

Hello i am Shubham Shinde

Today, we are going to learn how to host a web application using a Tomcat server.



Apache Tomcat®

We need to create an RDS database in AWS.

- Database Setup:
- Verify Ports:
 - Ensure that port 3306 (used by MariaDB) is open.
 - Ensure that port 8080 (used for web applications) is open.
- Select Database Type:
 - Choose mariadb-server as your database engine.
- Determine Usage:
 - Specify whether the database is for testing or production purposes.
 - Note Credentials:
 - Write down the database ID and password for future reference.

Start an EC2 instance using CentOS 7 as the operating system.

- Ensure that the security group associated with your EC2 instance allows the following port
- 8080` (for web applications)
- 22 (for SSH access)
- 3306 (for MariaDB or MySQL)
- than we have to download the java*
- and after that we have to install the tomcate and cheack its
- `http://<EC2_IP>:8080` in your web browser.
- than we have to download
- Place the JAR file in the `lib directory` of the Tomcat installation.
- Place the WAR file in the `webapps directory` of the Tomcat installation.
- Edit the ``context.xml`` file located in the ``conf`` directory of your Tomcat installation.
- Add the RDS database `username` and `password` to the ``context.xml`` file for database connectivity.

Then, we need to edit the context.xml file located in the conf directory using vim. Add the RDS database username and password to the file

- `<Resource name="jdbc/TestDB" auth="Container" type="javax.sql.DataSource"`
- `maxTotal="500" maxIdle="30" maxWaitMillis="1000"`
- `username="admin" password="12345678"`
- `driverClassName="com.mysql.jdbc.Driver"`
- `url="jdbc:mysql://database-1.cych2fakapj7.useast-2.rds.amazonaws.com:3306/studentapp"/>`

we have to create database i done on maria db and i was use that easy mode in that we have to add user name and passwd.

aws

Services

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N. Virginia

shubham shinde

☐ Standard create

You set all of the configuration options, including ones for availability, security, backups, and maintenance.


☒ Easy create

Use recommended best-practice configurations. Some configuration options can be changed after the database is created.


Configuration

Engine type [Info](#)


☐ Aurora (MySQL Compatible)




☐ Aurora (PostgreSQL Compatible)




☐ MySQL




☒ MariaDB



☐ PostgreSQL



☐ Oracle



MariaDB

MariaDB Community Edition is a MySQL-compatible database with strong support from the open source community, and extra features and performance optimizations.

- Supports database size up to 64 TiB.
- Supports General Purpose, Memory Optimized, and Burstable Performance instance classes.
- Supports automated backup and point-in-time recovery.
- Supports up to 15 Read Replicas per instance, within a single Region or 5 read replicas cross-region.

we have to install all java versoin of java java*

```
[ec2-user@ip-172-31-93-71 ~]$ sudo -i
[root@ip-172-31-93-71 ~]# yum update
Last metadata expiration check: 0:00:51 ago on Thu Feb 29 03:31:26 2024.
Dependencies resolved.
Nothing to do.
Complete!
[root@ip-172-31-93-71 ~]# upgrade
-bash: upgrade: command not found
[root@ip-172-31-93-71 ~]# upgrad
-bash: upgrad: command not found
[root@ip-172-31-93-71 ~]#
[root@ip-172-31-93-71 ~]# sodu -i
-bash: sodu: command not found
[root@ip-172-31-93-71 ~]#
[root@ip-172-31-93-71 ~]# yum install java* -y
Last metadata expiration check: 0:01:46 ago on Thu Feb 29 03:31:26 2024.
Dependencies resolved.
```

Package	Architecture	Version	Repository	Size
Installing:				
java-1.8.0-amazon-corretto	x86_64	1:1.8.0_402.b08-1.amzn2023	amazonlinux	38 M
java-1.8.0-amazon-corretto-devel	x86_64	1:1.8.0_402.b08-1.amzn2023	amazonlinux	63 M
java-11-amazon-corretto	x86_64	1:11.0.22+7-1.amzn2023	amazonlinux	198 k
java-11-amazon-corretto-devel	x86_64	1:11.0.22+7-1.amzn2023	amazonlinux	211 k
java-11-amazon-corretto-javadoc	x86_64	1:11.0.22+7-1.amzn2023	amazonlinux	13 M
java-11-amazon-corretto-jmods	x86_64	1:11.0.22+7-1.amzn2023	amazonlinux	71 M
java-17-amazon-corretto	x86_64	1:17.0.10+8-1.amzn2023.1	amazonlinux	187 k
java-17-amazon-corretto-javadoc	x86_64	1:17.0.10+8-1.amzn2023.1	amazonlinux	12 M

we have to download tomcat version 8.5. from that tomcate website and untar this

```
Complete!
[root@ip-172-31-93-71 ~]# curl -O https://dlcdn.apache.org/tomcat/tomcat-8/v8.5.99/bin/apache-tomcat-8.5.99.tar.gz
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left   Speed
100 10.3M  100 10.3M    0     0  8655k      0  0:00:01  0:00:01 --:--:-- 8656k
[root@ip-172-31-93-71 ~]# ls
apache-tomcat-8.5.99.tar.gz
[root@ip-172-31-93-71 ~]# mv apache-tomcat-8.5.99.tar.gz /opt
[root@ip-172-31-93-71 ~]# cd /opt
[root@ip-172-31-93-71 opt]# ls
apache-tomcat-8.5.99.tar.gz  aws
[root@ip-172-31-93-71 opt]# tar -vxzf apache-tomcat-8.5.99.tar.gz
apache-tomcat-8.5.99/conf/
apache-tomcat-8.5.99/conf/catalina.policy
apache-tomcat-8.5.99/conf/catalina.properties
apache-tomcat-8.5.99/conf/context.xml
apache-tomcat-8.5.99/conf/jaspic-providers.xml
apache-tomcat-8.5.99/conf/jaspic-providers.xsd
apache-tomcat-8.5.99/conf/logging.properties
apache-tomcat-8.5.99/conf/server.xml
apache-tomcat-8.5.99/conf/tomcat-users.xml
apache-tomcat-8.5.99/conf/tomcat-users.xsd
apache-tomcat-8.5.99/conf/web.xml
apache-tomcat-8.5.99/bin/
apache-tomcat-8.5.99/lib/
```


we have to install full mariadb*

```
[root@ip-172-31-93-71 webapps]# curl -O https://s3-us-west-2.amazonaws.com/studentapi-cit/student.war
```

% Total	% Received	% Xferd	Average Speed	Time	Time	Time	Current
			Dload Upload	Total	Spent	Left	Speed
100	89423	100 89423	0 0	206k	0	--:--:-- --:--:-- --:--:--	206k

```
[root@ip-172-31-93-71 webapps]# ls
```

```
ROOT docs examples host-manager manager student.war
```

```
[root@ip-172-31-93-71 webapps]# yum install mariadb*
```

```
Last metadata expiration check: 0:20:51 ago on Thu Feb 29 03:31:26 2024.
```

```
Dependencies resolved.
```

Package	Architecture	Version	Repository	Size
Installing:				
mariadb-connector-c	x86_64	3.1.13-1.amzn2023.0.3	amazonlinux	196 k
mariadb-connector-c-config	noarch	3.1.13-1.amzn2023.0.3	amazonlinux	9.2 k
mariadb-connector-c-devel	x86_64	3.1.13-1.amzn2023.0.3	amazonlinux	53 k
mariadb-connector-c-test	x86_64	3.1.13-1.amzn2023.0.3	amazonlinux	904 k

we have to check that status and then do active this

bye

```
[root@ip-172-31-93-71 ~]# sudo systemctl status mariadb
```

```
○ mariadb.service - MariaDB 10.5 database server
```

```
Loaded: loaded (/usr/lib/systemd/system/mariadb.service; disabled; preset: disabled)
```

```
Active: inactive (dead)
```

```
Docs: man:mariadb(8)
```

```
https://mariadb.com/kb/en/library/systemd/
```

```
[root@ip-172-31-93-71 ~]# systemctl start mariadb
```

```
[root@ip-172-31-93-71 ~]# sudo systemctl status mariadb
```

```
● mariadb.service - MariaDB 10.5 database server
```

```
Loaded: loaded (/usr/lib/systemd/system/mariadb.service; disabled; preset: disabled)
```

```
Active: active (running) since Thu 2024-02-29 04:13:39 UTC; 3s ago
```

```
Docs: man:mariadb(8)
```

```
https://mariadb.com/kb/en/library/systemd/
```

```
Process: 31571 ExecStartPre=/usr/libexec/mariadb-check-socket (code=exited, status=0/SUCCESS)
```

```
Process: 31608 ExecStartPre=/usr/libexec/mariadb-prepare-db-dir mariadb.service (code=exited, status=0/SUCCESS)
```

```
Process: 31793 ExecStartPost=/usr/libexec/mariadb-check-upgrade (code=exited, status=0/SUCCESS)
```

```
Main PID: 31742 (mariabdb)
```

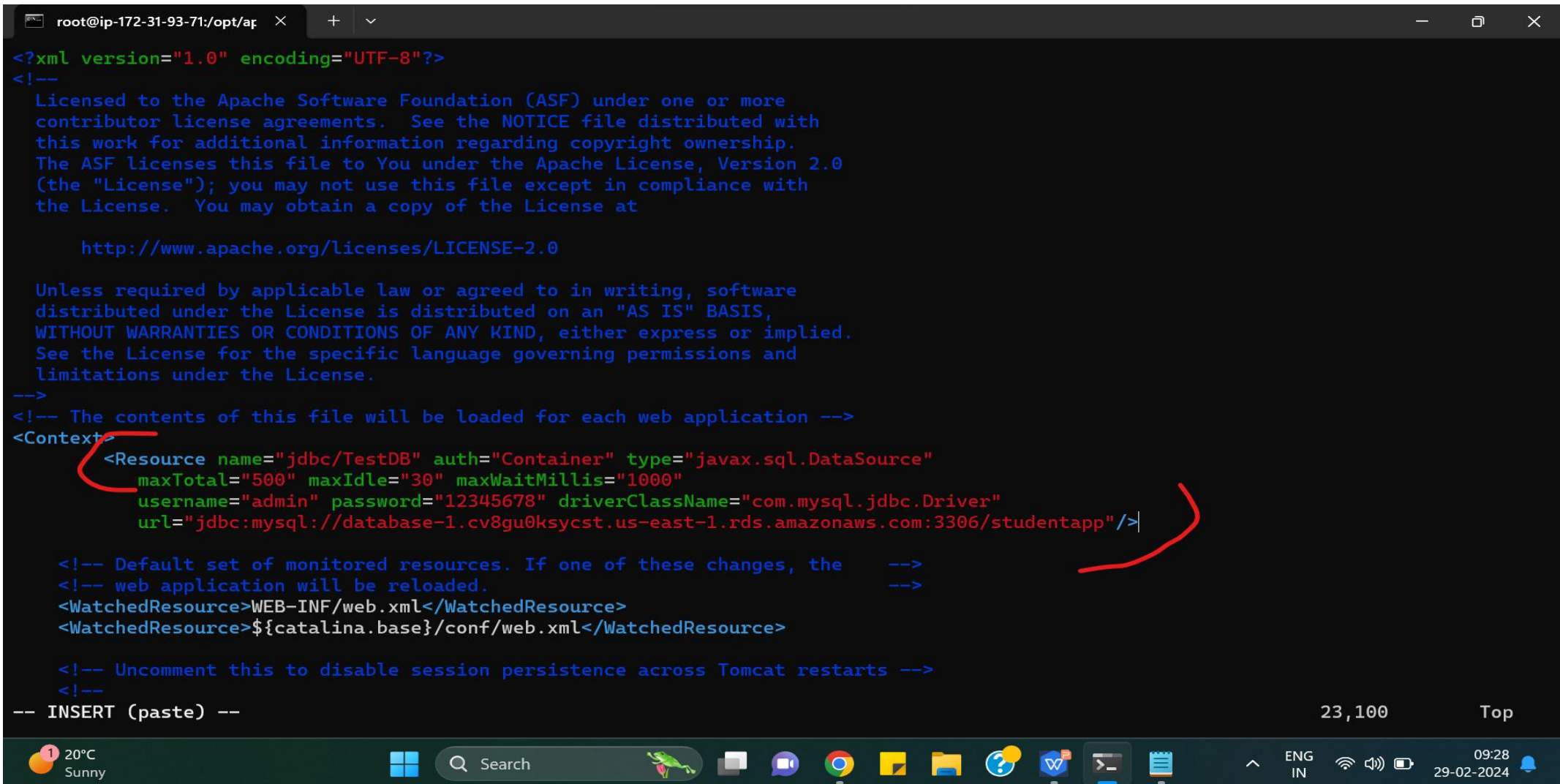
```
Status: "Taking your SQL requests now..."
```

```
Tasks: 20 (limit: 1114)
```

we have to(download jar file in lib) and we have to (download war file in webapps) lib and webapp file present in tomcate dorectory

```
[root@ip-172-31-93-71 apache-tomcat-8.5.99]# ls
BUILDING.txt  CONTRIBUTING.md  LICENSE  NOTICE  README.md  RELEASE-NOTES  RUNNING.txt  bin  conf  lib  logs  temp  webapps  work
[root@ip-172-31-93-71 apache-tomcat-8.5.99]# cd lib
[root@ip-172-31-93-71 lib]# curl -O https://s3-us-west-2.amazonaws.com/studentapi-cit/student.war/mysql-connector.jar
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left   Speed
100  302    0  302    0    0   1357      0 --:--:-- --:--:-- --:--:-- 1360
[root@ip-172-31-93-71 lib]# cd we
-bash: cd: we: No such file or directory
[root@ip-172-31-93-71 lib]# cd ..
[root@ip-172-31-93-71 apache-tomcat-8.5.99]# ls
BUILDING.txt  CONTRIBUTING.md  LICENSE  NOTICE  README.md  RELEASE-NOTES  RUNNING.txt  bin  conf  lib  logs  temp  webapps  work
[root@ip-172-31-93-71 apache-tomcat-8.5.99]# ls
BUILDING.txt  CONTRIBUTING.md  LICENSE  NOTICE  README.md  RELEASE-NOTES  RUNNING.txt  bin  conf  lib  logs  temp  webapps  work
[root@ip-172-31-93-71 apache-tomcat-8.5.99]# cd webapps/
[root@ip-172-31-93-71 webapps]# curl -O https://s3-us-west-2.amazonaws.com/studentapi-cit/student.war
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left   Speed
100 89423  100 89423    0    0  206k      0 --:--:-- --:--:-- --:--:-- 206k
[root@ip-172-31-93-71 webapps]#
```

we have to add that all data in vim /conf/context.sh



```
<?xml version="1.0" encoding="UTF-8"?>
<!--
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contributor license agreements. See the NOTICE file distributed with
this work for additional information regarding copyright ownership.
The ASF licenses this file to You under the Apache License, Version 2.0
(the "License"); you may not use this file except in compliance with
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    http://www.apache.org/licenses/LICENSE-2.0

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distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
-->
<!-- The contents of this file will be loaded for each web application -->
<Context>
  <Resource name="jdbc/TestDB" auth="Container" type="javax.sql.DataSource"
    maxTotal="500" maxIdle="30" maxWaitMillis="1000"
    username="admin" password="12345678" driverClassName="com.mysql.jdbc.Driver"
    url="jdbc:mysql://database-1.cv8gu0ksycst.us-east-1.rds.amazonaws.com:3306/studentapp"/>

  <!-- Default set of monitored resources. If one of these changes, the
  <!-- web application will be reloaded.
  <WatchedResource>WEB-INF/web.xml</WatchedResource>
  <WatchedResource>${catalina.base}/conf/web.xml</WatchedResource>

  <!-- Uncomment this to disable session persistence across Tomcat restarts -->
  <!--
-- INSERT (paste) --
```

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Search

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09:28 29-02-2024

we have add that student data in mariadb for that command is `mysql -h dadabase link -u username -p passwd`

```
[root@ip-172-31-29-165 ~]# mysql -h data-shub.cv8gu0ksycst.us-east-1.rds.amazonaws.com -u admin -p123456789
ERROR 1045 (28000): Access denied for user 'admin'@'172.31.29.165' (using password: YES)
[root@ip-172-31-29-165 ~]# mysql -h data-shub.cv8gu0ksycst.us-east-1.rds.amazonaws.com -u admin -p12345678
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 169
Server version: 10.11.6-MariaDB-log managed by https://aws.amazon.com/rds/

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MariaDB [(none)]> show database
-> );
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MariaDB server version for the right syntax to use near 'database
)' at line 1
MariaDB [(none)]> show databases;
+-----+
| Database |
+-----+
| information_schema |
| innodb |
| mysql |
| performance_schema |
| sys |
+-----+
5 rows in set (0.00 sec)

MariaDB [(none)]> create database studentapp;
Query OK, 1 row affected (0.00 sec)
```

Create a Database

- use studentapp;
- CREATE TABLE if not exists students(student_id INT NOT NULL AUTO_INCREMENT,
 - student_name VARCHAR(100) NOT NULL,
 - student_addr VARCHAR(100) NOT NULL,
 - student_age VARCHAR(3) NOT NULL,
 - student_qual VARCHAR(20) NOT NULL,
 - student_percent VARCHAR(10) NOT NULL,
 - student_year_passed VARCHAR(10) NOT NULL,
 - PRIMARY KEY (student_id)
-);

than we have to create a new data base for that command is **create database** **name of file which you want to create and ;** for running any command we have to add **;**

```
+-----+
5 rows in set (0.00 sec)

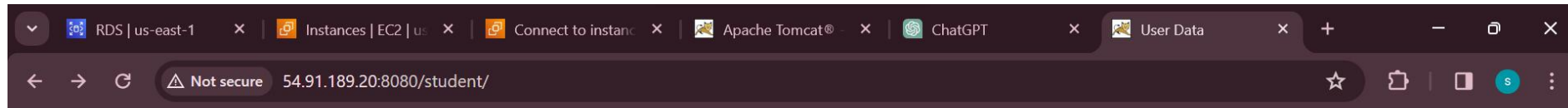
MariaDB [(none)]> create database studentapp;
Query OK, 1 row affected (0.00 sec)

MariaDB [(none)]> use studentapp;
Database changed
MariaDB [studentapp]> CREATE TABLE if not exists students(student_id INT NOT NULL AUTO_INCREMENT,
-> student_name VARCHAR(100) NOT NULL,
-> student_addr VARCHAR(100) NOT NULL,
-> student_age VARCHAR(3) NOT NULL,
-> student_qual VARCHAR(20) NOT NULL,
-> student_percent VARCHAR(10) NOT NULL,
-> student_year_passed VARCHAR(10) NOT NULL,
-> PRIMARY KEY (student_id)
-> );
Query OK, 0 rows affected (0.01 sec)

MariaDB [studentapp]> show tables;
+-----+
| Tables_in_studentapp |
+-----+
| students              |
+-----+
1 row in set (0.00 sec)

MariaDB [studentapp]> exit
Bye
[root@ip-172-31-29-165 ~]# cd /opt/apache-tomcat-8.5.99
[root@ip-172-31-29-165 apache-tomcat-8.5.99]# ls
bin  BUILDING.txt  conf  CONTRIBUTING.md  lib  LICENSE  logs  NOTICE  README.md  RELEASE-NOTES  RUNNING.txt  temp  webapps  work
```


we have to search this on google
(ip/student/)



Student Registration Form

Student Name	<input type="text" value="shubham"/>
Student Address	<input type="text" value="pune"/>
Student Age	<input type="text" value="24"/>
Student Qualification	<input type="text" value="d"/>
Student Percentage	<input type="text" value="100"/>
Year Passed	<input type="text" value="2020"/>
<input type="button" value="register"/>	