PRIVATE ATM MACHINE WITH SERVLETS USING AWS

ABSTRACT

The AWS Cloud provides a broad set of infrastructure services, such as computing power, storage options, networking and databases that are delivered as a utility: on-demand, available in seconds, with pay-as- you-go pricing. From data warehousing to deployment tools, directories to content delivery, over 90 AWS services are available.

In our project we are using Elastic beanstalk to launch a login server to a private ATM machine for a private use.

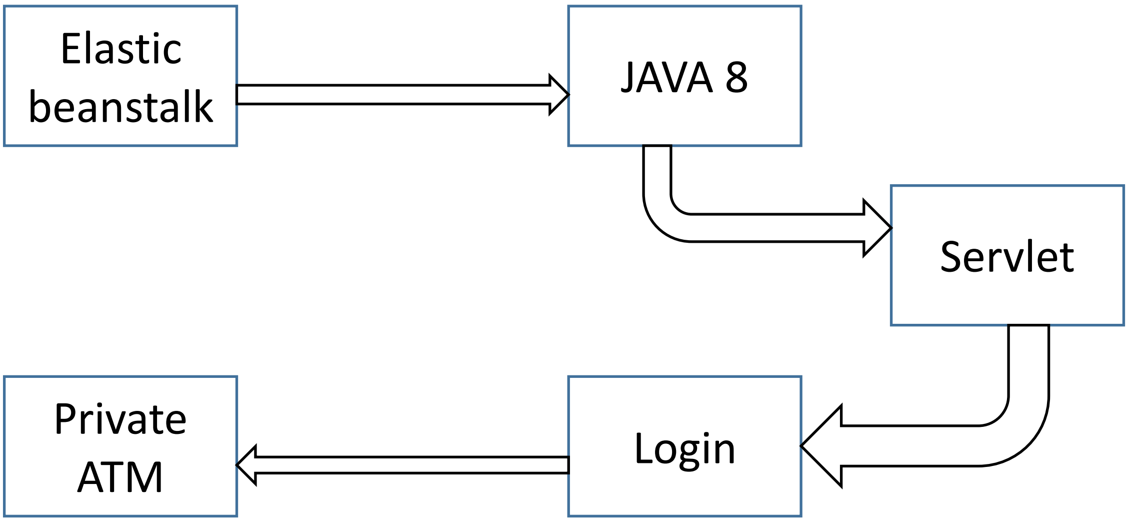
Elastic beanstalk is responsible for managing of these services ie . Login of a user and a private ATM machine and keep the servlet active.

1. INTRODUCTION

AWS Elastic Beanstalk is an orchestration service offered from Amazon Web Services for deploying infrastructure which orchestrates various AWS services, including EC2, S3, Simple Notification Service (SNS), CloudWatch, autoscaling, and Elastic Load Balancers. Elastic Beanstalk provides an additional layer of abstraction over the bare server and OS; users instead see a pre-built combination of OS and platform, such as "64bit Amazon Linux 2014.03 v1.1.0 running Ruby 2.0 (Puma)" or "64bit Debian jessie v2.0.7 running Java 8 (Preconfigured - Docker)". Deployment requires a number of components to be defined: an 'application' as a logical container for the project, a 'version' which is a deployable build of the application executable, a 'configuration template' that contains configuration information for both the Beanstalk environment and for the product. Finally an 'environment' combines a 'version' with a 'configuration' and deploys them.

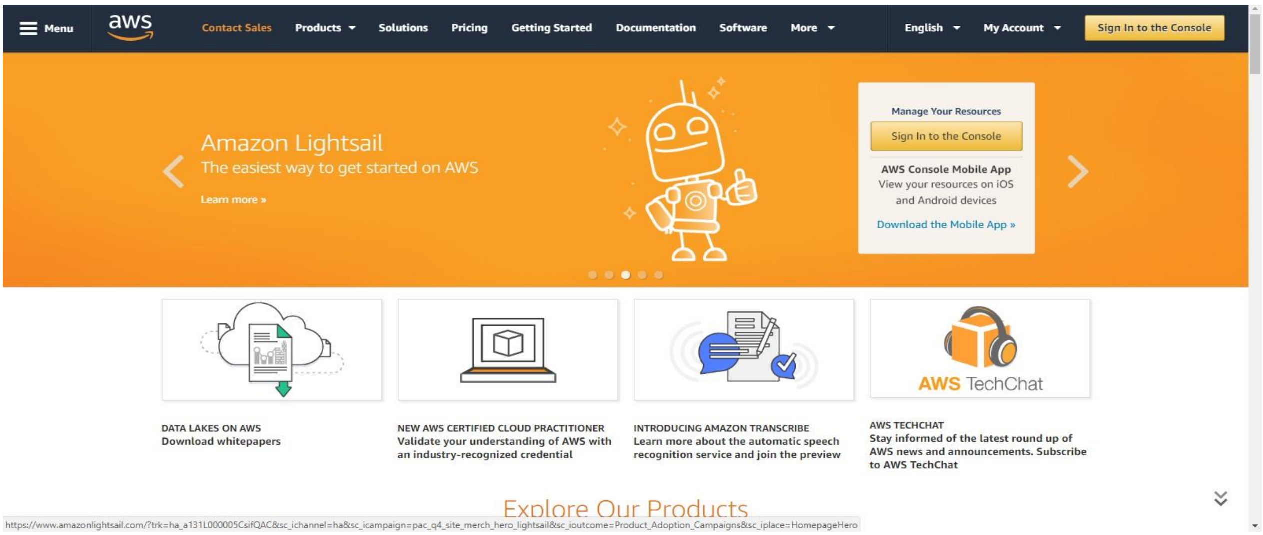
Elastic Beanstalk plays a very crucial role in our project it is used to maintain and deploy multiple servlets .

2. BLOCK DIAGRAM



3. GETTING STARTED WITH AMAZON WEB SERVICES

Step 1 : We login into Amazon web services account through Amazon portal, link is as follows. https://aws.amazon.com/ . Using mail id and password.



Amazon Lightsail

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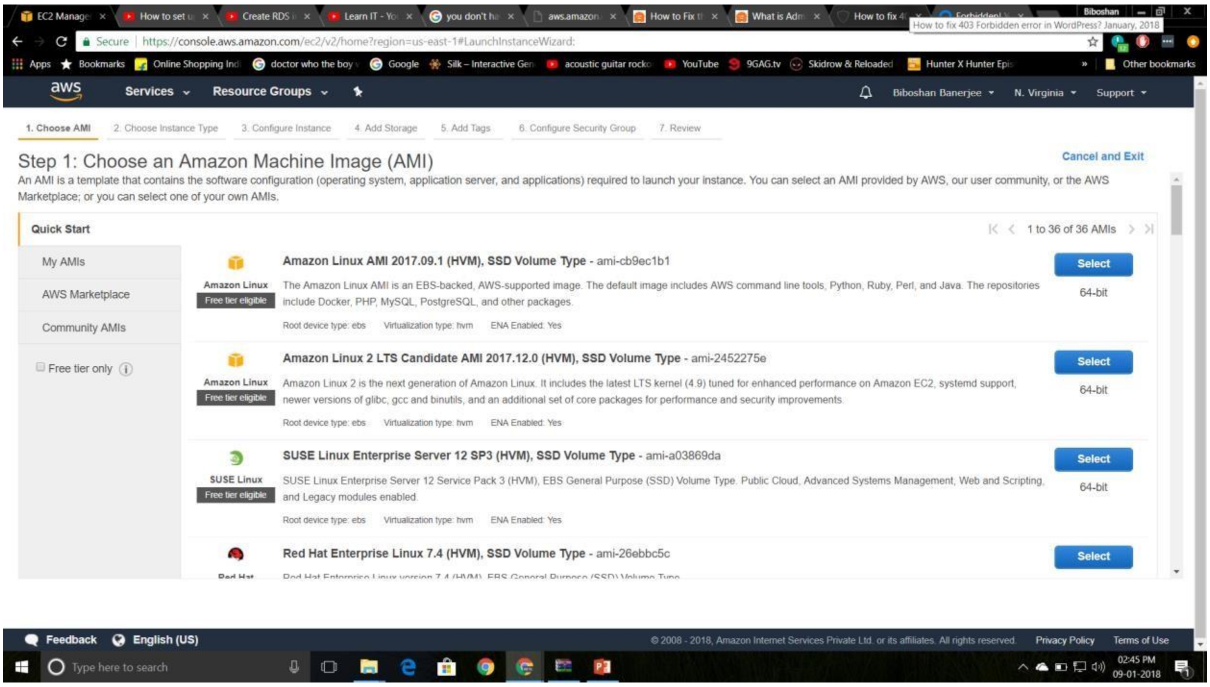
Step 2: Select the Elastic beanstalk service and choose the Amazon linux AMI 2017.09.1 (HVM),Amazon machine image



Secure | https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#LaunchInstanceWizard:

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Step 1: Choose an Amazon Machine Image (AMI)

Cancel and Exit

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. You can select an AMI provided by AWS, our user community, or the AWS Marketplace; or you can select one of your own AMIs.

Quick Start

My AMIs
AWS Marketplace
Community AMIs

□ Free tier only

1 to 36 of 36 AMIs

Amazon Linux AMI 2017.09.1 (HVM), SSD Volume Type - ami-cb9ec1b1
Amazon Linux — Free tier eligible
The Amazon Linux AMI is an EBS-backed, AWS-supported image. The default image includes AWS command line tools, Python, Ruby, Perl, and Java. The repositories include Docker, PHP, MySQL, PostgreSQL, and other packages.
Root device type: ebs Virtualization type: hvm ENA Enabled: Yes
Select — 64-bit

Amazon Linux 2 LTS Candidate AMI 2017.12.0 (HVM), SSD Volume Type - ami-2452275e
Amazon Linux — Free tier eligible
Amazon Linux 2 is the next generation of Amazon Linux. It includes the latest LTS kernel (4.9) tuned for enhanced performance on Amazon EC2, systemd support, newer versions of glibc, gcc and binutils, and an additional set of core packages for performance and security improvements.
Root device type: ebs Virtualization type: hvm ENA Enabled: Yes
Select — 64-bit

SUSE Linux Enterprise Server 12 SP3 (HVM), SSD Volume Type - ami-a03869da
SUSE Linux — Free tier eligible
SUSE Linux Enterprise Server 12 Service Pack 3 (HVM), EBS General Purpose (SSD) Volume Type. Public Cloud, Advanced Systems Management, Web and Scripting, and Legacy modules enabled.
Root device type: ebs Virtualization type: hvm ENA Enabled: Yes
Select — 64-bit

Red Hat Enterprise Linux 7.4 (HVM), SSD Volume Type - ami-26ebbc5c
Red Hat
Red Hat Enterprise Linux version 7.4 (HVM), EBS General Purpose (SSD) Volume Type
Select

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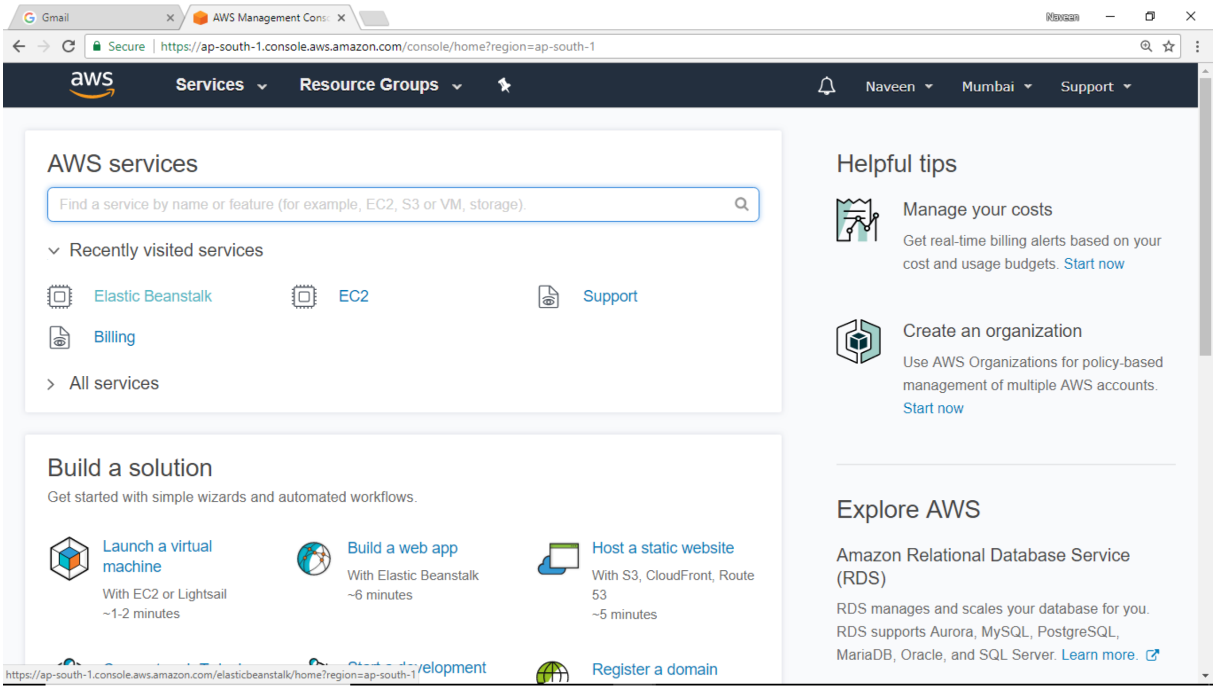
LAUNCHING ELASTIC BEANSTALK



Gmail
AWS Management Cons
https://ap-south-1.console.aws.amazon.com/console/home?region=ap-south-1
Services
Resource Groups
Naveen
Mumbai
Support

AWS services

Find a service by name or feature (for example, EC2, S3 or VM, storage).

Recently visited services

Elastic Beanstalk · EC2 · Support · Billing

All services

Build a solution

Get started with simple wizards and automated workflows.

Launch a virtual machine
With EC2 or Lightsail
~1-2 minutes

Build a web app
With Elastic Beanstalk
~6 minutes

Host a static website
With S3, CloudFront, Route 53
~5 minutes

Register a domain

Helpful tips

Manage your costs
Get real-time billing alerts based on your cost and usage budgets. Start now

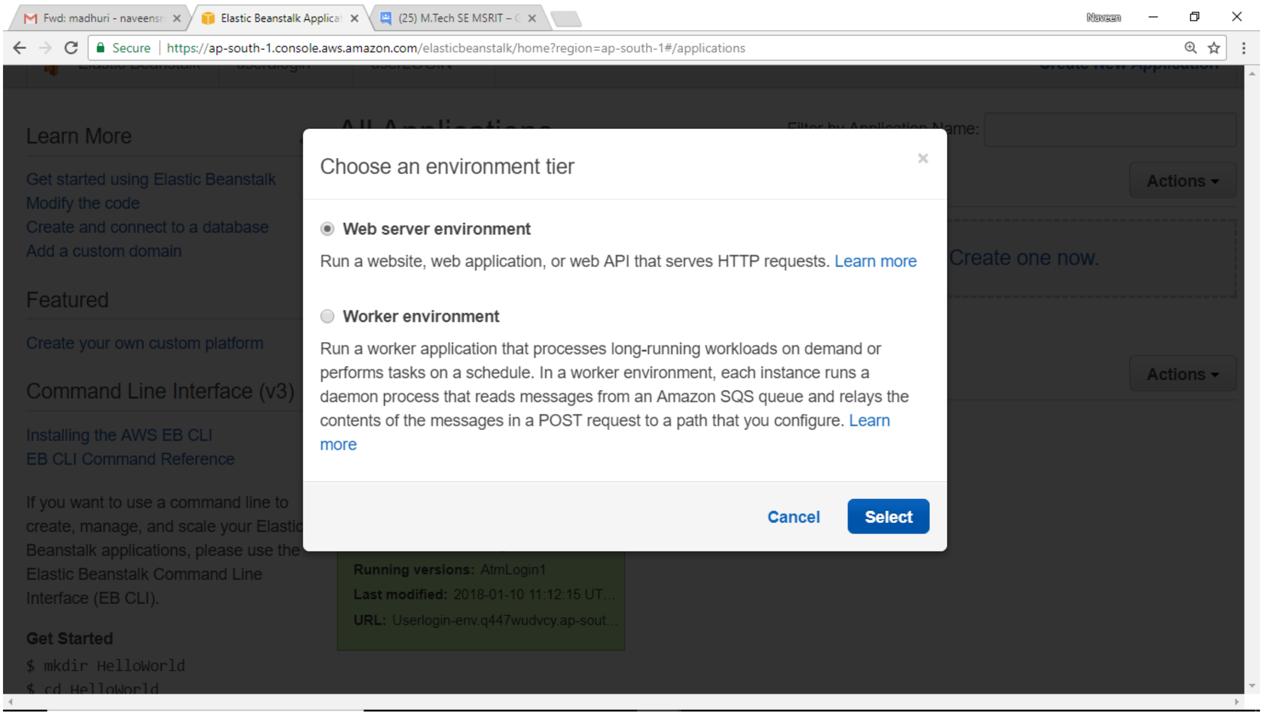
Create an organization
Use AWS Organizations for policy-based management of multiple AWS accounts. Start now

Explore AWS

Amazon Relational Database Service (RDS)
RDS manages and scales your database for you. RDS supports Aurora, MySQL, PostgreSQL, MariaDB, Oracle, and SQL Server. Learn more.

https://ap-south-1.console.aws.amazon.com/elasticbeanstalk/home?region=ap-south-1

Step 2 : Selecting elastic beanstalk as a service



Fwd: madhuri - naveens
Elastic Beanstalk Applica
(25) M.Tech SE MSRIT
https://ap-south-1.console.aws.amazon.com/elasticbeanstalk/home?region=ap-south-1#/applications
Learn More
Get started using Elastic Beanstalk
Modify the code
Create and connect to a database
Add a custom domain
Featured
Create your own custom platform
Command Line Interface (v3)
Installing the AWS EB CLI
EB CLI Command Reference
Actions
Create one now.

If you want to use a command line to create, manage, and scale your Elastic Beanstalk applications, please use the Elastic Beanstalk Command Line Interface (EB CLI).

Get Started

```
$ mkdir HelloWorld
$ cd HelloWorld
```

Running versions: AtmLogin1
Last modified: 2018-01-10 11:12:15 UT...
URL: Userlogin-env.q447wudvcy.ap-sout...

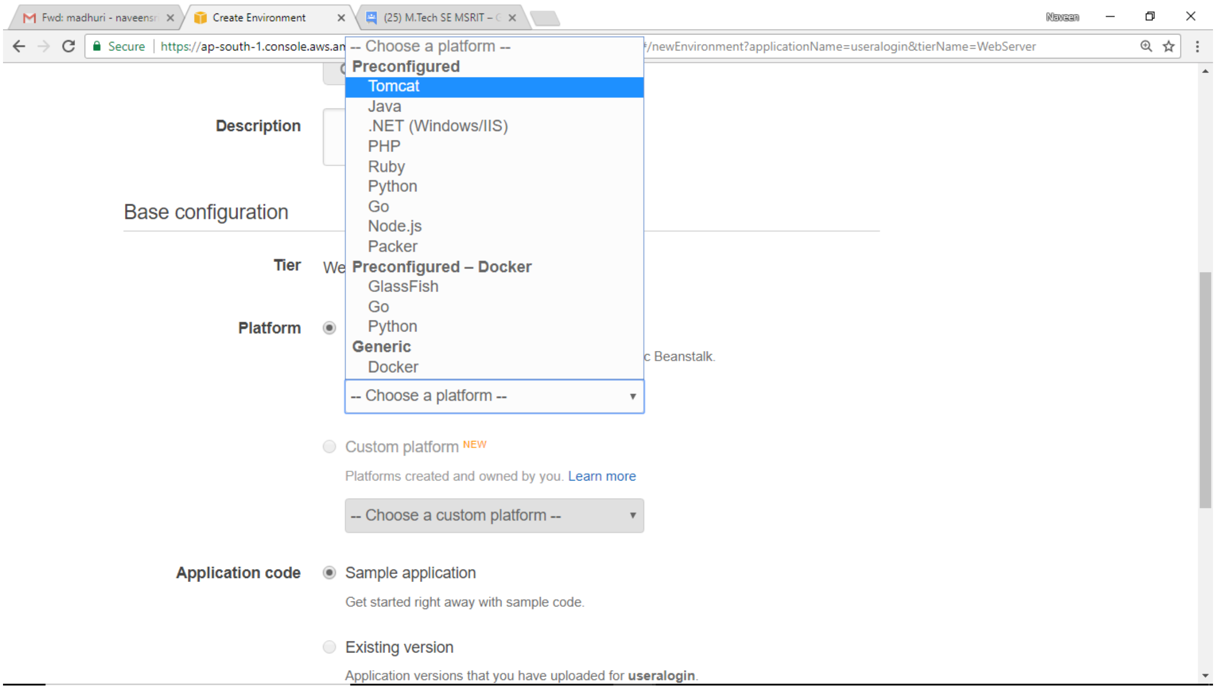
Choose an environment tier

● 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. In a worker environment, each instance runs a daemon process that reads messages from an Amazon SQS queue and relays the contents of the messages in a POST request to a path that you configure. Learn more

Cancel | Select

Step 3 : Choosing a webserver environment.


Fwd: madhuri - naveensr
Create Environment
(25) M.Tech SE MSRIT – C
Naveen
Secure
https://ap-south-1.console.aws.am
/newEnvironment?applicationName=useralogin&tierName=WebServer

Description

Base configuration

Tier We

Platform ● -- Choose a platform --

-- Choose a platform --
Preconfigured
Tomcat
Java
.NET (Windows/IIS)
PHP
Ruby
Python
Go
Node.js
Packer
Preconfigured – Docker
GlassFish
Go
Python
Generic
Docker

c Beanstalk.

○ Custom platform NEW

Platforms created and owned by you. Learn more

-- Choose a custom platform --

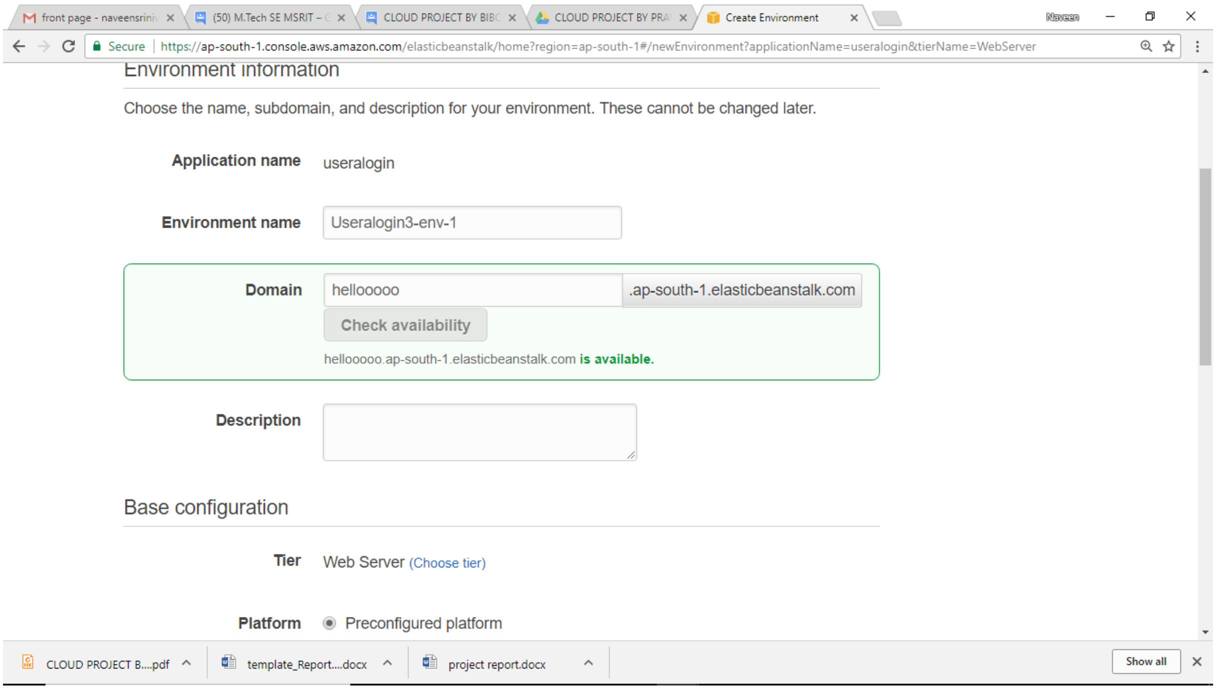
Application code ● Sample application

Get started right away with sample code.

○ Existing version

Application versions that you have uploaded for **useralogin**.

Step 4: Choosing platform as Tomcat.



Environment information

Choose the name, subdomain, and description for your environment. These cannot be changed later.

Application name useralogin

Environment name Useralogin3-env-1

Domain hellooooo .ap-south-1.elasticbeanstalk.com

Check availability

hellooooo.ap-south-1.elasticbeanstalk.com **is available.**

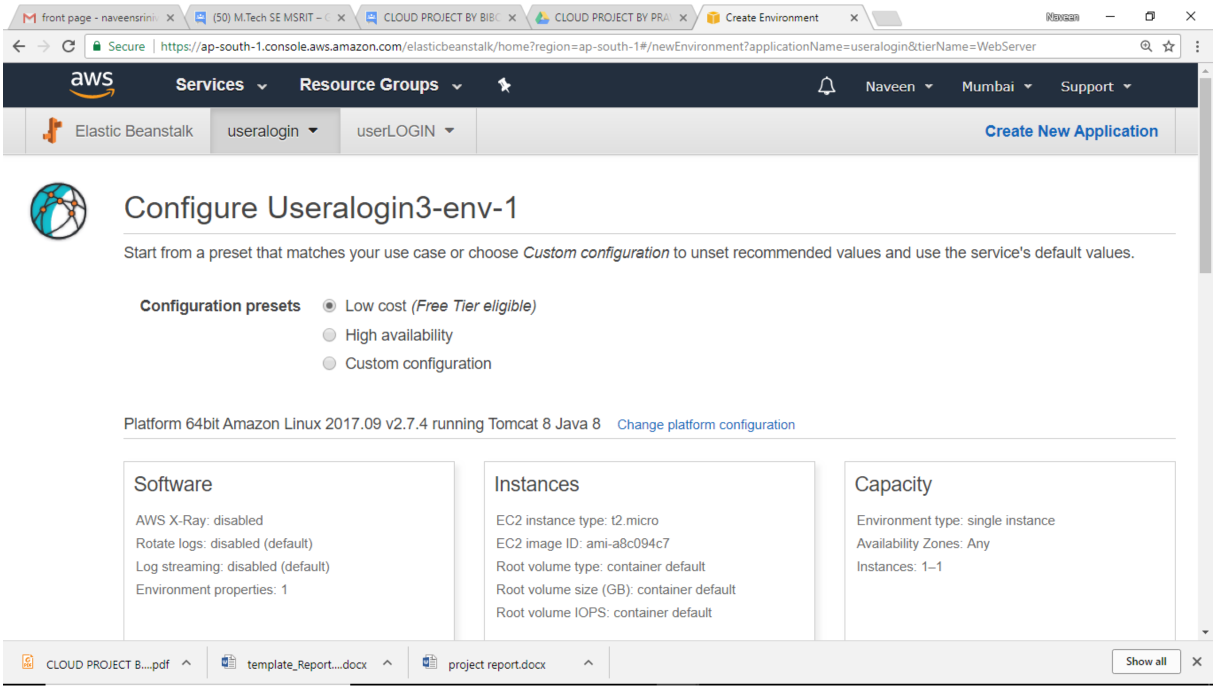
Description

Base configuration

Tier Web Server (Choose tier)

Platform ● Preconfigured platform

Step 5: Checking for domain availability



Configure Useralogin3-env-1

Start from a preset that matches your use case or choose *Custom configuration* to unset recommended values and use the service's default values.

Configuration presets
● Low cost *(Free Tier eligible)*
○ High availability
○ Custom configuration

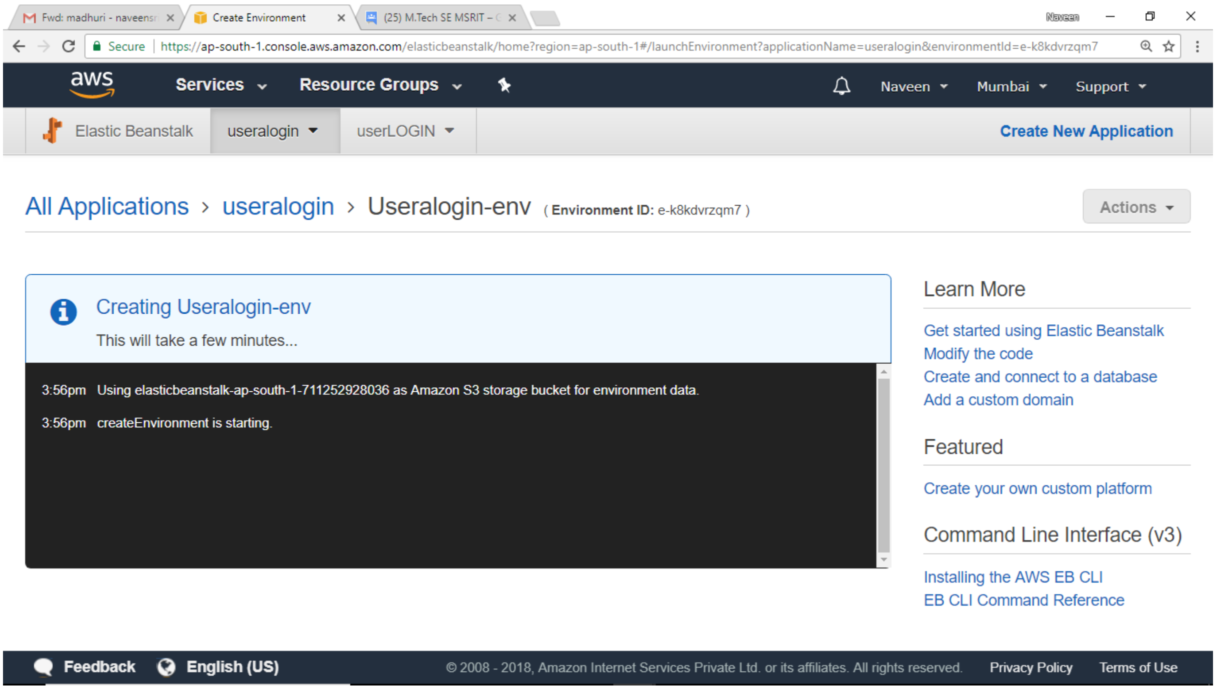
Platform 64bit Amazon Linux 2017.09 v2.7.4 running Tomcat 8 Java 8 Change platform configuration

Software
AWS X-Ray: disabled
Rotate logs: disabled (default)
Log streaming: disabled (default)
Environment properties: 1

Instances
EC2 instance type: t2.micro
EC2 image ID: ami-a8c094c7
Root volume type: container default
Root volume size (GB): container default
Root volume IOPS: container default

Capacity
Environment type: single instance
Availability Zones: Any
Instances: 1–1

Step : Choosing the Low cost (free tier eligible)


Fwd: madhuri - naveens
Create Environment
(25) M.Tech SE MSRIT
Secure
https://ap-south-1.console.aws.amazon.com/elasticbeanstalk/home?region=ap-south-1#/launchEnvironment?applicationName=useralogin&environmentId=e-k8kdvrzqm7
aws
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Naveen
Mumbai
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useralogin
userLOGIN
Create New Application
Actions
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Create and connect to a database
Add a custom domain
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Installing the AWS EB CLI
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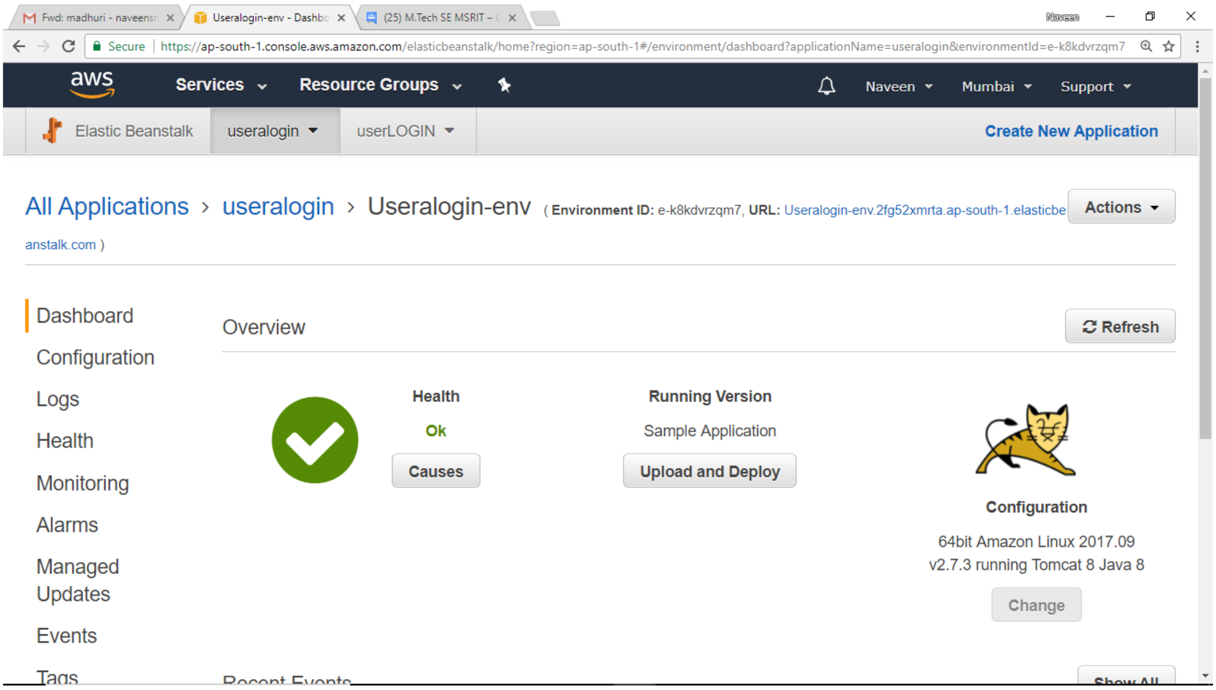
All Applications › useralogin › Useralogin-env (**Environment ID:** e-k8kdvrzqm7)

Creating Useralogin-env
This will take a few minutes...

```
3:56pm   Using elasticbeanstalk-ap-south-1-711252928036 as Amazon S3 storage bucket for environment data.
3:56pm   createEnvironment is starting.
```

Step 6: Creating Environment.



https://ap-south-1.console.aws.amazon.com/elasticbeanstalk/home?region=ap-south-1#/environment/dashboard?applicationName=useralogin&environmentId=e-k8kdvrzqm7

All Applications › useralogin › Useralogin-env (Environment ID: e-k8kdvrzqm7, URL: Useralogin-env.2fg52xmrta.ap-south-1.elasticbeanstalk.com)

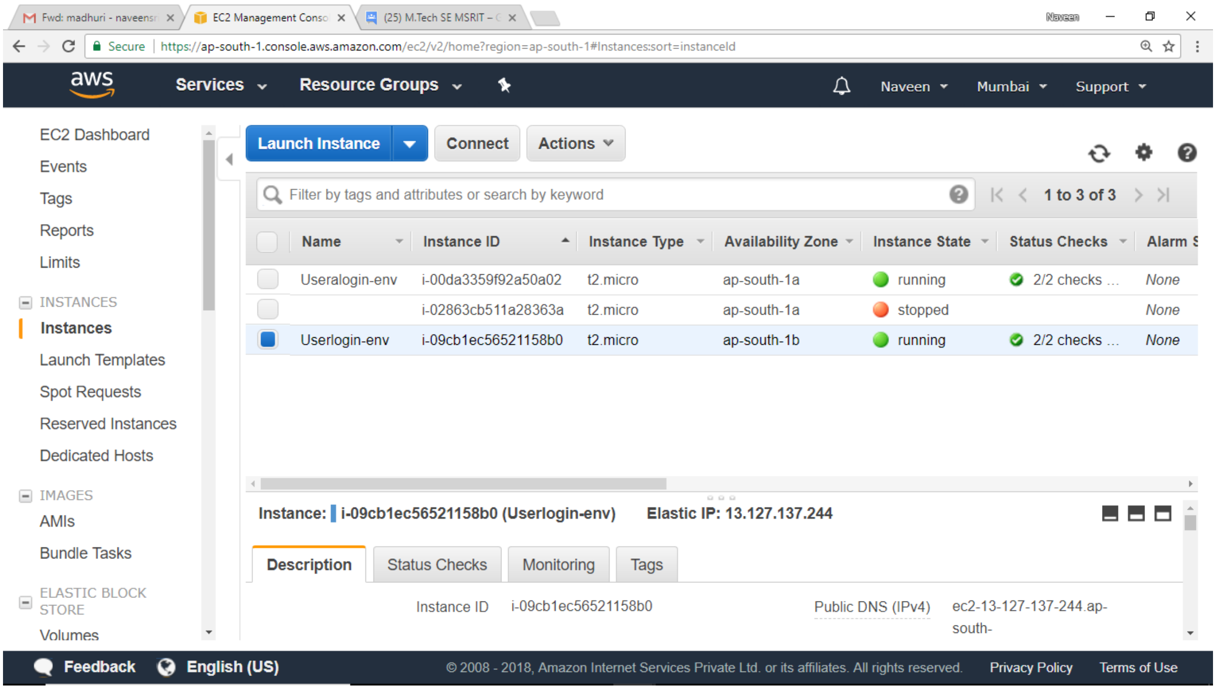
Overview

Health: Ok

Running Version: Sample Application

Configuration: 64bit Amazon Linux 2017.09 v2.7.3 running Tomcat 8 Java 8

Step 7: Service is activated.



https://ap-south-1.console.aws.amazon.com/ec2/v2/home?region=ap-south-1#Instances:sort=instanceId

Filter by tags and attributes or search by keyword — 1 to 3 of 3

Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm S
Useralogin-env	i-00da3359f92a50a02	t2.micro	ap-south-1a	running	2/2 checks ...	None
	i-02863cb511a28363a	t2.micro	ap-south-1a	stopped		None
Userlogin-env	i-09cb1ec56521158b0	t2.micro	ap-south-1b	running	2/2 checks ...	None

Instance: i-09cb1ec56521158b0 (Userlogin-env) Elastic IP: 13.127.137.244

Instance ID: i-09cb1ec56521158b0

Public DNS (IPv4): ec2-13-127-137-244.ap-south-

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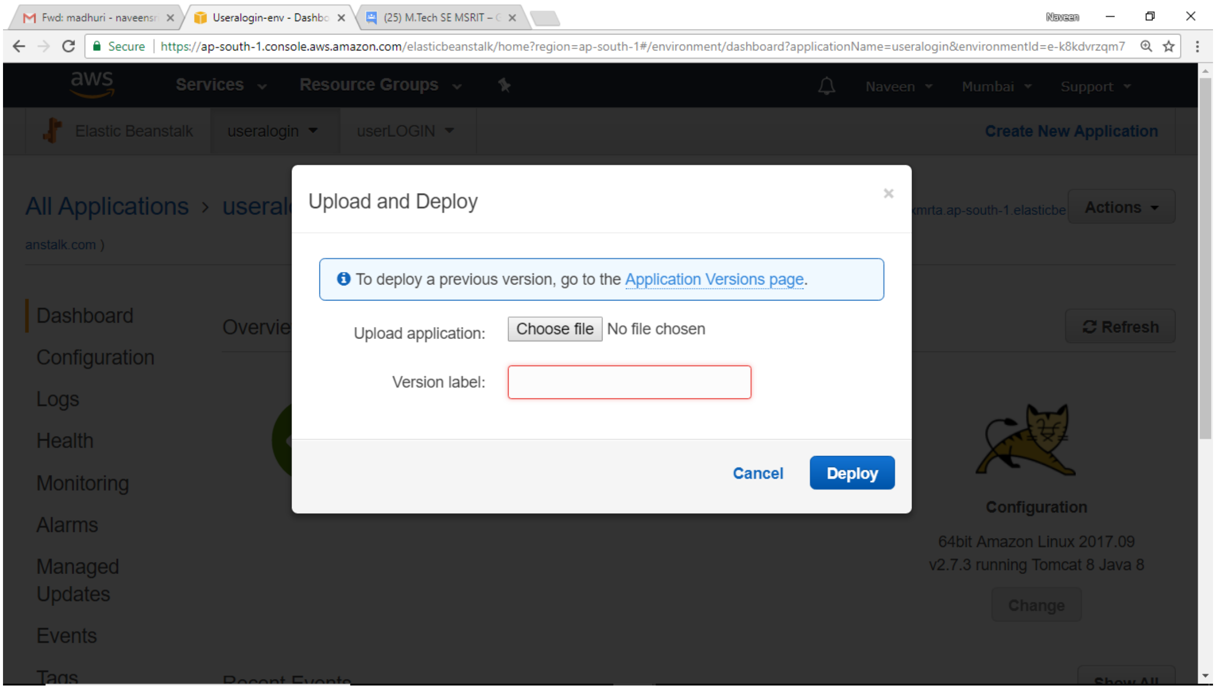
Step 8: Running Instances.



Upload and Deploy

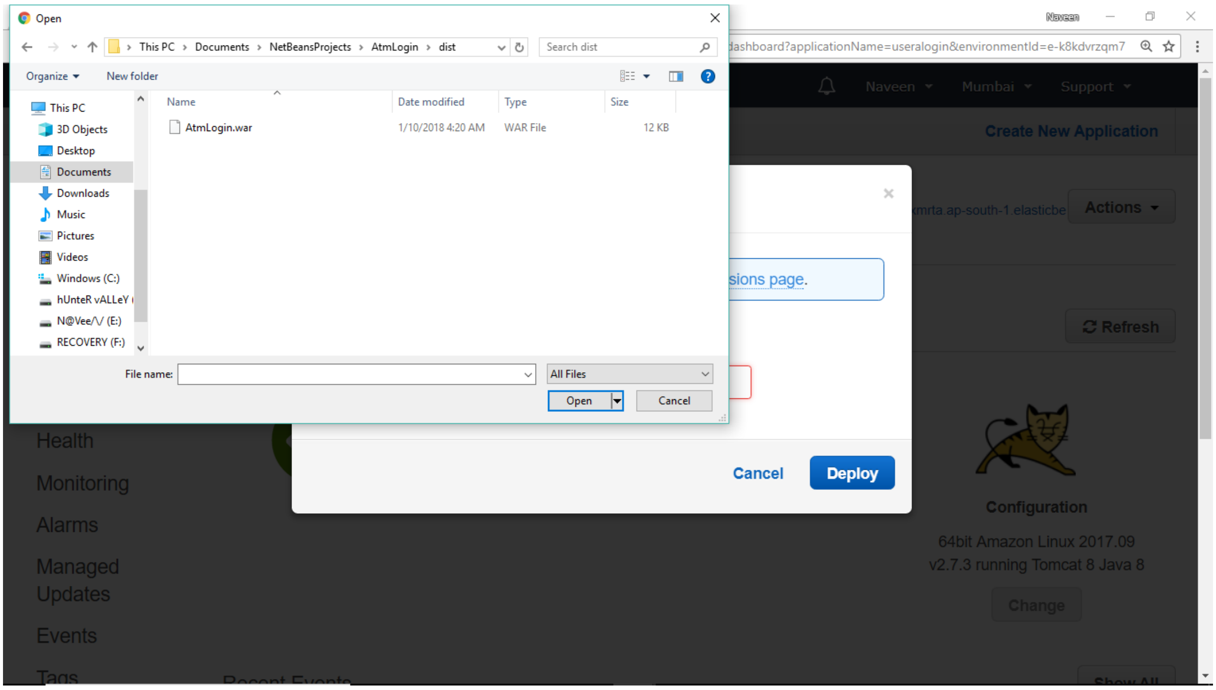
To deploy a previous version, go to the Application Versions page.

Upload application: Choose file No file chosen

Version label:

https://ap-south-1.console.aws.amazon.com/elasticbeanstalk/home?region=ap-south-1#/environment/dashboard?applicationName=useralogin&environmentId=e-k8kdvrzqm7
Services
Resource Groups
Elastic Beanstalk
useralogin
userLOGIN
Create New Application
All Applications
Actions
Dashboard
Configuration
Logs
Health
Monitoring
Alarms
Managed Updates
Events
Refresh
Configuration
64bit Amazon Linux 2017.09 v2.7.3 running Tomcat 8 Java 8
Change
Cancel
Deploy

Step 9: Deploying the Java file.



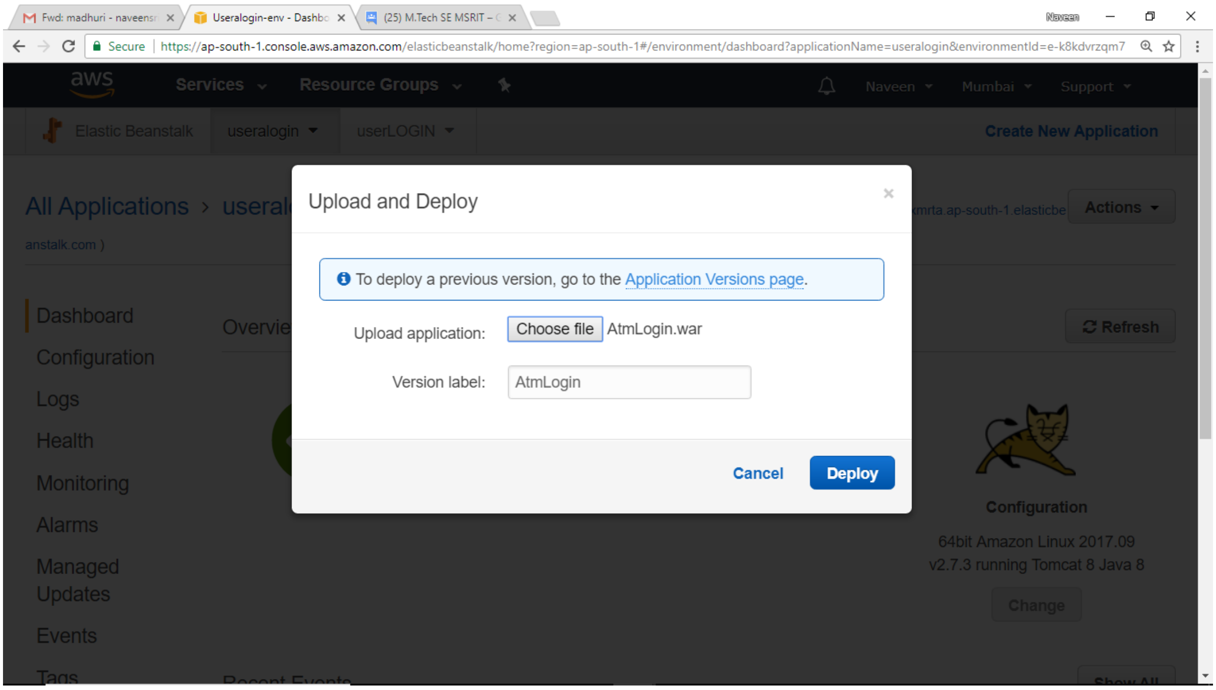
This PC > Documents > NetBeansProjects > AtmLogin > dist

Name	Date modified	Type	Size
AtmLogin.war	1/10/2018 4:20 AM	WAR File	12 KB

File name:

All Files

Step 10 : Choosing java .war file.



Upload and Deploy

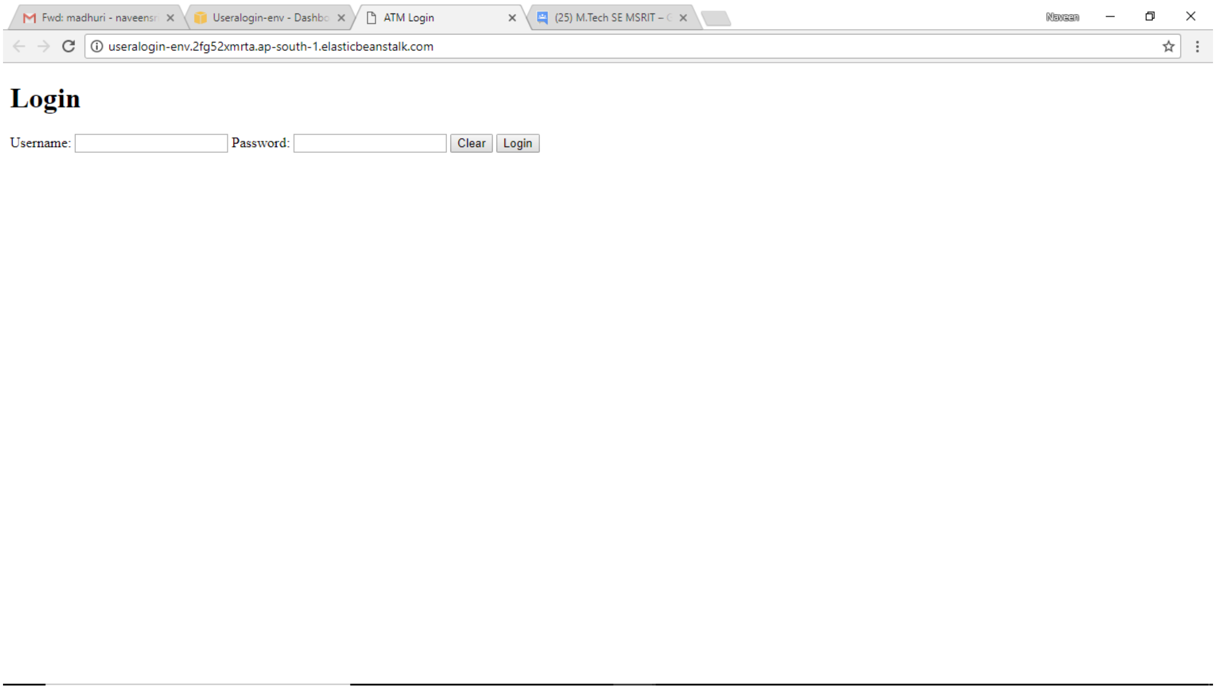
To deploy a previous version, go to the Application Versions page.

Upload application: Choose file AtmLogin.war

Version label: AtmLogin

Cancel Deploy

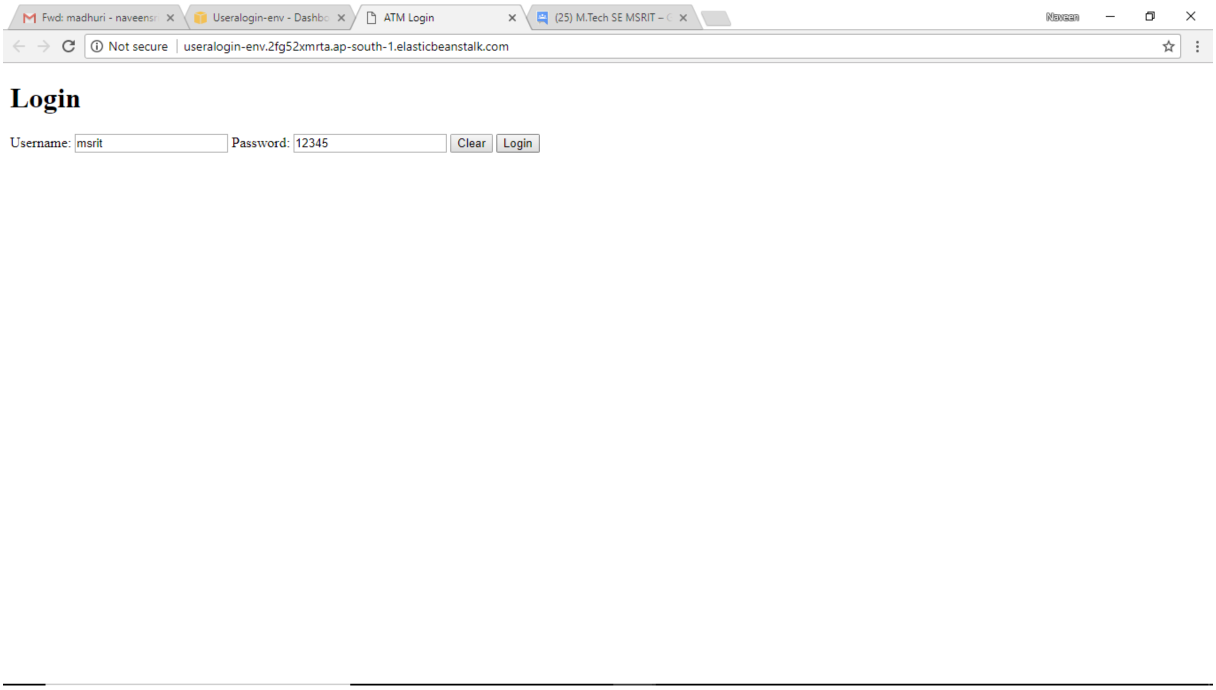
Step 11: Deployed file .



Login

Username: Password: Clear Login

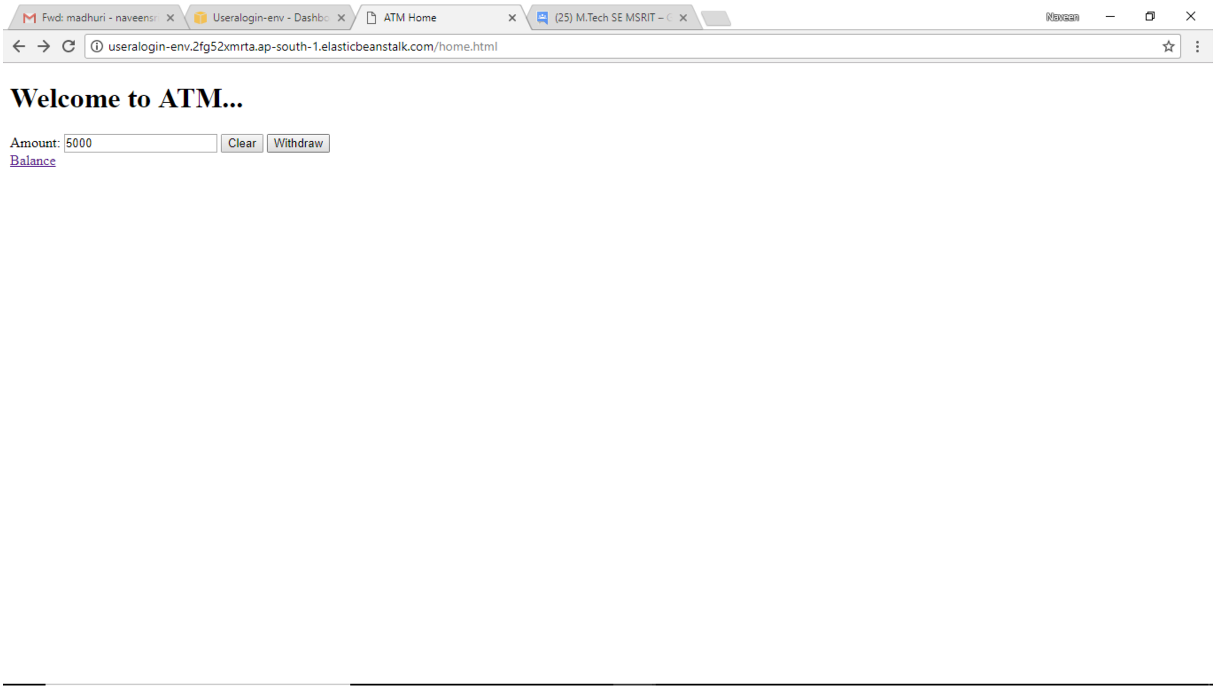
Step 12: User login screen.



Login

Username: msrit Password: 12345

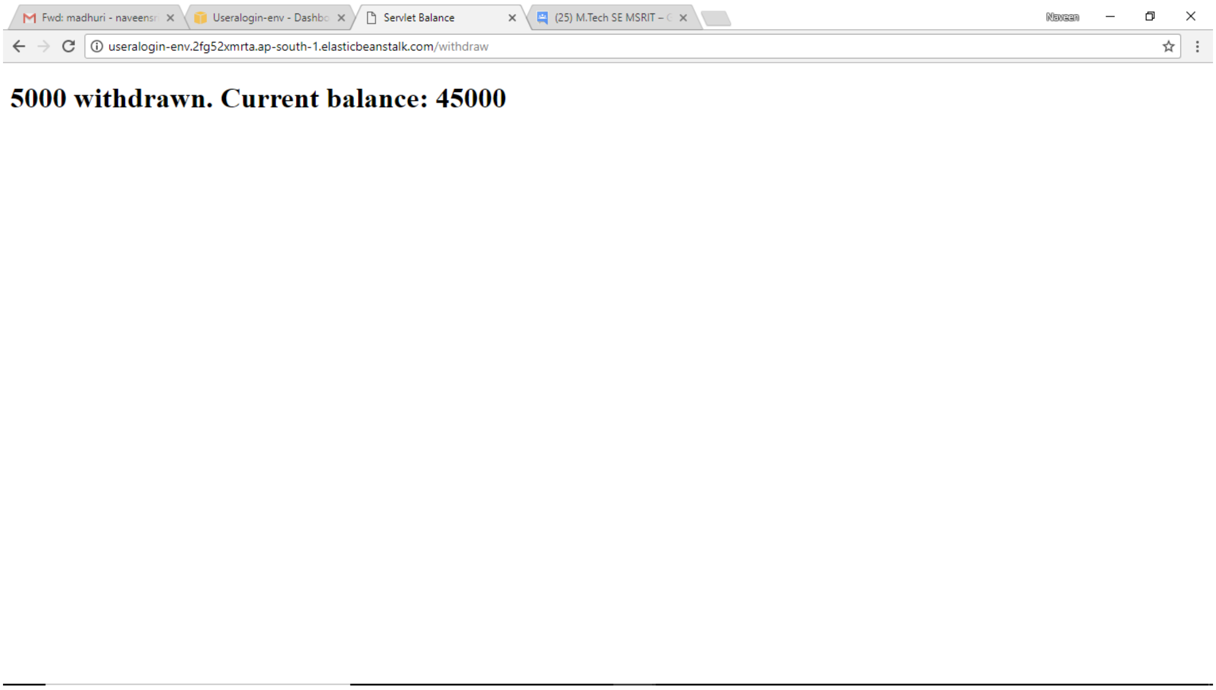
Step 13: Login credentials.



Welcome to ATM...

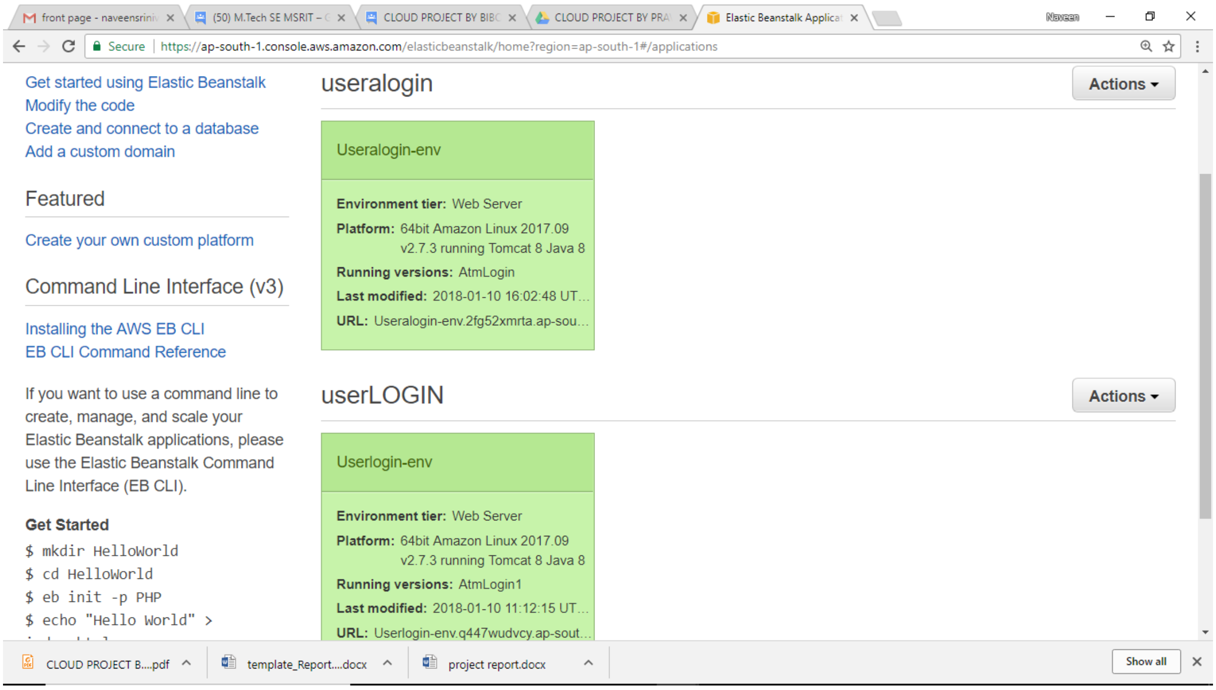
Amount: 5000

Step 14 : Private ATM screen.



5000 withdrawn. Current balance: 45000

Step 15: ATM Working Environment.



If you want to use a command line to create, manage, and scale your Elastic Beanstalk applications, please use the Elastic Beanstalk Command Line Interface (EB CLI).

Get Started

```
$ mkdir HelloWorld
$ cd HelloWorld
$ eb init -p PHP
$ echo "Hello World" >
```

Useralogin-env

Environment tier: Web Server
Platform: 64bit Amazon Linux 2017.09 v2.7.3 running Tomcat 8 Java 8
Running versions: AtmLogin
Last modified: 2018-01-10 16:02:48 UT...
URL: Useralogin-env.2fg52xmrta.ap-sou...

Userlogin-env

Environment tier: Web Server
Platform: 64bit Amazon Linux 2017.09 v2.7.3 running Tomcat 8 Java 8
Running versions: AtmLogin1
Last modified: 2018-01-10 11:12:15 UT...
URL: Userlogin-env.q447wudvcy.ap-sout...

Step 16 : Different environments.

Conclusion

We use beanstalk for reducing the work load from one process. It allocates the single task to different threads. In our project we are loading three different servlets.

Loading different servlets by a single thread takes a huge amount of time, hence we use elastic beanstalk to load different servlets.