BTECH App Manual

— UV Programmer &GMRS Programmer

Covers: UV-PRO & UV-50PRO (amateur series) and
GMRS-PRO & GMRS-50PRO (GMRS series)
This document is for the smartphone apps only.
Each radio also ships with its own radio hardware manual.

App names

UV series (UV-PRO / UV-50PRO): **BTECH UV Programmer**
GMRS series (GMRS-PRO / GMRS-50PRO): **BTECH GMRS Programmer**

Feature scope

Amateur-only features (e.g., APRS, satellite tools, KISS TNC) are available on the **UV series** only.
GMRS-only models will not show amateur-only menus.

TABLE OF CONTENTS

1) GETTING STARTED

1.1 Install the app

- **Android**: Install **BTECH UV Programmer** (UV series) or **BTECH GMRS Programmer** (GMRS series) from Google Play.
- **iOS:** Install **BTECH UV Programmer** (UV series) or **BTECH GMRS Programmer** (GMRS series) from the App Store.

You may see permission prompts for **Bluetooth, Location, Notifications**, **Microphone**, and **Storage**. Approve requested permissions for full functionality.

1.2 What you need

- A compatible BTECH radio: UV-PRO, UV-50PRO, GMRS-PRO, or GMRS-50PRO.
- The app installed on your phone or tablet.
- Radio **Bluetooth** enabled (consult the radio manual if you've disabled BT on the radio).

2) PAIRING YOUR RADIO

2.1 Automatic pairing (recommended)

1.**Open the app.**
2.**Power on the radio**, then **double-press the pairing button** or use the Pairing option in the menu on the radio. The panel LEDs alternate **red/green** to indicate pairing mode.
3.When the prompt "**Detected new device, do you want to link now?**" appears, tap **[Yes]**.
4.When your phone shows the Bluetooth authorization dialog, tap **[Pair].**
5.The device connects and becomes available in the app.

2.2 Manual pairing

- In the app, open the **main menu** and switch to the **device interface**.
- Verify the radio is in Pairing Mode
- Use **Scan** (or **Connection Management**) to search and select the radio or accessory.
- If the device is non-standard BT (e.g., certain PTT mics), place it in pairing mode and bind it from the scan list.

3) SYNCHRONIZATION (SYNC) BEHAVIOR

When the app connects, it can copy certain app settings to the radio.

- After connecting, a prompt appears: "**Synchronize settings?**"
  - o **[Yes]** applies app user/signaling settings to the radio.
  - o **[No]** keeps the radio's current settings unchanged (recommended if you regularly connect **multiple radios** and don't want to overwrite each unit).

You can change this later: **open Signaling Settings** and toggle **Sync Signaling Settings** to **Yes** (to apply) or **No** (to keep separate).

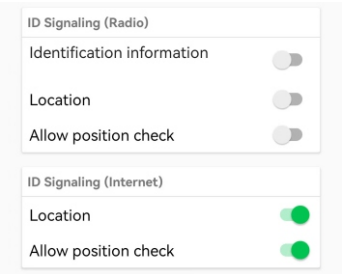
3.1 What's synced (when Sync = Yes)

- **User settings** (nickname/callsign; BSS ID; sharing options).
- **Signaling options** (ID signaling, APRS selection on UV series, BSS options, path settings).
- **Auto-location sharing** interval and Smart Beaconing settings (see APRS/BSS section).

Note: With **Sync = No**, the app's user settings apply only to **network** functions. The radio's on-device settings are left unchanged.

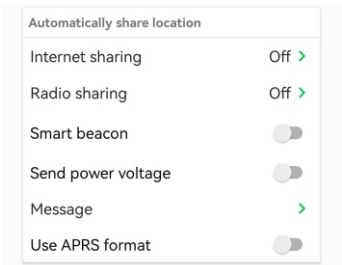
3.2 ID Signaling (BSS) overview

- **BSS** is a BTECH signaling system (used when APRS is **off** or by Non- Amateur “HAM” users). Upon transmission end the radio can emit a short signaling tone conveying your **identity** (nickname or callsign), and optionally **location**.
- When **Identification** is enabled, receiving users hear a notification tone and see your ID information. Disable if you prefer silent/ anonymous operation.



4) APRS (UV SERIES ONLY) & BSS

GMRS-only radios do not present APRS menus.



4.1 Auto-Location Sharing

- **Network Location Sharing**: Periodically posts your position to **active network channels** (runs in the background; does not appear in message lists).

- **Radio Location Sharing**: Periodically transmits your position on a **selected RF channel.**

APRS mode auto-switch: If APRS is enabled, location sharing uses **APRS** format instead of BSS format.

Interval guidance: Choose a reasonable interval (e.g., **1–5 min**) to avoid channel congestion.

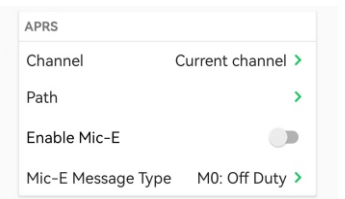
Optional fields:
- **Transmit Battery Voltage**
- **Attached Message** (status text)
- **Smart Beaconing** (auto-adjusts interval based on heading/speed changes; max 30 min; minimum equals your Auto-Sharing Interval).

Smart Beaconing triggers (any):
- Heading change > **30°**
- Speed change > **30 km/h** (18 MPH) sustained for **120 s**
- Time since last update > **30 min** (and ≥ your Auto-Sharing Interval)

4.2 APRS vs BSS transmission

- **BSS format**: RF-only, **not** forwarded via internet gateways, **not** decodable by APRS receivers. Good for private group tracking without callsigns.
- **APRS format(Amateur Users Only)**: Standards-compliant, can be relayed **over RF and/or Internet (IGates)** according to your settings; suitable for licensed APRS operation.

4.3 APRS signaling setup (UV series)



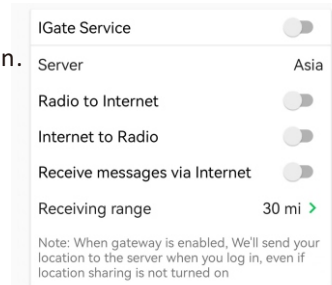
1. In **User Management**, set your **callsign** and (if required) **verification code** (for APRS-IS) on the APRS page.
2. Choose your **APRS transmission channel** in **Signaling Settings**.
3. Configure **Path Settings** (e.g., **WIDE1-1, WIDE2-1**; **WIDE1-1,WIDE2-2**; or **ARISS,SGATE,WIDE2-1** for ISS work).
4. (Optional) Choose **MIC-E** encoding and message types.

SSID quick guide:
-7 Handheld, -8 Marine, -9 Mobile, -0 Home/IGate, -6 Satellite, etc.
Pick the suffix that best describes your station role.

5) APRS GATEWAY & DIGIPEATER (UV SERIES ONLY)

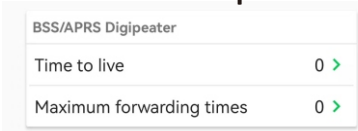
5.1 APRS Gateway (RF⇄Internet)

- **Server region**: Select the closest APRS-IS region.
- **Radio → Internet (RF → APRS-IS)**: When **Enabled**, the app uploads APRS packets it receives over RF to the internet.
- **Internet → Radio (APRS-IS → RF)**: When **nabled**, the app injects APRS-IS packets from the internet onto RF.
- **Receive Messages via Internet**: Toggle to display/log internet-sourced messages (private, bulletins).
- **Display Range**: Limit the map radius to balance performance and situational awareness.



Automatic Location Sharing (Internet/IGate): Share via IGate, choose **Position Source** (GPS/ network), set **Update Interval**, icon, and optional device status (battery, operating frequency) and **Attached Message**.

5.2 APRS/BSS Digipeater(App MUST be connected for operation)

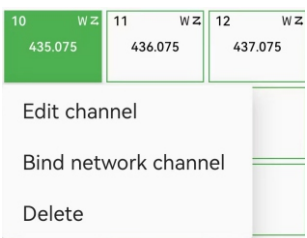


- **TTL (Time To Live)**: Max hop count; recommended **2**.
- **Maximum Forwarding Times**: For relay behavior; recommended **2**.
- **Both must be > 0** to activate the digipeater. If **0/0**, the function does not run.

6) DEVICE SETTINGS

Access from the connected device pane. You can rename the device, toggle the **Phone Speaker** (phone + radio audio, or radio-only), and open **FM Radio** or **Radio Settings**.

6.1 Channel configuration



- **Edit Channel**: Long-press a channel → **Edit Channel** → adjust parameters→ **Save**.
- **Transmit Disable**: Prevents RF TX (useful when you only want network operation).
- **Busy Channel Lock (BCL)**: Blocks TX when the channel is busy.
- **Mute**: Silences audio on that channel (handy for APRS data channels).

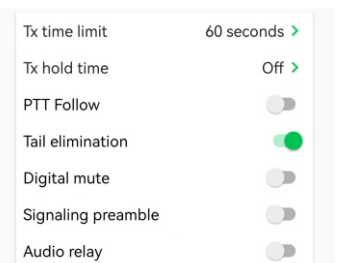
- **Talk Around**: For repeater pairs, temporarily uses the **RX frequency & tone** for both TX/RX.
- **Scan Allowed**: Marks the channel to be included in scans.
- **Pre-/De-emphasis**: Improves voice SNR in TX/RX paths.
- **Scan**: Starts scanning channels flagged **Scan Allowed**.

6.2 Groups & Zones

- **Group (App)**: Lists stored in the app.
- **Switch Device Group (Radio)**: Switches the radio's zone/group.
- **Import Device Channels**: Pulls the radio's current channels into the app.
- **Export/Share**: Export a **.CSV** or generate a **share code** others can paste to add the group to their app.

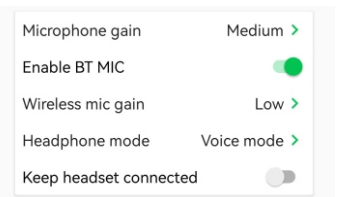
6.3 Audio & PTT behavior

- **VOX**: Set **Sensitivity** (1 = least sensitive; 8 = most) and **Delay**.
- **Time-Out Timer (TOT)** and **Transmission Hold Time** (post-PTT delay).
- **PTT Follow**: If you press PTT within 3 seconds of receiving on the sub-band, PTT switches to that band.



- **Squelch Tail Elimination**: Removes post-TX noise (inter-brand limitations may apply).
- **Digital Mute**: Auto-mutes when digital signals are detected (disable when you need to hear data like SSTV).
- **Preamble**: Adds a lead-in code so receivers capture full signaling.
- **Audio Relay**: Re-transmits received audio (up to ~30 s buffer) after playback. **Do not enable on repeater inputs/outputs** to avoid interference.

6.4 Headsets & Mics

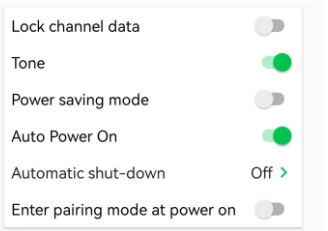


- **Headset Mode**: Voice vs Phone mode for vehicle systems.
- **Keep Headset Connected**: Continuous vs fast on-demand connect (multi-device sharing).
- **Microphone Gain**: Separate controls for **wired** and **Bluetooth** microphones.
- **Enable BT Microphone**: Turns on wireless mic support.

6.5 Locking, Power & Reset

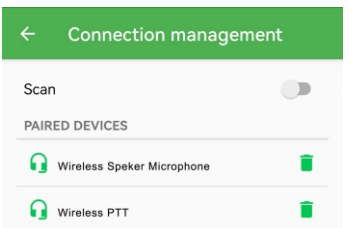
- **Channel Data Lock**: Disables VFO/frequency-related functions (including rapid scans).

- **Tone**: Toggle key/operation beeps on the radio.
- **Power Saving Mode**: Dims/turns off indicators after inactivity.
- **Auto Power-On / Auto Power-Off**
- **Enter Pairing Mode At Power On**
- **Reset Settings** (radio features) vs **Factory Data Reset** (full restore including channels).
  Export/share your groups first so you can re-import later.



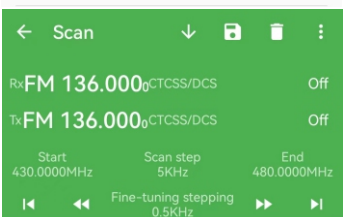
6.6 Connection Management

- See all paired devices, remove entries (trash icon), and **Scan** for new peripherals (including non-standard BT PTT mics).



6.7 Frequency Scanning (VFO)

- **Set Start/End Frequency** and **Step**.
- Up/Down scan; pause/resume; fine-tune with ▲/▼.
- **Sync RX→TX**; ↓ Save to the active channel.
- **Auto-Scan Mode**: If enabled, records hits



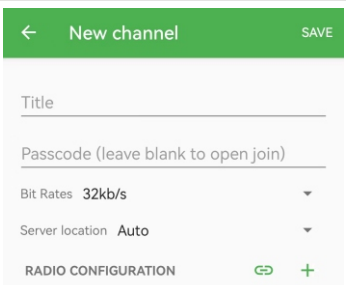
and continues scanning; if disabled, stops on active signals.

6.8 Programmable Keys

- Availability varies by model/firmware. Configure in-app if your radio supports it; otherwise use the radio's hardware menu/ manual.

7) NETWORK Channels (Hybrid IP/RF)

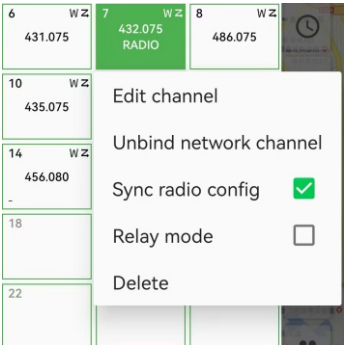
Network Channels let you create/join internet PTT rooms and optionally **bind** one to a radio channel for IP↔RF bridging.



7.1 Create a Network Channel

- **Title, Password** (optional)
- **Bitrate** (higher = better audio; uses more data)
- **Server Location** (choose geographically close)
- **Remote Radio Control** (optional): pre-configure RX/TX, tones, power, etc.
- Tap **Save**.

7.2 Bind to an Analog Channel



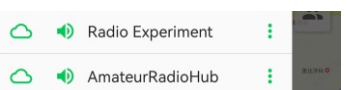
1.Long-press an RF channel → **Bind Network Channel** → pick your room.

2.To unbind: long-press → **Unbind Network Channel**.

Advanced:

- **Sync Radio Config**: admin-driven network changes update this RF channel automatically.
- **Relay Mode (Repeater Bridge)**: forwards radio signals to the network room **and** network audio back to RF. Requires admin permission from the channel owner.

7.3 Network Channel Management



- Network rooms appear in the **Device List**.
- Online/offline states and per-channel **mute** are shown.
- Keep seldom-used rooms **Muted** or **Offline** to reduce chatter and save battery.

7.4 Remote Link Management

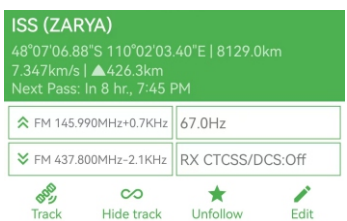
- Use a **Primary** account to create/manage channels and frequencies.
- A **Secondary** account (Android) joins, requests **Admin**, connects a radio, and binds a local RF channel with **Sync Radio Config** and **Relay Mode**.
- Thereafter, Primary frequency changes propagate automatically to the Secondary's bound channel.

8) AUTOMATIC Satellite Tracking (UV Series Only)

Hands-free Doppler tracking for supported amateur satellites.

To use:

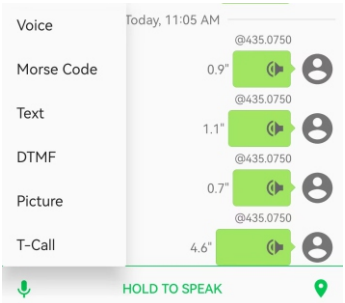
1.Connect radio → open **Map View** → search the satellite name (e.g., "**ISS**").
2.Tap the satellite → **Track**. The app calculates passes and **continuously updates your radio's frequency** for best signal（Doppler Shift Accommodation).
3.For satellites not in the default list, add them in **Amateur Radio Satellites** (+ add, edit TLE, uplink/downlink, save).



9) MESSAGES, MEDIA, CONTACTS & MAPS

9.1 Voice messages & voice mode

- Received audio is auto-recorded (if enabled).
- Long-press a clip for **Analysis** (e.g., decode **DTMF**, **Morse**, export OPUS).
- Long-press **Hold to Talk** to enter voice mode. To also hear audio on your phone, toggle the app's **Phone Speaker** to **ON**.



9.2 Search

- Use the **Search** bar to find chats by frequency or channel name.

9.3 Images (RX/TX)

- On RX, the app waits for complete synchronization before displaying an image. Time varies by format/quality.
- On TX, pick a photo, crop the region, choose quality (higher clarity takes longer). See the in-app article for supported formats.

9.4 Logs & Contacts

- **Communication Logs**: Enable Save **Voice Records** and choose retention. Use search to filter large histories.
- **Contacts**: The app logs valid received usernames. Use **Nearby Users** to discover more.
    - Tap a contact to **Call** (rings their radio & phone when online), **Request Location** (honors their privacy setting), or view **Traces** on the map.

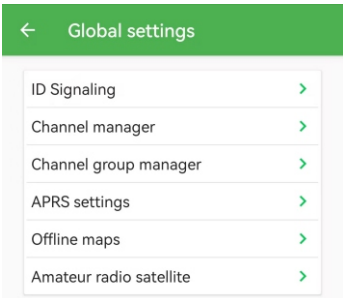
9.5 Maps & Position Reporting

- **APRS users**: Data follows APRS protocol; may be sent/received via gateways and/or RF, per your settings.
- **Non-APRS users**: Data uses **BSS protocol** (RF only; not internet-routed; not APRS-decodable).
- **Map tools**: Search and follow users, choose layers (Map, Satellite, Terrain, Space Station, Amateur Radio Satellite), **Re-center**, **Follow Mode**, and **Display Timeframe**.
- **User actions**: **Send Message**, **Navigate** (launches your installed nav apps), **Follow/Unfollow**, and **Track Management** (import tracks, add markers).

10) GLOBAL SETTINGS

10.1 Channel Management

- Use app presets to quickly populate channels.
- **Create**, **Search**, **Import/Export** channel lists; export to **CSV**.



10.2 Group Management

- Store multiple groups (zones) in the app; click **Sync** to send a group to the connected radio.

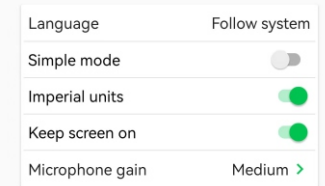
10.3 Offline Maps

- Download offline maps (e.g., Google Terrain)for use offline, or out of cell/ internet coverage. Switching map modes shows any available offline tiles. Navigation prompts display your installed map apps.

10.4 Amateur Radio Satellites (UV)

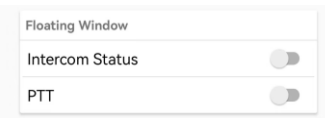
- Add or edit satellites. System defaults cannot be deleted; user-added entries can.

10.5 System Settings



- **Language** follows your phone's system language.
- **Simple Mode**: Show only the currently used channel in the radio's channel interface.
- **Units**: Metric（m, km/h)/Imperial（ft, miles, MPH).
- **Keep Screen On** while the app is active.
- **Microphone Gain** for the phone's mic (affects both Network and Analog channel TX when using the phone mic).

10.6 Floating Window

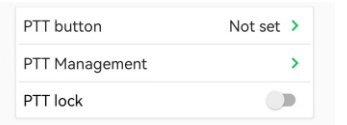


- Persistent overlay with radio status while you use other apps;keeps background operation stable.

10.7 Voice Recording

- Choose retention duration based on your storage needs.

10.8 PTT Key Management



- Map hardware or virtual smartphone keys to PTT.
- Android devices with dedicated PTT buttons are supported.
- **PTT Lock** toggles a latched (hands-free) TX; press again to release.

10.9 Audible Tones

- Customize start/end tones for PTT actions in the app.

10.10 Morse Code

- Set **Speed** and **Pitch**; auto-apply **prefix** and **suffix** identifiers at TX start/end.

10.11 DTMF

- Fine-tune DTMF parameters for interoperability.

11) TROUBLESHOOTING & FAQS

No pairing prompt

- Ensure the radio is in pairing mode (red/green LED alternation).
- Open the phone's notification window to approve the pending **Bluetooth** request.
- Delete old pairings in **Connection Management** and retry.
- Confirm app Bluetooth and Location permissions are allowed.

App asks “Synchronize settings?” every time

- Choose **[Yes]** to keep app & radio aligned, or **[No]** if you use multiple radios and prefer per-radio configurations. You can toggle **Sync Signaling Settings** later.

APRS menus not visible

- You're likely connected to a **GMRS** model. APRS and amateur-only menus appear only when a **UV series** radio is connected.

Map feels slow or cluttered

- Reduce **Display Range**, or disable **Receive Messages via Internet** if you only care about local RF.

Audio Relay causes unexpected transmissions

- Turn **Audio Relay** off on repeater channels. Relay is best for simplex experiments or supervised links.

SSTV/data not audible

- Disable **Digital Mute** if you need to hear data audio streams.

Forgot to back up before a reset

- If you exported groups earlier, re-import the **CSV** or paste a **share code** to restore quickly.

12) SAFETY, COMPLIANCE & SUPPORT

- **GMRS**: Observe FCC Part 95 rules (e.g., license/ID, permissible use, no cross-service operation).
- **Amateur**: Observe Part 97 rules (ID, permitted emissions, power, frequencies).
- **General**: Never relay third-party traffic where prohibited; do not transmit on restricted channels; respect local regulations.

Need help?

- Check the radio's hardware manual for radio-side features and keys.
- App questions: use this manual and in-app help tips.
- If you still have issues, contact BTECH Support (support@baofengtech.com) with your radio model, app version, phone OS/version, and a brief description of the issue.

Revision: v1.0 — 2025-09-03
Covers App Versions: 2025-08 or later (menus may vary slightly with updates).
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