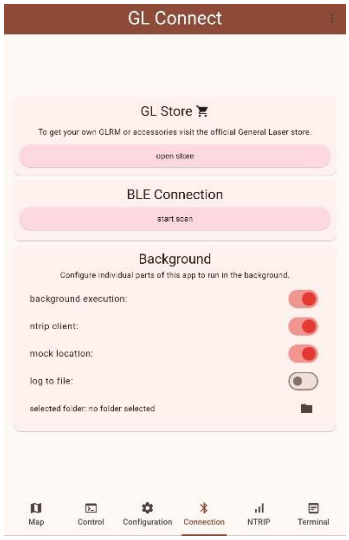
This manual provides a step-by-step guide on how to set up, connect, and perform field surveying using the GLRM GNSS receiver in combination with the Locus GIS application.

NTRIP Client Mock Location

The Mock Location provider replaces the default location data from the internal GPS sensor of the device with high-accuracy, corrected coordinates from the external GLRM GNSS receiver. This allows any location-based application, including Locus GIS, to receive and display these enhanced coordinates without requiring additional configuration within the app.

To ensure proper communication between the GLRM GNSS receiver and Locus GIS, configure the GL Connect app as follows:

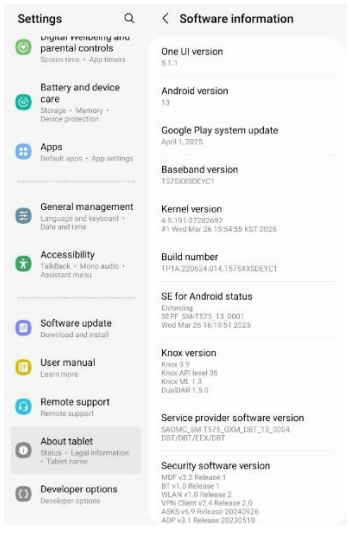
1. Open the GL Connect app.
2. Navigate to the “Connection” tab.
3. Enable the following options:
   - **Background Execution** – Allows the app to run continuously in the background.
   - **NTRIP Client** – Activates real-time correction data streaming via an NTRIP connection.
   - **Mock Location** – Enables the app to provide corrected GNSS coordinates to other applications by overriding the internal GPS location.



Enabling Developer Options on Your Android Device

To allow the use of Mock Location with external GNSS receivers, you first need to unlock the Developer Options on your Android device:

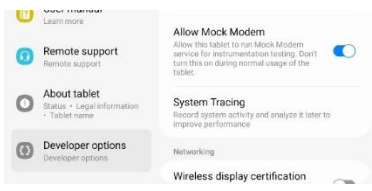
1. Open your device’s Settings.
2. Scroll down and select About Phone (or About Device, depending on your Android version).
3. Locate the Build Number entry.
4. Tap the Build Number repeatedly (approximately 7 times) until you see a message confirming that Developer Options have been unlocked.
5. Return to the main Settings menu, where you will now find a new section called Developer Options.



Allowing Mock Location Access

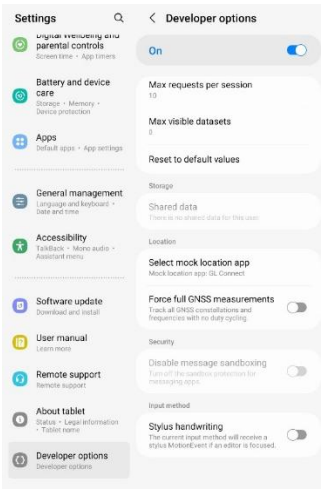
After unlocking Developer Options, follow these steps to enable mock location functionality:

1. Return to the device’s Settings menu and open the newly available Developer Options section.
2. Scroll down to find the Allow Mock Modem tab.
3. Enable the settings.



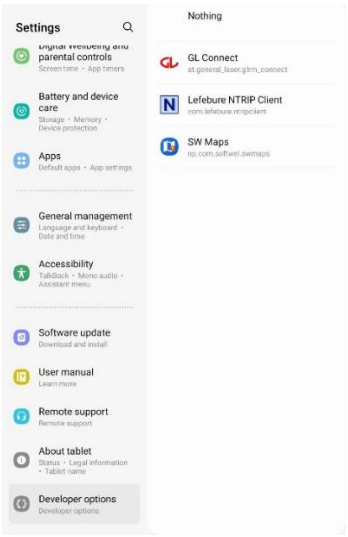
To allow your device to use corrected GNSS data from an external NTRIP client, follow these steps:

1. Navigate to Developer Options (previously unlocked).
2. Tap on Select mock location app.
3. From the list of available apps, select GL Connect.



Once the mock location app is selected and active, all applications on your Android device that use location services will automatically receive the high-accuracy positional data streamed from the GLRM GNSS receiver.

You can now open your preferred survey or GIS application — such as Locus GIS — and begin surveying without any additional configuration. The app will use the corrected coordinates provided by the external receiver instead of the internal GPS.

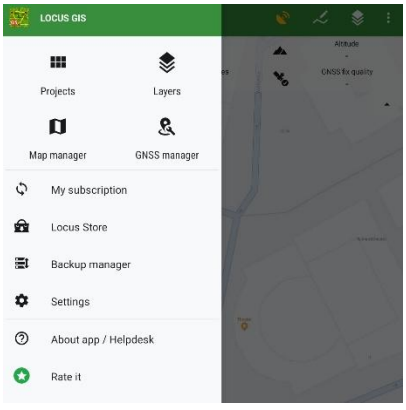


Working with Locus GIS

Locus GIS is a professional mobile GIS application designed for Android devices, enabling efficient collection, editing, and management of geospatial data directly in the field. It supports various industries, including surveying, environmental monitoring, agriculture, forestry, and urban planning.

To begin working with Locus GIS, you must first create a new project:

1. Open the Locus GIS app.
2. Tap the Menu icon in the top-left corner of the screen.
3. Select the “Projects” tab from the menu.
4. Tap the “+” green (plus) icon to create a new project
5. In a new tab, press on “New empty project” in order to access the project settings



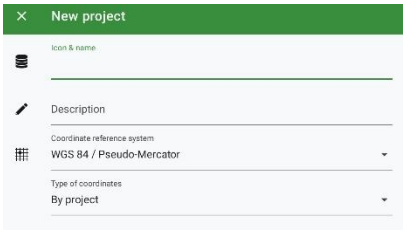
Defining Project Settings

In the Project Settings window, configure the following basic information for your new project:

1. Project Name – Enter a clear and descriptive name for your project.

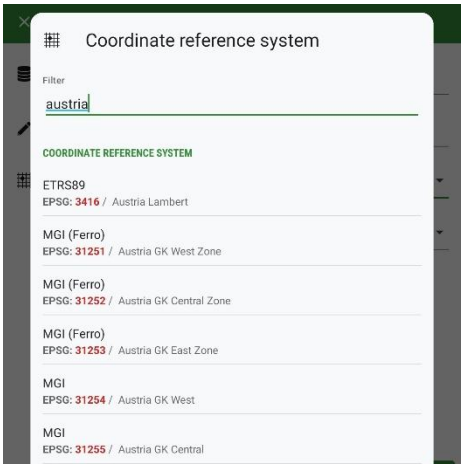
2. Description (optional) – Provide additional details about the project's purpose, location, or scope.

3. Coordinate Reference System (CRS) – Select the appropriate CRS for your project. This defines how geographic data is projected and ensures consistency with your external data sources (e.g., EPSG:31287 – MGI / Austria GK West).



Change the Coordinate Reference System (CRS):

Tap on the name of the predefined CRS to open the list of available coordinate systems. From there, select the CRS that matches your project requirements.



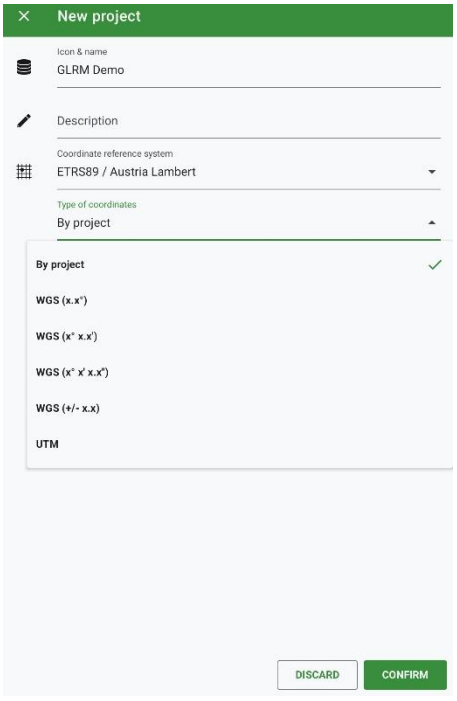
Customize the Project Icon:

To personalize your project, tap on the default icon located next to the "Icon & name" field. You can choose from a variety of symbols to visually distinguish the project.

Finalizing Project Creation

Once you have configured all necessary parameters (project name, description, coordinate reference system, and optional icon), tap the "Confirm" button to complete the setup and create the new project.

You will then be directed to the main project workspace, where you can begin adding layers, collecting spatial data, and managing attributes.



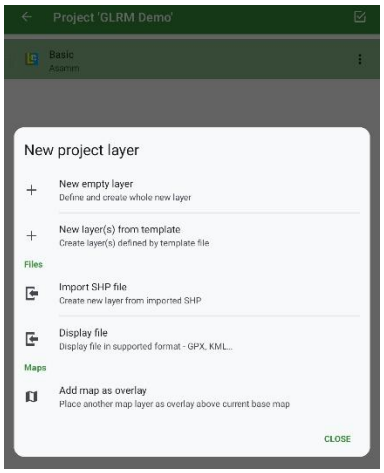
Creating Layers in Locus GIS

After setting up your project, the next step is to create vector data layers, which are essential for collecting and presenting spatial information in the field.

Each layer defines a specific geometry type—such as points, lines, or polygons (areas)—and the associated attributes (metadata) that will be recorded for each feature.

To create a new layer:

1. In your open project, tap the Menu icon (top left corner).
2. Select the “Layers” tab.
3. Tap the green “+” button to create a new vector layer.



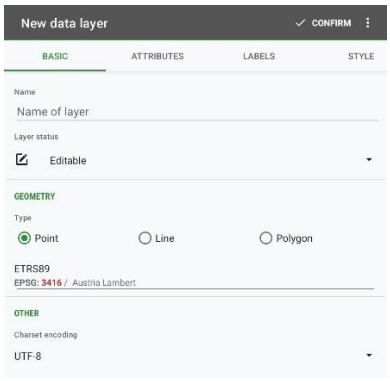
Configuring the Basic Settings of a New Layer

When creating a new vector layer in Locus GIS, the Basic tab of the layer creation dialog allows you to define key parameters:

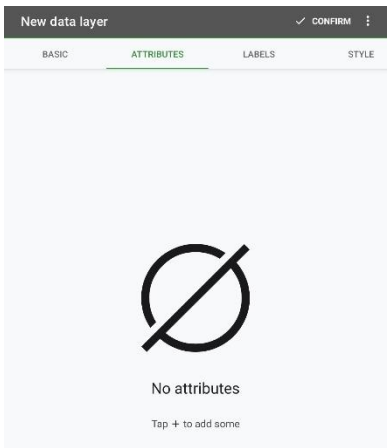
1. Name of Layer: Enter a clear and descriptive name for the layer that reflects the type of features it will contain (e.g., "Tree Inventory", "Parcel Boundaries").
2. Charset encoding: This defines the character encoding used in the underlying SpatiaLite database.

   Note: We recommend using the default UTF-8 encoding for compatibility and multilingual character support.

3. Type: Select the geometry type for the layer:
4. Coordinate Reference System (CRS): Defines the spatial reference system in which the data will be stored.



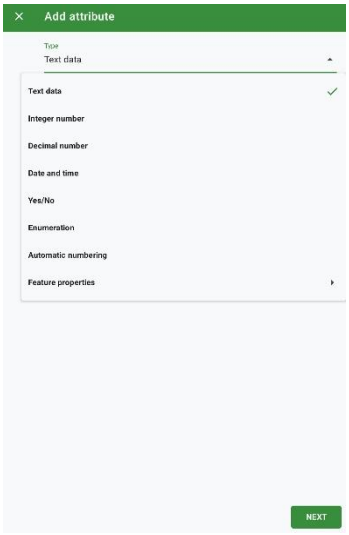
In the “Attributes” tab of the layer creation dialog, you can define the data fields (form entries) that will be used to describe each collected feature.



Supported Attribute Types in Locus GIS

When creating attributes for a layer, the following types are available:

1. Text – For plain text (e.g., names, notes).
2. Integer – Whole numbers (e.g., ID, quantity).
3. Decimal – Real numbers with decimals (e.g., measurements).
4. Date – Date and time; defaults to current but can be edited.
5. Yes/No – Boolean field for binary values.
6. Enumeration – Drop-down list with predefined values.
7. Automatic Numbering – Auto-incremented integer (e.g., feature ID).
8. Feature Properties – Auto-filled values like coordinates, length, or area based on geometry type.



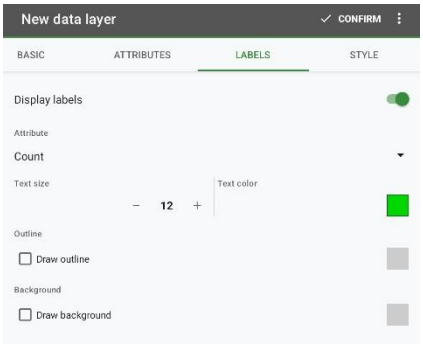
Label Settings in Locus GIS

Labels show feature info directly on the map.

To set them up:

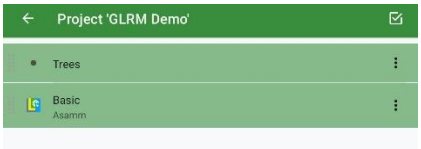
1. In Layer Settings, open the Labels tab.
2. Enable labels.
3. Choose attribute to display.
4. Adjust style:

- Text size: use + / –
- Text color: select via color picker
- Improve visibility with outline or background



Save the Layer

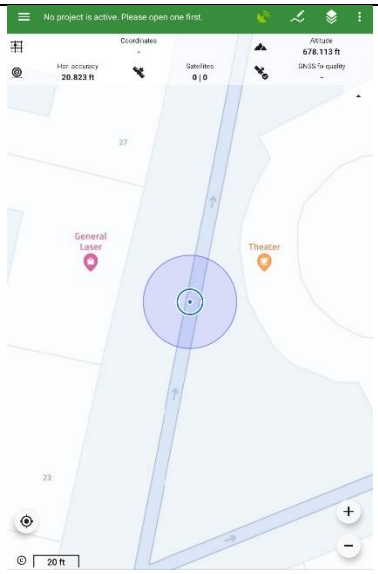
Once all settings and attributes are configured, tap the Confirm button to save the new layer. It will now appear in your project and is ready for data collection.



Starting Field Work

1. Turn on the GNSS receiver.
2. Ensure Mock Location is enabled and configured correctly.
3. Open Locus GIS – it will automatically use the corrected position from the receiver.

You're now ready to begin data collection in the field.

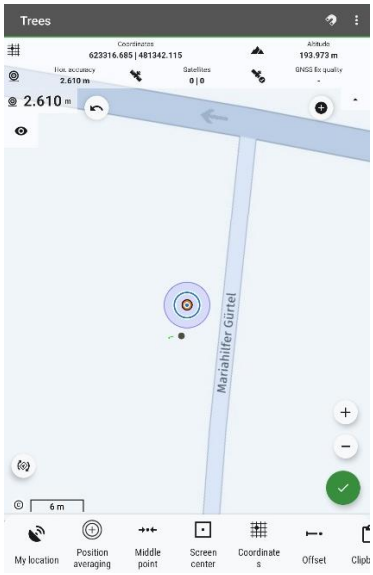


Mapping new point, lines, or polygons

1. Tap the "+" button and select the layer you want to use for saving the new feature.
2. Choose how to set the feature's location:

For Point Layers:

- My Location – Uses the current GNSS position.
- Screen Center – Uses the coordinates at the center cross of the map view.
- Coordinates – Manually enter specific coordinates.



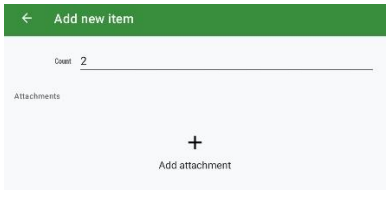
Adding Attachments to Features

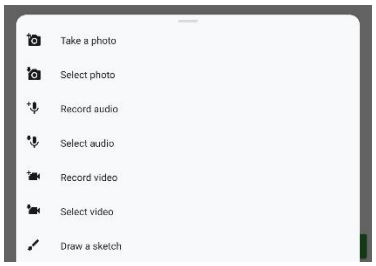
You can enrich a mapped feature with additional media or notes:

1. Tap "Add attachment" in the feature form.
2. Choose from the available options:

- Take photo / Select photo
- Record audio / Select audio
- Record video / Select video
- Draw a sketch

These attachments are saved with the feature and can be viewed later directly in the project.



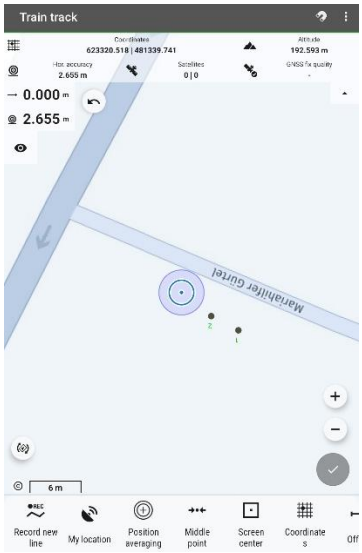


Mapping Lines or Polygons

When adding a new line or polygon feature, you can define vertices using one of the following methods:

- Record new line/polygon – Automatically records the geometry by tracking your device's movement.
- My Location – Adds each vertex based on your current GNSS position.
- Screen Center – Adds vertices using the coordinates at the center cross of the map.
- Coordinates – Manually enter precise coordinates for each vertex.

Choose the method that best suits your mapping scenario.



Recording Profiles for Lines and Polygons

Lines and polygons are recorded using a recording profile, which defines how the geometry is captured.

To access or edit a profile:

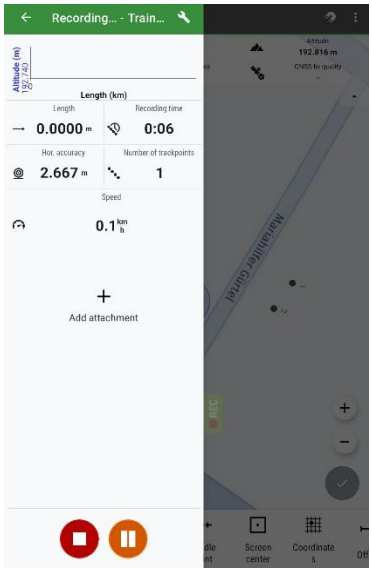
- Go to App Settings > Recording > [select profile]

Here you can:

- Edit the profile name
- Delete the profile if no longer needed

To create a new profile, go back to App Settings > Recording and tap the add (+) button.

Recording profiles control parameters like logging intervals, trackpoint recording conditions, and more—ensuring flexible data capture based on your needs.

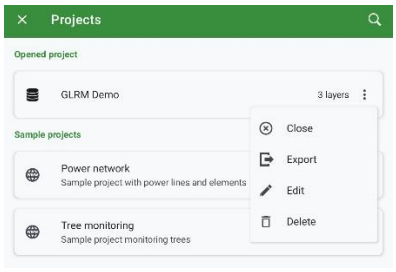


Exporting a Project in Locus GIS

To export your current project:

1. Open the Menu tab.
2. Tap on the name of the active project to select it.
3. Press the settings icon, next to the project name to open project settings.

From there, you can proceed to export your project in supported formats.



Choose your preferred export format from the list: • SHP (Shapefile) • CSV • KML • ZIP • QGIS 3 project format • Template (to reuse the project structure) Select the format that best suits your workflow or target application.