

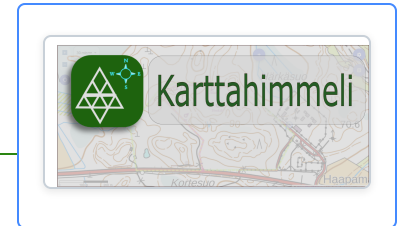
Etusivu > Toiminnot > Fundamentals

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Latest documentation: <https://karttahimmeli-docs.netlify.app/en/intro/>

Karttahimmeli - Fundamentals

What is Karttahimmeli?



Karttahimmeli is a **map-based situational awareness system** designed especially for search and rescue operations, as well as event coordination such as event first aid cover and security staff management. The system allows multiple teams and command staff to share their location data and add annotations to the same map in real time.

Karttahimmeli is not just a personal map app for one individual. It is a shared tool for the whole organisation. Every annotation is stored in the system for common use.

How this differs from familiar GPS/map apps

If you're used to hiking or sports apps (Strava, Garmin Connect, and similar), Karttahimmeli's way of working takes a little adjustment:

In a traditional app, you first draw something on a map and only then share it. Or you start recording a track, stop the recording, and share the recording afterwards.

In Karttahimmeli, everything is shared automatically and in real time. When you share your own location, it appears immediately on the shared map — everyone else in the operation sees your tail getting longer step by step, as you move. What you see on the map, everyone else in the same operation sees too. Nothing needs to be published or sent separately: sharing and saving happen at the same moment.

Karttahimmeli completely removes the cognitive burden of how to share something or who to share it with.

Why Karttahimmeli?

Before map-based situational awareness systems, sharing location information was slow and error-prone:

- Search Teams had to describe their location verbally over the phone
- Command could misinterpret the location (**confirmation bias**)
- Under fatigue or time pressure, annotations were left unrecorded
- When people left the operation, information stored on their own devices was lost

In Karttahimmeli, all annotations are saved automatically in the system, so information is preserved throughout the operation.

Why situational awareness matters

In one search operation, a thermal camera detected a person in covered terrain. Command tried to determine by phone which search teams were nearby, and confirmation bias occurred: the detection was interpreted as their own search team. It was later discovered that their own search team was 300 meters away and the detection was the missing person. The search could have ended 12 hours earlier if location data had been available in real time.

System structure

Karttahimmeli consists of two basic elements:

1. **Base maps** - maps shared across the whole system for annotations
2. **Operation** - a unique identifier that separates one operation's annotations from all other operations' annotations

Karttahimmeli can be used both as a mobile app and via browser at <https://karttahimmeli.netlify.app>.

Remote planning

Karttahimmeli can also be used remotely from home. Operation planning can start immediately when an alert arrives, even before command has reached the meeting point.

Who is Karttahimmeli for?

- **Search Team members:** making annotations in the field, sharing own location
- **Dog search teams:** following wind data, seeing nearby team locations
- **Command staff:** monitoring situational picture, planning and assigning areas, filtering annotations
- **Event first aid cover (roving teams):** divide the event area into 50 m grid cells – teams can be directed to task locations by grid coordinate (e.g. B7)
- **Security staff:** track personnel locations and mark important areas on a common map

Every user benefits from the system, but what matters most is that **the whole organisation uses the same operation, so information-sharing doesn't create silos.**

Event coordination: first aid cover and security staff

Karttahimmeli can also be used to coordinate events such as event first aid cover and security operations. Sharing personnel locations on a common map and maintaining a situational picture works exactly the same way as in a search and rescue operation. The nearest first-aid or security staff member can be efficiently directed to event locations.

A coordinate grid can also be used to coordinate an event field — a standard map long used in event first aid cover and security work. See [Coordinate grid for event coordination](#).

 Remember

Even if your own use of the system does not feel like the most important thing for you personally, your location data can be critically important to a nearby search team, command staff, or for example a helicopter team.

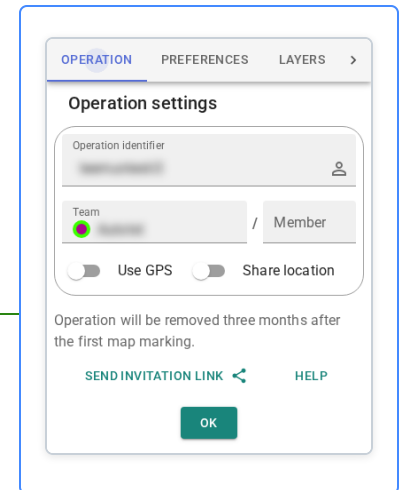
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Quick Start - Karttahimmeli

This is a short guide for what to do when an alert comes in and an operation must be started quickly.

Getting started

Karttahimmeli can be used either with a web browser or with an iPhone or Android application. The map functions and user interface are the same in all usage methods.



Only the app can continue sharing location in the background when the screen is off!

Web browser – The web version is available at karttahimmeli.netlify.app and works with any browser. When using location sharing via browser, start the app and wait until location accuracy is good enough and the coloured dot showing your location is in the right place on the map before calling command – the data connection may not work during a call.

Android app – Download from Google Play. On Android, battery optimization must be turned off, as it often prevents background location after a few minutes. When the battery drops below ~15%, location accuracy may deteriorate – connect a power bank in time.

iPhone app – Download from the App Store.

PWA / home screen install – If you prefer not to install the native app, Karttahimmeli can be added to the home screen as a Progressive Web App. Map caching works better than in a plain browser. iPhone: Share → Add to Home Screen. Android Chrome: Menu → Add to home screen.

For search teams: six actions before field deployment

1. **Open Karttahimmeli** - app or browser at karttahimmeli.netlify.app

2. **Enter operation ID** - get it from command post or QR code
3. **Set team name** according to command instructions, and set your member ID to, for example, your initials
4. **Check battery optimization** - on Android, disable power saving
5. **Do not start** location sharing before name is correct
6. **Browse through the operating area's maps** - this way the maps are ready and cached

For command: starting operation

1. **Create operation** by entering new ID (avoid guessable IDs)
2. **Take ownership** *immediately* via icon next to operation ID
3. **Write ID** or print QR code visibly at command post
4. **Instruct** search team naming before search teams leave
5. **Consider password** if media or outsiders are present.
6. **Set a password and also give ownership to the deputy commander** after the operation. Share the password with team leaders if needed for the after-action review.

Quick help for problems

Need	Guidance
Cannot join operation	Check ID spelling. Upper/lower case does not matter, spaces do not matter
Map does not move	Centre mode is active. Press centre button again
Markings not visible	Filter may be active (button greyed out) - check observation log
Location sharing not working	Android: turn off power saving, or you're using the web browser
Map is slow/empty	Browse area to load map cache

Guides in short

- Operations
- Naming conventions
- Maps and navigation
- Location sharing
- Markings
- Areas and plans
- Observation log and filters
- Map printing
- Layers (*advanced*)
- Search planning (MSO) (*for command*)
- GPX files
- Replay

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Operations

What is an operation?

In Karttahimmeli, operation is an **identifier** that binds all entries of one search or mission together. It is like a closed "map deck" that all search teams of the same mission join.

Search Teams in different operations do not see each other's entries, even if they use same system.

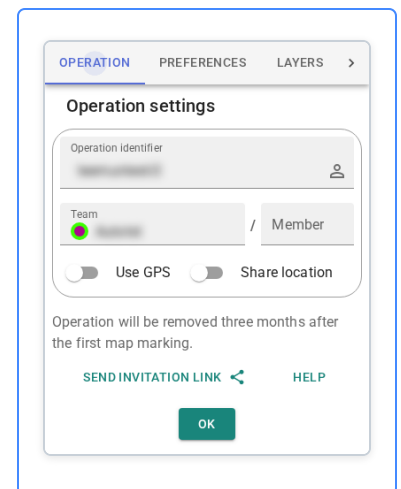
Operation ID

Operation ID is free-form text used to identify operation. When everyone uses same ID, they see same map with same entries.

Writing operation ID:

- Upper/lower case are **equal** (`SEARCH` = `search`)
- Spaces and punctuation are **ignored** (`Search 1` = `search1`)
- Only letters and numbers are considered

This means ID is usually interpreted correctly even if written by hand on board or told by phone with minor formatting differences. However, make sure you've joined the right operation. If the operation looks completely empty, it's worth double-checking the operation ID.



Choose ID carefully

Avoid easily guessed IDs such as date or city plus task type (`search-tampere`). Karttahimmeli has been visible in media, so outsiders may try to guess operation IDs.

Good ID: two random words, or word + non-date number. Use punctuation if you like, so letters and numbers don't run together. E.g. `Aarni-10-otso` is clearer than `Aarni10otso` (both forms refer to the same operation!)

Creating an operation

Operation does not need separate setup. Type operation ID in field and join. If operation does not exist yet, it is created automatically when the first marking or shared location is saved.

Who can create operation?

Anyone can create operation by typing ID. There is no strict hierarchy, which enables quick startup as the incident organisation forms organically.

In real incidents, still check first with command whether operation already exists and what official ID is. Someone may have already started planning under some operation name.

Sharing operation ID

Most common method is writing ID visibly at check-in point. ID can also be shared as:

- **QR code** (printed or shown on screen)
- **Link** (sent by message)
- **Phone call** (dictated)

Because letter case is ignored, dictated ID works even if listener types it with different case style.

Tip for command staff

QR code is easy to print to A4: open operation in browser and press Ctrl+P. Printable view includes both text ID and QR code.

You can also just show the QR code from your device.

Operation ownership

See also the tool guide: [Operation Manager](#).

In real operation, command level should take ownership as early as possible. This prevents accidental ownership or password setting by individual searcher.

Benefits of ownership:

- Prevents outsiders from setting operation password
- Allows adding password protection later
- In a password-protected operation, route history — and therefore [Replay](#) too — is visible **90 days** back (without password 7 days)
- The operation can be write-protected, after which changes and additions are no longer accepted

Advanced: ownership

Operation owner manages operation settings, such as password and other owners. If password is set, only users with password can join.

Ownership is managed via person icon next to operation ID field. Sign-in requires Google account.

Operation password protection

Password protection is needed if outsiders are suspected in operation. After setting password, already joined users without password are automatically removed from operation.

Shared password for trainings

In association trainings, you can pre-agree one shared password used in all trainings. This way, route history can still be reviewed in operations older than a week.

Operation write protection

Recommendation: write-protect old operations

Once an operation (mission or training) has ended, it's recommended to enable **write protection**. Everything recorded so far — markings, routes, and Replay — stays fully visible and browsable, but nothing new can be added by accident.

Write protection is set from the same place as password and ownership: the operation management view opened via the person icon next to the operation ID field.

In a write-protected operation:

- No new observations or drawings can be added
- Location sharing stops automatically and cannot be turned back on
- Connecting a tracker to the operation is blocked (checking status and stopping tracking still work)

Write protection does not extend the route history retention period — that is still determined only by when the first marking was saved.

Operation data retention

All data stored in the operation — markings, drawings, route history, and shared locations — is automatically deleted **90 days** after the first marking or shared location is saved to the operation. The retention period applies to the whole operation and cannot be extended with a password or write protection.

When you join an operation that already has markings, you'll see the exact deletion date in the Operation settings view. If the operation hasn't been used yet, the view shows only a general retention notice — the exact date is calculated once the first marking or location is saved.

 Data cannot be deleted early, and deletion cannot be sped up

You cannot manually delete the operation's data ahead of time, and the 90-day deadline cannot be shortened. If sensitive data has been shared in the operation, take operation ownership and set a password as soon as possible — this stops anyone who doesn't know the password from joining the operation going forward (those with the correct password can still join), even though data already shared cannot be hidden retroactively.

If you need the data for longer than 90 days, save it yourself before the deadline, e.g. by **printing** or **exporting as GPX**.

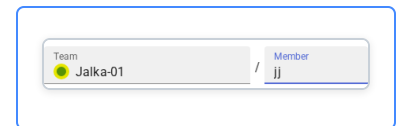
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Naming Search Teams and Areas

A good naming convention is one of the most important practices when working in a shared operation. Search team name is shown in all entries, location history, and filters at command. Without a consistent convention, command post has difficulty understanding situation, and filtering different resources into view becomes needlessly difficult.

Team ID

Team ID is set when joining operation. Command should define naming convention before search teams start marking or sharing location.



Team ID field structure

The team ID consists of **two parts**, entered in separate fields:

Field	Length	Example
Team	2–12 characters	Dog-03
Member	1–6 characters (optional)	tk

The fields are automatically joined with a slash: Dog-03/tk .

Operation settings

Operation identifier

teemuntesti3

Team

Jalka-01

/

Member

jj

☐ Use GPS

☐ Share location

Operation will be removed three months after the first map marking.

SEND INVITATION LINK

HELP

OK

The member field is **optional**. If there is only one Karttahimmeli user in a search team, the member field can be left empty.

Dog's name as member ID

In a dog team, a convenient member ID can be the dog's name, e.g. `Dog-03/Sesse`. This way markings directly show whose dog's observation it is. The tracker automatically copies the team ID used on the device, so the dog's marker and the handler's markings stay in the same team.

Another approach is to mark the team's dog member with, for example, a `/k9` identifier.

Principles of good team name structure

1. Use descriptive prefix, not single letters

Recommended	Avoid
Dog-01	D1
Foot-03	F3
Car-02	C2

Single letter is ambiguous and may match many unrelated names in search.

2. Use zero-padded numbers

Use `Foot-01`, `Foot-02` ... `Foot-10` instead of `Foot1`, `Foot2` ... `Foot10`.

Karttahimmeli automatically pads the number to two digits for you: if you type `Foot3` as the team ID, it becomes `Foot-03` once you leave the field. So `Foot-3` is no longer possible as a team ID as such.

3. Separate search team members using the Member field

If multiple people in same search team use Karttahimmeli, routes get mixed if they have exactly the same ID.

Enter the team name in the **Team** field and own initials in the **Member** field:

```
Team: Dog-03  Member: tk  →  Dog-03/tk
Team: Dog-03  Member: ah  →  Dog-03/ah
```

Then searching `Dog-03` shows all members of that search team — and the **team shortcut buttons** automatically group them under a single button.

⚠ Start only after ID is known

Do not start markings or location sharing before you know command-approved ID. Wrongly named entries are almost impossible to fix afterwards.

Why zero padding?

With filter search, `Foot1` matches `Foot-1`, `Foot-10`, `Foot-11`, etc. `Foot-01` matches only values containing `01`, not `10` or `11`.

Area naming

Same principles apply to **area** naming as apply to team IDs:

- Use zero-padded numbering: A01 , A02 not A1 , A2
- In phase naming use two letters rather than one: AA , AB
- Area name does not need method (e.g. sweep), put that in extra info

Extra info for areas

Area extra info can include for example:

- Search Team instructions: *"Start from north, pay special attention to ditches"*
- Search Team after-action comments: *"Area covered, snow was up to mid-calf"*

Remind search team about extra info

It is good to mention separately to team lead if area has instructions in extra info. Otherwise they may be missed.

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Location Sharing

Sharing your own location

Location sharing means others in operation can see your position in real time. It is one of the most important Karttahimmeli features for shared situational awareness.

Location sharing is started from dedicated share button (not from the same switch as own location display).

Before starting sharing

Before enabling sharing, verify team ID follows command naming guidance. Incorrectly named location data significantly complicates command work.

Location trail - tail

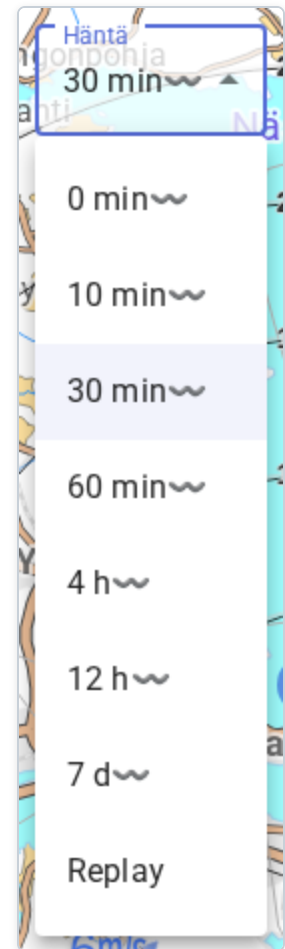
Location sharing records your route. On map route is shown as **tail**, a line indicating where you came from.

Tail length can be adjusted in settings:

- **Default: 30 minutes** - often enough for search team work
- **Dog search team recommendation: at least 4 hours** - to notice when you cross old tracks
- **Backtracking: full trail** - set tail long enough to show the whole previously tracked trail

Tail is only a view

Changing tail length affects only what is currently **visible on map**. It does not remove the stored route history from the system, nor does it affect the length of the saved tail. Changing the tail therefore doesn't "delete" the route – you can always look at the longer history whenever you want, or replay the whole route afterwards as an animation via [Replay](#).



Who should share location?

Multiple people in same search team can share location. In a dog team, it often makes sense that both handler and assistant share. In line search, it can be useful to keep location sharing on at both ends of the line.

Keep sharing on before making markings

Location sharing keeps the phone's GPS continuously "warm" and accurate. Whoever is responsible for making observations and markings should therefore keep their own location sharing on at all times — otherwise the GPS location for the first marking may be inaccurate, and getting an accurate fix can take a long time.

If two people in same search team use **exactly same ID**, their routes mix. Separate search team members with the member ID after the slash. See [naming conventions](#).

Advanced: sharing to a layer

Location can be shared to separate layer instead of all users. This can be used in training where participants must not see the routes taken or location of target persons. By activating the layer, they can nevertheless follow the teams' activity in the same view alongside their own route. See [Layers guide](#).

Power saving

On Android, power-saving mode can stop location updates when display turns off. Karttahimmeli warns about this with yellow notification.

Power saving must be disabled so background location works when screen is off. Check phone power settings if this fails.

Nearby search teams on map

At wider zoom level you can see other search team positions. Search Team tail shows from which direction they came.

It is not recommended to keep wide zoom all the time because it disrupts your own work. But it is good to occasionally check wider picture, especially before dog team starts a search.

Tip for dog teamss

Dog air-scent reaction can be caused by nearby search team. If people are upwind, dog may react to their scent. Checking nearby search team positions on map can save significant time.

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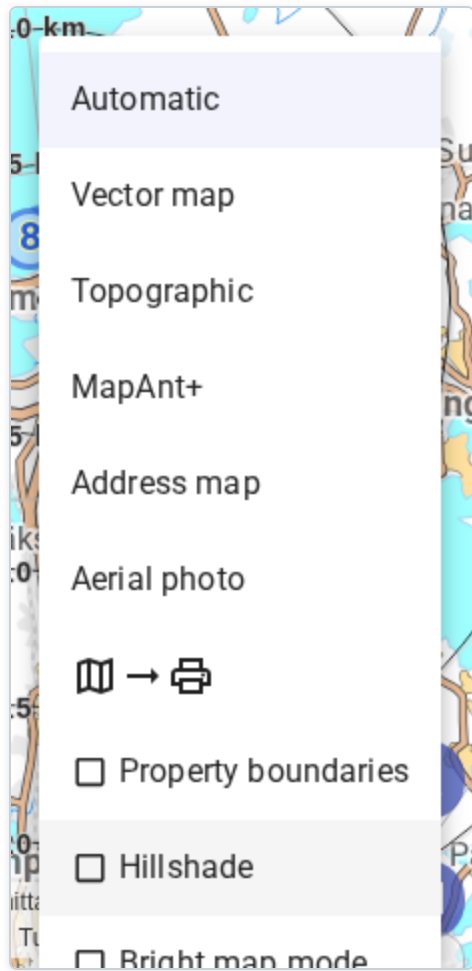
Maps and Navigation

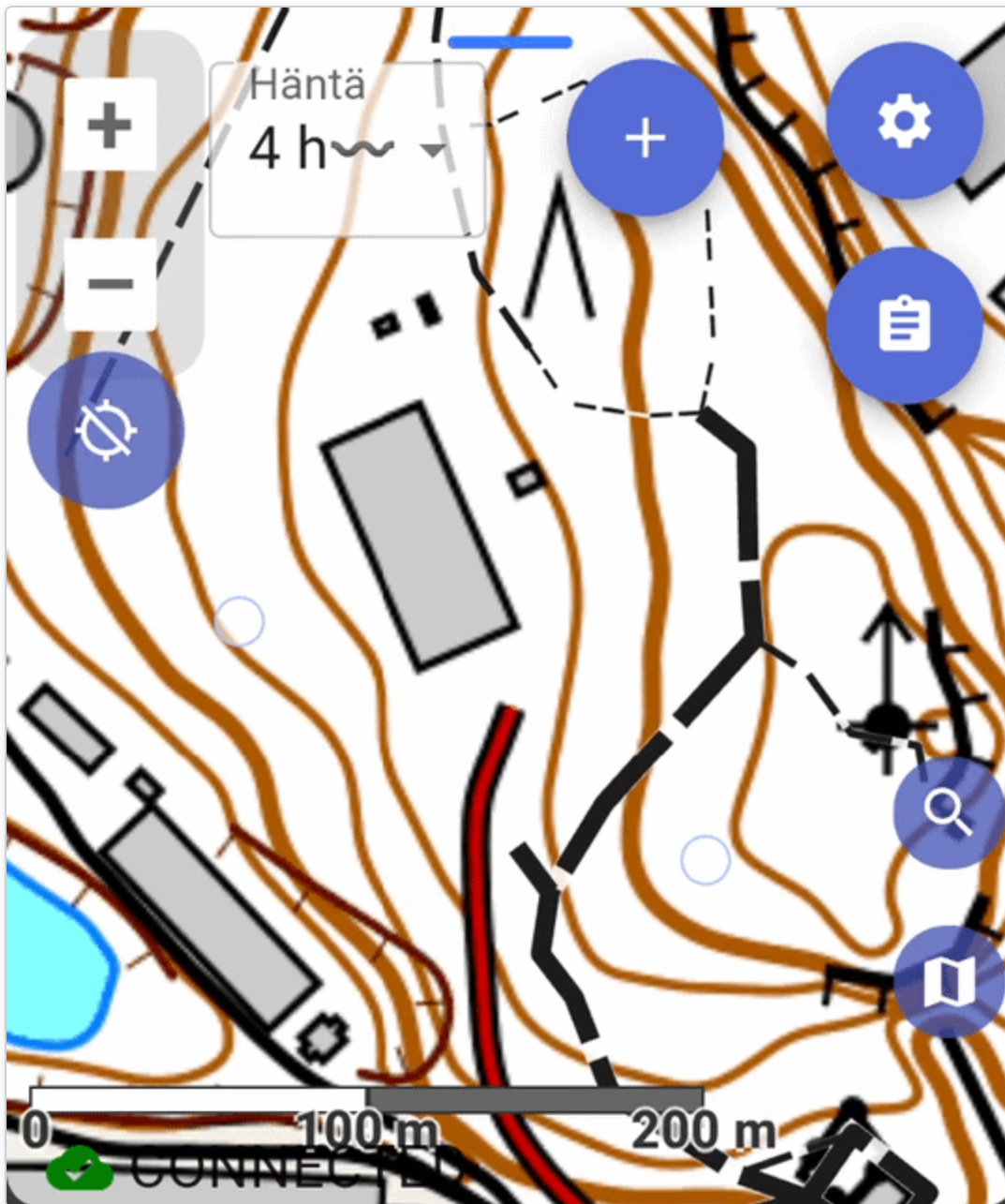
Map selection

Karttahimmeli automatically selects the best map for the current zoom level. You do not need to switch maps manually. Zoom in/out is enough.

Zoom level	Automatic map
Wide overview	"Road map"
Working view	Terrain map
Detailed view	Mapant ("ant map")
Full zoom	Aerial imagery

You can also switch maps manually from the map selector on the right side.





Map options

Terrain map

Standard terrain map. Contour lines were drawn manually for original 1:20,000 scale. At high zoom, no additional detail appears.

Vector map

In Finland, this is a map based on the terrain map data. It is especially useful in urban areas, where the raster image is often very colour-dense, making markings and teams hard to make out.

Outside Finland, the vector map uses an OpenStreetMap-based vector dataset.

Mapant ("ant map")

Mapant is automatically generated from lidar data and resembles orienteering map. It shows terrain forms more accurately than traditional terrain map.

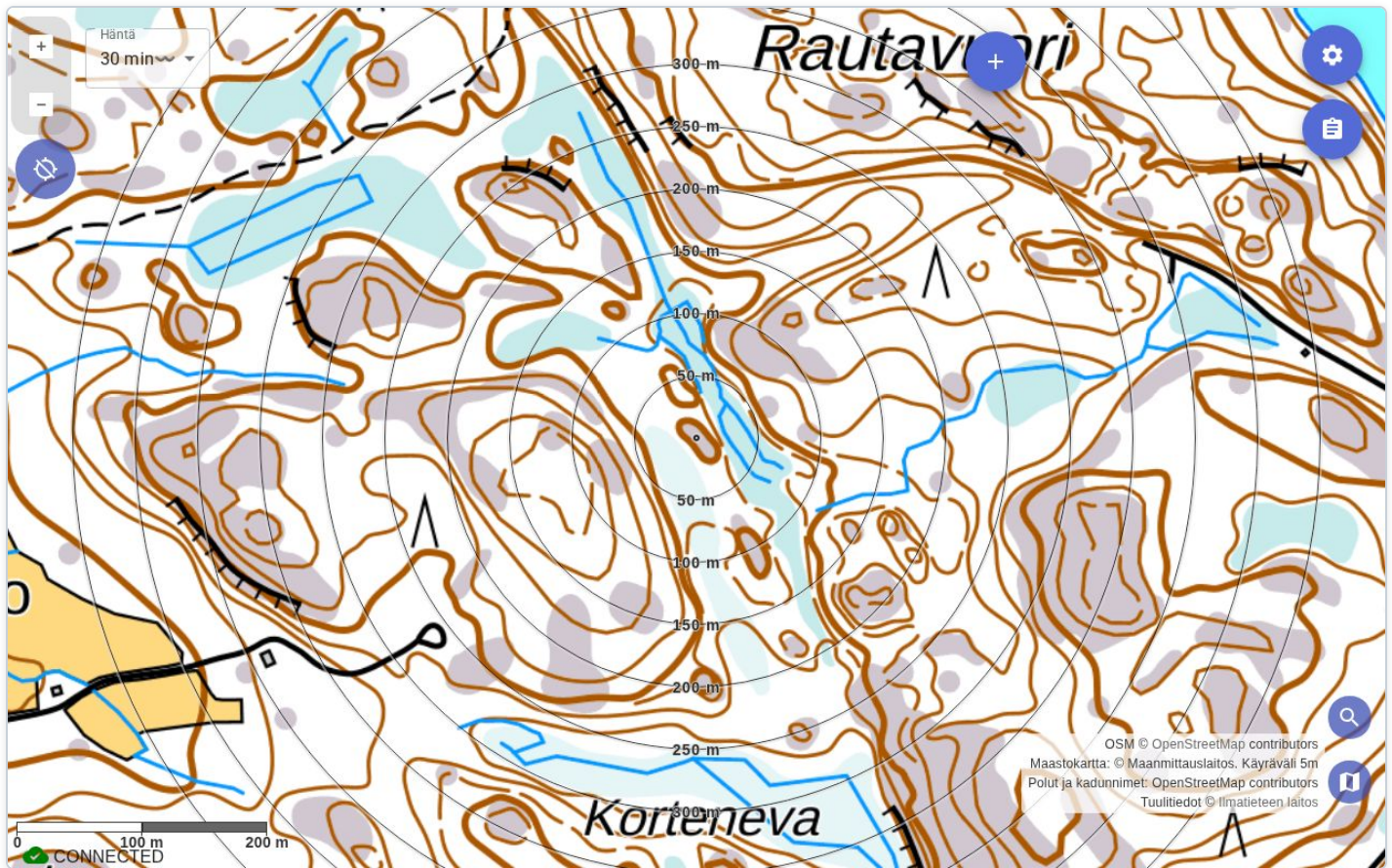
Green means dense vegetation, orange means open area. Black dots show steep rock or exposed stone.

Why Mapant is often best

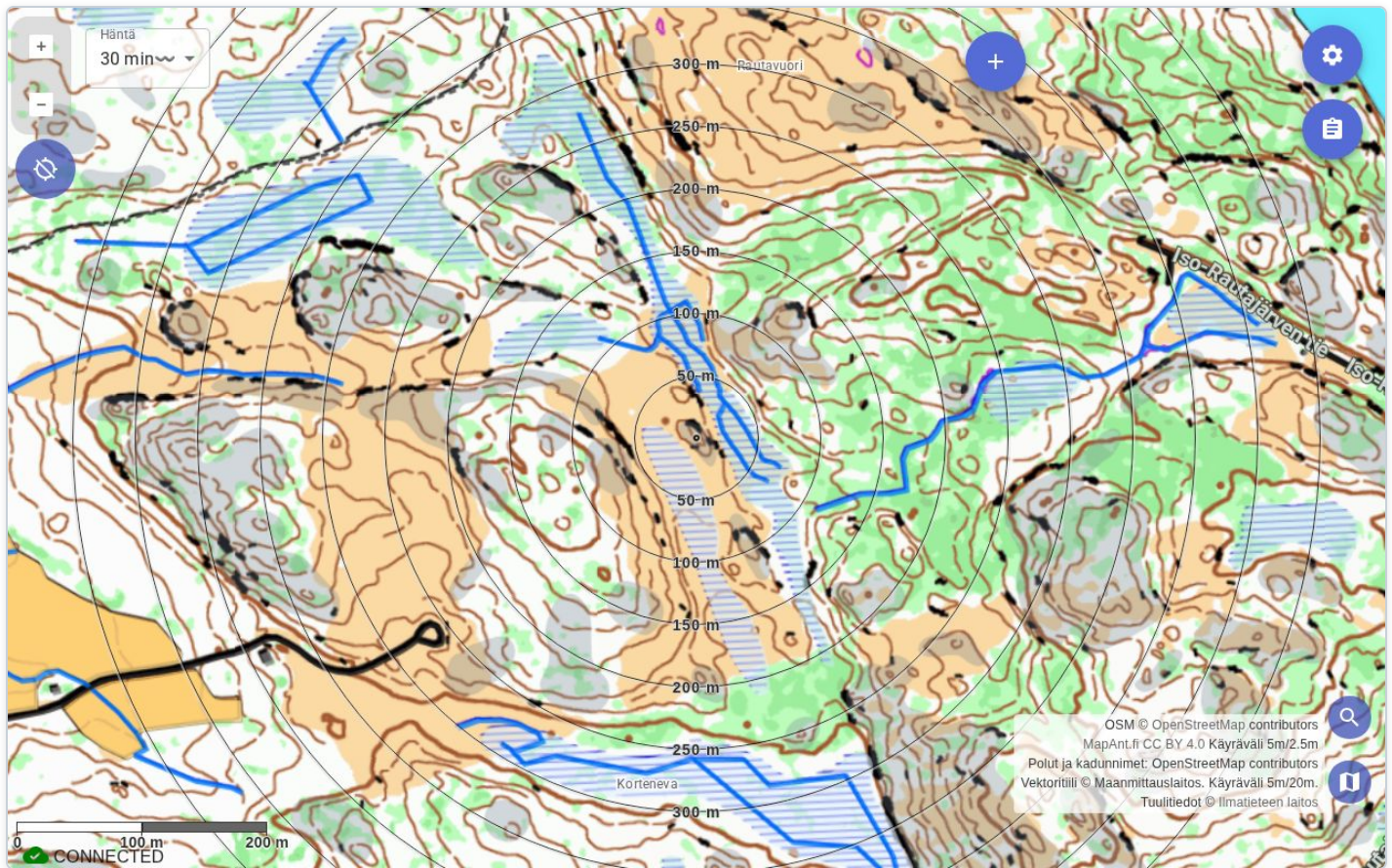
Mapant contour lines are machine-generated from lidar data, so they often match real terrain forms better than manually drawn terrain map. With Mapant, self-positioning in terrain is often significantly more accurate.

Differently coloured contour lines in Mapant

Some contour lines in Mapant appear in a different colour — these are **negative contours**: depressions where the surrounding terrain is higher than the hollow floor. Examples include pits, sinkholes, and ditch edges. The different colour is intentional, not a map error.



Auto-selected map (Terrain map) at zoom 16.4



Same spot and zoom, with Mapant selected from the map selector

Aerial image

At close zoom, Karttahimmeli automatically switches to aerial imagery. Useful when you want to understand what kind of area it is, e.g. in a built-up area.

Address map

In urban areas address map is often best. Addresses are clear and area layout is easier to understand by streets.

Lightened map

When there are many map entries, map can be lightened so entries stand out. Setting is under map selection menu.

Nautical charts

Official nautical charts are available for Finland's coastal and inland waterway areas. To enable them, first select **Vector map**, then turn on **Nautical charts** in the map menu.

Property boundaries

Property (cadastral) boundaries can be shown as a separate overlay from the **Property boundaries** switch in the map selection menu. The overlay only appears once you zoom in fairly close, similar to aerial imagery.

In Finland, property boundaries come from the National Land Survey's (MML) own detailed cadastral data. In other countries, the pan-European Maps for Europe cadastral dataset (July 2025) is used, covering: **Estonia, Latvia, Spain, Austria, Denmark, France, Netherlands, Switzerland, Czech Republic, and Belgium.**

The Property boundaries switch is not shown in other countries (including Sweden, Norway, Great Britain, Germany, Poland, Italy, Portugal, and countries outside Europe), since no boundary data is available for them.

Contour lines and hillshade

Not all maps offer contour lines. In Karttahimmeli, contour lines can be shown on any map. Hillshade based on elevation data is also a useful aid for understanding terrain shape. A **shadow strength** slider in the map selector lets you increase the hillshade's contrast, which helps in flat terrain where elevation differences are small.

Map coverage

Karttahimmeli uses official national map services in more than 20 countries.

Country	Terrain map	Aerial	Orienteering	Cadastral
Finland	✓	✓	✓	✓ ²
Estonia	✓	✓	✓	✓
Sweden	✓			
Norway	✓		✓	
France	✓	✓		✓
Austria	✓	✓		✓
Switzerland	✓	✓		✓
Czech Republic	✓	✓		✓
Belgium	✓	✓		✓
Netherlands	✓	✓		✓
Germany	✓	✓ ×6		
Spain	✓	✓	✓	✓
Great Britain	✓			
Denmark		✓		✓
Poland		✓		
Italy	✓ ¹	✓ ×4		
Latvia	✓			✓
Lithuania	✓	✓		
Slovenia	✓	✓		

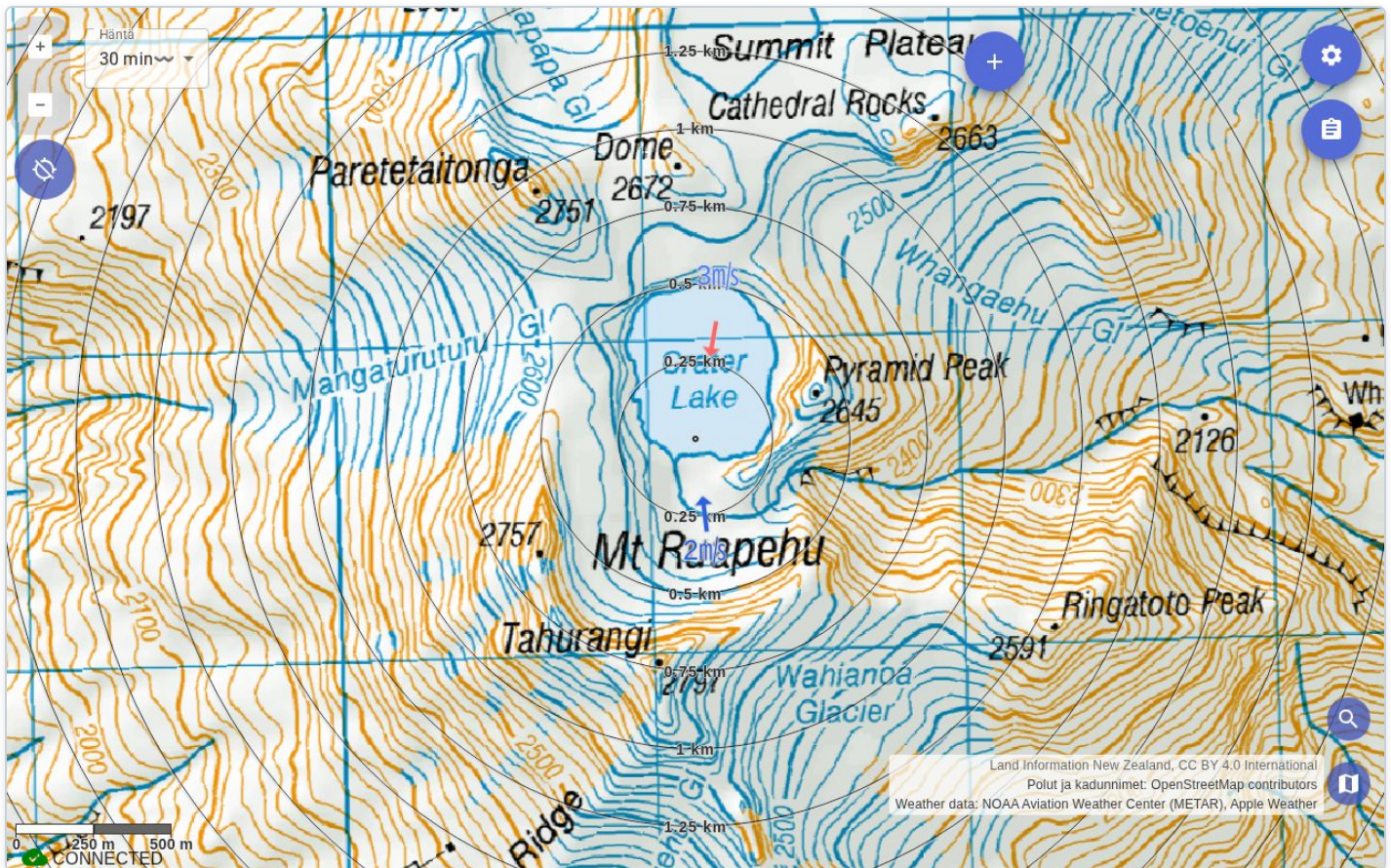
New Zealand	✓	✓
Portugal	✓	✓
Australia	✓	

¹ Piemonte region only. Germany and Italy aerial images are regional – multiple state/region layers.

² Finland's cadastral data comes from the National Land Survey's own dataset; other countries share a pan-European dataset – see above.

Globally available everywhere: **hillshade** (multi-directional) and **contour lines** (computed on-device from elevation data, zoom 13+).

Map samples



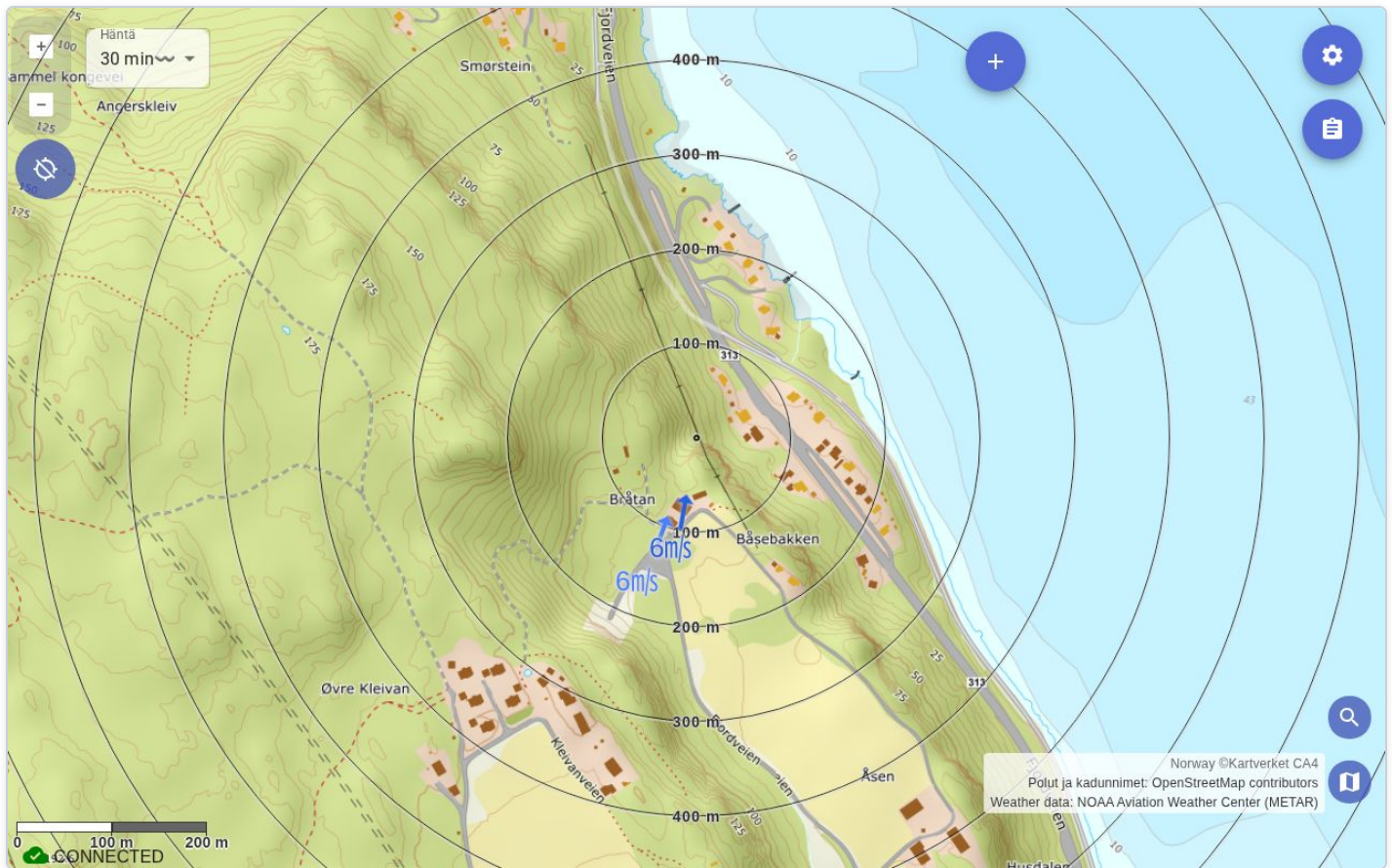
New Zealand: Land Information New Zealand, Topo50 (CC BY 4.0) – Mt Ruapehu



Estonia: Maa-amet topographic map service (CC BY 4.0)



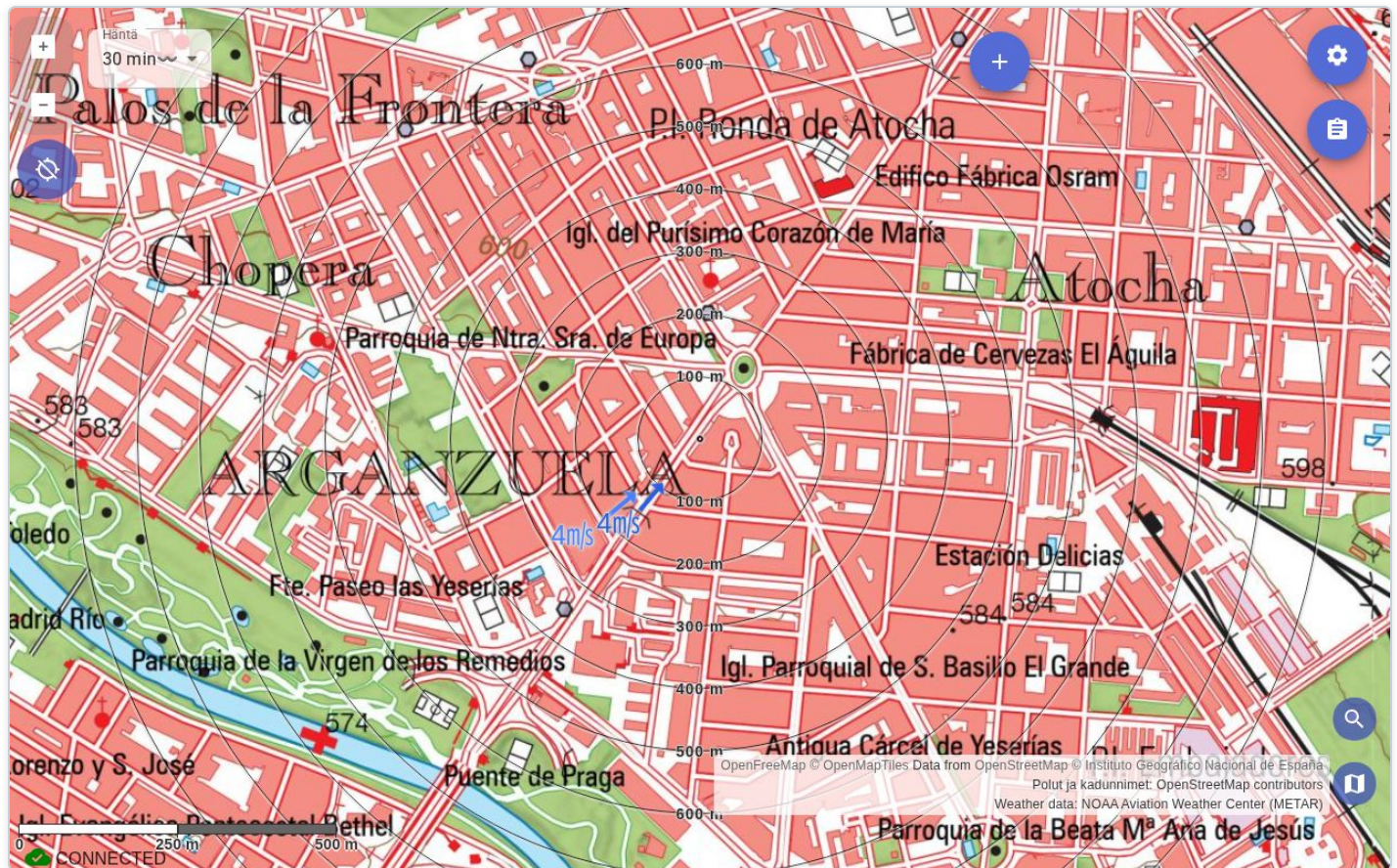
Sweden: Lantmäteriet Topowebb (CC0)



Norway: Kartverket (CC BY 4.0)



Netherlands: PDOK / Kadaster BRT Achtergrondkaart (CC BY 4.0)



Spain: IGN España MTN rasterizado (CC BY 4.0)

Map cache

If app reports empty cache, browse area calmly before departure.

Karttahimmeli works without network if required map tiles were cached earlier.

Advanced: offline maps

Karttahimmeli caches map tiles automatically while you browse.

Before field deployment, browse operation area in both terrain and Mapant levels. Then maps work even without network.

Using the app offline

Karttahimmeli starts and opens recent operations even without a network connection. The map state is restored to the situation from when the operation was last joined with network — the very latest changes appear only when connectivity returns.

Location sharing and making markings can continue even in dead zones. Queued positions and markings are sent automatically when the connection is restored.

In dead zones

If you know the operation area has poor coverage, open the operation and browse the map area before departure. The tiles will be cached and the app will work fully without a network connection.

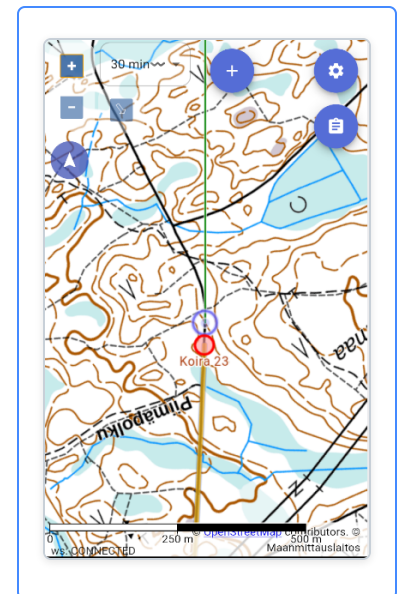
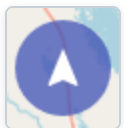
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Navigation

Map centring

For field use, the map can be set to automatically follow your location. Own location display is activated from the **own location** switch. When enabled, the centre button has three modes:

1. **Free mode** 🕒 (default) – map can move freely, own location shown as dot
2. **Centring mode** 📍 – map follows own location automatically; map cannot pan but can rotate
3. **Navigation mode** 🏠 – map rotates automatically by travel direction and own location is shown in lower third



🔥 Using navigation mode

In navigation mode map rotates using compass or GPS heading. When standing still it uses compass, while moving it uses GPS heading. Exit by pressing button third time.

North lines and overlays

From the **Preferences menu** you can enable:

- **Compass north lines** – help navigate with a hand compass
- **Cardinal directions** – shows compass directions on the map
- **Scale circles** – shows the map scale
- **Compass active** – shows the device compass heading on the map
- **Wind vanes** – shows wind data from nearby stations on the map

Navigation to Search Result or Map Centre

When the **search function** is active, you can click the target in the middle. This will bring up a navigation button that allows you to command Google Maps to navigate to the location. However, check where Google is directing you! If there is no road to the location, the route may be impractical.

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Markings

Why mark observations?

In field, observations should be marked **immediately**, not only after return to command post. Reasons:

- Location is known for sure, later exact place is hard to remember
- Timestamp is stored automatically
- "One person's trash is another person's treasure": low-value observation for one search team may be decisive for another

Mark boldly

Do not skip marking because you are unsure of significance. Mark it and set importance to *Trivial*. It stays in system but does not clutter command situational picture.

Creating a new marking

Marking is added with **plus button**, then observation type is selected.

When own location is enabled, marking is automatically placed at GPS location. With gloves, there is no need for precise tapping.



Observation types

Karttahimmeli has six point observation types:

Marking	Use
Air scent (IR)	Dog air scent indication — dog may signal direction toward a scent source
Track (jalki)	Dog's indication of a ground track, or a visible footprint found in terrain
Item	Any relevant find linked to the missing person — item, equipment or other object
Public tip	Tip from the public or possible sighting of the missing person
Person	Mainly used in exercises: marks target person location or find site, shows clearly in replay
Other	General-purpose annotation for anything that does not fit the above types

Person marking in exercises

The *Person* marking shows up as its own animated marker during replay, which illustrates the find that was made. This is also nice, for example, when making social-media videos.

Marking importance

Each marking can be assigned importance:

Importance	Meaning
Very significant	Call command immediately. Affects search direction.
Normal	Reportable observation; contact command as needed
Trivial	No immediate search impact, but stored

Trivial markings are shown faded on map and do not clutter situational picture, but they stay stored for later review.

The marking-importance menu also contains special marking types: text mark, grid marking, and the MSO starting point. Any marked point can be converted directly into an **MSO planning point** (Managing Search Operations) by selecting *MSO starting point (IPP)* from the importance menu – regardless of its current importance. See [Search planning \(MSO\)](#).

⚠ Very significant = call command

If you mark observation as very significant, call command immediately. Karttahimmeli entry alone is not enough. Command has other tasks and may not monitor map in real time.

Direction arrow

Direction arrow can be added to observation, for example from where sound came or where track continued. Arrow is added while creating observation.

If phone compass works, you can point phone to direction and save automatically. Otherwise direction is set by dragging arrow from crosshair.



Areas and plans

In addition to point observations, **areas** and **route plans** can be drawn on the map. Drawing tools are accessed via the plus button. When drawing an area, the app shows the area size in real time; when drawing a route plan, total length and the last segment length are shown.

A drawn area or plan can be given a name visible on the map and free-form comments by tapping the object. Plan colour can be chosen from four options.

Route area — a dedicated tool for drawing search areas for route patrols: draw the route and define the search depth on each side.

Accessing area details

Additional information for an area is accessible only when the map is zoomed out enough that the whole area is visible on screen. At closer zoom levels, tapping targets point observations or plans instead.

When markings overlap on the map, Karttahimmeli shows a selection window where you can choose the desired item using arrows or by swiping on your phone.

Operating without a network connection

Karttahimmeli also works on a spotty phone network, but a few things are worth noting:

- You can only join a new operation while online
- Map tiles should be browsed into the device's cache while you still have good connectivity — even before setting out to the search location!
- Phone carrier coverage in the field varies. If one carrier works better, you can share that connection over WiFi to the other team members. This actually saves battery for the team, since only one radio has to handle the connection to the phone network.

Offline use

Markings are stored locally and sent automatically when connection returns. Other people's markings are also loaded as soon as possible. Do not close app in forest only because network is down. If the text in the bottom-left corner says anything other than "CONNECTED", the network connection is down. Zooming all the way out and then back in forces the map engine to retry loading. It is also worth moving to higher terrain and loading the needed map tiles there.

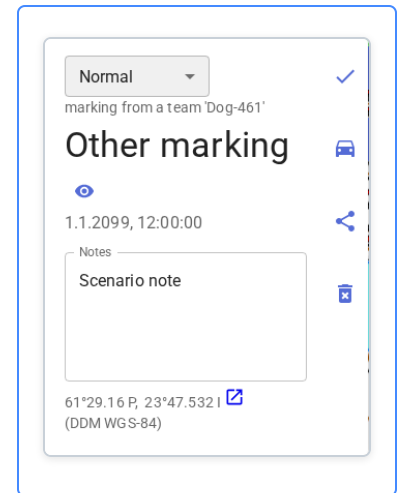
Marking is first saved locally and sent to server as soon as network is available. Spinning icon on the add button means upload is in progress.

Reviewing markings

By tapping a marking you can view:

- Timestamp
- Search team name
- Extra info and comments
- GPS accuracy at marking time (with 95% accuracy the team was within the stated radius; multiply by three for 99% probability)
- **Wind data** from nearest weather stations

Wind data is stored automatically. This is especially useful for dog teams post-analysis.



Etusivu > Toiminnot > Alueet ja suunnitelmat

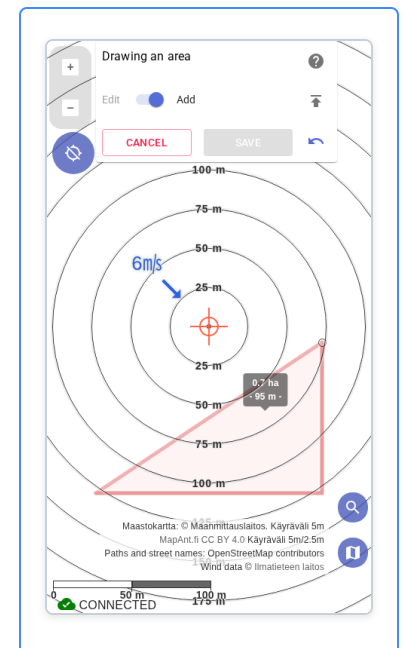
Areas and Plans

Drawing tools

Karttahimmeli has three drawing tools:

Tool	Use
Area	Closed polygon: full search area or individual segment
Plan (route)	Free-form line or route
Route area	An area drawn following a route, with a defined width on both sides

Drawing tools are opened from the plus button.



Search area vs segment

In SAR terminology, the *search area* is the full geographic region under consideration. A *segment* is a subdivision of it – the unit assigned to one team for one operational period, with a calculated probability of detection (POD). Karttahimmeli's Area tool covers both: draw the overall search area first to visualise the scope, then subdivide it into segments for individual teams.

Drawing an area

An area is drawn by tapping desired corner points on the map. Finish and save the drawing with the **Save** button, or by double-clicking the last point (for areas, the first point also works).

While drawing, area size is shown in real time. This helps estimate how large the planned areas are. It's also worth keeping scale circles visible to make drawing areas easier.

Do not draw by contour lines

Boundaries should follow **visible terrain features**: ditches, valleys, hills, roads, paths, or swamp edges. Contour lines are not visible in the field, so they are not good search-sector boundaries. Property boundaries may be clearly visible in the forest if the forest stands are of different ages.

Precise drawing with the crosshair

Finger tapping is not always accurate enough. For precision, use the crosshair:

1. Move the crosshair to the desired location
2. Tap the crosshair
3. Move the crosshair to the next point
4. Tap the crosshair again

This also allows precise line drawing along a path. Finish the same way as when drawing with a finger: tap **Save**.

Route area

A route area is drawn like a route, but with a width from the centerline. This is useful for:

- Planning route-based patrols for vehicle teams
- Creating route-based sweep areas

Drawing on phone

Drawing with fingers can be difficult with gloves. Use the crosshair for precise points, or draw roughly first and refine later.

Extra info for areas

Areas can include:

- **Name** - shown on map as text
- **Extra info** - free text field

Extra info can include at least:

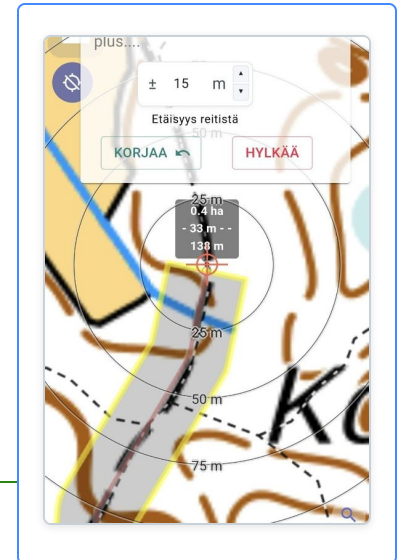
- Instructions to search team (*Start from north*)
- Terrain notes (*Stream crossing difficult, use rocky section*)
- After-action note (*Area covered, no findings, snow to mid-calf*)

Route area width

A good route area width is the searcher's estimated effective search depth from the route. Note that Karttahimmeli does not account for actual road or path width, so add that in the width setting if you want the drawn depth to also be correct on the map.

Typical values:

- Dog team: 10-50 m
- Foot team ditch check: 5-15 m
- Foot team visual scan: 5-25 m



Remind the search team

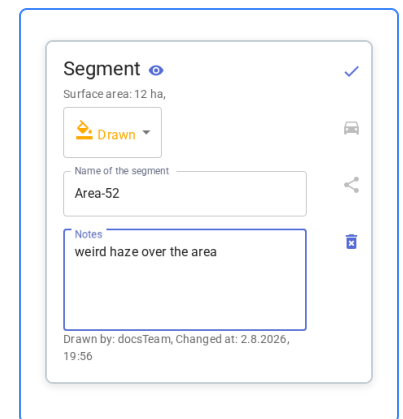
If you wrote important guidance in area extra info, tell the search team separately that extra info exists.

Segment popup: status and visibility

The segment popup opens by tapping the area on the map – but **only if the entire area fits on screen**. If part of the area extends beyond the visible map, zoom out (or pan) until the whole boundary fits on screen; only then does tapping it open the popup.

The popup shows the segment's **surface area** and a status selector for tracking search progress:

- **Drawn** – the area was just drawn, searching hasn't started yet
- **Active** – the area is currently being searched
- **Searched** – searching the area is complete



The **eye icon** in the top-right corner of the popup hides the area from the map.

Restoring a hidden area

A hidden area can't be brought back by clicking the map – it's no longer drawn there. Visibility is restored from the **Segments** tab of the **observation diary**: find the area in the list and clear its hidden state from the eye icon.

Colors in plans

Routes and plans can use four colors. Colors can be used for example by:

- Different phases
- Different search team type

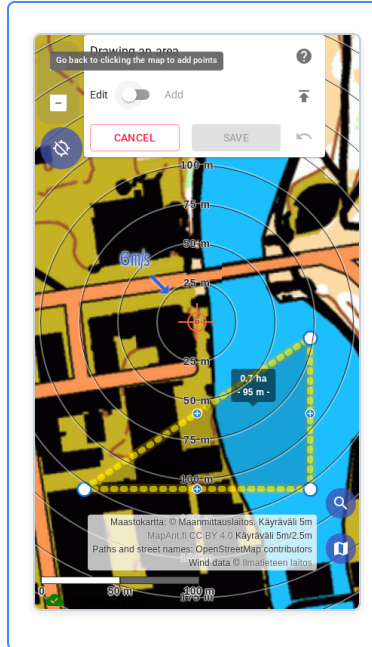
- Checked vs planned

Editing and deleting areas

Both while drawing and after an area or plan is saved, points can be moved, added, and removed — there's no need to delete and redraw a shape just to fix it.

While drawing: flip the **Edit/Add** switch into edit mode. Drag a point to reposition it, tap the plus mark in the middle of a long edge to insert a new point, or tap a point to reveal a bin icon that removes it. Switch back to Add to keep placing points, then finish with **Save** or by double-clicking the last point.

On an already-saved area or plan: open it on the map and choose **Modify drawing** from the popup. The same drag/insert/delete controls are available as while drawing. Save the changes with **Save changes**, or discard them with **Cancel**.



i Advanced: planning with layers

Command planning can be done on a separate password-protected layer that is not visible to search teams. Plans can then be published on the default layer at the right time. See [Layers guide](#).

🔥 Mistakes while drawing or editing can be undone

An undo icon (↶) appears in the corner of the draw/edit window:

- **While placing points**, the undo button (or the **Backspace** key) removes the most recently placed point – tap it repeatedly to step back through the points drawn so far.
- **While editing a saved area or plan** (dragging, inserting, or removing a point), the undo button restores the most recent change, up to 20 changes back.

Editing an area imported via the property search (kiinteistöhuaku) detaches it from the official parcel boundary — the edited shape is no longer shown as that imported area.

Deleting an area requires typing team name for confirmation, which helps avoid accidental deletion under time pressure or when wearing gloves.

Navigate to area

Next to area or plan points there is a **route button** that opens Google Maps navigation to that point. Useful when search team needs access to a rendezvous point.

Etusivu > Toiminnot > Havaintoloki

Observation Log and Filters

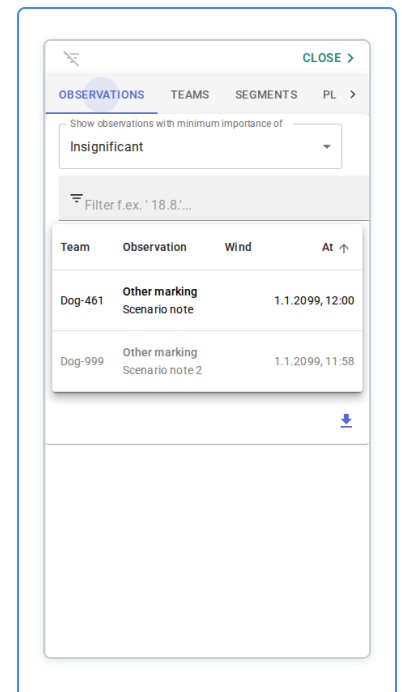
Observation log

Observation log opens from the **notebook button** on the right side of the map. It lists all operation entries and is especially useful at command post.

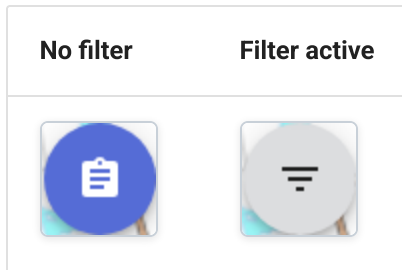
Log has four tabs:

Tab	Content
Observations	Point entries
Teams	Search teams sharing location
Segments	Operation areas
Plans	Routes and other plans

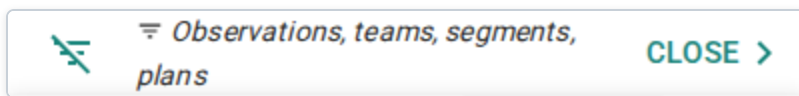
Clicking any entry moves map automatically to that location.



Filtering



When any of the lists (Observations, Teams, Segments, Plans) has an active filter, a funnel icon and a list of the filtered tabs appear at the top of the diary panel, along with a button to clear all filters at once:



Karttahimmeli has **two different filtering methods**, and you usually get the best result by **combining both**:

- **Row-level hide/focus** — the quickest way to hide a single entry or focus on one search team
- **Text filter** — the most powerful way to find or narrow down an entire group, for example all search teams of one type, or all entries at a given time

i Filters affect map

Filters do not only limit list. They also hide matching items from map. If something seems missing on map, first check whether a filter is active: the **diary open button turns gray** when any filter is active in any tab. A list of tabs with active filters is also shown at the top of the diary panel.

Row-level hide and focus

🔥 The pop-up eye icon and the list eye icon are the same thing

The eye icon in an entry's pop-up and the eye icon on its row in the list do **exactly the same thing** — clicking either one hides that same entry from both the map and the list.

On phone, a row can be hidden or restored with a swipe:

- **Swipe right** — hides that row

- **Swipe left** — if nothing is hidden yet, this **focuses**: that row stays visible alone and every other row in the same list is hidden from the map. If something is already hidden, swipe left instead restores just that one row.

In a **browser**, focusing (the "swipe left" action) is done with the **right mouse button**. Hiding a single row needs no gesture at all — clicking the row's eye icon gives the same result directly, with a mouse too.

Swiping the header row — reset or hide everything at once

The header row (the column titles at the top of the list) behaves like a normal row, but affects **every** row beneath it at once. This is an important concept of its own, worth learning separately:

- **Swipe left on the header row**, or click the header row's eye icon — restores every hidden row (reset)
- **Swipe right on the header row** — hides every row

This is the fastest way to reset row-level filtering if you no longer remember what you've hidden.

Text filter

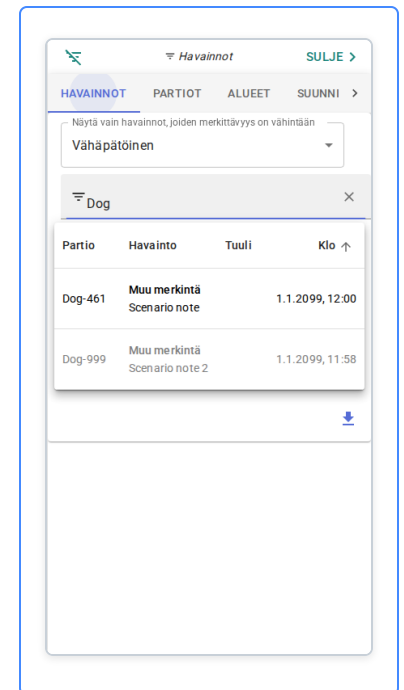
A word typed in the search field is matched against all visible fields: team name, extra info, observation type, time, and date.

The text filter is the most powerful way to find or narrow down an entire **group** at once, for example:

- `car-` finds all vehicle teams, if teams are named systematically
- `Item` finds all item observations
- `18:` finds all entries made around 6 PM — the search also matches the timestamp, not just text

Hide an entire category by typing any gibberish

Since the filter hides every row that gets filtered out of the list, you can hide an entire tab's content from the map by typing something into the search field that matches nothing at all (e.g. `xxx`). Then no row stays visible.



Search is **narrowing** (AND type). Multiple words mean all terms must be found. For example `dog item` lists only entries containing both words.

Text-based filtering on the map works so that the filter only hides the points that have been filtered out of the list. If you hide the list for a while and a new point appears on the map, it will be shown on the map until you open the list and check the filter. The filter condition is only checked when the list is visible.

Importance filter

Importance filter can hide trivial entries and show only relevant ones.

Useful at command post: set filter to *Normal* or *Very significant*. Then low-importance entries are removed from map and clutter decreases. This allows search teams to mark location points with a low threshold using lower importance levels.

Sorting

List can be sorted by clicking the columns in the header row, for example by:

- Time (newest first or oldest first)
- Search team name alphabetically
- Area size (areas)

Search team filters

In Search Teams tab you can filter visible search teams by typing start of id. This is especially useful when you want to see only dog search teams.

Filtering is **OR type**: you can select multiple teams visible at once, for example

Dog-03 Foot-05 .

Area search is OR type

In area and search team search, multiple terms are **combined** (OR type): `dog01 car02` shows both. Observation search is narrowing (AND). `white sock` returns observations containing both words.

Own team filter

If the map has too many other search teams' markings and they disturb your work, set your own team ID as the filter. Then only your own entries are shown.

Reset the filter when you need the wider situational view again.

Team naming aids filtering

For effective filtering, team names should be systematic. For example, `Foot-03/tk` — a prefix, number, and member initials after a slash — lets you find all members of the same team easily, individually or together.

Clicking a team name centers the map on that team's last location. Clicking the square-circle icon in front of the team name makes the map follow that team's location.

Tip for dog teams

Dog teams often work in a relatively small area, so nearby search team markings may not disturb work even without filters. Filters still help when area borders busy road or otherwise shared high-traffic location.

Area filter

With the **area** filter you can clean up area drawings on the map. For example, typing `active` shows only active search areas/blocks. On a large screen there is also a pencil icon next to the area name to directly edit area information.

Tail length – visible time window

Shared location draws a route tail on the map. Everything is stored in the service, but by default only 30 minutes of history is shown. The tail length can be changed from the tail selector on the top left. Options: 0 – 10 – 30 – 60 min, and 4 h, 12 h, and 7 days.

In a password-protected operation the tail can be up to 90 days.

The tail length setting also affects:

- Which search teams appear in Search Teams list (only search teams with location updates inside selected time window)
- Length of downloadable GPX route

- Speed and distance calculations in location pop-ups

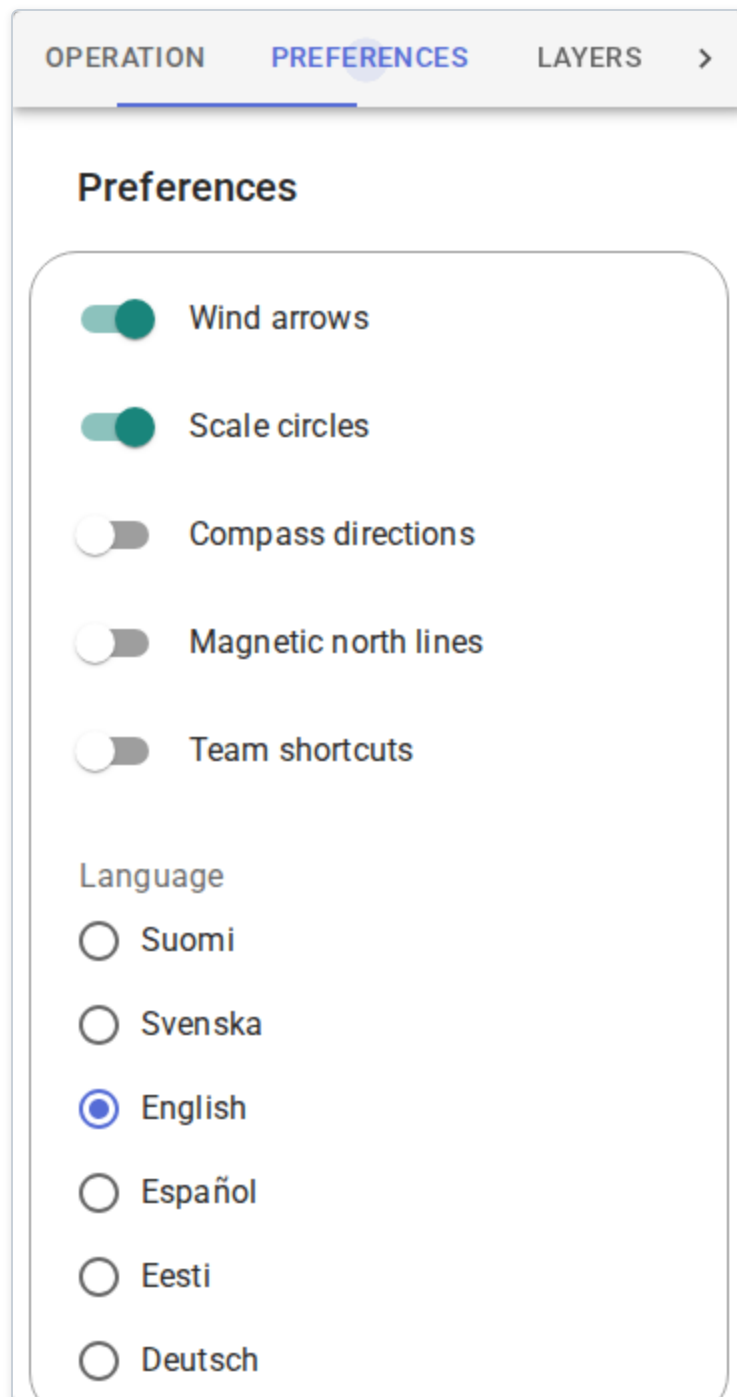
Long tail for long routes

If you are checking distance in a pop-up or returning to areas you visited earlier, set the tail to e.g. 12 h.

Etusivu > Toiminnot > Asetukset

Settings

At the top of the Settings menu you will find several tabs. This page describes all settings on the *Preferences* tab.



Scale Circles

With the Scale Circles switch, you can choose whether to display the distance rings radiating from the centre of the map or not.

Wind Vanes

With the Wind Vanes switch, you can choose whether to display wind vanes on the map or not. See [Wind Data](#) for the data sources and how to read the markers.

Compass North Lines

With the Compass North Lines switch, you can choose whether to display compass north lines on the map or not. Compass north lines show the true magnetic north direction on the map.

Karttahimmeli uses the approximately [2 km × 2 km declination grid](#) provided by the Finnish Meteorological Institute and the nearest defined declination angle.

Show Map on Locked Screen

With the Show Map on Locked Screen switch, you can choose whether to display the map on the phone's lock screen or not.

i Android and iPhone work differently

The switch and its three states are available **on Android devices only**. On iPhone, the screen is instead kept on constantly while the app is open, and the switch has no effect on this.

The switch has three positions:

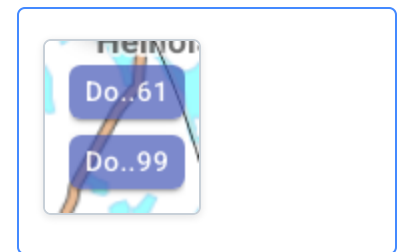
Position	Behaviour
Off	Karttahimmeli is not displayed if the phone screen is locked.
Auto	Karttahimmeli is displayed on the locked screen IF location sharing is active.
On	Karttahimmeli is always displayed even if the phone screen is locked.

This feature makes it easier to use the map, as you do not need to unlock the phone repeatedly to view the map.

Team Shortcuts

The Team Shortcuts switch enables quick-access buttons that appear along the right edge of the map. Each active team gets its own button — clicking it instantly centres the map on that team's location.

The buttons update automatically based on which teams have been active within the selected tail length window.



Grouping multi-member teams

When a team ID uses two parts (`Dog-03/tk` , `Dog-03/ah`), all members of the same team are grouped under a single button. Clicking the button centres the map on the average position of all team members.

Language Selection

You can choose the language of the application's interface and annotations. If you think there are term errors in the translations, please provide feedback!

The language selection also affects the abbreviations and texts of the annotations. For example, "IR, Ilmareaktio" appears in English as "AS, Air Scent" and in Swedish as "LV, Luftvittring".

Etusivu > Toiminnot > Haku

Address and Coordinate Search

In searches, the home address, former addresses, workplace, etc. of a missing person are often important places to check.

In the lower right corner above the map selector, there is a magnifying glass icon that enables address and coordinate search.

Address Search

The address search works by typing something into the search box, and Karttahimmeli checks whether there is a nearby address matching the search term. The data source depends on location – see below.

Search for Nearest Addresses

With the reverse address search function, you can find the address of the nearest building, for example, to guide an ambulance to the location.

Leave the search field completely empty and press the results button on the right side of the field. Karttahimmeli will search for the official addresses closest to the centre point of the map.

The data source for address searches (both regular and reverse) depends on location:

- **In Finland**, the source is [Digitransit](#), which gets building address data from the Digital and Population Data Services Agency (DVV).
- **Outside Finland**, [LocationIQ](#) is used, which draws on OpenStreetMap data among other sources.

Property Search (Kiinteistöhaku)

You can also type a Finnish property/parcel identifier (kiinteistötunnus, e.g. `091-402-1-31`) into the search field – Karttahimmeli looks up the parcel from the National Land Survey of Finland (Maanmittauslaitos) and offers it for import onto the map as an area.

Property search at your current location: the reverse address search described above (empty search field) also shows a **Nearest property** result for Finland, based on the map's centre point, alongside the nearby addresses. To search the property you're standing on, first centre the map on your own position with the map centring button, then open the search field empty.

Tapping the **Nearest property** result opens a preview where the parcel's segments can be selected and added to the map with **Add as area**. An area imported this way follows the official parcel boundary – editing it later detaches it from that boundary, see [Editing areas](#).

Coordinate Search

You can enter coordinates in many different formats into the search field, and Karttahimmeli will try to make sense of them and suggest possible projections. Check the suggested information carefully!

At least the following formats work: - Geographic coordinates in degrees and decimal degrees - Geographic coordinates in degrees, minutes, and decimal minutes - Rectangular coordinate systems

By clicking on a suggestion, the map will centre on the coordinates. You can add a [marker](#) to the location in the usual way with the plus button.

Logging Drone Observation Points via QR Code

Many drone controllers display the drone's current position or a point of interest as a QR code – which is actually a Google Maps link containing the coordinates.

Workflow:

1. Scan the QR code on the drone controller screen with your phone.
2. A Google Maps link opens showing the coordinates.
3. Copy the link or just the coordinates and paste them into Karttahimmeli's search field.
4. Karttahimmeli centres the map on the location – add a marker with the plus button and record your observation as usual.

This makes it quick and accurate to share drone findings with the rest of the team on the shared map, with no manual coordinate entry needed.

[More information about coordinate systems](#)

Etusivu > Toiminnot > Tulostaminen

Map Printing

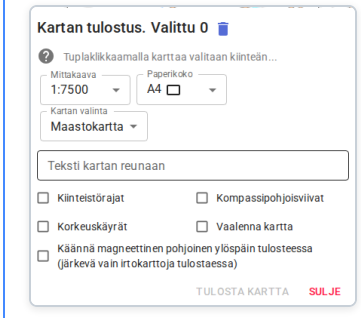
Print tool

Karttahimmeli has built-in print tool that respects active filters. You can print, for example, map showing only selected team areas.

Printing is opened from **map view**: first select desired map and filters, then open print tool. The print tool is found behind the map selection button in the lower right corner.  → 

iPhone compatibility

Printing is not available in the iPhone app. Use the browser version (Safari or Chrome) on iPhone instead.



Selecting print area

Print area is selected from map in two ways:

1. **Single map sheet**: click desired location and print area centers there. Click same location again to remove selection.
2. **Grid**: double-click creates map grid automatically, then expand by clicking neighboring cells. Good for larger command wall map.

To deselect a page, click it again. Clear all selections with the bin icon .

Map printing. Selected 0 

 Double-click the map to...

Scale
1:7500 ▼

Paper size
A4  ▼

Map type
Topographic ▼

Note on the map

☐ Property boundaries

☐ Magnetic north lines

☐ Contours

☐ Bright map mode

☐ Rotate the magnetic north upwards in the printout
(sensible only when printing team maps)

PRINT MAP CLOSE

Grid and north-up orientation

Grid selection works only when map is in normal (not rotated) orientation. With magnetic-north rotation, grid cells become skewed.

Scale and print settings

Before selecting print area, you can set:

- **Scale** - for example 1:10,000
- **Paper size** - A4, A3, etc.
- **Magnetic north up** - map rotates so magnetic north is at top

Both north orientations support printing magnetic north direction lines, which are needed for taking compass bearings.

You can also add text to be printed in the map margin, for example the command post phone number or team identifier.

Print at correct scale

Always print at 100% size, not "fit to page". Many printers default to fit-to-page, which shrinks map and breaks scale.

Top text ("This area is not printed") is only a reminder of printer margins, it does not appear on actual print.

Recommended settings for search team map

- **Map:** Mapant or terrain map
- **North lines:** yes (magnetic)
- **Property boundaries:** not recommended (can mislead in terrain)
- **Map lightening:** consider if there are many markings

Command wall map

For command post, larger grid map can be printed:

1. Select larger paper size (A3 or multiple A4 sheets)
2. Double-click and expand grid as needed
3. Add comment text (for example command post number or operation ID) which is printed at bottom of map

Printing can be repeated as operation progresses so map reflects latest entries.

Cut before taping

Cut the **top edge** and **right edge** of each printed map sheet along the edge of the white area using scissors. This lets the sheets overlap and be taped together seamlessly, without white gaps between the map sheets.

Search and addresses in printing

Before printing, verify map is centered to correct location. **Address search** is behind magnifier button. Enter street address or place name and map moves automatically.

Coordinate search

Search field also accepts coordinates in multiple formats (WGS84 decimal degrees, degrees and minutes). Karttahimmeli tries to detect format automatically.

Exporting Maps to a Drone Controller

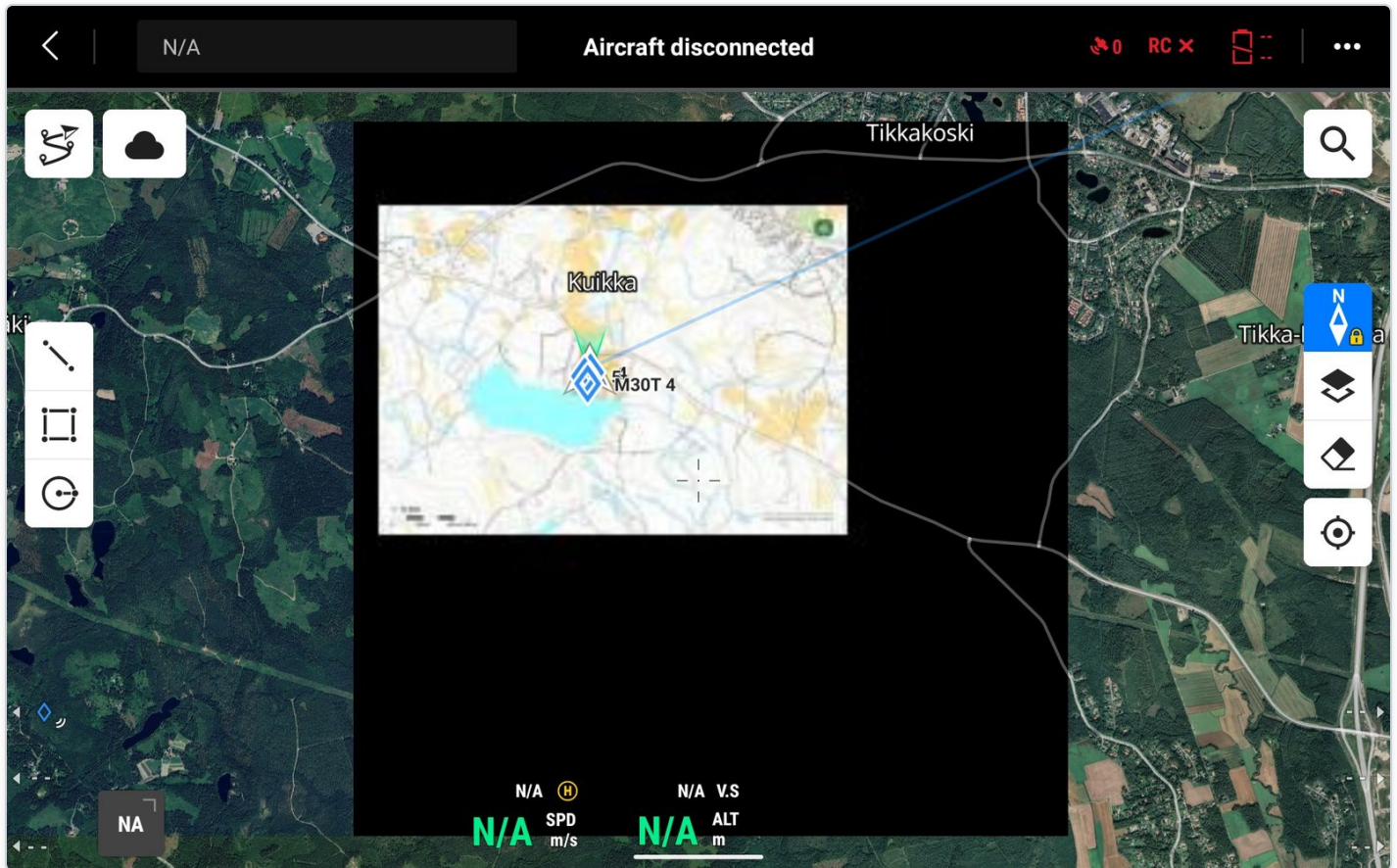
Karttahimmeli supports exporting maps in **MBTiles format**, which is an offline map format compatible with drone controllers. This allows you to load the operation area onto the drone controller in advance — even in areas with no network connectivity.

How it works:

1. Select the desired area using the print tool as usual.
2. Choose **MBTiles** as the export format.
3. Transfer the downloaded file to the drone controller (e.g. DJI RC or similar).
4. The controller uses the map offline during the flight.

The key benefit is that the drone controller displays exactly the same operational picture – including markings – as the rest of the team sees in Karttahimmeli. This improves shared situational awareness, especially in areas with poor or no mobile data coverage.





Etusivu > Toiminnot > Tasot

Layers

Layers are separate "containers" inside operation where **markings**, **areas**, and plans can be stored. By default everything goes to **default layer**, visible to all users.

Layers are an advanced feature

Layers are not required in normal search operations. In basic operation, default layer is enough. Consider layers only when basic usage is already familiar.

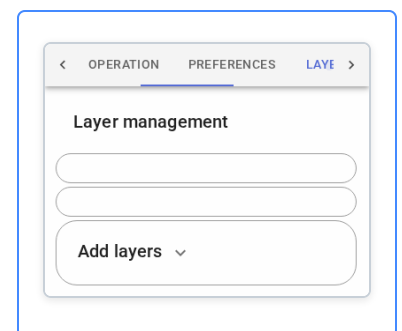
Layers are not intended for separating patrols

The layers feature is NOT intended for separating and hiding search teams' work from each other.

Why use layers?

Layers allow for example:

- **Planning layer:** command prepares next phase plans in separate password-protected layer. Plans are published to search teams at right time.
- **Training layer:** role players in exercise share location on own layer that participants cannot access.



Creating a layer

1. Open Layers menu
2. Enter layer name

3. Set password (or leave empty for open layer)
4. Create layer

Creating layer does not activate it automatically

After creating layer, you must **activate it separately** by entering password again into "Enable layer" field. Otherwise new entries still go to default layer.

Layer name and password cannot be changed after creation.

An open layer (no password) shows with a green dot in the layer list when active, red when inactive. A password-protected layer shows with a "no entry" symbol until unlocked with the correct password.

If multiple layers share the same password, they all open at once. This applies to open layers too: submitting an empty password opens all open layers at once.

Creating entries on a layer

When multiple layers are in use, plus button asks which layer entry is saved to. If you want to save into specific layer, first verify that layer is selected as default for new entries.

Default layer for new entries can be set in the observation type selection dialog.

Layer selection is also available when importing GPX files.

Location sharing locks permanently to a layer

Choose the layer in operation settings **before** you start sharing location.

Once a team's ID starts sharing location on a layer, that ID is locked to that layer for the rest of the operation. Stopping and restarting location sharing does **not** free it up — the same ID locks back onto the same layer.

To share location on a different layer, change the **team name or the member part of the ID** — a different ID is free to pick any layer.

This is also why one team/member ID can never appear on more than one layer within the same operation: the lock ties an ID to exactly one layer.

Password-protected layer

In password-protected layer, entries and locations are visible only to users with password. User without password sees layer name but not contents.

Password-protected content is shown on map with **orange border**.

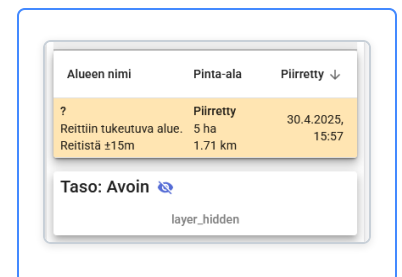
Open layers

Anyone in operation can join open layer (no password) by submitting empty password. This opens all open layers at once. Open layers can be used to separate search team plans without secrecy.

Hiding layers

Layers can be hidden or shown one by one from list. Hiding is useful when map becomes cluttered with content from many layers. You can also filter the **observation log** by layer, to narrow the view down to one layer's entries.

A layer can also be fully removed from use on your device by clicking the X next to the layer name – to re-enable it you must enter the password again (or click the layer name for an open layer).



Training scenario with layers

Training organizer can create secret planning layer for exercise tasks or scenario items to be found. Participants see only default layer, so scenario stays hidden until organizer decides to reveal it.

Etusivu > Toiminnot > Tuulitiedot

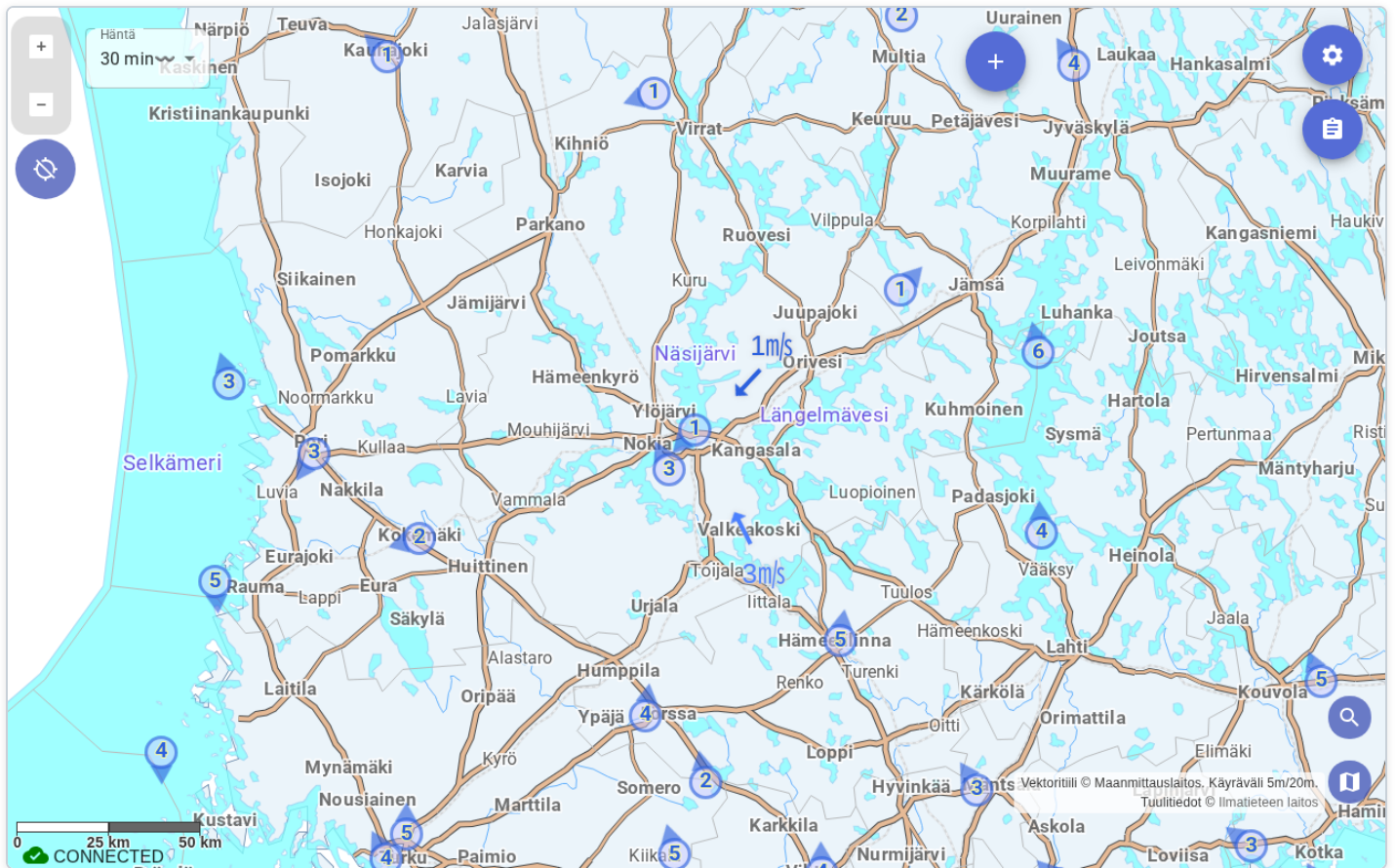
Wind Data

Why wind direction matters for a search

Wind direction affects how a dog handler plans a K9 search. Knowing which direction the wind is coming from lets the search plan give the dog a chance to pick up scent from a person anywhere in the area, wherever they happen to be.

Karttahimmeli's wind data is based on the ten-minute average from wind observation stations. That data lets you say the air is, on average, genuinely moving in the direction the wind vane shows. Wind speed is also an average: 3 m/s means the scent cone advances 180 metres per minute. The wind can still be gusty and its direction can vary somewhat, but this average direction is really the only thing a search can be planned around. Wind speed also affects the width of the scent cone.

As a rule of thumb, if the two nearest wind stations agree on wind direction and wind speed is at least 2–3 m/s, the wind reading is fairly reliable. It's still worth zooming the map out to check whether all wind vanes within a 100–300 km radius point the same way — if they do, conditions are close to ideal. It's also worth checking the weather forecast.



The picture isn't always this good – wind direction based on the observations can be conflicting. Even then it's often possible to establish, for example, that "the wind is at least not coming from the north today", and plan accordingly.

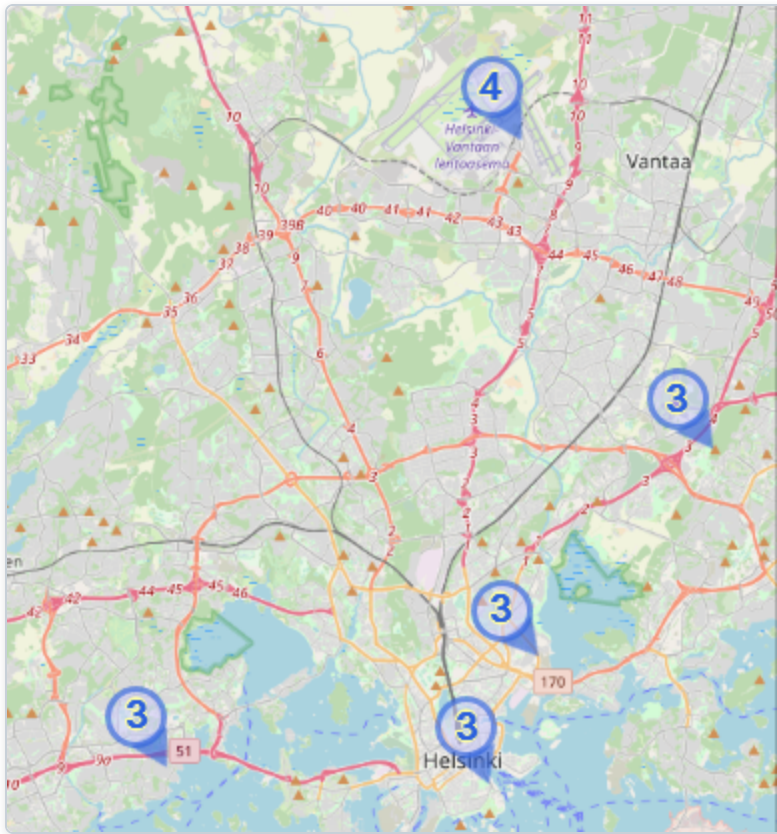
This page describes in detail the data sources behind the wind markers drawn on the map, and how a marker's appearance shows the reliability and freshness of its reading. Wind markers are toggled on/off with the *Wind Vanes* switch in Settings, see [Settings](#).

Wind data source

The wind data source depends on the current map location:

- **Finland** – Finnish Meteorological Institute (FMI) observation stations
- **Sweden** – Sveriges meteorologiska och hydrologiska institut (SMHI) observation station service, supplemented with airport weather station (METAR) observations
- **Norway and Denmark** – the Norwegian Meteorological Institute's Nowcast model, supplemented with airport weather station (METAR) observations
- **Elsewhere** – airport weather station (METAR) observations

Two wind arrows point toward the centre of the map. They represent data from the two nearest wind stations: the nearest station's direction and speed are shown in a slightly darker colour and closer to the centre point.



Observed vs. modelled data

The ring around a wind marker shows whether the reading comes from a real weather station or is modelled:

- **Solid ring** – a real observation from a weather station (e.g. Finnish, Swedish, or airport stations)
- **Dashed ring** – modelled data (e.g. the Norwegian Nowcast service)



Data freshness

The colour of a wind marker shows how fresh the reading is:

- **Blue** – the reading is less than 30 minutes old
- **Yellow** – the reading is more than 30 minutes old



Ten-minute average

Wind speed and direction show the **ten-minute average** from the observation station in metres per second – not an instantaneous reading.

Wind Data in Observation Entries

When an observation entry is made, the current data from the two nearest wind stations to the observation location is automatically saved as part of the observation.

Normaali ▾

havainto partiolta 'W-1'

Ilmareaktio

suuntaan: ↖ 332°

28.5.2021 klo 21.24

Tuulitiedot 28.5.2021 klo 21.10:

4

Pirkkala Tampere-Pirkkala lentoasema

8

Tampere Siilinkari

✓

🚗

↓

✕

Etusivu > Toiminnot > Koordinaattiruudukko

Coordinate grid for event coordination

Event first aid cover and security operations have long used a coordinate grid as a standard map for the event area. Karttahimmeli supports this established practice directly.

The **Grid marking type** draws a coordinate grid on the map. Selecting it opens a set of controls:

- **Grid size** – cell edge length, **25 m** or **50 m**
- **Rows** and **Columns** – grid dimensions, 5–30 columns and 5–26 rows (rows are lettered, so 26 is the ceiling)
- **Center grid on point** – anchors the grid on the tapped point instead of using it as the top-left corner (see below)
- Columns are numbered left to right: 1, 2, 3 ...
- Rows are lettered top to bottom: A, B, C ...

A location can be communicated as a grid coordinate, e.g. **B7** – all members of the operation can immediately find it on their map without further explanation, and the location is also easy to find on a printed map.

Grid

Grid size

25 m

☐ Center grid on point

Rows

19

Columns

24

marking from a team 'Dog-461'

1.1.2099, 12:00:00

Notes

Scenario note

61°29.16 P, 23°47.532 I

(DDM WGS-84)

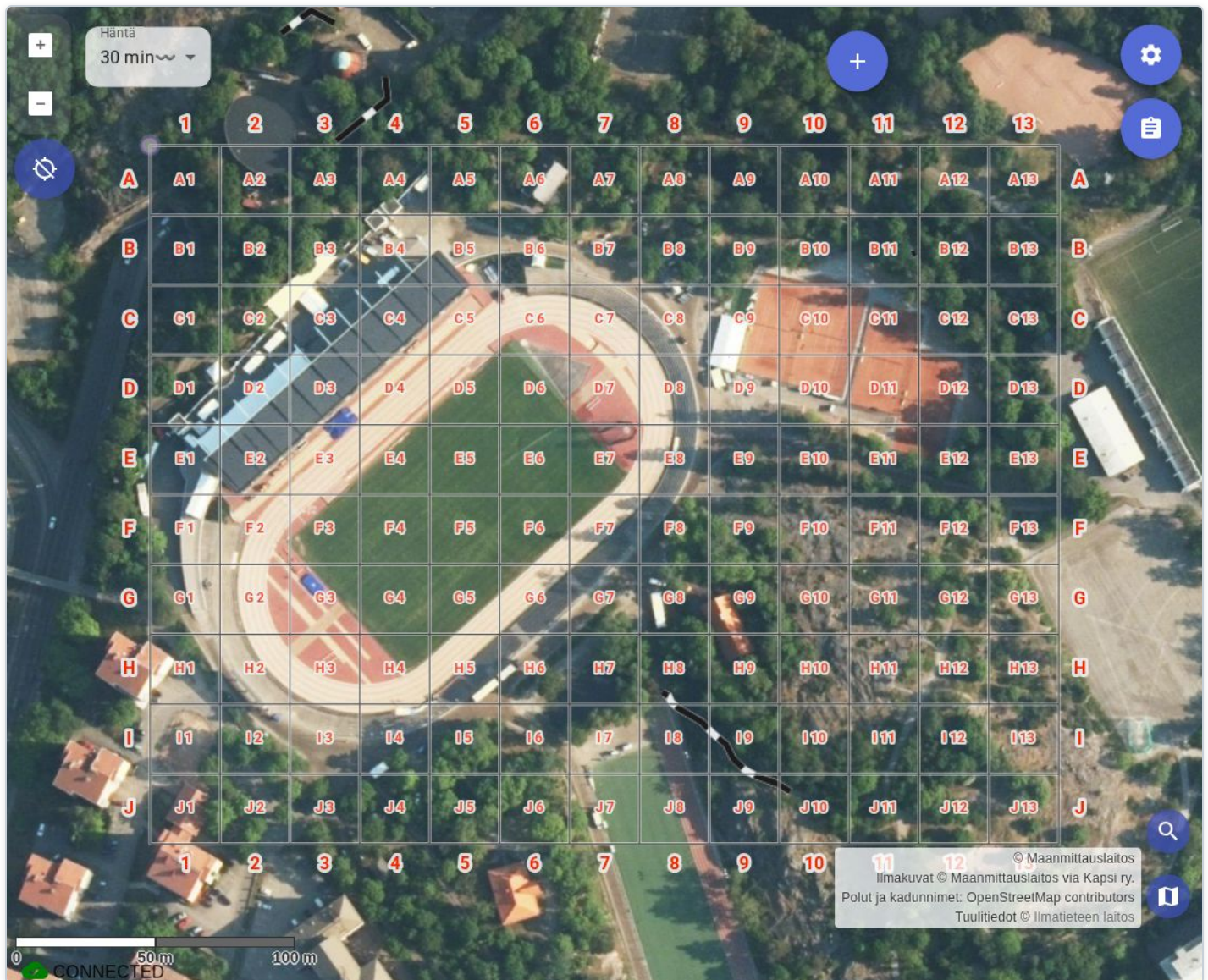
Grid popup – cell size, row/column count, and center-on-point are all adjustable per marking

How to use

Press plus button → select **Other** → select **Grid** → tap the point on the map where the grid should be anchored, then adjust size, rows, columns, and centering in the popup as needed. The grid becomes visible when the map is zoomed in to approximately level 14 or deeper.

By default, the tapped point becomes the grid's **top-left corner**. Ticking **Center grid on point** instead centers the grid on that point – the point always lands exactly on a line intersection, never mid-cell, so it stays a usable reference coordinate either way.

The grid can also be used in search and rescue operations whenever the area needs to be divided into coordinated sectors.



25 m grid over aerial imagery — all 13 columns and 10 rows visible from the top-left corner

Etusivu > Toiminnot > Etsintäsuunnittelu

Search Planning (MSO)

Planning point

Any **point marked in Karttahimmeli** can be converted directly into an **MSO planning point** (Managing Search Operations) by selecting *MSO starting point (IPP)* from the importance menu – regardless of its current importance.

Typical MSO points:

- Missing person's **point last seen** or last confirmed observation point
- **Found item** that indicates movement of the missing person

Planning points can also be used in parallel. For example, if missing car is found farther away, two parallel scenarios can be created.

Activating an MSO profile

Open an observation point by clicking a marker on the map. In the observation popup, find the importance selector and choose **MSO / IPP**. A profile selector will appear – pick the MSO profile that fits the situation.

MSO starting point (IPP) ▾

Profile
Child 1-3 years ▾

marking from a team 'Dog-461'

MSO starting point (IPP) 👁

1.1.2099, 12:00:00

Propability	Radius	Surface area
50%	400 m	50.3 ha
75%	1 km	3.14 km ²
max	2.1 km	13.85 km ²

Notes
Scenario note

61°29.16 P, 23°47.532 I [🔗](#)
(DDM WGS-84)

✓
🚗
🔗
🗑

Karttahimmeli immediately draws the profile's distance circles on the map and shows a table with the probability, radius, and area for each circle.

Search probability rings

A **profile** can be selected for planning point, for example *Autistic child*, *Dementia*, *Young adult*, or similar. The profile draws probability rings on map to show where the missing person is most likely to be.

Profiles provide a **directional search area**, not an absolute answer. In real operations, conditions, local knowledge, and new observations can shift focus.

Hasty Search: 300-Meter Circle

28 hectares is the area of a 300 meter radius circle. The hasty search of the immediate area around the IPP should not be underestimated:

- Area can keep three dog teams occupied for hours
- Most findings in all profiles happen at short distance
- Hasty search should be done first before expanding

How to interpret profiles

Profiles are based on statistics from earlier search operations. They show how far from the point last seen people with a similar profile have been found, by percentage.

Example: 50% means half of similar cases were found within 400 meters.

Hasty search is critical

A common mistake is to expand immediately because people think the immediate area is "already checked". 28 hectares is large. Thorough coverage needs several search teams and several hours.

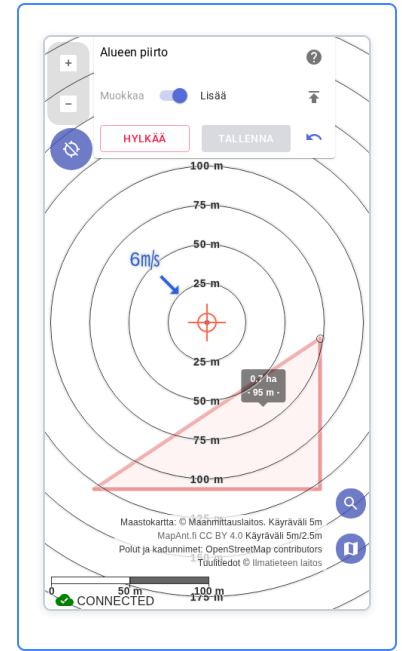
Sectoring

The hasty search area should be split into sectors and each search team gets its own sector. This gives:

- Area can be covered in 30-45 minutes with multiple search teams
- Command gets time to organize during sectoring
- Results accumulate clearly on map

In SAR terminology each sector is a **segment** — the unit assigned to one resource, for which a probability of detection (**POD**) can be calculated from coverage and sweep width. Summing POD values across segments gives the overall probability of success (**POS**) for the search area.

Sector naming follows same rules as other areas. See [naming conventions](#).



Shifting focus

If new information appears during search (item, observation, or tip call), focus shift may be considered. Before shifting:

1. Evaluate how **reliable** new info is (fact or suspicion)
2. Do not discard existing plan based on first tip
3. Consider opening parallel scenario with separate MSO point

Confirmation bias in search

Humans naturally seek data that confirms existing assumptions. Karttahimmeli helps keep location data factual. Do not interpret map as "target is probably there". Keep open view on data.

Expanding area size

When search radius is doubled, area quadruples:

Radius	Area	Required resources (relative)
300 m	~28 ha	1x
600 m	~113 ha	4x
1200 m	~450 ha	16x

For this reason: hasty search first. At the start, resources should be focused on the most probable area.

MSO info in area names

Search method does not need to be in the **area** name. Put it in extra info instead. Method in name makes names long and harder to search.

Etusivu > Toiminnot > GPX

GPX Files

GPX export

Routes, areas, and plans in Karttahimmeli can be exported in GPX format for sharing or archiving.

Exporting a single item

Open desired map item (route, area, or plan) by clicking it on map. In item details there is **download GPX** button.

On phone, GPX can be sent directly using WhatsApp, email, or another app.

Tail length affects GPX

When exporting a route, GPX includes only coordinates visible with the current tail setting. If you want the full route, first set the tail long enough and make sure the whole route is visible before export.

Exporting multiple items at once

Open the **observation log**, area list, or plan list. Filter or search down to the items you want, then press the **Export N observations/areas/plans to GPX** button at the bottom of the list. Every item currently shown in the list — minus any hidden with the eye icon — is bundled into a single GPX file, so there's no need to export items one by one.

The downloaded file name follows the app's current interface language.

i Details are restored automatically on import

A GPX file exported by Karttahimmeli carries each item's note, time, and (for observations) wind readings along with it. Re-importing the same file — into this operation or another one — brings all of that back exactly as it was, not just the coordinates.

CSV export

At the bottom of the observation log, next to the GPX button, there is a **CSV button** (table icon). It bundles the observations currently visible in the list into a single CSV file, suitable for opening in Excel or Google Sheets. A typical use case is attaching the observation log to the operation's final report for officials.

The export follows the same principle as GPX bulk export above: only the rows currently visible in the list are included — filtered or hidden observations are left out. Filter or search for the observations you want before exporting.

i Observations only

CSV export is only available on the **observation log's Observations** tab. There is no CSV export for teams, areas or plans.

Each row contains:

- Team name
- Observation type
- Note
- Timestamp
- Coordinates (WGS84, latitude and longitude)
- The two nearest weather station wind readings, if available

CSV or GPX?

A CSV file is meant to be read and attached to a report in table form – it cannot be imported back into Karttahimmeli. If your goal is to move observations to another operation or archive them in an importable format, use GPX export instead.

An operation owner's GPX bulk-export block (see [Operation Manager](#)) also blocks CSV export.

GPX import

GPX files can be imported into Karttahimmeli in two ways. The same import also accepts KML files and IGC flight recorder files (e.g. glider and paraglider flight logs).

In browser

1. Select any drawing tool (area, route, or plan — any is fine)
2. Press **up arrow** button
3. Select file to import
4. Select how file is stored (as route, area, or plan)

Import GPX, KML or IGC to operation 'teemuntesti3' 

Name: KH-suunnitelma-test.gpx
Description: Fox1 wrote this description
Length: 1.05 km

Import as

☒ Plan ☐ Area

☐ Route

CLOSE **SAVE**

The map stays visible while you review

The import panel sits at the bottom of the screen instead of covering the map, so you can see where each item is — tap a row to centre the map on it.

Multiple items import in one step

If the file contains several items, they're all listed with their own checkbox instead of the usual one-at-a-time preview. Tick the items you want and press **Import N selected** to bring them all onto the map at once. Items already present on the map are shown greyed out and can't be selected again.

For files exported by Karttahimmeli itself, each item's type (area, plan, or route), original note, and time are detected automatically — nothing to pick by hand.

For files from other apps or GPS devices, each item's type is guessed from its shape and shown with a small dropdown so it can be corrected before importing.

Import GPX, KML or IGC to operation 'teemuntesti3' 

☒ 2 features found in this file 

☐  Person · 6.8.2026, 14:04:12: "First sighting"
(Saved)

☒  Person · 6.8.2026, 14:04:12: "Second sighting"

CLOSE
IMPORT 1 SELECTED

Import GPX, KML or IGC to operation 'teemuntesti3' 

☒ 3 features found in this file 

☒ Search sector
Area

☒ Ridge route
Plan

☒ Trailhead

CLOSE
IMPORT 3 SELECTED

On desktop, the file can also be imported by dragging and dropping it directly onto the browser window — Karttahimmeli automatically detects a dropped GPX, KML, or IGC file.

On phone

Open the file from your device file manager or receive it from a messaging app. Device asks which app should open file. Choose Karttahimmeli.

Android: default app

If another app has been set as default for GPX files, Karttahimmeli may not appear in choices. Clear defaults in phone settings (Apps → selected app → Default settings → Clear defaults).

Moving items between operations

GPX can also be used to move routes, areas, plans, or observations from one operation to another — a single item, or several at once with bulk export:

1. Export the item(s) as GPX
2. Switch operation
3. Import the GPX into the new operation — Karttahimmeli restores the type, note, and time automatically

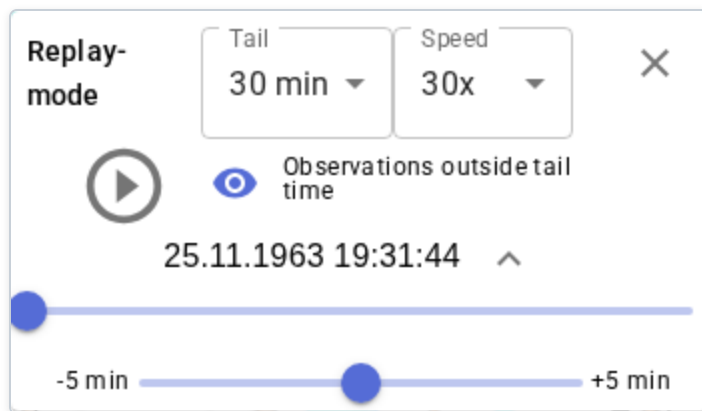
Etusivu > Toiminnot > Toisto

Replay

Replay allows you to analyse operation or training events after the fact. It shows who was where and when, what the wind direction was at each moment, and how the overall situation developed over time.

Usage

Replay is accessed from the tail menu. It plays back the operation route history as a timeline animation.



Settings:

- **Tail length** – how long a route trail is shown at each animation moment
- **Speed** – how quickly time advances
- **Follow team** – map automatically follows the selected search team

Replay is available for as long as the operation route history is retained on the server: up to **7 days** without a password, or up to **90 days** in a password-protected operation. See [Operation ownership](#).

Wind data in Replay

Observation stations provide **wind data** as the **10-minute average wind** for the preceding period. In Finland, this average is synced 10 minutes forward, so Replay shows the measured average wind for the actual moment being played – not a forecast.

In exercises: hidden layers

Target person's track visible in Replay

A separate layer can be used during a training exercise to record the target person's route. The layer is kept hidden from search teams during the exercise, but can be made visible in Replay afterwards. This shows both the search team movements and the target's simultaneous route as a single animation – an excellent debriefing tool.



Replay is also useful for debriefing without hidden layers: search team movements, observation markings, and wind data alone provide a valuable basis for analysis.

Etusivu > Toiminnot > Operaation omistaja

Operation Manager

Operation Manager is a separate, browser-based tool for managing an operation's ownership, password and protections. Unlike Karttahimmeli itself, it doesn't show a map or any markings — it's purely an administration tool for the operation's leadership.

How do I open it?

Open Operation Manager from the **person icon**  next to Karttahimmeli's operation identifier field. It opens in a new browser tab. Signing in requires a Google account.

Signing in

The first page accepts the terms of use and signs you in with your Google account. Sign-in identifies you by your email address — the same address is used later to verify ownership.

1. Ohjeet ja kirjautuminen

Käyttöehdot ja toimintaperiaate 



Hyväksy sähköpostiosoitteen tallennus
operaation hallintaa varten.



Kirjaudu sisään jatkaaksesi operaation
hallintaan.

KIRJAUDU GOOGLE-TUNNUKSELLA

Selecting the operation

Enter the identifier of the operation you want to manage and fetch its details. If the operation already has a password, you'll be asked for it at this point.

2. Operaation valinta

Syötä operaation nimi ja hae omistajatiedot.

Operaation nimi

Pelastusharjoitus1

HAE OPERAATION TIEDOT

Once fetched, the operation overview and the ownership management section appear.

Taking ownership

If the operation doesn't have an owner yet, a **Take ownership of this operation** button appears. Any signed-in user can take ownership – which is exactly why it's worth doing as soon as possible after an operation is created.

4. Omistajuuden hallinta

OTA OPERAATIO OMAAN HALLINTAAN

i

Omistajia ei löytynyt. Voit ottaa operaation hallintaan, jos olet kirjautunut.

Protection on by default when you take ownership

Taking ownership **automatically disables bulk GPX export** – shown immediately as an amber marker in the overview. This stops anyone who joined the operation before ownership was claimed from exporting its markings as GPX in bulk. You can turn this back off if needed from the [password and protection dialog](#).

After taking ownership, you'll see your own email address in the owner list, along with the option to add or remove a second owner and manage the password and protections.

4. Omistajuuden hallinta

LISÄÄ TOINEN OMISTAJA

POISTA OMISTAJA

Omistajien varmennus

etsintajohtaja@esimerkki.fi

Osoite on tunnettu

Ei toista omistajaa

Adding a second owner

An operation can have two owners. **Add a second owner** opens a form where you enter the invitee's Google email address, **in exactly the same format** they use to sign in.

Once you type the address, the tool automatically checks whether it's known:

Lisää toinen omistaja

 Osoitteen tulee olla tasmalleen samassa muodossa kuin Google-kirjautumisessa.

 Osoitetta ei löydy tunnistuksesta.

Sähköpostiosoite

tuntematon@esimerkki.fi

PERUUTA

LISÄÄ OMISTAJA

Lisää toinen omistaja

 Osoitteen tulee olla tasmalleen samassa muodossa kuin Google-kirjautumisessa.

 Osoite on tunnettu.

Sähköpostiosoite

toinen.omistaja@esimerkki.fi

PERUUTA

LISÄÄ OMISTAJA

 Double-check the address

A "known" result only confirms the address exists as a Google account – not that it belongs to the right person. Always verify the address through another channel (e.g. phone) before sharing ownership.

The second owner can later be removed with **Remove owner**.

Poista toinen omistaja

Poistettava omistaja:
toinen.omistaja@esimerkki.fi

 Toiminto poistaa toisen omistajan operaatiosta.

[PERUUTA](#) [POISTA OMISTAJA](#)

Password and protections

Set or remove protection opens a dialog that manages three independent protections at once:

Aseta tai poista suojaus

 Salasan voimaantulo voi kesta useita minuutteja.

 Salasana poistetaan asettamalla tyhja salasana. Kirjoitussuojaus voidaan asettaa myos ilman salasanaa.

Salasana

kolmeSalaSanaa


☒ Kirjoitussuojaus (estää uudet merkinnät)

☒ Estä merkintöjen GPX-massavienti

PERUUTA
TALLENNA SALASANA

- **Password** — see [Password protection](#). The password is shown here in plain text by default (not masked), since you're typing a brand-new one — the eye icon can hide it if needed.
- **Write protection** — see [Write protection](#). Blocks new markings from being added.
- **Disable bulk GPX export of entries** — blocks [bulk export](#) of observations, areas and plans as GPX. Normal GPX export of a single item is unaffected.

All three can be set independently of a password, and are saved together with **Save password**. Changes may take a few minutes to take effect.

Once all three protections are enabled, they each show up in the overview:

3. Operaation yleisnäkymä

Operaation tila: Salasana hyväksytty

Operaatio on salasanasuojattu

Operaatio on kirjoitussuojattu — uudet merkinnät es...

GPX-massavienti on estetty tässä operaatiossa

ASETA TAI POISTA SUOJAUS

Only an owner can change protections

If you're not an owner of the operation, the buttons are greyed out and you can't change the password or protections. Any signed-in user can take ownership if the operation doesn't have one yet.