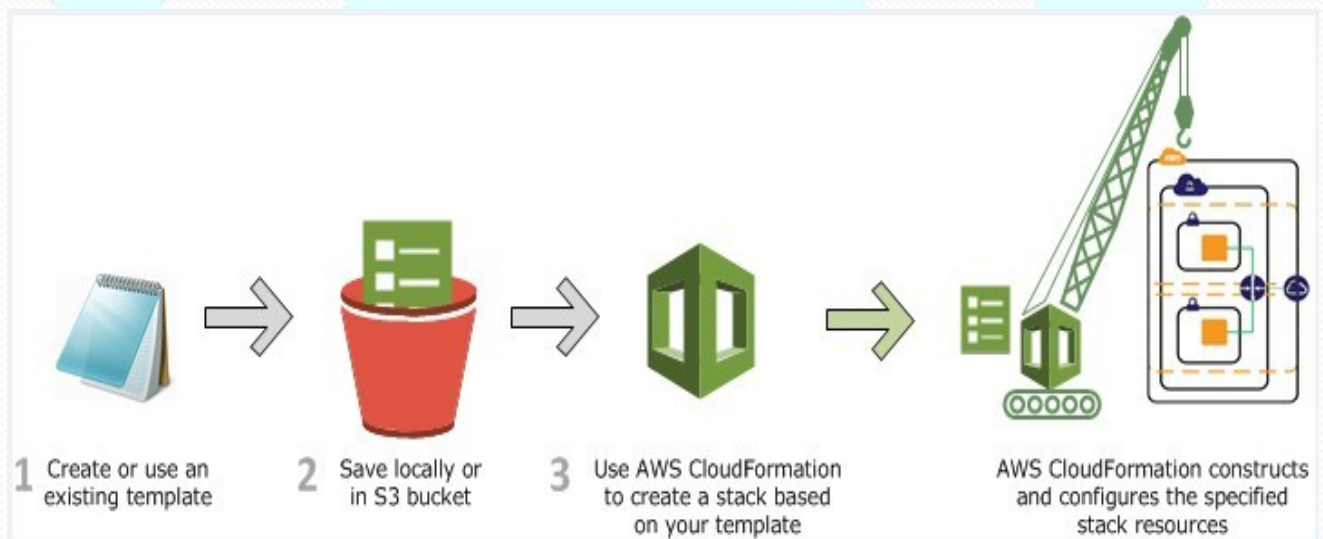


AWS CLOUDFORMATION

AWS CloudFormation is a service that helps you model and set up your Amazon Web Services resources.

You create a template that describes all the AWS resources that you want (like Amazon EC2 instances or Amazon RDS DB instances), and AWS CloudFormation takes care of provisioning and configuring those resources for you.

You don't need to individually create and configure AWS resources and figure out what's dependent on what; AWS CloudFormation handles all of that.



Supported AWS Resources



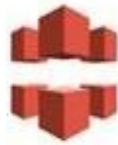
Auto scaling Group



AWS CloudFormation



Amazon EC2



CloudFront



CloudWatch



Amazon SQS



Elastic Load
Balancing



Amazon SNS



Amazon S3



Amazon RDS



DynamoDB



ElastiCache



Elastic Beanstalk



IAM



Amazon VPC



Amazon Route 53

AWS CLOUDFORMATION ANATOMY

```
{
  "AWSTemplateFormatVersion" : "version date",
  "Description" : "JSON string",
  "Parameters" : {
    set of parameters
  },
  "Mappings" : {
    set of mappings
  },
  "Conditions" : {
    set of conditions
  },
  "Resources" : {
    set of resources
  },
  "Outputs" : {
    set of outputs
  }
}
```

Format Version (optional)

Specifies the AWS CloudFormation template version that the template conforms to.

```
"AWSTemplateFormatVersion" : "2010-09-09"
```

Description (optional)

A text string that describes the template. This section must always follow the template format version section.

```
"Description" : "Test environment for Client B."
```

Parameters (optional)

Specifies values that you can pass in to your template at runtime (when you create or update a stack). You can refer to parameters in the `Resources` and `Outputs` sections of the template.

```
"Parameters" :
{
  "DBPort" :
  {
    "Default" :
    "3306",
    "Description" : "TCP/IP port for the database",
    "Type" : "Number",
    "MinValue" : "1150",
    "MaxValue" : "65535"
  },
  "DBPwd" : {
    "NoEcho" : "true",
    "Description" : "The database admin account password",
    "Type" : "String",
    "MinLength" : "1",
    "MaxLength" : "41",
    "AllowedPattern" : "[a-zA-Z0-9]*"
  }
}
```

Mappings (optional)

A mapping of keys and associated values that you can use to specify conditional parameter values, similar to a lookup table. You can match a key to a corresponding value by using the `Fn::FindInMap` intrinsic function in the `Resources` and `Outputs` section.

```
"Mappings" :{
  "RegionMap" : {
    "us-east-1"      : "ami-7a11e213",
    "us-west-1"      : "ami-cfc7978a",
    "eu-west-1"      : "ami-
31c2f645", "ap-southeast-1" :
"ami-60f28c32", "ap-northeast-
1" : "ami-a003a8a1"
  },
}
```

Conditions (optional)

Defines conditions that control whether certain resources are created or whether certain resource properties are assigned a value during stack creation or update. For example, you could conditionally create a resource that depends on whether the stack is for a production or test environment.

```
{
  "AWSTemplateFormatVersion" : "2010-09-09",
  "Parameters" : {
    "EnvType" : {
      "Description" : "Environment type.",
      "Default" : "test",
      "Type" : "String",
      "AllowedValues" : ["prod", "test"],
      "ConstraintDescription" : "must specify prod or test."
    }
  },
  "Conditions" : {
    "CreateProdResources" : {"Fn::Equals" : [{"Ref" : "EnvType"}, "prod"]}
  },
  "Resources" :
  { "EC2Instance"
  : {
    "Type" : "AWS::EC2::Instance",
    "Properties" : {
      "ImageId" : "ami-2f726546"
    }
  },
  "NewVolume" : {
    "Type" : "AWS::EC2::Volume",
    "Condition" : "CreateProdResources",
    "Properties" : {
      "Size" : "100",
      "AvailabilityZone" : { "Fn::GetAtt" :
        [ "EC2Instance",
          "AvailabilityZone" ]}
    }
  },
  "MountPoint" : {
    "Type" : "AWS::EC2::VolumeAttachment",
    "Condition" : "CreateProdResources",
    "Properties" : {
      "InstanceId" : { "Ref" : "EC2Instance" },
      "VolumeId" : { "Ref" : "NewVolume" },
      "Device" : "/dev/sdh"
    }
  }
}
```

```
}  
}  
},  
}
```

Resources (required)

Specifies the stack resources and their properties, such as an Amazon Elastic Compute Cloud instance or an Amazon Simple Storage Service bucket.

```
"Resources" :  
  { "MyEC2Instance"  
    : {  
      "Type" : "AWS::EC2::Instance",  
      "Properties" : {  
        "ImageId" : "ami-2f726546"  
      }  
    }  
  }  
}
```

Outputs (optional)

Describes the values that are returned whenever you view your stack's properties.

```
"Outputs" :  
  { "InstanceID"  
    : {  
      "Description": "The Instance ID",  
      "Value" : { "Ref" :  
        "EC2Instance" }  
    }  
  }  
}
```

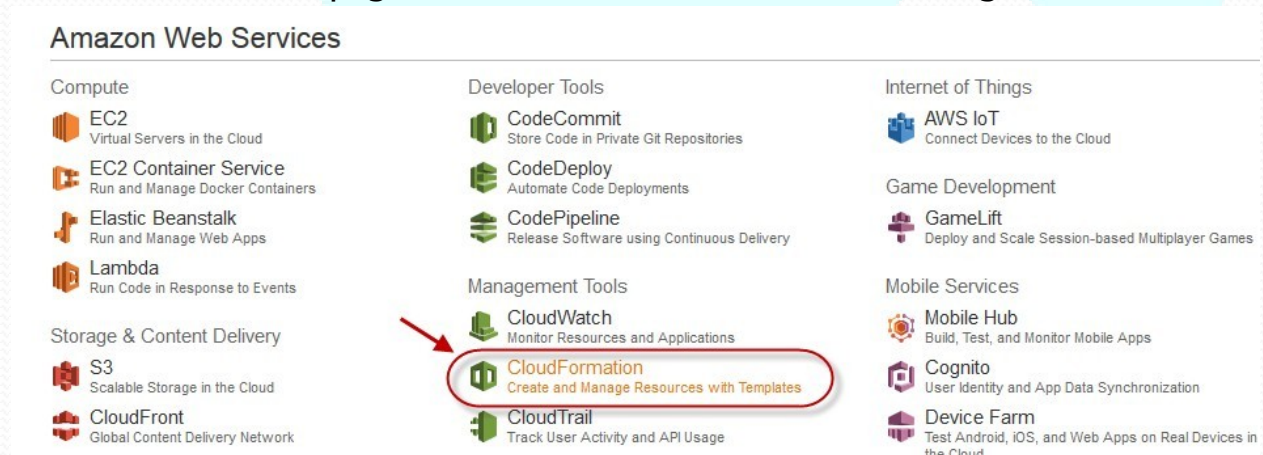

CLOUDFORMATION SAMPLE TEMPLATE

you can download sample template for WordPress Multi AZ installation with ELB and Autoscaling configured.

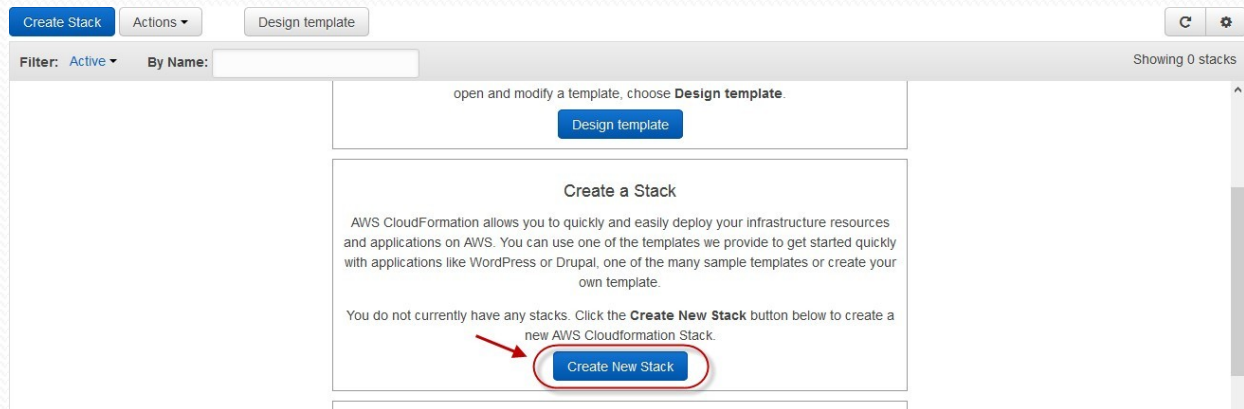
http://s3.amazonaws.com/cloudformation-templates-us-east-1/WordPress_Multi_AZ.template

Once you logged in to AWS Management Console, create a key pair from EC2 page if you have not created already.

Form Console home page choose CloudFormation under Management Tools.



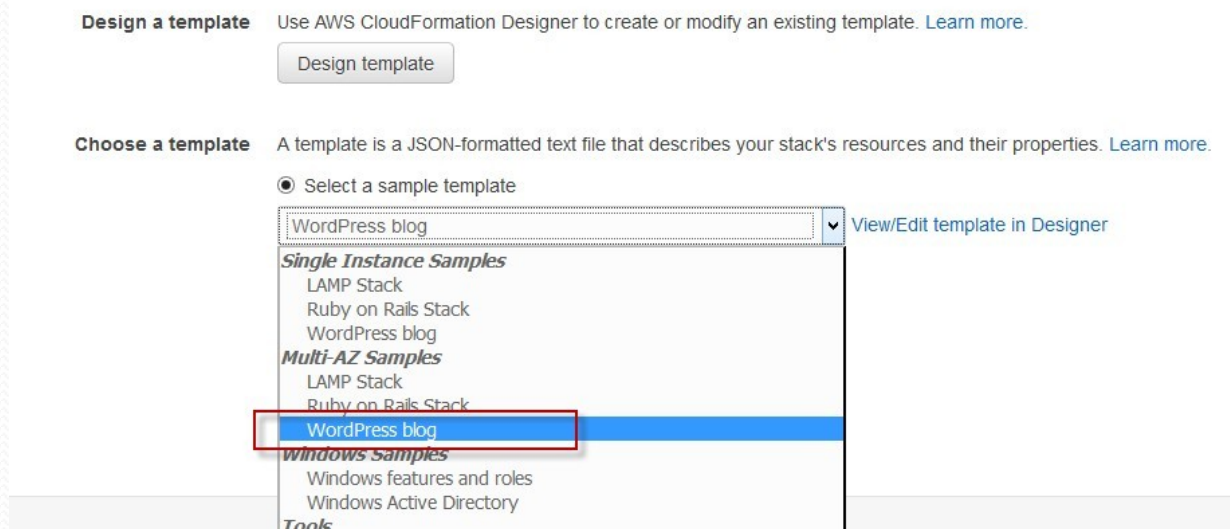
Then choose Create New Stack.



On the next page under Choose a template from the drop down list of select a sample template choose WordPress blog.

Select Template

Select the template that describes the stack that you want to create. A stack is a group of related resources that you manage as a single unit.



Then choose next to go to next page.

Select Template

Select the template that describes the stack that you want to create. A stack is a group of related resources that you manage as a single unit.

Design a template Use AWS CloudFormation Designer to create or modify an existing template. [Learn more.](#)

[Design template](#)

Choose a template A template is a JSON-formatted text file that describes your stack's resources and their properties. [Learn more.](#)

☒ Select a sample template

WordPress blog

[View/Edit template in Designer](#)

☐ Upload a template to Amazon S3

[Browse...](#)

No file selected.

☐ Specify an Amazon S3 template URL

<https://s3-ap-southeast-1.amazonaws.com/cloudformation-templa>

[Cancel](#)

[Next](#)

On Specify details, specify a stack name under stack name text field.

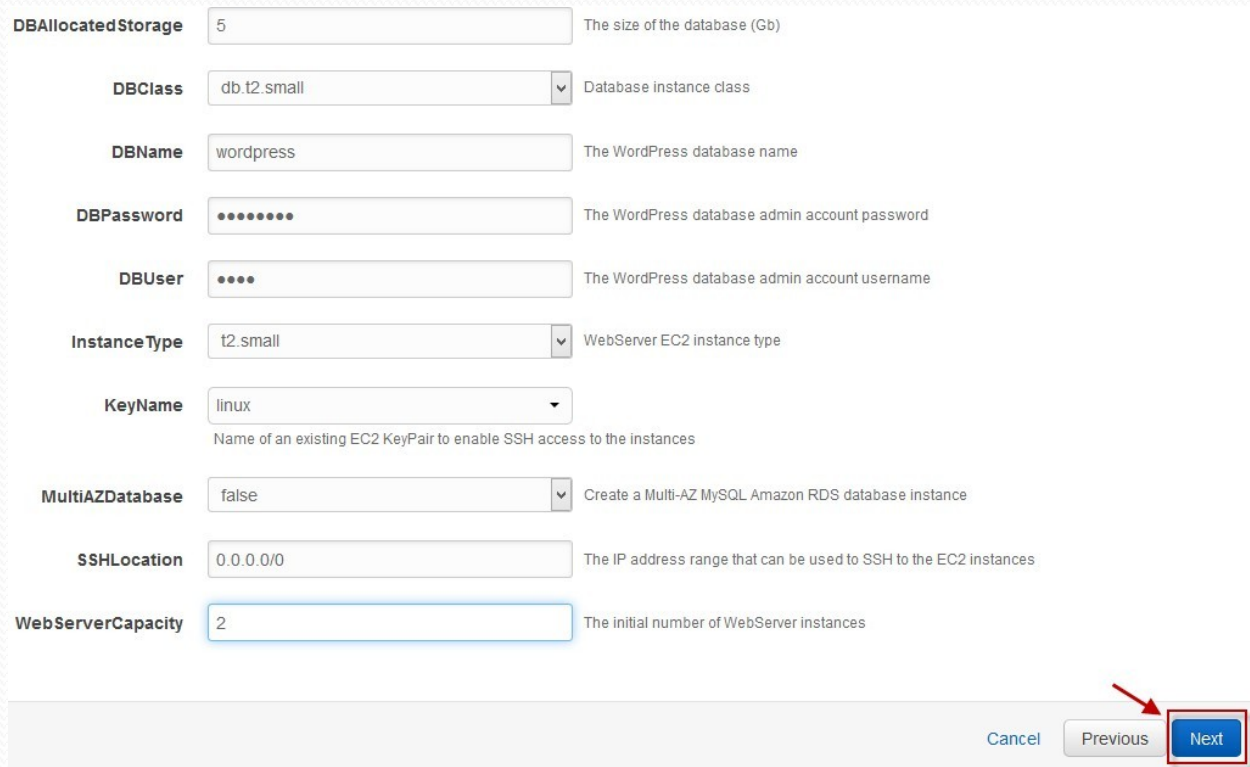
Specify Details

Specify a stack name and parameter values. You can use or change the default parameter values, which are defined in the AWS CloudFormation template.

Stack name

MultiWP

Then under Parameters section specify all required options then choose Next.



DBAllocatedStorage The size of the database (Gb)

DBClass Database instance class

DBName The WordPress database name

DBPassword The WordPress database admin account password

DBUser The WordPress database admin account username

InstanceType WebServer EC2 instance type

KeyName Name of an existing EC2 KeyPair to enable SSH access to the instances

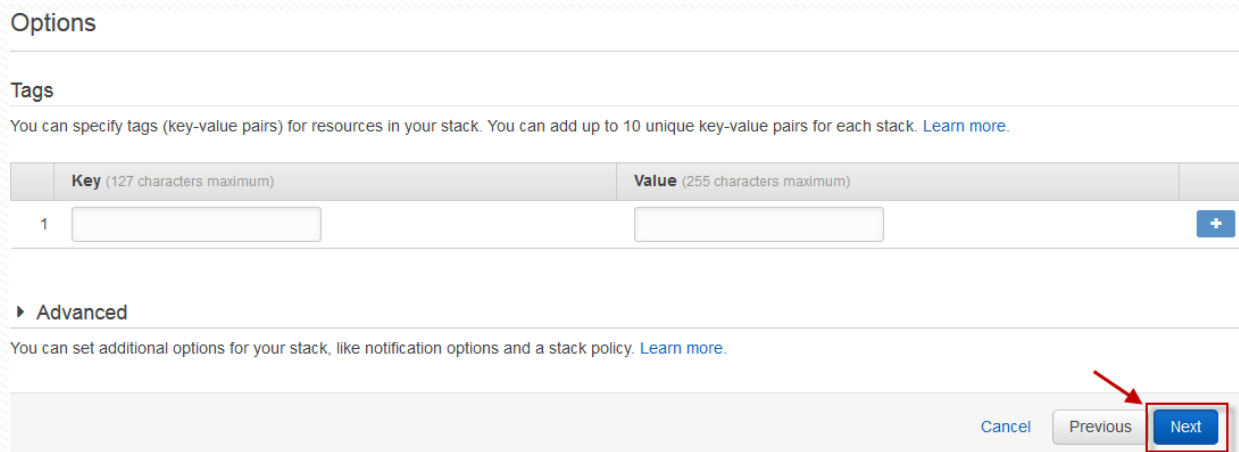
MultiAZDatabase Create a Multi-AZ MySQL Amazon RDS database instance

SSHLocation The IP address range that can be used to SSH to the EC2 instances

WebServerCapacity The initial number of WebServer instances

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

On the next page, specify Tags if you want, specify notifications which is under Advanced, then choose Next to continue.



Options

Tags

You can specify tags (key-value pairs) for resources in your stack. You can add up to 10 unique key-value pairs for each stack. [Learn more.](#)

	Key (127 characters maximum)	Value (255 characters maximum)	
1	<input type="text"/>	<input type="text"/>	+

Advanced

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

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

Then click on Create below of the to create the Stack.

Options

Tags

No tags provided

Advanced

Notification

Timeout none

Rollback on failure Yes

Cancel Previous **Create**

Then on the cloudformation page, you can see status of the stack as `CREATE_IN_PROGRESS`, you can also see the events under the Events tab.

Create Stack Actions Design template

Filter: Active By Name: Showing 1 stack

Stack Name	Created Time	Status	Description
<input checked="" type="checkbox"/> MultiWP	2016-05-11 21:45:25 UTC+0550	CREATE_IN_PROGRESS	AWS CloudFormation Sample Template WordPress_Multi_AZ: WordPress is web software you can use

Overview Outputs Resources **Events** Template Parameters Tags Stack Policy Change Sets

2016-05-11	Status	Type	Logical ID	Status reason
21:46:05 UTC+0550	CREATE_IN_PROGRESS	AWS::RDS::DBInstance	DBInstance	Resource creation Initiated
21:46:02 UTC+0550	CREATE_IN_PROGRESS	AWS::RDS::DBInstance	DBInstance	
21:45:58 UTC+0550	CREATE_COMPLETE	AWS::RDS::DBSecurityGroup	DBSecurityGroup	
21:45:57 UTC+0550	CREATE_IN_PROGRESS	AWS::RDS::DBSecurityGroup	DBSecurityGroup	Resource creation Initiated
21:45:56 UTC+0550	CREATE_IN_PROGRESS	AWS::RDS::DBSecurityGroup	DBSecurityGroup	
21:45:52 UTC+0550	CREATE_COMPLETE	AWS::EC2::SecurityGroup	WebServerSecurityGroup	
21:45:51 UTC+0550	CREATE_IN_PROGRESS	AWS::EC2::SecurityGroup	WebServerSecurityGroup	Resource creation Initiated

Once created, stack status will change to `CREATE_COMPLETE`.

Create Stack Actions Design template

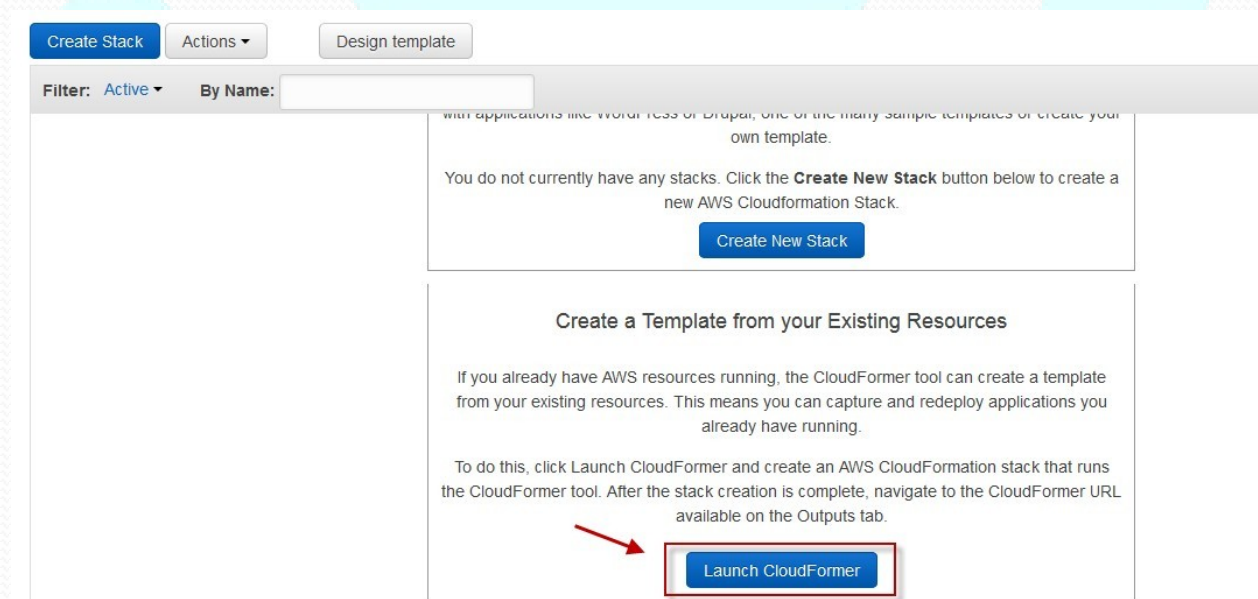
Filter: Active By Name:

Stack Name	Created Time	Status	Description
<input checked="" type="checkbox"/> MultiWP	2016-05-11 21:45:25 UTC+0550	CREATE_COMPLETE	AWS CloudFormation Sample Template WordPress_Multi_AZ: V

You can go and see the resources which were created by CloudFormation by going in to each services dashboard.

CREATE CLOUDFORMATION TEMPLATE FROM EXISTING ENVIRONMENT

Log in to AWS management console, then go to CloudFormation from the Console Home Page.
Then choose Launch CloudFormer.



Then choose Next on Select Template page.

Select Template

Select the template that describes the stack that you want to create. A stack is a group of related resources that you manage as a single unit.

Design a template Use AWS CloudFormation Designer to create or modify an existing template. [Learn more.](#)

Choose a template A template is a JSON-formatted text file that describes your stack's resources and their properties. [Learn more.](#)

☐ Select a sample template

LAMP Stack

☐ Upload a template to Amazon S3

No file selected.

☒ Specify an Amazon S3 template URL

[View/Edit template in Designer](#)

On Specify details page, specify username and password, then choose next to continue.

Specify Details

Specify a stack name and parameter values. You can use or change the default parameter values, which are defined in the AWS CloudFormation template. [Learn more.](#)

Stack name

Parameters

Password Password to log in to CloudFormer

Username Username to log in to CloudFormer

On the Options page, choose Next.

Options

Tags

You can specify tags (key-value pairs) for resources in your stack. You can add up to 10 unique key-value pairs for each stack. [Learn more.](#)

	Key (127 characters maximum)	Value (255 characters maximum)	
1	<input type="text"/>	<input type="text"/>	<input type="button" value="+"/>

Advanced

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

[Cancel](#)

[Previous](#)

[Next](#)

On the review page, go to below section of the page, check the acknowledgement box, then choose Create button.

Capabilities



The following resource(s) require capabilities: [AWS::IAM::InstanceProfile, AWS::IAM::Policy, AWS::IAM::Role]

This template might include Identity and Access Management (IAM) resources, which can include groups, IAM users, and IAM roles with certain permissions. Ensure that the template you are using is from a trusted source. [Learn more.](#)



I acknowledge that this template might cause AWS CloudFormation to create IAM resources.

[Cancel](#)

[Previous](#)

[Create](#)

Cloudformation will create a stack, once the stack creation has been completed. Go to Outputs section. Copy the URL and open in your browser.

[Create Stack](#) [Actions](#) [Design template](#)

Filter: [Active](#) By Name:

	Stack Name	Created Time	Status	Description
<input checked="" type="checkbox"/>	AWSCloudFormer	2016-05-13 19:26:36 UTC+0550	CREATE_COMPLETE	AWS CloudFormer Beta - template creation prototype application. This

Overview

Outputs

Resources

Events

Template

Parameters

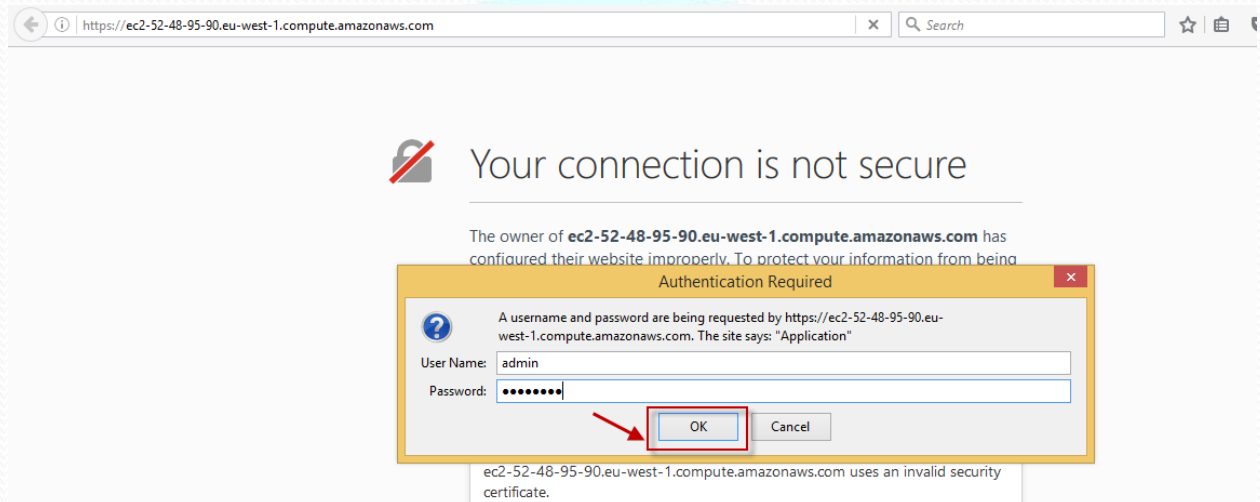
Tags

Stack Policy

Change Sets

Key	Value	Description
WebsiteURL	https://ec2-52-48-95-90.eu-west-1.compute.amazonaws.com	URL for CloudFormer

Once you have opened the URL, specify the username and password which you have specified while creating the stack, then click on Ok.



Once opened, choose your region where you have your resources from the Select the AWS region drop down list, then choose Create Template.



AWS CloudFormer 0.41 (Beta)

Welcome to the [AWS CloudFormation](#) template creation utility. This utility helps you to create a CloudFormation AWS resources currently running in your account using a few simple steps. While the created template is comp launch an AWS CloudFormation stack, it is a starting point for further customization. You should consider at lea

- Add Parameters to enable stacks to be customized at launch time.
- Add Mappings to allow the template to be customized to the specific environment.
- Replace static values with "Ref" and "Fn::GetAtt" functions to flow property data between resources when property is dependent on the value of a property from a different resource.
- Remove any static IP addresses, availability zones and other environmental properties to create more gene
- Use CloudFormation metadata and on-host helper scripts to deploy files, packages and run commands on y instances.
- Customize any RDS Database, ElastiCache cluster or Redshift cluster passwords.
- Customize or add more stack outputs to list important information needed by the stack user.

Select the AWS Region

When you press "Create Template" we will analyze all of the AWS resources in your account. This may take a little time.

Create Template

For more information on how to build a template see the [AWS CloudFormation User Guide](#). You can also check c

Wait for some time as it will analyse your account.



Analyzing your account

Then on the next page, add some Template description, select check box for all resources then choose continue tab above the page.

AWS CloudFormer

Region ap-southeast-1



Template Information

Select the AWS region to introspect. The description is optional but will be displayed in the AWS Management console when the template is used to create a stack. You can optionally enter a filter for the resources. If you specify a filter, all resources with a name or a tag value that contains the filter text will be selected automatically. Note that the filter is a case-insensitive match.

Template Description

Testing CloudFormer Tool

Resource Name Filter

Select resources matching filter

☒ Select all resources in your account

Choose resources by Service.

Once done you will have an option to save the template which is created by CloudFormer to S3 bucket or copy and save it in your desktop.

AWS CloudFormation Template

Region ap-southeast-1

You can save the AWS CloudFormation template in an existing S3 bucket in your account by selecting a bucket and clicking on the Save button below. Alternatively, you can cut and paste the template content below and store it locally or in your source control repository. NOTE: If you save the template to an S3 bucket in a different AWS region from the one used to create the template, launching it in the new AWS region will likely fail since the template may have hardcoded values based on the original AWS region.

Template Name cloudformer.template S3 Bucket cf-templates-jzkt7dp55r6p-ap-southeast-1 (ap-southeast-1) v

Save Template Cancel

```
{
  "AWSTemplateFormatVersion": "2010-09-09",
  "Resources": {
    "vpca20b29c7": {
      "Type": "AWS::EC2::VPC",
      "Properties": {
        "CidrBlock": "172.17.0.0/16",
        "InstanceTenancy": "default",
        "EnableDnsSupport": "true",
        "EnableDnsHostnames": "false",
        "Tags": [
          {
            "Key": "Name",
            "Value": "vpca20b29c7"
          }
        ]
      }
    }
  }
}
```