ARS – Installation & User Manual

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This document contains everything you need to know to set up your own version of the database & Spring Boot server. It also contains a few useful troubleshooting tips for anticipated issues.

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DATABASE INSTALLATION & SET-UP

This section will detail how to set up the Microsoft SQL Server and where to find the necessary scripts to create the DB.

INSTALLATION:
Installing the DB

1. Install Microsoft SQL Server Express (MSSQL) & Microsoft SQL Server Management Studio (MSSMS), follow the installation instructions provided by Microsoft.
2. Launch SQL Server 2019 Configuration Manager. Under "SQL Server Services" verify that SQL Server (<Your Server Name; Default SQLEXPRESS>) is running.
3. Launch MSSM, you will be greeted with a log-in prompt. Select these options:
   a. Server type: Database Engine
   b. Server name: Should be automatically filled, if it is not type: "<Host name of computer hosting the server>/<Name of SQL Express Server>"
   c. Authentication: Windows Authentication
      i. Other Operating Systems require SQL Server Authentication instead of Windows Authentication. To change to this mode, go to the Registered Servers window in the top left corner. Go to Database Engine > Local Server Groups > <Your Server Name>. Click properties and change authentication to "SQL Server Authentication."
4. After authenticating with your SQL Express Server, open the DatabaseScripts folder and open CREATE_DATABASE.sql inside MSSMS.
   a. This script will create a local DB. Verify that you have 1 GB of free disk space available for the server and its log files.
   b. If you would like to change this value, do so on lines 7 for the database and on line 9 for the log files.
5. Execute CREATE_DATABASE.sql. You may receive some error messages about non-present items in the Database, ignore these for now.
6. Refresh the Object Explorer and verify that a database under the name ARS_DB now exists.

SET-UP
Creating a Super Administrator on your DB

1. Right click on your SQL Server (<Host Name>/<Server Name>) in the Object Explorer and select "Properties."
2. Under "Security", change "Server Authentication" from "Windows Authentication Mode" to "SQL Server and Windows Authentication Mode" and click Apply.

3. In the Object Explorer, go to <Your SQL Server> > Security > Logins. You should see a disabled "sa" login. Right click "sa" and select "Properties."
4. Create a password for the "sa" user and uncheck the box that says, "Enforce Password Policy." Click "Okay"
5. Re-log into your SQL Server and use the "sa" account this time to verify that it works.

TROUBLESHOOTING:

- MSSQL fails to connect to the server.
  - Verify that SQL Server is running.
  - In SQL Server 2019 Configuration Manager
    - Under SQL Native Client > Client Protocols verify that TCP/IP is ENABLED
    - Under SQL Server Network Configuration > Protocols for <Your Server Name> verify that TCP/IP is ENABLED
    - Restart your SQL Server
- MSSMS does not let me run the DB_CREATION.sql script.
  - Make sure you are connected to your SQL Server
  - Make sure you are authenticate using an account with administrative privileges.
  - Try running the application as administrator.
- I run the DB_CREATION.sql script but there are still missing components in the Database.
  - Inside the DatabaseScripts folder, there are many individual scripts for the tables and stored procedures necessary for completion of the database.

RUNNING THE SPRING BOOT SERVER

This section will detail how to install the Spring Boot application and how to run it successfully. This guide is written with a few IDEs and Operating Systems in mind and thus may not be applicable to all users.

SETTING UP SPRING BOOT

1. Install & Open IntelliJ
2. In IntelliJ, go to File > Open
3. Select the AudienceResponseSystem.zip file and open in IntelliJ
4. In the main directory, right click "pom.xml" and select Maven > Reload Project
5. Navigate to src > main > resources > application.properties
6. Verify the following in application.properties:
   a. spring.datasource.url=jdbc:sqlserver://localhost;databaseName=DB_ARS;encrypt=true;trustServerCertificate=true;
   b. spring.datasource.username=sa
   c. spring.datasource.password=<Your SA Password>
   d. server.port = 443
   e. server.ssl.key-store = springboot.p12
   f. server.ssl.key-store-password = ConnorPeperRules1!
   g. server.ssl.keyStoreType = PKCS12
   h. server.ssl.keyAlias = springboot
   i. server.ssl.key-password= ConnorPeperRules1!
   j. spring.jpa.properties.hibernate.proc.param_null_passing=true
   k. spring.datasource.driver-class-name=com.microsoft.sqlserver.jdbc.SQLServerDriver
   l. spring.jpa.hibernate.ddl-auto=none
   m. spring.jpa.show-sql=true
   n. spring.jpa.properties.hibernate.format_sql=true
   o. spring.jpa.properties.hibernate.dialect=org.hibernate.dialect.SQLServer2012Dialect
   p. spring.jpa.hibernate.naming.physical-strategy=org.hibernate.boot.model.naming.PhysicalNamingStrategyStandardImpl
7. Navigate to src > main > java > com.ars.alpha > AudienceResponseSystemApplication
8. Compile and run the project.
   a. if successful the console should say something like: "Started AudienceResponseSystemApplication in 4.804 seconds (JVM running for 6.426)"

TROUBLESHOOTING

- I get the error "java: package com.microsoft.sqlserver.jdbc does not exist" when I try to compile
  - This dependency exists in Maven but is stubborn, so a binary has been included as well. This binary is inside the src > main > resources folder. Add the binary to the build path and recompile.

ACCESSING THE WEBSITE FROM THE BROWSER

This section will detail how to access the website after setting up the database and spring boot server.

WELCOME TO THE INTERNET

1. Run the Spring Boot server.
2. By default, the site can be accessed via localhost. In Firefox, Chrome, or Microsoft Edge go to the address bar.
3. Type https://localhost in the address.
4. You should be at the homepage.

TROUBLESHOOTING

- I get a connection timeout error.
    - Verify that you tried to connect to the site via HTTPS and not HTTP.
    - Verify you can connect to port 443.
    - Check any errors in Spring Boot.
- I get a security warning when trying to access the site.
    - This demonstration contains a self-signed SSL signature. Your browser is rightfully trying to warn you. Instruct your browser to proceed anyways.
- I am on the site, but nothing works.
    - Verify that Spring Boot was able to successfully connect to the database.
- Everything is connecting and I can access the site, but things still aren't working!
    - Try using a different browser.
- I want to connect to a different address than localhost.
    - Go into chatWallOwner.js, chatWallUser.js, and script.js and change the "const SITE_URL" to your desired address. Make sure to include https:// at the beginning.