Collabify

User's Manual Document

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www.collabify.space
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USER'S MANUAL
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1.0 GENERAL INFORMATION

Collabify is a collaborative music streaming application designed to allow multiple users to provide input on what songs they would like to hear at the event they are attending, without the hassle of repeatedly swapping out the event's streaming device.

1.1 System Overview

Collabify is an Android application based on Spotify's music interface, that makes it easy for everyone to contribute to an event's music playlist. The application can be simplified into two operating modes, a DJ and Collabifier mode. The DJ mode allows the user to create and host events that become visible to all nearby users of the app. The DJ's device then becomes the single device responsible for physically streaming all the music. The DJ can add playlist songs, reorder the playlist, access a personalized playlist, and change the permissions of users attending the event. DJ mode uses Spotify's music resources for streaming, which means a user must have a Spotify Premium account to access DJ mode. Collabifier mode is open to all users, and allows them to view and join nearby Collabify events. Upon joining an event, a Collabifier can search for song's and add their desired choices to the event's playlist. A Collabifier can also affect a song's position in the playlist through a voting system in the playlist. For Collabify to perform optimally, a consistent internet connection and access to the user's location are required.

The system's architecture works in a client/server manner. The Collabify server keeps track of all logged in users and events. Each logged in user with the application is a client. If a user wants to host an event, a create event request is sent to the server, and the server creates new event in the database. This event will hold information such as who has joined the event and the event's playlist. A client who wants to join an event receives a list of all nearby events from the server. When a song is added by a user to the playlist, a song request to the server and that song is added to that event's playlist. The server then sends an updated playlist to all of the user's at that event.

A user controls all aspects of Collabify user a graphical user interface. Simple button and text input drive all interaction with the app. Any user who has used music streaming applications will find Collabify intuitive to use. Those who lack experience with music players will pick up how to use the app quickly as it has been designed with well defined buttons and common gesture control.

Collabify is an entertainment application designed in the scope of UW Madison's Software Engineering course (CS 506). The Collabify team included David Gardner, David Hartman, Brandon Hill, Sydney Johnson, Ricardo Lopez, Andrew McOlash, and Erik Olson. The

development team received feedback from Michael Mulhaney on the design of Collabify as well. The application is currently operational with all core features in place. These core features include song playback/control, event creation, joinable events, song search, voting system, playlist modification, personalized playlist addition, and variable user permissions. There are also features that are currently under development. These features include song lyrics, a microphone system, and saving the playlist upon ending an event.

1.2 Project References

The Spotify Web API and Spotify Android SDK were provided by Spotify's development website (https://developer.spotify.com/).

Provide a list of the references that were used in preparation of this document in order of importance to the end user.

1.3 Authorized Use Permission

Collabify hereby grants to you, and you acknowledge that you are acquiring, only a limited, nonexclusive application (the "Application") to use only for personal use and for only the number of authorized users. Collabify remains the owner of all right, title, and interest in the Application and in any copies of it. The Application authorizes one internet login access per authorized user of the then current version of the Application and access to the associated online documentation. You agree not to make or permit the making of copies of the Application except as authorized in writing by Collabify. You agree not to engage in, participate in, or knowingly permit any other reproduction, distribution, access to, or use of any of the Application, nor the creation of derivative works based on any of the Application except as expressly permitted by this Agreement or with the prior written authorization of Collabify. In particular, without limiting the foregoing, you agree not to engage in, participate in, or knowingly permit any disassembly, decompilation, or other reverse engineering of any part of the Application or the functions or operation thereof. You agree to the Application accessing the location of the device the Application is installed on. The Application is not responsible for any undesired or offensive content that is sent to your device, nor for any personal affect damage caused by the music played through the Application. You agree to comply with all applicable laws regarding use of the Application.

1.4 Points of Contact

1.4.1 Information

For information about Collabify or questions about setting up an account, please send an email to support@collabify.space. Visit the www.collabify.space website for more information.

1.4.2 Help Desk

For assistance in using the system or if any unforeseen problems arise, contact Collabify's Team Leader Sydney Johnson by either sending an email to support@collabify.space or calling the number 1-920-857-4674.

2.0 SYSTEM SUMMARY

2.1 System Configuration

This system was developed for Android-based mobile devices. The Collabify system uses the Spotify API and SDK for Android. The application will support all versions of Android 4.0 (Ice Cream Sandwich) and above. This base version was chosen as it represents about 87% of android users. Using the application additionally requires an active data connection, as well as gps-based location services.

Using this application also requires a Spotify account which can be created within the app. If the user has a Premium Spotify account they will have access to all features of the app. If the user does not have a premium account they cannot create events and are restricted to only joining events.

2.2 Data Flows

When the user first starts the app, they are prompted to log in through Spotify. The actual authentication process is handled by Spotify, and the user's credentials are transferred to their servers securely using TLS. The user's credentials are cached on Spotify's servers for a period of time, removing the need to login every time the app is started.

Once the user has logged in, most of the app's network communications will be with Collabify's backend server. Only searching for tracks or fetching DJ playlists involve communicating with Spotify. Until real-time updates are implemented using WebSockets, all communications between the app and server are initiated by the app. When the user performs any action that may affect the other users at the event (e.g., adding a track, blacklisting a user, leaving the event, voting on a track, etc.), an update is sent to the server which then stores the updated information in a database record specific to that user. The app will automatically request the updated status of the event upon certain actions (for instance, swiping to the playlist tab will fetch the updated playlist content). Alternatively, the user may manually request the up to date content by swiping downward on the screen.

All information related to the user (e.g., their GPS location at the time of logging in) is stored in the database until the user logs out of the app. Currently, communications between the Collabify server and the app are neither encrypted nor authenticated. Providing security for the app's communications with the backend is a priority feature that will be implemented in the near future.

2.3 User Access Levels

There are two main types of users within the Collabify app: DJs and Collabifiers.

In order to be a DJ, the user must have a premium spotify account. This is because Spotify requires that a user have premium to stream on a mobile device. A DJ is someone who, having Spotify Premium, creates and hosts an event. When creating an event, the DJ can change the event name, decide whether users will be able to vote on songs, and decide whether to have the event be password protected, as well as that password if they do. As the DJ of an event, the user can play, pause, and skip songs. They can search for and add songs from the Spotify track search or choose one from one of their own playlists in the DJ Playlists/Tracks tab. DJs can also change the order of songs in the Event Playlist, as well as remove them. DJs have access to the Users tab, which displays all of the users at the event. From the Users tab, a DJ can either Blacklist, Promote, or return users to their default Collabifier roles. From the DJ Settings view, DJs can change the event name, enable or disable user voting, and enable or disable password protection, as well as change the current password if there is one. Finally, DJs have the power to end events by directly hitting 'End Event' or by logging out of Spotify..

Collabifiers are users who join events. There are location restrictions in place so Collabifiers can only join events within around 5 miles of them. There are three roles a Collabifier can be in:

1. Collabifier is the default role of users who join events. They can add songs to the Event Playlist from the Spotify track search or from the DJ Playlists/Tracks tab. If the DJ has User Feedback enabled, they can vote on songs that are not the currently playing or 'up next' songs. They can also remove any songs they have added to the playlist, except for the currently playing or 'up next' songs, but no one else's. From the User Settings view, Collabifiers can decide whether they want their username to be shown in the playlist for songs they have added. Finally, they can leave the event by hitting 'Leave Event' or by logging out of Spotify at any time.

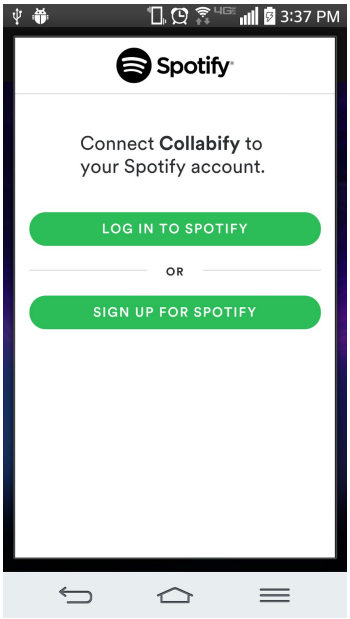
2. Blacklisted users are users who have been 'blacklisted' by the DJ. Unlike default Collabifiers, Blacklisted users cannot add, remove, or vote on songs in the Event Playlist.

3. Promoted users are users that the DJ has 'promoted' in the event. Promoted users can do everything that default Collabifiers can, but also have the power to remove songs from the playlist, essentially 'watching over' the playlist for spam or unwanted songs if the DJ is away.

Both DJs and Collabifiers can also view the 'About' section from their respective settings views.

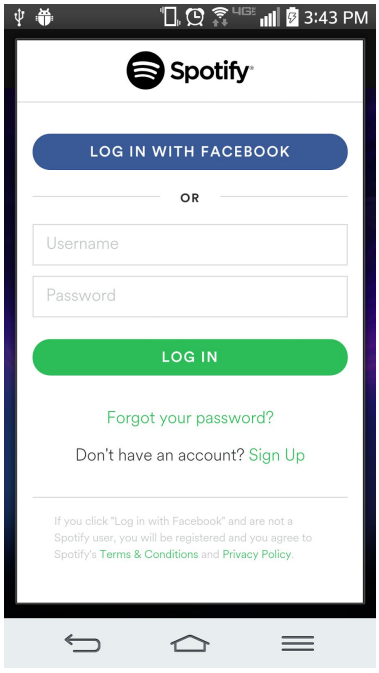
3.0 QUICK START GUIDE

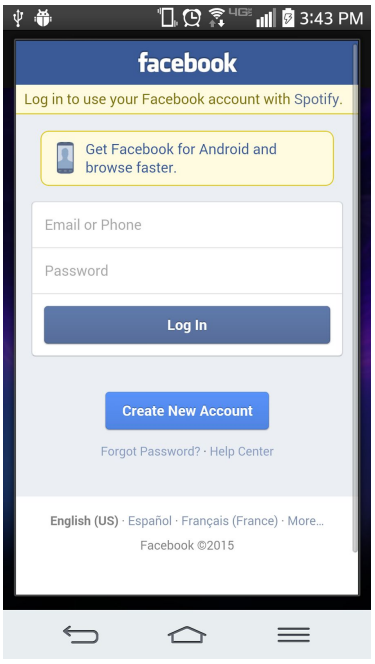
3.1 Logging On (Gaining Access to the System)



1) Hit the “Log In With Spotify Button”
2) On next screen, choose to either “Log In To Spotify” if you already have a spotify or facebook account, or “Sign Up For Spotify” if you need to create an account.

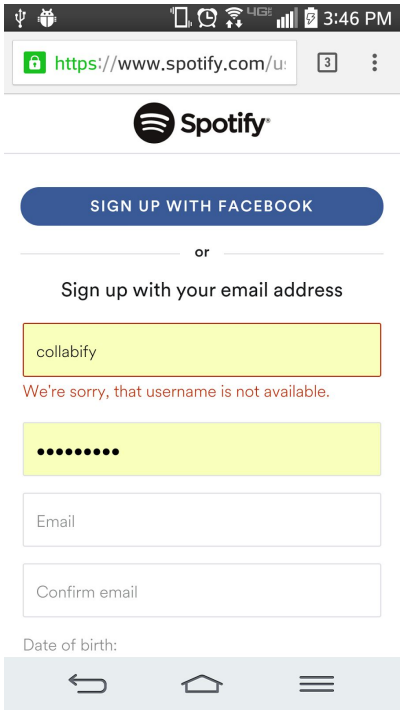
Logging In

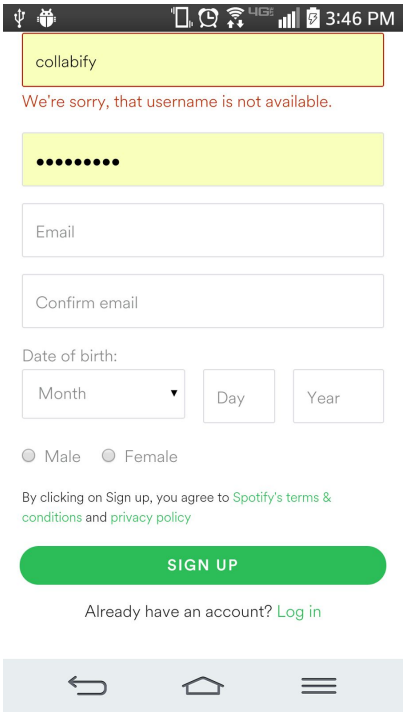




Either Hit Log in with Facebook, or enter your Spotify username and password and hit Log In.
If you hit “Log In With Facebook”, enter your login credentials in the next window and hit “Log In”

Spotify Sign up





Enter the required information and hit “Sign Up”

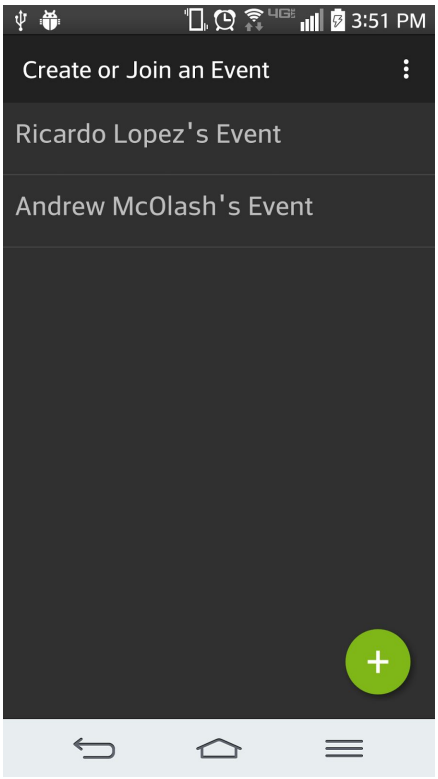
Facebook Sign up

Enter the required information and hit “Sign Up”

3.2 Primary App Functions

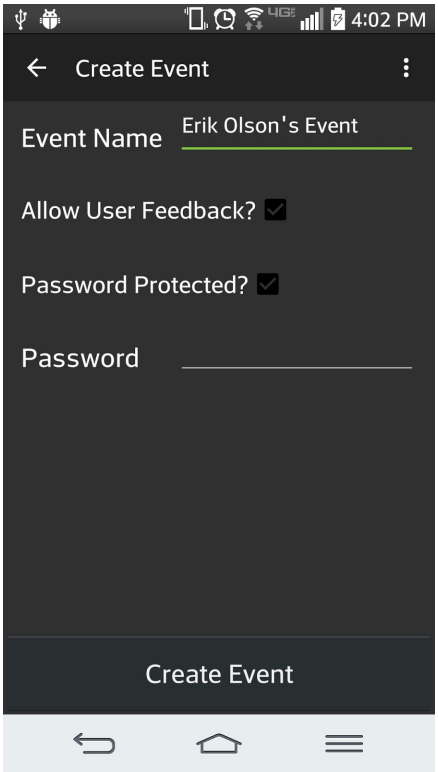
3.2.1 Join Event

After signing in, this is the first screen you are brought to. The list of events is auto populated based on your GPS location. You can click on an event to join it, at which point you will be able to do functions 3.2.3, 3.2.4, and possibly 3.2.5. Hitting the green circle with the white plus in the bottom right corner brings you to the create event page, described in 3.2.2. Joining an event should be almost immediate.



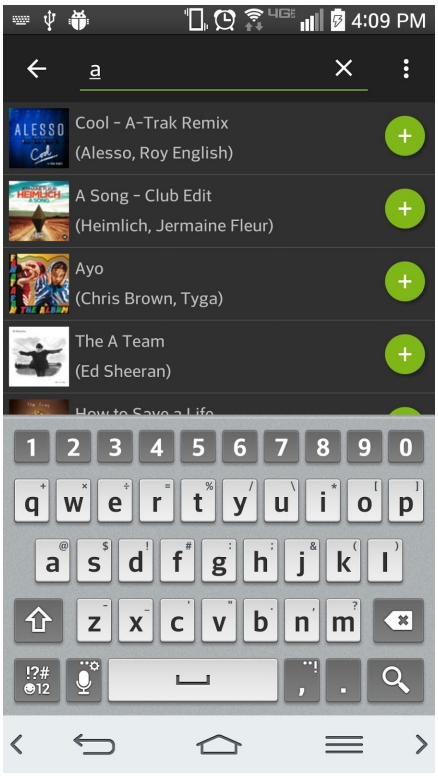
3.2.2 Create Event

On the create event page, you can set some options for your event before starting it. You must enter an event name, which is displayed on the Join Event page. If you want users to be able to vote on songs to determine the playback order, you must check “Allow User Feedback?”. If you want users to enter a password before joining your event, enable the “Password Protected?” checkbox and type password in the available field. After setting these as desired, hit the Create Event button to make it available to join. From the next page you will be able to do 3.2.3, 3.2.4, 3.2.7. Creating an event should be almost immediate.



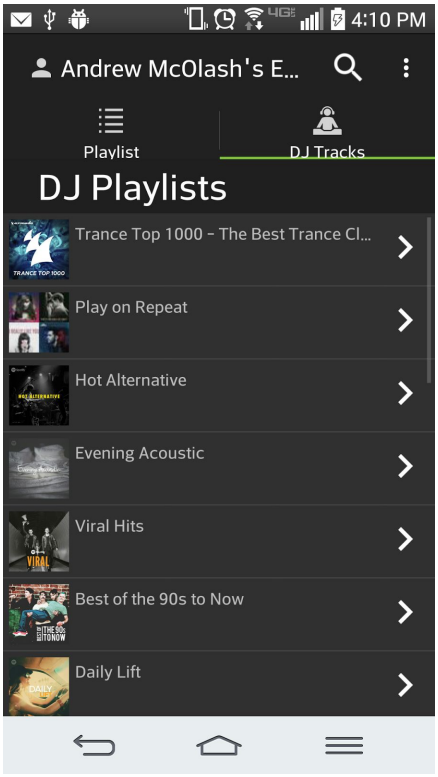
3.2.3 Add Song Through Search

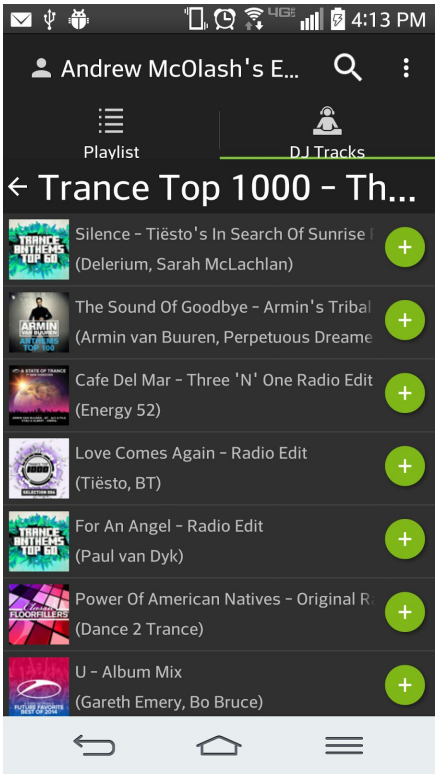
After creating or joining an event, you are brought to a window with a few tabs. In the action bar at the top of the screen there is a magnifying glass icon. After hitting this icon, you can type in the name of a song, album, or artist, hit the enter button on the keyboard, and the app will load spotify songs that matched your query. It may take a second to load the songs depending on your connection speed. Next to each song in the search box there is a plus icon that can be tapped to add the song to the bottom of the playlist. Hit the back button to return to the playlist.



3.2.4 Add Song Through DJ Tracks

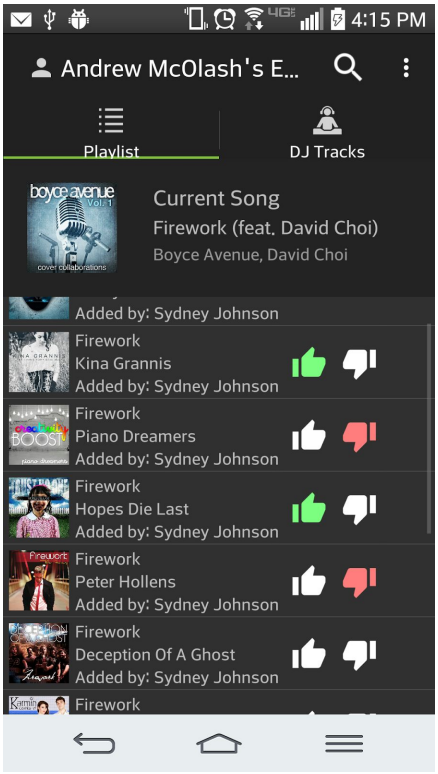
After creating or joining an event, you can browse through the DJ's public playlists in the DJ Tracks tab. Clicking on any playlist here will open up a list of the songs from the playlist which can be added by clicking on the little plus icon. It may take a second to load the playlists and tracks depending on your connection speed. To go back to seeing the list of playlists, you must hit the left arrow next to the playlist's name.





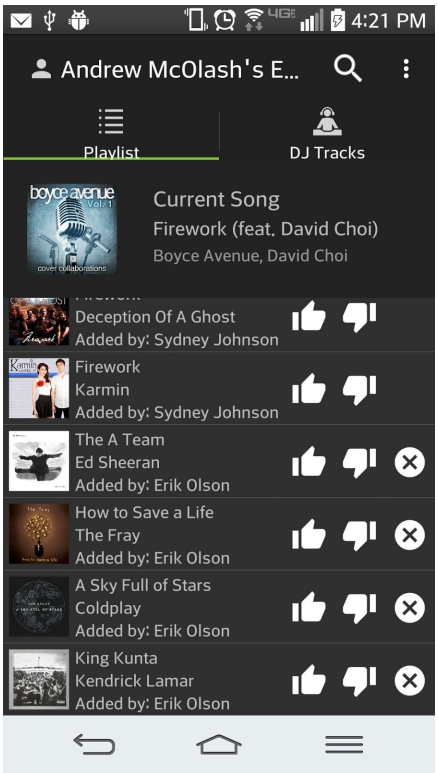
3.2.5 Vote On Songs

After joining an event where the DJ has chosen to “Allow User Feedback”, from the playlist tab you will be able to vote on songs added to the playlist to influence the playback ordering. Simply hit the thumbs up or thumbs down to vote for the song to be played sooner or later. After pressing one, the color changes to indicate your selection. Voting should happen instantaneously.



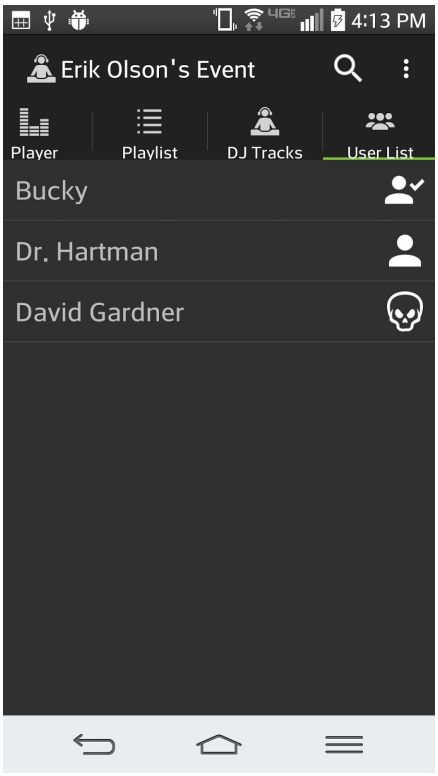
3.2.6 Delete Playlist Songs

If you have personally added songs to a playlist, are a promoted used, or are they DJ of an event, you will be able to remove songs that have an ‘X’ icon right aligned in the row by clicking on it. Deleting songs happens nearly instantaneously.



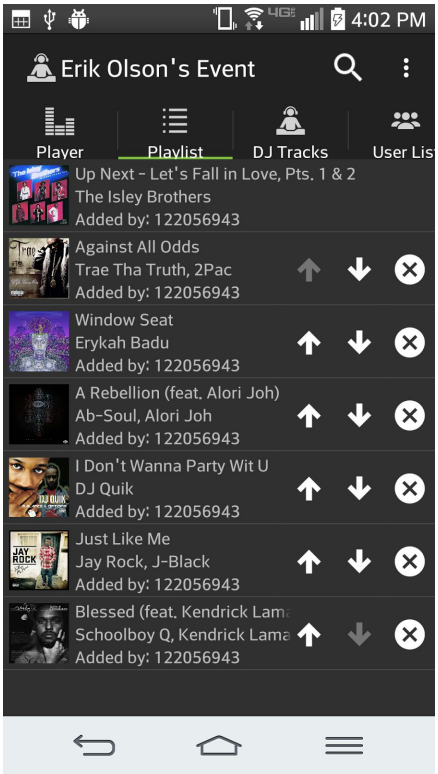
3.2.7 Change User Permissions

After creating an event and users have joined your event, you will be able to change their permissions from the “User List” tab. For example, if a user is spamming the playlist with poor song selections, you may want to blacklist them in order to prevent them from adding or voting on songs. You can promote users to give them the ability to remove any song from the playlist. This is done by clicking on someone’s name in the list, and choosing their new role. The current user roles are indicated by the icons: person is normal, person with check is promoted, and skull is blacklisted. Changing roles happens nearly instantaneously.



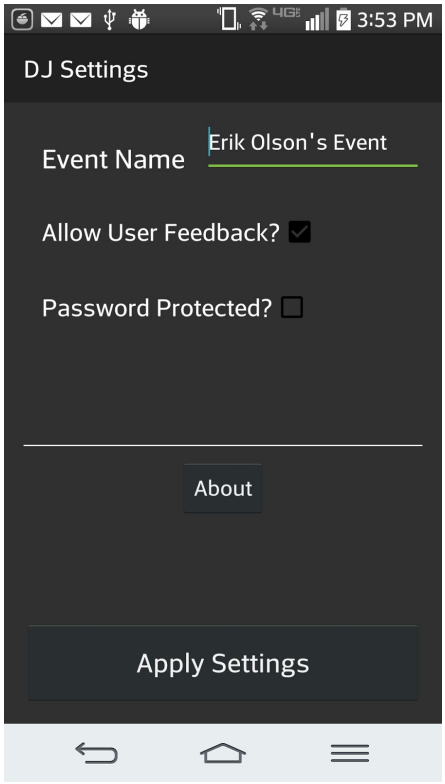
3.2.8 Reorder Playlist

After creating an event and there have been songs added to the event, you can manually reorder the songs in the playlist if you desire. Hitting the up arrow will move the song up one position, while the down arrow will move the song down one position. Reordering songs happens nearly instantaneously.



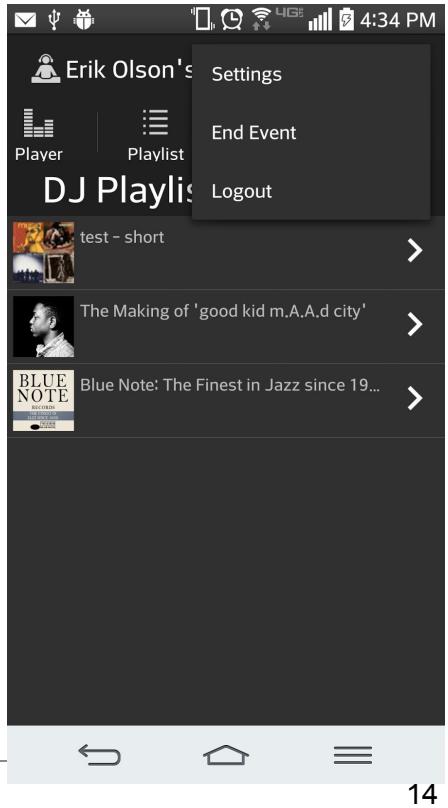
3.2.9 Update Event Settings

After creating an event, you can change the event settings at any time by hitting the three dots in the upper right hand corner of the app and entering new information in the settings window. You must hit the “Apply Settings” button for them to be changed. These settings change nearly instantaneously.



3.3 Exiting the System

Exiting the system is very simple. If you are a collabifier at an event and want to leave the event but not close the app or logout, you can simply hit the phone’s back button, or hit the “Leave Event” option from the hamburger button menu. As the DJ of an event, you can hit the back button or hit “End Event” from the hamburger button menu, but this will stop the playback. If you want to logout of the app you can select “Logout” from the hamburger button menu at any time, but this will end an event if you are a DJ. Closing the app can be done just by hitting the back button several times.



3.4 Special Instructions for Error Correction

Collabify is under constant development therefore errors can be expected to occur. Please perform the following actions to get the application back in regular working condition.

Error while attending an event: If you are getting error notifications while trying to vote on, remove, or add songs your permission level may have been changed by the DJ. Please refresh the playlist by pulling down on the playlist. If you are still getting errors, leave the event by hitting the back button or leave event button in the pull down menu. Your songs and votes will be saved upon rejoining the event. If errors continue to persist try relogging into the event. Logout using the logout button in the pull down menu and then sign in again. If you are still unable to use the application properly contact the Collabify support team at support@collabify.space.

Error while hosting an event: If you are the host of an event and are having playback issues, first ensure that the playlist is not empty. Some song results are unable to be played through the application due to country code restrictions. Try skipping the current song to fix playback errors. If the playlist or userlist is not responding try pulling down to refresh the lists. If they are still unresponsive try ending the event by hitting the back button or end event button in the pull down menu. Unfortunately, all songs on the playlist will be lost by doing this. Then recreate the event and try adding songs. If errors still persist re log into the app by using the logout button in the pull down menu and then sign in again. If the application is still being unresponsive upon creating events contact the Collabify support team at support@collabify.space.

No events found: If no events are found nearby this may mean no one is hosting an event near you or your GPS is not enabled. First refresh the list by pulling down the event list. If no events are found make sure location services are enabled on your device and that Collabify has access to them. This can be done by going into your devices settings and viewing the location settings. Restart the application once location services has been enabled. If you are still receiving errors try restarting your device. If the application is still being unresponsive upon searching for events contact the Collabify support team at support@collabify.space.

Cannot create event: To create events you must have location services enabled and be signed in with a Premium Spotify account. Please go into your devices settings to enable location services. If you have followed the upgrade link in the application and can still not create events, please allow at least 20 minutes for the upgrade to register with Spotify. After waiting relog into Collabify and try creating an event. If the error continues contact the Collabify support team at support@collabify.space.

4.0 FUTURE ENHANCEMENTS

4.1 Future Functionality

Login: At the moment if the user has ended the app and reopens it he/she must press the ‘login with spotify’ button in order to proceed even though he/she has already logged in once and has not logged out. This could and should be simplified in order to improve user experience.

Security/Authentication: TLS will be required in order to secure sensitive user information that is passed from the app to the server. While this will secure the delivery of data, authentication will also be required in order to ensure that the data being delivered is coming from a valid source (i.e. the app).

Websockets: In order to provide a more satisfying user experience, real-time updates via websockets should be implemented. Since the main purpose of the app is to simplify collaboration, there are changes occurring in the event all the time. Real-time updates will allow the user to know about the updates as soon as they happen.

Multiplatform: In the future, there is the possibility of making either an iOS application, or a web application, which would allow for a greater population of users to have access to Collabify.

4.2 Similar Systems – Additional Functionality

Other music streaming, or music playing, application have features that enrich the user experience, and Collabify would benefit from having.

Spotify - saving playlists: Spotify allows its users to ‘follow’ playlists, which saves the playlist to their account for easy future access and replayability. Collabify would implement this feature by allowing user to ‘follow’ the event’s playlist once the event ends or theuser leaves the event. This would allow users to look back on their event’s music and play favorite songs from that playlist again at future events.

iTunes - drag and drop song reordering: iTunes acts as a library for a user’s music. It also allows the creation of playlists made from the user’s songs. These playlists can be easily reordered and modified using a drag and drop interface. Collabify currently implements reordering using up and down arrows on each song in the playlist. This means if the DJ user would like to move a song from the bottom of a large playlist to the top they would have to

repeatedly hit the up arrow key. By implementing drag and drop reordering the DJ would be able to easily reorder large playlists.

Pandora - automatic playlist generation: Pandora generates playlists to stream based on a theme chosen by the user. This make it easy for the user to listen to music without having to chose each song they want to listen too. Collabify could implement an option that automatically adds songs to the playlist once the playlist gets below a certain number of songs. The songs added to the playlist would be based on the type of music currently on the playlist. This way users can continue listening to music without having to constantly manage the app.

4.3 Maintenance Capabilities

For the future, the development team will be looking into getting the application into the Google Play store. In order to provide updates on the Google Play store, there will be the need to make new builds of the code and accordingly upload those changes.

Maintenance of the server should not be necessary often. We will occasionally need to update software packages for the server. In the event that maintenance needs to be performed, the server may become unavailable for a brief period of time, and information stored in the database is not guaranteed to be persisted in this event. The developers do not believe that this is a critical issue, because all information stored in the database is meant to be relatively short-lived (i.e., only needed for the several hours that an event could last).

Keeping the collabify.space domain name after the current year will need to be discussed by the members of the group in the coming months. If the application seems to be successful, a renewal of the subscription to our domain provider, NameCheap, will be necessary. Additionally, after one year of operation, using Amazon's Elastic Compute Cloud (EC2) to host the Collabify server will no longer be free. EC2 charges $75 annually for a single micro instance (the current tier used by Collabify).