Blue-Green Deployments Using Elastic Beanstalk

Elastic Beanstalk:

AWS Elastic Beanstalk is an easy-to-use AWS service for deploying and scaling web applications and services developed with Python, Ruby, Java, .NET, PHP, Node.js, Go, and Docker on familiar servers such as Apache, Passenger, Nginx, and IIS.

With Elastic Beanstalk, we just have to upload our code and Elastic Beanstalk automatically handles the deployment, from capacity provisioning, load balancing, auto-scaling to application health monitoring. At the same time, we keep full control over the AWS resources powering our application and can access the underlying resources at any time.

Blue-Green Deployments in Elastic Beanstalk:

AWS Elastic Beanstalk helps you to quickly deploy applications and manage them. It supports Auto Scaling and Elastic Load Balancing, the two of which empower blue-green deployment. It also makes it easier to run different adaptations of your application and provides developers a choice to exchange the environment URLs, encouraging blue-green deployment.

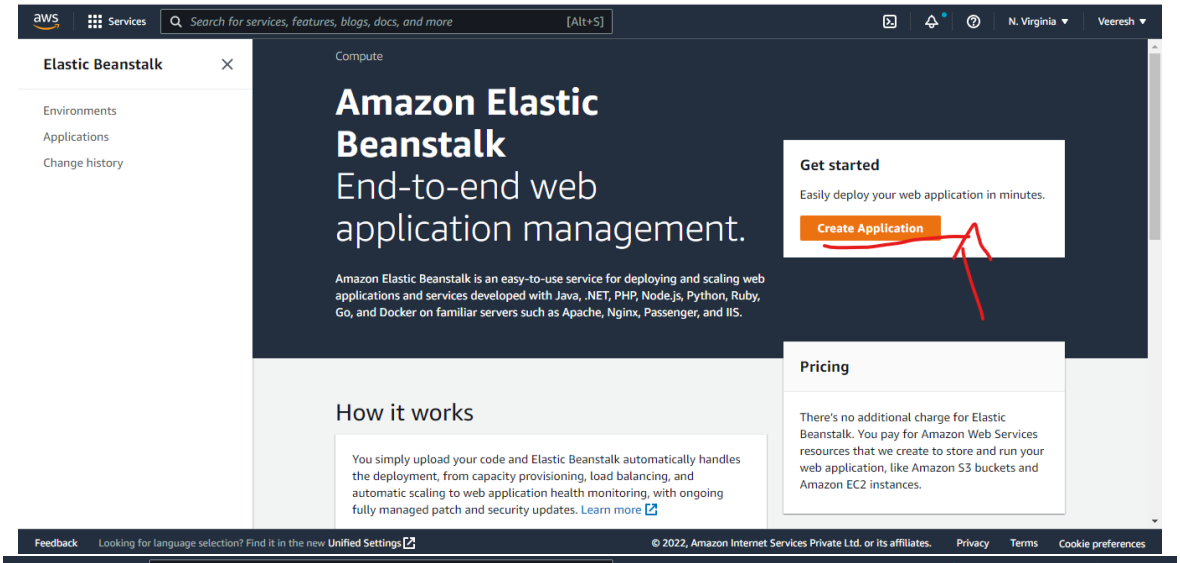
Elastic Beanstalk provides an environment URL when the application is up and running. Then, the green environment is spun up with its own environment URL. At this point, two environments are up and running, but only the blue environment is serving production traffic.

To promote the green environment to serve production traffic, you go to the environment's dashboard within the Elastic Beanstalk console and choose the Swap Environment URL from the Actions menu.

Step by Step Hands on Elastic Beanstalk Deployment Using Blue-Green

Step 1: Creating a Elastic Beanstalk Blue-Environment (Mywebpage-env) and deploying the application from the source code which are mapped with S3 bucket., follow the below steps

- Goto the Amazon Beanstalk dashboard, and click create application.
- Application information -->Application Name – mywebpage
- Platform --> Platform-Node.js, Platform version – choose wich are supported to the source code
- Application code --> check upload your code
- Source code origin --> Public s3 url – give the source code url which are avilable in s3 bucket (Note: make sure bucket are in public access)
- And remaining things are make it default and Click create Environment.
- After creating environment , check the health check it would be in ok mode.
- Copy the Blue-Environment url and paste it on browser then we will get our application.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N. Virginia
Veeresh
Elastic Beanstalk
Environments
Applications
Change history
Compute
Amazon Elastic Beanstalk
End-to-end web application management.
Amazon Elastic Beanstalk is an easy-to-use service for deploying and scaling web applications and services developed with Java, .NET, PHP, Node.js, Python, Ruby, Go, and Docker on familiar servers such as Apache, Nginx, Passenger, and IIS.
Get started
Easily deploy your web application in minutes.
Create Application
Pricing
There's no additional charge for Elastic Beanstalk. You pay for Amazon Web Services resources that we create to store and run your web application, like Amazon S3 buckets and Amazon EC2 instances.
How it works
You simply upload your code and Elastic Beanstalk automatically handles the deployment, from capacity provisioning, load balancing, and automatic scaling to web application health monitoring, with ongoing fully managed patch and security updates. Learn more
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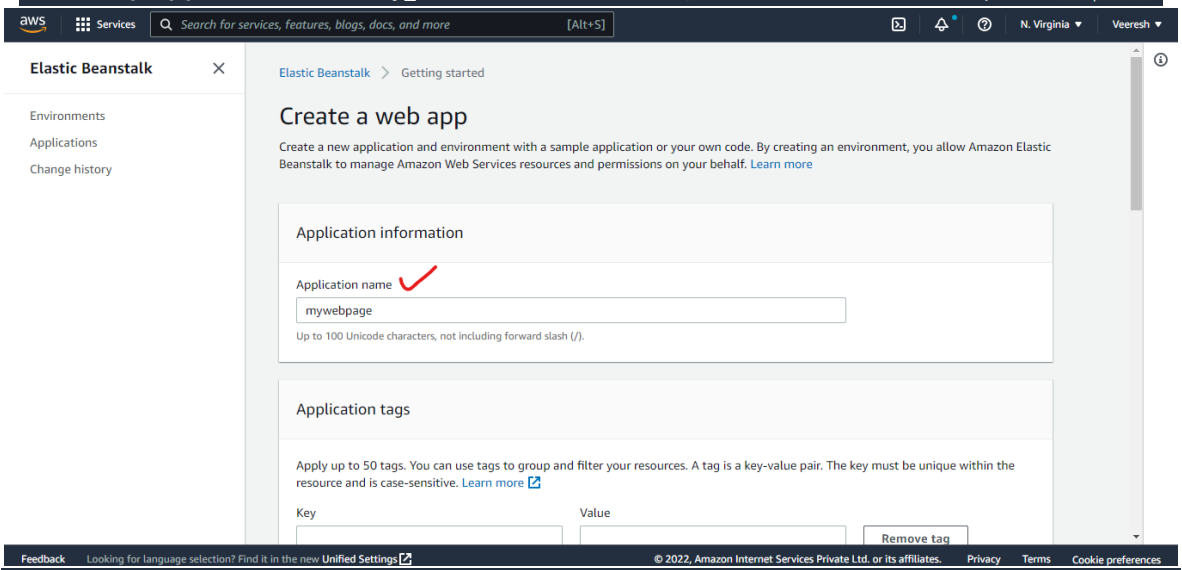
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Services
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Elastic Beanstalk
Environments
Applications
Change history
Elastic Beanstalk
Getting started
Create a web app
Create a new application and environment with a sample application or your own code. By creating an environment, you allow Amazon Elastic Beanstalk to manage Amazon Web Services resources and permissions on your behalf. Learn more
Application information
Application name
mywebpage
Up to 100 Unicode characters, not including forward slash (/).
Application tags
Apply up to 50 tags. You can use tags to group and filter your resources. A tag is a key-value pair. The key must be unique within the resource and is case-sensitive. Learn more
Key
Value
Remove tag
Feedback
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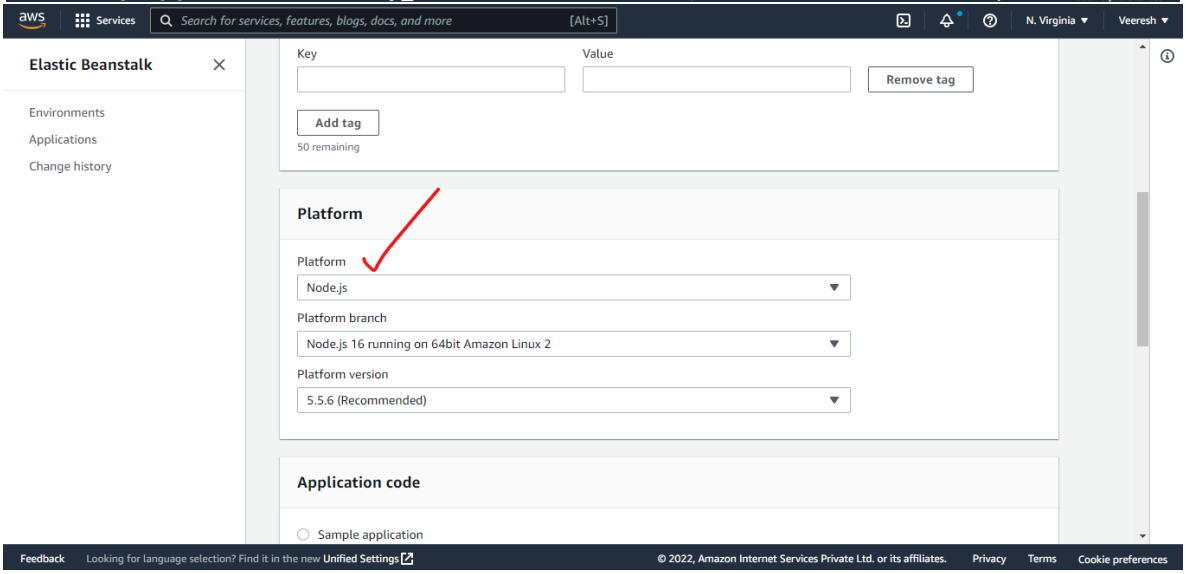
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Elastic Beanstalk
Environments
Applications
Change history
Key
Value
Remove tag
Add tag
50 remaining
Platform
Platform
Node.js
Platform branch
Node.js 16 running on 64bit Amazon Linux 2
Platform version
5.5.6 (Recommended)
Application code
Sample application
Feedback
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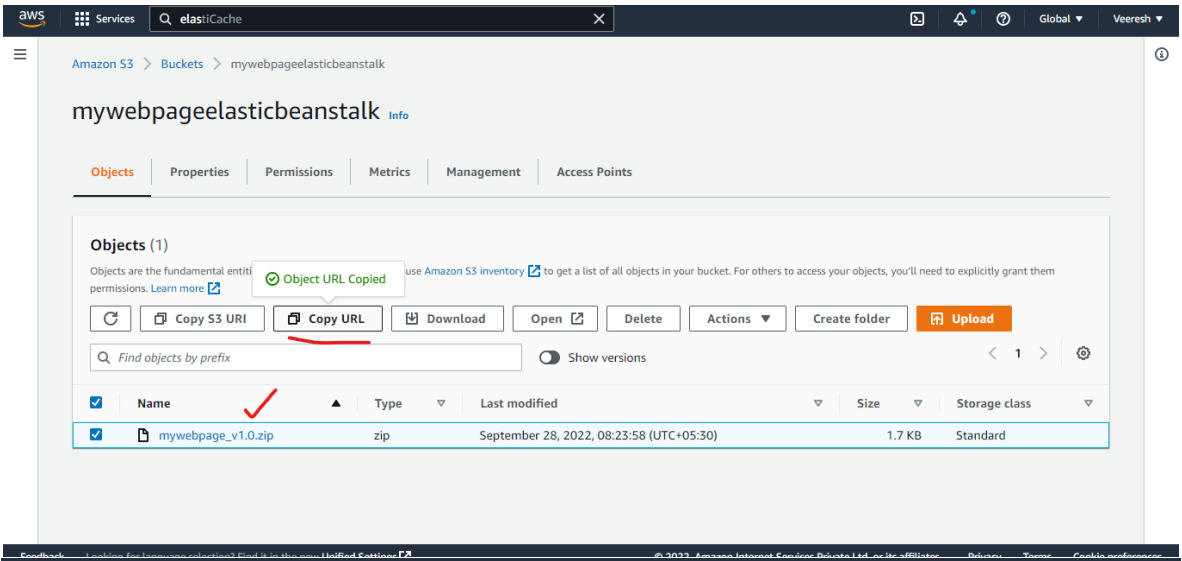
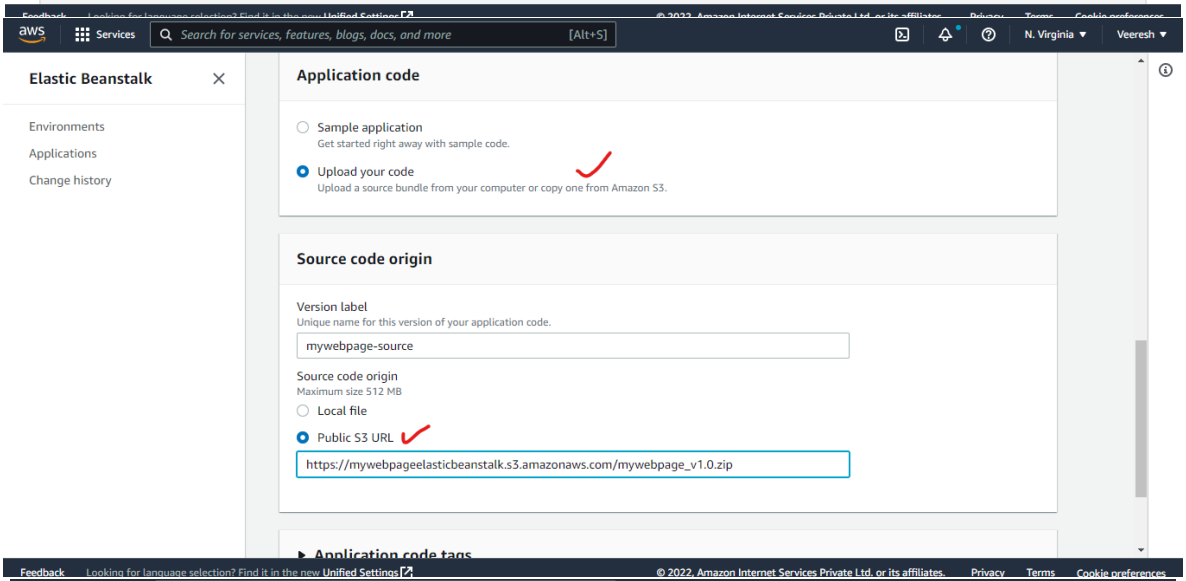

aws
Services
elastiCache
Global
Veeresh
Amazon S3 > Buckets > mywebpageelasticbeanstalk
mywebpageelasticbeanstalk Info
Objects
Properties
Permissions
Metrics
Management
Access Points
Objects (1)
Object URL Copied
Copy S3 URI
Copy URL
Download
Open
Delete
Actions
Create folder
Upload
Find objects by prefix
Show versions
Name
Type
Last modified
Size
Storage class
mywebpage_v1.0.zip
zip
September 28, 2022, 08:23:58 (UTC+05:30)
1.7 KB
Standard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Veeresh
Elastic Beanstalk
Environments
Applications
Change history
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.
Source code origin
Version label
Unique name for this version of your application code.
mywebpage-source
Source code origin
Maximum size 512 MB
Local file
Public S3 URL
https://mywebpageelasticbeanstalk.s3.amazonaws.com/mywebpage_v1.0.zip
Application code tags
Feedback
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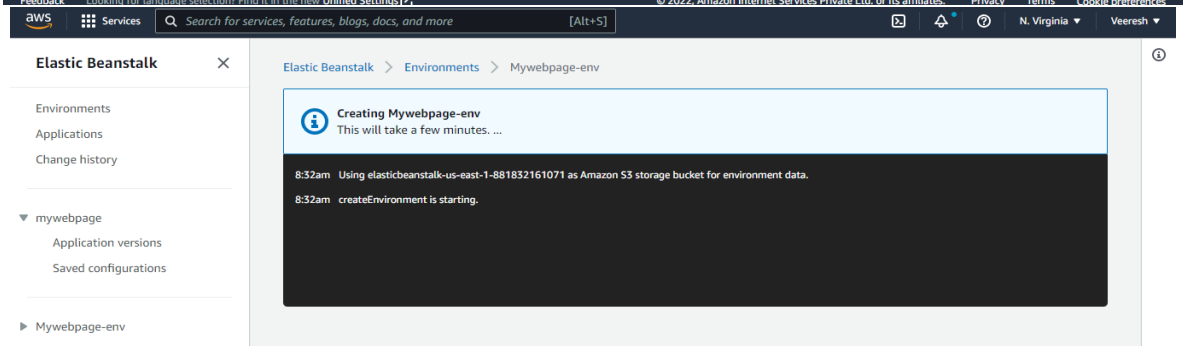
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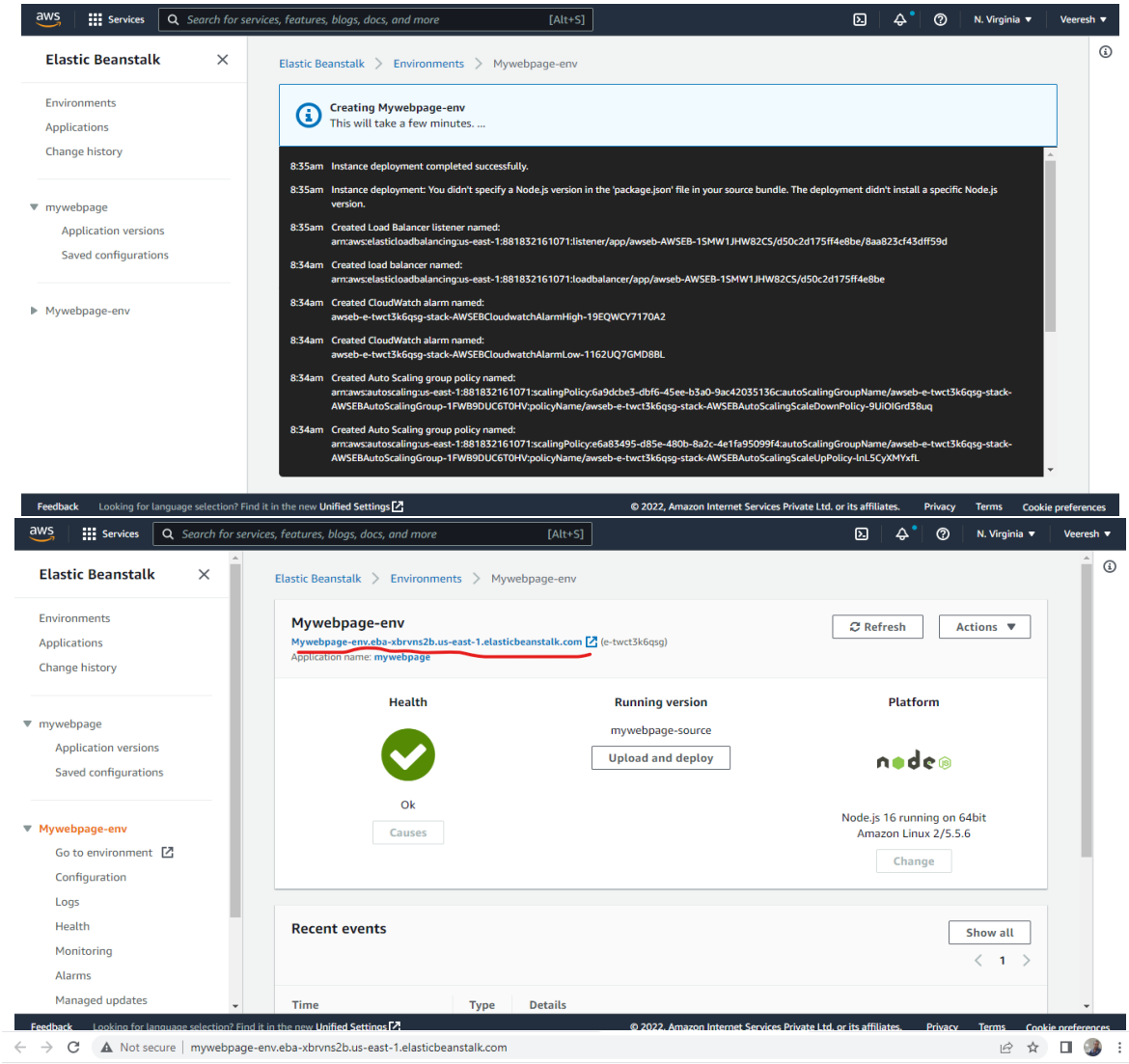
Elastic Beanstalk
Environments
Applications
Change history
mywebpage
Application versions
Saved configurations
Mywebpage-env
Elastic Beanstalk > Environments > Mywebpage-env
Creating Mywebpage-env
This will take a few minutes. ...
8:32am Using elasticbeanstalk-us-east-1-881832161071 as Amazon S3 storage bucket for environment data.
8:32am createEnvironment is starting.



Static webpage v1.0

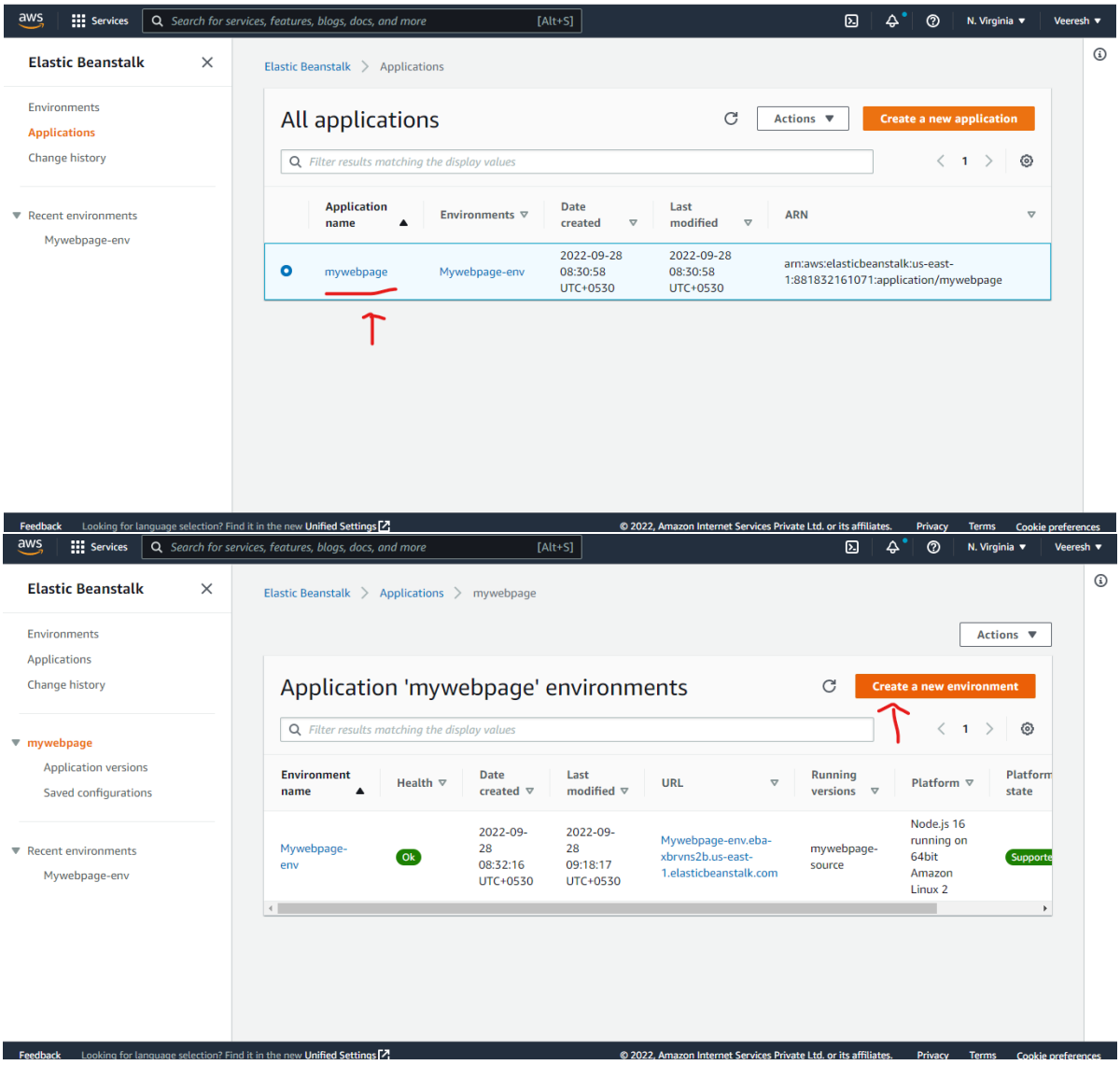
hello aws team !!!

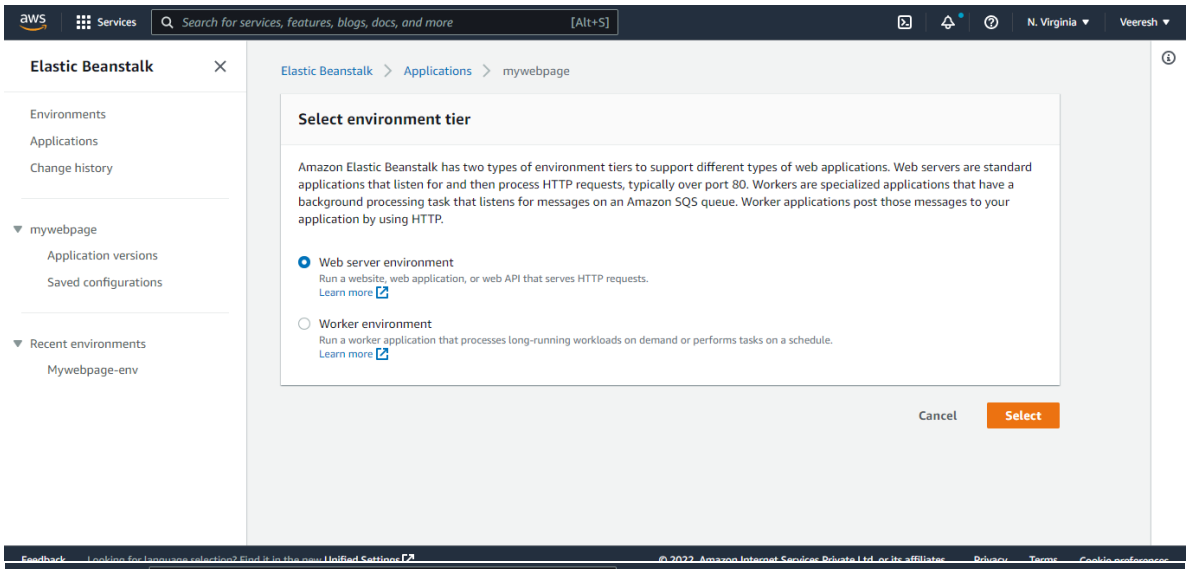
This is veeresh

<u>Step 2:</u> Creating a Elastic Beanstalk Green-Environment (MywebpageV2-env-1) and deploying the application from the updated source code which are mapped with S3 bucket., follow the below steps

- Goto the EBS dashboard select applications, and click the application which are previously created, and click create a new environment.
- Select environment tier – web server environment
- Application information -->Application Name – mywebpage(it will take automatically)
- Environment Name – MywebpageV2-env-1 (green environment)
- Platform --> Platform-Node.js, Platform version – choose wich are supported to the source code
- Application code --> check upload your code

- Source code origin --> Public s3 url – give the updated source code url which are avilable in s3 bucket (Note: make sure bucket are in public access)
- And remaining things are make it default and Click create Environment.
- After creating environment , check the health check it would be in ok mode.
- Copy the Green-Environment url and paste it on browser then we will get our updated application.

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Services
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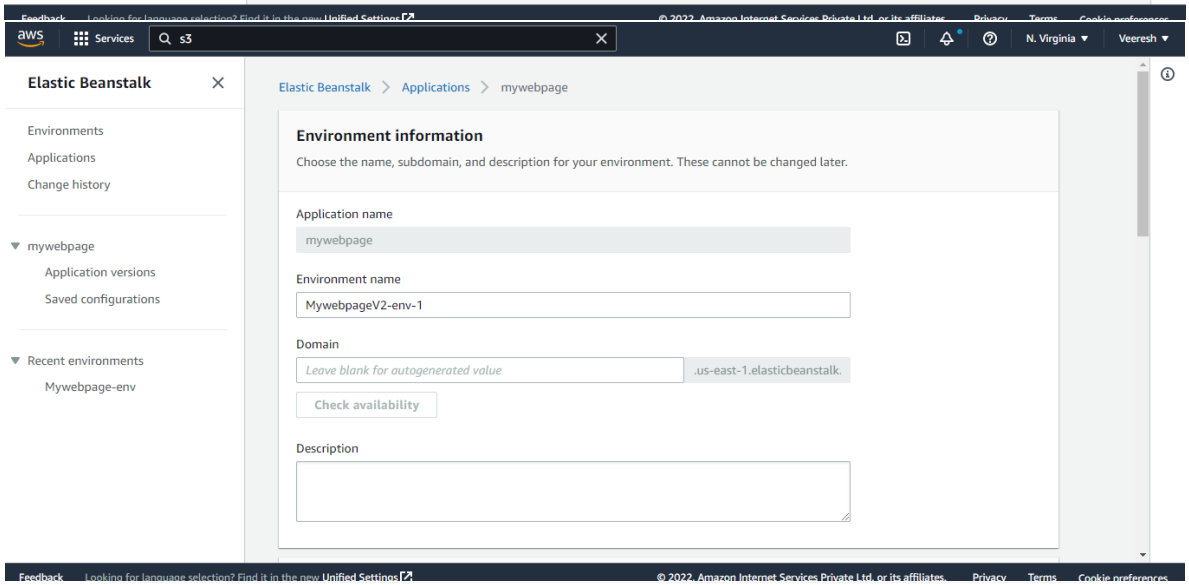
Veeresh
Elastic Beanstalk
Environments
Applications
Change history
mywebpage
Application versions
Saved configurations
Recent environments
Mywebpage-env
Elastic Beanstalk > Applications > mywebpage
Select environment tier
Amazon Elastic Beanstalk has two types of environment tiers to support different types of web applications. Web servers are standard applications that listen for and then process HTTP requests, typically over port 80. Workers are specialized applications that have a background processing task that listens for messages on an Amazon SQS queue. Worker applications post those messages to your application by using HTTP.
Web server environment
Run a website, web application, or web API that serves HTTP requests.
Learn more
Worker environment
Run a worker application that processes long-running workloads on demand or performs tasks on a schedule.
Learn more
Cancel
Select


aws
Services
s3
N. Virginia
Veeresh
Elastic Beanstalk
Environments
Applications
Change history
mywebpage
Application versions
Saved configurations
Recent environments
Mywebpage-env
Elastic Beanstalk > Applications > mywebpage
Environment information
Choose the name, subdomain, and description for your environment. These cannot be changed later.
Application name
mywebpage
Environment name
MywebpageV2-env-1
Domain
Leave blank for autogenerated value
.us-east-1.elasticbeanstalk.
Check availability
Description
Feedback
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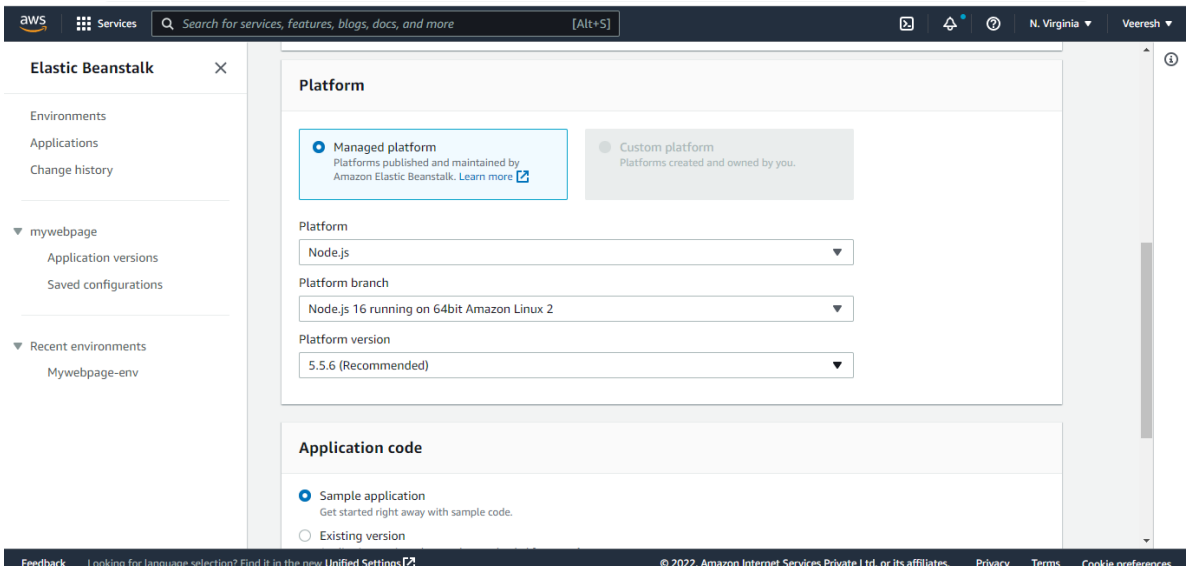
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N. Virginia
Veeresh
Elastic Beanstalk
Environments
Applications
Change history
mywebpage
Application versions
Saved configurations
Recent environments
Mywebpage-env
Platform
Managed platform
Platforms published and maintained by Amazon Elastic Beanstalk. Learn more
Custom platform
Platforms created and owned by you.
Platform
Node.js
Platform branch
Node.js 16 running on 64bit Amazon Linux 2
Platform version
5.5.6 (Recommended)
Application code
Sample application
Get started right away with sample code.
Existing version
Feedback
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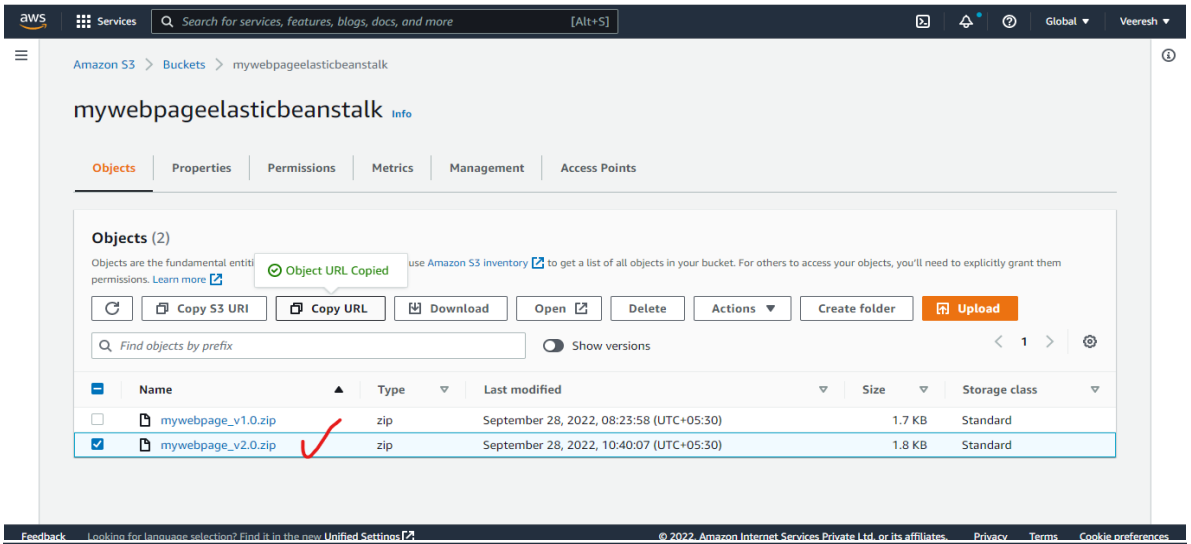
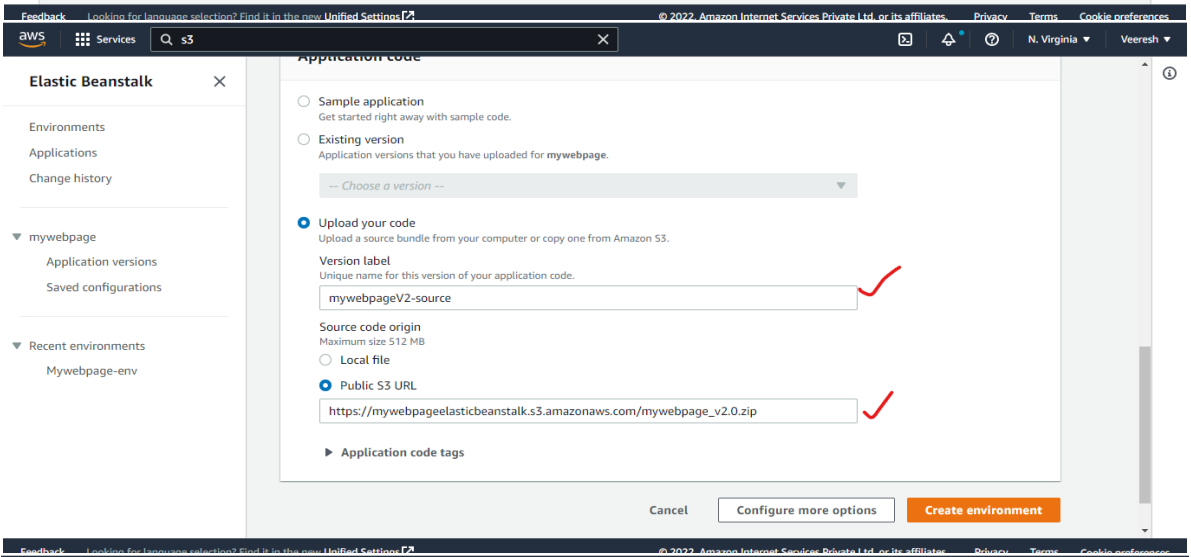
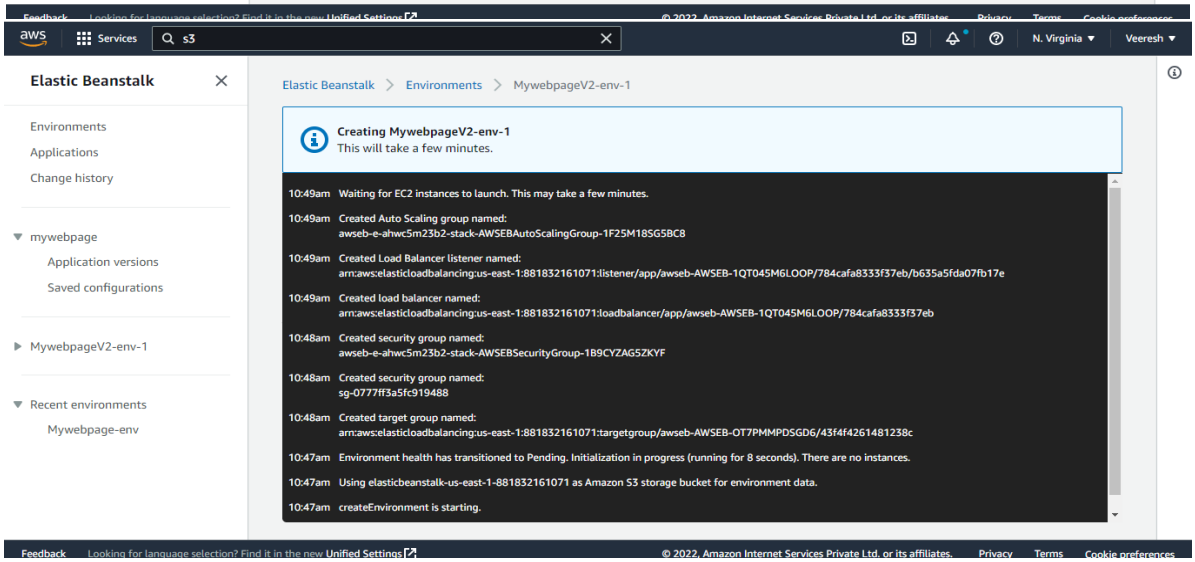
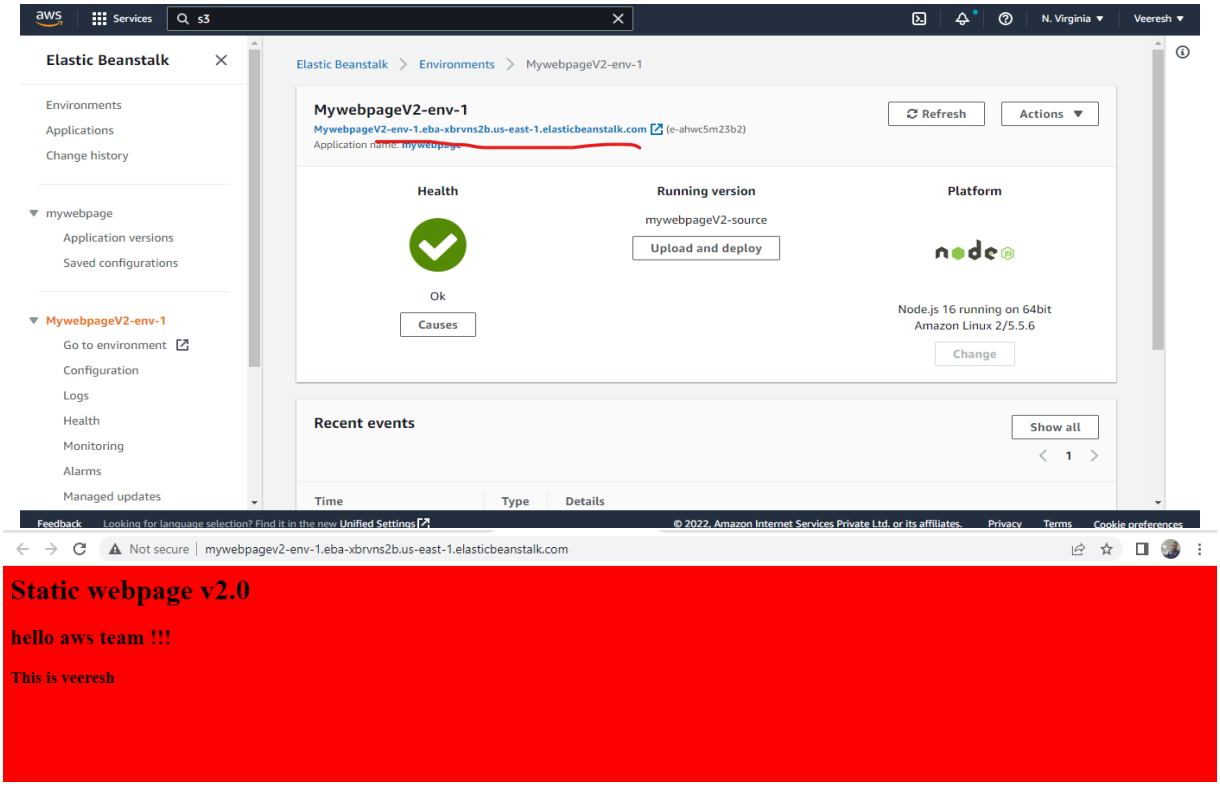

Amazon S3 > Buckets > mywebpageelasticbeanstalk
mywebpageelasticbeanstalk Info
Objects
Properties
Permissions
Metrics
Management
Access Points
Objects (2)
Object URL Copied
Copy S3 URI
Copy URL
Download
Open
Delete
Actions
Create folder
Upload
Find objects by prefix
Show versions
Name
Type
Last modified
Size
Storage class
mywebpage_v1.0.zip
zip
September 28, 2022, 08:23:58 (UTC+05:30)
1.7 KB
Standard
mywebpage_v2.0.zip
zip
September 28, 2022, 10:40:07 (UTC+05:30)
1.8 KB
Standard

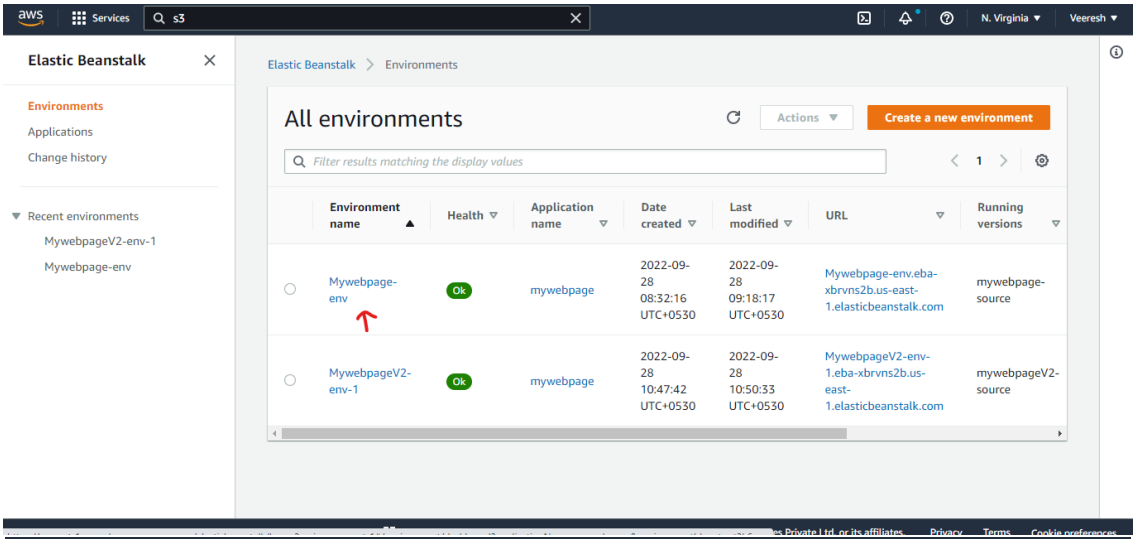

Elastic Beanstalk
Environments
Applications
Change history
mywebpage
Application versions
Saved configurations
Recent environments
Mywebpage-env
Sample application
Get started right away with sample code.
Existing version
Application versions that you have uploaded for mywebpage.
-- Choose a version --
Upload your code
Upload a source bundle from your computer or copy one from Amazon S3.
Version label
Unique name for this version of your application code.
mywebpageV2-source
Source code origin
Maximum size 512 MB
Local file
Public S3 URL
https://mywebpageelasticbeanstalk.s3.amazonaws.com/mywebpage_v2.0.zip
Application code tags
Cancel
Configure more options
Create environment

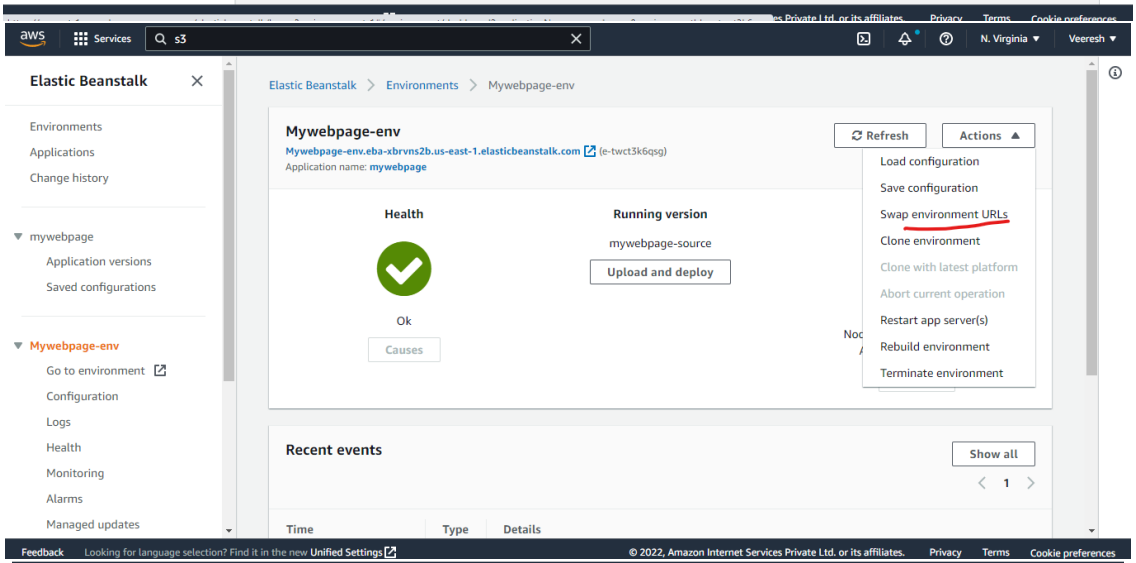

Elastic Beanstalk
Environments
Applications
Change history
mywebpage
Application versions
Saved configurations
MywebpageV2-env-1
Recent environments
Mywebpage-env
Elastic Beanstalk > Environments > MywebpageV2-env-1
Creating MywebpageV2-env-1
This will take a few minutes.
10:49am Waiting for EC2 instances to launch. This may take a few minutes.
10:49am Created Auto Scaling group named: awseb-e-ahwc5m23b2-stack-AWSEBAutoScalingGroup-1F25M18SG5BC8
10:49am Created Load Balancer listener named: arn:aws:elasticloadbalancing:us-east-1:881832161071:listener/app/awseb-AWSEB-1QT045M6LOOP/784cafa8333f37eb/b635a5fda07fb17e
10:49am Created load balancer named: arn:aws:elasticloadbalancing:us-east-1:881832161071:loadbalancer/app/awseb-AWSEB-1QT045M6LOOP/784cafa8333f37eb
10:48am Created security group named: awseb-e-ahwc5m23b2-stack-AWSEBSecurityGroup-1B9CYZAG5ZKYF
10:48am Created security group named: sg-0777ff3a5fc919488
10:48am Created target group named: arn:aws:elasticloadbalancing:us-east-1:881832161071:targetgroup/awseb-AWSEB-OT7PMMPDSGD6/43f4f4261481238c
10:47am Environment health has transitioned to Pending. Initialization in progress (running for 8 seconds). There are no instances.
10:47am Using elasticbeanstalk-us-east-1-881832161071 as Amazon S3 storage bucket for environment data.
10:47am createEnvironment is starting.



Step 3: Swap the URL's From Blue(Mywebpage-env) to Green(MywebpageV2-env-1) Environment

- First, click on the blue-environment(Mywebpage-env) on the left panel. Under Actions click on Swap environment URLs.
- Here, under select an environment to swap, select the Green Environment(MywebpageV2-env-1) from the drop-down.
- Once selected the environment and click on Swap.
- Now, click on the URL under blue-environment(Mywebpage-env) and you shall be redirected to a new page which are from the green(MywebpageV2-env-1) Environment
- Now the URLs are swapped so the URL under the blue environment is by name green-environment and the URL under green environment is changed to blue-ones. Basically, the URLs are interchanged.


aws
Services
s3
N. Virginia
Veeresh
Elastic Beanstalk
Environments
Applications
Change history
Recent environments
MywebpageV2-env-1
Mywebpage-env
Elastic Beanstalk > Environments
All environments
Actions
Create a new environment
Filter results matching the display values
Environment name
Health
Application name
Date created
Last modified
URL
Running versions
Mywebpage-env
Ok
mywebpage
2022-09-28 08:32:16 UTC+0530
2022-09-28 09:18:17 UTC+0530
Mywebpage-env.eba-xbrvns2b.us-east-1.elasticbeanstalk.com
mywebpage-source
MywebpageV2-env-1
Ok
mywebpage
2022-09-28 10:47:42 UTC+0530
2022-09-28 10:50:33 UTC+0530
MywebpageV2-env-1.eba-xbrvns2b.us-east-1.elasticbeanstalk.com
mywebpageV2-source


aws
Services
s3
N. Virginia
Veeresh
Elastic Beanstalk
Environments
Applications
Change history
mywebpage
Application versions
Saved configurations
Mywebpage-env
Go to environment
Configuration
Logs
Health
Monitoring
Alarms
Managed updates
Elastic Beanstalk > Environments > Mywebpage-env
Mywebpage-env
Mywebpage-env.eba-xbrvns2b.us-east-1.elasticbeanstalk.com (e-twct3k6qsg)
Application name: mywebpage
Refresh
Actions
Load configuration
Save configuration
Swap environment URLs
Clone environment
Clone with latest platform
Abort current operation
Restart app server(s)
Rebuild environment
Terminate environment
Health
Ok
Causes
Running version
mywebpage-source
Upload and deploy
Recent events
Show all
Time
Type
Details
Feedback
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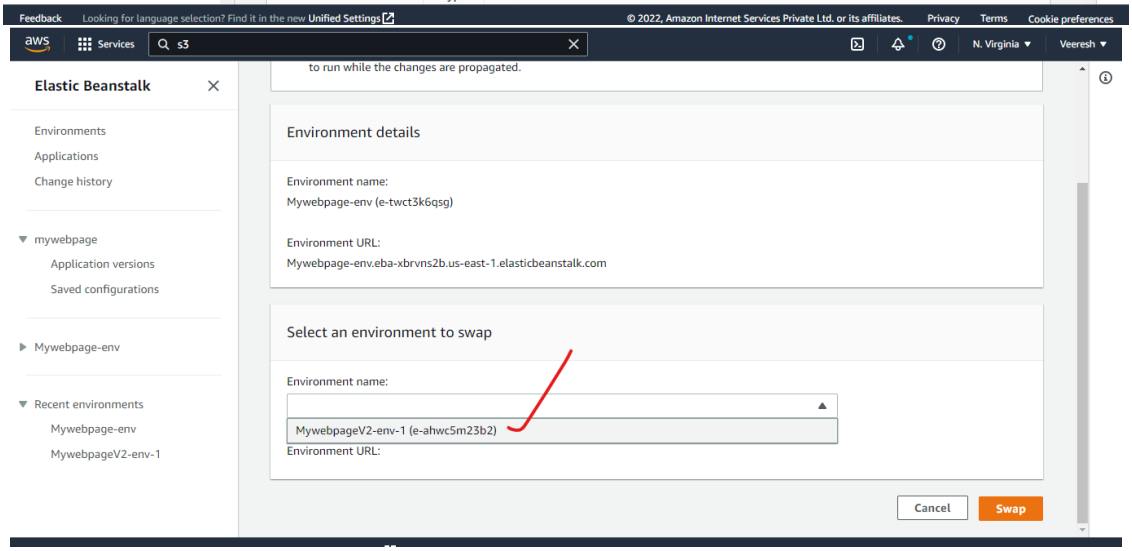
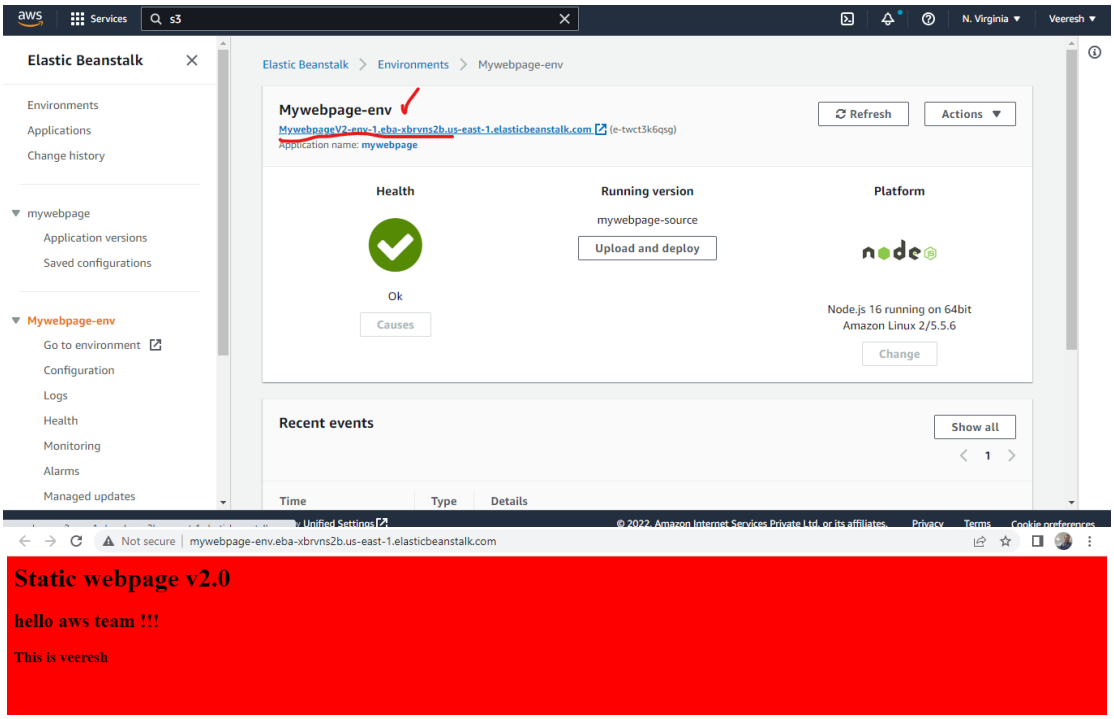

aws
Services
s3
N. Virginia
Veeresh
Elastic Beanstalk
Environments
Applications
Change history
mywebpage
Application versions
Saved configurations
Mywebpage-env
Recent environments
Mywebpage-env
MywebpageV2-env-1
to run while the changes are propagated.
Environment details
Environment name:
Mywebpage-env (e-twct3k6qsg)
Environment URL:
Mywebpage-env.eba-xbrvns2b.us-east-1.elasticbeanstalk.com
Select an environment to swap
Environment name:
MywebpageV2-env-1 (e-ahwc5m23b2)
Environment URL:
Cancel
Swap



Conclusion: Successfully implemented the blue-green deployments using Elastic Beanstalk. By swapping the URL's.