

Deployment Guide for Microwave Radar Analysis Model Interaction

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Overview

This document outlines the deployment process for the Microwave Radar Analysis Model Interaction System. The system comprises of a frontend Angular dashboard, backend microservices (AuthenticationService, AnalysisManagerService, AbsorptionLossService, ECMMoDelService, RadarMoDelService) and a PostgreSQL database

System Requirements

Ensure the following tools are installed on your system:

Tool	Version	Version Check Command
Java	21.0.7	java -version
Maven	3.8.7	mvn -version
Node.js	22.17.0	22.17.0
npm	10.9.2	npm -v
PostgreSQL	16.9	psql --version
Angular CLI	20.1.3	ng version

Step-by-Step Deployment

Step 1: PostgreSQL Setup (Only Once During Initial Setup)

Start PostgreSQL and log in as the 'issa' user with password 'admin'
Create the Database:

```
psql -U postgres
```

Inside the PostgreSQL CLI, create the database:

```
CREATE DATABASE radar_ecm_db;
```

Step 2: Build All Backend Microservices (Only Needed Once or When Code Changes)

In a new Terminal run:

```
cd Backend
```

```
cd AbsorptionLossService  
mvn -s ../settings.xml -o clean install
```

```
cd ../ECMModelService  
mvn -s ../settings.xml -o clean install
```

```
cd ../RadarModelService  
mvn -s ../settings.xml -o clean install
```

```
cd ../AnalysisManagerService  
mvn -s ../settings.xml -o clean install
```

```
cd ../AuthenticationService  
mvn -s ../settings.xml -o clean install
```

```
cd ../../
```

Step 3: Run the Frontend

```
cd Frontend  
ng serve
```

Open the application in your browser at: <http://localhost:4200/>

Step 4: Run Backend Services (Use Separate Terminals)

Terminal 1: Authentication Service

```
cd Backend/AuthenticationService
mvn spring-boot:run --offline --settings ../settings.xml
```

Terminal 2: Analysis Manager Service

```
cd Backend/AnalysisManagerService
mvn spring-boot:run --offline --settings ../settings.xml
```

Terminal 3: Absorption Loss Service

```
cd Backend/AbsorptionLossService
mvn spring-boot:run --offline --settings ../settings.xml
```

Terminal 4: ECM Model Service

```
cd Backend/ECMModelService
mvn spring-boot:run --offline --settings ../settings.xml
```

Terminal 5: Radar Model Service

```
cd Backend/RadarModelService
mvn spring-boot:run --offline --settings ../settings.xml
```

Port Conflict? Change it like this:

Open the 'application.properties' of the service:

```
nano <Service>/src/main/resources/application.properties
```

Change the port to an unused value:

```
server.port=808X # Use a different unused port, like 8091
```

Save and restart with:

```
mvn spring-boot:run --offline --settings ../settings.xml
```

Deployment Summary

Database: radar_ecm_db created

Backend Services: Built and ready offline

Frontend: Angular application

Ports Used: 4200 (frontend), 8081–8085 (backend)