

— TAVAK ENTERPRISE EDITION

From the surveyor's phone to **your own server**

An introduction to the Tavak mobile app and Tavak Server for organizations that collect spatial data in the field.

Introduction

spatialize.dev/tavak

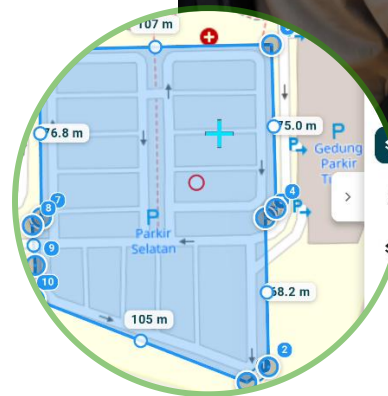


Table of contents

01.

The field problem

Why survey data goes astray between the site and the office.

02.

What Tavak is

One app for surveyors and one server for the office.

03.

The phone app

Offline maps, positioning, forms, photos and export.

04.

Enrollment

How phones join the organization and hold a seat.

05.

Tavak Server

Its pages, the live map and the deliveries.

06.

Control

Forms, deployments, policy and what can be locked.

07.

Analysis

GeoLibre and Homestead, in the browser, on your data.

08.

Hosting and pricing

Security, server requirements, prices and first steps.

Where field data goes wrong

Field teams do careful work. Much of its value is lost on the way back to the office.

01

Files arrive late

Surveys travel by email and chat, one file at a time, often days after the work was done.

02

Every phone is set differently

One surveyor records in UTM and another in degrees. Accuracy limits and photo settings vary from person to person.

03

Photos lose their context

A picture without a position, a time and a project name proves very little a year later.

04

The office cannot see the crew

Managers learn where the crew went and what it collected only after the fact.

One system with **two halves**

Surveyors collect data with the Tavak app on Android phones. The organization receives and manages it on Tavak Server, on its own machine.

IN THE FIELD

Tavak app

Works offline, records GPS tracks and objects with their forms, and takes stamped photos and videos.

IN THE OFFICE

Tavak Server

Used in the browser to enroll phones, set policy and follow the crew. Every survey lands in your PostGIS database.

AT THE DESK

GeoLibre, Homestead

A web GIS for analysis, and Homestead for preparing data, both beside the server.

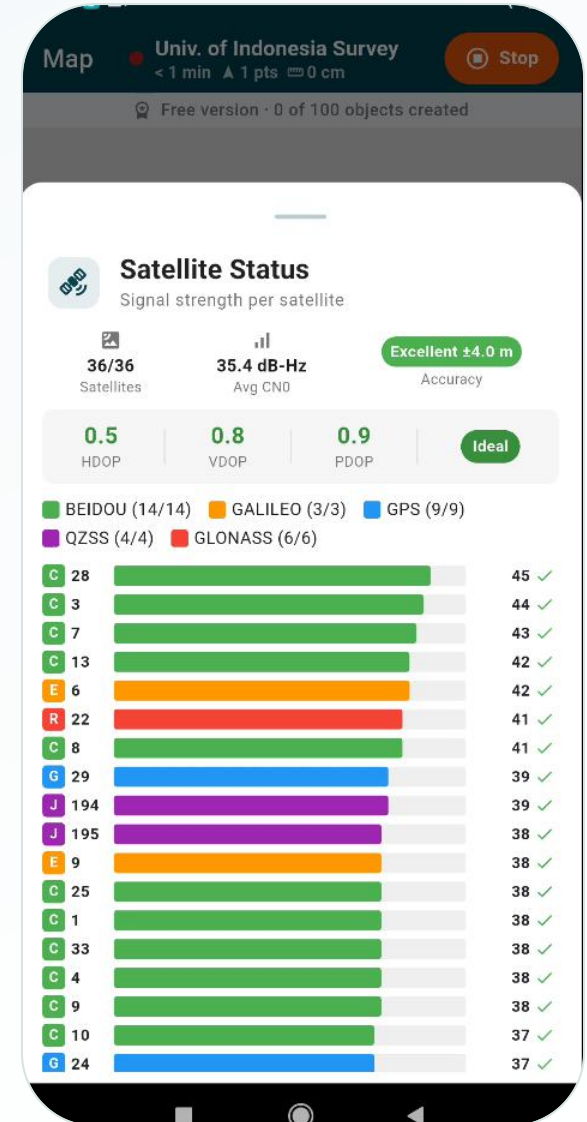
Built to work **without a signal**

- **Everything is stored on the phone first.** Surveys, photos, videos and tracks are kept in a local database, so work continues with no network at all.
- **Offline basemaps.** The built-in basemap keeps every place you have viewed, and MBTiles packages cover whole areas without coverage.
- **Your own maps.** GeoTIFF and GeoPDF files are tiled once on import and then drawn offline like any other basemap.
- **Reference layers.** GeoPackage, Shapefile, GeoJSON, KML, GPX and spreadsheet layers appear on the map, with identify and snapping.
- **Background tracking.** The GPS track keeps recording with the screen locked.



Positions you can stand behind

- **Live GPS quality.** Satellite status and an accuracy indicator are always on the map, with full GNSS diagnostics one tap away.
- **A minimum accuracy for capture.** Photos, videos and features are recorded only while the GPS error is inside the limit, 5 m by default.
- **GPS averaging.** Points that must be exact are taken from several readings, and the organization can make this compulsory.
- **Tracking modes.** High Precision, Balanced or Battery Saver, chosen for the length of the day.
- **Coordinates your way.** Decimal degrees, degrees-minutes-seconds or UTM, in metric or imperial units.



Points, lines and polygons, each with its form

- **Survey layers.** Each layer has its own geometry and its own fields: text, numbers, dropdowns, multiple choice, checkboxes, dates, times, ratings, photos and videos.
- **Forms without code.** Build a form in the visual editor, or paste it from a spreadsheet with one line per field.
- **Snapping.** New vertices snap to the corners and edges of the survey's own objects, so neighboring parcels share one boundary instead of leaving a sliver.
- **Measuring.** Azimuth and distance are shown while you draw, and a measuring tool is always on the map.

The screenshot shows a mobile app interface for describing a polygon. At the top, a dark teal header bar contains a back arrow and the title 'Describe polygon'. Below the header, a light green bar displays 'polygon · 10 points · ±4.0 m' with an 'Edit' button on the right. The form consists of several sections: 'Name' with a text input field containing 'UI south parking lot'; 'Description' with a text input field containing 'Enter description'; 'Photos' with a large light blue button featuring a camera icon and the text 'Tap to take photo', and a smaller button below it with a photo icon and the text 'Use a photo from this survey'; and 'Videos' with a 'Back' button and a 'Save' button. At the bottom, a standard Android keyboard is visible.

Photos that show **where they were taken**

Every photo and video carries its position, accuracy, bearing and time in the survey itself.

- **A stamp that holds up.** Coordinates, accuracy and time are always stamped, with the survey name, the place name, your organization's own line and its logo.
- **A map in the corner.** A small street map with a pin shows the spot to readers who do not work with coordinates.
- **The original is kept.** The unstamped photo stays beside the stamped one.



Know where to go and **when you have arrived**

Geofences

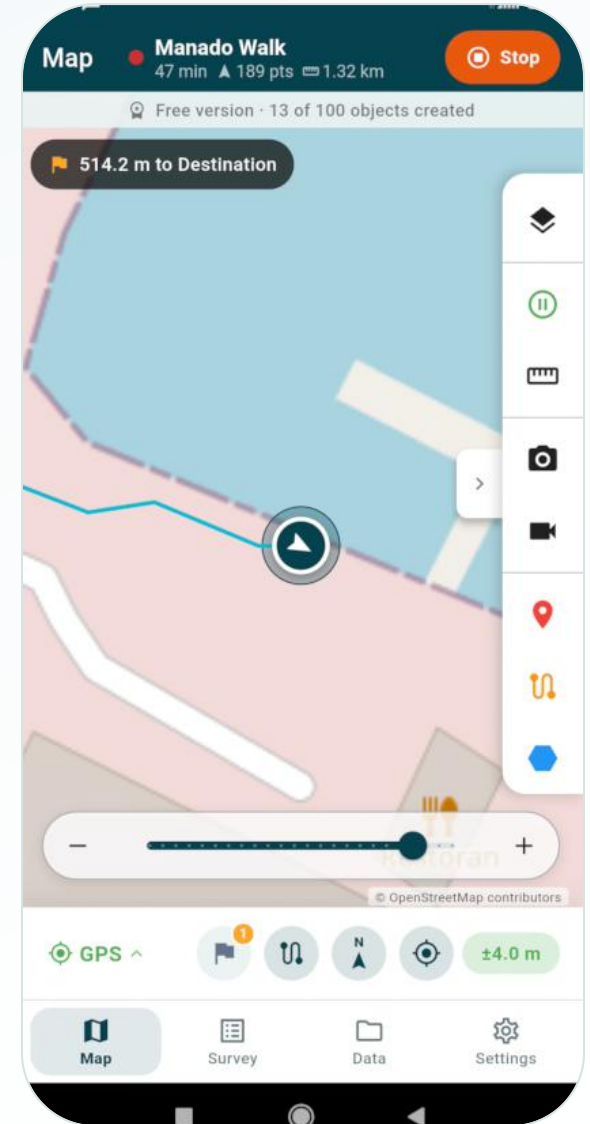
Boundaries drawn on the phone or imported, with an alert on arrival and on departure while surveying.

Landmarks

Saved waypoints, with the bearing and the distance from where you stand.

Destinations from the office

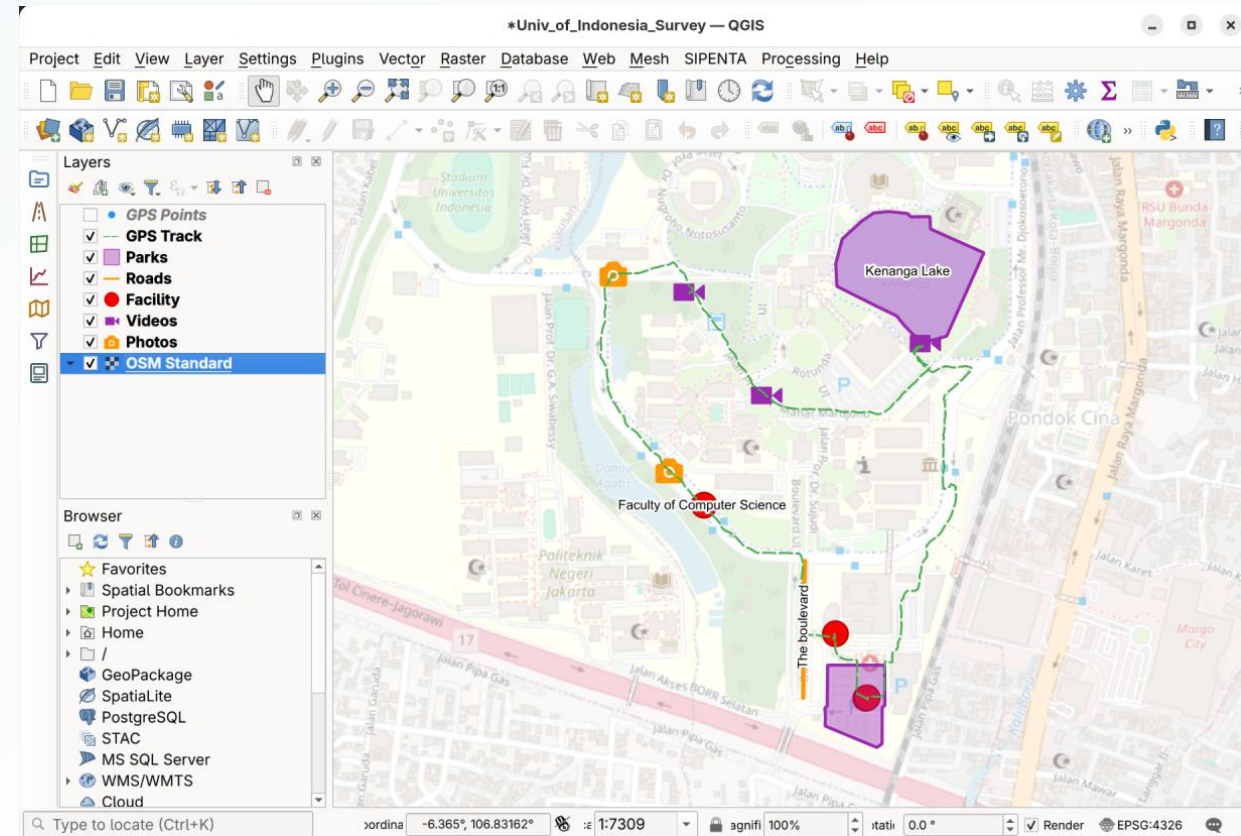
Places the organization sends with the job. The surveyor marks each one as to do, in progress, done or skipped with a reason, and the status goes back to the office.



Opens in QGIS with nothing to set up

- **GeoPackage and a QGIS project.** Layers arrive already styled, with photos previewed in the map tips.
- **Other formats.** Shapefile, GeoJSON, KML and GPX, and Excel coordinate sheets for other GIS software.
- **The .tavak archive.** One file holds a whole survey with its photos and videos, and opens again in Tavak or in Homestead.
- **Spatial index included.** Every GeoPackage leaves the phone with its R-tree index, so large layers open quickly.

In the Enterprise edition, the organization decides whether surveyors may export and share at all.



One phone, one seat, **one** surveyor

- **A token with a QR code.** A manager creates it in the surveyor's name, and the phone scans it to join the site.
- **A whole crew at once.** Paste a list of names, and the server prints an A4 sheet with one QR card per surveyor.
- **A seat is a phone, not a person.** When a surveyor moves to a new phone, the old one is released and the seat moves with them.
- **Nothing hidden from the surveyor.** The phone says who receives its position and how often, and the surveyor may leave the organization, which lifts every lock.
- **Full access.** While enrolled, the app is provided by the organization, with no purchase prompts.

6:56 91%

Join an organisation

Your organisation gives you a QR code or a token. Scan the QR code with the phone's camera app and this form fills itself in, or enter the Server address and the token below.

Server address
https://tavaks.gisvertex.com

Enrolment token
FGA4-JWD8-K6TW

What the organisation sees

- 📶 Your surveys, delivered on a schedule the organisation sets and whenever you tap Deliver now. Nothing on this phone is deleted by a delivery.
- 👁️ Your position while a survey is recording, at the interval the organisation sets. A notification shows while it runs, and the schedule is shown in Settings > Organisation.
- 📱 The phone's battery, free storage and network at each status report, and the deployments it has installed.
- 🔒 Settings the organisation locks show a lock and the words "Set by" with its name. Leaving the organisation unlocks them and frees the seat; your data stays.

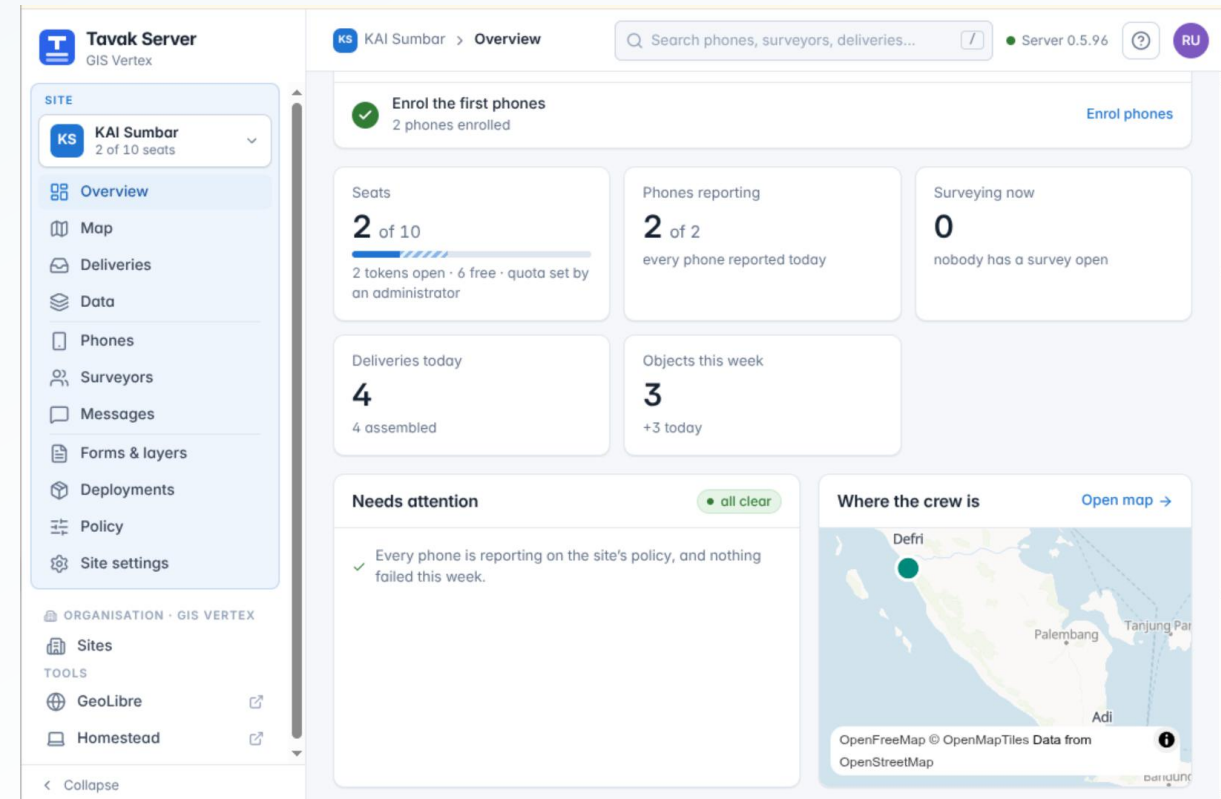
☒ I agree to report my position to the organisation while a survey is recording

Join

The office side, on your own machine

Tavak Server is one program. It runs on your Linux server, keeps everything in your PostgreSQL database with PostGIS, and is used in the browser.

- **Sites.** A site is a project, a region or a contract, with its own phones, forms, policy, data and managers.
- **Two roles.** Administrators see the whole organization. Managers see only the sites granted to them.
- **Seat quotas.** Seats are divided among sites, with a shared pool for the rest.



Every page works on **the site you choose**

A site switcher at the top of the menu sets the context for every page.

Overview

What needs attention today.

Map

Phones, tracks, photos and videos.

Deliveries

Every survey, with its history.

Data

The site's layers, row by row.

Phones and Surveyors

Who holds which phone.

Messages

Text to the field.

Forms & layers

What the phones capture.

Deployments

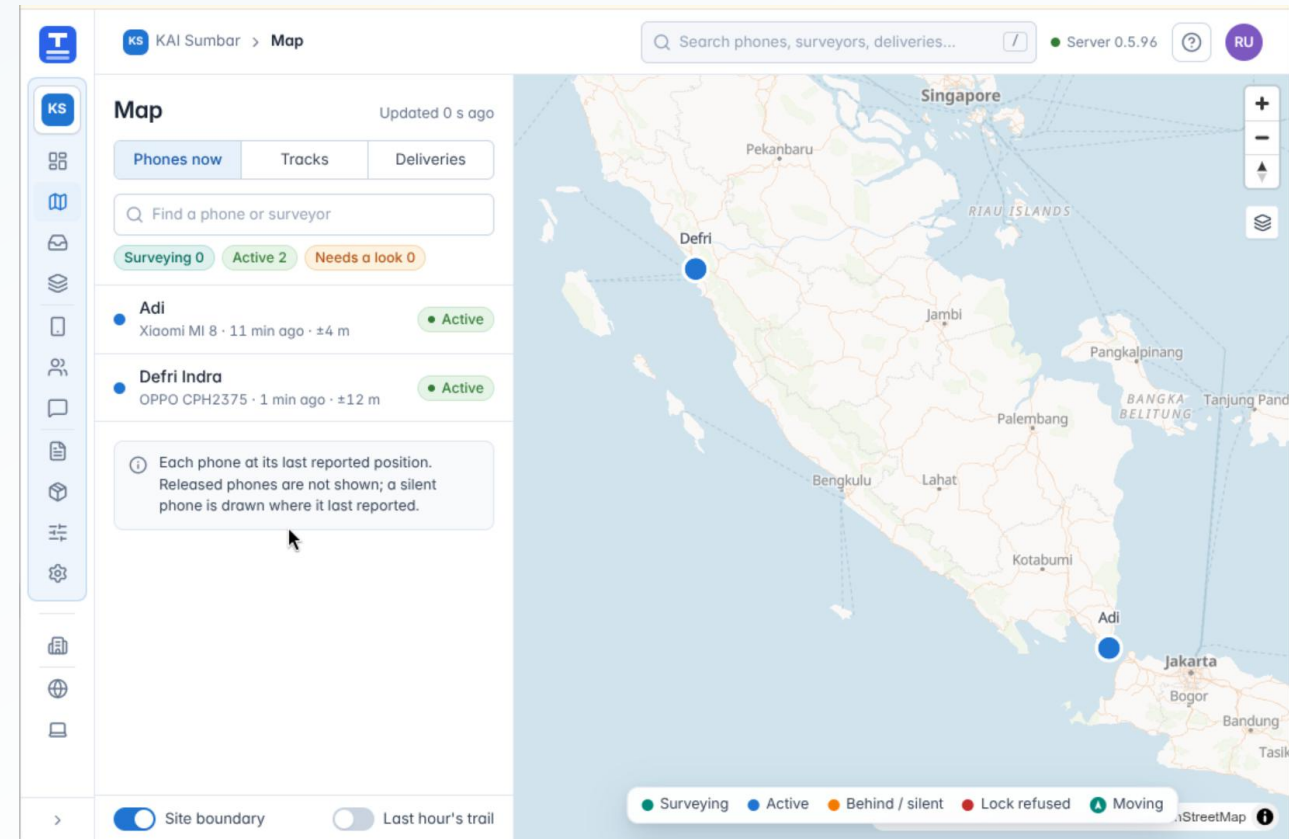
What the phones carry.

Policy

How the phones behave.

Follow the crew during the day

- **Positions on a schedule.** Each phone reports at the interval the site sets, never more often than every five minutes.
- **The state of every phone.** The last position with speed and heading, and whether the phone is surveying, paused, behind on its policy or silent.
- **Tracks.** Where each surveyor walked, per survey, in a color of their own, for any range of dates.
- **Photos and videos.** Shown as their own layer, each with a thumbnail.



Every survey arrives complete

- **Automatic delivery.** Phones send their surveys hourly on Wi-Fi and daily on mobile data by default, and resume an interrupted upload where it stopped.
- **Only what changed.** The first delivery carries the whole survey, and later ones carry what is new, changed or deleted.
- **Checked on arrival.** Each delivery lists what the phone holds, so a survey marked delivered has every object, photo, video and track point on the server.
- **Ready for GIS.** Deliveries are assembled into the site's PostGIS tables with spatial indexes, and each survey is one record with its full history.

The screenshot shows the 'Deliveries' page in the TAVAK Server interface for site 'KAI Sumbar'. The page includes a search bar, filters for surveyors and dates, and a table of survey deliveries. The table shows a survey named 'Kai' by 'Defri Indra' on an 'OPPO CPH2375' phone, which was last synced 'today, 16:12' and is in an 'Assembled' state. The table also shows the number of objects, photos, and track points. The interface includes a sidebar with navigation icons and a top bar with site information and user profile.

Deliveries
The surveys the phones of KAI Sumbar sent, one row each however often they were delivered. Each delivery updates its survey in the site's layers.

Site data Open in GeoLibre

Search survey All surveyors All 1 Assembled 1 Archive only 0 Track only 0 Failed 0 In progress 0

Any completeness 1 - 27 Sep 2026 This month

SURVEY	SURVEYOR · PHONE	LAST SYNCED	HOLDS	RESULT	COMPLETE
Kai 4 deliveries · 4.2 MB kept	Defri Indra OPPO CPH2375	today, 16:12 Incremental · 23.7 KB	3 objects · 5 photos track: 5.8 km · 33 points	Assembled	Complete

A delivery's archive goes once it is assembled and a grace period has passed (Retention & cleanup), its photos and videos kept with the survey; the survey and its sync history stay. [Retention & cleanup](#)

Only an administrator deletes a survey.

Edits travel both ways, **under clear rules**

01

Permanent IDs

Every object gets a permanent ID on the phone when it is made, so a survey moved to a new phone does not create duplicates.

02

Corrections at the desk

Managers can correct attributes and geometry, or delete an object, on the Data page. Desk editing stays off until the organization turns it on.

03

The latest edit wins

When the phone and the desk both change an object, the later edit is kept. If the two times are equal, the surveyor's edit is kept.

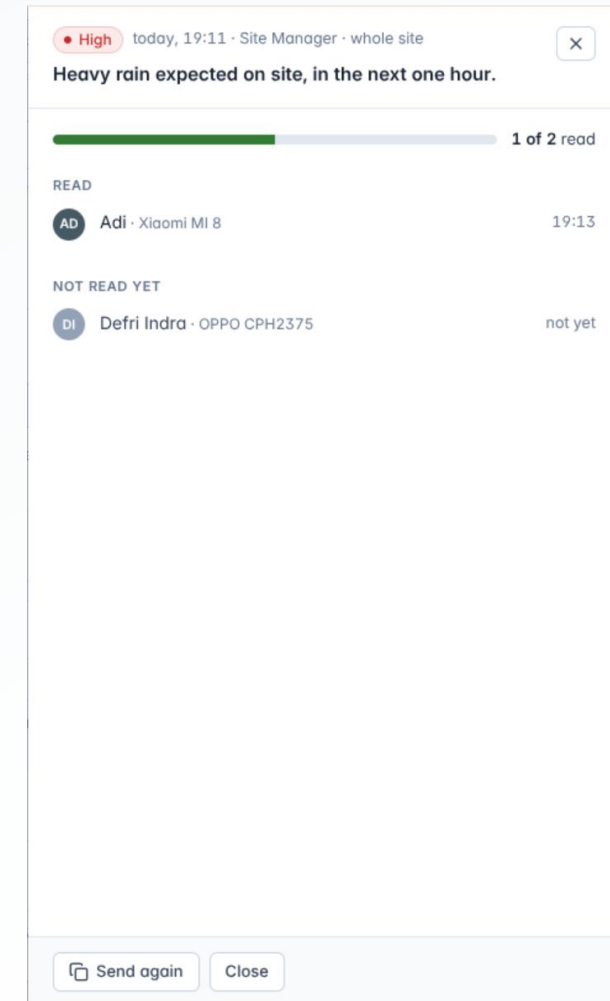
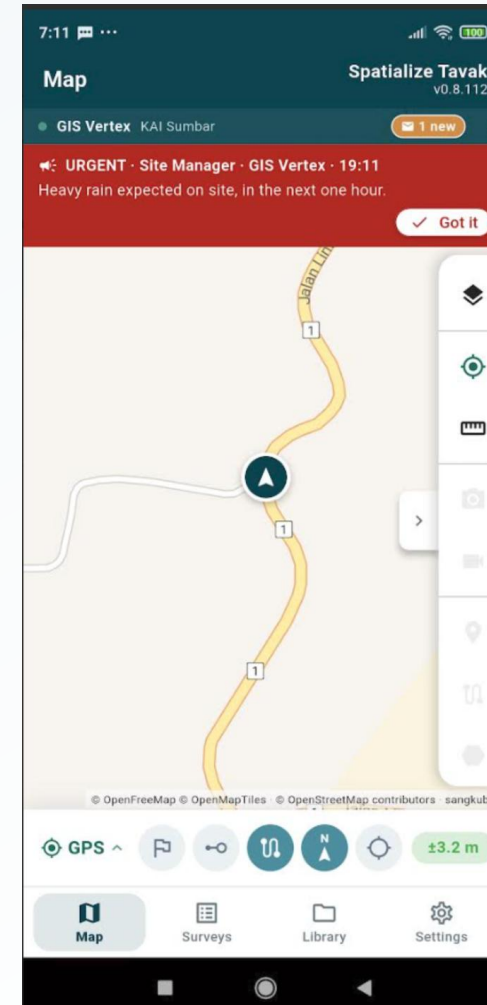
04

Back to the phone

A desk edit goes to the phone that holds the survey, and the history is kept for the site's retention period.

Reach the field from the server

- **Messages.** Send a message to a whole site, a team or a single phone, and it appears on the phone's map.
- **Read receipts.** Phones acknowledge each message, and the server lists who has read it and who has not.
- **One record per person.** The Surveyors page keeps each surveyor's name, staff number and team, and marks those who have left.



Send the crew **what it needs**

- **Forms and layers on the server.** Write them on the page, paste them from a spreadsheet or copy them out as CSV. A change that would break later deliveries is refused when you save.
- **One deployment, one package.** Forms and layers, basemaps, reference layers, geofences, landmarks and destinations travel together.
- **The right audience.** Publish to the whole site, to a team or to chosen phones, and see each phone's receipt.
- **Locked forms.** Surveyors cannot change the organization's layers when the deployment locks them.

Forms & layers

What surveyors at Jakarta Timur capture into. Edits stay here as drafts until you publish them in a deployment.

Paste CSV
 Copy all as CSV
 [+ New form or layer](#)
[Publish...](#)

[All 4](#)
[Layers 2](#)
[Forms 2](#)

Every item is on the phones as saved

	NAME	KIND	FIELDS	VERSION	UPDATED	
	Sampel ZNT Non Pertanian samel_znt_non_pertanian	Layer · point	46	• v1 published	Administrator 25 Sep, 15:06	Edit
	Sampel ZNT Pertanian samel_znt_pertanian	Layer · point	24	• v1 published	Administrator 25 Sep, 15:06	Edit
	ZNT Non Pertanian	Form	46	• v1 published	Administrator 25 Sep, 15:06	Edit
	ZNT Pertanian	Form	24	• v1 published	Administrator 25 Sep, 15:06	Edit

A published version is what the phones have. Saving an item makes a new version here; surveyors see it after the next deployment that carries it.

History stays. Every version and every deleted item is kept, so a delivery made against an older version still reads correctly.

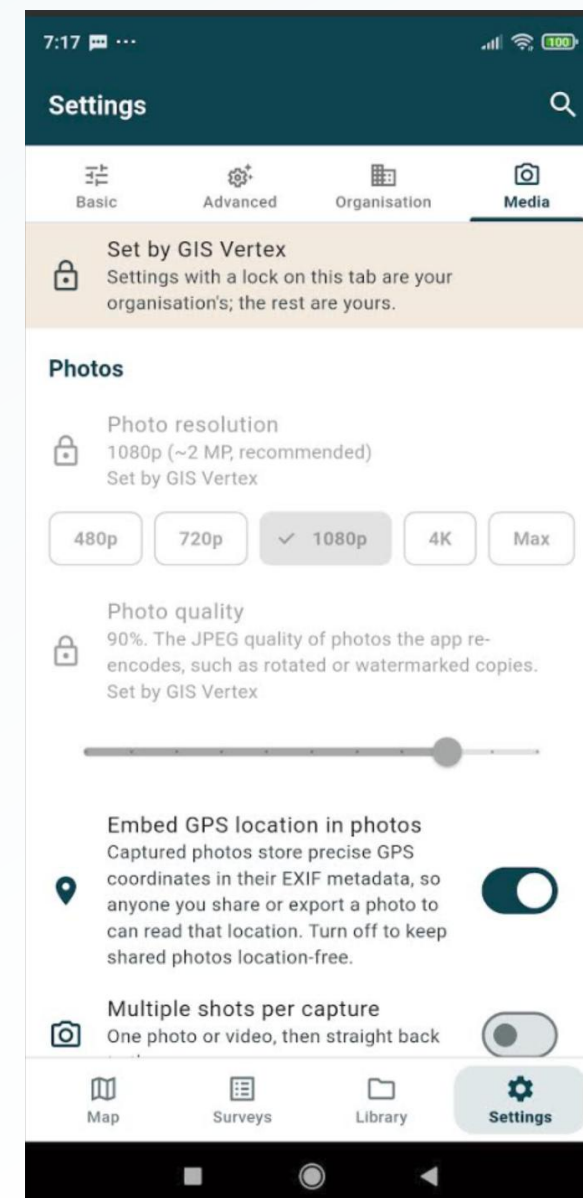
Where they went

[All deployments →](#)

DEPLOYMENT	CARRIED	PUBLISHED	ON THE PHONES
Forms 26 Sep — Sampel ZNT Non Pertanian, Sampel ZNT Pertanian, ZNT Non Pertanian	Sampel ZNT Non Pertanian v1 · Sampel ZNT Pertanian v1 · ZNT Non Pertanian v1 · ZNT Pertanian v1	Administrator · 26 Sep	• Installed on 1 of 1

Decide once, **apply to every phone**

- **A value and a lock.** The accuracy floor, GPS averaging, coordinate format, units, export coordinate system, photo quality and the watermark each take a value, and each can be locked.
- **Without a lock, a starting point.** The phone applies the value once, and the surveyor may adjust it afterwards.
- **Tighten, never loosen.** The organization sets a default, and a site may add locks but never undo one.
- **Visible on the phone.** A locked control stays on screen, greyed, with a padlock and a sentence naming the organization.



What an organization **can lock**

Watermark

The on and off switch alone, or the whole stamp.

Delivered work

Read-only on the phone once delivered.

Export and share

Allowed, stamped photos only, or not at all.

Pausing

No pause of the track during a survey.

Deployed items

They stay until the organization removes them.

GPS averaging

Required for every point.

Video

Allowed or not, and its longest length.

Trash period

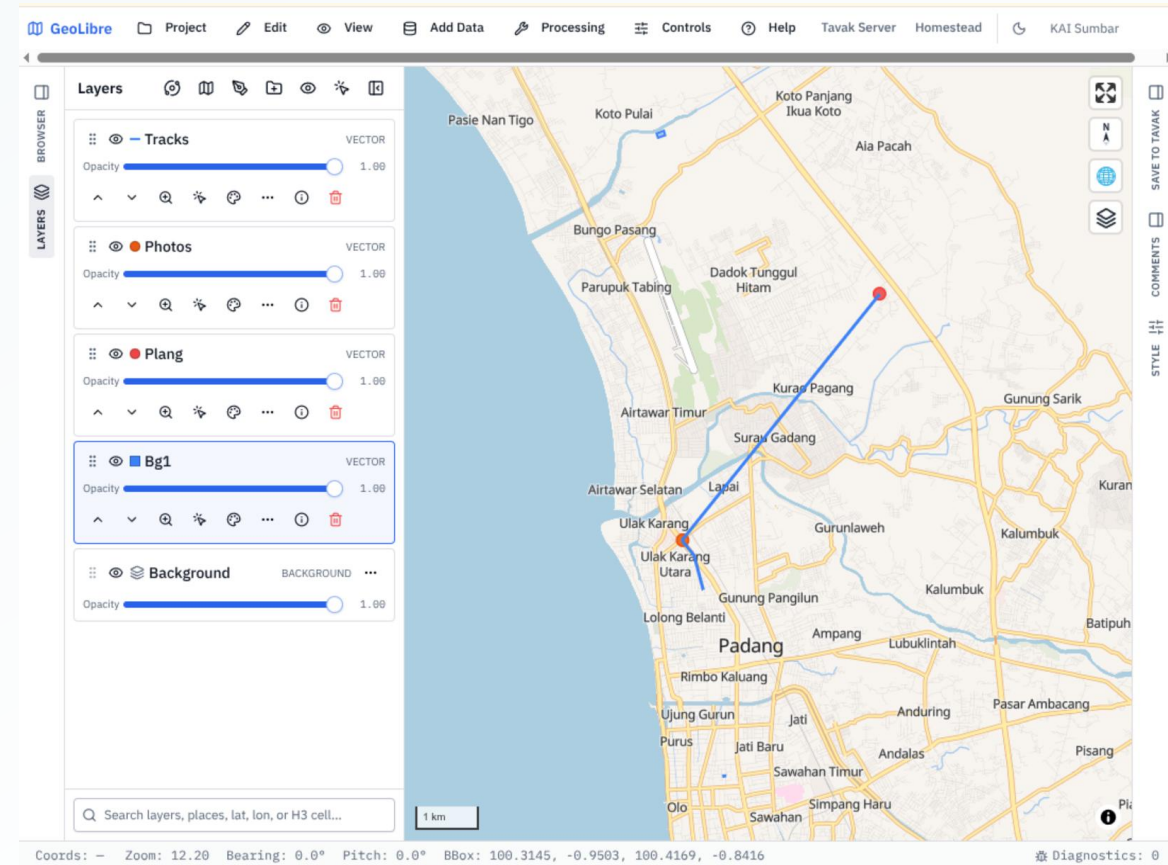
How long deleted items are kept.

Every restriction ends when the phone leaves the organization. Surveyors can always delete their own work, and we left that off the list on purpose.

A GIS in the browser, on your own data

GeoLibre, an open-source web GIS, is installed beside the server and opens a site's layers, tracks, photos and videos directly.

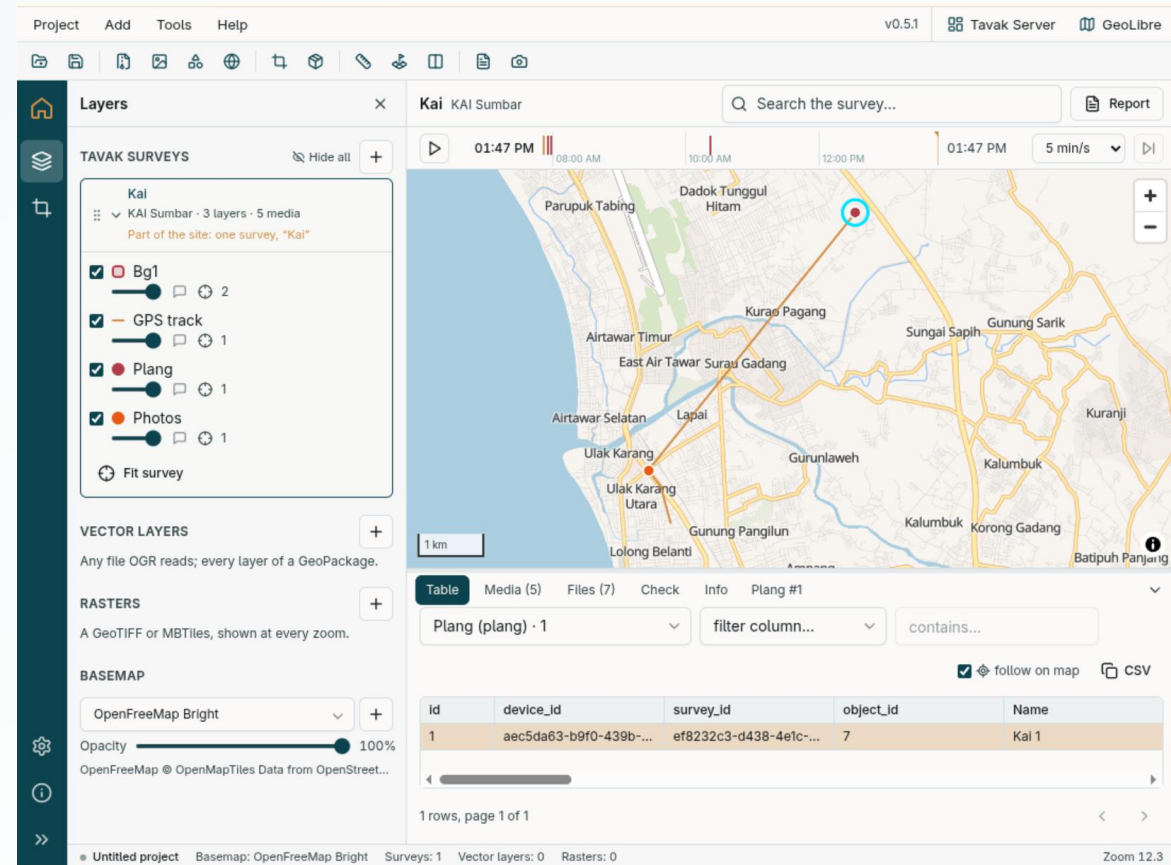
- **Nothing to install at the desk.** Queries, buffers, joins and styling run in the analyst's browser.
- **Results go back.** An analysis worth keeping is saved to the site as a derived dataset.
- **Targets for the field.** Points chosen in GeoLibre go to the phones as destinations, and their status comes back.



Homestead, next to the data

Homestead is Spatialize's desktop companion for field data. The server runs its tools in the browser.

- **Open in Homestead.** One click on a survey or a delivery opens it in Homestead's survey viewer.
- **Prepare data for the field.** Clip, convert and check layers, and tile rasters into MBTiles basemaps for the phones.
- **Build a bundle.** Basemaps, reference layers, geofences, landmarks and destinations become one deployment.
- **Kept apart.** Homestead runs as its own service, and each site's files stay with that site.



Your data stays **on your server**

Self-hosted

Surveys, photos, positions and users live in your database and on your disks. Spatialize never receives your survey data. The server contacts us only for its daily license check.

Protected sign-in

Connections are encrypted with TLS at your own proxy. Sign-in supports two-step verification with an authenticator app, and repeated failures lock the account for a while.

Site isolation

A manager of one site cannot reach another site's phones, surveys or files. Anything outside a user's sites answers as if it did not exist.

Your organization decides where the server runs, who signs in and how long data is kept.

A clear record, and a way back

- **Audit log.** Sign-ins, policy changes, enrollments, releases, deployments and deletions are recorded with who did them and when.
- **A fair license.** If our license server cannot be reached, the last answer holds for 30 days. A lapsed license stops new enrollments and never touches data.
- **Offline servers.** A server without internet access runs on a signed license file instead of the daily check.
- **Backups.** One script backs up the database and the data directory together, and a restore drill is part of every installation.

Time	User	Action	Details
9 h ago	Tavak Administrator	Signed in	two-factor · 110.138.86.21
9 h ago	Fajrin	Signed in	password · 182.253.145.19
9 h ago	Tavak Administrator	Added a user	Fajrin · fajrin@gmail.com · M
9 h ago	Tavak Administrator	Changed a seat quota	KAI Sumbar No limit → 10
9 h ago	Tavak Administrator	Added a site	KAI Sumbar · kai_sumbar
9 h ago	Tavak Administrator	Changed their password	
9 h ago	Tavak Administrator	Signed in	two-factor · 110.138.86.21
9 h ago	Server	Reset a password on the host	
9 h ago	Server	Reset a password on the host	
9 h ago	Tavak Administrator	Refused sign-in	wrong password · 110.138.
yesterday	Tavak Administrator	Signed in	two-factor · 110.138.86.21
yesterday	E2E 0315 (temporary)	Deleted a site	E2E 0315 throwaway
yesterday	E2E 0315 (temporary)	Cleared tokens	1 token · by hand
yesterday	E2E 0315 (temporary)	Revoked a token	7KLC-....
yesterday	E2E 0315 (temporary)	Cleared tokens	1 token · by hand
yesterday	E2E 0315 (temporary)	Cleared tokens	1 token · by hand

What the server **needs**

Hosting is not part of the price. Use a server in your office or a virtual machine from any cloud provider.

System	Ubuntu 22.04 or newer, or Debian 12 or newer, RHEL/AlmaLinux/Rocky Linux 9 or newer.
Database	PostgreSQL 14 or newer with PostGIS 3, on the same machine.
Processor	Minimum 4 cores, more for a large organization or with Homestead.
Memory	Minimum 16 GB for several sites or with Homestead.
Storage	Sized for photos and videos, plus 100 GB for Homestead's workspace.
Network	A domain name with TLS, reachable by the phones, behind Caddy or Nginx.

Four steps to **your first delivery**

01

License

We issue a server license for your organization with the number of seats you need.

02

Installation

We install Tavak Server on your machine remotely, free of charge during the introductory period.

03

Enrollment

You create your sites and enroll the crew's phones with QR codes.

04

First survey

You publish forms to the phones, and the first deliveries arrive on the server.

Installation is free during the introductory period, as long as it can be done remotely.

CONTACT

Let us plan **your first site**

Tell us about your crew and your area, and we will prepare a license and an installation plan.

Any questions, drop us a message.

EMAIL

hello@spatialize.dev

WEBSITE

spatialize.dev/tavak
