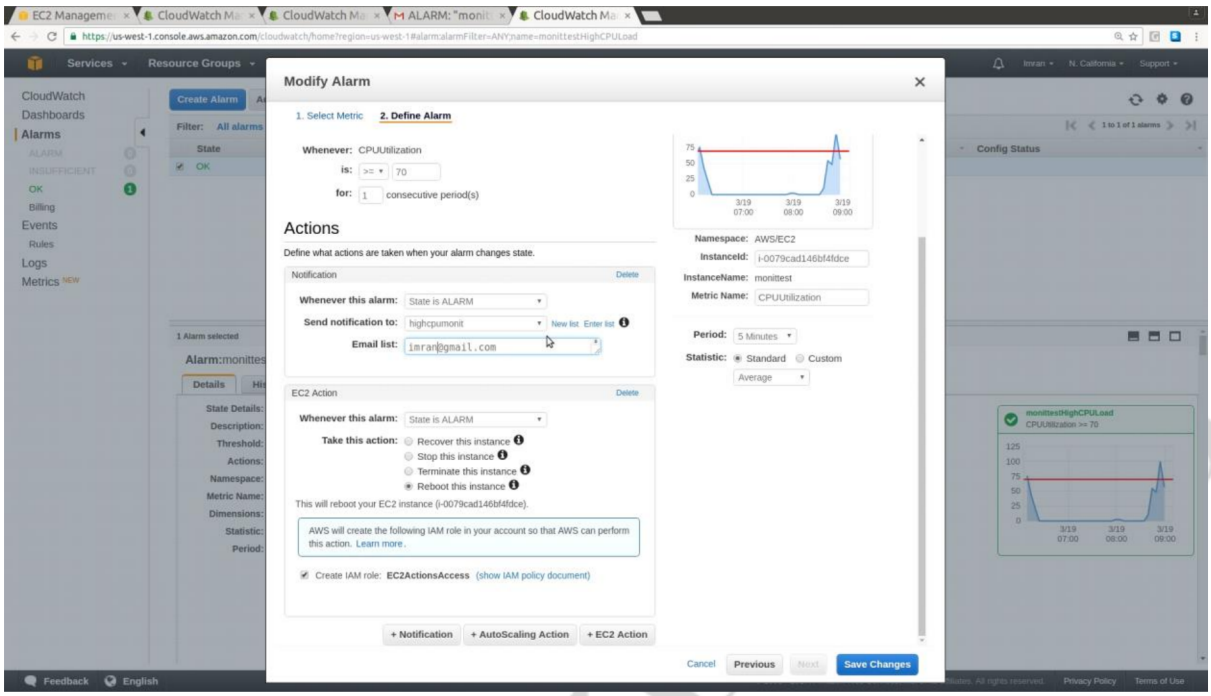
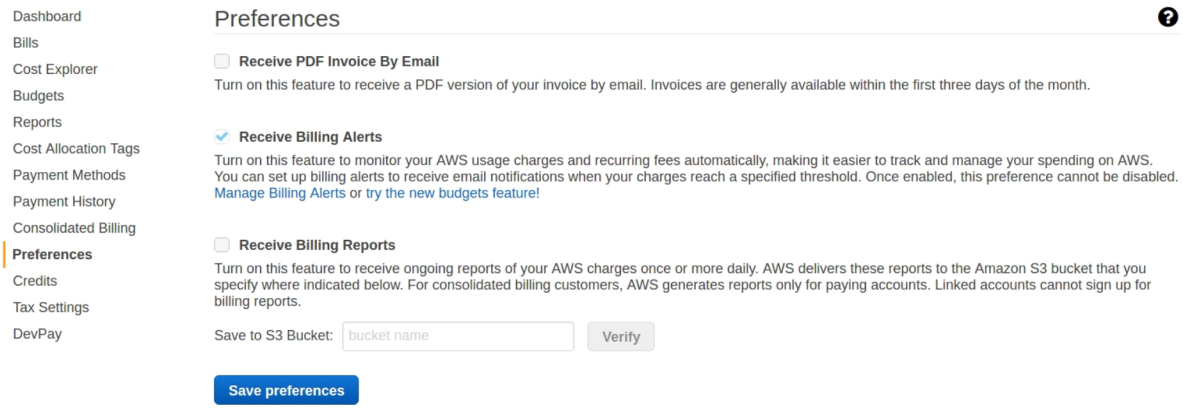
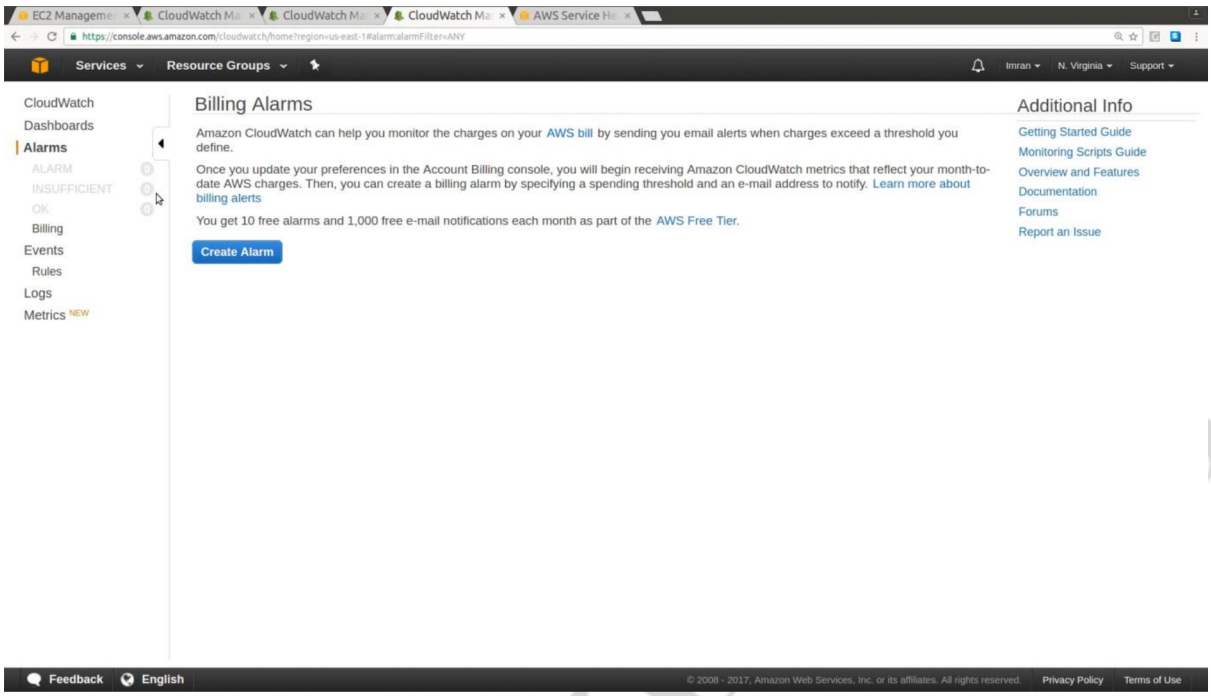


Monitoring AWS Billing:
We can also monitor our account's estimated costs and usage by setting up an alarm.
Go to My Billing Dashboard ==> Preferences ==> Put a check mark on Receive billing alerts.
Click on the Save Preferences

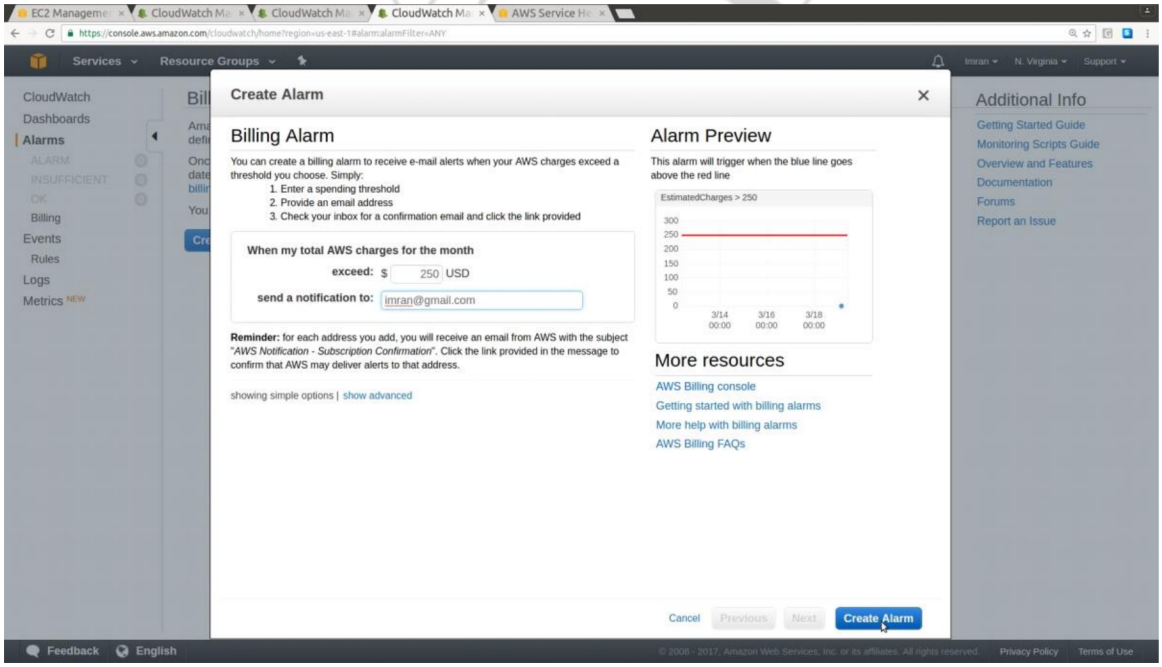


Go to CloudWatch service, Click on Billing and select create alarm.

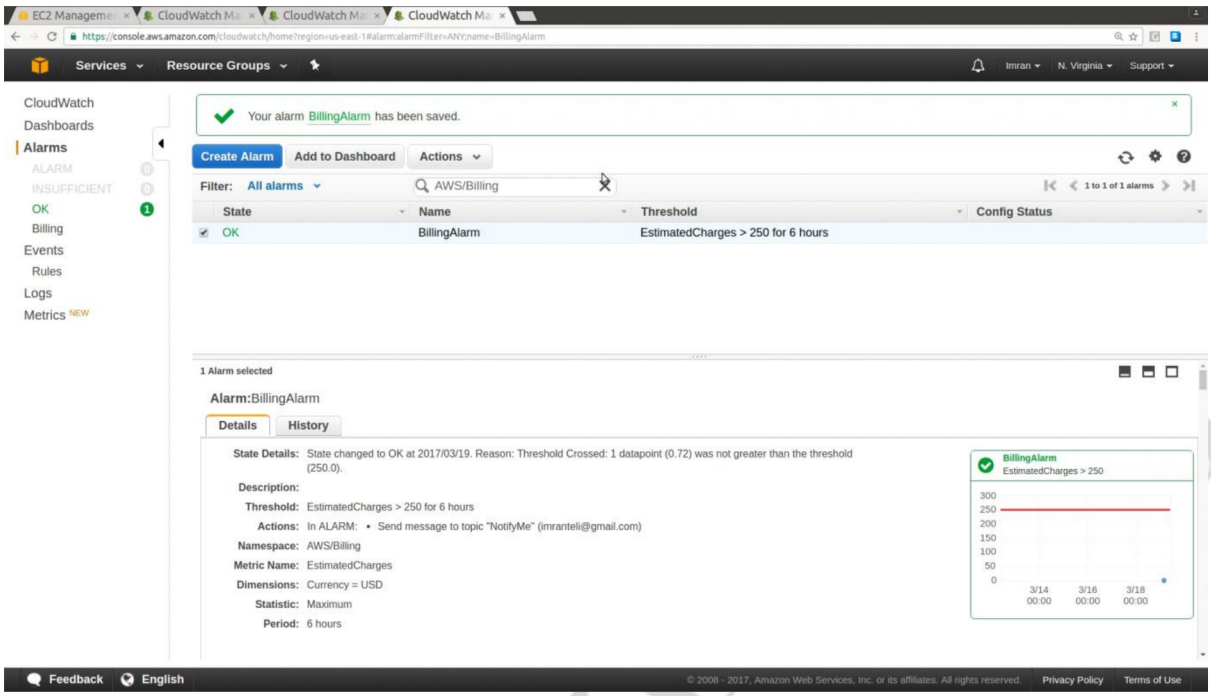


Create Alarm:

Enter the threshold, if your AWS account charges exceeds than the threshold value you will receive an email which you will provide in the send notification.
Click on create alarm.



View Alarm: your alarm has been successfully created for billing section of AWS.



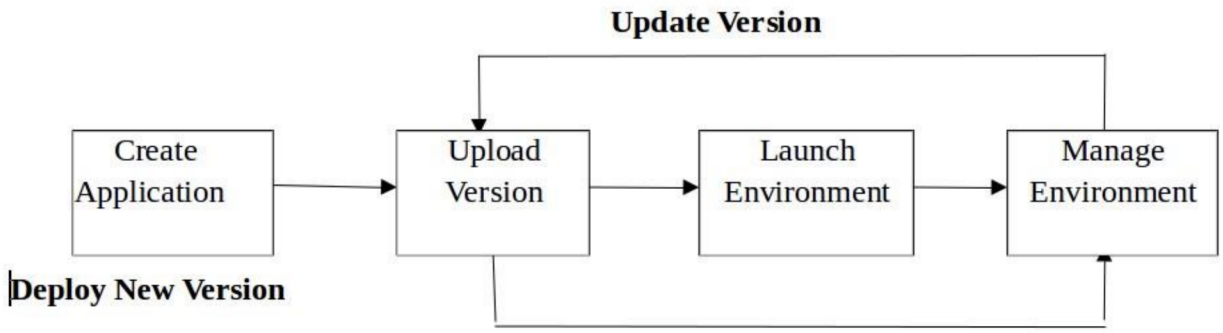
15. AWS Elastic Beanstalk + Jenkins

AWS Elastic Beanstalk is a cloud deployment and provisioning service that automates the process of getting applications set up on the Amazon Web Services (AWS) infrastructure. It 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.

Workflow of Beanstalk:

Create an application, upload an application version in the form of an application source bundle (for example, a Java .war file) to Elastic Beanstalk, and then provide some information about the application. Elastic Beanstalk automatically launches an environment and creates and configures the AWS resources needed to run your code. After your environment is launched, you can then manage your environment and deploy new application versions. The following diagram illustrates the workflow of Elastic Beanstalk

Create Tomcat platform in Beanstalk.

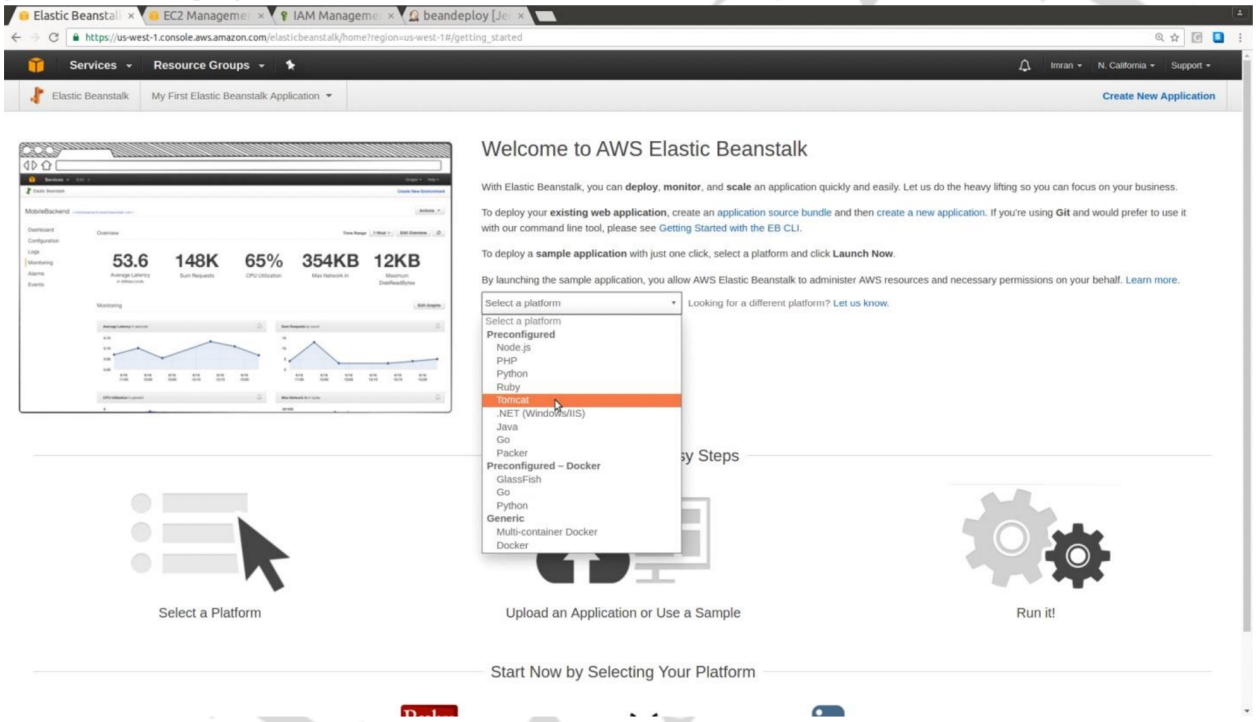


Benefits of Elastic Beanstalk:

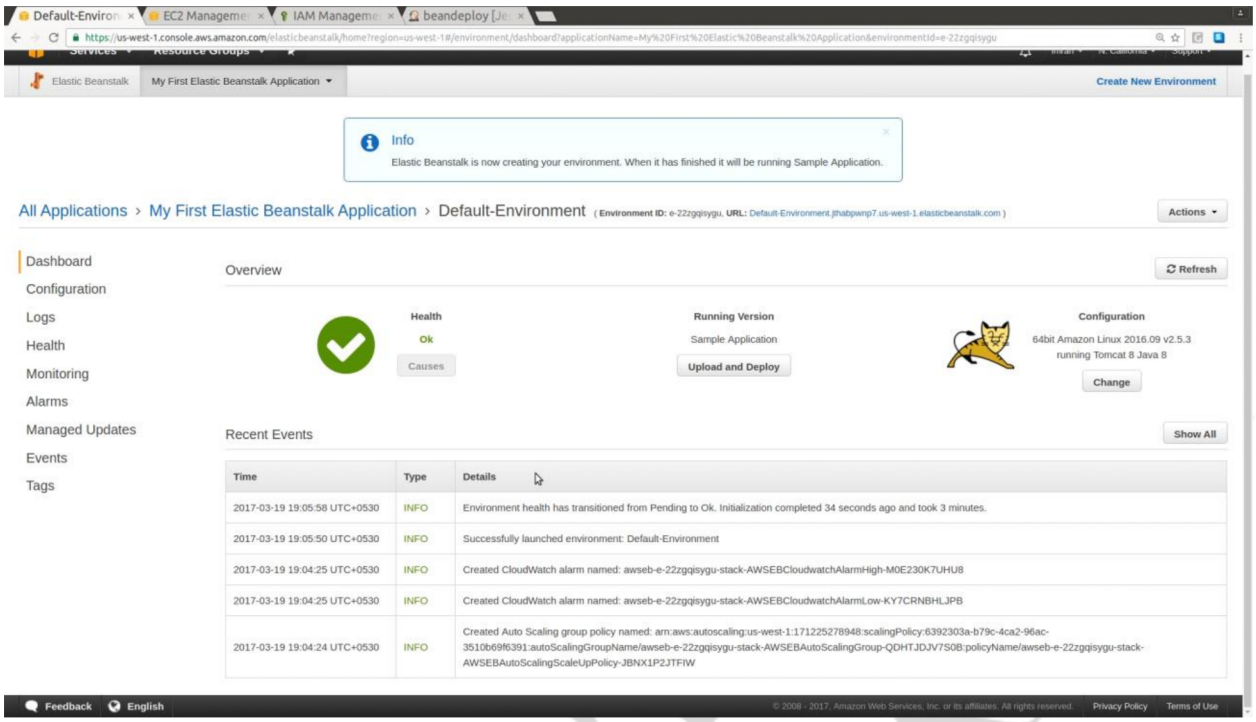
- Fast and simple to begin
- Developer productivity
- Impossible to outgrow
- Complete resource control

Create an Application:

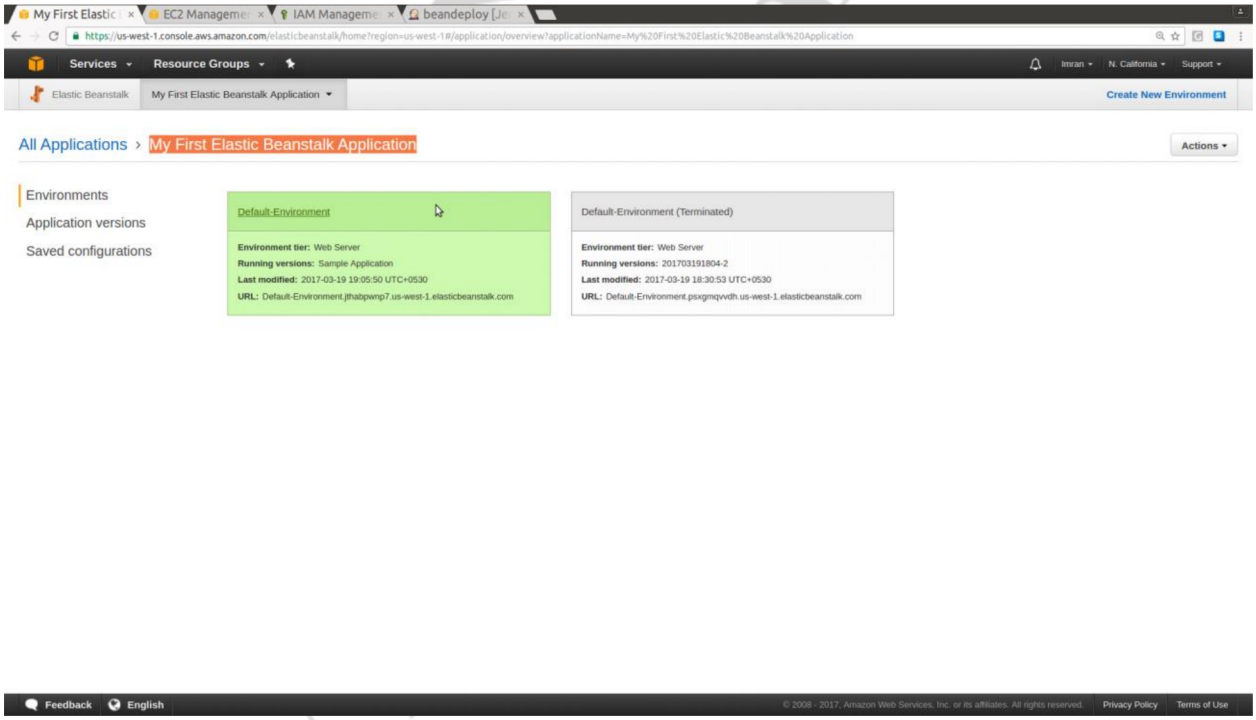
Open Elastic Beanstalk Management console from AWS main page. Select the application in which you want to deploy.



Here I selected tomcat application and click on Launch now. After creating the Elastic Beanstalk application, you can view information about the application you deployed and its provisioned resources by going to the environment dashboard in the AWS Management Console. The dashboard shows the health of your application's environment, the running version, and the environment configuration. While Elastic Beanstalk creates your AWS resources and launches your application, the environment will be in a Pending state.

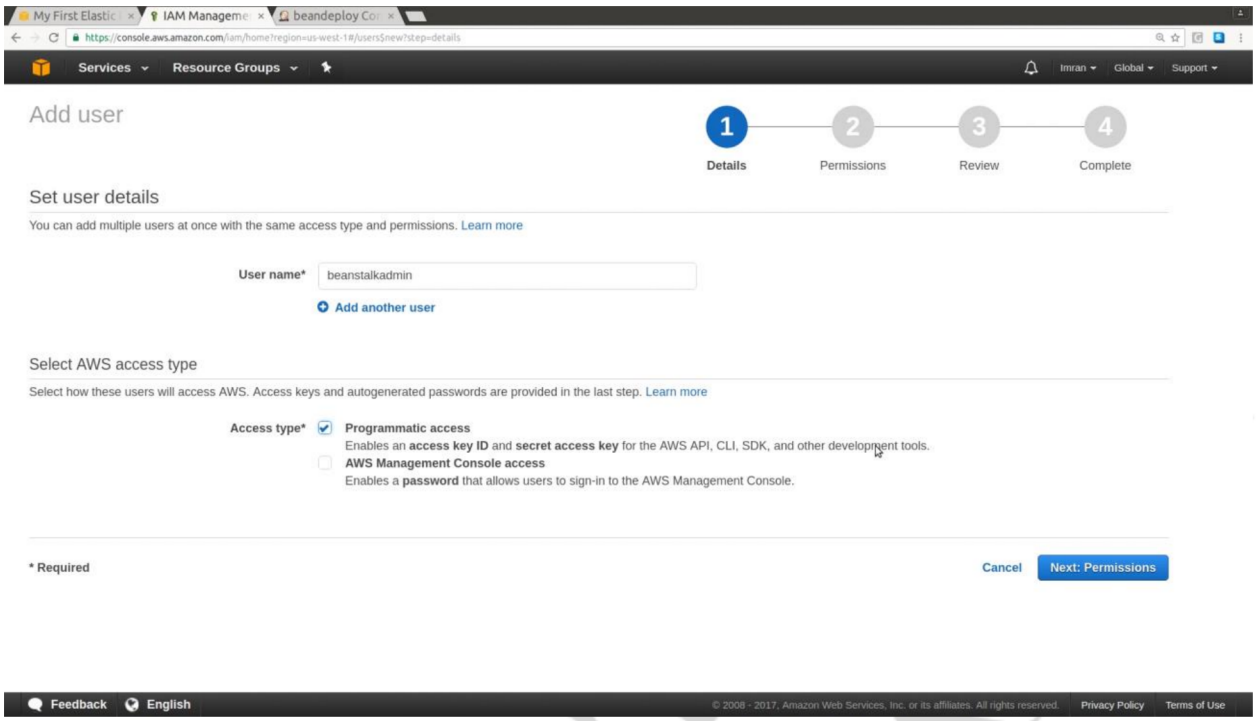


Click on My First Elastic Beanstalk Application in the environment's dashboard to see the status messages about launch events.

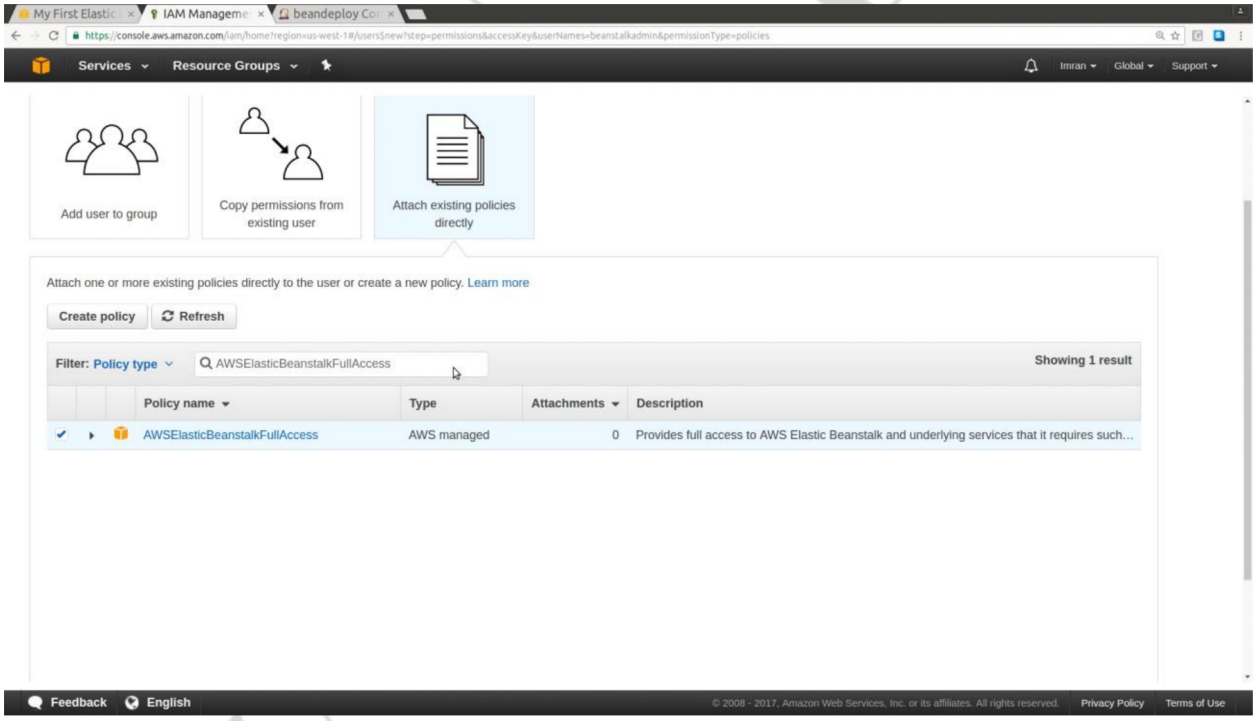


Every Elastic Beanstalk application can have multiple environments.
As in real time we have Dev, QA, Staging and Prod etc.

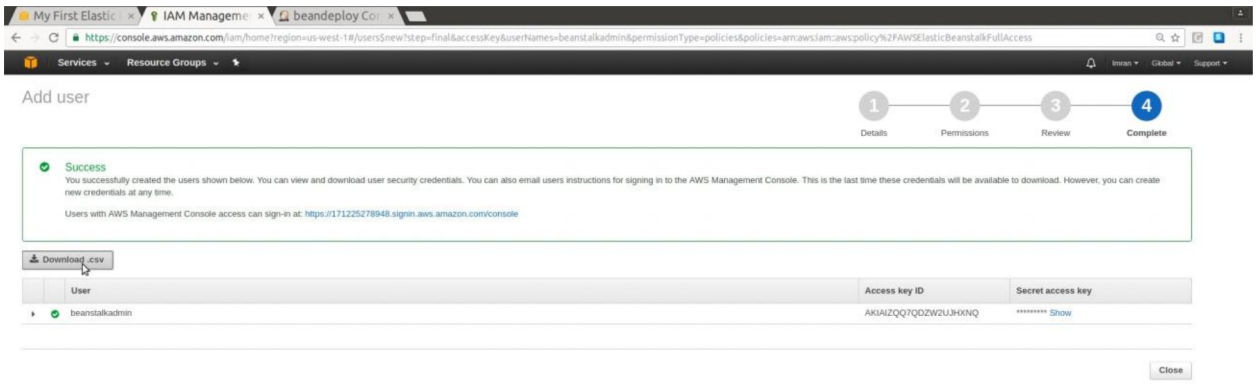
Creating IAM user:
Create IAM user for authentication from Jenkins jobs deployment.
Open IAM Dashboard from AWS main page, go to user's pane and click on adduser.
Provide name for the user and select the Access type as Programmatic.



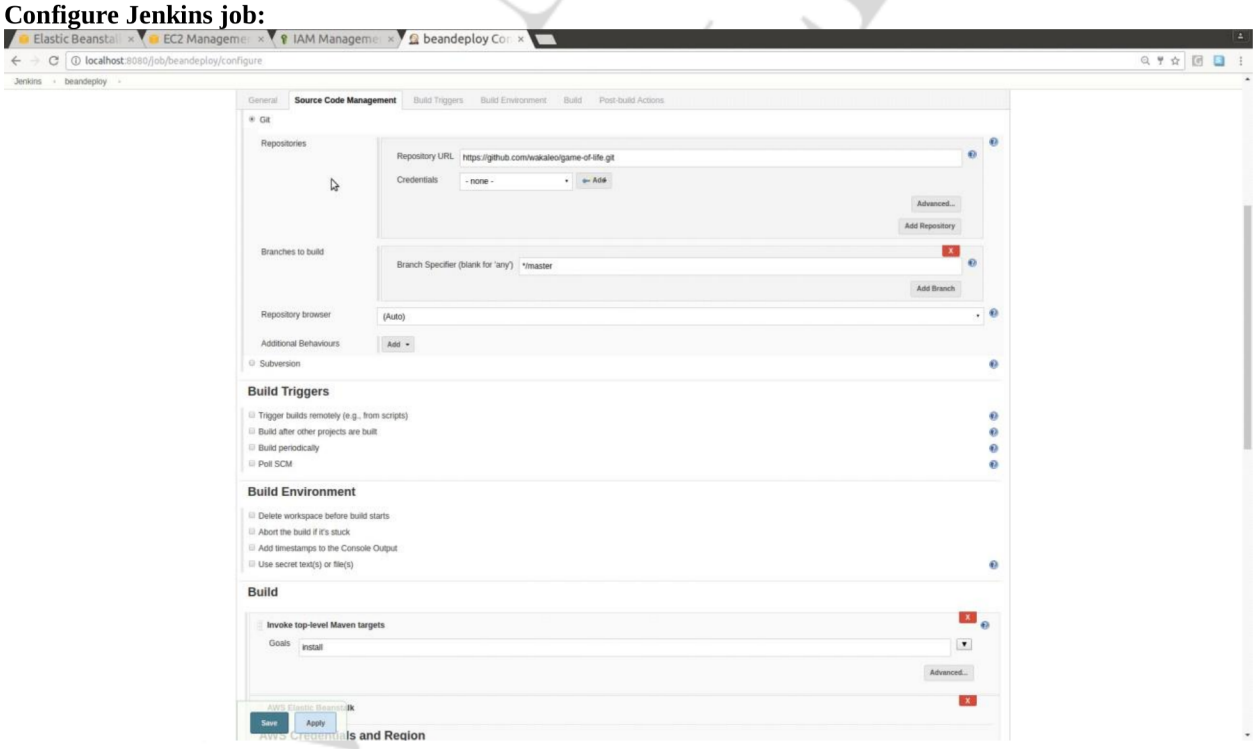
You will get an access key and secret access Ids key to access the account.
Click on Next to attach permissions to the user.
Attach AWSElasticBeanstalkFullAccess policy.



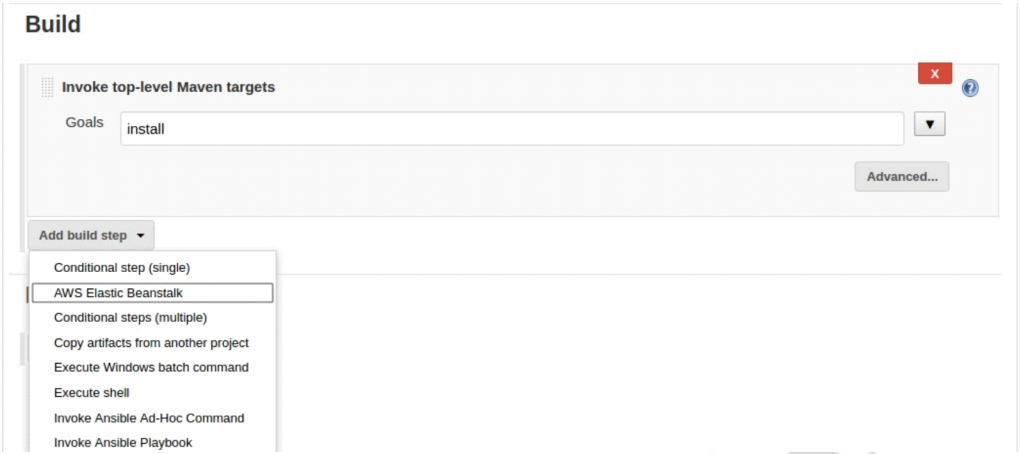
Download Access keys csv file:



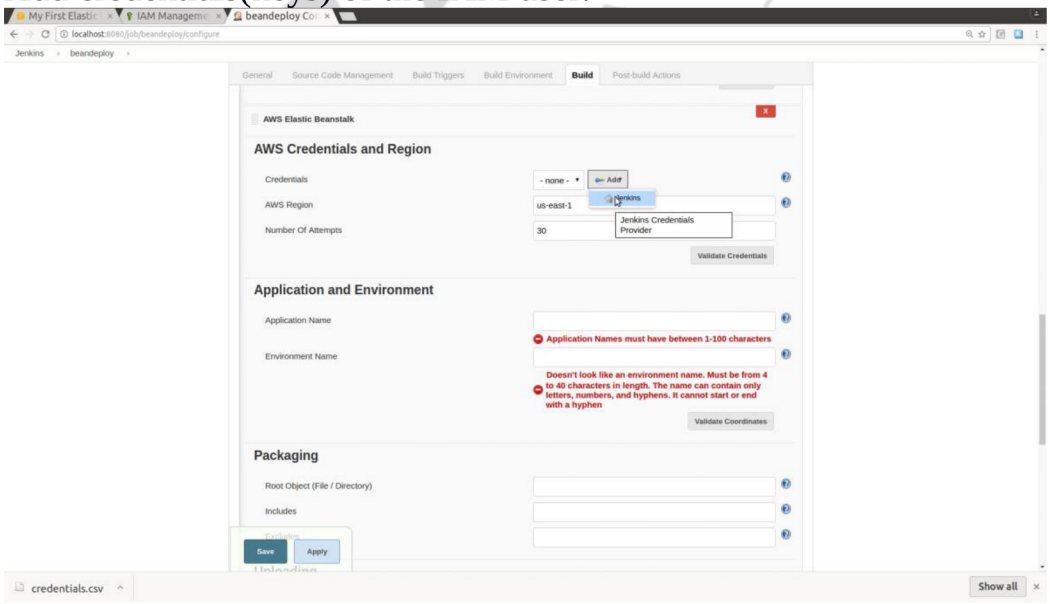
Configure Jenkins job:



Install AWS Beanstalk plugin in Jenkins and configure beanstalk plugin in Add Build Step



Add credentials(keys) of the IAM user.



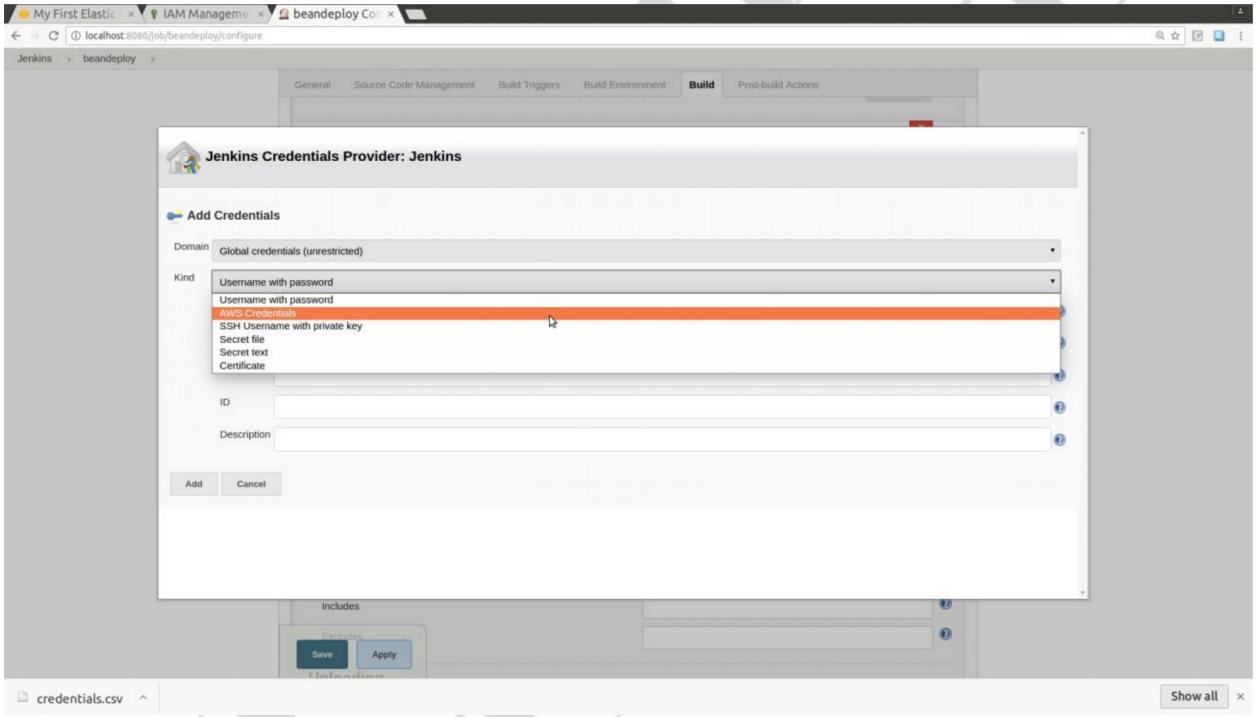
Check the credentials.csv file from the command line as shown below
Access key highlighted below.

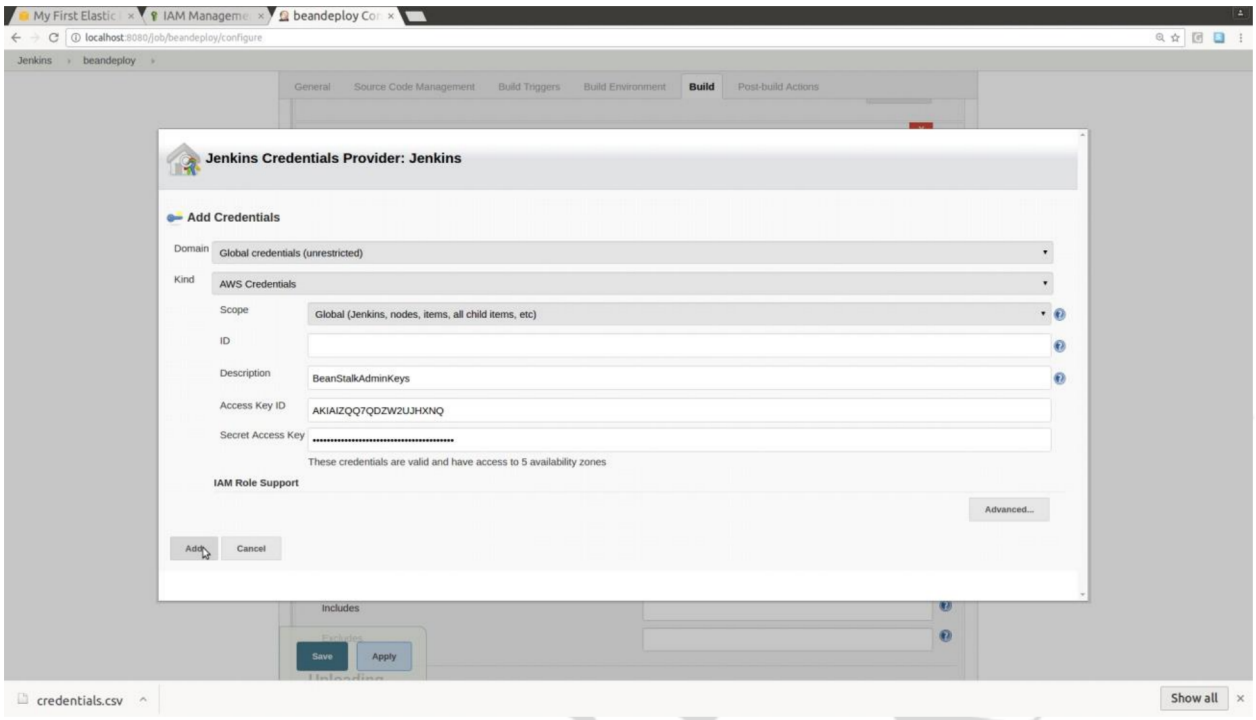
```
imran@DevOps:~$ cd Downloads/
imran@DevOps:~/Downloads$ cat credentials.csv
User name,Password,Access key ID,Secret access key,Console login link
beanstalkadmin,,AKIAIZQQ7QDZW2UJHXNQ,KXzgqnOL76qc4siJoRDPMT5Lxrw0dGeA5fbz9QuA,https://171225278948.signin.aw
s.amazon.com/console
```

Security Key hightlighted below.

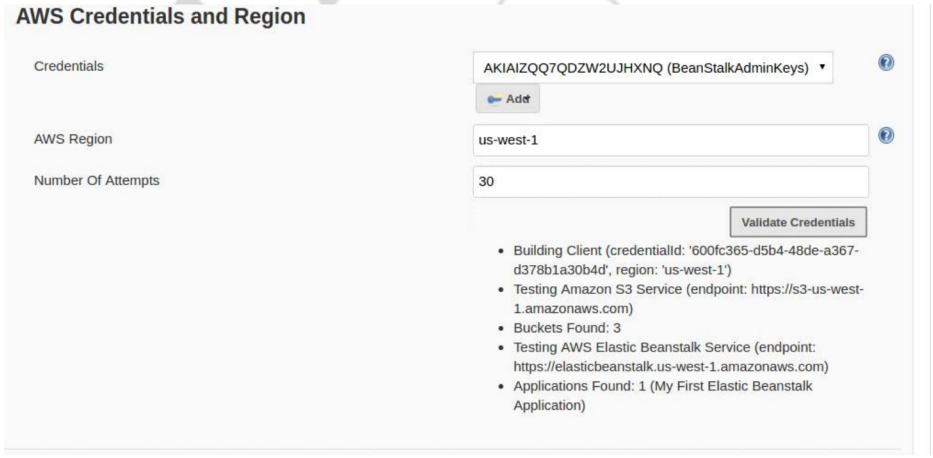
```
imran@DevOps:~$ cd Downloads/
imran@DevOps:~/Downloads$ cat credentials.csv
User name,Password,Access key ID,Secret access key,Console login link
beanstalkadmin,,AKIAIZQQ7QDZW2UJHXNQ,KXzgqnOL76qc4siJoRDPMT5Lxrw0dGeA5fbz9QuA,https://171225278948.signin.aw
s.amazon.com/console
```

When you click on add for the credentials, you will see the Kind option. Select AWS Credentials then add the access & secret key and click on Add.

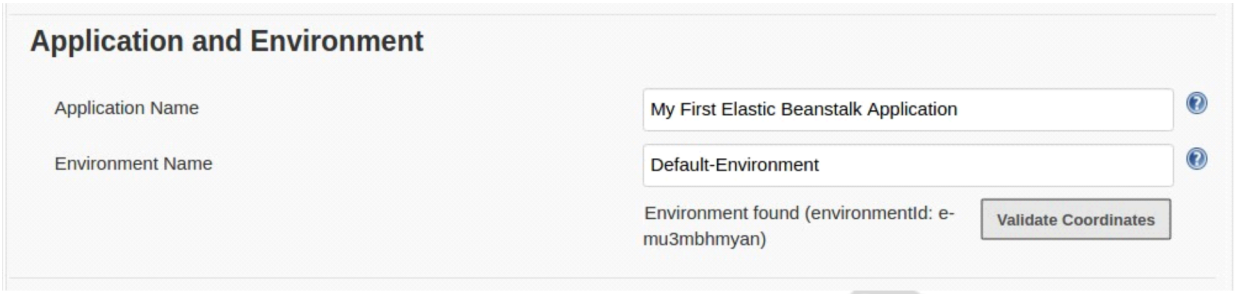




Validate the given credentials by selecting validate credentials while configuring AWS beanstalk plugin.

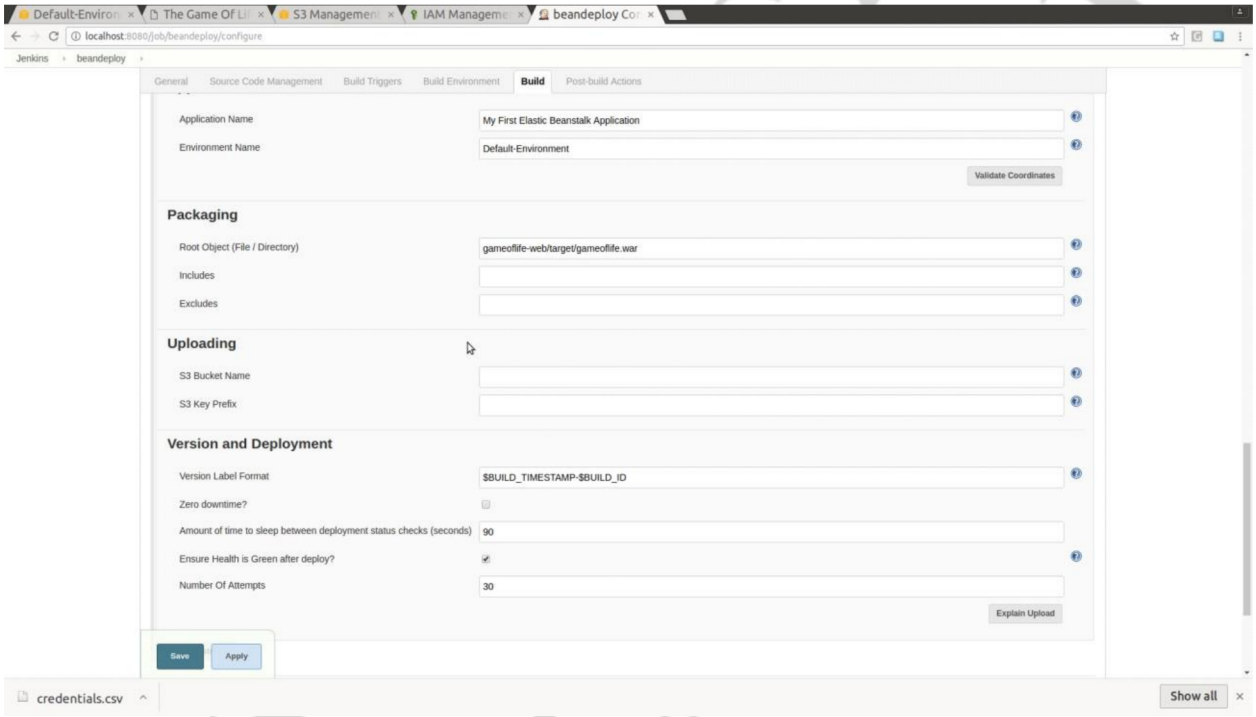


Give Application and environment name.
Check that information in Beanstalk.

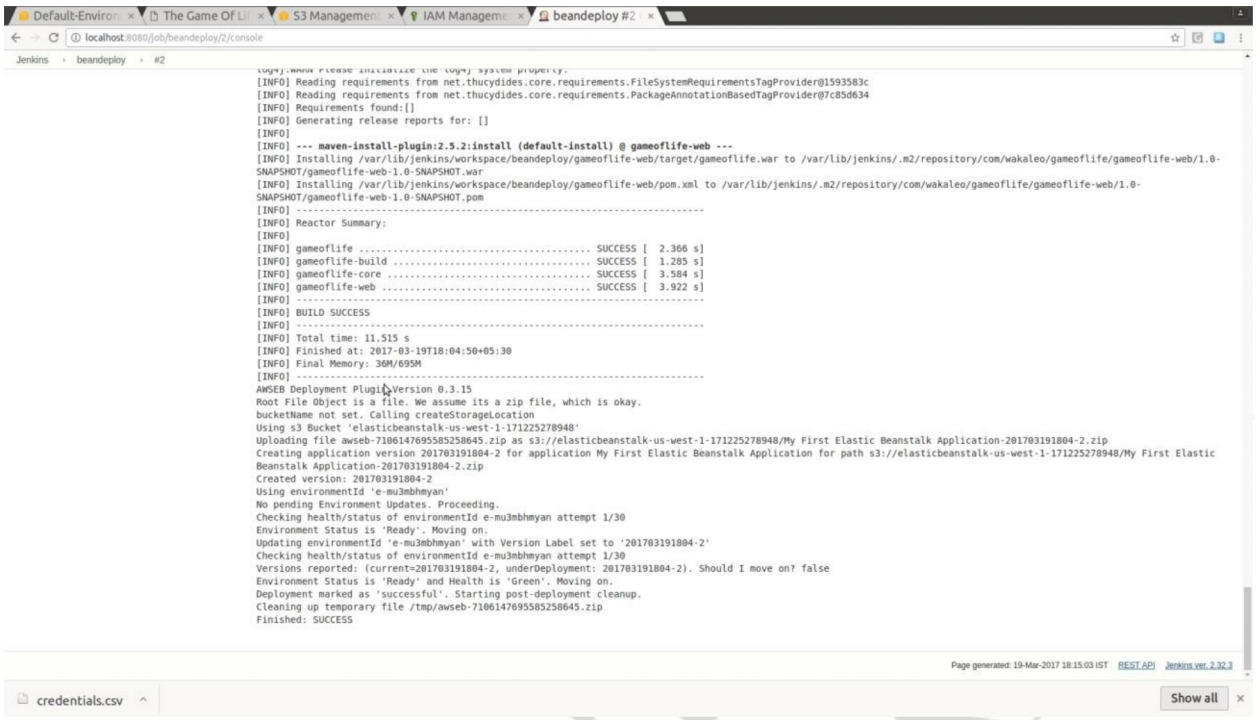


Root object should be the path of artifact located in workspace.

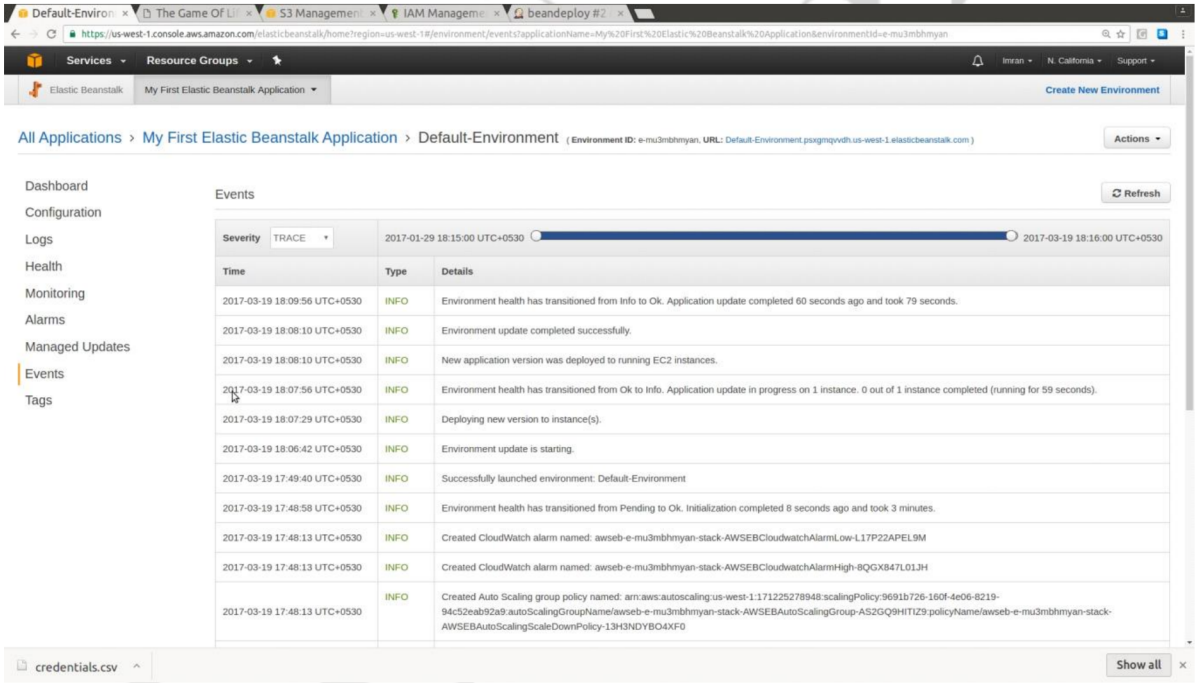
Version we will keep BUILD_ID AND BUILD_TIMESTAMP same as the CD project.

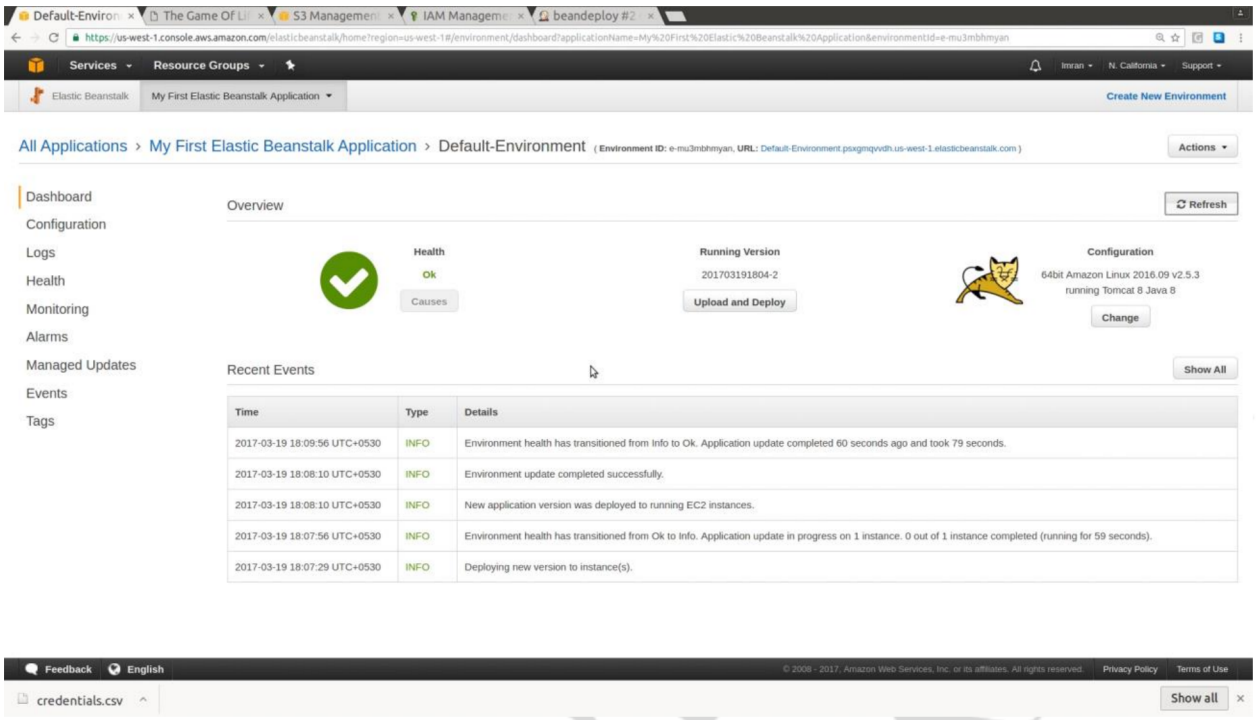


Run the job and check the console output.

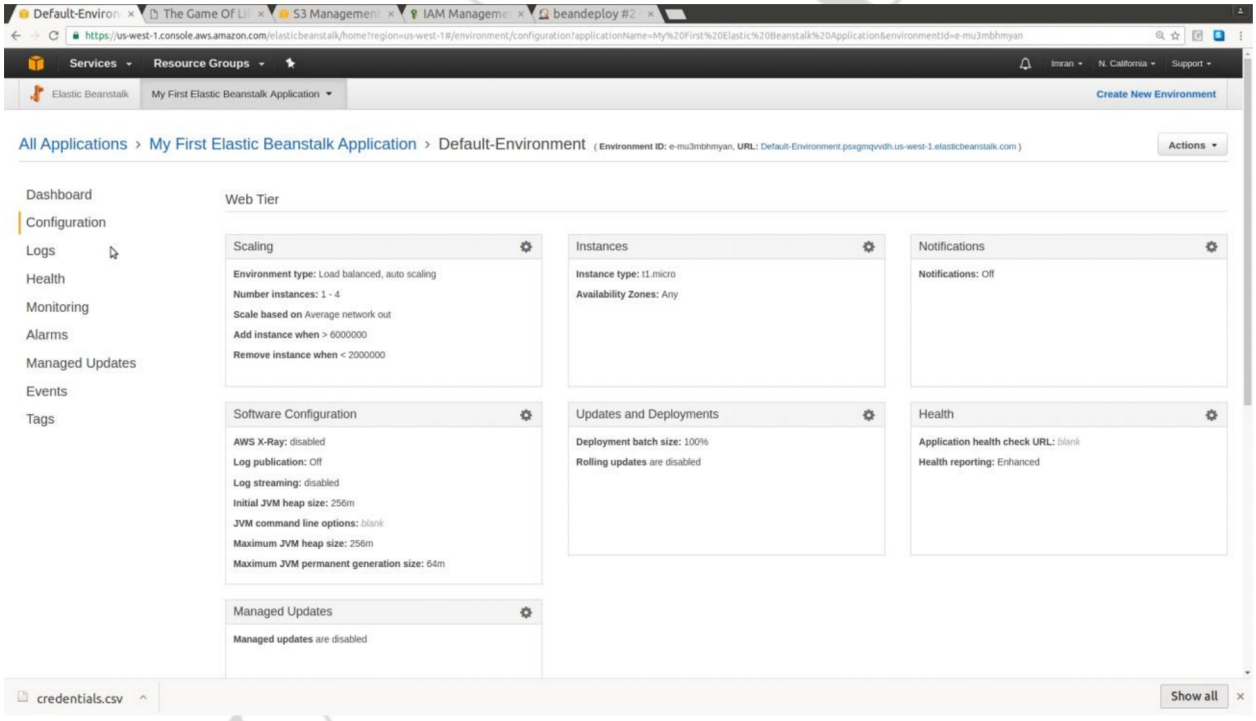


Verify the Environments Events.

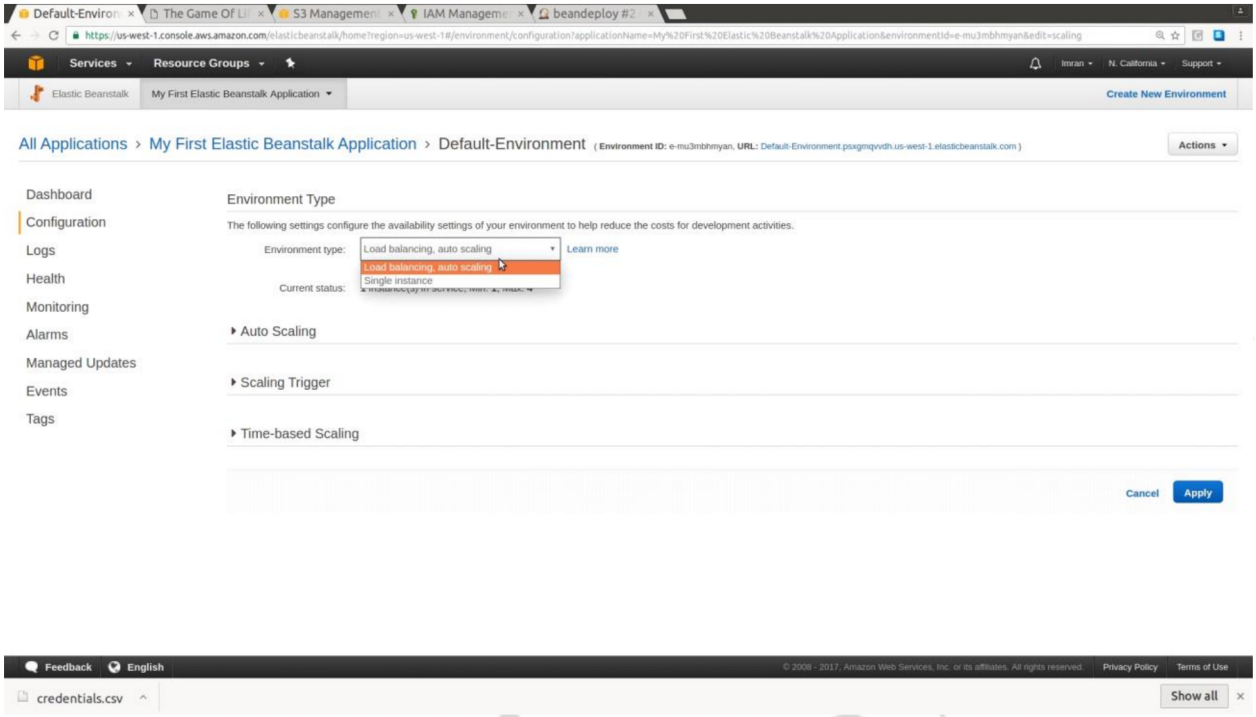




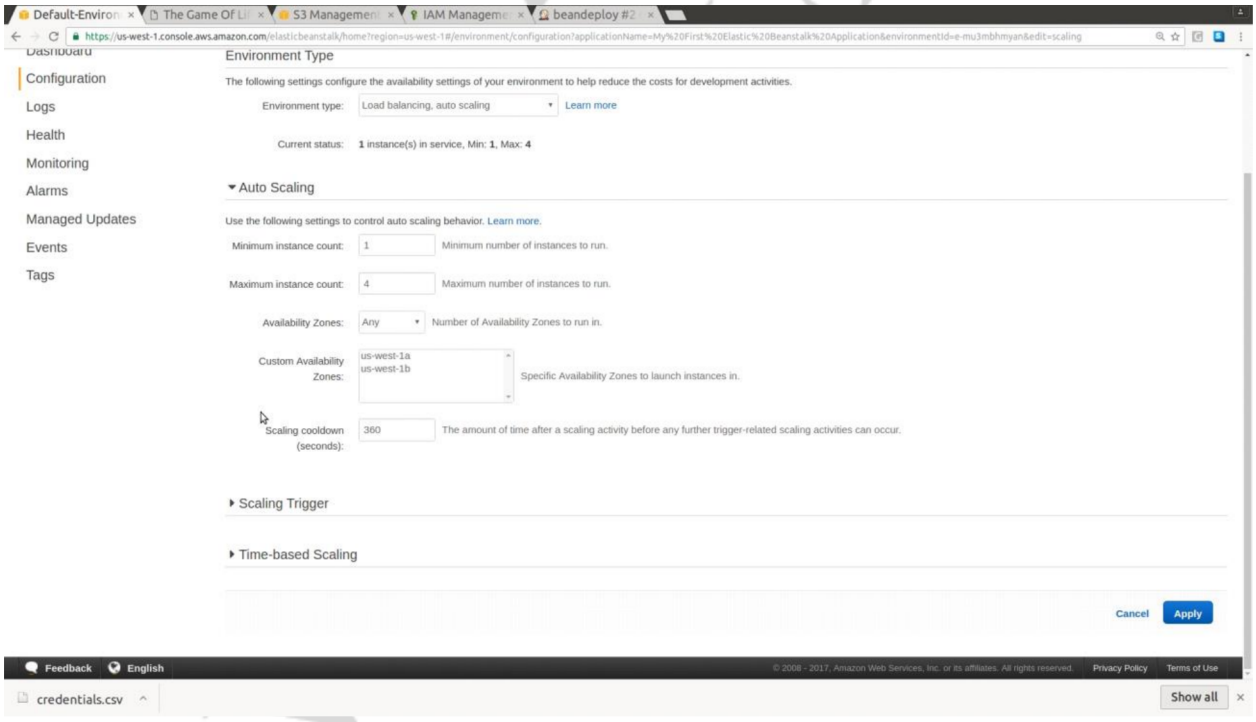
Click on the environment URL to verify if the application is accessible.
We can change the configuration of the Beanstalk Environment as per our need.
We can improvise the settings in the configuration tab of My First Beanstalk Application.
Select scaling option in the configuration and follow the below steps:



Select the Environment-Type as Load balancing, auto scaling or single instance.



This is helpful to balance the load to available webservers and also performs autoscaling.
While configuring Auto scaling behaviour we can mention the parameters like minimum & maximum instances to be scaled, Availability Zones, and cooldown period.



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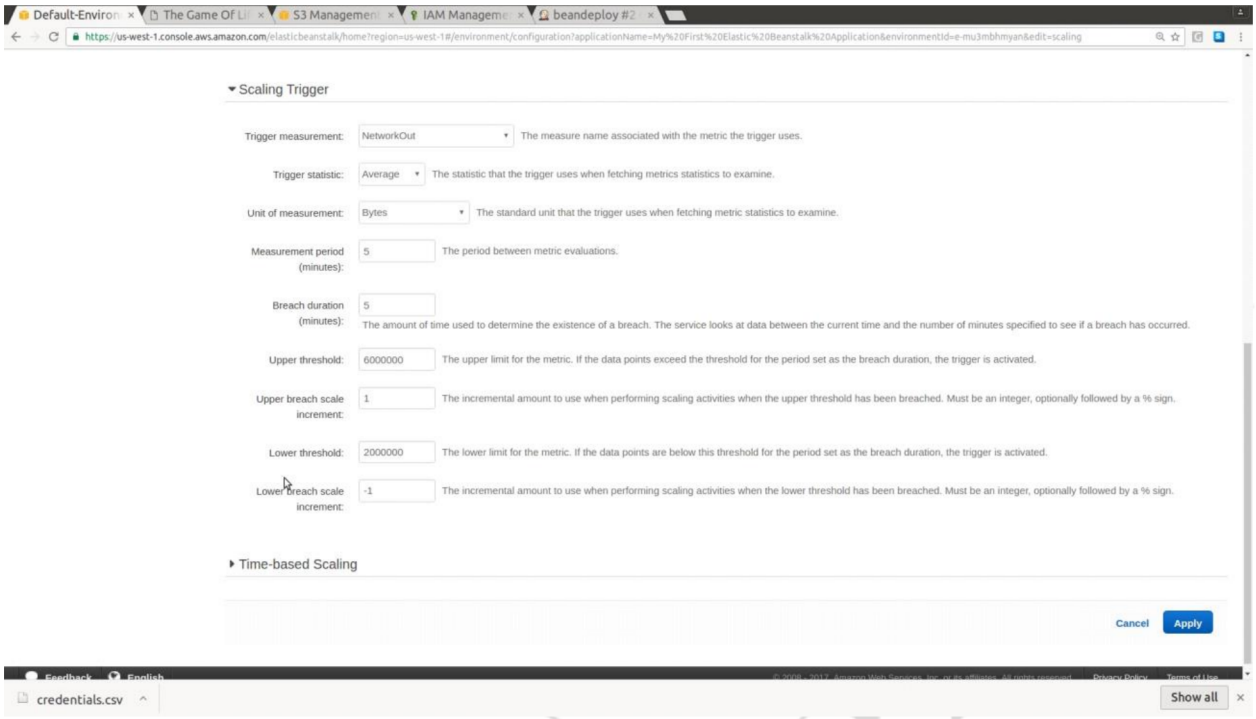
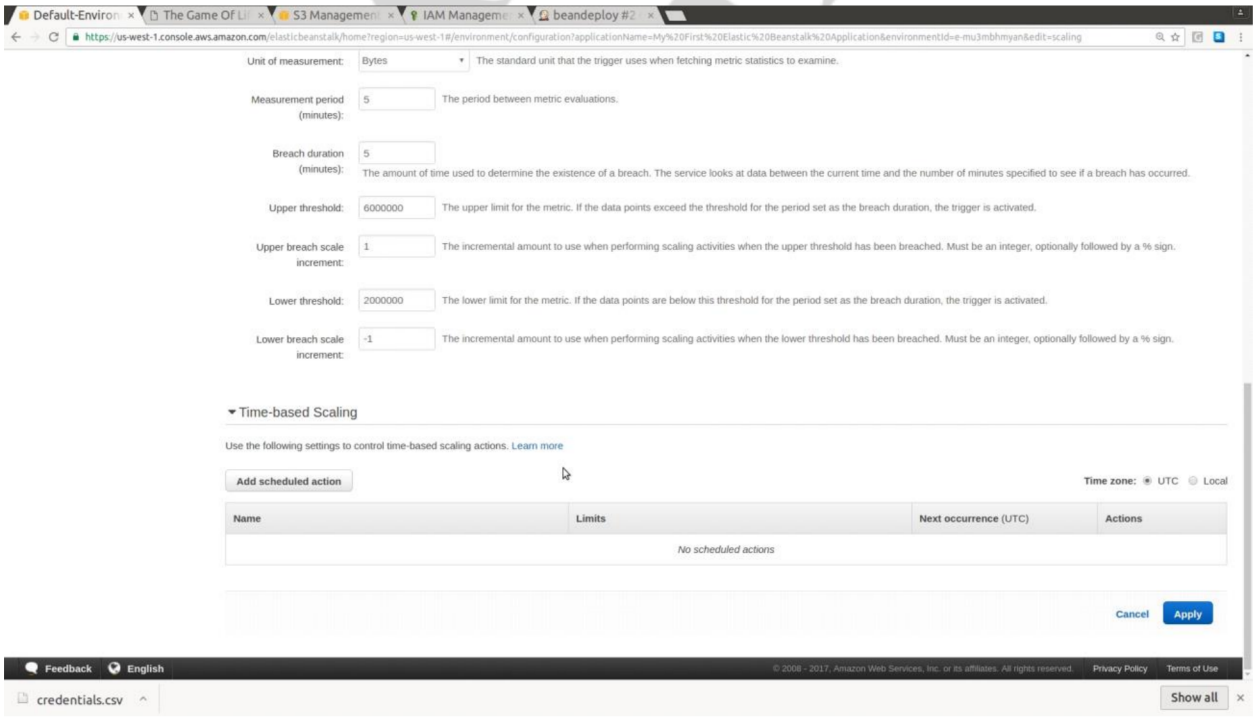
In Scaling triggers, we mention Network, CPU, threshold etc.



In Time based scaling we mention specific time in a day when the instance count should be raised.



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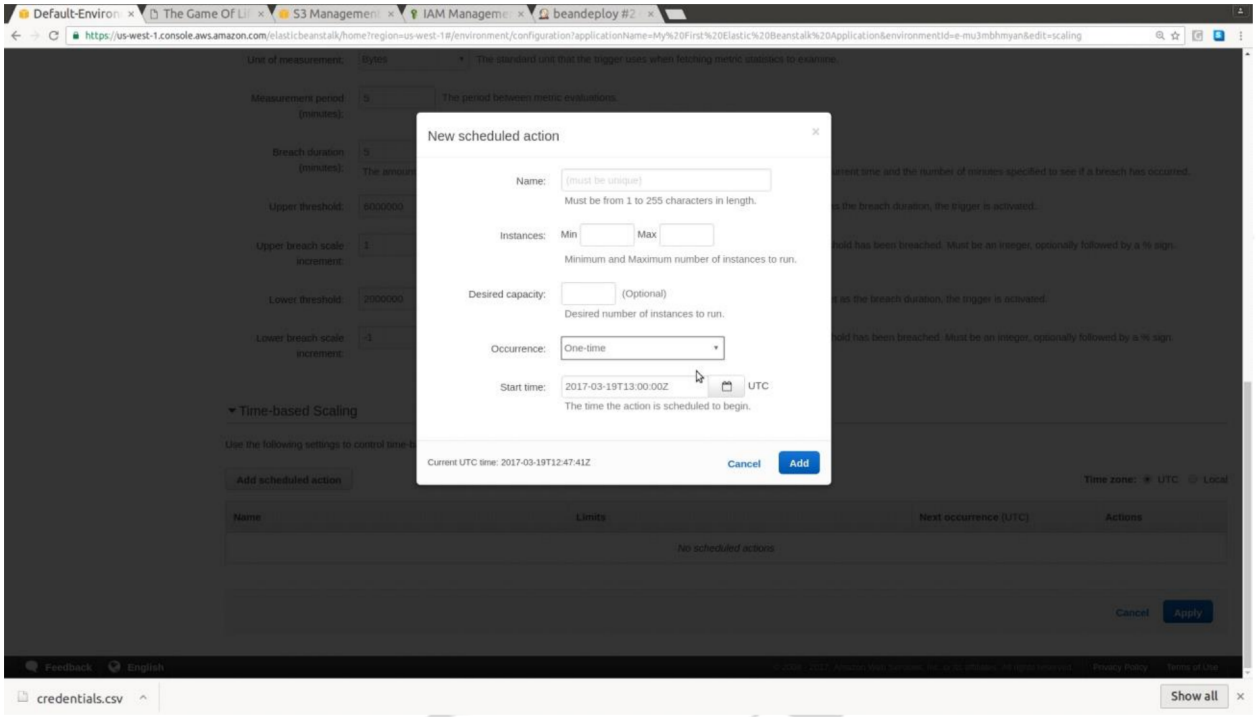
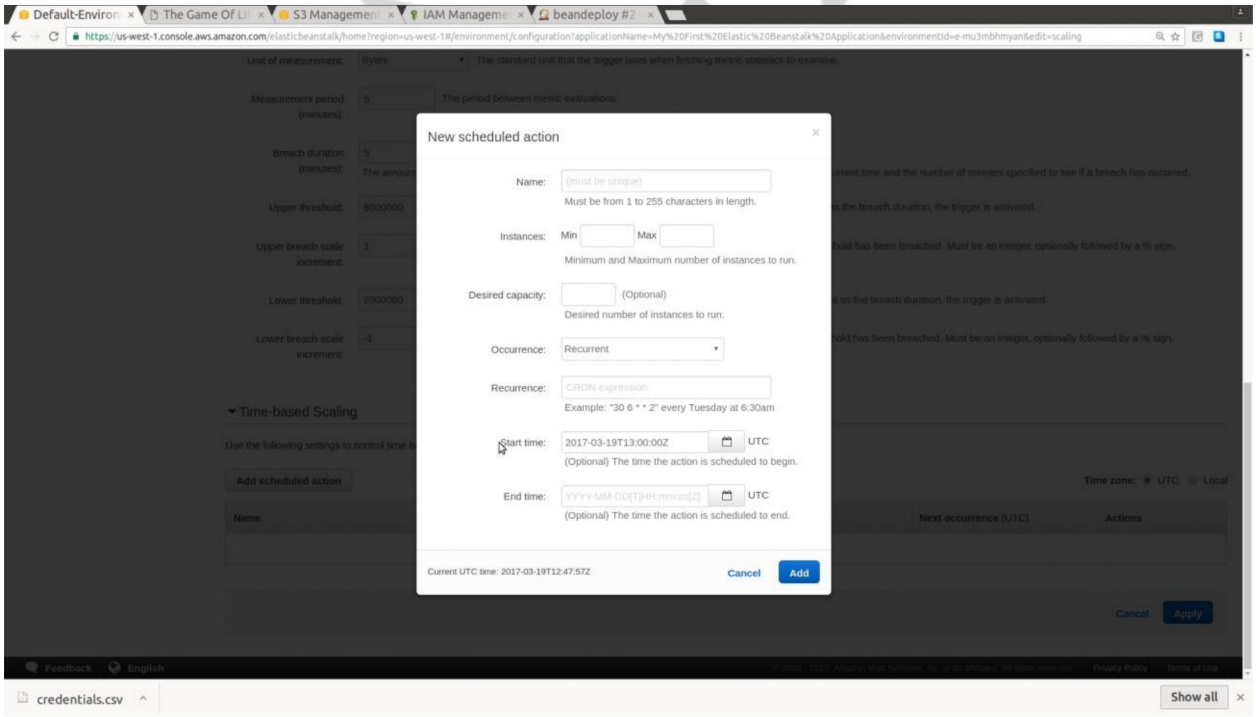
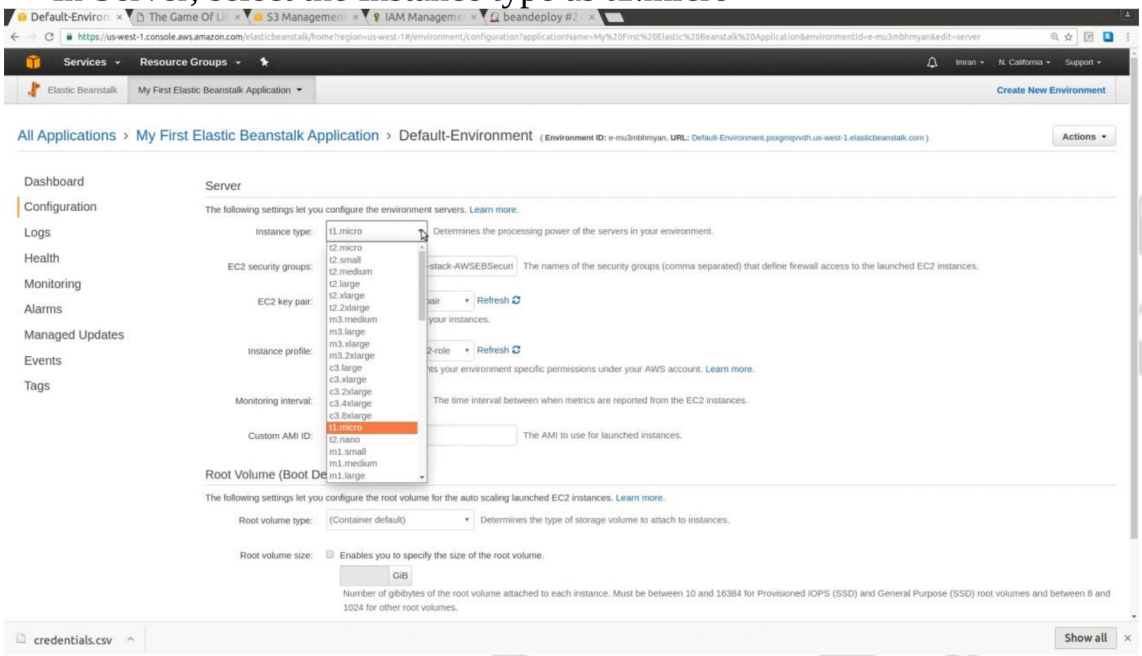
Below screenshot gives the details of how to configure Time-Based scaling



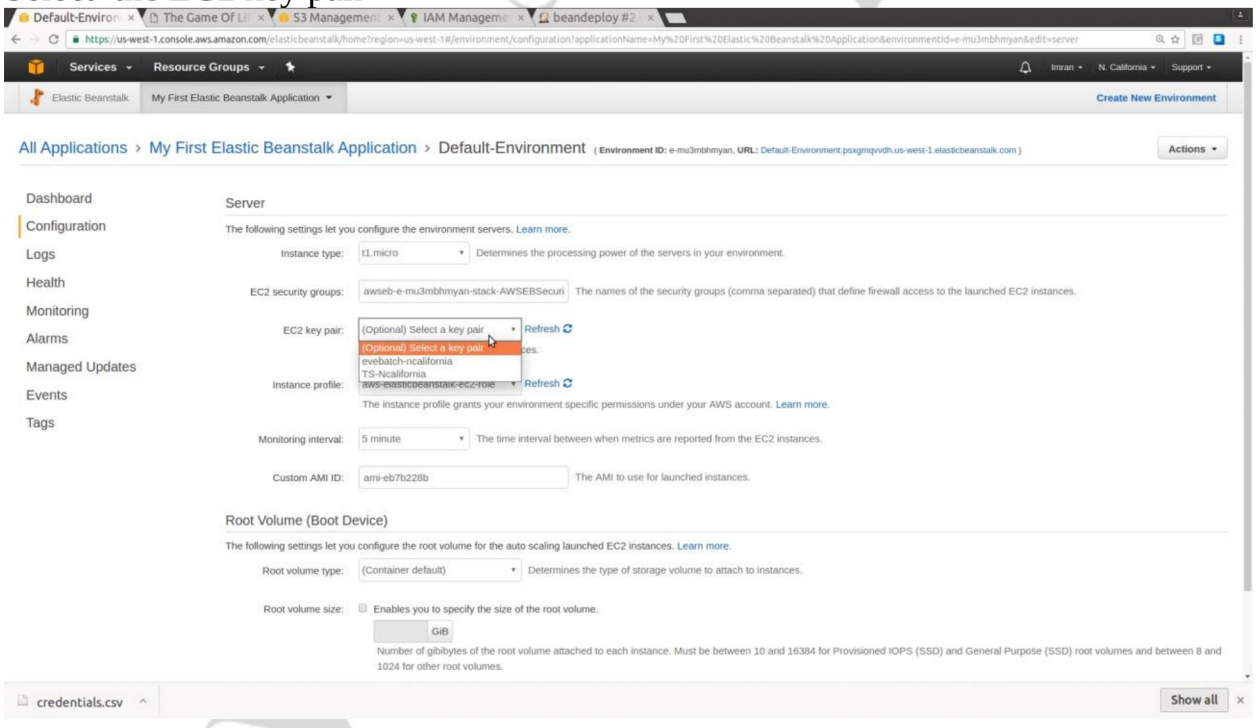


Select instances from configuration tab and follow below steps:

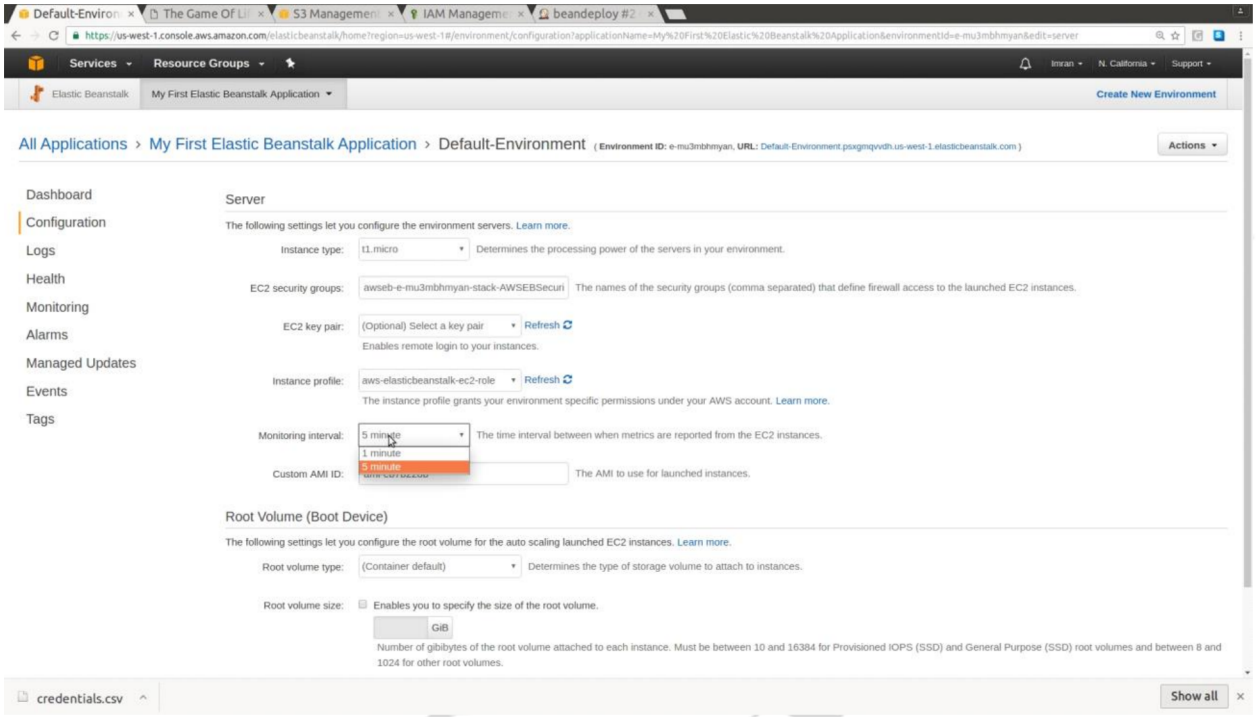
In Server, select the Instance type as t1.micro



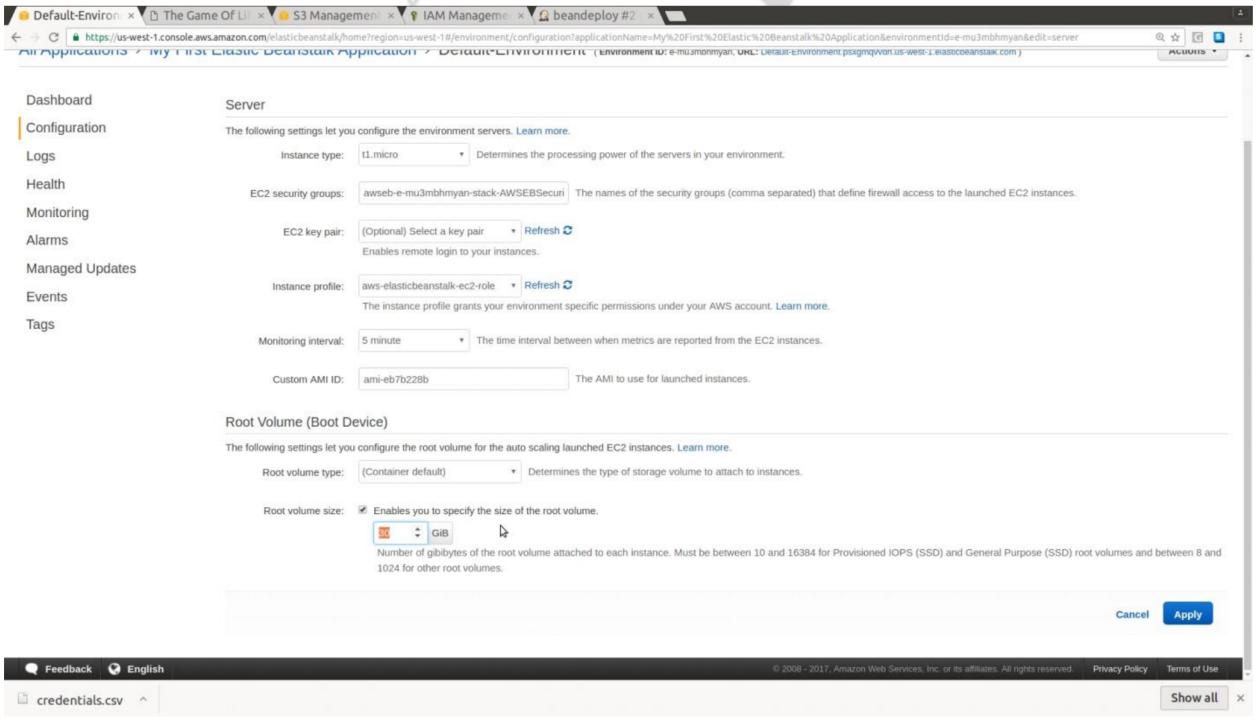
Select the EC2 key pair



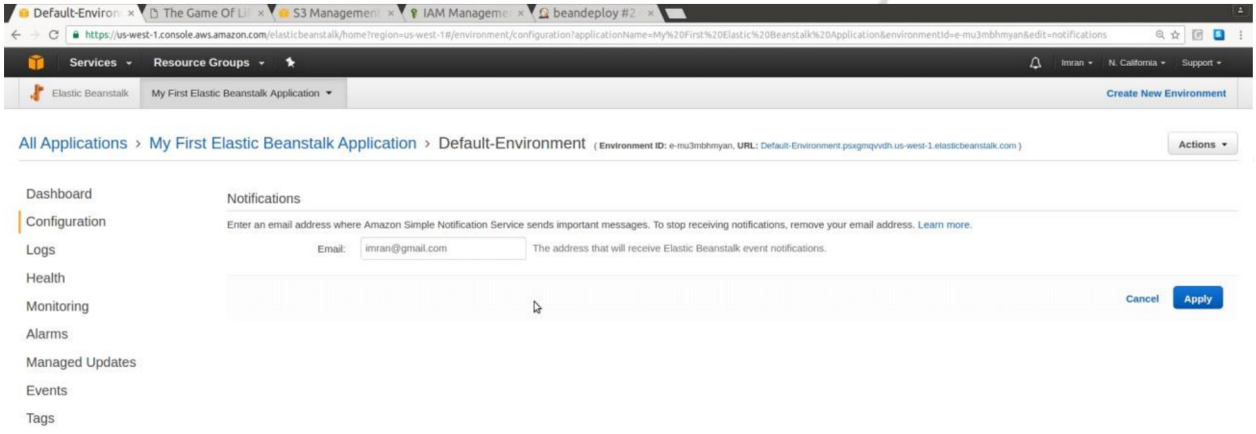
Monitoring interval



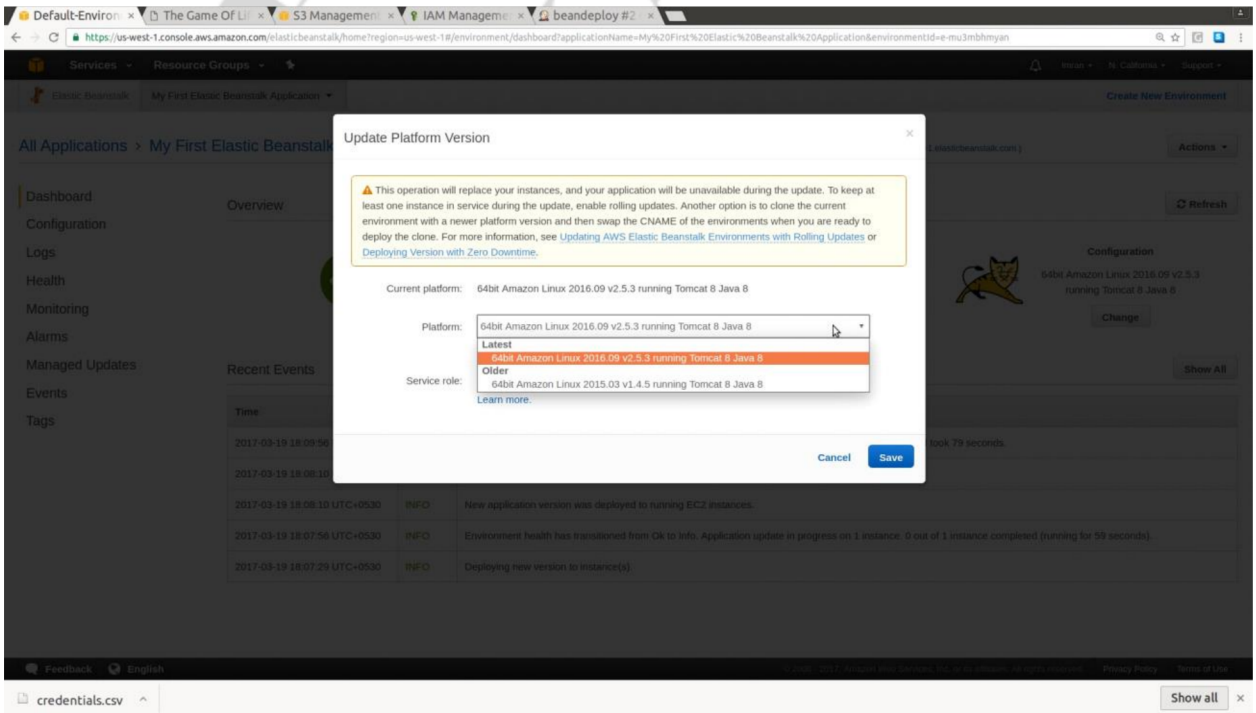
Root Volume size for the instances



Provide the Email in Notifications page in order to receive the important messages from the Amazon Simple Notification service. Click on Apply



At the application level changing the platform version is allowed.
In the application page click on Change to change the platform version.



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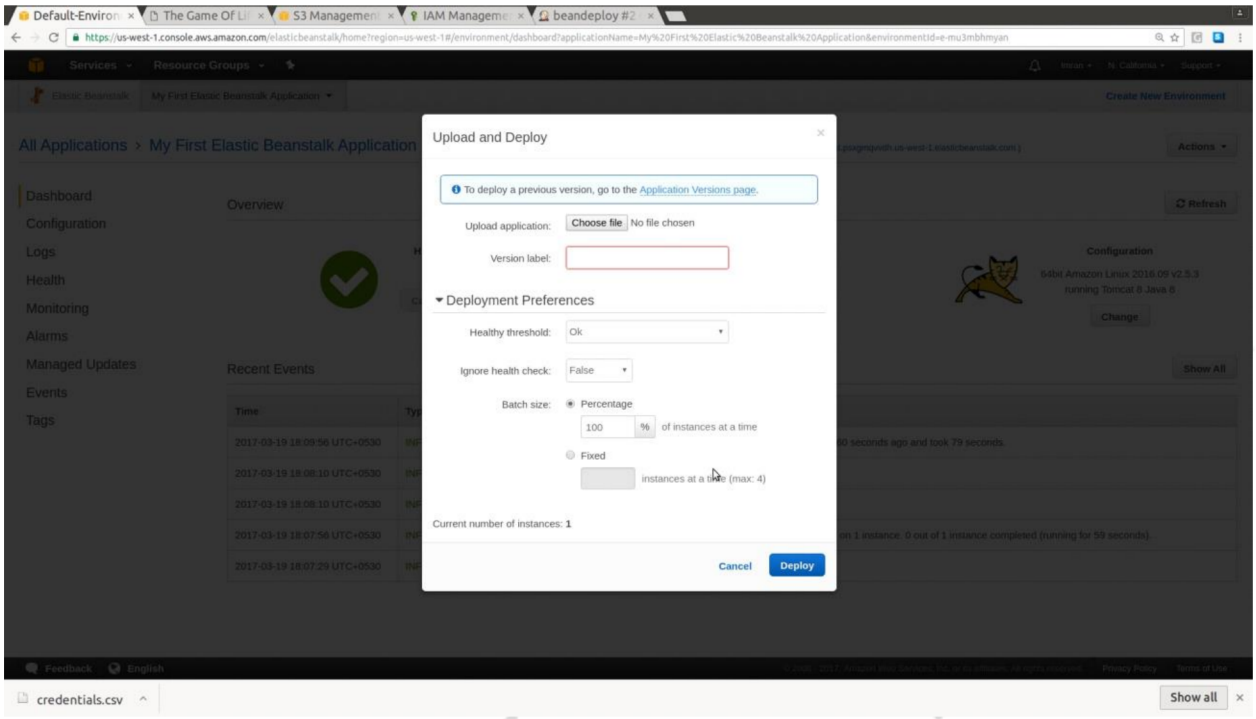
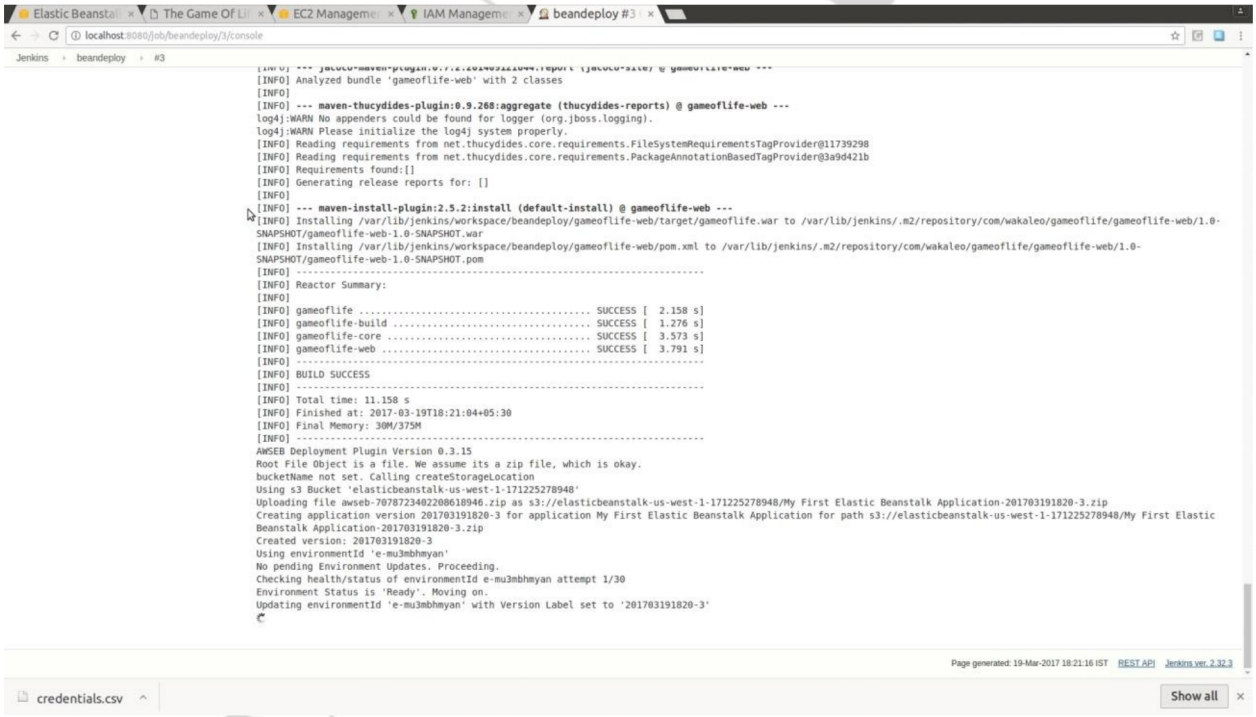


Run Jenkins job few more times to deploy new versions of softwares.



Rollback the application. Click on Actions and select view application versions