or both.

Tags will be applied to all instances and volumes. [Learn more](#) about tagging your Amazon EC2 resources.

Key	(128 characters maximum)	Value	(256 characters maximum)	Instances	Volumes
<p><i>This resource currently has no tags</i></p> <p>Choose the Add tag button or click to add a Name tag. Make sure your IAM policy includes permissions to create tags.</p>					

Add Tag (Up to 50 tags maximum)

Cancel Previous Review and Launch Next: Configure Security Group

Create security group

The screenshot shows the AWS EC2 Launch Instance Wizard at Step 6: Configure Security Group. The browser tab is "Launch instance wizard | EC2 Manager". The main content area shows the configuration for a new security group named "ssh_security_group" with a description "Enables SSH access". A red box highlights the "Assign a security group" section where "Create a new security group" is selected. Another red box highlights the "Add Rule" button and the warning message about allowing all IP addresses. A third red box highlights the "Review and Launch" button at the bottom right.

Step 6: Configure Security Group

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

Assign a security group:

- Create a new security group
- Select an existing security group

Security group name: ssh_security_group

Description: Enables SSH access

Type	Protocol	Port Range	Source	Description
SSH	TCP	22	Custom 0.0.0.0/0	e.g. SSH for Admin Desktop

Add Rule

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

Cancel Previous Review and Launch

Launch instance

The screenshot shows the AWS Launch instance wizard Step 7: Review Instance Launch page. The browser tabs include AWS Account, Workbench, Launch instance wizard | EC2 Manager, and IAM Management Console. The main content area shows the review steps: 1. Choose AMI, 2. Choose Instance Type, 3. Configure Instance, 4. Add Storage, 5. Add Tags, 6. Configure Security Group, and 7. Review. Step 7 is highlighted.

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

Ubuntu Server 18.04 LTS (HVM), SSD Volume Type - ami-04b9e92b5572fa0d1

Free tier eligible

Ubuntu Server 18.04 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

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

Security group name: ssh_security_group

Buttons at the bottom: Cancel, Previous, **Launch** (highlighted with a red box).

Create key pair to access instance

AWS Account | Workbench | Launch instance wizard | EC2 Management Console | IAM Management Console

console.aws.amazon.com/ec2/home?region=us-east-1#LaunchInstanceWizard:

Apps Jupyter Notebook S...

Services Resource Groups

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

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

Ubuntu Server 18.04 LTS (HVM), SSD Volume Type
Free tier eligible
Ubuntu Server 18.04 LTS (HVM), EBS General Purpose
Root Device Type: ebs Virtualization type: hvm

Instance Type

Instance Type	ECUs	vCPUs
t2.micro	Variable	1

Security Groups

Security group name: ssh_security_group

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.

Create a new key pair
Key pair name: aws_tomvermeire_key

Download Key Pair

You have to download the **private key file** (*.pem file) before you can continue. **Store it in a secure and accessible location.** You will not be able to download the file again after it's created.

Cancel Launch Instances

AWS Account | Workbench | Launch instance wizard | EC2 Management Console | IAM Management Console

console.aws.amazon.com/ec2/home?region=us-east-1#LaunchInstanceWizard:

Apps Jupyter Notebook S...

aws Services Resource Groups

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

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.

⚠ Improve your instances' security. Your security group allows traffic from anywhere.

Your instances may be accessible from any IP address. You can also open additional ports in your security group.

AMI Details

Ubuntu Server 18.04 LTS (HVM), SSD Volume Type

Free tier eligible

Ubuntu Server 18.04 LTS (HVM), EBS General Purpose

Root Device Type: ebs Virtualization type: hvm

Instance Type

Instance Type	ECUs	vCPUs
t2.micro	Variable	1

Security Groups

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](#).

Create a new key pair

Key pair name: aws_tomvermeire_key

Download Key Pair (button highlighted with a red box)

You have to download the **private key file** (*.pem file) before you can continue. **Store it in a secure and accessible location.** You will not be able to download the file again after it's created.

Cancel Launch Instances

Cancel Previous Launch

Feedback English (US)

aws_tomvermeire....pem

Show all

AWS Account | Workbench | Launch instance wizard | EC2 Management Console | IAM Management Console

console.aws.amazon.com/ec2/home?region=us-east-1#LaunchInstanceWizard:

Apps Jupyter Notebook S...

aws Services Resource Groups

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

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.

⚠ Improve your instances' security. Your security group allows traffic from anywhere.

Your instances may be accessible from any IP address. You can also open additional ports in your security group.

AMI Details

Ubuntu Server 18.04 LTS (HVM), SSD Volume Type

Free tier eligible

Ubuntu Server 18.04 LTS (HVM), EBS General Purpose

Root Device Type: ebs Virtualization type: hvm

Instance Type

Instance Type	ECUs	vCPUs
t2.micro	Variable	1

Security Groups

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](#).

Create a new key pair

Key pair name: aws_tomvermeire_key

Download Key Pair

You have to download the **private key file** (*.pem file) before you can continue. **Store it in a secure and accessible location.** You will not be able to download the file again after it's created.

Cancel **Launch Instances**

Cancel Previous Launch

Feedback English (US)

aws_tomvermeire....pem

Show all

A screenshot of the AWS Management Console interface. The top navigation bar shows tabs for 'AWS Account', 'Workbench', 'Launch instance wizard | EC2 Mar...', 'IAM Management Console', and a '+' icon. Below the navigation bar is a toolbar with icons for 'Apps' and 'Jupyter Notebook S...'. The main menu bar includes 'Services', 'Resource Groups', and 'Support'. The user's session information 'vocstartsoft/user571797=tom....' and region 'N. Virginia' are also visible.

Launch Status

Get notified of estimated charges

Create [billing alerts](#) to get an email notification when estimated charges on your AWS bill exceed an amount you define (for example, if you exceed the free usage tier).

How to connect to your instances

Your instances are launching, and it may take a few minutes until they are in the **running** state, when they will be ready for you to use. Usage hours on your new instances will start immediately and continue to accrue until you stop or terminate your instances.

Click [View Instances](#) to monitor your instances' status. Once your instances are in the **running** state, you can **connect** to them from the Instances screen. [Find out](#) how to connect to your instances.

▼ Here are some helpful resources to get you started

- [How to connect to your Linux instance](#)
- [Learn about AWS Free Usage Tier](#)
- [Amazon EC2: User Guide](#)
- [Amazon EC2: Discussion Forum](#)

While your instances are launching you can also

[Create status check alarms](#) to be notified when these instances fail status checks. (Additional charges may apply)

[Create and attach additional EBS volumes](#) (Additional charges may apply)

[Manage security groups](#)

[View Instances](#)

AWS Account | Workbench | Instances | EC2 Management Con | IAM Management Console

console.aws.amazon.com/ec2/home?region=us-east-1#Instances:sort=instanceState

New EC2 Experience | Launch Instance | Connect | Actions

EC2 Dashboard | Events | Tags | Reports | Limits

INSTANCES | Instances | Instance Types | Launch Templates | Spot Requests | Savings Plans | Reserved Instances | Dedicated Hosts | Scheduled Instances | Capacity Reservations

IMAGES | AMIs | Bundle Tasks

ELASTIC BLOCK STORE

Feedback | English (US)

aws_tomvermeire....pem

1 to 1 of 1

Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	Public DNS (IPv4)	IPv4 Public IP	IPv6
	i-005ee21de0237f48a	t2.micro	us-east-1b	running	Initializing	None	ec2-18-212-158-142.co...	18.212.158.142	-

Instance: i-005ee21de0237f48a | Public DNS: ec2-18-212-158-142.compute-1.amazonaws.com

Description | Status Checks | Monitoring | Tags

Instance ID	i-005ee21de0237f48a	Public DNS (IPv4)	ec2-18-212-158-142.compute-1.amazonaws.com
Instance state	running	IPv4 Public IP	18.212.158.142
Instance type	t2.micro	IPv6 IPs	-

© 2008 - 2020, Amazon Web Services, Inc. or its affiliates. All rights reserved. | Privacy Policy | Terms of Use

Show all

The screenshot shows the AWS EC2 Instances page. On the left, there's a navigation sidebar with links for EC2 Dashboard, Events, Tags, Reports, Limits, Instances (selected), Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Scheduled Instances, Capacity Reservations, AMIs, and Elastic Block Store. The main content area has tabs for Launch Instance, Connect, and Actions. Below these are filters for Name, Instance ID, Instance Type, Availability Zone, Instance State, Status Checks, Alarm Status, Public DNS (IPv4), IPv4 Public IP, and IPv6. A search bar is also present. The main table lists one instance: i-005ee21de0237f48a, which is a t2.micro type in us-east-1b, currently running. Its public DNS is ec2-18-212-158-142.compute-1.amazonaws.com and its public IP is 18.212.158.142. The 'Instance State' column for this instance is highlighted with a red box. Below the table, there's a detailed view for the selected instance, showing its ID, state, type, and network information. At the bottom, there are tabs for Description, Status Checks, Monitoring, and Tags, along with a summary table of these details. The footer includes copyright information and links to Privacy Policy and Terms of Use.

Generate private key

- Open PuTTYgen

AWS Account | Workbench | Instances | EC2 Management Con | IAM Management Console

console.aws.amazon.com/ec2/home?region=us-east-1#Instances:sort=instanceState

Apps Jupyter Notebook S...

aws Services Resource Groups

New EC2 Experience Learn more

EC2 Dashboard New

Events

Tags

Reports

Limits

INSTANCES

Instances

- Instance Types
- Launch Templates New
- Spot Requests
- Savings Plans
- Reserved Instances
- Dedicated Hosts
- Scheduled Instances
- Capacity Reservations

IMAGES

- AMIs
- Bundle Tasks

ELASTIC BLOCK STORE

Launch Instance Connect Actions

PUTTY Key Generator

File Key Conversions Help

Key

No key.

Actions

- Generate a public/private key pair
- Load an existing private key file
- Save the generated key

Parameters

Type of key to generate: RSA DSA ECDSA ED25519 SSH-1(RSA)

Number of bits in a generated key:

Instance: i-005ee21de0237f48a

Description Status Checks Metrics

Instance ID: i-005ee21de0237f48a Public DNS (IPv4): ec2-18-212-158-142.compute-1.amazonaws.com

Instance state: running IPv4 Public IP: 18.212.158.142

Instance type: t2.micro IPv6 IPs: -

Feedback English (US) © 2008 - 2020, Amazon Web Services, Inc. or its affiliates. All rights reserved. Privacy Policy Terms of Use

aws_tomvermeire....pem Show all

The screenshot shows the AWS EC2 Instances page with a PuTTY Key Generator dialog box overlaid. The PuTTY dialog has 'RSA' selected as the key type. A red box highlights the 'Type of key to generate' section. The EC2 instance details are visible in the background, including the instance ID, state, type, and network information. The browser tab bar at the top shows multiple open tabs related to AWS services.

AWS Account | Workbench | Instances | EC2 Management Con | IAM Management Console

console.aws.amazon.com/ec2/home?region=us-east-1#Instances:sort=instanceState

Apps Jupyter Notebook S...

aws Services Resource Groups

New EC2 Experience Learn more

EC2 Dashboard New

Events

Tags

Reports

Limits

INSTANCES

Instances

- Instance Types
- Launch Templates New
- Spot Requests
- Savings Plans
- Reserved Instances
- Dedicated Hosts
- Scheduled Instances
- Capacity Reservations

IMAGES

- AMIs
- Bundle Tasks

ELASTIC BLOCK STORE

Launch Instance Connect Actions

PUTTY Key Generator

File Key Conversions Help

No key.

Actions

- Generate a public/private key pair
- Load an existing private key file
- Save the generated key

Generate Load Save public key Save private key

Parameters

Type of key to generate:
 RSA DSA ECDSA ED25519 SSH-1(RSA)

Number of bits in a generated key: 2048

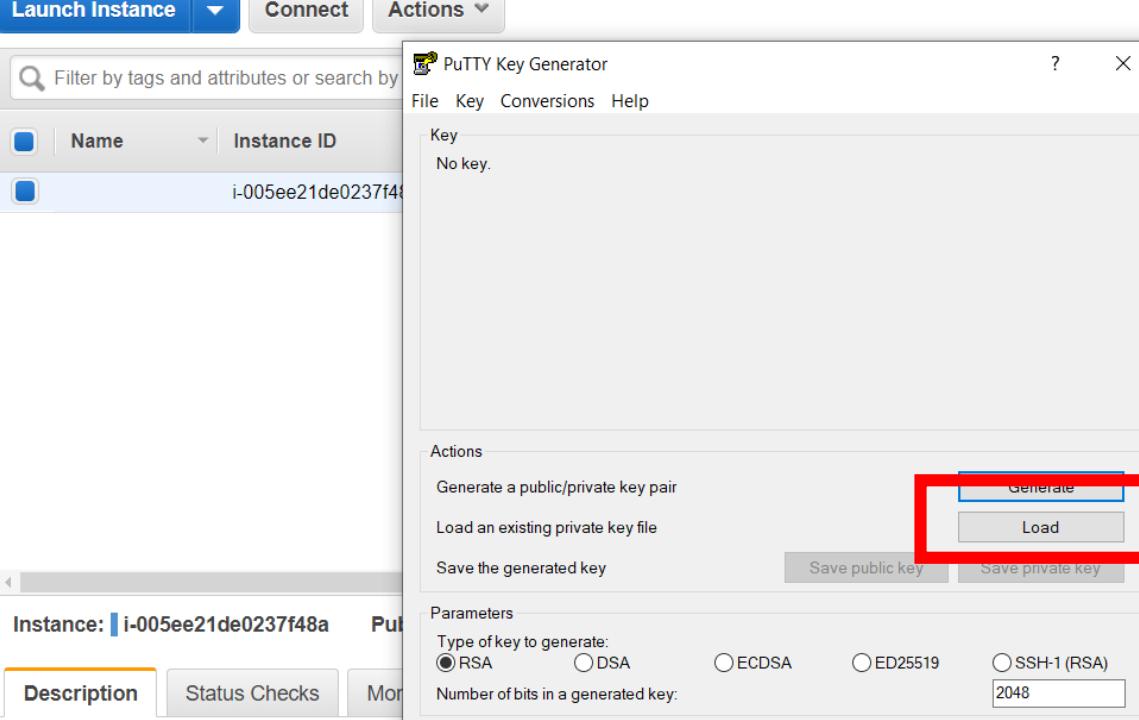
Instance: i-005ee21de0237f48a Public IP: 18.212.158.142

Description Status Checks Monitor

Instance ID: i-005ee21de0237f48a Public DNS (IPv4): ec2-18-212-158-142.compute-1.amazonaws.com
Instance state: running IPv4 Public IP: 18.212.158.142
Instance type: t2.micro IPv6 IPs: -

Feedback English (US) © 2008 - 2020, Amazon Web Services, Inc. or its affiliates. All rights reserved. Privacy Policy Terms of Use

aws_tomvermeire....pem Show all



AWS Account | Workbench | Instances | EC2 Management Console | IAM Management Console

console.aws.amazon.com/ec2/home?region=us-east-1#Instances:sort=instanceState

Apps Jupyter Notebook S...

aws Services Resource Groups

New EC2 Experience Learn more

EC2 Dashboard New

Events

Tags

Reports

Limits

INSTANCES

Instances

- Instance Types
- Launch Templates New
- Spot Requests
- Savings Plans
- Reserved Instances
- Dedicated Hosts
- Scheduled Instances
- Capacity Reservations

IMAGES

- AMIs
- Bundle Tasks

ELASTIC BLOCK STORE

Launch Instance Connect Actions

Filter by tags and attributes or search by Name Instance ID i-005ee21de0237f48a

PuTTY Key Generator

Load private key:

This PC > Downloads

Organize New folder

- This PC
- 3D Objects
- Desktop
- Documents
- Downloads
- Music
- Pictures
- Videos
- Windows (C:)
- TVermeire (H:)
- Data (\\\fileserver)
- Programs (\\\fileserver)

aws_tomvermeire_key.pem

File name: aws_tomvermeire_key.pem

Open Cancel

IPv4 Public IP 18.212.158.142

vocstartsoft/user571797=tom.... N. Virginia Support

Feedback English (US) © 2008 - 2020, Amazon Web Services, Inc. or its affiliates. All rights reserved. Privacy Policy Terms of Use

aws_tomvermeire....pem Show all

The screenshot shows the AWS EC2 Instances page with a modal dialog for selecting a private key. The file 'aws_tomvermeire_key.pem' is highlighted with a red box, and the 'Open' button at the bottom right of the dialog is also highlighted with a red box.

AWS Account | Workbench | Instances | EC2 Management Console | IAM Management Console

console.aws.amazon.com/ec2/home?region=us-east-1#Instances:sort=instanceState

Apps Jupyter Notebook S...

aws Services Resource Groups

New EC2 Experience Learn more

EC2 Dashboard New

Events

Tags

Reports

Limits

INSTANCES

Instances

Instance Types

Launch Templates New

Spot Requests

Savings Plans

Reserved Instances

Dedicated Hosts

Scheduled Instances

Capacity Reservations

IMAGES

AMIs

Bundle Tasks

ELASTIC BLOCK STORE

Launch Instance Connect Actions

Filter by tags and attributes or search by Name Instance ID i-005ee21de0237f48a

PuTTY Key Generator

File Key Conversions Help

Key

Public key for pasting into OpenSSH authorized_keys file:

```
ssh-rsa AAAAB3NzaC1yc2EAAAQABAAQCenwyPlj43i70K2HeE4LFyoZwxKlvq4Nbndl4ymOqb/8mJ3RmGP/zWT7H6HwnUEKViSWhDfm3oA5Y2FVOonXFao2WeG0uu4jn90Ur5g7P0dLdYxn2Cx0+//k5r38sBScV
```

PuTTYgen Notice

5ApOK

i Successfully imported foreign key (OpenSSH SSH-2 private key (old PEM format)). To use this key with PuTTY, you need to use the "Save private key" command to save it in PuTTY's own format.

Actions

Generate a public key Load an existing key Save the generated key Save public key Save private key

OK

Parameters

Type of key to generate:

RSA DSA ECDSA ED25519 SSH-1 (RSA)

Number of bits in a generated key: 2048

Instance: i-005ee21de0237f48a

Description Status Checks More

Instance ID: i-005ee21de0237f48a Public DNS (IPv4): ec2-18-212-158-142.compute-1.amazonaws.com

Instance state: running IPv4 Public IP: 18.212.158.142

Instance type: t2.micro IPv6 IPs: -

Feedback English (US) © 2008 - 2020, Amazon Web Services, Inc. or its affiliates. All rights reserved. Privacy Policy Terms of Use

aws_vermeire.pem

Show all

The screenshot shows the AWS EC2 Management Console interface. In the center, a PuTTY Key Generator dialog is open over an EC2 instance details page. The PuTTYgen dialog displays a successfully imported foreign key in OpenSSH PEM format. A red box highlights the 'OK' button in the PuTTYgen Notice message. The EC2 instance details page shows an instance with ID i-005ee21de0237f48a, which is running and has a t2.micro type. The instance has a public DNS name of ec2-18-212-158-142.compute-1.amazonaws.com and a public IP of 18.212.158.142. The PuTTYgen dialog also shows parameters for generating a new key: RSA type, 2048 bits, and SSH-1 (RSA) algorithm.

AWS Account | Workbench | Instances | EC2 Management Console | IAM Management Console

console.aws.amazon.com/ec2/home?region=us-east-1#Instances:sort=instanceState

Apps Jupyter Notebook S...

aws Services Resource Groups

New EC2 Experience Learn more

EC2 Dashboard New

Events

Tags

Reports

Limits

INSTANCES

Instances

Instance Types

Launch Templates New

Spot Requests

Savings Plans

Reserved Instances

Dedicated Hosts

Scheduled Instances

Capacity Reservations

IMAGES

AMIs

Bundle Tasks

ELASTIC BLOCK STORE

Launch Instance Connect Actions

PUTTY Key Generator

File Key Conversions Help

Key

Public key for pasting into OpenSSH authorized_keys file:

```
ssh-rsa AAAAB3NzaC1yc2EAAAQABAAQ...nbadnlk4ymOigb8mJ3RmGP/zWT7H6HWhUEKvlsWvhDfm3oASY2FVOn4XFao2WeG0uu4jn90Uf5g7P0dLdYxn2CxceD6RW5RGZula1WmmjGV3YiHdu8nc+//k5r38s/BScVEHgXo34Wjgw2B38oMarD1SOprSsXO8FzIS6U2jJhub3HndhE/Pms15ApoK
```

Action

Generate a public/private key pair

Load an existing private key file

Save the generated key

Save public key

Save private key

Actions

Generate

Key fingerprint ssh-rsa 2048 21:b8:81:8a:0a:5e:11:5b:37:02:e2:82:a5:fc:81:54

Key comment importedOpenssh-key

Key passphrase:

Confirm passphrase:

Parameters

Type of key to generate: RSA (checked) DSA ECDSA ED25519 SSH-1(RSA)

Number of bits in a generated key: 2048

Instance: i-005ee21de0237f48a Public IP: 18.212.158.142

Description Status Checks Monitor

Instance ID: i-005ee21de0237f48a Instance state: running Instance type: t2.micro

Public DNS (IPv4): ec2-18-212-158-142.compute-1.amazonaws.com IPv4 Public IP: 18.212.158.142 IPv6 IPs: -

Feedback English (US)

© 2008 - 2020, Amazon Web Services, Inc. or its affiliates. All rights reserved. Privacy Policy Terms of Use

aws_tomvermeire....pem

Show all

A red box highlights the "Save private key" button in the PuTTY Key Generator dialog.

AWS Account | Workbench | Instances | EC2 Management Console | IAM Management Console

console.aws.amazon.com/ec2/home?region=us-east-1#Instances:sort=instanceState

Apps Jupyter Notebook S...

aws Services Resource Groups

New EC2 Experience Learn more

EC2 Dashboard New

Events

Tags

Reports

Limits

INSTANCES

Instances

Instance Types

Launch Templates New

Spot Requests

Savings Plans

Reserved Instances

Dedicated Hosts

Scheduled Instances

Capacity Reservations

IMAGES

AMIs

Bundle Tasks

ELASTIC BLOCK STORE

Launch Instance Connect Actions

Filter by tags and attributes or search by Name Instance ID i-005ee21de0237f48a

PuTTY Key Generator

Key Public key for pasting into OpenSSH authorized_keys file:
ssh-rsa AAAAB3NzaC1yc2EAAAQABAAQCenwyPlj43i70K2HeE4LFyoZzwxKlvq4Nbadnkl4ym0iqb/8mJ3RmGP/zWT7H6HwnUEKVlsWvhDfm3oA5Y2FVOn4XFao2WeG0uiu4jn90U5g7P0dLdyxn2Cxced6RWS5RGZula1WmmuJGV3YiHdu8nc+//k5r38s/BScVEHgXo34WjgwB3B8oMarD1SOprSsXO8FzIS6rU2jJhub3HndhE/Pms15Ap0K

Key fingerprint PutTYgen Warning

Key comment

Key passphrase:

Confirm passphrase

Actions Generate a public/private key pair Yes No Generate Load

Load an existing private key file Save the generated key Save public key Save private key

Parameters Type of key to generate: RSA DSA ECDSA ED25519 SSH-1 (RSA) Number of bits in a generated key: 2048

Instance: i-005ee21de0237f48a Pul

Description Status Checks More

Instance ID i-005ee21de0237f48a Public DNS (IPv4) ec2-18-212-158-142.compute-1.amazonaws.com

Instance state running IPv4 Public IP 18.212.158.142

Instance type t2.micro IPv6 IPs -

PuTTYgen Warning: Are you sure you want to save this key without a passphrase to protect it?

Yes No

Feedback English (US)

© 2008 - 2020, Amazon Web Services, Inc. or its affiliates. All rights reserved. Privacy Policy Terms of Use

Show all

aws_tomvermeire....pem

AWS Account | Workbench | Instances | EC2 Management Con | IAM Management Console

console.aws.amazon.com/ec2/home?region=us-east-1#Instances:sort=instanceState

Apps Jupyter Notebook S...

New EC2 Experience Learn more

Services Resource Groups

EC2 Dashboard New

Events

Tags

Reports

Limits

INSTANCES

Instances

- Instance Types
- Launch Templates New
- Spot Requests
- Savings Plans
- Reserved Instances
- Dedicated Hosts
- Scheduled Instances
- Capacity Reservations

IMAGES

AMIs

Bundle Tasks

ELASTIC BLOCK STORE

Launch Instance Connect Actions

PutTY Key Generator

Save private key as:

File Name: aws_tomvermeire_key

Save as type: .pem (.private key file - ssh)

Save Cancel

1 to 1 of 1 IPv4 Public IP 18.212.158.142

No items match your search.

This PC 3D Objects Desktop Documents Downloads Music Pictures Videos Windows (C:) TVermeire (H:)

Feedback English (US)

© 2008 - 2020, Amazon Web Services, Inc. or its affiliates. All rights reserved. Privacy Policy Terms of Use

Show all

The screenshot shows the AWS EC2 Instances page with a modal window for saving a private key. The modal has a red box around the 'File name:' input field containing 'aws_tomvermeire_key'. Another red box highlights the 'Save' button at the bottom right of the modal. The background shows an EC2 instance details page for an instance with ID i-005ee21de0237f48a, which is running and of type t2.micro. The left sidebar lists various AWS services like EC2 Dashboard, Instances, Images, AMIs, and Elastic Block Store.

AWS Account | Workbench | Instances | EC2 Management Console | IAM Management Console

console.aws.amazon.com/ec2/home?region=us-east-1#Instances:sort=instanceState

Apps Jupyter Notebook S...

aws Services Resource Groups

New EC2 Experience Learn more

EC2 Dashboard New Events Tags Reports Limits

INSTANCES Instances Instance Types Launch Templates New Spot Requests Savings Plans Reserved Instances Dedicated Hosts Scheduled Instances Capacity Reservations

IMAGES AMIs Bundle Tasks

ELASTIC BLOCK STORE

Launch Instance Connect Actions

PUTTY Key Generator

File Key Conversions Help

Key

Public key for pasting into OpenSSH authorized_keys file:

```
ssh-rsa AAAAB3NzaC1yc2EAAAQABAAQCe...Pj43i70K2HeE4LFyoZwxKlvq4NbadnL4ymO...g7P0dLdYxn2CxceD6RW5RGZula1WmmJGV3YiHdu8nc+//k5r38s/BScVEHgXo34WjgwB38oMarD1SOprSsXO8FzIS6U2jJhub3HndhE/Pms15ApoK
```

Key fingerprint ssh-rsa 2048 21:b8:81:8a:0a:5e:11:5b:37:02:e2:82:a5:fc:81:54

Key comment imported-openssh-key

Key passphrase:

Confirm passphrase:

Actions

Generate a public/private key pair Generate

Load an existing private key file Load

Save the generated key Save public key Save private key

Parameters

Type of key to generate: RSA DSA ECDSA ED25519 SSH-1(RSA)

Number of bits in a generated key: 2048

Instance: i-005ee21de0237f48a PUTTY

Description Status Checks Monitor

Instance ID: i-005ee21de0237f48a Public DNS (IPv4): ec2-18-212-158-142.compute-1.amazonaws.com
Instance state: running IPv4 Public IP: 18.212.158.142
Instance type: t2.micro IPv6 IPs: -

Feedback English (US) © 2008 - 2020, Amazon Web Services, Inc. or its affiliates. All rights reserved. Privacy Policy Terms of Use

aws_tomvermeire....pem Show all

Access running instance

- Open PuTTY

Copy DNS of running instance

The screenshot shows the AWS Management Console interface with several tabs open:

- AWS Account
- Workbench
- Instances | EC2 Management Console (active tab)
- IAM Management Console

The Instances tab displays a list of EC2 instances. One instance, `i-005ee21de0237f48a`, is selected. A red box highlights the "Public DNS" field, which contains the value `ec2-18-212-158-142.compute-1.amazonaws.com`.

A modal window titled "PuTTY Configuration" is open over the Instances tab. It shows the "Session" category with the "Host Name (or IP address)" field also containing the value `18-212-158-142.compute-1.amazonaws.com`. A red arrow points from the highlighted Public DNS field in the Instances tab to this Host Name field in the PuTTY configuration.

At the bottom of the screen, there is a navigation bar with links for Feedback, English (US), and other AWS services like IAM Management Console, IAM, and Lambda.

Specify private key

The screenshot shows the AWS Management Console interface with several tabs open in the top navigation bar: AWS Account, Workbench, Instances | EC2 Management Con..., and IAM Management Console.

The main area displays the EC2 Dashboard. On the left, the navigation pane is expanded, showing the **INSTANCES** section with **Instances** selected. Other sections like AMIs, Bundle Tasks, and ELASTIC BLOCK are also visible.

In the center, a **PuTTY Configuration** dialog box is open. The **Category:** tree on the left is expanded, with the **Auth** node highlighted and surrounded by a red box. To the right of the tree, under the **Authentication methods** section, there is a field labeled **Private key file for authentication:** which also has a red box around it. Below this field is a **Browse...** button.

At the bottom of the PuTTY dialog, there are **About**, **Help**, **Open**, and **Cancel** buttons.

Below the PuTTY dialog, the EC2 instance details are shown:

Instance: i-005ee21de0237f48a Public DNS: ec2-18-212-158-142.compute-1.amazonaws.com			
Description	Status Checks	Monitoring	Tags
Instance ID	i-005ee21de0237f48a		
Instance state	running		
Instance type	t2.micro		
Public DNS (IPv4)	ec2-18-212-158-142.compute-1.amazonaws.com		
IPv4 Public IP	18.212.158.142		
IPv6 IPs	-		

AWS Account Workbench Instances | EC2 Management Con IAM Management Console

console.aws.amazon.com/ec2/home?region=us-east-1#Instances:sort=instanceState

Apps Jupyter Notebook S...

aws Services Resource Groups

New EC2 Experience Learn more

EC2 Dashboard New Events Tags Reports Limits

INSTANCES Instances Instance Types Launch Templates New Spot Requests Savings Plans Reserved Instances Dedicated Hosts Scheduled Instances Capacity Reservations

IMAGES AMIs Bundle Tasks

ELASTIC BLOCK STORE

Launch Instance Connect

Filter by tags and attributes or search

Name Instance ID i-005ee21de023

PutTY Configuration Select private key file

This PC 3D Objects Desktop Documents Downloads Music Pictures Videos Windows (C:) TVermeire (H:) Data (\fileserver) Programs (\fileserver)

aws_tomvermeire_key.ppk

File name: aws_tomvermeire_key.ppk PutTY Private Key Files (*.ppk)

Open Cancel

Instance: i-005ee21de0237f48a

Description Status Checks Monitoring Tags

Instance ID i-005ee21de0237f48a Instance state running Instance type t2.micro

Public DNS (IPv4) ec2-18-212-158-142.compute-1.amazonaws.com IPv4 Public IP 18.212.158.142 IPv6 IPs -

Feedback English (US)

© 2008 - 2020, Amazon Web Services, Inc. or its affiliates. All rights reserved. Privacy Policy Terms of Use

aws_tomvermeire....pem Show all

The screenshot shows the AWS EC2 Instances page with a single instance listed. A modal window for PutTY Configuration is overlaid, specifically the 'Select private key file' dialog. Inside this dialog, a file named 'aws_tomvermeire_key.ppk' is selected and highlighted with a red box. The 'Open' button at the bottom right of the dialog is also highlighted with a red box, indicating it is the next step to be taken.

AWS Account | Workbench | Instances | EC2 Management Con | IAM Management Console

console.aws.amazon.com/ec2/home?region=us-east-1#Instances:sort=instanceState

Apps Jupyter Notebook S...

aws Services Resource Groups

New EC2 Experience Learn more

EC2 Dashboard New

Events

Tags

Reports

Limits

INSTANCES

Instances

Instance Types

Launch Templates New

Spot Requests

Savings Plans

Reserved Instances

Dedicated Hosts

Scheduled Instances

Capacity Reservations

IMAGES

AMIs

Bundle Tasks

ELASTIC BLOCK STORE

Launch Instance Connect

Filter by tags and attributes or search

Name Instance ID

i-005ee21de023

PutTY Configuration

Category:

- Bell
- Features
- Window
- Appearance
- Behaviour
- Translation
- Selection
- Colours
- Connection
- Data
- Proxy
- Telnet
- Rlogin
- SSH
- Kex
- Host keys
- Cipher
- Auth
- TTY
- X11
- Tunnels
- Bugs
- More bugs
- Serial

Options controlling SSH authentication

Display pre-authentication banner (SSH-2 only)

Bypass authentication entirely (SSH-2 only)

Authentication methods

Attempt authentication using Pageant

Attempt TIS or CryptoCard auth (SSH-1)

Attempt "keyboard-interactive" auth (SSH-2)

Authentication parameters

Allow agent forwarding

Allow attempted changes of username in SSH-2

Private key file for authentication:

C:\Users\vermeire\Downloads\aws_tomvei

Browse...

About Help Open Cancel

Instance: i-005ee21de023f48a Public DNS: ec2-18-212-158-142.compute-1.amazonaws.com

Description Status Checks Monitoring Tags

Instance ID	i-005ee21de023f48a	Public DNS (IPv4)	ec2-18-212-158-142.compute-1.amazonaws.com
Instance state	running	IPv4 Public IP	18.212.158.142
Instance type	t2.micro	IPv6 IPs	-

Feedback English (US)

© 2008 - 2020, Amazon Web Services, Inc. or its affiliates. All rights reserved. Privacy Policy Terms of Use

aws_tomvermeire....pem Show all

The screenshot shows the AWS EC2 Instances page with an instance selected. A PutTY configuration window is overlaid on the page, specifically the 'Auth' section. The 'Private key file for authentication' field contains the path 'C:\Users\vermeire\Downloads\aws_tomvei'. The 'Open' button at the bottom right of the PutTY window is highlighted with a red box. The EC2 instance details below show it's an 'i-005ee21de023f48a' instance with a public DNS of 'ec2-18-212-158-142.compute-1.amazonaws.com', currently running, and assigned an IPv4 public IP of '18.212.158.142'.

AWS Account | Workbench | Instances | EC2 Management Cor... | IAM Management Console

console.aws.amazon.com/ec2/home?region=us-east-1#Instances:sort=instanceState

Apps Jupyter Notebook S...

AWS Services Resource Groups

New EC2 Experience Learn more

EC2 Dashboard New

Events

Tags

Reports

Limits

INSTANCES

Instances

Instance Types

Launch Templates New

Spot Requests

Savings Plans

Reserved Instances

Dedicated Hosts

Scheduled Instances

Capacity Reservations

IMAGES

AMIs

Bundle Tasks

ELASTIC BLOCK STORE

Launch Instance Connect Actions

ec2-18-212-158-142.compute-1.amazonaws.com - PuTTY

PUTTY Security Alert

The server's host key is not cached in the registry. You have no guarantee that the server is the computer you think it is.

The server's ssh-ed25519 key fingerprint is:
ssh-ed25519 256 afeda:7:6b:4e:56:d1:59:13:5c:73:27:f9:07:4e:be

If you trust this host, hit Yes to add the key to PuTTY's cache and carry on connecting.

If you want to carry on connecting just once, without adding the key to the cache, hit No.

If you do not trust this host, hit Cancel to abandon the connection.

Yes No Cancel Help

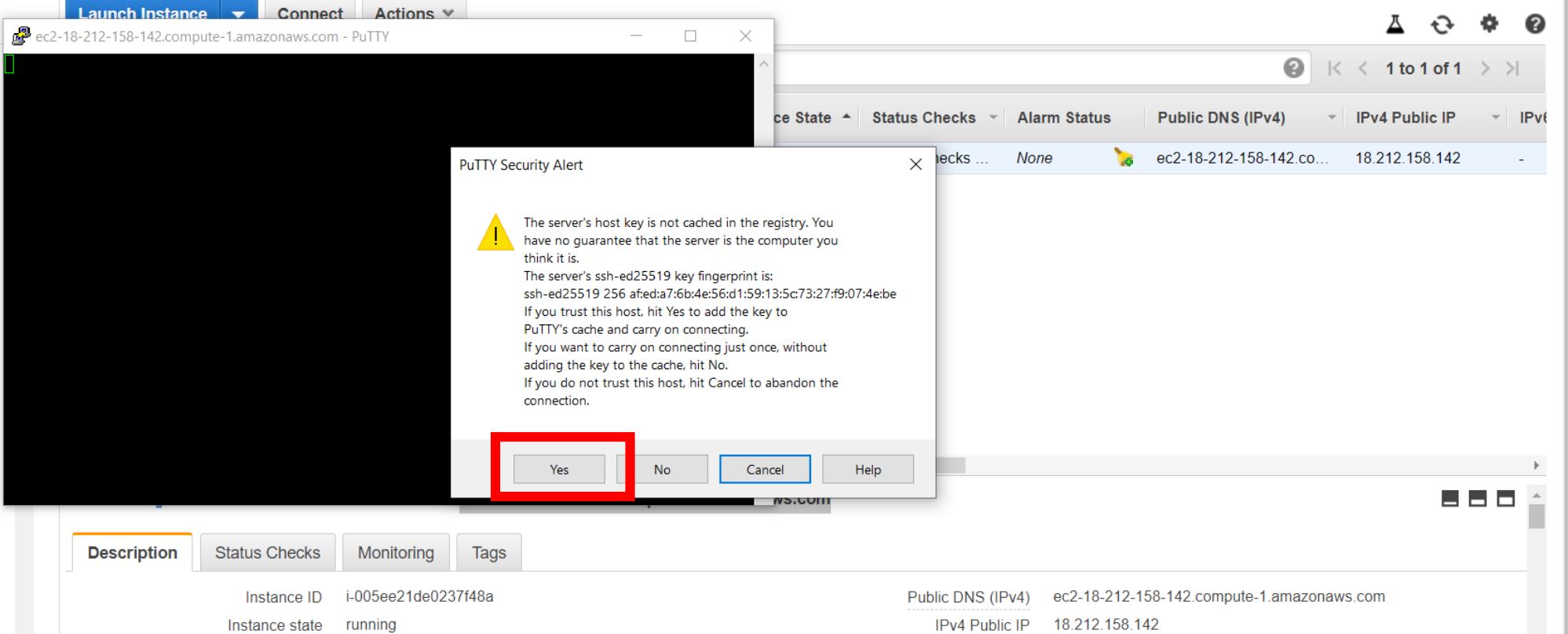
Description Status Checks Monitoring Tags

Instance ID: i-005ee21de0237f48a Public DNS (IPv4): ec2-18-212-158-142.compute-1.amazonaws.com
Instance state: running IPv4 Public IP: 18.212.158.142
Instance type: t2.micro IPv6 IPs: -

Feedback English (US)

© 2008 - 2020, Amazon Web Services, Inc. or its affiliates. All rights reserved. Privacy Policy Terms of Use

aws_tomvermeire...pem Show all



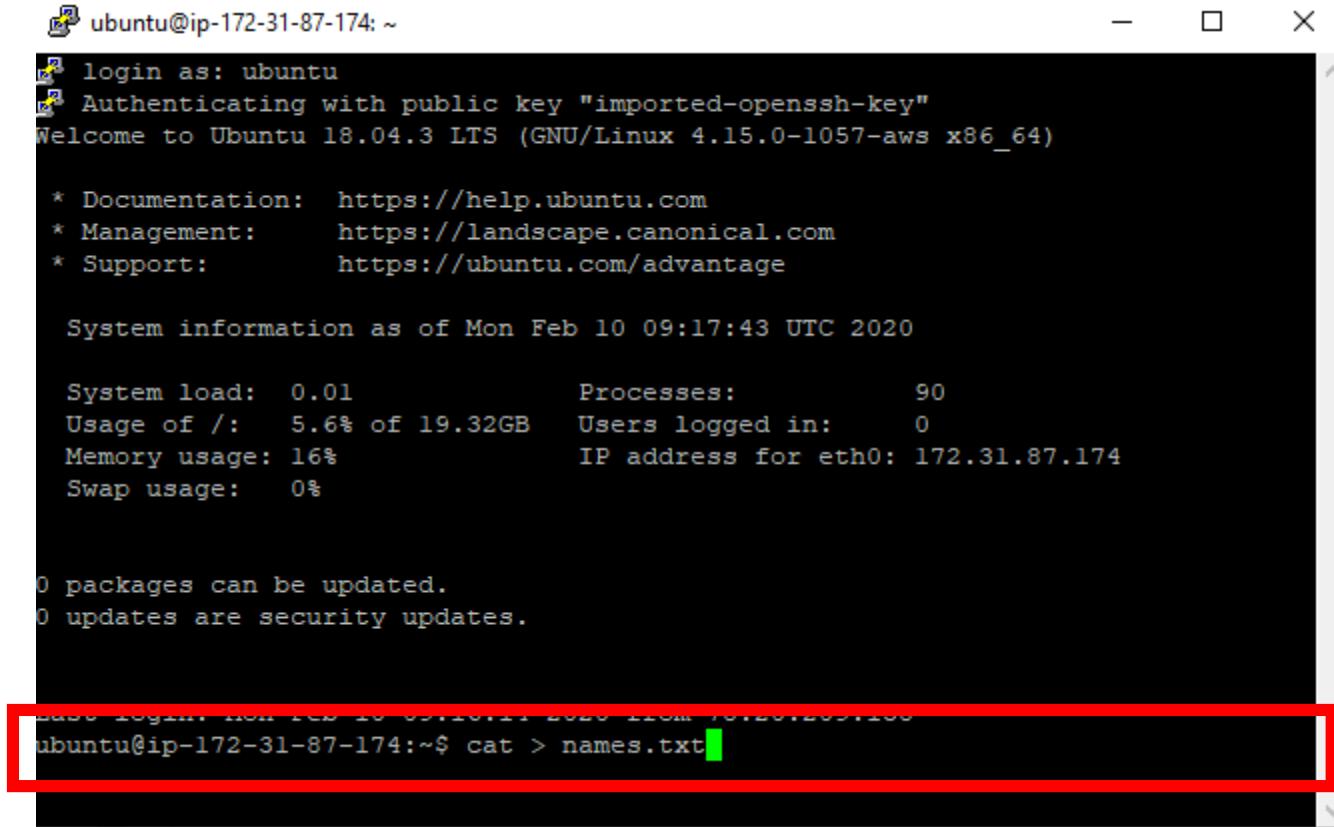
Login (user is always ‘ubuntu’)

Press ENTER after each command



Exercise 1: text files

Create text file



A screenshot of a terminal window titled "ubuntu@ip-172-31-87-174: ~". The window displays a standard Ubuntu 18.04.3 LTS login screen with a welcome message, documentation links, and system information. Below this, it shows disk usage, memory usage, and swap usage. At the bottom, it indicates there are no updates available. A command prompt at the bottom is shown with a red box highlighting the command "cat > names.txt".

```
ubuntu@ip-172-31-87-174: ~
login as: ubuntu
Authenticating with public key "imported-openssh-key"
Welcome to Ubuntu 18.04.3 LTS (GNU/Linux 4.15.0-1057-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage

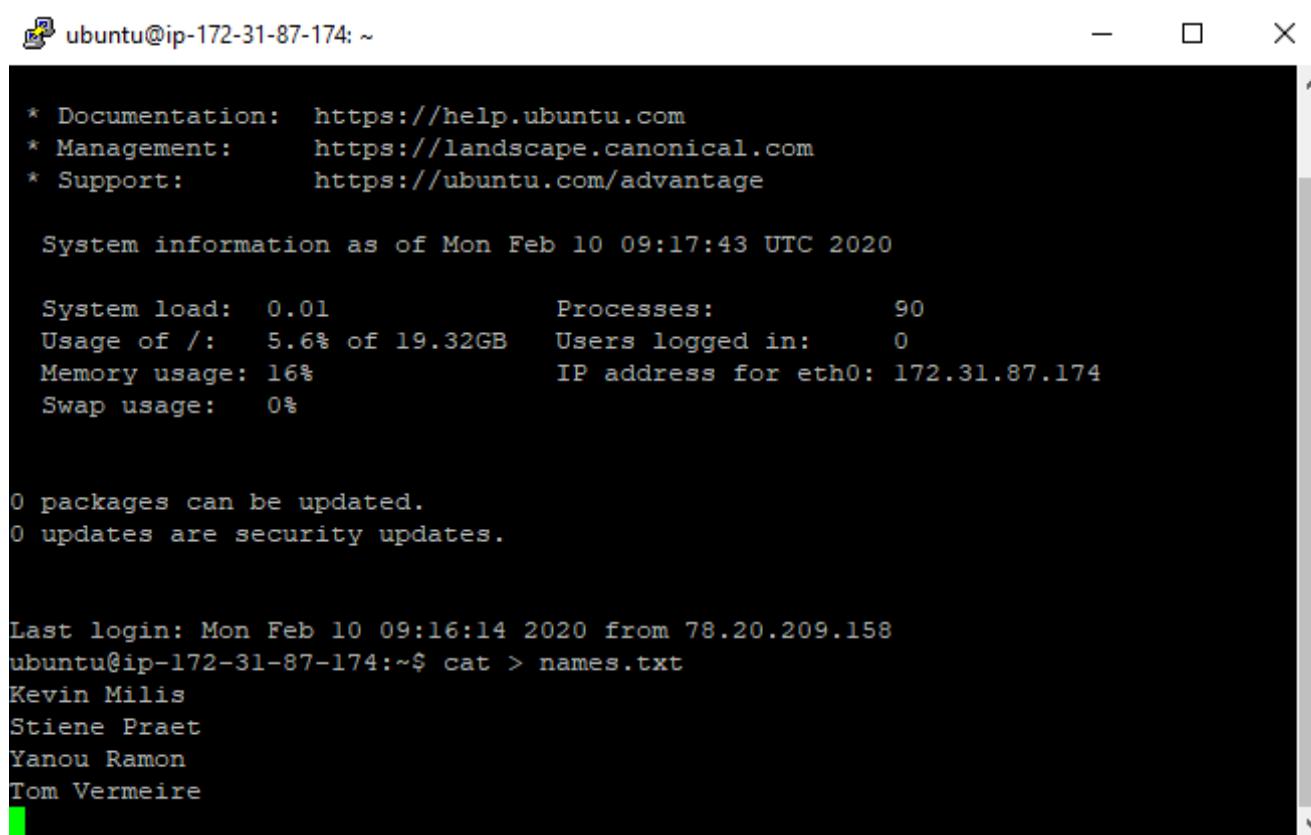
 System information as of Mon Feb 10 09:17:43 UTC 2020

 System load:  0.01           Processes:      90
 Usage of /:   5.6% of 19.32GB  Users logged in:  0
 Memory usage: 16%
 Swap usage:   0%

0 packages can be updated.
0 updates are security updates.

base: login: Mon Feb 10 09:16:11 2020 from 70.20.209.100
ubuntu@ip-172-31-87-174:~$ cat > names.txt
```

Add text to file (afterwards ctrl + D)



ubuntu@ip-172-31-87-174: ~

```
* Documentation: https://help.ubuntu.com
* Management: https://landscape.canonical.com
* Support: https://ubuntu.com/advantage

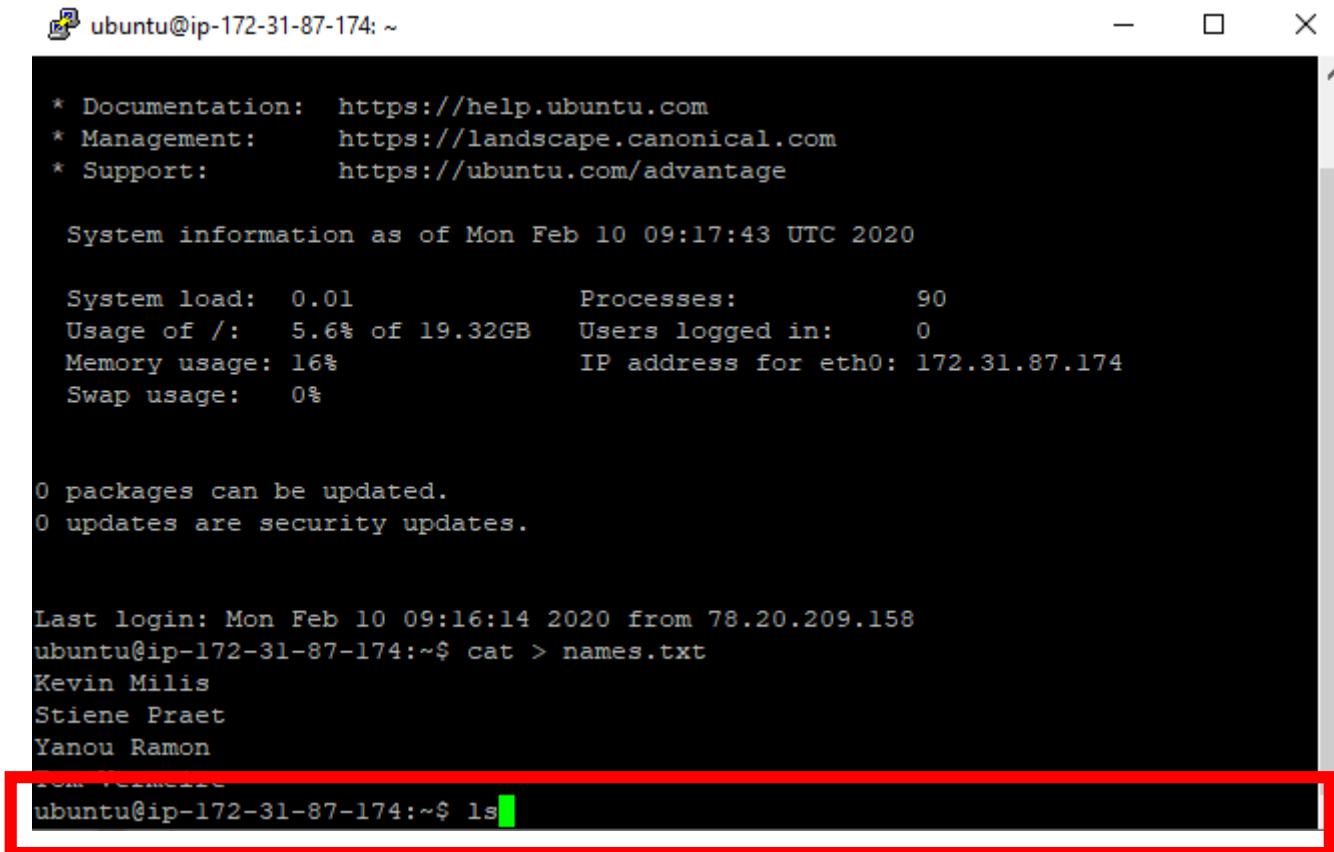
System information as of Mon Feb 10 09:17:43 UTC 2020

System load: 0.01          Processes: 90
Usage of /: 5.6% of 19.32GB  Users logged in: 0
Memory usage: 16%          IP address for eth0: 172.31.87.174
Swap usage: 0%

0 packages can be updated.
0 updates are security updates.

Last login: Mon Feb 10 09:16:14 2020 from 78.20.209.158
ubuntu@ip-172-31-87-174:~$ cat > names.txt
Kevin Milis
Stiene Praet
Yanou Ramon
Tom Vermeire
```

List directory contents



A screenshot of a terminal window titled "ubuntu@ip-172-31-87-174: ~". The window displays system information and a command prompt.

```
* Documentation: https://help.ubuntu.com
* Management: https://landscape.canonical.com
* Support: https://ubuntu.com/advantage

System information as of Mon Feb 10 09:17:43 UTC 2020

System load: 0.01          Processes: 90
Usage of /: 5.6% of 19.32GB Users logged in: 0
Memory usage: 16%          IP address for eth0: 172.31.87.174
Swap usage: 0%

0 packages can be updated.
0 updates are security updates.

Last login: Mon Feb 10 09:16:14 2020 from 78.20.209.158
ubuntu@ip-172-31-87-174:~$ cat > names.txt
Kevin Milis
Stiene Praet
Yanou Ramon
ubuntu@ip-172-31-87-174:~$ ls
```

```
ubuntu@ip-172-31-87-174: ~
* Management:      https://landscape.canonical.com
* Support:        https://ubuntu.com/advantage

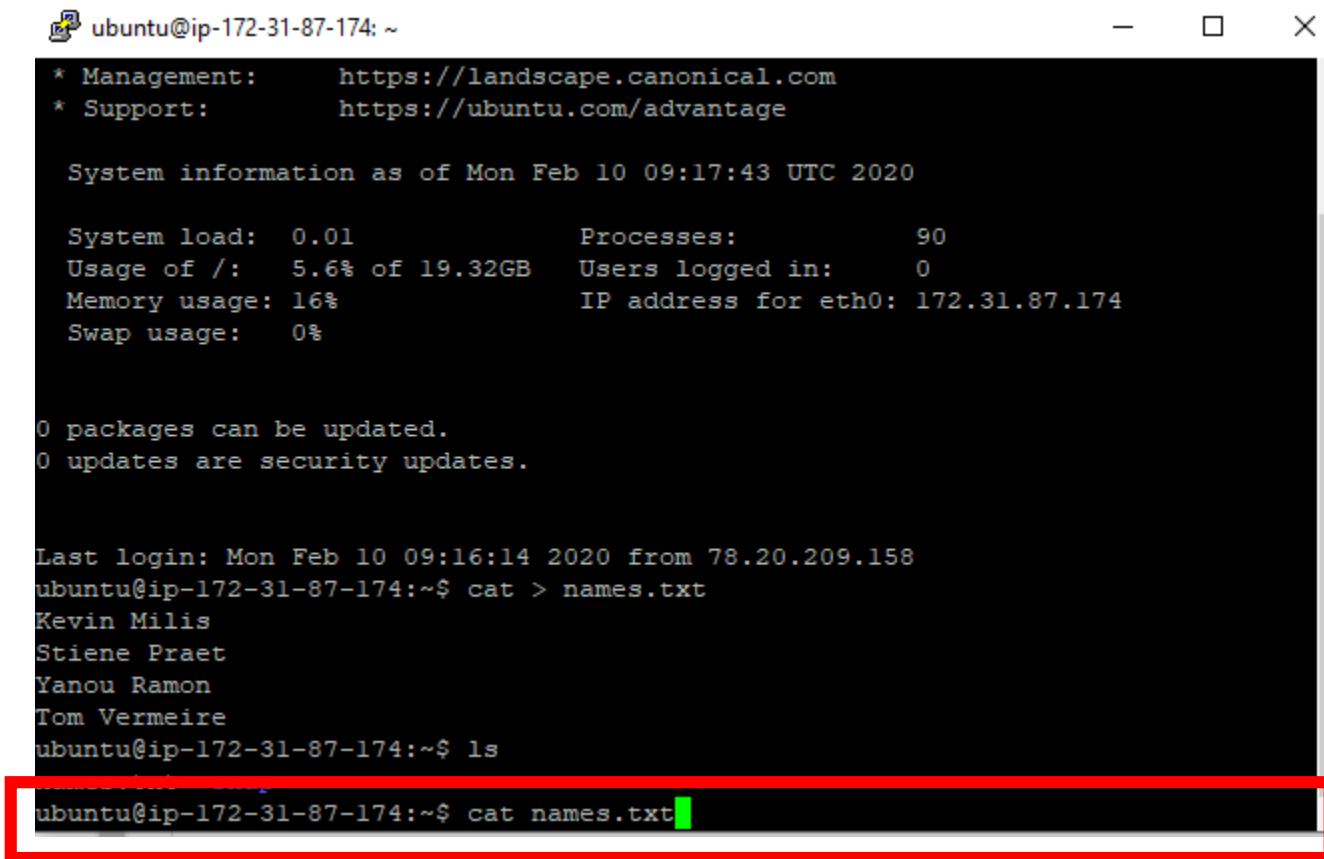
System information as of Mon Feb 10 09:17:43 UTC 2020

System load:  0.01          Processes:      90
Usage of /:   5.6% of 19.32GB  Users logged in:  0
Memory usage: 16%           IP address for eth0: 172.31.87.174
Swap usage:   0%

0 packages can be updated.
0 updates are security updates.

Last login: Mon Feb 10 09:16:14 2020 from 78.20.209.158
ubuntu@ip-172-31-87-174:~$ cat > names.txt
Kevin Milis
Stiene Praet
Yanou Ramon
Tom Vermeire
ubuntu@ip-172-31-87-174:~$ ls
names.txt  snap
ubuntu@ip-172-31-87-174:~$
```

Output file



A screenshot of a terminal window titled "ubuntu@ip-172-31-87-174: ~". The window displays system information and package update status.

```
* Management:      https://landscape.canonical.com
* Support:        https://ubuntu.com/advantage

System information as of Mon Feb 10 09:17:43 UTC 2020

System load:  0.01          Processes:      90
Usage of /:   5.6% of 19.32GB  Users logged in:  0
Memory usage: 16%           IP address for eth0: 172.31.87.174
Swap usage:   0%


0 packages can be updated.
0 updates are security updates.

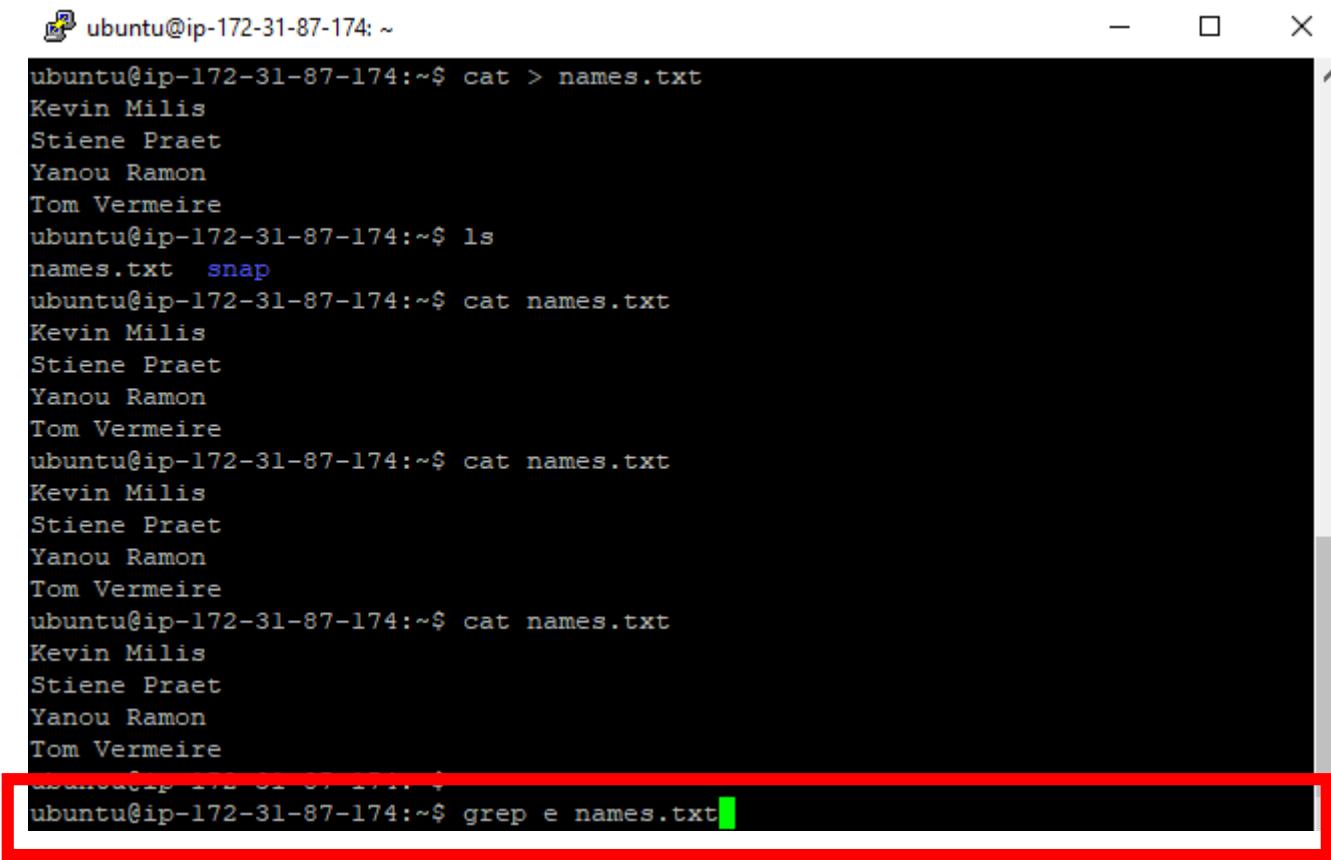
Last login: Mon Feb 10 09:16:14 2020 from 78.20.209.158
ubuntu@ip-172-31-87-174:~$ cat > names.txt
Kevin Milis
Stiene Praet
Yanou Ramon
Tom Vermeire
ubuntu@ip-172-31-87-174:~$ ls
ubuntu@ip-172-31-87-174:~$ cat names.txt
```

```
ubuntu@ip-172-31-87-174: ~
System load:  0.01          Processes:      90
Usage of /:   5.6% of 19.32GB  Users logged in:  0
Memory usage: 16%
Swap usage:   0%
IP address for eth0: 172.31.87.174

0 packages can be updated.
0 updates are security updates.

Last login: Mon Feb 10 09:16:14 2020 from 78.20.209.158
ubuntu@ip-172-31-87-174:~$ cat > names.txt
Kevin Milis
Stiene Praet
Yanou Ramon
Tom Vermeire
ubuntu@ip-172-31-87-174:~$ ls
names.txt  snap
ubuntu@ip-172-31-87-174:~$ cat names.txt
Kevin Milis
Stiene Praet
Yanou Ramon
Tom Vermeire
ubuntu@ip-172-31-87-174:~$
```

Output only names containing ‘e’



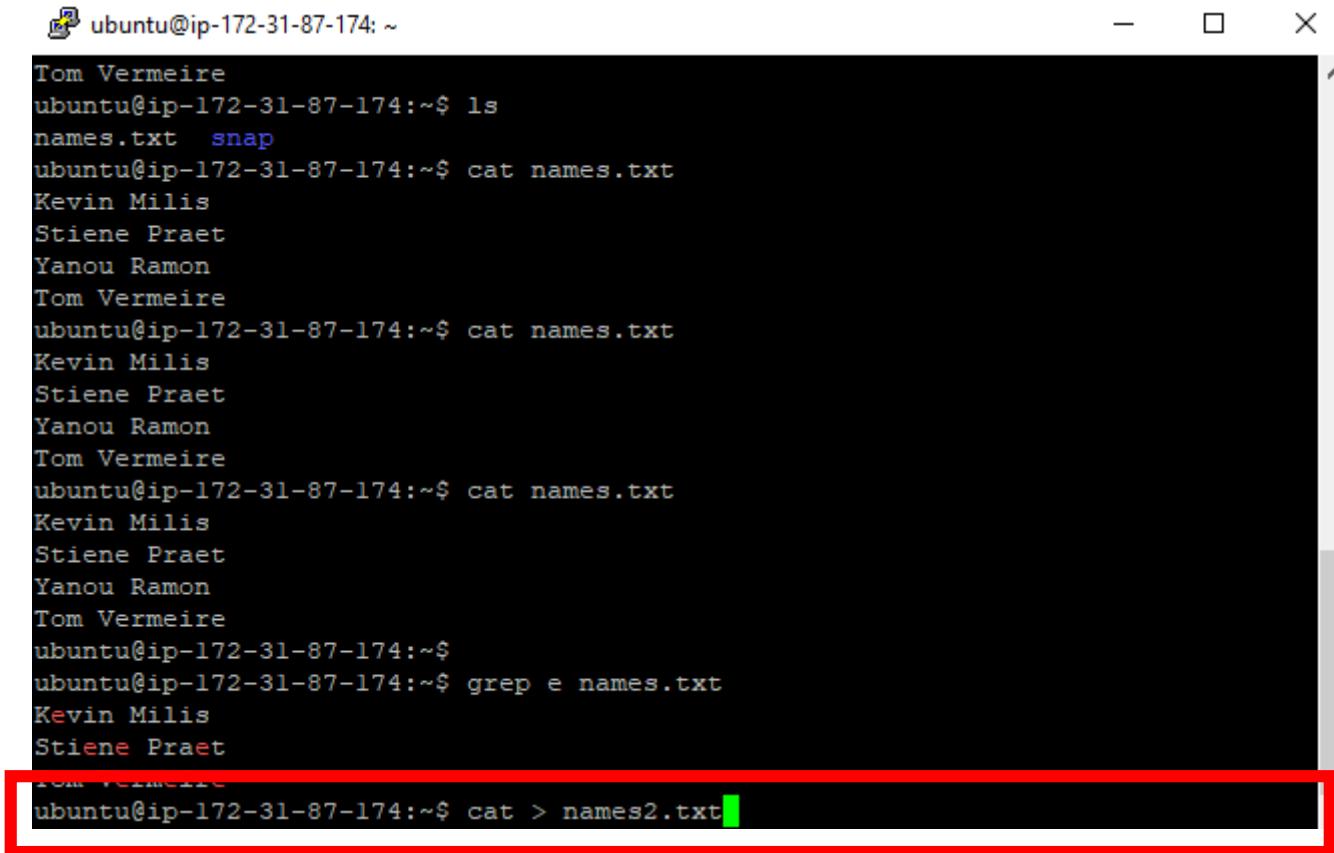
The screenshot shows a terminal window with a black background and white text. It displays a sequence of commands and their outputs:

- `ubuntu@ip-172-31-87-174:~$ cat > names.txt`
Kevin Milis
Stiene Praet
Yanou Ramon
Tom Vermeire
- `ubuntu@ip-172-31-87-174:~$ ls`
names.txt snap
- `ubuntu@ip-172-31-87-174:~$ cat names.txt`
Kevin Milis
Stiene Praet
Yanou Ramon
Tom Vermeire
- `ubuntu@ip-172-31-87-174:~$ cat names.txt`
Kevin Milis
Stiene Praet
Yanou Ramon
Tom Vermeire
- `ubuntu@ip-172-31-87-174:~$ cat names.txt`
Kevin Milis
Stiene Praet
Yanou Ramon
Tom Vermeire
- `ubuntu@ip-172-31-87-174:~$ grep e names.txt`

The last command, `grep e names.txt`, is highlighted with a red rectangular box.

 ubuntu@ip-172-31-87-174: ~
Tom Vermeire
ubuntu@ip-172-31-87-174:~\$ ls
names.txt snap
ubuntu@ip-172-31-87-174:~\$ cat names.txt
Kevin Milis
Stiene Praet
Yanou Ramon
Tom Vermeire
ubuntu@ip-172-31-87-174:~\$ cat names.txt
Kevin Milis
Stiene Praet
Yanou Ramon
Tom Vermeire
ubuntu@ip-172-31-87-174:~\$ cat names.txt
Kevin Milis
Stiene Praet
Yanou Ramon
Tom Vermeire
ubuntu@ip-172-31-87-174:~\$ grep e names.txt
Kevin Milis
Stiene Praet
Tom Vermeire
ubuntu@ip-172-31-87-174:~\$

Create second text file



A screenshot of a terminal window titled "ubuntu@ip-172-31-87-174: ~". The window contains the following text:

```
Tom Vermeire
ubuntu@ip-172-31-87-174:~$ ls
names.txt  snap
ubuntu@ip-172-31-87-174:~$ cat names.txt
Kevin Milis
Stiene Praet
Yanou Ramon
Tom Vermeire
ubuntu@ip-172-31-87-174:~$ cat names.txt
Kevin Milis
Stiene Praet
Yanou Ramon
Tom Vermeire
ubuntu@ip-172-31-87-174:~$ cat names.txt
Kevin Milis
Stiene Praet
Yanou Ramon
Tom Vermeire
ubuntu@ip-172-31-87-174:~$ grep e names.txt
Kevin Milis
Stiene Praet
ubuntu@ip-172-31-87-174:~$ cat > names2.txt
```

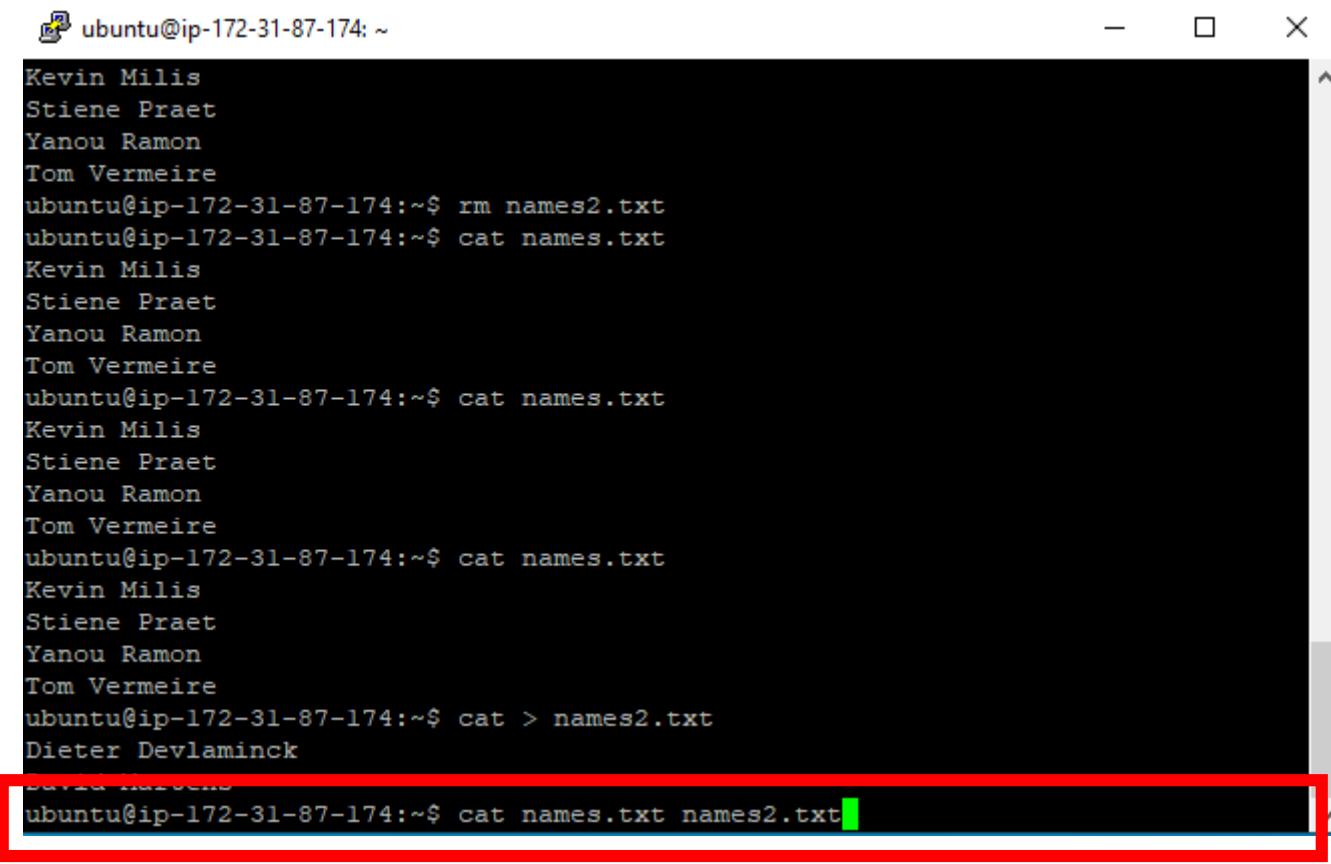
The last command, "cat > names2.txt", is highlighted with a red rectangular border.



ubuntu@ip-172-31-87-174: ~

```
ubuntu@ip-172-31-87-174:~$ cat names.txt
Kevin Milis
Stiene Praet
Yanou Ramon
Tom Vermeire
ubuntu@ip-172-31-87-174:~$ cat names.txt
Kevin Milis
Stiene Praet
Yanou Ramon
Tom Vermeire
ubuntu@ip-172-31-87-174:~$ cat names.txt
Kevin Milis
Stiene Praet
Yanou Ramon
Tom Vermeire
ubuntu@ip-172-31-87-174:~$ grep e names.txt
Kevin Milis
Stiene Praet
Tom Vermeire
ubuntu@ip-172-31-87-174:~$ cat > names2.txt
Dieter Devlaminck
David Martens
ubuntu@ip-172-31-87-174:~$
```

Output contents of both text files



The screenshot shows a terminal window with a black background and white text. The title bar indicates the session is on an Ubuntu system at IP 172-31-87-174. The terminal displays the following command-line session:

```
ubuntu@ip-172-31-87-174: ~
Kevin Milis
Stiene Praet
Yanou Ramon
Tom Vermeire
ubuntu@ip-172-31-87-174:~$ rm names2.txt
ubuntu@ip-172-31-87-174:~$ cat names.txt
Kevin Milis
Stiene Praet
Yanou Ramon
Tom Vermeire
ubuntu@ip-172-31-87-174:~$ cat names.txt
Kevin Milis
Stiene Praet
Yanou Ramon
Tom Vermeire
ubuntu@ip-172-31-87-174:~$ cat names.txt
Kevin Milis
Stiene Praet
Yanou Ramon
Tom Vermeire
ubuntu@ip-172-31-87-174:~$ cat > names2.txt
Dieter Devlaminck
ubuntu@ip-172-31-87-174:~$ cat names.txt names2.txt
```

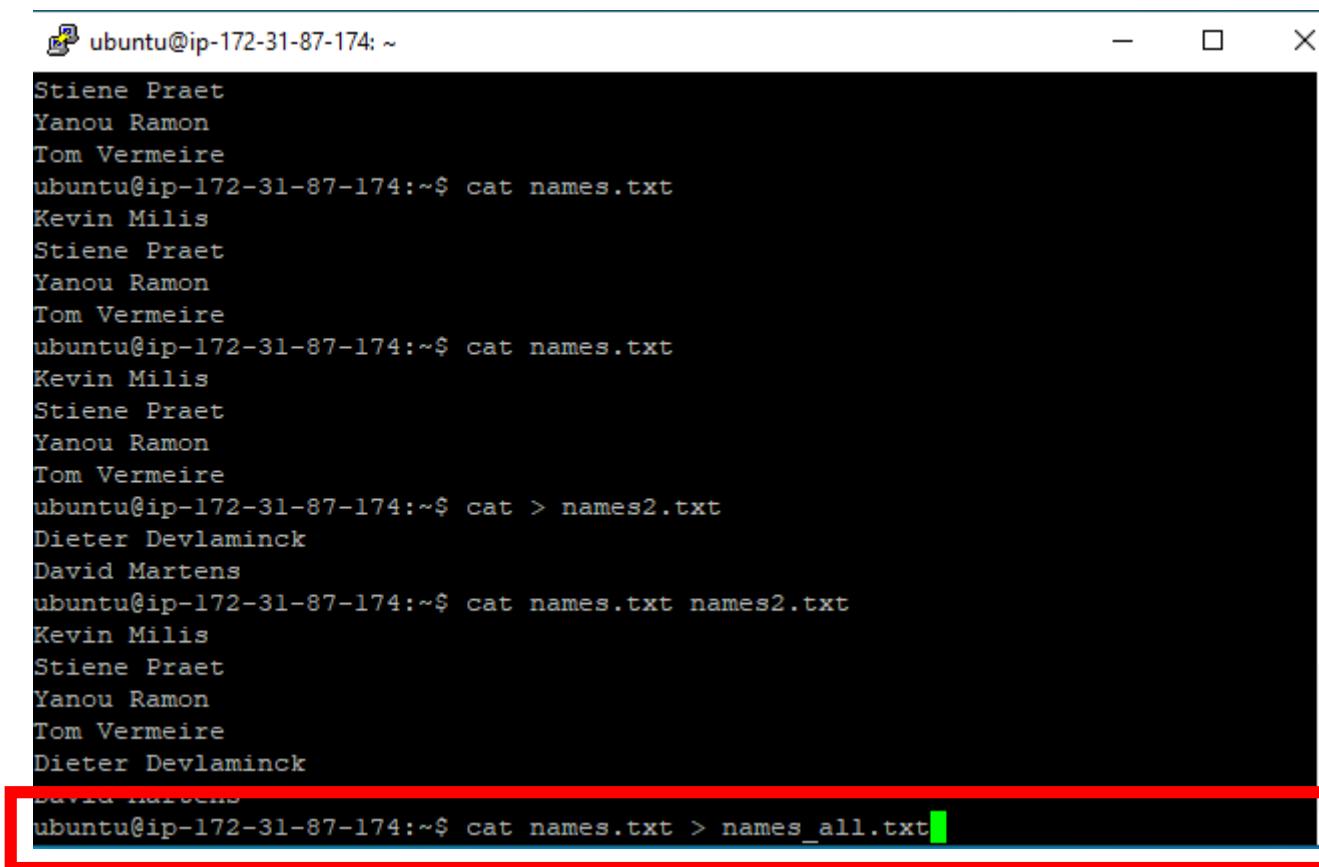
The last command, `cat names.txt names2.txt`, is highlighted with a red rectangular box.



ubuntu@ip-172-31-87-174: ~

```
Stiene Praet
Yanou Ramon
Tom Vermeire
ubuntu@ip-172-31-87-174:~$ cat names.txt
Kevin Milis
Stiene Praet
Yanou Ramon
Tom Vermeire
ubuntu@ip-172-31-87-174:~$ cat names.txt
Kevin Milis
Stiene Praet
Yanou Ramon
Tom Vermeire
ubuntu@ip-172-31-87-174:~$ cat > names2.txt
Dieter Devlaminck
David Martens
ubuntu@ip-172-31-87-174:~$ cat names.txt names2.txt
Kevin Milis
Stiene Praet
Yanou Ramon
Tom Vermeire
Dieter Devlaminck
David Martens
ubuntu@ip-172-31-87-174:~$
```

Redirect content to new file



The screenshot shows a terminal window with a black background and white text. The window title is "ubuntu@ip-172-31-87-174: ~". The terminal displays the following command-line session:

```
Stiene Praet
Yanou Ramon
Tom Vermeire
ubuntu@ip-172-31-87-174:~$ cat names.txt
Kevin Milis
Stiene Praet
Yanou Ramon
Tom Vermeire
ubuntu@ip-172-31-87-174:~$ cat names.txt
Kevin Milis
Stiene Praet
Yanou Ramon
Tom Vermeire
ubuntu@ip-172-31-87-174:~$ cat > names2.txt
Dieter Devlaminck
David Martens
ubuntu@ip-172-31-87-174:~$ cat names.txt names2.txt
Kevin Milis
Stiene Praet
Yanou Ramon
Tom Vermeire
Dieter Devlaminck
DAVID MARTENS
ubuntu@ip-172-31-87-174:~$ cat names.txt > names_all.txt
```

The last command, "cat names.txt > names_all.txt", is highlighted with a red rectangular box.

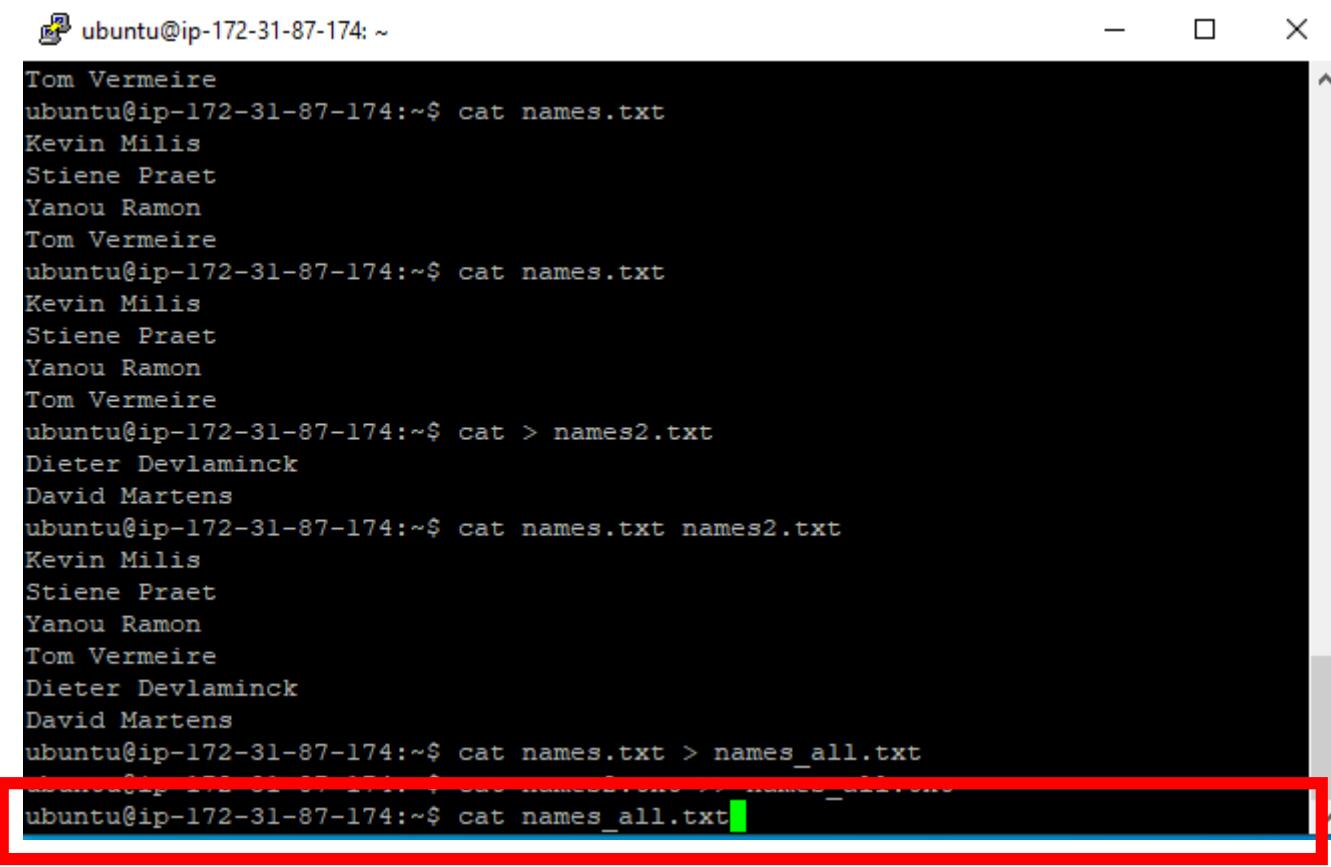
Append content of second file

The screenshot shows a terminal window with a dark background and light-colored text. The window title bar says "ubuntu@ip-172-31-87-174: ~". The terminal output is as follows:

```
Yanou Ramon
Tom Vermeire
ubuntu@ip-172-31-87-174:~$ cat names.txt
Kevin Milis
Stiene Praet
Yanou Ramon
Tom Vermeire
ubuntu@ip-172-31-87-174:~$ cat names.txt
Kevin Milis
Stiene Praet
Yanou Ramon
Tom Vermeire
ubuntu@ip-172-31-87-174:~$ cat > names2.txt
Dieter Devlaminck
David Martens
ubuntu@ip-172-31-87-174:~$ cat names.txt names2.txt
Kevin Milis
Stiene Praet
Yanou Ramon
Tom Vermeire
Dieter Devlaminck
David Martens
ubuntu@ip-172-31-87-174:~$ cat names2.txt >> names_all.txt
```

The last command, "cat names2.txt >> names_all.txt", is highlighted with a red rectangular box.

Output new file



The screenshot shows a terminal window with a black background and white text. It displays a sequence of commands and their outputs:

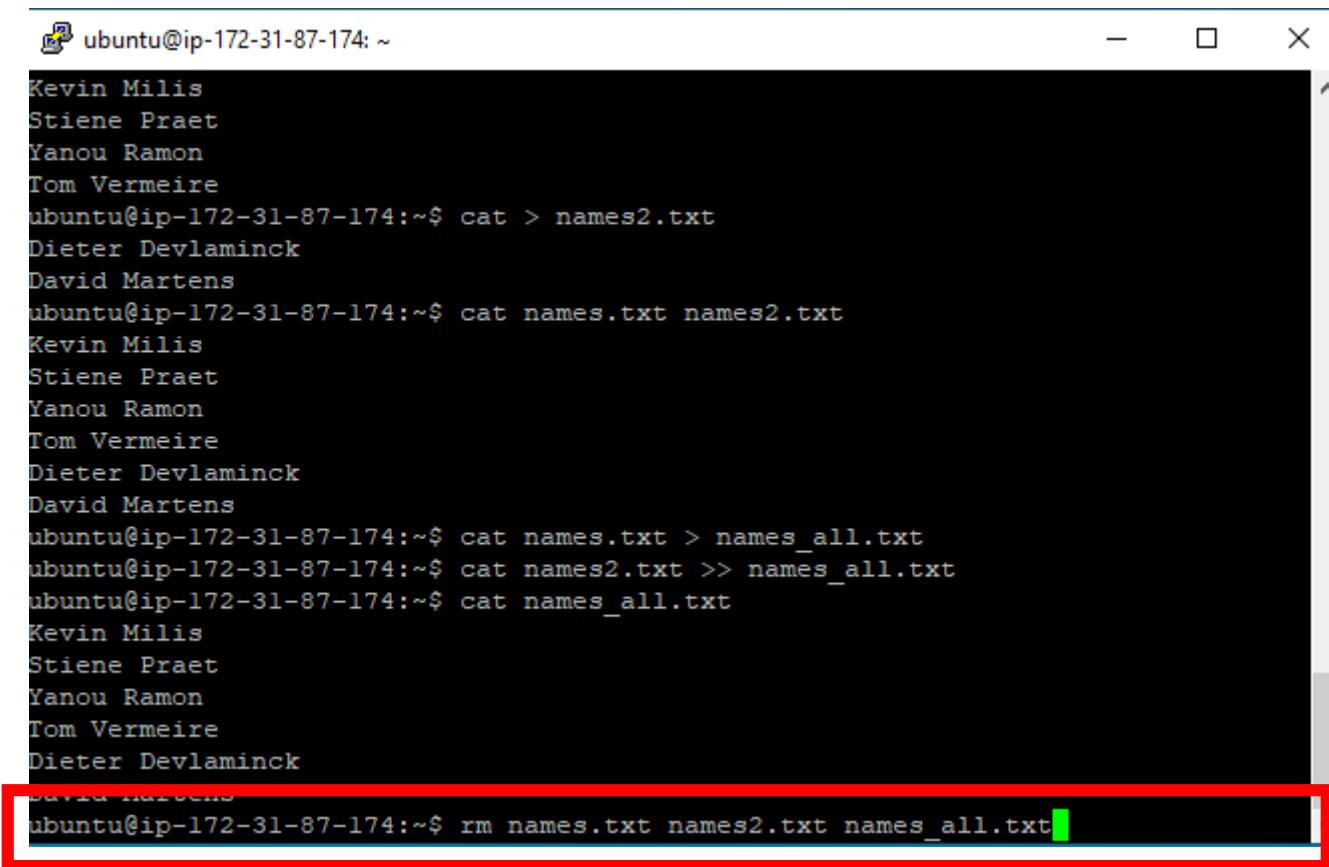
```
ubuntu@ip-172-31-87-174: ~
Tom Vermeire
ubuntu@ip-172-31-87-174:~$ cat names.txt
Kevin Milis
Stiene Praet
Yanou Ramon
Tom Vermeire
ubuntu@ip-172-31-87-174:~$ cat names.txt
Kevin Milis
Stiene Praet
Yanou Ramon
Tom Vermeire
ubuntu@ip-172-31-87-174:~$ cat > names2.txt
Dieter Devlaminck
David Martens
ubuntu@ip-172-31-87-174:~$ cat names.txt names2.txt
Kevin Milis
Stiene Praet
Yanou Ramon
Tom Vermeire
Dieter Devlaminck
David Martens
ubuntu@ip-172-31-87-174:~$ cat names.txt > names_all.txt
ubuntu@ip-172-31-87-174:~$ cat names_all.txt
```

The last command, `cat names_all.txt`, is highlighted with a red rectangular box.

ubuntu@ip-172-31-87-174: ~

```
Kevin Milis
Stiene Praet
Yanou Ramon
Tom Vermeire
ubuntu@ip-172-31-87-174:~$ cat > names2.txt
Dieter Devlaminck
David Martens
ubuntu@ip-172-31-87-174:~$ cat names.txt names2.txt
Kevin Milis
Stiene Praet
Yanou Ramon
Tom Vermeire
Dieter Devlaminck
David Martens
ubuntu@ip-172-31-87-174:~$ cat names.txt > names_all.txt
ubuntu@ip-172-31-87-174:~$ cat names2.txt >> names_all.txt
ubuntu@ip-172-31-87-174:~$ cat names_all.txt
Kevin Milis
Stiene Praet
Yanou Ramon
Tom Vermeire
Dieter Devlaminck
David Martens
ubuntu@ip-172-31-87-174:~$
```

Remove files



A screenshot of a terminal window titled "ubuntu@ip-172-31-87-174: ~". The window contains the following command history:

```
Kevin Milis
Stiene Praet
Yanou Ramon
Tom Vermeire
ubuntu@ip-172-31-87-174:~$ cat > names2.txt
Dieter Devlaminck
David Martens
ubuntu@ip-172-31-87-174:~$ cat names.txt names2.txt
Kevin Milis
Stiene Praet
Yanou Ramon
Tom Vermeire
Dieter Devlaminck
David Martens
ubuntu@ip-172-31-87-174:~$ cat names.txt > names_all.txt
ubuntu@ip-172-31-87-174:~$ cat names2.txt >> names_all.txt
ubuntu@ip-172-31-87-174:~$ cat names_all.txt
Kevin Milis
Stiene Praet
Yanou Ramon
Tom Vermeire
Dieter Devlaminck
David Martens
ubuntu@ip-172-31-87-174:~$ rm names.txt names2.txt names_all.txt
```

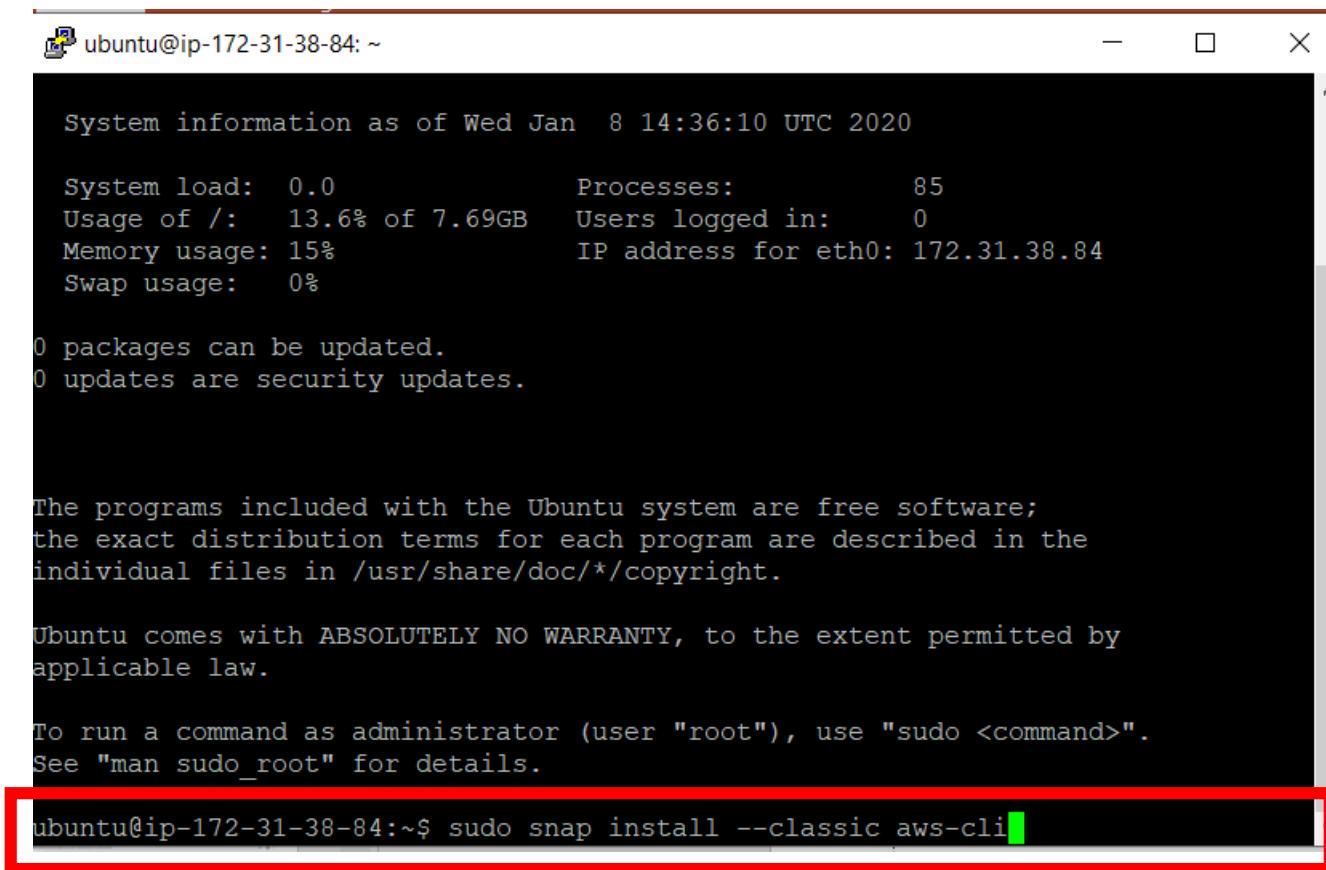
The last command, "rm names.txt names2.txt names_all.txt", is highlighted with a red rectangular box.

Additional exercises

- Create your own text files (e.g., with names of courses, friends etc.)
- Check whether they exist in the working directory
- Perform cat and grep commands of your choice
- Redirect and combine files into new text file
- Remove the files

Exercise 2: JSON file

Install AWS command line tools



A screenshot of a terminal window titled "ubuntu@ip-172-31-38-84: ~". The window displays system information and a copyright notice before showing the command to install the AWS CLI.

```
System information as of Wed Jan  8 14:36:10 UTC 2020

System load:  0.0          Processes:      85
Usage of /:   13.6% of 7.69GB  Users logged in:  0
Memory usage: 15%
Swap usage:   0%

0 packages can be updated.
0 updates are security updates.

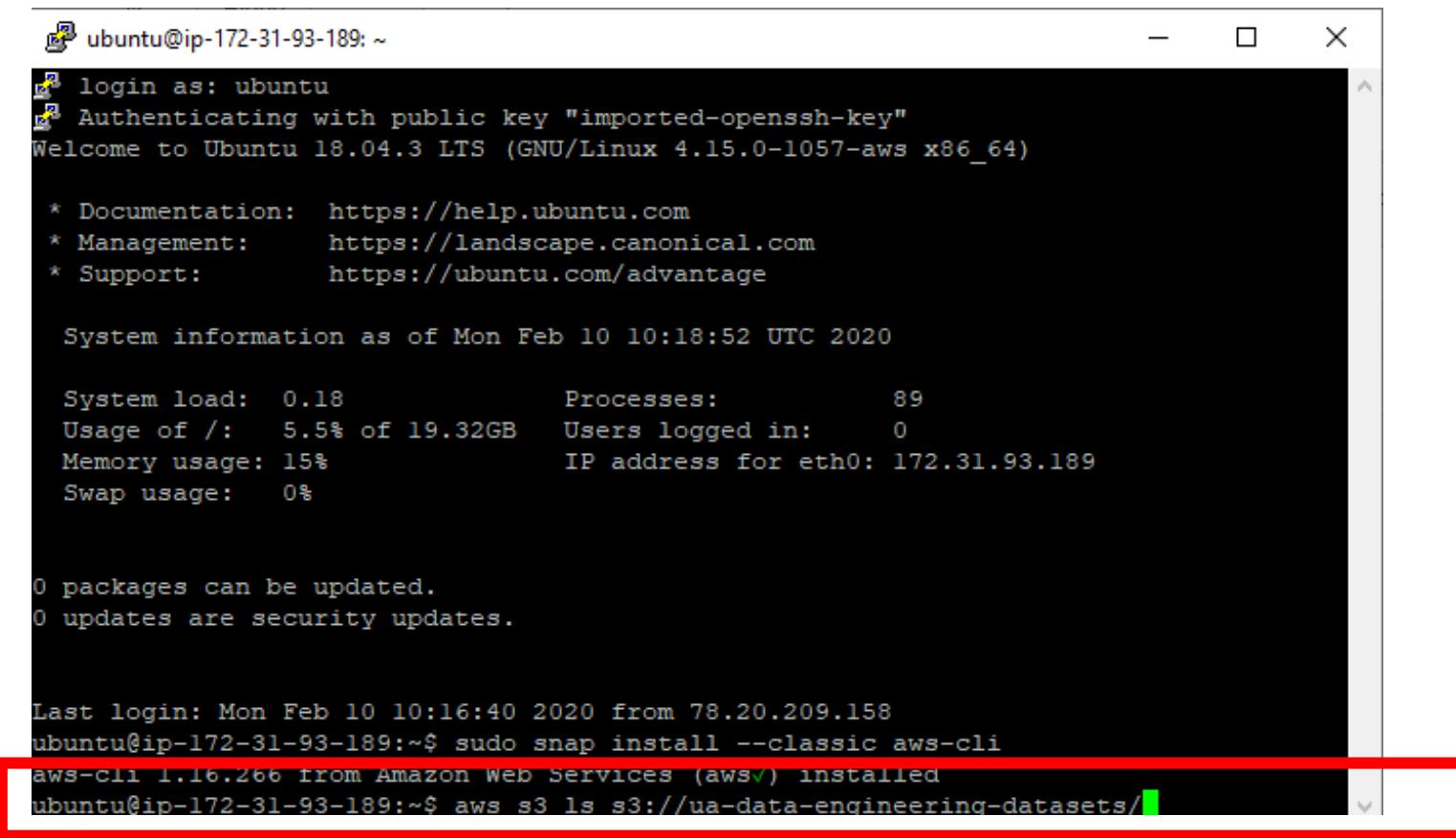
The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-172-31-38-84:~$ sudo snap install --classic aws-cli
```

S3 bucket with datasets for this course



A screenshot of a terminal window titled "ubuntu@ip-172-31-93-189: ~". The terminal displays the following text:

```
login as: ubuntu
Authenticating with public key "imported-openssh-key"
Welcome to Ubuntu 18.04.3 LTS (GNU/Linux 4.15.0-1057-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage

System information as of Mon Feb 10 10:18:52 UTC 2020

System load:  0.18          Processes:      89
Usage of /:   5.5% of 19.32GB  Users logged in:  0
Memory usage: 15%           IP address for eth0: 172.31.93.189
Swap usage:   0%

0 packages can be updated.
0 updates are security updates.

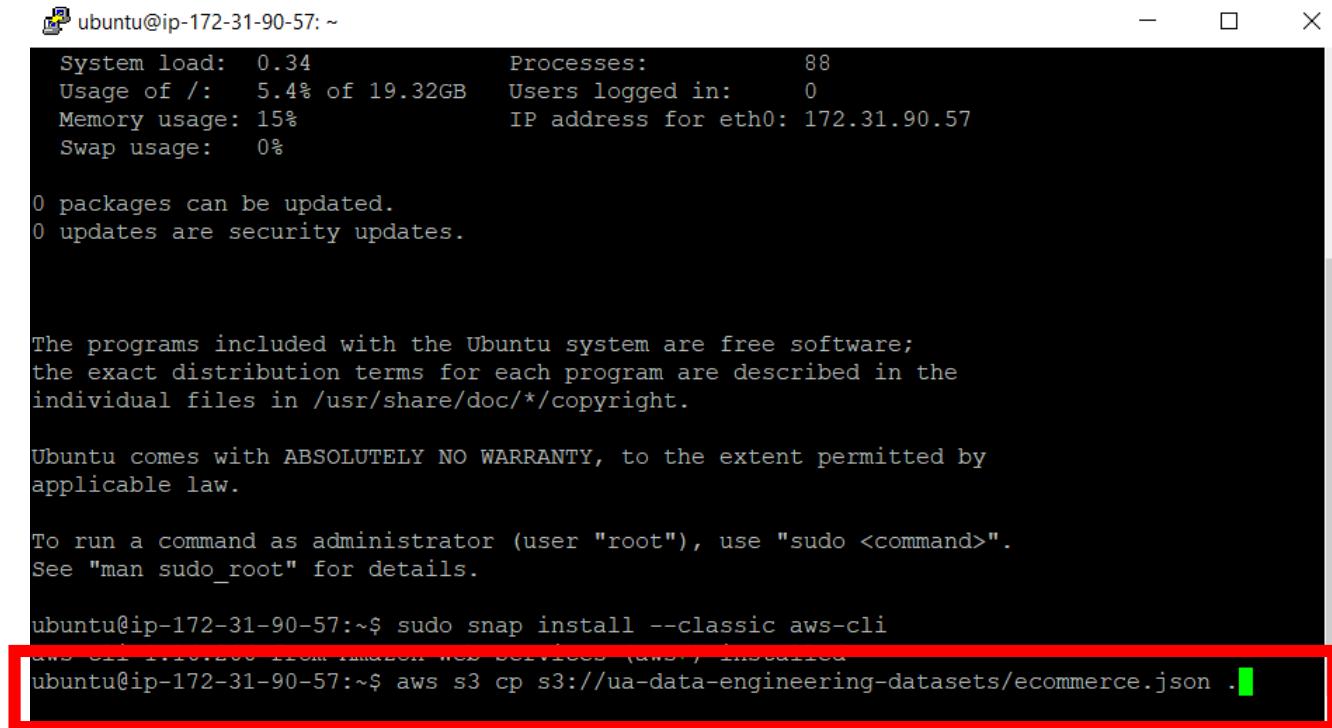
Last login: Mon Feb 10 10:16:40 2020 from 78.20.209.158
ubuntu@ip-172-31-93-189:~$ sudo snap install --classic aws-cli
aws-cli/1.16.266 from Amazon Web Services (aws✓) installed
ubuntu@ip-172-31-93-189:~$ aws s3 ls s3://ua-data-engineering-datasets/
```

The last command, "aws s3 ls s3://ua-data-engineering-datasets/", is highlighted with a red rectangle.

```
ubuntu@ip-172-31-93-189: ~
Usage of /: 5.5% of 19.32GB  Users logged in: 0
Memory usage: 15%           IP address for eth0: 172.31.93.189
Swap usage: 0%
0 packages can be updated.
0 updates are security updates.

Last login: Mon Feb 10 10:16:40 2020 from 78.20.209.158
ubuntu@ip-172-31-93-189:~$ sudo snap install --classic aws-cli
aws-cli 1.16.266 from Amazon Web Services (aws✓) installed
ubuntu@ip-172-31-93-189:~$ aws s3 ls s3://ua-data-engineering-datasets/
2020-01-08 17:55:10    12909121 ecommerce.json
2019-12-18 20:38:59     649860 goodreadsbooks.zip
2019-12-18 20:38:58     2037893 google-play-store-apps.zip
2019-12-18 20:38:59    1545828997 imdb-dataset.zip
2019-12-18 20:38:58     2562692 new-york-city-airbnb-open-data.zip
2019-12-18 20:38:59    16773230 things-on-reddit.zip
2019-12-18 20:38:58    70159880 visit-patterns-by-census-block-group.zip
2019-12-31 15:45:02    84617554 wiki_movie_plots_deduped.json
2019-12-18 20:38:58    31376869 wikipedia-movie-plots.zip
2019-12-18 20:38:58    2924120 womens-e-commerce-clothing-reviews.zip
ubuntu@ip-172-31-93-189:~$
```

Copy dataset from bucket to instance



A screenshot of a terminal window titled "ubuntu@ip-172-31-90-57: ~". The window displays various system statistics and a copyright notice. At the bottom, two commands are shown: "sudo snap install --classic aws-cli" and "aws s3 cp s3://ua-data-engineering-datasets/ecommerce.json .". The second command is highlighted with a red rectangle.

```
System load: 0.34      Processes: 88
Usage of /: 5.4% of 19.32GB  Users logged in: 0
Memory usage: 15%          IP address for eth0: 172.31.90.57
Swap usage: 0%
0 packages can be updated.
0 updates are security updates.

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

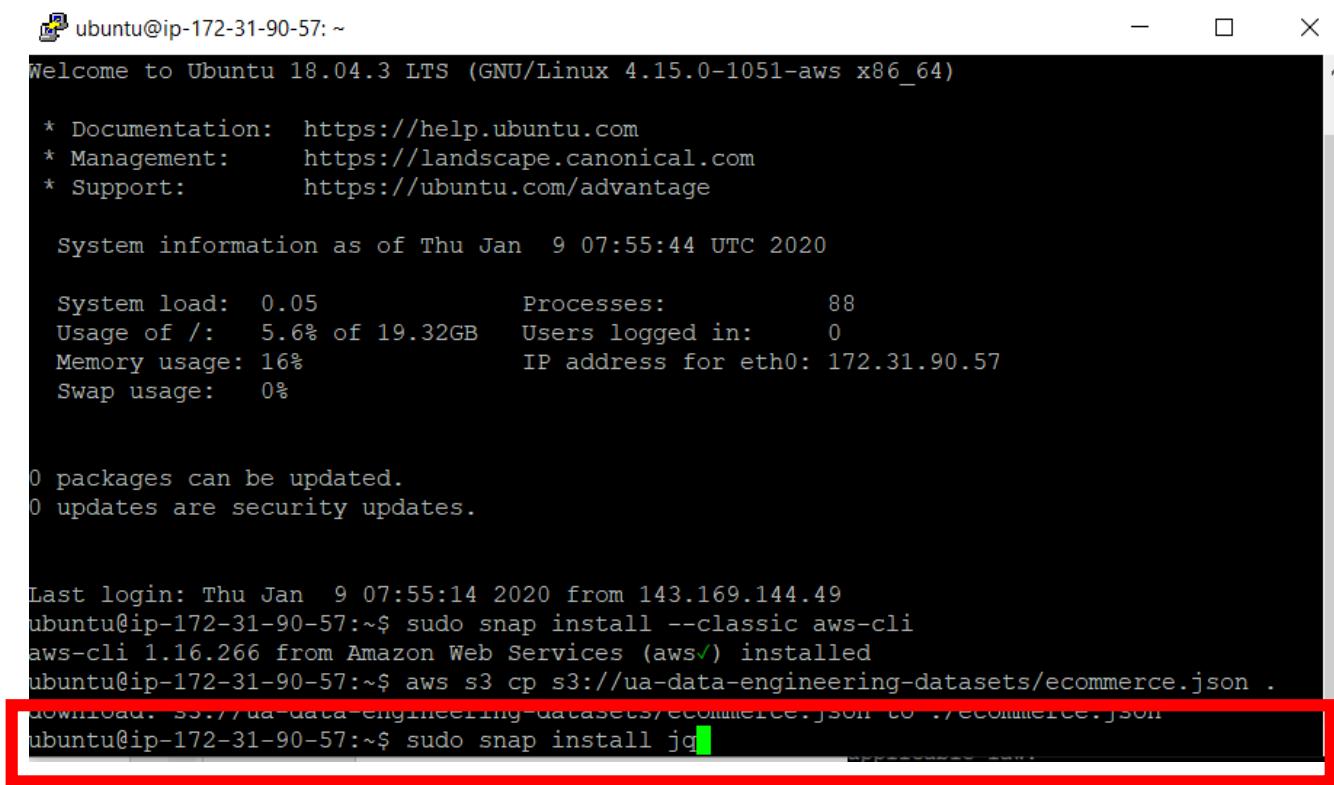
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-172-31-90-57:~$ sudo snap install --classic aws-cli
aws-cli/1.16.200 from Amazon Web Services (aws), installed
ubuntu@ip-172-31-90-57:~$ aws s3 cp s3://ua-data-engineering-datasets/ecommerce.json .
```

JSON

- Standardized file format
- Objects with attributes
- Structured as attribute-value pairs

Install JSON processor



ubuntu@ip-172-31-90-57: ~

```
Welcome to Ubuntu 18.04.3 LTS (GNU/Linux 4.15.0-1051-aws x86_64)

 * Documentation: https://help.ubuntu.com
 * Management: https://landscape.canonical.com
 * Support: https://ubuntu.com/advantage

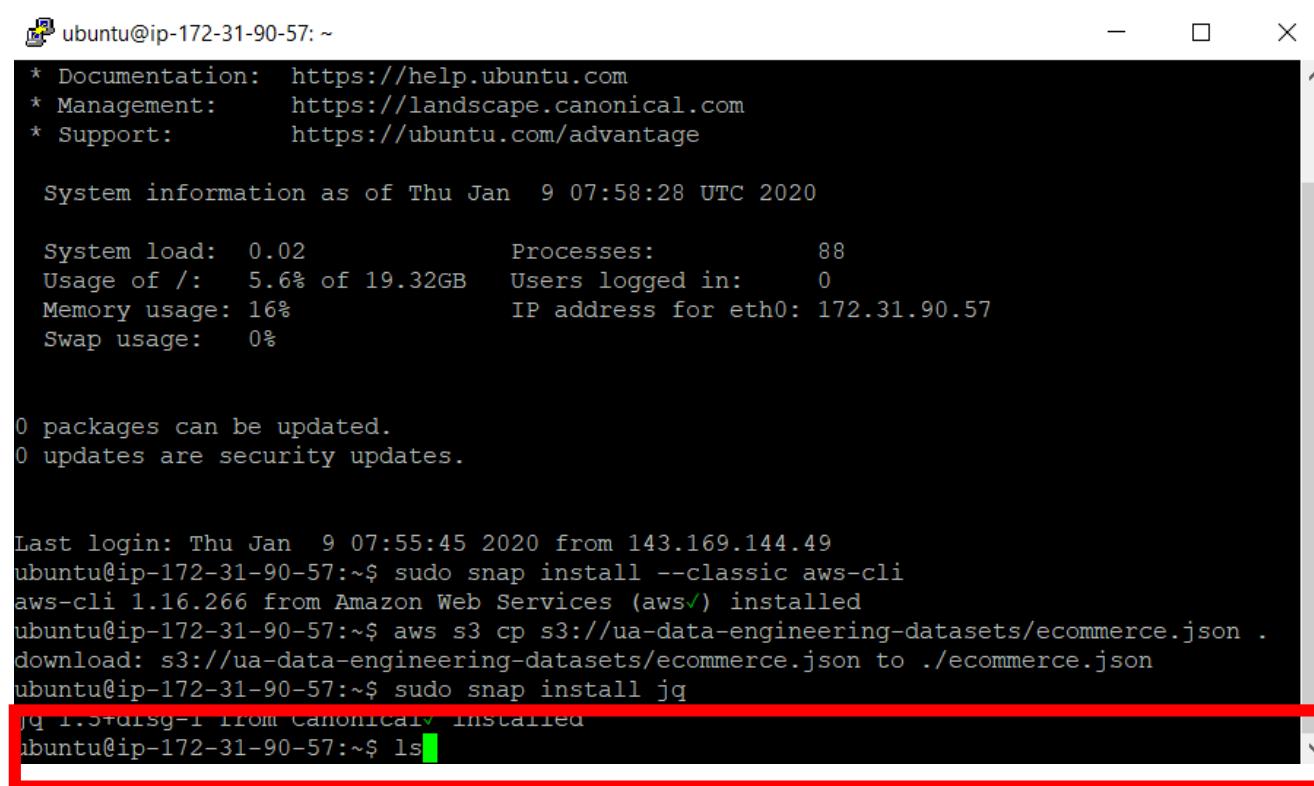
 System information as of Thu Jan  9 07:55:44 UTC 2020

 System load:  0.05           Processes:          88
 Usage of /:   5.6% of 19.32GB  Users logged in:    0
 Memory usage: 16%            IP address for eth0: 172.31.90.57
 Swap usage:   0%

0 packages can be updated.
0 updates are security updates.

Last login: Thu Jan  9 07:55:14 2020 from 143.169.144.49
ubuntu@ip-172-31-90-57:~$ sudo snap install --classic aws-cli
aws-cli 1.16.266 from Amazon Web Services (aws✓) installed
ubuntu@ip-172-31-90-57:~$ aws s3 cp s3://ua-data-engineering-datasets/eCommerce.json .
downloaded: s3://ua-data-engineering-datasets/eCommerce.json to ./eCommerce.json
ubuntu@ip-172-31-90-57:~$ sudo snap install jq
```

List directory contents



A screenshot of a terminal window titled "ubuntu@ip-172-31-90-57: ~". The window displays system information and package update status.

```
* Documentation: https://help.ubuntu.com
* Management: https://landscape.canonical.com
* Support: https://ubuntu.com/advantage

System information as of Thu Jan  9 07:58:28 UTC 2020

System load: 0.02          Processes: 88
Usage of /: 5.6% of 19.32GB Users logged in: 0
Memory usage: 16%          IP address for eth0: 172.31.90.57
Swap usage: 0%

0 packages can be updated.
0 updates are security updates.

Last login: Thu Jan  9 07:55:45 2020 from 143.169.144.49
ubuntu@ip-172-31-90-57:~$ sudo snap install --classic aws-cli
aws-cli 1.16.266 from Amazon Web Services (aws✓) installed
ubuntu@ip-172-31-90-57:~$ aws s3 cp s3://ua-data-engineering-datasets/eCommerce.json .
download: s3://ua-data-engineering-datasets/eCommerce.json to ./eCommerce.json
ubuntu@ip-172-31-90-57:~$ sudo snap install jq
jq 1.5+dfsg-1 from canonical✓ installed
ubuntu@ip-172-31-90-57:~$ ls
```

```
ubuntu@ip-172-31-90-57: ~
* Support:      https://ubuntu.com/advantage

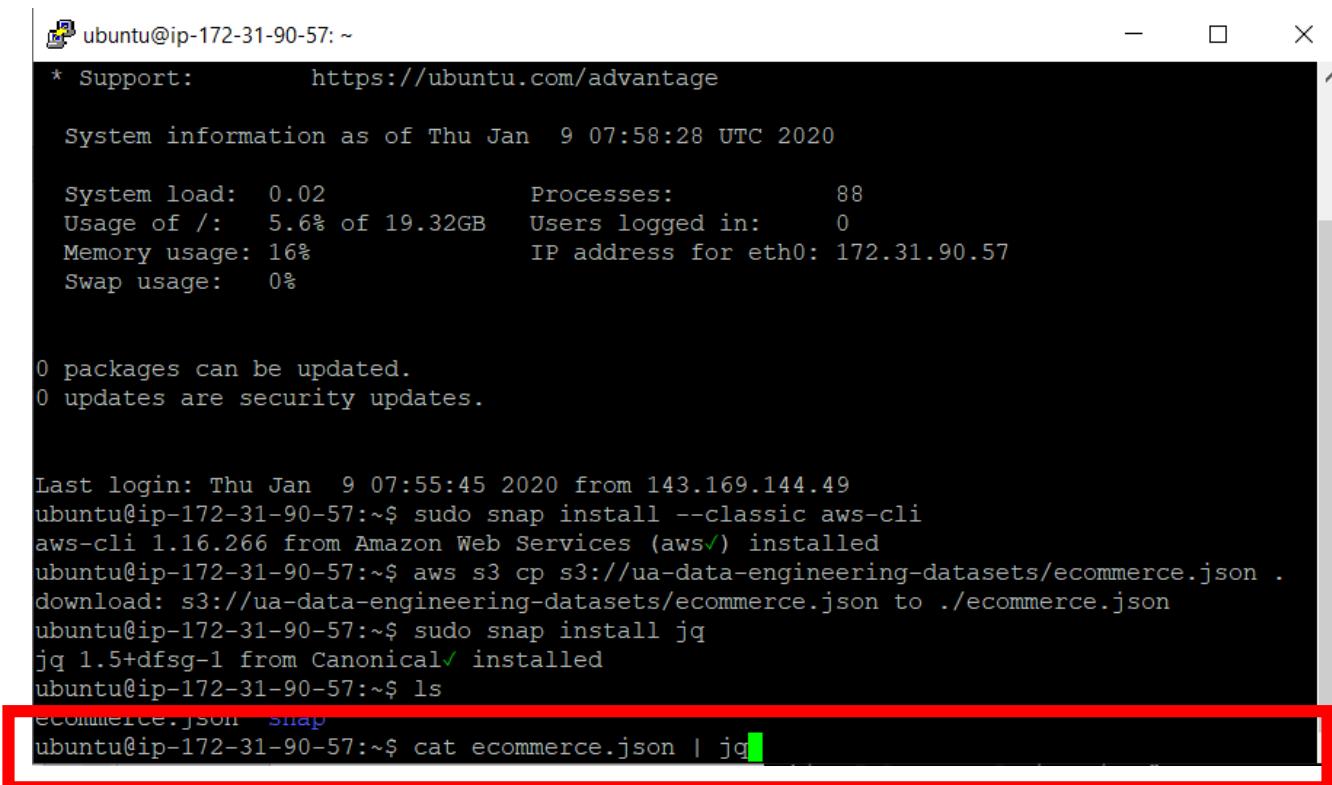
System information as of Thu Jan  9 07:58:28 UTC 2020

System load:  0.02          Processes:        88
Usage of /:   5.6% of 19.32GB  Users logged in:    0
Memory usage: 16%           IP address for eth0: 172.31.90.57
Swap usage:   0%

0 packages can be updated.
0 updates are security updates.

Last login: Thu Jan  9 07:55:45 2020 from 143.169.144.49
ubuntu@ip-172-31-90-57:~$ sudo snap install --classic aws-cli
aws-cli 1.16.266 from Amazon Web Services (aws✓) installed
ubuntu@ip-172-31-90-57:~$ aws s3 cp s3://ua-data-engineering-datasets/eCommerce.json .
download: s3://ua-data-engineering-datasets/eCommerce.json to ./eCommerce.json
ubuntu@ip-172-31-90-57:~$ sudo snap install jq
jq 1.5+dfsg-1 from Canonical✓ installed
ubuntu@ip-172-31-90-57:~$ ls
eCommerce.json  snap
ubuntu@ip-172-31-90-57:~$
```

Output JSON-objects (readable output)



```
ubuntu@ip-172-31-90-57: ~
* Support:      https://ubuntu.com/advantage

System information as of Thu Jan  9 07:58:28 UTC 2020

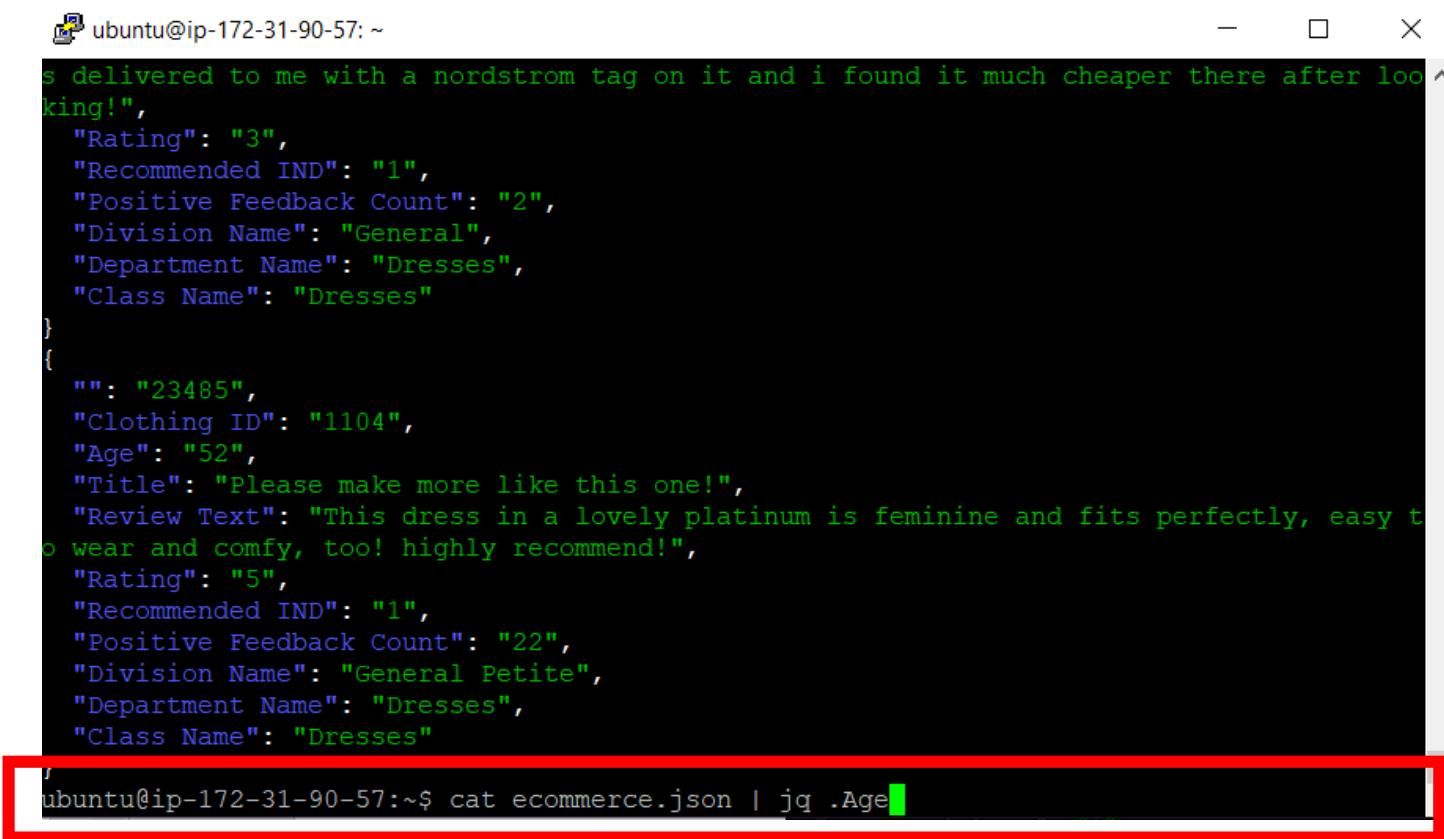
System load:  0.02          Processes:     88
Usage of /:   5.6% of 19.32GB  Users logged in: 0
Memory usage: 16%           IP address for eth0: 172.31.90.57
Swap usage:   0%

0 packages can be updated.
0 updates are security updates.

Last login: Thu Jan  9 07:55:45 2020 from 143.169.144.49
ubuntu@ip-172-31-90-57:~$ sudo snap install --classic aws-cli
aws-cli 1.16.266 from Amazon Web Services (aws✓) installed
ubuntu@ip-172-31-90-57:~$ aws s3 cp s3://ua-data-engineering-datasets/eCommerce.json .
download: s3://ua-data-engineering-datasets/eCommerce.json to ./eCommerce.json
ubuntu@ip-172-31-90-57:~$ sudo snap install jq
jq 1.5+dfsg-1 from Canonical✓ installed
ubuntu@ip-172-31-90-57:~$ ls
eCommerce.json  snap
ubuntu@ip-172-31-90-57:~$ cat eCommerce.json | jq
```

```
ubuntu@ip-172-31-38-84: ~
th it. side note - this dress was delivered to me with a nordstrom tag on it and ^
i found it much cheaper there after looking!",
  "Rating": "3",
  "Recommended IND": "1",
  "Positive Feedback Count": "2",
  "Division Name": "General",
  "Department Name": "Dresses",
  "Class Name": "Dresses"
}
{
  "": "23485",
  "Clothing ID": "1104",
  "Age": "52",
  "Title": "Please make more like this one!",
  "Review Text": "This dress in a lovely platinum is feminine and fits perfectly
, easy to wear and comfy, too! highly recommend!",
  "Rating": "5",
  "Recommended IND": "1",
  "Positive Feedback Count": "22",
  "Division Name": "General Petite",
  "Department Name": "Dresses",
  "Class Name": "Dresses"
}
ubuntu@ip-172-31-38-84:~$
```

Output Age-attribute of all objects



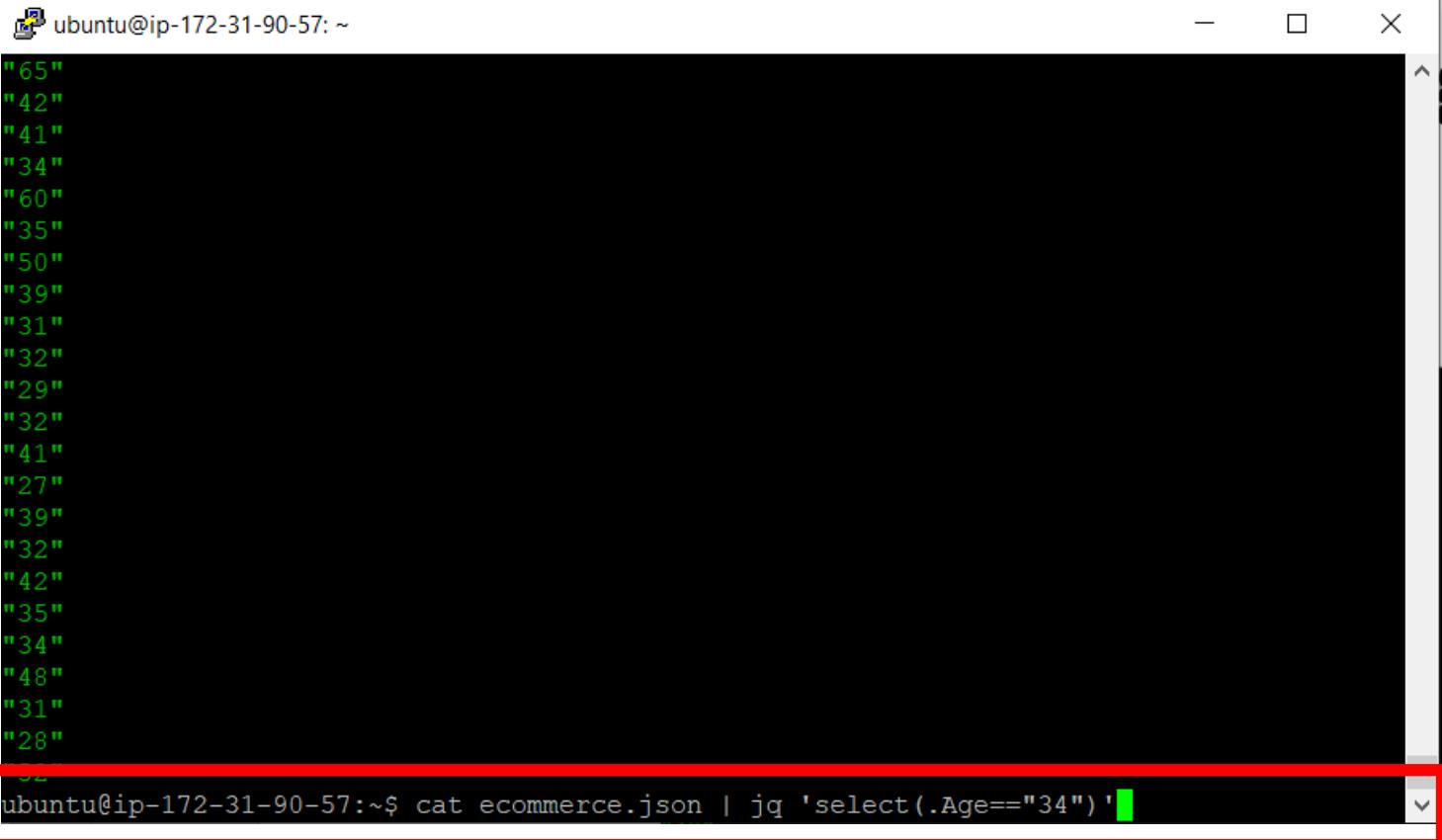
```
ubuntu@ip-172-31-90-57: ~
s delivered to me with a nordstrom tag on it and i found it much cheaper there after loo
king!",
  "Rating": "3",
  "Recommended IND": "1",
  "Positive Feedback Count": "2",
  "Division Name": "General",
  "Department Name": "Dresses",
  "Class Name": "Dresses"
}
{
  "": "23485",
  "Clothing ID": "1104",
  "Age": "52",
  "Title": "Please make more like this one!",
  "Review Text": "This dress is a lovely platinum is feminine and fits perfectly, easy t
o wear and comfy, too! highly recommend!",
  "Rating": "5",
  "Recommended IND": "1",
  "Positive Feedback Count": "22",
  "Division Name": "General Petite",
  "Department Name": "Dresses",
  "Class Name": "Dresses"
}

ubuntu@ip-172-31-90-57:~$ cat ecommerce.json | jq .Age
```

 ubuntu@ip-172-31-38-84: ~

```
"65"  
"42"  
"41"  
"34"  
"60"  
"35"  
"50"  
"39"  
"31"  
"32"  
"29"  
"32"  
"41"  
"27"  
"39"  
"32"  
"42"  
"35"  
"34"  
"48"  
"31"  
"28"  
"52"  
ubuntu@ip-172-31-38-84:~$
```

Output objects for which Age-attribute equals 34



The screenshot shows a terminal window with a black background and white text. At the top, it displays the session information: "ubuntu@ip-172-31-90-57: ~". On the right side of the terminal window, there are standard window control buttons for minimizing, maximizing, and closing the window.

The terminal window contains a list of age values, each enclosed in double quotes. These values are listed vertically from top to bottom:

```
"65"  
"42"  
"41"  
"34"  
"60"  
"35"  
"50"  
"39"  
"31"  
"32"  
"29"  
"32"  
"41"  
"27"  
"39"  
"32"  
"42"  
"35"  
"34"  
"48"  
"31"  
"28"  
"32"
```

At the bottom of the terminal window, there is a red rectangular box highlighting the command that was run to produce the output. The command is:

```
ubuntu@ip-172-31-90-57:~$ cat ecommerce.json | jq '.Age=="34"'
```

```
ubuntu@ip-172-31-38-84: ~
material is not cheap it is very warm and doesn't breath very well which is good in the winter. the o
nly complaint i have is there was a small snag in it, but i was able to fix it my self.",
    "Rating": "4",
    "Recommended IND": "1",
    "Positive Feedback Count": "0",
    "Division Name": "General Petite",
    "Department Name": "Dresses",
    "Class Name": "Dresses"
}
{
    "": "23481",
    "Clothing ID": "1104",
    "Age": "34",
    "Title": "Great dress for many occasions",
    "Review Text": "I was very happy to snag this dress at such a great price! it's very easy to slip
on and has a very flattering cut and color combo.",
    "Rating": "5",
    "Recommended IND": "1",
    "Positive Feedback Count": "0",
    "Division Name": "General Petite",
    "Department Name": "Dresses",
    "Class Name": "Dresses"
}
ubuntu@ip-172-31-38-84:~$
```

Output objects for which Age = 34 and Rating = 5



```
ubuntu@ip-172-31-90-57: ~
d in the winter. the only complaint i have is there was a small snag in it, but i was able to fix it my self.",
  "Rating": "4",
  "Recommended IND": "1",
  "Positive Feedback Count": "0",
  "Division Name": "General Petite",
  "Department Name": "Dresses",
  "Class Name": "Dresses"
}
{
  "": "23481",
  "Clothing ID": "1104",
  "Age": "34",
  "Title": "Great dress for many occasions",
  "Review Text": "I was very happy to snag this dress at such a great price! it's very easy to slip on and has a very flattering cut and color combo.",
  "Rating": "5",
  "Recommended IND": "1",
  "Positive Feedback Count": "0",
  "Division Name": "General Petite",
  "Department Name": "Dresses",
  "Class Name": "Dresses"
}

ubuntu@ip-172-31-90-57:~$ cat ecommerce.json | jq 'select(.Age=="34") and (.Rating=="5"))'
```

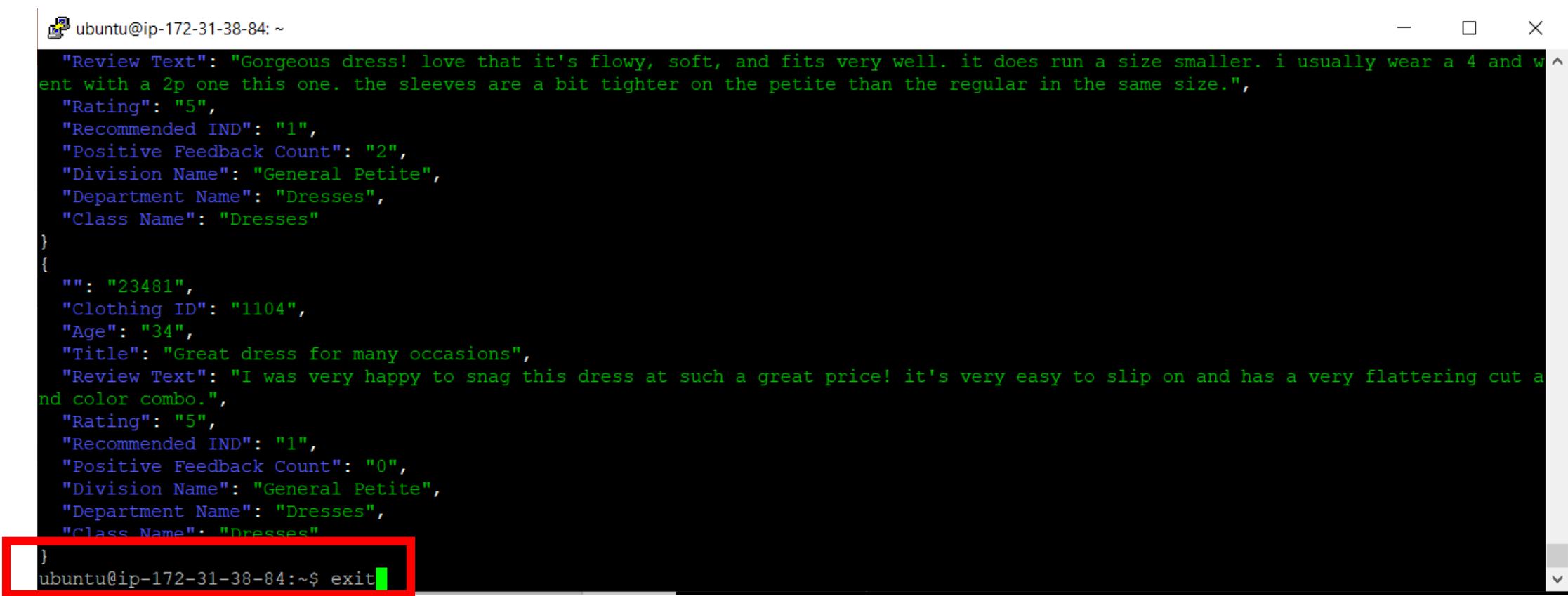
ubuntu@ip-172-31-38-84: ~

```
"Review Text": "Gorgeous dress! love that it's flowy, soft, and fits very well. it does run a size smaller. i usually wear a 4 and went with a 2p one this one. the sleeves are a bit tighter on the petite than the regular in the same size.",
"Rating": "5",
"Recommended IND": "1",
"Positive Feedback Count": "2",
"Division Name": "General Petite",
"Department Name": "Dresses",
"Class Name": "Dresses"
}
{
"": "23481",
"Clothing ID": "1104",
"Age": "34",
>Title": "Great dress for many occasions",
"Review Text": "I was very happy to snag this dress at such a great price! it's very easy to slip on and has a very flattering cut and color combo.",
"Rating": "5",
"Recommended IND": "1",
"Positive Feedback Count": "0",
"Division Name": "General Petite",
"Department Name": "Dresses",
"Class Name": "Dresses"
}
ubuntu@ip-172-31-38-84:~$
```

Additional exercises

- Output objects for which Age is higher than 30, Rating is higher than 4 and Class Name is ‘Jackets’ (tip: use .“Class Name” to handle the space)
- Output objects for which Title is missing (empty)
- Output objects that contain the word ‘nice’ (tip: combine grep & jq)
- Do the same for the word ‘ugly’

Exit instance



A screenshot of a terminal window on an Ubuntu system. The terminal shows two JSON objects. The first object has fields like "Review Text", "Rating", "Recommended IND", etc. The second object has fields like "Clothing ID", "Age", "Title", "Review Text", "Rating", etc. Both objects have "Class Name": "Dresses". The terminal prompt is at the bottom: "ubuntu@ip-172-31-38-84:~\$". A red box highlights the closing brace of the second JSON object and the "exit" command.

```
ubuntu@ip-172-31-38-84: ~
{
    "Review Text": "Gorgeous dress! love that it's flowy, soft, and fits very well. it does run a size smaller. i usually wear a 4 and went with a 2p one this one. the sleeves are a bit tighter on the petite than the regular in the same size.",
    "Rating": "5",
    "Recommended IND": "1",
    "Positive Feedback Count": "2",
    "Division Name": "General Petite",
    "Department Name": "Dresses",
    "Class Name": "Dresses"
}
{
    "": "23481",
    "Clothing ID": "1104",
    "Age": "34",
    "Title": "Great dress for many occasions",
    "Review Text": "I was very happy to snag this dress at such a great price! it's very easy to slip on and has a very flattering cut and color combo.",
    "Rating": "5",
    "Recommended IND": "1",
    "Positive Feedback Count": "0",
    "Division Name": "General Petite",
    "Department Name": "Dresses",
    "Class Name": "Dresses"
}
ubuntu@ip-172-31-38-84:~$ exit
```

Terminate running instance (!)

The screenshot shows the AWS EC2 Management Console interface. At the top, there are several tabs: AWS Account, Workbench, Instances | EC2 Management Con..., and IAM Management Console. Below the tabs, the URL is console.aws.amazon.com/ec2/home?region=us-east-1#Instances:sort=instanceState. The main navigation bar includes the AWS logo, Services (dropdown), Resource Groups (dropdown), and various user and support links.

The left sidebar contains a navigation menu with sections like New EC2 Experience, EC2 Dashboard, Events, Tags, Reports, Limits, INSTANCES (with Instances selected), IMAGES, and ELASTIC BLOCK STORE. The Instances section is currently active.

In the center, the main content area displays a table of instances. A single instance is listed:

Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	Public DNS (IPv4)	IPv4 Public IP	IPv6 IP
	i-005ee21de0237f48a	t2.micro	us-east-1b	running	2/2 checks ...	None	ec2-18-212-158-142.co...	18.212.158.142	-

The "Actions" button in the top right of the instance table is highlighted with a red box. Below the table, a detailed view for the selected instance (i-005ee21de0237f48a) is shown, including its Public DNS and basic details.

Description	Status Checks	Monitoring	Tags
Instance ID: i-005ee21de0237f48a	Public DNS: ec2-18-212-158-142.compute-1.amazonaws.com		
Instance state: running			
Instance type: t2.micro			
Public DNS (IPv4): ec2-18-212-158-142.compute-1.amazonaws.com			
IPv4 Public IP: 18.212.158.142			
IPv6 IPs: -			

AWS Account | Workbench | Instances | EC2 Management Console | IAM Management Console

console.aws.amazon.com/ec2/home?region=us-east-1#Instances:sort=instanceState

Apps Jupyter Notebook S...

aws Services Resource Groups

New EC2 Experience Learn more

EC2 Dashboard New

Events

Tags

Reports

Limits

INSTANCES

Instances

- Instance Types
- Launch Templates New
- Spot Requests
- Savings Plans
- Reserved Instances
- Dedicated Hosts
- Scheduled Instances
- Capacity Reservations

IMAGES

AMIs

Bundle Tasks

ELASTIC BLOCK STORE

Volumes

Snapshots

Launch Instance Connect Actions ▾

Filter by tags and attributes or search

Name Instance ID

i-005ee21de0237f48a

Availability Zone Instance State Status Checks Alarm Status Public DNS (IPv4) IPv4 Public IP IPv6 IP

running 2/2 checks ... None ec2-18-212-158-142.compute-1.amazonaws.com 18.212.158.142 -

Actions ▾

- Connect
- Get Windows Password
- Create Template From Instance
- Launch More Like This
- Instance State
 - Start
 - Stop
 - Stop - Hibernate
 - Reboot
 - Terminate**
- Instance Settings
- Image
- Networking
- CloudWatch Monitoring

1 to 1 of 1

Instance: i-005ee21de0237f48a Public DNS: ec2-18-212-158-142.compute-1.amazonaws.com

Description Status Checks Monitoring Tags

Instance ID	i-005ee21de0237f48a	Public DNS (IPv4)	ec2-18-212-158-142.compute-1.amazonaws.com
Instance state	running	IPv4 Public IP	18.212.158.142
Instance type	t2.micro	IPv6 IPs	-

AWS Account | Workbench | Instances | EC2 Management Con | IAM Management Console | - | X

console.aws.amazon.com/ec2/home?region=us-east-1#Instances:sort=instanceState

Apps Jupyter Notebook S...

New EC2 Experience Learn more

Services Resource Groups

EC2 Dashboard New

Events

Tags

Reports

Limits

INSTANCES

Instances

Instance Types

Launch Templates New

Spot Requests

Savings Plans

Reserved Instances

Dedicated Hosts

Scheduled Instances

Capacity Reservations

IMAGES

AMIs

Bundle Tasks

ELASTIC BLOCK STORE

Volumes

Snapshots

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 Public DNS (IPv4) IPv4 Public IP IPv6 Public IP

ec2-54-197-222-134.co... 54.197.222.134 -

Terminate Instances

Warning

On an EBS-backed instance, the default action is for the root EBS volume to be deleted when the instance is terminated. Storage on any local drives will be lost.

Are you sure you want to terminate these instances?

i-0a4f5810b52225148 (ec2-54-197-222-134.compute-1.amazonaws.com)

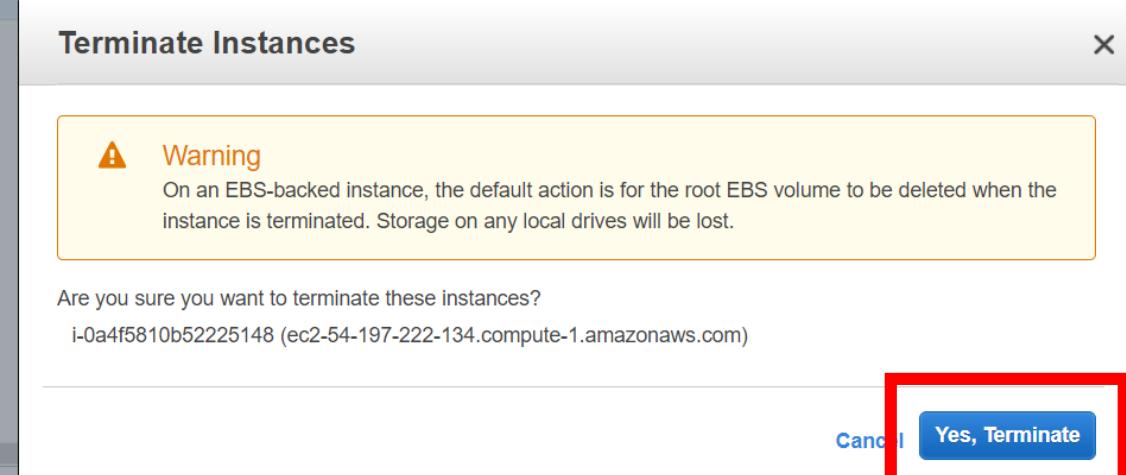
Cancel Yes, Terminate

Instance: i-0a4f5810b52225148 Public DNS: ec2-54-197-222-134.compute-1.amazonaws.com

Description Status Checks Monitoring Tags

Instance ID: i-0a4f5810b52225148
Instance state: running
Instance type: t2.micro

Public DNS (IPv4): ec2-54-197-222-134.compute-1.amazonaws.com
IPv4 Public IP: 54.197.222.134
IPv6 IPs: -



AWS Account Instances | EC2 Management Cor

console.aws.amazon.com/ec2/home?region=us-east-1#Instances:sort=desc:instanceState

Apps Jupyter Notebook S...

aws Services Resource Groups

New EC2 Experience Learn more

EC2 Dashboard New

Events

Tags

Reports

Limits

INSTANCES

Instances

Instance Types

Launch Templates New

Spot Requests

Savings Plans

Reserved Instances

Dedicated Hosts

Scheduled Instances

Capacity Reservations

IMAGES

AMIs

Bundle Tasks

ELASTIC BLOCK STORE

Volumes

Snapshots

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 Public DNS (IPv4) IPv4 Public IP IPv6 IP

Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	Public DNS (IPv4)	IPv4 Public IP	IPv6 IP
	i-0a4f5810b52225148	t2.micro	us-east-1a	terminated	None		-	-	-

Instance: i-0a4f5810b52225148 Public DNS: -

Description Status Checks Monitoring Tags

Instance ID	Public DNS (IPv4)
i-0a4f5810b52225148	-
Instance state	IPv4 Public IP
terminated	-
Instance type	IPv6 IPs
t2.micro	-