

# Write a CloudFormation template to create a simple web server setup with an ec2 instance and a security group allowing HTTP traffic. Deploy the stack

- Prplevamp20

## Overview

This guide demonstrates creating a CloudFormation stack to deploy a web server using an EC2 instance. The setup includes:

1. An EC2 instance running a basic web server.
2. A security group allowing HTTP traffic on port 80.
3. Automatic deployment of a sample webpage to verify accessibility.

## Prerequisites

- **AWS Account:** Ensure you have access to an AWS account.
- **Key Pair:** Create an EC2 Key Pair in the AWS Management Console for SSH access (if necessary).
- **Permissions:** You should have permissions to use CloudFormation, EC2, and Security Groups.
- **Basic Text Editor:** Use an editor like VS Code or Notepad to create the YAML file.
- **AWS CLI (Optional):** Can be used to upload and manage CloudFormation stacks.

## CloudFormation Template (YAML)

```
AWSTemplateFormatVersion: '2010-09-09'
Description: >
  CloudFormation template to create a simple web server setup
  with an EC2 instance and a security group allowing HTTP traffic.

Parameters:
  KeyName:
    Description: Name of an existing EC2 KeyPair to enable SSH access
    Type: String
    Default: default-keypair-name
    ConstraintDescription: Must be the name of an existing EC2 KeyPair.

Resources:
  WebServerInstance:
    Type: AWS::EC2::Instance
    Properties:
      InstanceType: t2.micro
      KeyName: !Ref KeyName
      ImageId: ami-0c02fb55956c7d316 # Amazon Linux 2 AMI (ensure this is valid in your region)
      SecurityGroupIds:
        - !Ref WebServerSecurityGroup
      UserData:
        Fn::Base64: |
          #!/bin/bash
          yum update -y
          yum install -y httpd
          systemctl start httpd
          systemctl enable httpd
          echo "<html><body><h1>Welcome to your CloudFormation Web Server!</h1></body></html>" >
            /var/www/html/index.html
```

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```
WebServerSecurityGroup:
  Type: AWS::EC2::SecurityGroup
  Properties:
    GroupDescription: Allow HTTP traffic
    SecurityGroupIngress:
      - IpProtocol: tcp
        FromPort: 80
        ToPort: 80
        CidrIp: 0.0.0.0/0

Outputs:
  WebsiteURL:
    Description: URL of the web server
    Value: !Sub "http://${WebServerInstance.PublicIp}"
```

## Deployment Steps

### 1. Create YAML File:

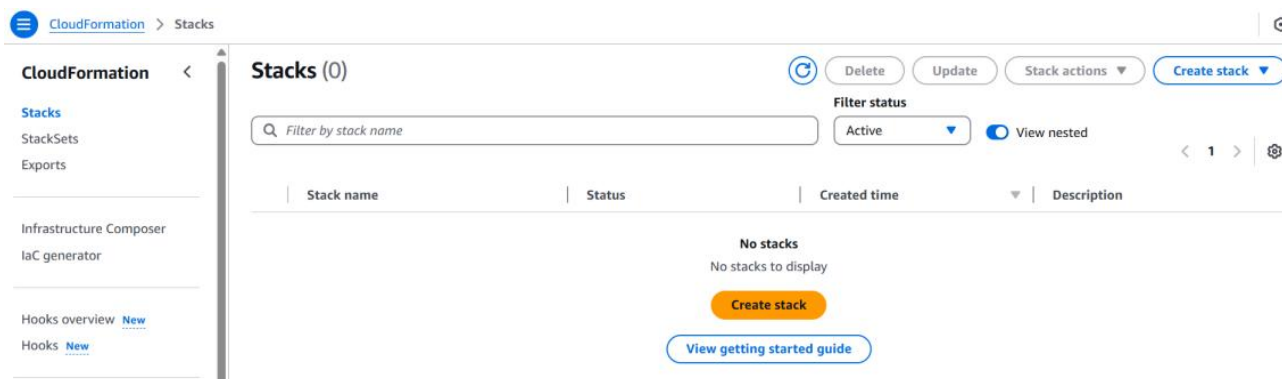
- Save the above YAML code as web-server-template.yaml in your text editor.

### 2. Login to AWS Console:

- Navigate to the AWS Management Console.

### 3. Open CloudFormation:

- Go to the CloudFormation service and click on Create stack.



### 4. Upload the Template:

- Under Specify template, select Upload a template file, and upload the web-server-template.yaml.

Upload a template file

[Choose file](#)

cmptyaml.yaml

JSON or YAML formatted file

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## 5. Provide Stack Details:

- Name the stack (e.g., SimpleWebServerStack).
- In the **Parameters** section, provide the name of your EC2 Key Pair for SSH access.

The screenshot shows the 'Specify stack details' step in the AWS CloudFormation console. On the left, a vertical progress bar indicates four steps: Step 1 (Create stack), Step 2 (Specify stack details, which is the current step and highlighted with a blue circle), Step 3 (Configure stack options), and Step 4 (Review and create). The main content area is titled 'Specify stack details' and contains two sections. The first section, 'Provide a stack name', has a text input field with the placeholder 'Enter a stack name' and a small note below it stating 'Stack name must be 1 to 128 characters, start with a letter, and only contain alphanumeric characters. Character count: 0/128.' The second section, 'Parameters', has a heading 'Parameters' and a sub-heading 'No parameters' with the text 'There are no parameters defined in your template'. At the bottom right of the form, there are three buttons: 'Cancel', 'Previous', and 'Next'.

## 6. Configure Stack Options:

- Leave other options as default and proceed.

## 7. Submit the Stack:

- Click **Next** and then **Submit** to create the stack.

## 8. Monitor Deployment:

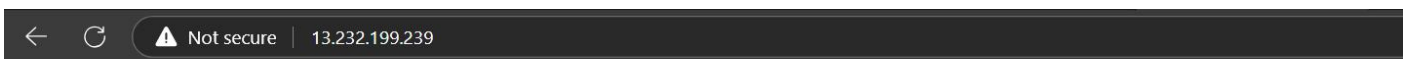
- Wait for the stack to reach the CREATE\_COMPLETE status.

## 9. Access the EC2 Instance:

- Once the stack is complete, go to the **Outputs** tab of the stack.
- Copy the WebsiteURL value and paste it into your browser. You should see the web page served by the EC2 instance.

## Verification

- Open the provided WebsiteURL in a browser.
- Ensure you see the message: Welcome to your CloudFormation Web Server!
- If you encounter issues, check the EC2 instance logs and the Security Group rules.



Hello, World! This is your web server!