



# DEVOPS AVANÇADO

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Cássio Trindade - Aula 02

# Professores

## CÁSSIO TRINDADE

Professor Convidado

Profissional da área de TI, trabalhando há mais de uma década com a formação de profissionais, dando aulas no Instituto Federal do Rio Grande do Sul, na Faculdade Dom Bosco, Universidade Luterana do Brasil (ULBRA), Pontifícia Universidade Católica do RS (PUCRS) e na TargetTrust. Atualmente atuando como Arquiteto de Software na PUCRS, sendo responsável pela condução e elaboração de mais de 90 projetos diretamente com alunos do curso de Engenharia de Software, trabalhando com as mais variadas tecnologias. Mais de 30 anos de experiência nas áreas de desenvolvimento de software, aplicativos para celulares e sistemas corporativos e para internet desde projetos de e-commerce para o Sonae Portugal e site de classificados digitais do Grupo RBS a dezenas de aplicativos mobiles.

## MARCELO VEIGA NEVES

Professor PUCRS

Possui doutorado em Ciência da Computação pela Pontifícia Universidade Católica do Rio Grande do Sul (2015), mestrado em Ciência da Computação na Universidade Federal do Rio Grande do Sul (2009) e graduação em Ciência da Computação pela Universidade Federal de Santa Maria (2005). Tem experiência na área de Ciência da Computação, atuando principalmente nos seguintes temas: redes de computadores, processamento de alto desempenho e sistemas embarcados.

# Ementa da disciplina

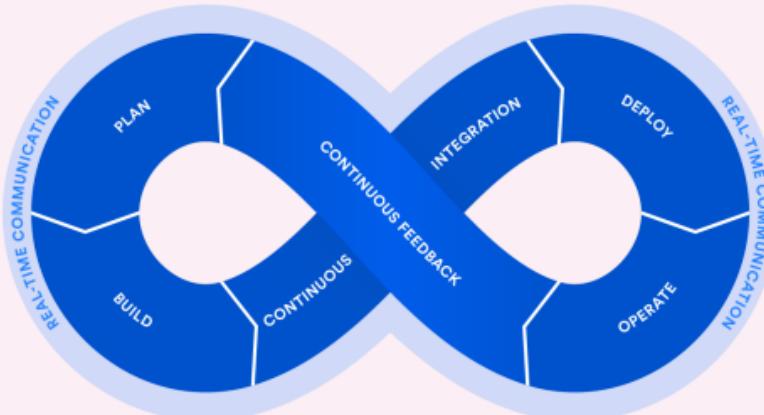
Estudo sobre entrega contínua (CD), uso de contêineres, orquestração e monitoramento. Experimentação de ferramentas: GitHub Actions, Docker Compose e Kubernetes e ferramentas de monitoração.

# DEVOPS AVANÇADO

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Cássio A. W. Trindade

# AGENDA



01

Introdução  
Planejamento  
Build /  
Construção

02

CI/CD  
Continuous  
Integration  
Continuous  
Delivery

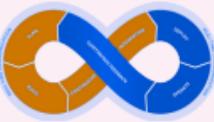
03

Deploy  
Operate /  
Operação

04

Continuous  
Feedback

# CI / CD - Conceitos



CONTAINERS



ORCHESTRATION



ECS  
Elastic Container  
Service



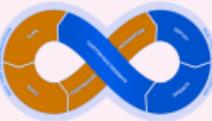
EKS  
Elastic Container  
Kubernetes



SERVERLESS



Fargate



# CI / CD - Conceitos



CONTAINERS

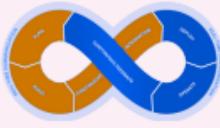


ECS

Elastic Container  
Service

The screenshot shows the AWS homepage with the large AWS logo. Below it, there are two main sections:

- Orquestração e gerenciamento de contêineres na AWS**  
Use contêineres na AWS para executar aplicações de arquitetura de microserviços, processamento em lote, implantações híbridas e machine learning.  
Amazon Web Services
- Amazon EC2 Container Service - AWS**  
O Amazon EC2 container service (EC2 ECS) permite escalar contêineres do docker com alto desempenho, e executa facilmente aplicativos em instâncias do AWS EC2. O serviço elimina a necessidade de instalar, operar e escalar sua própria infraestrutura de...



# CI / CD - Conceitos



EKS  
Elastic Container  
Kubernetes



ORCHESTRATION

## Orquestração de contêineres prontos para produção

Kubernetes (K8s) é um produto Open Source utilizado para automatizar a implantação, o dimensionamento e o gerenciamento de aplicativos em contêiner. Ele agrupa contêineres que compõem uma aplicação em unidades lógicas para facilitar o gerenciamento e a descoberta de serviço. O Kubernetes se baseia em 15 anos de experiência na execução de containers em produção no Google, combinado com as melhores ideias e práticas da comunidade.

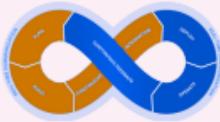
Kubernetes



## Serviço gerenciado do Kubernetes - Amazon EKS

O Amazon Elastic Kubernetes Service (EKS) é um serviço gerenciado e certificado em conformidade com o Kubernetes para executar o Kubernetes na AWS e on-premises.

Amazon Web Services



# CI / CD - Conceitos



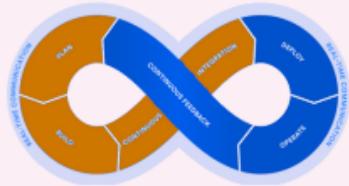
SERVERLESS

**O que é serverless?**

Serverless é um modelo de desenvolvimento nativo em nuvem para criação e execução de aplicações sem o gerenciamento de servidores.

[redhat.com](https://redhat.com)

# CI / CD - Conceitos



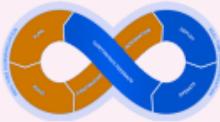
Fargate



## Mecanismo de computação sem servidor - AWS Fargate

O AWS Fargate é um mecanismo de computação sem servidor para contêineres que funciona tanto com o Amazon Elastic Container Service (ECS) quanto com o Amazon Elastic Kubernetes (EKS).

 Amazon Web Services



# LIMPAR TUDO



CodePipeline



Service  
/Task



ECR



Target  
Groups



CodeBuild



Cluster



Load  
Balancer



IAM

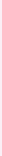


ECS



Fargate





# CodePipeline



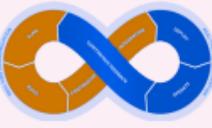
- Identificação no fluxo de cada faze (stage).
- Source: CodeCommit, GitHub, Amazon S3, etc.
- Build: CodeBuild, Jenkins
- Test:
- Deploy: AWS CodeDeploy, beanStalk, CloudFormation, ECS, etc..
- Stages (estágio):
  - Pode ter ações executadas de forma serial ou paralela
  - Exemplos de Stages: Build / Test / Deploy / Load Test...
  - Aprovação do stage pode ser habilitada para ser realizada manualmente.



# CodePipeline



- Troubleshooting.
- Qualquer alteração no CodePipeline Stage podem gerar eventos CloudWatch, que pode criar
  - Notificações SNS: Falhas no pipeline, Stages cancelados, etc.
  - Console AWS
- AWS CloudTrail pode ser usado para auditar AWS API Calls
- IAM Service Role define permissões de autorização do pipeline.

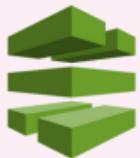


# CodePipeline - Exemplo CI



**CodeCommit**

Codigos fontes



**CodePipeline**

Stages pipeline



**ElasticBeanstalk**

Ambiente gerenciado pela AWS



Atefatos



Compute

# Amazon Elastic Beanstalk

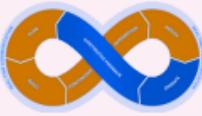
## End-to-end web application management.

Amazon Elastic Beanstalk is an easy-to-use service for deploying and scaling web applications and services developed with Java, .NET, PHP, Node.js, Python, Ruby, Go, and Docker on familiar servers such as Apache, Nginx, Passenger, and IIS.

### Get started

Easily deploy your web application in minutes.

[Create Application](#)



# CodePipeline - Exemplo CI



CodeCommit

Developer Tools > CodeCommit > Repositories

### Repositories Info

C Notify ▾ Clone URL ▾ View repository Delete repository Create repository

sample-html-tesla

Name	Description	Last modified	Clone URL
sample-html-tesla	-	54 minutes ago	<input type="checkbox"/> HTTPS <input type="checkbox"/> SSH <input type="checkbox"/> HTTPS (GRC)



# CodePipeline - Exemplo CI



CodePipeline

## Choose pipeline settings Info

### Pipeline settings

#### Pipeline name

Enter the pipeline name. You cannot edit the pipeline name after it is created.

No more than 100 characters

#### Service role

New service role

Create a service role in your account

Existing  
Choose an existing service role

#### Role name

Type your service role name

Allow AWS CodePipeline to create a service role so it can be used with this pipeline

### ▼ Advanced settings

#### Artifact store

Default location

Create a default S3 bucket in your account.

Custom location

Choose an existing S3 location from your account in the same region and account as your pipeline

#### Encryption key

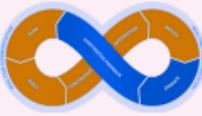
Default AWS Managed Key

Use the AWS managed customer master key for CodePipeline in your account to encrypt the data in the artifact store.

Customer Managed Key

To encrypt the data in the artifact store under an AWS KMS customer managed key, specify the key ID, key ARN, or alias ARN.

Deploy



# CodePipeline - Exemplo CI



CodePipeline

## Add source stage Info

### Source

#### Source provider

This is where you stored your input artifacts for your pipeline. Choose the provider and then provide the connection details.

AWS CodeCommit

#### Repository name

Choose a repository that you have already created where you have pushed your source code.

sample-html-tesla

#### Branch name

Choose a branch of the repository

main

#### Change detection options

Choose a detection mode to automatically start your pipeline when a change occurs in the sour

Amazon CloudWatch Events (recommended)

Use Amazon CloudWatch Events to automatically start my pipeline when a change occurs

## Add build stage Info

### Build - optional

#### Build provider

This is the tool of your build project. Provide build artifact details like operating system, build spec file, and output file names.

AWS CodeBuild

Cancel

Previous

Skip build stage

Next

#### Output artifact format

Choose the output artifact format.

CodePipeline default

AWS CodePipeline uses the default zip format for artifacts in the pipeline. Does not include git metadata about the repository.

Full clone

AWS CodePipeline passes metadata about the repository that allows subsequent actions to do a full git clone. Only supported for AWS CodeBuild actions.

Deploy



# CodePipeline - Exemplo CI

devops-pipeline-unit-test

Notificar ▾

Editar

Interromper a execução

Clonar pipeline

Lançar alteração

Source Com êxito

ID de execução do pipeline: [948b182a-beed-4b0e-a961-bdc3f1d7f318](#)

Source

AWS CodeCommit

Com êxito - Agora mesmo

42b3d3d6

42b3d3d6 Source: Primeiro commit

Desativar transição

Deploy Em andamento

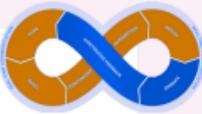
ID de execução do pipeline: [948b182a-beed-4b0e-a961-bdc3f1d7f318](#)

Deploy

AWS Elastic Beanstalk

Em andamento - Agora mesmo

42b3d3d6 Source: Primeiro commit



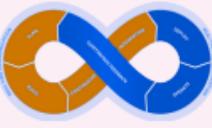
# CloudFormation



## Provisionamento de infraestrutura como código - AWS CloudFormation - AWS

O AWS CloudFormation é um serviço de infraestrutura como código (IaC) que permite facilmente modelar, provisionar e gerenciar recursos da AWS e de terceiros.

 Amazon Web Services



# CloudFormation - Exemplo Deploy



**GitHub**

Codigos fontes em: <https://github.com/cassiowt/cloudformation-demo.git>



**Jenkins**

Instalar Jenkins a partir do AWS Marketplace



Construir uma instância S3 usando o Jenkins



# CloudFormation - Exemplo Deploy



Jenkins

## Install / Config

Deploy

AWS Cost Management

# AWS Marketplace

Find, test, buy, and deploy software solutions that run on AWS

AWS Marketplace is a curated digital catalog where customers can find, test, buy, and deploy software solutions that run on AWS.

Get started

See all of your software solutions, view and manage your subscriptions, launch your software, and more.

Manage subscriptions

AWS Marketplace X

AWS Marketplace > Discover products > Search results

Manage subscriptions

Private offers

**Discover products**

Vendor Insights

Private Marketplace

Settings

Refine results

Categories

- Infrastructure Software (8250)
- DevOps (5936)
- Data Products (4016)
- Professional Services (3881)
- Business Applications (2916)
- Machine Learning (2064)
- Industries (1635)
- IoT (630)

Search AWS Marketplace products

Q. Search for any product via AWS Marketplace...

All products (Over 10000 results) showing 1 - 20

**Amazon Linux 2 AMI (HV)**  
By Amazon Web Services    
 2 AWS reviews



# CloudFormation - Exemplo CI



Jenkins

## Install / Config



### Jenkins by Cloudeya

By: [Cloudeya Limited](#) Latest Version: 0.0.1-r06 on Ubuntu 22.04

A secure Jenkins engineered and updated regularly by Cloudeya. Jenkins is an open source Continuous Integration and Continuous Delivery (CI/CD) server designed to automate the

[▼ Show more](#)

Linux/Unix

[Free Tier](#)

[Continue to Subscribe](#)

[Save to List](#)

Typical Total Price

**\$0.042/hr**

Total pricing per instance for services hosted on t3.medium in US East (N. Virginia). [View Details](#)

[Overview](#)

[Pricing](#)

[Usage](#)

[Support](#)

[Reviews](#)



# CloudFormation - Exemplo CI



Jenkins

Install / Config

Instance: i-0a8c869f2875cd32b (Jenkins\_Devops)

sg-0eeeba17a0b422af9 (sgJenkinsDevop)

Inbound rules

Name	Security group rule ID	Port range	Protocol	Source	Security groups
-	sgr-0215144fc85fe51f7	80	TCP	0.0.0.0/0	sgJenkinsDevop
-	sgr-0b43de8ad8568f24f	443	TCP	0.0.0.0/0	sgJenkinsDevop
-	sgr-00cc652a9aedfe71a	22	TCP	0.0.0.0/0	sgJenkinsDevop
-	sgr-0f2e5ecb675f5ce1f	8080	TCP	0.0.0.0/0	sgJenkinsDevop



# CloudFormation - Exemplo CI



Jenkins

## Install / Config

Instances (1/1) [Info](#)

Find instance by attribute or tag (case-sensitive)

Instance state = running [X](#) [Clear filters](#)

Name	Instance ID	Instance state	Instance type	Status check	Alarm status
Jenkins_Devops	i-0a8c869f2875cd32b	Running	t2.micro	2/2 checks passed	No alarms

Instance: i-0a8c869f2875cd32b (Jenkins\_Devops)

Details Security Networking Storage Status checks Monitoring Tags

▼ Instance summary [Info](#)

Instance ID <a href="#">i-0a8c869f2875cd32b (Jenkins_Devops)</a>	Public IPv4 address <a href="#">44.204.95.103   open address</a>	Private IPv4 addresses <a href="#">172.31.4.41</a>
IPv6 address -	Instance state <a href="#">Running</a>	Public IPv4 DNS <a href="#">ec2-44-204-95-103.compute-1.amazonaws.com   open address</a>



# CloudFormation - Exemplo CI



Jenkins

## Install / Config

Welcome to Jenkins!



user

.....

Keep me signed in

Sign in

## Getting Started

Getting Started

<input type="radio"/> Folders	<input type="radio"/> OWASP Markup Formatter	<input type="radio"/> Build Timeout	<input type="radio"/> Credentials Binding	<input type="radio"/> Pipeline: Multibranch
<input type="radio"/> Timestamper	<input type="radio"/> Workspace Cleanup	<input type="radio"/> Ant	<input type="radio"/> Gradle	<input type="radio"/> Pipeline: Stage Tags Metadata
<input type="radio"/> Pipeline	<input type="radio"/> GitHub Branch Source	<input type="radio"/> Pipeline: GitHub Groovy Libraries	<input type="radio"/> Pipeline: Stage View	<input type="radio"/> Pipeline: Declarative Pipeline
<input type="radio"/> Git	<input type="radio"/> SSH Build Agents	<input type="radio"/> Matrix Authorization Strategy	<input type="radio"/> PAM Authentication	<input type="radio"/> Java JSON Web Token (JJWT)
<input type="radio"/> LDAP	<input type="radio"/> Email Extension	<input type="radio"/> Mailer		<input type="radio"/> Pipeline: REST API

\*\* - required dependency



# CloudFormation - Exemplo CI



Jenkins

## Install / Config

### Create First Admin User

Username:

Password:

Confirm password:

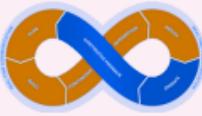
Full name:

E-mail address:

861.1

Skip and continue as admin

Save and Continue



# CloudFormation - Exemplo CI



## Jenkins Install / Config

**Jenkins**

Dashboard >

- + New Item
- People
- Build History
- Manage Jenkins
- My Views

**Welcome to Jenkins!**

This page is where your Jenkins jobs will be displayed. To get started, you can set up distributed builds or start building a software project.

**Start building your software project**

- Create a job →
- Set up a distributed build
- Set up an agent →
- Configure a cloud →
- Learn more about distributed builds →

**Build Queue**

No builds in the queue.

**Build Executor Status**

1 Idle
2 Idle



# CloudFormation - Exemplo CI



## Jenkins Install / Config

Dashboard > Manage Jenkins > Plugin Manager

Manage Jenkins

Updates

Available

Installed

Advanced

Q cloudfor

Install Name ↓

Released



Amazon Web Services SDK :: CloudFormation 1.12.287-357:vf82d85a\_6eefd

Library plugins (for use by other plugins) aws

CloudFormation module for the AWS SDK for Java.

A newer version than being offered for installation exists (version 1.12.406-370.vf8f993c987059), so the latest bug fixes or features are not available to you. This is typically the case when plugin requirements, e.g. a recent version of Jenkins, are not satisfied. If you are using the latest version of Jenkins offered to you, this plugin release may not be available to your release line yet. See the [plugin documentation](#) for information about its requirements.

6 mo 21 days ago



CloudFormation 201.vd58a\_a\_f4a\_b\_75f

Build Wrappers

External Site/Tool Integrations

Build Notifiers

4 mo 0 days ago

Adds a build wrapper that can spawn an AWS Cloud Formation recipe at the start of the build and take it down at the end.

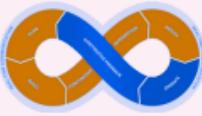
Install without restart

Download now and install after restart

Update information obtained: 22 hr ago

Check now

Deploy



# CloudFormation - Exemplo CI



Jenkins

## Install / Config

**Jenkins**

Dashboard >

- + New Item
- People
- Build History
- Manage Jenkins
- My Views

**Welcome to Jenkins!**

This page is where your Jenkins jobs will be displayed. To get started, you can set up distributed builds or start building a software project.

**Start building your software project**

[Create a job](#) →

**Set up a distributed build**

[Set up an agent](#) →

[Configure a cloud](#) →

[Learn more about distributed builds](#) ↗

Build Queue

No builds in the queue.

Build Executor Status

1 Idle
2 Idle

Deploy



# CloudFormation - Exemplo CI



Jenkins  
Create JOB

Nome demo-1-cft-jenkinsplugin

demo-1-cft-jenkinsplugin

» Required field

#### Freestyle project

This is the central feature of Jenkins. Jenkins will build your project, combining any SCM with any build system, and this can be even used for something other than software build.

#### Pipeline

Orchestrates long-running activities that can span multiple build agents. Suitable for building pipelines (formerly known as workflows) and/or organizing complex activities that do not easily fit in free-style job type.

#### Multi-configuration project

Suitable for projects that need a large number of different configurations, such as testing on multiple environments, platform-specific builds, etc.

#### Folder

Creates a container that stores nested items in it. Useful for grouping things together. Unlike view, which is just a filter, a folder creates a separate namespace, so you can have multiple things of the same name as long as they are in different folders.

#### Multibranch Pipeline

Creates a set of Pipeline projects according to detected branches in one SCM repository.

#### Organization Folder

Creates a set of multibranch project subfolders by scanning for repositories.

OK



# CloudFormation - Exemplo de JOB para a criação de uma Stack com um Bucket S3 na AWS.



## Jenkins Create JOB

### General

Enabled



#### Description

Exemplo de JOB para a criação de uma Stack com um Bucket S3 na AWS.

#### Git

[Plain text] [Preview](#)

- Discard old builds ?
- GitHub project
- This project is parameterized ?
- Throttle builds ?
- Execute concurrent builds if necessary ?

[Advanced...](#)

#### Repositories

##### Repository URL

<https://github.com/cassiowt/cloudformation-demo.git>

##### Credentials

cassiowt/\*\*\*\*\*

[+ Add](#)

[Advanced...](#)

[Add Repository](#)

#### Branches to build

##### Branch Specifier (blank for 'any')

\*/main

[Add Branch](#)



# CloudFormation - Exemplo CI



## Jenkins Create JOB

### Build Environment

- Delete workspace before build starts
- Use secret text(s) or file(s) ?
- Add timestamps to the Console Output
- Create AWS CloudFormation stack ?
- Inspect build log for published build scans
- Terminate a build if it's stuck
- With Ant ?

Deploy

Stack configuration

AWS Region ?

US East (Northern Virginia) Region

Cloud Formation recipe file/S3 URL (.json)

demo1cft.json

Stack name ?

Jenkins-Bucket-S3

Stack description

Modelo do AWS CloudFormation criando um Bucket S3.

Cloud Formation parameters ?

Timeout (seconds) ?

AWS Access Key ?

AKIAXD3PNORLF5BB52MH



## AWS IAM

Criar usuario JenkinsDevops na AWS  
Credenciais  
Chave devops



# CloudFormation - Exemplo CI



Jenkins  
Create JOB

```
1  {
2      "AWSTemplateFormatVersion": "2010-09-09",
3      "Resources": {
4          "S3Bucket": {
5              "Type": "AWS::S3::Bucket"
6          }
7      },
8      "Outputs": {
9          "BucketName": {
10             "Value": {
11                 "Ref": "JenkinsCFT_S3Bucket"
12             },
13             "Description": "Nome do bucket Amazon S3 para Exemplo de cft."
14         }
15     }
16 }
17 }
```



# CloudFormation - Exemplo CI



## Jenkins Create JOB

↑ Back to Dashboard

Status

</> Changes

Workspace

Build Now

Configure

Delete Project

Rename

Build History trend ▾

Filter builds...

#2 Mar 19, 2023, 2:28 PM

#1 Mar 19, 2023, 2:06 PM

Atom feed for all Atom feed for failures

```
Creating Cloud Formation stack: Jenkins-Bucket-S3
Stack status CREATE_IN_PROGRESS. ( 0ms since previous check)
Stack status CREATE_IN_PROGRESS. ( 267ms since previous check)
Stack status CREATE_IN_PROGRESS. ( 445ms since previous check)
Stack status CREATE_IN_PROGRESS. ( 844ms since previous check)
Stack status CREATE_IN_PROGRESS. ( 1649ms since previous check)
Stack status CREATE_IN_PROGRESS. ( 3259ms since previous check)
Stack status CREATE_IN_PROGRESS. ( 6474ms since previous check)
Stack status CREATE_IN_PROGRESS. ( 12867ms since previous check)
Stack status CREATE_COMPLETE. ( 25678ms since previous check)
48070e30-c662-11ed-8469-129fd1501ad7 - AWS::CloudFormation::Stack - CREATE_IN_PROGRESS - User Initiated
S3Bucket-CREATE_IN_PROGRESS-2023-03-19T14:28:17.107Z - AWS::S3::Bucket - CREATE_IN_PROGRESS - null
S3Bucket-CREATE_IN_PROGRESS-2023-03-19T14:28:17.669Z - AWS::S3::Bucket - CREATE_IN_PROGRESS - Resource
creation Initiated
S3Bucket-CREATE_COMPLETE-2023-03-19T14:28:38.233Z - AWS::S3::Bucket - CREATE_COMPLETE - null
57a43f70-c662-11ed-a179-12e4d34e5b87 - AWS::CloudFormation::Stack - CREATE_COMPLETE - null
Successfully created stack: Jenkins-Bucket-S3
Finished: SUCCESS
```



# CloudFormation - Exemplo CI



Jenkins  
Create JOB

Amazon S3 > Buckets

## Account snapshot

Storage lens provides visibility into storage usage and activity trends. [Learn more](#)

[View Storage Lens dashboard](#)

## Buckets (1) [Info](#)

Buckets are containers for data stored in S3. [Learn more](#)

[Empty](#) [Delete](#) [Create bucket](#)

Find buckets by name

< 1 >

Name	AWS Region	Access	Creation date
<a href="#">jenkins-bucket-s3-s3bucket-wks3el74jx2l</a>	US East (N. Virginia) us-east-1	Objects can be public	March 19, 2023, 11:28:18 (UTC-03:00)

CloudFormation > Stacks

## Stacks (3)

Filter by stack name

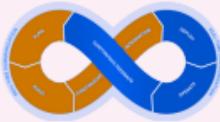
[Delete](#) [Update](#) [Stack actions](#) [Create stack](#)

Active

View nested

< 1 >

Stack name	Status	Created time	Description
<a href="#">Jenkins-Bucket-S3</a>	CREATE_COMPLETE	2023-03-19 11:28:13 UTC-0300	-



# CloudFormation - Exemplo CI

Stack Usando Jenkins que cria uma Instancia EC2 com PHM e MySql



**GitHub**



**Jenkins**



Construir uma instância EC2

Criar novo JOB



# CloudFormation - Exemplo CI



Jenkins  
Create JOB

If you want to create a new item from other existing, you can use this option:



Copy from

demo-1-cft-jenkinsplugin

OK



# CloudFormation - Exemplo CI



Jenkins  
Create JOB

Cloud Formation recipe file/S3 URL. (.json)

demo2cft.json

Stack name ?

Jenkins-PHP-MySQL

Stack description

Modelo do AWS CloudFormation criando PHP com MySql

Cloud Formation parameters ?

Deploy



# CloudFormation - Exemplo CI



Jenkins  
Create JOB

```
AWSTemplateFormatVersion: "2010-09-09"
Description: "Modelo de amostra do AWS CloudFo...
    { 7 } Parameters
        > { 3 } KeyName
        > { 7 } DBName
        > { 7 } DBUser
        > { 7 } DBPassword
        > { 7 } DBRootPassword
        > { 5 } InstanceType
        > { 7 } SSHLocation
    { 3 } Mappings
        > { 53 } AWSInstanceType2Arch
        > { 53 } AWSInstanceType2NATArch
        > { 19 } AWSRegionArch2AMI
    { 2 } Resources
        { 4 } WebServerInstance
            Type: "AWS::EC2::Instance"
                { 1 } Metadata
                { 5 } Properties
                    { 1 } CreationPolicy
                        { 1 } ResourceSignal
        { 2 } WebServerSecurityGroup
            Type: "AWS::EC2::SecurityGroup"
                { 2 } Properties
    { 1 } Outputs
        { 2 } WebsiteURL
```



# CloudFormation - Exemplo CI



Jenkins  
Create JOB

Jenkins Dashboard >

+ New Item      Add description

People      All +

Build History

Project Relationship

Check File Fingerprint

Manage Jenkins

My Views

Build Queue

No builds in the queue.

Build Executor Status

1 Idle

2 Idle

Icon: S M L      Icon legend      Atom feed for all      Atom feed for failures      Atom feed for just latest builds

S W Name ↓ Last Success Last Failure Last Duration

S	W	Name ↓	Last Success	Last Failure	Last Duration
✓	✳️	demo-1-cft-jenkinsplugin	9 hr 52 min #2	N/A	52 sec ➔
✓	☁️	demo-2-cft-jenkinsplugin	34 min #2	50 min #1	1 min 43 sec ➔



# CloudFormation - Exemplo CI



Jenkins  
Create JOB

```
Creating Cloud Formation stack: Jenkins-PHP-MySQL
Stack status CREATE_IN_PROGRESS. ( 0ms since previous check)
Stack status CREATE_IN_PROGRESS. ( 248ms since previous check)
Stack status CREATE_IN_PROGRESS. ( 442ms since previous check)
Stack status CREATE_IN_PROGRESS. ( 846ms since previous check)
Stack status CREATE_IN_PROGRESS. ( 1644ms since previous check)
Stack status CREATE_IN_PROGRESS. ( 3239ms since previous check)
Stack status CREATE_IN_PROGRESS. ( 6439ms since previous check)
Stack status CREATE_IN_PROGRESS. ( 12863ms since previous check)
Stack status CREATE_IN_PROGRESS. ( 25659ms since previous check)
Stack status CREATE_COMPLETE. ( 51263ms since previous check)
44fe65a0-c6b0-11ed-9e0f-0e0ebb4e6c77 - AWS::CloudFormation::Stack - CREATE_IN_PROGRESS - User Initiated
WebServerSecurityGroup-CREATE_IN_PROGRESS-2023-03-19T23:46:34.124Z - AWS::EC2::SecurityGroup -
CREATE_IN_PROGRESS - null
WebServerSecurityGroup-CREATE_IN_PROGRESS-2023-03-19T23:46:39.031Z - AWS::EC2::SecurityGroup -
CREATE_IN_PROGRESS - Resource creation Initiated
WebServerSecurityGroup-CREATE_COMPLETE-2023-03-19T23:46:39.712Z - AWS::EC2::SecurityGroup - CREATE_COMPLETE
- null
WebServerInstance-CREATE_IN_PROGRESS-2023-03-19T23:46:41.639Z - AWS::EC2::Instance - CREATE_IN_PROGRESS -
null
WebServerInstance-CREATE_IN_PROGRESS-2023-03-19T23:46:43.511Z - AWS::EC2::Instance - CREATE_IN_PROGRESS -
Resource creation Initiated
WebServerInstance-15ed39db-6933-48e2-9c7e-217c539789b3 - AWS::EC2::Instance - CREATE_IN_PROGRESS - Received
SUCCESS signal with UniqueId i-0af513fb7b139d673
WebServerInstance-CREATE_COMPLETE-2023-03-19T23:47:56.252Z - AWS::EC2::Instance - CREATE_COMPLETE - null
79f5d090-c6b0-11ed-8ea5-0a8d1540dabd - AWS::CloudFormation::Stack - CREATE_COMPLETE - null
Successfully created stack: Jenkins-PHP-MySQL
Finished: SUCCESS
```



# CloudFormation - Exemplo CI



Jenkins  
Create JOB

CloudFormation > Stacks

Stacks (2)

Stack name	Status	Created time	Description
Jenkins-PHP-MySQL	CREATE_IN_PROGRESS	2023-03-19 20:46:29 UTC-0300	Modelo AWS CloudFormation que cria uma Stack usando uma ?nica inst?ncia do EC2 e um banco de dados MySQL local para armazenamento. Este modelo demonstra como usar os scripts AWS CloudFormation para instalar os pacotes e arquivos necess?rios para implantar o servidor web Apache, PHP e MySQL no momento da inicializa??o da inst?ncia. **AVISO** Este modelo cria uma inst?ncia do Amazon EC2. Voc? poder? ser cobrado pelos recursos da AWS usados ??se criar uma pilha a partir deste modelo.



# CloudFormation - Exemplo CI



Jenkins  
Create JOB

Instances (1/2) [Info](#)

Find instance by attribute or tag (case-sensitive)

Instance state = running [X](#) [Clear filters](#)

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone
<input checked="" type="checkbox"/> -	i-0af513fb7b139d673	<span>Running</span> <a href="#">@</a> <a href="#">Q</a>	t2.micro	<span>2/2 checks passed</span> <a href="#">2/2</a>	No alarms <a href="#">+</a>	us-east-1e
<input type="checkbox"/> Jenkins_Devops	i-0562ad15e026fbd29	<span>Running</span> <a href="#">@</a> <a href="#">Q</a>	t2.micro	<span>2/2 checks passed</span> <a href="#">2/2</a>	No alarms <a href="#">+</a>	us-east-1a

Instance: i-0af513fb7b139d673 [=](#) [@](#) [X](#)

[Details](#) [Security](#) [Networking](#) [Storage](#) [Status checks](#) [Monitoring](#) [Tags](#)

▼ Instance summary [Info](#)

Instance ID <a href="#">i-0af513fb7b139d673</a>	Public IPv4 address <a href="#">54.162.102.73</a>   <a href="#">open address</a>	Private IPv4 addresses <a href="#">172.31.49.229</a>
IPv6 address -	Instance state <span>Running</span>	Public IPv4 DNS <a href="#">ec2-54-162-102-73.compute-1.amazonaws.com</a>   <a href="#">open address</a>
Hostname type IP name: ip-172-31-49-229.ec2.internal	Private IP DNS name (IPv4 only) <a href="#">ip-172-31-49-229.ec2.internal</a>	Elastic IP addresses -
Answer private resource DNS name -	Instance type t2.micro	AWS Compute Optimizer finding <a href="#">Opt-in to AWS Compute Optimizer for recommendation</a>
Auto-assigned IP address <a href="#">54.162.102.73 [Public IP]</a>	VPC ID <a href="#">vpc-071f33b08b0885ac9</a>	S.

## **CloudFormation - Exemplo CI**



## Jenkins Create JOB

Não seguro | ec2-54-162-102-73.compute-1.amazonaws.com

Apps JS+ CAWT DV puc Sy MCC Di Bitly Wu

## Welcome to the AWS CloudFormation PHP Sample

The Current Date and Time is:  
12:17 AM Monday, March 20 2023.

Server = ec2-54-162-102-73.compute-1.amazonaws.com  
EC2 instance-id = i-0af513fb7b139d673  
Database = localhost  
Connected to localhost successfully

### PHP Information

**PHP Version 5.3.29**



<b>System</b>	Linux ip-172-31-49-229 4.14.77-70.59.amzn1.x86_64 #1 SMP Mon Nov 12 22:02:45 UTC 2018 x86_64
<b>Build Date</b>	May 12 2015 22:42:47
<b>Configure Command</b>	./configure '--build=x86_64-redhat-linux-gnu' '--host=x86_64-redhat-linux-gnu' '--target=x86_64-amazon-linux-gnu' '--program-prefix=' --prefix=/usr' '--exec-prefix=/usr' '--bindir=/usr/bin' '--sbindir=/usr/sbin' '--sysconfdir=/etc' '--datadir=/usr/share' '--includedir=/usr/include' '--libdir=/usr/lib64' '--libexecdir=/usr/libexec' '--localstatedir=/var' '--sharedstatedir=/var/lib' '--mandir=/usr/share/man' '--infodir=/usr/share/info' '--cache-file=../config.cache' '--with-libdir=lib64' '--with-config-file-path=/etc' '--with-config-file-scan-dir=../etc/php.d' '--disable-debug' '--with-mysqli' '--enable-mbstring' '--without-pdo' '--with-bz2' '--with-zip'



# CloudFormation - Exemplo CI



Jenkins  
Create JOB

**Connect to instance** Info

Connect to your instance i-0af513fb7b139d673 using any of these options

[EC2 Instance Connect](#) | [Session Manager](#) | [SSH client](#) [EC2 serial console](#)

Instance ID

[i-0af513fb7b139d673](#)

1. Open an SSH client.
2. Locate your private key file. The key used to launch this instance is devops.pem
3. Run this command, if necessary, to ensure your key is not publicly viewable.  
[chmod 400 devops.pem](#)
4. Connect to your instance using its Public DNS:  
[ec2-54-162-102-73.compute-1.amazonaws.com](#)

Example:

[ssh -i "devops.pem" ec2-user@ec2-54-162-102-73.compute-1.amazonaws.com](#)

ⓘ Note: In most cases, the guessed user name is correct. However, read your AMI usage instructions to check if the AMI owner has changed the default AMI user name.

# DEVOPS AVANÇADO

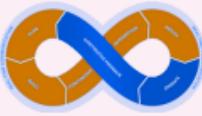




# CloudFormation - Exemplo CI



Jenkins



# CloudFormation - Exemplo CI



Jenkins

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