

# Installation Notes

## Java Project Part

The main part is a maven java project. The dependency in the POM file is listed below. To configure this part, just follow Maven Folder structure to put source code files into the respective folder, and fill out the POM file with the provided content to download dependencies.

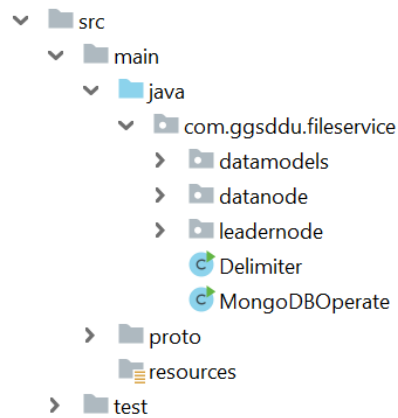
To run the java project:

Firstly, in leader node, run main method in `LeaderFileServiceServer.java`.

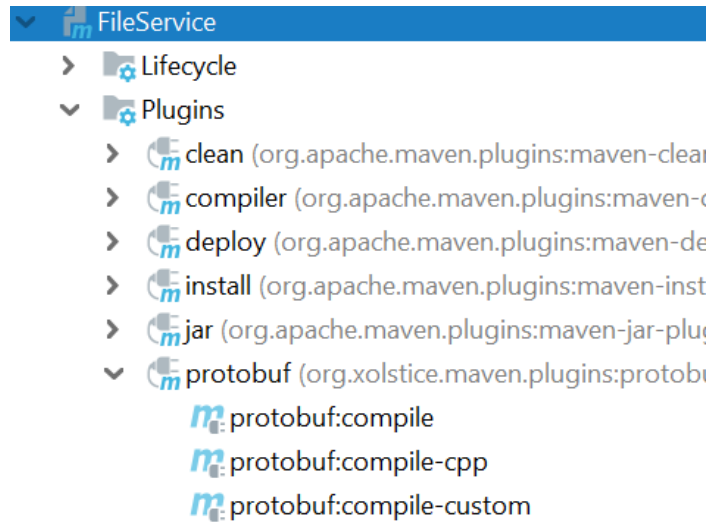
Then, in data node, run main method in `FileServiceServer.java`.

The other part is heartbeat service implemented in Python language, see below.

Maven Folder structure:



Use Maven plugin in IDE(Eclipse/Jetbin) to compile/compile custom protocol definition files.



dependency in POM:

```
<dependencies>
  <dependency>
    <groupId>io.grpc</groupId>
    <artifactId>grpc-netty-shaded</artifactId>
    <version>1.19.0</version>
  </dependency>
  <dependency>
    <groupId>io.grpc</groupId>
    <artifactId>grpc-protobuf</artifactId>
    <version>1.19.0</version>
  </dependency>
  <dependency>
    <groupId>io.grpc</groupId>
    <artifactId>grpc-stub</artifactId>
    <version>1.19.0</version>
  </dependency>

  <dependency>
    <groupId>org.mongodb</groupId>
    <artifactId>mongodb-driver-sync</artifactId>
    <version>3.10.1</version>
  </dependency>
</dependencies>

<build>
  <extensions>
    <extension>
      <groupId>kr.motd.maven</groupId>
      <artifactId>os-maven-plugin</artifactId>
      <version>1.5.0.Final</version>
    </extension>
  </extensions>
</build>
```

```

    </extension>
  </extensions>
  <plugins>
    <plugin>
      <groupId>org.xolstice.maven.plugins</groupId>
      <artifactId>protobuf-maven-plugin</artifactId>
      <version>0.5.1</version>
      <configuration>

<protocArtifact>com.google.protobuf:protoc:3.6.1:exe:${os.detected.classifier}</protocArtifact>
      <pluginId>grpc-java</pluginId>

<pluginArtifact>io.grpc:protoc-gen-grpc-java:1.19.0:exe:${os.detected.classifier}</pluginArtifact>
      </configuration>
    <executions>
      <execution>
        <goals>
          <goal>compile</goal>
          <goal>compile-custom</goal>
        </goals>
      </execution>
    </executions>
  </plugin>
  <plugin>
    <groupId>org.apache.maven.plugins</groupId>
    <artifactId>maven-compiler-plugin</artifactId>
    <configuration>
      <source>1.6</source>
      <target>1.6</target>
    </configuration>
  </plugin>
</plugins>
</build>

```

## Python Heartbeat Part:

Read the Prerequisites part in the webpage below to install necessary tools.

<https://grpc.io/docs/quickstart/python.html>

Download psutil library to get access to cpu, memory, disk usage.

pip install psutil

Then you can run python gRPC service and client file:

Heartbeat\_server.py; heartbeat\_client.py

Heartbeat\_server.py should be used in leader node, while heartbeat\_client.py should be used in data node.

## Super Node Part:

Run build.sh for compiling the proto file:

```
./build.sh
```

In the superNode.py file, change the hostIP and port number accordingly

Start Super Node:

```
python3 superNode.py
```

```
Wills-MacBook-Pro-4:SuperNode will$ python3 superNode.py  
Supernode started on 192.168.0.9:9000  
█
```