Project 2 – Website Orchestration Project: Website Orchestration

Industry: Internet related

Problem Statement: How to orchestrate a website with lesser time and higher availability along with autoscaling.

Topics: In this AWS project, you have to deploy a high-availability PHP application with an external Amazon RDS database to Elastic Beanstalk. Running a DB instance external to Elastic Beanstalk decouples the database from the lifecycle of your environment. This lets you connect to the same database from multiple environments, swap one database for another, or perform a blue/green deployment without affecting your database.

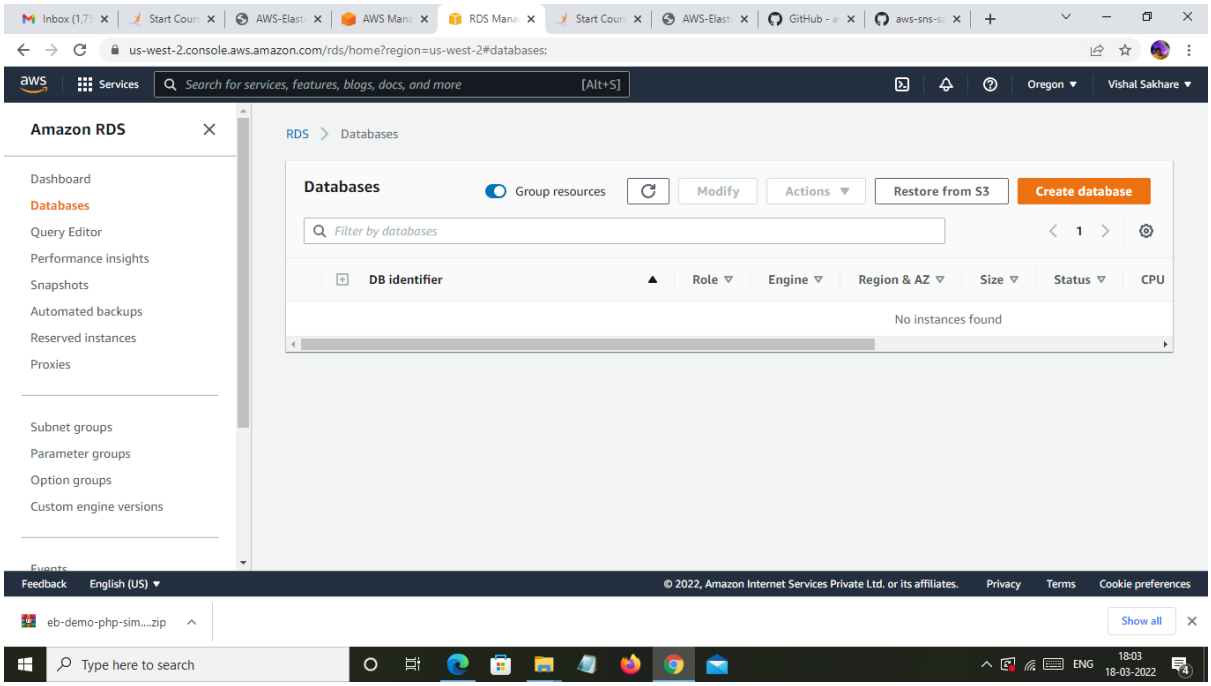
Highlights:

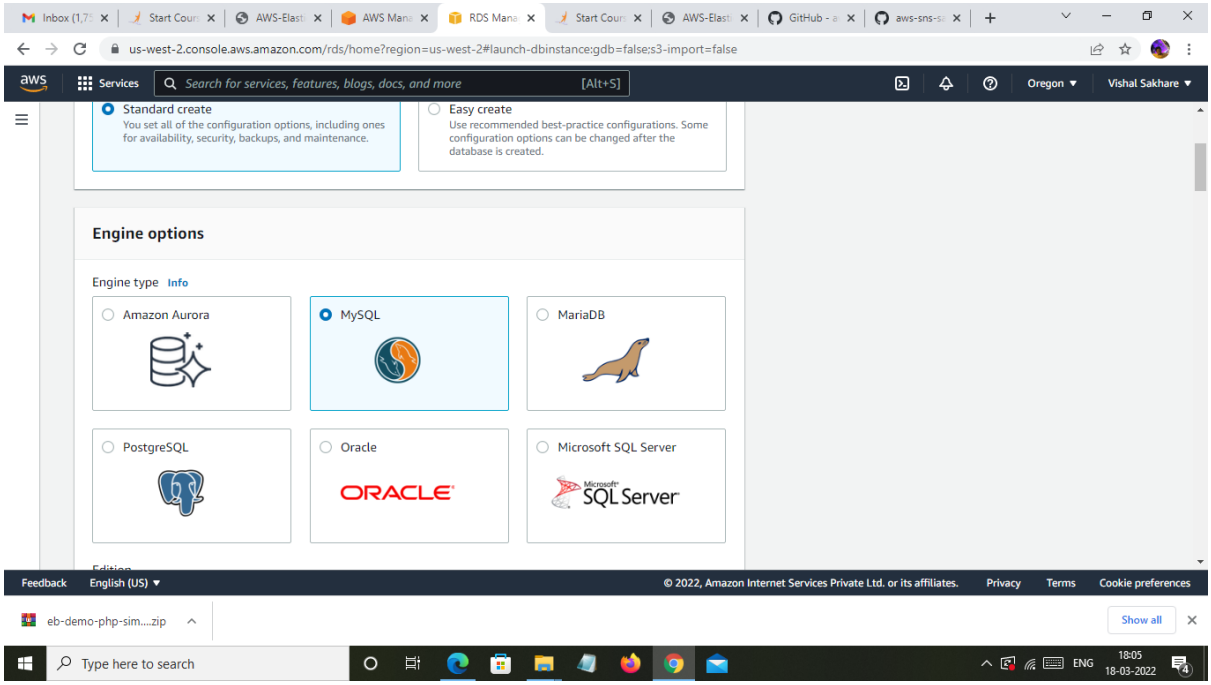
Launch a DB instance in Amazon RDS

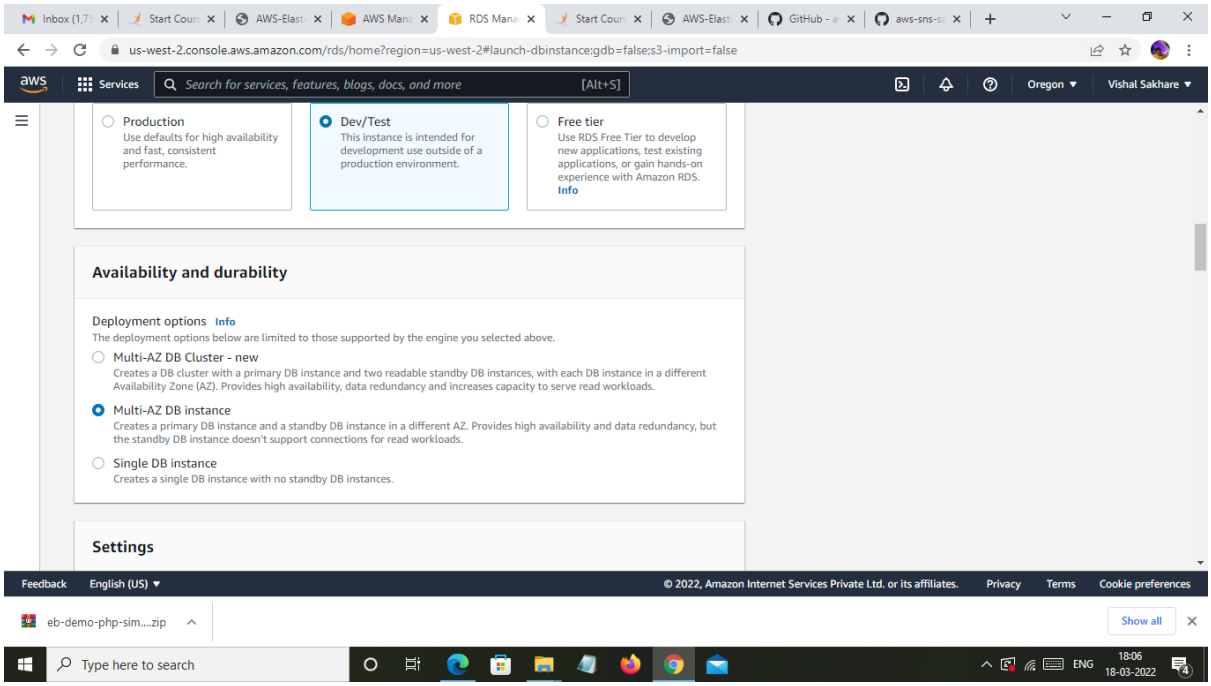
Create an Elastic Beanstalk Environment

Configure Security Groups and Scaling

Step1: Launch a DB Instance in Amazon RDS






Production
Use defaults for high availability and fast, consistent performance.
Dev/Test
This instance is intended for development use outside of a production environment.
Free tier
Use RDS Free Tier to develop new applications, test existing applications, or gain hands-on experience with Amazon RDS.
Info
Availability and durability
Deployment options Info
The deployment options below are limited to those supported by the engine you selected above.
Multi-AZ DB Cluster - new
Creates a DB cluster with a primary DB instance and two readable standby DB instances, with each DB instance in a different Availability Zone (AZ). Provides high availability, data redundancy and increases capacity to serve read workloads.
Multi-AZ DB instance
Creates a primary DB instance and a standby DB instance in a different AZ. Provides high availability and data redundancy, but the standby DB instance doesn't support connections for read workloads.
Single DB instance
Creates a single DB instance with no standby DB instances.
Settings
Feedback
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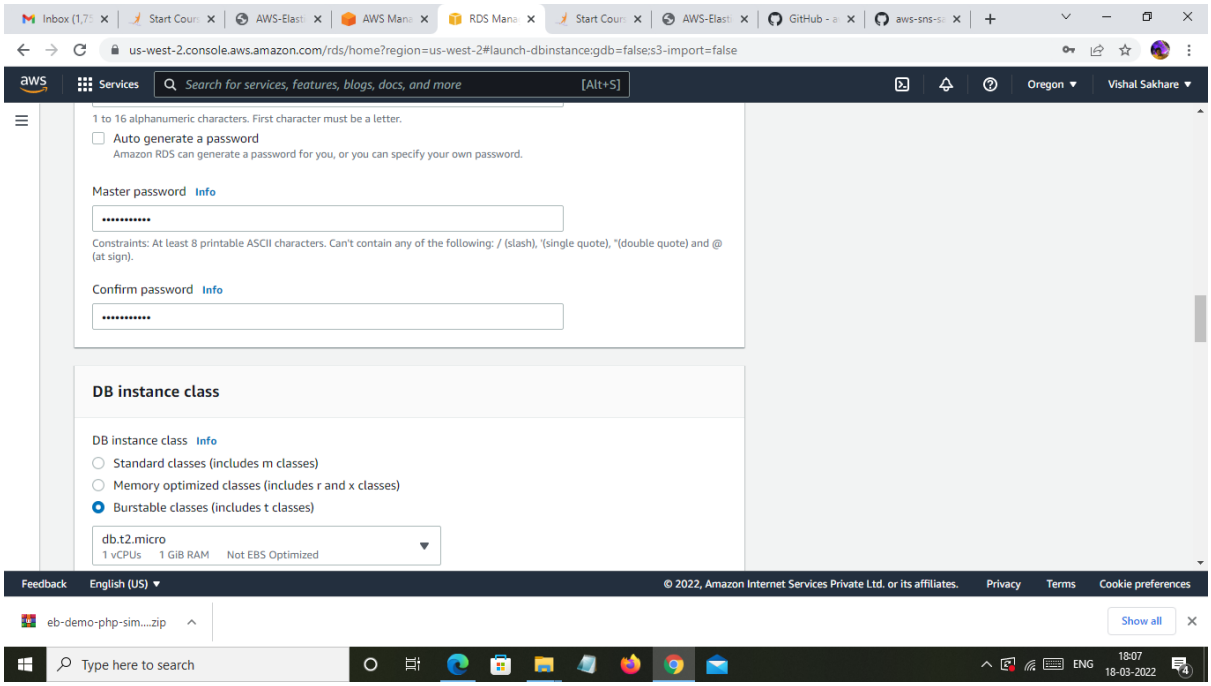
1 to 16 alphanumeric characters. First character must be a letter.
Auto generate a password
Amazon RDS can generate a password for you, or you can specify your own password.
Master password Info
Constraints: At least 8 printable ASCII characters. Can't contain any of the following: / (slash), '(single quote), "(double quote) and @ (at sign).
Confirm password Info
DB instance class
DB instance class Info
Standard classes (includes m classes)
Memory optimized classes (includes r and x classes)
Burstable classes (includes t classes)
db.t2.micro
1 vCPUs 1 GiB RAM Not EBS Optimized
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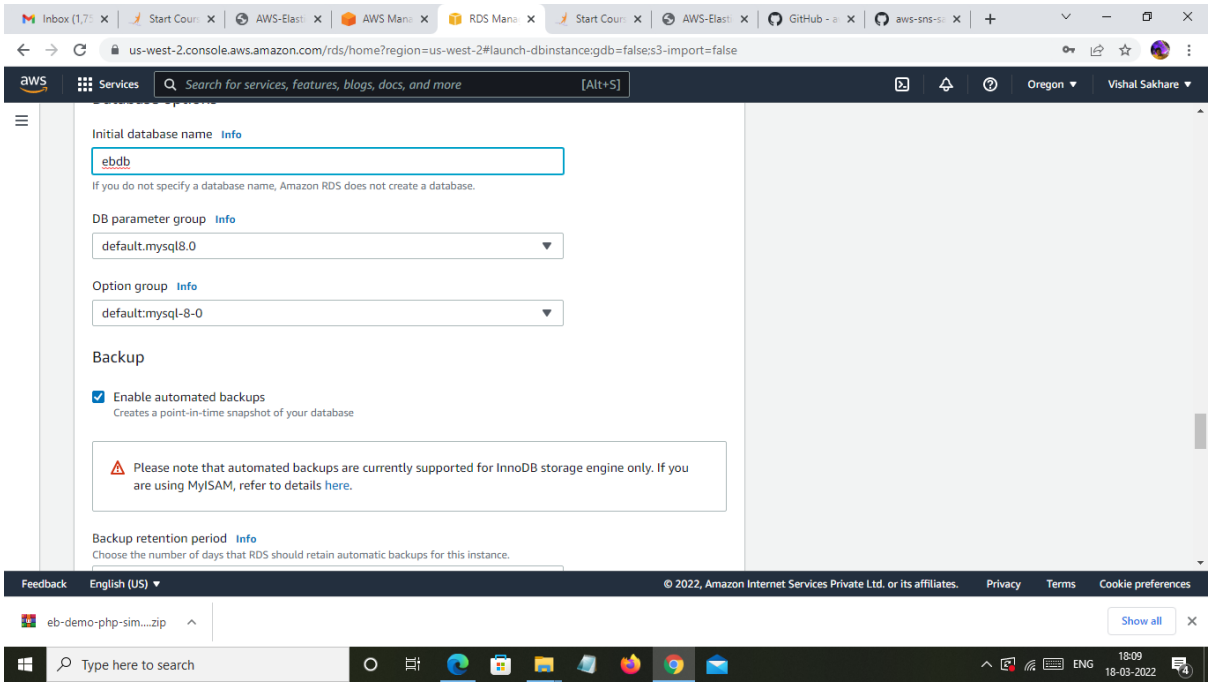
us-west-2.console.aws.amazon.com/rds/home?region=us-west-2#launch-dbinstance:gdb=false;s3-import=false
Services
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Initial database name Info
ebdb
If you do not specify a database name, Amazon RDS does not create a database.
DB parameter group Info
default.mysql8.0
Option group Info
default:mysql-8-0
Backup
Enable automated backups
Creates a point-in-time snapshot of your database
Please note that automated backups are currently supported for InnoDB storage engine only. If you are using MyISAM, refer to details here.
Backup retention period Info
Choose the number of days that RDS should retain automatic backups for this instance.
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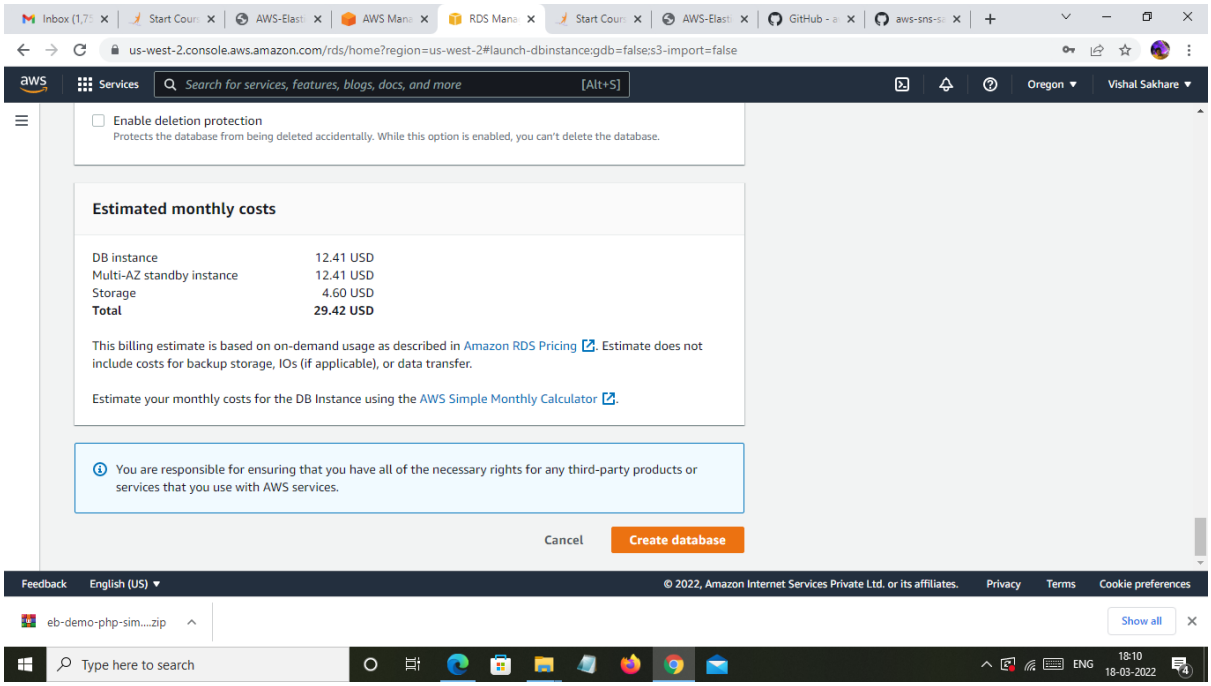
us-west-2.console.aws.amazon.com/rds/home?region=us-west-2#launch-dbinstance:gdb=false;s3-import=false
Services
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Enable deletion protection
Protects the database from being deleted accidentally. While this option is enabled, you can't delete the database.
Estimated monthly costs
DB instance 12.41 USD
Multi-AZ standby instance 12.41 USD
Storage 4.60 USD
Total 29.42 USD
This billing estimate is based on on-demand usage as described in Amazon RDS Pricing. Estimate does not include costs for backup storage, IOs (if applicable), or data transfer.
Estimate your monthly costs for the DB Instance using the AWS Simple Monthly Calculator.
You are responsible for ensuring that you have all of the necessary rights for any third-party products or services that you use with AWS services.
Cancel
Create database
Feedback
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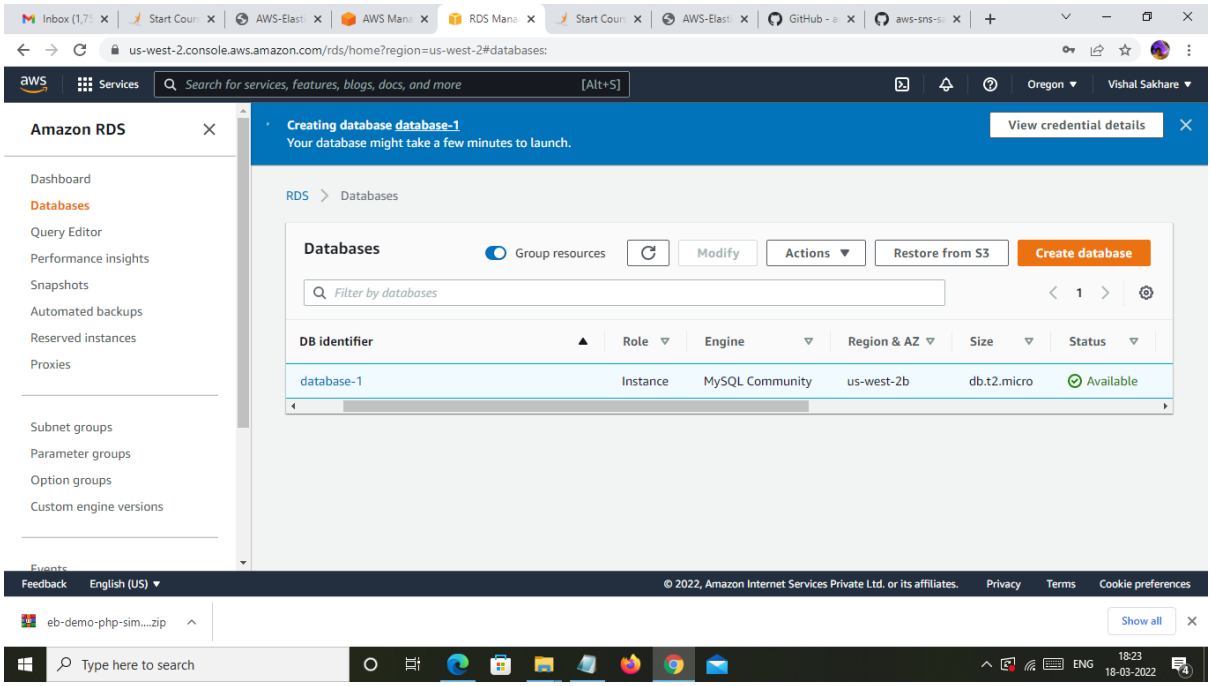
us-west-2.console.aws.amazon.com/rds/home?region=us-west-2#databases:
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Amazon RDS
Creating database database-1
Your database might take a few minutes to launch.
View credential details
Dashboard
Databases
Query Editor
Performance insights
Snapshots
Automated backups
Reserved instances
Proxies
Subnet groups
Parameter groups
Option groups
Custom engine versions
RDS > Databases
Databases
Group resources
Modify
Actions
Restore from S3
Create database
Filter by databases
DB identifier
Role
Engine
Region & AZ
Size
Status
database-1
Instance
MySQL Community
us-west-2b
db.t2.micro
Available
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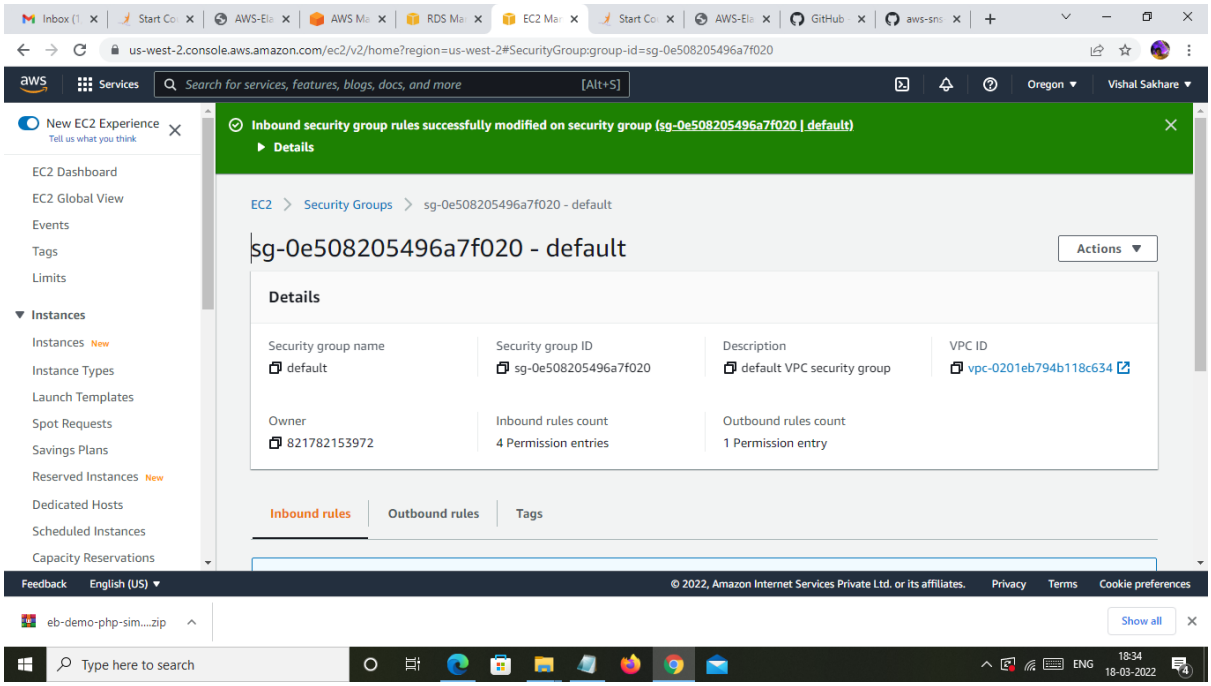
us-west-2.console.aws.amazon.com/ec2/v2/home?region=us-west-2#SecurityGroup:group-id=sg-0e508205496a7f020
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New EC2 Experience
Tell us what you think
Inbound security group rules successfully modified on security group (sg-0e508205496a7f020 | default)
Details
EC2 Dashboard
EC2 Global View
Events
Tags
Limits
Instances
Instances New
Instance Types
Launch Templates
Spot Requests
Savings Plans
Reserved Instances New
Dedicated Hosts
Scheduled Instances
Capacity Reservations
EC2 > Security Groups > sg-0e508205496a7f020 - default
sg-0e508205496a7f020 - default
Actions
Details
Security group name
default
Security group ID
sg-0e508205496a7f020
Description
default VPC security group
VPC ID
vpc-0201eb794b118c634
Owner
821782153972
Inbound rules count
4 Permission entries
Outbound rules count
1 Permission entry
Inbound rules
Outbound rules
Tags
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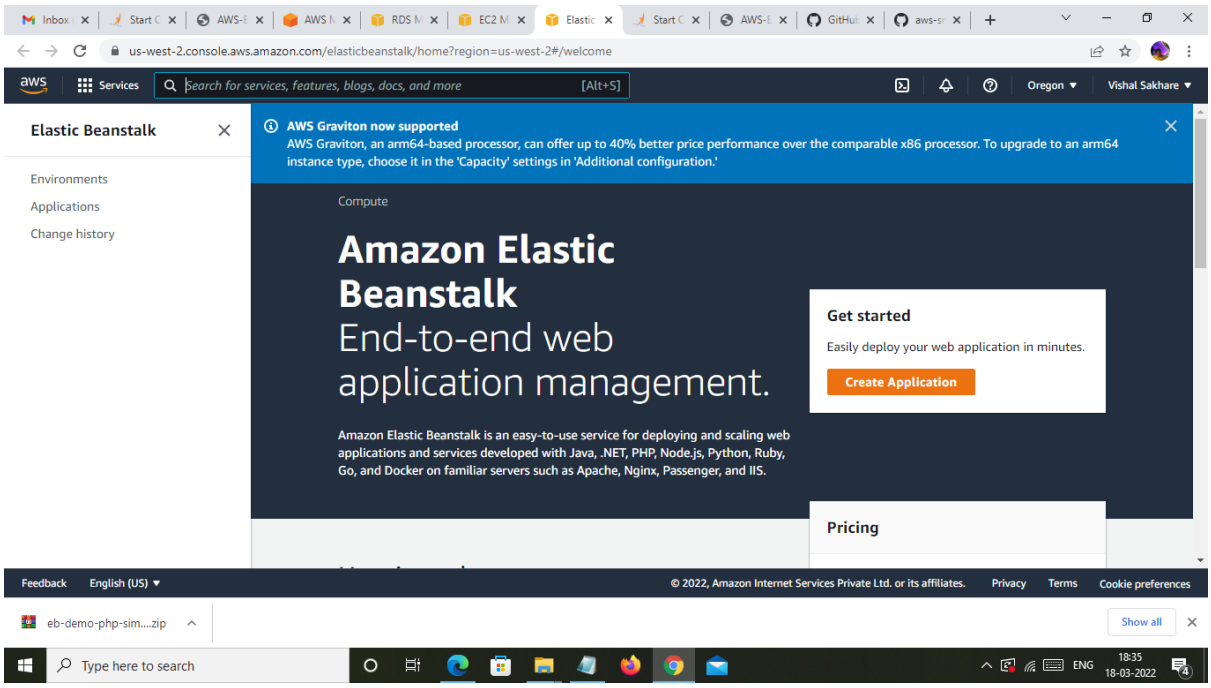
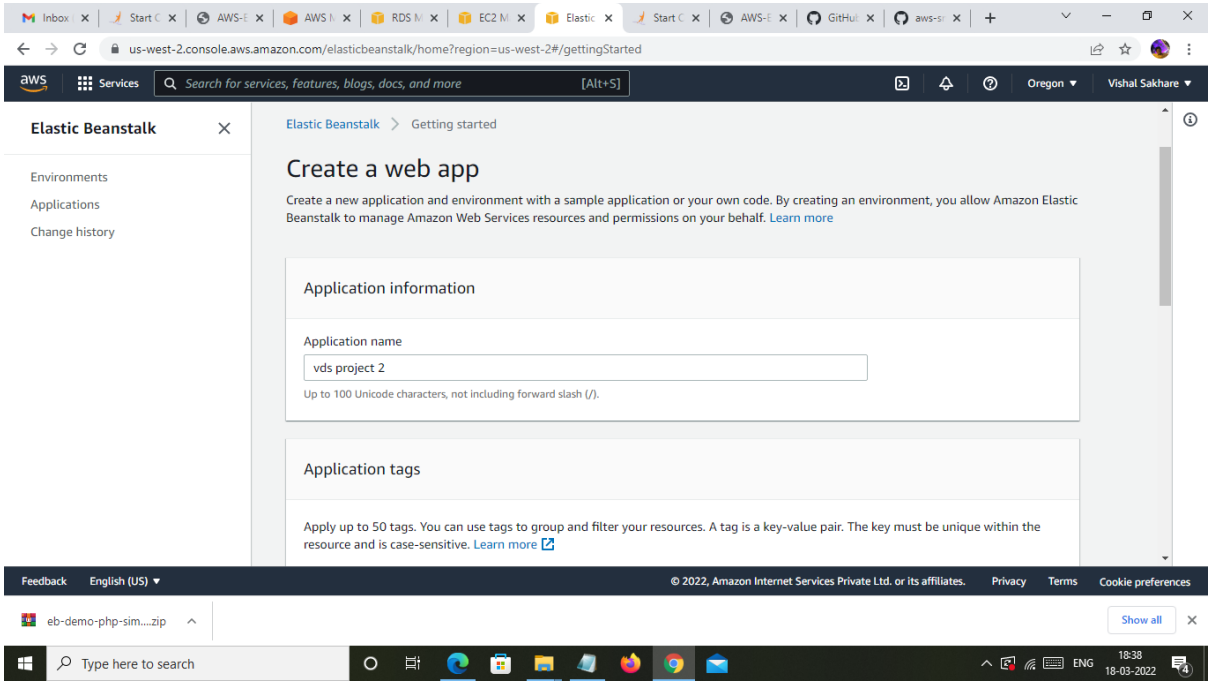
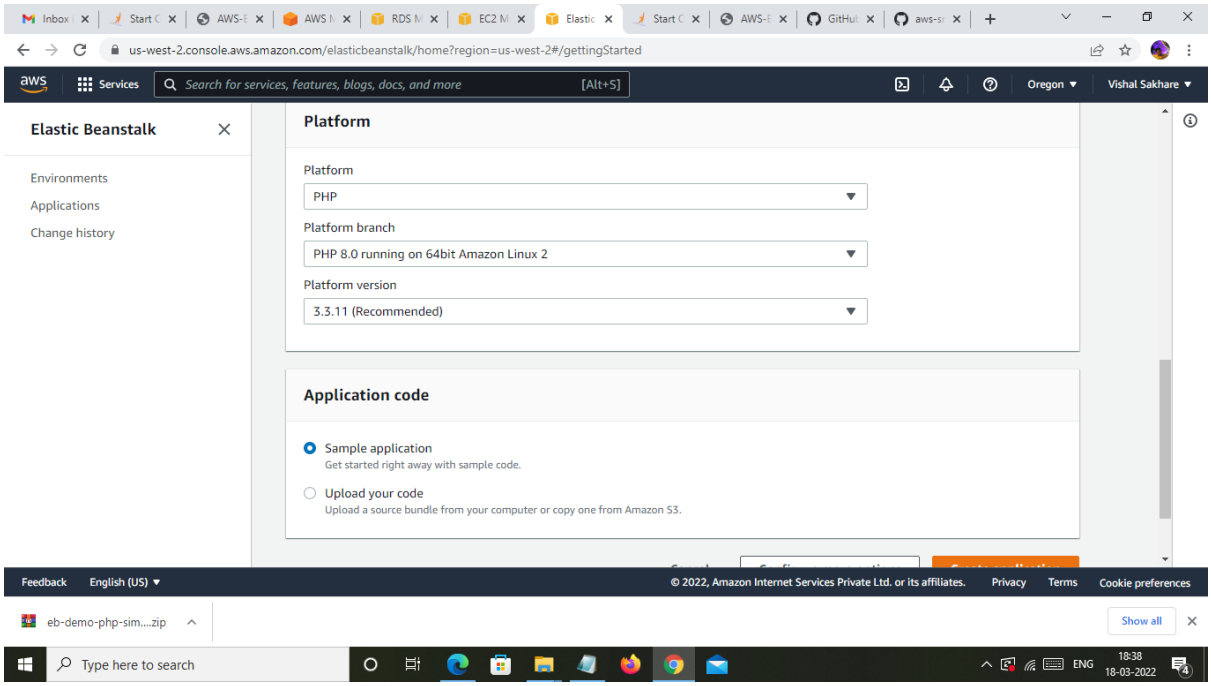
Step2: Create an Elastic Beanstalk Environment






us-west-2.console.aws.amazon.com/elasticbeanstalk/home?region=us-west-2#/gettingStarted
Services
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Environments
Applications
Change history
Platform
Platform
PHP
Platform branch
PHP 8.0 running on 64bit Amazon Linux 2
Platform version
3.3.11 (Recommended)
Application code
Sample application
Get started right away with sample code.
Upload your code
Upload a source bundle from your computer or copy one from Amazon S3.
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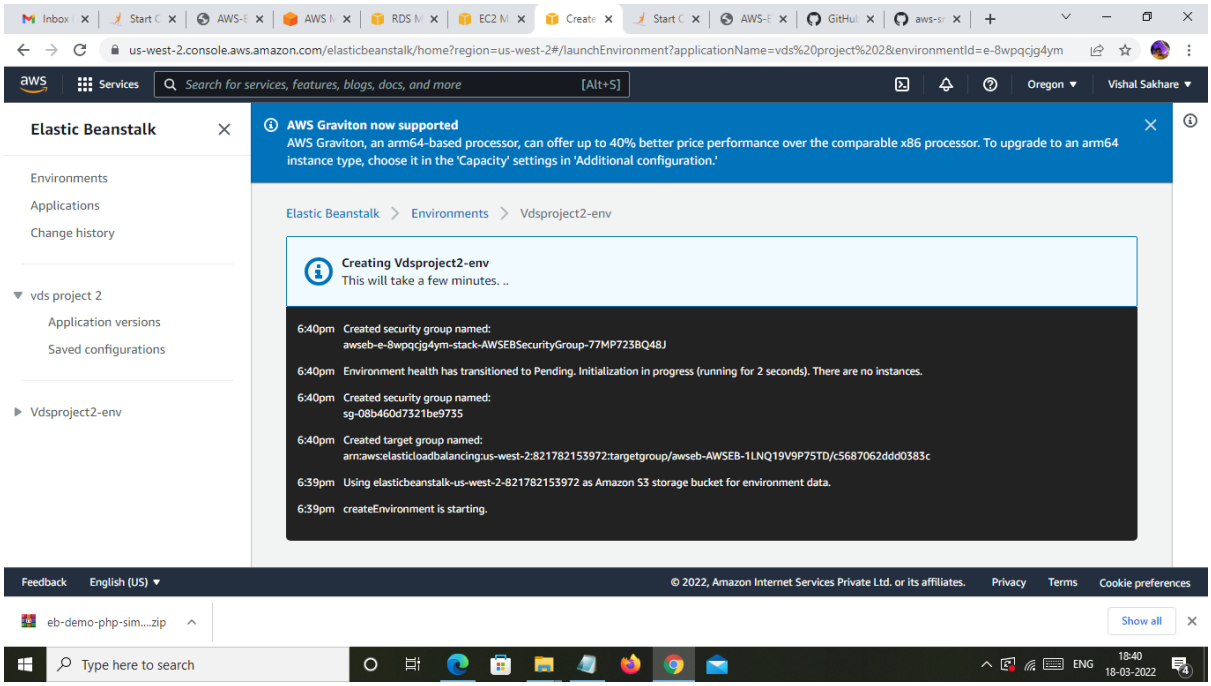
us-west-2.console.aws.amazon.com/elasticbeanstalk/home?region=us-west-2#/launchEnvironment?applicationName=vds%20project%202&environmentId=e-8wpqcjg4ym
Services
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Environments
Applications
Change history
vds project 2
Application versions
Saved configurations
Vdsproject2-env
AWS Graviton now supported
AWS Graviton, an arm64-based processor, can offer up to 40% better price performance over the comparable x86 processor. To upgrade to an arm64 instance type, choose it in the 'Capacity' settings in 'Additional configuration.'
Elastic Beanstalk > Environments > Vdsproject2-env
Creating Vdsproject2-env
This will take a few minutes. ..
6:40pm Created security group named: awseb-e-8wpqcjg4ym-stack-AWSEBSecurityGroup-77MP723BQ48J
6:40pm Environment health has transitioned to Pending. Initialization in progress (running for 2 seconds). There are no instances.
6:40pm Created security group named: sg-08b460d7321be9735
6:40pm Created target group named: arn:aws:elasticloadbalancing:us-west-2:821782153972:targetgroup/awseb-AWSEB-1LNQ19V9P75TD/c5687062ddd0383c
6:39pm Using elasticbeanstalk-us-west-2-821782153972 as Amazon S3 storage bucket for environment data.
6:39pm createEnvironment is starting.
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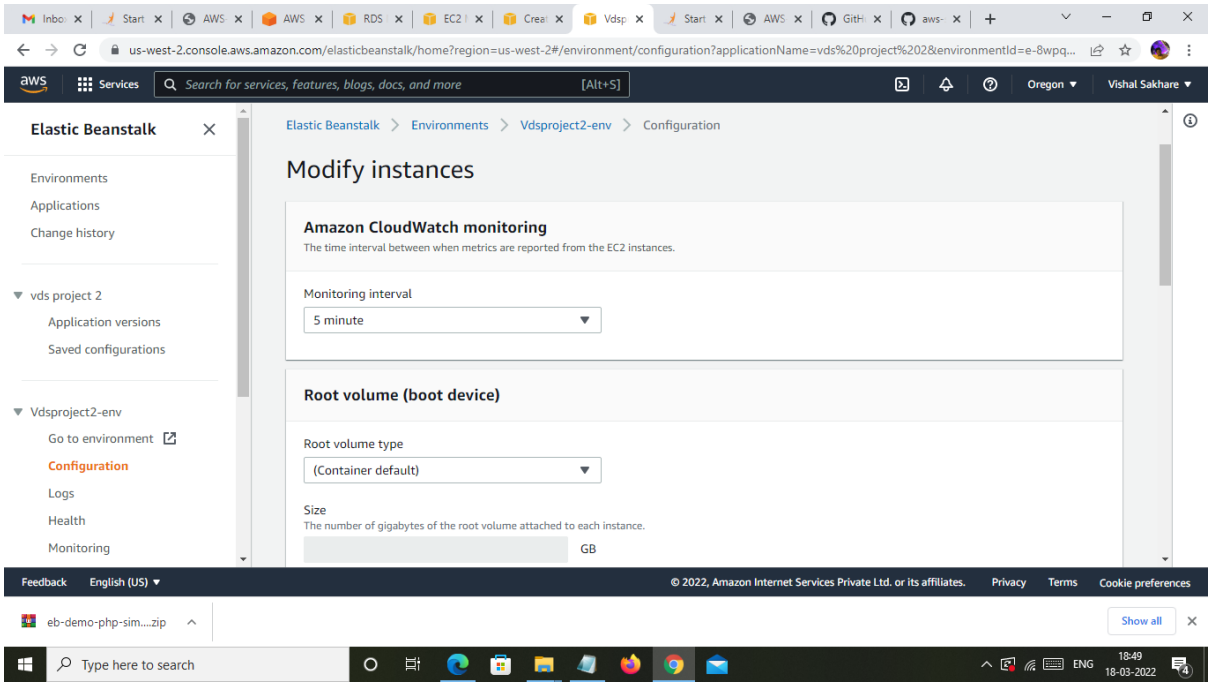
us-west-2.console.aws.amazon.com/elasticbeanstalk/home?region=us-west-2#/environment/configuration?applicationName=vds%20project%202&environmentId=e-8wpq...
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Environments
Applications
Change history
vds project 2
Application versions
Saved configurations
Vdsproject2-env
Go to environment
Configuration
Logs
Health
Monitoring
Elastic Beanstalk > Environments > Vdsproject2-env > Configuration
Modify instances
Amazon CloudWatch monitoring
The time interval between when metrics are reported from the EC2 instances.
Monitoring interval
5 minute
Root volume (boot device)
Root volume type
(Container default)
Size
The number of gigabytes of the root volume attached to each instance.
GB
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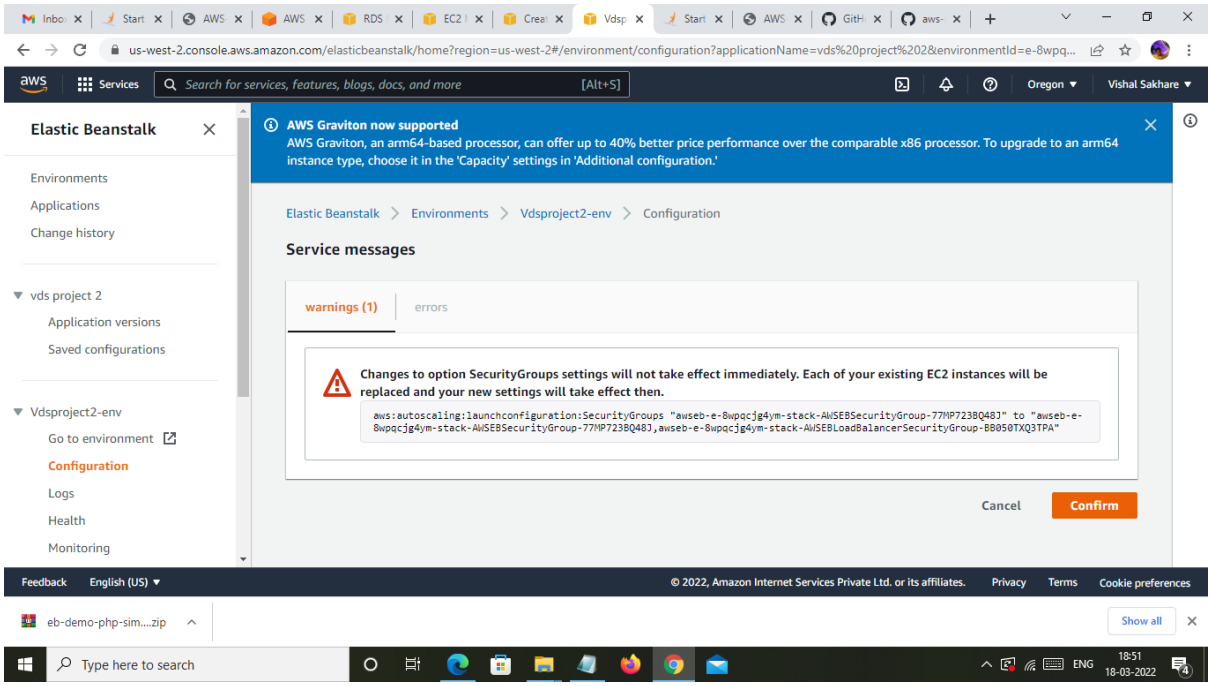
us-west-2.console.aws.amazon.com/elasticbeanstalk/home?region=us-west-2#/environment/configuration?applicationName=vds%20project%202&environmentId=e-8wpq...
Services
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Environments
Applications
Change history
vds project 2
Application versions
Saved configurations
Vdsproject2-env
Go to environment
Configuration
Logs
Health
Monitoring
AWS Graviton now supported
AWS Graviton, an arm64-based processor, can offer up to 40% better price performance over the comparable x86 processor. To upgrade to an arm64 instance type, choose it in the 'Capacity' settings in 'Additional configuration.'
Elastic Beanstalk > Environments > Vdsproject2-env > Configuration
Service messages
warnings (1)
errors
Changes to option SecurityGroups settings will not take effect immediately. Each of your existing EC2 instances will be replaced and your new settings will take effect then.
aws:autoscaling:launchconfiguration:SecurityGroups "awseb-e-8wpqcjg4ym-stack-AWSEBSecurityGroup-77MP723BQ48J" to "awseb-e-8wpqcjg4ym-stack-AWSEBSecurityGroup-77MP723BQ48J,awseb-e-8wpqcjg4ym-stack-AWSEBLoadBalancerSecurityGroup-BB050TXQ3TPA"
Cancel
Confirm
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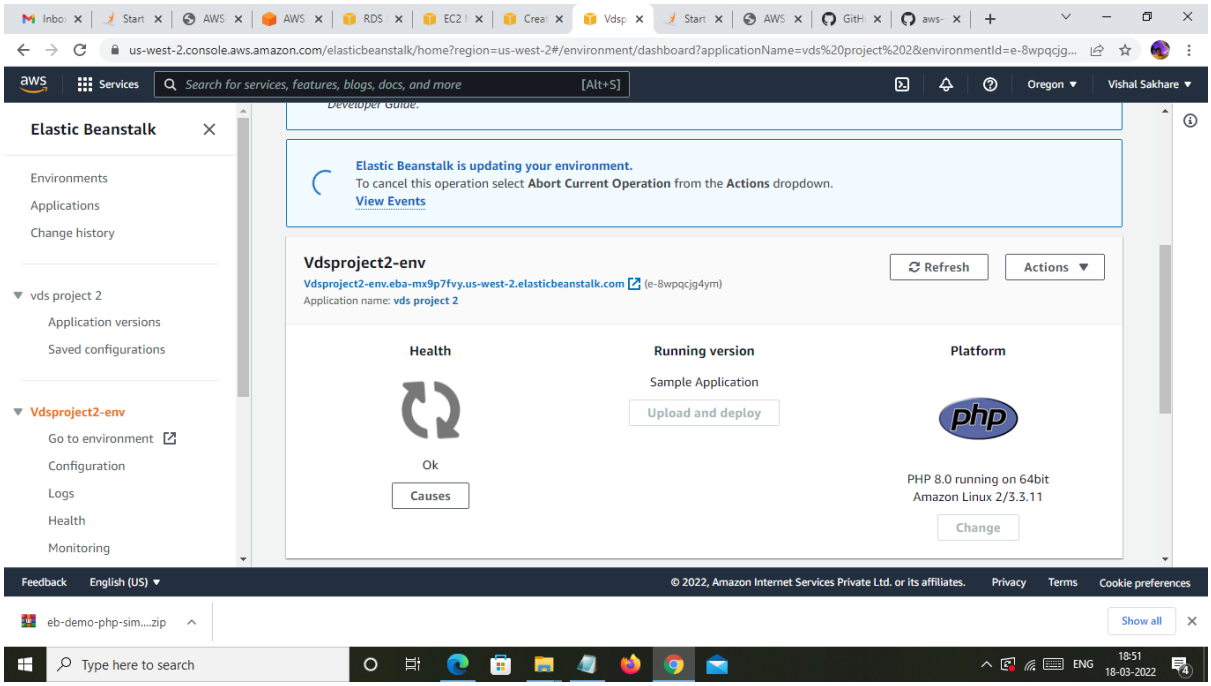
us-west-2.console.aws.amazon.com/elasticbeanstalk/home?region=us-west-2#/environment/dashboard?applicationName=vds%20project%202&environmentId=e-8wpqcjg...
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Elastic Beanstalk
Environments
Applications
Change history
vds project 2
Application versions
Saved configurations
Vdsproject2-env
Go to environment
Configuration
Logs
Health
Monitoring
Elastic Beanstalk is updating your environment.
To cancel this operation select Abort Current Operation from the Actions dropdown.
View Events
Vdsproject2-env
Vdsproject2-env.eba-mx9p7fvy.us-west-2.elasticbeanstalk.com (e-8wpqcjg4ym)
Application name: vds project 2
Refresh
Actions
Health
Ok
Causes
Running version
Sample Application
Upload and deploy
Platform
PHP 8.0 running on 64bit
Amazon Linux 2/3.3.11
Change
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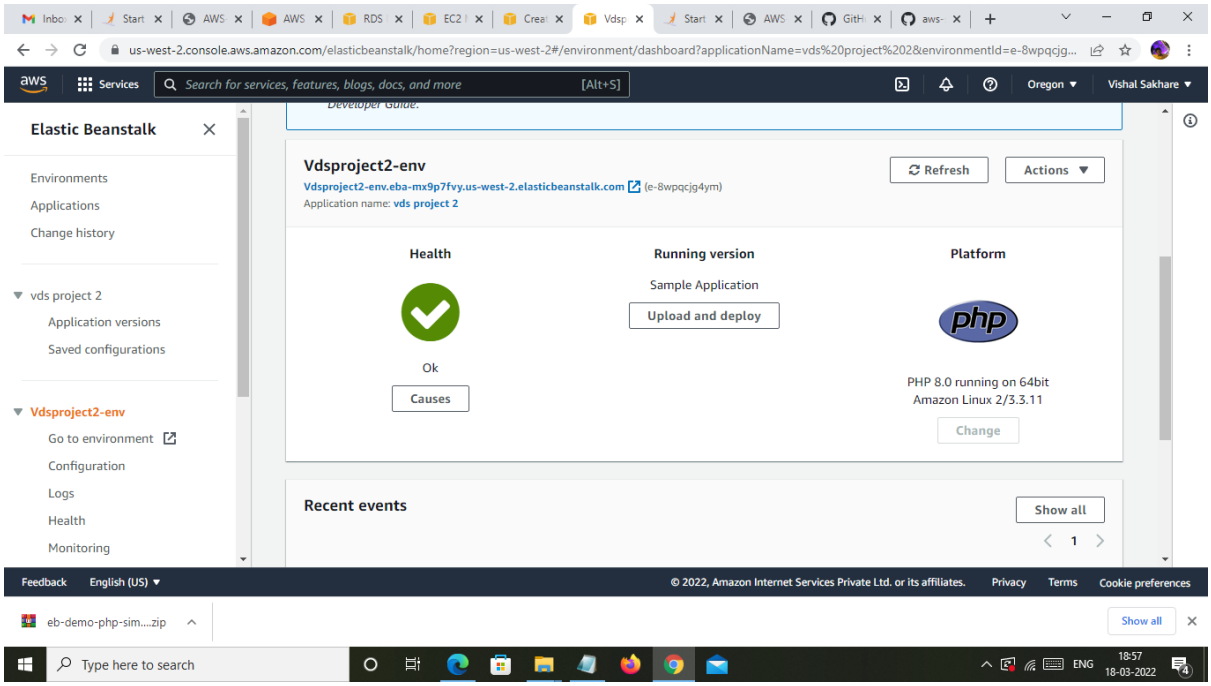
us-west-2.console.aws.amazon.com/elasticbeanstalk/home?region=us-west-2#/environment/dashboard?applicationName=vds%20project%202&environmentId=e-8wpqcjg...
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Applications
Change history
vds project 2
Application versions
Saved configurations
Vdsproject2-env
Go to environment
Configuration
Logs
Health
Monitoring
Vdsproject2-env
Vdsproject2-env.eba-mx9p7fvy.us-west-2.elasticbeanstalk.com (e-8wpqcjg4ym)
Application name: vds project 2
Refresh
Actions
Health
Ok
Causes
Running version
Sample Application
Upload and deploy
Platform
PHP 8.0 running on 64bit
Amazon Linux 2/3.3.11
Change
Recent events
Show all
1
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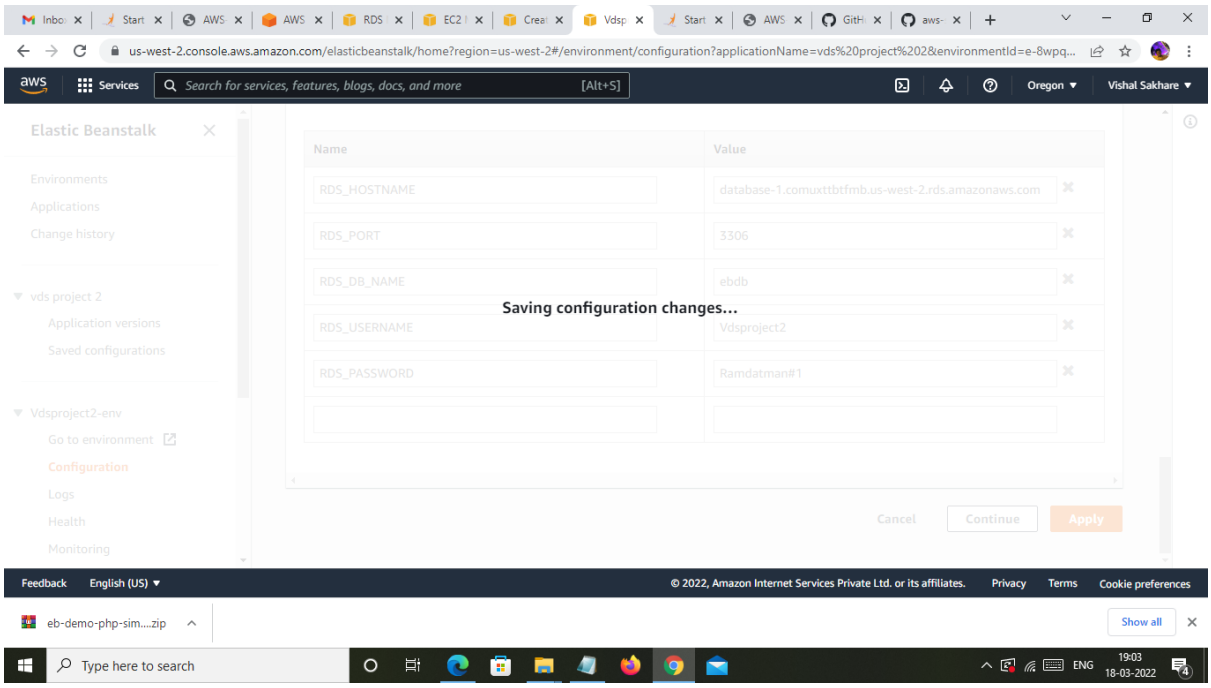
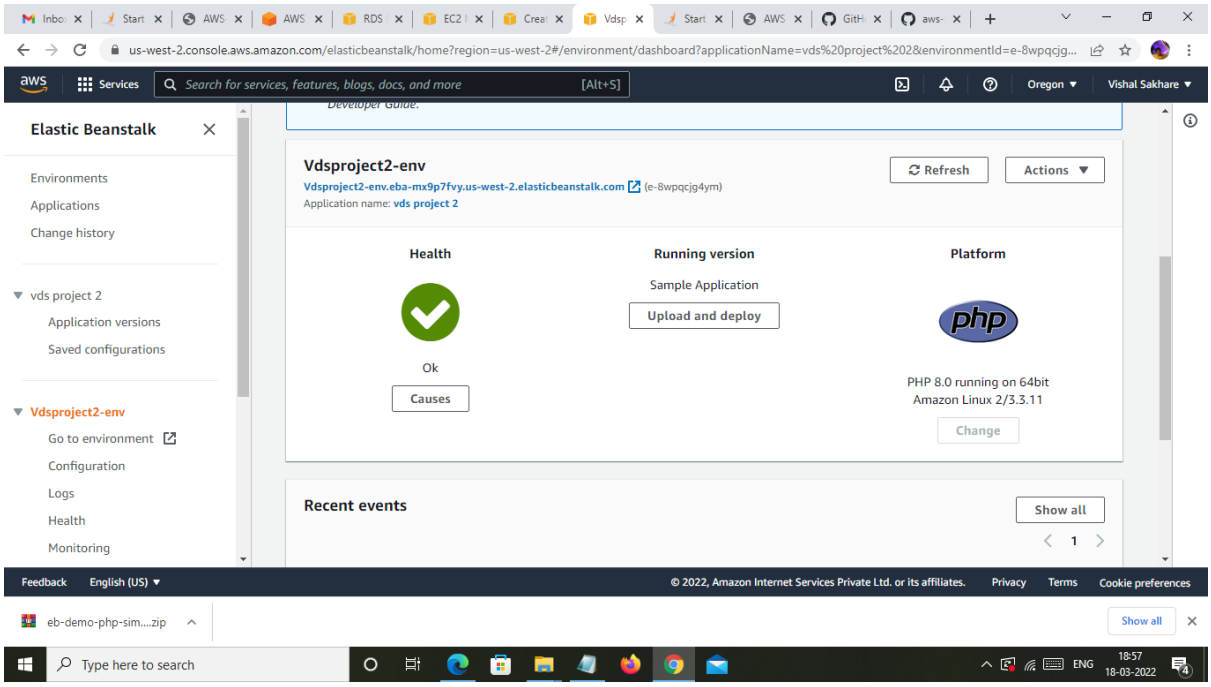
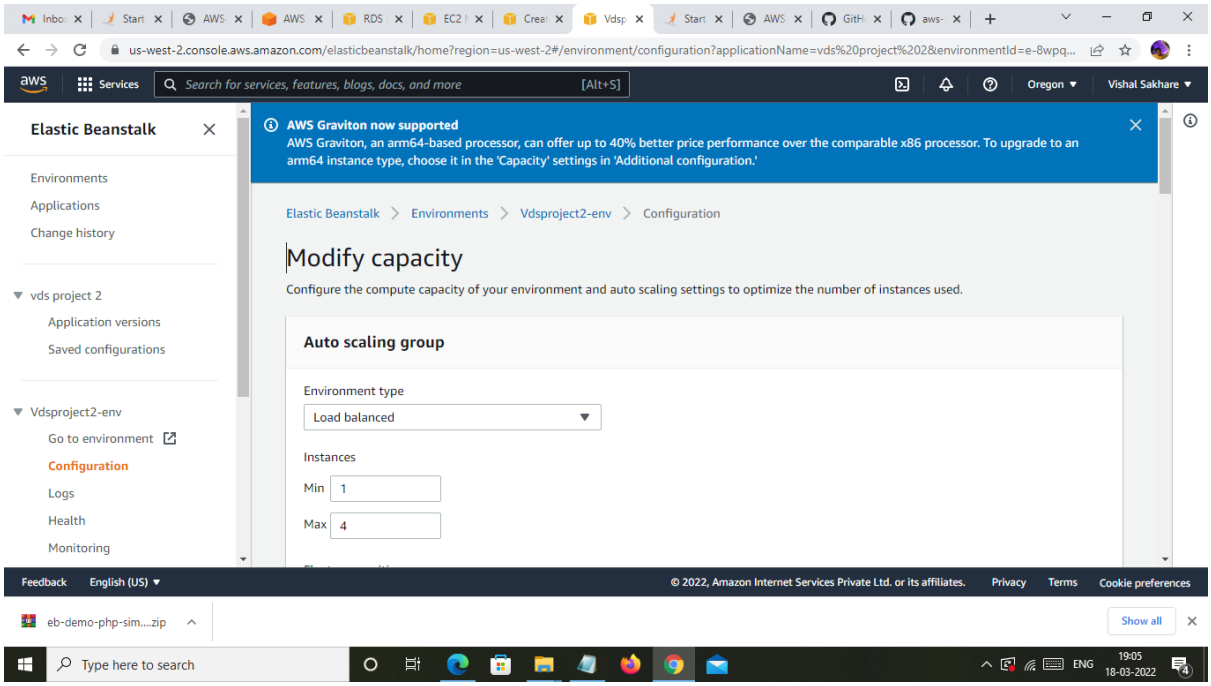
Step3: Configure Security Groups, Environment Properties, and Scaling






us-west-2.console.aws.amazon.com/elasticbeanstalk/home?region=us-west-2#/environment/configuration?applicationName=vds%20project%202&environmentId=e-8wpq...
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Change history
vds project 2
Application versions
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Vdsproject2-env
Go to environment
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AWS Graviton now supported
AWS Graviton, an arm64-based processor, can offer up to 40% better price performance over the comparable x86 processor. To upgrade to an arm64 instance type, choose it in the 'Capacity' settings in 'Additional configuration.'
Elastic Beanstalk > Environments > Vdsproject2-env > Configuration
Modify capacity
Configure the compute capacity of your environment and auto scaling settings to optimize the number of instances used.
Auto scaling group
Environment type
Load balanced
Instances
Min 1
Max 4
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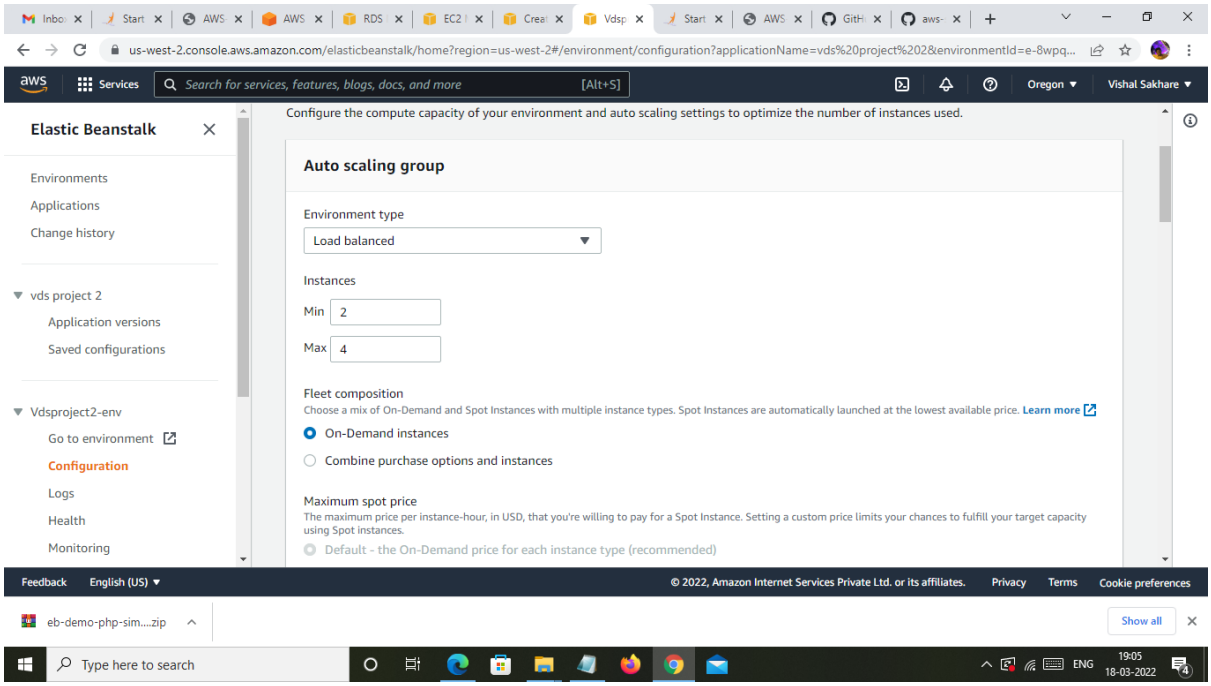
us-west-2.console.aws.amazon.com/elasticbeanstalk/home?region=us-west-2#/environment/configuration?applicationName=vds%20project%202&environmentId=e-8wpq...
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Environments
Applications
Change history
vds project 2
Application versions
Saved configurations
Vdsproject2-env
Go to environment
Configuration
Logs
Health
Monitoring
Configure the compute capacity of your environment and auto scaling settings to optimize the number of instances used.
Auto scaling group
Environment type
Load balanced
Instances
Min 2
Max 4
Fleet composition
Choose a mix of On-Demand and Spot Instances with multiple instance types. Spot Instances are automatically launched at the lowest available price. Learn more
On-Demand instances
Combine purchase options and instances
Maximum spot price
The maximum price per instance-hour, in USD, that you're willing to pay for a Spot Instance. Setting a custom price limits your chances to fulfill your target capacity using Spot instances.
Default - the On-Demand price for each instance type (recommended)
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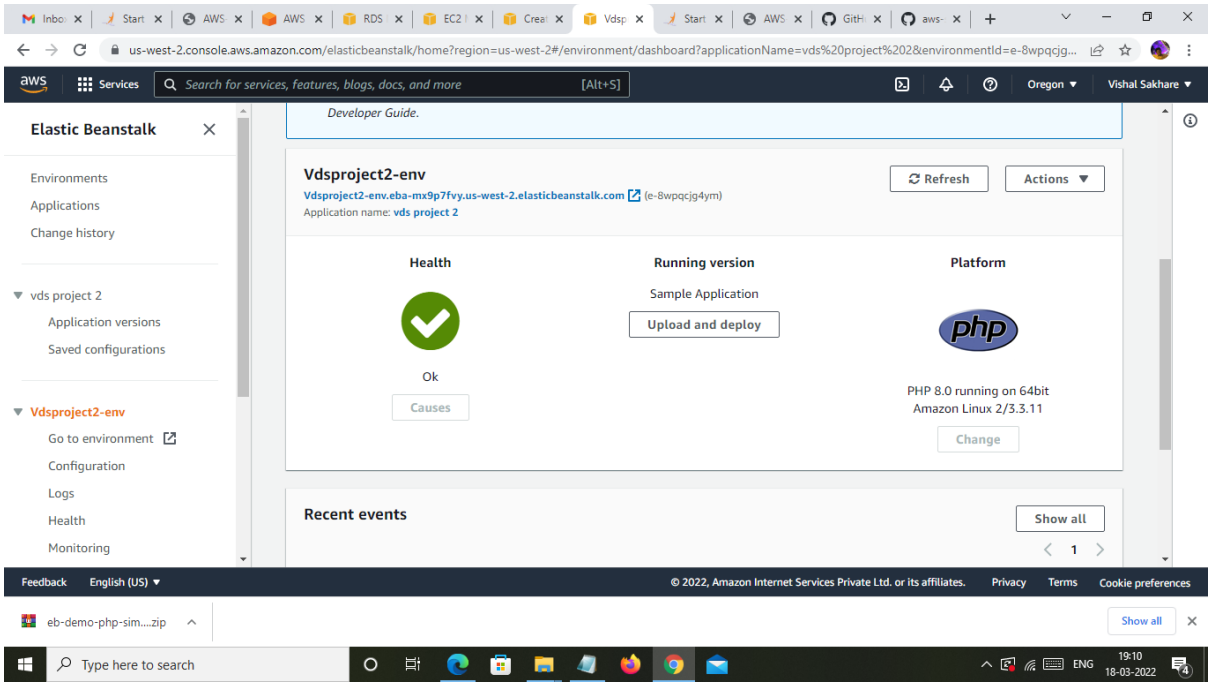
us-west-2.console.aws.amazon.com/elasticbeanstalk/home?region=us-west-2#/environment/dashboard?applicationName=vds%20project%202&environmentId=e-8wpqcjg...
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Environments
Applications
Change history
vds project 2
Application versions
Saved configurations
Vdsproject2-env
Go to environment
Configuration
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Developer Guide.
Vdsproject2-env
Vdsproject2-env.eba-mx9p7fvy.us-west-2.elasticbeanstalk.com (e-8wpqcjg4ym)
Application name: vds project 2
Refresh
Actions
Health
Ok
Causes
Running version
Sample Application
Upload and deploy
Platform
PHP 8.0 running on 64bit
Amazon Linux 2/3.3.11
Change
Recent events
Show all
1
Feedback
English (US)
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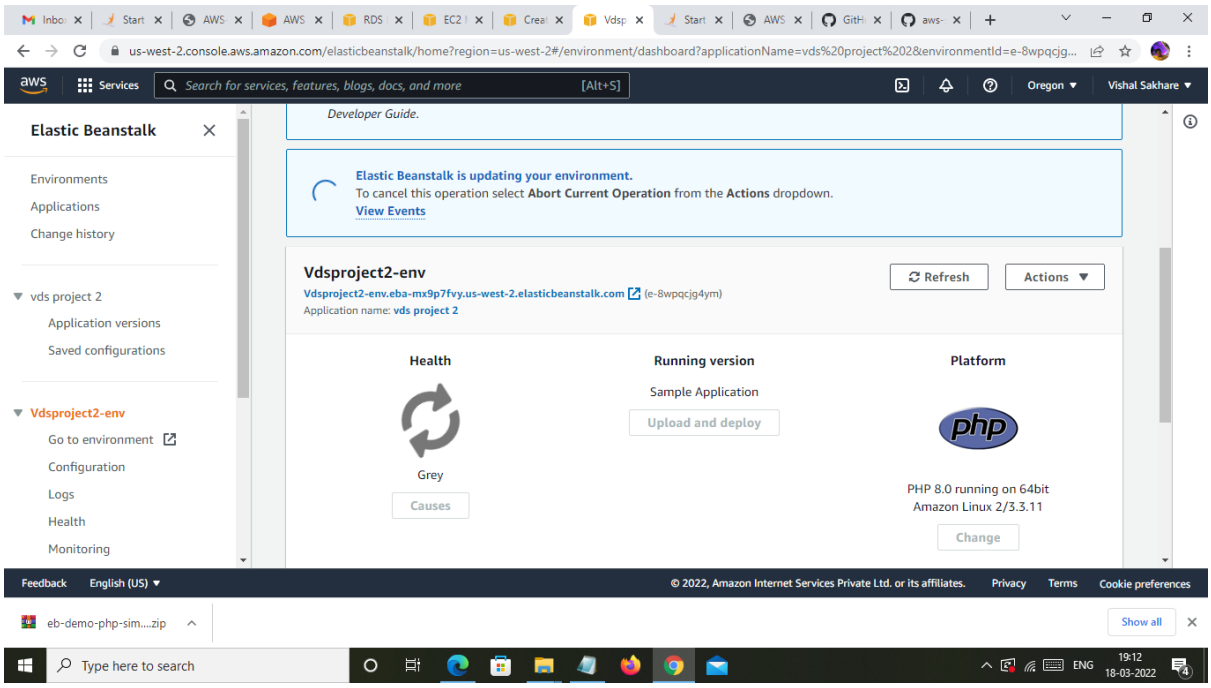
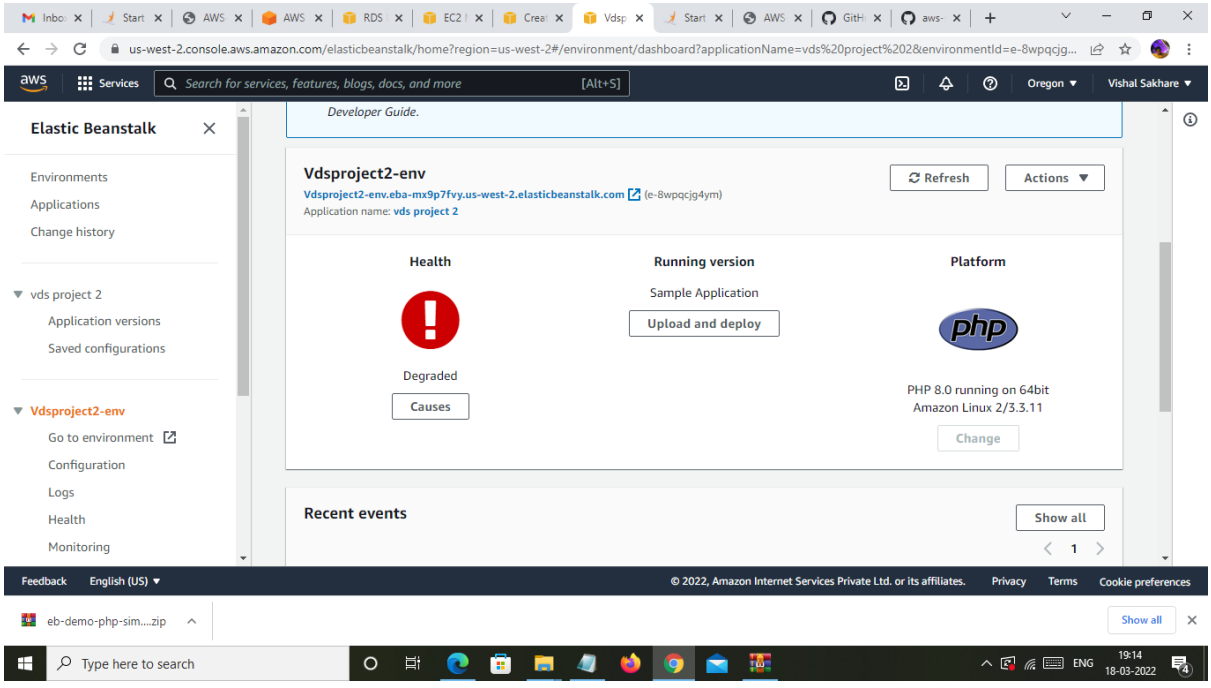
Privacy
Terms
Cookie preferences
eb-demo-php-sim....zip
Show all
Type here to search
ENG
19:10
18-03-2022

Step4: Deploy the Sample Application