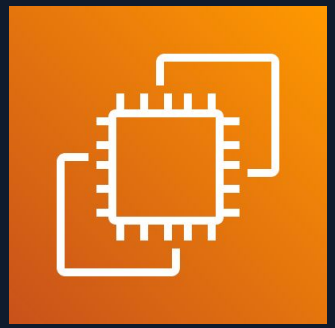
Amazon EC2

Elastic Compute Cloud



Exemplo prático - Criação de um servidor Web

O que é o Amazon EC2?

O EC2 (Elastic Compute Cloud) é o serviço de computação da AWS que fornece servidores virtuais redimensionáveis na nuvem. Permite criar, configurar e gerenciar instâncias sob demanda, pagando apenas pelo que usar.

Escalabilidade

Aumenta ou diminui recursos conforme a demanda

Flexibilidade

Escolha SO, CPU, RAM e armazenamento

Pay-as-you-go

Pague apenas pelo tempo de uso das instâncias

AMI - Amazon Machine Image

Uma AMI é um template pré-configurado que contém o sistema operacional, aplicações e configurações necessárias para lançar uma instância EC2.

Tipos de AMI

Amazon Linux 2023, Ubuntu, Windows Server, Red Hat, SUSE, Debian, Custom AMIs

Componentes

Root volume template, permissões de lançamento, mapeamento de block device

AMIs Personalizadas

Crie suas próprias AMIs a partir de instâncias já configuradas para replicar ambientes

Marketplace

AMIs prontas da comunidade e vendors com software pré-instalado (ex: WordPress, Jenkins)

Famílias de Instância

Cada família é otimizada para um tipo de workload específico

T	**General Purpose** *t3.micro, t3.medium*	Uso geral, burstable. Ideal para dev/test e apps leves.
M	**General Purpose** *m6i.large, m7g.xlarge*	Balanceamento entre CPU, memória e rede.
C	**Compute Optimized** *c6i.xlarge, c7g.2xlarge*	Alto desempenho de CPU para processamento intensivo.
R	**Memory Optimized** *r6i.large, r7g.xlarge*	Grande capacidade de memória RAM para bancos de dados.
I/D	**Storage Optimized** *i3.large, d3.xlarge*	I/O de disco elevado para data warehouses e NoSQL.

Subnets (Sub-redes)

As subnets definem onde a instância EC2 será executada dentro da VPC

Subnet Pública

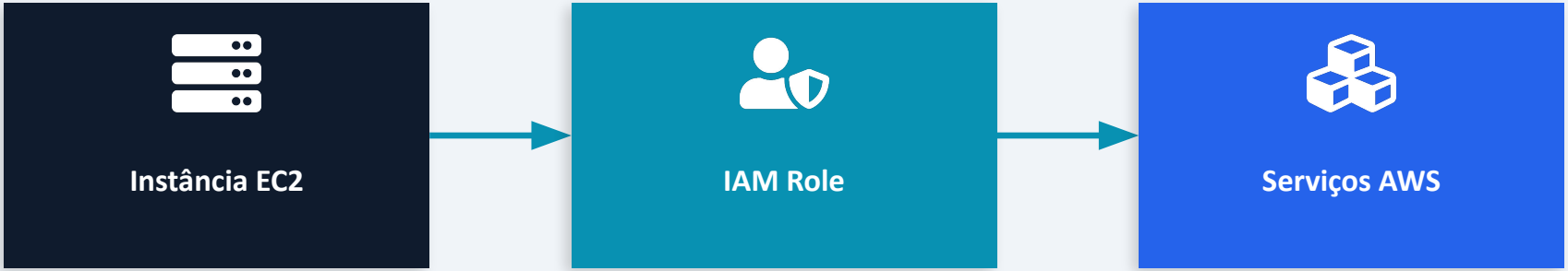
- Acesso direto à Internet via Internet Gateway
- IP público atribuído automaticamente
- Ideal para: Load Balancers, bastion hosts, web servers
- Route table aponta 0.0.0.0/0 para o IGW

Subnet Privada

- Sem acesso direto à Internet
- Usa NAT Gateway para saída controlada
- Ideal para: bancos de dados, back-end, serviços internos
- Maior segurança por isolamento de rede

IAM Role (Function Role)

Permissões que a instância EC2 assume para acessar outros serviços AWS de forma segura, sem necessidade de credenciais hard-coded.



Instance Profile

Conecta a IAM Role à instância EC2 automaticamente

Princípio do Menor Privilégio

Conceda apenas as permissões estritamente necessárias

Sem Chaves Hard-coded

A Role fornece credenciais temporárias via STS

Volume EBS

Elastic Block Store — armazenamento persistente em bloco para instâncias EC2

gp3	**General Purpose SSD**	Até 16.000 IOPS	Uso geral, boot volumes
io2	**Provisioned IOPS SSD**	Até 64.000 IOPS	Bancos de dados críticos
st1	**Throughput Optimized HDD**	Até 500 MB/s	Big data, logs, streaming
sc1	**Cold HDD**	Até 250 MB/s	Dados acessados raramente

Snapshots permitem backup incremental dos volumes para o S3

User Data

Script executado automaticamente na primeira inicialização da instância EC2

user-data.sh

```
#!/bin/bash
yum update -y
yum install -y httpd
systemctl start httpd
systemctl enable httpd
echo "Hello from EC2" > \
  /var/www/html/index.html
```

Casos de Uso

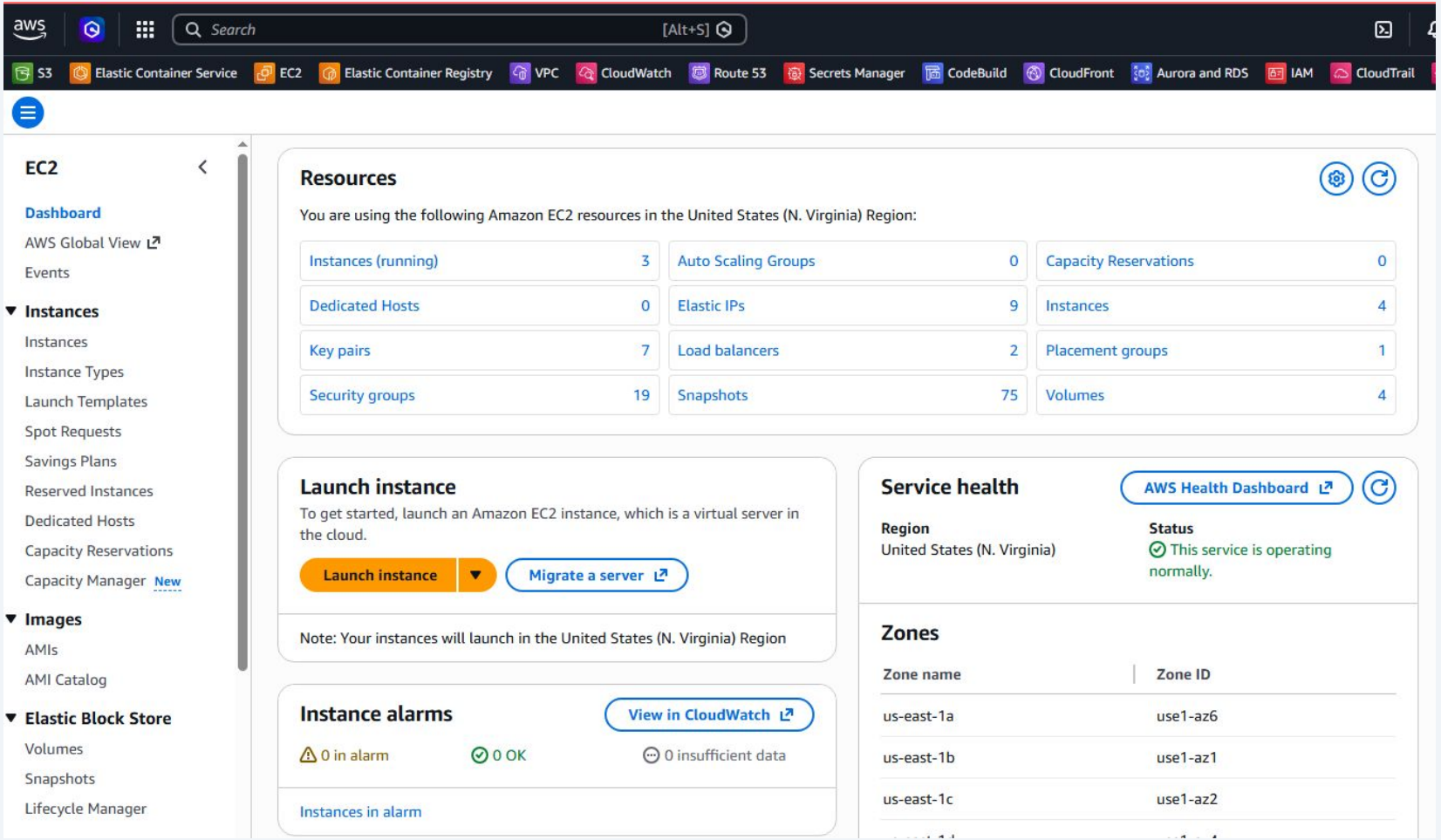
Bootstrap
Instalar pacotes e dependências

Configuração
Definir variáveis de ambiente e configs

Deploy
Baixar e iniciar a aplicação

Monitoramento
Configurar CloudWatch Agent e logs

Dica: User Data é executado como root. Use logs em /var/log/cloud-init-output.log para debug.


aws
Search
[Alt+S]
S3
Elastic Container Service
EC2
Elastic Container Registry
VPC
CloudWatch
Route 53
Secrets Manager
CodeBuild
CloudFront
Aurora and RDS
IAM
CloudTrail
EC2
Dashboard
AWS Global View
Events
Instances
Instances
Instance Types
Launch Templates
Spot Requests
Savings Plans
Reserved Instances
Dedicated Hosts
Capacity Reservations
Capacity Manager New
Images
AMIs
AMI Catalog
Elastic Block Store
Volumes
Snapshots
Lifecycle Manager
Resources
You are using the following Amazon EC2 resources in the United States (N. Virginia) Region:
Instances (running) 3
Auto Scaling Groups 0
Capacity Reservations 0
Dedicated Hosts 0
Elastic IPs 9
Instances 4
Key pairs 7
Load balancers 2
Placement groups 1
Security groups 19
Snapshots 75
Volumes 4
Launch instance
To get started, launch an Amazon EC2 instance, which is a virtual server in the cloud.
Launch instance
Migrate a server
Note: Your instances will launch in the United States (N. Virginia) Region
Instance alarms
View in CloudWatch
0 in alarm
0 OK
0 insufficient data
Instances in alarm
Service health
AWS Health Dashboard
Region
United States (N. Virginia)
Status
This service is operating normally.
Zones
Zone name
Zone ID
us-east-1a
use1-az6
us-east-1b
use1-az1
us-east-1c
use1-az2

Launch an instance Info

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

Name and tags Info

Name

Minha_EC2

Add additional tags

Application and OS Images (Amazon Machine Image) Info

An AMI contains the operating system, application server, and applications for your instance. If you don't see a suitable AMI below, use the search field or choose **Browse more AMIs**.

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

Recents | My AMIs | Quick Start

Amazon Linux | macOS | Ubuntu | Windows | Red Hat | SUSE Linux | Debian

Browse more AMIs

Including AMIs from AWS, Marketplace and the Community

Amazon Machine Image (AMI)

Amazon Linux 2023 kernel-6.1 AMI — Free tier eligible

ami-02dfbd4ff395f2a1b (64-bit (x86), uefi-preferred) / ami-0b11e0ed3f8697f97 (64-bit (Arm), uefi)

Virtualization: hvm ENA enabled: true Root device type: ebs

Description

Amazon Linux 2023 (kernel-6.1) is a modern, general purpose Linux-based OS that comes with 5 years of long term support. It is optimized for AWS and designed

Summary

Number of instances Info

1

Software Image (AMI)

Amazon Linux 2023 AMI 2023.10....read more

ami-02dfbd4ff395f2a1b

Virtual server type (instance type)

t3.micro

Firewall (security group)

New security group

Storage (volumes)

1 volume(s) - 8 GiB

Free tier: In your first year of opening an AWS account, you get 750 hours per month of t2.micro instance usage (or t3.micro where t2.micro isn't available) when used with free tier AMIs, 750 hours per month of public IPv4 address usage, 30 GiB of EBS storage, 2 million I/Os, 1 GB of snapshots, and 100 GB of bandwidth to the internet. Data transfer charges are not included as part of the free tier allowance. Charges may apply depending on your account's free tier status.

Cancel

Launch instance

Preview code

Instance type Info | Get advice

Instance type

t3.micro — Free tier eligible

Family: t3 2 vCPU 1 GiB Memory Current generation: true On-Demand RHEL base pricing: 0.0392 USD per Hour
On-Demand Ubuntu Pro base pricing: 0.0139 USD per Hour On-Demand Windows base pricing: 0.0196 USD per Hour
On-Demand SUSE base pricing: 0.0104 USD per Hour On-Demand Linux base pricing: 0.0104 USD per Hour

All generations

Compare instance types

Additional costs apply for AMIs with pre-installed software

Key pair (login) Info

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

Key pair name - *required*

Select

Create new key pair

Network settings Info

Edit

Network | Info

vpc-04913258f3f289551 | futura-jenkins-vpc-cicd-dev

Subnet | Info

subnet-0f2d9f09169564bef | futura-jenkins-pub-subnet-cicd-1-dev

Subnet | Info

subnet-0f2d9f09169564bef | futura-jenkins-pub-subnet-cicd-1-dev

Auto-assign public IP | Info

Enable

Firewall (security groups) | Info

A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.

- (•) Create security group
- ( ) Select existing security group

We'll create a new security group called '**launch-wizard-1**' with the following rules:

- [x] Allow SSH traffic from — Helps you connect to your instance — Anywhere 0.0.0.0/0
- [ ] Allow HTTPS traffic from the internet — To set up an endpoint, for example when creating a web server
- [ ] Allow HTTP traffic from the internet — To set up an endpoint, for example when creating a web server

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

▼ Configure storage Info

Advanced

1x 8 GiB gp3 Root volume, 3000 IOPS, Not encrypted

Allow tags in metadata | Info

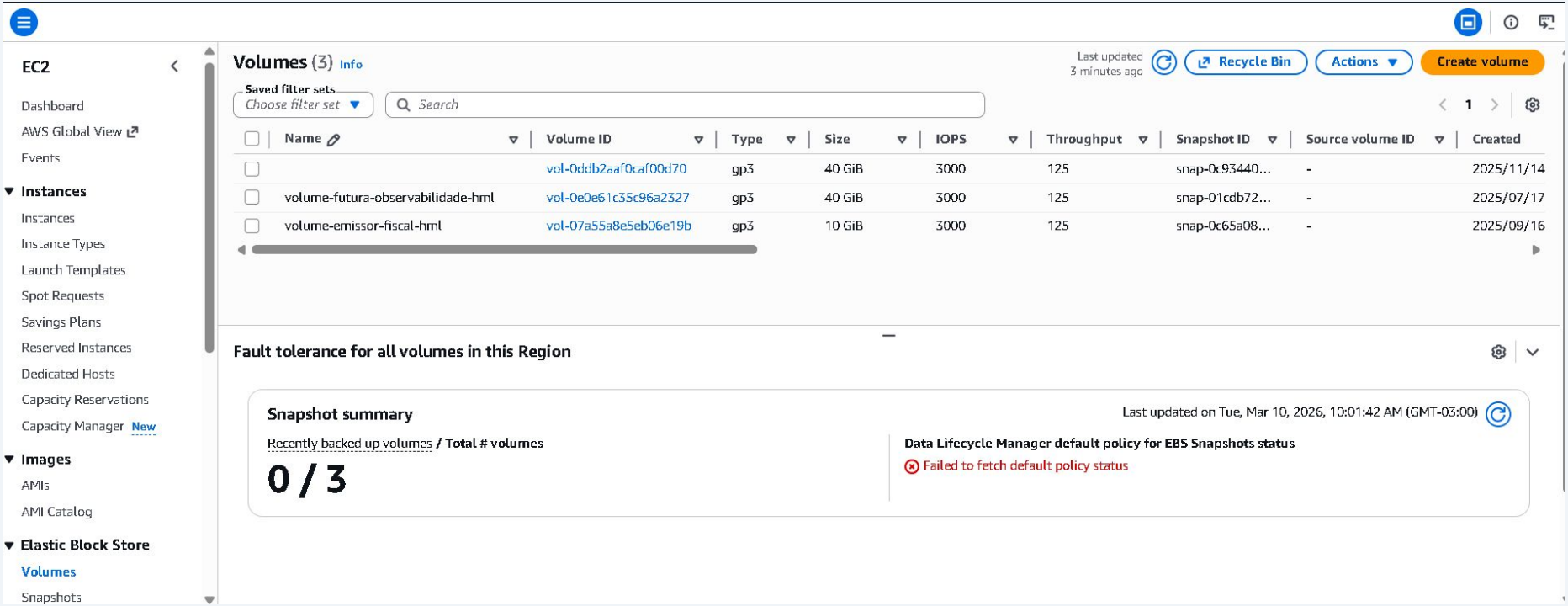
Select

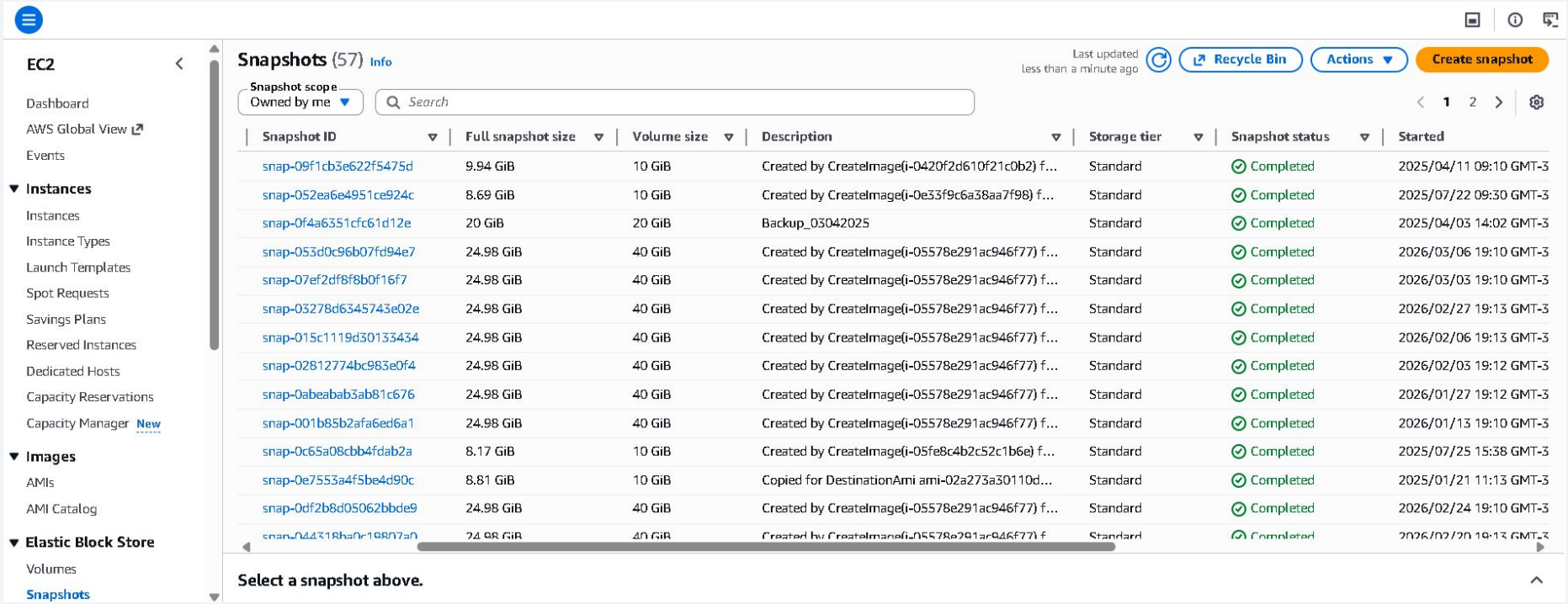
User data - *optional* | Info

Upload a file with your user data or enter it in the field.

Choose file

User data has already been base64 encoded


EC2
Dashboard
AWS Global View
Events
Instances
Instances
Instance Types
Launch Templates
Spot Requests
Savings Plans
Reserved Instances
Dedicated Hosts
Capacity Reservations
Capacity Manager New
Images
AMIs
AMI Catalog
Elastic Block Store
Volumes
Snapshots
Volumes (3) Info
Last updated 3 minutes ago
Recycle Bin
Actions
Create volume
Saved filter sets
Choose filter set
Search
1
Name
Volume ID
Type
Size
IOPS
Throughput
Snapshot ID
Source volume ID
Created
vol-0ddb2aaf0caf00d70 gp3 40 GiB 3000 125 snap-0c93440... - 2025/11/14
volume-futura-observabilidade-hml vol-0e0e61c35c96a2327 gp3 40 GiB 3000 125 snap-01cdb72... - 2025/07/17
volume-emissor-fiscal-hml vol-07a55a8e5eb06e19b gp3 10 GiB 3000 125 snap-0c65a08... - 2025/09/16
Fault tolerance for all volumes in this Region
Snapshot summary
Last updated on Tue, Mar 10, 2026, 10:01:42 AM (GMT-03:00)
Recently backed up volumes / Total # volumes
0 / 3
Data Lifecycle Manager default policy for EBS Snapshots status
Failed to fetch default policy status


EC2
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Instances
Instance Types
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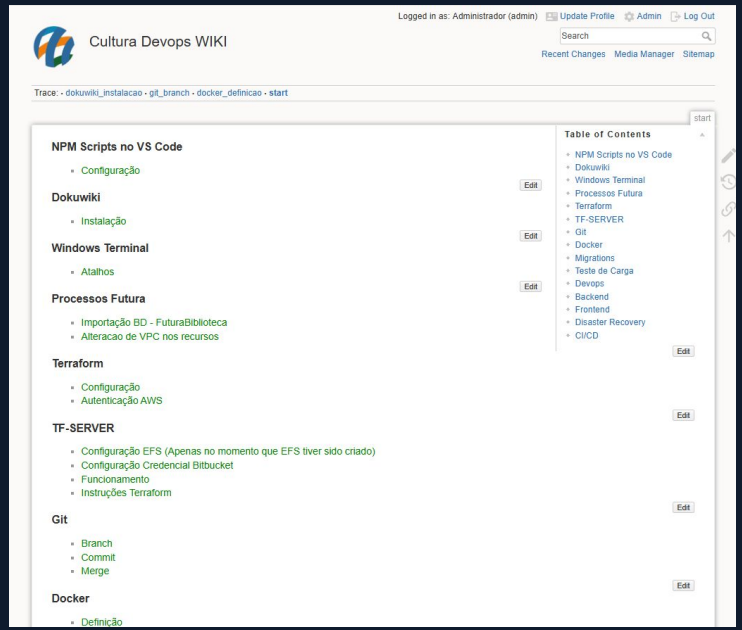
Spot Requests
Savings Plans
Reserved Instances
Dedicated Hosts
Capacity Reservations
Capacity Manager New
Images
AMIs
AMI Catalog
Elastic Block Store
Volumes
Snapshots
Snapshots (57) Info
Last updated less than a minute ago
Recycle Bin
Actions
Create snapshot
Snapshot scope
Owned by me
Search
1 2
Snapshot ID | Full snapshot size | Volume size | Description | Storage tier | Snapshot status | Started
snap-09f1cb3e622f5475d | 9.94 GiB | 10 GiB | Created by CreateImage(i-0420f2d610f21c0b2) f... | Standard | Completed | 2025/04/11 09:10 GMT-3
snap-052ea6e4951ce924c | 8.69 GiB | 10 GiB | Created by CreateImage(i-0e33f9c6a38aa7f98) f... | Standard | Completed | 2025/07/22 09:30 GMT-3
snap-0f4a6351cfc61d12e | 20 GiB | 20 GiB | Backup_03042025 | Standard | Completed | 2025/04/03 14:02 GMT-3
snap-053d0c96b07fd94e7 | 24.98 GiB | 40 GiB | Created by CreateImage(i-05578e291ac946f77) f... | Standard | Completed | 2026/03/06 19:10 GMT-3
snap-07ef2df8f8b0f16f7 | 24.98 GiB | 40 GiB | Created by CreateImage(i-05578e291ac946f77) f... | Standard | Completed | 2026/03/03 19:10 GMT-3
snap-03278d6345743e02e | 24.98 GiB | 40 GiB | Created by CreateImage(i-05578e291ac946f77) f... | Standard | Completed | 2026/02/27 19:13 GMT-3
snap-015c1119d30133434 | 24.98 GiB | 40 GiB | Created by CreateImage(i-05578e291ac946f77) f... | Standard | Completed | 2026/02/06 19:13 GMT-3
snap-02812774bc983e0f4 | 24.98 GiB | 40 GiB | Created by CreateImage(i-05578e291ac946f77) f... | Standard | Completed | 2026/02/03 19:12 GMT-3
snap-0abeabab3ab81c676 | 24.98 GiB | 40 GiB | Created by CreateImage(i-05578e291ac946f77) f... | Standard | Completed | 2026/01/27 19:12 GMT-3
snap-001b85b2afa6ed6a1 | 24.98 GiB | 40 GiB | Created by CreateImage(i-05578e291ac946f77) f... | Standard | Completed | 2026/01/13 19:10 GMT-3
snap-0c65a08cbb4fdab2a | 8.17 GiB | 10 GiB | Created by CreateImage(i-05fe8c4b2c52c1b6e) f... | Standard | Completed | 2025/07/25 15:38 GMT-3
snap-0e7553a4f5be4d90c | 8.81 GiB | 10 GiB | Copied for DestinationAmi ami-02a273a30110d... | Standard | Completed | 2025/01/21 11:13 GMT-3
snap-0df2b8d05062bbde9 | 24.98 GiB | 40 GiB | Created by CreateImage(i-05578e291ac946f77) f... | Standard | Completed | 2026/02/24 19:10 GMT-3
Select a snapshot above.

Demonstração

Criação de instância para servir página web php + nginx na porta 80 com acesso SSH para IPs específicos



[Download script userdata]

[Vídeo Demonstração]

Obrigado!

Alguma sugestão?
Alguma dúvida?