WEB APP – SINGLE SERVER TO ELASTIC EVOLUTION (Final Stage) BY ADRIAN CANTRILL

Note: The project instructions are detailed in Adrian's GitHub repository.

Project Link Source:
https://github.com/acantril/learn-cantrill-io-labs/tree/master/aws-elastic-wordpress-evolution

In this section, we construct the **Final Stage** of the project, unifying all the elements we've learned from previous stages and infusing it with adaptability.

Objectives:

- Offload the **Database** from the **WordPress instance** by migrating it to an **RDS instance.** This ensures that in the event of an instance crash, the database can survive, or vice versa.
- Offload the **wp-content** from the **WordPress instance** by migrating it to an **AWS EFS.** This ensures that in the event of an instance crash, the **application media** and **UI** can survive.
-
- Incorporating autoscaling and a load balancer into the project

Instructions:

1. Log in to your AWS Console. Ensure that your account has Administrator Access..
2. Copy and paste the following link into your browser https://console.aws.amazon.com/cloudformation/home?region=us-east-1#/stacks/quickcreate?templateURL=https://learn-cantrill-labs.s3.amazonaws.com/aws-elastic-wordpress-evolution/A4LVPC.yaml&stackName=A4LVPC.

   This CloudFormation template will create the infrastructure for our **WordPre**ss app. Click "**I acknowledge that AWS CloudFormation might create IAM resources,**" then click "**Create stack**." Wait for the stack to move into the "**CREATE_COMPLETE**" state before continuing.

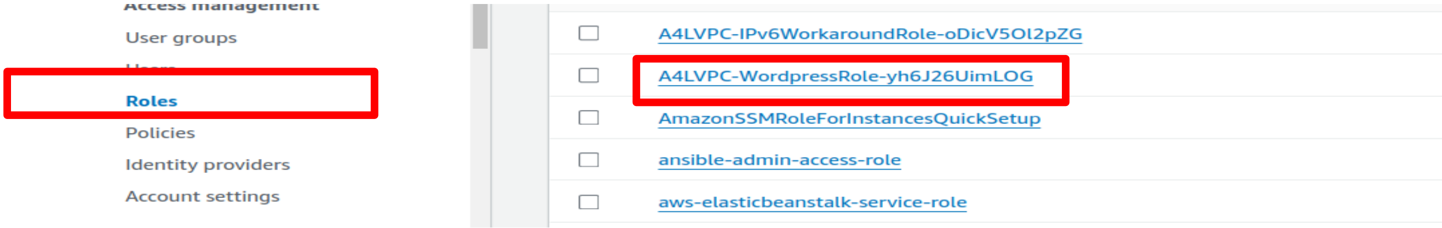
3. Download the CloudFormation template from this link: *https://github.com/robudexIT/awsdevopsproject/blob/cloudformation/cloudformation/wordpress/wordpress_instance_rds_efs.yaml*

Note: You can skip step 2 if you already created the stack

This CloudFormation template contains the same instructions as in **Stage 4**

4. **Stage4 Instructions Cloudformation:**

- Goto https://us-east-1.console.aws.amazon.com/iam/home?region=us-east-1#/roles and look for A4LVPC-WordpressRole Roles and click it.



Access management

User groups

Users

Roles

Policies

Identity providers

Account settings

□ A4LVPC-IPv6WorkaroundRole-oDicV5Ol2pZG

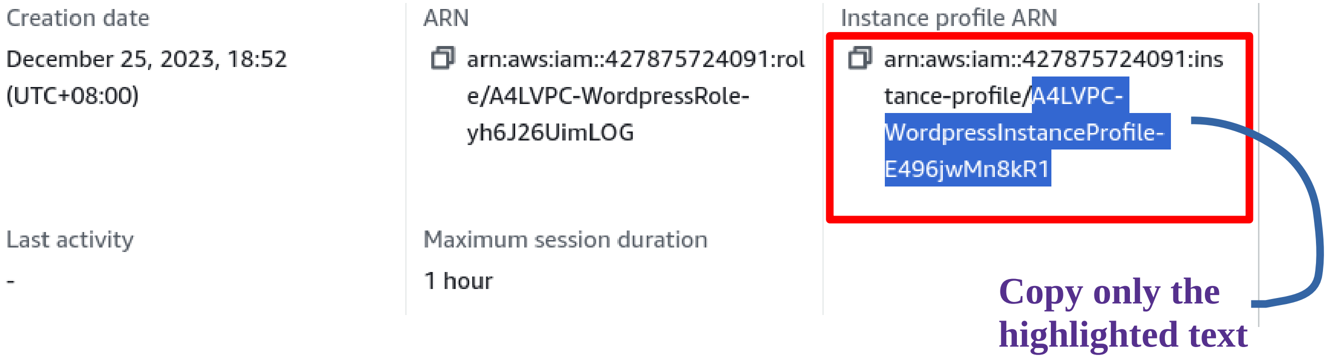
□ A4LVPC-WordpressRole-yh6J26UimLOG

□ AmazonSSMRoleForInstancesQuickSetup

□ ansible-admin-access-role

□ aws-elasticbeanstalk-service-role

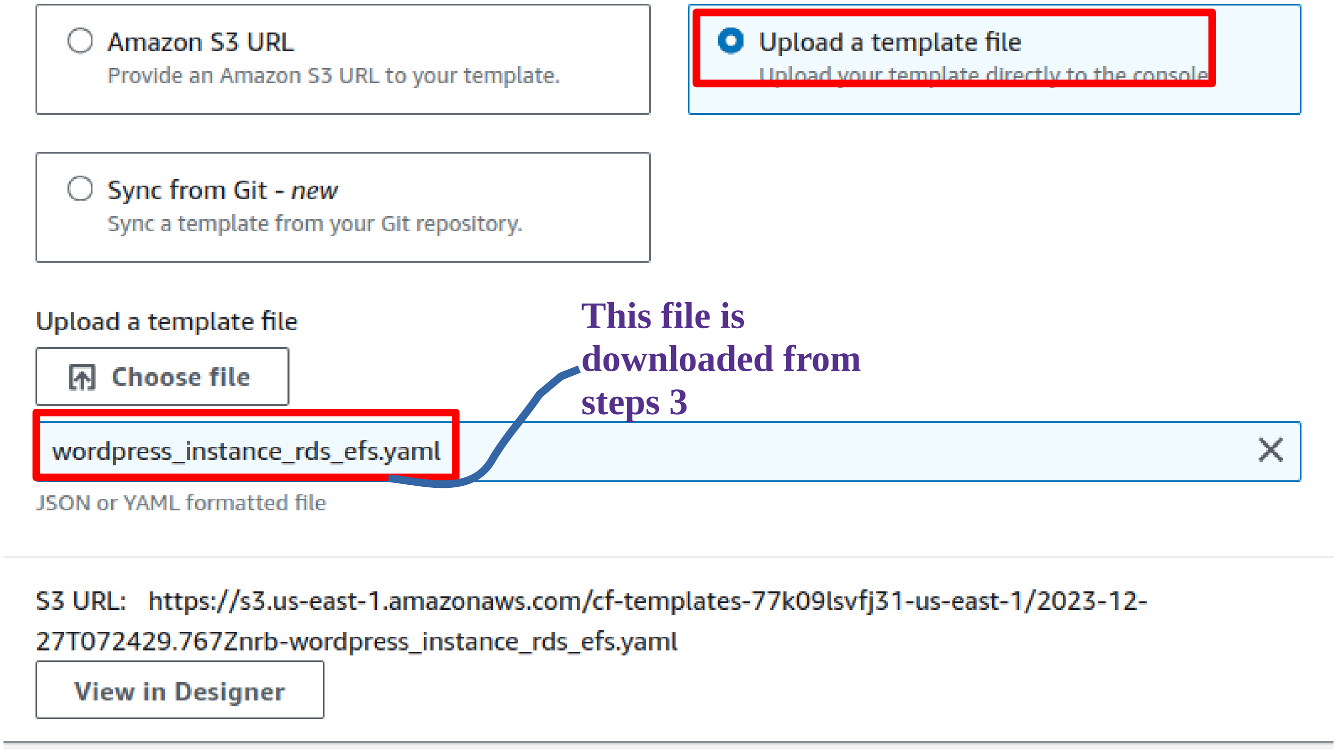
- **Copy the Instance Profile Name to your notes**



Creation date	ARN	Instance profile ARN
December 25, 2023, 18:52 (UTC+08:00)	arn:aws:iam::427875724091:role/A4LVPC-WordpressRole-yh6J26UimLOG	arn:aws:iam::427875724091:instance-profile/A4LVPC-WordpressInstanceProfile-E496jwMn8kR1
Last activity	Maximum session duration	
-	1 hour	

Copy only the highlighted text

- **Goto Cloudformation and create stack:**



○ Amazon S3 URL
Provide an Amazon S3 URL to your template.

● Upload a template file
Upload your template directly to the console

○ Sync from Git - *new*
Sync a template from your Git repository.

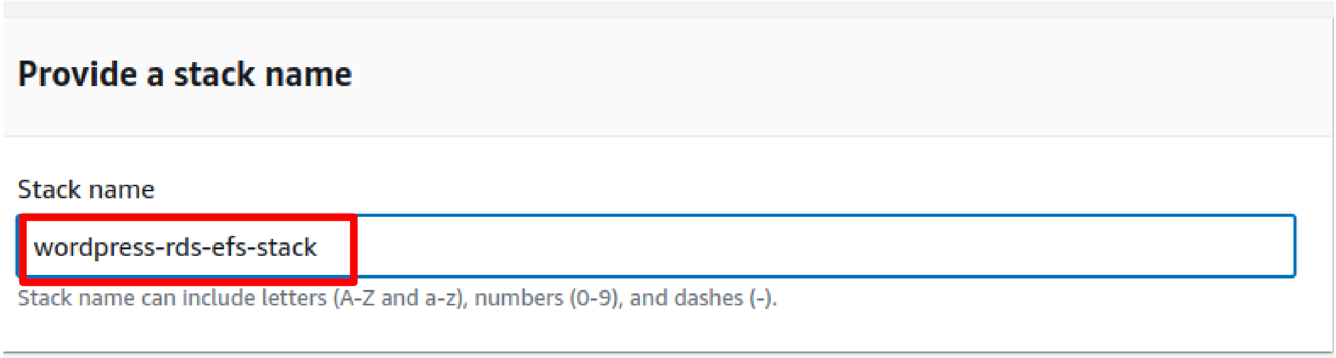
Upload a template file

wordpress_instance_rds_efs.yaml ✕

JSON or YAML formatted file

This file is downloaded from steps 3

S3 URL: https://s3.us-east-1.amazonaws.com/cf-templates-77k09lsvfj31-us-east-1/2023-12-27T072429.767Znrb-wordpress_instance_rds_efs.yaml

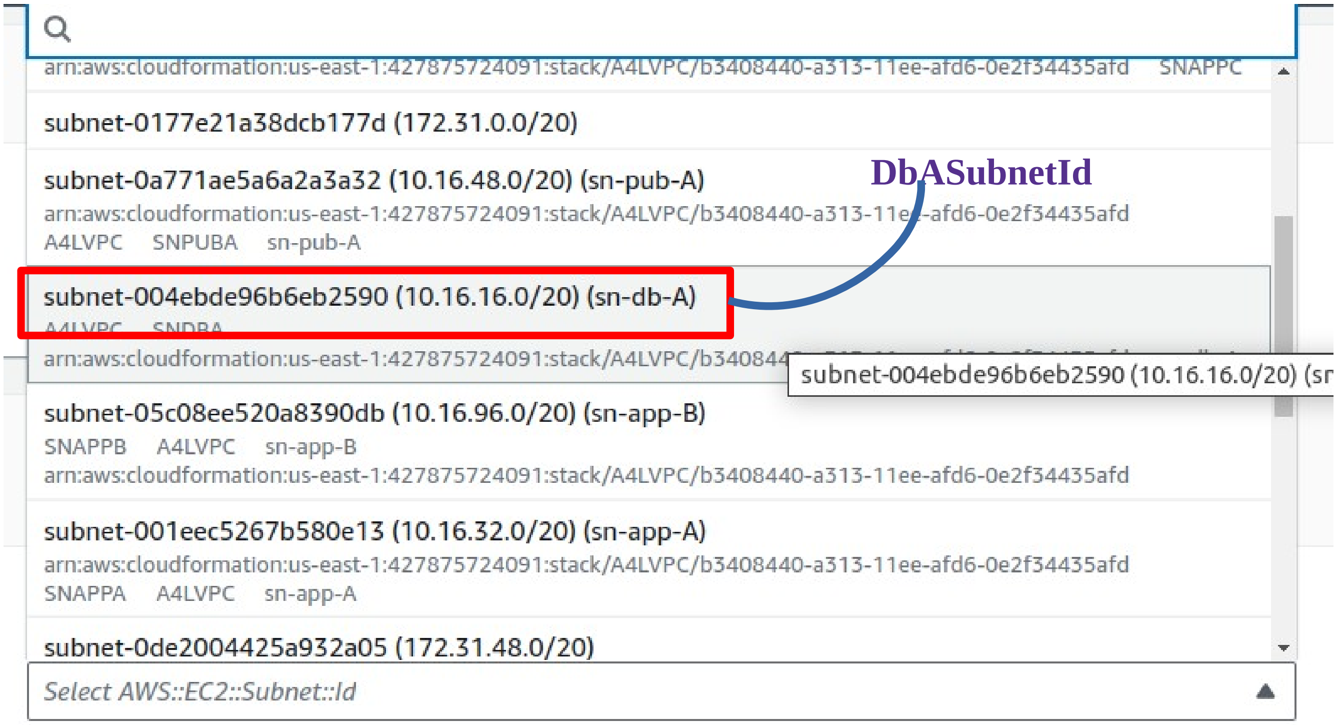


Provide a stack name

Stack name

wordpress-rds-efs-stack

Stack name can include letters (A-Z and a-z), numbers (0-9), and dashes (-).



arn:aws:cloudformation:us-east-1:427875724091:stack/A4LVPC/b3408440-a313-11ee-afd6-0e2f34435afd SNAPPC

subnet-0177e21a38dcb177d (172.31.0.0/20)

subnet-0a771ae5a6a2a3a32 (10.16.48.0/20) (sn-pub-A)
arn:aws:cloudformation:us-east-1:427875724091:stack/A4LVPC/b3408440-a313-11ee-afd6-0e2f34435afd
A4LVPC SNPUBA sn-pub-A

subnet-004ebde96b6eb2590 (10.16.16.0/20) (sn-db-A)
A4LVPC SNDBA
arn:aws:cloudformation:us-east-1:427875724091:stack/A4LVPC/b340844

subnet-004ebde96b6eb2590 (10.16.16.0/20) (sn

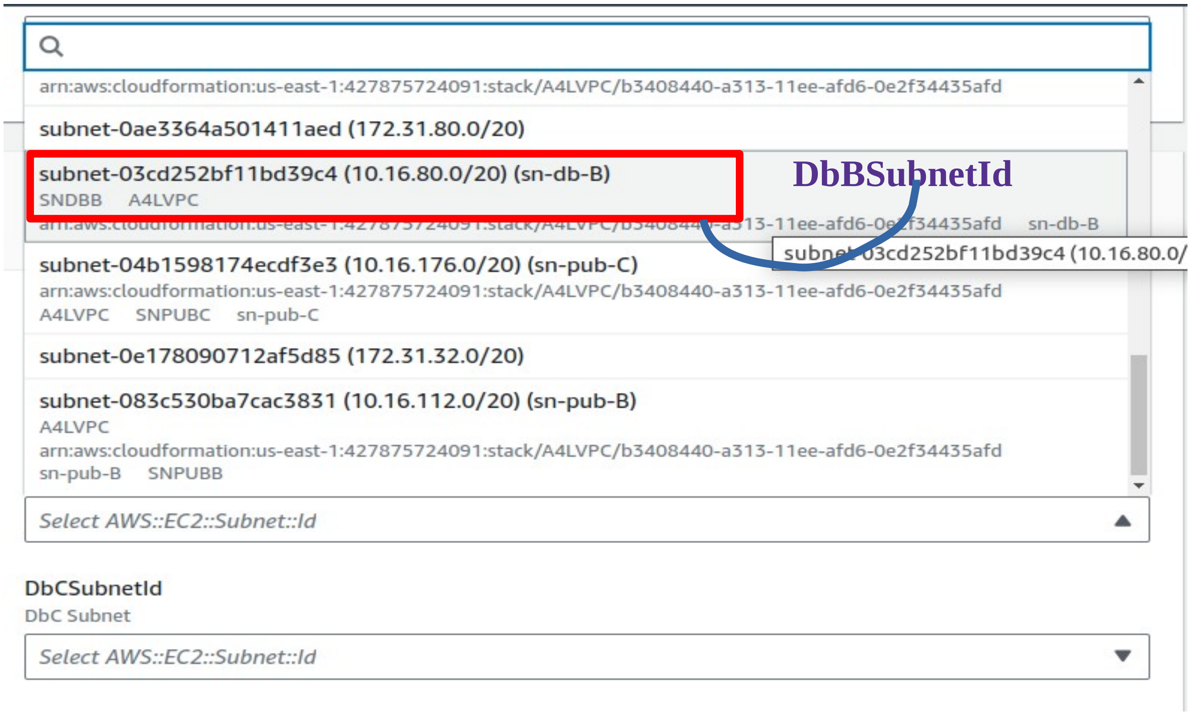
subnet-05c08ee520a8390db (10.16.96.0/20) (sn-app-B)
SNAPPB A4LVPC sn-app-B
arn:aws:cloudformation:us-east-1:427875724091:stack/A4LVPC/b3408440-a313-11ee-afd6-0e2f34435afd

subnet-001eec5267b580e13 (10.16.32.0/20) (sn-app-A)
arn:aws:cloudformation:us-east-1:427875724091:stack/A4LVPC/b3408440-a313-11ee-afd6-0e2f34435afd
SNAPPA A4LVPC sn-app-A

subnet-0de2004425a932a05 (172.31.48.0/20)

Select AWS::EC2::Subnet::Id

DbASubnetId



arn:aws:cloudformation:us-east-1:427875724091:stack/A4LVPC/b3408440-a313-11ee-afd6-0e2f34435afd

subnet-0ae3364a501411aed (172.31.80.0/20)

subnet-03cd252bf11bd39c4 (10.16.80.0/20) (sn-db-B)
SNDBB A4LVPC
arn:aws:cloudformation:us-east-1:427875724091:stack/A4LVPC/b3408440-a313-11ee-afd6-0e2f34435afd sn-db-B

subnet-03cd252bf11bd39c4 (10.16.80.0/

subnet-04b1598174ecdf3e3 (10.16.176.0/20) (sn-pub-C)
arn:aws:cloudformation:us-east-1:427875724091:stack/A4LVPC/b3408440-a313-11ee-afd6-0e2f34435afd
A4LVPC SNPUBC sn-pub-C

subnet-0e178090712af5d85 (172.31.32.0/20)

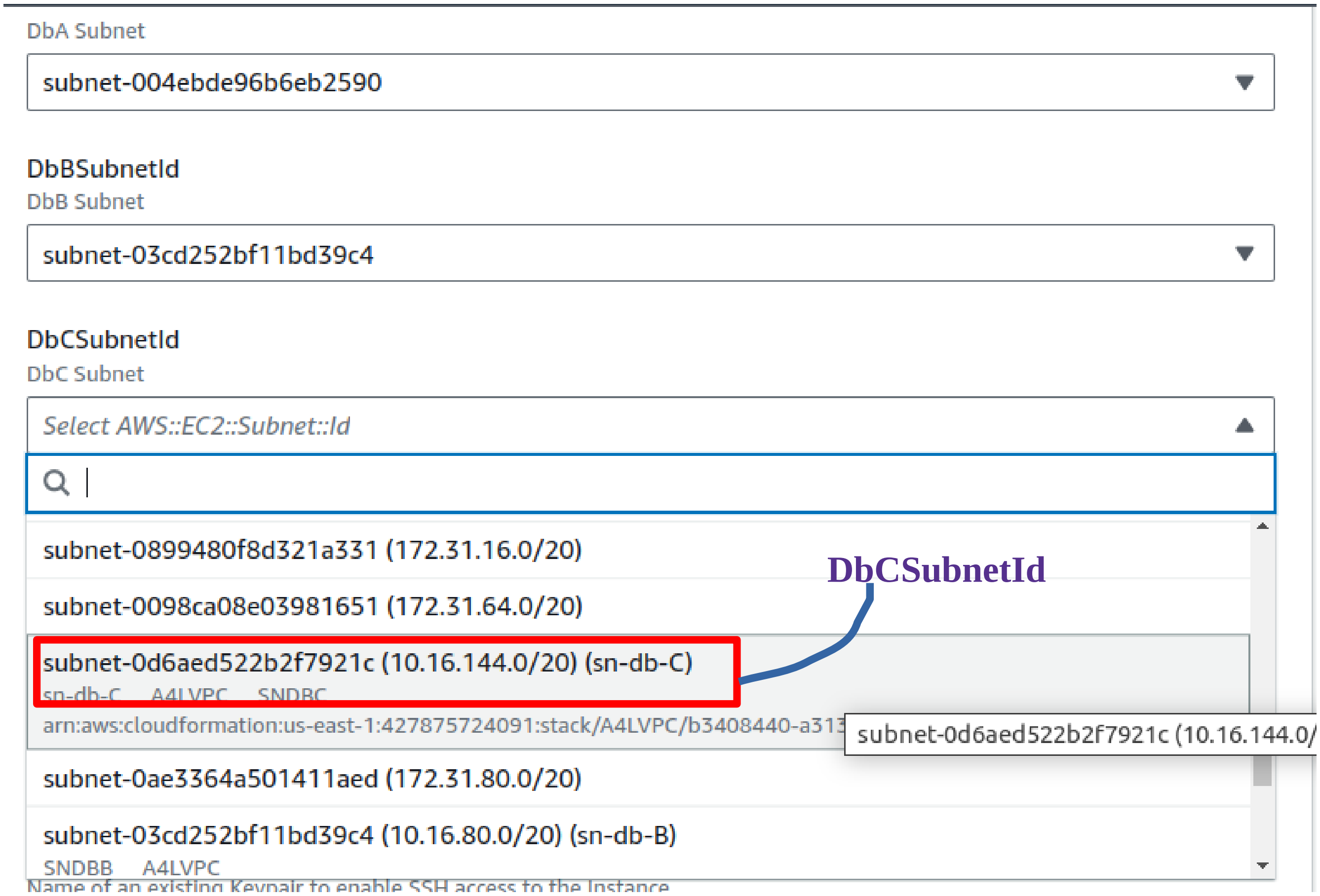
subnet-083c530ba7cac3831 (10.16.112.0/20) (sn-pub-B)
A4LVPC
arn:aws:cloudformation:us-east-1:427875724091:stack/A4LVPC/b3408440-a313-11ee-afd6-0e2f34435afd
sn-pub-B SNPUBB

Select AWS::EC2::Subnet::Id

DbCSubnetId
DbC Subnet

Select AWS::EC2::Subnet::Id

DbBSubnetId



DbA Subnet

subnet-004ebde96b6eb2590 ▼

DbBSubnetId

DbB Subnet

subnet-03cd252bf11bd39c4 ▼

DbCSubnetId

DbC Subnet

Select AWS::EC2::Subnet::Id ▲

subnet-0899480f8d321a331 (172.31.16.0/20)

subnet-0098ca08e03981651 (172.31.64.0/20)

subnet-0d6aed522b2f7921c (10.16.144.0/20) (sn-db-C)

sn-db-C A4LVPC SNDBC

arn:aws:cloudformation:us-east-1:427875724091:stack/A4LVPC/b3408440-a313

subnet-0d6aed522b2f7921c (10.16.144.0/

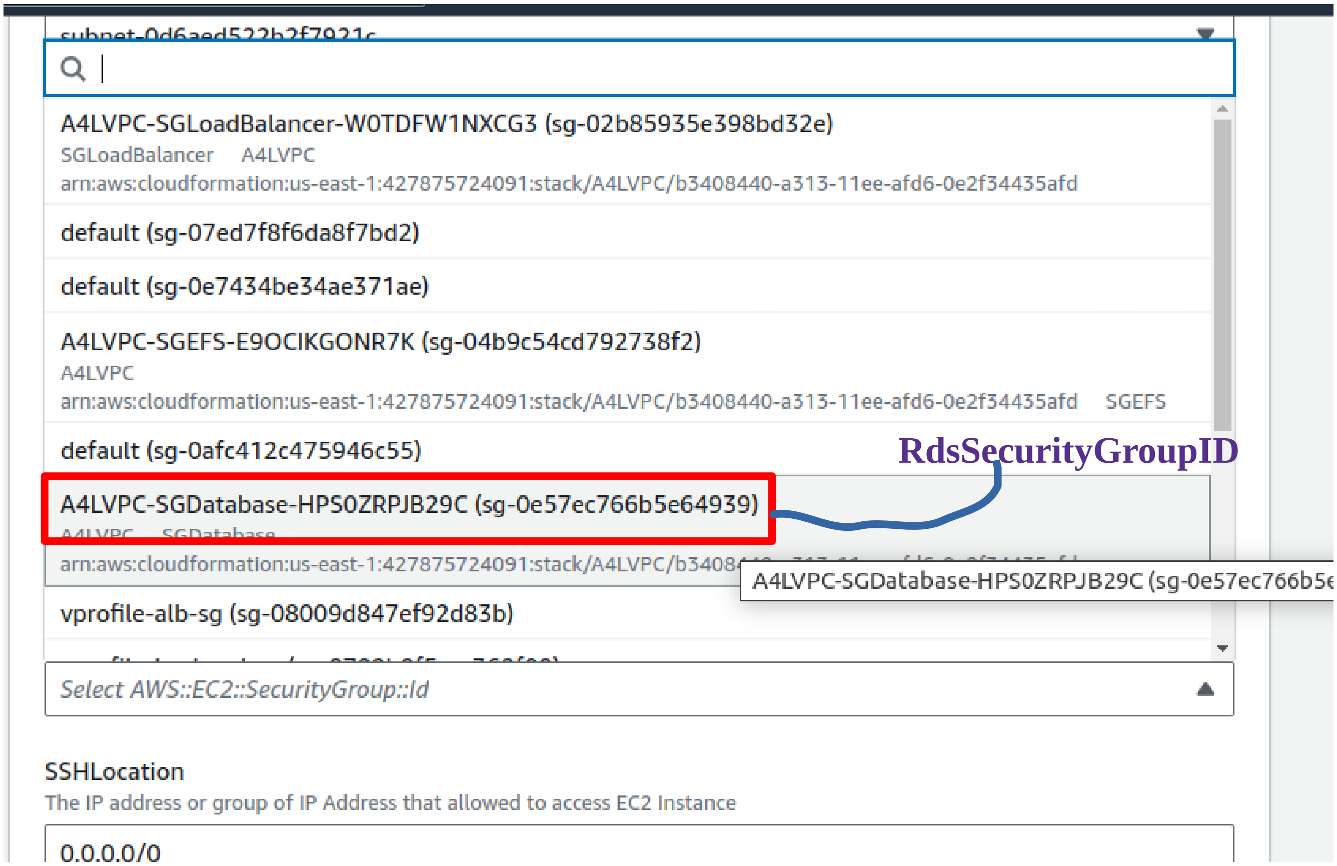
subnet-0ae3364a501411aed (172.31.80.0/20)

subnet-03cd252bf11bd39c4 (10.16.80.0/20) (sn-db-B)

SNDBB A4LVPC

Name of an existing Keypair to enable SSH access to the Instance

DbCSubnetId



subnet-0d6aed522b2f7921c ▼

A4LVPC-SGLoadBalancer-W0TDFW1NXCG3 (sg-02b85935e398bd32e)

SGLoadBalancer A4LVPC

arn:aws:cloudformation:us-east-1:427875724091:stack/A4LVPC/b3408440-a313-11ee-afd6-0e2f34435afd

default (sg-07ed7f8f6da8f7bd2)

default (sg-0e7434be34ae371ae)

A4LVPC-SGEFS-E9OCIKGONR7K (sg-04b9c54cd792738f2)

A4LVPC

arn:aws:cloudformation:us-east-1:427875724091:stack/A4LVPC/b3408440-a313-11ee-afd6-0e2f34435afd SGEFS

default (sg-0afc412c475946c55)

A4LVPC-SGDatabase-HPS0ZRPJB29C (sg-0e57ec766b5e64939)

A4LVPC SGDatabase

arn:aws:cloudformation:us-east-1:427875724091:stack/A4LVPC/b3408

A4LVPC-SGDatabase-HPS0ZRPJB29C (sg-0e57ec766b5e

vprofile-alb-sg (sg-08009d847ef92d83b)

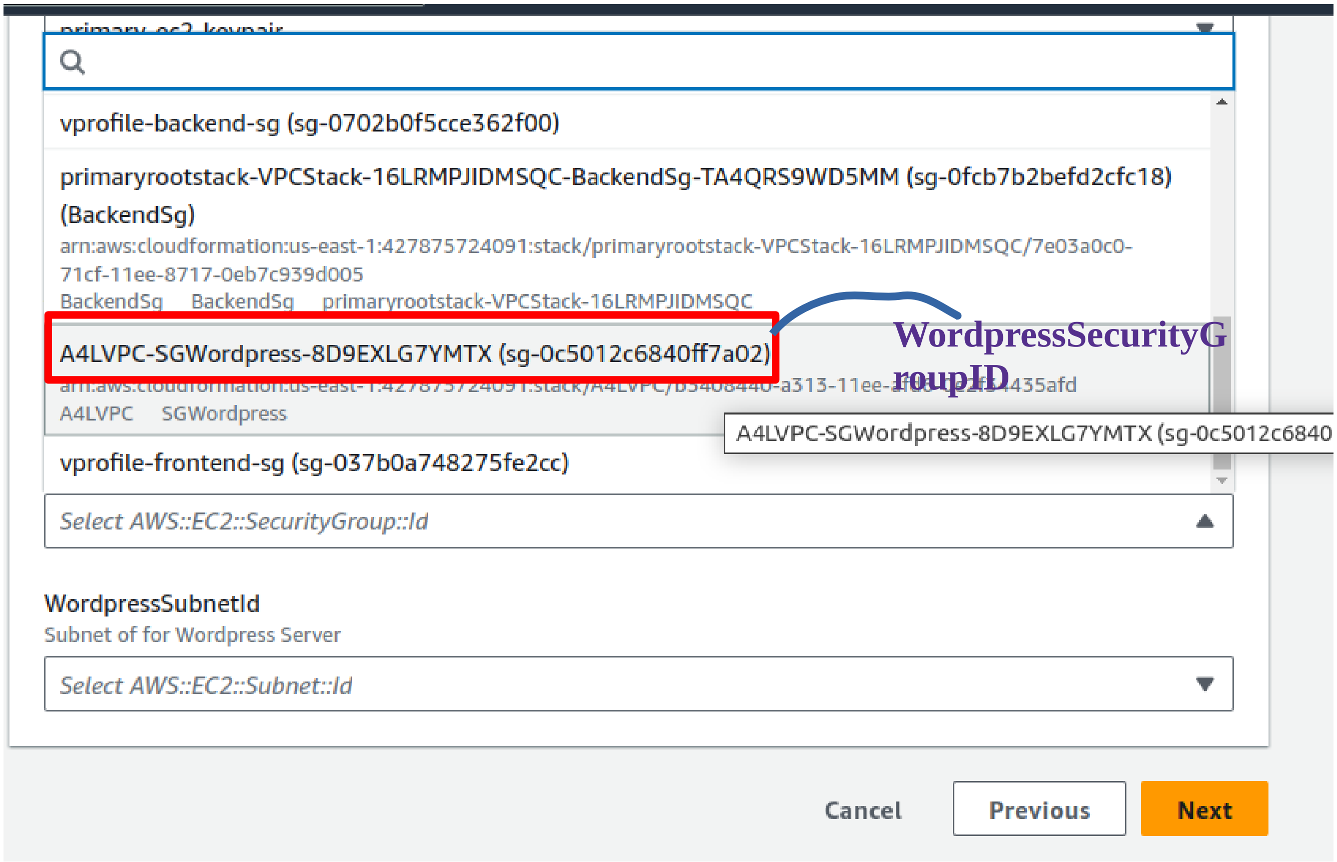
Select AWS::EC2::SecurityGroup::Id ▲

SSHLocation

The IP address or group of IP Address that allowed to access EC2 Instance

0.0.0.0/0

RdsSecurityGroupID



primary-ec2-keypair

vprofile-backend-sg (sg-0702b0f5cce362f00)

primaryrootstack-VPCStack-16LRMPJIDMSQC-BackendSg-TA4QRS9WD5MM (sg-0fcb7b2befd2cfc18) (BackendSg)
arn:aws:cloudformation:us-east-1:427875724091:stack/primaryrootstack-VPCStack-16LRMPJIDMSQC/7e03a0c0-71cf-11ee-8717-0eb7c939d005
BackendSg BackendSg primaryrootstack-VPCStack-16LRMPJIDMSQC

A4LVPC-SGWordpress-8D9EXLG7YMTX (sg-0c5012c6840ff7a02)
arn:aws:cloudformation:us-east-1:427875724091:stack/A4LVPC/b3408440-a313-11ee-a[illegible]435afd
A4LVPC SGWordpress

WordpressSecurityGroupID

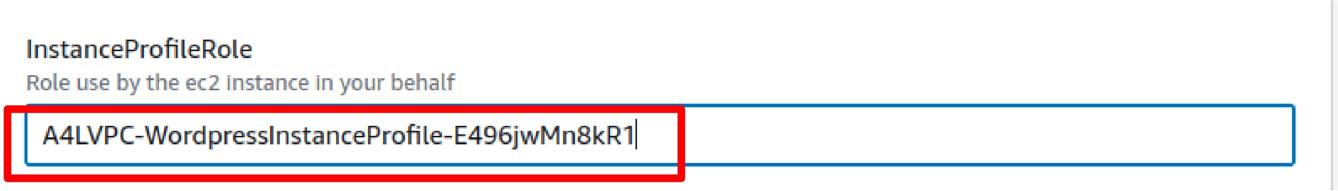
A4LVPC-SGWordpress-8D9EXLG7YMTX (sg-0c5012c6840

vprofile-frontend-sg (sg-037b0a748275fe2cc)

Select AWS::EC2::SecurityGroup::Id

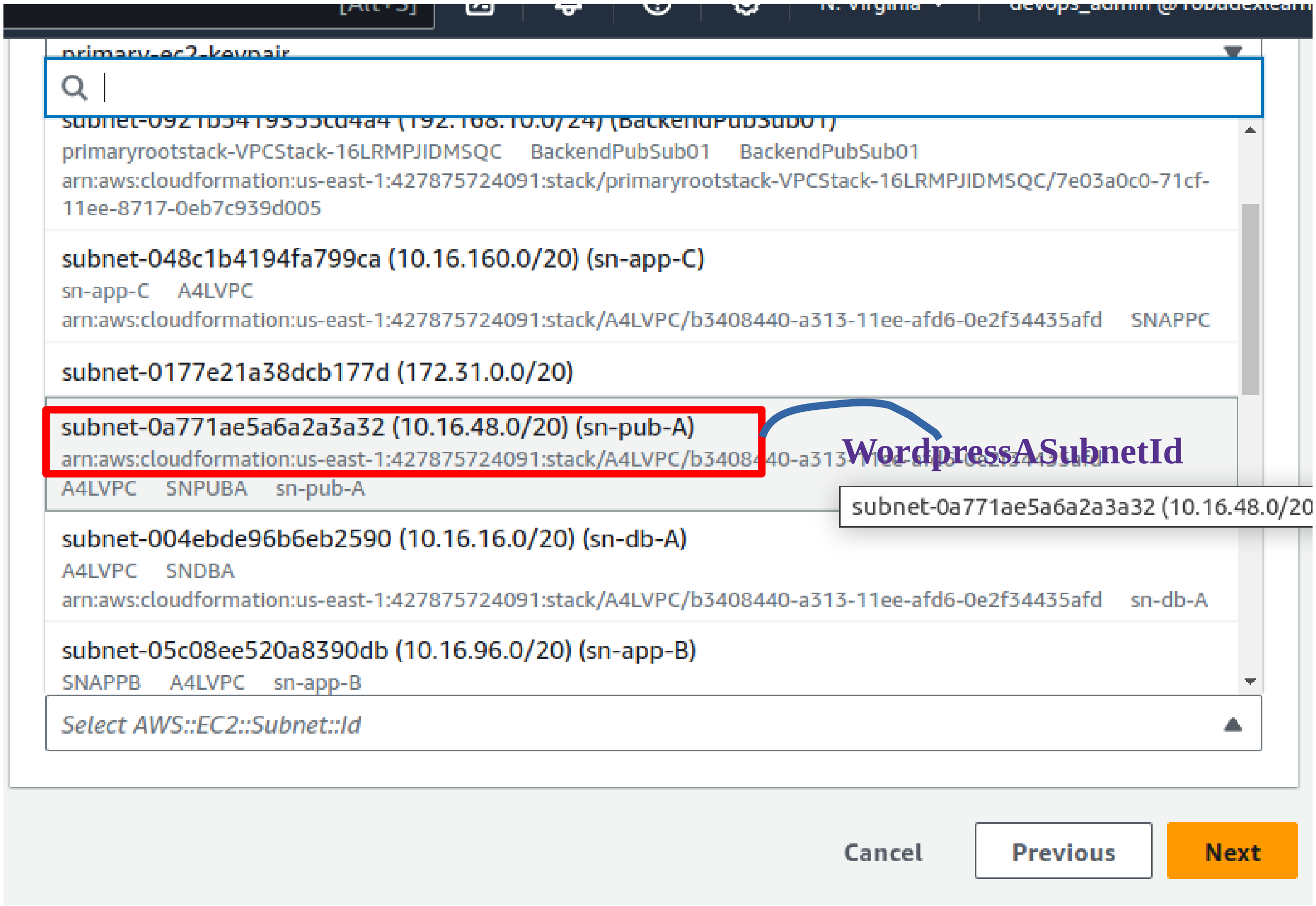
WordpressSubnetId
Subnet of for Wordpress Server

Select AWS::EC2::Subnet::Id



InstanceProfileRole
Role use by the ec2 instance in your behalf

A4LVPC-WordpressInstanceProfile-E496jwMn8kR1



primary-ec2-keypair

subnet-0921b5419335cd4a4 (192.168.10.0/24) (BackendPubSub01)
primaryrootstack-VPCStack-16LRMPJIDMSQC BackendPubSub01 BackendPubSub01
arn:aws:cloudformation:us-east-1:427875724091:stack/primaryrootstack-VPCStack-16LRMPJIDMSQC/7e03a0c0-71cf-11ee-8717-0eb7c939d005

subnet-048c1b4194fa799ca (10.16.160.0/20) (sn-app-C)
sn-app-C A4LVPC
arn:aws:cloudformation:us-east-1:427875724091:stack/A4LVPC/b3408440-a313-11ee-afd6-0e2f34435afd SNAPPC

subnet-0177e21a38dcb177d (172.31.0.0/20)

subnet-0a771ae5a6a2a3a32 (10.16.48.0/20) (sn-pub-A)
arn:aws:cloudformation:us-east-1:427875724091:stack/A4LVPC/b3408440-a313-11ee-afd6-0e2f34435afd
A4LVPC SNPUBA sn-pub-A

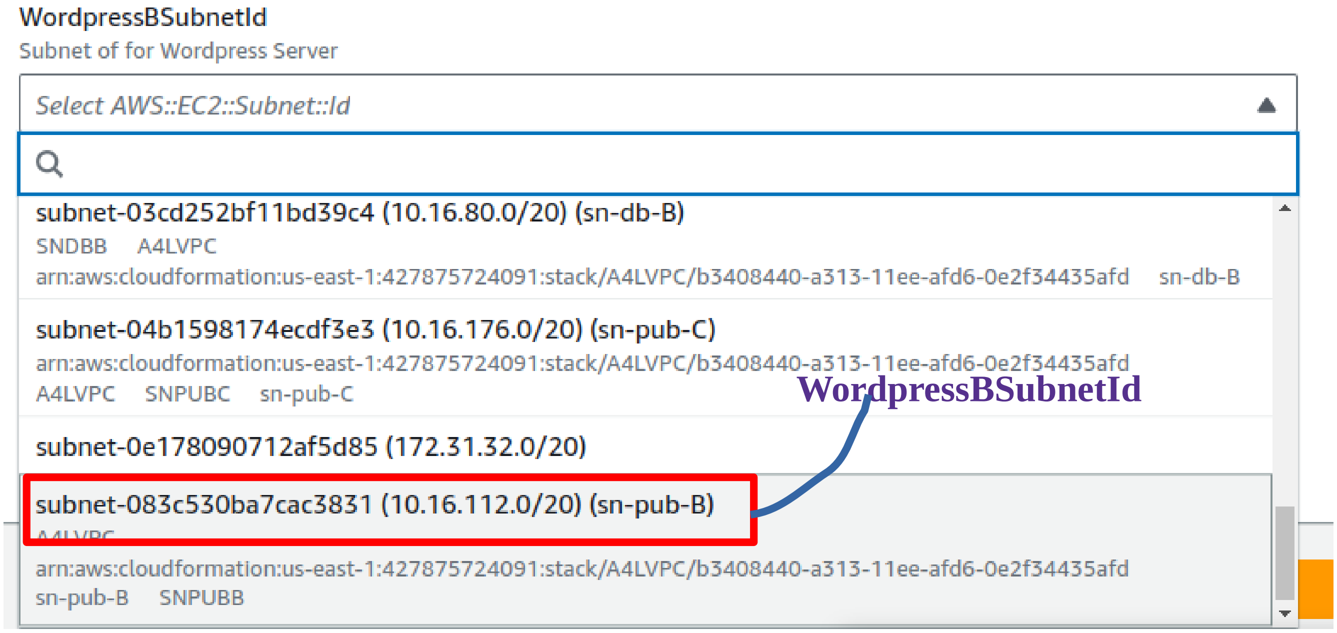
WordpressASubnetId

subnet-0a771ae5a6a2a3a32 (10.16.48.0/20

subnet-004ebde96b6eb2590 (10.16.16.0/20) (sn-db-A)
A4LVPC SNDBA
arn:aws:cloudformation:us-east-1:427875724091:stack/A4LVPC/b3408440-a313-11ee-afd6-0e2f34435afd sn-db-A

subnet-05c08ee520a8390db (10.16.96.0/20) (sn-app-B)
SNAPPB A4LVPC sn-app-B

Select AWS::EC2::Subnet::Id ▲



WordpressBSubnetId

Subnet of for Wordpress Server

Select AWS::EC2::Subnet::Id

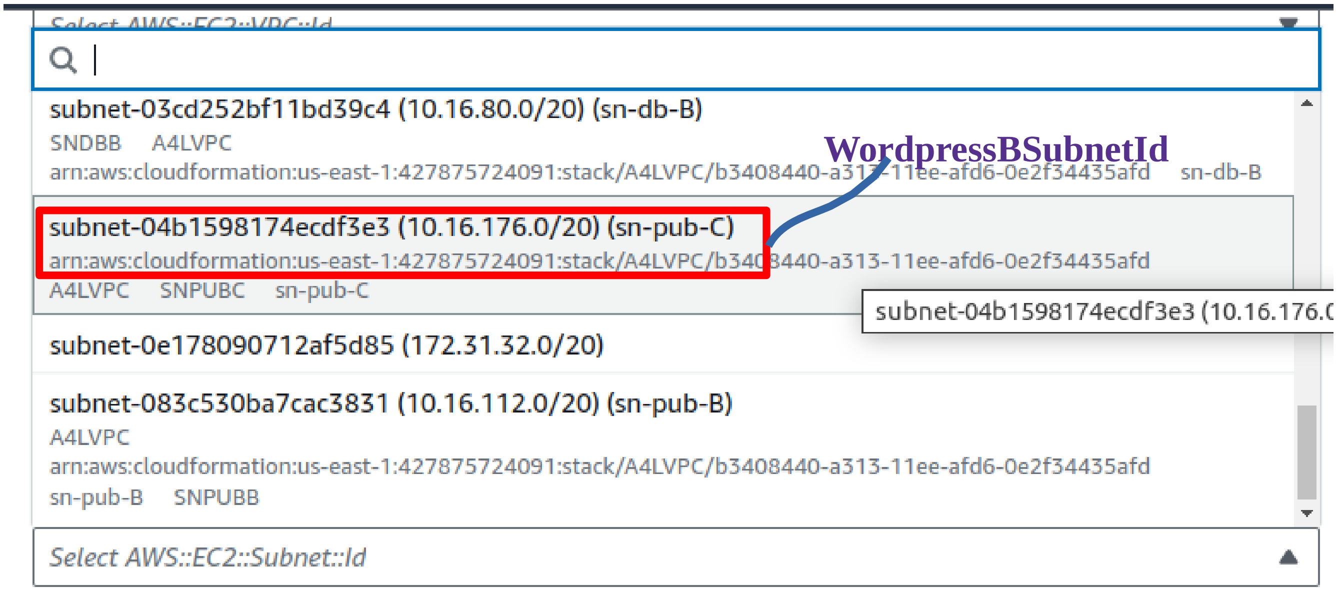
subnet-03cd252bf11bd39c4 (10.16.80.0/20) (sn-db-B)
SNDBB A4LVPC
arn:aws:cloudformation:us-east-1:427875724091:stack/A4LVPC/b3408440-a313-11ee-afd6-0e2f34435afd sn-db-B

subnet-04b1598174ecdf3e3 (10.16.176.0/20) (sn-pub-C)
arn:aws:cloudformation:us-east-1:427875724091:stack/A4LVPC/b3408440-a313-11ee-afd6-0e2f34435afd
A4LVPC SNPUBC sn-pub-C

subnet-0e178090712af5d85 (172.31.32.0/20)

subnet-083c530ba7cac3831 (10.16.112.0/20) (sn-pub-B)
arn:aws:cloudformation:us-east-1:427875724091:stack/A4LVPC/b3408440-a313-11ee-afd6-0e2f34435afd
sn-pub-B SNPUBB

WordpressBSubnetId



Select AWS::EC2::VPC::Id

subnet-03cd252bf11bd39c4 (10.16.80.0/20) (sn-db-B)
SNDBB A4LVPC
arn:aws:cloudformation:us-east-1:427875724091:stack/A4LVPC/b3408440-a313-11ee-afd6-0e2f34435afd sn-db-B

subnet-04b1598174ecdf3e3 (10.16.176.0/20) (sn-pub-C)
arn:aws:cloudformation:us-east-1:427875724091:stack/A4LVPC/b3408440-a313-11ee-afd6-0e2f34435afd
A4LVPC SNPUBC sn-pub-C

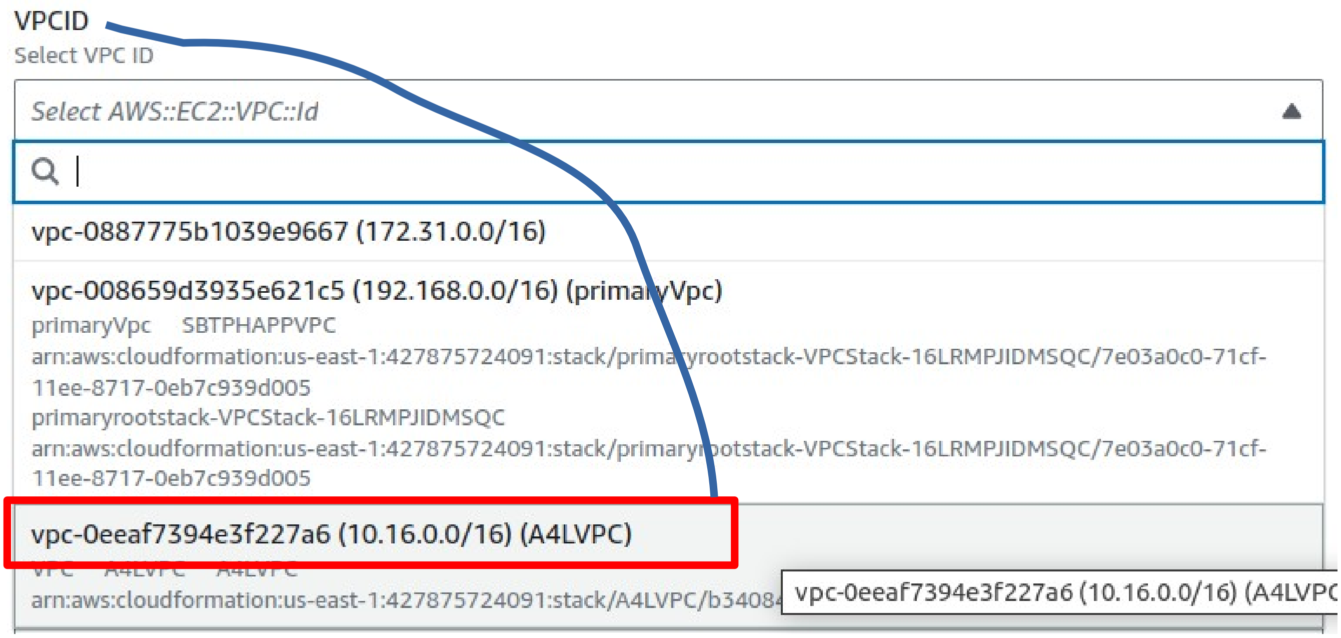
subnet-04b1598174ecdf3e3 (10.16.176.0

subnet-0e178090712af5d85 (172.31.32.0/20)

subnet-083c530ba7cac3831 (10.16.112.0/20) (sn-pub-B)
A4LVPC
arn:aws:cloudformation:us-east-1:427875724091:stack/A4LVPC/b3408440-a313-11ee-afd6-0e2f34435afd
sn-pub-B SNPUBB

Select AWS::EC2::Subnet::Id

WordpressBSubnetId



VPCID

Select VPC ID

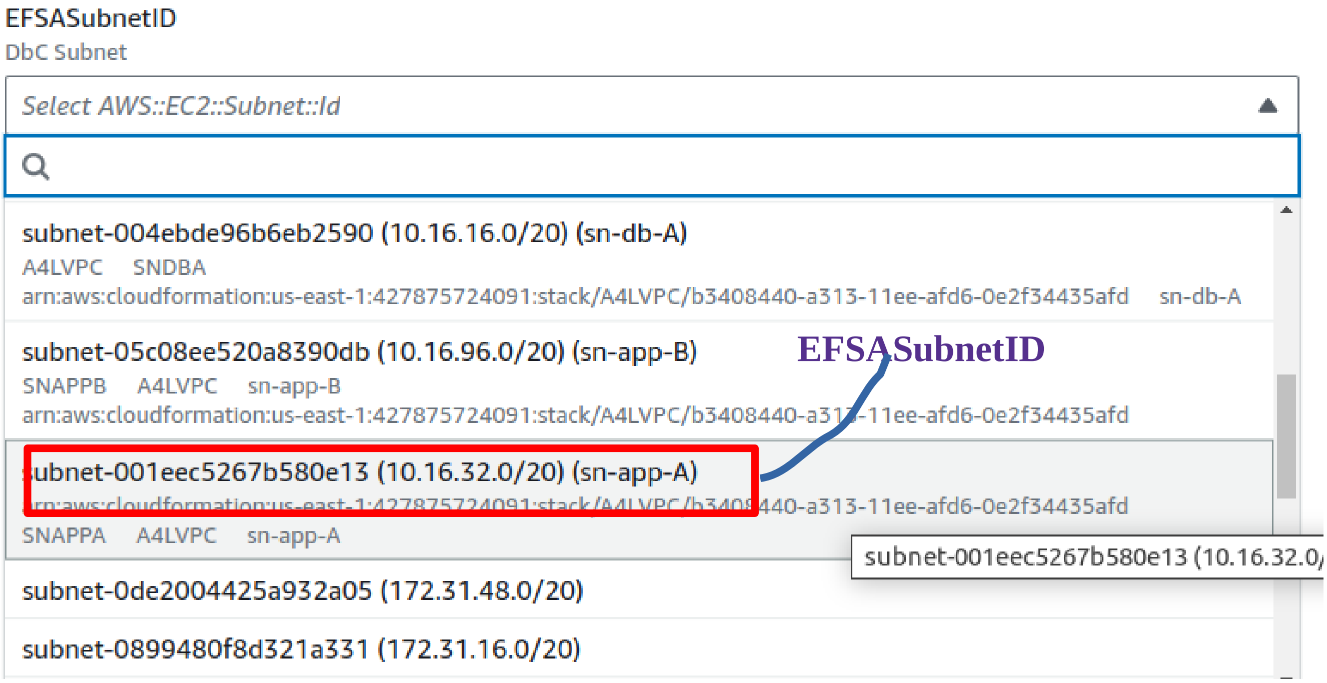
Select AWS::EC2::VPC::Id

vpc-0887775b1039e9667 (172.31.0.0/16)

vpc-008659d3935e621c5 (192.168.0.0/16) (primaryVpc)
primaryVpc SBTPHAPPVPC
arn:aws:cloudformation:us-east-1:427875724091:stack/primaryrootstack-VPCStack-16LRMPJIDMSQC/7e03a0c0-71cf-11ee-8717-0eb7c939d005
primaryrootstack-VPCStack-16LRMPJIDMSQC
arn:aws:cloudformation:us-east-1:427875724091:stack/primaryrootstack-VPCStack-16LRMPJIDMSQC/7e03a0c0-71cf-11ee-8717-0eb7c939d005

vpc-0eeaf7394e3f227a6 (10.16.0.0/16) (A4LVPC)
VPC A4LVPC A4LVPC
arn:aws:cloudformation:us-east-1:427875724091:stack/A4LVPC/b34084

vpc-0eeaf7394e3f227a6 (10.16.0.0/16) (A4LVPC



EFSASubnetID

DbC Subnet

Select AWS::EC2::Subnet::Id

subnet-004ebde96b6eb2590 (10.16.16.0/20) (sn-db-A)
A4LVPC SNDBA
arn:aws:cloudformation:us-east-1:427875724091:stack/A4LVPC/b3408440-a313-11ee-afd6-0e2f34435afd sn-db-A

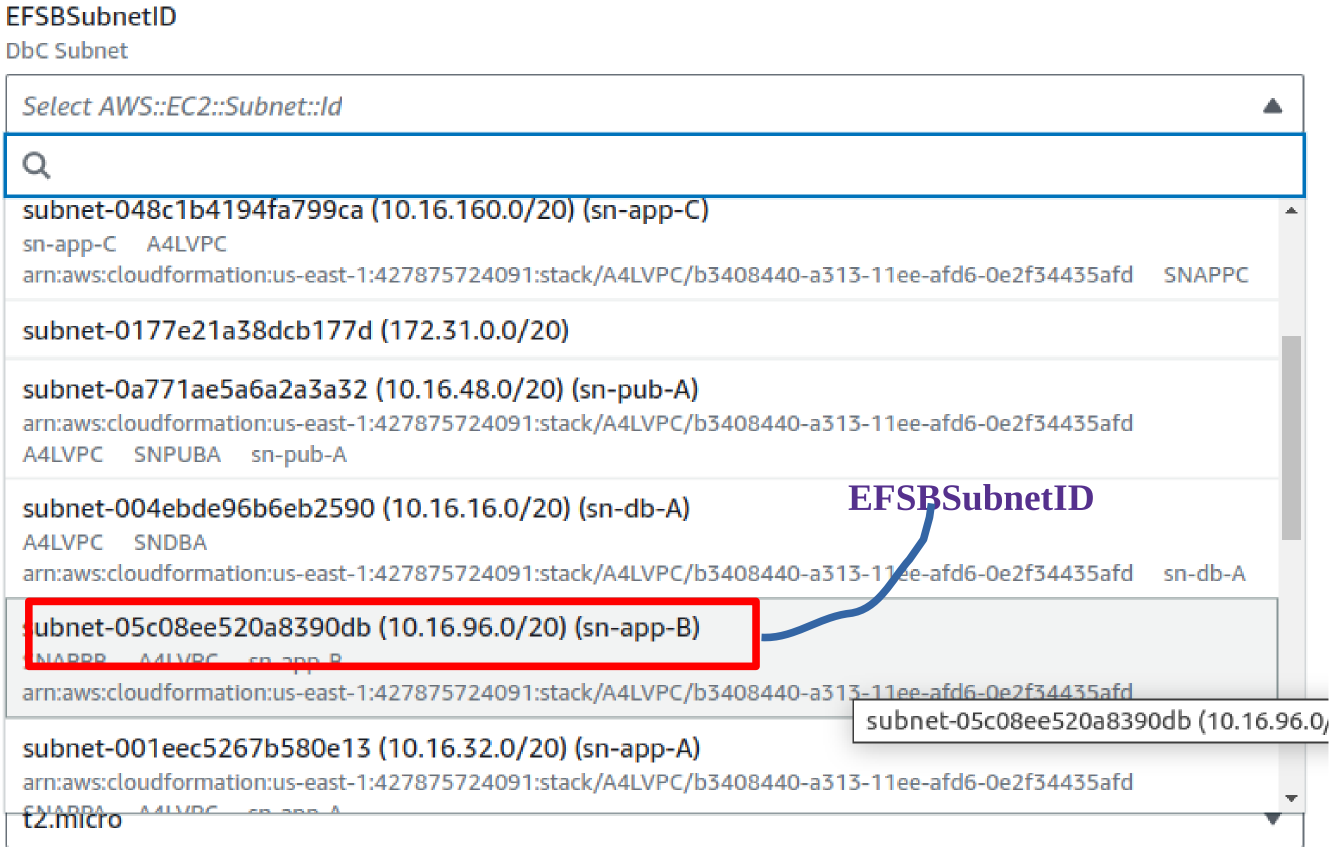
subnet-05c08ee520a8390db (10.16.96.0/20) (sn-app-B)
SNAPPB A4LVPC sn-app-B
arn:aws:cloudformation:us-east-1:427875724091:stack/A4LVPC/b3408440-a313-11ee-afd6-0e2f34435afd

subnet-001eec5267b580e13 (10.16.32.0/20) (sn-app-A)
arn:aws:cloudformation:us-east-1:427875724091:stack/A4LVPC/b3408440-a313-11ee-afd6-0e2f34435afd
SNAPPA A4LVPC sn-app-A

subnet-001eec5267b580e13 (10.16.32.0/

subnet-0de2004425a932a05 (172.31.48.0/20)

subnet-0899480f8d321a331 (172.31.16.0/20)



EFSBSubnetID

DbC Subnet

Select AWS::EC2::Subnet::Id

subnet-048c1b4194fa799ca (10.16.160.0/20) (sn-app-C)
sn-app-C A4LVPC
arn:aws:cloudformation:us-east-1:427875724091:stack/A4LVPC/b3408440-a313-11ee-afd6-0e2f34435afd SNAPPC

subnet-0177e21a38dcb177d (172.31.0.0/20)

subnet-0a771ae5a6a2a3a32 (10.16.48.0/20) (sn-pub-A)
arn:aws:cloudformation:us-east-1:427875724091:stack/A4LVPC/b3408440-a313-11ee-afd6-0e2f34435afd
A4LVPC SNPUBA sn-pub-A

subnet-004ebde96b6eb2590 (10.16.16.0/20) (sn-db-A)
A4LVPC SNDBA
arn:aws:cloudformation:us-east-1:427875724091:stack/A4LVPC/b3408440-a313-11ee-afd6-0e2f34435afd sn-db-A

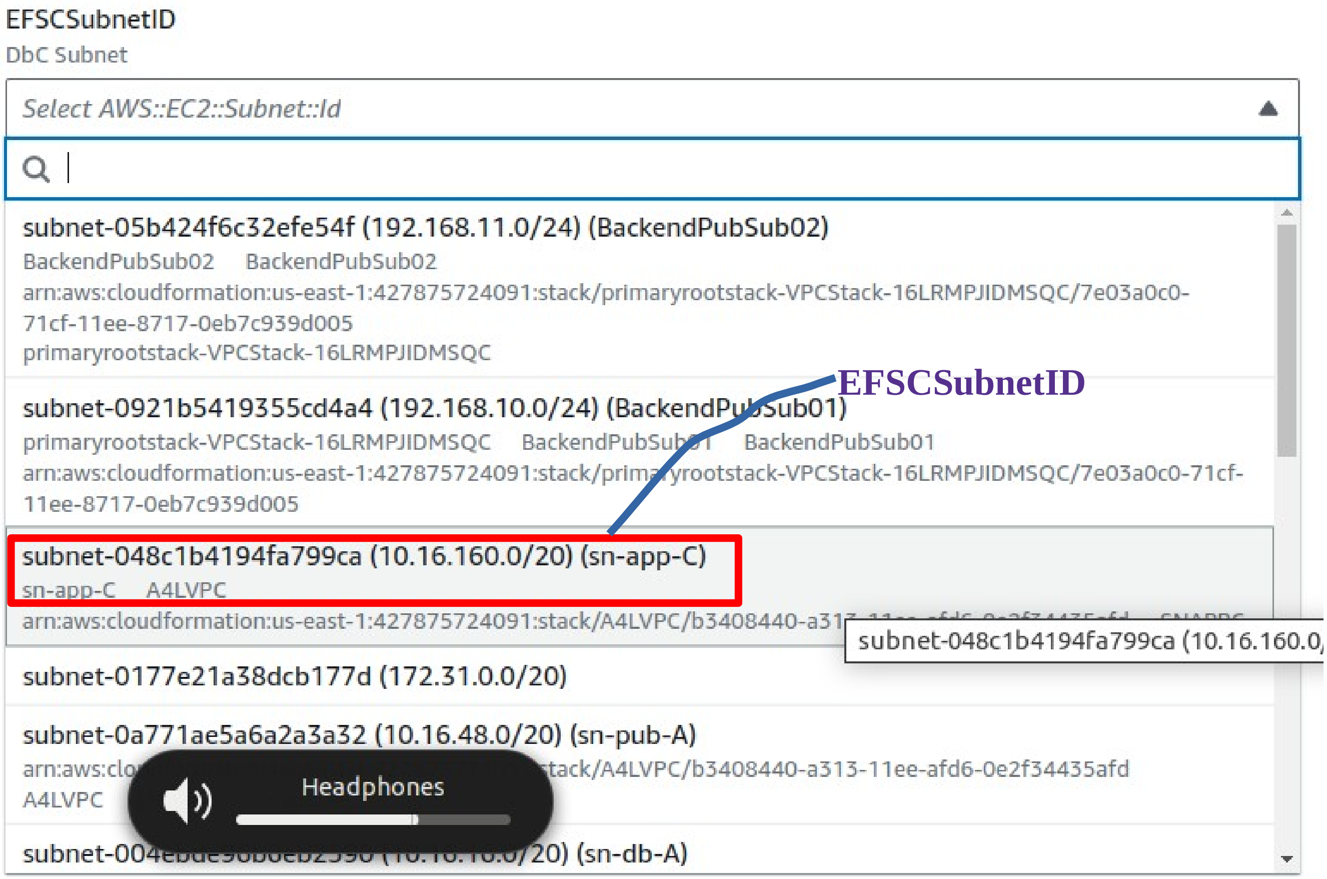
EFSBSubnetID

subnet-05c08ee520a8390db (10.16.96.0/20) (sn-app-B)
SNAPPB A4LVPC sn-app-B
arn:aws:cloudformation:us-east-1:427875724091:stack/A4LVPC/b3408440-a313-11ee-afd6-0e2f34435afd

subnet-05c08ee520a8390db (10.16.96.0/

subnet-001eec5267b580e13 (10.16.32.0/20) (sn-app-A)
arn:aws:cloudformation:us-east-1:427875724091:stack/A4LVPC/b3408440-a313-11ee-afd6-0e2f34435afd
SNAPPA A4LVPC sn-app-A

t2.micro



EFSCSubnetID

DbC Subnet

Select AWS::EC2::Subnet::Id

subnet-05b424f6c32efe54f (192.168.11.0/24) (BackendPubSub02)
BackendPubSub02   BackendPubSub02
arn:aws:cloudformation:us-east-1:427875724091:stack/primaryrootstack-VPCStack-16LRMPJIDMSQC/7e03a0c0-71cf-11ee-8717-0eb7c939d005
primaryrootstack-VPCStack-16LRMPJIDMSQC

subnet-0921b5419355cd4a4 (192.168.10.0/24) (BackendPubSub01)
primaryrootstack-VPCStack-16LRMPJIDMSQC   BackendPubSub01   BackendPubSub01
arn:aws:cloudformation:us-east-1:427875724091:stack/primaryrootstack-VPCStack-16LRMPJIDMSQC/7e03a0c0-71cf-11ee-8717-0eb7c939d005

subnet-048c1b4194fa799ca (10.16.160.0/20) (sn-app-C)
sn-app-C   A4LVPC
arn:aws:cloudformation:us-east-1:427875724091:stack/A4LVPC/b3408440-a31

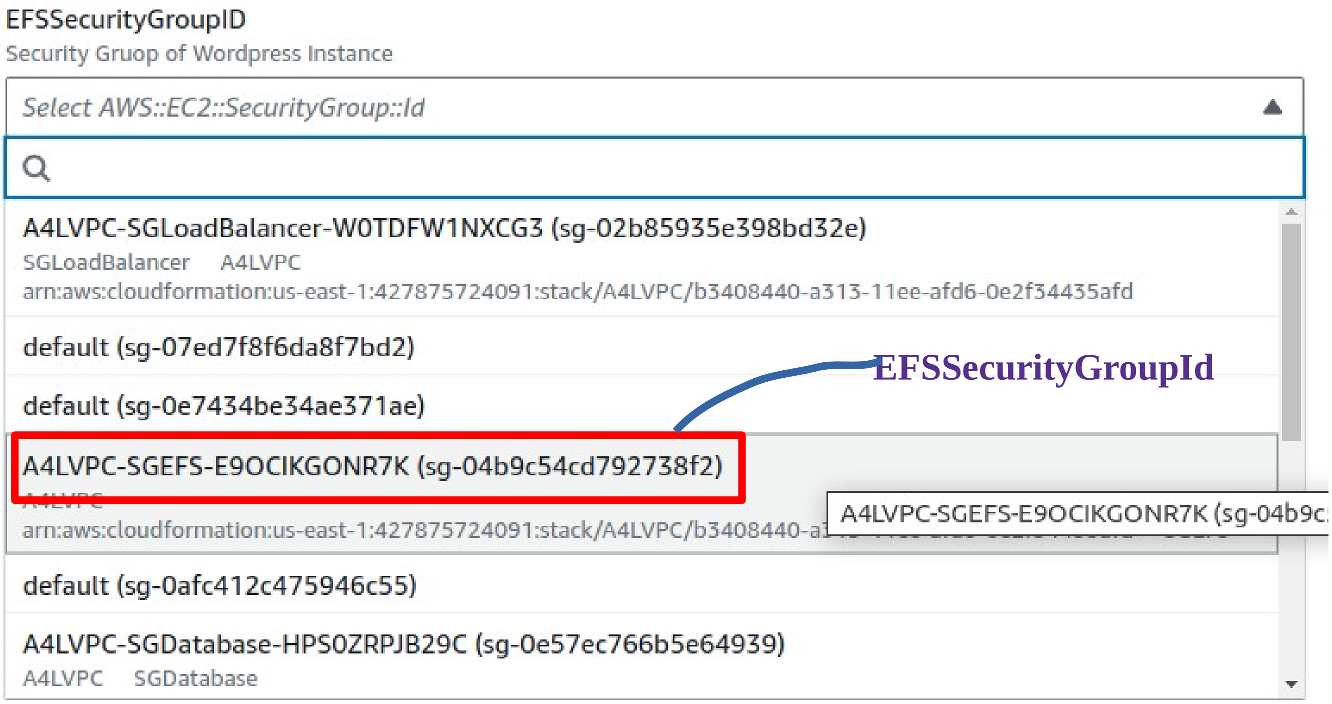
subnet-048c1b4194fa799ca (10.16.160.0,

subnet-0177e21a38dcb177d (172.31.0.0/20)

subnet-0a771ae5a6a2a3a32 (10.16.48.0/20) (sn-pub-A)
arn:aws:clo   tack/A4LVPC/b3408440-a313-11ee-afd6-0e2f34435afd
A4LVPC

subnet-004   20) (sn-db-A)

EFSCSubnetID



EFSSecurityGroupID

Security Gruop of Wordpress Instance

Select AWS::EC2::SecurityGroup::Id

A4LVPC-SGLoadBalancer-W0TDFW1NXCG3 (sg-02b85935e398bd32e)
SGLoadBalancer   A4LVPC
arn:aws:cloudformation:us-east-1:427875724091:stack/A4LVPC/b3408440-a313-11ee-afd6-0e2f34435afd

default (sg-07ed7f8f6da8f7bd2)

default (sg-0e7434be34ae371ae)

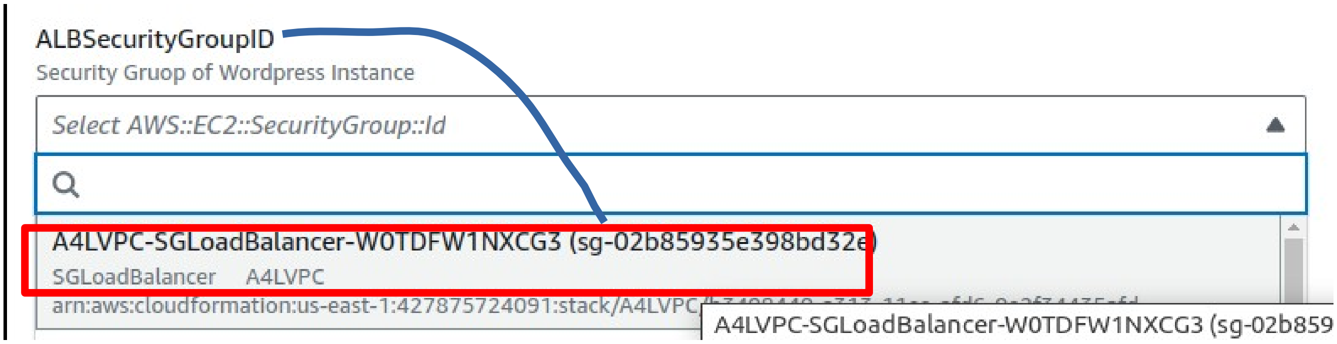
A4LVPC-SGEFS-E9OCIKGONR7K (sg-04b9c54cd792738f2)
A4LVPC
arn:aws:cloudformation:us-east-1:427875724091:stack/A4LVPC/b3408440-a

A4LVPC-SGEFS-E9OCIKGONR7K (sg-04b9c

default (sg-0afc412c475946c55)

A4LVPC-SGDatabase-HPS0ZRPJB29C (sg-0e57ec766b5e64939)
A4LVPC   SGDatabase

EFSSecurityGroupId



ALBSecurityGroupID

Security Gruop of Wordpress Instance

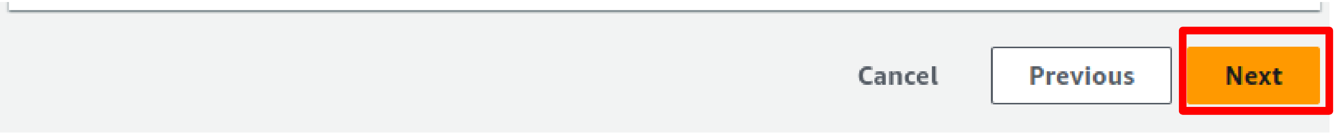
Select AWS::EC2::SecurityGroup::Id

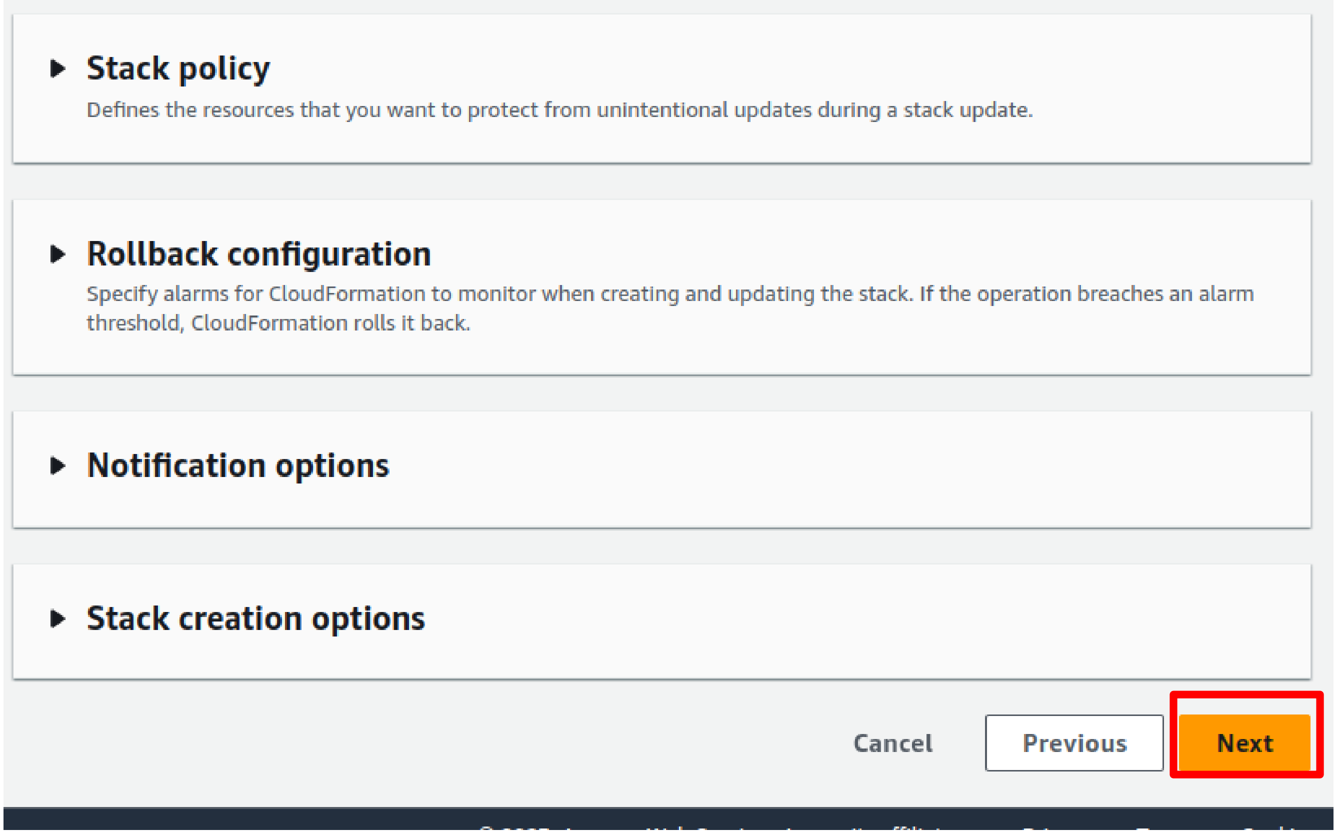
A4LVPC-SGLoadBalancer-W0TDFW1NXCG3 (sg-02b85935e398bd32e)

SGLoadBalancer A4LVPC

arn:aws:cloudformation:us-east-1:427875724091:stack/A4LVPC

A4LVPC-SGLoadBalancer-W0TDFW1NXCG3 (sg-02b859





Stack policy

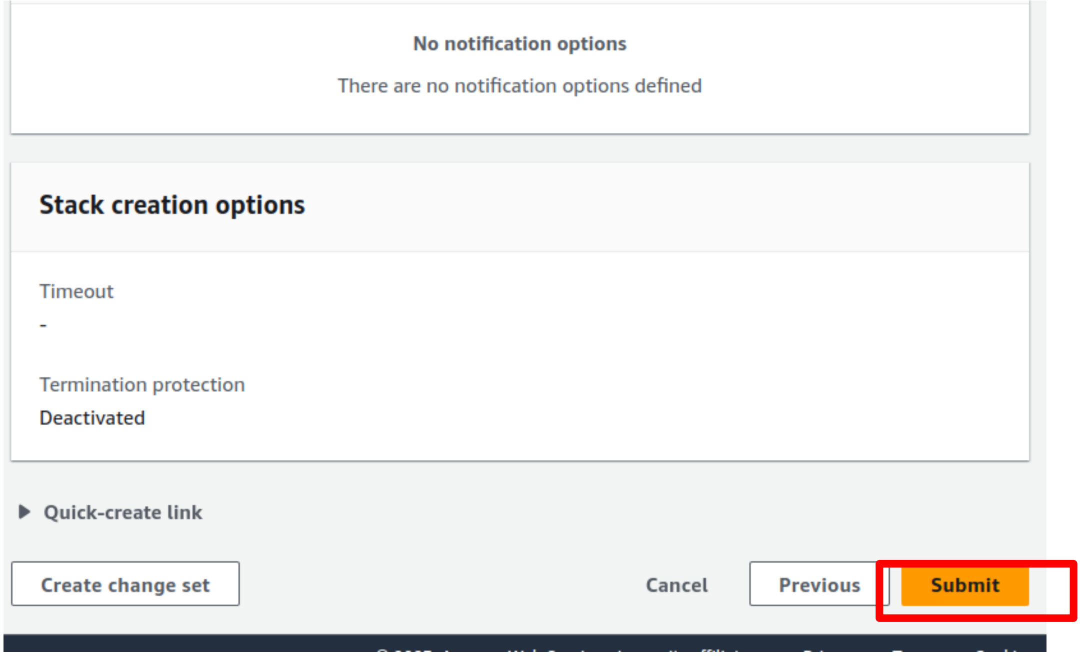
Defines the resources that you want to protect from unintentional updates during a stack update.

Rollback configuration

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

Stack creation options



No notification options

There are no notification options defined

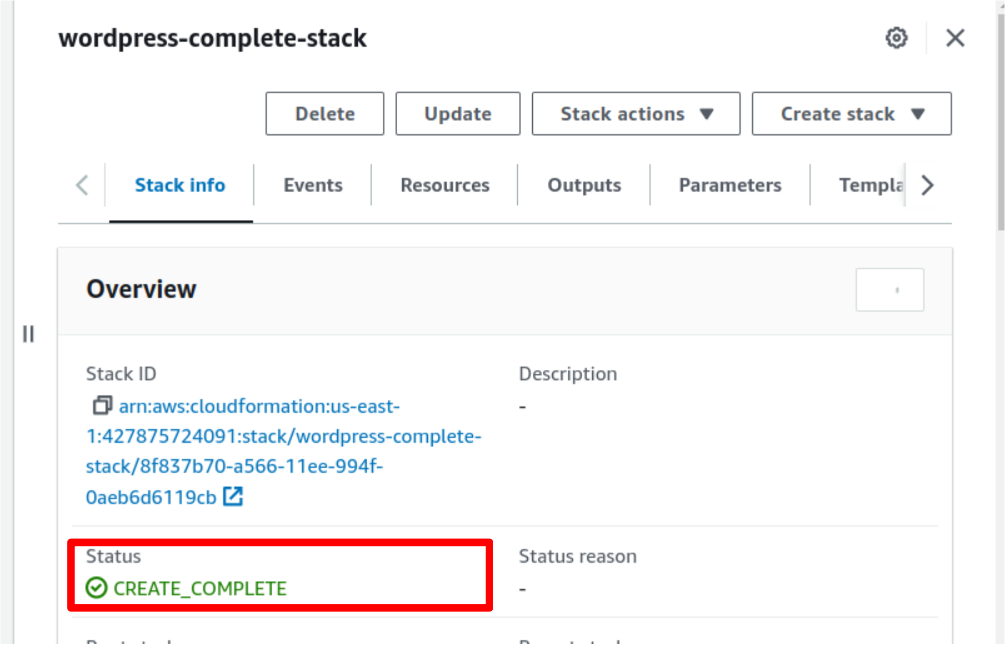
Stack creation options

Timeout

-

Termination protection

Deactivated



wordpress-complete-stack

Overview

Stack ID

arn:aws:cloudformation:us-east-1:427875724091:stack/wordpress-complete-stack/8f837b70-a566-11ee-994f-0aeb6d6119cb

Description

-

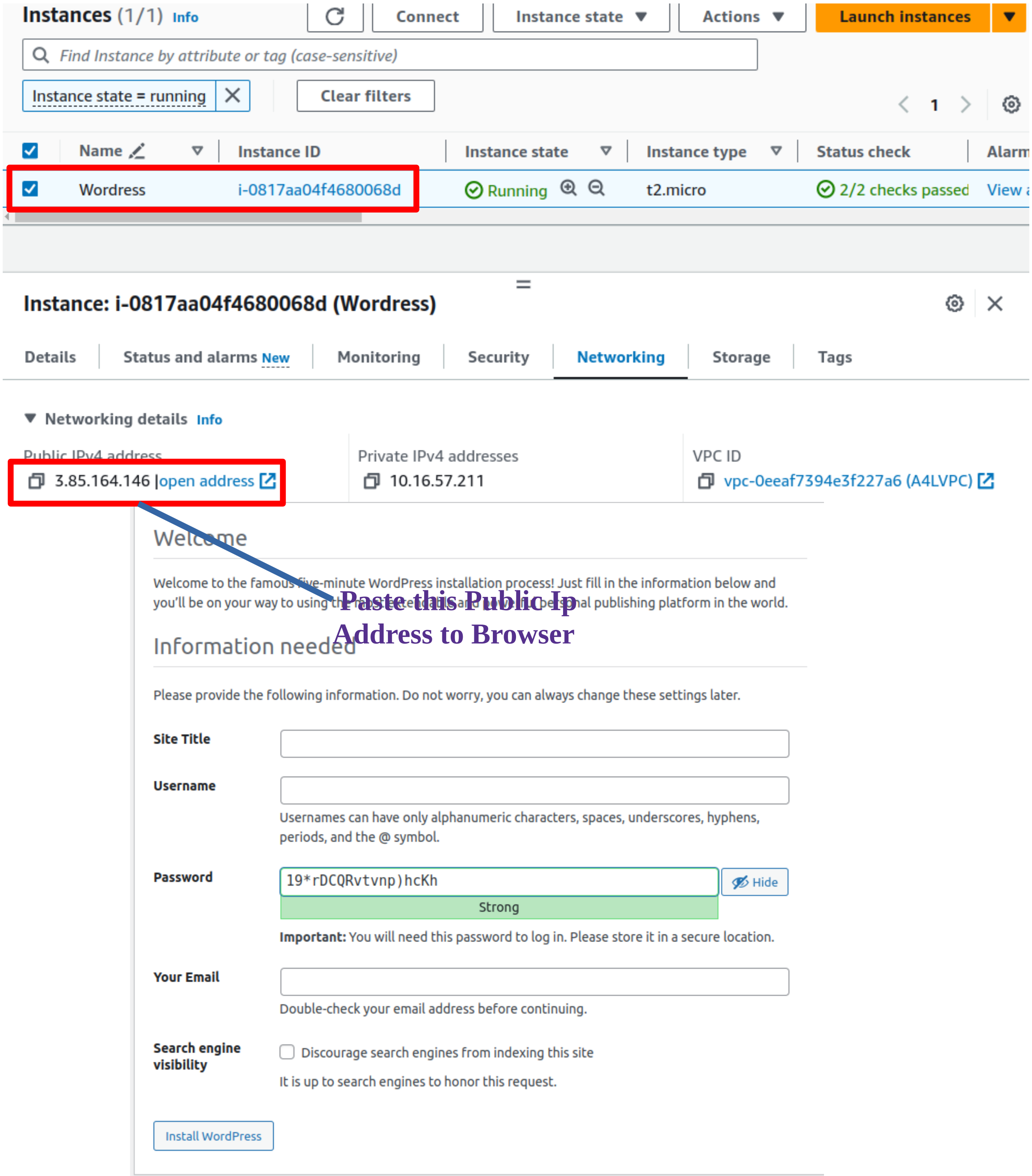
Status

✓ CREATE_COMPLETE

Status reason

-

- Go to https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#Instances:sort=desc:tag:Name
- Select the Wordpress Instance and copy the Public IP Address and paste it to browser address bar
- If this page will appear that means the wordpress setup is successful



Find Instance by attribute or tag (case-sensitive)

Instance state = running ✕

☑	Name	Instance ID	Instance state	Instance type	Status check	Alarm
☑	Wordress	i-0817aa04f4680068d	✓ Running	t2.micro	✓ 2/2 checks passed	View a

Instance: i-0817aa04f4680068d (Wordress)

▼ Networking details Info

Public IPv4 address	Private IPv4 addresses	VPC ID
3.85.164.146 |open address	10.16.57.211	vpc-0eeaf7394e3f227a6 (A4LVPC)

Paste this Public Ip Address to Browser

Welcome

Welcome to the famous five-minute WordPress installation process! Just fill in the information below and you'll be on your way to using the most extendable and powerful personal publishing platform in the world.

Information needed

Please provide the following information. Do not worry, you can always change these settings later.

Site Title

Username

Usernames can have only alphanumeric characters, spaces, underscores, hyphens, periods, and the @ symbol.

Password 19*rDCQRvtvnp)hcKh

Important: You will need this password to log in. Please store it in a secure location.

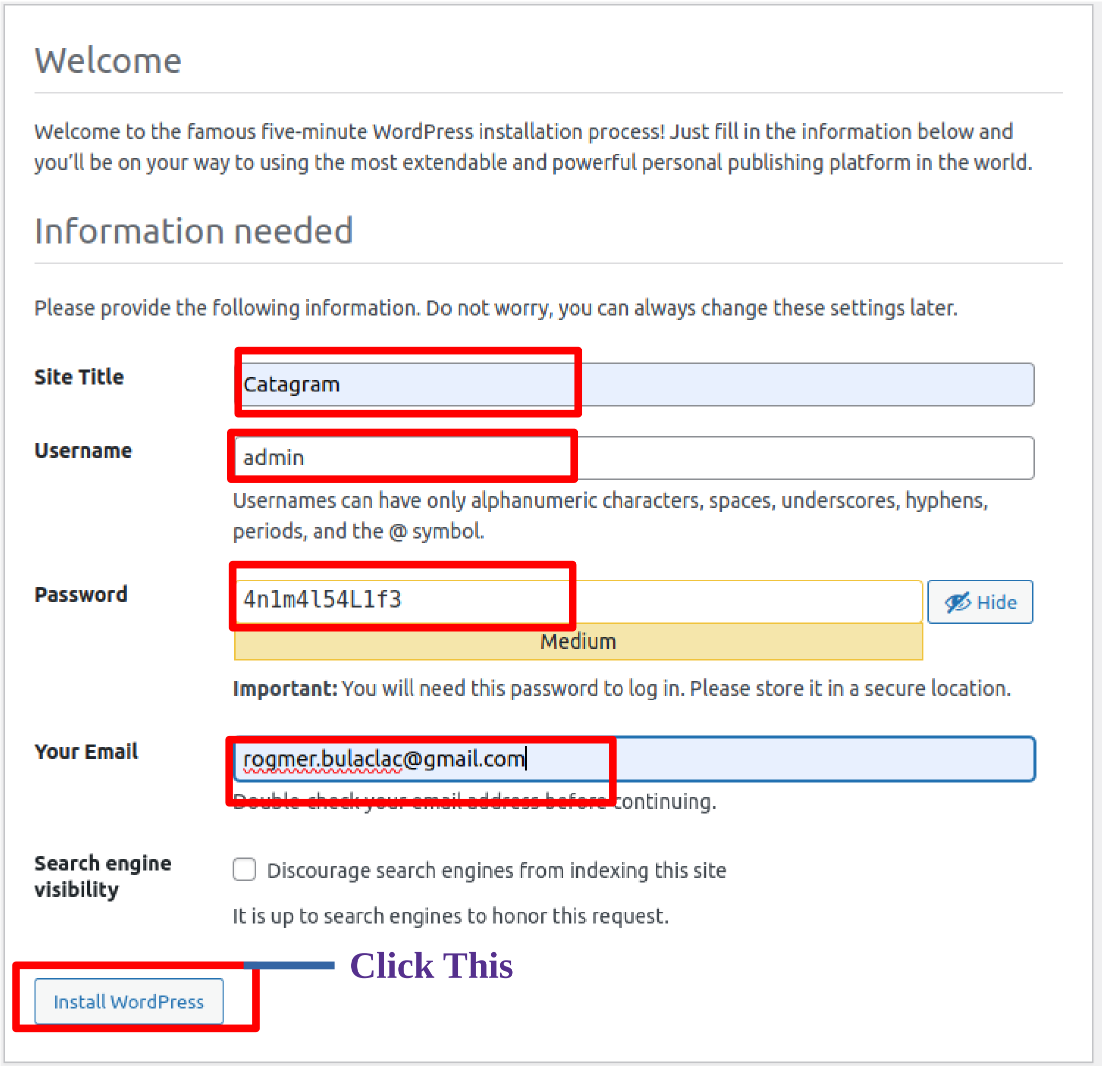
Your Email

Double-check your email address before continuing.

Search engine visibility □ Discourage search engines from indexing this site

It is up to search engines to honor this request.

- **Let Perform Initial Configuration and make a post**



Welcome

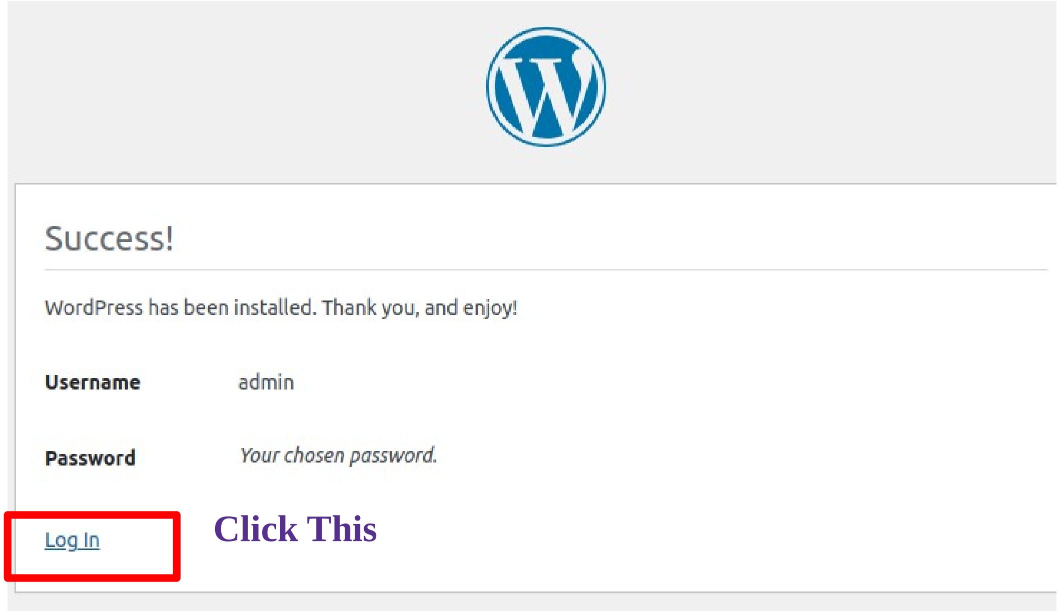
Welcome to the famous five-minute WordPress installation process! Just fill in the information below and you'll be on your way to using the most extendable and powerful personal publishing platform in the world.

Information needed

Please provide the following information. Do not worry, you can always change these settings later.

Site Title	Catagram
Username	admin Usernames can have only alphanumeric characters, spaces, underscores, hyphens, periods, and the @ symbol.
Password	4n1m4l54L1f3 Hide Medium **Important:** You will need this password to log in. Please store it in a secure location.
Your Email	rogmer.bulaclac@gmail.com Double-check your email address before continuing.
Search engine visibility	□ Discourage search engines from indexing this site It is up to search engines to honor this request.

Click This

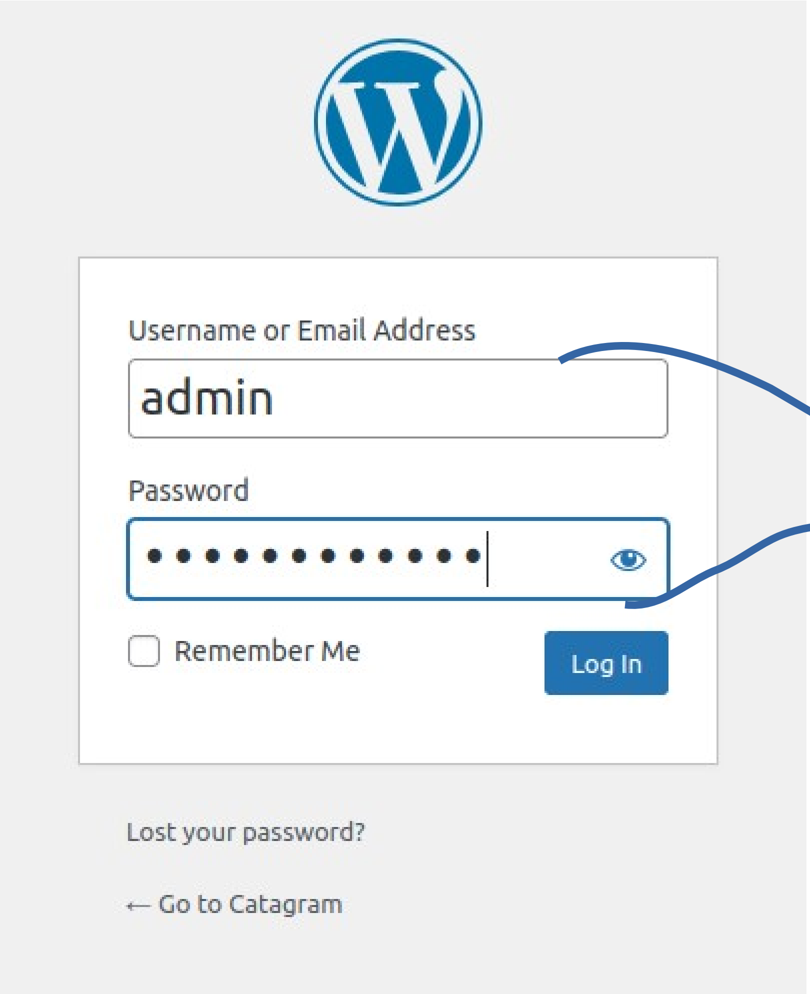


Success!

WordPress has been installed. Thank you, and enjoy!

Username	admin
Password	*Your chosen password.*

Click This



Username or Email Address

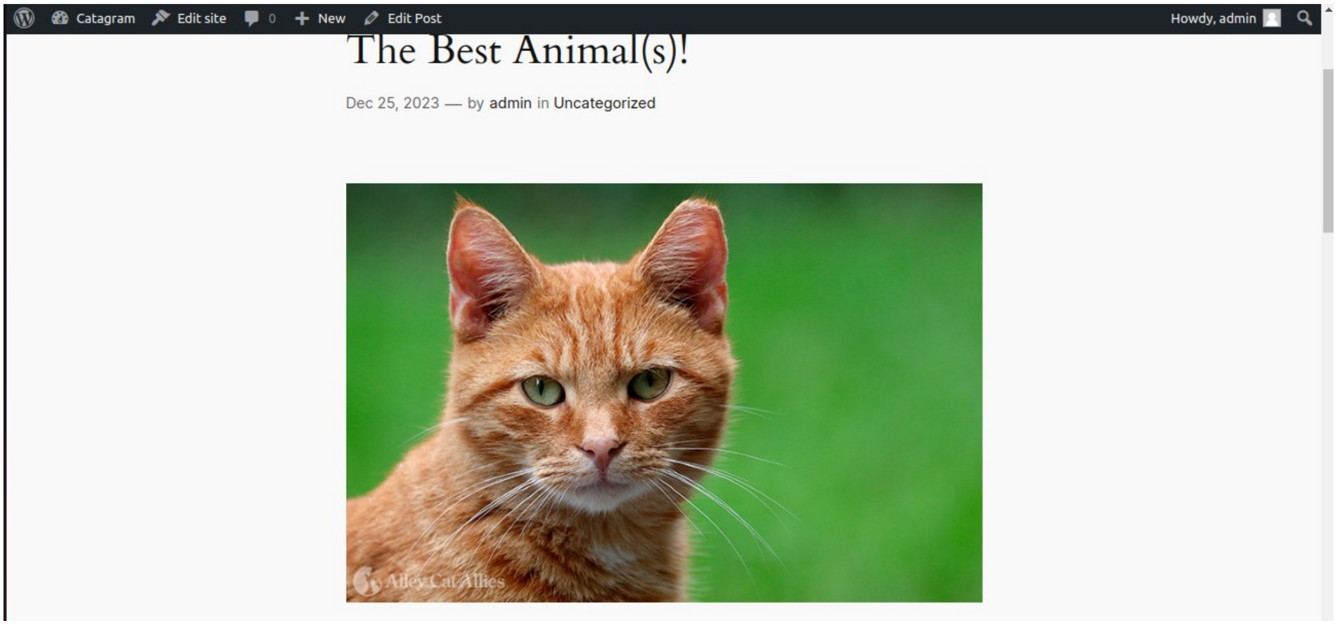
admin

Password

●●●●●●●●●●●●

Login User and Password here:

- Click Posts in the menu on the left
- Select Hello World! Click Bulk Actions and select Move to Trash Click Apply
- Click Add New
- If you see any popups close them down
- For title The Best Animal(s)!
- Click the + under the title, select Gallery Click Upload
- Select some animal pictures.... if you dont have any use google images to download some Upload them
- Click Publish
- Click Publish Click view Post



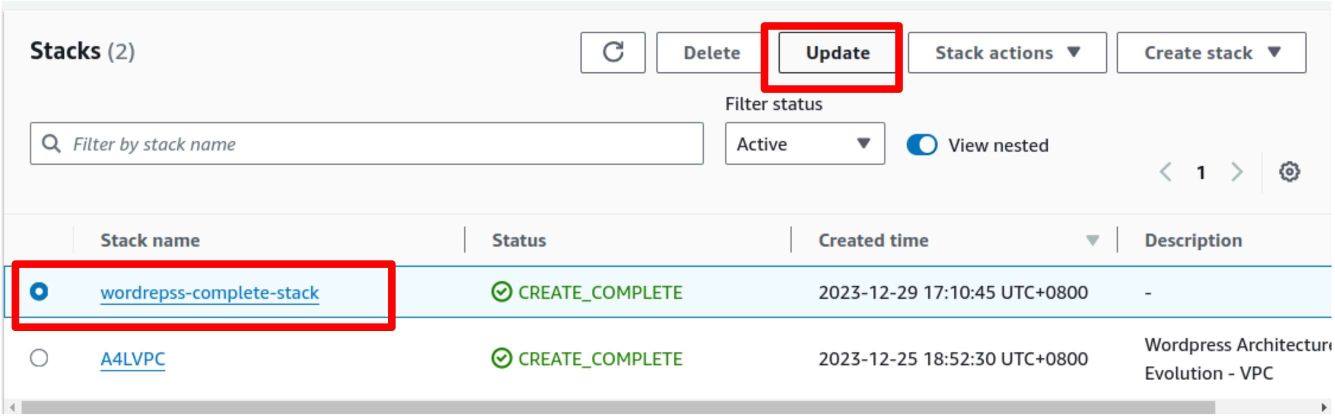
The Best Animal(s)!

Dec 25, 2023 — by admin in Uncategorized

- **Now that our Initial Wordpress Setup was done and uploads some photos. Its time change our AutoScaling Health Check to ELB. Open the wordpress_complete.yaml locate the WordpressASG resource, on the HealthCheckType, check the value from EC2 to ELB**

Note: Initially, we set the WordpressASG HealthCheckType to EC2 due to our initial setup. Setting it to ELB during creation would result in continuous termination of instances because the ASG relies on ELB health checks. Since WordPress is not yet set up, the ELB Target Group would mark the instance as unhealthy. This is because checking the instance at the / path would return HTTP error codes 404 or 500

- **Go to Cloudformaton, select wordpress-complete-stack and Click Update**



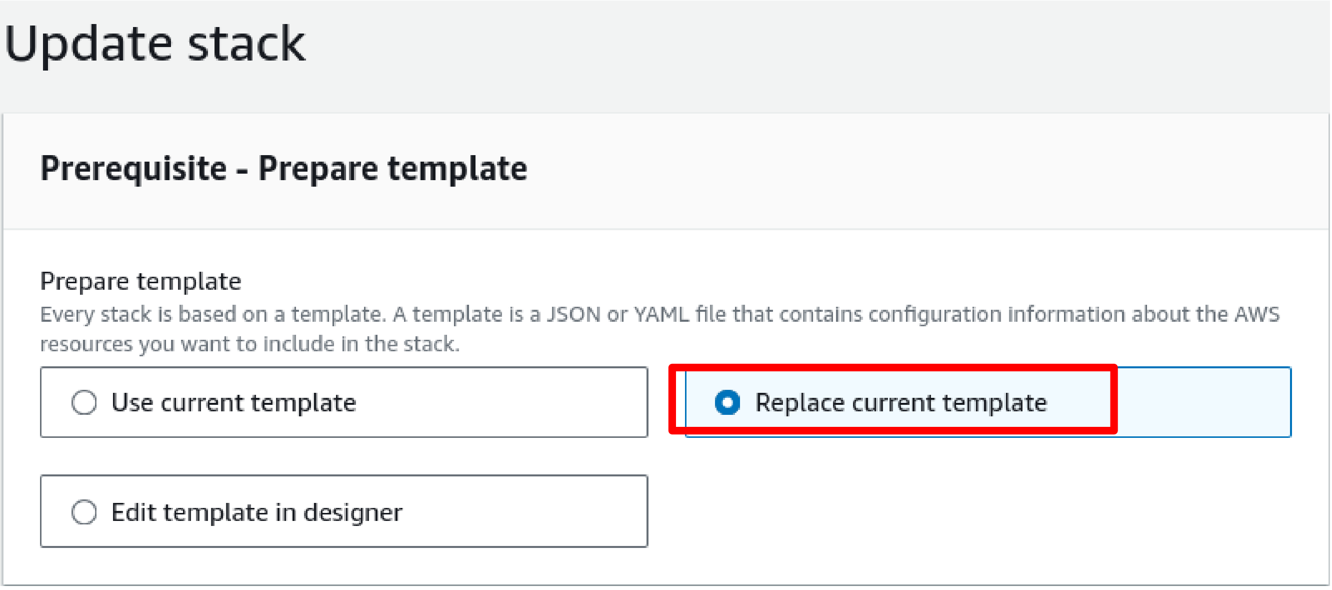
Stacks (2)

Filter by stack name

Filter status: Active ▼

View nested

	Stack name	Status	Created time	Description
●	wordrepss-complete-stack	✓ CREATE_COMPLETE	2023-12-29 17:10:45 UTC+0800	-
○	A4LVPC	✓ CREATE_COMPLETE	2023-12-25 18:52:30 UTC+0800	Wordpress Architectur Evolution - VPC



Update stack

Prerequisite - Prepare template

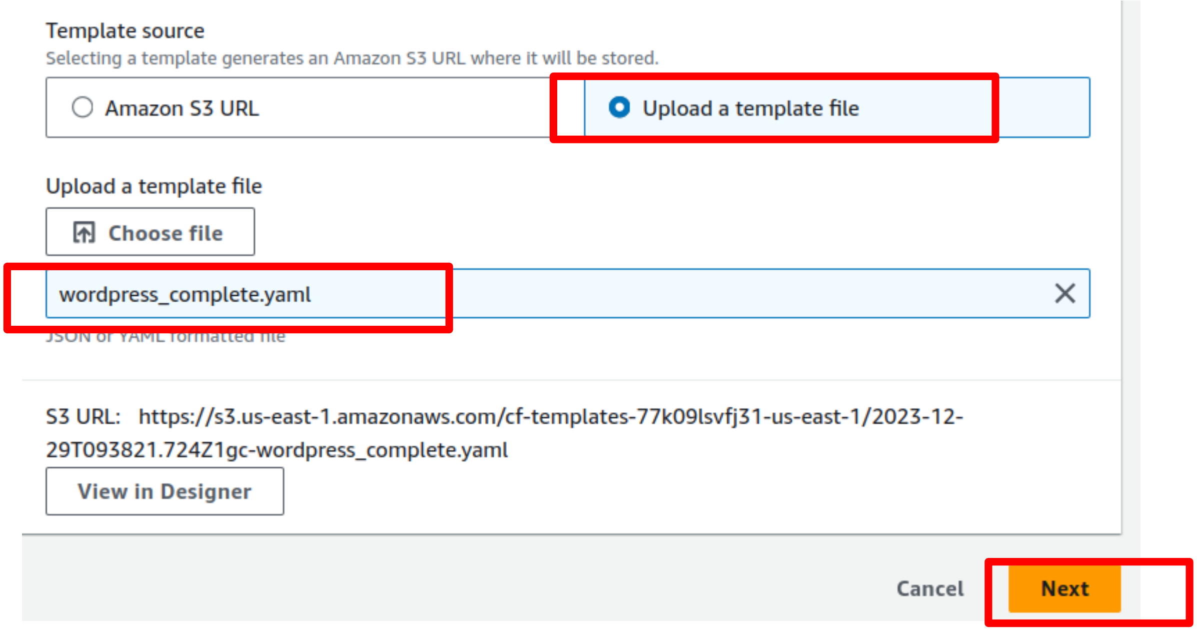
Prepare template

Every stack is based on a template. A template is a JSON or YAML file that contains configuration information about the AWS resources you want to include in the stack.

○ Use current template

● Replace current template

○ Edit template in designer



Template source

Selecting a template generates an Amazon S3 URL where it will be stored.

○ Amazon S3 URL

● Upload a template file

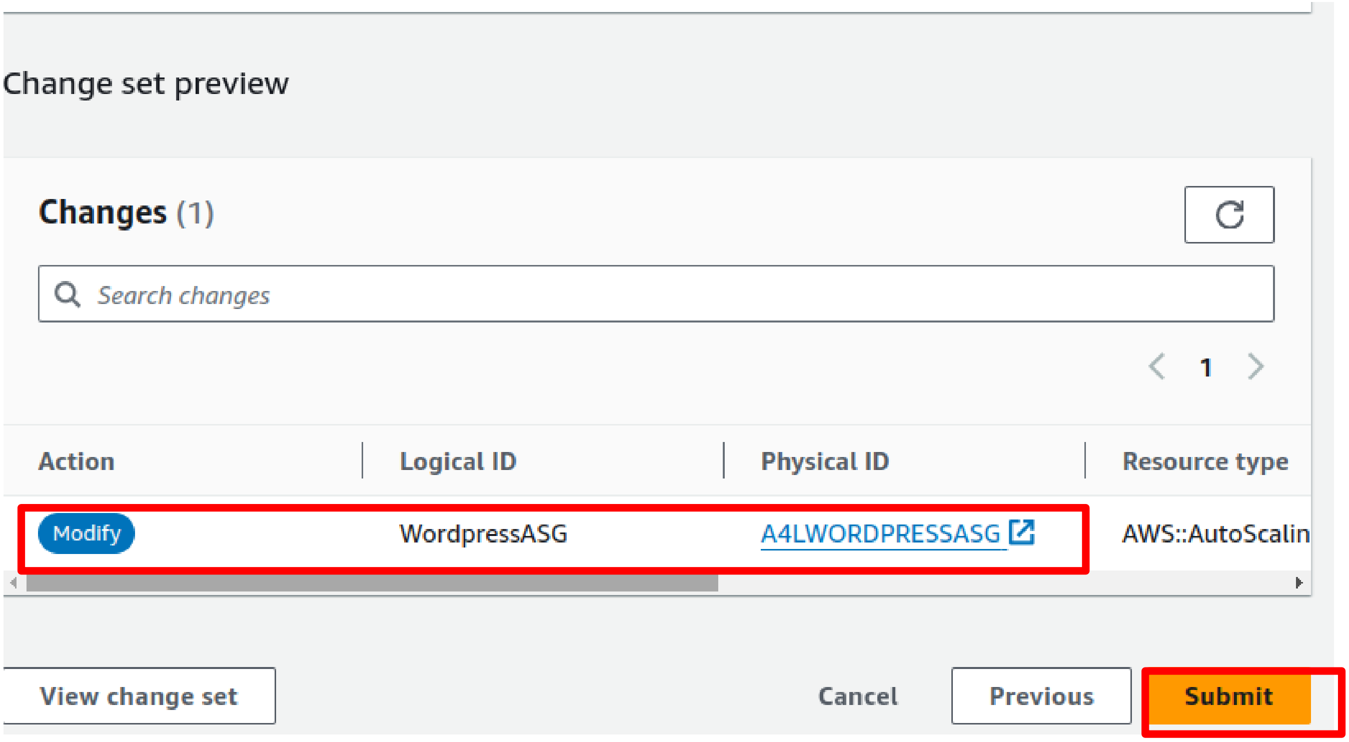
Upload a template file

wordpress_complete.yaml

JSON or YAML formatted file

S3 URL: https://s3.us-east-1.amazonaws.com/cf-templates-77k09lsvfj31-us-east-1/2023-12-29T093821.724Z1gc-wordpress_complete.yaml

- **As observed in the change set preview, please note that the action will only modify the WordpressASG**

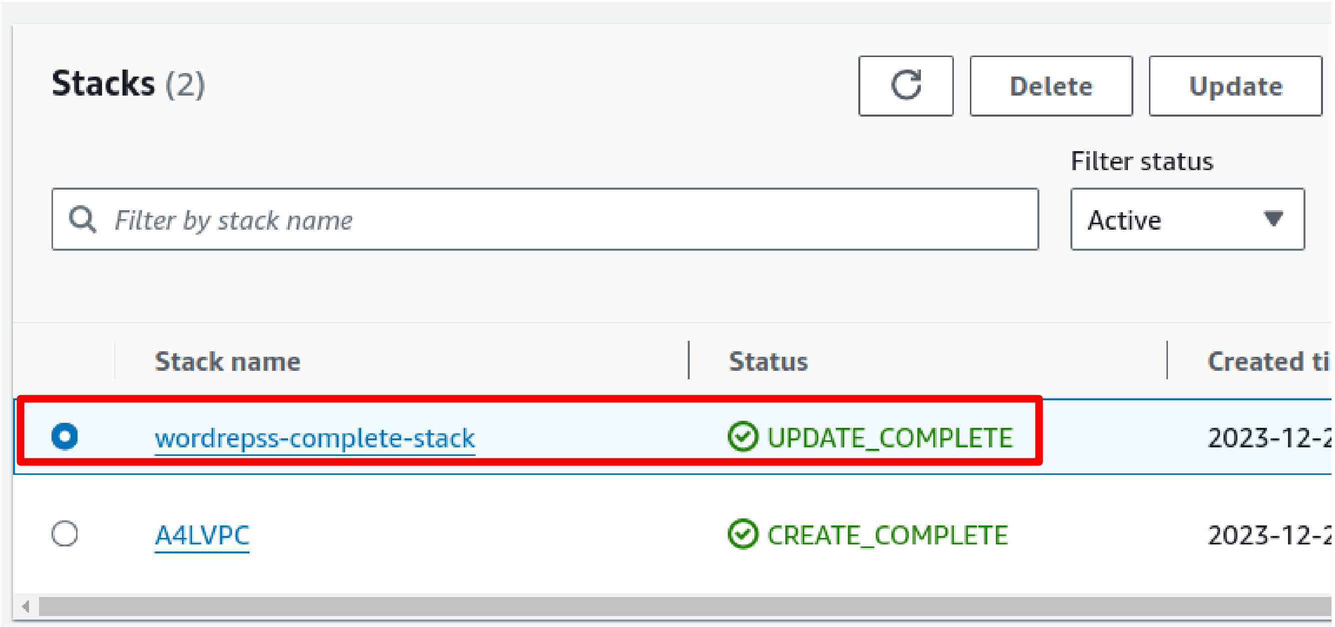


Change set preview

Changes (1)

Action	Logical ID	Physical ID	Resource type
Modify	WordpressASG	A4LWORDPRESSASG	AWS::AutoScalin

- **Wait Until Stack Update is compete**

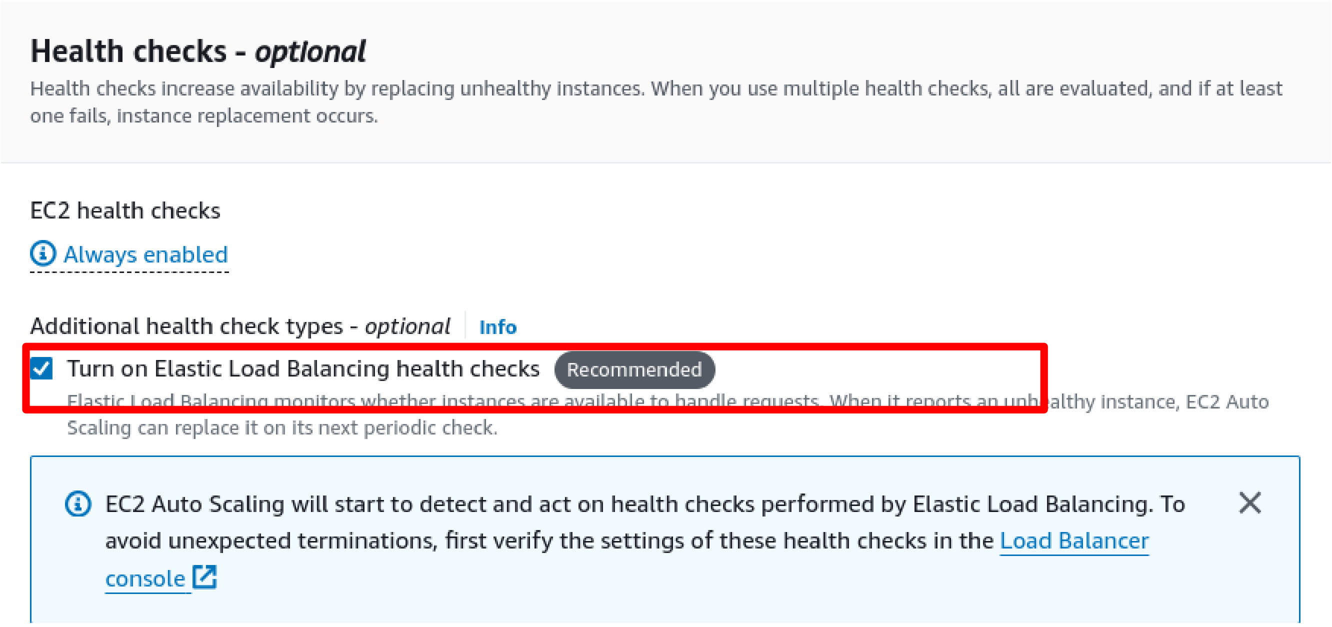


Stacks (2)

Filter status: Active

	Stack name	Status	Created ti
●	wordrepss-complete-stack	UPDATE_COMPLETE	2023-12-2
○	A4LVPC	CREATE_COMPLETE	2023-12-2

- **Let check the ASG Health Check if it is updated**



Health checks - *optional*

Health checks increase availability by replacing unhealthy instances. When you use multiple health checks, all are evaluated, and if at least one fails, instance replacement occurs.

EC2 health checks

ⓘ Always enabled

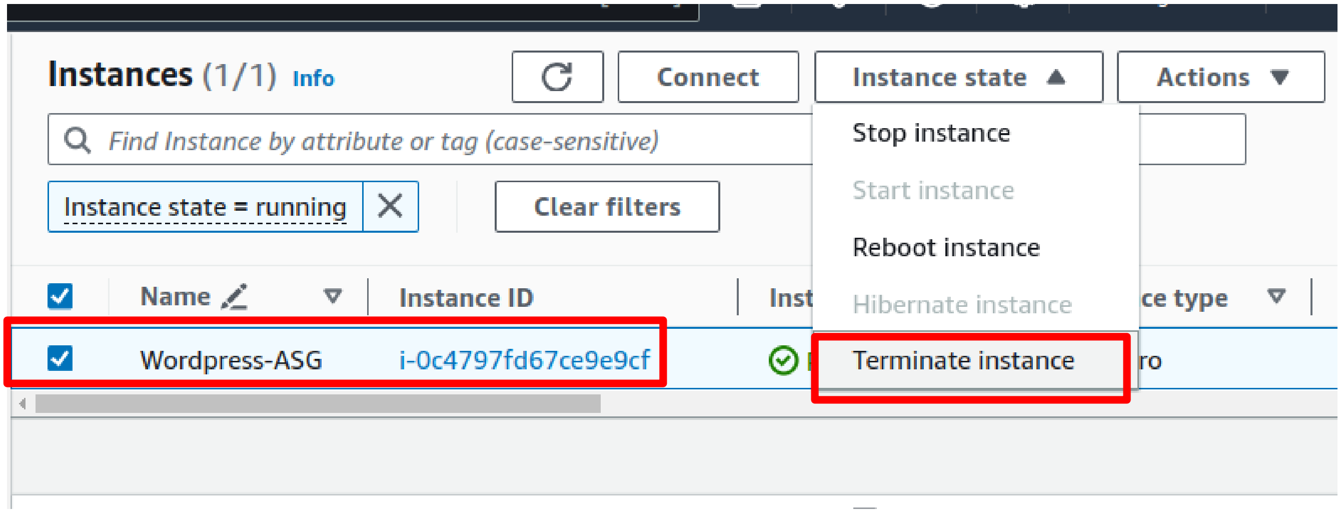
Additional health check types - *optional* | Info

☑ Turn on Elastic Load Balancing health checks Recommended

Elastic Load Balancing monitors whether instances are available to handle requests. When it reports an unhealthy instance, EC2 Auto Scaling can replace it on its next periodic check.

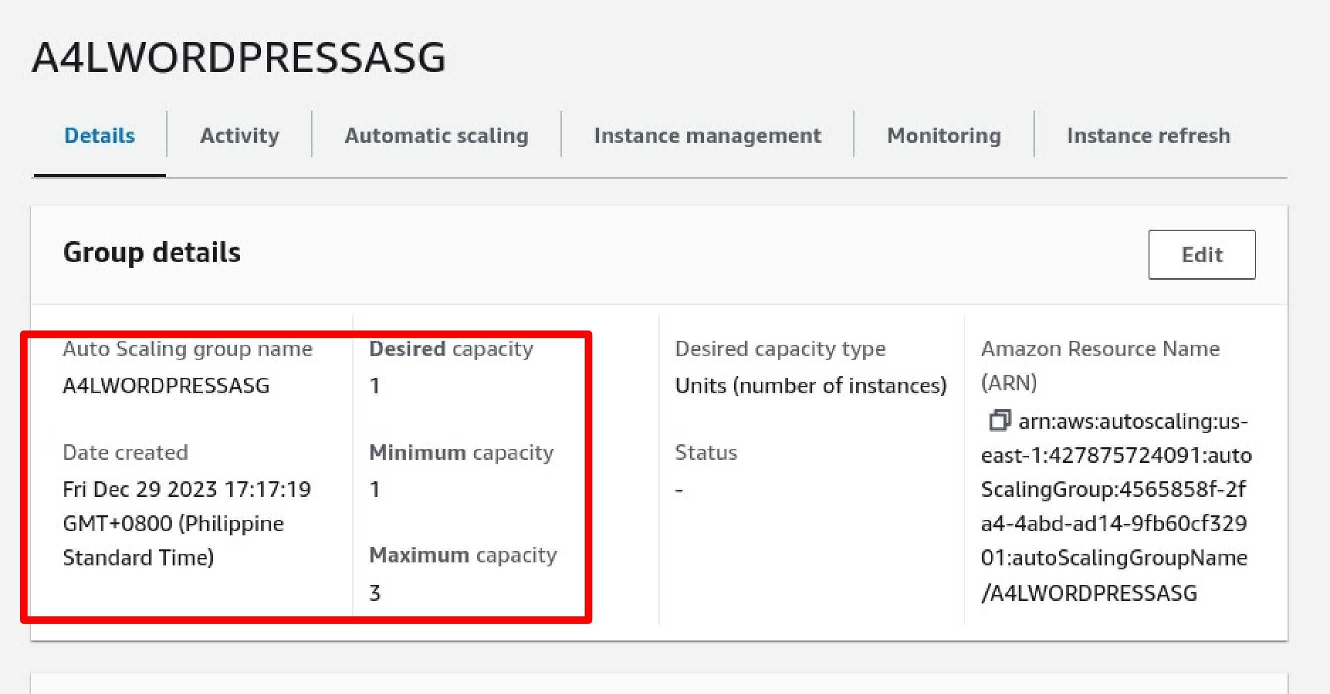
ⓘ EC2 Auto Scaling will start to detect and act on health checks performed by Elastic Load Balancing. To avoid unexpected terminations, first verify the settings of these health checks in the Load Balancer console ✕

- **Lets do our first test, Let terminate the existing instance**



☑	Name	Instance ID	Inst	ce type
☑	Wordpress-ASG	i-0c4797fd67ce9e9cf	✓	ro

- **After several minutes, the Auto Scaling Group (ASG) detected the change and launched a new instance in accordance with its capacity settings**



A4LWORDPRESSASG

Group details

Auto Scaling group name
A4LWORDPRESSASG

Date created
Fri Dec 29 2023 17:17:19 GMT+0800 (Philippine Standard Time)

Desired capacity
1

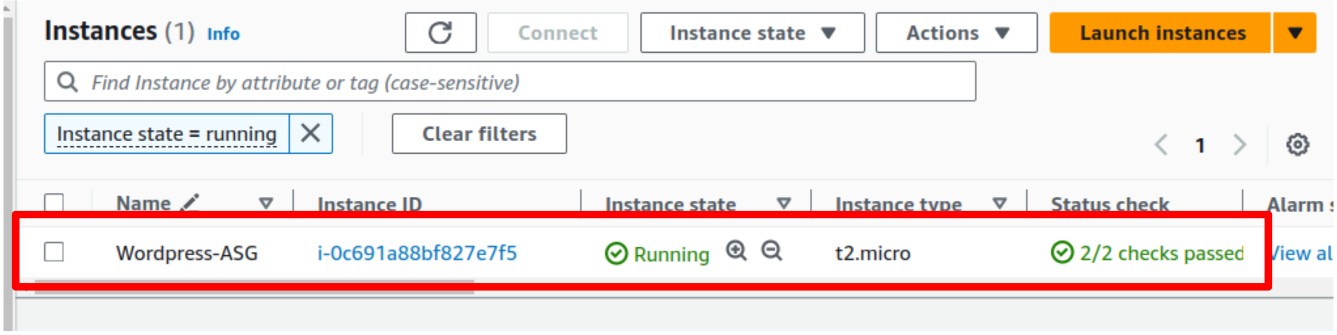
Minimum capacity
1

Maximum capacity
3

Desired capacity type
Units (number of instances)

Status
-

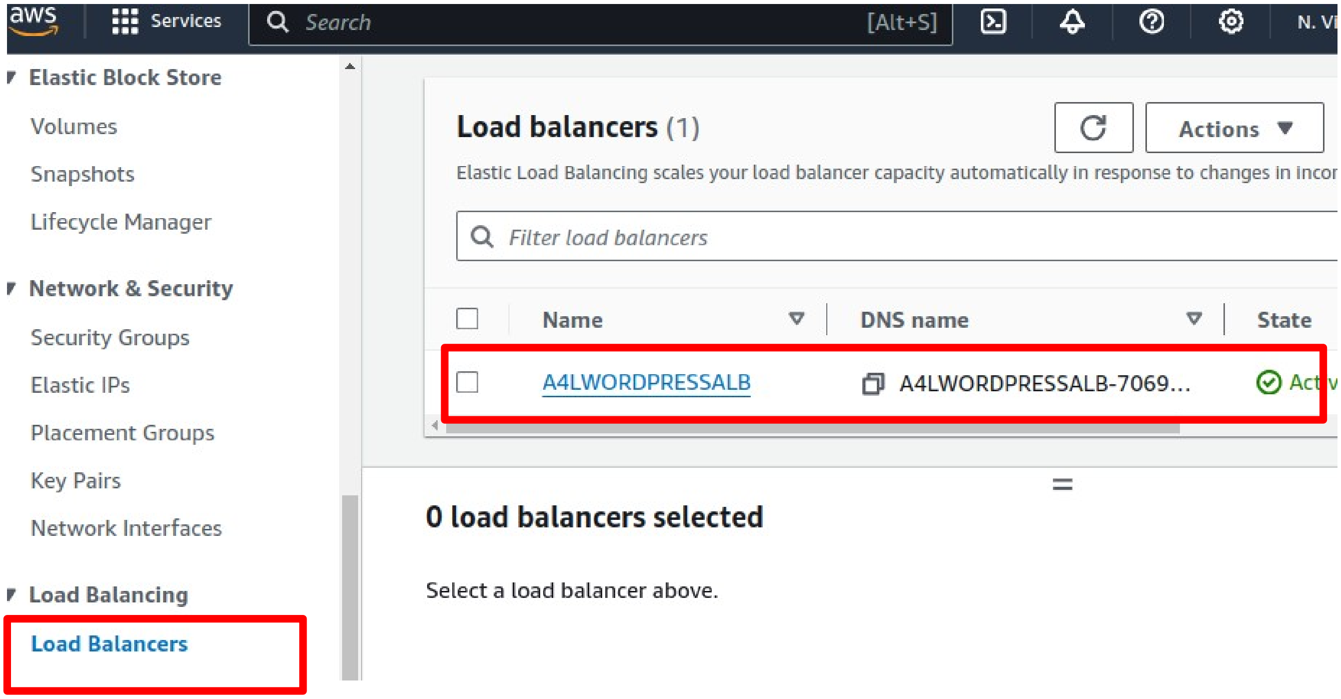
Amazon Resource Name (ARN)
arn:aws:autoscaling:us-east-1:427875724091:autoScalingGroup:4565858f-2fa4-4abd-ad14-9fb60cf32901:autoScalingGroupName/A4LWORDPRESSASG



Instances (1)

□	Name	Instance ID	Instance state	Instance type	Status check	Alarm s
□	Wordpress-ASG	i-0c691a88bf827e7f5	Running	t2.micro	2/2 checks passed	View al

Let's check the Load Balancer to ensure it functions as expected. Navigate to EC2, select "Load Balancers," and click on "A4WORDRESSALB.



Load balancers (1)

Elastic Load Balancing scales your load balancer capacity automatically in response to changes in incor

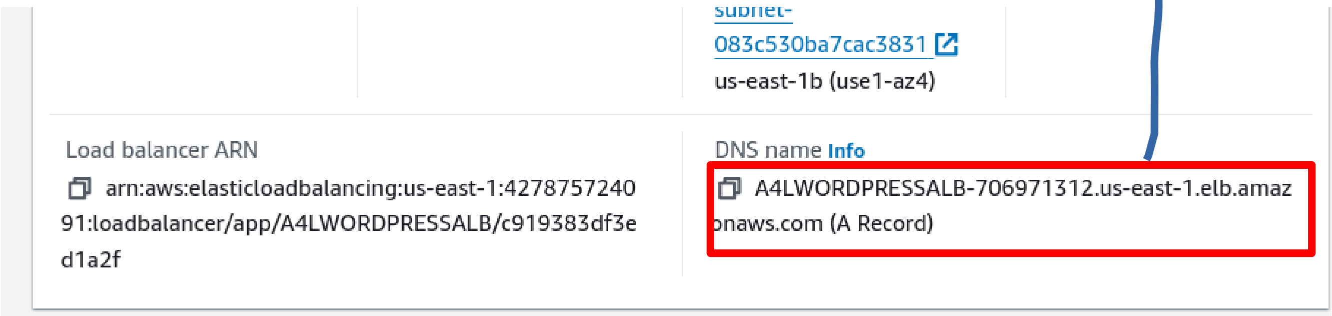
□	Name	DNS name	State
□	A4LWORDPRESSALB	A4LWORDPRESSALB-7069...	Activ

0 load balancers selected

Select a load balancer above.

Paste this to browser

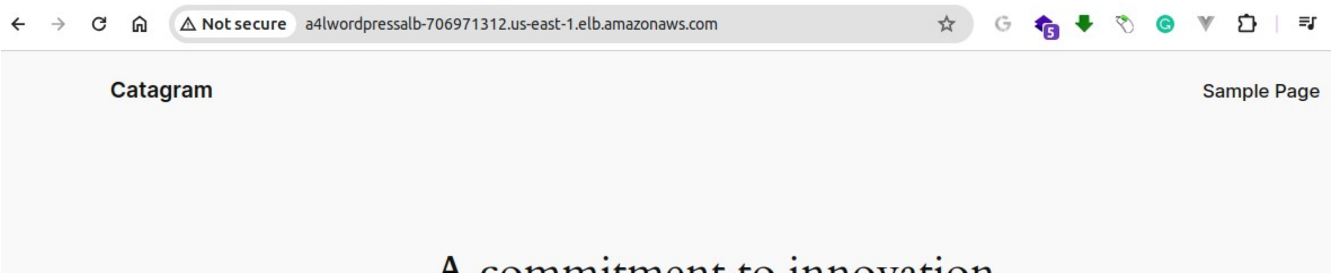
- **Copy the DNS name and paste to web browser:**



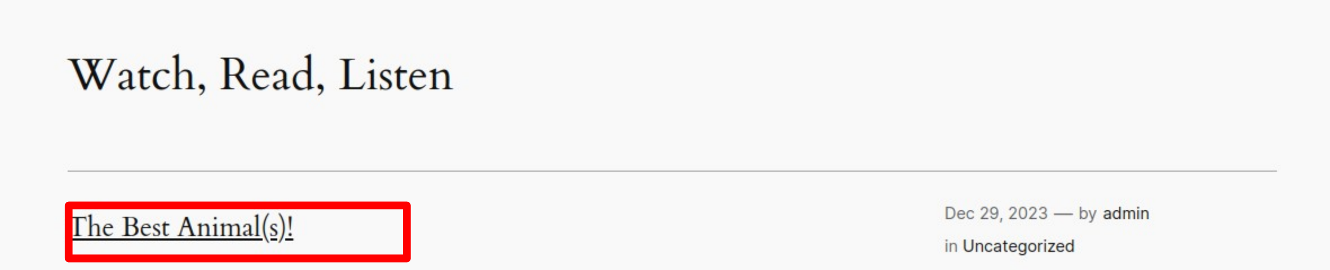
subnet-
083c530ba7cac3831
us-east-1b (use1-az4)

Load balancer ARN
arn:aws:elasticloadbalancing:us-east-1:427875724091:loadbalancer/app/A4LWORDPRESSALB/c919383df3ed1a2f

DNS name Info
A4LWORDPRESSALB-706971312.us-east-1.elb.amazonaws.com (A Record)


Not secure
a4lwordpressalb-706971312.us-east-1.elb.amazonaws.com
Catagram
Sample Page
A commitment to innovation

- **Scroll Down and click the Post you Initially created**

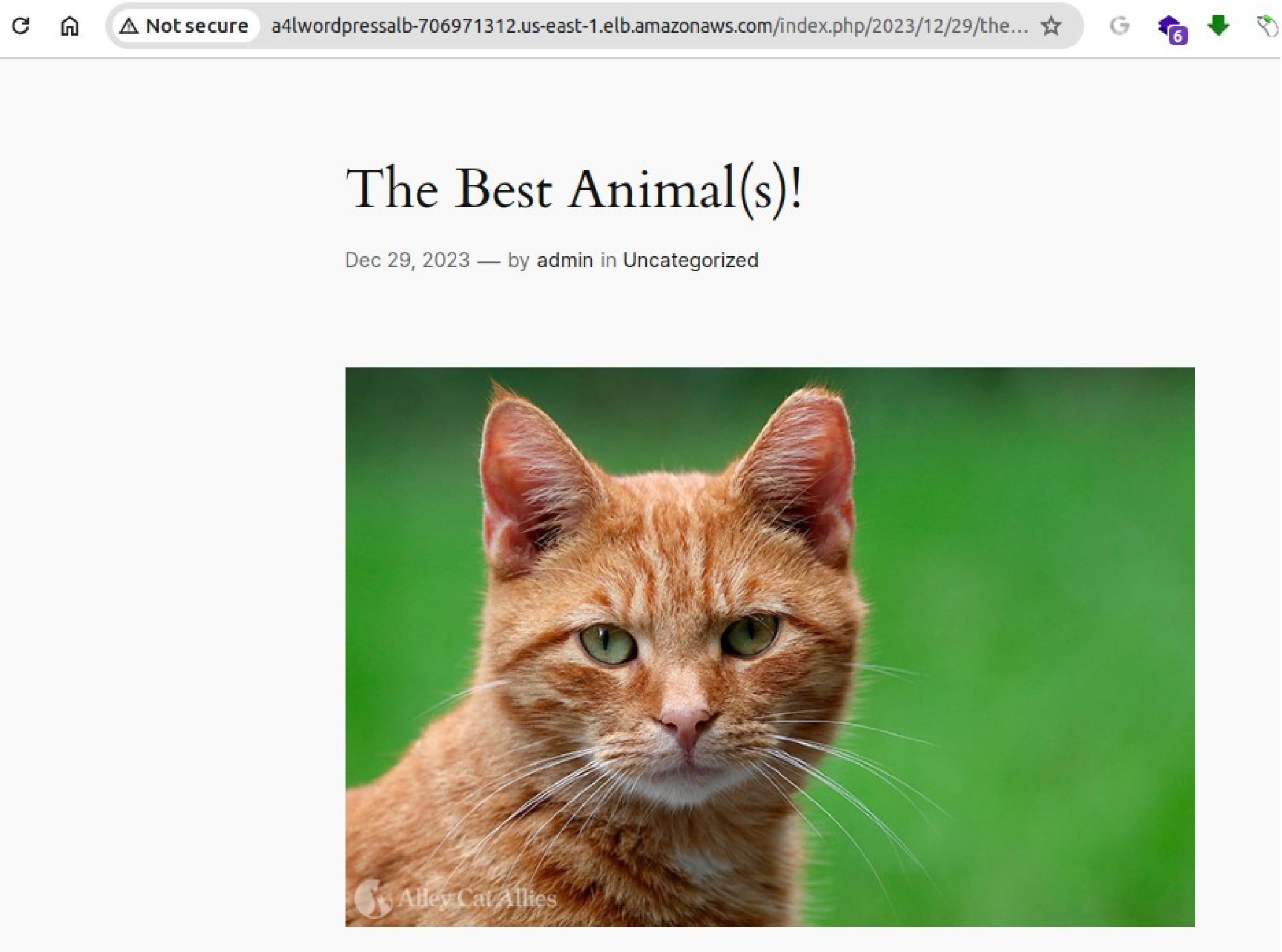


Watch, Read, Listen

The Best Animal(s)!

Dec 29, 2023 — by admin

in Uncategorized



⚠ Not secure a4lwordpressalb-706971312.us-east-1.elb.amazonaws.com/index.php/2023/12/29/the…

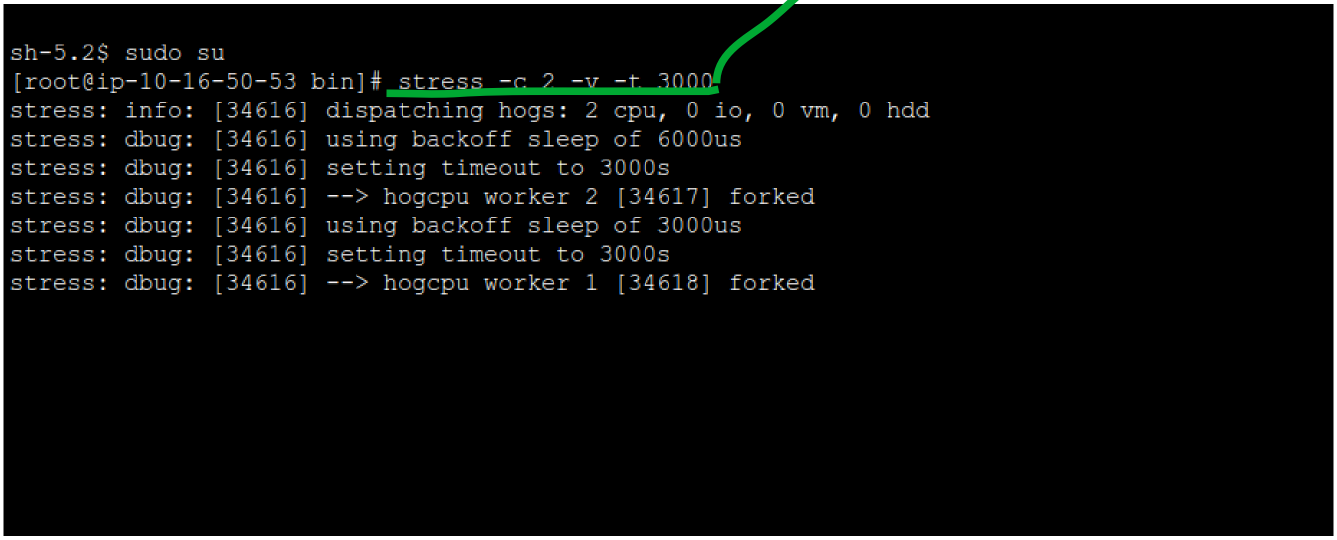
The Best Animal(s)!

Dec 29, 2023 — by admin in Uncategorized

As you can see, the our LoadBalancer is working....

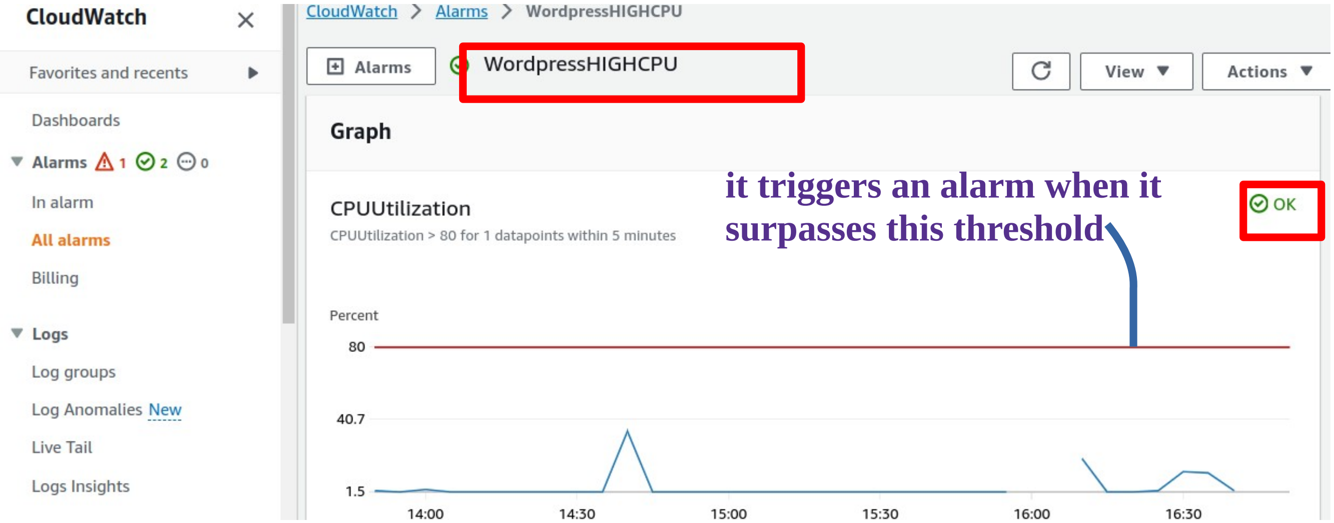
- **Now, let's shift our attention to the elasticity and scalability of our project. Connect to the instance, and let's put stress on the CPU**

Stress command



```
sh-5.2$ sudo su
[root@ip-10-16-50-53 bin]# stress -c 2 -v -t 3000
stress: info: [34616] dispatching hogs: 2 cpu, 0 io, 0 vm, 0 hdd
stress: dbug: [34616] using backoff sleep of 6000us
stress: dbug: [34616] setting timeout to 3000s
stress: dbug: [34616] --> hogcpu worker 2 [34617] forked
stress: dbug: [34616] using backoff sleep of 3000us
stress: dbug: [34616] setting timeout to 3000s
stress: dbug: [34616] --> hogcpu worker 1 [34618] forked
```

Goto Cloudwatch and Select WordpressHIGHCPU Alarm

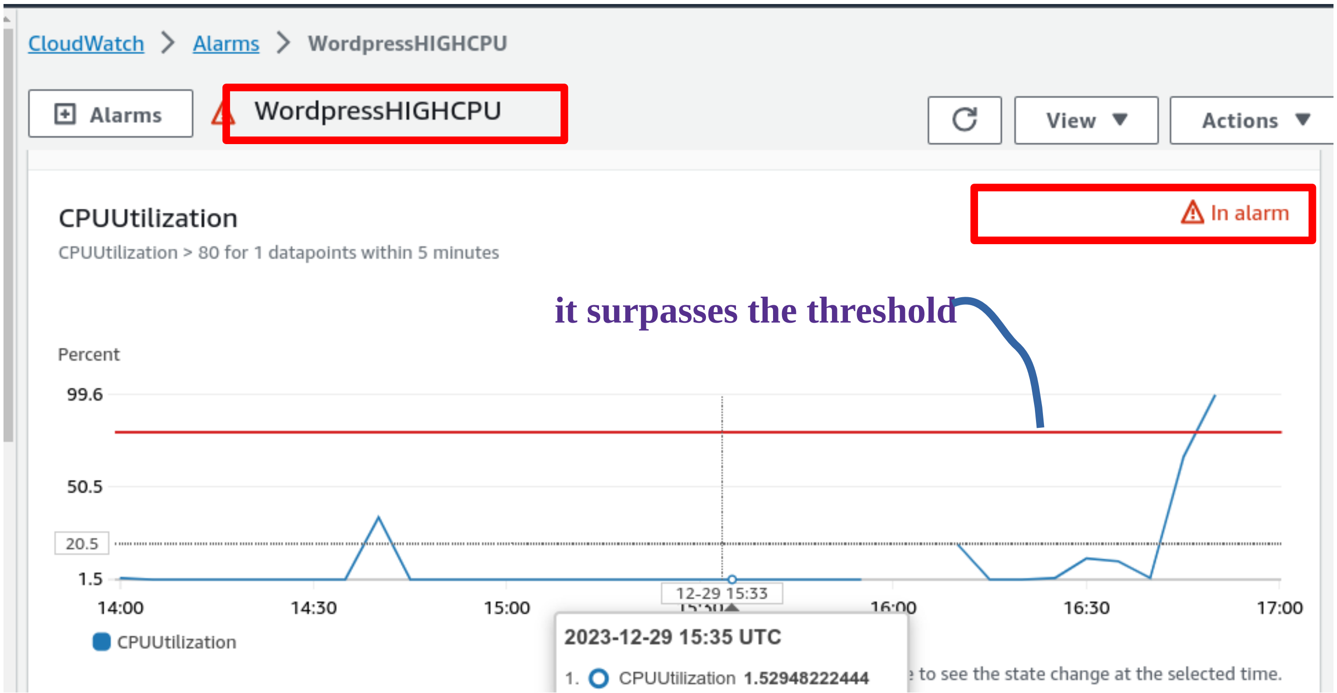


CPUUtilization

CPUUtilization > 80 for 1 datapoints within 5 minutes

it triggers an alarm when it surpasses this threshold

- **After several minutes, it transitions from "OK" to "In Alarm," prompting our Auto Scaling Group (ASG) to detect the change and spawn a new instance to respond to the increased demands**



WordpressHIGHCPU

CPUUtilization

CPUUtilization > 80 for 1 datapoints within 5 minutes

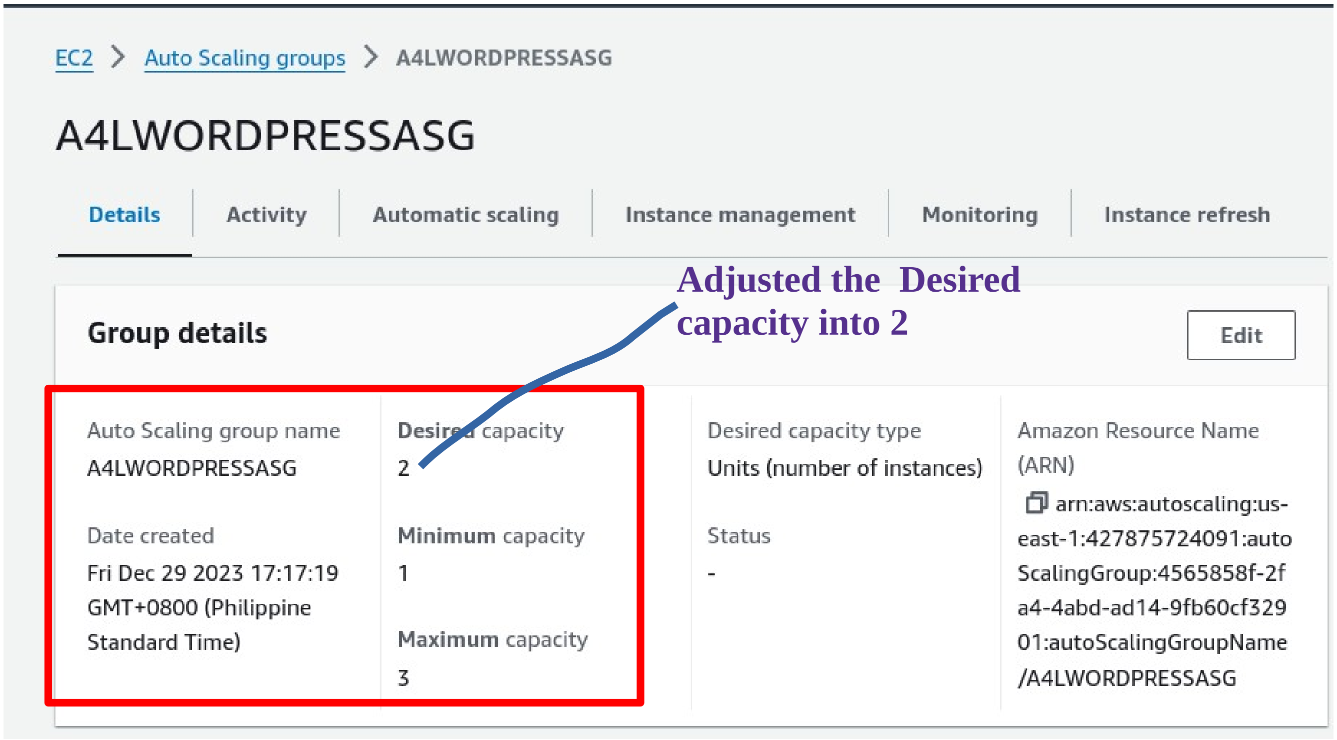
⚠ In alarm

it surpasses the threshold

2023-12-29 15:35 UTC

1. ○ CPUUtilization 1.52948222444

to see the state change at the selected time.



A4LWORDPRESSASG

Adjusted the Desired capacity into 2

Group details

Auto Scaling group name
A4LWORDPRESSASG

Date created
Fri Dec 29 2023 17:17:19 GMT+0800 (Philippine Standard Time)

Desired capacity
2

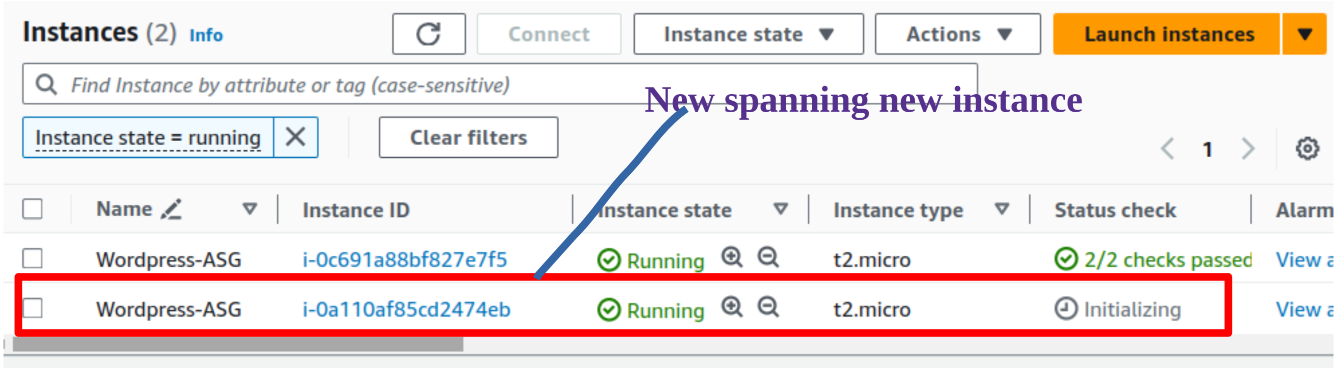
Minimum capacity
1

Maximum capacity
3

Desired capacity type
Units (number of instances)

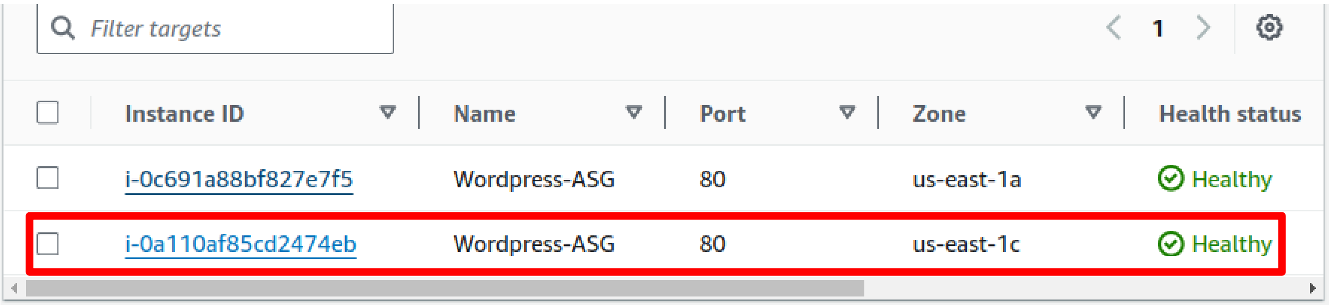
Status
-

Amazon Resource Name (ARN)
arn:aws:autoscaling:us-east-1:427875724091:autoScalingGroup:4565858f-2fa4-4abd-ad14-9fb60cf32901:autoScalingGroupName/A4LWORDPRESSASG



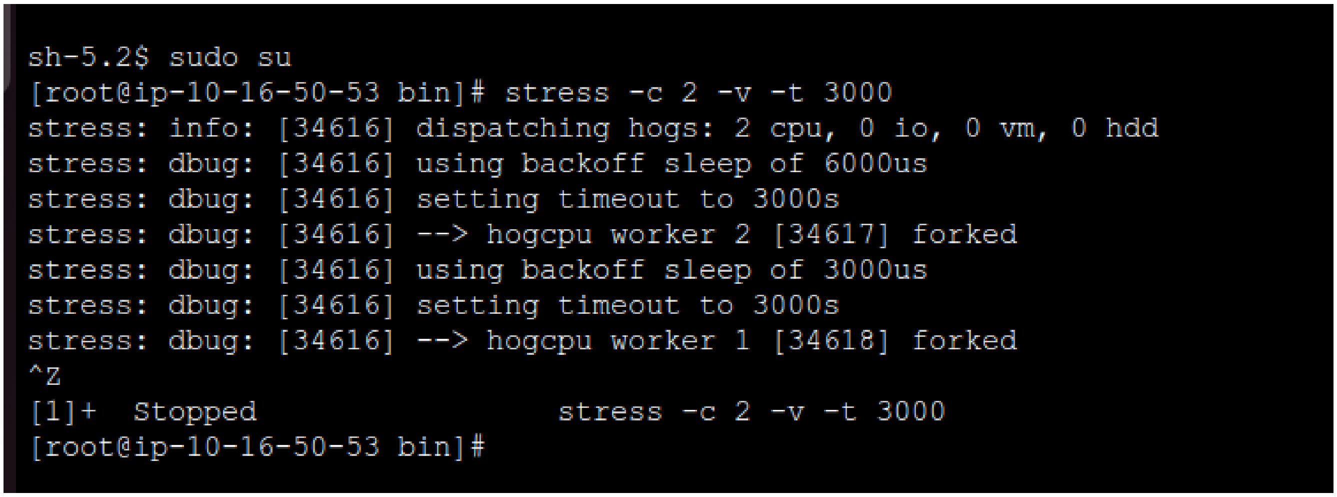
New spanning new instance

□	Name	Instance ID	Instance state	Instance type	Status check	Alarm
□	Wordpress-ASG	i-0c691a88bf827e7f5	✓ Running	t2.micro	✓ 2/2 checks passed	View a
□	Wordpress-ASG	i-0a110af85cd2474eb	✓ Running	t2.micro	Initializing	View a



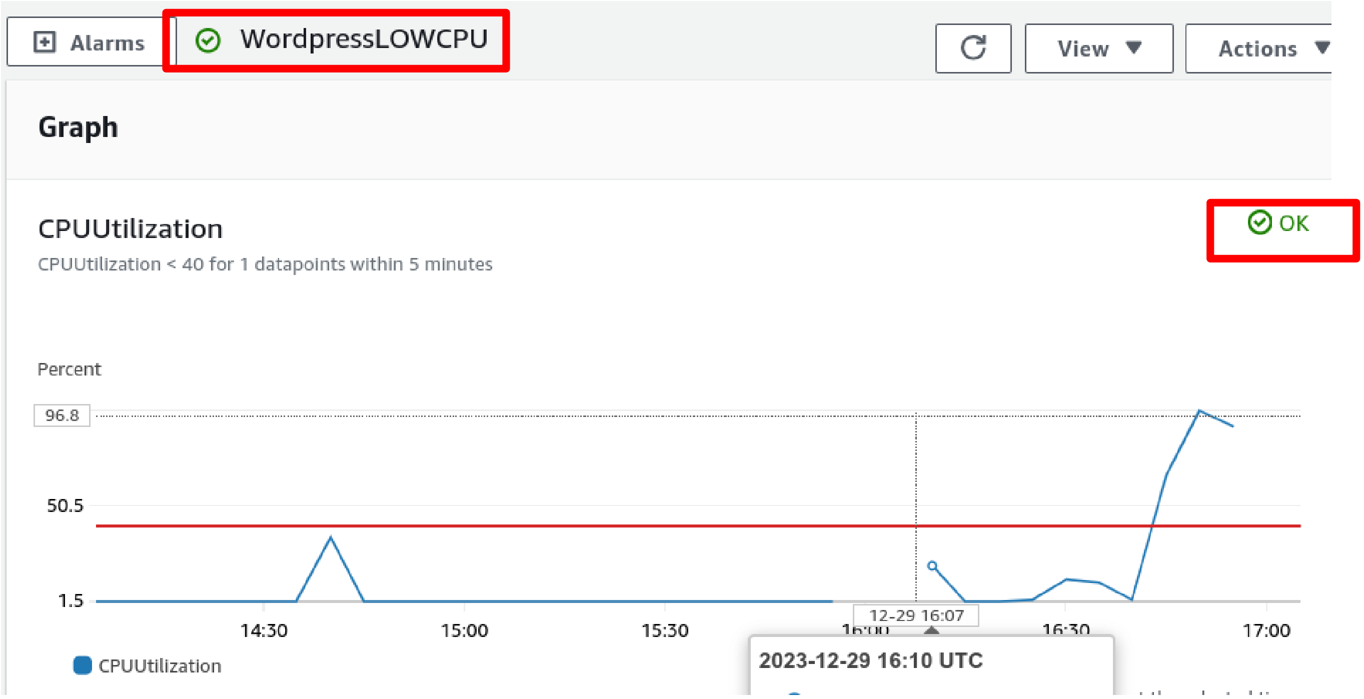
□	Instance ID	Name	Port	Zone	Health status
□	i-0c691a88bf827e7f5	Wordpress-ASG	80	us-east-1a	✓ Healthy
□	i-0a110af85cd2474eb	Wordpress-ASG	80	us-east-1c	✓ Healthy

- **Lets stop the stress command**



```
sh-5.2$ sudo su
[root@ip-10-16-50-53 bin]# stress -c 2 -v -t 3000
stress: info: [34616] dispatching hogs: 2 cpu, 0 io, 0 vm, 0 hdd
stress: dbug: [34616] using backoff sleep of 6000us
stress: dbug: [34616] setting timeout to 3000s
stress: dbug: [34616] --> hogcpu worker 2 [34617] forked
stress: dbug: [34616] using backoff sleep of 3000us
stress: dbug: [34616] setting timeout to 3000s
stress: dbug: [34616] --> hogcpu worker 1 [34618] forked
^Z
[1]+  Stopped                 stress -c 2 -v -t 3000
[root@ip-10-16-50-53 bin]#
```

- **Goto Cloudwatch and Select WordpressLOWCPU Alarm**

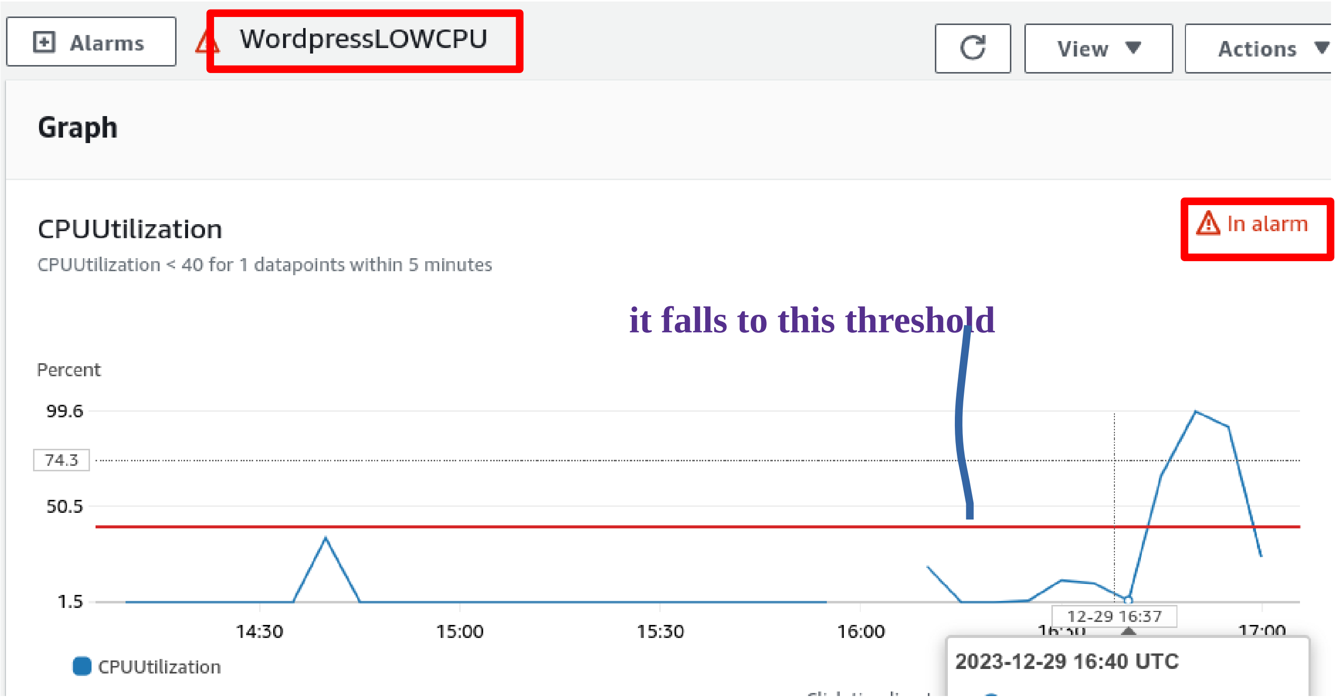


CPUUtilization

CPUUtilization < 40 for 1 datapoints within 5 minutes

2023-12-29 16:10 UTC

- **After several minutes, it change from OK to In alarm, and our ASG detects it that there is no high cpu demand, so it terminate intances leave only number instance base on the scalling capacity settings**

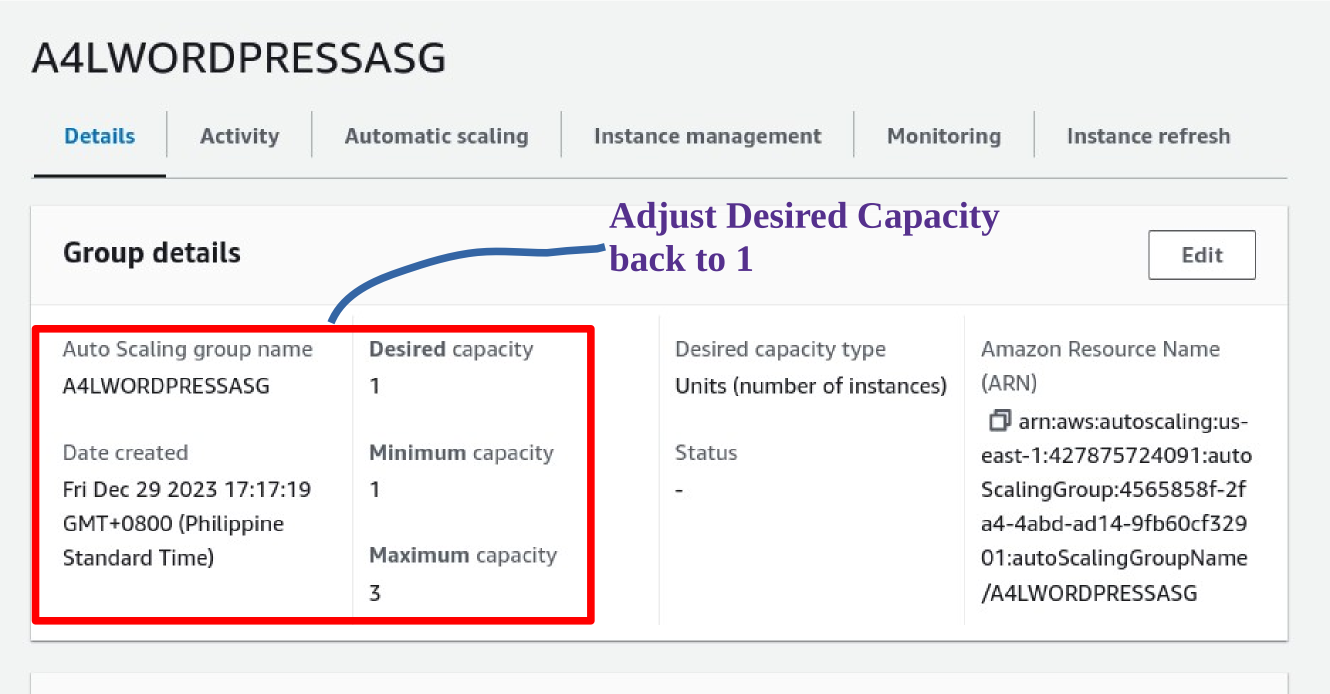


CPUUtilization

CPUUtilization < 40 for 1 datapoints within 5 minutes

it falls to this threshold

2023-12-29 16:40 UTC



A4LWORDPRESSASG

Adjust Desired Capacity back to 1

Group details

Auto Scaling group name
A4LWORDPRESSASG

Date created
Fri Dec 29 2023 17:17:19 GMT+0800 (Philippine Standard Time)

Desired capacity
1

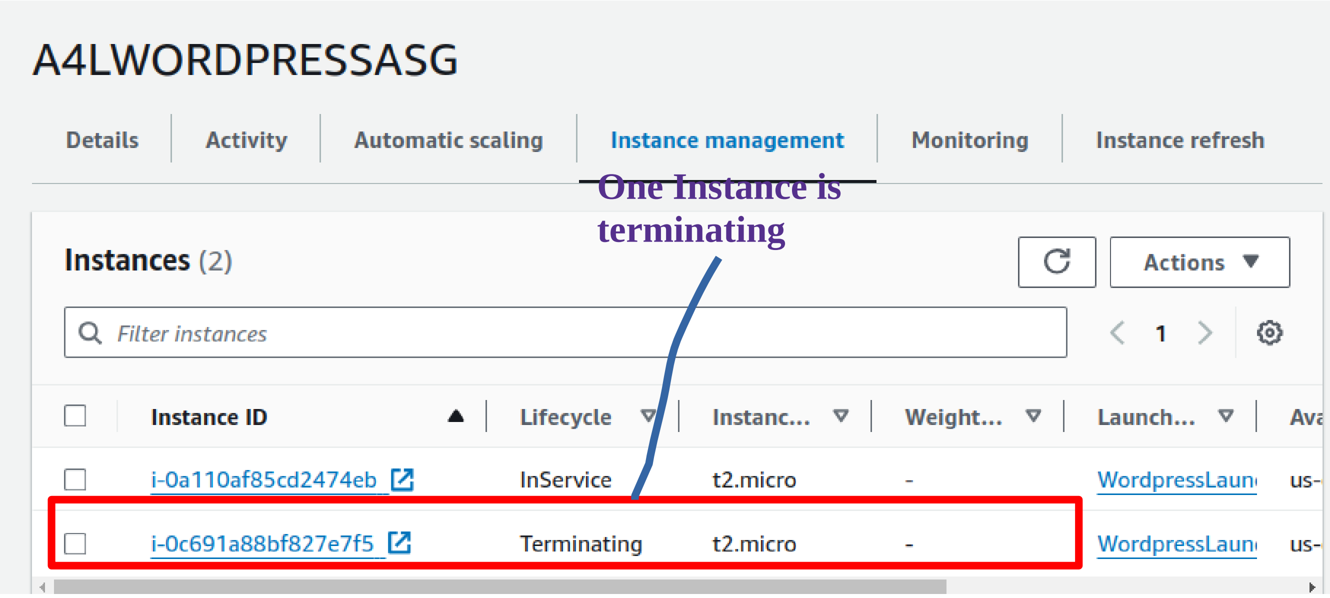
Minimum capacity
1

Maximum capacity
3

Desired capacity type
Units (number of instances)

Status
-

Amazon Resource Name (ARN)
arn:aws:autoscaling:us-east-1:427875724091:autoScalingGroup:4565858f-2fa4-4abd-ad14-9fb60cf32901:autoScalingGroupName/A4LWORDPRESSASG

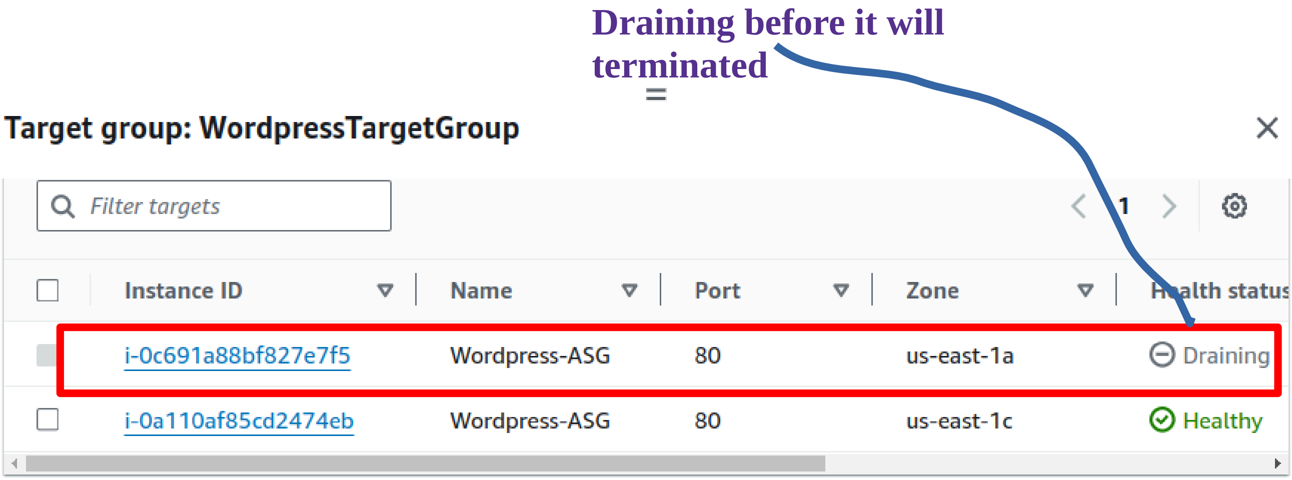


A4LWORDPRESSASG

One Instance is terminating

Instances (2)

□	Instance ID	Lifecycle	Instanc...	Weight...	Launch...	Ava
□	i-0a110af85cd2474eb	InService	t2.micro	-	WordpressLaun	us-
□	i-0c691a88bf827e7f5	Terminating	t2.micro	-	WordpressLaun	us-



Draining before it will terminated

Target group: WordpressTargetGroup

□	Instance ID	Name	Port	Zone	Health status
	i-0c691a88bf827e7f5	Wordpress-ASG	80	us-east-1a	⊖ Draining
□	i-0a110af85cd2474eb	Wordpress-ASG	80	us-east-1c	✓ Healthy

Thats Conclude the Final Stage or the Stage 5 .....
Stage 6 is about Cleanup, since we build this project using
Cloudformation, Deleting our project is easy.

First Delete worpress-complete-stack when its done
Delete the A4VPC stack