TECHNICAL INSTALLATION MANUAL

BMW IT HUB

COS 301 | University of Pretoria

FIRE-FIGHTER ACCESS MANAGEMENT PLATFORM

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1. Introduction

The Fire-Fighter system consists of two main components:

- **Frontend**: An Angular Ionic Capacitor application (located in **/FF-Angular**) that provides the user interface.

- **Backend**: A Maven Spring Boot application (located in **/FF-API**) that handles server-side logic and data processing.

This manual provides step-by-step instructions to install and run both components on **Ubuntu** and **Windows (WSL)**.

2. Prerequisites

Before installation, ensure the following software is installed:

For FF-Angular (Frontend)

Tool/Package	Version
Node.js (includes npm)	22.x
Angular CLI	17.x
Ionic CLI	7.x
Git	2.x
Capacitor CLI	5.x

For FF-API (Backend)

Tool/Package	Version
Java JDK	17.x
Maven	3.8.x
SDKMAN (Spring Boot CLI)	5.18.x

2.1 Linux / WSL Install (Ubuntu)

Install Node.js & npm

```
sudo apt update

curl -fsSL https://deb.nodesource.com/setup_22.x | sudo
-E bash -

sudo apt install -y nodejs
```

Verify installation:

```
node -v
npm -v
```

Install Angular, Ionic, and Capacitor CLI

```
npm install -g @angular/cli @ionic/cli @capacitor/cli
```

Install OpenJDK 17 & Maven

```
sudo apt update

sudo apt install -y openjdk-17-jdk maven
```

Verify installation:

```
java -version

mvn -v
```

Install SDKMAN (for Spring Boot CLI)

```
curl -s "https://get.sdkman.io" | bash

source "$HOME/.sdkman/bin/sdkman-init.sh"

sdk install springboot
```

Install Git

```
sudo apt update

sudo apt install git
```

Verify installation:

```
git --version
```

3. Installation

3.1 Setup

Clone the repository

```
git clone https://github.com/COS301-SE-
2025/Fire-Fighter

cd Fire-Fighter
```

Backend Setup (Spring Boot)

```
cd FF-API

mvn clean install
```

(Obtain .env file from the owner of the database.)

Frontend Setup (Angular/Ionic)

```
cd ../FF-Angular

npm install
```

3.2 Run Tests

Backend Unit Tests

```
cd FF-API

mvn -Dtest=com.apex.firefighter.unit.**.*Test
test -Dspring.profiles.active=test
```

Integration Tests

```
cd FF-API

mvn -
Dtest=com.apex.firefighter.integration.**.*Test
test -Dspring.profiles.active=test
```

Frontend Unit Tests

```
cd FF-Angular

ng test --watch=false --browsers=ChromeHeadless
```

3.3 Build Artifacts

Backend JAR

```
cd FF-API

mvn package -DskipTests=true
```

Frontend Production Build

```
cd FF-Angular

ng build --configuration production
```

4. Deployment

- **Manual:** Copy the backend JAR and frontend build (www/ folder) to your server.

- **Jenkins:** Use the provided Jenkinsfile for automated CI/CD, including separate unit and integration test stages.

- **Docker:** (Optional) Build and run containers for backend and frontend.

A link to the User manual is given below to assist in navigating and using the application.