

## Usecase-1

### Problem Statement:

Build and Deploy the Java application on AWS using manual Process.

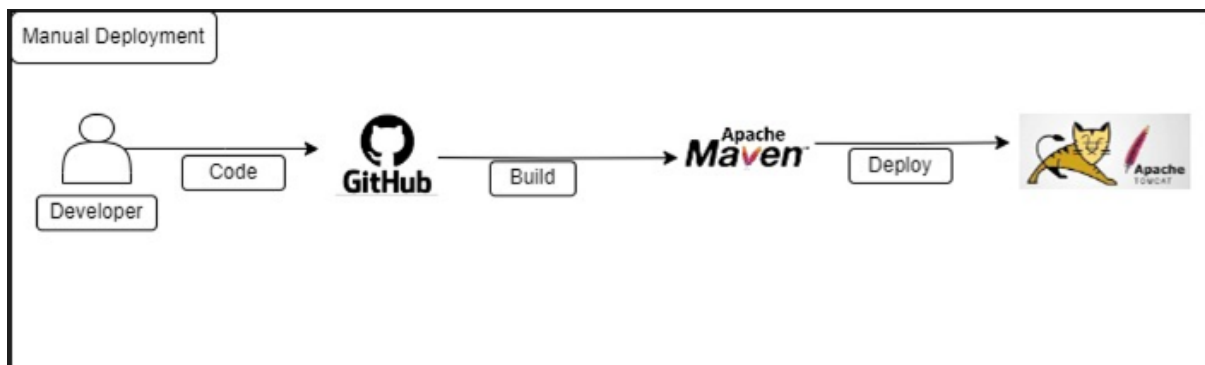
### Use case Understanding:

Create an EC2 instance with Proper resource tagging and in that server clone the GitHub repo and build the package file using Maven Software and once war file is created copy the war file into the Tomcat webapps directory to accept the requests form internet.

### Pre-requisites:

- 1)AWS Account with Administrator Access
- 2)Git, Maven and Apache Tomcat Software's

Architecture Diagrams:



### Problem Statement:

Build and Deploy the Java application on AWS using manual Process.

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Implementation Plan:

Security Group Creation:

Create security group [Info](#)

A security group acts as a virtual firewall for your instance to control inbound and outbound traffic. To create a new security group, complete the fields below.

Basic details

Security group name [Info](#)

Manual-Project-SG

Name cannot be edited after creation.

Description [Info](#)

This Security Group is created for enable the communication from SSH and Tomcat Web UI

VPC [Info](#)

vpc-04733b20fc164e942

Inbound rules:

Inbound rules [Info](#)

Type <a href="#">Info</a>	Protocol <a href="#">Info</a>	Port range <a href="#">Info</a>	Source <a href="#">Info</a>	Description - optional <a href="#">Info</a>
SSH	TCP	22	An... <div>0.0.0.0/0</div>	<div>Delete</div>
Custom TCP	TCP	8080	An... <div>0.0.0.0/0</div>	<div>Delete</div>
<div>Add rule</div>				

Outbound rules:

Outbound rules [Info](#)

Type <a href="#">Info</a>	Protocol <a href="#">Info</a>	Port range <a href="#">Info</a>	Destination <a href="#">Info</a>	Description - optional <a href="#">Info</a>
All traffic	All	All	Cu... <div>0.0.0.0/0</div>	<div>Delete</div>
<div>Add rule</div>				

Tags:

### Tags - optional

A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.

Key	Value - optional	
<input type="text" value="Name"/>	<input type="text" value="Manual-Project-SG"/>	<input type="button" value="Remove"/>
<input type="text" value="LOB"/>	<input type="text" value="DCS (Digital and Cloud Solution)"/>	<input type="button" value="Remove"/>
<input type="text" value="Account Name"/>	<input type="text" value="BO (Back Office)"/>	<input type="button" value="Remove"/>
<input type="text" value="Project Name"/>	<input type="text" value="DevOps-Core-Practice-Team"/>	<input type="button" value="Remove"/>
<input type="text" value="Creator"/>	<input type="text" value="Siva Kumar"/>	<input type="button" value="Remove"/>

## EC2 Creation:

### Instance Name & Tags:

Key	<a href="#">Info</a>	Value	<a href="#">Info</a>	Resource types	<a href="#">Info</a>	
<input type="text" value="Name"/>	<input type="button" value="X"/>	<input type="text" value="Tomcat-Server"/>	<input type="button" value="X"/>	<input type="text" value="Select resource ty..."/>	<input type="button" value="▼"/>	<input type="button" value="Remove"/>
				<input type="text" value="Instances"/>	<input type="button" value="X"/>	

---

Key	<a href="#">Info</a>	Value	<a href="#">Info</a>	Resource types	<a href="#">Info</a>	
<input type="text" value="LOB"/>	<input type="button" value="X"/>	<input type="text" value="DCS (Digital and"/>	<input type="button" value="X"/>	<input type="text" value="Select resource ty..."/>	<input type="button" value="▼"/>	<input type="button" value="Remove"/>
				<input type="text" value="Instances"/>	<input type="button" value="X"/>	

---

Key	<a href="#">Info</a>	Value	<a href="#">Info</a>	Resource types	<a href="#">Info</a>	
<input type="text" value="Account Name"/>	<input type="button" value="X"/>	<input type="text" value="BO (Back Office)"/>	<input type="button" value="X"/>	<input type="text" value="Select resource ty..."/>	<input type="button" value="▼"/>	<input type="button" value="Remove"/>
				<input type="text" value="Instances"/>	<input type="button" value="X"/>	

---

Key	<a href="#">Info</a>	Value	<a href="#">Info</a>	Resource types	<a href="#">Info</a>	
<input type="text" value="Project Name"/>	<input type="button" value="X"/>	<input type="text" value="DevOps-Core-Pr"/>	<input type="button" value="X"/>	<input type="text" value="Select resource ty..."/>	<input type="button" value="▼"/>	<input type="button" value="Remove"/>
				<input type="text" value="Instances"/>	<input type="button" value="X"/>	

---

Key	<a href="#">Info</a>	Value	<a href="#">Info</a>	Resource types	<a href="#">Info</a>	
<input type="text" value="Creator"/>	<input type="button" value="X"/>	<input type="text" value="Siva Kumar"/>	<input type="button" value="X"/>	<input type="text" value="Select resource ty..."/>	<input type="button" value="▼"/>	<input type="button" value="Remove"/>
				<input type="text" value="Instances"/>	<input type="button" value="X"/>	

### AMI:

▼ Application and OS Images (Amazon Machine Image) Info

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below

Q Search our full catalog including 1000s of application and OS images

Quick Start

Amazon Linux

aws

macOS

Mac

Ubuntu

ubuntu

Windows

Microsoft

Red Hat

Red Hat

SUSE Li

SUSE

Browse more AMIs

Including AMIs from AWS, Marketplace and the Community

Amazon Machine Image (AMI)

Amazon Linux 2 AMI (HVM) - Kernel 5.10, SSD Volume Type

ami-07761f3ae34c4478d (64-bit (x86)) / ami-06723030fbc3cb75 (64-bit (Arm))

Virtualization: hvm    ENA enabled: true    Root device type: ebs

Free tier eligible

Description

Amazon Linux 2 Kernel 5.10 AMI 2.0.20240223.0 x86\_64 HVM gp2

Number of instances Info

1

Software Image (AMI)

Amazon Linux 2 Kernel 5.10 AMI...read more

ami-07761f3ae34c4478d

Virtual server type (instance type)

t2.micro

Firewall (security group)

Manual-Project-SG

Storage (volumes)

1 volume(s) - 8 GiB

Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable)

Cancel

Launch instance

Review commands

## Network Setting:

▼ Network settings Info

Edit

Network Info

vpc-04733b20fc164e942

Subnet Info

No preference (Default subnet in any availability zone)

Auto-assign public IP Info

Enable

Firewall (security groups) Info

A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.

Create security group

Select existing security group

Common security groups Info

Select security groups

Manual-Project-SG sg-0dd50213790d53cfd X

VPC: vpc-04733b20fc164e942

Compare security group rules

Security groups that you add or remove here will be added to or removed from all your network interfaces.

## Instance Type:

▼ Instance type Info | Get advice

Instance type

t2.micro

Family: t2 1 vCPU 1 GiB Memory Current generation: true

On-Demand Windows base pricing: 0.0162 USD per Hour

On-Demand SUSE base pricing: 0.0116 USD per Hour

On-Demand RHEL base pricing: 0.0716 USD per Hour

On-Demand Linux base pricing: 0.0116 USD per Hour

Free tier eligible

☐ All generations

Compare instance types

Additional costs apply for AMIs with pre-installed software

## Key Pair:

Created pem key for this use case.

▼ Key pair (login) Info

You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.

Key pair name - required

Manual-Project ▼

Create new key pair

## Storage:

▼ Configure storage Info Advanced

1x 8 GiB gp2 ▼

Root volume (Not encrypted)

Free tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage

Add new volume

Click refresh to view backup information

The tags that you assign determine whether the instance will be backed up by any Data Lifecycle Manager policies.

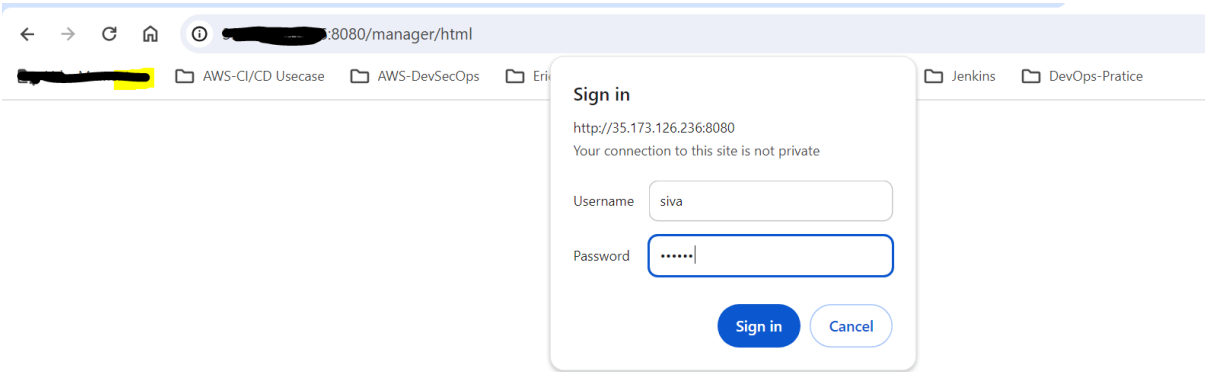
0 x File systems

Edit

## GitHub Repo

Clone the repo from GitHub “<https://github.com/sivakumar1204/myweb.git>”

Tomcat User Credential's page:

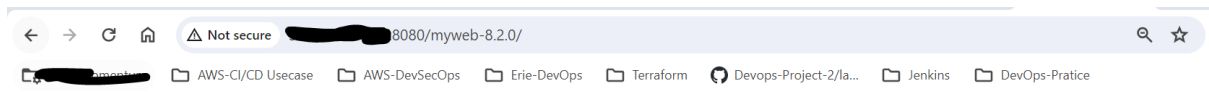


Tomcat Web Application Manager					
Message:		OK			
Manager					
<a href="#">List Applications</a>		<a href="#">HTML Manager Help</a>		<a href="#">Manager Help</a>	
				<a href="#">Server Status</a>	
Applications					
Path	Version	Display Name	Running	Sessions	Commands
/	None specified	Welcome to Tomcat	true	0	<div>Start Stop Reload Undeploy</div> <div>Expire sessions with idle ≥ 30 minutes</div>
/docs	None specified	Tomcat Documentation	true	0	<div>Start Stop Reload Undeploy</div> <div>Expire sessions with idle ≥ 30 minutes</div>
/examples	None specified	Servlet and JSP Examples	true	0	<div>Start Stop Reload Undeploy</div> <div>Expire sessions with idle ≥ 30 minutes</div>
/host-manager	None specified	Tomcat Host Manager Application	true	0	<div>Start Stop Reload Undeploy</div> <div>Expire sessions with idle ≥ 30 minutes</div>
/manager	None specified	Tomcat Manager Application	true	1	<div>Start Stop Reload Undeploy</div> <div>Expire sessions with idle ≥ 30 minutes</div>

After war file copy to the tomcat destination folder

Tomcat Web Application Manager					
Message:		OK			
Manager					
<a href="#">List Applications</a>		<a href="#">HTML Manager Help</a>		<a href="#">Manager Help</a>	
				<a href="#">Server Status</a>	
Applications					
Path	Version	Display Name	Running	Sessions	Commands
/	None specified	Welcome to Tomcat	true	0	<div>Start <input type="button" value="Stop"/> <input type="button" value="Reload"/> <input type="button" value="Undeploy"/></div> <div><input type="button" value="Expire sessions"/> with idle ≥ <input type="text" value="30"/> minutes</div>
/docs	None specified	Tomcat Documentation	true	0	<div>Start <input type="button" value="Stop"/> <input type="button" value="Reload"/> <input type="button" value="Undeploy"/></div> <div><input type="button" value="Expire sessions"/> with idle ≥ <input type="text" value="30"/> minutes</div>
/examples	None specified	Servlet and JSP Examples	true	0	<div>Start <input type="button" value="Stop"/> <input type="button" value="Reload"/> <input type="button" value="Undeploy"/></div> <div><input type="button" value="Expire sessions"/> with idle ≥ <input type="text" value="30"/> minutes</div>
/host-manager	None specified	Tomcat Host Manager Application	true	0	<div>Start <input type="button" value="Stop"/> <input type="button" value="Reload"/> <input type="button" value="Undeploy"/></div> <div><input type="button" value="Expire sessions"/> with idle ≥ <input type="text" value="30"/> minutes</div>
/manager	None specified	Tomcat Manager Application	true	1	<div>Start <input type="button" value="Stop"/> <input type="button" value="Reload"/> <input type="button" value="Undeploy"/></div> <div><input type="button" value="Expire sessions"/> with idle ≥ <input type="text" value="30"/> minutes</div>
/myweb-8.2.0	None specified	Archetype Created Web Application	true	0	<div>Start <input type="button" value="Stop"/> <input type="button" value="Reload"/> <input type="button" value="Undeploy"/></div> <div><input type="button" value="Expire sessions"/> with idle ≥ <input type="text" value="30"/> minutes</div>

Output



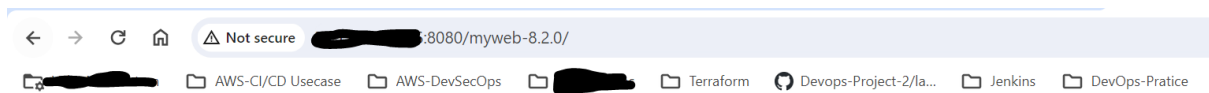
## Welcome to Devops Learning

Now We will modify the index file and test whether the required changes are appended in UI or not.

Index.jsp:

```
[ec2-user@ip-... webapp]$ cat index.jsp
<html>
<body>
  <h1 style="color: yellow; font-size: 40px;" align="center"> Welcome to Devops Self Learning </h1>
  <h2 style="color: red; font-size: 40px;" align="center"> Its an Manual Deployment </h2>
  <h3 style="color: green; font-size: 40px;" align="center"> Created by Siva Kumar </h3>
</body>
</html>
[ec2-user@ip-... webapp]$
```

After change the index.jsp file and build the war file and copied to the tomcat deployment directory out put would be like this.



Welcome to Devops Self Learning

Its an Manual Deployment

Created by Siva Kumar

Output History:

```
#history
```

```
sudo yum install git -y
```

```
git --version
```

```
sudo yum install -y maven
```

```
mvn --version
```

```
sudo wget https://dlcdn.apache.org/tomcat/tomcat-9/v9.0.86/bin/apache-tomcat-9.0.86.tar.gz
```

```
tar -xvzf apache-tomcat-9.0.86.tar.gz
```

```
sudo amazon-linux-extras install java-openjdk11 -y
```

```
java --version
```

```
sudo alternatives --config java
```

```
java --version
```

```
sudo yum install -y java-1.8.0-openjdk-devel -y
```

```
sudo alternatives --config javac
```

```
javac -version
```

```
git clone https://github.com/sivakumar1204/myweb.git
```

```
cd myweb/
```

```
mvn clean install
```

```
cd target/
```

```
cp myweb-8.2.0.war /home/ec2-user/apache-tomcat-9.0.86/webapps/
```

```
cd /home/ec2-user/apache-tomcat-9.0.86/webapps
```

```
cd /home/ec2-user/apache-tomcat-9.0.86/
```

```
cd bin/
```

```
./shutdown.sh
```

```
./startup.sh
```

```
+++++
```

```
Modify the index.jsp file
```

```
+++++
```

```
cd /home/ec2-user/myweb/src/main/webapp/
```

```
cat index.jsp
```



```
cd /home/ec2-user/myweb/
```

```
mvn clean install
```

```
cp myweb-8.2.0.war /home/ec2-user/apache-tomcat-9.0.86/webapps/
```

```
cd /home/ec2-user/apache-tomcat-9.0.86/webapps
```

```
cd /home/ec2-user/apache-tomcat-9.0.86/
```

```
cd bin/
```

```
./shutdown.sh
```

```
./startup.sh
```