

Handi-Talky Commander



The complete multi-platform command console for modern Amateur Radio handhelds

[Windows](#)[macOS](#)[Linux](#)[Android](#)[iOS](#)[Web](#)

Free · Open Source · August 2026

HTCommander turns your computer, tablet or phone into a full control console for a range of Bluetooth-capable Amateur Radio handheld transceivers. One application replaces a stack of single-purpose tools: channel programming, APRS, Winlink email, a packet terminal, a private BBS, mapping, packet capture, image (SSTV) and voice transmission, plus experimental high-speed data modems — all with a modern, consistent interface across six platforms.

Built for real field conditions, HTCommander is **offline-first** and **privacy-first**: maps, callsign lookups and speech recognition all run locally, and the app sends **no telemetry** to any server.

An Amateur Radio license is required to transmit using this software.

At a glance

License:	Free & Open Source
Platforms:	Windows, macOS, Linux, Android, iOS, Web
Link:	Bluetooth LE control + audio
Messaging:	APRS, Winlink, BSS, Terminal, BBS
Data:	AX.25, AGWPE, SSTV, file transfer
Privacy:	No telemetry · offline-capable

WHY CHOOSE HTCOMMANDER

All-in-one console

Programming, messaging, email, mapping, capture and audio in a single app — no juggling separate utilities.

Works six ways

The same features on Windows, macOS, Linux, Android, iOS and the Web browser.

Offline & private

Local maps, local callsign database and on-device voice recognition. Zero telemetry.

Dual-modem reliability

Hardware and software AFSK modems decode in parallel; the first clean copy wins, no duplicates.

Next-gen speed

The adaptive DART modem targets 1–6 kbps over ordinary FM audio, 3–6× faster than AFSK1200.

Secure messaging

Replay-resistant HMAC-SHA256 authentication for APRS — trust without breaking HAM rules.

MESSAGING & DIGITAL COMMUNICATIONS

APRS — Automatic Packet Reporting System

- **APRS Messaging & Telemetry.** Send and receive text and position messages with automatic channel monitoring, multi-route digipeater selection and live map integration.
 - ▶ **Benefit:** Stay on top of the APRS network while operating on other channels — the app switches frequencies for you.
- **APRS-to-SMS Gateway.** Relay text messages from your radio to ordinary mobile phones through the APRS network (opt-in registration).
 - ▶ **Benefit:** Reach non-licensed family or responders when cellular service is down.
- **APRS Weather Reports.** Request current conditions for any location on demand, delivered as APRS packets via the WxBot service.
 - ▶ **Benefit:** Get field weather with no Internet connection — ideal for events and emergencies.
- **APRS Message Authentication.** Append a 6-digit HMAC-SHA256 token so recipients can verify sender identity and detect replays; verified messages show in green.
 - ▶ **Benefit:** Protect command and emergency traffic from spoofing — authentication only, fully HAM-compliant.

Email, Terminal & BBS

- **Winlink Email.** A full email client for the global Winlink network: compose, send, receive and manage attachments, with automatic gateway frequency switching.
 - ▶ **Benefit:** Send and receive real email over radio when the Internet is unreachable.
- **Packet Terminal.** Direct station-to-station packet sessions over raw AX.25 or APRS frames, with saved connection profiles and per-session channel locking.
 - ▶ **Benefit:** Chat operator-to-operator or connect to remote BBS systems — while still monitoring APRS on another frequency.
- **Built-in BBS & Winlink Gateway.** Host your own private bulletin board with AX.25/APRS/compressed packet support, a text-adventure game and an integrated Winlink relay.
 - ▶ **Benefit:** Provide community packet and email services with no external infrastructure.

Interoperability

- **BSS Protocol (Baofeng / BTech).** Reverse-engineered support for the manufacturer's binary text, location and call-request messages carried in AFSK frames.
 - ▶ **Benefit:** Interoperate natively with stock Baofeng radio messaging features.
- **AGWPE Protocol Server.** A standard AGWPE endpoint (default port 8000) that lets third-party packet applications transmit and receive through your radio.
 - ▶ **Benefit:** Reuse the large ecosystem of existing AGWPE-compatible software.
- **Channel Programming.** Import and export channels in CHIRP CSV format with drag-and-drop reordering in both the app and the radio.
 - ▶ **Benefit:** Bulk-manage and share configurations without tedious manual radio programming.

MODEM & PROTOCOL TECHNOLOGY

HTCommander is more than a control app — it includes a full digital signal processing stack that runs over ordinary FM radio audio, with redundant modems and an adaptive next-generation waveform.

Dual & Software Modems

- **Software AFSK 1200 Modem.** A pure-software 1200-baud AFSK modem with forward error correction runs alongside the radio's hardware modem, both decoding the same audio stream.
 - **Benefit:** More packets recovered on weak signals; automatic fallback and per-packet diagnostics showing which modem decoded and how many bits were corrected.
- **DART Adaptive High-Speed Modem.** A DFT-spread OFDM (SC-FDMA) waveform with LDPC coding that adapts its constellation and code rate to channel quality, targeting 1–6 kbps over FM audio.
 - **Benefit:** 3–6× the throughput of AFSK1200 on good links, with graceful, automatic degradation — and a constant-envelope fallback mode that survives clipping and amplitude distortion.

DART Adaptive Mode Table

Mode	Constellation	Code rate	Net rate	Use
0	BPSK	1/2	1 kbps	Most robust
1	QPSK	1/2	2 kbps	Robust
2	QPSK	2/3	3 kbps	Reliable OTA ceiling
3	8PSK	2/3	4 kbps	Good channels
4	16QAM	3/4	5 kbps	Strong signal
5	16QAM	5/6	6 kbps	Best case
F	4-CPFSK	1/2	fallback	Amplitude-immune

Signal Processing Highlights

- **Waveform:** DFT-spread OFDM, 128-pt FFT, 250 Hz spacing
- **Band:** 400–2600 Hz FM audio passband
- **FEC:** LDPC (rates 1/2–5/6, 802.11n block size)
- **Sync:** Zadoff-Chu constant-envelope preamble
- **Estimation:** decision-directed channel refinement
- **Tracking:** pilot-aided common-phase-error tracking
- **Link layer:** selective-repeat ARQ, adaptive rate
- **Integrity:** CRC-32 payload, CRC-16 header

Supported Protocols & Waveforms

Modulation	AFSK 1200, PSK 2400, SC-FDMA OFDM (DART), 4-CPFSK
Packet formats	AX.25, APRS, BSS (binary), KISS, AGWPE
Error correction	LDPC (802.11n rates), ECC (AFSK softmodem)
Constellations	BPSK, QPSK, 8PSK, 16QAM, continuous-phase FSK
Audio codecs	PCM reference, Bluetooth SBC (32 kHz / 16-bit mono)
Security	HMAC-SHA256 message authentication (replay-resistant)

AUDIO, VOICE & VISUAL

Voice & Audio

- **Speech-to-Text (Whisper AI).** On-device transcription of received audio using OpenAI Whisper models (tiny to medium), with selectable language hints.
 - **Benefit:** Hands-free logging and net monitoring, fully offline — nothing is sent to a cloud service.
- **Text-to-Speech.** Type a message and transmit it as synthesized speech directly over the air.
 - **Benefit:** Send clear voice traffic without a microphone; an accessibility aid for all operators.
- **Voice Clips.** Record, name and level-adjust short audio clips for playback or on-air transmission at any time.
 - **Benefit:** Pre-record callsign IDs, net preambles and standard responses for consistent, effortless repeats.
- **Bluetooth Audio & Recording.** Two-way audio through your computer or a Bluetooth headset, with live visualization and WAV recording of received traffic.
 - **Benefit:** Hands-free operation plus an archive of important nets for later review.

Visual Communication

- **SSTV — Slow-Scan Television.** Send images (PNG/JPEG/BMP) with drag-and-drop and automatically detect and display incoming pictures; Robot36 and many formats supported.
 - **Benefit:** Exchange photos of conditions, damage or events over VHF/UHF — great for field documentation.

MAPPING, LOCATION & DATA TOOLS

Mapping & GPS

- **OpenStreetMap with Offline Cache.** Plot APRS stations on street/topographic maps; select and cache regions to disk for use without Internet.
 - **Benefit:** Full situational awareness in the field, even with no connectivity — and no location data leaves your device.
- **GPS Integration.** Show the radio's GPS lock, coordinates and position pin, with one-tap center-on-me (firmware 0.8.5+).
 - **Benefit:** Automatic position beaconing and instant map orientation.

Analysis & File Transfer

- **Packet Capture & Decode.** Capture live TX/RX packets, auto-decode raw → AX.25 → APRS, inspect bits, and export ranges to CSV.
 - **Benefit:** Debug your station, learn protocols from real traffic, and analyze data in external tools.
- **Torrent File Exchange (experimental).** Decentralized, many-to-many file distribution over a shared frequency using multicast and peer block trading.
 - **Benefit:** Push large files to multiple stations at once — a novel rapid-response data capability.
- **Address Book.** Central store of contacts, callsigns, terminal profiles and authentication secrets.
 - **Benefit:** One-click access to frequent contacts and reusable, pre-configured connection profiles.
- **Offline Callsign / DXCC Database.** Built-in AD1C country-file lookup covering 340+ entities and 7,000+ prefixes, loaded fully in memory.
 - **Benefit:** Instant, Internet-free country identification for DX, logging and network analysis.

PLATFORM SUPPORT MATRIX

Feature	Win	macOS	Linux	Android	iOS	Web
Channel Programming	●	●	●	●	●	●
APRS / BSS / Map	●	●	●	●	●	●
Winlink Email	●	●	●	●	●	●
Terminal / BBS	●	●	●	●	●	●
Packet Capture	●	●	●	●	●	●
Torrent File Exchange	●	●	●	●	●	●
Bluetooth Audio & Recording	●	●	●	●	○	○
SSTV	●	●	●	●	○	○
Speech-to-Text / TTS	●	●	●	○	○	○
AGWPE Protocol Server	●	●	●	○	○	○

● Supported ● Partial ○ Not available

SUPPORTED RADIOS

- BTech UV-Pro
- BTech UV-50Pro
- Radtel RT-660
- Radioddity GA-5WB
- Radioddity DB50-B Mini
- EchoLink (network)
- Vero VR-N75 / VR-N76
- Vero VR-N7500 / VR-N7600

Each radio pairs as two Bluetooth devices — an audio interface and a control interface — both required for full functionality. Audio is 32 kHz, 16-bit mono PCM over the SBC codec.

SYSTEM REQUIREMENTS

Windows

64-bit Windows 10 / 11 · Bluetooth LE adapter

macOS

Universal binary · Bluetooth LE support

Linux

x64 / ARM64 · BlueZ Bluetooth stack

Android

Android 5.0 or higher · Bluetooth LE

iOS

Bluetooth LE support

Web

Chrome / Edge with Web Bluetooth

On-device speech recognition benefits from an AVX-capable CPU. Voice models range from 78 MB (tiny) to 1.5 GB (medium).

AVAILABILITY & DISTRIBUTION

Desktop packages

- Windows: .msi installer (x64)
- macOS: .dmg universal binary
- Linux x64/ARM64: .tar.gz, .deb, .rpm, .AppImage

Mobile & Web

- Android: Google Play or .apk
- Web: in-browser version (Chrome / Edge)
- Source & releases on GitHub

Website: <https://ylianst.github.io/HTCommanderSite/>
Source: <https://github.com/Ylianst/HTCommander>
License: Free & Open Source — see repository LICENSE file

HTCommander is based on the Bluetooth command decoding work by Kyle Husmann (KC3SLD) in the BenLink project, the APRS-Parser by Lee (K0QED), and map data from OpenStreetMap. Country data derived from the AD1C Amateur Radio Country Files. Some features are experimental and evolve between releases; specifications are subject to change. This document is generated from <https://github.com/Ylianst/HTCommander>.