Manual for Installation and Usage of the PERLA Application

The PERLA app allows real-time location sharing and tracking on a map.
It also allows users to share points of interest, chat in rooms, and split users into teams. The PERLA app is an extension of the Locus Map app and will not work without it. The main goal of this app is in combination with Locus Map to serve as a simplified BMS (Battlefield Management System). This manual was also used during test in uncontrolled environment.

Instalation

Requirements

- Device with Android operating system (minimum API is 29, tested on API 33, 34)
- Downloaded the Locus Map app
- Network connection
- Active GPS
- At least 4GB of free storage (the app has around 82MB; the rest is for photos

Installation steps

If you are using Google Drive to install the app on an Android device, a dialog box should appear when you press the ".apk" file. The package installer option should be shown, and you should choose it. Then, the application will be installed.
The other option that will be there, even if there is no installer option, is to download the file. With the second option, the phone may report that it is a potentially dangerous file. Ignore this. It only shows up because the file is too big for the system to check for malware. When the file is downloaded, you can install the ".apk" file by clicking on it. Android has it set by default that it doesn't allow you to install apps from files, and if you don't already have that enabled, it will show you a prompt to settings where you allow it, and the app will then install. If you are installing an application by directly sending the ".apk" file to the device from the computer, store it anywhere where you can access it from the storage application. Then, you will install it from that application. The last option is to install it through Intellij. This can be done if IntelliJ detects that it is an Android project (or you can "create" a new Android project and move source files there). Then you need to enable developer options on your device (every phone has it differently, but usually, you tap seven times on the phone name or OS version in the Phone

Information settings menu. Note that if you try to use an Android emulator, its location can not be changed and will constantly be somewhere near Los Angeles.

Before first run

Permissions

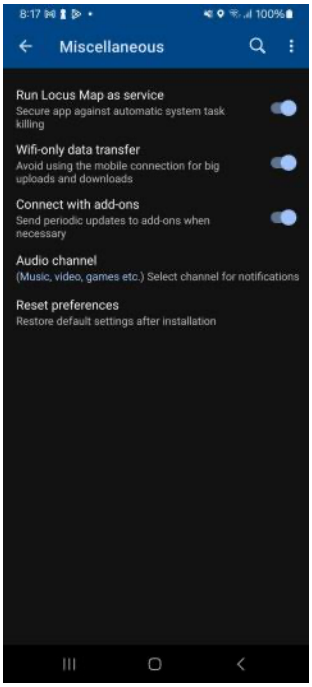
Before starting the PERLA application, you need to give it permission in the system settings. These are precisely the camera, location, and notification permissions.

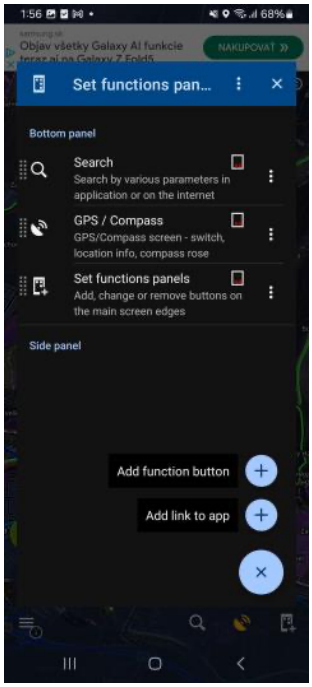
Note: Remember to do this step, or else forgotten location permission will show up when you try to fill in the connection details. Instead of filling in the fields, a red text saying you forgot to do this will appear. A forgotten camera will show up when you want to add a photo to a point; nothing happens when you press the button to take a photo.

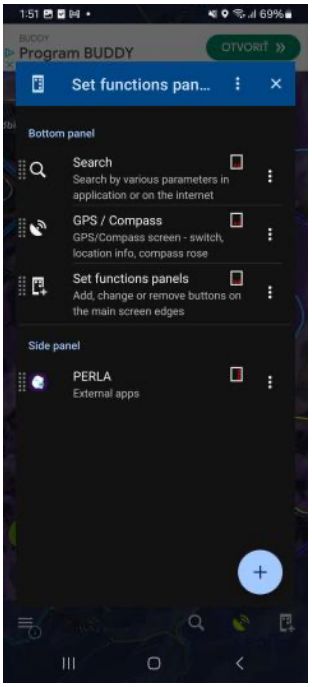
Locus Map

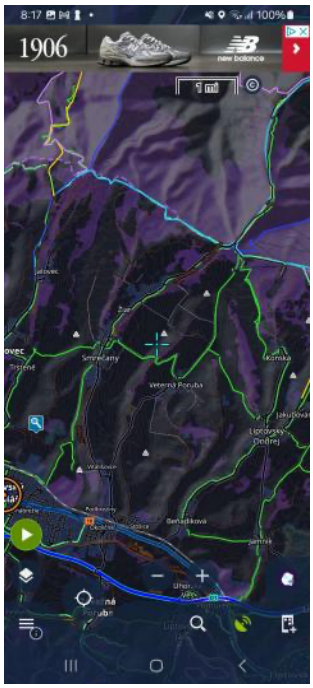
For PERLA to work correctly, you must set a few more things for Locus Map.

First, you need Locus Map to run as a service and to communicate with the add-ons. You put this in the application settings under Miscellaneous, where you enable the Run Locus Map as a service and Connect with add-ons options.







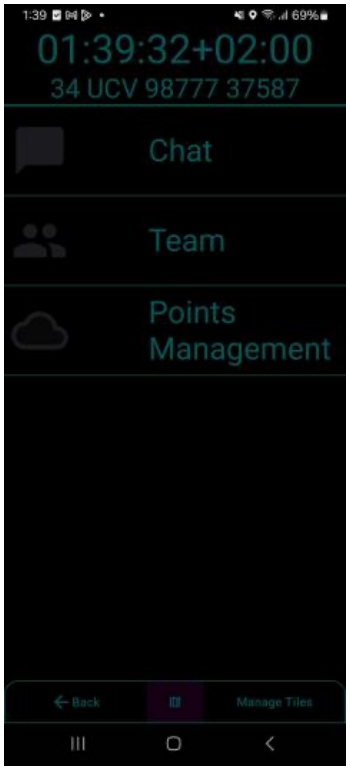


Secondly, on the main screen, you need to press the Set functions panel (the icon with the phone and a small plus sign at the bottom). This will open a window where you press the plus sign in the left corner and select the Add Application button! You will then find the PERLA application and select it. If you have done everything correctly, you should see the PERLA icon in the bottom right corner of the main screen (the head is negative with a purple background). When you press it, you should see a menu PERLA.

Note: If you forget the first point, no point will be sent to Locus if it is turned off. If you don't connect the app with the add-ons, PERLA will not show up anywhere in Locus. On the second point, if you make a mistake, when you press the PERLA icon, you will be in the PERLA menu, but when you check running applications, you will see that you are still in Locus. This means you put a function button instead of an application button. To fix this, delete it from here and redo it. Hopefully, you will get it right.

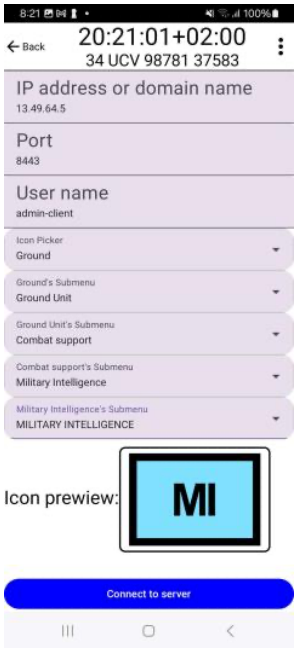
Using the app

To access the main menu, press the icon you added in the previous section at the second point. You can also open a PERLA client like any other application. Do not turn off the application when you connect to the server and start service. Even though the service will run even when the application is turned off, it greatly increases the chances of the OS killing it when the system is running low on resources. You can still navigate within a map or be in another application, but PERLA must be running.



Connecting to server

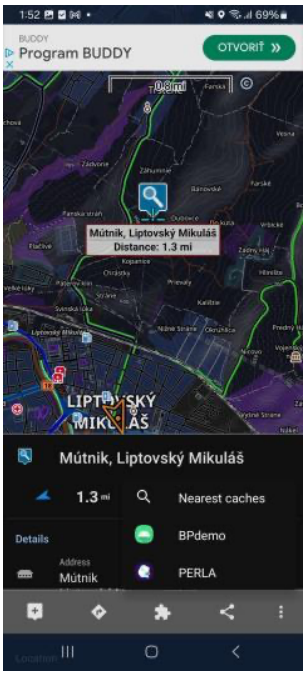
To connect to the server, navigate to a team in the main menu. You must fill in the server details there. More precisely, an IP address or host, port, username, and icon. If you want to test the client on the publicly available server, you can enter 13.49.64.5 in the IP field, and the port will be 8443. It is a testing server run at my own expense on Amazon AWS. My friends use it when I need to test something, but sometimes they use it because they just use it. Then press Connect to server.

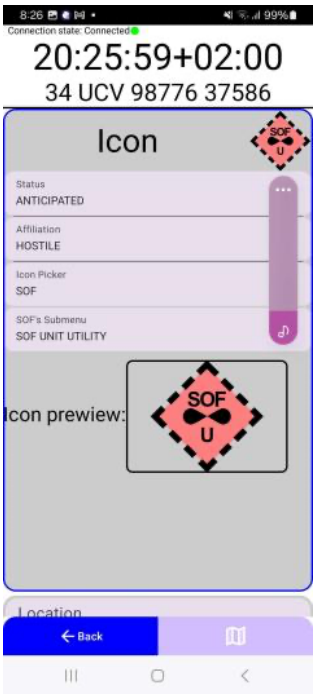


After about a second, the application will move you to the next screen, where you control location sharing and other things. In case of an error, you will not be redirected, and an error message will appear under the location (error in most cases means that your name is not unique or that you don't have access to the internet otherwise). In the screen you are redirected to, you will control whether you are connected or not. If you are connected, you can turn on location sharing and adjust the location sharing interval. At the bottom, you will see connected users or existing teams. Users who will have the map icon next to them are sharing their location, and if you click their name, you will be redirected to a map that will be centered on that person.

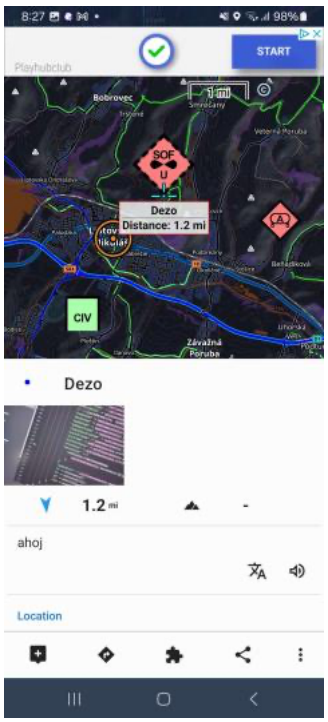
Point creation

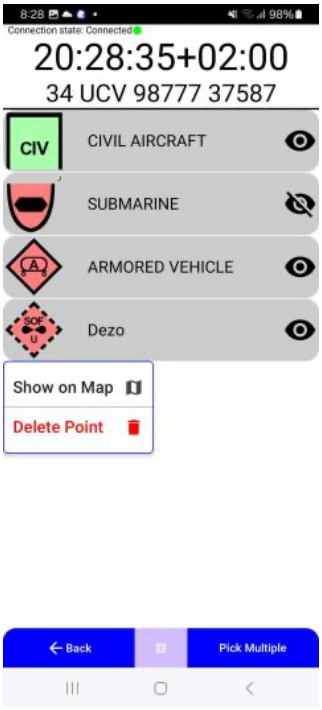
To create a point, press on the place on the map where you want the point to be. Locus promt will appear with a puzzle icon on the bottom bar. Press it, and the PERLA icon should appear. Press that. You will then be able to create a point.
All you need to do is fill in the points icon. Other things can be left blank. The name does not have to be unique, and if it is not filled in, the name of the picked symbol will be inserted instead. When everything is filled in, you either press Create Point Online if you want to share it or Create Point Offline if you only want to have point stored locally. At this point, you will be redirected to the main screen, where you should see the point. Note: When you create a point and return to the map, you will still see the point on the screen from the old prompt. If you want to see the point, you have to press on it on the map. When you press on the point on the map, you will see its name, photos, and description.





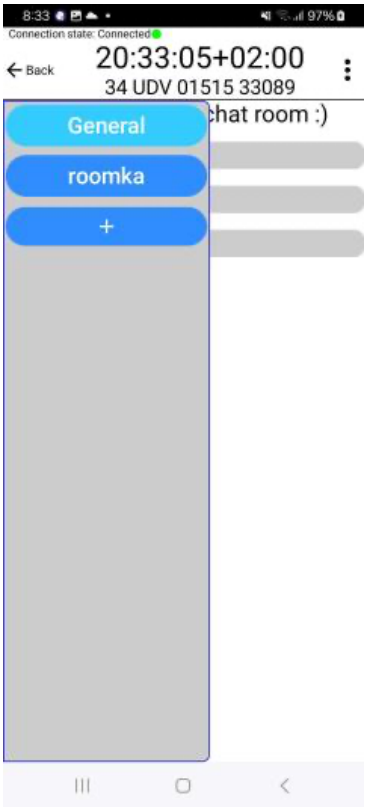
If you press the puzzle again and PERLA, you will see the same info, and if the point is yours, you will have the option to edit it. Note: Points are NOT shared between Locus and PERLA; i.e., you will not see the points from Locus in the PERLA menu and vice versa. Also, if you would like to create a PERLA point from a Locus point, the only thing that will be carried over is the position and nothing else. The only place where you can see all PERLA points is Points Management in the main menu. Points are sorted into three folders. My points are your points or points that you can edit. Shared points are points that other users have created, and you can not edit them. All points are a mix of both previous folders.





Chat

Chat is straightforward. It behaves like a classic chat. When you swipe to the right, you can switch between the rooms you're in or
create a new room where you add the users you want to be there. The name of the room name must be unique. Deleting rooms and managing the users in them, unfortunately, at this point, can only done by an admin directly on the server.



Teams

This feature allows you to create teams of users where the team leader can control location sharing from his device. At the same time, he can share the team's location (his location). The team has a symbol to represent it. The team leader can add and remove users from the team and edit its name/symbol or change the leader. One user can be on multiple teams at the same time, but I don't recommend using it this way. At the same time, one person can be the leader of multiple teams; that's the only exception where it's okay for one person to be on multiple teams.

Known Limitations

- If you disable the Locus service and close Locus, the PERLA points will disappear. If all the points would go away like that, just press whatever is associated with PERLA. The points are then reloaded on the map. It's just the behavior of the Locus, and I can't do anything about it

- If you edit a point's location, then anything you've edited in the point won't show up on the map immediately (it does for other people online). Just press any The PERLA point is on the map, and the point will be updated. Again, this is the behavior of Locus that I can't control