**SYSTEM MANUAL**

# Introduction

uTopic API and Web applications are two Java package (jar) that does not need any app server to deploy. They both include an embedded Tomcat server (version 8) in their package. These both applications are developed in Java 8 with Spring Boot v1.4.1. PostgreSQL v9.6 database is used for persistence and it’s managed with Spring Data JPA in Java.

# Project Structure

Dependency management and project structure is handled in Maven. All of the projects are in a multimodule Maven project. They are simply modules of this parent project.

Here are the modules and their brief explanations:

* model
  + Keeps all Java models for all projects.
* repository
  + Keeps all DAO methods.
* api-client
  + Keeps all API services and how they are called. It exposes API services with simple classes and methods, thus prodives simplicity for Android and Web developers.
* web-application
  + Spring MVC project that utilizes JSP technology. Uses api-client to send REST requests.
* services-api :
  + REST API application of the system. Only component that has database permission in the system. Used via api-client project for the sake of simplicity.

# PostgreSQL Installation

uTopic applications use a PostgreSQL database for persistence. We are using the latest version of PostgreSQL wihch is version 9.6.

To install PostgreSQL you have to download installer package for Windows. In Linux, it’s even easier, you just have use a package management system to install it (like apt, yum, pisi etc).

Database’s user and password must be postgres. This is the only thing that is mandatory about database.

After creation, you need to create a database named utopic. It needs to be UTF-8.

After that, if you just run the ‘services-api’ application, all tables, indexes and sequences will be created and dump data will be inserted.

# Server Static Folders

API logs are written under /opt/utopic/logs folder.

Web logs are written under /opt/utopic/web/logs folder.

These both folders and logging configuration can be configured from log4j2.xml that lays in the same folder with the applications.

Images are saved and served from /opt/utopic/images folder. These three folders permissions need to be set for the user who is running the applications. ‘dump-images.zip’ can be extracted to this folder for images to be seen.

These folders are automatically created if the user who is running the applications has the permissions needed. In Windows, these folders will be created under the working drive (like C:\opt\utopic\).

# Running the Applications from Command Line

Because both of the applications have an embedded tomcat, you can just run it via command line with a ‘java -jar’ command with logging.config parameter for the log4j2.xml

Here is how they are runned:

* java -jar -Dlogging.config=/opt/utopic/log4j2.xml /opt/utopic/services-api-1.0-SNAPSHOT.jar
* java -jar -Dlogging.config=/opt/utopic/web/log4j2.xml /opt/utopic/web/web-application-1.0-SNAPSHOT.jar

After the API is started, it will create needed tables and insert dump script to the database.