

# Ham Logging

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# 1. Getting Started

Ham Logging is a comprehensive QSO logging application for amateur radio operators. It serves as a master logging service that syncs with 21 popular ham radio platforms.

## 1.1 First Launch

When you first open the app, you will see 7 tabs at the bottom of the screen:

- QSO Logs — View, filter, edit, and manage your saved QSOs
- New QSO — Log a new contact with full ADIF field support
- Sync — Upload/download QSOs to/from 21 logging services
- Map — Interactive world map with worked stations and great-circle lines
- Extra — Propagation data, solar conditions, gray line, path analysis, DX spots
- Settings — Configure defaults, callsign lookup, and service credentials
- About — App information, user manual, and support links

## 1.2 Initial Setup

Before logging your first QSO, go to the Settings tab and configure:

- Your callsign (auto-fills "My Callsign" on every new QSO)
- Your grid locator (auto-fills "My Grid" on every new QSO)
- Default TX Band and Mode (pre-selects dropdowns on new QSO entry)
- QRZ.com credentials for callsign lookup (optional but recommended)
- Enable and configure any logging services you use (LoTW, eQSL, ClubLog, etc.)

Press "Save All" at the bottom of the Settings page to persist all changes.

## 1.3 Dark Mode

Toggle Dark Mode in Settings to switch between light and dark themes. The change applies immediately. All pages, dialogs, and the status bar adapt to the selected theme.

## 2. QSO Logs Tab

The QSO Logs tab displays all your saved contacts. Each QSO is shown as a card with key information including callsign, grid, mode, band, frequency, RST, and station details.

### 2.1 Filtering

The filter section uses three rows for easy access:

- Row 1: Callsign (text filter, case-insensitive) + Mode dropdown
- Row 2: TX Band dropdown + RX Band dropdown
- Row 3: Date From + Date To (tap to pick, auto-applies on selection)
- Clear Filters (×) — appears automatically when any filter is active

### 2.2 QSO Card Layout

Each QSO card displays information in a structured layout:

- Header: Worked Callsign (blue badge) + Club Call (purple badge) + Grid + Mode
- Row 1: TX Band / TX Submode / TX Frequency
- Row 2: RX Band / RX Submode / RX Frequency
- Row 3: RST Sent / RST Received / Power
- Row 4: Name (full width — own row when present)
- Row 5: Country (with State & Continent) / CQ & ITU Zones
- Row 6: My Callsign / My Grid / Propagation or Satellite

### 2.3 Edit a QSO

Tap any QSO card to edit it. This navigates to the New QSO page with all fields pre-filled. The "Add QSO" button changes to "Update QSO". Press "Cancel" to return without saving.

### 2.4 Delete a QSO

Long-press a QSO card to delete it. A confirmation dialog appears before deletion. Deleted QSOs cannot be recovered unless you have a backup.

### 2.5 Menu Options

The popup menu (top right) provides:

- Import JSON — Import QSOs from a JSON backup file
- Import ADIF — Import QSOs from an .adi or .adif file
- Import CSV — Import QSOs from a CSV file
  - Share as CSV — Export filtered QSOs as a CSV spreadsheet
  - Share as JSON — Export all QSOs as JSON for backup
  - Share as ADIF — Export in ADIF 3.1.4 format
  - Share as Image — Generate a PNG screenshot of the QSO log
- Clear List — Delete all QSOs (with confirmation dialog). Irreversible — backup first.

## 3. New QSO Tab

This is where you log your contacts. A framed panel at the top now groups all worked-station identity fields together — the fields most likely to be auto-filled by a QRZ.com lookup. Reading top to bottom inside the panel: Worked Callsign (large font), then RST Sent / RST Received / Power, then Worked Club Callsign and Worked Grid, then Country / CQ Zone / ITU Zone, then Name / QTH / State. Everything else (Date / Time / Mode, TX Band / Submode / Frequency, RX Band / Submode / Frequency, and the expandable sections for Activity, Contest, and Propagation & Satellite) is laid out in rows below the panel. On the New QSO page everything still fits in a single view without scrolling on phones of all sizes.

### 3.1 Basic QSO Fields

- Worked Callsign — The callsign of the station you contacted (required, auto-uppercase)
- Worked Club Callsign — Optional club callsign
- Worked Grid — The other station's Maidenhead grid locator
- Date UTC — Contact date in YYYY-MM-DD format (defaults to today)
- Time UTC — Contact time in HH:MM format (defaults to now)
- "Now" Button — Sets date and time to current UTC

### 3.2 Band, Mode & Frequency

- Mode — Dropdown selection (CW, SSB, FT8, etc.). Automatically sets RST defaults.
- TX Band — Transmit band (160M through 2.5MM)
- TX Submode — Dropdown whose options depend on the selected Mode (e.g. Mode=SSB offers LSB/USB; Mode=MFSK offers FT8/FT4/JT65/...). When the mode has no submodes (CW, FT8, RTTY, LSB, USB, etc.), this field is disabled — the mode already specifies the signal.
- TX Frequency — In MHz
- RX Band — Receive band (same options as TX)
- RX Submode — Same dropdown behavior as TX Submode. The selected submode is remembered across "+ Add QSO" and persists until Clear is pressed or you leave the page.
- RX Frequency — In MHz

### 3.3 Signal Reports

RST (Readability, Signal, Tone) reports auto-fill based on the selected mode:

- CW modes: RST defaults to 599
- Phone modes (SSB, FM, AM): RS defaults to 59
- Digital modes: Typically 599

*You can always override the auto-filled values.*

### 3.4 Station & Location

- My Callsign — Pre-filled from Settings, editable per QSO
- My Grid — Pre-filled from Settings, editable per QSO
- Station Callsign — Optional (for special event stations)
- Country, CQ Zone, ITU Zone, Continent, State, County, Name, QTH

*Location fields can be auto-populated via callsign lookup from the Settings page.*

### 3.5 Propagation & Satellite

- Propagation Mode — Sporadic E, F2, Tropo, Ducting, Meteor Scatter, etc. (available inside the "Propagation & Satellite" expandable section at the bottom of the form, along with Satellite selection).

- Satellite — Select from active amateur satellites (AO-73, ISS, RS-44, etc.)
- Satellite Mode — E.g., V/U for VHF uplink / UHF downlink

### 3.6 Activity Programs

Expandable section for Parks on the Air, Summits on the Air, and World Wide Flora & Fauna:

- MY POTA / MY SOTA / MY WWFF — Your activation references
- POTA Ref / SOTA Ref / WWFF Ref — The contacted station's references
- SIG Info / MY SIG Info — Special interest group information

### 3.7 Contest Fields

Expandable section for contest logging:

- Contest ID — E.g., ARRL-SS, IARU-HF, CQ-WPX
- Serial Sent — Your outgoing serial number
- Serial Received — The other station's serial number

### 3.8 Duplicate Detection

When you save a QSO, the app checks for duplicates based on callsign + band + mode + date. If a match is found, a warning dialog appears. You can choose to cancel or save anyway.

#### 3.8.1 Session Preservation (Add QSO)

**After you press "+ Add QSO",  
the page is cleared for the next  
contact but the following are  
kept: TX Band, TX Submode, TX  
Frequency, RX Band, RX  
Submode, RX Frequency,  
Mode, Power, Activity  
references**

**(POTA/SOTA/WWFF), and Contest fields. These values persist until you press "Clear" or leave the New QSO tab.**

### **3.9 Statistics Panel**

At the bottom of the page, statistics for the selected year are shown:

- Total QSOs — Number of contacts logged that year
- Unique Stations — Count of different callsigns worked
- Unique Grids — Count of different grid squares (first 4 characters)
- QSOs Today — Contacts logged since midnight UTC today

## 4. Sync Tab

The Sync tab lets you upload and download QSOs to/from 21 logging services.

### 4.1 Sync To Services (Upload)

Press "Sync Logs TO Services" to upload your QSOs. Only enabled services with valid credentials are synced. The sync is incremental — only QSOs added since the last sync are uploaded.

*If a service has never been synced, all QSOs are uploaded on first sync.*

### 4.2 Sync From Services (Download)

Press "Sync Logs FROM Services" to download QSOs. Downloaded records are merged with your local log using duplicate detection (callsign + band + mode + date). Time matches at minute precision (HHMM); for eQSL InBox specifically, an additional clock-skew tolerant fallback handles cards where the partner's logged time differs from yours ( $\pm 60$  min for satellite QSOs where orbital physics rules out repeat passes,  $\pm 2$  min for HF/terrestrial). Heuristic merges are listed in the sync report so you can audit them.

#### 4.2.1 Import Ownership Rule

When you import a log file or download QSOs from a service, the app checks each record's Station Callsign and Operator fields against your configured callsign. Records are handled as follows:

- If either field prefix-matches your callsign (including portable variants like A46UNX/M, A46UNX/P, A46UNX/MM), the record is accepted.
- If both fields are empty, the record is accepted and your callsign is stamped into both.
- If either field contains a different callsign, the record is rejected (it belongs to another station).

After the import, a snackbar shows "N QSOs imported, M not yours skipped". If any were skipped, a follow-up dialog lists the rejected callsigns so you can verify.

Club-station operations are supported. If you operate under a club callsign (STATION\_CALLSIGN = A41CLUB, OPERATOR = A46UNX for example), the record is accepted because your callsign appears in the OPERATOR field.

### 4.3 Backup / Share

Press "Backup / Share Now" to export your entire log in three formats simultaneously:

- CSV — Spreadsheet-compatible format (24 columns)
- JSON — Complete backup with all fields and timestamps
- ADIF — Ham radio standard format (compatible with all logging software)

All three files are shared via the system share sheet. Save them to cloud storage, email them to yourself, or transfer to another device.

Back up regularly. Your QSO log and settings stay on your device by design — nothing is synced to Google Drive or iCloud automatically. If you wipe your device or switch to a new phone without a backup, the data is unrecoverable. Use "Backup / Share Now" at least weekly, or before every app update, to export a CSV + JSON + ADIF bundle you can store elsewhere.

### 4.4 Sync Report

After each sync operation, a detailed report dialog shows:

- Green — Successfully uploaded/downloaded records
- Orange — Skipped records (already synced or no new data)
- Red — Errors (connection failures, authentication issues)

## 4.5 Last Sync Date

Each service card shows two independent timestamps:

- Upload date — last time QSOs were successfully sent to that service
- Download date — last time QSOs were successfully received from that service

"Never" means that direction has not been used yet. Timestamps update only on confirmed success.

## 5. Map Tab

The Map tab displays all your worked stations on an interactive world map with great-circle bearing lines from your home grid to each station.

### 5.1 Map Features

- Home Grid

Your home grid square (set in Settings) is shown as a blue home icon at the center. If no grid is set, a hint message is displayed.

### 5.2 Worked Stations

Each logged QSO with a worked grid square appears as a red circle marker on the map. Tap a marker to see:

- Callsign(s) worked at that grid square
- Great-circle bearing and compass direction (e.g. 127° SE)
- Distance in kilometres
- Number of QSOs to that grid

Dismiss the info panel by tapping × or tapping anywhere on the map.

### 5.3 Great-Circle Lines

A great-circle bearing line is drawn from your home grid to each worked station. Lines use SLERP interpolation (50 segments) for accurate globe curvature and are split automatically at the antimeridian ( $\pm 180^\circ$  longitude).

### 5.4 Map Themes

The map tile layer switches automatically with dark mode:

- Light mode — OpenStreetMap standard tiles
- Dark mode — CartoDB Dark Matter tiles

### 5.5 Auto-Fit Camera

On opening, the camera automatically fits all worked stations and your home grid into view. Zoom and pan freely; the view resets each time you switch to the Map tab.

## 5.6 Map Controls

Seven floating action buttons (FABs) on the bottom-right provide quick map controls:

- Toggle Worked Grids — Show or hide worked grid squares on the map (cyan button)
- Enter Grid — Type a Maidenhead grid or a 'lat, lon' pair to place a marker and see bearing/distance. The grid entry field auto-capitalises per Maidenhead convention; coordinates with commas, dots, or minus signs pass through unchanged (amber button).
- Zoom In / Zoom Out — Adjust map zoom level (blue buttons)
- Point North — Reset map rotation to north (teal button)
- Zoom to QTH — Center map on your home grid (green button, visible when grid is set)
- Zoom to YOU — Center map on your current GPS location (light blue button, visible when location is available)

## 5.7 Map Markers

The map displays several types of markers:

- QTH Marker — Blue home icon at your configured home grid
- YOU Marker — Blue GPS pin at your current device location (requires location permission)
- Worked Stations — Red circles at each worked grid square
- Entered Grid — Amber pin when you manually enter a grid via the FAB

## 6. Extra Tab

The Extra tab opens the Propagation page with five sub-tabs providing real-time propagation data, solar conditions, and DX activity. All data refreshes automatically every 60 seconds.

### 6.1 Solar Sub-Tab

The Solar sub-tab displays current solar and geomagnetic data sourced from HamQSL.com:

- HamQSL Solar Banner — Live graphical summary of current solar conditions
- Solar Flux Index (SFI) — Higher values mean better HF propagation. Color-coded: green (150+), light green (100+), yellow (70+), red (below 70)
- K-Index — Geomagnetic activity. Lower is better. Green (0–1 Quiet), yellow (2–3 Active), red (5+ Major Storm)
- A-Index — Daily geomagnetic summary. Green (0–7 Quiet), yellow (8–15 Unsettled), orange (16–29 Active), red (30+ Storm)
- Sunspot Number (SSN), X-Ray Class, Solar Wind Speed — Additional solar metrics
- DX Conditions Summary — Excellent / Good / Fair / Poor / Very Poor (derived from K-index)
- HF Noise Level — Low / Moderate / High
- Aurora Risk — None / Possible / Likely
- Extra Metrics — Proton Flux, Bz (magnetic field direction in nT), Aurora power index
- QTH Info — Your grid square with calculated sunrise and sunset times
- Best Band Tip — Intelligent recommendation based on current K-index and time of day
- NOAA WWV Forecast — Global HF propagation forecast text from NOAA

### 6.2 Conditions Sub-Tab

The Conditions sub-tab shows band-by-band propagation status in two panels:

- Band DX Potential — Table showing day and night propagation conditions for 12 bands (2m through 160m). Each band shows a color-coded rating: Poor (red), Fair (yellow), Good (green). Bands marked with \* (160m, 60m, 6m, 2m) are estimated from adjacent bands. Data sourced from HamQSL.
- Band Spot Activity — Horizontal bar chart showing live DX spot counts per band from DXWatch. Bars are color-coded by activity level: Dead (grey), Low (orange), Moderate (yellow), Active (green). Each row shows the band name, activity bar, spot count, and activity label.

### 6.3 Tropo Sub-Tab

The Tropo sub-tab shows a tropospheric ducting forecast for VHF and UHF DX centred on your QTH. It answers "where and when can my signal propagate well via tropo ducting, around me, over the next few days?"

Coverage Area — The Tropo forecast is ALWAYS centred on your saved Maidenhead grid locator (from Settings). The data-coverage rectangle extends roughly  $\pm 15^\circ$  latitude  $\times$   $\pm 18^\circ$  longitude around you (~1,700  $\times$  2,000 km). A thin outline on the map shows exactly where data exists; outside that outline, only the basemap is visible. There is no region dropdown; a ham in Oman never sees US tropo data, and vice versa. Changing your grid in Settings recomputes the region on next app launch or manual reset.

Refresh (↻) and Reset (↺) — Tap ↻ to re-validate cached data; the app fetches fresh data only if the cache is older than one hour. Long-press ↻ to force a full refresh regardless of cache. Tap ↺ to restore defaults (band 2m, time Now, zoom reset to fit coverage area). Your pan and zoom position are remembered and restored between visits.

**Band Chips** — Select the target band: ALL, 23cm, 70cm, 2m, or 6m. Same atmospheric data, rendered with a per-band duct-strength threshold. Higher frequencies (23cm, 70cm) trap inside shallow ducts and paint widely; lower frequencies (6m) need a deep, rare duct before any colour paints, so a 6m map usually looks quiet — that's correct, not a bug. Default is 2m. Last selection is remembered.

**Time Scrubber** — A horizontal slider plus ◀/▶ buttons step through the time axis of the dataset, which spans roughly 3 days past plus today plus 3 days of forecast in 3-hour steps (≈ 56 frames). The scrubber opens at the frame closest to "Now" on first load. Tap the centre label to jump back to Now at any time. All times are UTC.

**Heatmap** — A bicubic-smoothed coloured overlay painted over the map. Colours follow the William Hepburn 9-bin scale: FAIR → MODERATE → HIGH → STRONG → VERY STRONG → INTENSE → VERY INTENSE → EXTREME → 10+. Low-intensity areas are alpha-feathered into the basemap so the underlying geography stays visible; strong ducting areas paint vividly.

**Zoom and Pan** — Pinch to zoom, drag to pan. Rotation is disabled. Your view position and zoom are saved so returning to the Tropo tab restores the view you left. Use ↺ Reset to snap back to the full coverage area.

**7-Day Strip** — Seven day chips below the map: 3 days past, today, and 3 days of forecast. Today's chip is highlighted with a thicker accent border and bold label so the centre of the strip is obvious at a glance. Each chip is tinted with that day's peak duct strength. Tap any chip to jump the scrubber to that day's best frame (falls back to 12:00 UTC of that day if no frame has data).

**Tap to Set Destination** — Tap anywhere on the Tropo heatmap to drop a blue destination marker at that spot. The tapped point is converted to an 8-character Maidenhead grid locator (field + square + subsquare + extended), saved as the Path tab's target, and a small banner appears at the top of the map showing 'Tapped: <grid> · <km> · Bearing <°>'. The same destination marker, bearing line and banner appear on the Gray Line map, and the Path tab loads WSPR / PSK and Tropo VHF/UHF data for that grid — exactly as if you had typed the grid into the Path tab and pressed Check. Any subsequent tap on either map dismisses the destination everywhere: Tropo marker, Gray Line marker, banner, Path tab RX field, WSPR table and Tropo VHF/UHF badges all clear together. The Tropo map's locked camera confines taps to the coverage rectangle, so Tropo taps are always in-range by construction.

**Instant Grid Change** — Saving a new QTH grid in Settings updates the Tropo coverage rectangle immediately — no tab switch or app restart required. An info snackbar confirms 'QTH grid changed — refreshing Tropo coverage', the map rebuilds around the new bounds, saved zoom and pan from the previous grid are discarded, and fresh data is fetched. Any active destination on the Tropo, Gray Line or Path tab is dismissed as part of the grid change so bearings and distances computed against the old QTH can't linger; if all three tabs were idle nothing is touched. Cached data for the previous grid is retained on disk in case you switch back within the one-hour TTL.

**Path Forecast** — When a destination grid is set in the Path sub-tab AND the destination falls inside the Tropo coverage area, a dotted line appears from your QTH (red) to the destination (blue) on the map, and a compact signal-along-path chart appears below. Tap the chart to open a larger view and tap any point to jump the scrubber to that time. If the destination falls outside the coverage area, Tropo shows no path overlay (Gray Line still works for the same grid because it draws short/long paths globally).

**Offline Behaviour** — If you have no internet, the app shows the most recent cached frames with a banner indicating their age (e.g. "Offline — data from 14:25"). Reconnect and tap ↻ to refresh.

Colour Legend and Info — The strength colour ramp sits at the bottom of the tab. The ⓘ button opens a short explanation of the physics, confidence caveats, and attribution.

Data Source and Physics — Tropo strength is computed client-side from Open-Meteo NOAA GFS atmospheric data (0.25°, free, no API key) using the ITU-R P.453 refractivity formula. The app derives modified refractivity  $M = N + 0.157 \cdot h$  at seven pressure levels and detects surface ducts by scanning each vertical column. The peak M-deficit in each cell is painted as the strength colour.

## 6.4 Gray Line Sub-Tab

The Gray Line sub-tab displays an interactive world map with a station-centric signal strength overlay, showing where your radio signals can reach from your QTH and how strong they would be at each location:

Signal Strength Map — A smooth heat-gradient overlay radiating from your QTH (red marker). Colors indicate signal quality: dark blue (weak/marginal), cyan and green (moderate), yellow and red (strong/excellent). The shape follows real ionospheric conditions measured by ionosonde stations worldwide. The overlay updates every 60 seconds.

Band Filter Dropdown — Select 'All Bands' for an overall propagation quality view, or pick a specific band (2m through 160m) to see where that band is open from your station. Each band entry shows its ITU region frequency range (e.g., "20m (14.000 MHz – 14.350 MHz)"). When a specific band is selected, the map shows signal strength only where that band is usable.

Day/Night Shading — The night side of Earth is shaded with a translucent overlay, always visible regardless of band selection. The propagation overlay dims on the night side to reflect reduced ionospheric conditions.

Day/Night Terminator — Orange line showing the current gray line (sunrise/sunset boundary). Always visible.

Path Overlay — When a target grid is entered in the Path sub-tab, the Gray Line map automatically shows a blue destination marker and a dotted great-circle bearing line from your QTH (red) to the destination (blue). This updates instantly with every Path tab change.

QTH Marker — Red dot showing your home location (from your grid square in Settings). Always visible.

Tap to Set Destination — Tap anywhere on the Gray Line world map. The tapped point is converted to an 8-character Maidenhead grid, and what happens next depends on whether the tap falls inside the Tropo coverage rectangle (centred on your QTH). Inside the rectangle: the tap behaves identically to a Tropo-map tap — marker, bearing line and banner appear on BOTH maps, and the Path tab loads as if you had typed the grid and pressed Check. Outside the rectangle: the marker, bearing line and banner appear on the Gray Line map only; the Tropo map stays clean and the Path tab is NOT loaded. Any subsequent tap on either map dismisses every destination flavour (in-range or out-of-range) together with the Path tab state — one rule, regardless of how the destination was originally set.

Pinch-to-Zoom — Use standard pinch gestures to zoom into specific regions for more detail. The map cannot be rotated (always north-up). Double-tap to zoom in. Tap the recenter button (crosshair icon) to reset the view.

Data Freshness — The bottom bar shows the selected band, the time of the last MUF data update, and the number of active ionosonde stations.

Map tiles switch automatically with the app theme: OpenStreetMap in light mode, CartoDB Dark Matter in dark mode. Ionosonde data refreshes every 60 seconds from the KC2G/GIRO network.

## 6.5 Path Sub-Tab

The Path sub-tab provides propagation analysis between your QTH and a target grid square, combining data from WSPRnet and PSK Reporter:

**Target Grid Entry** — Type a Maidenhead grid (e.g. LL93, JN86dm, or LL93eo33) and press 'Check' to load propagation data. Grids can be 4, 6, or 8 characters. The field auto-capitalises according to the Maidenhead convention (upper-upper-digit-digit-lower-lower-digit-digit). As an alternative to typing, tap anywhere on the Gray Line or Tropo map to set the target destination instantly — see §6.3 and §6.4.

**Path Information** — Displays short path bearing (degrees) and distance (km), propagation mode (NVIS, 1-hop F2, 2-hop F2, or multi-hop), plus sunrise and sunset times for both TX and RX locations.

**Short Path / Long Path Toggle** — Tap the blue button to switch between short path and long path bearing and distance display.

**MUF Open Bands** — Shows the interpolated Maximum Usable Frequency at the destination grid with a row of colored band badges indicating which bands are predicted to be open. When WSPR/PSK data is sparse but MUF indicates open bands, a note explains that propagation is predicted but no monitoring stations exist on that path.

**WSPR + PSK Reporter Heatmap** — 24-hour × 12-band grid showing combined spot counts from WSPRnet (WSPR beacons) and PSK Reporter (FT8, FT4, CW, and digital modes). The current hour row is highlighted. Color scale ranges from dark (no spots) to green (21+ spots). PSK Reporter data is cached for 5 minutes to respect API limits.

**Best Band Now** — Green badge highlighting the band with the most spots at the current UTC hour.

**Tropo VHF/UHF Row** — When the Tropo coverage area (centred on your QTH) includes your destination grid, a compact row at the bottom of the Path information shows four band badges (23cm, 70cm, 2m, 6m) coloured on the Hepburn scale by the peak ducting intensity the heatmap shows along your great-circle path over the next 24 hours. If the destination is outside the Tropo coverage area, the row is omitted (the Path sub-tab still shows WSPR/PSK HF data and the Gray Line tab still draws the path).

Data is sourced from WSPRnet and PSK Reporter. If spot density is low, the search is automatically widened to field-level grids. The MUF prediction uses ionosonde data from the Gray Line tab to show which bands should be open even when monitoring data is sparse.

## 6.6 DX Spots Sub-Tab

The DX Spots sub-tab shows a live feed of DX spots from DXWatch:

- **Band Filter** — Dropdown to filter spots by a specific band or view all bands
- **Spot Cards** — Each spot shows: band badge, DX callsign, frequency in MHz, spotter callsign, UTC time, and optional spotter comment
- **Worked Indicator** — Green checkmark (✓) badge appears next to callsigns you have already logged in your QSO list
- **Expandable Details** — Tap any spot card to reveal additional information: country, continent, grid square, CQ zone, ITU zone, and distance/bearing from your QTH
- **Spot Count** — Shows the number of spots currently displayed (up to 30 most recent)

Data is sourced from DXWatch and refreshes every 60 seconds. Active contests may inflate spot counts.

# 7. Settings Tab

## 7.1 Default Values

Configure defaults that auto-fill when creating new QSOs:

- Default Callsign — Your callsign (auto-fills "My Callsign")
- Default Grid — Your Maidenhead grid (auto-fills "My Grid")
- Email Address — For contact and support purposes
- Default Mode — Pre-selects the mode dropdown and auto-sets RST defaults
- Default TX Band — Pre-selects the TX band dropdown
- Default RX Band — Pre-selects the RX band dropdown
- Your ITU Region — Sets the band frequency plan: Region 1 (Europe/Africa/Russia), Region 2 (Americas), Region 3 (Asia-Pacific). Affects frequency-to-band auto-selection on all TX/RX frequency fields.
- Font Scale — Drag the slider (0.85 to 1.40) to adjust the text size across the entire app. The change is applied immediately as you drag. Default is 1.00.

### 7.1.1 Callsign Required for Import

Your callsign is required before importing QSO logs from a file (ADIF / CSV / JSON) or syncing from services (LoTW, eQSL, ClubLog, etc.). The app uses it to verify that imported records belong to you and to stamp your callsign on records that don't have it filled in. If you try to import without setting your callsign, the app shows a reminder dialog and blocks the import.

## 7.2 Dark Mode

Toggle the Dark Mode switch to change the app theme. The change applies immediately. All pages, dialogs, cards, and the status bar adapt to the selected theme.

### 7.2.1 Font Scale

Use the Font Scale slider (next to the `format_size` icon) to enlarge or shrink text throughout the app. The range is 0.85 (smaller) to 1.40 (larger), with the default at 1.00. The change applies instantly as you drag, affecting every page, dialog, and card.

## 7.3 Callsign Lookup

See Chapter 9 for detailed callsign lookup instructions.

## 7.4 Logging Services

Each of the 21 logging services has its own configuration panel:

- Enable/Disable toggle — Controls whether the service is included in sync operations
- Credential fields — Username, password, API key, etc. (varies per service)
- Test button — Verify your credentials before syncing

*All settings, including each service's enable switch, take effect instantly but are saved only when you press the Save All button at the bottom.*

## 8. About Tab

The About tab displays app information, version number, and links:

- User Manual — Opens this document as an in-app PDF viewer
- Support — Opens the support page to contact the development team
- Key Features list — Overview of all app capabilities
- Credits and copyright information

# 9. Callsign Lookup

Ham Logging provides enriched callsign lookup via QRZ.com. The lookup combines data from the QRZ.com XML API with web-scraped data for comprehensive results.

## 9.1 Setup

In the Settings tab under "Callsign Lookup":

- Enter your QRZ.com username
- Enter your QRZ.com password
- Press the checkmark icon to test your connection

*A free QRZ.com account is sufficient for callsign lookup. An XML Subscription is only required for the QRZ.com Logbook sync service.*

## 9.2 Performing a Lookup

- Type a callsign in the "Lookup Callsign" field
- Press Enter or tap the search icon
- Results appear in a themed card below the search field

## 9.3 Lookup Results

The lookup result card displays:

- Callsign with license class badge (e.g., "Class A")
- Name, QTH, Country, Grid Square
- CQ Zone, ITU Zone, Continent
- Latitude and Longitude
- QSL Methods: LoTW (Yes/No), eQSL (Yes/No), Direct Mail (Yes/No)
- QSL Info (e.g., "VIA M00XO, LOTW, EQSL")
- Email and Web page (when available)

## 9.4 Share Lookup Results

Press the share icon in the top-right corner of the lookup result card to generate a PNG image of the result. The image is shared via the system share sheet and can be saved, sent via messaging apps, or emailed.

# 10. Import & Export

## 10.1 ADIF Format

ADIF (Amateur Data Interchange Format) version 3.1.4 is the ham radio standard. Compatible with virtually all logging software (LoTW, ClubLog, N1MM, etc.).

- Import: Menu → Import ADIF → Select .adi or .adif file
- Export: Menu → Share as ADIF → Share via system sheet

*ADIF files can be uploaded directly to LoTW via TQSL, POTA, SOTA, and most contest systems.*

## 10.2 JSON Format

JSON is the app's native format and preserves all fields including internal timestamps.

- Import: Menu → Import JSON → Select .json file
- Export: Menu → Share as JSON → Share via system sheet

*JSON is the best format for backup and restore. Timestamps ensure re-imports detect duplicates correctly.*

## 10.3 CSV Format

CSV (Comma-Separated Values) is compatible with spreadsheet applications like Excel and Google Sheets.

- 24 columns: Callsign, Club Call, Date, Time, Band, Mode, Frequency, RST, Power, Grid, etc.
- Import: Menu → Import CSV → Select .csv file
- Export: Menu → Share as CSV → Share via system sheet

## 10.4 Image Export

Share your QSO log or callsign lookup results as PNG images:

- QSO Log: Menu → Share as Image (exports filtered QSO list)
- Callsign Lookup: Press share icon on lookup result card

Images are rendered at high resolution (3x) for quality and include metadata such as total count, export date, and app watermark.

## 10.5 Duplicate Detection on Import

When importing, duplicates are detected using two methods:

- Unique Key match: callsign + band + mode + date (catches ADIF and CSV re-imports)
- Timestamp match: exact creation timestamp (catches JSON re-imports)

Duplicate records are silently skipped. The import confirmation shows the count of new records added.

Confirmations from multiple services accumulate. When the same QSO is imported from more than one source — for example, you download the QSO from LoTW first, then later download the same QSO from eQSL — the app does NOT create a duplicate. Instead, it merges the new information into your existing record:

- QSL-confirmation flags (LoTW ✓, eQSL ✓) accumulate so the card shows every service that has confirmed the QSO.
- Service-source indicators (downloaded-from / uploaded-to) accumulate across all services.
- Empty fields like Name, Grid, Country are filled in from whichever source has the data.
- User-entered fields (your comments, RST, notes) are never overwritten by an incoming duplicate.

## 10.6 Import Auto-Corrections

eQSL RST cleanup. Some eQSL ADIF exports stuff the satellite name into the RST field (e.g., "59 SO-50"). On import, the app automatically splits this: the RST keeps the numeric portion ("59") and the satellite name is moved into the SAT NAME field if it was otherwise empty.

Band/mode case normalization. ADIF files from various sources use different casing for band (2m vs 2M) and mode (FM vs fm). Imports normalise everything to uppercase so logs stay consistent regardless of source.

# 11. Logging Services

Ham Logging supports syncing with 21 ham radio logging platforms. Services are configured in the Settings tab and synced from the Sync tab.

## 11.1 Services with Upload Support

These services support direct upload from the app:

### QRZ.com Logbook

- Credentials: API Key
- XML API, one QSO per request. Requires a paid QRZ.com XML Subscription (~\$36/year). Without it, every API call (test, upload, download) is rejected by QRZ. The connection-test tick shows AMBER with an info snackbar in this case — your API key is recognised, only the paywall is blocking. As a free-tier workaround, export ADIF from Ham Logging and upload manually via [logbook.qrz.com](https://logbook.qrz.com) → ADIF Import.

### eQSL.cc

- Credentials: Username + Password
- ADIF upload with embedded credentials. Confirmed working.

### ClubLog

- Credentials: Email + Password + Callsign
- Real-time API, one QSO per request.

### HRDLog.net

- Credentials: Upload Code
- ADIF upload via HTTP POST.

### QSO360

- Credentials: API Key
- ADIF upload via Bearer token authentication.

### **CloudLog**

- Credentials: API URL + API Key
- ADIF via JSON API. Supports upload and download.

### **Wavelog**

- Credentials: API URL + API Key
- ADIF via JSON API. Supports upload and download.

### **Log4OM Cloud**

- Credentials: Username + Password
- ADIF import endpoint. Supports download.

### **Ham365.net**

- Credentials: Username + Password
- ADIF import endpoint.

- 

### **N1MM Logger+**

- Credentials: N1MM PC IP address, send port (default 12060), listen port (default 12060)
- Upload: converts each QSO to N1MM contactinfo XML and sends via UDP. In N1MM: Config → Configure Ports → Network → enable "Allow Networked Computer QSOs".

## 11.2 Services without Upload API

These services do not have a direct upload API. Use the workaround described for each:

### LoTW (Logbook of The World)

- Requires TQSL desktop signing tool. Export ADIF from Ham Logging and sign/upload via TQSL.

### HamQTH.com

- Lookup-only service. No QSO upload API available.

### QRZCQ.com

- Website only. Export ADIF and upload via the website.

### AwardWatch

- Website only. Export ADIF and upload via the website.

### POTA (Parks on the Air)

- Export ADIF and upload at pota.app website.

### SOTA Database

- Export CSV and upload at sotadata.org.uk website.

### WWFF Logsearch

- Export ADIF and upload at wwff.co website.

### Turkey TCL QSO

- Website only.

### ARRL Contest

- Export ADIF/Cabrillo and submit at contest.arrl.org.

### DX Heat

- Spot-only service. No QSO upload functionality.

### DXWatch

- Spot-only service. No QSO upload functionality.

# 12. Tips & Troubleshooting

## 12.1 Best Practices

- Backup regularly — Use "Backup / Share Now" in the Sync tab to export all formats
- Set defaults — Configure your callsign, grid, mode, and band in Settings to save time
- Use callsign lookup — Look up stations on QRZ.com to auto-populate location fields
- Sync incrementally — The app only uploads new QSOs, so sync frequently for efficiency
- Check sync reports — Review the colored report after each sync for errors

## 12.2 Common Issues

- **Sync fails with "No credentials configured"**

Go to Settings and enter your username/password/API key for the service. Press "Save Settings" and try again.

- **Callsign lookup shows only basic data**

The app enriches lookup data via web scraping. If QRZ.com changes their website structure, some fields may temporarily be unavailable. Basic data from the XML API always works.

- **Import shows "0 new QSOs"**

All records in the file were detected as duplicates. This means they have already been imported. Duplicate detection uses callsign + band + mode + date, or exact timestamp match for JSON.

- **Share button does nothing on iPad**

iPad requires a source rectangle for the share popover. If this issue occurs, try tapping the share button from a different position on screen.

## 12.3 Band Frequency Ranges by ITU Region

Ham Logging automatically selects the correct band when you enter a frequency. The frequency ranges used depend on your ITU Region setting (Settings tab). Bands marked with \* differ between regions. All frequencies in MHz.

Band	Region 1 From	Region 1 To	Region 2 From	Region 2 To	Region 3 From	Region 3 To
2190M	0.136	0.138	0.136	0.138	0.136	0.138
630M	0.472	0.479	0.472	0.479	0.472	0.479
160M *	1.810	2.000	1.800	2.000	1.800	2.000
80M *	3.500	3.800	3.500	4.000	3.500	3.900
60M	5.060	5.450	5.060	5.450	5.060	5.450
40M *	7.000	7.200	7.000	7.300	7.000	7.200
30M	10.100	10.150	10.100	10.150	10.100	10.150
20M	14.000	14.350	14.000	14.350	14.000	14.350
17M	18.068	18.168	18.068	18.168	18.068	18.168
15M	21.000	21.450	21.000	21.450	21.000	21.450
12M	24.890	24.990	24.890	24.990	24.890	24.990
10M	28.000	29.700	28.000	29.700	28.000	29.700
8M	40.000	45.000	40.000	45.000	40.000	45.000
6M *	50.000	52.000	50.000	54.000	50.000	54.000
4M Region 1 only	70.000	70.500	70.000	70.500	70.000	70.500
2M *	144.000	146.000	144.000	148.000	144.000	148.000
1.25M Region 2 only	222.000	225.000	222.000	225.000	222.000	225.000
70CM *	430.000	440.000	420.000	450.000	430.000	440.000
33CM	902.000	928.000	902.000	928.000	902.000	928.000
23CM	1240.000	1300.000	1240.000	1300.000	1240.000	1300.000
13CM	2300.000	2450.000	2300.000	2450.000	2300.000	2450.000
9CM	3300.000	3500.000	3300.000	3500.000	3300.000	3500.000
6CM	5650.000	5925.000	5650.000	5925.000	5650.000	5925.000
3CM	10000.000	10500.000	10000.000	10500.000	10000.000	10500.000
1.25CM	24000.000	24250.000	24000.000	24250.000	24000.000	24250.000
6MM	47000.000	47200.000	47000.000	47200.000	47000.000	47200.000
4MM	75500.000	81000.000	75500.000	81000.000	75500.000	81000.000
2.5MM	119980.000	120020.000	119980.000	120020.000	119980.000	120020.000
2MM	142000.000	149000.000	142000.000	149000.000	142000.000	149000.000
1MM	241000.000	250000.000	241000.000	250000.000	241000.000	250000.000
SUBMM	300000.000	750000.000	300000.000	750000.000	300000.000	750000.000

## 12.4 Supported Modes

AM, ARDOP, ATV, C4FM, CHIP, CLO, CONTESTI, CW, DIGITALVOICE, DOMINO, DSTAR, FAX, FM, FT8, FT4, FSK441, HELL, ISCAT, JT4, JT6M, JT9, JT44, JT65, JS8, LSB, MFSK, MSK144, MT63, OLIVIA, OPERA, PAC, PAX, PKT, PSK, PSK2K, Q15, Q65, QRA64, ROS, RTTY, RTTYM, SSB, SSTV, T10, THOR, THRB, TOR, USB, V4, VOI, WINMOR, WSPR

## 12.5 Contact Support

For help or to report issues, use the Support link in the About tab. This opens an email to A46UNX@GMAIL.COM with your device details pre-filled.

## 12.6 Acknowledgments

Special thanks to our testing team in Oman:

- Jamal AL Hattali (A41JM) - Reviews and extensive testing
- Mohammed AL Balushi (A41SM) - Reviews and extensive testing

## Appendix — April 2026 Updates

### Tips & Tricks System

A tips system is now available. On launch a tip may appear in a themed dialog drawn from a deck of 100 unique tips covering every tab. Tips fire at most twice per rolling seven-day window with at least three days between appearances. Tap Never show again in any tip dialog to disable permanently, or toggle from Settings → Show Tips & Tricks. Re-enabling resets the deck.

### Collapsible QSO Log

The QSO Log list now groups your contacts by year and month with collapsible headers. By default, the most recent year is expanded, and within it the most recent month with QSOs is expanded; all other years and months collapse. Tap a year or month header to toggle. Each header shows the QSO count for that period, derived from the currently-applied filters. Disable from Settings → Collapsible QSO List to fall back to the original flat list.

### Map Tap-to-Set Destination

On the Map tab, tapping any empty area of the map now sets that point as the destination. The bearing line and great-circle path draw automatically from your QTH, and the destination marker appears on the map. Tap the map again to dismiss. The original Enter Grid dialog still works for precise manual entry; both paths produce the same visualisation.

### Unified Spots Tab

The previously separate DX Spots and Contests bottom-nav tabs have been merged into a single Spots tab. Inside, an internal segmented toggle selects between three live data sources: DX cluster spots, POTA activator spots, and WA7BNM contests. Each sub-mode has its own filters, tap-to-expand rows, and share-as-image export. Switching modes is instant — all three feeds refresh on the same one-minute cycle in the background.

The DX sub-mode now includes a Continent filter (NA, EU, AS, SA, AF, OC, AN) alongside the existing band filter. The POTA sub-mode is new and pulls live activations from [api.pota.app](https://api.pota.app), with band, mode, and text-search filters; tap a row to expand and see the full park name, location, spotter, and comment. The Contests sub-mode keeps the same WA7BNM eight-day window with semantic search and the Band/Mode family filter.

### QRZ Lookup Friendly Feedback

QRZ.com lookups in both Settings and the New QSO form now surface friendly snackbar messages on partial fetches or temporary failures, so you know whether to retry. The lookup cache continues to preserve every successfully-fetched field for 30 days fresh plus a 90-day grace period for offline resilience. Email is shown alongside the other lookup fields and is included in the share-as-image export of the lookup result.

### QSL Card Export

Each row in the QSO Log list now carries a QSL Card icon (left of Edit). Tap it to render a themed postcard-style PNG and share via the system share sheet. The card shows your callsign and grid (DE strip

from Settings), the worked station's callsign, the QSO date and UTC time, the band, frequency, mode, and the RST sent/received pair. The design is theme-aware — amber accents on a navy background in dark mode, burnt-orange accents on a cream background in light mode. Filename pattern: ham\_logging\_qsl\_<callsign>\_<date>.png.

## Appendix — April 22, 2026 Updates

These updates were added in the April 22, 2026 cross-app session. After opening this manual in Word, right-click the Table of Contents → Update Field → Update entire table to refresh the page numbers.

### Map Info Panel — Cleaner Layout

When you enter a grid (or tap the map to set a destination), the info panel above the map now shows a single row: Grid · Bearing · Distance. The redundant header and the small × have been removed — tap the amber Enter-Grid button again to dismiss the destination, or tap the map again.

### Spots Tab — Tap-Through Links + Per-Card Share

DX, POTA, and Contests cards each gained a small share icon. Tap it to share that specific spot or contest as a themed image with the watermark.

POTA park references (e.g. K-0001) are now tappable — opens the park page on pota.app in your browser.

Contest "Rules: ..." URLs in the expanded contest details are tappable and open the rules page in your browser.

The Contests semantic search field now shows the system keyboard with proper dark/light theming and a clear (×) button to reset the query.

### Sync Reliability — Major Fixes

eQSL.cc upload no longer claims success when records were silently rejected. If eQSL doesn't report an upload count, the response is surfaced so you can verify at eqsl.cc/inbox. If 0 records were stored, you get a warning instead of a green success snackbar.

CloudLog and Wavelog upload now actually uploads every QSO. Previously bulk uploads embedded raw multi-line ADIF inside a JSON request body, which silently broke; only the first record was ever stored. Fixed: now uses one-QSO-per-request with proper JSON encoding and per-QSO success counting.

### QSO List CSV Export — Full Round-Trip

CSV export now includes every field that QSO Logs tracks — including RX-side fields (RX Band/Submode/Freq), QSL confirmation flags (LoTW/eQSL sent and received), all activity-program references (POTA/SOTA/WWFF, mine and theirs), contest fields, and the sync-source indicators. Previously, exporting and re-importing a CSV would lose 26 fields without any warning.

Re-importing a CSV produced by an older version still works — the importer detects legacy 25-column files by header shape.

### Settings — Re-enrich + Clear Lookup Cache

The Callsign Lookup section gained two new buttons.

Re-enrich Missing Fields: scans every QSO with at least one missing enrichable field (Country, Name, Grid, CQ/ITU Zone, Continent, State, County, QTH, DXCC) and looks them up via QRZ.com (XML batch). Already-cached lookups are reused so this is fast on a second run.

Clear Lookup Cache: wipes the on-disk QRZ lookup cache. Use this when a cached entry has wrong or stale data — the next lookup will fetch fresh from QRZ.com.

## Tighter Settings Panel Spacing

The Defaults Values panel now packs the Dark Mode / Tips & Tricks / Collapsible QSO List toggles plus the Font Scale slider closer together vertically.

# Appendix — April 23, 2026 Updates

## Map Rotation Locked + Point-North Button Removed

The Map page is now permanently locked to north-up orientation. The two-finger rotate gesture has been disabled, so the map can no longer spin out of alignment. The fifth floating action button on the right ("Point north", teal navigation arrow) used to be the recovery from accidental rotation — since rotation is now impossible, that button has been removed and its slot is reused by the new APRS toggle.

## Show Worked Grids on Map (Settings Toggle)

New checkbox in Settings → under "Collapsible QSO List". Default ON. When enabled, the Map page draws colored circles for every grid square you have worked, plus great-circle bearing lines from your QTH to each one (the existing behaviour). When disabled, the worked-grid circles, lines, and the cyan toggle button on the Map are hidden — useful when you want a cleaner map view or are using the Map only for live position. The cyan FAB on the map page still works as a session-level override when the Settings toggle is enabled.

## My APRS Beacons on Map

New opt-in checkbox in Settings → directly above the Font Scale slider. Default OFF. When enabled, a purple tower icon appears in the Map page floating button stack (in the slot where the old "Point north" button used to be). Tap it to start showing your own APRS beacons that have reached the worldwide APRS-IS network.

### How It Works

When you transmit an APRS packet from any APRS-capable rig, if any internet-connected ground station ("iGate") decoded your packet, it gets uploaded to APRS-IS. Ham Logging connects to APRS-IS as a read-only listener using your saved callsign and pulls back ONLY packets where the source is your callsign (or any SSID variant like -1, -7, -9). Each beacon shows up as a purple circle marker at the position your rig encoded into the packet.

### What You See

Markers appear within seconds of transmitting. Each marker fades gradually over 60 minutes, then disappears. Tapping a marker shows a popup card with: callsign + SSID, Maidenhead grid square, time-since-heard (live counter that ticks every second), and distance + bearing from your saved QTH. Tap anywhere on the map outside the popup to dismiss it.

## Testing Your Beacon

Transmit a single APRS beacon from your rig (most rigs have a manual "send beacon now" button on the APRS menu). Wait 5–30 seconds. If a marker appears, an iGate received your transmission and uploaded it. If no marker appears after 60 seconds, your signal did not reach an iGate this time — try from a more open location or check your TX power, antenna, and APRS path settings.

## Battery and Background Behaviour

The APRS connection uses a single TCP socket to APRS-IS. When you switch to another tab in Ham Logging (QSO Logs, New QSO, Sync, Extra, Settings, About), the Map page is destroyed and the connection closes — zero battery drain while away. When you return to the Map tab, if the APRS feature was active before, the connection re-opens automatically and your beacons resume appearing.

## Changing Your Callsign

If you upgrade your license, change your callsign, or want to test using a friend's callsign, edit it in Settings → Default Callsign and tap "Save All". The APRS connection automatically reconnects with the new callsign in the background — no need to toggle the feature off and on.

## Privacy

Ham Logging does NOT transmit anything via APRS-IS. The app connects as a passive read-only listener. Your callsign appears in APRS-IS server connection logs as a logged-in listener — this is required by the protocol for any client connection. The map markers you see are YOUR OWN beacons that you transmitted from your radio, not other people's observations of you. No other personal data is shared.

# Appendix — April 24, 2026 Updates

## Heard By: Stations That RF-Received Your Beacon

The APRS map layer now does more than show your own beacons. For each beacon you transmit, Ham Logging parses the packet header and extracts the iGate (and any digipeaters) that received your signal over the air. These "heard by" stations appear on the map as darker-purple circle markers, connected back to your QTH by light-purple great-circle bearing lines. Tapping any heard-by marker shows a detail panel with callsign, grid, distance, bearing, and a live "X min ago" counter.

## Settings — Deferred-Save Behavior

Four feature toggles in Settings now use the deferred-save pattern: Show Tips & Tricks, Collapsible QSO List, Show Worked Grids on Map, and Show My APRS Beacons on Map. Changes reflect immediately in the app session (so you can see the effect on the map right away), but are only persisted to permanent storage when you tap Save All. Closing the app without saving reverts to the last-saved values on next launch.

## aprs.fi API Key

A new optional field appears in Settings, aligned right under the "Show My APRS Beacons on Map" checkbox. To get an API key, sign up at [aprs.fi/account](https://aprs.fi/account) (link is clickable inside the (i) info dialog next to the APRS toggle). Paste the key into the field and tap the small green-tick test button to verify it works. With a valid key, heard-by markers and bearing lines are drawn. Without a key, callsigns are listed in text form inside the my-beacon popup.

## Test Button

A small theme-aware circle button next to the API key field tests your key end-to-end. Tap it: spinner appears while testing, then turns green with a tick when the key is valid, or red with an X if aprs.fi rejects the key or is unreachable. Status resets when you edit the key.

## Tap a Heard-By Marker

Tapping any darker-purple heard-by marker on the map opens a panel showing the iGate callsign, its Maidenhead grid (computed from the aprs.fi position), distance + bearing from your QTH, and how long ago that station last RF-received one of your beacons. Tap anywhere on the map outside the panel to close it.

## Privacy Note

aprs.fi is a public ham radio service. Your callsign appears in their server logs as a passive read-only listener — the same as with APRS-IS. Ham Logging does not transmit anything to either service.

# Appendix — APRS Callsign + Live Refresh

## Dedicated APRS Callsign Field

The APRS feature now uses its own dedicated callsign field, kept completely separate from the default callsign you use for QSO logs. This means an APRS-only SSID like -13 (weather), -9 (mobile), or -7 (handheld) lives only in the APRS row — it does not bleed into your QSO records, exports, or any other part of the app.

## Where It Lives

In Settings, when "Show My APRS Beacons on Map" is ticked, a single row appears below the checkbox with three controls side by side: the aprs.fi API key field (about two thirds wide), the new APRS Call field (about one third wide), and the test button. When the checkbox is unticked, the entire row is hidden — there is nothing to configure when the feature is off.

## Strict Behavior

When you toggle APRS on the map, the app strictly requires this APRS callsign to be set. There is no silent fallback to your default QSO callsign — that is exactly what this separation prevents. If the APRS Call field is empty, the toggle shows a warning snackbar and will not connect.

## Changing the Callsign

When you save a new APRS callsign in Settings, the app treats it as a brand new identity. The active APRS-IS connection is fully torn down, all cached station markers and heard-by entries are dropped, the aprs.fi position cache is wiped, and a fresh connection opens with the new callsign. This guarantees no stale data from the old identity remains on the map.

## Format

Use uppercase letters, digits, and an optional dash + SSID. Common APRS SSIDs: no SSID = home base, -7 = handheld, -9 = mobile (vehicle), -11 = balloon or aircraft, -13 = weather station. The field auto-capitalizes and rejects spaces, slashes, and lowercase characters as you type.

## Live Position Refresh Every 30 Seconds

When APRS is active, the map now refreshes positions from the aprs.fi REST API every 30 seconds in addition to the live RF stream. This keeps your beacons fresh on the map even when the live socket is quiet (no recent transmission from your rig).

### Why Both Sources

The live APRS-IS socket pushes packets in real time when your rig transmits. The 30-second REST refresh is a safety net: it picks up positions that may have been transmitted while the app was backgrounded, and refreshes the "last seen" timestamp on the popup so you always see the most recent server-side reality.

### aprs.fi Rate Limit Friendliness

Each refresh is a single batched call (your callsign plus all common SSIDs in one request). With the heard-by lookups also sharing the budget, total traffic stays well under aprs.fi free-tier limits. A 15-second per-callsign guard prevents toggle-spam from burning the rate-limit budget.

## Appendix — Rover Mode (Apr 2026)

Rover Mode is a large-target, low-distraction screen for quick mobile QSO logging — designed for operators running a rover-style session from a vehicle or portable setup, where full keyboard entry on the regular New QSO page would be slow or unsafe.

Launch Rover Mode from the car icon on the right side of the app bar, visible on both the QSO Logs tab and the New QSO tab. A first-time safety reminder explains that the app must never be operated while actively driving; acknowledge it once and it will not appear again until you use "Reset All Settings".

### Session layout

- Session header: Mode dropdown, TX Frequency, RX Frequency. Mode inherits your Settings default on entry; frequencies are for this session only. Changing any of these mid-session applies to all following saves until you exit.
- A running counter shows how many QSOs have been saved during the current session, next to a live UTC clock.
- Worked Callsign: a single large, centered field with auto-uppercase — the only field that typically needs eyes-on attention per QSO.
- RST Sent and RST Received: two tappable rows per block (Readability 1–5 on top, Strength 1–9 below). Both blocks preselect "59" on entry and reset to "59" after each save.

### Buttons

- Next QSO: saves the current QSO using UTC date/time, the session Mode/TX/RX frequencies (bands are auto-derived from frequencies using your selected ITU region), your default callsign + grid from Settings, and the tapped RST values. Then clears only the callsign field and resets RST to 5/9. Everything else persists for the next QSO.
- Exit (or back gesture): if the callsign field is filled, the current QSO is saved first; otherwise Rover Mode exits immediately. You return to the tab you launched from, and the QSO list is reloaded so new entries appear without needing an app restart.
- Info icon (top right): re-opens the driving-safety reminder.

## Background enrichment

Each saved QSO receives a background QRZ.com lookup (if QRZ credentials are configured in Settings) that fills in only the empty fields — Country, Grid, Name, CQ/ITU Zones, Continent, State, County, DXCC, and QTH (city). Your manual edits from other pages are never overwritten. Network failures are silent: the saved QSO simply stays bare and can be enriched later via the Sync page or by editing manually.

## Safety

Rover Mode does not make operating while driving safe. Never interact with the app while actively driving. Wait until you are safely stopped, or have a passenger operate the log. Your log can wait.

## Appendix — APRS expansion (Apr 25 2026)

The APRS map layer received a substantial expansion. All additions live on the Map page only — Settings is unchanged. Your APRS callsign and aprs.fi key fields work exactly as before.

### Track lines for moving rigs

Whenever any visible APRS station moves, a thin purple polyline trails behind its marker. The trail fades with age — recent movement is full opacity, segments older than an hour fade out and drop off automatically. Stationary stations don't accumulate clutter; the recorder suppresses no-movement re-hears.

### Velocity arrow on moving rigs

Stations whose packets include course + speed get a small rotated arrow at their marker showing direction of travel. Arrow size grows with speed (capped) so a fast aircraft is instantly distinguishable from a slow mobile.

### Tap-driven heard-by

When you tap any APRS station that has known iGate-reception data, the map automatically draws bearing lines from THAT station's position to each iGate that received its packets. Lines are the same light-purple as your own QTH-origin heard-by lines for visual consistency.

### Smaller markers with real APRS symbols

APRS markers are now ~30% smaller than before so dense clusters don't drown out the rest of the map. When the parsed APRS symbol code matches a known station type (car, iGate, weather station, aircraft, balloon, boat, motorcycle, repeater, etc.), the marker renders that icon inside a thin purple ring. Unknown symbols fall back to the legacy purple dot.

### Object / Item shape distinction

APRS supports three packet kinds — position, object, and item — that previously all rendered as identical circles. Now each has its own silhouette: position = circle (rig location), object = diamond (operator-placed entity, e.g. weather alert), item = rounded square (named reference, e.g. satellite ground track or repeater).

## Bulletins feed

When any visible station broadcasts an APRS bulletin (BLN1–BLN9, BLNA–BLNZ), an amber megaphone button appears on the map. Tap it to open a chronological list of every active bulletin across all stations. Bulletins from your own callsign are displayed alongside others, with sender + age timestamps.

## SSID filter chips

A small chip strip in the top-left corner of the map (visible only while APRS is active) lets you scope what renders to a specific SSID class: All, -9 (Mobile), -13 (Weather), -11 (Aircraft / Balloon), or Other. Selection persists across app restarts. Bulletins are always shown regardless of filter — broadcasts apply to everyone.

## Rate-limit safe-side budget

The periodic aprs.fi REST refresh was doubled from 30 seconds to 60 seconds as a safe-side measure. The live APRS-IS TCP socket already provides sub-second freshness while your rig is beaconing, so 60-second REST polls are comfortable as a safety net. The 15-second per-callsign refetch guard still prevents toggle-spam from burning rate-limit slots, and the 25-call-per-minute global cap remains unchanged.

## What didn't change

Your existing APRS callsign, aprs.fi API key, "Show My APRS Beacons on Map" toggle, the purple APRS FAB, the 60-minute stale-fade window, and dispose-on-callsign-change all behave exactly as they did before. The expansion is purely additive — turn off APRS in Settings and nothing new is visible.

# Appendix — April 26, 2026 Updates

## Map: Followed APRS Station Shrunk

When you tap an APRS station to follow it, that one marker now renders about 30% SMALLER than the surrounding markers. The smaller pin makes the station's exact position more precise on the map and reduces occlusion of nearby data you're comparing against.

## Map: YOU Marker Auto-Hides Behind Followed Station

When you're tracking a callsign and the followed station's screen position is within roughly 24 pixels of YOUR live GPS position, the YOU marker is hidden so the two markers don't visibly overlap. Zoom out and they re-separate; YOU reappears the moment they're visually distinguishable. The threshold is zoom-aware: at street zoom you can be ~30 m apart and both stay visible; at world zoom you can be ~50 km apart and YOU still hides because both pins overlap on screen.

## Map: SSID Filter Strip Moved to the Bottom

The "All / -9 / -13 / -11 / Other" SSID filter strip now docks at the BOTTOM-LEFT of the map (above the bottom navigation bar). When you tap an APRS station and the details panel slides up from the bottom, the filter strip automatically reflows to sit just above the panel — so you can always see both at once and the strip never overlaps the station details.

## Map: APRS Velocity Arrows Removed

The small directional arrows that previously rendered on top of moving rigs (course/speed indicators) have been removed. Track polylines that fade with age remain unchanged — you can still see where a rig has been, just without the extra arrow on top.

## Rover Mode: Pick Your Modes Dialog

A new tune icon appears in the Rover Mode app bar (left of the info icon). Tap it to open a themed multi-select picker. Pick the Modes you want available for quick switching while roving — they become the only options in the Mode dropdown. The mode you selected as your global Default Mode in Settings is pre-checked. Your selection persists across rover sessions, so the next time you enter Rover Mode the dropdown is already filtered to just the modes you operate on the road.

## Rover Mode: Frequency Auto-Pad

Type a partial frequency like "24.2" and Rover Mode automatically expands it to "24.200" the moment you tap out of the field. "144" becomes "144.000". This matches the format the band detection map and all sync services expect, so you don't have to type the trailing zeros every time. Both TX and RX frequency fields auto-pad. The matching TX/RX bands are then set in the background when you save the QSO.

## Rover Mode: Voice Phonetic Dictation

A walkie-talkie microphone button now sits to the right of the Worked Callsign field. Press and hold the mic, speak the callsign in NATO phonetics ("alpha four six uniform november x-ray"), then release. The recognised phonetics are converted to letters and digits and the callsign field is filled in automatically.

### Supported Phonetics

Standard NATO words: alpha, bravo, charlie, delta, echo, foxtrot, golf, hotel, india, juliet, kilo, lima, mike, november, oscar, papa, quebec, romeo, sierra, tango, uniform, victor, whiskey, x-ray, yankee, zulu.

Numbers: zero through nine, including military variants "niner" (9), "fower" (4), and "fife" (5). Common alternate spellings like "alfa", "juliett", "whisky", and "tree" (3) are also recognised.

### First-Time Setup

On first use, your phone will ask permission to access the microphone and (on iOS) the speech-recognition engine. Tap "Allow" both times. The permissions persist across app restarts. If you previously denied them, open the system Settings app and re-enable Microphone and Speech Recognition for Ham Logging.

### Tips for Best Recognition

Speak clearly and at a normal pace — no need to shout. Each phonetic word should be a separate spoken word. Background noise hurts accuracy: rolling up the windows or pulling over for a moment helps. After you release the button, glance at the field and confirm the callsign is correct before saving. If the parser misheard a word, tap the field and edit normally — you can mix dictation with keyboard correction freely.

### Privacy

Speech recognition uses your phone's built-in engine (Apple Siri on iOS / Google on Android). On modern devices the recognition runs on-device when possible. Ham Logging does not record audio, does not

send recordings to any server, and does not store the audio after parsing — only the resulting callsign text is kept, and only when you save the QSO.

## Appendix — April 26, 2026 Updates (continued)

### Rover Mode: Voice Phonetic Live Preview

When you press and hold the mic, the recognised callsign now appears in the Worked Callsign field LIVE — letter by letter, as you speak — instead of waiting for you to release. You can release the moment you see the right callsign without needing to wait for the engine to finalise.

#### How it looks

You hold the mic, and as you say "alpha" the field shows "A". As you continue with "bravo" the field updates to "AB". By the time you reach "x-ray" the field reads "ABCDEFX". Release any time once it looks right — the final value is what stays. The Worked Callsign panel border also pulses red while you hold, so you have an unmistakable cue that audio is being captured.

#### Recovery from misheard words

If the speech engine briefly misrecognises a phonetic (e.g. it hears "Africa" instead of "alpha"), the parser drops the unknown word and the field updates as the engine self-corrects on the next partial result. You may see a brief flicker — that's the parser rejecting a word it can't map. Keep speaking; the field stabilises within a fraction of a second.

### Rover Mode: Re-Press Mic Clears Unsaved Callsign

Pressing and holding the mic a second time wipes whatever is in the Worked Callsign field before it starts capturing — even if you had typed it manually. Rationale: an unsaved callsign in the field is a draft, and a fresh dictation is a fresh draft. There's no manual "clear" step needed before re-recording. Once you tap "Next QSO" the callsign is committed to the log and the field clears in the normal save-flow.

### Rover Mode: Back vs Save & Exit

Rover Mode now distinguishes two ways to leave the page:

#### Back arrow / system back gesture

The arrow at the top-left of the app bar, AND the Android back button or iOS edge-swipe, all do the same thing: leave Rover Mode WITHOUT saving the current entry. This matches universal mobile convention — back means "leave". If you have a half-filled QSO and tap back, that QSO is discarded. Use it as the quick "abandon" path when you want out and don't care about the in-progress draft.

#### "Save & Exit" button (bottom of page)

The labeled "Save & Exit" button at the bottom of the page is the deliberate commit-and-leave path. If your form is complete (callsign + TX frequency + mode), it saves the QSO and exits. If the form has data but is incomplete, a themed dialog asks whether you want to "Stay" (finish entering it) or "Discard & Exit" (leave anyway, no save). Use this when you want one last chance to commit a partially-typed QSO before stepping away.

#### Why the split

A back press in the middle of a roving session is usually quick and intentional — making the operator wade through a confirmation modal each time would slow things down. A "Save & Exit" press is

deliberate, so a confirmation when the form is incomplete is appropriate there: it offers the chance to either go back and finish or to consciously discard. Both paths are discoverable: back arrow at the top, Save & Exit button at the bottom.

## Appendix — April 26, 2026 Updates (Rover RX Mirror)

### Rover Mode: TX → RX Live Mirror

When you enter Rover Mode and start typing the TX frequency, Ham Logging copies each keystroke into the RX frequency field in real time — RX live-mirrors TX as you type. After you finish typing and tab out of TX, the auto-pad kicks in and both fields end up at the 3-decimal form together (e.g. "145.99" → "145.990" in both).

#### Why

Most amateur satellite operations and APRS digipeaters are simplex (TX equals RX). On the road, retyping the same number is wasted effort. Mirroring saves a typing step on the very common case.

#### When the mirror does NOT fire

The mirror is gated by "RX must be empty". If you have already typed something in RX (e.g. a cross-band satellite contact like ISS V/U where you transmit on 145.x MHz and receive on 437.x MHz), changing TX leaves your RX value alone. Once RX is populated, the mirror is silent for the rest of the session — your intent wins.

#### Each new session starts fresh

Every time you enter Rover Mode, both frequency fields start empty (controllers are recreated). The first time you type a TX value and tab out, RX gets the same value. After your first Next QSO, session memory keeps both fields populated across the rest of the session, so the mirror naturally stays out of the way.

#### Override anytime

RX is a normal editable field. Tap it, type a different value, and that value sticks. The mirror does not fight you — it only fills empty RX, never overwrites.

## Appendix — April 27, 2026 Updates (Voice Dictation Permissions)

### Reliable microphone permission prompt

The first time you press-and-hold the microphone button in Rover Mode, the operating system asks for microphone access. On Apple platforms it also asks for speech recognition. Tap Allow on each dialog to enable voice dictation.

Previously, on certain Android devices that ship without Google Mobile Services (notably some Huawei phones), the permission dialog never appeared — the speech engine quietly failed before reaching the

OS prompt. The flow now requests microphone permission explicitly before initialising the engine, so the dialog appears reliably on every supported device.

## When permission was denied earlier

If you previously tapped "Don't Allow", a snackbar will read: "Microphone is blocked. Tap Open Settings to enable it, then try again." A small Open Settings button on the right of the snackbar deep-links straight to the app's permission screen so you can flip the toggle on and return to Rover Mode.

## When microphone access is restricted

On corporate or family-managed devices (iOS Screen Time, parental controls, MDM profiles), the microphone may be blocked at a level the user cannot change. In that case the snackbar reads: "Microphone access is restricted by device management or parental controls." Manual callsign entry remains available.

## When the device has no speech engine

On Android devices without Google Mobile Services or a comparable speech recognition service installed, the snackbar reads: "Speech recognition isn't available. Install Google Speech Services or use manual callsign entry." The text-input field at the top of Rover Mode is always available as a fallback — voice is an optional accelerator, never a requirement.

## No audio is uploaded

Recognition is performed by the device's built-in speech engine (Apple Siri on iOS, Google Speech on Android). Ham Logging never stores or transmits the audio itself — only the resulting callsign text is kept, and only after you save the QSO.

# Appendix — May 3, 2026 Updates (QRZ Logbook Subscription)

The QRZ.com Logbook API sits behind a paid XML Subscription. All four API actions — STATUS (connection test), INSERT (upload QSO), FETCH (download QSOS) and DELETE — return the same authentication-failure response when the account does not hold an active XML Subscription, even though the API key itself is valid. Ham Logging now recognises this specific server response and surfaces it via friendly snackbar messages instead of leaving the user staring at a raw protocol dump or a silently failed sync.

## Connection-Test Tick (Settings → Logging Services)

Tapping the small circular tick next to "QRZ.com Logbook" in Settings now shows three possible outcomes:

- Green tick (Connected) — your API key is valid and your subscription is active. Sync will work.
- Amber exclamation — your API key is recognised by QRZ.com, but the account is missing the XML Subscription. A blue info snackbar explains: "QRZ.com Logbook API requires a paid XML Subscription. Your API key is valid — manual ADIF upload via logbook.qrz.com still works." Buy the subscription on qrz.com to clear this state.
- Red cross — any other failure (wrong key, network error, server down). A red warning snackbar shows the actual error text returned by QRZ.

## Sync Snackbars (Sync Tab)

When you run "Sync To Services" or "Sync From Services" with QRZ.com Logbook selected, and the subscription is missing, Ham Logging now fires the same blue info snackbar in addition to writing the reason into the per-service line of the sync report dialog. The upload path short-circuits on the first rejected QSO instead of pointlessly iterating through every QSO in the queue at the rate-limit interval.

## Free-Tier Workaround

A free QRZ.com account can still receive ADIF uploads — just not via the API. Export an ADIF file from Ham Logging (QSO Logs tab → menu → Share as ADIF), open [logbook.qrz.com](http://logbook.qrz.com) in a browser, scroll to the "ADIF Import/Export" panel, and use the Import button to upload the file. This bypasses the API payroll entirely. Note that the same panel's Export button does require the XML Subscription, so this workaround is upload-only.

# Appendix — May 10, 2026 Updates (eQSL Clock-Skew Dedupe)

## The Problem

eQSL.cc InBox cards return the partner's logged time, not the time you uploaded. When the partner's clock differed from yours by more than a minute, the standard duplicate detection (callsign + band + mode + date + HHMM time) failed and the eQSL confirmation card was inserted as a phantom new QSO instead of marking your existing entry as confirmed.

## The Fix

Sync Logs FROM Services for eQSL.cc now runs a second-pass clock-skew tolerant match when the standard exact-time match misses. The match window depends on propagation mode:  $\pm 60$  minutes for satellite QSOs (PROP\_MODE=SAT, where orbital physics makes a repeat sat pass within an hour physically impossible),  $\pm 2$  minutes for HF/terrestrial QSOs (tight enough to only catch typical NTP-synced clock skew without colliding with legitimate quick repeats).

## Safety Guards

A fuzzy merge only fires when exactly one local QSO sits inside the time window with matching callsign, date, band and mode. Two more disambiguators kick in when the data is present: a SAT\_NAME mismatch (e.g. SO-50 vs RS-44) drops the candidate, and a partner-grid mismatch on the first four characters (e.g. JN58 vs IO64) drops the candidate. If two or more candidates qualify the merge falls through and the card is inserted as a new QSO — recoverable orphans are strictly safer than silent false-merges.

## Audit Trail

Every fuzzy merge is listed in the eQSL row of the sync report dialog. Example: "eQSL.cc: 23 received — 0 new, 22 exact match, 1 via clock-skew (DG7RO 20260423 +9min)". Spot-check the listed merges after each eQSL sync to confirm the heuristic did the right thing.

# Appendix — May 10, 2026 Updates (Production Audit)

## Sync Resilience

LoTW download now distinguishes transient outages from "no QSOs available" — a network blip, expired password, or LoTW maintenance produces a clear "Download failed" error in the sync report instead of the previous silent "No QSOs found" gaslight. Same pattern as the QRZ.com fix from May 6.

## Cellular Data Warning

A themed warning dialog now appears before each Sync Logs FROM/TO Services run if the device is on mobile data instead of Wi-Fi. The dialog explains that sync can use 100 KB to 50 MB depending on log size and offers two choices: Cancel (abort) or I understand (proceed). The warning fires every cellular sync — no persistent toggle, no session opt-out — so you always have the chance to cancel before consuming data. Useful for hams on metered plans.

## Crash & Diagnostic Log

A small in-memory diagnostic log now captures any uncaught error during the app session (50-event ring buffer). When an error fires, a one-shot snackbar appears with an EMAIL action — tapping it opens your mail app pre-filled with a plain-text report you can send to support. Repeat errors do NOT spam the snackbar: the same underlying issue stays silent for 5 minutes after surfacing once. No third-party crash reporter; nothing leaves your device unless you tap EMAIL.

## Large File Imports

ADIF imports now stream the file from disk in chunks instead of loading the whole file into memory at once — power users with multi-decade LoTW exports (80-200 MB) no longer risk an out-of-memory crash on Android devices with limited RAM. CSV and JSON imports get a 50 MB safety check; if your export is bigger, the app suggests splitting the file or using ADIF (which streams).

## Foreign-Exporter ADIF Compatibility

The ADIF parser now correctly handles UTF-8 byte counts in the <FIELD:N> length prefix (the spec mandate). Records from third-party logging software containing accented characters (Müller, José, ä, ñ) no longer silently drop or garble — they import cleanly. eQSL, LoTW, ClubLog, QRZ, HRDLog, CloudLog, Wavelog all share the same hardened parsing path now.

## Default Region Region 1

New installs default to ITU Region 1 (Europe / Africa / Middle East / Russia) band frequencies. Users in other regions select their region in Settings — the existing three-region picker is unchanged.

## Better Error Messages

Service connection errors no longer include URLs with credentials in the snackbar or sync report. ClubLog, CloudLog, Wavelog now treat "0 records uploaded" as a failure (matching eQSL behavior) so you can't miss a silent rejection. N1MM Logger+ reports a friendly "Port in use — close other loggers" message when its UDP port is taken, instead of returning empty results.

## eQSL InBox Auto-Match (Earlier Today)

For reference, today's earlier eQSL clock-skew fuzzy match (described in the separate eQSL appendix) handles the case where eQSL InBox returns a card with the partner's logged time instead of yours — preventing phantom new-QSO inserts.

## Appendix — May 11, 2026 Update (QRZ.com Logbook Download Reliability)

A long-standing reliability gap in the QRZ.com Logbook download path was resolved this session. Paid XML Subscription users with non-empty logbooks could previously see "No QSOs found" in the sync report even though their logbook contained records. The root cause was a non-standard wire-format quirk in QRZ's FETCH response: the ADIF records were encoded using HTML entities (&lt; / &gt; / &amp;) instead of the URL-encoded form (%3C / %3E / %26) that the wrapping protocol would normally require. The standard form-encoding parser destroyed entity boundaries while splitting on the "&" separator, leaving the parsed ADIF section empty even when records were present.

### What changed

A dedicated extractor reads the ADIF section straight from the raw response body (skipping the form-pair parser that was previously fooled by the entity boundaries) and decodes the HTML entities back to literal characters before parsing. Paging continues to advance safely via the AFTERLOGID cursor with a 250-record page size and a 50,000-QSO hard ceiling. Mid-paging failures still return whatever pages succeeded as partial results, never wiping the in-progress download.

### What you will see

QRZ.com Logbook downloads now complete reliably for paid subscribers regardless of logbook size. If the response is ever genuinely empty or QRZ returns an unexpected shape, the sync report names the specific reason (RESULT code, COUNT, and any REASON message from QRZ) instead of the generic "No QSOs found" gaslight. After downloading, the ownership filter (Settings → Callsign, suffix-sensitive — /M, /P matter) decides which subset of QSOs are kept; the row footer reports any that belonged to another station so you can adjust the callsign if needed.

### Diagnostic visibility

All silent-empty paths through QRZ download have been replaced with typed exceptions that name the break-point. If a future QRZ wire-format change ever breaks this layer, the sync report will tell you exactly which condition fired rather than collapsing it into the empty-result default.

## Appendix — May 11, 2026 Update (Production-Readiness Batch)

A comprehensive production-readiness pass landed alongside the QRZ.com Logbook download fix earlier the same day. The visible user-facing items are summarised below.

## **New: Multi-field DX Spots search**

The DX sub-tab on the Extra → Spots tab now has a search field below the Band and Continent dropdowns. The query matches case-insensitively across the spotted callsign, the spotter, the comment, the country, and the grid square in a single pass — same pattern as the POTA search field. The dropdowns and the text search are AND-combined, so "EU + 20m + JA" will narrow to JA-spotted contacts visible on 20 m from European spotters.

## **New: Re-enrich Missing Fields menu entry**

The QSO Log popup menu now includes a "Re-enrich Missing Fields" entry. Tap it to walk every QSO in the local log, look up any record with missing country / name / grid / CQ zone / ITU zone / continent / state / county / QTH / DXCC via QRZ.com XML, and write the result back to storage. The same flow is also available from Settings → Callsign Lookup. Requires QRZ.com credentials configured.

## **New: Long-press the map to set a destination**

The Map page previously dropped a destination marker on any unhandled tap, which led to accidental markers from stray taps. Destination-set now requires a deliberate long-press on empty map. Tap-to-dismiss (when a destination is already set) and tap-to-deselect (when a worked-station marker is highlighted) continue to work on a single tap.

## **Improved: Tapping a worked-station marker now pans**

Tapping a worked-station marker on the Map page now both highlights the marker and gently pans the camera to it (zooming in if needed). Previously the camera stayed put, which could leave the highlighted station off-screen on world-zoom views.

## **Improved: Sync history resets on Clear List**

Clearing the local log (QSO Logs → : menu → Clear List) now also clears the per-service sync history counters and timestamps shown on each service card in the Sync tab. Credentials and the per-service enable toggles are preserved. Previously a service card could still show "Last download: 2,666 new" even after the local log was empty.

## **Improved: Exports honour the active log filter**

CSV / JSON / ADIF / Image exports from the QSO Log popup menu now export exactly the QSOs visible under the active filters (callsign, mode, TX band, RX band, date range), matching the existing image export behaviour. When a filter is active, the success snackbar reads "N of M shared — filter active" so you can confirm the subset.

## **Improved: CSV imports tolerate quoted newlines + mixed encoding**

Comment fields that contain newlines (rare but possible from older logging tools) no longer split a single QSO into two corrupt rows during CSV import. The parser now respects quoted line breaks. Additionally, CSV files exported from Excel with mixed encoding (CP-1252 + UTF-8) no longer raise an error on the first non-UTF-8 byte — unrecognised bytes become the replacement character (U+FFFD).

## **Improved: Settings save validates callsign / grid / email**

When you tap Save Settings, the callsign / grid / email fields are now checked against permissive patterns before persisting. Empty values are still allowed (they are optional gates rather than data); a malformed value (e.g. an obviously-incorrect grid like "ZZ99") now triggers a warning snackbar and the save is

deferred until corrected. This prevents poisoned values from propagating into ADIF exports + service uploads.

## **New service requirement: CloudLog / Wavelog Station Profile ID**

CloudLog and Wavelog both require a Station Profile ID in addition to the API URL and API Key for successful uploads. Settings → Services now exposes a "Station Profile ID" field for each. You can find the value in your CloudLog or Wavelog web interface under Station Logbook → Edit (the numeric ID next to your station entry). Without it, the upstream service silently rejects every upload — this was a long-standing source of "0 uploaded" failures across both services.

## **Other polish**

Test buttons (QRZ lookup, per-service connection tests) now disable themselves while a test request is in flight, preventing double-tap from firing concurrent requests. Invalid grid entries on the Path tab now select-all the input so your next keystroke overwrites the invalid value instead of having to manually clear it first. Android adds proper resizable-activity support for foldables and ChromeOS.

# **Appendix — May 20, 2026 Updates (Version History)**

## **Version History (About → Version History)**

Ham Logging now ships a dedicated Version History page that surfaces every release's What's New notes from inside the app. The page lives under the About tab — tap the new "Version History" link in the header row, next to User Manual and Support.

Each release renders as a collapsible card. The most recent release is expanded by default; older entries stay collapsed and you can tap to expand any of them. Inside the expanded card you see the full What's New text with selectable copy so you can paste into a forum, QSL note, or email.

Release notes are bundled in the app (assets/release\_notes.json) so the page works fully offline — no network call, no waiting. New releases simply prepend a new entry to that file before each build.

Like the developer signature and copyright watermark, the Version History page is English-only and left-to-right regardless of any other language toggles. Release-note prose is a wire-format-style artifact (consumed by humans across forums + QSL notes + email) so translation would create more drift than it would solve.

## **Notes for operators**

If the Version History page shows "No release history available" the app couldn't read assets/release\_notes.json — reinstall is the safest fix. The page never deletes or overwrites any of your QSO data; it's a read-only view of the bundled release notes.

# Appendix — May 25, 2026 Updates (Resumable Sync)

## Resumable QRZ.com Downloads & Stop & Save

Downloading a large QRZ.com Logbook (tens of thousands of contacts) is now resumable. The download comes down in batches of about 1,000 QSOs, and each batch is saved to your log as it arrives. If the download is interrupted — you close the app, lose connection, or tap Stop — nothing you have already received is lost. Just tap "Sync FROM Services" again and the download continues from exactly where it left off.

Your downloaded QSOs are now written to your log immediately, before the QRZ name/grid enrichment step runs. In the past, contacts were held in memory until the very end of a sync, so closing the app mid-sync could lose them even though they were already showing in the list. That can no longer happen.

Stop & Save: during a long QRZ download a "Stop & Save" button appears below the progress line. Tap it any time to stop and keep everything downloaded so far — the sync ends cleanly and you can continue later with another Sync FROM. If a download runs long, a one-time prompt also offers the same choice (Stop & Save, or Keep syncing).

Once a logbook has fully downloaded, future syncs are incremental — they fetch only new contacts, so a routine re-sync finishes in seconds and reports "Up to date — no new QSOs" when there is nothing new. To pull the whole logbook again from scratch, use Clear List first.

For a very large logbook (hundreds of thousands of contacts), the fastest route is still to export the complete ADIF file from logbook.qrz.com and import it (QSO Logs → menu → Import ADIF). The resumable sync is built for everyday use and for keeping your log topped up.

## Filling in missing names and grids

Downloaded contacts may arrive without a name or grid. To fill these in, open QSO Logs, tap the three-dot (:) menu, and choose Enrich — it looks up the missing details from QRZ.com. This is also offered as a tip in the sync results dialog after a download.

## Automatic background enrichment

After a download, Ham Logging fills in names, grids, zones and country automatically IN THE BACKGROUND — you don't have to wait, and you can keep using the app on any tab while it works (a brief message tells you when it starts and when it's done). Each callsign is looked up only once, so repeated syncs and the : → Enrich Missing Fields action no longer re-check the same callsigns over and over. If QRZ.com later adds data for a callsign and you want to pick it up, use QSO Logs → : → Force Re-enrich All to run every lookup again.

# Appendix — May 29, 2026 Updates

Ham Logging 1.0.1+3 (unreleased) landed a second wave of bug fixes + UX polish on top of the May 25 sync + Reset/Delete rescope. Stores remain on 1.0.0+2.

## QSO entry polish

Date UTC and Time UTC fields are now tap-to-open pickers (read-only text fields opened by tap, dismissed by Cancel or backdrop). Themed to match the rest of the app — dark navy surface with blue

accent in dark mode, white surface with blue accent in light mode. The "Now" clock icon next to the Time field still snaps both fields to the current UTC.

Session preservation extended to date + time. After "Save & Next QSO" the date and time you picked stay put — so you can batch-enter a stack of old QSOs (a back-dated satellite pass, a paper logbook) without re-picking the date for every row. Leaving the New QSO tab resets to "now" on next entry.

Picking a satellite from the Propagation & Satellite dropdown auto-fills TX band, TX frequency, RX band, RX frequency and the satellite mode from a built-in catalog of 100+ amateur sats including AO-7, SO-50, ISS, RS-44, QO-100, FO-118, MESAT-1, GreenCube/IO-117, the TEVEL fleet, the CAS series, NOAA APT, and more. Propagation mode also flips to SAT automatically. Edit any field if you need to override the default uplink/downlink pair.

When editing a QSO, re-typing the worked callsign now correctly re-fires the QRZ.com lookup — Edit mode is no longer a no-auto-lookup dead zone. In Edit mode the lookup uses empty-only fill semantics so a manually corrected name / country / grid is never silently overwritten; only fields you left empty get populated from QRZ.

## Enrichment improvements

A new "Deep Enrich (full)" item appears in the QSO Logs : menu. It walks every QSO with missing fields sequentially through the full XML + web-scraped QRZ pipeline (same code path as Settings → test lookup), populating 6-character grid, county, QSL info, license class. Slower than the XML-only batch but pulls in the fields the XML endpoint doesn't expose. Saves progress every 25 lookups so a tab switch mid-loop never throws away the work already paid for.

"Enrich Missing Fields" no longer flags callsigns QRZ had nothing for. Previously a single run flagged every attempted callsign as "done", so a later Settings test-lookup that primed the full-lookup cache couldn't be picked up on a subsequent : → Enrich pass. Now only QSOs whose fields actually changed get flagged — the rest stay eligible for a future re-enrich.

Rover Mode's post-save background enrichment is gated by the same cross-path single-flight lock as : → Enrich and the sync post-download enricher. Three paths can no longer run concurrent QRZ web sessions and compete for the same login cookie.

## APRS reliability

Fixed a crash that fired on a second packet from any APRS station first heard without an internet-gateway ("qAR") construct. The diagnostic email showed it as "Cannot change an unmodifiable set". The parser now returns a mutable empty set and the AprsStation constructor defensively copies its rfHeardBy input.

Toggle APRS OFF then ON again now reloads stations straight away. Previously the first 15 seconds after toggle-ON would silently return an empty REST seed and the live socket would only catch the next beacon — looking "stuck loading" until you killed the app.

## Diagnostic log

Background network noise — map tile fetches that time out, transient CDN hiccups, offline retries — no longer fills the diagnostic email body. Only real app errors are captured. Framework warnings in debug builds are also suppressed at the snackbar layer so they stop popping during development; release builds are unaffected.

## About page

Footer copyright is now centered to match the rest of the Unixeer family. Developer signature line above the copyright remains left-anchored as before.

## Appendix — May 30, 2026 PM Updates

Round-two changes to Ham Logging 1.0.1+3 unreleased. Built on top of the May 29 appendix; nothing in the May 29 entry is superseded.

### Live solar nowcast on the Propagation tab

A new "Live (NOAA SWPC)" strip appears on the Propagation tab below the existing solar indices grid. It surfaces a 1-minute real-time Kp index and 1-minute GOES X-ray flare class. Color-coded: green = calm Kp / A or B class X-ray, amber = active Kp / C class, orange = minor storm Kp / M class, red = severe storm Kp / X class. The strip complements (does not replace) the HamQSL XML feed shown above it, which carries the 3-hour planetary K average and the most recent X-ray report. During a fast-moving solar event the 3-hour average lags by up to three hours; the SWPC 1-minute values let you see in real time whether bands have already gone disturbed or have started to recover.

### About page footer

Footer copyright is now centered to match the rest of the Unixeer family (Ham Satting, Ham Learning, Ham Gaming). Developer signature line above the copyright remains left-anchored as before.

### HamQTH RBN + DX-cluster recent activity on the Spots tab

A fourth sub-mode "RBN" was added to the Spots tab alongside DX / POTA / Contests. It uses HamQTH's documented XML recent-activity feed (the same one CQRLOG and other loggers use) and surfaces the last ~20 spots of YOUR callsign from two sources: the Reverse Beacon Network (worldwide CW + digital skimmer auto-spots) and DX clusters (manual operator spots). Each row carries a small tag — "RBN" or "DXC" — so you can tell which source heard you. The list shows the spotter callsign, the frequency, the band, the mode (auto-extracted from the spot note for RBN), the reported signal-to-noise ratio in dB, and the CW speed in words per minute where applicable.

To use the feature, set your free HamQTH account credentials in Settings → Callsign Lookup → HamQTH Username + Password (the pair sits above the QRZ.com block; the HamQTH account is separate from QRZ, both are free). Your HamQTH username is your callsign. Tap Save All — the cached HamQTH session is invalidated so the next RBN tab open re-authenticates with the new credentials. The HamQTH session itself stays cached for 55 minutes after the first successful auth, so re-tapping the RBN sub-tab during the same session opens instantly without hitting the upstream login endpoint again.

RBN spots are most useful for CW and digital modes (FT8, FT4, RTTY, PSK31, PSK63) — the skimmer network auto-decodes those modes specifically. FM and SSB voice spots are rare from RBN since voice is not auto-decoded; you'll see voice spots through DXC instead when an operator notices and posts a manual cluster spot. The RBN sub-tab queries your default callsign from Settings → Defaults — if you operate under multiple callsigns or SSIDs, only the default one is queried.

# Appendix — June 4, 2026 Updates (Propagation Visuals)

## Solar Tab — SFI & Magnetic Dial Gauges

The Solar tab now shows the two headline space-weather numbers as at-a-glance dial gauges, directly under the solar-terrestrial banner. The left gauge, Solar Activity, is the Solar Flux Index (SFI) on a 0–300 scale; the right gauge, Magnetic Activity, is the planetary K-index on a 0–9 scale, with the A-index shown beneath it. Each needle sits on a coloured arc — green is favourable, red is disturbed — so you can read conditions without parsing the raw figures. The exact value and a short descriptor (for example "SFI · High" or "K · A 10 · Unsettled") print below each dial.

Because the gauges now carry the SFI, K and A values, those three numeric tiles were removed from the indices grid below to avoid duplication. The remaining six indices — Sunspots, X-Ray, Solar Wind, Proton Flux, Bz, and Aurora — share one compact grid, each keeping its own colour-coded border. Your QTH / sunrise-sunset panel and best-band tip moved up to sit directly beneath the gauges. The whole tab is tuned to fit a single screen; if the NOAA WWV forecast at the bottom runs long, the tab scrolls.

## Conditions Tab — Band Activity by Continent

The Conditions tab adds a third panel, "Band Activity by Continent", below the Band DX Potential table and the Band Spot Activity bars. It is a heatmap: each row is a band (2m down to 160m) and each column is a continent — EU, NA, SA, AS, AF, OC. Every cell is shaded by how many live DX-cluster spots are currently coming from stations on that band and continent: red means few or none, ramping through orange and yellow to green for the busiest band/continent combinations. The cell also prints the spot count when there is activity.

Read it to see which bands are open, and to where, at a glance — a row that is green across several continents is wide open, while a mostly-red row is quiet. The data comes from the same live DX-cluster feed that drives the Spots tab, so it refreshes on the normal Propagation refresh cycle with no extra setup.

## Share Images

The Share button on both the Solar and Conditions tabs now includes the new gauges and the band-activity heatmap in the exported image, in both light and dark themes — so a shared snapshot matches exactly what you see on screen.