Wellness Quest Application Guide

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1 Product name:

Wellness Quest

2 Product features:

2.1 Implemented features:

- User Registration and Login
- View User Profile
- Challenge Management
- Challenge Progress Tracking/GPS Tracking
- View Completed Challenges

2.2 Upcoming features:

- Weekly Challenges
- Seasonal Challenges
- Seasonal Badge Reward
- Set Higher Goals for Completed Challenges
- Log Weight and Height
- Find Friends

3 Product functions and capabilities

This product provides users with a way to track progress across health-centered challenges regarding mobility. It tracks the location of the user through GPS location services. To do so a user must sign up and login to submit location information for processing to progress to

challenge goals. Upon completion of the challenge, the user is awarded experience points that go towards a user's persistent sum of experience points from any other completed challenges.

Challenges are shown to a user in three different ways, the non-accepted challenge in the challenge screen, the accepted but incomplete challenges in the dashboard (home screen of the application), and a list of finished challenges in the history screen.

4 Walkthrough

4.1 User Registration and Sign-in

When the app is loaded, the Wellness Quest user will be presented with the sign-in screen and the option to either sign in using their existing account (Figure 1) or to register for an account. To register for an account, the user clicks the register button and is brought to the registration page (Figure 2). On this page, the user will enter their First name, Last name, email, username, and password. Once this is completed, the user will be brought back to the sign-in screen and now can enter their email and password.

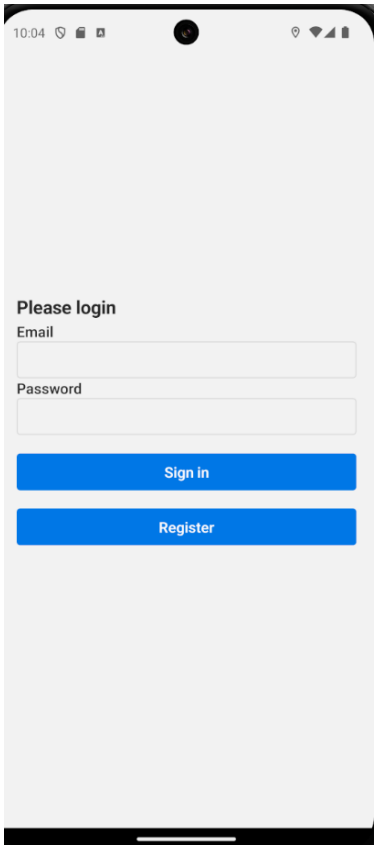

Figure 1 - Login Page

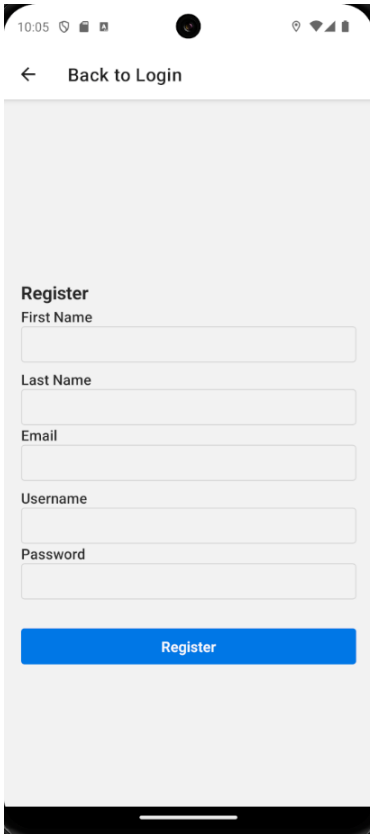

Figure 2 - Registration Page

4.2 Profile Screen

Upon signing in, Wellness Quest users will be presented with the Profile Page (Figure 3), which displays the user's username and level.

Users can go back to the Profile Page when they are on another page by clicking on 'Dashboard' on the sidebar (Figure 4).

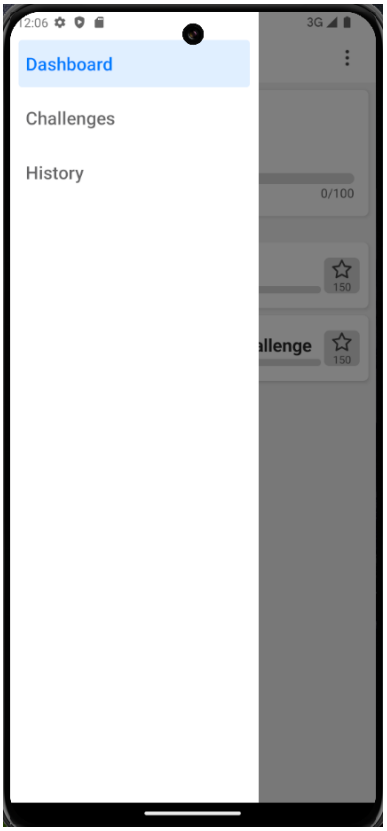

Figure 3 - Dashboard sidebar

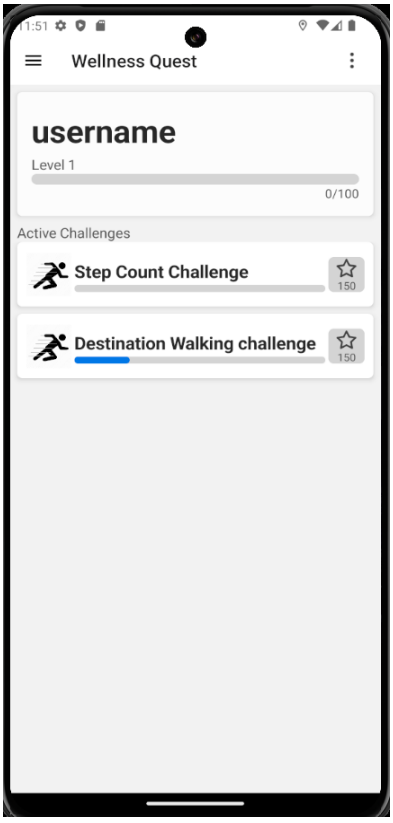

Figure 4 - Profile Screen

4.3 View Completed Challenges

Users can view their completed challenges through the History Page.

1. Click on the top-left menu icon to open the sidebar.
2. In the sidebar, select “History”.
3. The History Page will display detailed information about your completed challenges.

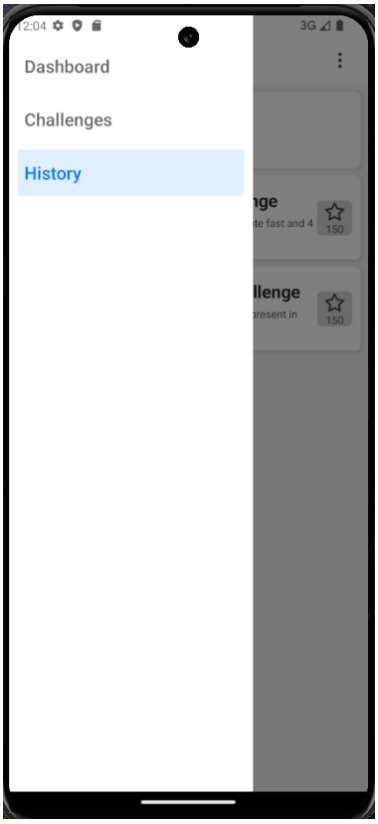

Figure 6 - History Sidebar

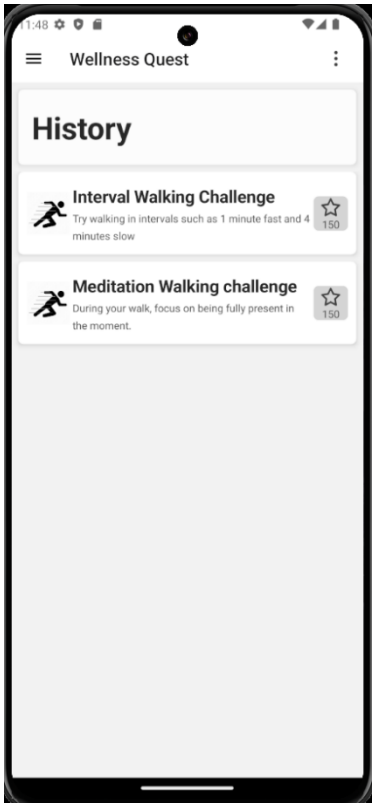

Figure 5 - History Page

4.4 GPS Tracking

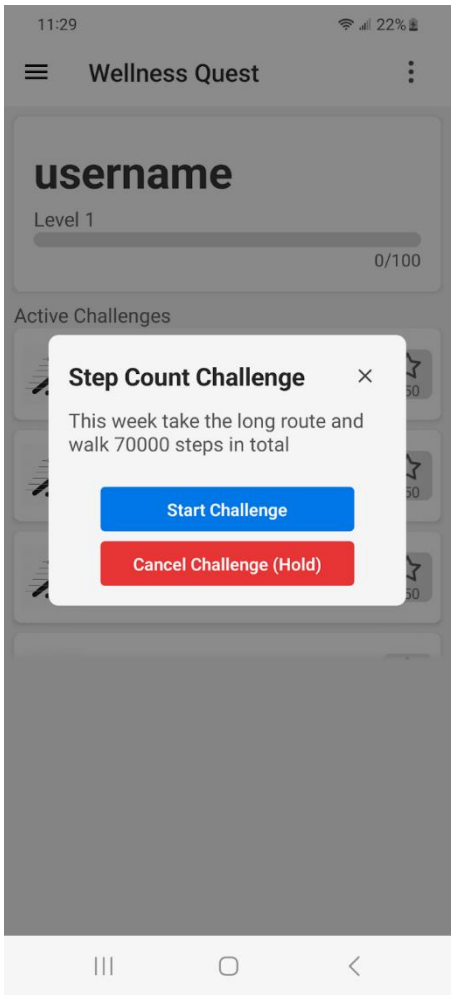

Figure 7 - Start Challenge Modal

Pressing a challenge will present the user with a modal window that allows the user to either start the challenge or cancel the challenge.

Canceling requires holding for a brief period to prevent the user from accidentally canceling.

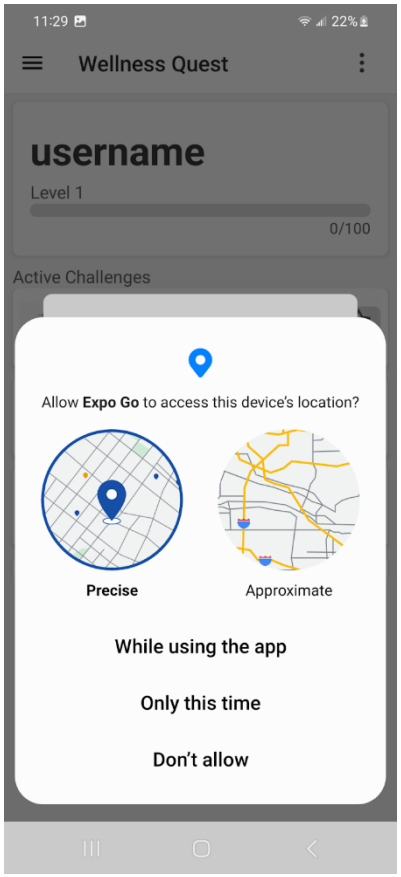

Figure 8 - Permission Required

Upon hitting "Start Challenge" without the application having sufficient privileges, the operating system will prompt the user to give the application permissions. Precise and background permissions must be given.

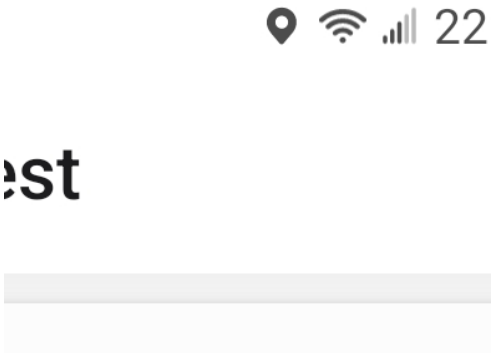

Figure 9 - Location Services Active

When tracking the user the location icon will appear.

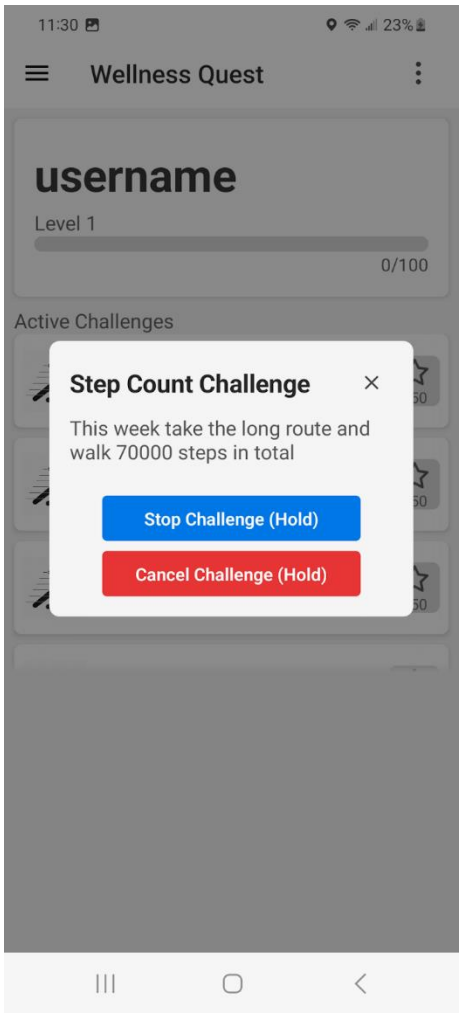

Figure 10 - Stop Challenge Modal

When the same challenge is pressed, the user is prompted with a similar modal as before, which is to stop the challenge or cancel. Both require a long press to prevent accidents.

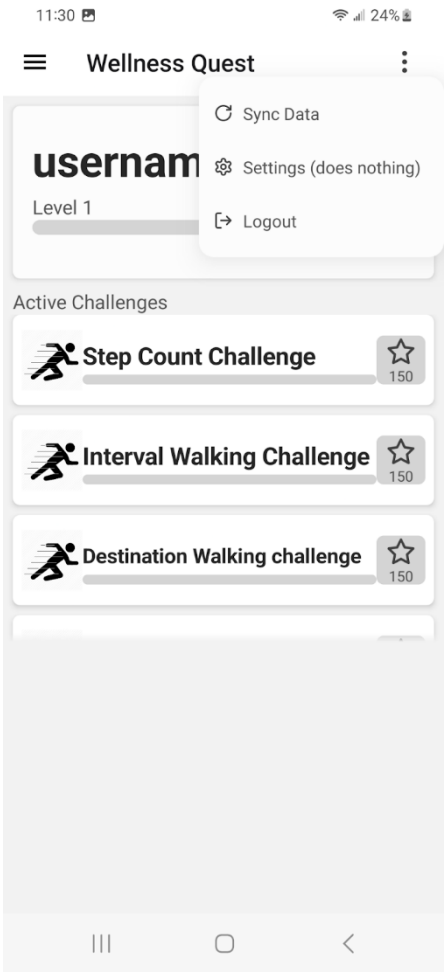

Figure 11 - Sync Data Menu

The top right triple dot menu icon will spawn a small menu, with one option to sync the tracking data.

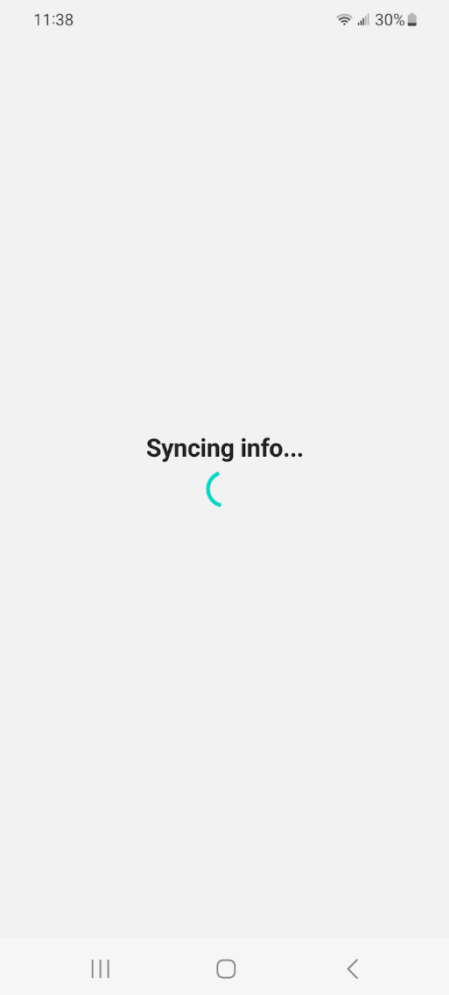

Figure 12 - Syncing Info Screen

After pressing the “Sync Data” button the user will be moved to a screen while the application transfers data to the server. Due to the size limitations of a single transfer, there are likely many transfers which may take a non-trivial amount of time.

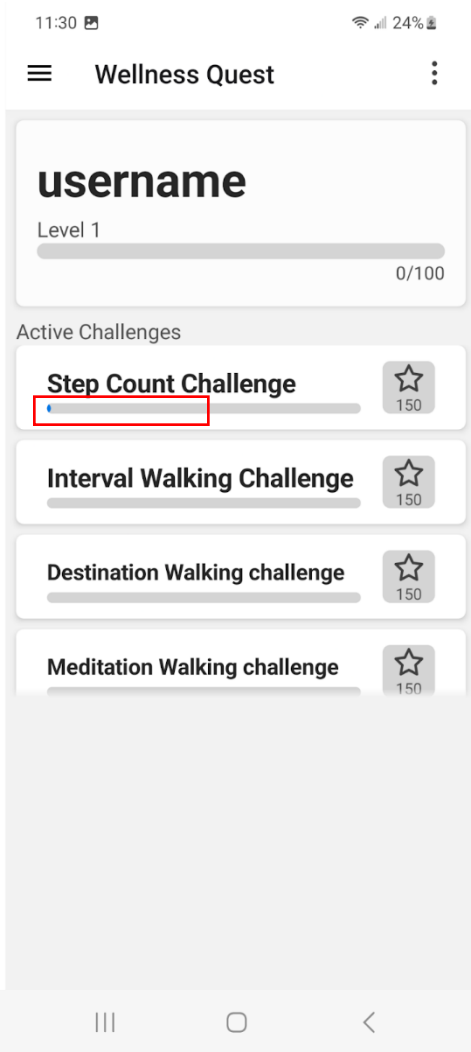

Figure 13 - Progress in Challenge

After finishing syncing the data, the user will be put back into the dashboard, where the added progress is shown.

4.5 Challenge XP

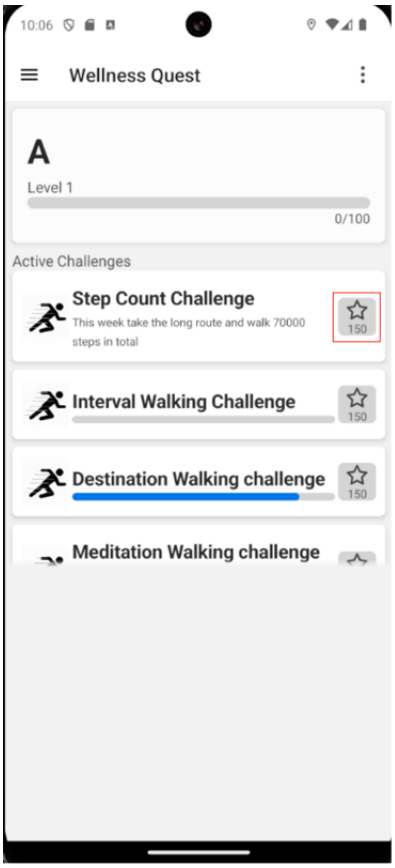

Figure 14 - Challenge XP

When viewing the challenges, on the right side of the challenge may be a star with the associated XP level for the challenge as can be seen in the red box on the left.

5 Installation instructions

5.1 Supported Oss:

- Windows
- Linux (Debian, etc.)
- Android for full client
- Browser for partial client

5.2 Requirements

- Ensure your machine has NodeJS installed. You can download NodeJS here.
- Ensure Docker is installed and running in the background. You can download Docker here.
- Ensure Git is installed on your machine. You can download Git here.
- For Linux installation, the steps after this are the same, however, there is too much variation in installing the previous software between different distributions to easily document.

5.3 Backend/Server Setup

1. Start Docker and keep it running in the background.
2. Clone the GitHub repository into your preferred directory.
3. Navigate to './backend/server', duplicate the '.env.empty' file, and rename the duplicate to '.env'.
4. If using HTTPS, the HTTPS fields in the .env file are the path to the corresponding SSL files.
5. Run 'npm install' in the same directory to install dependencies.
6. Navigate to './backend' and execute 'docker-compose -f docker-compose.yml up'. Alternatively, use Docker Desktop for a UI to use. Note: using a VM to run docker will take significantly more memory.
7. Move back to './backend/server' and run 'npm run dev' to start the server.
8. To access the server, open your web browser and go to 'localhost:8080' to access phpMyAdmin.
9. Use the following database credentials:
    - Server: db (optional)
    - Username: root

- Password: password

It is *highly* recommended to change these in a production environment, and are set in docker-compose.yml, but remember to make the corresponding changes in the .env file that the NodeJS server uses to access the database. An all too common security mistake is default credentials.

10. After logging in to phpMyAdmin, locate and click 'WellnessQuest' on the left sidebar to view the database.
11. It should be prepopulated with a user and some challenges.

5.4 Frontend Setup

You can view the front end using a web browser (Google Chrome), an Android emulator (Android Studio), or a real Android phone. However, note that GPS Tracking functionality is not available when using a web browser.

5.4.1 Running via Web Browser or Android Emulator:

- You can download an Android Studio here.
- Here is an instruction document to set up Android Studio for our project.

1. Ensure the backend setup is complete before proceeding.
2. Navigate to './frontend' and run 'npm install' to install dependencies.
3. Do **not** have SERVER_IP environment variable defined as it will default to the correct IP address for using Android Emulator.
4. Execute 'npx expo start' in the same directory (this may take some time).
5. To view the application in a web browser, press 'w' in Expo CLI and wait for the page to load.
6. To run the application on an Android emulator, start the emulator and press 'a' in Expo CLI.

7. If the Android emulator becomes unresponsive, close the app and press ‘a’ again in Expo CLI.
8. To use GPS Tracking functionality on the emulator, ensure GPS is enabled and choose “Allow all the time” when prompted.

5.4.2 Running via Real Android Phone:

1. Download the Expo Go app on your Android phone.
2. Ensure the backend setup is complete and note the IP address of the server in your network. For example: ‘192.168.0.1’. Set the environment variable ‘SERVER_IP’ to the server’s IP address.
3. Run ‘npx start expo --tunnel’ to start a tunneling service with ngrok. It may help to add ‘--clear’ to clear the cache as stale cache can create issues with environment variables.
4. Make sure it is in Expo Go mode.
5. Open Expo Go on your Android device and scan the QR code displayed in Expo CLI.
6. Ensure the device is in light mode, as dark mode may cause issues.
7. Allow location services to be active and grant Expo Go permission to use the location at all times.

6 Frenquently asked questions/ Troubleshooting

Question:

When I start Expo for Android I get an error message: “Failed to resolve the Android SDK path…”

To fix this, export the ANDROID_HOME variable to point to your Android SDK location. In windows this may be: “C:\Users\[user]\AppData\Local\Android\Sdk”. In Linux it may be: “~/Android/Sdk”

Question:

When starting a challenge there is no location icon present

Resolution:

To fix: Stop the challenge, start location services, restart the challenge

Question:

When starting the application there is always a “Network Error” toast.

Resolution:

Check which IP the application is trying to connect to. SERVER_IP env variable for a physical device. It can be a URL, local IP address, or internet IP address. For Android Emulator on the same device as the server, do not have SERVER_IP defined.

Check router rules and port forwarding issues. A get request to the server’s root directory should return 418 “I’m Not A Teapot”.

Question:

“I deleted the database and restarted the server and it immediately crashed!”

Resolution:

The database is declared in the initialization of the MySQL container, restart the container through the docker-compose file. Specifics depend on the platform.

Question:

Server no longer works after changing password for both server and database

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Resolution:

Go into phpMyAdmin, export all data without the structure in the WellnessQuest database, drop

the database, restart the container, import the data without checking constraints as the tables are exported alphabetically, not in a tree-like format.

Question:

Expo Go says Metro is not connected

Resolution:

Expo Go has lost connection to the frontend server and requires reload. Attempt to flip the device around to get the debug screen and hit “reload” or close the application and restart it.

Question:

If there is an error on the application that state “User already has challenge” or something akin to that

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Resolution:

Swap screens to refresh stale info after manual manipulation of database

If the application says you are not logged in, you may either have the session expire (3 days) or another session for that account was started.