

# AMAZON-CLOUDFORMATION: CloudFormation VPC & EC2

---

## **Problem Statement:**

You work for XYZ Corporation. Your team is asked to deploy similar architecture multiple times for testing, development, and production purposes. Implement CloudFormation for the tasks assigned to you below.

## **Tasks To Be Performed:**

1. Create a template with 1 VPC and 1 public subnet
2. Launch an Amazon Linux EC2 instance in the public subnet and tag the
3. instance as "CFinstance".

---

## SOLUTION:

1. Create a template with 1 VPC and 1 public subnet.
2. Launch an Amazon Linux EC2 instance in the public subnet and tag the instance as "CFInstance"

```
! vpc.yaml > {} Resources
1 Parameters:
2   EnvironmentName:
3     Description: An environment name that is prefixed to resource names
4     Type: String
5
6
7   VpcCIDR:
8     Description: Please enter the IP range (CIDR notation) for this VPC
9     Type: String
10    Default: 10.192.0.0/16
11
12   PublicSubnet1CIDR:
13     Description: Please enter the IP range (CIDR notation) for the public subnet in the first Availability Zone
14     Type: String
15     Default: 10.192.10.0/24
16
17   PrivateSubnet1CIDR:
18     Description: Please enter the IP range (CIDR notation) for the private subnet in the first Availability Zone
19     Type: String
20     Default: 10.192.20.0/24
21
22   EC2InstanceType:
23     Type: String
24     Description: Select Instance Type
25     Default: t2.micro
26     AllowedValues: [t2.micro,t3.micro,t2.small]
27
28   myAMIId:
29     Type: String
30     Description: ami id
31     Default: ami-0453ec754f44f9a4a
32
```

## Resources:

### VPC:

```
Type: AWS::EC2::VPC
Properties:
  CidrBlock: !Ref VpcCIDR
  EnableDnsSupport: true
  EnableDnsHostnames: true
  Tags:
    - Key: Name
      Value: !Ref EnvironmentName
```

### InternetGateway:

```
Type: AWS::EC2::InternetGateway
```

### InternetGatewayAttachment:

```
Type: AWS::EC2::VPCGatewayAttachment
Properties:
  InternetGatewayId: !Ref InternetGateway
  VpcId: !Ref VPC
```

### PublicSubnet1:

```
Type: AWS::EC2::Subnet
Properties:
  VpcId: !Ref VPC
  AvailabilityZone: !Select [ 0, !GetAZs '' ]
  CidrBlock: !Ref PublicSubnet1CIDR
  MapPublicIpOnLaunch: true
  Tags:
    - Key: Name
      Value: !Sub ${EnvironmentName} Public Subnet (AZ1)
```

### PrivateSubnet1:

```
Type: AWS::EC2::Subnet
Properties:
  VpcId: !Ref VPC
  AvailabilityZone: !Select [ 0, !GetAZs '' ]
  CidrBlock: !Ref PrivateSubnet1CIDR
  MapPublicIpOnLaunch: false
  Tags:
    - Key: Name
      Value: !Sub ${EnvironmentName} Private Subnet (AZ1)
```

### PublicRouteTable:

```
Type: AWS::EC2::RouteTable
Properties:
  VpcId: !Ref VPC
  Tags:
    - Key: Name
      Value: !Sub ${EnvironmentName} Public Routes
```

### DefaultPublicRoute:

```
Type: AWS::EC2::Route
DependsOn: InternetGatewayAttachment
Properties:
  RouteTableId: !Ref PublicRouteTable
  DestinationCidrBlock: 0.0.0.0/0
  GatewayId: !Ref InternetGateway
```

### PublicSubnet1RouteTableAssociation:

```
Type: AWS::EC2::SubnetRouteTableAssociation
Properties:
  RouteTableId: !Ref PublicRouteTable
  SubnetId: !Ref PublicSubnet1
```

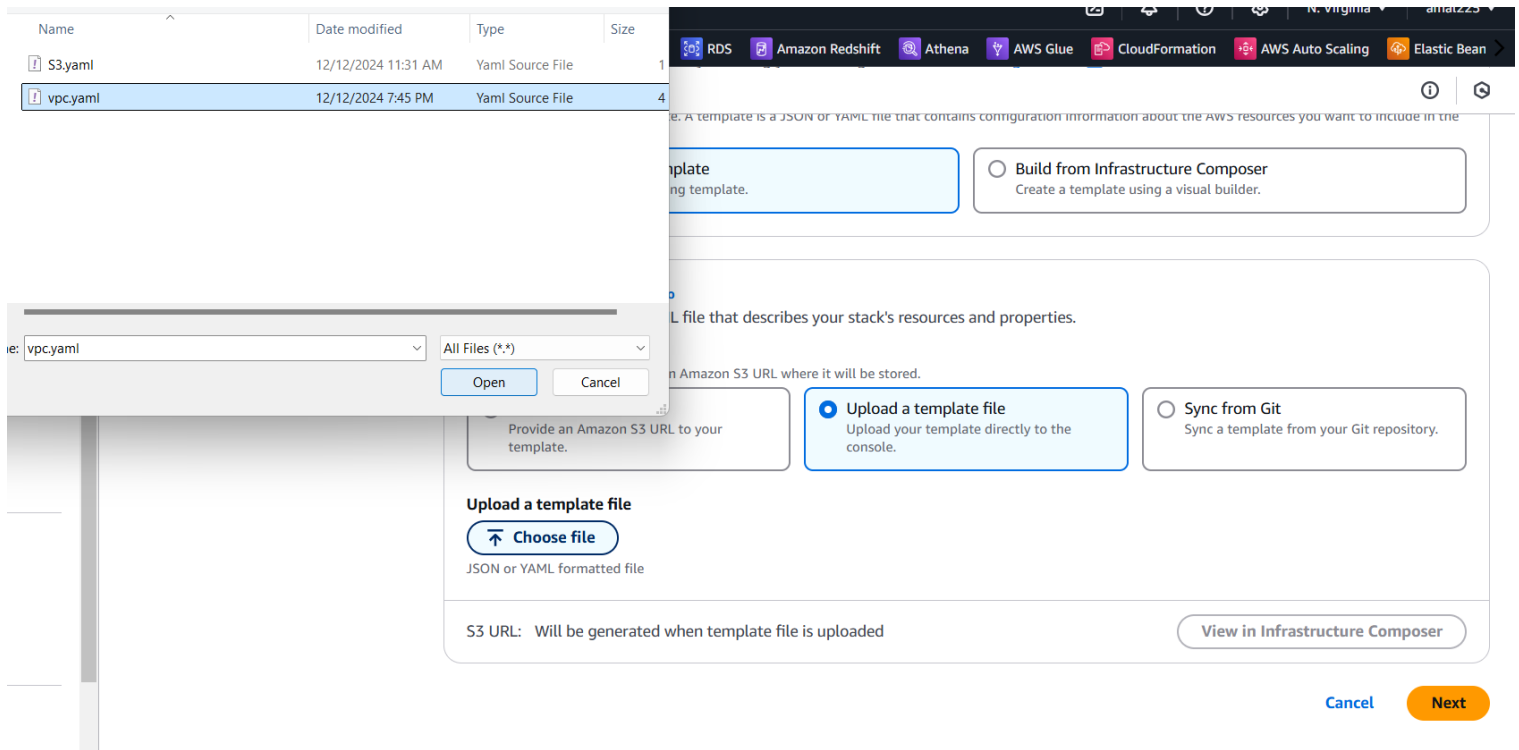
```

PrivateRouteTable1:
  Type: AWS::EC2::RouteTable
  Properties:
    VpcId: !Ref VPC
    Tags:
      - Key: Name
        Value: !Sub ${EnvironmentName} Private Routes (AZ1)

myInstance:
  Type: 'AWS::EC2::Instance'
  Properties:
    ImageId: !Ref myAMIId
    InstanceType: t2.micro
    VpcId: !Ref VPC
    KeyName: nov11
    SecurityGroupIds:
      - sg-0eb9885f3e48f79f4
    UserData:
      Fn::Base64: !Sub |
        #!/bin/bash
        yum update -y
        service httpd start
        chkconfig httpd on

```

4. Go to cloud formation . and click create .



## Provide a stack name

### Stack name

ec2

Stack name must be 1 to 128 characters, start with a letter, and only contain alphanumeric characters. Character count: 3/128.

## Parameters

Parameters are defined in your template and allow you to input custom values when you create or update a stack.

### EC2InstanceType

Select Instance Type

t2.micro

### EnvironmentName

An environment name that is prefixed to resource names

vpc

### PrivateSubnet1CIDR

Please enter the IP range (CIDR notation) for the private subnet in the first Availability Zone

10.192.20.0/24

### PublicSubnet1CIDR

Please enter the IP range (CIDR notation) for the public subnet in the first Availability Zone

10.192.10.0/24

## Advanced options

You can set additional options for your stack, like notification options and a stack policy. [Learn more](#)

### ► Stack policy - *optional*

Defines the resources that you want to protect from unintentional updates during a stack update.

### ► Rollback configuration - *optional*

Specify alarms for CloudFormation to monitor when creating and updating the stack. If the operation breaches an alarm threshold, CloudFormation rolls it back.

### ► Notification options - *optional*

Specify a new or existing Amazon Simple Notification Service topic where notifications about stack events are sent.

### ► Stack creation options - *optional*

Specify the timeout and termination protection options for stack creation.

Cancel

Previous

Next

# Review and create

## Step 1: Specify template

Edit

### Prerequisite - Prepare template

Template  
Template is ready

### Template

Template URL  
https://s3.us-east-1.amazonaws.com/cf-templates-ruptgw27gkch-us-east-1/2024-12-12T144742.282Zzcw-vpc.yaml

Stack description  
-

## Step 2: Specify stack details

Edit

### Provide a stack name

### Provide a stack name

Stack name  
ec2

### Parameters (6)

<div><div><div></div><div>Search</div></div></div>		<div><div>&lt;</div><div>1</div><div>&gt;</div></div> <div><div></div><div></div></div>	
Key	Value		
EC2InstanceType	t2.micro		
EnvironmentName	vpc		
myAMId	ami-0453ec754f44f9a4a		
PrivateSubnet1CIDR	10.192.20.0/24		
PublicSubnet1CIDR	10.192.10.0/24		
VpcCIDR	10.192.0.0/16		

Stack creation options

Timeout

Termination protection  
Deactivated

Quick-create link

Use quick-create links to get stacks up and running quickly from the AWS CloudFormation console with the same basic configuration as this stack. Copy the URL on the link to share. [Learn more](#)

Open quick-create link

Create change set

Cancel

Previous

Submit

Stack info Events - updated Resources Outputs Parameters Template

Table view Timeline view - new

Events (6)

View root cause

Search events

Timestamp	Logical ID	Status	Detailed status
2024-12-12 20:22:45 UTC+0530	InternetGateway	CREATE_IN_PROGRESS	CONFIGURATION_COMPLETE
2024-12-12 20:22:44 UTC+0530	VPC	CREATE_IN_PROGRESS	-
2024-12-12 20:22:44 UTC+0530	InternetGateway	CREATE_IN_PROGRESS	-
2024-12-12 20:22:43 UTC+0530	VPC	CREATE_IN_PROGRESS	-
2024-12-12 20:22:43 UTC+0530	InternetGateway	CREATE_IN_PROGRESS	-

Resources (10)

< 1 >

Logical ID	Physical ID	Type	Status
DefaultPublicRoute	rtb-04ef33b64810eb3ee 0.0.0.0/0	AWS::EC2::Route	CREATE_COMPLETE
InternetGateway	<a href="#">igw-08c8e156a4f905799</a>	AWS::EC2::InternetGateway	CREATE_COMPLETE
InternetGatewayAttachment	IGW vpc-0b7586c6c51203de7	AWS::EC2::VPCGatewayAttachment	CREATE_COMPLETE
myInstance	<a href="#">i-0621436ec085c1c77</a>	AWS::EC2::Instance	CREATE_COMPLETE
PrivateRouteTable1	rtb-0bfacfb32bf4680f8	AWS::EC2::RouteTable	CREATE_COMPLETE
PrivateSubnet1	<a href="#">subnet-0f2184eedd6d6cdf2</a>	AWS::EC2::Subnet	CREATE_COMPLETE
PublicRouteTable	rtb-04ef33b64810eb3ee	AWS::EC2::RouteTable	CREATE_COMPLETE

instances ( 1 / 1 ) Info

less than a minute ago

Connect

Instance state

Actions

Launch instances

All states

Instance state = running

Clear filters

< 1 >

<input checked="" type="checkbox"/>	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IP
<input checked="" type="checkbox"/>	CFInsta...	<a href="#">i-0621436ec085c1c77</a>	Running	t2.micro	Initializing	<a href="#">View alarms +</a>	us-east-1b	ec2-54-1