**Users’ Guide for Contractor Web Application**

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# How to run the Contractor Web Application

## Option 1: Using Spring Tool Suite

Prerequisite:

* Install and configure Spring Tool Suite (STS) v 3.9.10 or later version – This can be downloaded from the <https://spring.io/tools>
* Install the node.js installed <https://nodejs.org/en/>
* Windows 10 or later
* Google chrome or any other browser
* Microsoft Visual Studio Code
* Java 8 EE JDK
* MySql 8 – root user has been configured with the following details
  + user: root
  + password: passw0rd
* Maven 3.6 or later

1. Copy the zip file (this contains two projects the back-end app *contractorweb* and front-end app - *cwebfrontend*) and extract to chosen directory.
2. cd to folder contractorweb
3. Run the MySql
4. Prepare and setup the Database **contractorDB** from MySql
   * Open the MySql using root user and Run the contractor.sql - This will prepare and setup the contractor database
   * Pre-populate the contractor table by running contractordata.sql
5. Open the project on STS by importing it as a maven project
6. Right click the project and select Run As, select Spring Boot App
7. Wait until the Web Container Service e.g. Apache Tomcat is started, as shown below
   * Text

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8. On command prompt go to directory of Front-end application *cwebfrontend* and type code . to open the Visual Studio Code
9. Open the terminal and run the succeeding commands below or copy and paste it to your terminal

**npm install**

**npm install react-router-dom**

**npm install bootstrap@5.2.0**

**npm install @mui/material**

**npm install bcrypt**

**npm install @mui/x-data-grid**

**npm install @emailjs/browser**

**npm install -g json-server**

**npm install @mui/icons-material**

**npm start**

1. Open another terminal in the same path, run below command to establish the REST data for SignIn

**node server/server.js**

1. Open another terminal in the same path, run below command to establish REST data for Services

**npx json-server --watch data/data.json --port 8000**

1. From your browser navigate to the web application and Sign In

## Option 2: Using the build project and Apache Tomcat

Prerequisite:

* Install the Maven 3.6 software or later
* Install the Apache Tomcat 8 or later version, this can be downloaded from https://tomcat.apache.org/download-80.cgi
* Install the node.js installed <https://nodejs.org/en/>
* Windows 10 or later
* Google chrome or any other browser
* Microsoft Visual Studio Code
* Java 8 EE JDK
* MySql 8 – root user has been configured with the following details
  + user: root
  + password: passw0rd

1. Copy the zip file (this contains two projects the back-end app *contractorweb* and front-end app - *cwebfrontend*) and extract to chosen directory.
2. cd to folder contractorweb
3. Run the MySql
4. Prepare and setup the Database **contractorDB** from MySql
   * Open the MySql using root user and Run the contractor.sql - This will prepare and setup the contractor database
   * Pre-populate the contractor table by running contractordata.sql
5. Build and create a war file by typing *mvn clean install* in the command prompt
   * Text

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* Text

  Description automatically generated

1. Rename contractorweb-0.0.1-SNAPSHOT.war file to contractorweb.war and copy the file into Apache Tomcat webapps folder
   * Example: C:\Program Files\Apache Software Foundation\Tomcat 8.5\webapps
2. Run the Tomcat Services from windows services
   * A picture containing application

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3. Access the back-end application from the browser using the URL <http://localhost:8080/contractorweb/index.html>
4. Access the front-end application by following the steps in Option 1 from steps #8 to steps #11

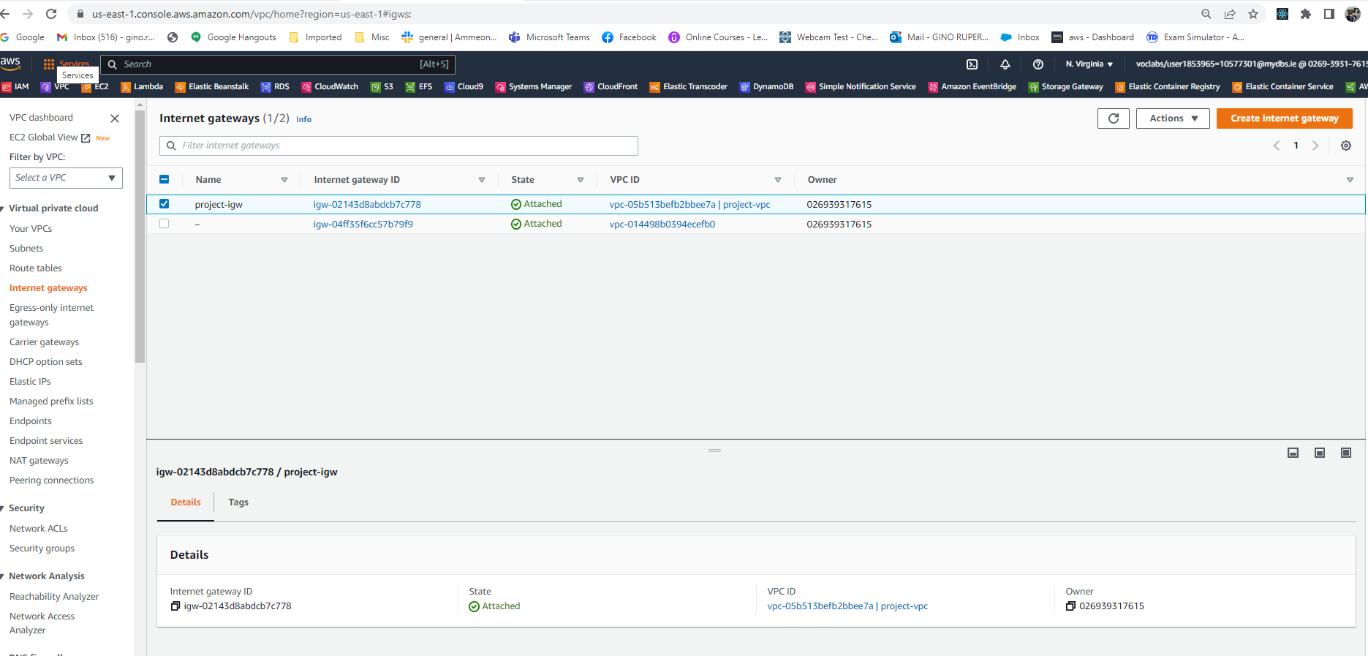
# Deploying the Application to AWS EC2 Instance

Prerequisite: AWS Account is setup, GitHub Account

1. Setup the VPC
2. Graphical user interface, text, application

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3. Configure the Security group
4. A screenshot of a computer

   Description automatically generated
5. Configure Route table of the public subnet
6. A screenshot of a computer

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7. Configure Internet Gateways
8. 
9. Create an EC2
10. Graphical user interface, text, application

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11. Configuration EC2 Network, Security , Storage
12. Text

    Description automatically generated with medium confidence
13. Graphical user interface, text, application, email

    Description automatically generated
14. Graphical user interface, text, application, email

    Description automatically generated
15. Install the node js
    * SSH to ec2 instance
    * Install node version manager (nvm)
      1. curl -o- https://raw.githubusercontent.com/nvm-sh/nvm/v0.34.0/install.sh | bash
    * Activate nvm by typing the following command
      1. . ~/.nvm/nvm.sh
    * nvm install 16
    * node -e "console.log('Running Node.js ' + process.version)"
16. Install the Apache Tomcat (OPTIONAL), you may follow the link below
    * <https://techviewleo.com/install-tomcat-on-amazon-linux/>
17. Install the Java JDK
    * ssh to ec2
    * sudo yum install java-1.8.0-openjdk
    * sudo alternatives –config java
18. Install the MariaDB
    * ssh to ec2
    * sudo yum update -y
    * #install mysql server type, sudo yum install -y mariadb-server
    * #start the mysql server type, sudo systemctl start mariadb
    * #enable mysql to start when system reboots type, sudo systemctl enable mariadb
    * #secure installation type, sudo mysql\_secure\_installation
    * Select “y” for all questions ask
    * #to start the mysql type, mysql -uroot -p;
    * #use the password : passw0rd
19. Install git and configure the token
    * #Perform a quick update on the system
    * sudo yum update -y
    * #Install git in your EC2 instance
    * sudo yum install git -y
    * #check git version
    * git version
    * On your git account, create a token from Settings->Developer Settings -> Personal access tokens
    * Select Generate new token
    * On the ec2 terminal, clone the repo and when ask for password use the generated token for further help refer to this link <https://medium.com/kanlanc/how-to-solve-githubs-password-authentication-removed-error-in-aws-ec2-bfbc79ad598b>
20. Upload the Front-End Application (use the git clone command)
    * git clone <https://github.com/ginoruperez/cwebfrontend.git>
21. After the repo has been cloned, switch to branch ***dev-aws***. Follow the steps on configuring the reactJS application or you may create a bash script that will run each of step in configuring the reactJS application e.g. deploy.sh. If you are using a free AMI EC2 1GB memory, you may stop some services below to free up some memory.
    * systemctl stop systemd-journald
    * systemctl stop amazon-ssm-agent
    * systemctl stop httpd (if was installed)
    * systemctl stop systemd-udevd
    * systemctl stop crond
22. Upload the Back-end application same as the front-end (runnable jar file and this requires at least 4GB memory)
    * git clone <https://github.com/ginoruperez/contractorweb.git>
23. On your browser access the website from <http://ec2-44-197-178-102.compute-1.amazonaws.com:3000/>

# References / Bibliography

* ‘Install node version manager’ Available at: <https://docs.aws.amazon.com/sdk-for-javascript/v2/developer-guide/setting-up-node-on-ec2-instance.html> (Accessed: 10-Dec- 2022).
* ‘nvm install 16’ Available at: <https://stackoverflow.com/questions/72022527/glibc-2-27-not-found-while-installing-node-on-amazon-ec2-instance> (Accessed: 11-Dec-2022)
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* ‘Install Apache Tomcat ‘ Available at <https://techviewleo.com/install-tomcat-on-amazon-linux/> (Accessed: 12-Dec-2022)
* ‘Install Git ‘ Available at <https://cloudaffaire.com/how-to-install-git-in-aws-ec2-instance/> (Accessed : 26-Dec-2022)
* ‘Generate Git hub token’ Available at <https://medium.com/kanlanc/how-to-solve-githubs-password-authentication-removed-error-in-aws-ec2-bfbc79ad598b>

and <https://docs.github.com/en/authentication/keeping-your-account-and-data-secure/creating-a-personal-access-token> (Accessed : 26-Dec-2022)