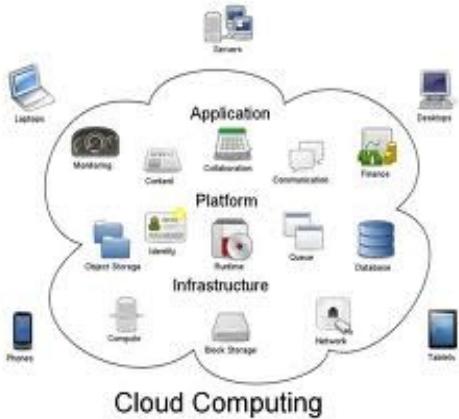




Example with Amazon Web Service

Daniel Hagimont



hagimont@enseeiht.fr

Log in AWS

Amazon Web Services Sign-In - Mozilla Firefox

Amazon Web Services Sign-In https://signin.aws.amazon.com/signin?redirect_uri=https%3A%2F%2Feu-west-3.console.aws.amazon.com%2F

aws

Sign in

Root user
Account owner that performs tasks requiring unrestricted access. [Learn more](#)

IAM user
User within an account that performs daily tasks. [Learn more](#)

Root user email address

Next

New to AWS? [Create a new AWS account](#)

Build Mobile and Web Apps Fast

Add authentication and data syncing with AWS Amplify in just a few lines of code

[LEARN MORE](#)



About Amazon.com Sign In

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English ▾

AWS services

AWS Management Console - Mozilla Firefox

https://console.aws.amazon.com/console/home?region=us-east-1

Daniel Hagimoto N. Virginia Support

AWS Management Console

AWS services

Find Services You can enter names, keywords or acronyms.

Example: Relational Database Service, database, RD

Recently visited services

- EC2**
- IAM
- Secrets Manager
- Billing
- AWS DeepComposer

All services

Compute	Satellite	Security, Identity, & Compliance
EC2	Ground Station	IAM
Lightsail	Quantum Technologies	Resource Access Manager
Lambda	Amazon Braket	Cognito
Batch		Secrets Manager
Elastic Beanstalk		GuardDuty
Serverless Application Repository		Inspector
AWS Outposts	AWS Organizations	Amazon Macie
EC2 Image Builder	CloudWatch	AWS Single Sign-On
Containers	AWS Auto Scaling	Certificate Manager
Elastic Container Registry	CloudFormation	Key Management Service
Elastic Container Service	CloudTrail	CloudHSM
Elastic Load Balancing	Config	Directory Service

Choose the EC2 service

Download the AWS Console Mobile App to your iOS or Android mobile device. Learn more

Explore AWS

Amazon SageMaker Autopilot
Get hands-on with AutoML. Learn more

Amazon EFS for AWS Lambda
Simplify file storage for serverless, and securely read, write and persist large data volumes at virtually any scale. Learn more

Move to Managed File Storage
Reduce complexity, overhead, and cost by moving to fully managed storage. Learn more

RDS Read Replicas
Achieve scale and low-latency for read-heavy workloads with RDS Read Replicas. Learn more

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EC2 Dashboard

EC2 Management Console - Mozilla Firefox

https://eu-west-3.console.aws.amazon.com/ec2/v2/home?region=eu-west-3#Home:

New EC2 Experience [Learn more](#)

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EC2 Dashboard

- Events
- Tags
- Limits
- INSTANCES**
- Instances
- Instance Types
- Launch Templates
- Spot Requests
- Savings Plans
- Reserved Instances
- Dedicated Hosts
- Capacity Reservations
- IMAGES**
- AMIs
- ELASTIC BLOCK STORE**
- Volumes
- Snapshots
- Lifecycle Manager
- NETWORK & SECURITY**
- Security Groups
- Elastic IPs
- Placement Groups
- Key Pairs**
- Network Interfaces

Resources

You are using the following Amazon EC2 resources in the EU (Paris) region:

0 Running Instances	0 Elastic IPs
0 Dedicated Hosts	0 Snapshots
0 Volumes	0 Load Balancers
0 Key Pairs	1 Security Groups
0 Placement Groups	

Learn more about the latest in AWS Compute from AWS re:Invent by viewing the [EC2 Videos](#).

Create Instance **Migrate a Machine** **Quick ID filter**

To start using Amazon EC2 you will want to launch a virtual server, known as an Amazon EC2 instance.

Use CloudEndure Migration to simplify, expedite, and automate large-scale migrations from physical, virtual, and cloud-based infrastructure to AWS.

[Launch Instance](#) [Create filter](#)

Note: Your instances will launch in the EU (Paris) region

Create a security group

Create a key pair

Service Health

Service Status: EU (Paris): ✓

Availability Zone Status:

- eu-west-3: Availability zone is operating normally
- eu-west-3b: Availability zone is operating normally

Scheduled Events

Find free software trial products in the AWS Marketplace from the [EC2 Launch Wizard](#). Or try these popular AMIs:

Barracuda CloudGen Firewall for AWS - PAYG

By Barracuda Networks, Inc.
Rating: ★★★★
Starting from \$0.60/hr or from
\$4,599/yr (12% savings) for software +
AWS usage fees
[View all Infrastructure Software](#)

Amazon ETL for Amazon Redshift

Feedback English (US) ▾

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Generation of a key pair

The screenshot shows the AWS EC2 Management Console interface. On the left, a sidebar lists various services: EC2 Dashboard, Events, Tags, Limits, Instances, Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Capacity Reservations, AMIs, Volumes, Snapshots, Lifecycle Manager, Security Groups, Elastic IPs, Placement Groups, Key Pairs (which is selected and highlighted in orange), and Network Interfaces. The main content area is titled "Key pairs | EC2 Management Console - Mozilla Firefox" and shows a table of existing key pairs. A red circle highlights the "Create Key Pair" button at the top of the table. Another red circle highlights the key pair entry for "key-dan". A large red callout bubble points from the "key-dan" entry to the text: "It generated a .pem file which is used to connect to the VM with SSH". Below the table, a detailed view for the "key-dan" key pair is shown, listing its name and fingerprint.

Key pair name	Fingerprint
key-dan	54:09:57:10:4f:63:93:ee:ef:1d:af:86:2f:8d:d8:06:9b:d7:2c:92

Key Pair: key-dan

Key pair name	key-dan
Fingerprint	54:09:57:10:4f:63:93:ee:ef:1d:af:86:2f:8d:d8:06:9b:d7:2c:92

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Creation of a security group

The screenshot shows the AWS EC2 Management Console in Mozilla Firefox. The user is navigating through the 'Security groups' section. A red circle highlights the 'Create Security Group' button at the top left of the main content area. The 'Create Security Group' dialog box is open, showing the following details:

- Security group name:** sec-grp-dan
- Description:** security group of dan
- VPC:** vpc-9ac8cef3 (default)

The 'Security group rules' section is visible, with the 'Inbound' tab selected. A red circle highlights the 'Type' dropdown set to 'All traffic'. Another red circle highlights the 'Source' dropdown set to 'Anywhere'. A large red oval encloses the entire 'Inbound' rule configuration with the text: "Add rules for inbound and outbound". Below the 'Inbound' tab, there is an 'Outbound' tab, which is also highlighted by a red circle.

A red arrow points from the 'Type' dropdown to the text "Autorize all traffic (TCP and UDP)". Another red arrow points from the 'Source' dropdown to the text "from/to anywhere both for inbound and outbound".

At the bottom right of the dialog box are the 'Cancel' and 'Create' buttons.

Creation of a security group

The screenshot shows the AWS EC2 Management Console interface for managing security groups. The left sidebar navigation bar includes links for New EC2 Experience, Tags, Limits, Instances (with sub-links for Instances, Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Capacity Reservations), Images (AMIs), Elastic Block Store (Volumes, Snapshots, Lifecycle Manager), Network & Security (Security Groups, Elastic IPs, Placement Groups, Key Pairs, Network Interfaces), and Load Balancing (Load Balancers). The 'Security Groups' link under 'Network & Security' is highlighted with an orange border.

The main content area displays a table of existing security groups:

Name	Group ID	Group Name	VPC ID	Owner	Description
sg-0a6c2cc917b0cdd4c	sg-0a6c2cc917b0cdd4c	sec-grp-dan	vpc-9ac8cef3	867162544097	secu
sg-5455d539	sg-5455d539	default	vpc-9ac8cef3	867162544097	defau

A red circle highlights the 'sec-grp-dan' entry in the table. A red arrow points from this circle to a red box containing the text "We created the security group".

The bottom section of the screen shows the configuration details for the selected security group 'sg-5455d539':

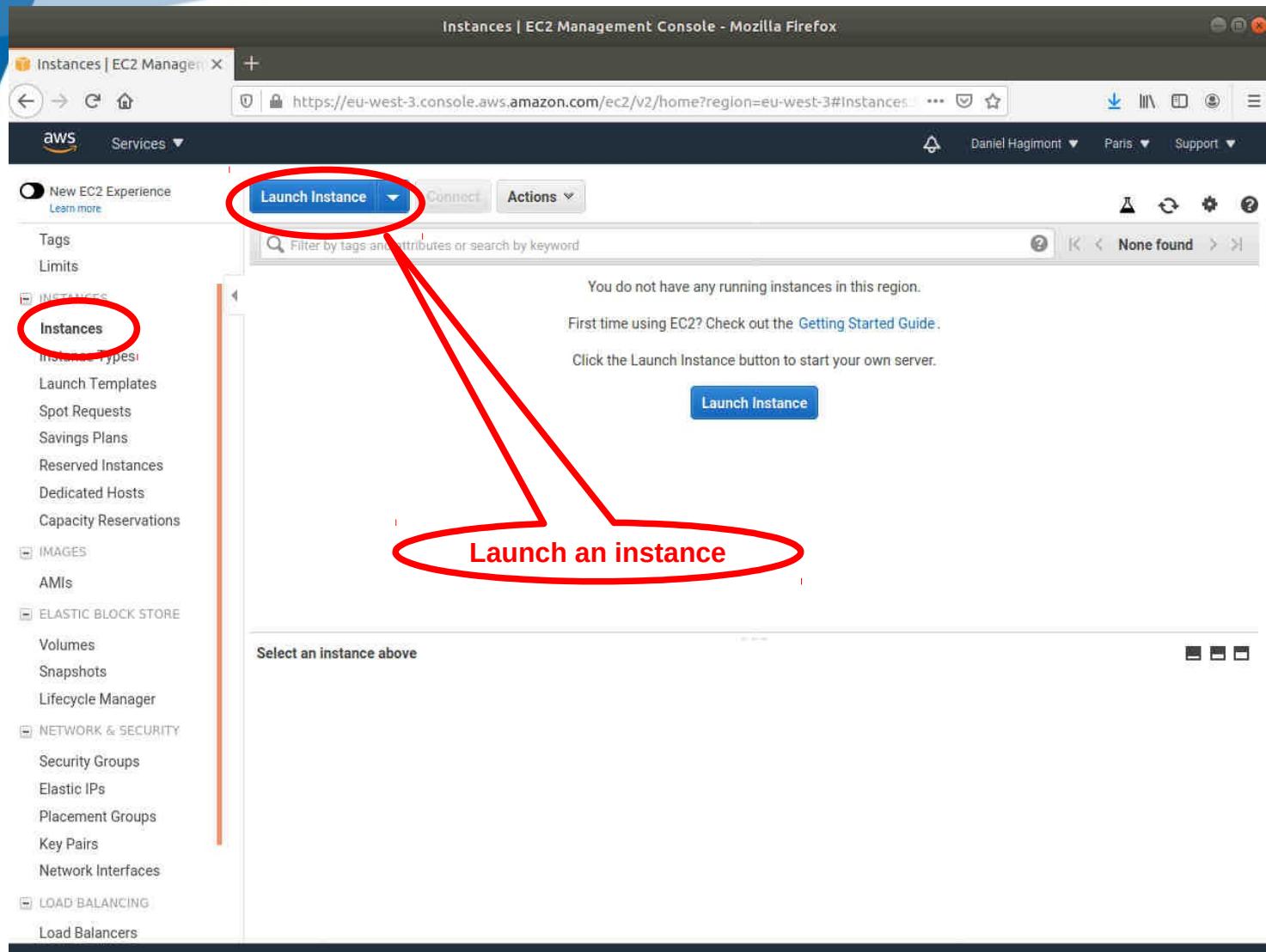
Security Group: sg-5455d539

Buttons: Description, Inbound, Outbound, Tags

Edit

Type	Protocol	Port Range	Destination	Description
All traffic	All	All	0.0.0.0/0	

Instance management (VM)



Choose the operating system

Launch instance wizard | EC2 Management Console - Mozilla Firefox

Launch instance wizard | https://eu-west-3.console.aws.amazon.com/ec2/v2/home?region=eu-west-3#LaunchInst...

aws Services ▾ Daniel Hagimont ▾ Paris ▾ Support ▾

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)

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

Search for an AMI by entering a search term e.g. "Windows"

Search by Systems Manager parameter

Quick Start

- My AMIs
- AWS Marketplace
- Community AMIs
- Free tier only (i)

Amazon Linux 2 AMI (HVM), SSD Volume Type - ami-0de12f76efe134f2f Select 64-bit (x86)
Amazon Linux 2 comes with five years support. It provides Linux kernel 4.14 tuned for optimal performance on Amazon EC2, systemd 219, GCC 7.3, Glibc 2.26, Binutils 2.29.1, and the latest software packages through extras.
Root device type: ebs Virtualization type: hvm ENA Enabled: Yes

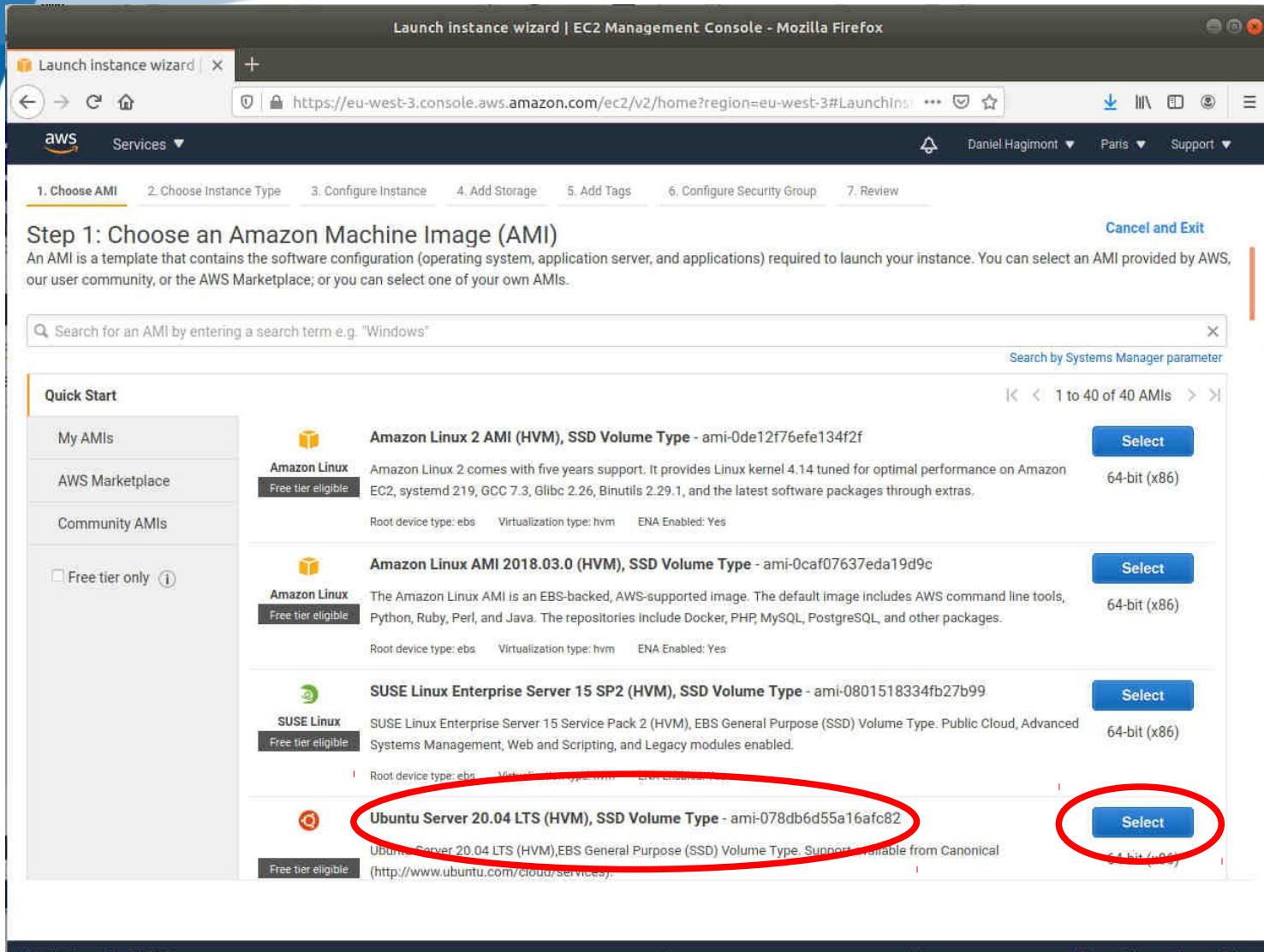
Amazon Linux AMI 2018.03.0 (HVM), SSD Volume Type - ami-0caf07637eda19d9c Select 64-bit (x86)
The Amazon Linux AMI is an EBS-backed, AWS-supported image. The default image includes AWS command line tools, Python, Ruby, Perl, and Java. The repositories include Docker, PHP, MySQL, PostgreSQL, and other packages.
Root device type: ebs Virtualization type: hvm ENA Enabled: Yes

SUSE Linux Enterprise Server 15 SP2 (HVM), SSD Volume Type - ami-0801518334fb27b99 Select 64-bit (x86)
SUSE Linux Enterprise Server 15 Service Pack 2 (HVM), EBS General Purpose (SSD) Volume Type. Public Cloud, Advanced Systems Management, Web and Scripting, and Legacy modules enabled.
Root device type: ebs Virtualization type: hvm ENA Enabled: Yes

Ubuntu Server 20.04 LTS (HVM), SSD Volume Type - ami-078db6d55a16afc82 Select 64-bit (x86)
Ubuntu Server 20.04 LTS (HVM), EBS General Purpose (SSD) Volume Type. Supports available from Canonical (<http://www.ubuntu.com/cloud/services>).
(Free tier eligible)

Cancel and Exit

K < 1 to 40 of 40 AMIs > |



Choose the instance type

Launch instance wizard | EC2 Management Console - Mozilla Firefox

Launch instance wizard | AWS Services Daniel Hagimont Paris Support

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 families ▾ Current generation ▾ Show/Hide Columns

Currently selected: t2.micro (- ECUs, 1 vCPUs, 2.5 GHz, -, 1 GiB memory, EBS only)

	Family	Type	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance	IPv6 Support
	t2	t2.nano	1	0.5	EBS only	-	Low to Moderate	Yes
<input checked="" type="checkbox"/>	t2	t2.micro Free tier eligible	1	1	EBS only	-	Low to Moderate	Yes
	t2	t2.small	1	2	EBS only	-	Low to Moderate	Yes
	t2	t2.medium	2	4	EBS only	-	Low to Moderate	Yes
	t2	t2.large	2	8	EBS only	-	Low to Moderate	Yes
	t2	t2.xlarge	4	16	EBS only	-	Moderate	Yes
	t2	t2.2xlarge	8	32	EBS only	-	Moderate	Yes
	t3	t3.nano	2	0.5	EBS only	Yes	Up to 5 Gigabit	Yes
	t3	t3.micro	2	1	EBS only	Yes	Up to 5 Gigabit	Yes

Cancel Previous **Review and Launch** Next: Configure Instance Details

Details of the configuration

Launch Instance wizard | EC2 Management Console - Mozilla Firefox

Launch instance wizard | AWS Services

https://eu-west-3.console.aws.amazon.com/ec2/v2/home?region=eu-west-3#LaunchInst...

Daniel Hagimont | Paris | Support

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 20.04 LTS (HVM), SSD Volume Type - ami-078db6d55a16afc82

Free tier eligible Ubuntu Server 20.04 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	-	1	1	EBS only	-	Low to Moderate

Security Groups

Security group name: launch-wizard-1
Description: launch-wizard-1 created 2020-10-26T07:58:43.188+01:00

Type **Protocol** **Port Range** **Source** **Description**

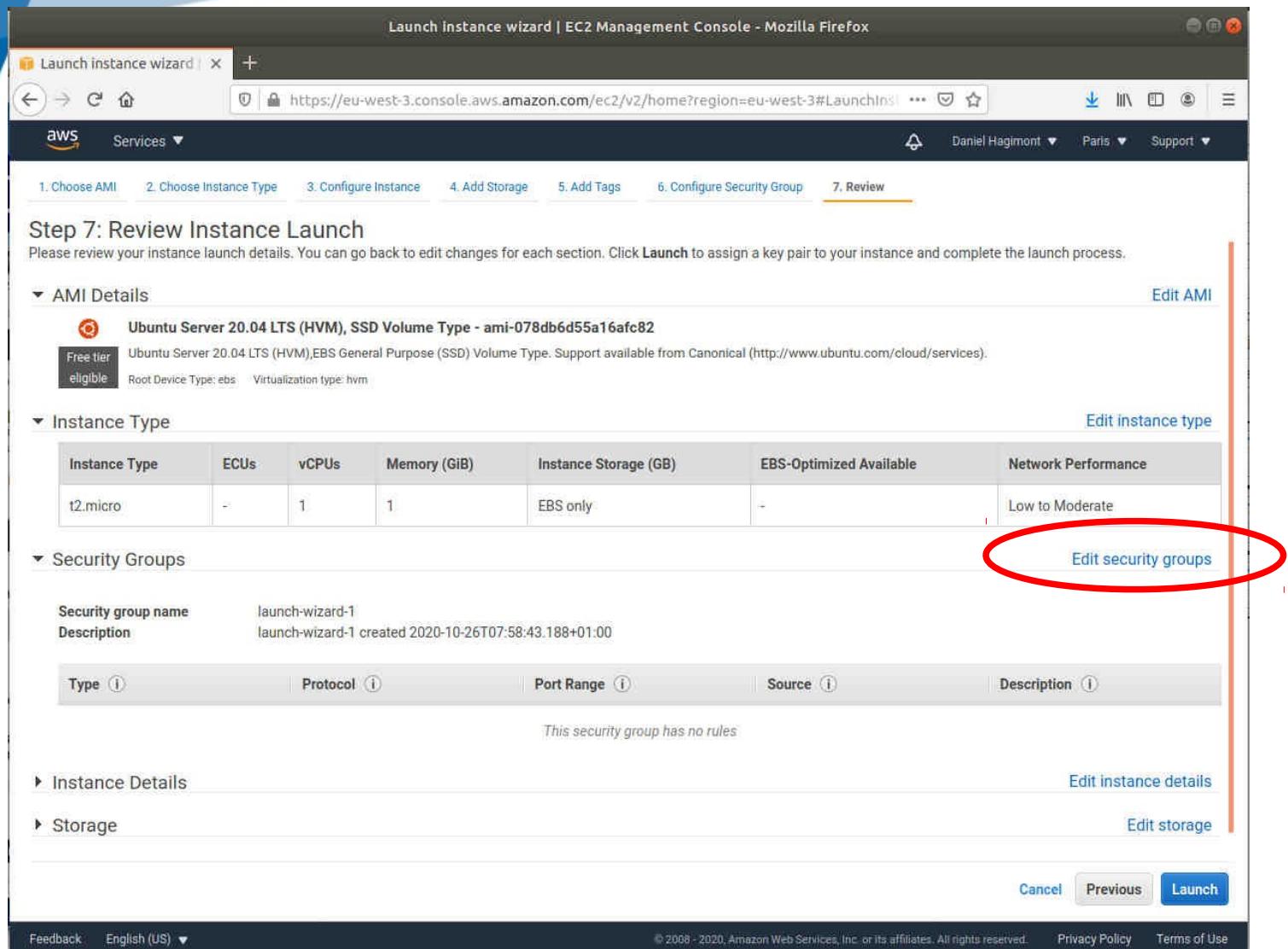
This security group has no rules

Instance Details

Storage

Cancel **Previous** **Launch**

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Select the security group

Launch instance wizard | EC2 Management Console - Mozilla Firefox

Launch instance wizard | EC2 Management Console - Mozilla Firefox

https://eu-west-3.console.aws.amazon.com/ec2/v2/home?region=eu-west-3#LaunchInst...

Daniel Hagimont ▾ Paris ▾ Support ▾

Services ▾

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

Step 6: Configure Security Group

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

Assign a security group: Create a new security group Select an existing security group

Security Group ID	Name	Description	Actions
sg-5455d539	default	default VPC security group	Copy to new
sg-0a6c2cc917b0cdd4c	sec-grp-dan	security group of dan	Copy to new

Inbound rules for sg-0a6c2cc917b0cdd4c (Selected security groups: sg-0a6c2cc917b0cdd4c)

Type	Protocol	Port Range	Source	Description
All traffic	All	All	0.0.0.0/0	
All traffic	All	All	::/0	

Cancel Previous **Review and Launch**

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Summary

Launch Instance wizard | EC2 Management Console - Mozilla Firefox

Launch instance wizard | AWS Services ▾ Daniel Hagimont ▾ Paris ▾ Support ▾

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, sec-grp-dan, is open to the world.

Your instances may be accessible from any IP address. We recommend that you update your security group rules to allow access from known IP addresses only. You can also open additional ports in your security group to facilitate access to the application or service you're running, e.g., HTTP (80) for web servers. [Edit security groups](#)

AMI Details [Edit AMI](#)

Ubuntu Server 20.04 LTS (HVM), SSD Volume Type - ami-078db6d55a16afc82
Free tier eligible

Ubuntu Server 20.04 LTS (HVM), EBS General Purpose (SSD) Volume Type. Support available from Canonical (<http://www.ubuntu.com/cloud/services>).
Root Device Type: ebs Virtualization type: hvm

Instance Type [Edit instance type](#)

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

Security Groups [Edit security groups](#)

Security Group ID	Name	Description
sg-0a6c2cc917b0cdd4c	sec-grp-dan	security group of dan

All selected security groups inbound rules

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

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Associate a key pair

Launch Instance wizard | EC2 Management Console - Mozilla Firefox

https://eu-west-3.console.aws.amazon.com/ec2/v2/home?region=eu-west-3#LaunchInst...

Daniel Hagimont, Paris, Support

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 20.04 LTS (64-bit) (Free tier eligible)

Instance Type

Instance Type	ECUs
t2.micro	-

Security Groups

Security Group ID	Name	Description
sg-0a6c2cc917b0cdd4c	sec-grp-dan	security group of dan

Select an existing key pair or create a new key pair

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

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

Choose an existing key pair: Select a key pair: key-dan

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

Launch Instances (button circled in red)

Cancel Previous Launch

Feedback English (US) ▾

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Creation is done

The screenshot shows a Mozilla Firefox browser window with the title "Launch instance wizard | EC2 Management Console - Mozilla Firefox". The URL in the address bar is <https://eu-west-3.console.aws.amazon.com/ec2/v2/home?region=eu-west-3#LaunchInst...>. The AWS logo and "Services" dropdown are visible in the top navigation bar. The main content area is titled "Launch Status". It contains two sections: "Your instances are now launching" (with a green checkmark icon) and "Get notified of estimated charges" (with a blue info icon). Below these sections is a heading "How to connect to your instances" followed by a paragraph of text and a link to "View Instances". A section titled "Here are some helpful resources to get you started" lists links to "How to connect to your Linux instance", "Amazon EC2: User Guide", "Learn about AWS Free Usage Tier", and "Amazon EC2: Discussion Forum". At the bottom, there are links for "Create status check alarms", "Create and attach additional EBS volumes", and "Manage security groups", along with a "View Instances" button. The footer includes links for "Feedback", "English (US)", "Privacy Policy", and "Terms of Use".

Launch Status

Your instances are now launching

The following instance launches have been initiated: [i-0b4fab45477a23d48](#) [View launch log](#)

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](#)
- [Amazon EC2: User Guide](#)
- [Learn about AWS Free Usage Tier](#)
- [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](#)

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The instance is started

The screenshot shows the AWS EC2 Management Console interface. On the left, a sidebar menu lists various services: New EC2 Experience, Tags, Limits, Instances (selected), Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Capacity Reservations, AMIs, and Elastic Block Store. The main content area displays a table of instances. A single row is selected, showing the instance ID i-0b4fab45477a23d48, instance type t2.micro, availability zone eu-west-3b, and status as running (indicated by a green dot). A red circle highlights the 'running' status. Below the table, a detailed view of the selected instance (i-0b4fab45477a23d48) is shown. The Public DNS field is circled in red and labeled 'Public address of the VM'. The table below contains the following data:

Description	Value	Description	Value
Instance ID	i-0b4fab45477a23d48	Public DNS (IPv4)	ec2-35-181-58-87.eu-west-3.compute.amazonaws.com
Instance state	running	IPv4 Public IP	35.181.58.87
Instance type	t2.micro	IPv6 IPs	-
Finding	Opt-in to AWS Compute Optimizer for recommendations. Learn more	Elastic IPs	-
Private DNS	ip-172-31-20-103.eu-west-3.compute.internal	Availability zone	eu-west-3b
Private IPs	172.31.20.103	Security groups	sec-grp-dan, view inbound rules , view outbound rules

At the bottom, there are links for Feedback, English (US), Privacy Policy, and Terms of Use.

Connection with SSH

```
ubuntu@ip-172-31-20-103: ~
Fichier Édition Affichage Rechercher Terminal Aide
hagimont@mabecane:~$ cd Téléchargements/
hagimont@mabecane:~/Téléchargements$ chmod go-rwx key-dan.pem
hagimont@mabecane:~/Téléchargements$ ssh -i key-dan.pem ubuntu@ec2-35-181-58-87.
eu-west-3.compute.amazonaws.com
Welcome to Ubuntu 20.04.1 LTS (GNU/Linux 5.4.0-1021-aws x86_64)

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

 System information as of Mon Oct 26 07:11:53 UTC 2020

 System load: 0.01           Processes:
 Usage of /: 16.7% of 7.69GB Users logged in:
 Memory usage: 20%          IPv4 address for eth0: 172.31.10.103
 Swap usage: 0%
1 update can be installed immediat
0 of these updates are security
To see these additional updates

- modify access rights on the key pair file
- log in the VM with the key pair
ubuntu@...

The list of available updates is more than a page long.
To check for new updates run: sudo apt update

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.

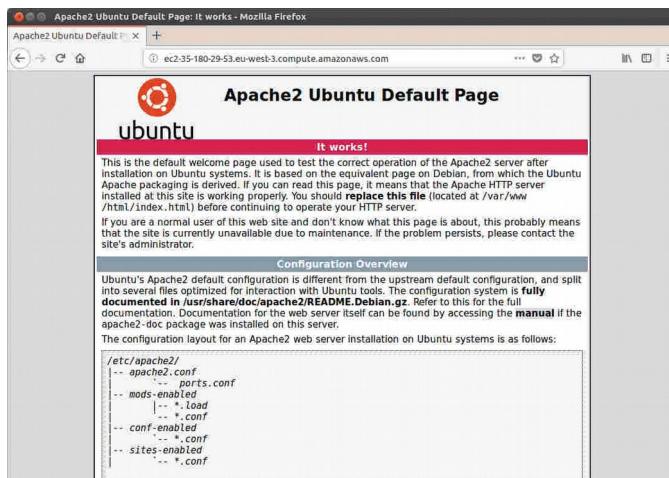
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-172-31-20-103:~$
```

- modify access rights on the key pair file
- log in the VM with the key pair

Installation of Apache2 + Php5

- Installation
 - sudo bash
 - apt-get update
 - apt-get install apache2 php libapache2-mod-php
 - systemctl restart apache2
- Verify that Apache is functionning
 - From a web browser:
 - <http://ec2-35-180-97-11.eu-west-3.compute.amazonaws.com>



Installation of a php page

- From your machine
 - `scp -i <fichier.pem> index.php ubuntu@ec2-35-180-29-53.eu-west-3.compute.amazonaws.com::`
- In the VM
 - `sudo bash`
 - `rm /var/www/html/index.html`
 - `mv index.php /var/www/html/`
 - `chmod 777 /var/www/html/index.php`



Save an image

The screenshot shows the AWS EC2 Management Console interface. On the left, the navigation pane is visible with sections like Instances, AMIs, and Elastic Block Store. The main area displays a single running instance (i-0b4fab45477a23d48) with its details: Public DNS: ec2-35-181-58-87.eu-west-3.compute.amazonaws.com, Instance ID: i-0b4fab45477a23d48, Instance state: running, Instance type: t2.micro, Private DNS: ip-172-31-20-103.eu-west-3.compute.internal, Private IP: 172.31.20.103, Availability zone: eu-west-3b, Security groups: sec-grp-dan, view inbound rules, view outbound rules.

In the center, the Actions menu for the selected instance is open, showing options like Connect, Get Windows Password, Create Template From Instance, Launch More Like This, Instance State, Instance Settings, Image (which is highlighted), Networking, and CloudWatch Monitoring. The 'Image' option is circled in red.

The bottom right corner of the page contains standard footer links: Feedback, English (US), Privacy Policy, and Terms of Use.

Save an image

Instances | EC2 Management Console - Mozilla Firefox

Instances | EC2 Manager X

https://eu-west-3.console.aws.amazon.com/ec2/v2/home?region=eu-west-3#Instances:

New EC2 Experience Learn more

AWS Services ▾

Tags

Limits

INSTANCES

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

IMAGES

AMIs

ELASTIC BLOCK STORE

Volumes

Snapshots

Lifecycle Manager

NETWORK & SECURITY

Security Groups

Elastic IPs

Placement Groups

Key Pairs

Network Interfaces

LOAD BALANCING

Load Balancers

Launch Instance Connect Actions ▾

Filter by tags and attributes or search by keyword

1 to 1 of 1

Create Image

Instance ID: i-0b4fb45477a23d48

Image name: image-dan (highlighted with red circle)

Image description: image of dan (highlighted with red circle)

No reboot:

Instance Volumes

Volume Type	Device	Snapshot	Size (GiB)	Volume Type	IOPS	Throughput (MB/s)	Delete on Termination	Encrypted
Root	/dev/sda1	snap-0491deeb409df9536	8	General Purpose	100 / 3000	N/A	<input checked="" type="checkbox"/>	Not Encrypted

Add New Volume

Total size of EBS Volumes: 8 GiB

When you create an EBS image, an EBS snapshot will also be created for each of the above volumes.

Cancel Create Image (highlighted with red circle)

Private DNS: ip-172-31-20-103.eu-west-3.compute.internal

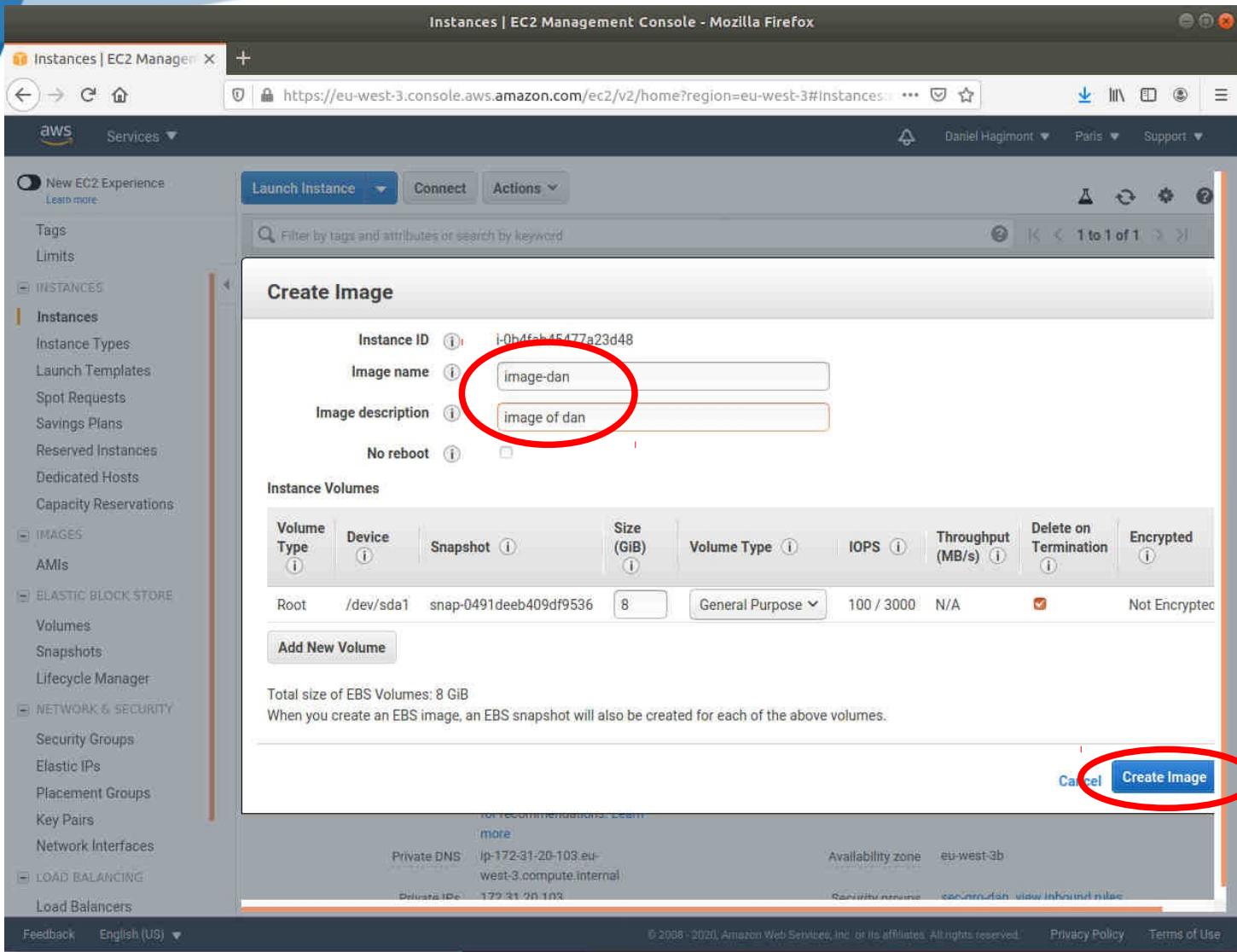
Availability zone: eu-west-3b

Private IP: 172.31.20.103

Security groups: concern-dan-view-inbound-rules

Feedback English (US) ▾

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Save an image

The screenshot shows the AWS EC2 Management Console interface. On the left, there is a navigation sidebar with several sections: New EC2 Experience (with a 'Learn more' link), Tags, Limits, INSTANCES (with sub-options: Instances, Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Capacity Reservations), IMAGES (with sub-options: AMIs, Elastic Block Store, Volumes, Snapshots, Lifecycle Manager), NETWORK & SECURITY (with sub-options: Security Groups, Elastic IPs, Placement Groups, Key Pairs, Network Interfaces), and LOAD BALANCING (with sub-option: Load Balancers). The 'AMIs' option under the 'IMAGES' section is highlighted with a red circle. The main content area shows a table titled 'Owned by me' with one item listed:

Name	AMI Name	AMI ID	Source	Owner	Visibility	Status	Creation Date
image-dan	ami-0f520fda5348ca881	867162544097/i...	867162544097	Private	available	available	October 26

Below the table, there is a detailed view for the selected AMI (ami-0f520fda5348ca881) with tabs for Details, Permissions, and Tags. The Details tab shows the following information:

AMI ID	ami-0f520fda5348ca881	AMI Name	image-dan
Owner	867162544097	Source	867162544097/image-dan
Status	available	State Reason	-
Creation date	October 26, 2020 at 8:18:58 AM	Platform details	Linux/UNIX

At the bottom of the page, there are links for Feedback, English (US), and a footer with copyright information: © 2008 - 2020, Amazon Web Services, Inc. or its affiliates. All rights reserved. Privacy Policy Terms of Use.

Terminate your instance

The screenshot shows the AWS EC2 Management Console interface. On the left, there's a sidebar with various navigation options like 'Instances', 'Launch Templates', 'Spot Requests', etc. The 'Instances' option is highlighted with a red circle. In the main content area, an instance named 'i-0b4fab45477a23d48' is listed, along with its public DNS and other details. A context menu is open over this instance, with 'Actions' expanded. The 'Instance State' section of the menu is also expanded, showing options like 'Start', 'Stop', 'Stop - Hibernate', and 'Terminate'. The 'Terminate' option is highlighted with a red circle. The browser address bar shows the URL for the EC2 console.

Instances | EC2 Manager X TP Cloud EC2 X +

https://eu-west-3.console.aws.amazon.com/ec2/v2/home?region=eu-west-3#Instances:

New EC2 Experience Learn more

Tags
Limits
Instances Instances Types Launch Templates Spot Requests Savings Plans Reserved Instances Dedicated Hosts Capacity Reservations

Images AMIs

Elastic Block Store Volumes Snapshots Lifecycle Manager

Network & Security Security Groups Elastic IPs Placement Groups Key Pairs Network Interfaces

Load Balancing Load Balancers

Actions ▾

Connect
Get Windows Password
Create Template From Instance
Launch More Like This

Instance State ▾
Start
Stop
Stop - Hibernate
Restart
Terminate

Instance: i-0b4fab45477a23d48 Public DNS: ec2-35-181-58-87.eu-west-3.compute.amazonaws.com

Description	Status Checks	Monitoring	Tags
Instance ID: i-0b4fab45477a23d48	Public DNS (IPv4): ec2-35-181-58-87.eu-west-3.compute.amazonaws.com	IPv4 Public IP: 35.181.58.87	
Instance state: running	IPv6 IPs: -	Elastic IPs: -	
Instance type: t2.micro	Availability zone: eu-west-3b	Security groups: sec-grp-dan, view inbound rules, view outbound rules	
Finding: Opt-in to AWS Compute Optimizer for recommendations. Learn more			
Private DNS: ip-172-31-20-103.eu-west-3.compute.internal			
Private IPs: 172.31.20.103			

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Use an image

The following is similar to a VM creation

AMI ID: ami-00a878e1af4de5cb3

AMI ID	AMI Name
ami-00a878e1af4de5cb3	image-dan

Owner: 867162544097
Status: available
Creation date: October 26, 2020 at 8:26:57 AM
Source: 867162544097/image-dan
State Reason: -
Platform details: Linux/UNIX

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Amazon Auto Scaling

- Automatically adjust the number of instance according to
 - Monitoring information
 - Rules
- Three utilization cases
 - Maintain a fixed number of instances
 - Plan the addition/removal of instances
 - Dimension according to the load

Amazon Auto Scaling

- Steps
 - Creation of a *load balancer*
 - Load balancer between instances
 - Creation of a *Launch Configuration*
 - Type of VM which will be added
 - Creation of an *Auto Scaling Group*
 - Rules of management

Creation of a load balancer

The screenshot shows the AWS EC2 Management Console interface for creating a load balancer. A red circle highlights the 'Create Load Balancer' button in the top navigation bar. Another red circle highlights the 'Load Balancers' link under the 'LOAD BALANCING' section in the left sidebar.

The browser title is 'Load Balancers | EC2 Management Console - Mozilla Firefox'. The URL is <https://eu-west-3.console.aws.amazon.com/ec2/v2/home?region=eu-west-3#LoadBalancers>.

The left sidebar menu includes:

- New EC2 Experience (radio button selected)
- Services dropdown (AWS logo)
- Instance Types
- Launch Templates
- Spot Requests
- Savings Plans
- Reserved Instances
- Dedicated Hosts
- Capacity Reservations
- IMAGES (AMIs)
- ELASTIC BLOCK STORE (Volumes, Snapshots, Lifecycle Manager)
- NETWORK & SECURITY (Security Groups, Elastic IPs, Placement Groups, Key Pairs, Network Interfaces)
- LOAD BALANCING (Load Balancers, Target Groups)
- AUTO SCALING (Launch Configurations, Auto Scaling Groups)

The main content area shows a table titled 'Select a load balancer' with columns: Name, DNS name, State, VPC ID, and Availability Zones. A search bar at the top of the table says 'Filter by tags and attributes or search by keyword'.

At the bottom of the page, there are links for Feedback, English (US), Copyright notice (© 2008–2020, Amazon Web Services, Inc. or its affiliates. All rights reserved.), Privacy Policy, and Terms of Use.

Creation of a load balancer

Create Load Balancer | EC2 Management Console - Mozilla Firefox

TP Cloud EC2

https://eu-west-3.console.aws.amazon.com/ec2/v2/home?region=eu-west-3#SelectCreate

Services ▾ Daniel Hagimont ▾ Paris ▾ Support ▾

Select load balancer type

Elastic Load Balancing supports three types of load balancers: Application Load Balancers, Network Load Balancers (new), and Classic Load Balancers. Choose the load balancer type that meets your needs.

[Learn more about which load balancer is right for you](#)

Application Load Balancer



Create

Choose an Application Load Balancer when you need a flexible feature set for your web applications with HTTP and HTTPS traffic. Operating at the request level, Application Load Balancers provide advanced routing and visibility features targeted at application architectures, including microservices and containers.

[Learn more >](#)

A red oval highlights the "Create" button for the Application Load Balancer section.

Network Load Balancer



Create

Choose a Network Load Balancer when you need ultra-high performance, TLS offloading at scale, centralized certificate deployment, support for UDP, and static IP addresses for your application. Operating at the connection level, Network Load Balancers are capable of handling millions of requests per second securely while maintaining ultra-low latencies.

[Learn more >](#)

Classic Load Balancer

PREVIOUS GENERATION
for HTTP, HTTPS, and TCP

Create

Choose a Classic Load Balancer when you have an existing application running in the EC2-Classic network.

[Learn more >](#)

Cancel

Creation of a load balancer

Create Load Balancer | EC2 Management Console - Mozilla Firefox

Create Load Balancer | TP Cloud EC2

https://eu-west-3.console.aws.amazon.com/ec2/v2/home?region=eu-west-3#V2CreateE ***

Daniel Hagimont | Paris | Support

1. Configure Load Balancer 2. Configure Security Settings 3. Configure Security Groups 4. Configure Routing 5. Register Targets 6. Review

Step 1: Configure Load Balancer

Basic Configuration

To configure your load balancer, provide a name, select a scheme, specify one or more listeners, and select a network. The default configuration is an Internet-facing load balancer in the selected network with a listener that receives HTTP traffic on port 80.

Name: lb-dan (circled)

Scheme: internet-facing

IP address type: ipv4

Listeners

A listener is a process that checks for connection requests, using the protocol and port that you configured.

Load Balancer Protocol	Load Balancer Port
HTTP	80

Add listener

Availability Zones

Specify the Availability Zones to enable for your load balancer. The load balancer routes traffic to the targets in these Availability Zones only. You can specify only one subnet per Availability Zone. You must specify subnets from at least two Availability Zones to increase the availability of your load balancer.

VPC: vpc-9ac8cef3 (172.31.0.0/16) (default)

Cancel Next: Configure Security Settings

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Creation of a load balancer

Create Load Balancer | EC2 Management Console - Mozilla Firefox

Create Load Balancer | TP Cloud EC2

https://eu-west-3.console.aws.amazon.com/ec2/v2/home?region=eu-west-3#V2CreateE...

Services ▾ Daniel Hagimont ▾ Paris ▾ Support ▾

1. Configure Load Balancer 2. Configure Security Settings 3. Configure Security Groups 4. Configure Routing 5. Register Targets 6. Review

Step 1: Configure Load Balancer

HTTP 80

Add listener

Availability Zones

Specify the Availability Zones to enable for your load balancer. The load balancer routes traffic to the targets in these Availability Zones only. You can specify only one subnet per Availability Zone. You must specify subnets from at least two Availability Zones to increase the availability of your load balancer.

VPC vpc-9ac8cef3 (172.31.0.0/16) (default)

Availability Zones

- eu-west-3a subnet-11d5f878 IPv4 address Assigned by AWS
- eu-west-3b subnet-a4c88cdf IPv4 address Assigned by AWS
- eu-west-3c subnet-1771f85a IPv4 address Assigned by AWS

Add-on services

Additional AWS services can be integrated with this load balancer at launch when you enable them below. You can also add these and other services after your load balancer is created by reviewing the "Integrated Services" tab for the selected load balancer.

AWS Global Accelerator Create an accelerator to get static IP addresses and improve the performance and availability of your

Cancel Next: Configure Security Settings

Feedback English (US) ▾

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Creation of a load balancer

The screenshot shows a browser window titled "Create Load Balancer | EC2 Management Console - Mozilla Firefox". The URL is <https://eu-west-3.console.aws.amazon.com/ec2/v2/home?region=eu-west-3#V2CreateLB>. The page is part of a six-step wizard:

1. Configure Load Balancer
2. Configure Security Settings
3. Configure Security Groups
4. Configure Routing
5. Register Targets
6. Review

The second step, "Configure Security Settings", is currently selected. A yellow warning box contains the following text:

⚠ Improve your load balancer's security. Your load balancer is not using any secure listener.
If your traffic to the load balancer needs to be secure, use the HTTPS protocol for your front-end connection. You can go back to the first step to add/configure secure listeners under [Basic Configuration](#) section. You can also continue with current settings.

At the bottom right of the page, there are three buttons: "Cancel", "Previous", and "Next: Configure Security Groups". The "Next" button is highlighted with a red oval.

Creation of a load balancer

Create Load Balancer | EC2 Management Console - Mozilla Firefox

TP Cloud EC2

https://eu-west-3.console.aws.amazon.com/ec2/v2/home?region=eu-west-3#V2CreateE

Daniel Hagimont Paris Support

1. Configure Load Balancer 2. Configure Security Settings 3. Configure Security Groups 4. Configure Routing 5. Register Targets 6. Review

Step 3: Configure Security Groups

A security group is a set of firewall rules that control the traffic to your load balancer. On this page, you can add rules to allow specific traffic to reach your load balancer. First, decide whether to create a new security group or select an existing one.

Assign a security group:

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

Filter VPC security groups

Security Group ID	Name	Description	Actions
sg-5455d539	default	default VPC security group	Copy to new
sg-0a6c2cc917b0cdd4c	sec-grp-dan	security group of dan	Copy to new

Cancel Previous Next: **Configure Routing**

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Creation of a load balancer

Create Load Balancer | EC2 Management Console - Mozilla Firefox

Create Load Balancer | EC2 Management Console - Mozilla Firefox

1. Configure Load Balancer 2. Configure Security Settings 3. Configure Security Groups 4. Configure Routing 5. Register Targets 6. Review

Step 4: Configure Routing
Your load balancer routes requests to the targets in this target group using the protocol and port that you specify, and performs health checks on the targets using these health check settings. Note that each target group can be associated with only one load balancer.

Target group

Target group: New target group
Name: group-dan (circled)
Target type: Instance (radio button selected)
Protocol: HTTP
Port: 80

Health checks

Protocol: HTTP
Path: /index.php (circled)

The load balancer checks access to this page to verify availability of the instance

Advanced health check settings

Cancel Previous Next: Register Targets (circled)

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Creation of a load balancer

Create Load Balancer | EC2 Management Console - Mozilla Firefox

TP Cloud EC2

https://eu-west-3.console.aws.amazon.com/ec2/v2/home?region=eu-west-3#V2CreateLB

Daniel Hagimont Paris Support

1. Configure Load Balancer 2. Configure Security Settings 3. Configure Security Groups 4. Configure Routing 5. Register Targets 6. Review

Step 5: Register Targets

Register targets with your target group. If you register a target in an enabled Availability Zone, the load balancer starts routing requests to the targets as soon as the registration process completes and the target passes the initial health checks.

Registered targets

To deregister instances, select one or more registered instances and then click Remove.

Instances

To register additional instances, select one or more running instances, specify a port, and then click Add. The default port is the port specified for the target group. If the instance is already registered on the specified port, you must specify a different port.

Add to registered on port 80

Search Instances

No instances available.

No instances available.

For the moment, no instance attached to the load balancer

Cancel Previous Next: Review

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Creation of a load balancer

Create Load Balancer | EC2 Management Console - Mozilla Firefox

Create Load Balancer | EC2 Management Console - Mozilla Firefox

TP Cloud EC2

https://eu-west-3.console.aws.amazon.com/ec2/v2/home?region=eu-west-3#V2CreateLB

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1. Configure Load Balancer 2. Configure Security Settings 3. Configure Security Groups 4. Configure Routing 5. Register Targets 6. Review

Step 6: Review

Please review the load balancer details before continuing

Load balancer

Name	lb-dan	Edit
Scheme	internet-facing	
Listeners	Port:80 - Protocol:HTTP	
IP address type	ipv4	
VPC	vpc-9ac8cef3	
Subnets	subnet-11d5f878, subnet-a4c88cdf, subnet-1771f85a	
Tags		

Security groups

Security groups	sg-0a6c2cc917b0cd4c	Edit
-----------------	---------------------	------

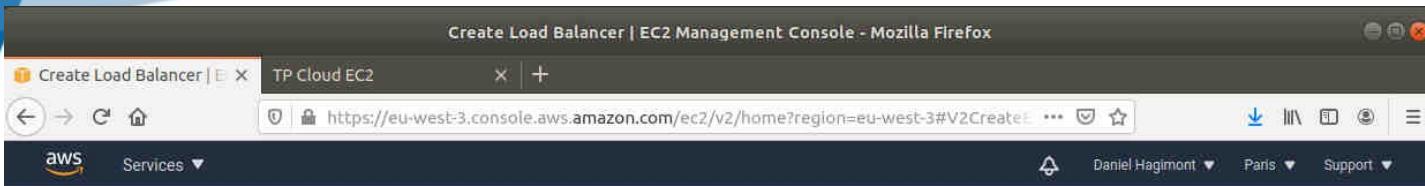
Routing

Target group	New target group	Edit
Target group name	group-dan	
Port	80	
Target type	instance	
Protocol	HTTP	
Health check protocol	HTTP	
Path	/index.php	
Health check port	traffic port	
Healthy threshold	5	
Unhealthy threshold	2	
Timeout	5	
Interval	30	
Success codes	200	

Cancel Previous Create

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Creation of a load balancer



Load Balancer Creation Status

✓ Successfully created load balancer

Load balancer [lb-dan](#) was successfully created.

Note: It might take a few minutes for your load balancer to be fully set up and ready to route traffic, and for the targets to complete the registration process and pass the initial health checks.

Suggested next steps

- Discover other services that you can integrate with your load balancer. Visit the [Integrated services](#) tab within [lb-dan](#)
- Consider using AWS Global Accelerator to further improve the availability and performance of your applications. [AWS Global Accelerator console](#)

[Close](#)

Creation of a load balancer

The screenshot shows the AWS EC2 Management Console interface for creating a load balancer. On the left, a sidebar lists various services under 'LOAD BALANCING', with 'Load Balancers' being the selected option and highlighted with a red oval. The main pane displays a table of existing load balancers, showing one entry for 'lb-dan'. The 'Basic Configuration' details for this load balancer are shown on the right, including its name, ARN, DNS name, state, type, scheme, IP address type (set to 'ipv4'), VPC, and availability zones. The 'DNS name' field, which contains the value 'lb-dan-1909086986.eu-west-3.elb.amazonaws.com', is also highlighted with a red oval. A large red oval on the right side of the screen encloses the DNS name and the associated text 'Public address of the load balancer'.

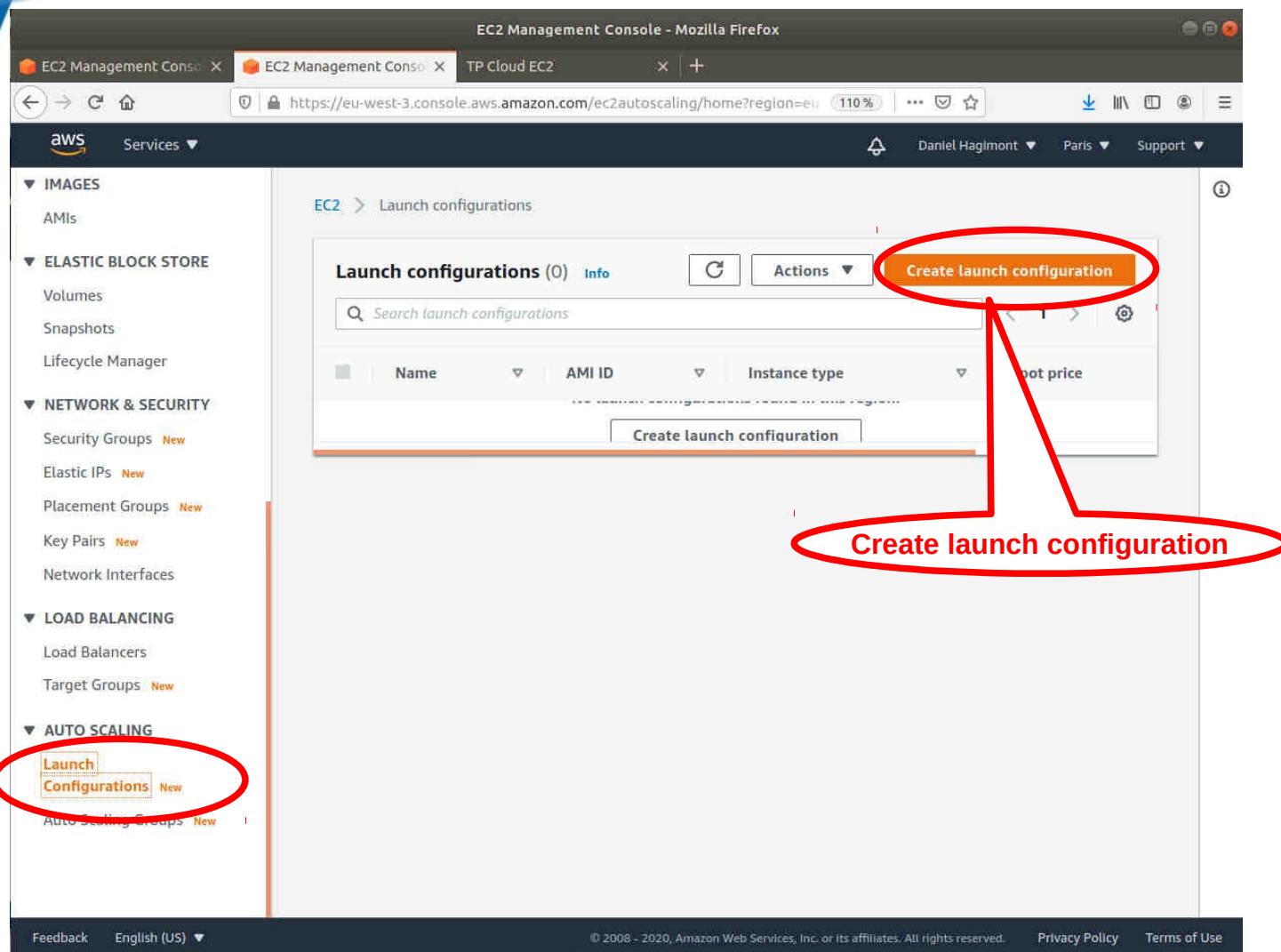
Name	DNS name	State	VPC ID	Availability Zones
lb-dan	lb-dan-1909086986.eu-west-3.elb.amazonaws.com	provisioning	vpc-9ac8cef3	eu-west-3a, eu-west-3c

Basic Configuration

Name	lb-dan
ARN	arn:aws:elasticloadbalancing:eu-west-3:867162544097:loadbalancer/app/lb-dan/4c2de857f81d0ac0
DNS name	lb-dan-1909086986.eu-west-3.elb.amazonaws.com (A Record)
State	provisioning
Type	application
Scheme	internet-facing
IP address type	ipv4
VPC	vpc-9ac8cef3
Availability Zones	subnet-11d5f878 - eu-west-3a IPv4 address: Assigned by AWS
	subnet-1771f85a - eu-west-3c IPv4 address: Assigned by AWS

Public address of the load balancer

Creation of a launch configuration



Creation of a launch configuration

The screenshot shows the AWS EC2 Management Console in Mozilla Firefox. The user is creating a new launch configuration. Red annotations with arrows point to specific fields and sections:

- A red oval surrounds the "Name" field in the "Launch configuration name" section, which contains the value "scaling-dan". A red callout bubble above it states: "A launch configuration is a type of VM to create from an image".
- A red oval surrounds the "AMI" field in the "Amazon machine image (AMI)" section, which contains the value "image-dan". A red callout bubble to its right states: "Select here the image you saved".
- A red oval surrounds the "Instance type" field in the "Instance type" section, which contains the value "t2.micro (1 vCPUs, 1 GiB, EBS On)". A red callout bubble to its right states: "Select here a t2.micro".
- A red oval surrounds the "Choose instance type" button in the "Instance type" section.
- A red arrow points downwards from the bottom of the "Instance type" section towards the "Additional configuration - optional" section at the bottom of the page, with the text "Scroll down" placed near the arrow.
- A red arrow points to the "Terms of Use" link in the bottom right corner of the page.

Creation of a launch configuration

The screenshot shows the AWS EC2 Management Console in Mozilla Firefox. The user is creating a new launch configuration. On the left, the navigation menu includes options like IMAGES, ELASTIC BLOCK STORE, NETWORK & SECURITY (with Security Groups selected), LOAD BALANCING, and AUTO SCALING (with Launch Configurations selected). The main pane displays a 'Security groups' section with two radio button options: 'Create a new security group' (unchecked) and 'Select an existing security group' (checked). Below this is a table of security groups:

Security group ID	Name	VPC ID	Description
<input checked="" type="checkbox"/> sg-0a6c2cc917b0cdd4c	sec-grp-dan	vpc-9ac8cef3	security group of dan
<input type="checkbox"/> sg-5455d555	default	vpc-9ac8cef3	default VPC security group

Two red annotations are present: a red circle highlights the row for 'sec-grp-dan', and a red arrow points down from the top of the second table to a warning message about connecting to the instance.

Select your security group

Scroll down

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Creation of a launch configuration

The screenshot shows the AWS EC2 Management Console in Mozilla Firefox. The user is creating a new launch configuration. A red circle highlights the 'key-dan' key pair in the 'Key pair (login)' section. Another red circle highlights the 'Create launch configuration' button at the bottom right. A third red circle highlights the selected security group 'sg-0a6c2cc917b0cdd4c' in the security group list.

EC2 Management Console - Mozilla Firefox

EC2 Management Console | TP Cloud EC2 | +

https://eu-west-3.console.aws.amazon.com/ec2autoscaling/home?region=eu

Daniel Haglmont | Paris | Support

AWS Services

Images

AMIs

Elastic Block Store

Volumes

Snapshots

Lifecycle Manager

Network & Security

Security Groups [New](#)

Elastic IPs [New](#)

Placement Groups [New](#)

Key Pairs [New](#)

Network Interfaces

Load Balancing

Load Balancers

Target Groups [New](#)

Auto Scaling

Launch Configurations [New](#)

Auto Scaling Groups [New](#)

Key pair (login) [Info](#)

Key pair options

Choose an existing key pair

Existing key pairs

key-dan

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

Create launch configuration

Feedback English (US)

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Creation of a launch configuration

The screenshot shows the AWS EC2 Management Console in Mozilla Firefox. The URL is <https://eu-west-3.console.aws.amazon.com/ec2autoscaling/home?region=eu>. The left sidebar shows navigation options like Images, Elastic Block Store, Network & Security, Load Balancing, and Auto Scaling. The Auto Scaling section is expanded, showing 'Launch Configurations' and 'Auto Scaling Groups'. The main area displays a table titled 'Launch configurations (1)'. The table has columns for Name, AMI ID, Instance type, and Spot price. A single row is listed: 'scaling-dan' with 'ami-00a878e1af4...' and 't2.micro'. A red oval highlights this row. A large red callout bubble points from the bottom right towards the row, containing the text 'Launch configuration was created'. Above the table, a green success message box says 'Successfully created launch configuration: scaling-dan'.

Name	AMI ID	Instance type	Spot price
scaling-dan	ami-00a878e1af4...	t2.micro	-

Launch configuration was created

Creation of an auto scaling group

EC2 Management Console - Mozilla Firefox

EC2 Management Console TP Cloud EC2 https://eu-west-3.console.aws.amazon.com/ec2autoscaling/home?region=eu-west-3 110% Daniel Hagimont Paris Support

aws Services ▾

▼ IMAGES AMIs

▼ ELASTIC BLOCK STORE Volumes Snapshots Lifecycle Manager

▼ NETWORK & SECURITY Security Groups New Elastic IPs New Placement Groups New Key Pairs New Network Interfaces

▼ LOAD BALANCING Load Balancers Target Groups New

▼ AUTO SCALING Launch Configurations New Auto Scaling Groups New

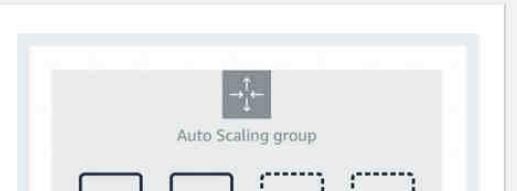
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Amazon EC2 Auto Scaling

helps maintain the availability of your applications

Auto Scaling groups are collections of Amazon EC2 instances that enable automatic scaling and fleet management features. These features help you maintain the health and availability of your applications.

How it works



Create Auto Scaling group

Get started with EC2 Auto Scaling by creating an Auto Scaling group.

Create Auto Scaling group

Pricing

Amazon EC2 Auto Scaling features have no additional fees beyond the service fees for Amazon EC2, CloudWatch (for scaling policies), and the other AWS resources that you use. Visit the pricing page of each service to learn more.

Creation of an auto scaling group

The screenshot shows the AWS EC2 Management Console in Mozilla Firefox. The user is in the process of creating a new Auto Scaling group. The interface is divided into several sections:

- Left sidebar:** Lists various AWS services: IMAGES (AMIs), ELASTIC BLOCK STORE (Volumes, Snapshots, Lifecycle Manager), NETWORKING (Security Groups, Elastic IPs, Placement Groups), LOAD BALANCING (Load Balancers, Target Groups), and AUTO SCALING (Launch Configurations, Auto Scaling Groups).
- Main content area:** A wizard-like process:
 - Step 1:** Choose launch template or configuration.
 - Step 2:** Configure settings.
 - Step 4 (optional):** Configure group size and scaling policies.
 - Step 6 (optional):** Add tags.
- Right panel:** A detailed view of the current step:
 - Name:** Input field containing "scaling-group-dan".
 - Auto Scaling group name:** Description: "Enter a name to identify the group." The input field also contains "scaling-group-dan".
 - Launch configuration:** A dropdown menu currently set to "scaling-dan". Below it is a "Create a launch configuration" button.
 - Switch to launch template:** A link next to the launch configuration dropdown.

Red annotations with arrows point to specific elements:

- A red oval encircles the "Name" input field in the right panel, with an arrow pointing from the text "Name of the auto scaling group" in the sidebar.
- A red oval encircles the "Switch to launch config" link in the sidebar, with an arrow pointing from the text "Switch to launch config" in the sidebar.
- A red oval encircles the "Select your launch config" text in the sidebar, with an arrow pointing from the text "Select your launch config" in the sidebar.
- A red oval encircles the "Launch configuration" dropdown in the right panel, with an arrow pointing from the text "Launch configuration" in the sidebar.

Creation of an auto scaling group

The screenshot shows the AWS EC2 Management Console interface for creating an Auto Scaling group. On the left, there's a sidebar with various EC2-related options like Instances, Images, and Elastic Block Store. The main area is titled 'Create Auto Scaling group' and shows a step-by-step process:

- Step 1:** Choose launch template or configuration
- Step 2:** Configure settings (highlighted by a red circle)
- Step 3 (optional):** Configure advanced options
- Step 4 (optional):** Configure group size and scaling policies
- Step 5 (optional):** Add notifications

The 'Configure settings' step is expanded, showing a 'Network' section. It includes a VPC dropdown set to 'vpc-9ac8cef3' and a 'Subnets' dropdown. The 'Subnets' dropdown is open, showing a list with one item highlighted:
eu-west-3a | subnet-11d5f878
172.31.0.0/20 Default

At the bottom right of the screen, there are 'Cancel', 'Previous', 'Skin to review', and 'Next Step' buttons. The 'Next Step' button is highlighted with a red circle.

Creation of an auto scaling group

The screenshot shows the AWS EC2 Management Console interface for creating an Auto Scaling group. The left sidebar lists various AWS services like EC2 Dashboard, Instances, and Security Groups. The main panel is titled 'Configure settings' and includes several optional steps:

- Step 3 (optional): Configure advanced options** (highlighted by a red circle)
 - Load balancing - optional**: A checkbox labeled 'Enable load balancing' is checked, and the 'Application Load Balancer or Network Load Balancer' option is selected.
- Step 4 (optional): Configure group size and scaling policies**
- Step 5 (optional): Add notifications**
- Step 6 (optional): Add tags**
- Step 7: Review**

Below these steps are sections for 'Health checks - optional' and 'Additional settings - optional'. The 'Health checks' section includes a 'Health check type' dropdown set to 'EC2', a 'Health check grace period' input set to '300 seconds', and a note about EC2 Auto Scaling replacing failed instances. The 'Additional settings' section includes a 'Monitoring' section with a checkbox for 'Enable group metrics collection within CloudWatch'.

At the bottom right, there are buttons for 'Cancel', 'Previous', 'Skip to review', and a large orange 'Next' button. Red circles highlight three specific areas:

- A red circle around the 'Enable load balancing' checkbox and its description.
- A red circle around the 'group-dan' target group selection field and its description.
- A red circle around the 'Next' button at the bottom right.

Creation of an auto scaling group

Initially one instance
Minimum one instance
Maximum 2 instances

configure group size and scaling policies [Info](#)

Specify the size of the Auto Scaling group by changing the desired capacity. You can also specify minimum and maximum capacity limits. Your desired capacity must be within the limit range.

Desired capacity: 1

Minimum capacity: 1

Maximum capacity: 2

Scaling policies - optional

Choose whether to use a scaling policy to dynamically resize your Auto Scaling group to meet changes in demand. [Info](#)

Target tracking scaling policy
Choose a desired outcome and leave it to the scaling policy to add and remove capacity as needed to achieve that outcome.

None

EC2 Management Console - Mozilla Firefox
EC2 Management Console | EC2 Management Console | TP Cloud EC2
https://eu-west-3.console.aws.amazon.com/ec2autoscaling/home?region=eu-
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Services | EC2 | Auto Scaling groups | Create Auto Scaling group
EC2 Dashboard | New
Events | New
Tags
Limits
INSTANCES
Instances
Instance Types
Launch Templates
Spot Requests
Savings Plans
Reserved Instances
Dedicated Hosts | New
Scheduled Instances
Capacity Reservations
IMAGES
AMIs
ELASTIC BLOCK STORE
Volumes
Snapshots
Lifecycle Manager
NETWORK & SECURITY
Security Groups | New
Elastic IPs | New
Placement Groups | New
Key Pairs | New
Feedback English (US) ⓘ
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Creation of an auto scaling group

The screenshot shows the AWS EC2 Management Console interface for creating an Auto Scaling group. On the left, there's a sidebar with various AWS services like EC2 Dashboard, Instances, Images, and Network & Security. The main area is titled 'Step 7: Review' and contains two sections: 'Scaling policies - optional' and 'Instance scale-in protection - optional'. In the scaling policies section, a radio button is selected for 'Target tracking scaling policy', and the target value is set to 50. A large red oval encircles this entire section, with the text 'Add an instance if the CPU load is higher than 50 %' overlaid. At the bottom right, there are 'Cancel', 'Previous', 'Skip to review', and a prominent orange 'Next' button.

Scaling policies - optional

Choose whether to use a scaling policy to dynamically resize your Auto Scaling group to meet changes in demand. [Info](#)

Target tracking scaling policy
Choose a desired outcome and leave it to the scaling policy to add and remove capacity as needed to achieve that outcome.

None

Scaling policy name
Target Tracking Policy

Metric type
Average CPU utilization

Target value
50

Instances need 300 seconds warm up before including in metric

Disable scale in to create only a scale-out policy

Instance scale-in protection - optional

Instance scale-in protection
If protect from scale in is enabled, newly launched instances will be protected from scale in by default.

Enable Instance scale-in protection

Cancel Previous Skip to review **Next**

Creation of an auto scaling group

The screenshot shows the EC2 Management Console in Mozilla Firefox. The URL is <https://eu-west-3.console.aws.amazon.com/ec2autoscaling/home?region=eu>. The browser tabs show "EC2 Management Console" and "TP Cloud EC2". The sidebar on the left includes sections for New EC2 Experience, EC2 Dashboard, Events, Tags, Limits, Instances (with sub-options like Instances, Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances), Dedicated Hosts, Scheduled Instances, Capacity Reservations, AMIs, and Elastic Block Store (with sub-options like Volumes, Snapshots, Lifecycle Manager). The main content area shows the "Create Auto Scaling group" wizard. Step 1: Choose launch template or configuration (selected). Step 2: Configure settings. Step 3 (optional): Configure advanced options. Step 4 (optional): Configure group size and scaling policies. The "Review" step shows the following details:

- Group details:** Auto Scaling group name: scaling-group-dan.
- Launch configuration:** scaling-dan [Edit]

The "Notifications" section indicates "No notifications".

The "Step 6: Add tags" section shows a table with one row: "No tags".

A red circle highlights the "Create Auto Scaling group" button at the bottom right of the page.

Creation of an auto scaling group

Instances | EC2 Management Console - Mozilla Firefox

EC2 Management Console Instances | EC2 Management TP Cloud EC2 https://eu-west-3.console.aws.amazon.com/ec2/v2/home?region=eu-west-3# 90% Daniel Hagimont Paris Support

New EC2 Experience Limits INSTANCES Instances Instance Types Launch Templates Spot Requests Savings Plans Reserved Instances Dedicated Hosts Capacity Reservations IMAGES AMIs ELASTIC BLOCK STORE Volumes Snapshots Lifecycle Manager NETWORK & SECURITY Security Groups Elastic IPs Placement Groups Key Pairs Network Interfaces LOAD BALANCING Load Balancers Target Groups AUTO SCALING Launch Configurations Auto Scaling Groups

Create target group Actions

Filter by tags and attributes or search by keyword

Name	Actions	Port	Protocol	Target type	Load Balancer	VPC ID	Monitoring
group-dan		80	HTTP	instance	lb-dan	vpc-9ac8cef3	

A new instance was created in the target group

Description Targets Health checks Monitoring Tags

The load balancer starts routing requests to a newly registered target. If demand on your targets increases, you can register additional targets. If demand on your targets decreases, you can deregister targets.

Edit

None of these Availability Zones contain a healthy target. Requests are being routed to all targets.

Registered targets

Instance ID	Name	Port	Availability Zone	Status	Description
i-0ecc640be816c011f		80	eu-west-3a	initial	Target registration is in progress

Availability Zones

Availability Zone	Target count	Healthy?
eu-west-3a	1	No (Availability Zone contains no healthy targets)

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Creation of an auto scaling group

We can see this instance here

Instances | EC2 Management Console - Mozilla Firefox

EC2 Management Console Instances | EC2 Management Console TP Cloud EC2

https://eu-west-3.console.aws.amazon.com/ec2/v2/home?region=eu-west-3#

New EC2 Experience Learn more

Services ▾

Limits

INSTANCES Instances

Instance Types

Launch Templates

Spot Requests

Savings Plans

Reserved Instances

Dedicated Hosts

Capacity Reservations

IMAGES AMIs

ELASTIC BLOCK STORE Volumes Snapshots Lifecycle Manager

NETWORK & SECURITY Security Groups Elastic IPs Placement Groups Key Pairs Network Interfaces

LOAD BALANCING Load Balancers Target Groups

AUTO SCALING Launch Configurations Auto Scaling Groups

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

i-0ecc640be816c011f t2.micro eu-west-3a running 2/2 checks ... None ec2-35-180-199-18.eu-west-3.compute.amazonaws.com 35.11

Instance: i-0ecc640be816c011f Public DNS: ec2-35-180-199-18.eu-west-3.compute.amazonaws.com

Description Status Checks Monitoring Tags

Instance ID	i-0ecc640be816c011f	Public DNS	ec2-35-180-199-18.eu-west-3.compute.amazonaws.com
Instance state	running	IPv4 Public IP	35.180.199.18
Instance type	t2.micro	IPv6 IPs	-
Finding	Opt-in to AWS Compute Optimizer for recommendations. Learn more	Elastic IPs	-
Private DNS	ip-172-31-15-43.eu-west-3.compute.internal	Availability zone	eu-west-3a
Private IPs	172.31.15.43	Security groups	sec-grp-dan, view inbound rules, view outbound rules
Secondary private IPs	VPC ID	Scheduled events	No scheduled events
	vpc-9ac8cef3	AMI ID	image-dan (ami-00a878e1af4de5cb3)
Platform	Other Linux	Subnet ID	subnet-11d5f878
Platform details	Linux/UNIX	Network interfaces	eth0
Usage operation	RunInstances	IAM role	-
Source/dest. check	True	Key pair name	key-dan

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Creation of an auto scaling group

Screenshot of the AWS EC2 Management Console showing the creation of a Load Balancer.

The left sidebar shows the navigation menu:

- New EC2 Experience
- Limits
- INSTANCES
 - Instances
 - Instance Types
 - Launch Templates
 - Spot Requests
 - Savings Plans
 - Reserved Instances
 - Dedicated Hosts
 - Capacity Reservations
- IMAGES
 - AMIs
- ELASTIC BLOCK STORE
 - Volumes
 - Snapshots
 - Lifecycle Manager
- NETWORK & SECURITY
 - Security Groups
 - Elastic IPs
 - Placement Groups
 - Key Pairs
 - Network Interfaces
- LOAD BALANCING
 - Load Balancers** (highlighted with a red circle)
 - Target Groups
- AUTO SCALING
 - Launch Configurations
 - Auto Scaling Groups

The main content area shows the "Create Load Balancer" page. A table lists existing load balancers:

Name	DNS name	State	VPC ID	Availability Zones	Type
lb-dan	lb-dan-1909086986.eu-west-3.elb.amazonaws.com	active	vpc-9ac8cef3	eu-west-3a, eu-west-3c...	application

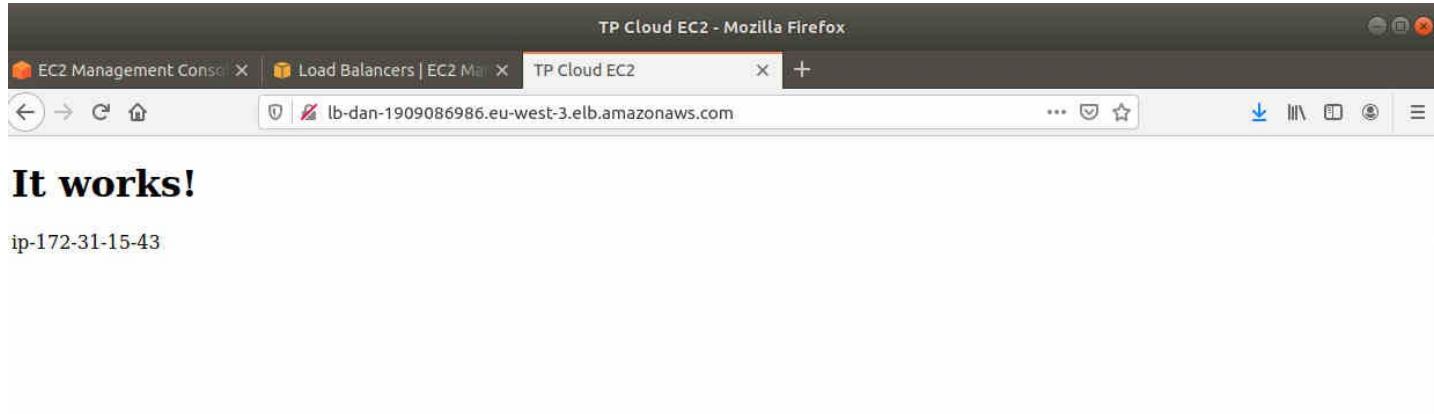
The "Basic Configuration" section for the load balancer "lb-dan" is displayed. A red circle highlights the "DNS name" field, which contains the value "lb-dan-1909086986.eu-west-3.elb.amazonaws.com". A red callout points to this field with the text "Address of the load balancer".

Other configuration details shown in the "Basic Configuration" section include:

- Name: lb-dan
- ARN: arn:aws:elasticloadbalancing:eu-west-3:35144097:loadbalancer/lb-dan/4c2de857f81d0ac0
- DNS name: lb-dan-1909086986.eu-west-3.elb.amazonaws.com (A Record)
- State: active
- Type: application
- Scheme: internet-facing
- IP address type: ipv4
- VPC: vpc-9ac8cef3
- Availability Zones:
 - subnet-11d5f878 - eu-west-3a (IPv4 address: Assigned by AWS)
 - subnet-1771f85a - eu-west-3c (IPv4 address: Assigned by AWS)

At the bottom of the page, there are links for Feedback, English (US), Privacy Policy, and Terms of Use.

The load balancer relays the requests



You can reload many times the page,
it's always the same IP address

Overloading the application

The screenshot shows the AWS EC2 Management Console interface. A red circle highlights the 'Instances' tab in the left sidebar. Another red circle highlights the status bar at the top right of the main window, which shows '1 to 1 of 1'. A large red oval encloses the text 'A single active instance'.

A single active instance

The main pane displays a table of instances. One instance is selected, highlighted by a red circle. The details for this instance are shown in a larger view below:

Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	Public DNS (IPv4)	IPv4
	i-0ecc640be816c011f	t2.micro	eu-west-3a	running	2/2 checks	None	ec2-35-180-199-18.eu...	35.18...

The detailed view for the selected instance (i-0ecc640be816c011f) includes the following information:

Public DNS (IPv4)	ec2-35-180-199-18.eu-west-3.compute.amazonaws.com
Private DNS	ip-172-31-15-43.eu-west-3.compute.internal
Private IPs	172.31.15.43
VPC ID	vpc-9ac8cef3
Platform	Other Linux
Image details	Linux/UNIX
Run operation	RunInstances
Dest. check	True

On the left, a terminal window shows a user logging into the instance and running the 'yes' command:

```
ubuntu@ip-172-31-40-151:~$ ssh -t key-dan.pem ubuntu@ec2-35-180-100-161.eu-west-3.compute.amazonaws.com
The authenticity of host 'ec2-35-180-100-161.eu-west-3.compute.amazonaws.com (35.180.100.161)' can't be established.
ED25519 key fingerprint is SHA256:LbBXUzCGhxyod2Jqkcl6CVmF3WN/dftmkj+gsWduvZA.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added 'ec2-35-180-100-161.eu-west-3.compute.amazonaws.com,35.180.100.161' (ECDSA) to the list of known hosts.
Welcome to Ubuntu 18.04.2 LTS (GNU/Linux 4.15.0-1025-aws x86_64)

 * Documentation:  https://help.ubuntu.com/
 * Support:        https://ubuntu.com/ubuntu-support
 * Bug reports:   https://ubuntu.com/ubuntu-bugs
 * Subscribing to: https://ubuntu.com/ubuntu-news

System load: 0.0 Usage of /: 16.2% of 7.69GB Memory usage: 15% Swap usage: 0%
Get cloud support with Ubuntu Edge Cloud Guest: http://www.ubuntu.com/business-edition/cloud
103 packages can be updated. 38 updates are security updates
Last login: Mon Nov 12 12:59:13 2018 from 185.44.228.103
ubuntu@ip-172-31-40-151:~$ yes
```

We log in the instance and run the yes program

Auto scaling

Instances | EC2 Management Console - Mozilla Firefox

EC2 Management Console Instances | EC2 Management TP Cloud EC2

https://eu-west-3.console.aws.amazon.com/ec2/v2/home?region=eu-west-3#

New EC2 Experience

Launch Instance Connect Actions

Limits

INSTANCES Instances

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

AMIs

ELASTIC BLOCK STORE Volumes Snapshots Lifecycle Manager

NETWORK & SECURITY Security Groups Elastic IPs Placement Groups Key Pairs Network Interfaces

LOAD BALANCING Load Balancers Target Groups

AUTO SCALING Launch Configurations

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
	i-0b876eaf24725b75c	t2.micro	eu-west-3a	running	Initializing	None	ec2-35-237-117-78.eu...	15.2
	i-0eccb6400e610cc11	ami-0f3a2a2a2a2a2a2a2	eu-west-3a	running	ok	None	ec2-35-180-199-18.eu...	35.1

Select an instance

A second instance was created
NB: with free instances, 5 minutes latency

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Auto scaling

Target Groups | EC2 Management Console - Mozilla Firefox

EC2 Management Console Target Groups | EC2 Management Console TP Cloud EC2

https://eu-west-3.console.aws.amazon.com/ec2/v2/home?region=eu-west-3#

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Limits

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

AMIs

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LOAD BALANCING Load Balancers Target Groups AUTO SCALING Launch Configurations

Create target group Actions

Filter by tags and attributes or search by keyword

Name	Port	Protocol	Target type	Load Balancer	VPC ID	Monitoring
group-dan	80	HTTP	instance	lb-dan	vpc-9ac8cef3	

Target group: group-dan

It was added in the target group

The load balancer starts routing requests to your targets as soon as the registration process completes and the target passes the initial health checks. If demand on your targets increases, you can register additional targets. If demand on your targets decreases, you can deregister targets.

Edit

Registered targets

Instance ID	Name	Port	Availability Zone	Status	Description
i-0b876eaf24725b75c		80	eu-west-3a	healthy	This target is currently passing target group's health checks.

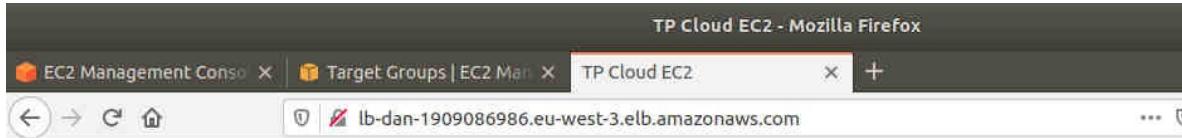
Availability Zones

Availability Zone	Target count	Healthy?
eu-west-3a	2	Yes

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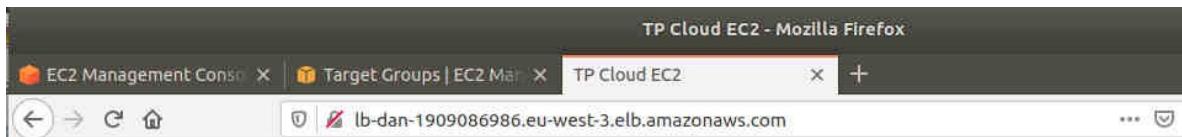
Load balancing between the 2 instances

You can reload many times the page, you should have different IP addresses, i.e. the load is balanced between the 2 instances



It works!

ip-172-31-4-100



It works!

ip-172-31-15-43

Down scaling

Instances | EC2 Management Console - Mozilla Firefox

Instances | EC2 Manager TP Cloud EC2

https://eu-west-3.console.aws.amazon.com/ec2/v2/home?region=eu-west-3#

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Launch Instance Connect Actions

Filter by tags and attributes or search by keyword

Instances

Instance ID Instance Type Availability Zone Instance State Status Checks Alarm Status Public DNS (IPv4) IPv4

Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	Public DNS (IPv4)	IPv4
	i-0b876ea12472f5d	t2.micro	eu-west-3a	running	green	None	ec2-15-237-117-78.eu...	15.2...
	i-0ecc640be816c011f	t2.micro	eu-west-3a	terminated	red	None	ec2-15-237-117-78.eu...	15.2...

ubuntu@ip-172-31-40-151:~

Fichier Édition Affichage Rechercher Terminal Aide

hagimont@hagimont-pc:~/Téléchargements\$ ssh -t key-dan.pem ubuntu@ec2-35-180-100-161.eu-west-3.compute.amazonaws.com

The authenticity of host 'ec2-35-180-100-161.eu-west-3.compute.amazonaws.com (35.180.100.161)' can't be established.

EDSA key fingerprint is SHA256:LbBXUzCGHxyod2Jqkci6CVmF3WN/dftmkj+gsWduvZA.

Are you sure you want to continue connecting (yes/no)? yes

Warning: Permanently added 'ec2-35-180-100-161.eu-west-3.compute.amazonaws.com,35.180.100.161' (ECDSA) to the list of known hosts.

Welcome to Ubuntu 18.04.1 LTS (GNU/Linux 4.15.0-1025-aws x86_64)

* Documentation

* Internet

* System

System load: 0.0 Usage of /: 16.2% of 7.69GB Memory usage: 15% Swap usage: 0%

Get cloud support with Ubuntu Edge Cloud Guest: http://www.ubuntu.com/business/

103 packages can be updated. 38 updates are security update

Last login: Mon Nov 12 12:59:13 2018 from 185.44.228.103

We stop the yes program

An instance was terminated
NB: with free instances, 10 minutes latency

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