# **OpenMRS-Hypertension System Manual**



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# System Manual

## **Architecture**

- OpenMRS Server
- Android Client

# **Prerequisite**

- OpenMRS Platform
  - Java 6 or 7 (Java 7 is recommended)
  - Apache Tomcat 6
  - MySQL 5.x
  - Latest OpenMRS WAR file (1.11.4+)
  - Google Chrome / Mozilla Firefox
- OpenMRS Android App
  - Android Studio
  - Android SDK 5.0.1 (API 21)
- Optional components
  - Fitbit wearable device and account
  - Android phone with GoogleFit

# **OpenMRS platform setup**

- Login Tomcat Manager at <a href="http://localhost:8080/manager/html">http://localhost:8080/manager/html</a>
- Upload OpenMRS WAR file
- Head to <u>http://localhost:8080/openmrs</u> to begin installation (More info: <u>https://wiki.openmrs.org/display/docs/Step+6+-+Configure+OpenMRS</u>)
- Begin using OpenMRS platform (Login using user: admin ; pw: Admin123 )
- Download REST Web Service module from <u>https://modules.openmrs.org/#/show/153/webservices-rest</u>
- Head to Administrator page -> Manage Modules -> Add or Upgrade Module -> Add REST module and upload to server
- REST Web Service will be available for use now

#### Android app setup

- Run / Debug on Android Studio with Android device/Android Virtual Device
  - Launch Android Studio
  - Open project -> Team13-OpenMRS
  - Run/Debug project (Shift + F9 / F10 )
- Running on Android device using APK file
  - Retrieve .apk file from 'filelocation'/Team13 OpenMRS/team13AndroidClientmaster/build/outputs/apk
  - Copy *team13AndroidClientmaster-debug.apk* to your Android phone (Android 5+)
  - In your phone, go to Settings > Security > Unknown Sources and allow installation of apps from sources other than Google Play Store
  - Open *team13AndroidClientmaster-debug.apk* in your phone's file explorer (download one from Play Store if you don't have any) and press Install.

#### **GoogleFit integration setup**

- Related activities: SyncGoogleFitService, SyncData
- The app currently uses a debug certificate for authentication purposes required by Google. There are 2 types of certificate:
  - Debug Certificate:
    - Locate Debug keystore which is normally stored in the same folder as where Android Virtual Device (AVD) is located
    - List the SHA1 fingerprint by running the following commands:
      - Linus or OS X: keytool -list -v -keystore ~/.android/debug.keystore -alias androiddebugkey -storepass android -keypass android
      - Windows: keytool -list -v -keystore
        "%USERPROFILE%\.android\debug.keystore" -alias androiddebugkey storepass android -keypass android
  - Release Certificate:
    - Locate the Certificate keystore
    - To list all keys in the keystore: keytool -list -keystore your\_keystore\_name
    - List the SHA1 fingerprint: keytool -list -v -keystore your\_keystore\_name -alias your\_alias\_name
- Go to Google Developer Console and log in
- Select a project or create a new one
- Go to Credentials and create new Credentials -> Oauth Client ID -> Android
- Enter SHA1 fingerprint and package name
- For more information about the GoogleFit API, head to :

https://developers.google.com/fit/android/get-api-

key#request an oauth 20 client id in the console name

#### **Fitbit integration setup**

- Related activities : SyncFitBitAuthorizationActivity, SyncFitBitService, SyncData
- Fitbit uses the OAuth 2.0 framework
- To get your own OAuth2 Client ID, Client Secret and Callback URL
  - Go to Fitbit Developer API and log in
  - Register an App or Manage App
  - Get the Client ID, Client Secret and Callback URL Example:

Client ID : 227ABC

Client Secret : 02b7cc9debe9dbcg4bdd312631e9d2c2 Callback URL : openmrs://logincallback

- Change CLIENT\_ID and CLIENT\_SECRET in SyncFitbitAuthorization.java and SyncData.java to own client ID and secret from Fitbit.
- Change REDIRECT\_URL in SyncData.java to specified callback URL in Fitbit.
- Under Android Manifest.xml, change *data* content inside *intent-filter* under

".activities.SyncFitBitAuthorizationActivity" according to specified URL callback scheme and host.

- Example callback URL = openmrs://logincallback
- Where scheme = openmrs, host = logincallback
- To change scope of data needed, go to **SyncData.java** and change *SCOPE\_VALUE* string to required scope for application.
  - Examples of scopes: activity, heartrate, location, nutrition
- For more information about the Fitbit API, head to : <u>https://dev.fitbit.com/docs</u>

#### **FatSecret integration setup**

- Related activities: FatSecretUtils, SearchFood
- Fatsecret uses REST API and is based on the OAuth Core 1.0 protocol
- Making the request involves:
  - Creating a signature base string

Generated by concatenating the HTTP method (GET/POST requests),

the request URL and the query parameters:

<HTTP Method>&<Request URL>&<Normalized Parameters>

- For OAuth authentication the following parameters are required for every request
  - Oauth\_consumer\_key
  - Oauth\_signature\_method (the only one supported is "HMAC-SHA1")
  - Oauth\_timestamp
  - Oauth\_nonce
  - **Oauth\_version** (must be 1.0)
- All request parameters must be encoded using the [RFC3986] percent-encoding (%xx) mechanism and concatenated by an '&' character.
- Calculating the signature value
- Sending the request
- To get your own consumer\_key and consumer\_secret:
  - Go to https://platform.fatsecret.com and register
  - Go to your account and click on "Sign Up for a new API key"
  - Complete the form and click "Submit" and you will be redirected to a new page where they keys obtained are displayed
    - Example:

Rest API Consumer key: a4843dbab7a9468589dcdd7424d1c4d8 Rest API Shared key: 1df24f8501404de18a791511e7f9915e

- The android application uses the REST API key so copy the consumer key and shared secret key for the REST API and replace the ones in string resources in Android Studio with the ones you just obtained
- For more information about the FatSecret API, head to : <u>https://platform.fatsecret.com/api/Default.aspx?screen=rapiref&method=food.get</u>

#### **References**

- OpenMRS:<u>http://openmrs.org/</u>
- OpenMRS Implementation and Development :
  <a href="https://wiki.openmrs.org/display/docs/Implementer+Documentation">https://wiki.openmrs.org/display/docs/Implementer+Documentation</a>
- Android Studio : <u>https://developer.android.com/index.html</u>
- GoogleFit API : <u>https://developers.google.com/fit/</u>
- Fitbit API : <u>https://dev.fitbit.com/uk</u>
- FatSecret API : <u>https://platform.fatsecret.com/api/</u>
- Graphview API : <u>http://www.android-graphview.org/</u>