USER MANUAL

HFConverse

SCS PACTOR modem control for Windows, macOS and Linux

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Every screen and setting in HFConverse. To get on the air quickly, start with the Get Going Guides for PACTOR, AMTOR, RTTY, PSK31, Packet and the Modem Mailbox.

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About HFConverse

HFConverse is a cross-platform application for controlling **SCS PACTOR modems**, for Windows, macOS and Linux. It is designed around the **SCS PTC-IIusb** and **PTC-IIIusb**, with the **SCS P4 Dragon (DR-7800/DR-7400)** and **PXdragon DR-9400** also selectable — see *Supported modems*, below, for each model's verification status.

It brings together, in one program:

- A **terminal** for talking directly to the modem.
- **Keyboard-to-keyboard PACTOR QSOs** — live, half-duplex text conversations with another station.
- **RTTY (Baudot)**, **AMTOR** and **PSK31** — the classic keyboard modes, each with its own screen.
- **Image transfer** — send a picture to another HFConverse station during a QSO.
- **QSL cards** — exchange digital QSL cards with other HFConverse operators and keep them in an album.
- **Macros** — user-defined canned messages, fired by button or function key, for QSO and RTTY.
- **On the Air** — announce your PACTOR presence to a live web list of active stations, and see who else is on.
- **Worked Station** — look up a callsign (name, QTH, locator, photo) and see the distance and beam heading to them.
- **QSO logging** — keep a simple log of your contacts (ADIF), see who you've worked before, and optionally feed each QSO to another logger (Log4OM, HRD, DXKeeper) over your network.

HFConverse is amateur-radio software: to use the on-air features you need a licence, a suitable transceiver, and an SCS PACTOR modem connected to your computer.

Working other stations

A PACTOR, RTTY or AMTOR QSO through HFConverse works with **any** station running **any** other PACTOR software — Alpha/Simple32, MixW, Airmail, RMS Express, Paxon and the rest. That's because PACTOR, AMTOR and RTTY are implemented in the modem's own firmware, not in HFConverse: your computer just sends text to your modem and reads text back from it, the same way every other PACTOR program does. The modem-to-modem link on the air is identical no matter what software either operator is running. The only requirement is that the other station has a genuine SCS PACTOR-capable modem at a matching PACTOR level — that's true whatever software they use.

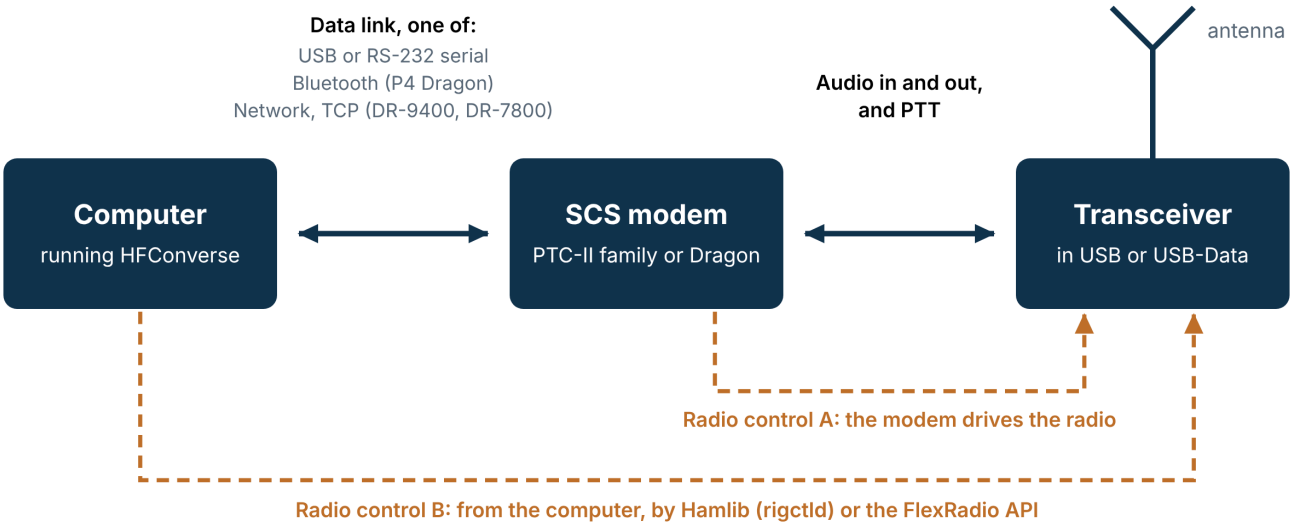
The one feature that's HFConverse-specific is **QSL card and image exchange** (see *QSL cards*, below) — it only works when the other station is also running HFConverse.

Getting started

What you need

- An **SCS** modem connected to your computer: by **USB**, by an **RS-232 serial** port (a COM port, or a USB-to-serial adapter, as with the PTC-IIex), by **Bluetooth** (the P4 Dragon), or over your **network** (TCP, for example the PXdragon DR-9400; see *Connecting over the network*).
- Your transceiver connected to the modem as normal for PACTOR/RTTY operation.
- Your amateur **callsign**.

How it all connects:



Installing HFConverse

Windows has a proper installer. macOS and Linux are still **portable apps** — no `.dmg` or `.deb`/`.rpm`/AppImage yet, you get a zip with a self-contained folder and run the program directly out of it. Whichever way you install, your settings always live in a per-user folder (see *Where your data lives*, below), never inside the program's own folder — so installing, moving, or uninstalling never touches your data.

Windows:

- **Run the installer.** `HFConverse-<version>-win-x64-Setup.exe` installs HFConverse with a Start Menu entry, an optional desktop shortcut, and a proper uninstaller under Windows' **Apps & Features**. No .NET installation needed — it's self-contained. There's no code-signing certificate yet, so Windows SmartScreen will show an "unrecognized publisher" warning the first time you run it — click **More info**, then **Run anyway**. Expected for software shared directly like this, not a sign anything's wrong with the download. It doesn't need admin rights: it asks whether to install for you only (no admin needed) or for all users of the PC (needs admin), and an update keeps the way the earlier version was installed.
- The PTC-IIusb's USB-serial chip (FTDI) is supported by drivers built into Windows 10/11 — it should just appear as a `COM` port once plugged in.

macOS:

- **Needs macOS 11 (Big Sur) or later.** It won't install on macOS 10.15 Catalina or older. It runs on Intel Macs as well as Apple Silicon.
- HFConverse for the Mac comes as a zip containing `HFConverse.app`: one for Apple Silicon (`osx-arm64`) and one for Intel Macs (`osx-x64`). Use the one that matches your Mac.
- On the Mac, unzip and run these one-time commands (macOS's Gatekeeper blocks an app that isn't signed with a paid Apple Developer ID and notarized, which this isn't — these steps are how you tell the Mac you trust it anyway):

```
xattr -cr HFConverse.app                                    # drop the quarantine
flag from the transfer
chmod +x HFConverse.app/Contents/MacOS/HFConverseTerminal    # the zip doesn't keep
the executable bit
codesign --force --deep --sign - HFConverse.app              # ad-hoc signature -
required on Apple Silicon
open HFConverse.app
```

If it's still blocked after that, Control-click `HFConverse.app` in Finder and choose **Open**, or allow it via **System Settings ▸ Privacy & Security ▸ Open Anyway**. You only need to do this once per copy of the app.

- **Drivers.** Modems with an FTDI USB-serial chip (the PTC-IIusb, or a PTC-IIpro/IIex on an FTDI USB-serial adapter) work with the driver built into macOS, so there's nothing to install; the port shows up as `/dev/cu.usbserial-XXXX`. The P4 Dragon needs the SCS driver (see *Connecting on a Mac*, below).
- **P4 Dragon:** if it won't connect over USB, connect it by **Bluetooth** instead.

Linux:

- HFConverse for Linux comes as a zip, normally for `linux-x64` (any mainstream desktop distro, including one running in an x64 VM). An ARM version (`linux-arm64`) can be made if you need one.
- On the Linux machine: unzip, then `bash run.sh` — that's the whole install. Unlike macOS there's no code-signing step to work around.
- Two things that are Linux/VM setup rather than anything to do with HFConverse itself, worth sorting before you plug the modem in:
  - **Serial port access:** your user account needs to be in the `dialout` group (name varies by distro) to open `/dev/ttyUSB0`/`/dev/ttyACM0` without root — `sudo usermod -aG dialout $USER`, then log out and back in.
  - **USB passthrough:** if you're running Linux in a VM, the modem's USB-serial adapter has to be explicitly passed through to the VM in your hypervisor's settings, or it will never show up as a device at all.
- If the app won't start and complains about globalization/ICU, that's a missing `libicu` package on a minimal system, not a corrupt download — install it, or set the environment variable `DOTNET_SYSTEM_GLOBALIZATION_INVARIANT=1` before running `run.sh` as a quick workaround.

Supported modems

HFConverse talks to SCS PACTOR modems over their `cmd:` command interface. Each modem below has been checked command-by-command against its own SCS manual.

What each supported modem can do in HFConverse:

Modem	PACTOR levels	AMTOR	RTTY transmit	Modem mailbox	Modem drives the radio (CAT)	Network (TCP)
SCS PTC-II / PTC-IIpro	1–3*	✓	✓	✓	✓	—
SCS PTC-IIe	1–2	✓	✓	✓	—	—
SCS PTC-IIex	1–3*	✓	✓	✓	—	—
SCS PTC-IIusb	1–3*	✓	✓	✓	✓	—
SCS PTC-IIIusb	1–3	✓	✓	✓	✓	—
SCS P4 Dragon (DR-7800/7400)	1–4	—	receive only	—	✓	✓ DR-7800 with Ethernet
SCS PXdragon DR-9400	1–4	—	receive only	—	set only	✓

* PACTOR-3 needs SCS's Professional firmware licence. Without "Modem drives the radio", control the radio with "PC drives the radio", Hamlib or the FlexRadio API, or set the frequency by hand.

Supported:

- **SCS PTC-II / PTC-IIpro** — the original PTC-II, whose start-up text reads "PTC-II – High Performance HF/VHF/UHF Communications Controller". With the 4.1 firmware it takes the same commands as the PTC-IIusb (PACTOR-1, 2 and 3, the last with SCS's Professional firmware licence), including **transceiver control**. Unlike the PTC-IIe, it can drive the radio, so "Modem drives the radio" is offered. If HFConverse sees that start-up text while another modem is selected, the Terminal suggests this entry once.
- **SCS PTC-IIe** — the economy model of the original PTC-II family (at start-up it shows `PTC-II System 68360/DSP-56156`). It takes the same commands as the PTC-IIusb (PACTOR-1 and PACTOR-2) with one exception: it has **no transceiver control** — the modem answers every `TRX` command with `*** ERROR: PSE TYPE HELP` ("unknown command"). With **SCS PTC-IIe** picked on the Connect screen, "Modem drives the radio" isn't offered as a CAT method; control the radio from the PC with **Hamlib** (or the FlexRadio API) instead, or set the frequency by hand.
- **SCS PTC-IIex** — the PTC-IIex replaced the PTC-IIe in 2003: it looks the same but has a stronger DSP inside, and — like the PTC-IIusb — it can run **PACTOR-3** with SCS's Professional firmware licence, so HFConverse sends up to `MYLevel 3` (a modem without the licence limits itself). Like the PTC-IIe it has **no transceiver control**, so "Modem drives the radio" isn't offered; use **Hamlib** or the FlexRadio API. Pick **SCS PTC-IIex** rather than PTC-IIe, which would cap the level at 2.
- **SCS PTC-IIusb** — PACTOR-1 and 2, plus PACTOR-3 with SCS's Professional firmware licence (see *Max PACTOR Level*).
- **SCS PTC-IIIusb** — PACTOR-1 to 3, with full "Modem drives the radio" CAT control.
- **SCS P4 Dragon (DR-7800/DR-7400)** — PACTOR-1 to 4. Where the Dragon's commands differ from the PTC modems (for example the PACTOR Monitor in place of Listen), HFConverse uses the Dragon's own. Its manual states that **AMTOR-ARQ is not implemented**, so the **AMTOR item in the Mode menu is disabled** on this modem. Its manual also states that **RTTY transmission is not implemented** ("The RTTY operating mode is not implemented!"), so, as on the DR-9400, the RTTY (Baudot) screen works for receive only — **Transmit** and **Send CQ** are disabled with an on-screen explanation.
- **SCS PXdragon DR-9400** (a different, newer product from the P4 Dragon DR-7800/DR-7400 above) — supported **with three limitations HFC enforces automatically**, since the DR-9400's own manual (firmware V1.00.00) states that **RTTY transmission is not**

implemented (receive-only), that **reading the current frequency back from the radio is not possible with the current firmware**, and that **AMTOR-ARQ is not implemented** at all. On this modem: the RTTY (Baudot) screen works for receive only — Transmit and Send CQ are disabled with an on-screen explanation; "Modem drives the radio" works as **set it only**: the modem sets the radio's frequency, but can't read it back, so **The radio can't report its frequency (set it only)** is ticked for you and **Read From Radio** is off — to have the frequency read back too, use PC drives the radio, Hamlib or the FlexRadio API; and the **AMTOR item in the Mode menu is disabled outright**. It can also be connected over your network — see *Connecting over the network*. Everything else, including PACTOR-4, works as on the other modems.

Not supported:

- **SCS PTC-Plus** — incompatible, so it isn't offered as a modem choice. It's an older, PACTOR-1-only design: several commands HFC relies on don't exist on it at all (`FSKAmpl`, `PSKAmpl`, `MYLevel`, `MYSelc`, `SERBaud`), and — most importantly — it has **no transceiver remote-control (CAT) capability whatsoever** at the hardware level (no CAT port, none of `TYpe`/`Offset`/`Frequency`). "Modem drives the radio" simply has nothing to talk to on this modem.
- **SCS Z80-PTC** (the original 1990s SCS PACTOR modem, older than the PTC-Plus) — not offered. It's PACTOR-1-only hardware of the same generation as the PTC-Plus and is treated as unsupported for the same reasons.
- Any other SCS modem not listed above should be assumed unsupported.

Which modem is "active"? HFC has one place that decides this: the modem you pick in the **port selector** when you connect. That choice is remembered and is what drives both the RTTY-transmit and "Modem drives the radio" limitations above — so a Dragon's limitations follow you until you connect with a different modem.

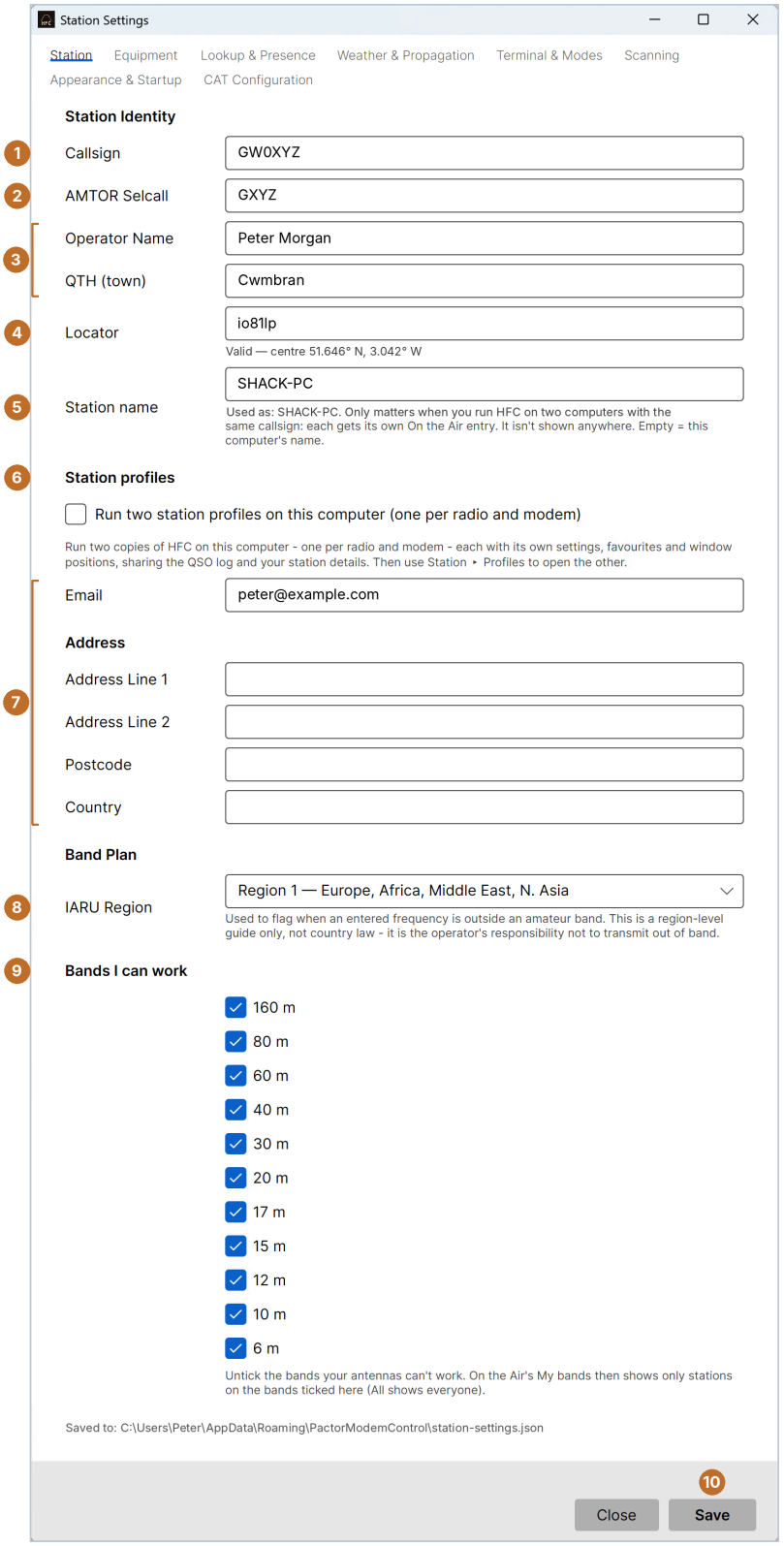
Picked the wrong model? If the modem's start-up message shows it's one of the original PTC-II family (`PTC-II System 68360/DSP-56156` — a PTC-II, PTC-IIe or PTC-IIpro) or a PTC-IIex (`PTC-II System 68360/DSP-56303`) but a different modem is selected, the Terminal says so once. If it's a PTC-IIe, choose **SCS PTC-IIe**; for a PTC-IIex, choose **SCS PTC-IIex**. The modem only prints this message when it starts up, so you won't always see the notice.

HFC also checks the modem's reply to `MYLevel`. If the modem says its last link ran at a higher PACTOR level than the selected model allows (for example level 3 with **SCS PTC-IIe** selected), the Terminal says once that the model is probably wrong.

Changing the modem model. Pick it on the Connect screen, or in **Settings ▸ Equipment ▸ Modem Model** — both change the same setting. Settings is the easy way if you use auto-connect, because the Connect screen is skipped (you can also click **Cancel** during the start-up countdown to reach it). Click **Save**; the new model is used from the next connect. If you're connected when you change it, use **File ▸ Disconnect from modem** and connect again, or restart HFC.

First run: Station Settings

Before operating, open **Settings ▸ Configuration…** and fill in your station details on the **Station** tab. At minimum, set your **Callsign** and **Locator**. The first time HFConverse starts, **Settings opens by itself**: the two settings it needs to get on the air — your **Callsign** (Station tab) and your **Modem Model** (Equipment tab) — are outlined in **red**, their tabs have a red dot, and a red line at the top says what's still needed. The red goes as each is filled in. You can Save with them still empty (HFConverse says so), and Settings then opens again at the next start until they're done. The modem's port is chosen on the Connect screen.



1. **Callsign** — your amateur callsign. Required before you can operate: **Send CQ**, **Auto CQ**, **Connect** / **Call**, **Unproto** and AMTOR **FEC** stay unavailable on every operating screen — with a tooltip or status line explaining why — until this is set, so HFConverse can never key an unidentified transmission.
2. **AMTOR Selcall** — your four-letter AMTOR SELCALL. Left blank, it's worked out from your callsign: the first letter plus the last three (GW0XYZ = GXYZ). With a portable callsign it uses the base callsign (DL/GW0XYZ/P = GXYZ).
3. **Operator Name** and **QTH (town)** — your name and town.
4. **Locator** — your Maidenhead grid (e.g. `IO81lp`), used for distance and bearing calculations. HFConverse checks it as you type and shows the centre of the square.
5. **Station name** — which computer this is. It's filled in with the computer's name, and goes back to it if you clear the box. It only matters if you run HFConverse on **two computers with the same callsign** (say, one per radio): give each a different name and both can be On the Air at once, as two entries, and going off the air on one leaves the other listed. The name itself isn't shown anywhere. If you copied your settings from the other computer, change it so the two differ.
6. **Station profiles** — run **two copies of HFConverse on one computer**, one per radio and modem (say one on 20 m, one on 40 m). Tick **Run two station profiles on this computer**, give each profile a **name** and pick a **colour** (blue, green, amber, red, purple or teal), and Save. Then **Station ▸ Profiles ▸ Open "…"** starts the other one; while it's running the same item reads **Switch to "…"** and brings its window to the front (restored if minimised). On a Mac it reads *Open or switch to the other station profile*. Profile 1 is your normal HFConverse; profile 2 starts as a copy of its settings and favourites, without a modem port or radio port, and with Hamlib port 4534, so set its own modem and radio in its Settings.
   - **Telling them apart:** every window and message box carries the profile's name after its title ("Worked Station — 40 m") and a strip in its colour across the top. After switching profiles on, or changing a name or colour, close HFConverse and start it again: the names and colours appear on the windows from then on (HFConverse reminds you when you save).
   - **Separate:** settings (modem, radio and CAT, levels, sounds…), window positions, favourites, the Terminal's command history, diagnostic logs and mailbox backups.
   - **Shared:** the QSO log (a QSO logged in one shows in the other's QSO Log window and Worked Station at once), macros, the QSL card and album, HFC-Sync and the address book, the names and locators you've typed, and your logins. Your **station details** (callsign, name, QTH, address, locator, region, email) are the same station: saving them in one profile writes them into the other.
   - **On the Air:** each profile goes on the air under its own name, so the two appear as two entries.
   - **No sharing ports:** Settings won't save a modem port, radio port or Hamlib port the other profile already uses. With Hamlib, a rigctld that's set up for a different radio model, or has a different serial port open, isn't used (it would be the other radio) - the Terminal says why. Two identical radios are fine, each on its own port.
   - **Starting HFConverse again from its icon**: while station 1 is running, it opens station 2, so you don't need the menu. With both running, it brings station 1 to the front. Each profile can be open once. Only profile 1 can switch profiles off, and only while profile 2 is closed.
   - **Starting a chosen profile from a shortcut** (for example while one radio is away for repair): start HFConverse with `--profile 2` after it, and it opens profile 2 (`--profile 1`, or nothing, opens profile 1). Profiles must be switched on. On each system:

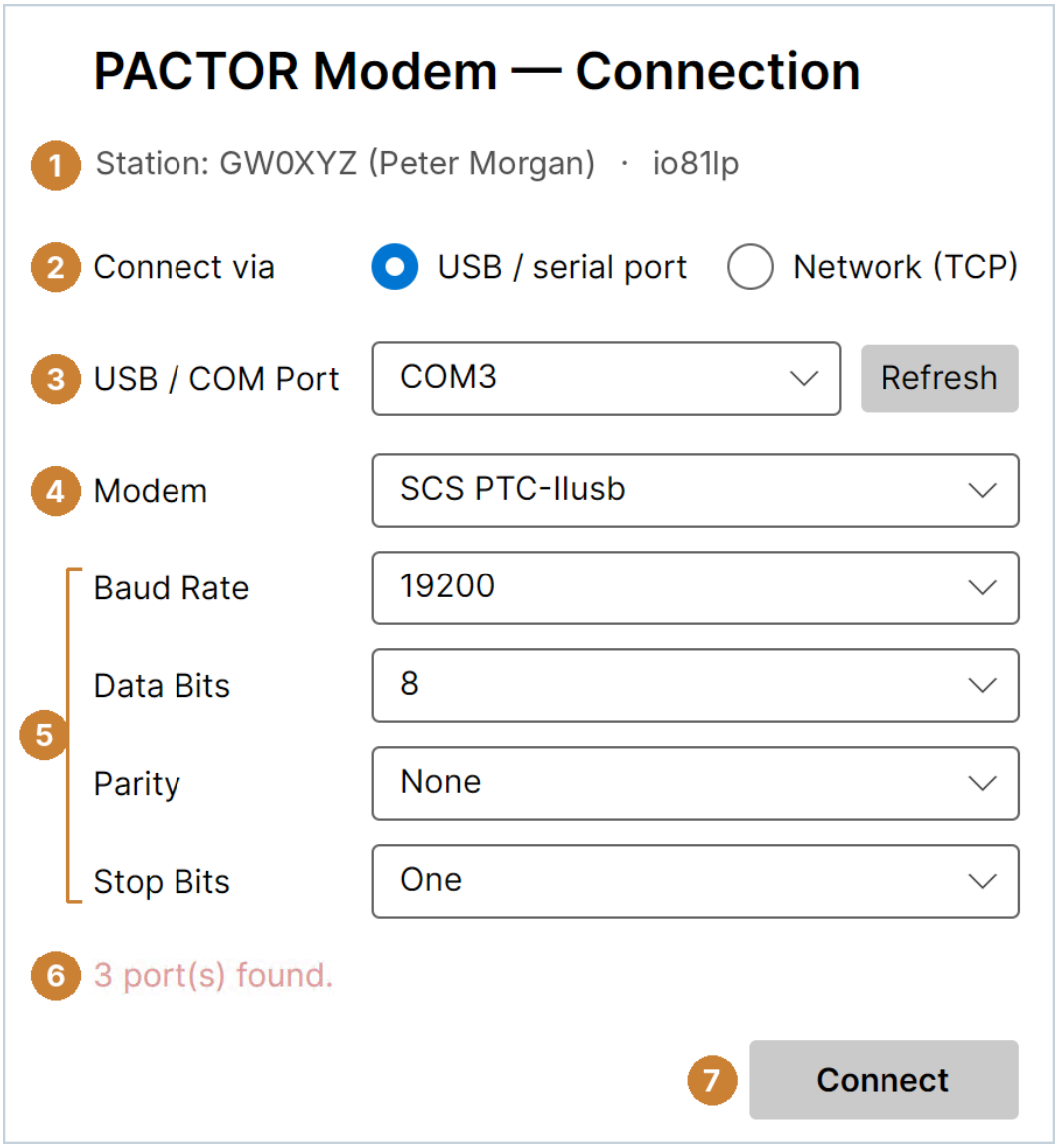
        - **Windows:** right-click `HFConverseTerminal.exe`, **Send to ▸ Desktop (create shortcut)**. Right-click the shortcut, **Properties**, and add `--profile 2` to **Target**, after the closing quote: `...HFConverseTerminal.exe" --profile 2`. Rename it, for example *HFConverse - FT-450D*.
        - **macOS:** in Terminal, `open -n /Applications/HFConverse.app --args --profile 2` (use the folder your `HFConverse.app` is in; `-n` lets it open while profile 1 runs). For something to click, open **Script Editor**, type `do shell script "open -n /Applications/HFConverse.app --args --profile 2"` and save it as an **Application**, for example *HFConverse - FT-450D*; keep it in the Dock or on the Desktop.
        - **Linux:** `./run.sh --profile 2` in HFConverse's folder. For something to click, make a launcher (a `.desktop` file on the Desktop or in `~/.local/share/applications`) with `Exec=/home/you/HFConverse/run.sh --profile 2` - your own path to `run.sh`.
    - **With profiles off, HFConverse runs once on a computer**: starting it again brings the window that's already open to the front and says how to switch profiles on.
7. **Email** and **Address** — optional; kept with your station details.
8. **IARU Region** — used to flag a frequency outside the amateur bands. It's a region-level guide only, not your country's rules: staying in band is the operator's responsibility.
9. **Bands I can work** — tick boxes from 160 m at the top down to 6 m. Untick the bands your antennas can't work; On the Air's **My bands** then shows only stations on the bands you've ticked (see *Seeing who's on*). All are ticked to start with, so nothing is hidden until you choose.
10. **Save** — writes your settings. **Close** without saving asks whether to keep your changes (see *Saving and unsaved changes*).

Then set up radio control on the **CAT Configuration** tab: how (if at all) the radio's frequency is controlled. See *Radio control (CAT)*, below.

> **Where your data lives:** settings, your mailbox, and favorites are stored in your user application-data folder — `%APPDATA%\PactorModemControl\` on Windows, `~/.config/PactorModemControl/` on macOS and Linux. This is separate from the program itself (and from wherever you happen to have unzipped the portable app folder — see *Installing HFConverse* above), so it survives updates and even a full reinstall.

Connecting to the modem

On startup HFConverse either **auto-connects** to your last-used port (if you enabled that in settings and the port is present) or shows the **port selector**.



1. **Station** — your callsign, name and locator, from **Settings ▸ Station**.
2. **Connect via** — **USB / serial port**, or **Network (TCP)** for a modem on your network (see *Connecting over the network*, below). For a network modem the port box becomes its host name / IP address and TCP port.
3. **USB / COM Port** — the port the modem is on. Plug the modem in and switch it on first; press **Refresh** if it isn't listed.
4. **Modem** — your modem model (see *Supported modems*, above).
5. **Port settings** — baud rate, data bits, parity and stop bits. Leave them as they are: if the modem doesn't answer at this rate, HFConverse tries the others (see *Auto-baud*, below).
6. **Status line** — how many ports were found, then how the connection is going.
7. **Connect** — opens the link and takes you to the **Terminal**.

Is the modem really there? Opening the serial port on its own doesn't prove a modem is attached and switched on. So on connecting, HFConverse briefly polls the modem: the status line shows **"Port open"**, then **"Connected"** once the modem actually answers — or **"No response - check modem"** if nothing replies. If you see "No response", check the modem is powered on, plugged in, and that you picked the right port.

Connecting on a Mac. The modem's USB driver must be allowed before macOS will create a port for it: after installing the SCS/FTDI driver, open **System Settings ▸ General ▸ Login Items & Extensions ▸ Driver Extensions** (on older macOS, **Privacy & Security** and click **Allow**), switch it on, and restart if asked. To check, open Terminal.app with the modem plugged in and switched on and type `ls /dev/cu.*` — you should see an entry like `/dev/cu.usbserial-XXXX` (or `cu.usbmodem…`). If you don't, it's the driver, not HFConverse. The port selector on a Mac lists only these `/dev/cu.…` ports, with the USB one first, and hides the `tty.` duplicates and the built-in Bluetooth and debug-console entries (the `tty.` form waits for a signal the modem never sends, so it could silently fail to connect).

Connecting on Linux. Linux names USB serial ports `/dev/ttyUSB0`, `/dev/ttyUSB1`… in whatever order the devices are found, so with a modem *and* a radio on USB the two can swap between boots — HFConverse then opens the radio instead of the modem, and rigctld the modem instead of the radio. Use the permanent names in `/dev/serial/by-id/` instead (see them with `ls -l /dev/serial/by-id/`), e.g. `…FTDI…PTC-IIIusb…-if00-port0` for an SCS modem and `…Silicon_Labs_CP2102…IC-7300…` for an IC-7300. HFConverse's port list shows these by-id names first (an SCS modem at the top) and remembers them. It won't auto-connect to a plain `/dev/ttyUSB…` name — the port selector opens so you can pick the modem's by-id name once. Your user must be in the `dialout` group to open serial ports.

Wrong port? HFConverse checks that what answers really is an SCS modem (its `cmd:` prompt, or two good status replies) before sending anything else. If you pick the radio's port by mistake you'll see "*… looks like an Icom radio's CI-V port, not the modem's*" (or "*Something is sending data … but no SCS modem answered*") and nothing more is sent to it — disconnect and choose the modem's port.

Auto-baud. If the modem doesn't answer at the selected baud rate, HFConverse tries the others (highest first), and only accepts a rate after two valid replies in a row, so line noise can't make it "find" the modem at the wrong rate.

Modem date and time: once the modem answers, HFConverse sets the modem's clock (the SCS `DAte` and `TIme` commands) every time you connect, and notes it in the terminal log (e.g. `*** Set modem clock to 26.09.26 06:58:12 UTC ***`). Some modems, such as the P4 Dragon, have no running clock and wait for the date and time to be set at startup; on modems that keep their own clock this simply corrects it. It's set to **UTC** by default — you can switch to your PC's local time in **Settings ▸ Equipment ▸ Modem ▸ Modem Clock**. If the modem is switched off and on while HFConverse is connected, reconnect to set it again.

> **Auto-connect splash:** if enabled, a short countdown appears on startup before it connects automatically. You can cancel it to go to the port selector instead — for example to choose a different port or modem (the modem can also be changed in Settings ▸ Equipment ▸ Modem Model). The countdown length and whether it's enabled are set in Settings.

> **Startup splash:** when HFConverse launches it briefly shows the HFC logo and version number before the main window appears.

Connecting over the network (PXdragon DR-9400, DR-7800 and others)

HFConverse can talk to a modem directly over your network — no USB cable and no virtual COM port software. The **PXdragon DR-9400** is built for this: it joins your network by Ethernet (LAN) or Wi-Fi and offers its command interface on **TCP port 3000** (fixed — SCS Command Reference §3.12).

1. Connect the DR-9400 to your network (or set up its Wi-Fi — see the modem's `net` menu). By default it gets its address from your router (DHCP).
2. In HFConverse's port selector choose **Connect via ▸ Network (TCP)**.
3. **Host / IP address:** `pxdragon-lan` for Ethernet or `pxdragon-wlan` for Wi-Fi usually works, as those are the modem's own network names. If they don't, use the IP address instead — the modem shows it with the `net ip` command, or look in your router's device list.
4. **TCP port:** `3000`.
5. Choose the modem type and press **Connect**. The baud-rate settings are hidden because they don't apply over the network.

HFConverse remembers the host and port, and **auto-connect** on startup works for a network modem too. The connection line at the top of the Terminal shows it as `tcp://pxdragon-lan:3000`.

> **Good to know:** only one program can use the modem's network port at a time, just like a COM port — close any other program connected to it first. If the connection fails, HFConverse says so in the Terminal log (e.g. "no answer from … within 6 s"); check the modem is on the network (try `ping pxdragon-lan`) and that a firewall isn't blocking port 3000.

P4dragon DR-7800 with the network option. The DR-7800's SER2NET feature is the same kind of plain TCP connection (SCS Installation Guide §5.4), so HFConverse can connect to it directly too — no virtual COM port driver needed:

1. Connect the DR-7800 to your network with the patch cable. By default it gets its address from your router (DHCP). With DHCP switched off (DIP switch 3 up) its address is `192.168.0.100`.
2. Find its IP address in your router's device list. The DR-7800's own web page (enter its IP address in a browser) shows its settings, including the SER2NET **Data Port**.
3. In the port selector choose **Connect via ▸ Network (TCP)**, enter the IP address as **Host**, and the Data Port (default `3000`) as **TCP port**.
4. Choose the modem type and press **Connect**.

This is the same connection Airmail uses for the DR-7800 (`IP address:3000`). The **DR-7400 has no network socket** (USB only); see the next section for putting it on a network.

Running your modem over a network with a virtual COM port (optional)

If your modem needs to be sited away from the computer running HFConverse — a shared shack, a remote receive site, anywhere Ethernet reaches but a USB cable can't — SCS also documents two ways to do this with other modems, and both work with HFConverse completely unchanged, because each one ends in an ordinary virtual COM port that you pick from the port selector exactly like a local one:

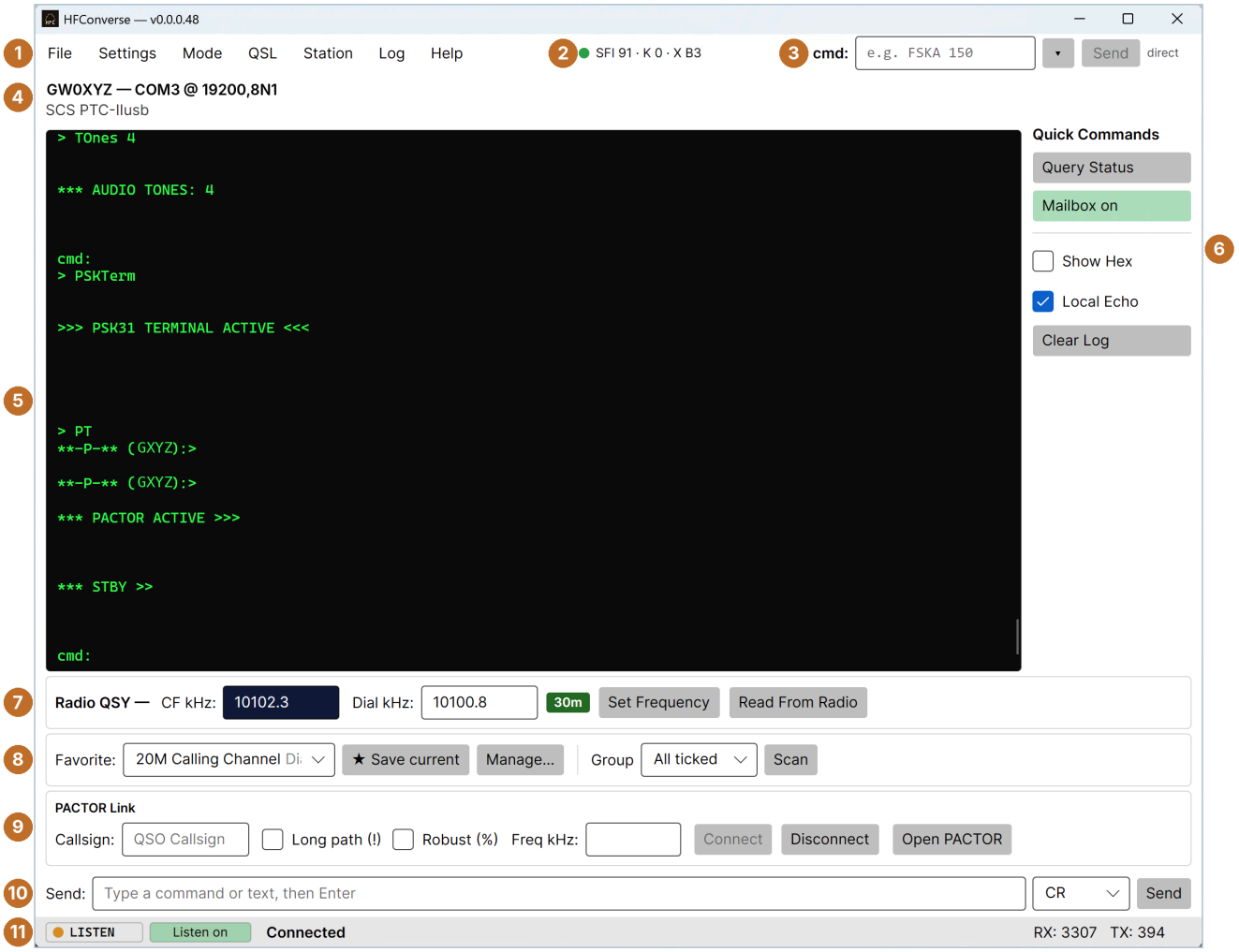
- **Any USB SCS modem** (DR-7400, PTC-IIusb, PTC-IIIusb, etc.) — a USB↔LAN adapter such as the Silex DS-510, paired with Silex's "SX Virtual Link" software on the controlling PC. The adapter's own USB driver (and SCS's normal USB driver for the modem) both still need installing on that PC.
- **DR-7800 with the built-in Ethernet option** — connect it to the network directly and run a SER2NET driver (SCS recommends the free "HW Virtual Serial Port" from HW-group) on the controlling PC, which tunnels the serial stream over TCP/IP. HFConverse can also connect to the DR-7800 directly, without the driver — see *Connecting over the network* above.

Either way, once the virtual COM port shows up in your OS's device list, select it in HFConverse's port selector as normal — HFConverse has no idea the connection isn't local, and needs no configuration for it.

> **One DR-7800-specific limit:** its built-in Ethernet mode can only be claimed by one computer at a time — it isn't a shared network resource, even though it's sitting on your network. If you need to hand control from one PC to another, disconnect on the first before connecting from the second.

The Terminal

The Terminal is the direct line to your modem — everything you type is sent to the PTC, and everything the PTC says comes back in the log. It's both the working screen and the place you switch into other operating modes from.



1. **Menu bar** — File, Settings, Mode (the operating modes, enabled while you're connected), QSL, Station, Log and Help.
2. **HF conditions** — the solar flux (SFI), K index and X-ray level. The dot is green when conditions are quiet, amber unsettled, red disturbed. Click it for the HF Conditions window (see *HF conditions*).
3. **cmd: box** — modem commands from any screen (see *The cmd: box*, below).
4. **Connection** — your callsign, the port and its settings, and the modem model.
5. **Log** — everything the modem says, and what you send.
6. **Quick Commands** — Query Status, Mailbox on/off, Show Hex, Local Echo and Clear Log.
7. **Radio QSY** — set the frequency as centre frequency (CF) or dial (see *Frequency and favorites*).
8. **Favorites** — saved frequencies, and the favorites scan (see *Scanning the favorites*).
9. **PACTOR Link** — call a station from the Terminal, or jump to the PACTOR screen.
10. **Command box** — sends exactly what you type, with the line ending chosen beside it.
11. **Status bar** — the modem state and **Listen** button, the connection status, and bytes received and sent.

Each part is described below.

- **Log** — the main area shows the running conversation with the modem. Sent commands are prefixed with `>`. Right-click a selection for **Copy**, or **Add selection to Callsign** to feed a callsign straight into the PACTOR Link panel below. The right-click menu also has **Clear log**, which empties the log (the same as the Clear Log button).

> **Text too small?** You can make the console text bigger. Press **Ctrl + plus** to enlarge it, **Ctrl + minus** to shrink it and **Ctrl + 0** to go back to the default — on a Mac use **Cmd** instead of Ctrl. It works from any screen and changes the Terminal log, every **Received** pane, the **Outgoing queue**, the **Compose** boxes and the **Modem replies** strip together, straight away. The size (10–24 point, default 14) is remembered, and can also be set in **Settings ▸ Terminal & Modes ▸ Text size**. Menus, buttons and labels aren't affected — for those, use **Settings ▸ Appearance & Startup ▸ Interface size** or your operating system's display scaling.

> **Green on black hard to read? Settings ▸ Appearance & Startup ▸ Text colours** changes the colours of the same text — the Terminal log, every Received pane, your own pane, the Outgoing queue and the Compose boxes — from **Save** onwards, on every open screen. There are three schemes: **Classic** (their text green, yours yellow, on black — the default), **Black on white** (theirs black, yours dark blue) and **White on black** (theirs white, yours yellow). Their text and yours always stay different colours, and the link borders, the greyed "waiting" and "sent, not yet confirmed" text and the selection follow the scheme. People's eyes differ (the RNIB says good contrast matters more than any one colour pair), so try each and keep whichever is easiest for you, together with **Text size**.

The modem's text in the Terminal in each scheme (your own text is yellow in Classic and White on black, and dark blue in Black on white):

Classic

```
*** T/R-REVERSE PARAMETER: 0
*** PACTOR ACTIVE >
*** STBY
*** LISTEN-MODE: 1
*** AUDIO TONES: 4
*** T/R-REVERSE PARAMETER: 0
*** PACTOR ACTIVE >
*** STBY
*** LISTEN-MODE: 1
```

Black on white

```
*** STBY
*** LISTEN-MODE: 1
*** AUDIO TONES: 4
*** T/R-REVERSE PARAMETER: 0
*** PACTOR ACTIVE >
*** STBY
*** LISTEN-MODE: 1
*** HIGHEST POSSIBLE PACTOR LINK LEVEL: 3
*** LINK LEVEL OF ACTUAL/LAST LINK: 0
```

White on black

```
*** AUDIO TONES: 4
*** T/R-REVERSE PARAMETER: 0
*** PACTOR ACTIVE >
*** STBY
*** LISTEN-MODE: 1
*** HIGHEST POSSIBLE PACTOR LINK LEVEL: 3
*** LINK LEVEL OF ACTUAL/LAST LINK: 0
*** HIGHEST POSSIBLE PACTOR LINK LEVEL: 3
*** LINK LEVEL OF ACTUAL/LAST LINK: 0
```

- **Command box** — sends exactly what you type (press Send or Enter). The line-ending (None / CR / CRLF) is selectable; CR is the PTC default. For modem commands, especially during a link, use the **cmd:** box in the menu bar instead (see below).
- **Quick Commands** — buttons for common actions (Query Status, Mailbox on/off, Show Hex, Local Echo, Clear Log). **Mailbox on / Mailbox off** (PTC modems only) opens or closes your modem's mailbox to callers — see *Modem Mailbox*. **Listen on/off** (**Monitor on/off** on a P4 Dragon or DR-9400, see *Listening to the channel*) is at the bottom left of the screen, beside the modem state box, as on the PACTOR and AMTOR screens.
- **PACTOR Link panel** — **Callsign**, **Long path (!)**, **Robust (%)** and an optional **Freq kHz** (if PTC transceiver control is set up), plus **Connect**, **Disconnect** and **Open PACTOR** (jumps straight to the PACTOR screen). Connect is only enabled when no link is up; Disconnect is available whenever the modem is connected, so you can always end a link. See *Operating HFC*, below, for a full walkthrough.
- **Hex view** — toggles a hexadecimal view of the raw bytes, useful for troubleshooting.
- **Local echo** — shows what you send inline in the log.
- **Live status bar** — decodes the PTC's status byte so you can see the current mode and whether you're transmitting or receiving. Status changes are shown **only** in the status bar, not as `[STATUS]` lines in the log, where in Listen mode they would come several times a

second and break up the text you're monitoring. To see the lines for troubleshooting, tick **Settings ▸ Terminal & Modes ▸ Show modem status changes in the log** (it takes effect when you press **Save**); the diagnostic log records every change either way. During an Unproto or FEC transmission the modem reports a change about every second (REQUEST, IDLE, TRAFFIC), so only the first line of the transmission is shown; the diagnostic log still has them all.

- **Disconnecting from the modem** — use **File ▸ Disconnect from modem** (above Exit). It's only available on the Terminal (close a mode screen first). If a PACTOR link is up, the modem is busy on the air or the favorites scan is running, it asks first; otherwise it disconnects straight away. Not to be confused with **Disconnect** in the PACTOR Link panel, which ends a link and stays connected to the modem.
- **Reconnecting to the radio** — if you switch the radio off and on while HFConverse is connected, use **File ▸ Reconnect to radio**. HFConverse opens the connection to the radio again with your saved CAT settings and reads the frequency to show it works; the Terminal says *[Reconnecting to the radio]*, then *[Connected to …]* or why it couldn't. A rigctld that HFConverse started itself is started again too. It works on any screen and doesn't touch the modem or a link; with **Modem drives the radio**, it waits until a link or transmission has ended. It's greyed out until you're connected to the modem with radio control set up (Settings ▸ CAT Configuration).
- **Terminal window** — **Station ▸ Show Terminal window** opens the live Terminal log in a window of its own, which you can keep beside the PACTOR or AMTOR screen. Those screens show only the QSO; the Terminal window lets you see the modem's background activity (Listen frames such as `[CONNECT FRAME: …]`, its status lines and HFConverse's own notes) at the same time. It shows exactly what the Terminal log shows, live; it's display only (send modem commands with the **cmd:** box), with **Copy** and **Clear log** on right-click, and it says *Not connected to the modem* between connections. To have it open every time, tick **Always show the 'Terminal' window on startup** in **Settings ▸ Appearance & Startup**.

The cmd: box (modem commands, on every screen)

At the right-hand end of the menu bar is a **cmd:** box for sending commands straight to the modem, like the command window in SCS's own Alpha program. It's available on every screen (Terminal, PACTOR, AMTOR, RTTY, PSK31) whenever the modem is connected. While the Packet screen is open it reads **pac:**: the modem is then in its Packet menu, and what you type goes to that menu.

- Type a command and press **Enter** (or click **Send**). The modem's reply appears in the Terminal log. On the **PACTOR** and **AMTOR** screens it also appears in a small **Modem replies** strip just above the Received pane — the command you typed, with the modem's answer under it — so you can check the time, a level or the frequency without leaving the QSO. The strip stays hidden until you send a command; **Clear** empties it. (With *Show transmitted text live* turned off in Settings, the modem mixes its replies in with the received text, so they appear in the Received pane instead.) On the other mode screens the reply appears in the Received window.
- **Up / Down arrows** step back and forward through the commands you've sent. The ▾ button lists recent commands; click one to put it back in the box, ready to edit or send. The last 50 are remembered between sessions.
- The small label after the box shows how the command will reach the modem:
  - **direct** — the modem is at its `cmd:` prompt (standby or Listen), so the command is sent as typed.

    - **via ESC** — the modem is in **converse mode** (during a link or a connect attempt, an Unproto/FEC broadcast, or while RTTY or PSK31 is running). Anything typed in converse mode normally goes on air as text, so HFConverse puts the ESC character in front. The modem then treats the line as a command and nothing is transmitted. As the SCS manual specifies, ESC covers one command, and HFConverse sends a fresh ESC with each one.
    - from the moment you start a call (Connect on the Terminal or the PACTOR screen) until the modem reports CONNECTED, DISCONNECTED or STBY, every command goes **via ESC** — the modem is already in converse mode while it calls, before its status reports show it.
- **`D`, `DD` and `Disconnect` always go via ESC**, whatever the label shows. At the `cmd:` prompt the ESC does no harm; during a call or link it makes sure the stop command reaches the modem instead of going on air as text.

Commands can be abbreviated as the SCS manual allows (for example `FSKA` for `FSKAmpl`). A command typed without a value shows the current setting.

This is different from the Terminal's own **Command box**, which sends exactly what you type with no ESC. That's handy at the `cmd:` prompt, but during a link it sends text to the other station.

> HFConverse decides between "direct" and "via ESC" from the screen you're on and the modem's status reports. If a command ever goes on air as text, or the modem just redisplays its prompt, please report it with the diagnostic log (see *Help, About & supporting HFC*).

Everyday uses

- **Check or trim your transmit level mid-QSO:** `FSKA` shows the FSK level; `FSKA 150` sets it. (`PSKA` for PACTOR-2/3.) Safe during a link, since it goes via ESC.
- **See what PACTOR level the link is running at:** `MYL` (MYLevel) shows your maximum level.
- **Turn Listen mode on or off** without going back to the Terminal: `L 1` / `L 0`.
- **Read the radio's frequency through the modem** (PTC transceiver control): `TRX F`.
- **Close a link from any screen:** `D` via ESC does the same as the **End QSO** and **Disconnect** buttons, and SCS's `DD` drops the link immediately without waiting.
- **Change the modem's serial speed:** `SERB 57600`. HFConverse reminds you that this only takes effect after the modem is power-cycled, and you then need to reconnect.

If you're not sure what a command does, check your modem's SCS manual before sending it. Some commands (for example `RESTart`) reset the modem to factory settings.

Listening to the channel

Listen puts the modem into monitor mode: it decodes PACTOR and Unproto traffic it overhears without taking part, so you can see who is working whom on a frequency. It only works while you're in standby, not during a link of your own — and it's also what the PACTOR screen turns on automatically so an incoming call can be answered.

Listen starts **off** when HFConverse connects to the modem. To have it come on by itself, tick **Start HFC with Listen on** (Settings ▸ Terminal & Modes, under Terminal Defaults; off by default). Once HFConverse has connected and finished setting up the modem, Listen goes on just as if you'd pressed the button: orange until the modem confirms, then green. On a P4 Dragon or DR-9400 the PACTOR Monitor goes on instead.

> **Expect the status line to go quiet while Listen is on, and don't read that as a fault.** With Listen off, the modem is continuously assessing whether the channel sounds busy, and reporting each time that changes — that's the STANDBY / CHANNEL-BUSY traffic you'll see scrolling in the log. It stops running that check while it's monitoring, so there is nothing left to report until it actually decodes something. Reports resume the moment it does, including `[CONNECT-FRAME: CALL]` when it hears a station calling someone.

> **P4 Dragon and DR-9400: the PACTOR Monitor instead of Listen.** On the Dragons, `L 1` is only there for PTC-II compatibility: the modem answers `LISTEN-MODE: 1` but monitors nothing. They have the **PACTOR Monitor** (`PMONitor`) instead, which is better: it reads PACTOR-1, 2 and 3 together (or PACTOR-4), copes with about ±100–240 Hz of mistuning and recognises the sideband by itself. With a Dragon selected, the button at the bottom left of the Terminal and of the PACTOR screen reads **Monitor on / Monitor off** and switches it (either one; the other follows); monitored text appears in the Terminal and in the PACTOR screen's **Received** pane, and heard calls appear as `[CONNECT FRAME: …]`. Text can appear a second or two (at most about six) after it was sent. `PMON Mode 4` monitors PACTOR-4 instead of 1–3 (`PMON Mode 3` goes back). Note SCS's warning: **while the monitor runs, the Dragon answers calls to your own callsign less readily** — it needs a stronger signal and responds a packet late — so HFConverse never switches it on by itself (the PACTOR screen doesn't send `L 1` to a Dragon), and it switches it off when you use **File ▸ Disconnect from modem**.

Text the modem decodes while its `cmd:` prompt is showing starts on a new line in the Terminal log, not on the end of the `cmd:` line.

From the Terminal you reach the other operating modes via the **Mode menu** (see below). The Terminal stays available while you're in another mode — switching modes never drops your connection.

Operating modes (the Mode menu)

Operating modes are chosen from the **Mode** menu in the menu bar. The menu is enabled only while you're connected:

- **PACTOR** — live keyboard-to-keyboard conversations (the PACTOR screen).
- **AMTOR** — keyboard-to-keyboard AMTOR ARQ, PACTOR's older ARQ cousin, plus an FEC-based CQ broadcast. See *AMTOR*, below.
- **RTTY** — Baudot radioteletype.
- **PSK31** — a narrow, modern alternative to RTTY.
- **Packet** — Robust Packet and 300 Bd packet on HF, one station at a time. See *Packet (Robust Packet)*, below.
- **Fax…** — receive HF fax (weather charts), decoded by HFConverse from the radio's audio, so on any modem; the modem is left as it is. See *Fax (Mode ▸ Fax)*, below.

Terminal is at the bottom of the menu.

CW isn't offered. The modem's own CW decoder proved too unreliable on live signals, so HFConverse has no CW mode.

Switching to a mode keeps your modem connection alive; closing the mode screen returns you to the Terminal exactly as you left it. You can go **straight from one mode to another** — for example from the PACTOR screen to AMTOR — by picking it from the Mode menu. HFConverse

first closes the screen you're on exactly as its **Close** button would (including leaving RTTY, PSK31 or AMTOR properly, which can take a few seconds), then opens the new one. If a PACTOR link, CQ or Unproto is still running on the PACTOR screen, it asks you to end it first, so nothing gets sent on air by mistake. **Mode ▸ Terminal** (at the bottom of the menu) takes you back to the Terminal from any mode screen; it does exactly what that screen's **Close** button does. The mode you're already in is greyed out in the menu, as **Terminal** is while you're on the Terminal.

From **RTTY** or **PSK31** you can switch while you're receiving; HFConverse just stops RTTY or PSK31 on the way. If something is still going out, it asks first instead of refusing:

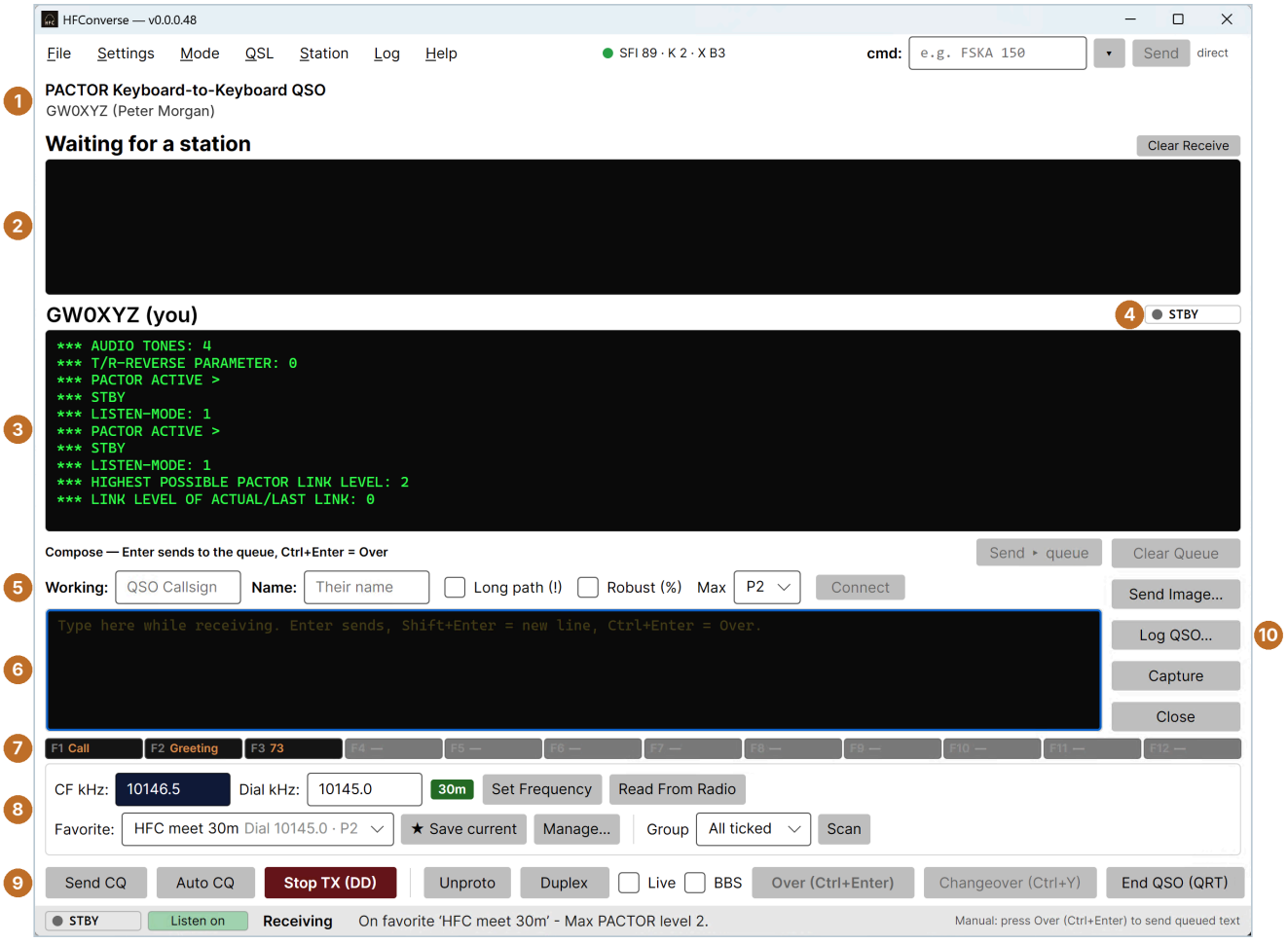
- **RTTY or PSK31, while you're sending:** "*Stop sending and switch?*" — **Stop and switch** or **Cancel**.
- **PACTOR, CQ / call / Unproto running:** "*Stop it and switch?*" — HFConverse sends Stop TX (DD), then switches.
- **PACTOR, link up:** "*End the QSO and switch?*" — a normal **End QSO** (queued text and 73, then QRT); HFConverse switches once the link has closed. If it hasn't closed within about a minute, it stays where it is and says so.

While the switch is under way (leaving RTTY or PSK31 takes about a second while the modem confirms), a small **"Switching from RTTY to PACTOR…"** banner shows over the screen. It isn't a dialog: it goes by itself when the new screen opens.

PACTOR Keyboard-to-Keyboard QSO

A keyboard-to-keyboard QSO is a live, two-way text conversation with another station over a PACTOR link. Because PACTOR is **half-duplex** — only one station transmits at a time — HFConverse uses a **type-ahead, send-when-it's-your-turn** model rather than sending every keystroke immediately (unless you choose *Live text*, below).

The screen layout



1. **Mode and station** — the screen you're on, with your callsign and name.
2. **Their side** — the other station's callsign (here *Waiting for a station*) and their text. **Clear Receive** empties it.
3. **Your side** — what you've sent, with the modem's `***` lines.
4. **Modem state** — the same state box as at the bottom, at the right of your callsign heading where it's easy to see during a QSO.
5. **Working line** — their callsign and name, **Long path**, **Robust**, **Max** and **Connect**.
6. **Compose** — type your next over while they're still sending; **Send ▸ queue** on the line above puts it into the queue.
7. **F-key strip** — your macros (see *Macros*).
8. **Radio** — CF and dial frequency, the band, **Set Frequency** and **Read From Radio**; on the line below, your favorites and the scan.
9. **Action row** — **Send CQ**, **Auto CQ**, **Stop TX (DD)**, **Unproto**, **Duplex**, **Live**, **BBS / Mailbox**, **Over**, **Changeover** and **End QSO**.
10. **Beside Compose** — **Clear Queue**, **Send Image…**, **Log QSO…**, **Capture** and **Close**. The status strip is along the very bottom (see *The screen at a glance*).

The PACTOR screen shows the two sides of the QSO **stacked**, from top to bottom:

- **Received** (top) — the other station's text, in green, under their callsign in large type, with **Clear Receive** beside it. If the other operator corrects a typing mistake as they go, their program sends a backspace for each deleted character; HFConverse applies it, so you see only the corrected text. The same applies on the Terminal, AMTOR, RTTY and PSK31 screens.

The Received text is **kept for the whole connection to the modem**: if you close the PACTOR screen (to go to the Terminal, say) and open it again, everything is still there. Anything that arrived while the screen was closed is added under a "**---** *heard while the PACTOR screen wasn't open* **---**" line, including PACTOR traffic the Terminal heard before you first opened the screen. Only PACTOR traffic is collected: anything received in AMTOR, RTTY or PSK31 stays on its own screen. AMTOR keeps its text the same way. It's cleared when you disconnect from the modem, or with **Clear Receive**.

Finding text. Press **Ctrl+F** (**Cmd+F** on a Mac) to search the Received text — here and on the AMTOR, RTTY and PSK31 screens, and the log on the Terminal. A small find box opens at the pane's top right: type what you're looking for (capitals don't matter). **Enter** or ▼ goes to the next match, **Shift+Enter** or ▲ to the previous one, and the box shows, for example, *2 of 5*. Each match is selected and scrolled into view, so you can copy it straight away. While the find box is open the pane stays put when new text arrives; **Esc** closes it.

Selecting all of it. Click into Received (or any green text pane) and press **Ctrl+A** (**Cmd+A** on a Mac), or right-click ▸ **Select all**, to select all its text; then **Ctrl+C** or right-click ▸ **Copy** copies it. While it's selected, new text doesn't pull the pane down; a click clears the selection.

- **Your text** (middle) — what you've sent, in yellow, under your own callsign, with your modem's `***` lines and HFConverse's notes in green. Text waiting for your over (the **Outgoing queue**) shows **greyed** at the foot of this pane, then turns yellow as it's sent; **Clear Queue** removes it. Drag the divider between the two panes to change their heights; HFConverse remembers it.
- **Compose** (bottom, full width) — where you type your next over while the other station is still sending. The **Working** / **Connect** line sits above it, **Send** is at the right of the Compose heading, and the **F-key strip** is underneath. The reply you're answering is straight above where you type. The **Macros…** window is on the **Settings** menu (see *Using a macro*).

The screen looks the same with **Duplex** on or off.

Your own text is yellow and the other station's is green (in the Classic text colours — see *Text colours*), so the two sides of the QSO stand apart at a glance. The AMTOR, RTTY and PSK31 screens use the same colours. HFConverse's own notes, such as `>> [frequency 14105 kHz]`, stay green, and so does the whole Terminal log, where most of what you send is modem commands.

A note never lands in the middle of a line the other station is still sending. If a received line is part-way through, the note waits until that line ends (or about a second and a half at most), then appears on a line of its own.

Every line of a multi-line CQ, over, changeover text or End QSO text shows in your colour. HFConverse sends line breaks as a plain CR, the usual PACTOR line ending, so no extra line-feed character goes out on air. The modem's own `***` status lines always start on a new line, without its `>>` prompt after them (`*** STBY` rather than `*** STBY >>`).

Below Compose is the action row: Send CQ, Auto CQ and **Stop TX (DD)**; the **Unproto** toggle (see *Unproto QSO (no connection)*), the **Duplex** button and the **Live** tick box (see *PACTOR Duplex* and *Live text*); Over, Changeover and End QSO. **Clear Queue**, **Send Image…**, **Log QSO…**, **Capture** and **Close** are in a column to the right of Compose, evenly spaced from the Compose heading down to the foot of the Compose box. **Log QSO…** logs the contact — see *Logging a QSO*. Above the Received pane, a small **Modem replies** strip appears when you send a command from the cmd: box (see *The cmd: box*).

Seeing and hearing the link. On a poor link there may be no welcome text to tell you you're connected, so HFConverse shows and plays it:

- While a PACTOR or AMTOR link is up, the **Received** pane gets a **yellow** border. With **Duplex** on, your own pane is yellow and the worked station's pane **green**, like the text inside them. Both go back to grey when the link ends.
- Two short notes **going up** play when a link connects, and the same two **going down** when it ends, whichever screen you're on (the Terminal too). A call that never connects stays silent. Turn either off in **Settings ▸ Terminal & Modes ▸ Sounds**. HFConverse makes the sound itself, so it's the same on Windows, Mac and Linux; on Linux it needs `paplay` or `aplay`, and if a computer can't play it, nothing else is affected.

A CQ heard while listening. Tick **Settings ▸ Terminal & Modes ▸ Sounds ▸ Play a sound when a CQ is heard while listening** (off to start with) and HFConverse plays two short high pips when someone calls CQ, so you can look away and still know to come back. It only listens for this while **Listen** (or the **PACTOR Monitor** on a Dragon) is on, on the Terminal or the PACTOR screen, and nothing of yours is running: no link, CQ, call or favorites scan. It needs the word **CQ** followed closely by a callsign that looks right and whose prefix HFConverse knows (as for the flags in Worked Station), e.g. `CQ CQ CQ de DL1ABC`; your own callsign and your own lines never count, and garbled text is ignored. You hear it once per station every five minutes at most. It only plays the sound; nothing else changes on screen.

Calling a station from this screen

Above Compose is one line with the **Working** box (the other station's callsign), **Name** (see *Their name*), **Long path (!)**, **Robust (%)**, **Max** and **Connect**. To call a station, put their callsign in **Working** (type it, or select it in Received, right-click and choose **Add selection to working callsign**). Tick Long path or Robust only if propagation calls for them (see *The connect controls*), then press **Connect**. The status line shows "Calling …", and the top strip shows whose turn it is once the link is up.

Portable callsigns. PACTOR modems don't accept a "/" in a callsign: a P4 Dragon refuses `C DL/G4QRS` with "Invalid value" and sends nothing. So when **Working** holds a callsign with a "/", such as DL/G4QRS or G4QRS/P, HFConverse calls the base callsign (G4QRS) and says so in the Terminal; **Working**, the macros and your log keep the full callsign. Your own callsign is treated the same way: with a "/" in it, the modem gets the base callsign as its own (MYcall), so other stations call you by that, and your CQ text, macros and log keep the full one. Settings accepts your callsign with a "/" (letters, digits and "/", up to 16 characters, such as DL/G4QRS/P); only the base callsign has to be 2 to 8 characters, since that's what the modem uses. **On the Air** announces the full callsign.

The path to them. The PACTOR screen shows how the path to the station in **Working** looks on the frequency you're on, without opening Worked Station. As soon as Working has a callsign whose locator is known (from QRZ or HamQTH, On the Air, or one you typed in Worked Station), the **Working** box gets a **green**, **amber** or **red** outline — good, marginal or closed — and the end of the Compose heading line says, for example, *Path to G4QRS on 10146.5 kHz: good (MUF ≈ 14.2 MHz)*. Hover over either for the reason. It's the same estimate as the Path in Worked Station and the dot in On the Air, for the frequency in the **CF** box, and it updates when you change frequency and as new ionosonde readings arrive. Nothing is shown with **HF conditions** switched off (Settings ▸ Weather & Propagation), without a locator for them or for you (Settings ▸ Station), or when there's no ionosonde near the path. It's a guide only: PACTOR also needs a strong enough signal. When the band reports show your area and theirs heard together on that band in the last 30 minutes (see *The Path dot*, under On the Air), the outline is green and the line says *heard now*, with the estimate in brackets, so it agrees with On the Air. The Terminal's **PACTOR Link Callsign** box does the same: it's outlined in the same colours, and the line appears after the *PACTOR Link* heading, for the **Freq kHz** typed beside it or, without one, the **Radio QSY** CF.

Is the other station using HFConverse? At the start of each PACTOR link, HFConverse sends one short line, `[HFC MSG]` — the station called sends it at the start of its first over, and the station that called sends it once that first over has arrived (not at all if a mailbox answers). Another HFConverse station hides the line and shows a small **HFC** tag next to **OTA** in the top bar: **green** when their line has arrived (confirmed), **amber** when they're on the On the Air list but nothing has come yet (probably HFC), and **grey** when it isn't known. Hover over the tag for the details. Received gets a note such as *[OH2PQR is using HFConverse - QSL cards can be exchanged]*, and their pane's heading shows *HFC*. A QSL card from them counts too. Other programs just show the line, which does no harm. The Terminal hides it too and says *[OH2PQR is using HFConverse]* instead: it doesn't mean a message is waiting. When one is, the Terminal says so, for example *[OH2PQR has 2 HFC-Sync messages for you]*. The **QSL card exchange** needs HFConverse at both ends, so **Send my QSL Card** (in the image window) only works with a station confirmed as HFConverse; until then it's greyed out and says why. **Send Image…** works with anyone. It's the base for features that need HFConverse at both ends, such as moving to a new frequency together (see *Moving to a new frequency together (HFC QSY)*) and HFC-Sync (see *HFC-Sync (Mail menu)*).

Which PACTOR level? A few seconds into your own PACTOR link, HFConverse asks your modem which level the link is running at — the question goes to the modem only, nothing goes on air — and shows it as a blue tag next to **OTA** and **HFC** in the top bar: **PAC1**, **PAC2**, **PAC3** or **PAC4**. It asks once more a little later, because a link can start low and step up in its first seconds. Received gets a note such as *[Link is PACTOR-3]*, and hovering over the tag shows the level, your own highest level (Settings ▸ Max PACTOR Level), and whether the other station or the conditions set it lower. The tag goes when the link ends. The level also goes into the log (see *The QSO log*). This works with any PACTOR station, HFConverse or not.

Connect is only available when no link is up and Auto CQ isn't running. It sends the same PACTOR connect as the Terminal's PACTOR Link panel, which still works and also has the **Freq kHz** option.

Because the PACTOR screen switches Listen on when it opens, you can do a whole contact from here: listen, pick the callsign off their CQ, **Connect**, work the QSO, then **End QSO (QRT)**. There's no need to go back to the Terminal.

How a QSO flows

1. While the other station transmits, **type your reply** into Compose.
2. Press **Enter** (or **Send**) to move it into the **Outgoing queue**. Nothing goes on air yet. **Shift+Enter** starts a new line without sending.
3. When it's your turn, the queue is **released to the modem** — either manually or automatically, depending on your over-mode setting — and the link is then **handed to the other station** once your text has gone out.

The strip at the top of the screen shows whose turn it is: **Transmitting (our over)** or **Receiving**.

The whole QSO can be run from the keyboard. In **Compose**, **Enter** sends (to the Outgoing queue, or straight out with PACTOR Duplex or Unproto), **Shift+Enter** starts a new line within your over, **Ctrl+Enter** is **Over** (what you've typed joins the queue, then it all goes out and the link is handed over) and **Ctrl+Y** is **Changeover / break-in**. After you click Send, Over, Changeover, Stop TX or the other action buttons, the cursor goes back into Compose. Prefer your words to go out as you type them? See *Live text*, below.

Over-mode: Manual vs Auto-flush

Set in **Settings ▸ Keyboard-to-Keyboard (QSO)**:

- **Manual** (default) — *you* press **Over** to transmit the queued text. Always reliable; you control the rhythm of the QSO.
- **Auto-flush** — queued text is released automatically when the link turns to your transmit. Convenient, but confirm it behaves as you expect on air before relying on it; Manual always works.

While the link is yours, Send (Enter) puts your text on air at once and keeps the link, in either mode, with no changeover and no changeover text. You can send line after line, which is what a BBS needs. **Over** (Ctrl+Enter) sends anything left and hands the link back. The AMTOR screen uses the same keys.

The BBS / Mailbox tick box (beside **Over**, on the PACTOR screen) leaves the **Changeover text** out when you press Over, because a mailbox would read "btu …" as a command. It's off by default and applies to that screen for the current session only.

With BBS / Mailbox ticked, a mailbox command hands the link over by itself. A line starting with `//` (such as `//dir`), sent with Enter while the link is yours, goes with a changeover, as if you'd pressed Ctrl+Enter, so the mailbox can answer straight away. Without Duplex, a mailbox can only answer once it has the link. The same goes for the end of a message you're writing into the mailbox: a line reading just `nnnn`, sent with Enter, or **Ctrl+Z**, hands the link over too, so the mailbox can answer *** *stored* without a Changeover by hand.

When the station you called has its mailbox answering, HFConverse spots its welcome, `next?` prompt or new-mail notice and suggests ticking BBS / Mailbox on the PACTOR screen. It also leaves out its own `[HFC …]` identifier on that link, because a mailbox would take it for a command. Another HFConverse station is still recognised, because it sends its own identifier.

Over and Changeover (Ctrl+Y)

PACTOR only changes direction when one of the two stations asks for it. The modem does **not** hand the link over by itself just because it has run out of text to send — with nothing queued, the sending station simply keeps the link idling. HFConverse gives you two controls for this, side by side in the action row:

- **Over (send queue)** — sends everything in the Outgoing queue, then asks the modem to **change over** so the other station can reply. The modem holds the changeover until your text has actually been transmitted, so nothing is cut off. Only enabled when there's something in the queue.
- **Changeover (Ctrl+Y)** — asks for a changeover *without* sending any text. It does one of two things depending on whose turn it is:
  - **While you're transmitting** — hands the link to the other station (anything still in the modem's buffer goes out first).
  - **While you're receiving** — asks for a **break-in**: the other station's transmission is interrupted and the link turns to you.
  - **Just after you've handed over** — until the modem reports that the link has turned, a second Over or Changeover does nothing (the status line says so), and any text stays queued for your next turn. Otherwise the second Ctrl-Y would reach the modem after the turn and break in, cutting the other station's reply short.

The changeover line ("btu … de …>"). Whenever *you* hand the link over — with **Over**, with **Changeover (Ctrl+Y)** while you're transmitting, or automatically in Auto-flush — HFConverse first sends a short hand-over line, by default `btu <CALL> de <MYCALL>>`, e.g. `btu OH2PQR de DL2KLM>`, the same courtesy other PACTOR terminal programs add. It goes out after your text and just before the changeover, and appears in the Received panel with the `>>` prefix. It is **not** sent

when Ctrl+Y is a break-in request (you're receiving), when you end the QSO, or when the **Working** box is empty (so a half-filled `btu de …>` never goes out). The wording is the **Changeover text** macro — see *Macros*, below — and clearing that macro's text turns the line off.

Ctrl+Y works from anywhere on the PACTOR screen, including while you're typing in Compose. It's the same key SCS modems have always used for changeover, so it will feel familiar if you've used a PTC terminal program before.

The status line confirms what happened: "Changeover requested…", "Break-in requested.", "Your turn to transmit…" or "Link changed over – receiving."

With Auto-flush on, queued text is released as soon as the link turns to you *and* the link is handed straight back afterwards, so a typed-ahead reply goes out and returns the turn in one step. You can still use **Changeover (Ctrl+Y)** at any time.

> Break-in (Ctrl+Y while *receiving*) depends on the other station's software and the link conditions: if it doesn't take, wait for the other station to hand over.

Seeing your text as it's transmitted

PACTOR screen: your own text appears in your pane **the moment you send it** — your over when you press **Over**, the changeover line, and your final text and End QSO text when you press **End QSO**.

During a link, your text shows **greyed** at the foot of your pane from the moment you send it, until the other station has it. It turns **yellow** and joins your text when the link shows it has arrived: when the link turns back to the other station, or when your modem reports it has nothing left to send (IDLE). Every PACTOR packet is acknowledged before that happens, so yellow means "they have it". This works the same in half-duplex, PACTOR Duplex and Live text, and on every modem (the Dragons don't echo confirmed text, so HFConverse uses the modem's status instead). If the link ends before your text was confirmed, it joins your text with the note `>> [not confirmed - the link ended before the other station had it]`. Your End QSO text never gets that note, because the modem only closes the link once everything has been sent. CQ and Unproto text isn't confirmed by anyone, so it goes straight into your pane.

AMTOR shows your text **as the modem actually transmits it**, a few characters at a time as the other station confirms it, the same way SCS Alpha does. This uses the modem's split-screen terminal mode (`TERM 3`, SCS manual §6.92), which HFConverse sets each time it connects. It's controlled by **Settings ▸ Terminal & Modes ▸ Show transmitted text live (modem echo)**, on by default. If your own AMTOR text never appears, or appears twice, untick it and reconnect; HFConverse then uses the modem's default `TERM 0` and copies your text into the transcript when you send it.

CQ and Unproto text is always shown. The modem only echoes text that the other station has *confirmed*, and nobody confirms a broadcast, so a CQ or an Unproto line would otherwise never appear, whatever this setting. HFConverse therefore shows it itself:

- **CQ (Send CQ / Auto CQ)** — the call appears **at about the speed it goes on air**: it starts when the modem reports the transmitter has keyed, runs at roughly the PACTOR-1 100 Bd rate (about 9–10 characters a second), and whatever is left appears the moment the modem reports the transmission has ended. The pace is HFConverse's estimate, not the modem's own echo, so it can be a little behind the real transmission but never stays behind it. If you stop the call (Stop TX / End QSO), the display stops where it had got to and adds `>> [CQ stopped - the rest was not sent]`.
- **Unproto lines** — each line appears as you send it.

Umlauts and other accented letters

HFConverse sends and shows text in **code page 437**, the character set SCS Alpha and other long-standing PACTOR programs use, so German umlauts (ä ö ü ß) and other accented letters reach the other station correctly and theirs display correctly here. Characters that code page 437 doesn't have — the euro sign, for example — go out as `?`.

Auto character set. Not every program sends the same bytes for an umlaut: some SCS Alpha set-ups send the old DOS set, others the Windows set (so ä ö ü can arrive as Σ ÷ ³). With **Auto** (the default), HFConverse:

- shows both DOS and Windows letters correctly, whichever the other station sends;
- notices which set the other station uses from its first accented letter, and replies in that set, so your umlauts look right at their end too;
- sends the DOS set until it knows (code page 850: the same ä ö ü ß as 437, plus Ø ø);
- starts afresh with every new link;
- reads **UTF-8** too, and uses it with a station that sends UTF-8, or with another HFConverse that reads it (its identifier says so), so every language's letters get through: Ø, €, ¿, Greek, Cyrillic and the rest.

Choosing the character set. Code page 437 has Å å Æ æ but not the Scandinavian Ø ø, and none of the old DOS sets has Œ œ. **Settings ▸ Terminal & Modes ▸ Character set** lets you pick Auto (above) or a fixed set:

Character set	Adds	Notes
Auto (default)	DOS and Windows letters	Replies in the other station's set
437 – DOS US	ä ö ü ß Å å Æ æ é …	The DOS set many SCS Alpha set-ups send
850 – DOS Western Europe	Ø ø	Same bytes as 437 for ä ö ü Å å Æ æ, so those still work with 437 stations
865 – DOS Nordic	Ø ø	Same bytes as 850 for Ø ø
1252 – Windows	Ø ø Œ œ	Sends ä ö ü etc. as *different* bytes from the DOS sets — only for partners whose program uses Windows characters
UTF-8	Every language's letters, €	Only for HFConverse and other programs that read UTF-8: anywhere else each accented letter shows as two odd characters (ä as Ã¤). PACTOR only — RTTY and AMTOR have no accented letters at all

PACTOR carries the bytes exactly as sent, so with a fixed set **both stations must use the same character set**. If they don't, the letters that differ arrive as a different character (for example Ø sent in 850 shows as ¥ on a 437 station). The change applies straight away, on every screen, and works the same on Windows, macOS and Linux.

Ending a message on a BBS (Ctrl+Z)

When you leave a message on a PACTOR BBS, the BBS waits for **Ctrl-Z** to know the message is finished.

- **PACTOR screen:** press **Ctrl+Z** in Compose. What you've typed, then a line reading `^Z`, join the Outgoing queue, so the Ctrl-Z goes out *after* your message: at once while the link is yours (and with PACTOR Duplex or Unproto), otherwise when you press **Over**. With Live text on it goes out straight away. You can also type `^Z` on a line of its own: it goes on air as Ctrl-Z too. In Compose, Ctrl+Z doesn't undo typing.
- **Terminal:** during a link, **Ctrl+Z** in the Send box sends what you've typed (if anything), then Ctrl-Z and a return. With no link, Ctrl+Z in the Send box undoes typing as usual.
- **Macros:** the `<CTRLZ>` token puts a Ctrl-Z on a line of its own, for a macro that signs off and ends the message in one go, such as `73 de <MYCALL><CR><CTRLZ>`.

A Ctrl-Z, sent or received, shows as `^Z` in Received.

Ending the QSO (End QSO / QRT)

End QSO (QRT), next to Changeover in the action row, closes the PACTOR link from the PACTOR screen. HFConverse asks you to confirm first. If you'd rather it acted straight away, untick **Settings ▸ Terminal & Modes ▸ Keyboard-to-Keyboard ▸ Ask before End QSO**. Pressing End QSO again while the link is still closing always asks, because it then offers an immediate stop (DD).

End QSO says goodbye before it closes the link. It sends, in one go:

1. anything in your **Outgoing queue**;
2. your **End QSO text** — a reserved macro, by default `73 <CALL> de <MYCALL> sk`, e.g. `73 OH2PQR de DL2KLM sk` (see *The End QSO text macro*, below);
3. the modem's **QRT character (Ctrl-D)**, the standard SCS way to end a link — so the link closes as soon as the text has been transmitted.

The confirmation prompt shows the End QSO text that's about to go out, and your final text appears in Received with `>>` in front.

If the other station has the link when you press End QSO, HFConverse first asks for it (a break-in, Ctrl+Y), so your final text goes out when the link turns to you, and then the link closes.

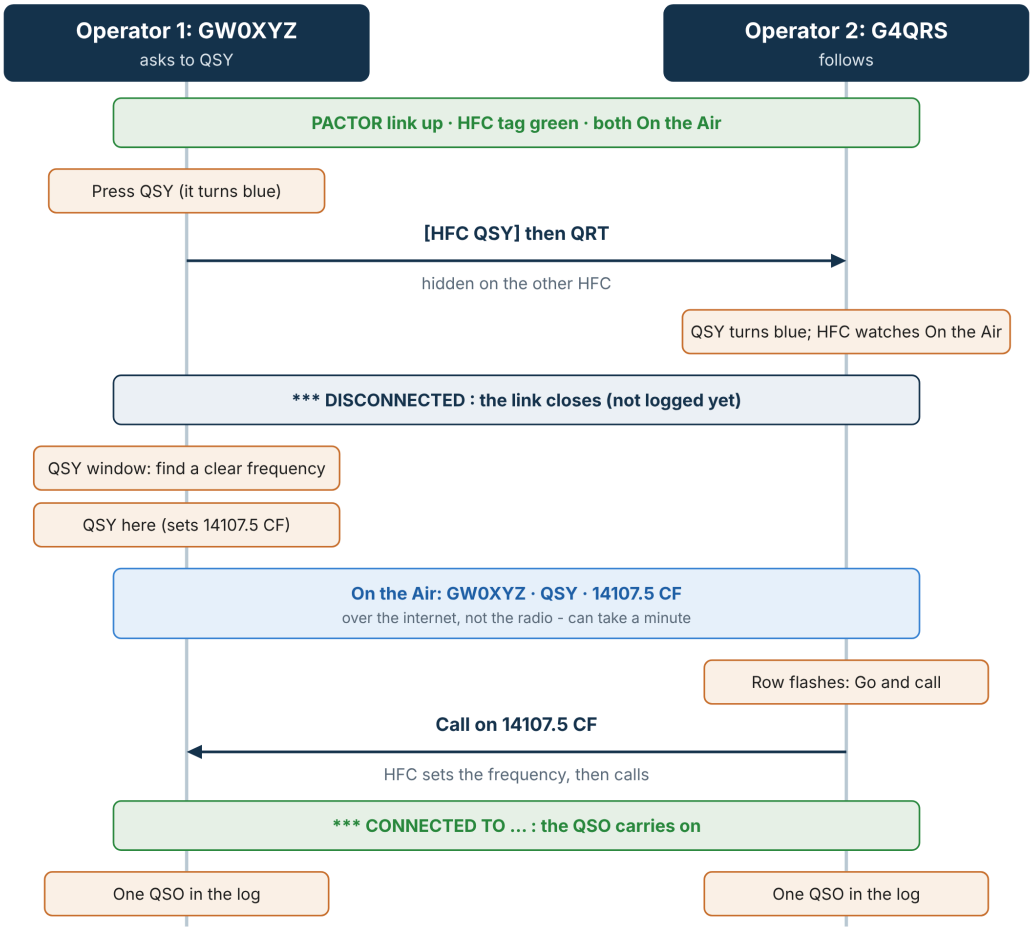
Once End QSO has been sent, the button reads **Closing… (End QSO)** until the link has closed. Pressing it again doesn't send your 73 a second time; instead it offers **Stop now (DD)**, for a link that has stalled and isn't closing.

With nothing queued and the End QSO text cleared (or the **Working** box empty), End QSO just sends QRT: the link closes once anything already sent to the modem has gone out. There's no keyboard shortcut for End QSO, so it can't be triggered by accident.

The **Disconnect** button in the Terminal screen's PACTOR Link panel does the same thing (without the queued text), and is available whenever the modem is connected.

Moving to a new frequency together (HFC QSY)

Sometimes the frequency gets busy, or you want to leave a calling or meeting frequency free. When the other station also uses HFConverse, **QSY** moves you both to a new frequency without typing frequencies back and forth: HFConverse closes the link, lets you pick a clear frequency, and tells the other station's HFConverse where you've gone through **On the Air**.



What it needs. QSY is next to **Read From Radio** on the PACTOR screen. You can press it when:

- a PACTOR link is up;
- the other station is confirmed as HFConverse: the **HFC** tag at the top is green (see *Is the other station using HFConverse?*);
- you're both **On the Air** (**Station ▸ On the Air**). The link is down while you look for a clear frequency, so the new frequency goes through the On the Air list, over the internet.

When it's greyed out, hover over it to see what's missing. Agree the QSY with the other operator first, as you would on any QSO.

Operator 1, who presses QSY

1. Press **QSY**. It turns blue. HFConverse sends a short `[HFC QSY]` line, which the other HFConverse hides, and closes the link. The QSO isn't logged yet.
2. The **QSY** window opens. Find a clear frequency: tune the radio (the frequency boxes follow it when HFConverse can read the radio), or type the frequency and press **Set Frequency**. Listen first: **Channel** shows **BUSY** while the modem hears a signal, and the band label warns you outside the band.
3. Press **QSY here**. HFConverse sets the frequency and shows you On the Air as **QSY** there. Received says, for example, *[QSY: on 14107.5 CF - shown as QSY On the Air; waiting for*

G4QRS to call]. The call can take a minute to arrive.

4. When the link comes up, the QSY is over: the button goes grey and On the Air shows **QSO** again.

Operator 2, the other station

1. When the `[HFC QSY]` line arrives, your **QSY** button turns blue, Received says *[QSY: GW0XYZ asked to QSY - ...]*, and the link closes. HFConverse now checks the On the Air list for that station every 15 seconds. The On the Air window doesn't need to be open, but stay on the PACTOR screen.
2. When the other station shows as **QSY** on its new frequency, HFConverse plays the On the Air sound, the station's row in the On the Air list flashes blue, and it asks: *GW0XYZ has moved to 14107.5 CF and is waiting for your call. Go there and call?*
3. **Go and call** sets the frequency and calls a moment later. **Not yet** leaves the row flashing: double-click it when you're ready.
4. When the link comes up, the QSY is over.

Cancelling, and time limits.

- Pressing the blue **QSY** button asks whether to cancel. Operator 1 goes back to the old frequency, and On the Air shows **QSY cancelled**, so the other HFConverse stops waiting. Closing the QSY window, or the PACTOR screen, does the same.
- If no call arrives within 5 minutes, operator 1 is asked whether to go back or keep waiting.
- Operator 2 stops waiting when no new frequency appears within 5 minutes, or when the other station cancels; a note in Received says which.
- If you both press QSY at the same moment, HFConverse sorts it out: one of you picks the frequency (the callsign first in alphabetical order) and the other follows.

No radio control? HFConverse can't set the frequency then. Operator 1 types the new frequency in the QSY window and sets the radio by hand; operator 2's Received says which dial frequency to set, then press **Connect**.

In the log it's one QSO. The end of the first link isn't logged; when the QSO finally ends, it's logged from its first start, on the new frequency. If the QSY is cancelled or times out, the first part is offered for logging as usual.

The new frequency goes out as a centre frequency (CF), so each station works out its own dial frequency.

Using Over and Changeover in a real QSO

A few everyday situations, and which control to reach for:

The normal rhythm. While the other station is sending, type your reply in Compose and press **Enter** to queue it. You can queue several lines. When the top strip shows **Transmitting (our over)**, press **Over** (or **Ctrl+Enter**). Your text goes out, then the link turns back to the other station. HFConverse adds the changeover line (`btu <their call> de <your call>>`) for you just before handing over, so the other operator can see at a glance that you've finished — you don't need to type "k" or "over" yourself (though you still can).

It's your turn but you've nothing to say. Perhaps the other station asked a question you'll answer later, or you're simply handing back for their next item. Press **Ctrl+Y**. The link turns to them without you sending any text.

You want to get a word in while they're still sending. For example, they've misunderstood something, or you need to leave in a hurry. Press **Ctrl+Y** while you're receiving to ask for a break-

in. Their transmission is interrupted and the link turns to you. Use this sparingly, just as you would on voice. Then queue your text and press **Over**, which sends it and hands back.

You pressed Over while it wasn't your turn. HFConverse treats that as a break-in: your text is held by the modem, the link turns to you, and the text goes out. The link then stays with you, so press **Ctrl+Y** when you're done to hand back.

The link seems stuck, with neither station sending. Check the top strip. If it says **Transmitting (our over)**, the link is waiting on you: press **Ctrl+Y** to hand over, or queue something and press **Over**. If it says **Receiving**, the other operator has the turn; wait, or break in with **Ctrl+Y**.

The other station isn't using HFConverse. That's fine. Ctrl+Y is the standard PACTOR changeover, so it works with any PTC terminal program. They hand the turn back with their own program's changeover key, and HFConverse follows along.

Signing off. There are two polite ways to finish:

- *You have the last word:* type your "73", queue it, and press **End QSO (QRT)**. Your text goes out, then the link closes.
- *They have the last word:* send your "73" with **Over** so they can reply. Once their final over arrives, press **End QSO (QRT)** with an empty queue.

Either station can close the link; the other side sees it end. If you're the one closing, it's courteous to say so in your last over, e.g. "73 es QRT".

> **Tip:** Don't press Ctrl+Y repeatedly if nothing seems to happen straight away. A changeover while you're sending waits until everything already queued at the modem has been transmitted, which can take several seconds on a slow or marginal link. Watch the top strip and the status line instead.

Sending CQ

The **Send CQ** button transmits your CQ call once, followed by the **CQ end text** line (see *Macros*), as a single PACTOR Unproto broadcast — disabled, with a tooltip explaining why, until your **callsign** is set (see *First run: Station Settings*), since HFConverse won't key an unidentified transmission. The CQ text is a **macro you can edit** — see *Macros* below — so you can word your CQ however you like; by default it's `CQ CQ CQ de <yourcall> ×3 pse k`. Make sure the modem is in the appropriate calling mode first. (If auto-presence is enabled, sending CQ also announces you on the air — see *On the Air*.)

Auto CQ sends a longer call in **one continuous transmission**, the way PACTOR CQs are normally sent: your CQ line repeated a set number of times back to back, then the **CQ end text** line (by default `Please call me with <MYCALL> in PACTOR = de <MYCALL>`), then the broadcast closes. The transmitter stays keyed for the whole call and drops once, at the end; HFConverse then listens for a reply. The number of lines is **Settings ▸ Terminal & Modes ▸ Pactor ▸ CQ lines per call** (1–20). Each line is your whole **CQ macro** — by default `CQ CQ CQ de <MYCALL> <MYCALL> <MYCALL> pse k` — so 5 lines means 15 × "CQ"; edit the CQ macro to change what each line says. Auto CQ runs **once** and finishes — press it again for another round — unless **Repeat Auto CQ** is on (below). The status line shows how long the call was on air.

Repeat Auto CQ. To have Auto CQ call again by itself, choose **Settings ▸ Terminal & Modes ▸ Pactor ▸ Repeat Auto CQ**: every 1, 2, 3, 5 or 10 minutes (Off by default), and **Stop after** 1–10 calls (default 5). Press **Auto CQ** once. After each call HFConverse listens, and when the time is up it calls again, until it has made that many calls; then it stops, and you press Auto CQ to start

again. The button shows how far it has got, e.g. **Auto CQ (2/5)**, and the status bar counts down to the next call. Before each repeat it waits until nothing has been heard on the channel for 30 seconds (the modem reporting traffic or a busy channel, or text arriving in Received), so it doesn't call over someone else. A station connecting ends the series, and so do **Stop TX (DD)** and anything you do on the screen: typing in Compose or pressing a macro key, **Connect**, **Send CQ**, **Unproto**, setting a frequency or picking a favorite, **Read From Radio**, **End QSO** or starting the **Scan**. Closing the screen ends it too. With at most 10 calls it can never run on unattended — it always needs you to start it. The AMTOR screen's Auto CQ repeats the same way.

Send CQ and **Auto CQ** are greyed out while a link of your own is up, on the PACTOR and AMTOR screens. A CQ sent mid-QSO would reach the other station as text and then end the link. On the AMTOR screen, Listen is switched back on only once the CQ broadcast has finished.

Stop TX (DD) (red) is the PACTOR screen's **emergency stop**. It's always available while the modem is connected and ends whatever is transmitting **at once** (the modem's `DD` command): a CQ, an Unproto transmission, a **call in progress** (you pressed Connect and want to abort — high SWR, wrong callsign), or even a link. Anything not yet sent is thrown away and the modem goes back to standby. There's no confirmation prompt, so it works in one click. For a CQ it throws away whatever of the call hadn't been sent yet, and goes back to listening. It works for a single **Send CQ** as well as Auto CQ, and **End QSO (QRT)** pressed while a CQ is going out does the same immediate stop. Closing the PACTOR screen during a CQ does the same, so the modem is never left transmitting with nobody watching.

> **`D` versus `DD` in the cmd: box.** Typing `D` (Disconnect) or pressing End QSO normally asks the modem for an *orderly* stop: it finishes sending everything already queued first — with a whole CQ in the queue that can be a minute or more. `DD` stops at once and discards the rest. HFConverse's **Stop TX (DD)** always uses `DD`, and so does **End QSO** while a CQ is going out or while a call is still being set up (the link isn't up yet) — QRT doesn't stop a call in progress. Once a link is up, End QSO stays the orderly stop, so your last text still goes out.

> **Mind your duty cycle.** Twenty repeats at 100 Bd can mean a couple of minutes of continuous transmission. Choose a repeat count your radio and amplifier are happy with at the power you run.

Capturing a QSO to a file

Capture writes a QSO to a text file as it happens: a BBS listing, a message you've read from a mailbox, or any QSO worth keeping. It's in the column of buttons to the right of Compose on the **PACTOR** and **AMTOR** screens, under **Log QSO…**.

- **Press Capture** and it starts at once, with no file dialog. The button turns green and reads **Capture on**, and the status line names the file. Press it again to stop.
- **Ticking BBS / Mailbox** on the PACTOR screen starts a capture by itself. That capture stops when the link ends or you untick BBS / Mailbox. A capture you started with the button carries on until you stop it.
- **What goes in:** what's already on screen first (so a BBS welcome or "mail waiting" line isn't lost), then everything from then on, in time order: their text as it arrives, your own lines starting with `>>`, and the modem's `*** CONNECTED TO` and `*** DISCONNECTED` lines, which show where the link went up and down. HFConverse's own notes, such as `[frequency 14109 kHz]`, and the modem's housekeeping lines (`*** STBY`, `*** AUDIO TONES: 4`, `cmd:` prompts) are left out.

- **It keeps going** while the PACTOR screen is closed. It stops when you disconnect from the modem or close HFConverse.
- **Where:** the `captures` folder in HFConverse's data folder, named after the station and the start time (UTC), e.g. `DL2KLM-2026-10-24-1140.txt`. A capture never overwrites an earlier one. **Log ▸ Open captures folder…** opens the folder.

A mailbox that ends its lines with a carriage return only is captured line by line, and while a link is up everything the other station sends is kept, including a mailbox's own `***` lines. With **Live** and **Duplex**, when both stations send at once, each side's line goes into the file whole when it ends, in the order the lines finish.

A capture file looks like this:

```
HFConverse capture: DL2KLM, PACTOR, 14109.0 kHz, started 2026-10-24 11:40 UTC
--- already on screen when the capture started ---
*** CONNECTED TO DL2KLM
Welcome to the DL2KLM mailbox. 1 message for GW0XYZ.
--- live from 11:40 UTC ---
>> //Read 1
Hello Peter, 14109 at 0900z tomorrow?  73 John
*** DISCONNECTED
--- capture stopped 11:42 UTC (link ended) ---
```

Unproto QSO (no connection)

Some operators hold a whole QSO in **Unproto** — both stations take turns broadcasting, without ever connecting. It works the way you'd do it with the modem's own commands:

- **Start:** press the **Unproto** toggle in the action row (available when no ARQ link is up), or type `UN` in the cmd: box as usual — HFConverse notices the modem has gone into Unproto and switches the toggle on for you. The transmitter **stays keyed** until you end it.
- **Type:** write in Compose and press **Enter** (or **Send ▸ air**). Each line goes straight into the running transmission — no queue, no **Over**, no automatic stop. Your lines appear in Received (`>>`) as you send them. (**Shift+Enter** starts a new line without sending.)
- **Queued text goes with it.** Anything waiting in the Outgoing queue when Unproto starts goes out as soon as the modem reports the transmission is running (its `UNPROTO TRANSMISSION ACTIVE` line, or after 3 seconds if that never comes). With **Live text** ticked, your keys go straight into the transmission from that moment too.
- **End:** turn the toggle off, or press **End QSO** — both send `D`, so the modem finishes whatever is still buffered and then drops the transmitter. **Stop TX (DD)** stops at once and throws away anything not yet sent. When the modem reports it's back in standby, the toggle switches off by itself.
- While Unproto is on, **Send CQ**, **Auto CQ**, **Over**, **Changeover** and **Connect** are disabled. Closing the PACTOR screen during Unproto sends `DD`, so the transmitter is never left keyed with nobody watching.

> **Unproto is not for being called.** While Unproto is on, your transmitter stays keyed the whole time (the modem sends idle packets when you've nothing to say), so your modem can't hear anyone and no station can connect to you. It's for a QSO without a link, where each station broadcasts in turn and switches off (`D`) when they've finished. **To be called, use Send CQ or Auto CQ**: they send your CQ as a short Unproto burst, drop the transmitter, and leave the modem listening, so a station can connect.

> Some SCS modems end an idle FEC-type transmission on their own after a few minutes.

Ending a stuck link

On a fading path a PACTOR link can go on transmitting for a long time without anything getting through — the radio keeps "pumping". The modem has its own time-out (`MAXErr`, 70 faulty blocks in a row as delivered), but every repeat request that gets through starts it again, so on a weak path it may never fire. HFConverse keeps its own count: it counts the modem's error and repeat reports on your own link — including stations calling your modem mailbox — and starts again from zero whenever data, an idle packet or the other station's text gets through. When the count reaches **Settings ▸ Terminal & Modes ▸ Pactor ▸ End a stuck link** (after 30 as delivered; 20, 40, 60, 100 or Never), it ends the link with QRT, and with `DD` if the link is still up 20 seconds later. Received and the Terminal say why: *[Link ended by HFConverse: 30 errors in a row with nothing getting through]*. This makes it safer to leave the station listening or the modem mailbox open while you're away.

Modem tones (TOnes) for PACTOR-3

The modem's **TOnes** setting (SCS manual §6.95) decides which call tones it uses to set up a link. A link only goes up to **PACTOR-3** when TOnes is 2 or more, and both stations must use the same value; SCS recommends **TOnes 4** (1400/1600 Hz) for all PACTOR levels. Choose it in **Settings ▸ Terminal & Modes ▸ Pactor ▸ Tones (TOnes)** and HFConverse sends it to the modem every time it connects — and again when you leave the RTTY screen, since RTTY's High/Low tone selector changes it. Older modems (PTCplus, Z80 PTC) only know 0 and 1.

TOnes 4 is the default. Tones matter for receiving too: a modem on a different pair (for example TOnes 0, 1200/1400 Hz) listens about 200 Hz away from everyone else, so you see a CQ on the waterfall and the modem's tuning LEDs bunch to one side, but no text arrives. If you choose *Leave as the modem has it*, HFConverse asks the modem which tones it uses when it connects and warns you in the Terminal if they aren't 4.

Frequency and favorites

If **PTC transceiver control** is configured (see *Radio control*), the QSO screen can set your radio's frequency directly:

- **Frequency box + Set Frequency** — enter a frequency in kHz and press **Set Frequency**. A decimal point or a decimal comma both work (14105.5 or 14105,5); a comma that groups thousands (14,105) still counts as a thousands separator.
- **Read From Radio** — ask the radio its current frequency.
- **Favorites** — save frequently-used QSO frequencies with a name, pick them from a dropdown to set the frequency instantly, and manage them (add/rename/delete/reorder) in a floating **Favorites** window you can keep open while you operate. Favorites are for QSO operating. A new favorite, from **★ Save current** or **Add** in the Favorites window, goes to the **top** of the list; **Move up** / **Move down** put it anywhere else. Open **Manage…** straight after **★ Save current** and the new one is already selected, ready to rename.

PACTOR favorites: CF or dial. Some operators think of a PACTOR frequency as the **centre frequency (CF)** — where the signal actually is, and what most frequency lists quote — and others as the **dial** reading on their radio. HFConverse lets each operator choose:

- PACTOR favorites are always **saved as the centre frequency**, so a favorite means the same place on the band at every station.

- You choose how they're **shown**: **Dial** (the default) or **Centre frequency (CF)**. Switch it at the top of the **Favorites** window (*Show frequencies as*), or in **Settings ▸ Equipment ▸ PACTOR favorites**. Switching never moves a saved favorite — it only changes the number you see.
- HFConverse converts between the two with your **CF offset** (Settings ▸ Equipment, 1.5 kHz for the usual SCS tones): dial = CF − offset on upper sideband. For example, with the default 1.5 kHz, a favorite at CF 14106.5 is dial 14105.0.
- It's always clear which is which. The Favorites window's frequency box is labelled **CF (kHz)** or **Dial (kHz)**, and the list shows both, e.g. `Dial 14105.0 kHz (CF 14106.5)`. The quick-pick dropdown on the PACTOR and Terminal screens shows `Dial 14105.0` or `CF 14106.5`.
- Selecting a favorite always sets the radio to the right **dial** frequency, whichever way you view it. **Save current** takes the frequency on screen and saves it as CF, naming it in the kind you're viewing.
- The **Favorites** window lists each favorite on two lines — the name in full, with its frequency underneath — so long names are easy to read.
- If your CF offset is 0, CF and dial are the same number; the Favorites window says so. Set the offset to match your modem's tones (1.5 kHz for TOnes 4) for the conversion to be right.
- The CF offset is always **positive** — it's the modem's audio centre tone (1.5 kHz, or a fine-tuned value such as 1.48). Don't set it negative to cancel an offset in the modem's trx menu: the radio may still land on the right frequency, but the **Dial** box shows the wrong one. Settings warns when the CF offset is negative or outside about 1.0–2.5 kHz, and HFConverse clears a leftover modem TRX Offset when it connects with Modem TRX control.
- A PACTOR favorite can have its own **Max level** (in the Favorites window, under the frequency) — for example **2** on 30 m, where only a narrow PACTOR-2 signal fits the band plan. Picking that favorite sets the radio's frequency and sends `MYLevel` for it (capped to what your modem can do); the list shows it as e.g. `CF 10145.5 · P2`. Favorites set to **Use Settings** — and setting the frequency by hand or from a spot — go back to the **Max PACTOR Level** in Settings once a favorite has changed it. It's never sent during a link or a transmission.
- **Max level on the PACTOR screen.** A **Max** (level) dropdown sits with the connect options above Compose, after **Long path (!)** and **Robust (%)**, offering **P1** up to the highest level your modem can do. Pick one and HFConverse sends `MYLevel` at once, so the next link goes no higher; the two stations still agree the actual level when they connect. The dropdown always shows the level in force: a favorite with its own Max level moves it, and a favorite set to **Use Settings**, or setting the frequency by hand or from a spot, goes back to your last choice in the dropdown (or the Settings level if you haven't picked one). It's greyed out during a link, a call or a transmission. It's for that screen only: **Settings ▸ Max PACTOR Level** isn't changed, and closing the PACTOR screen sends the Settings level again. When you pick a favorite with its own level on the Terminal and then open the PACTOR screen, the **Max** box shows that favorite's level. Closing the screen then leaves it, since the Terminal still shows that favorite.

AMTOR favorites are a separate list and always show the dial frequency.

On a favorite already. When HFConverse reads the frequency from the radio (when it connects, when a screen opens, with **Read From Radio**, or when it follows the radio's dial), the Favorite box shows the favorite you're on, if any: the radio's dial frequency matches a favorite to within 10 Hz (on RTTY, its baud, shift and Normal / Reverse must match too). The frequency isn't set again, but a PACTOR favorite's own **Max level** is applied, just as if you'd picked it, and the Terminal or status line says so. On no favorite, the box stays blank.

The QSO screen reopens on the last frequency you used there — unless you set a frequency in the Terminal since (picked a favorite, QSY, set it from a spot): then the PACTOR and AMTOR screens open on that one, with the same favorite shown, so the log gets the right frequency. If transceiver control isn't set up, the frequency controls are disabled and you set the radio's frequency by hand.

HFC meeting frequencies

HFConverse comes with four **meeting frequencies** in your PACTOR favorites, so HFC users know where to find each other — call CQ or listen there:

Favorite	Centre frequency (CF)	Dial (USB, 1.5 kHz offset)	Max level
HFC meet 20m	14109.0 kHz	14107.5 kHz	Settings
HFC meet 30m	10146.5 kHz	10145.0 kHz	PACTOR-2
HFC meet 40m	7046.5 kHz	7045.0 kHz	PACTOR-2
HFC meet 80m	3589.5 kHz	3588.0 kHz	PACTOR-2

- They're added once, when HFConverse starts, to the PACTOR favorites — or each station profile's, if you use two. If you already have a PACTOR favorite within 0.5 kHz of one, it isn't added again. Rename, edit or delete them like any other favorite; one you delete doesn't come back.
- 30, 40 and 80 m are limited to **PACTOR-2**, a narrow signal (about 500 Hz) that fits those bands' narrow digital segments. 20 m uses the **Max PACTOR Level** from Settings, as the 14101–14112 kHz segment allows wider signals.
- They fit the IARU band plans of all three regions. Outside Europe and the Americas, 7046.5 kHz is in an all-modes part of 40 m that's mostly used for phone, so listen first. National band plans can differ, so check yours.
- They're in the scan group **HFC meeting** but not ticked for scanning, so an **All ticked** scan won't visit bands you can't use. To scan them, tick **Include in scan** on the ones you can work (see *Scanning the favorites*) and pick **HFC meeting** in the **Group** box.

Scanning the favorites

The PACTOR screen can step through your PACTOR favorites by itself, listening on each one in turn, much like the scanner on a PTC-II (`TRX Scan`). HFConverse does the scanning, not the modem, so it works with every modem and every kind of radio control: modem-driven (PTC), Hamlib and the FlexRadio API. Use it to keep an ear on several mailbox or calling frequencies while you wait for a call. The Terminal can scan too, and there it takes in your AMTOR favorites as well (see *Scanning from the Terminal*, below).

Choosing the channels. Open **Manage…** next to the Favorites box, select a favorite, tick **Include in scan** and click **Update Selected**. Do this for each channel you want; the list marks them with a green **scan** tag (a favorite's own Max level shows beside it in blue, e.g. **max PACTOR-2**). You need at least two. The scan goes through them in the order of the list (use Move Up / Move Down to change it).

Scan groups. If you don't always want to scan every ticked favorite, for example because one antenna covers 80, 40 and 30 m and another covers 20, 15 and 10 m, put the favorites in **scan groups**:

- In **Manage…**, select a favorite, type one or more group names in **Scan groups** (comma between them, e.g. `Ant 1` or `Ant 1, Ant 2`) and click **Update Selected**. **Add…** beside the

box offers the groups you've already used in that list. A favorite can be in more than one group. The green tag then shows them, e.g. **scan: Ant 1**.

- Once a ticked favorite has a group, a **Group** dropdown appears beside **Scan**: **All ticked** (every ticked favorite) or one of your groups. The scan then only visits the ticked favorites in that group. HFConverse remembers the choice, separately for the PACTOR screen and the Terminal.
- Change the group during a scan and it carries on in the new group (or stops, if that group has fewer than two favorites).
- On the **Terminal**, a group takes in both PACTOR and AMTOR favorites with that name, so give them the same group name in both Favorites windows.
- You don't have to use groups: with none set, the scan visits every ticked favorite.

Starting and stopping. Click **Scan** (after Manage… on the Favorites row). It sets the first ticked favorite's frequency, listens for the **time on each channel** (10 seconds unless you change it), then moves to the next, round and round. A line under the Favorites row shows where it is, e.g. `Scanning 2 of 4: 20m mailbox (CF 14106.5) - next in 6 s`. Click **Stop scan** to stop where you are. The Scan button is greyed out when it can't run; hover over it to see why (no radio control, fewer than two ticked favorites, a link or a CQ running, and so on).

While a scan is running, the **Scan** button is highlighted on the PACTOR screen and on the Terminal, so you can see at a glance that it's on.

When it hears something. When the modem picks up PACTOR on the channel, the scan stops there:

- the scan line turns **amber**: `Activity on 20m mailbox (CF 14106.5) - moving on in 30 s`;
- your computer plays its alert sound once (you can switch this off);
- Received gets one line, `>> [scan: activity on 20m mailbox - CF 14106.5]`, and any text the modem decodes appears below it.

If nothing more is heard for the **stay after activity** time (30 seconds unless you change it), the scan moves on. Anything heard in the meantime starts the wait again, so it won't leave in the middle of a QSO.

Staying there. Click **Hold** (or press **Ctrl+H**) to stay on the channel with no countdown; the button then reads **Resume scan**, which carries on from the next channel. **Skip** (or **Ctrl+Right**) moves to the next channel straight away. These two buttons only appear while the scan is running.

It stops by itself when a station connects to you (you stay on its frequency, ready to work it), and as soon as you do anything yourself: **Connect**, **Send CQ** or **Auto CQ**, **Unproto**, **Set Frequency**, **Read From Radio**, picking a favorite, or typing in Compose (a macro key counts). So if you hear a station you want, just call it; there's no need to stop the scan first. Closing the screen stops it too.

Good to know:

- **The scan never transmits.** As with any scanner, a station can only reach you while the scan is on its frequency.
- **What counts as activity:** the modem reporting PACTOR traffic while listening and, with **Show transmitted text live** on (Settings ▸ Terminal & Modes), text arriving in Received. Optionally, a busy channel (any signal) too; see *Settings ▸ Scanning*.
- **On the Air:** if you're announced, the scan doesn't re-announce you on every channel. The frequency it stops on is sent once, when it stops.

- Each channel's own **Max level** is sent as its frequency is set, as when you pick it by hand.
- The diagnostic log records every step (`SCAN -> …`), what it heard, and why it stopped.
- **P4 Dragon and DR-9400:** Listen does nothing on these modems (they have the PACTOR Monitor instead, which HFConverse doesn't start for a scan because it makes the modem slower to answer calls). What they do report is a **busy channel**, so with a Dragon tick **Treat a busy channel as activity** in Settings ▸ Scanning.
- **SCS PTC with Listen on:** the modem gives no busy-channel status while listening, so that setting has no effect there; PACTOR traffic is what stops the scan.

Scanning from the Terminal (PACTOR and AMTOR)

The **Terminal** has the same **Scan**, **Hold** and **Skip** buttons, after **Manage…** on its Favorites row. From the Terminal the scan goes through your ticked **PACTOR** favorites and then your ticked **AMTOR** favorites (tick **Include in scan** in the AMTOR Favorites window, opened with Manage… on the AMTOR screen). The scan line says `AMTOR` in front of an AMTOR channel. On a PTC, starting the scan switches **Listen** on if it's off.

This works because in standby the modem answers both a **PACTOR call** to your callsign and an **AMTOR call** to your **SELCAL**, whichever it gets. So while the scan sits on one of your AMTOR channels, a station calling your SELCAL there connects as usual. Note that Listen only hears PACTOR: on an AMTOR channel the scan notices a call to you, but not other stations' AMTOR QSOs.

When a station connects, the scan stops on that channel, the Terminal notes who connected and where, and then — your choice in **Settings ▸ Scanning ▸ When a station connects**:

- **Open its screen straight away** (the default): **PACTOR** for a PACTOR link, **AMTOR** for an AMTOR link, so you can reply at once;
- **Ask first**: HFConverse asks, e.g. *G4QRS has connected (PACTOR on 20m mailbox) while scanning. Open the PACTOR screen?*, with **Open PACTOR** or **Stay in the Terminal**;
- **Stay in the Terminal**: nothing switches; carry on there.

The link stays up whichever you choose. In the Terminal the scan also stops when you type to the modem, Connect, Set Frequency, Read From Radio, pick a favorite, press Listen, go to an On the Air spot or open a mode screen.

RTTY and PSK31 favorites aren't scanned: the modem would have to change mode on every channel, couldn't answer PACTOR or AMTOR calls meanwhile, and gives no reliable sign of activity in those modes.

Settings ▸ Scanning holds the scan settings: **time on each channel** (5–120 seconds, default 10), **stay after activity** (10–300 seconds, default 30), **play a sound when activity is found** (on by default), **treat a busy channel as activity** (off by default, because on a busy band it can stop the scan on noise or other modes; see the Dragon note above) and **when a station connects** (Terminal scan; see above). A change applies to the PACTOR screen the next time it is opened.

PACTOR Duplex (automatic changeover)

SCS modems can change over by themselves — **PACTOR Duplex** (the modem's `PDuplex` command). When your modem has the link and has nothing left to send, it hands the link over; when the other station has the link and you've typed something, your modem breaks in once it has been receiving for the **break-in delay** (`PDTimer`, 2–30 seconds, default 12). Nobody needs to press Over or Ctrl+Y. Simple32 and SCS Alpha offer the same thing. It works on the PTC-IIusb, PTC-IIIusb, PTC-IIex, PTC-IIpro, P4 Dragon and DR-9400.

Both stations need PACTOR Duplex on. It works between HFConverse stations and with Alpha or Simple32 in either direction, as long as each side has `PD 1` set; a station without it never hands the link over by itself.

Switch it with the **Duplex** button on the PACTOR screen (next to Unproto) — lit when it's on. It takes effect straight away, also during a link, so you can agree it with your partner over the air and switch it off again before calling a mailbox. The button only lasts for the session: **Settings ▸ Terminal & Modes ▸ Keyboard-to-Keyboard ▸ Start with PACTOR Duplex on** decides how HFConverse sets the modem each time it connects (`PDuplex 1` or `PDuplex 0`, plus `PDTimer`), and is where you set the break-in delay. Typing `PD 1` or `PD 0` in the cmd: box works too, and the screen and button follow it. After you press **Duplex**, HFConverse asks the modem for its setting (`PD`) and the button follows the answer (`*** PACTOR DUPLEX: 1` or `0`), so it always shows what the modem really has. Until the modem answers, the button reads **Duplex…** in orange, as **Listen** does. If no answer comes within 5 seconds, the status line says so and the button shows what HFConverse sent.

With duplex on, the PACTOR screen changes:

- **During a link, Send (or Enter) gives your text straight to the modem** — no Outgoing queue, no changeover text, no Ctrl+Y. The status strip shows "*PACTOR Duplex: text goes straight to the modem, which changes over by itself*".
- Text you type **before** the link is up waits in the queue and goes as soon as the link connects.
- **Over** and **Changeover** are greyed out — the modem does both. **End QSO** works as usual (your End QSO text, then QRT).
- **Live text works with Duplex**: each key goes out as you type, and the modem changes over by itself. This needs a decent link: sent key by key, the modem's send buffer is empty after every pause in your typing, so it hands the link over often, and on a weak path that can lose the link. On a weak path, untick **Live** and each line goes when you press **Enter**.
- The two panes work as always: their text on top, yours below, with your modem's `***` lines and HFConverse's notes in your pane. Switch Duplex off and nothing changes on screen; nothing is lost either way.

> SCS advise using PACTOR Duplex only with a partner who knows to expect it — a station not using it will see changeovers it didn't ask for — and switching it **off** before connecting to a mailbox. It's off by default, and the button starts each session as Settings says.

Live text (each key goes out as you type)

Normally the PACTOR screen holds what you type in the Outgoing queue until your over. With **Live text**, each key you type in Compose goes out at once, the way the old keyboard-to-keyboard terminals worked. The other station sees your words appear as you type them. Tick **Live** in the action row (next to **Duplex**) to use it.

Live only works while sending is safe: while your own PACTOR link is up, or an Unproto transmission is running. The tick box shows which:

- **Live** — unticked; Compose works as normal.
- **Live – waiting for link** — ticked, but there's no link yet. Compose works as normal and **Enter** queues, so nothing can reach the modem's command prompt.
- **Live – on air** — every key goes out as you type it. The Compose heading reads *LIVE*, and Compose shows only the line you're on.

While **Live** is ticked (waiting or on air), the Compose box has a **red border**, so you can see at a glance that what you type will go out live.

While **on air**:

- **Backspace** sends a correction (a backspace character) for the line you're on. HFConverse at the other end removes the letter; other programs may show it differently.
- **Enter** (or **Shift+Enter**) starts a new line on air.
- **Ctrl+Enter** finishes the line and hands the link over: with your changeover line and Ctrl+Y, or with **Over** if there's still something in the Outgoing queue. With Duplex or Unproto there's nothing to hand over, so it just ends the line.
- **Paste**, **F1–F12 macros** and **Insert token** go out at once, as a block.
- Your text appears in Received in yellow, with `>>` in front, as you type it.
- Typing while the other station has the link is fine: the modem holds what you type and sends it when the link turns to you (press **Ctrl+Y** to ask for it).

When Live goes on air, anything you'd already typed in Compose is moved to the Outgoing queue, so it isn't sent by surprise; **Ctrl+Enter** sends it. With Unproto, which has no Over, it goes out straight away instead. **If the link drops** while you're typing, Live goes back to *waiting* and Compose is cleared (that line has already gone).

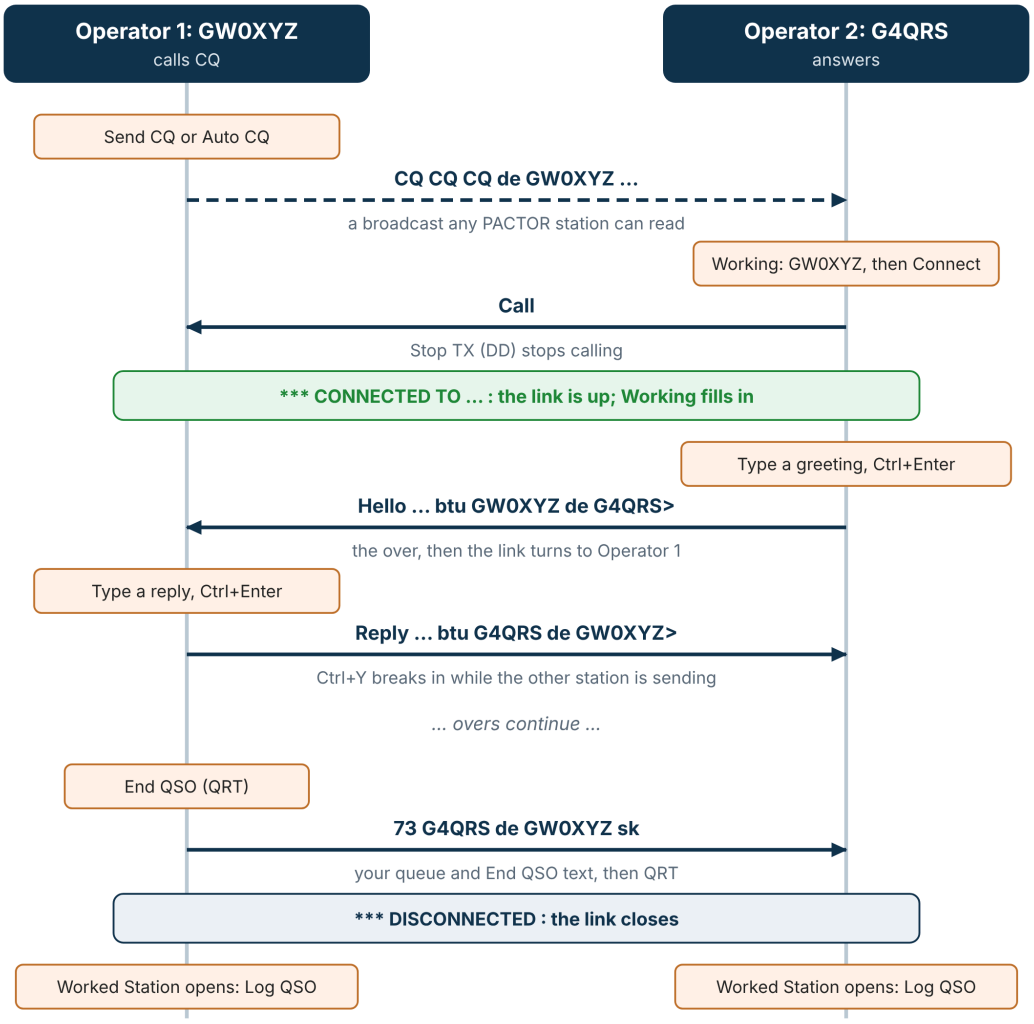
The tick box keeps your choice until you close HFConverse. To have it ticked every time, tick **Settings ▸ Terminal & Modes ▸ Keyboard-to-Keyboard (QSO) ▸ Start with Live text on** (off by default). Live text is on the PACTOR screen only.

Operating HFC — a PACTOR keyboard-to-keyboard QSO, step by step

This section walks through a complete keyboard-to-keyboard contact between two stations: **Operator 1**, who calls CQ, and **Operator 2**, who answers. It assumes both radios and modems are already connected and working (see *Getting started*). The other station doesn't have to run HFConverse: everything here works with SCS Alpha, Simple32 or any other PTC terminal program at the far end.

The whole contact can be run from the **PACTOR** screen: listening, calling CQ, connecting, the QSO itself, ending it and logging it. Apart from clicking **Connect** and **End QSO**, you can do it all from the keyboard. This walkthrough is for a **connected (ARQ) QSO**. For a contact without a link, where each station simply transmits in turn, see *Unproto QSO (no connection)*.

A complete contact at a glance, with the keys each operator presses:



Before you start

Tones. Both stations should use modem **TOnes 4**, the default (**Settings ▸ Terminal & Modes ▸ Pactor ▸ Tones (TOnes)**). A link only goes up to PACTOR-3 with TOnes 2 or more on both sides, and a modem on a different tone pair can see a CQ on the waterfall but copy nothing (see *Modem tones (TOnes) for PACTOR-3*).

Your reserved macros. HFConverse sends four texts for you during a QSO. They're **reserved macros**, pinned at the top of the **Macros** window (**Settings ▸ Macros...**). You can reword any of them, or clear one to stop it being sent, but you can't delete them:

Macro	Sent when	Default
Send CQ button	each CQ line (Send CQ / Auto CQ)	`CQ CQ CQ de <MYCALL> <MYCALL> <MYCALL> pse k`
CQ end text	once, at the end of a CQ	`Please call me with <MYCALL> in PACTOR = de <MYCALL>`
Changeover text	each time you hand the link over (Over, Changeover)	`btu <CALL> de <MYCALL>>`
End QSO text	by End QSO, just before the link closes	`73 <CALL> de <MYCALL> sk`

`<MYCALL>` is your callsign from Settings, and `<CALL>` is the **Working** callsign. The changeover and End QSO texts are skipped while Working is empty, so a half-filled `btu de …>` never goes out. In **Unproto** with Working empty, `<CALL>` becomes **ALL** (the Working box shows *ALL* in grey), so a broadcast never carries the last station's callsign, which End QSO leaves in Working for the log. The × beside Working clears it and Name in one click (not during a link or a call).

Action macros. A macro of your own can also *press a button* — PACTOR screen only. In **Edit macros…**, under the text, choose **Before the text** (None, **Unproto on** or **Connect**) and **After the text** (None, **End QSO**, **Over**, **Send CQ** or **Unproto off**). Each one does exactly what the screen's button of that name does. The macro then runs as soon as it's pressed: the action before, then the text, then the action after, each waiting for the one before (Connect waits up to 2 minutes for the link; Unproto on until the modem is transmitting). Examples: no text and *After: Send CQ* on F7 makes F7 the Send CQ button; `73 <CALL> de <MYCALL> SK` with *After: End QSO* sends your 73 and ends the QSO (End QSO also sends your End QSO text); *Before: Unproto on*, a line of text, *After: Unproto off* makes a one-key broadcast. The actions are chosen from the lists, never typed, and a pair that could never work can't be saved — for example Send CQ after text or after Unproto on, Over after Unproto on, or Unproto off after Connect; the reason shows in red under the lists. An action macro's key (for example **F4**) is shown in **red** on the F-key strip and in the Macros window (a red **ACT** if it has no key), and the "Goes out as" line shows its actions in red. When it can't run right now (Send CQ during a link, End QSO with no link, text with no link or Unproto to go into) its key is orange and nothing is sent; the tooltip says why. While one runs its key is blue and the status line shows each step; only one runs at a time, and **Stop TX (DD)** or closing the screen stops whatever is left. On the AMTOR, RTTY, PSK31 and CW screens an action macro is orange ("PACTOR screen only").

Decide how you'll type. There are three ways to run the conversation. You can change between them at any time, even during a link:

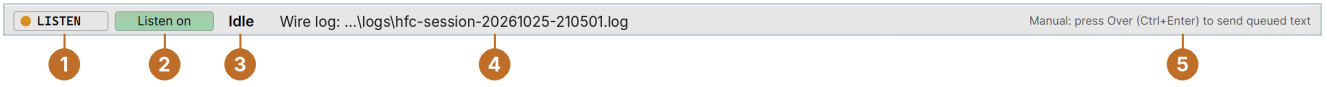
Style	How it works	Needs the other station to…
Half-duplex (the default)	Type ahead into the **Outgoing queue**; it goes out when you press **Over** (Ctrl+Enter), and the link is handed over.	nothing special
PACTOR Duplex (the **Duplex** button)	Enter gives your text straight to the modem, which changes over by itself. No Over or Changeover.	also have PACTOR Duplex (`PD 1`) on
Live text (the **Live** tick box)	Every key goes out as you type it. Ctrl+Enter hands over.	nothing special

Live works with Duplex too, on a decent link; on a weak path, untick Live and each line goes when you press Enter. See *PACTOR Duplex (automatic changeover)* and *Live text*, above.

The screen at a glance

- **Received** (top): the other station's text, in **green**. **Clear Receive** is at the top right, beside the heading (the same place on the PACTOR, AMTOR, RTTY and PSK31 screens).
- **Your text** (middle): what you've sent, in **yellow**; text waiting to go out (the Outgoing queue) shows greyed at its foot (see *The screen layout*).
- **Compose** (bottom, yellow on black): where you type. The cursor is already in Compose when a mode screen opens (PACTOR, AMTOR, RTTY and PSK31), so you can type straight away; its border is blue while it has the cursor (red on PACTOR while **Live** is ticked).

- **Working** line, above Compose: the other station's callsign, their **Name**, **Long path (!)**, **Robust (%)** and **Max**, with **Connect** just after Max (**Send** is at the right of the Compose heading).
- **Radio** box, above the action row: the CF and Dial boxes, **Set Frequency**, **Read From Radio**, and the **Favorites** box with **★ Save current**, **Manage…** and **Scan** (**Hold** and **Skip** appear while it scans — see *Scanning the favorites*). When you set a frequency, HFConverse notes it in Received, e.g. `>> [frequency 14105 kHz]`.
- On a small screen with high Windows scaling (1920 × 1080 at 150% leaves HFConverse about 1280 × 720):
  - **The panes always keep some room** — about six lines for the other station and three for you. When the window is too short, **Compose** gets smaller instead.
  - **There's a divider above Compose.** Drag it to give the panes more room or Compose more; HFConverse remembers where you leave it (shared by the PACTOR and AMTOR screens).
  - **The Radio box has two lines:** the frequency boxes, **Set Frequency** and **Read From Radio**; then, at the left, the **Favorite** box, **★ Save current**, **Manage…** and **Scan**. The favorites are in the same place, and the same width, on the PACTOR, AMTOR, RTTY and PSK31 screens. The line saying how the frequency is set (e.g. *The modem sets the radio's frequency*) is the tooltip of the frequency row; it's shown in full when no radio control is set up.
  - **Interface size** (Settings ▸ Appearance & Startup) makes everything smaller or larger — see *Settings reference*.
- **Action row: Send CQ**, **Auto CQ**, **Stop TX (DD)** | **Unproto**, **Duplex**, **Live** | **Over (Ctrl+Enter)**, **Changeover (Ctrl+Y)**, **End QSO (QRT)**.
- **Beside Compose:** a column with **Clear Queue**, **Send Image…**, **Log QSO…**, **Capture** (see *Capturing a QSO to a file*) and **Close**.
- **Status strip** (very bottom): the **modem state** and **Listen** button (see below), whose turn it is (**Receiving** / **Transmitting (our over)**), what just happened, and the current over-mode.



1. **Modem state** — what the modem reports, with a coloured dot (see below). **LISTEN** with an amber dot means it's following another station's link.
2. **Listen on / Listen off** — shows and switches the modem's Listen (see below).
3. **Whose turn** — **Idle** with no link; **Receiving** or **Transmitting (our over)** during one.
4. **Messages** — what just happened; here, where this session's diagnostic log is being written.
5. **Over-mode** — Manual or Auto-flush, with a reminder of how to send.

The buttons beside Compose: **Clear Queue** removes text still waiting to go out; **Send Image…** sends a picture to another HFConverse station (see *Image transfer*); **Log QSO…** opens **Worked Station** filled in with the contact; **Capture** writes the QSO to a file (see *Capturing a QSO to a file*); **Close** leaves the PACTOR screen (a link stays up).

Modem state and Listen. At the left of the status strip, on the PACTOR and AMTOR screens:

- a small box shows what the modem reports: **STBY**, **IDLE**, **ERROR**, **REQUEST**, **OVER** or **TRAFFIC** (and **PHASE** / **SYNCH** on AMTOR), with a dot: **red** while you're sending, **green** while you're receiving, **grey** in standby. **LISTEN** with an **amber** dot means the modem is following *another* station's link in Listen, not your own; **BUSY** means it hears a signal on the channel. Hover over it for the full mode and what the state means, e.g. "PACTOR-ARQ,

REQUEST: the other station asked for the last packet again (repeats on the path)". The modem says IDLE for any packet with idle bytes in it, even when it carries some text - which is what happens when you, or the other station, type live. So the box shows **TRAFFIC** while text has moved in the last couple of seconds, and **IDLE** only when nothing is moving.

- the **Listen on / Listen off** button shows whether the modem's Listen is on, and switches it. Both screens switch Listen on when they open (you'll see `LISTEN-MODE: 1`); with it on, the modem shows other stations' PACTOR traffic while you wait and still answers calls to you. It can only be changed in standby, not during a link or a transmission. When you press it, the text turns orange (**Listen…**) until the modem confirms, then shows the modem's real setting. If the modem doesn't answer within 5 seconds, the Terminal says so and the button goes back to the last setting the modem reported. Hover over a greyed-out button to see why it can't be used just now. On a Dragon (DR-7400/7800, DR-9400) Listen has no function, so the button reads **Monitor on / Monitor off** and runs the PACTOR Monitor instead, the same as the Terminal's button: that's what shows CQ calls (Unproto) and other stations' links on a Dragon (see *P4 Dragon and DR-9400: the PACTOR Monitor instead of Listen*).

The modem state box is shown a second time at the right of your own callsign heading, just above your pane, on the PACTOR and AMTOR screens, where it's easy to see during a QSO. It's the same box, with the same tooltip, and only shows the state; the **Listen** button stays at the bottom left.

The **Terminal** has the same modem state box and **Listen on / Listen off** button at the left of its bottom strip, so Listen is in the same place on every screen. On a Dragon it reads **Monitor on / Monitor off** and runs the PACTOR Monitor. It follows the modem, whichever screen switched Listen on. The text at the right of the Terminal's strip is for messages.

Keys

Key (in Compose)	Half-duplex	With Duplex	With Live text on air
Enter	text to the Outgoing queue	text straight to the modem	a new line, on air
Shift+Enter	a new line within your over	a new line within your text	a new line, on air
Ctrl+Enter	**Over**: text joins the queue, the queue goes out, link handed over	sends	ends the line, then hands over
Ctrl+Y	**Changeover**: hand over with nothing queued, or break in while receiving	(not used)	as half-duplex
Backspace	edits Compose	edits Compose	sends a correction
F1–F12	the macro on that key, into Compose	into Compose	sent at once

After you click any of the action buttons, the cursor goes back into Compose, so your hands never need to leave the keyboard.

While the favorites are being scanned, **Ctrl+H** is **Hold / Resume scan** and **Ctrl+Right** is **Skip** (see *Scanning the favorites*); the rest of the time those keys do their usual jobs.

The connect controls

The same connect options appear on the PACTOR screen's **Working** row and in the Terminal's **PACTOR Link** panel.

- **Working** (PACTOR screen) / **Callsign** (Terminal) — the station you want to call. You can type it, or select it in Received, right-click and choose **Add selection to working callsign** (**Add selection to Callsign** in the Terminal, which refuses an implausible selection such as a signal report). Double-clicking a spot in **On the Air** also fills it in. When a link comes up — whether you called or **they called you** — HFConverse fills it in from the modem's `*** CONNECTED TO <call>` line, so `<CALL>`, the changeover line and the QSO log have it without typing (not on AMTOR, where the modem reports the SELCALL).
- **Long path (!)** — allows for the extra delay of a long-path signal (the one going the other way round the globe). Long path is sometimes the stronger path, around grey line or when the short path is absorbed, but PACTOR's timing is set for short path, so a long-path contact can fail to connect unless this is ticked. It's your call from propagation and beam heading; it defaults off.
- **Robust (%)** — a slower, more redundant connect handshake, for weak or fluttery signals. It only affects getting the link up; once connected, PACTOR's normal speed changes apply. Try it if an ordinary Connect to a weak station keeps failing. To have it ticked from the start, on this screen and the Terminal's PACTOR Link panel, tick **Settings ▸ Terminal & Modes ▸ Start with Robust (%) ticked** (off by default). Unticking it for a call then holds until HFConverse is closed.
- **Connect** — calls the station. Greyed out, with a tooltip saying why, while a link is up, a CQ is going out, Unproto is on, or Working is empty.
- **Freq kHz** (Terminal only) — a frequency sent inside the Connect command, for PTC transceiver control only. On the PACTOR screen, set the frequency with its own CF/Dial boxes and **Set Frequency** instead.
- **End QSO (QRT)** (PACTOR screen) / **Disconnect** (Terminal) — close the link once anything already sent has gone out. End QSO asks you to confirm (unless you've unticked **Ask before End QSO** in Settings), and sends your queue and **End QSO text** first.
- **Stop TX (DD)** — the emergency stop: ends a CQ, an Unproto transmission, a call still being set up, or a link, **at once**, and throws away anything not yet sent.
- **Open PACTOR** (Terminal only) — jumps to the PACTOR screen.

Step by step: Operator 1 (the CQ caller)

1. **Open the screen.** Choose **Mode ▸ PACTOR**, or **Open PACTOR** in the Terminal. The screen switches the modem's **Listen** on, so it auto-answers a call and shows what it hears. (On a P4 Dragon or DR-9400 nothing is switched on, because the PACTOR Monitor that replaces Listen there makes the modem slower to answer calls. Turn the Monitor on from the Terminal if you want to watch the channel; see *Listening to the channel*.) On PTC modems it first sets normal AMTOR tones (`TR 0`), because a PTC in PACTOR standby decodes AMTOR too and keeps the Reverse setting from RTTY. The modem only accepts TR at its AMTOR prompt, so you'll see `AMTOR`, `TR 0` and `PT` go by in the Terminal; **Connect**, **Send CQ**, **Auto CQ** and **Unproto** wait the second or so this takes. HFConverse does the same once when it connects to the modem. The screen also sets your **Tones** (Settings) first, in case RTTY or another program left different ones; the AMTOR screen does the same when it opens. With Tones on "leave" nothing is sent.
2. **Set the frequency.** Pick a favorite, type a frequency and press **Set Frequency**, or set it on the radio by hand. If you announce yourself in **On the Air**, other operators can find you.
3. **Choose how you'll type** with the **Duplex** and **Live** controls, if you want anything other than half-duplex. You can also do this later.

4. **Call CQ.** Click **Send CQ** for one CQ line, or **Auto CQ** for a longer call: the CQ line repeated several times in one transmission (**CQ lines per call** in Settings), then the CQ end text. It goes out as a PACTOR Unproto broadcast (100 Bd, readable by any PACTOR station), and appears in Received in yellow at about the speed it goes on air. **Stop TX (DD)** cuts it short.
5. **Wait.** When the CQ has finished, HFConverse stands the modem by for a reply. When a station connects, nothing more needs clicking:
   - Received shows `*** CONNECTED TO <their call>`.
   - **Working** fills in with their callsign.
   - The status strip shows whose turn it is.
   - If **Live** is ticked, it changes to **Live – on air**.
6. Read their first over in Received, then carry on with *The conversation*, below.

Step by step: Operator 2 (answering the CQ)

1. **Find the station.** Open the PACTOR screen as above. Operator 1's CQ appears in Received in green. If they're listed in **On the Air**, you can instead double-click their spot:
   - **Switch & set frequency** sets the radio's frequency, opens the PACTOR screen and fills in Working.
   - **Set frequency** (offered when you're on the Terminal) sets the radio's frequency, fills in the Terminal's Callsign and turns Listen on, but stays on the Terminal.
2. **Put their callsign in Working**: select it in Received, right-click, **Add selection to working callsign**. A spot fills it for you.
3. **Tick Long path or Robust** only if propagation calls for them.
4. **Click Connect.** The status line shows "Calling …". If the call isn't getting through (wrong callsign, high SWR, no answer), press **Stop TX (DD)** to stop calling at once. **End QSO** also offers to abort the call.
5. **Wait for the link.** When it comes up, Received shows `*** CONNECTED TO …`, **Connect** greys out and the status strip shows whose turn it is.
6. **Start typing.** The station that called (Operator 2) usually has the link first, so open with your greeting: type it and press **Ctrl+Enter** to send it and hand over. With **Live** on, just type; press Ctrl+Enter when you've finished.

A call that didn't get through. If Received shows `*** GW0XYZ RECEIVED - AT …` with your own callsign, followed by `*** TIMEOUT - DISCONNECTED …`, a station called you and your modem heard it, but the link didn't come up. Usually the caller couldn't hear your modem's replies: check that your radio transmitted, and listen for them again. (The modem itself says MYCALL there; HFConverse shows your callsign.)

The conversation

Half-duplex (the default).

1. While the other station is sending, type your reply in Compose and press **Enter**. It goes to the **Outgoing queue**; nothing is on air yet. Queue as many lines as you like.
2. When the status strip shows **Transmitting (our over)**, press **Ctrl+Enter** (or **Over**). Your queued text goes out, followed by the changeover line (`btu <CALL> de <MYCALL>>`), and the link passes to the other station. With **Auto-flush** (**Settings ▸ Terminal & Modes ▸ Keyboard-to-Keyboard (QSO) ▸ Over mode**), queued text goes out by itself as soon as the link turns to you.
3. Your text appears in your pane straight away (greyed until the other station has it).

With PACTOR Duplex. Both stations switch **Duplex** on: agree it over the air first. From then on, **Enter** gives your text straight to the modem. When you've nothing left to send, it hands the link over by itself; when you've typed something while receiving, it breaks in after the break-in delay (12 s by default). Over and Changeover are greyed out. Switch Duplex off again before you connect to a mailbox.

With Live text. Tick **Live**. Once the link is up it reads **Live – on air**, and each key you type goes out at once, the way the old keyboard-to-keyboard terminals worked:

- **Backspace** sends a correction for the line you're on.
- **Enter** starts a new line on air.
- **Ctrl+Enter** finishes the line and hands the link over, with your changeover line.
- Paste, macros and tokens go out as a block.

Typing while the other station has the link is fine: the modem holds your text and sends it when the link turns to you. Anything you'd typed in Compose before Live went on air is moved to the Outgoing queue, and goes with your next Ctrl+Enter.

Whichever style you use:

- **Ctrl+Y** with nothing queued hands the link over; pressed while you're receiving, it asks for a **break-in**. Don't press it repeatedly: a changeover waits until the modem has sent everything it already holds, which can take several seconds on a slow link. Watch the status strip.
- **If the link seems stuck**, look at the status strip. **Transmitting (our over)** means it's waiting for you: press Ctrl+Enter or Ctrl+Y. **Receiving** means the other operator has the turn: wait, or break in with Ctrl+Y.
- **Over and Changeover need a link.** Pressed with no link, your text stays in the queue and the status line says why; nothing is sent to the modem's command prompt.
- **Commands** typed in the **cmd:** box during the QSO go via ESC, so they never go out on air. The modem's replies appear in the **Modem replies** strip above Received.
- **A third station's callsign** in Received can be captured with right-click ▸ **Copy** or **Add selection to working callsign**.

Ending the QSO and logging it

1. **Say goodbye.** Either operator presses **End QSO (QRT)** and confirms (no confirmation if **Ask before End QSO** is unticked in Settings). Anything in the Outgoing queue goes out, then your **End QSO text** (`73 <CALL> de <MYCALL> sk` by default), then the modem's QRT and the link closes. If the other station has the link at that moment, HFConverse asks for it first (a break-in), so your 73 still goes out. After pressing it, the button reads **Closing… (End QSO)**; a second press offers **Stop now (DD)** for a link that has stalled.
2. **The link closes.** Received shows `*** DISCONNECTED` and `*** STBY`.
3. **Log it.** The **Worked Station** window comes up, filled in with the callsign, mode, frequency and the time the link started and ended. Check them, add a note if you like, and press **Log QSO** (or tick **Log automatically when a link ends** there). It goes into **Log ▸ QSO Log…** and, if you've set one up, to your external logger. Closed it without logging? **Log QSO…** on the screen brings that link back for half an hour.

You can also close the link from the Terminal's **Disconnect** button, which sends QRT without your End QSO text. Closing the PACTOR screen does *not* drop the link: Received, Working and the link state are all still there when you reopen it.

Using the Terminal instead

The Terminal's **PACTOR Link** panel can make the call too, and is the only place with the **Freq kHz** option. Select the callsign in the Terminal log, right-click, **Add selection to Callsign**, tick any options, click **Connect**, then **Open PACTOR** to start typing. Moving between the Terminal and the PACTOR screen never drops the link.

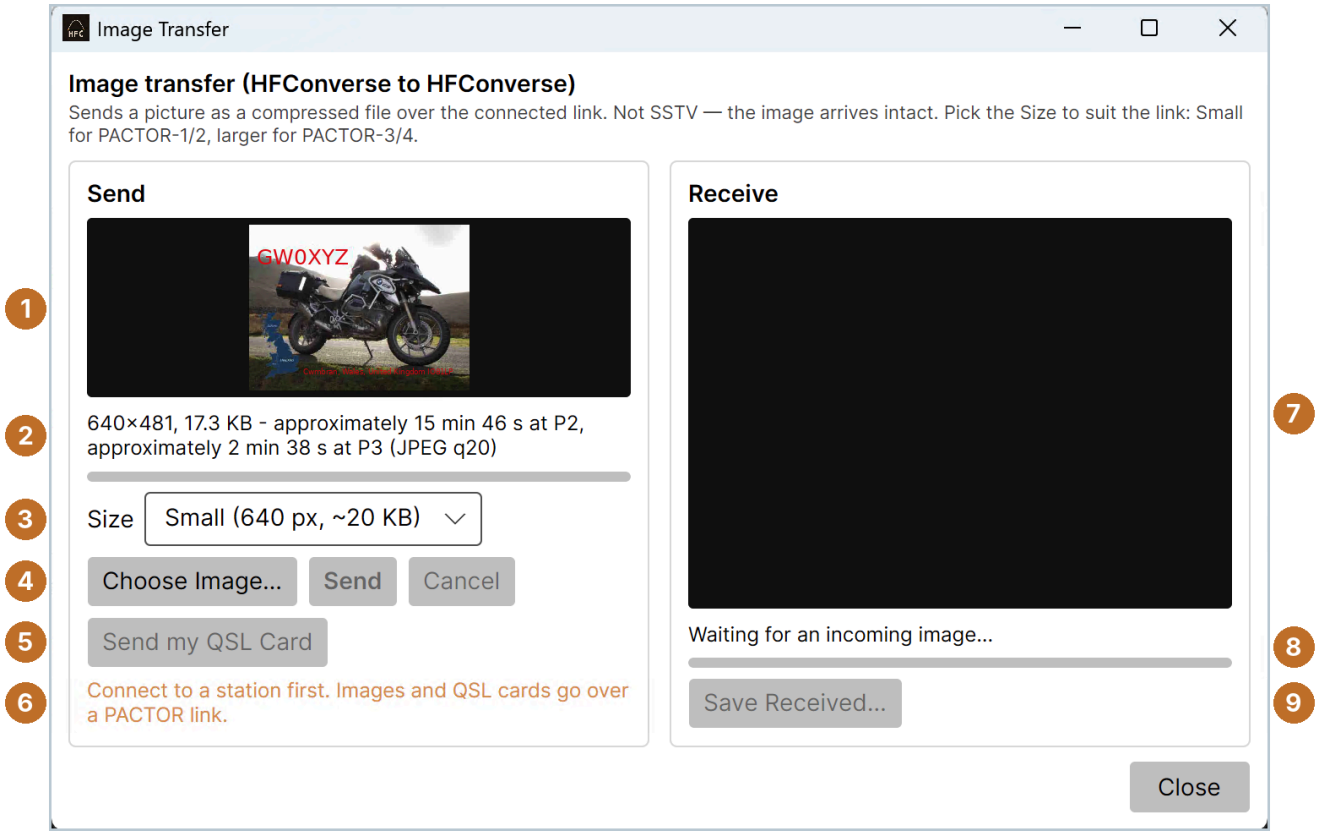
Image transfer

During a keyboard QSO with **another HFConverse station**, you can send a picture over the radio link. This is *not* SSTV — the image travels as a compressed file and arrives intact (no analogue scanning), so both stations see exactly the same picture. It's opened with the **Send Image…** button on the QSO screen, which brings up a floating window you can keep open while you carry on the QSO.

Important: keep images small

PACTOR is slow. A full-resolution phone photo would take *hours* to send. HFConverse automatically shrinks the picture (down-scales it and compresses it hard) so it's practical to send, and — crucially — **it tells you the size and estimated transfer time before you send anything**, so you're never caught out by a transfer that would take an hour. A small, heavily-compressed image is a few minutes over PACTOR; that's the sensible working range.

The window



1. **Preview** — the shrunk picture exactly as it will be sent.
2. **Size and estimate** — the picture's size, and the approximate time at PACTOR-2 and at your highest level.
3. **Size** — Small for PACTOR-1/2, larger for PACTOR-3/4.
4. **Choose Image…**, **Send** and **Cancel** — pick a picture, send it, or stop a transfer.

5. **Send my QSL Card** — sends your card (see *QSL cards*).
6. **Why it's greyed out** — here, because no link is up yet: images and QSL cards go over a PACTOR link.
7. **Receive** — an incoming picture builds here as it arrives.
8. **Progress** — what's arriving and how far it has got.
9. **Save Received…** — saves the picture once it's complete.

- **Send** (left panel) — choose an image, see a preview of the shrunk version that will actually be sent, and the estimate (e.g. "1024x768, 58.3 KB - approximately 53 min 8 s at P2, approximately 3 min 19 s at P4"). The time is shown at PACTOR-2 and at the highest level your station can use (Settings ▸ Max PACTOR Level, capped to your modem; level 3 is P4 on a P4 Dragon). The two stations agree the actual level when they connect, so the real time is somewhere in that range. The rates are rough: approximately 10 bytes a second at P1, 25 at P2, 150 at P3 and 400 at P4.
- **Receive** (right panel) — when another HFConverse station sends you an image, it builds here as it arrives, with a progress bar. When it's complete you can save it. The window opens by itself when an image or QSL card starts arriving, without taking the cursor away from Compose.

Sending an image

1. With a QSO link established, press **Send Image…**.
2. Press **Choose Image…** and pick a picture. The left panel shows the shrunk preview and the size/time estimate.
   - **Size**: how hard the picture is shrunk. **Small** (640 pixels on the longest side, about 20 KB) suits PACTOR-1 and 2. **Medium** (1024 px, ~60 KB) suits PACTOR-3, and **Large** (1600 px, ~150 KB) and **Best** (2048 px, ~400 KB) suit PACTOR-4 on a good link. Changing it re-prepares the picture straight away, so the preview and the size / time shown are what will be sent. Your choice is remembered. The QSL card always goes at its own small size.
3. If you're happy with the estimate, press **Send**.

HFConverse hands the whole picture to the modem in a second or two, and the modem then takes minutes to send it over the air. The progress follows the **modem**, not the hand-over:

- When the modem shows what it transmits (the PTC-IIIusb does), the bar shows the percentage and the time left.
- When it doesn't (the P4 Dragon shows nothing), the bar keeps moving and the line shows how long it has been sending. The other station's screen shows the percentage as the picture arrives.
- On some modems the transmit report isn't reliable for a large picture (the PTC-IIex keeps only about 12 KB of it). If it jumps or goes back, the bar shows the time instead of a percentage, with "this modem's progress report isn't reliable for a picture this size".
- A large card can fill the modem's buffer before it has all been handed over. The modem then says "wait" (XOFF), and HFConverse waits for it to say "go on" (XON) before handing over the rest; meanwhile the line reads "the modem is busy sending what it has".
- **Sent** appears only when the modem has finished: it has nothing left to send and the other station has confirmed every frame. While it waits for that, the line reads "the modem is sending the last of it - wait for it to confirm". **Don't press Cancel then** — the picture has nearly all gone. If the link ends first, you're told how far it got.
- **Cancel** stops HFConverse following the transfer, but whatever the modem already holds still goes out; press **Stop TX (DD)** on the QSO screen to stop it at once.

- You can close the window during a transfer; it carries on, and the progress stays on the QSO screen.

Receiving an image

You don't need to do anything special to receive, and the window doesn't need to be open. HFConverse watches for an incoming image whenever you have a link, opens the window by itself and builds the picture as it arrives. When the picture is complete and has passed its integrity check, press **Save Received…** to keep it; a QSL card goes straight into your album. If the link ends part-way, you're told how far it got. Closing the window clears the picture, so the window opens empty next time. If you haven't saved it, HFConverse asks first: **Save…**, **Don't save** or **Cancel**.

Save Received… offers the sender's own file name (for example `antenna.jpg`). A QSL card, or a picture sent under the plain name `image.jpg`, is offered as the sender's call and the time it arrived (UTC), for example `QSL-OH2PQR-2026-10-23-1410.jpg` or `OH2PQR-2026-10-23-1410.jpg`, so several from one session don't overwrite each other. You can still type any name you like.

Only images on **your own** link are received. An image passing between two other stations while you monitor the channel (the P4 Dragon's Monitor) is ignored.

Progress on the QSO screen. While an image or QSL card is on its way, in either direction, a strip above Received shows its progress, for example *Receiving QSL card from OH2PQR: 3.1 of 7.8 KB (40%)*. The coded lines themselves aren't shown in Received; a short note marks the start and the end instead. A picture on **another station's link** (heard with Listen, or the Monitor on a Dragon) has no progress strip; it shows in Received as one line, for example *[picture qsl.jpg from OH2PQR on another station's link - not shown]*, and isn't saved. The diagnostic log records each transfer (25/50/75%, and whether it arrived complete).

> Because the transfer rides on the connected link, both stations should let the image finish before carrying on with keyboard text, to avoid mixing the two.

QSL cards

HFConverse can exchange **digital QSL cards** with other HFConverse operators, and keep the ones you receive in an **album**. A QSL card is just an image sent over the same mechanism as image transfer — tagged so the receiving station files it in their album with your callsign and the date.

Unlike a regular QSO, this is an HFConverse-only feature: it uses a small wire format of HFConverse's own, so it only works when the other station is also running HFConverse. Working a station on other software (Alpha/Simple32, MixW, etc.) is unaffected either way — the QSO itself works the same regardless — you just can't exchange QSL cards or images with them.

HFConverse doesn't *design* your card — you make it in whatever tool you like (it can be any size), then upload it into HFConverse. HFConverse resizes it to a standard card size so it's practical to send over the air. The standard card is 480 × 300 and about 8 KB.

Setting your QSL card

In **Settings ▸ Logging & QSL ▸ My QSL Card**, press **Upload…** and choose your card image. A preview shows the resized card that will actually be sent. **Remove** clears it.

Sending your card

During a QSO, open the image-transfer window (**Send Image…**) and press **Send my QSL Card**. Your stored card is sent, tagged with your callsign, and the other operator receives it into their album. **Send** and **Send my QSL Card** only work while a PACTOR link is up. Without a link they're greyed out and the window says to connect first. **Choose Image…** still works, so you can get an image ready beforehand.

The QSL album

Open **QSL ▸ QSL Album…** to browse cards you've received. Each card is stored with the sender's callsign and the date it arrived. The album has:

- a gallery list on the left and a large view of the selected card on the right,
- a **search** box to filter by callsign (type part of a call to narrow the list),
- a **sort** control — by received date (newest first) or by callsign,
- a count showing how many cards match your search, and a **Delete Card** button.

The album is your own local collection; it needs no connection to browse once you're in the app.

HFC-Sync (Mail menu)

HFConverse can send a **message** to another HFConverse station over a PACTOR link: a subject, the text, and attachments if you want them. Unlike the QSO itself, a message is kept: it lands in the other station's **Mail ▸ HFC-Sync** window, and their HFConverse confirms that it has it. Both stations need HFConverse 0.1.1.0 or later; with an older HFConverse, or another program, HFC-Sync isn't offered.

Writing a message

1. **Mail ▸ HFC-Sync…**, then **Compose**.
2. **To**: the callsign of the station it's for (with a link up, it starts as the station you're linked with). For several stations, separate the callsigns with `;`, as in mail: `G4QRS; GW0XYZ`. Add a **Subject** and the text; **Attach…** adds files.
3. Under the text, the window shows the size on the air and roughly how long it takes, for example *2.1 KB on the air - approximately 1 min 26 s at P2, approximately 5 s at P4*. A message can hold up to 100 KB, text and attachments together. PACTOR is slow, so keep attachments small.
4. Press **Put in Outbox**. The message waits there until you're linked with that station.

A message to several stations is still one message. It goes to each of them when you're linked with them, and stays in the Outbox, *Delivered 1 of 2*, until they all have it; then it moves to Sent, Delivered. In the reading pane each callsign in **To** has the same colours as the light: blue not sent to that station yet, amber sent and its receipt not back, green that station has it, red not delivered.

Sorting. Sort by above the list puts the Inbox, Outbox or Sent in order of **Date**, **Station** (who it's from in the Inbox, who it's for elsewhere), **Status** (the ones needing attention first: not delivered, not sent, sent, partly delivered, delivered; in the Inbox, unread first) or **Subject**. The arrow beside it reverses the order. HFConverse keeps your choice for next time.

The light beside each message in the Outbox and Sent shows where it has got to: **blue** not sent yet, **amber** sent and waiting for the receipt, **green** delivered, **red** not delivered; **green and amber in turn** when a message to several stations has reached some of them. Hover over it for

the detail; the line under the subject says the same in a word (*not sent*, *sent*, *2 of 3*, *delivered*, *not delivered*).

Unread messages have an orange **NEW** in front of the subject, and the Inbox says how many there are, for example *Inbox (10 · 2 new)*. The window opens on the newest one; opening a message marks it read.

Reply and **Forward** work as in any mail program. **Reply All** answers everyone on a message to several stations: **To** gets the sender and the other stations, separated by `;`, never you (on your own message, everyone you sent it to). It is greyed out when there is only one other station - use Reply. **Save…** beside an attachment saves it to a file.

Signature. Type yours in **Settings ▸ HFC-Sync ▸ Signature** (for example *73 de G4QRS - Fred, Cardiff IO81*) and leave **Add my signature to new messages and replies** ticked: Compose, Reply and Forward then start with it, under the place for your text and above any quote. You can still change or delete it in a message. Keep it short - it goes over the air with every message.

The address book

Address book in the HFC-Sync toolbar keeps the stations you write to: callsign, name and a note. **Add**, **Save** (after changing one), **New** and **Delete** are beside the list; **Write** (or a double-click) starts a message to the selected station. When you're reading a message from a station that isn't in the book yet, **Add to address book** appears next to *From*: it fills in the callsign, and the name if HFConverse knows it from your QSOs.

In a new message, the **To…** button opens the address book to pick a station, and the box beside it suggests stations as you type part of a callsign or a name (typing *kl* offers *DL2KLM - Klaus*). You can still type any callsign. **Add to address book**, at the right of *To*, saves a station you've typed that isn't in the book yet (it's greyed when they all are).

Sending it

When you're linked with that station over PACTOR and its HFConverse has identified itself, **Send to G4QRS** in the HFC-Sync window becomes available, whichever screen you're on: the PACTOR screen, the Terminal or another. On the PACTOR screen the HFC tag is green and a strip above Received says, for example, *1 HFC-Sync message for G4QRS in your Outbox*. Nothing goes out until you press **Send now** or **Send to G4QRS**. **Open** opens the window. The messages go one at a time, with the same progress strip as a picture, and a picture and a message never go out at once.

When **Send to G4QRS** is greyed out, a line under the HFC-Sync toolbar says why: most often *Waiting for G4QRS's HFC identifier* - it comes when G4QRS first has the link, so hand over once - or *Nothing in the Outbox for G4QRS*.

When you have messages for the station you're linked with, HFConverse tells their HFConverse as soon as their identifier has arrived. Their Received notes, for example, *[G4QRS has 2 HFC-Sync messages for you - they come when G4QRS presses Send]*, and their HFC-Sync window says the same, so they can ask you to send them. Nothing goes out until you press Send. Both stations need HFConverse 0.1.4.0 or later for this note. A message without attachments goes as **plain text**, which PACTOR compresses like anything you type, so a short message takes little longer than pasting it into Compose. With attachments, or to an HFConverse older than 0.1.4.0, it goes in the older coded form, which is several times longer.

Where a message has got to is shown in the window:

Status	Means
Waiting to be sent	In the Outbox, for the next link with that station.
Sending	On its way now.
Sent over HF - waiting for the receipt	The other station's modem has all of it. Their HFConverse confirms at their next over.
Delivered (date and time, UTC)	Their HFConverse has stored it. Received notes *[Message "subject" delivered to G4QRS]*.
Not delivered	It arrived damaged twice. Select it in the Outbox and press **Retry**.

Changing a message before it goes: select it in the Outbox and press **Edit** (or double-click it). It opens in the compose window, filled in; save it and the new version takes its place. A message that is being sent, or is lined up on the current link, can't be edited. The same works for Winlink messages in the Outbox. Right-click a message's text for **Copy** or **Select all**.

If the link ends part-way, the message goes back to the Outbox with the reason and is offered again next time. A message that arrives damaged is asked for again automatically, once.

Receiving a message

You don't need to do anything. HFConverse stores the message in the **Inbox**, plays a short sound, notes it in Received, for example *[Message from G4QRS: "Sked tomorrow" - in Mail > HFC-Sync]*, and confirms to the other station. The menu shows how many are unread: **Mail ▸ HFC-Sync… (1 new)**. A message that arrives twice is stored once.

This works on any screen: HFConverse sends its HFC line and takes messages even when you're on the Terminal or another screen when the station connects.

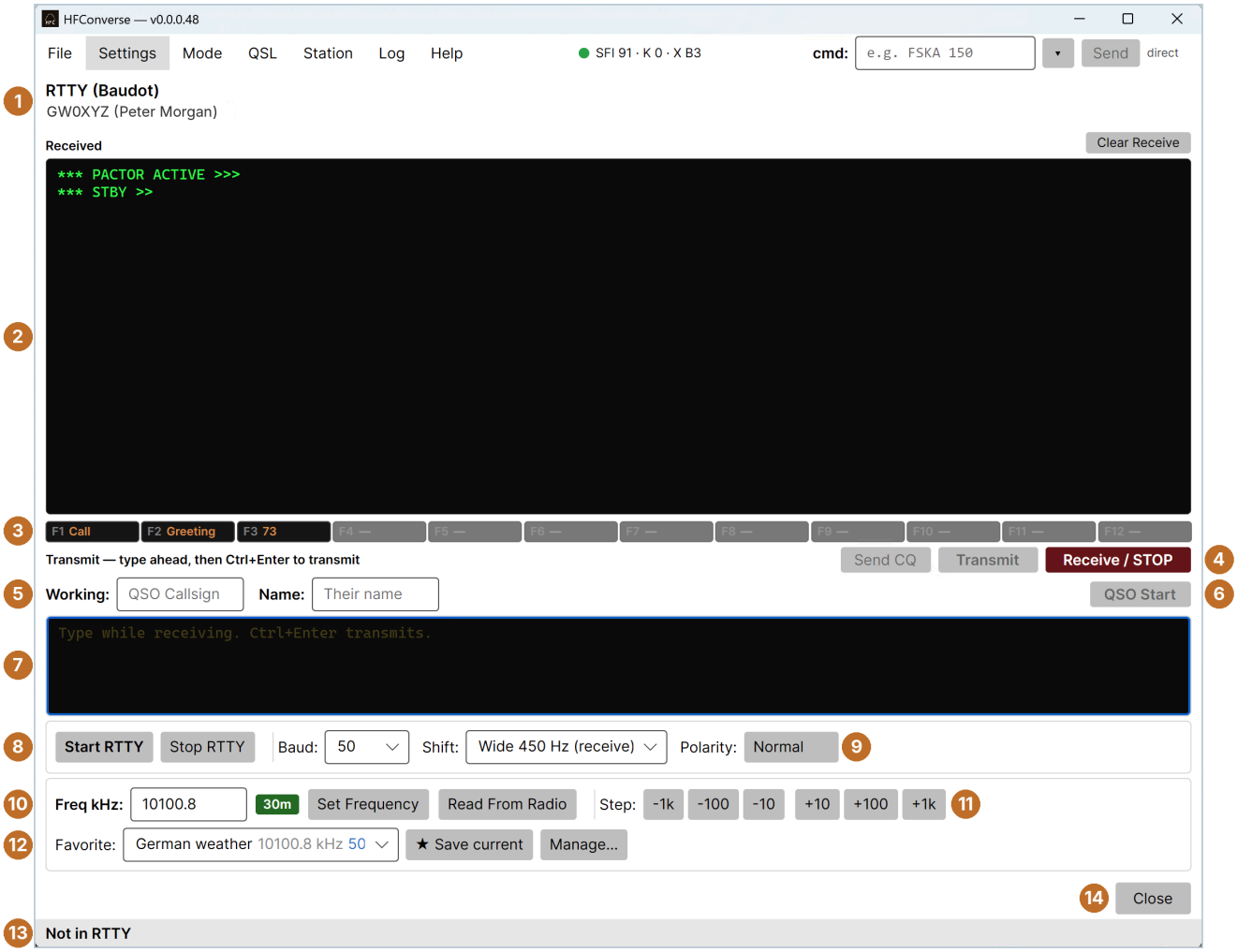
Modem mailbox in direct mode? If your modem mailbox is on with **Let callers type mailbox commands without //** ticked (direct mode, in **Settings ▸ Modem Mailbox**), a station that connects to you reaches the mailbox, not HFConverse, so messages to you can't arrive: the modem answers their HFC line with an error. The HFC-Sync window says so in an amber line, and the PACTOR screen notes it. Untick direct mode; the mailbox itself can stay on.

Only messages on **your own** link are received. One passing between two other stations while you listen shows in Received as one line, *[HFC-Sync message from G4QRS on another station's link - not shown]*.

Your messages stay on your computer, in a protected file in the HFC-Sync folder of HFConverse's data folder: only HFConverse can read or change it, and **Settings ▸ Back up settings…** always includes it. Messages kept by an earlier version (in the HFC Messages folder) are moved into it by themselves the first time HFConverse starts. With two station profiles, both share one set of messages and one address book, like the QSO log: a message waits for its station whichever radio the link is on, and one received in either profile shows in both. **Settings ▸ Back up** includes them when you tick the box for messages.

RTTY (Baudot)

RTTY is the classic radioteletype mode: a continuous FSK (frequency-shift keying) text mode. Unlike a PACTOR QSO there's no connection or error correction — whatever you transmit is keyed straight to air, and whatever the demodulator hears is printed. Like a QSO it's **half-duplex** and uses the same **type-ahead** model.



1. **Mode and station** — the screen you're on, with your callsign and name.
2. **Received** — the decoded text and the modem's own lines. **Clear Receive** empties it.
3. **F-key strip** — your macros on F1–F12. Orange ones can't go out yet: here they need a **Working** callsign (see *Macros*).
4. **Send CQ**, **Transmit** and **Receive / STOP** — Send CQ and Transmit are greyed out here because a Wide shift is chosen. **Receive / STOP** always stops transmitting.
5. **Working** and **Name** — the other station, for `<CALL>` and `<THEIRNAME>` in your macros.
6. **QSO Start / QSO Stop** — marks a contact for the log.
7. **Compose** — type ahead while receiving; **Ctrl+Enter** transmits.
8. **Start RTTY / Stop RTTY** — Start RTTY turns blue while RTTY is running.
9. **Baud**, **Shift** and **Polarity** — here set for a weather station: 50 Bd, Wide 450 Hz.
10. **Freq kHz** — with **Set Frequency** and **Read From Radio**. **Out of band** shows when the frequency is outside the amateur bands of your IARU region.
11. **Step** — moves the radio ±10 Hz, ±100 Hz or ±1 kHz.
12. **Favorite** — RTTY's own list. ★ **Save current** keeps the baud, shift and polarity with the frequency.

13. **Status line** — Receiving or Transmitting, and what just happened.
14. **Close** — leaves RTTY and returns the modem to its `cmd:` prompt.

Starting and stopping

- **Start RTTY** puts the modem into RTTY at the selected baud rate and begins receiving. The button turns **blue** (like **Duplex** when it's on) while RTTY is running, and goes back to normal after **Stop RTTY**.
- **Stop RTTY** returns the modem to the normal PACTOR prompt. Its text turns **orange** as soon as you click it and stays orange until the modem has left RTTY, which takes a second or so, so there's no need to click it again. HFConverse waits on the RTTY screen until the modem reports it's back in PACTOR before the screen closes or another mode opens; if the modem doesn't confirm within a few seconds, the screen stays open and the status line says so. It's also a safe thing to press if you're ever unsure whether the modem is still transmitting — see *If the modem seems stuck transmitting*, below.

Operating

- **Received** (top) shows decoded incoming text.
- **Compose** (below) is where you type ahead while receiving.
- **Transmit** keys up and sends your composed text; **Receive / STOP** drops back to listening. (Or press **Ctrl+Enter** in the compose box to transmit.)
- A macro ticked **Auto transmit** goes out the moment you press its F-key, then HFConverse drops back to receive, with no need for Transmit. See *Creating and editing macros*.
- **QSO Start / QSO Stop**, beside the Name box, marks a QSO for the log, as RTTY has no link to do it. Press **QSO Start** when the contact begins: the button turns blue and reads **QSO Stop**. Press it when you're done and **Worked Station** comes up with the callsign, mode, frequency and both times, ready for **Log QSO**. See *Logging a QSO*.
- **Send CQ** sends your CQ call (the same editable CQ macro used on the QSO screen — see *Macros*). (If auto-presence is enabled, it also announces you on the air — see *On the Air*.)
- After you Transmit or Send CQ, HFConverse also drops back to receive **on its own** a few seconds after your text should have finished sending, as a safety net — you don't have to press Receive / STOP yourself for a normal transmission to end.

If the modem seems stuck transmitting

If the transmit indicator won't clear and you're not sure the modem has stopped sending, press the red **Receive / STOP** button. It always sends a stop-transmit sequence to the modem, whatever HFConverse's own display currently shows — so it's safe (and the right thing) to press even if you're not sure what state things are actually in. **Stop RTTY** does the same thing before it leaves RTTY mode, so it works as a stop as well as an exit. When the modem hasn't reported its state for a few seconds (on a quiet band it only reports changes), HFConverse first asks it (the status poll, which is safe in any mode). If the modem answers that it is receiving, no stop sequence is sent; if it says it is sending, or doesn't answer, the full stop sequence goes out.

If neither brings the transmit indicator down, the modem's power switch is the fallback of last resort.

RTTY controls

- **Baud** — 45 (the amateur standard), 50 or 75.
- **Shift** — the mark/space tone pair: High (2100/2300) or Low (1400/1200), the amateur 200 Hz pairs. **Which sideband:** per the SCS manual, **Low** (mark 1400 / space 1200) expects the

radio in **USB / USB-Data**, and **High** (mark 2100 / space 2300) expects **LSB** (or FSK). So on USB-Data use **Low** with Polarity **Normal**, or **High** with Polarity **Reverse** — garbled text full of figures and punctuation from a well-tuned signal usually means this is the wrong way round. Changing the shift while RTTY is running restarts the modem's RTTY receiver with the new tones, so decoding carries on without a Stop / Start. Also **Wide 450 Hz (receive)** and **Wide 850 Hz (receive)**, for listening to weather and commercial RTTY that uses a wider shift. HFConverse sets the modem's own free tones for these (`TOnes 2` with `MArk` / `SPAce`: 1725/1275 Hz and 1925/1075 Hz). Use **USB** and an IF filter wider than 500 Hz. While a wide shift is chosen, **Transmit** and **Send CQ** are greyed out. Leaving RTTY puts your normal tone setting back, so PACTOR-3 still works. Many weather stations use **50 baud**; if one prints rubbish, try **Reverse**. **Stop RTTY** leaves the modem one step at a time (ESC, wait for the RTTY prompt, `TR 0` if Reverse was on and ESC again — the modem takes only one command per ESC — then `PT`, and wait until the modem is back at `cmd:`), and only then puts your **Tones** setting back. With Tones on "leave" in Settings, the RTTY screen reads the modem's own tones at **Start RTTY** and puts those back. The RTTY screen remembers **Baud**, **Shift** and **Polarity** when you reopen it or restart HFConverse; a favorite that carries them sets them.

- **Favorite** — RTTY has its own favorites list, like AMTOR's, with ★ **Save current** and **Manage…** beside it. ★ **Save current** saves the frequency together with the **baud, shift and polarity** now set, so a weather station saved at 50 Bd, Wide 450 Hz, Normal comes back exactly like that when you pick it (shown after the frequency, e.g. `50 Bd, Wide 450 Hz, Normal`). Picking a favorite sets the radio's frequency (with CAT) and those settings. In **Manage…**, untick **Also set …** and press **Update Selected** to make a favorite frequency only. RTTY favorites aren't scanned.
- **Polarity — Normal / Reverse** — flips which tone is Mark and which is Space, on both transmit and receive. If a signal won't decode and looks like RTTY, try **Reverse** — signals are often received "upside down" relative to your settings, depending on the other station's radio and audio chain. This is the control you'll reach for most. The modem keeps the Reverse setting (`TR 3`) after you leave RTTY, so when you press **Stop RTTY** or close the screen with Reverse selected, HFConverse sets it back to Normal (`TR 0`) first. The screen remembers your choice for the next **Start RTTY**. HFConverse also sets Normal (`TR 0`) when it connects to a PTC modem and each time the PACTOR screen opens, because a PTC in PACTOR standby decodes AMTOR too (FEC broadcasts and direct AMTOR calls), using the same setting.

> **AFSK, not switchable FSK:** the PTC-IIusb doesn't have a separate hardware FSK keying output the way some older dedicated RTTY terminal units did. Everything it sends for RTTY (and AMTOR, and PACTOR-1) goes out as a pair of audio tones fed into your radio's normal SSB audio chain, with the radio simply sitting in USB/LSB — there's no AFSK/FSK mode to choose because the modem only works this one way. What genuinely does need to match the other station is the **Mark/Space assignment** (the Polarity control, above) and the **tone pair** (Shift) — get either wrong and a perfectly good signal just won't decode.

Tuning in RTTY

If PTC transceiver control is set up, the RTTY screen has its own frequency controls:

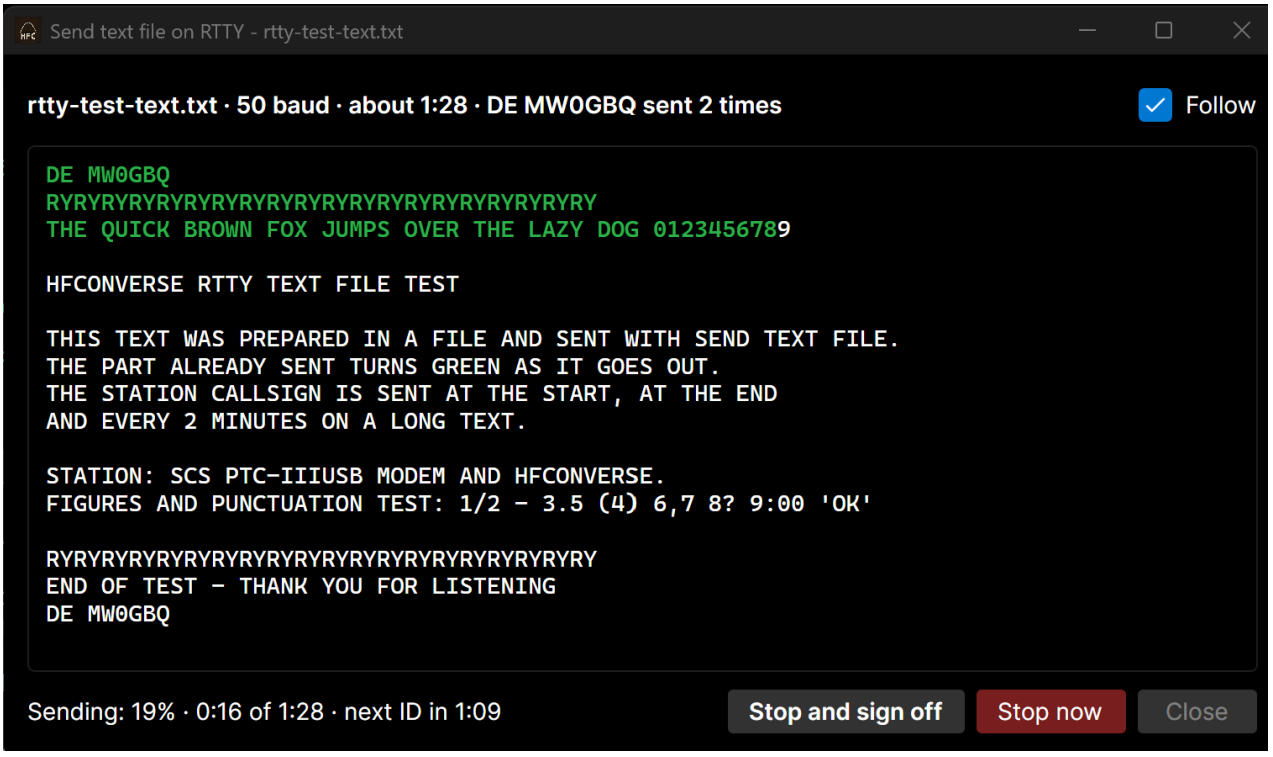
- **Freq kHz + Set Frequency + Read From Radio** — as on the QSO screen. Read From Radio puts the radio's frequency in the box, so a station found by turning the dial (a weather station outside the bands, say) can be saved with ★ **Save current**.
- **Step buttons (±10 Hz, ±100 Hz, ±1 kHz)** — nudge the frequency to hunt across a band for signals. The **±10 Hz** pair is for the last bit of tuning onto a signal.

RTTY remembers its own last-used frequency separately from the QSO screen, since you tend to operate the two on different frequencies. If transceiver control isn't configured, set the radio's frequency by hand.

Sending a text file

Send Text File… (beside **Send CQ**) sends a text you've prepared instead of typing it — a description of your station, a bulletin of your own, a long test text.

1. Start RTTY, choose the baud rate and shift (High or Low — not a wide shift) and press **Send Text File…**. It stays greyed out until your **callsign** is set in Settings.
2. Pick the file: a plain text (`.txt`) file of up to 50,000 characters.
3. HFConverse shows how long it will take at your baud rate and asks you to accept a **copyright warning**: only send text you wrote yourself or have permission to send. Books, articles, news stories, poems and song lyrics belong to their owners, and transmitting them can break copyright law and your licence conditions — you are responsible for what you transmit. Press **I accept - send** to go ahead, or **Cancel**.
4. The text goes out from its own window. What has been sent turns **green**, and the window keeps the part going out in view (untick **Follow** to scroll through it yourself). The line below shows how far through it is and when your callsign goes out next.



Your callsign is always sent. HFConverse sends `DE` and your callsign (for example `DE G4QRS`) on a line of its own at the start, at the end and about **every 2 minutes** in between — at the end of a line, or between words if a line runs on. The window shows these lines in the text, just as they go out.

RTTY has only capital letters, figures and a little punctuation, so the text goes out in capitals, accents are dropped (é goes as E), and characters RTTY can't send are changed (`;` to `,`, `&` to AND, quotation marks to `'`) or left out — the warning says how many.

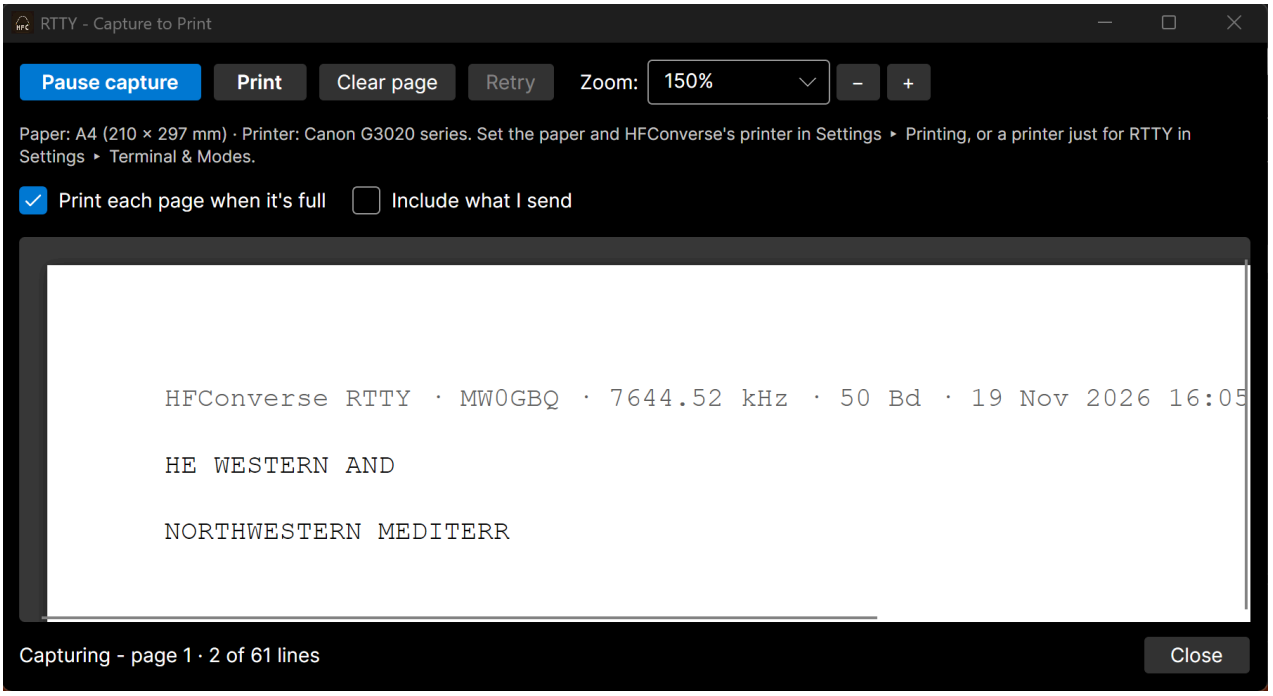
Stopping. Stop and sign off sends the few seconds of text already in the modem, then your callsign, then goes back to receive. **Stop now** — or **Receive / STOP** on the RTTY screen — stops

at once, without the closing callsign. Closing the window asks first, then stops and signs off; **Stop RTTY** or closing the RTTY screen stops it too. While the file goes out, **Transmit**, **Send CQ**, macros set to transmit straight away and **Baud / Shift / Polarity** are held off. At the end HFConverse goes back to receive by itself.

Capture to Print

Capture to Print… (above Received, beside Clear Receive) prints what you receive onto paper, the way a teleprinter did.

1. Press **Capture to Print…**. A window opens showing a blank page of your paper.



2. Check the paper and printer shown under the buttons. The **Paper** and HFConverse's printer are set in **Settings ▸ Printing**; to print RTTY on a printer of its own, choose it in **Settings ▸ Terminal & Modes ▸ RTTY**. The window takes up a change when you come back to it.
3. Press **Start capture**. From now on what the RTTY screen receives is printed onto the page in the window, line by line, in Courier at 12 characters and 6 lines to the inch with 15 mm margins — exactly as it will come out of the printer. Long lines wrap at a space, runs of blank lines are cut to two, and the modem's own messages (`*** …` lines and prompts) are left off. Each page has a heading line: callsign, frequency, baud, the date and time (UTC) the page started, and the page number.
4. When the page is full it goes to the printer and a new page starts. Untick **Print each page when it's full** to keep full pages until you press **Print**.
5. **Print** sends the page so far (and any full pages waiting) straight away and starts a new page. **Pause capture** stops adding to the page; nothing is lost. **Clear page** throws the page away.

Zoom shows the **Whole page**, the **Page width**, or 50–200% (100% is about the size it prints); **−** and **+**, or Ctrl + mouse wheel, step through the sizes, and your choice is kept. Tick **Include what I send** to print your own transmissions too. A paper change while a page has text on it takes effect on the next page. A page that doesn't print (printer off, out of paper) is kept: **Retry** sends it again. Closing the window with text not yet printed asks: **Print it**, **Don't print**, or **Cancel** to keep the window open; closing the RTTY screen stops the capture but leaves the window open, so you can still print the page.

Operating HFC — an RTTY QSO, step by step

RTTY works fundamentally differently from PACTOR. PACTOR is an **ARQ/connected** mode — Connect and Disconnect establish and end a tracked link between two stations. RTTY has no such thing: it's a **continuous, unconnected FSK converse mode**, exactly the way RTTY has always worked on the air. Both stations simply tune to the same frequency and take turns transmitting by mutual courtesy and timing — there's no handshake, no "linked" status, and nothing in HFConverse that confirms the other station actually copied you. Only what appears in your own Received box tells you anything happened.

This section walks through a complete RTTY contact between two HFConverse operators: **Operator 1**, who calls CQ, and **Operator 2**, who answers. Both are assumed to have their radio and modem already connected and working (see *Getting started*, above).

The RTTY screen's controls

- **Start RTTY / Stop RTTY** — Start RTTY enters the modem's RTTY personality at the selected baud rate and applies your Shift/Polarity settings; Stop RTTY leaves it and returns to the PACTOR command prompt. Stop RTTY is always available once the modem is open, even if HFConverse's own tracking of whether you're "in RTTY" is out of step with the modem — deliberately, so it always works as an escape hatch.
- **Baud / Shift / Polarity** — the standard RTTY parameters (45/50/75 baud; mark/space tone pair; normal or reversed). Changed live if you're already in RTTY.
- **Working callsign** — unlike the PACTOR Link panel's Callsign box, this has nothing to do with a link (RTTY doesn't have one). It's purely for macro substitution — anywhere a macro uses `<CALL>` (e.g. a reply macro reading "de <CALL>"), this is what gets substituted in. Fill it in from the other station's CQ the same way as on the PACTOR screen: select their callsign in the Received box, right-click, and choose **Add selection to working callsign** (the menu also has a plain **Copy**, for pulling any text out of the log).
- **Send CQ / Transmit / Receive-STOP** — Send CQ transmits your CQ macro; Transmit sends whatever's in the Compose box. Send CQ stays disabled — with a tooltip explaining why — until your **callsign** is set in Settings. Both key the transmitter via the same changeover sequence and both arm an automatic stop a few seconds after the text should have finished sending. **Receive / STOP** always sends a full stop-transmit sequence and is always clickable, whether or not you think you're currently transmitting — it's the safety-critical un-key button, so it's never gated on the app's own state tracking.
- **Frequency / Set Frequency** — as on the PACTOR screen, active only if PTC transceiver control (or another supported CAT method) is configured.

> **A note on transmit safety:** RTTY has several layers of defence against a stuck transmitter — an automatic stop timed to the length of what you just sent, an always-available Receive/STOP button, and Stop RTTY itself running the same stop sequence before it leaves RTTY. If the modem ever seems to stay keyed, press **Receive / STOP** — it's designed to work regardless of what the app thinks your current state is.

> **Unlike PACTOR, there's no passive listening.** On the PACTOR screen, Listen mode lets the modem sit at the PACTOR prompt and still decode incoming traffic — you don't need the QSO screen open to know something's happening. RTTY has nothing equivalent. **Start RTTY** isn't just a UI state — it's the command that switches the modem's demodulator into the Baudot personality in the first place. Until that's been sent, the modem isn't decoding RTTY at all, no matter what's on screen, and the RTTY screen's Received box only exists (and only receives) while that screen is open. In practice this means: **both operators need to already be in RTTY, with Start RTTY clicked and a matching baud rate and shift, before either one can hear anything from the other** — including a CQ. There's no ARQ handshake to negotiate this automatically, so baud/shift have to be agreed by convention or prior arrangement (45 baud is the near-universal default).

Step by step: Operator 1 (the CQ caller)

1. From the **Terminal** screen, open **Mode ▸ RTTY**.
2. Click **Start RTTY**. HFConverse enters RTTY at the selected baud and applies your Shift/Polarity settings; the status strip shows "Receiving." This is also the point at which the modem starts actually decoding Baudot — nothing was received before this.
3. Click **Send CQ**. HFConverse changes the modem over to transmit and sends the CQ macro text (edit it under *Macros* if you want your own wording).
4. The modem is automatically returned to receive shortly after the CQ should have finished sending — or press **Receive / STOP** yourself the moment you're done.
5. Operator 1 now listens. There's no automatic notification of a reply the way a PACTOR link lights up — watch the Received box for someone answering.

Step by step: Operator 2 (answering the CQ)

1. For Operator 2 to hear anything at all, they need to already be in RTTY themselves: **Mode ▸ RTTY**, then **Start RTTY**, at the same baud rate and shift Operator 1 is using. (In practice this usually means both operators were already parked in RTTY, watching the same frequency, the way RTTY operating has always worked — Operator 2 doesn't discover the CQ by chance while doing something else in the app.)
2. Once receiving, Operator 1's CQ appears in Operator 2's own Received box. Operator 2 selects the callsign, right-clicks, and chooses **Add selection to working callsign** — it drops into the Working box, ready for any reply macro that uses `<CALL>`.
3. Operator 2 types a reply into Compose (or uses a macro that expands `<CALL>` to Operator 1's callsign), then clicks **Transmit** — or waits for a natural gap once Operator 1 has clearly stopped sending, since nothing in the software enforces turn-taking the way PACTOR's ARQ link does.
4. Operator 1 sees the reply appear in their own Received box and replies in turn, exactly the same way. From here it's a normal back-and-forth: type ahead into Compose while receiving, Transmit when it's your turn.

Ending it

Either operator clicks **Stop RTTY** when the contact is over. This runs the same stop-transmit safety sequence used by Receive/STOP first, then leaves RTTY and returns the modem to the PACTOR command prompt. Closing the RTTY screen does the same automatically if you're still in RTTY when you close it.

PSK31

PSK31 is a narrow, modern alternative to RTTY — about 60 Hz wide, and noticeably better at digging a signal out of noise. Reach it from **Mode ▸ PSK31**.

If you can drive the RTTY screen you can drive this one. It works exactly the same way: type into the compose box while you're receiving, then press **Transmit** (or Ctrl+Enter) to send it. Macros, function keys, the working callsign box and Send CQ all behave identically, and share the same macro list. That includes macros ticked **Auto transmit** (see *Creating and editing macros*). **QSO Start / QSO Stop** works as on the RTTY screen (see *Logging a QSO*).

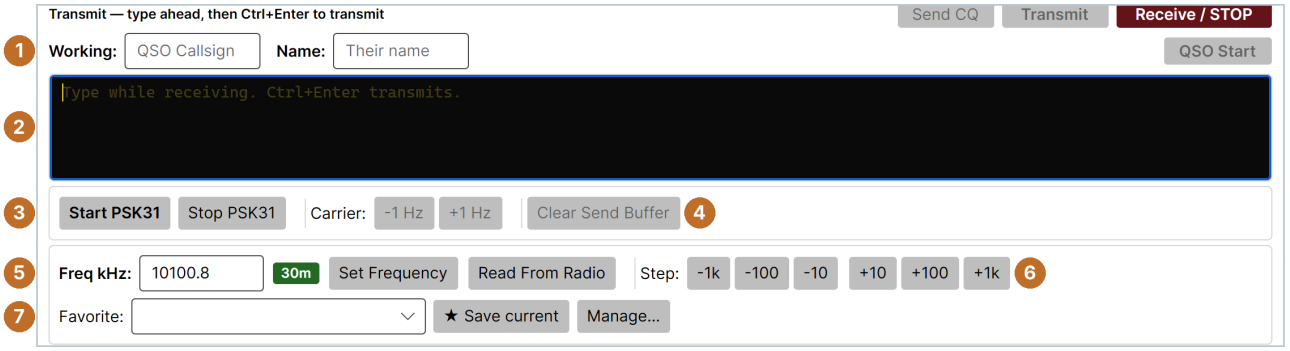
There is also **less** to set up than RTTY. There's no baud rate, no shift, and no tone pair to choose — PSK31 has only one speed, and the audio tone is worked out from your existing settings. A radio already set up for PACTOR or RTTY is already set up for PSK31.

Getting started

1. Set a PSK31 frequency (14070 kHz is the usual 20m watering hole). PSK31 has its own **Favorite** list, with **★ Save current** and **Manage…**, under the frequency row; picking one sets the radio's frequency (with CAT). PSK31 favorites aren't scanned.
2. Click **Start PSK31**. The button turns **blue** while PSK31 is running, and goes back to normal after **Stop PSK31**.
3. Watch the Received pane. When you see decoded text, you're tuned in.

> **Tuning matters far more than it does in RTTY.** A PSK31 signal is only about 60 Hz wide and needs tuning to within a few Hz before it will decode at all — where RTTY tolerates being some way off. Use the **Step** buttons to move the radio's dial while hunting for a signal, then the **Carrier −1 Hz / +1 Hz** buttons for the fine work.

The lower half of the PSK31 screen is below. The top half (Received, the F-key strip, **Send CQ**, **Transmit**, **Receive / STOP** and **QSO Start**) is the same as on the RTTY screen.



1. **Working** and **Name** — the other station, for `<CALL>` and `<THEIRNAME>` in your macros.
2. **Compose** — type ahead while receiving; **Ctrl+Enter** transmits. The blue border shows it has the cursor.
3. **Start PSK31 / Stop PSK31** and **Carrier −1 Hz / +1 Hz** — Carrier is greyed out until PSK31 is receiving.
4. **Clear Send Buffer** — takes back text already queued on the modem (see below).
5. **Freq kHz** — with **Set Frequency** and **Read From Radio**. The green badge names the band; outside the amateur bands it reads **Out of band**.
6. **Step** — moves the radio ±10 Hz, ±100 Hz or ±1 kHz.
7. **Favorite** — PSK31's own list of frequencies.

Carrier tuning versus dial stepping

These do different things and it's worth being clear which is which:

- **Step (±10 Hz, ±100 Hz, ±1 kHz)** moves your **radio's dial**, exactly as on the RTTY screen. This is for moving around the band.
- **Carrier (±1 Hz)** moves the **modem's decoder**, not the radio. This is the fine adjustment that pulls a signal into decode once you're close. It only works while receiving.

Clear Send Buffer

Unlike RTTY, PSK31 holds your typed-ahead text on the **modem** rather than in HFConverse. So if you've queued text and then think better of it, **Clear Send Buffer** is the only way to take it back — the modem confirms with `*** CLR`. This is different from **Clear Receive**, which only tidies up your own screen and touches nothing on the modem.

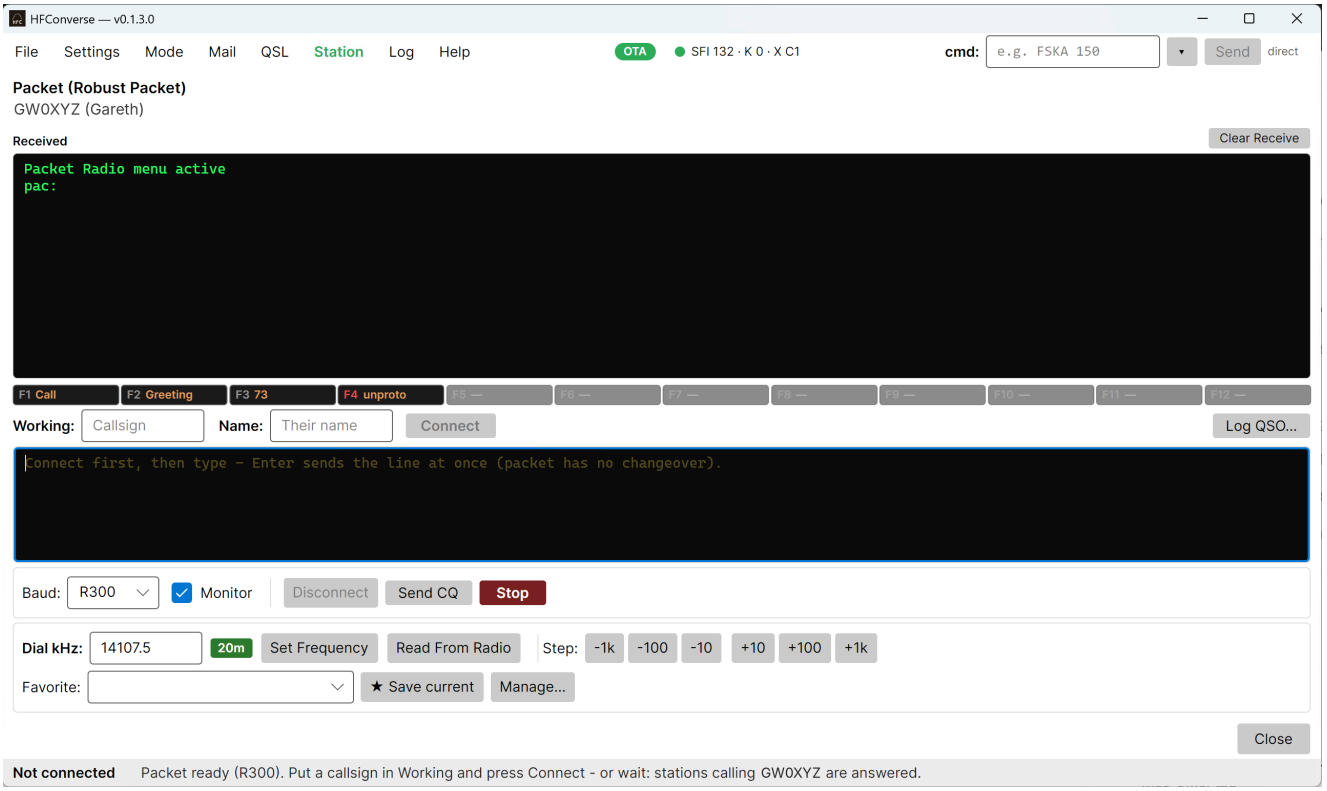
Stopping, and leaving

Receive / STOP ends a transmission, and **Stop PSK31** leaves the mode and returns the modem to the PACTOR command prompt. Its text turns **orange** as soon as you click it and stays orange until the modem has left PSK31 (a second or two), so there's no need to click it again. As with RTTY, HFConverse waits until the modem reports it's back in PACTOR before the screen closes or another mode opens; if it doesn't confirm, the screen stays open and the status line says so. Stop PSK31 always stops any transmission first, then sends ESC and `PT`. HFConverse then checks the modem really is back at `cmd:` — if it's still showing its PSK31 prompt (`**-P-**`) it tries once more, and if that fails the status line tells you to type `PT` yourself.

> **One counterintuitive setting.** PSK31's transmit audio level is controlled by the **FSK output level** slider (Settings ▸ Equipment ▸ Modem), not the PSK one — the PSK slider is for PACTOR-2/3. Whatever level already works for PACTOR or RTTY will normally be right here too. Be careful not to over-drive the transmitter: PSK31's amplitude varies as it sends, and an over-driven PSK31 signal becomes extremely wide and will annoy the whole band.

Packet (Robust Packet)

Packet Radio on HF - **Robust Packet** (RPR: R300 / R600) and classic **300 Bd** packet - keyboard to keyboard, with one station at a time. Reach it from **Mode ▸ Packet**. It's there for the PTC-IIe, PTC-IIex, PTC-IIusb and PTC-IIIusb (on the PTC-IIe, IIex and IIusb Robust Packet needs firmware 3.6 or later), the P4 Dragon (DR-7400 / DR-7800, with its Packet and RPR firmware) and the DR-9400. The PTC-II and PTC-IIpro run packet only through their optional packet module on a separate socket, so the menu item is greyed out for them.



Robust Packet is centred on **1500 Hz** audio, on USB at both ends, and is about 500 Hz wide. A radio already set up for PACTOR is set up for Robust Packet: HFConverse sets the radio mode chosen for PACTOR in Settings ▸ CAT Configuration, and the transmit level is the PSK output level (300 Bd uses the FSK level). A P4 Dragon gives Robust Packet a level of its own (`TXLevel R`), so HFConverse sets that to your PSK output level each time the Packet screen opens.

Getting started

1. Open **Mode ▸ Packet** with no PACTOR or AMTOR link up. HFConverse puts the modem into its Packet menu (`pac:`) and sets your callsign, the **Baud** and **Monitor**; the status line says **Packet ready**. From then on, stations that call you are answered.
2. Set the frequency. The Packet screen shows the **dial** frequency, as Robust Packet frequency lists give it; the signal sits 1.5 kHz above it. Packet has its own **Favorite** list.
3. Put the other station's callsign in **Working** and press **Connect**. The status bar shows *Connecting to …*, then *Connected to …*.
4. Type in the compose box and press **Enter**: each line goes as soon as you press Enter. Packet has no changeover - both stations can type at any time. **Shift+Enter** starts a new line in the box without sending.
5. **Disconnect** ends the link in order (anything still queued goes first). Pressed again while it says **Disconnect now**, it breaks the link at once.

The controls

- **Baud** - **R300** or **R600** (Robust Packet; inside a link both adapt between 200 and 600 bit/s by themselves) or **300** (classic 300 Bd packet, on the PTC-IIusb / IIIusb only - the Dragons don't have it, so it isn't offered for them). Both stations must use the same. It can't be changed during a link.
- **My call** - the callsign packet uses, for your connects and the APRS beacon. It starts as your callsign from Settings ▸ Station; pick another from the list or type one, for example with an SSID (**G4QRS-10**), and press Enter. It goes to the modem straight away and is kept for next time; the ✕ beside a callsign in the list forgets it (your own stays). The modems have no separate callsign for the beacon (MYAlias is only a second callsign they answer to), so the beacon always goes out with this one. PACTOR always keeps your callsign from Settings ▸ Station. It can't be changed during a link.
- **Monitor** - shows other stations' packet traffic in Received. Their frame headers start `fm` and show dimmer. Your own link stays clean either way.
- **Send CQ** - sends your CQ macro (the same one as on the other screens) as packet unproto frames to `CQ`, one frame per line, on the modem's unproto channel. A station that sees it simply connects to you, and HFConverse answers. **R300** carries furthest for a CQ: unproto frames don't adapt the way a link does. Not during a link; Baud can't change while the CQ goes out. With On the Air's **Auto announce** on, it puts you on the air with activity CQ, as on the other screens.
- **Stop** - breaks the link at once (Disconnect twice, like DD in PACTOR). It's sent whatever HFConverse thinks the link is doing, so it's the button to use if anything seems stuck.
- **Working**, **Name**, the F-keys and macros work as on the other screens. Packet callsigns can't hold a `/`: a portable callsign is connected as its base callsign; an SSID such as `-3` is allowed.
- **Log QSO...** - Worked Station, filled in with this contact. It also comes up by itself when a link ends, as after a PACTOR link. Packet is logged as ADIF `PKT`.

Commands during a link

While a packet link is up, the modem is in converse mode: whatever reaches it goes to the other station. So HFConverse sends every command - Disconnect, Monitor, and anything you type in the **cmd:** box - with ESC first, and nothing goes out as text by mistake. Without a link, commands in the cmd: box go to the Packet menu as typed (only packet commands work there).

Setting the frequency with "Modem drives the radio"

The modem doesn't take its TRX commands in the Packet menu. With **Modem drives the radio**, Set Frequency and Read From Radio leave the Packet menu for a moment (`Quit`), set or read the frequency, and go back in (`PACket`) - not during a link. Hamlib, FlexRadio and PC drives the radio aren't affected.

APRS beacon (Settings ▸ Packet)

A PTC forgets its APRS settings when it's switched off, so HFConverse keeps them in **Settings ▸ Packet** and sends them to the modem every time the Packet screen opens (a Dragon keeps its own with SAP). A P4 Dragon runs packet alongside PACTOR, so its beacon would carry on from any screen and on whatever frequency the radio is on: with the beacon on, HFConverse switches it off when it connects to the modem and when the Packet screen closes, so it only goes out while you're on the Packet screen. **Leave as the modem has it** (as delivered) sends nothing. **Off** switches the beacon off. **On - fixed position** beacons the **Position** in the modem's own form, `5226.55N 00412.30W`; **From locator** fills it in from the centre of your locator (Settings ▸ Station), and it's filled in that way if you leave it empty. **On - GPS position** uses a GPS receiver on the modem. With the beacon on, **Every (minutes)** (15 as delivered; on HF, 15 or more keeps the channel free), **Comment** (40 characters at most), **Path** (`APHFC WIDE1-1` as delivered: the APHFC destination marks an HFConverse station, and on HF a path should ask for no more than WIDE1-1), **Symbol** (a house for HF as delivered) and **Compressed position** go too, and on a P4 Dragon or DR-9400 a **Status** text sent every so many position beacons. The Packet screen says under the station line what's set: *APRS beacon: fixed position 5226.55N 00412.30W, every 15 min*.

Leaving

Close (or another mode) returns the modem to the PACTOR command prompt. With a link up it asks first, disconnects (at once if the other station hasn't answered within about 20 seconds), then sends `Quit`. If the modem doesn't confirm, the screen stays open and the status line says what to do.

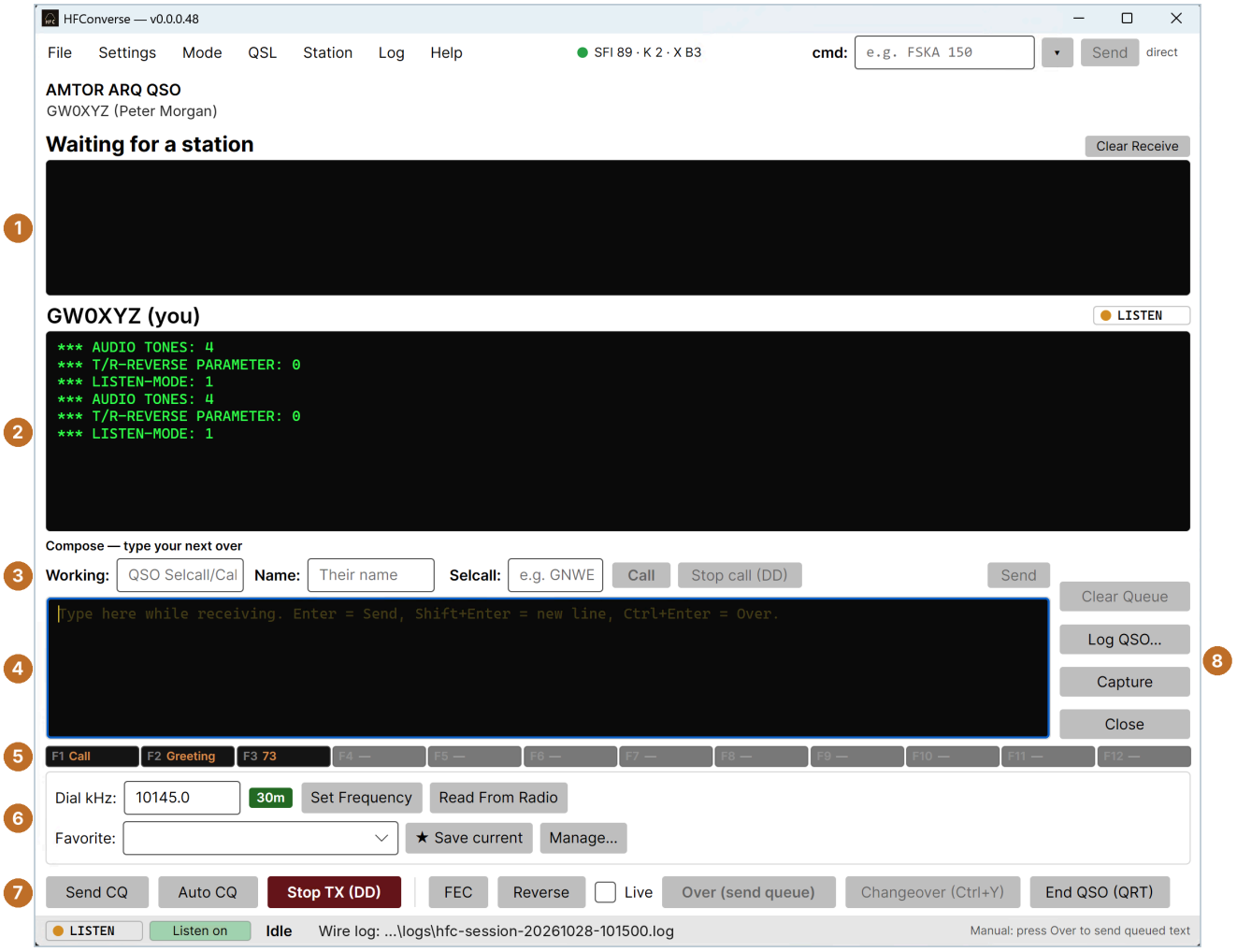
> **First version.** The wording of the modem's connect and disconnect messages isn't printed in the SCS manuals, so HFConverse recognises them loosely. If the status bar doesn't follow a link properly, please report it with Help ▸ Report a problem: the Packet session is recorded in the wire log `packet-wire-debug.log`.

AMTOR

AMTOR is PACTOR's older ARQ ancestor — a connected, error-corrected keyboard mode, just like the PACTOR screen, but running AMTOR's own protocol and traditionally addressed by a 4-letter **Selcall** rather than a full callsign. Reach it from **Mode ▸ AMTOR**.

> **Not on every modem.** AMTOR-ARQ isn't implemented in firmware on the SCS PXdragon DR-9400 or the P4 Dragon (DR-7800/DR-7400) — both modems' own manuals say so outright. On those two, the AMTOR item in the Mode menu is disabled entirely rather than offered and left to fail; see *Supported modems*, above.

The screen



1. **Their side** — the other station's callsign (here *Waiting for a station*) and their text. **Clear Receive** empties it.
2. **Your side** — what you've sent, with the modem's `***` lines.
3. **Working line** — their callsign or SELCALL, their name, the **Selcall** to call, **Call** and **Stop call (DD)**; **Send** puts Compose into the queue.
4. **Compose** — type your next over while they're still sending.
5. **F-key strip** — your macros (see *Macros*).
6. **Radio** — the dial frequency, the band, **Set Frequency** and **Read From Radio**; on the line below, your AMTOR favorites.
7. **Action row** — **Send CQ**, **Auto CQ**, **Stop TX (DD)**, **FEC**, **Reverse**, **Monitor ARQ**, **Live**, **Over**, **Changeover** and **End QSO**.
8. **Beside Compose** — **Clear Queue**, **Log QSO...**, **Capture** and **Close**. The status strip along the very bottom is the same as on the PACTOR screen.

The AMTOR screen shows the two sides of the QSO **stacked**, one above the other, so the reply you're answering is straight above where you type and your eyes move up and down rather than across:

- **Top — their side.** The other station's callsign (or *Waiting for a station*) in large type, with **Clear Receive** beside it, and their text in **green**, across the full width.
- **Below it — your side.** Your callsign, then what you've sent, in **yellow** (with no `>>` in front), together with your modem's `***` lines and HFConverse's notes such as `[frequency 14105`

kHz], in green. Text waiting to go out shows **greyed** at the foot of your text until your over, then appears in yellow as the modem sends it. **Clear Queue** removes it.

- **Bottom — Compose**, full width, with the Working / Name / **Send** row above it, and the **F-key strip** under it. The modem state box is at the right of your callsign heading.

The divider between their pane and yours can be dragged; HFConverse remembers where you leave it, on the PACTOR screen too. There is no separate **Outgoing queue** box. **Copy** on the right-click menu copies from the pane you clicked; **Add selection to working callsign** is on their pane. Closing and reopening the screen keeps both sides.

The **Selcall** box, **Call** and **Stop call (DD)** are on the Working / Name line above Compose, and the screen has the same divider above Compose, the one-row Radio box and the minimum pane sizes as the PACTOR screen (see *The screen at a glance*).

> **Reversed tones and AMTOR calls**. A PTC in PACTOR standby also answers AMTOR calls and decodes AMTOR FEC, using the modem's TR (tone polarity) setting, which it keeps. The modem won't accept TR at its PACTOR prompt, only at the RTTY or AMTOR prompt, so tones left reversed — for example after listening to RTTY weather broadcasts with **Reverse** — can stop it responding to an AMTOR call. HFConverse sets the tones back to Normal for you: when it connects to the modem, when the PACTOR or AMTOR screen opens, and when you stop RTTY with Reverse selected. If you've used another program for RTTY, reconnect HFConverse or open the PACTOR screen once to be sure.

Underneath, it's the same as the PACTOR screen. It shares the same **Manual / Auto-flush** over-mode setting as the PACTOR screen (Settings ▸ Keyboard-to-Keyboard (QSO)) — press **Over (send queue)** yourself in Manual, or let it release automatically in Auto-flush.

- **Working** — the other station's Selcall or callsign. Type it in, or select it from the Received panel, right-click, and choose **Add selection to working callsign** — the same pattern as every other operating screen. It's what `<CALL>` expands to in macros.
- **Send CQ / Auto CQ** — HFConverse switches the modem into AMTOR's **FEC** broadcast mode (mode B) to send your CQ text, then returns it to standby. Both Send CQ and Auto CQ stay disabled — with a tooltip explaining why — until your **callsign** is set in Settings. **Auto CQ** sends a longer call in **one continuous FEC broadcast**: the AMTOR CQ macro repeated **CQ lines per call** times (Settings ▸ Terminal & Modes), then the modem stands by for a reply. **Stop TX (DD)** ends it at once, and it stops if a station connects. With **Repeat Auto CQ** on (Settings ▸ Terminal & Modes), it calls again every few minutes into a quiet channel, up to 10 calls, exactly as on the PACTOR screen (see *Repeat Auto CQ* there). (The **CQ end text** macro isn't used — it's PACTOR-worded.) The text is the **AMTOR CQ** macro, which includes your SELCALL — see *The AMTOR CQ macro*.
- **FEC** — an open FEC broadcast (AMTOR mode B) that anyone can read, the AMTOR equivalent of **Unproto** on the PACTOR screen. Switch it on and the transmitter keys (`FEC`); each line you send from Compose with **Enter** (or Ctrl+Enter) goes out at once and shows in your pane. Switch it off and the modem finishes what it holds (Ctrl-D), then returns to AMTOR standby and Listen. It can be switched on in standby only — not during a link, a call or a CQ — and while it's on, **Call**, **Send CQ** and **Auto CQ** are greyed out.
- **Stop TX (DD)** — the emergency stop, as on the PACTOR screen: always available while connected, it ends an FEC broadcast, a CQ, Auto CQ or a call in progress at once (the modem's DD), throwing away anything not yet sent, and returns to AMTOR standby. It's red, as is the PACTOR screen's **Stop TX (DD)**.
- **Reverse** — for the odd station, usually not using an SCS modem, that calls with its tones the wrong way round (often because it's on the wrong sideband), so nothing decodes. Switch it on

and both receive and transmit are reversed (the modem's TR 3), so you can read the station and still make an AMTOR link with it; switch it off for normal stations. It can only be changed in AMTOR standby — not during a link, a call, a CQ or an FEC broadcast. Between SCS modems AMTOR is always normal, so the screen always opens with Reverse off, and leaving it puts the tones back to normal, so PACTOR is never left reversed.

- **Monitor ARQ** — reads another station's AMTOR link, for example a station working an AMTOR mailbox. **Listen** doesn't do this: it follows PACTOR links, AMTOR FEC and NAVTEX, but not someone else's AMTOR ARQ link. Switch **Monitor ARQ** on in standby and the modem goes into its AMTOR monitor mode (`MONitor`, prompt `**-M-**`); the link's text appears in Received and the modem state box shows **MONITOR**. While it's on, the modem hears **no FEC** (so no CQs) and **answers no calls** - switch it off to stand by again (HFConverse sends `DD` and switches Listen back on). **Call**, **Send CQ**, **Auto CQ**, **FEC** and **Stop TX** switch it off by themselves, and closing the screen leaves it too. While monitoring, two more buttons appear: **Resync** re-synchronises on the link (when the text stops or goes wrong) and **Letters** forces a letters shift (when a lost shift has turned the text into figures). On every PTC modem; not on the P4 Dragon or DR-9400, which have no AMTOR ARQ.
- **Frequency, Favorites, Macros** — work the same way as the other operating screens, with two things worth knowing: AMTOR has **no Centre Frequency (CF) box** (CF is a PACTOR-community convention that doesn't carry over) — just a dial frequency, the same as RTTY — and AMTOR keeps its **own, separate Favorites list**. Frequencies you've saved for PACTOR QSOs won't show up here, and vice versa.

How a contact happens

Opening the AMTOR screen automatically puts the modem into AMTOR standby and arms **Listen**, so an incoming AMTOR ARQ call connects and starts appearing in Received on its own — the same auto-answer behaviour as the PACTOR screen's CQ-and-wait side. **Send CQ** (or **Auto CQ**) and waiting for a reply is one way to start a contact. To **call a station** yourself, put their callsign in **Working** — the **Selcall** box (on the Working line) fills in their SELCALL (first letter plus the last three letters: G4QRS = GQRS, GW0XYZ = GXYZ; type over it if theirs is different) — and press **Call**. HFConverse sends the modem's `C <selcall>`. If they answer, the link comes up as for an incoming call; if not, the modem gives up and HFConverse says so, or press **Stop call (DD)** to abort at once. Call is greyed out during a link or a CQ. Double-clicking an AMTOR spot in **On the Air** fills in Working, so the Selcall is ready too. (Typing `C <selcall>` in the cmd: box works as well.) Opening the AMTOR screen also sets the tones to Normal (`TR 0`), so AMTOR never starts reversed after RTTY was used with Reverse. Between SCS modems AMTOR always uses Normal, so the screen always opens with **Reverse** off (see *Reverse*, above).

Once linked, it's the familiar half-duplex rhythm: type ahead into Compose while receiving, **Send** to stage it, **Over (send queue)** (or auto-flush) to transmit when it's your turn. While the link is yours, **Send** puts your text out at once and keeps the link (see *Over-mode: Manual vs Auto-flush*). AMTOR can't send Ctrl-Z, so on an AMTOR mailbox end a message with `NNNN` or by pressing **Over**.

- **The same keys as the PACTOR screen.** In Compose, **Enter** = Send, **Shift+Enter** = a new line, **Ctrl+Enter** = Over (what you've typed joins the queue, then goes out and the link is handed over).
- **No changeover text on AMTOR.** Over and Changeover don't send a changeover line (`btu ... de ...`) on the AMTOR screen: the changeover itself is AMTOR's `+?`, and a mailbox would take the extra line as a command. So there's no need to type `+?` yourself either, and the AMTOR screen has no **BBS / Mailbox** tick.
- **Changeover / Break in (Ctrl+Y).** Beside **Over**, available throughout a link. While the other station is sending it reads **Break in (Ctrl+Y)** and asks for the link; while the link is yours it

reads **Changeover (Ctrl+Y)** and hands it over. Anything in the Outgoing queue goes with it.

- **One changeover at a time.** The link only turns once the modem has sent what it holds, which can take a few seconds. Pressing Changeover or Over again in that time is ignored, and the status line says the changeover is already on its way.
- **Live, word by word.** Tick **Live** and, during a link, each word goes out the moment you press **Space**, and the line on **Enter**. You can still correct the word you're typing, as it hasn't gone yet (Baudot has no backspace). **Ctrl+Enter** ends the line and hands the link over. While the other station is sending, what you type stays in **Compose**, where you can see and correct it, and the tick reads **Live – waiting for your turn**; when the link turns to you, everything typed up to the last space goes out at once. Compose has a red border while Live is ticked, and the tick is remembered for the rest of the session.
- **End QSO (QRT)**, at the end of the action row, ends the contact as on the PACTOR screen: your queued text, then your **End QSO text** macro (`73 <CALL> de <MYCALL> sk`), then QRT, and the link closes once that has gone out. If the other station has the link, HFConverse asks for it first (break-in). It asks before ending unless **Ask before End QSO** is off in Settings, and a second press while the link is closing offers **Stop now (DD)**. While you're still calling, it aborts the call (DD), the same as **Stop call (DD)**.
- **No `>` on AMTOR.** AMTOR's character set has no `>`, so HFConverse leaves a `>` at the end of the End QSO text out on the AMTOR screen.

Is your radio fast enough? PACTOR, and AMTOR even more so, need the radio to switch quickly from transmit to receive: each station has only a fraction of a second to change over and hear the other's reply. Some modern transceivers are slower than these modes expect. Some work anyway, some need **Long path** ticked, and some don't work at all. If links fail to start or keep repeating, the radio's switching time is the likely cause; HFConverse can't change it.

When the link ends the **Worked Station** window comes up, filled in for logging, and the **Log QSO…** button beside Compose brings it up at any time (see *Logging a QSO*). Press **Close** when the contact is over. **Clear Queue**, **Log QSO…**, **Capture** and **Close** are in a column to the right of Compose, as on the PACTOR screen. If a link (or an FEC CQ) is still running, HFConverse ends it first and waits for it to close; it then returns the modem to the normal PACTOR command prompt, the same as leaving any other mode. If the modem doesn't get back to `cmd:`, the Terminal says so — type `PT` in the command box to finish leaving AMTOR.

Listening to NAVTEX

NAVTEX is the maritime weather and navigation-warning service on medium wave. It is sent in SITOR-B, which is the same as **AMTOR FEC**, so the modem decodes it while it stands by on the AMTOR or PACTOR screen, with no link and no button to press.

Frequency (centre)	Set the dial to	Content
518 kHz	516.5 kHz, USB-Data	International service, in English: weather and navigation warnings
490 kHz	488.5 kHz, USB-Data	National service, often in the local language

Messages start with `ZCZC`, a station and message code, and end with `NNNN`. Coast stations take turns on the frequency through the day, and reception is usually best at night. Even a modest wire antenna picks up stations within a few hundred kilometres.

- **The modem setting:** the PTC modems receive AMTOR FEC and NAVTEX in standby only when both **ARX** and **BC** are 1 (SCS manual, ARX and BC; both are 1 by default, and HFConverse doesn't change them). If nothing decodes, type `ARX` and `BC` in the **cmd:** box to check them, and `ARX 1` / `BC 1` to switch them on.
- **P4 Dragon:** NAVTEX is decoded by its built-in Auto-Decoder, which passes the text on while the modem is at the AMTOR prompt (**Mode ▸ AMTOR**).
- **Radio:** set the dial 1.5 kHz below the centre frequency in USB or USB-Data, and use the AMTOR screen's favorites to save both channels. With Hamlib or the FlexRadio API, **Settings ▸ CAT ▸ CAT driven mode change** can switch the radio to USB-Data for you (see *CAT driven mode change*, under Radio control).

Macros

Macros are short, reusable pieces of text you send at the press of a button or a function key — the canned phrases you use over and over in a QSO or RTTY contact (calling CQ, sending a signal report, signing off). They work on the PACTOR, RTTY, PSK31 and AMTOR screens and share one common list, so a macro you create is available in any of them.

Substitution tokens

A macro's text can contain **tokens** in angle brackets that are filled in automatically when you use it. They're grouped in the Macros window under four tabs, below the text box - **My Station**, **Worked Station**, **System** and **Additional** - and listed here the same way.

My Station - about you:

Token	Sends	From
`<MYCALL>`	your callsign	Settings › Station
`<MYNAME>`	your name	Settings › Station
`<MYLOC>`	your locator	Settings › Station
`<MYSELCAL>`	your AMTOR SELCALL	Settings › Station (worked out from your callsign if blank)
`<ANTENNA>`	your antenna	Settings › Equipment
`<RADIO>`	your radio	Settings › Equipment

Worked Station - about the other station:

Token	Sends	From
`<CALL>`	their callsign	the **Working** box (see *The Working callsign*, below)
`<THEIRNAME>`	their name	the **Name** box, or the lookup
`<THEIRQTH>`	their town	the QRZ/HamQTH lookup of the Working callsign
`<THEIRLOC>`	their locator	a locator you typed in Worked Station, then their On the Air entry, then the lookup
`<THEIRCOUNTRY>`	their country	the QRZ/HamQTH lookup

The lookup tokens are empty when the lookup is off or doesn't know the station.

System - frequency, time and control characters:

Token	Sends
`<FREQ>`	the current frequency on screen (kHz)
`<MODEM>`	your connected modem model
`<DATE>`	today's date (UTC), e.g. `2026-11-08`
`<TIMEUTC>`	the time in UTC, e.g. `1127z`
`<TIMELOC>`	your local time, e.g. `1227`
`<CR>`	a line break
`<CTRLZ>`	Ctrl-Z on a line of its own: ends a message on a BBS (see *Ending a message on a BBS*)

Additional - weather and HF conditions:

Token	Sends
`<WX>`	your local weather as one line, worded by the template in **Settings › Weather & Propagation**, e.g. `WX here 14C, light rain, wind SW 15 km/h`
`<WXTEMP>`, `<WXCOND>`, `<WXWIND>`, `<WXHUM>`	the temperature, conditions, wind and humidity on their own
`<WXDEW>`, `<WXPRES>`, `<WXPRECIP>`, `<WXCLOUD>`	the dew point, air pressure (e.g. `1013 hPa`), what's falling now (e.g. `rain 0.4 mm`, `snow 1.2 cm` or `none`) and cloud cover (e.g. `75%`)
`<HFCOND>`	HF conditions, e.g. `SFI 142 K 2`
`<SFI>`, `<KINDEX>`	the solar flux and the K index on their own

See *Local weather* and *HF conditions*, below.

For example, a macro with the text `<CALL> DE <MYCALL> UR 599 NAME <MYNAME> HW?` becomes `G4QRS DE GW0XYZ UR 599 NAME JOHN HW?` when you use it during a QSO with G4QRS.

A CQ that shows when it was sent - useful for anyone reading it later - puts the date and time at the end: `CQ CQ CQ de <MYCALL> <MYCALL> <MYCALL> <DATE> <TIMEUTC>` goes out as `CQ CQ CQ de GW0XYZ GW0XYZ GW0XYZ 2026-11-08 1127z`.

Check before you save: the **Goes out as** line under the tokens shows exactly what will be sent. A token typed wrongly - for example `<MYCALL` without its closing `>`, or `<TIME>`, which isn't a token - goes out just as typed, and shows that way there.

The Working callsign

Because several tokens depend on knowing who you're talking to, each operating screen has a **Working** box — the other station's callsign. You can:

- **type it in** directly, or
- **capture it from the received text**: select the callsign in the Received panel, **right-click**, and choose **Add selection to working callsign**. (Selecting it yourself means portable calls like `GW0XYZ/P` are captured exactly as you highlight them.)

The same right-click menu also has **Clear Receive**, which empties the Received panel just like the **Clear Receive** button at the top right of the Received pane. It's on every operating screen (PACTOR, AMTOR, RTTY and PSK31); the Terminal log has **Clear log**.

Whatever's in the Working box is what `<CALL>` expands to.

Callsigns from your log. Callsigns you've already logged are offered as you type in the **Working** box (PACTOR, AMTOR, RTTY and PSK31) and in the Terminal's **PACTOR Link** callsign box. After two characters a list drops down with up to ten callsigns from your QSO log that start with what you've typed, the most recently worked first. Pick one with the arrow keys and **Enter**, or click it; **Esc** closes the list. It only suggests: what you type is never changed or completed for you, so `G4QR` stays `G4QR` even if `G4QRS` is in your log. Nothing is offered when HFConverse fills in Working itself (a link coming up, a spot), only while you are typing in the box. The same list is offered in the **To** box of **Modem Mailbox ▸ New message…**, in the callsign box of **Edit QSO** (QSO Log) and of **Worked Station**, and in the **To** box of a new HFC-Sync message, where address book entries come first, then callsigns from your log that aren't in the book.

Their name

Next to **Working** on every QSO screen (PACTOR, AMTOR, RTTY and PSK31) is a **Name** box, and the `<THEIRNAME>` token puts what is in it into a macro. For example, an over macro of `BTU <THEIRNAME>, <CALL> de <MYCALL>` sends `BTU Peter, G4QRS de GW0XYZ`.

- **It fills itself in.** When you set the Working callsign, HFConverse looks it up with QRZ or HamQTH (if you have one set up in Settings) and puts in the first name only: the station's QRZ nickname if they have one, otherwise the first word of the first name. A name written all in capitals is tidied to "Peter". The lookup is shared with the Worked Station window, so the call is only looked up once.
- **You can always change it.** Just type in the box. HFConverse **remembers your version for that callsign** and uses it next time instead of the lookup, which is useful when someone prefers a different name from the one on QRZ. Clear the box to forget it.
- **A new Working callsign empties the box**, so the last station's name never carries over.
- **No name known?** `<THEIRNAME>` is left out together with the space before it and a comma straight after it, so the example above sends `BTU G4QRS de GW0XYZ` rather than `BTU , G4QRS`.
- When the lookup finds no name, the name from the box is logged, so a name you typed is logged too.

Using a macro

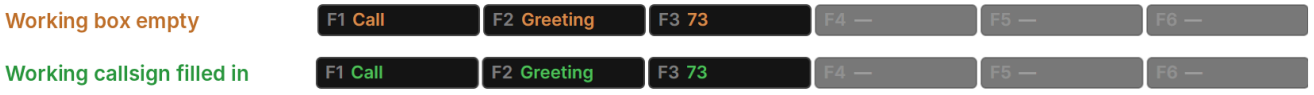
There are two ways to fire a macro, and both drop the finished text into the **compose box** so you can tweak it before sending:

- **Function keys** — a macro can be assigned a key **F1–F12**; pressing that key on the QSO, RTTY, PSK31 or AMTOR screen fires it instantly.
- **The Macros window** — choose **Settings ▸ Macros…** (beside **Configuration…**) to open it, from any screen, then **click** a macro to use it.

Every QSO screen (PACTOR, AMTOR, RTTY and PSK31) has an **F-key strip** just under Compose, so you needn't remember what each key does. It shows **F1** to **F12** with the label of the macro on each key; a key with no macro is dimmed and shows a dash. The keys are dark, like the Received and Compose panes, whatever colour scheme you use, so the green and orange labels stand out with the light scheme too. The buttons in the Macros window match. A label in **green** is ready to use. A label in **orange** can't go out yet: its text is empty, or it uses `<CALL>` and the **Working** box is empty. Pressing or clicking an orange key does nothing, and the status line says why, e.g. "F2

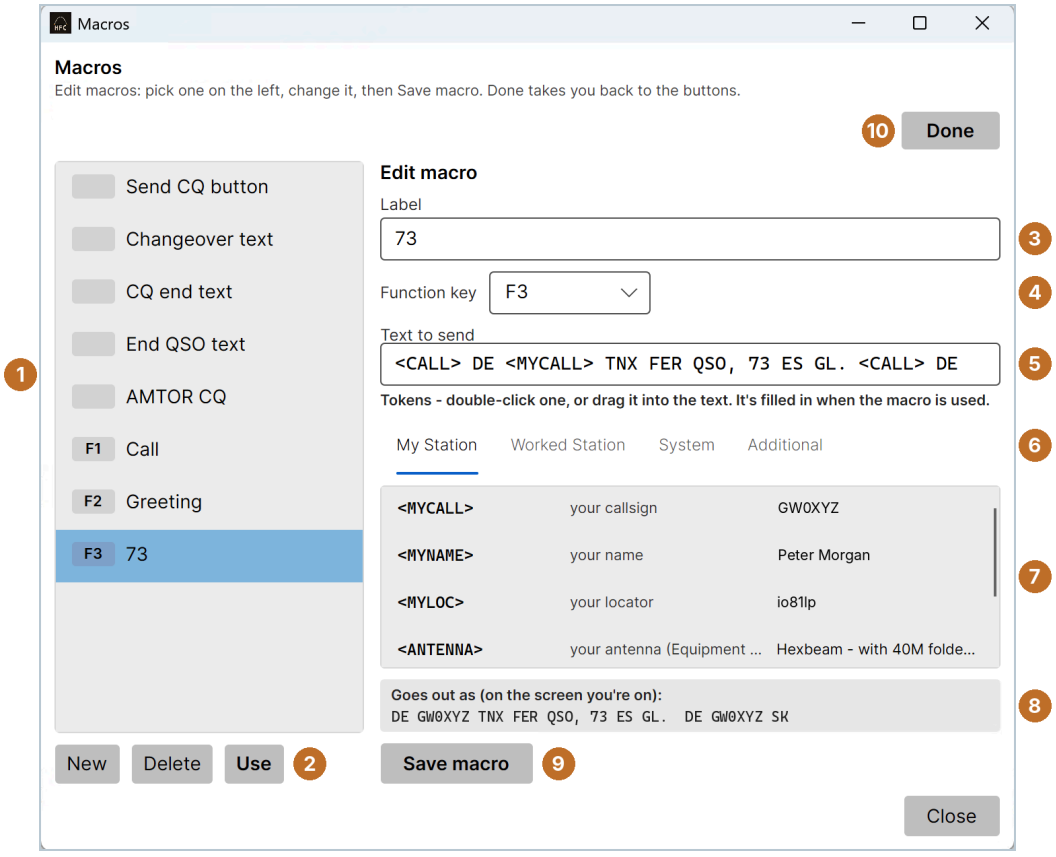
Greeting needs a Working callsign"; with Live text it would otherwise go on air with a gap where the call should be. (An empty `<THEIRNAME>` doesn't make a key orange, as it drops out cleanly.) Clicking a key does exactly what pressing it does, and your typing carries on in Compose. Hover over a key to see its text as it would go out right now, with `<CALL>`, `<THEIRNAME>` and the other tokens filled in, and for an orange key, why it can't be used yet. Clicking a free key opens the **Macros** window so you can give it one. **Right-click** a key to edit its macro: the **Macros** window opens straight in the editor on that macro, with no buttons page first. Right-clicking a free key opens the editor on a new macro for that key (only kept once you press **Save macro**). If the window is already open, it comes to the front and switches to that key. The strip follows the Macros window: change a macro's label or key there and every screen's strip updates.

The same strip twice: before and after the **Working** callsign is filled in. F1–F3 use `<CALL>`, so they're orange until there's a callsign to put in, then green. F4 onwards have no macro and are dimmed.



The **Macros** window opens on your macros as ready-to-use **buttons**: always **F1** to **F12** in order, a free key shown as a dash, then the macros with no key under **No F-key**. All twelve always fit in the window, with no scrolling. Clicking a free key opens the editor on a new macro for that key; it's only kept once you press **Save macro**, so leaving with **Done** (or closing the window) without saving leaves the key free. The same goes for **New** in the editor. Labels are **green** or **orange** as on the F-key strip, and an orange one does nothing when clicked. Each button shows its F-key, its label and a preview of its text as it would go out on the screen you're on, with the tokens filled in (hover for the whole text). Click a button to use it, exactly like its F-key: it goes into Compose, or straight out with Live text, and your typing carries on in Compose. The window can stay open beside the QSO screen, and the previews keep up as you fill in the Working callsign or Name. An orange button also says why under its preview. Type in **Search** to find a macro by its label or text. The ✎ on a button opens that macro in the editor; **Edit macros…** opens the editor on the first one. The five reserved texts (Send CQ, AMTOR CQ, changeover, CQ end and End QSO) aren't shown as buttons, as HFConverse sends them itself; change them in the editor.

Creating and editing macros



1. **Macro list** — the five reserved texts at the top, then your own macros with their keys.
2. **New**, **Delete** and **Use** — **Use** sends the selected macro, as its F-key would.
3. **Label** — the name shown on its key.
4. **Function key** — F1 to F12, or none.
5. **Text to send** — what goes out, with tokens such as `<CALL>`.
6. **Token tabs** — My Station, Worked Station, System and Additional.
7. **Tokens** — each with what it sends right now. Double-click one, or drag it into the text.
8. **Goes out as** — the text with the tokens filled in. Here `<CALL>` drops out, as the Working box is empty.
9. **Save macro** — keeps your changes.
10. **Done** — back to the macro buttons.

Press **Edit macros...** in the **Macros** window (or the ✎ on a macro's button) to open the editor; **Done** takes you back to the buttons. The editor's list shows each macro with its assigned function key. To create one, press **New**, then set:

- a **Label** (what you'll recognise it by),
- a **Function key** (optional — F1 to F12, or None),
- the **Text to send** (with any tokens),

and press **Save macro**. You don't have to type tokens. Under the text box the tokens are listed in four tabs: **My Station** (your call, name, locator, SELCALL, antenna, radio), **Worked Station** (their call, name, town, locator, country), **System** (frequency, modem, date, times, new line, Ctrl-Z) and **Additional** (your local weather and HF conditions) - see *Substitution tokens* for the full list. Each row shows the token, what it is, and what it sends right now on the screen you're on. A value in **orange** is empty at the moment, with where it comes from, e.g. "not set - Settings › Equipment". **Double-click** a token (or select it and press Enter) to put it in the text at the cursor,

or **drag** it to the place you want; a space is added either side where needed. Below, **Goes out as** shows the whole text as it would be sent, with the tokens filled in, and updates as you type.

Auto transmit (RTTY and PSK31). On the RTTY and PSK31 screens, the editor also has an **Auto transmit** tick, beside the **Function key**. Tick it and that macro's F-key (or its button in the Macros window) doesn't put the text into Compose: it transmits the macro at once and goes back to receive when it has gone, the way FLDIGI's TX / RX macros work. There is nothing to add to the text: HFConverse keys up and drops back by itself, as it does for **Transmit**. Anything you're typing in Compose stays there. Handy for calls you send often, e.g. a CQ for one region: `CQ VK CQ VK de <MYCALL> <MYCALL> pse k` on F5. If RTTY or PSK31 isn't started (or the RTTY shift is a wide one, which is listen only), the macro goes into Compose as usual and the status line says why. The tick is shown only on the RTTY and PSK31 screens; on PACTOR and AMTOR, which have their link, queue and Live text instead, the macro goes into Compose as always. Hovering over a ticked key on RTTY or PSK31 says "Auto transmit: goes out straight away, then back to receive".

Local weather

A macro can send your local weather. Switch it on in **Settings › Weather & Propagation** ("Get local weather for the weather tokens"); it is off by default, and while it's off HFConverse never contacts the weather service.

- **Using it:** make a macro whose text is just `<WX>`, for example F12, name `WX`, text `<WX>`. Each time it's sent, HFConverse fills in your wording from **Settings › Weather & Propagation** with the latest weather. You don't copy anything from the Settings page into the macro.
- **Where it comes from:** Open-Meteo.com, which is free and needs no account or key, for the centre of your locator square (**Settings › Station › Locator**). No locator, no weather.
- **When it's fetched:** in the background, about every 20 minutes, while a QSO screen or the Macros window is open. A macro never waits for it; it uses the latest reading.
- **Units:** temperature (and dew point) in C or F, wind in km/h, mph or knots, pressure in hPa, mbar or inHg. Wind below 1 shows as `calm`. Rain and snow are in mm and cm, or inches with F.
- **Your wording:** the **sends** box is a template for `<WX>`. Put `<WXTEMP>`, `<WXCOND>`, `<WXWIND>`, `<WXHUM>`, `<WXDEW>`, `<WXPRES>`, `<WXPRECIP>` and `<WXCLOUD>` wherever you like, e.g. `WX: <WXCOND>, <WXTEMP>, humidity <WXHUM>`. **Default** puts back `WX here <WXTEMP>, <WXCOND>, wind <WXWIND>`.
- **Get weather now** fetches a reading straight away and shows an example of what `<WX>` will send, so you can check the location and wording. It's only a sample: the macro always sends the latest reading.
- **No reading yet** (weather off, no locator, no internet, or just started): a macro using a weather token shows **orange** on the F-key strip and in the Macros window and doesn't send, as with `<CALL>` and an empty Working box. The **Additional** tab in the editor shows why.

Weather data by Open-Meteo.com (CC BY 4.0), free for non-commercial use.

HF conditions

HFConverse can show the overall HF conditions in the top bar, just left of the **cmd:** box, e.g. ● `SFI 142 · K 2 · X B3` (solar flux, K index and X-ray level). Switch it on in **Settings › Weather & Propagation** ("Show HF conditions in the top bar"). It's off by default, and while it's off HFConverse never contacts the data sources. It works with or without a modem connected.

- **The dot: green** = quiet (K 0–2, no big flares); **amber** = unsettled (K 3–4, or an M-class flare); **red** = disturbed (K 5 or more, an X-class flare, or a NOAA storm or radio-blackout alert); **grey** = no recent data. Figures over 3 hours old are marked `(old)`.

- **Hover** over it for the details: sunspots, A index, the geomagnetic field, the noise level, N0NBH's **day/night ratings** for 80–40, 30–20, 17–15 and 12–10 m, NOAA's latest planetary K, and any NOAA alert.
- **Click** it for the **HF Conditions** window, with the same details and a **Get conditions now** button.
- **Where it comes from:** N0NBH (hamqsl.com), fetched every hour, and NOAA SWPC, every half hour. Both are free and need no account or key.
- **In a macro:** `<HFCOND>` sends e.g. `SFI 142 K 2`; `<SFI>` and `<KINDEX>` send the figures on their own (Macros › Edit macros… › **Additional**). With no recent reading, a macro using them shows **orange** and won't send, as with the weather tokens.
- **Get conditions now** in Settings fetches straight away and shows the result.
- **The path to the station you're working** — its MUF and which bands should reach it — is in the **Worked Station** window (see *Worked Station*), not on the QSO screens.
- **A guide, not a promise:** these are overall conditions, not a forecast for a particular path, and PACTOR needs a better signal than the digital modes these ratings are often compared with.

Solar data by N0NBH (hamqsl.com) and NOAA SWPC (public domain).

The Send CQ macro

The first macro in the list, **Send CQ button**, is special: it's the text sent by the **Send CQ** button on the QSO and RTTY screens. You can **edit** its text like any other macro (to word your CQ how you like, using tokens such as `<MYCALL>`), but it **can't be deleted**, and it isn't assigned to a function key — it belongs to the Send CQ button instead. When you select it in the editor, the function-key control is disabled and a note reminds you it's the Send CQ button's macro. Its default text is `CQ CQ CQ de <MYCALL> <MYCALL> <MYCALL> pse k`.

The End QSO text macro

The fourth reserved macro, **End QSO text**, is the closing line **End QSO** sends on the PACTOR screen just before the link closes — see *Ending the QSO*, above. Its default text is `73 <CALL> de <MYCALL> sk`, which goes out as, for example, `73 OH2PQR de DL2KLM sk`. You can edit it — for example `tnx fer QSO, 73 es gl <CALL> de <MYCALL> sk` — but it can't be deleted and takes no function key. To have End QSO send QRT only, clear its text and press **Save macro**. It isn't sent when the **Working** box is empty and the text uses `<CALL>`, so a half-filled `73 de …` never goes out. The AMTOR screen's **End QSO (QRT)** button sends it too (see *AMTOR*).

The AMTOR CQ macro

The fifth reserved macro, **AMTOR CQ**, is what **Send CQ** and **Auto CQ** send on the **AMTOR** screen (PACTOR, RTTY and PSK31 keep using **Send CQ button**). An AMTOR station needs your **SELCALL** to call you back, so the default includes it: `CQ CQ CQ DE <MYCALL> <MYCALL> <MYCALL> SELCAL <MYSELCAL> <MYSELCAL> PSE K`, e.g. `CQ CQ CQ DE G4QRS G4QRS G4QRS SELCAL GQRS GQRS PSE K`. `<MYSELCAL>` is the SELCALL in Settings. You can edit the text, but it can't be deleted and takes no function key.

The CQ end text macro

The third reserved macro, **CQ end text**, is the closing line sent once at the end of a PACTOR CQ — after the CQ line(s) from **Send CQ** or **Auto CQ** on the PACTOR screen, just before the broadcast closes. Its default text is `Please call me with <MYCALL> in PACTOR = de <MYCALL>`, which goes out as, for example, `Please call me with DL2KLM in PACTOR = de DL2KLM`. You can edit it, but it can't be deleted and takes no function key; to send no closing line, clear its text and press **Save macro**. It isn't used on the AMTOR screen.

The Changeover text macro

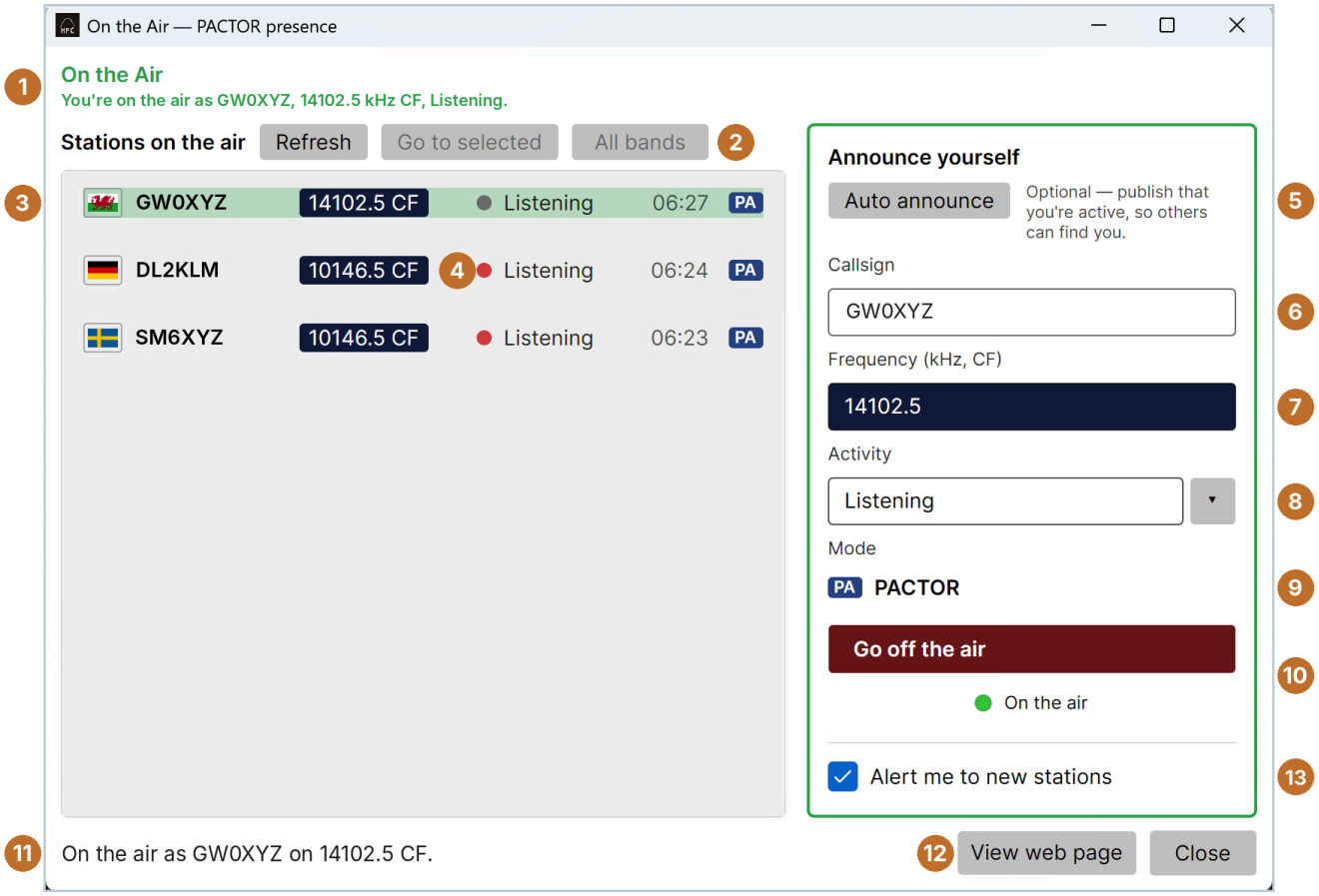
The second macro in the list, **Changeover text**, is the hand-over line HFConverse sends automatically just before a changeover when you pass the link to the other station on the **PACTOR** screen (not on AMTOR, where the changeover itself is the `+?`) — see *Over and Changeover (Ctrl+Y)*, above. Its default text is `btu <CALL> de <MYCALL>>`, which goes out as, for example, `btu OH2PQR de DL2KLM>`.

Like the Send CQ macro, you can **edit** its text (any tokens work) but it **can't be deleted** and takes no function key; a note beside the function-key control reminds you what it's for. To **stop sending it**, clear its text and press **Save macro**. If the text uses `<CALL>` and the **Working** box is empty, HFConverse skips the line rather than send it half-filled.

On the Air (PACTOR presence)

The **On the Air** feature lets you announce that you're active on a PACTOR frequency, and see a live list of other stations doing the same. Instead of announcing yourself in a chat group, HFConverse operators publish to a shared list that everyone running the app (and anyone visiting the web page) can see.

Open it from **Station ▸ On the Air…** (the **Station** menu also holds **On the Air Map…**, **Worked Station…** and **Waterfall…**), or click the green **OTA** chip in the top bar while you're on the air. The window has two halves: the **live list** of stations on the air (left), and your own **announce panel** (right). It's a floating window — you can keep it open while you operate.

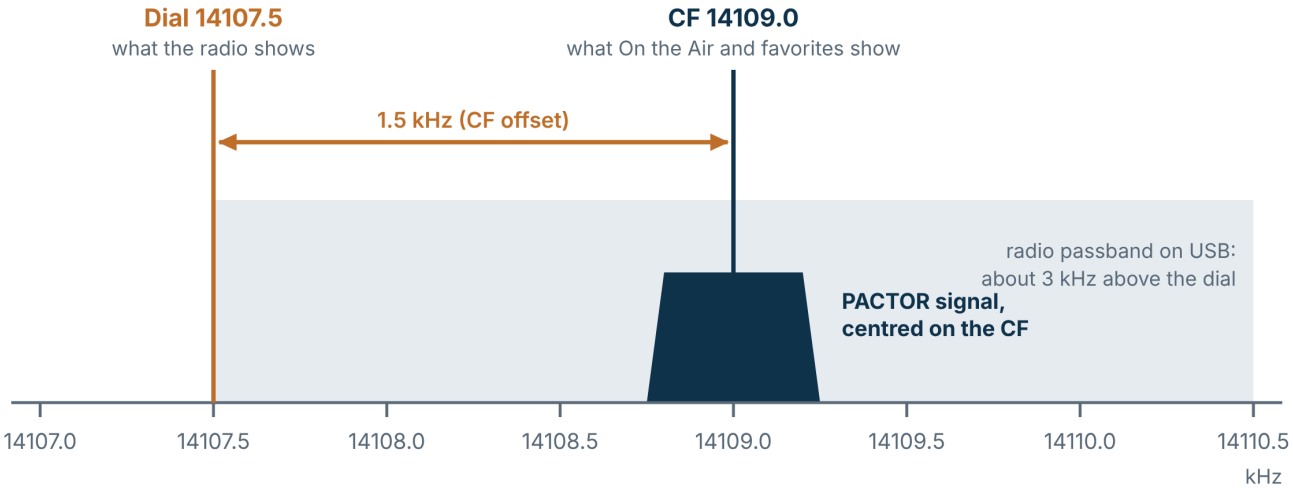


1. **Heading** — turns green while you're on the air, with what's announced underneath (amber while Paused).
2. **Refresh**, **Go to selected** and **My bands / All bands** — Go to selected works the station you've picked (see *Working a spot*); the bands button filters the list.
3. **Your own row** — tinted green once the server lists you. Each row shows the flag, callsign, CF, path dot, activity, when they were last heard and the mode tag.
4. **Path dot** — how the path to that station looks right now: green good, amber marginal, red closed, grey no estimate; green with a white ring when the band is open now (heard).
5. **Auto announce** — goes on the air by itself when you call CQ or a link comes up.
6. **Callsign** — the callsign you announce.
7. **Frequency (kHz, CF)** — follows your radio.
8. **Activity** — type it, or pick one of your last five with ▾.
9. **Mode** — follows the screen you're on.
10. **Go on the air / Go off the air** — with the light below: green on the air, amber paused.
11. **Status line** — what's happening, and how many stations a **My bands** filter is showing.
12. **View web page** — opens the same list in your web browser, at mw0gbq.hamserve.uk/presence. **Map…**, beside it, opens the On the Air Map - see *On the Air Map*. **Map…**, beside it, opens the On the Air Map - see *On the Air Map*.
13. **Alert me to new stations** — a short sound when a new callsign joins the list (see below).

Frequencies are Centre Frequency (CF)

Throughout this feature, frequencies are shown and entered as **Centre Frequency (CF)** in kHz — not your dial reading. This is the PACTOR community convention: because SCS modems use a 1500 Hz centre tone, quoting the centre frequency lets operators with other equipment work out their own dial setting. On USB, your dial sits 1.5 kHz below the CF (e.g. **14109 CF = 14107.50 dial**). HFConverse does this conversion for you when it sets the radio's frequency.

The same station seen both ways, with TOnes 4 and a 1.5 kHz CF offset:



Seeing who's on

The list shows each active station's **callsign**, **CF frequency**, **activity** and when they were **last heard**. It refreshes on its own. If you've worked a station before, the **first name** from your log is shown in small text under its callsign: a name you saved for that callsign on a QSO screen, else the name from your most recent QSO with them. Hover over the name to see how many times you've worked them and when last. A portable call such as LA/G4QRS still finds G4QRS in your log. Nothing is shown when the log has no name for them. At the end of each row a coloured tag shows the mode they announced: **PA** (PACTOR, blue), **AM** (AMTOR, purple), **RT** (RTTY, teal) or **PS** (PSK31, pink). Hover over it for the full name.

When an activity is too long for the list and is cut short with "…", hover over it to see the whole text.

My bands / All bands — the button beside **Go to selected** chooses which stations the list shows; each click switches between the two. **My bands** (the button turns blue, like **Duplex**) shows only stations on the bands ticked in **Settings ▸ Station ▸ Bands I can work**; **All bands** shows everyone. Hover over the button to see your bands, e.g. "6, 10, 12, 15, 17, 20, 40 m". HFConverse remembers your choice. While **My bands** is on, the line at the bottom of the window says so, e.g. "Filtered :- 5 of 8 stations shown on the air", so a filtered list is never mistaken for a quiet band. The button stays on **All bands**, greyed out, until you've unticked at least one band. A station's band is worked out from its frequency (using your IARU region first, so a 7250 kHz station in the Americas still counts as 40 m). A station whose frequency isn't in any amateur band is always shown, and so is your own entry. A station drops off the list automatically about 15 minutes after they stop announcing. **View web page** opens the same list in your browser at mw0gbq.hamserve.uk/presence.

Sorting the list — click a column heading above the list (**Callsign**, **Frequency**, **Activity**, **Time** or **Mode**) to sort by it; click it again to reverse, and a small ▲ or ▼ shows which way. **Time** (newest first) is the usual order; Mode groups PACTOR, AMTOR, RTTY and PSK31. HFConverse remembers your choice, also after a restart, and keeps it at every refresh.

The Path dot — with **HF conditions** switched on (Settings ▸ Weather & Propagation), each station has a coloured dot beside its frequency. It shows how the path from you to them looks on that frequency right now: **green** good, **amber** marginal, **red** closed, **grey** no estimate. It's the same estimate as the Path in **Worked Station**, from live ionosonde data (KC2G), using your locator (Settings ▸ Station) and the one in their announcement. Hover over the dot for the details: the distance, the path MUF and how their frequency compares. You get grey when they haven't announced a locator, there's no ionosonde near the path, or the ionosonde readings are more than 2 hours old - the tooltip says which. When every dot is grey with *more than 2 hours old*, it's usually KC2G not getting new readings (prop.kc2g.com then says *Data is stale*); the dots come back by themselves when it does. The ionosonde data is fetched every 15 minutes while the window is open. Treat it as a guide to the band only: power, antennas, local noise and whether the other operator is at the radio all count too. A very short path on a high band usually shows red, because the signal skips over the other station.

Open now: green with a white ring. On the band your dial is on, the Path dot also uses the band reports that colour the On the Air Map's lines: stations heard on FT8, PSK31 and RTTY, collected from PSKReporter by the HFC server, asked for only while On the Air or the map is open. If your area and theirs were heard together on that band in the last 30 minutes, the dot is **green with a white ring**, whatever the estimate, because what was heard beats a forecast. That fills in many paths with no ionosonde nearby, such as across the Atlantic. The tooltip says so and gives the estimate as well. An area is the first two letters of the locator (IO is the UK, Ireland and the sea around them), so it means the band is open between the two areas, not that you'll hear that station. The list and the map always give the same answer. Your own row has a **yellow** dot instead, the same yellow as your QTH on the map, since there's no path to rate to yourself; its tooltip says *This is you.*

Announcing yourself

Announcing is entirely **optional** and you choose when. Fill in the announce panel — your callsign, the CF you're on, and what you're doing (it pre-fills sensibly from the screen you were on) — and press **Go on the air**. A **green LED** shows you're on air; press **Go off the air** (red LED) to stop. While you're on air, HFConverse quietly re-announces every few minutes so you stay on the list, and removes you promptly when you go off.

It's hard to miss that you're on the air:

- the **On the Air** heading turns **green**, and the line under it says what is announced, for example "You're on the air as GW0XYZ, 14109.0 kHz CF, Listening.";
- the **Announce yourself** panel gets a **green border**;
- **Go off the air** turns **red**;
- **your own row** in the station list is tinted green, so you can see the server really lists you;
- in the main window, a green **OTA** chip appears in the top bar (next to the HF conditions), window open or not. Click it to open On the Air.

While **Paused** (below) the heading, line and border are **amber** instead.

The frequency box follows your radio. When you open On the Air it starts with the frequency you're on, from the Terminal too: the Terminal's dial frequency is turned into the CF, as you're in PACTOR standby there. While the window is open and you're not yet on the air, the box updates every time HFConverse reads or sets the radio's frequency: Read From Radio, Set Frequency, a favorite, a spot, or where a scan stops. Once you're on the air, a new frequency is announced instead.

The On the Air server only accepts announcements from you a few seconds apart. If one comes too soon — for example when you switch from the PACTOR screen to AMTOR, which takes you off the air and straight back on, or press Send CQ just after setting the frequency — HFConverse **stays on the air** and sends it again by itself as soon as the server allows, counting down on the status line (*On the air - the server asked us to wait; sending again in 4 s…*). Anything that changes in the meantime (a CQ, a new frequency) goes out with that one retry. If the server's hourly limit is reached, the countdown is in minutes.

The **Activity** says what you're doing, and the **Mode** which mode you're in (set from the screen you're on). The Mode is shown read-only, with the same coloured tag as the list (**PA** PACTOR, **AM** AMTOR, **RT** RTTY, **PS** PSK31, **PK** Packet), and always follows the screen you're on (the Terminal counts as PACTOR), so you can't announce one mode while working another. Frequency and Activity can be typed. HFConverse keeps the activity up to date:

- **Listening** when you go on the air without calling, and again when a CQ or a link is over;
- **CQ** when you press **Send CQ** (with an announcement already live, or with auto-presence on), and all the time **Auto CQ** is running. After a single CQ it goes back to Listening 4 minutes later; a CQ stopped with **Stop TX** (or Auto CQ repeat stopped between calls) goes back to Listening at once;
- **Calling** while your own call goes out, the PACTOR screen's **Connect** (or AMTOR's **Call**) showing blue *Calling…* — sent straight away, only while you're already on the air (a call never puts you on the air by itself). It becomes **QSO** when the link comes up, or **Listening** again if the call fails or you stop it. The station you're calling isn't shown.
- **QSO** while a PACTOR or AMTOR link is up, sent straight away so the list shows it.
- **Sending** while a text file goes out with RTTY **Send Text File…**, sent straight away if you're already on the air (it never puts you on the air by itself), and **Listening** again when it ends or is stopped.

The **Activity** box has a drop-down arrow too. It offers the **last 5 activities you typed** yourself (for example `STBY`), newest first, so you needn't type them each time; HFConverse's own Listening, CQ and QSO aren't stored there. One is remembered when an announcement goes out with it, and the list is kept between sessions. **Listening**, always last in the list, hands the activity back to HFConverse so it follows Listening / CQ / QSO again. While you're on the air, a change to the Activity goes out by itself: about 5 seconds after you stop typing, or at once when you pick one from the list. To take one of your own entries off the list, click the small × at its right in the drop-down; **Listening** can't be removed, and what you're announcing now doesn't change.

If you type your own activity (say `Skeds on 14.105`), HFConverse leaves it alone.

Closing the On the Air window. While you're on the air, closing the window (with **Close** or the window's **X**) asks what you want:

- **Keep me on the air**: the window closes and your announcement carries on in the background. It's re-announced every 5 minutes and still follows your frequency, CQs and links. Open **On the Air** again to see it or to go off the air.
- **Go off the air**: HFConverse tells the server you've gone, then closes the window.
- **Cancel**: nothing changes.

When you're not on the air, the window just closes. While you're on the air, the **Station** menu title is **green** (on a Mac, where menu text can't be coloured, it reads **Station ●**), whether or not the window is open.

HFConverse takes you off the air automatically when you **quit the app**, so you won't be left showing as active after you've finished. **Closing an operating screen doesn't take you off**

the air. You stay announced, and the announcement follows the Terminal: the mode becomes PACTOR (closing AMTOR, RTTY or PSK31 returns the modem to PACTOR) with the Terminal's frequency, and the activity becomes Listening, or stays QSO while a link is still up. An activity you typed yourself is left alone. The announcement also follows the screen into other modes: opening the RTTY or PSK31 screen re-announces you in that mode with the screen's dial frequency, as Listening, straight away — you don't have to press Start first — and so does opening the AMTOR screen. To go off the air, use **Go off the air** in the On the Air window, or quit HFConverse. (If the app is closed abnormally — a crash or power-loss — HFConverse removes you from the list as soon as it starts again; if you don't start it, the list clears you within about 15 minutes.)

Paused — the list only takes frequencies from 1 to 30 MHz. If, while you're on the air, a screen moves to a frequency outside that (listening to NAVTEX on 518 kHz, say), HFConverse takes your entry off the list instead of leaving your old mode and frequency showing. The On the Air window shows an amber **Paused** light with the reason, and the Station menu isn't green. As soon as a screen is on an HF frequency again, you're put back on the list with the new mode and frequency, with nothing to press. **Go off the air** while paused takes you off for good, as usual.

Alert me to new stations — the tick box at the bottom of the announce panel. Tick it and HFConverse plays a short sound (three quick notes going up) when a new callsign joins the list; its row is tinted amber until the next refresh, and the status line says who, e.g. *G4XYZ came on the air.* It doesn't sound for the stations already on when the list first loads, for your own callsign, or for a station that was on in the last 10 minutes (so one dropping off and back doesn't sound again). Portable calls count as the base callsign (G4XYZ/P is G4XYZ). With **My bands** chosen, only stations on your bands sound. It stays quiet while a link is up. It works while the On the Air window is open, or while you're on the air with it closed. The tick is remembered when HFConverse restarts. Off by default.

What the Announce panel shows, and what gets announced

Callsign. The **Callsign** box shows your callsign from **Settings ▸ Station** and can't be edited here; change it in Settings (a suffix such as `/P` or `/M` is fine there), and the box follows, so the list never shows a callsign your modem doesn't answer to.

While you're **off the air**, the Announce panel's **Mode** and **Frequency** follow the screen you're on: changing screen, pressing Start or Stop, and setting or reading the frequency all update them. This only fills the boxes; it never puts you on the air.

The panel shows the **screen's** mode, and that is also what **Go on the air** announces.

Screen	Panel shows and Go on the air announces
Terminal or PACTOR	**PA** PACTOR, centre frequency (CF)
AMTOR	**AM** AMTOR, dial frequency
RTTY	**RT** RTTY, dial frequency — as soon as the screen is open, before **Start RTTY** too
PSK31	**PS** PSK31, dial frequency — as soon as the screen is open
Packet	**PK** Packet, dial frequency
Fax	**FX** Fax (black on white), dial frequency — shown only: you can't go on the air from the Fax screen

Until you press **Start RTTY** (or **Start PSK31**) the modem is still in PACTOR standby, so a PACTOR station can still connect to you; when one does, the link makes you **QSO**. You never have to change the mode by hand: once you're on the air, changing screen re-announces you automatically.

Going off the air. Go off the air waits for any announcement still on its way before removing you, then checks the list a few seconds later and removes you once more if you're still shown. The status line keeps the result for a while.

Auto-presence

Two settings put you on the air for you. Both are off unless you switch them on.

- **Auto announce** (a button in the **On the Air** window's Announce yourself panel, blue when on). Click it to switch it on or off; it takes effect at once and is remembered. While it's on, pressing **Send CQ** (or **Auto CQ**) on the PACTOR, RTTY, PSK31 or AMTOR screen puts you on the air with your current frequency and mode, activity **CQ**, and opens On the Air. A **link coming up**, whoever called whom, also puts you on the air, with activity **QSO**. This happens in the background, so no window pops up in the middle of a QSO.
- **Announce me as 'Listening' when Listen is turned on** (a tick box in Settings ▸ Lookup & Presence). When Listen goes on (the PACTOR Monitor on a P4 Dragon or DR-9400), you go on the air as **Listening**, in the background. It doesn't matter what switched it on: your press of the button, the PACTOR screen (which switches it on when it opens), or **Start HFC with Listen on** (see *Listening to the channel*). With both ticked, you're on the air as Listening as soon as HFConverse has started. You aren't announced during a link, or if you're already on the air. If the radio's frequency isn't known yet (no radio control, a radio that can't report its frequency, or the read failed), the Terminal says so once per session, and you're announced as soon as HFConverse sets a frequency (**Set Frequency** or a favorite) while Listen is still on.

Turning Listen off while you're on the air. If you press Listen (or Monitor) off while you're on the air, HFConverse asks "*Listen is now off, but On the Air still shows you as Listening. Keep showing you?*" (*The Monitor* on a P4 Dragon or DR-9400) with **Take me off the air** or **Keep me on the air**. The question is only about your entry on the On the Air list: Listen goes off either way, and neither answer switches it back on. It doesn't ask when HFConverse switches Listen itself (for a CQ, a link or a screen change), or when you're not on the air.

The **Station** menu turns green while you're on the air.

One callsign on two computers. Each copy of HFConverse goes on the air under its **Station name** (Settings ▸ Station; the computer's name unless you change it), so two computers with the same callsign appear as two entries, and going off the air on one doesn't remove the other. The station name isn't shown.

Staying in sync while you're on the air

Once you're on the air — whether you pressed **Go on the air** yourself or auto-presence put you there — setting a new frequency or pressing **Read From Radio** on the operating screen updates your announced CF to match, so the list doesn't sit on a stale frequency until the next re-announce. This only ever refreshes an announcement that's already live; it never puts you on the air by itself.

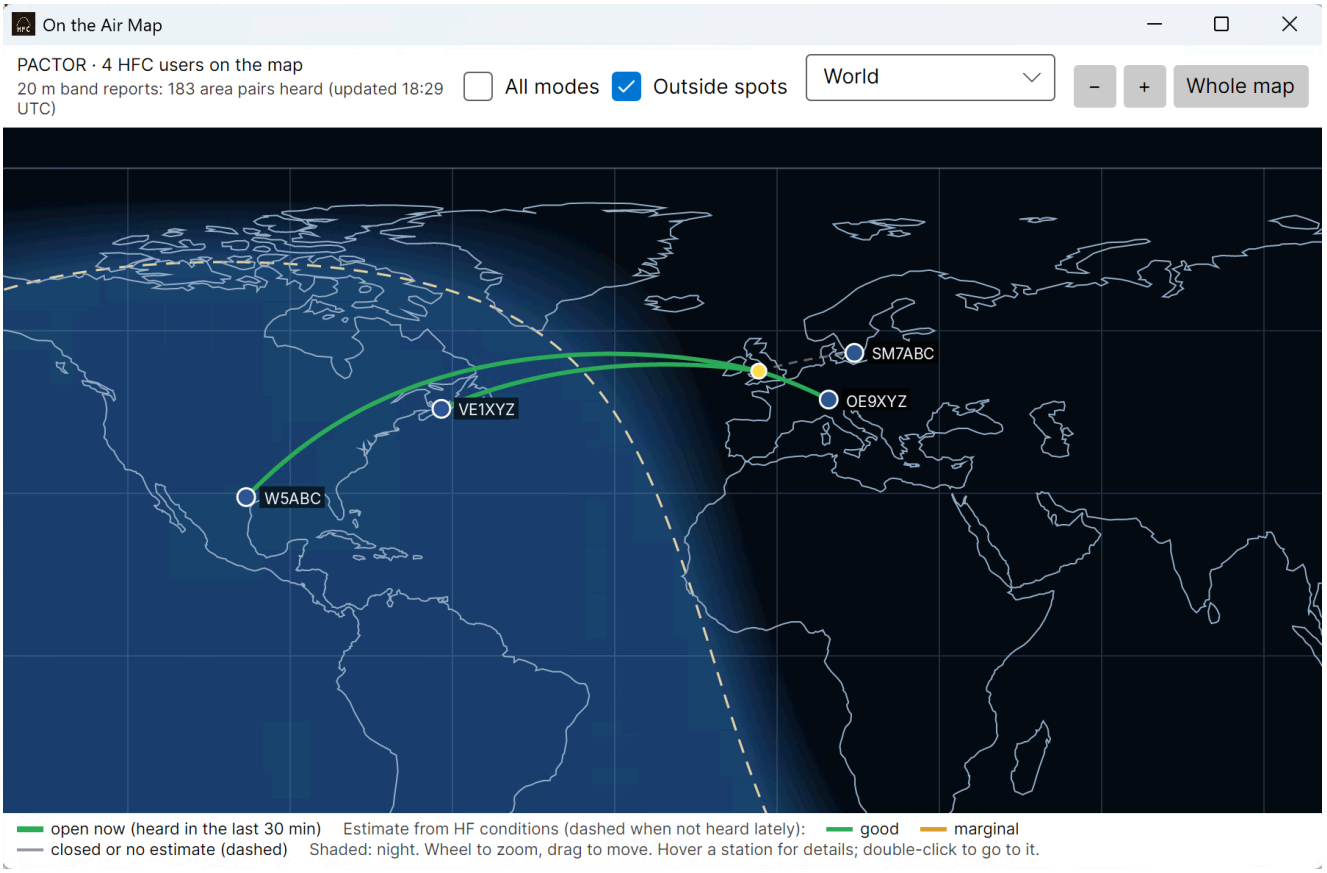
Working a spot

Double-click a station in the list to go and work them. HFConverse asks you to confirm — and if the spot is in a different mode from the one you're in, it asks before switching (e.g. *“Switch from QSO to RTTY and set the frequency to 14109 CF?”*). On confirming, it changes to the right screen for the **mode** they announced — PACTOR opens the PACTOR screen, RTTY the RTTY screen, AMTOR the AMTOR screen, Packet the Packet screen — and sets your radio to their frequency (for PACTOR, the dial is worked out from their CF). The activity text is just a note and plays no part in this. A PSK31 spot can't switch you into PSK31 automatically: HFConverse tells you the frequency, or offers to set the frequency on the screen you're on. It also puts their callsign in your **Working** callsign, so on the PACTOR screen you can simply press **Connect** to call them, and fills in the **Announce yourself** panel with their frequency and mode (and the matching activity), ready for you to go on the air there if you want — it only fills the boxes and never announces for you, and leaves them alone while you're already on the air. The confirmation's buttons say what will happen: **Set frequency**, or **Switch & set frequency** when the mode changes, and **Cancel** to leave everything as it is. When you double-click a **PACTOR** spot while you're on the **Terminal**, the dialog also offers **Set frequency**, which keeps you in the Terminal: it sets the radio's frequency, puts the callsign in the PACTOR Link **Callsign** box and switches **Listen** on (the **PACTOR Monitor** on a P4 Dragon or DR-9400), so you can watch the frequency and press **Connect** when you're ready. **Switch & set frequency** opens the PACTOR screen. **Go to selected** at the top of the list does the same as a double-click. It never changes mode or frequency without asking first, and never connects or transmits by itself. (Setting the frequency needs transceiver control set up; otherwise it tells you the frequency to set by hand.)

Already on their frequency. If the screen you're on is already on the station's frequency (to within 10 Hz), HFConverse doesn't offer to set it again. In the same mode it just puts their callsign in **Working** (on the Terminal: in the **Callsign** box, with Listen switched on) and the status line says *Already on 's frequency*. On the Terminal with a PACTOR spot it asks only whether to **Open PACTOR** or **Stay here**. If the spot is in a different mode, it still asks before switching screens, but only about the mode.

On the Air Map (Station ▸ On the Air Map)

Station ▸ On the Air Map… (or **Map…** in the On the Air window) shows the HFC users from On the Air on a world map, with a line from you to each and the greyline.



- **Who's shown** — the HFC users on the **mode of the screen you have open**: on the PACTOR screen the PACTOR users, on AMTOR the AMTOR users, and so on (from the Terminal, everyone). Tick **All modes** to see everyone whatever screen you're on. With **My bands** chosen in On the Air, the map shows only the stations on your bands too, and the line at the top says how many are on other bands. Each station is a dot in its mode's colour (the same as the mode tags in On the Air) with its callsign. Stations that announce no locator can't be placed; the line at the top says how many there are.
- **The lines** — from you to each station along the great-circle path, the way the signal goes. The colour is the same path rating as the dot in On the Air: **green** good, **amber** marginal, grey dashed closed or no estimate. The rating is HFConverse's estimate from HF conditions (Settings ▸ Weather & Propagation) - a guide only; power, antennas, noise and the other operator count too.
- **Open now** — when HFConverse has band reports for your band (the band your dial is on), a line to a station on that band is **solid, wider and green** if your area and theirs have been heard on the band in the last 30 minutes, and **dashed** in the estimate's colour if not. The reports are stations heard on FT8, PSK31 and RTTY, collected from PSKReporter by the HFC server. An area is the first two letters of the locator (IO is the UK, Ireland and the sea around them), so a solid line means the band is open between your area and theirs, not that you'll hear that station. Lines to stations on other bands keep the estimate alone. The same reports give the Path dot in On the Air its white ring, so the list and the map agree. Until the first reports arrive, the second line at the top says *waiting for data*.
- **Outside spots** — on the PSK31 and RTTY screens, with **Outside spots** ticked (top of the window), other stations heard on your mode and band in the last 30 minutes are small dots in

the mode's colour, fading as they get older. They aren't HFC users, so they have no line. Hover a dot for its callsign, frequency, locator, who heard it, the signal report and how long ago. The line at the top says how many there are and when they were last updated.

- **Is it working?** — a second line at the top shows where the outside spots and band reports stand: how many other stations were heard, how many of the HFC users on your band the band is open to (for example *20 m band reports: open to 3 of the 4 HFC users on the band*), and when they were last updated; *waiting for data* (the HFC server was reached but has nothing fresh yet - give it up to 15 minutes: the server refreshes each mode's spots every 15 minutes and the band reports every 5); *can't reach the HFC server* (no internet, or the server is down); or *the HFC server isn't ready for these yet*. The last two say when HFConverse will try again. Both lines at the top wrap onto more lines when the window is narrow. Each request also goes in the diagnostic log (*ON THE AIR MAP:*).
- **Night** is shaded dark, with a soft edge through twilight, and the **greyline** itself - where the sun is on the horizon now - is a pale dashed line. Both move as the minutes pass.
- **World** or **Centred on me** — the box at the top right. **World** is the flat map. **Centred on me** puts your locator in the middle: every line from you is then straight, and shows the true direction (bearing) and distance - handy for pointing a beam. The edge of the circle is the far side of the world. Both need **your locator** in Settings to show you and the lines.
- **Hover** over a station for its mode, frequency, activity, locator, distance and bearing, and the path rating with the reason. Elsewhere, the position under the mouse, its locator, and the distance and bearing from you show in the bottom-left corner.
- **Zoom and move** — the mouse wheel zooms in and out on the point under the mouse, or use **+** and **−** at the top; drag the map to move around. **Whole map** goes back to the start.
- **Double-click a station** to go to it, exactly as double-clicking it in On the Air.

The coastlines are built in (from Natural Earth). Outside spots and band reports come from the HFC server, which collects them from PSKReporter every few minutes; HFConverse asks the server only while the map is open, and no more than every two minutes. HFConverse remembers the view, **All modes**, **Outside spots**, and how far you had zoomed in and where you had moved to, so the map reopens as you left it.

On the Air alerts (Pushover)

On the Air alerts send a notification to your phone, tablet or desktop when a station you're interested in comes up on the On the Air list. You don't need HFConverse running to receive them. Alerts are set up on the website, not in the app, and delivered by Pushover, a notification service.

Alerts cover **PACTOR** spots only for now. You get one alert when a matching station **appears on the air** in PACTOR, and another if it **moves to a different band**. Routine re-announces, frequency changes within the same band, going off the air and other modes don't send anything.

What you need

- A **Pushover account**.
- The **Pushover app** on each device you want alerts on (iPhone/iPad, Android, or desktop). Pushover is a **one-time payment of US$4.99 per platform**, paid to Pushover, not to HFConverse. There's no subscription.
- An email address, used to log in to the alerts page.

Setting up alerts

1. **Create your Pushover account** at pushover.net/signup, then install the Pushover app and log in to it on your device(s).
2. **Find your user key.** Log in at pushover.net. Your **user key** (30 letters and numbers) is shown at the top of the dashboard. Copy it.
3. **Log in to alerts** at mw0gbq.hamserve.uk/alerts. Enter your email and press **Email me a login link**. Open the email and click the link, then press **Log in**. There's no password: the link works once and expires after 15 minutes, and the first time you use it your account is created. (Check your spam folder if it doesn't arrive.)
4. **Link Pushover.** In the **Pushover** card, paste your user key and press **Link**. If the page shows a **Connect Pushover** button instead, press it and confirm on pushover.net; you'll be brought straight back.
5. **Send a test alert** to check a notification arrives on your device.
6. **Add your rules** (see below).

Alert rules

Each rule is a **callsign** and a **band**. Leave the callsign blank for **any callsign**, or choose **Any band**. For example:

- **G4ABC · Any band**: tell me whenever G4ABC comes up.
- **Any callsign · 20m**: tell me when anyone comes up on 20m.
- **Any callsign · Any band**: tell me about everyone.

Rules match the **base callsign**, so a rule for GW0XYZ also covers GW0XYZ/P, GW0XYZ/M and so on. If several of your rules match the same spot you still get just one alert. You can have up to 20 rules.

A typical alert reads "*GW0XYZ/P on the air — 20m*" with "*PACTOR · 14109.00 kHz CF · 20m*" and the station's activity and locator underneath. Tapping it opens the On the Air page. As on the list, the frequency is the **centre frequency (CF)**.

Settings and limits

- **Your callsign.** Enter it under **Settings** and you won't be alerted when you come on the air yourself.
- **Pause all alerts.** Turns everything off without deleting your rules. Press **Resume alerts** to turn them back on.
- **Quiet repeats.** The same station on the same band won't alert you again for 60 minutes, so a station that drops off and comes back doesn't send a stream of pushes. A move to a different band still alerts straight away.
- **Daily limit.** There's a cap of 50 alerts per account per day.
- **Stale alerts expire.** Alerts disappear from your device after about 15 minutes, matching how long a spot stays on the list.

Stopping alerts and your data

Use **Disconnect** in the Pushover card to stop alerts on this site, or **Delete my account** under Account to remove your email, callsign, Pushover key, rules and alert history completely. If Pushover ever rejects your key (for example, you deleted your Pushover account), alerts stop and the page asks you to reconnect.

Modem Mailbox (PTC modems)

SCS PTC modems (PTC-IIe, IIex, IIusb, IIIusb and the rest of the PTC-II family) have a small mailbox built in. When a station connects to you while you're away, it can leave a message in the modem. HFConverse can show you that mailbox. The P4 Dragon and DR-9400 have no mailbox, so HFConverse runs its own for them (see *Dragon modems* below).

Open it from **Mail ▸ Modem Mailbox…**. The window lists every message in the modem:

- **NEW** marks a message for you that you haven't read yet.
- **WAITING** (blue) marks a message you wrote that the station it's for hasn't collected yet; it goes once they have. The line at the bottom counts them: *1 waiting to be collected*.
- **To** is the modem's directory the message was left in: your callsign for mail to you, other names for mail to other stations or bulletins.
- **From**, **Date / time**, **Bytes** and **Title** come from the modem. Hover over a title to see whether it arrived by PACTOR, AMTOR or Packet.
- **Order:** newest at the top, by the date and time the modem lists, across all directories. The date and time are the modem's own clock when the message arrived; HFConverse sets that clock each time it connects.

Using the window:

- **Click a message** (or move to it with the arrow keys) and it's shown in the lower pane. No double-click needed; HFConverse waits a moment for the selection to settle, so running down the list with the arrow keys doesn't ask the modem for every message. The modem then marks it as read, so the **NEW** mark goes as you look. **Read** (or Enter) reads it again; a double-click opens it for editing (see **Edit…** below).
- **Delete** (or the Delete key) deletes the selected message from the modem. It asks first, and a deleted message can't be got back.
- **Save to file…** saves the message you're reading as a text file. Right-click the message for **Copy** or **Select all**.
- **Reply…** answers the message you're reading: the **New message** window opens with **To** the sender, the title *Re: …* and the original quoted under the place for your answer (**-----** *Original message* **-----**, then each line marked `>`). **Store in mailbox** leaves your reply for them; their message stays as it is.
- **Edit…** opens a message you wrote in the **New message** window, filled in. Change it and press **Save**. The edited message shows as written by you. Another station's message can't be changed (double-clicking one just reads it); answer it with **Reply…**.
- **Refresh** lists the messages again.

The messages stay in the modem: HFConverse reads them from it and keeps no copy unless you save one. On the PTC-IIusb and PTC-IIIusb the mailbox is cleared when the modem is switched off. The PTC-IIex and IIpro keep it.

When the mailbox can be used. The mailbox is driven by the modem's own commands, which only work while the modem is in standby. The window says why it can't read the mailbox when:

- you aren't connected to the modem;
- a call or link is in progress;
- a favorites scan is running;
- you're on the AMTOR, RTTY or PSK31 screen.

Use it from the Terminal or the PACTOR screen. Its commands don't appear on those screens, but the diagnostic log has them.

New mail notice. After you connect to the modem, and a few seconds after every link ends, HFConverse checks quietly for unread messages addressed to your callsign. If there's mail it hasn't told you about yet, a line appears in the Terminal and on the PACTOR screen, for example:

`*** Modem mailbox: 1 new message for GW0XYZ (from DL7ZZZ) - Mail ▸ Modem Mailbox… ***`

If the Modem Mailbox window is open, its list refreshes at the same time.

Switching the mailbox on and off. Use the **Mailbox on / Mailbox off** button in the Terminal's **Quick Commands**. It's green when the mailbox is on, and HFConverse remembers your choice and sets it in the modem every time you connect. While the setting is being sent the button shows an orange **Mailbox…**, and the Terminal shows the `REMote` and `Box` commands going to the modem. Hover over the button when it's greyed out to see why.

- **Mailbox on**: stations that connect to you can leave messages, by typing `//SEND` followed by your callsign (and a title if they like), then the message, ending with an over. The modem setting is REMote 1.
- **Mailbox off**: callers can't leave messages. The modem setting is REMote 0, which also blocks the other `//` commands a caller could use, such as the sysop bell and a remote reset.
- **On your own calls** the mailbox is closed for the length of the link (REMote 0) and opened again when it ends. Some stations' welcome text has a line starting `//` ("// help ..."), and with the mailbox open your modem would answer it by itself and take the turn. Stations that call you can use your mailbox as before.
- Until you first press the button, HFConverse doesn't change the modem's setting; the button shows what the modem has (**Mailbox ?** if it couldn't tell).
- The button works in standby only, not during a call, a link or a scan. It isn't shown for the P4 Dragon or DR-9400.

Leaving a message in your own mailbox. You can leave a message in your modem for a station that will connect to you later. In the Terminal, type `W` followed by their callsign and, if you like, a title (for example `W OH2PQR First Mail`), then Enter. The modem answers `ENTER TEXT FOR: OH2PQR` / `END WITH ESC-CHARACTER`, and the Terminal tells you what to do. Type the message in the Send box, a line at a time. Then press **Esc** in the Send box, or click **End message (Esc)** beside Send, to store it. Anything still in the Send box goes into the message first. The title isn't shown back to you, but the modem keeps it.

Until the message is stored, the modem takes everything it's sent as message text. So HFConverse holds back its own commands (Mailbox on/off, Listen, frequency reads, the mail check) and says so in the Terminal, and the Listen and Mailbox buttons are greyed. Lines such as `***end` or `/EX` don't end the message; only Esc does. If HFConverse is closed in the middle of a message, the next connect sends one Esc to get the modem answering again. The modem then stores whatever had been typed, so check the Modem Mailbox and delete it if it isn't wanted.

New message… in the Modem Mailbox window. An easier way: press **New message…** in the Modem Mailbox window, enter **To** (their callsign), an optional **Title** and the message, and press **Store in mailbox**. HFConverse sends the same `Write` command, your text and the Esc for you, waits for the modem to confirm, and the message appears in the list. If the modem doesn't take it, the window stays open and says why. Like the rest of the window it works in standby only, not during a link. With **Tell callers when there is mail waiting for them** ticked, the station is told about it when they connect.

Mailbox settings (Settings ▸ Modem Mailbox). The finer points are in the **Modem Mailbox** tab of Settings. HFConverse keeps them and sends them to the modem every time it connects, and straight after you press **Save** (or as soon as the modem is free, if a call, a link or a scan is going on; the Terminal says when they've gone). They live in the modem, so other programs see them too.

- **Only accept mail addressed to me:** the mailbox refuses messages for any other callsign (Box 2), for when third-party traffic isn't allowed.
- **Let callers type mailbox commands without //** (direct mode): callers get a `next?` prompt and type commands straight in. It only applies while the mailbox is on, and only when the other station called you. It may get in the way of an ordinary keyboard QSO, so it's off unless you tick it.
- **Send the welcome text when a station connects (CMsg):** the modem sends your welcome text to every station that connects.
- **Tell callers when there is mail waiting for them (MAil):** When a station connects, the modem tells them if your mailbox holds unread messages for them. The PTC-IIusb and PTC-IIIusb have this off unless it's switched on (older PTCs such as the PTC-IIex have it on), so HFConverse sends `MAil 1` every time it connects to a modem with a mailbox. It's on by default; untick it and press **Save** to switch it off, and HFConverse then sends `MAil 0` instead.
- **Welcome text (CTExt):** up to 249 characters. New lines are allowed, and `%` is replaced by your callsign. The first time HFConverse connects to your modem, it reads the welcome text and its tick box from the modem, so a text set by another program is kept; change them here and press **Save** to use your own.

Backing up and restoring the whole mailbox. The PTC-IIusb and PTC-IIIusb lose their mailbox when they're switched off. Two buttons above the bottom row of the Modem Mailbox window use the modem's own commands to keep a copy on your PC:

- **Back up to PC…** sends `BAKup` and collects everything the modem sends back, with a running count of characters in the status line. HFConverse checks the result (the `###PTCBAK` header, the block numbers running in order, the end and the checksum line) and then asks where to save it, as `mailbox-yyyy-mm-dd-hhmm.ptcbak`. A mostly empty mailbox is quick; a full 2 MB one can take a few minutes. If the result doesn't look right, the status line says why, and you can still save what arrived (as `…-UNCHECKED.txt`) for a bug report, but not restore from it. If the modem sends no backup at all (only its `cmd:` prompt or a `*** STBY` line, which can happen just after a link ends), the status line says *The modem didn't send a backup* — wait a few seconds and try again.
- **Restore from PC…** asks for a `.ptcbak` file and checks it. It then asks in plain terms whether to **replace everything** in the modem's mailbox: anything that arrived after the backup was made is lost. It sends `RELOad` and the file, waits for the modem's verdict, ends with `+`, and lists the mailbox again. A **Restoring the modem's mailbox…** window shows how much of the backup has been sent, then *waiting for the modem to check it*, then the modem's verdict with an **OK** button. It has no Skip button: stopping half-way would leave the mailbox half-loaded, so don't switch the modem off while it runs. The modem checks the file itself, so every message comes back exactly as it was: numbers, senders and dates.
- Both work in standby only, like the rest of the window. While one runs, HFConverse sends nothing else to the modem; a command you try in the meantime is held back with a note in the Terminal.
- On a 2 MB PTC, a backup of an empty mailbox is about 95 KB and takes a few seconds. After a restore the modem says *Checksum OK – Restore/Verify procedure completed*, which is what the status line shows.

- **Back up automatically, and offer to restore an empty mailbox** (the tick under the text, beside the two buttons). HFConverse backs the mailbox up to the PC by itself **when you close it**, if the mailbox has changed since the last backup (mail left by a station that connected to you, a message you wrote with `W`, a delete). Nothing happens during operation, so it never gets in your way. On closing it sends one quiet `DIR` and compares the mailbox's free space with the newest backup: unchanged, it closes at once; changed, a **Backing up the modem's mailbox…** window shows the progress, then *Mailbox backed up*, and HFConverse closes. **Skip** in that window closes straight away and keeps the last backup. The newest 5 are kept in the **mailbox-backups** folder in HFConverse's data folder (Help ▸ Open data folder…). When HFConverse connects and finds the modem's mailbox **empty** (it was switched off) while a backup with mail in it exists, it asks whether to restore it, showing the backup's date; if you say yes, the same **Restoring the modem's mailbox…** window shows the progress and the modem's verdict. It never restores without asking, because a restore replaces everything. The tick is on by default for the PTC-IIusb and PTC-IIIusb, which lose the mailbox when switched off, and off for the others; HFConverse remembers your choice.

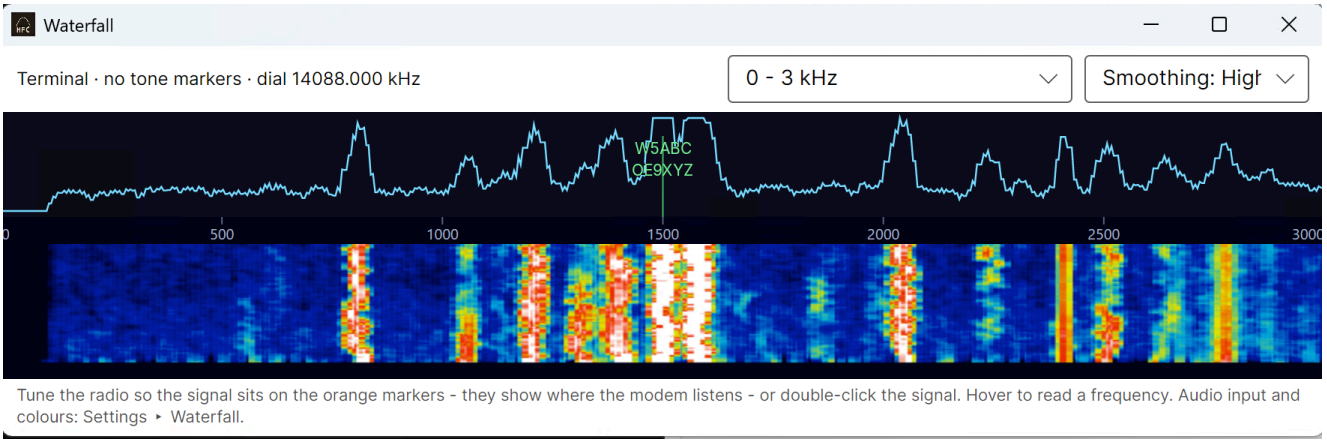
Dragon modems: HFConverse's own mailbox

The P4 Dragon (DR-7400 / DR-7800) and the DR-9400 have no mailbox, so HFConverse runs one for them that works like a PTC mailbox. Callers use the same commands, from any PACTOR program: **help**, **dir**, **list**, **check**, **read**, **write** (or send), **delete** (or erase), **date**, **time**, **version**, **log**, **user**, **bell** and **quit** (or bye). Only the capital letters need typing, as on a PTC (`d` = dir, `del` = delete). A message ends with **NNNN**, Ctrl-Z or a changeover. The replies follow the SCS PTC manuals: the same help screen, directory layout, `next?` prompt and sign-off.

- **Switch it on** in **Settings ▸ Modem Mailbox ▸ Mailbox on**. It answers only stations that call you, and only while HFConverse is running and connected to the modem.
- **// commands or direct mode.** As on a PTC, callers type commands with **//** in front (`//dir`), so an ordinary QSO isn't disturbed. With **Let callers type mailbox commands without //** (direct mode), every line is a command and the mailbox answers with `next?`.
- **The other settings** on that tab work as for a PTC: the welcome text, telling callers about new mail, and accepting only mail for you.
- **Unattended. Unattended - answer callers with nobody at the radio** turns on direct mode, ends a link after 5 minutes with nothing from the caller, and after 30 minutes in all. **You must keep to your own country's rules**: in many countries an unattended station needs a special licence or permit, or isn't allowed on some bands at all. You remain responsible for everything your station transmits.
- **Reading your mail. Mail ▸ Modem Mailbox…** shows HFConverse's mailbox: Read, Delete, Save to file and New message… work as for a PTC. The messages are kept on this PC, in the HFC Mailbox folder of HFConverse's data folder, so they survive switching off; there's no backup to make. A caller leaving a message plays a short sound and notes it on screen.
- **Directories** are as on a PTC: a callsign holds private mail for that station, any other name (ALL, TEST) is public. A caller can read their own mail, public mail and what they wrote, and delete what they wrote or what's for them.

Waterfall (Station ▸ Waterfall)

The Waterfall window shows the receive audio from your radio as a waterfall, with the modem's tones marked, so you can tune the radio by eye. The modem still does all the decoding, and nothing from this window goes to the modem. Tune the radio as usual - or double-click a signal and HFConverse sets the frequency for you (see below).



What it needs. HFConverse doesn't normally hear the radio - the audio goes straight to the modem. For the waterfall it listens to a copy:

- **The radio's own USB sound card.** Most modern radios have one (for example the Icom IC-7300, IC-7100, IC-705 and IC-7610, the Kenwood TS-890S, and the Yaesu FT-991 and FTDX10 / FTDX101). It carries the same receive audio the modem hears, while the modem stays on the radio's data socket. On Windows it is often called *USB Audio CODEC*.
- **Another sound card** fed from the radio's audio output, for radios without USB audio.
- **FlexRadio:** a DAX channel. In SmartSDR, set the slice's DAX channel (for example 1), then choose *DAX Audio RX 1* as the input. FlexRadio's DAX is for Windows.

Choose the input in **Settings ▸ Audio** - it is off until you do - and press **Listen** there to check the level. The audio input has its own tab because the Fax screen uses it too.

Opening it: Station ▸ Waterfall…. Put it wherever suits you - beside or under the main window, or on a second screen - and size it as you like; HFConverse remembers where it was. It follows the screen that is open:

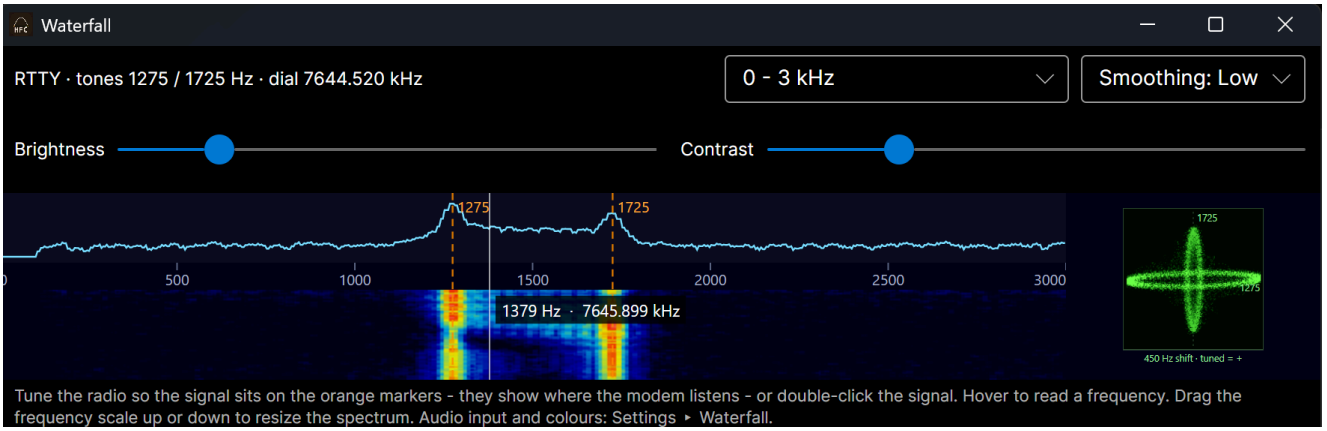
- **PACTOR and AMTOR:** orange markers on the two modem tones (Settings ▸ Terminal & Modes ▸ Modem tones - for example 1400 and 1600 Hz).
- **PSK31:** one marker on the PSK31 carrier, half-way between the two tones (1500 Hz with the recommended tones).
- **RTTY:** the two tones of the RTTY screen's tone choice.
- **Packet:** one marker at 1500 Hz (**RPR**), where Robust Packet is centred; a double-click centres on a signal up to 300 Hz either side.
- **Fax:** markers at 1500 Hz (**black**), 1900 Hz (**fax**) and 2300 Hz (**white**): tuned right, the fax fills the space between the outer two. A double-click puts a fax signal there.
- **The Terminal:** the audio, without markers.

Tune the radio until the signal sits on the markers. The line at the top says which screen the waterfall is following, the tones and the dial frequency.

- The **spectrum line** above the waterfall shows the signal strength across the audio band at this moment. It scales itself, with the noise near the bottom and the strongest signal near the

top. **Drag the frequency scale** up or down to make the spectrum taller or shorter; HFConverse remembers it.

- **Hover** over the waterfall to read the audio frequency at that point. When HFConverse knows the dial frequency, it also shows the radio frequency there - for a PACTOR signal centred there, its centre frequency.
- **Double-click a signal** to move the radio onto it: HFConverse sets the frequency so the signal sits on the orange markers, where the modem listens (between the two tones for PACTOR, AMTOR and RTTY, on the marker for PSK31). It centres on the signal near where you click, so you needn't be exact. The screen's frequency box changes as if you had pressed Set Frequency, and the Terminal notes the new dial frequency. It needs CAT (Settings ▸ CAT Configuration) and doesn't work during a link or transmission, since moving the radio would break it - the waterfall says why. Settings ▸ Waterfall ▸ *Double-click sets the frequency* switches it off.
- **Drag the waterfall sideways** to change the frequency, as on an SDR: hold the left mouse button on the picture and move it left or right. The picture slides with the mouse and a box shows how far the dial will move and where to ("Dial −350 Hz → 14103.950 kHz"). Let go and HFConverse sets the radio, the same way as a double-click (so not during a link or transmission, and not without CAT). To tune to a signal, drag it onto the orange markers. The older part of the waterfall slides with it, so earlier traces stay lined up. Settings ▸ Waterfall ▸ *Drag to change the frequency* switches it off.
- **On the Air stations** within the audio range are shown by callsign, in green, at their frequency (this needs the dial frequency). Stations close together share one line: two callsigns, then "+3 more" and so on, so a busy frequency doesn't fill the window. Hover on the line to see them all, newest first. Settings ▸ Waterfall ▸ *Show On the Air callsigns* switches them off.
- **Resizing** the window changes how much history it shows; the picture isn't squeezed.
- **Smoothing** (in the window, beside Shows): Off, Low, Medium or High - how much each line is blended into the one before. More gives a calmer picture; very short bursts look a little softer.
- **Auto black level** (Settings ▸ Waterfall, on as delivered): HFConverse follows the noise floor and keeps it dark, so signals stand out, as on an SDR. **Brightness** then moves the picture up or down from the noise floor.
- **Brightness** and **Contrast** are in the window too, under the top line, so you can set the picture while you watch it. They are the same settings as in Settings ▸ Waterfall. **Brightness** is the reference level: higher shows weaker signals and lifts the noise, lower darkens the noise. **Contrast** sets how quickly the colours climb from the noise to the strongest signal. New lines take the change at once; what's already drawn keeps its colours.
- **RTTY tuning indicator** (RTTY screen): a small square in its own panel beside the waterfall (the waterfall narrows to make room), like the crossed-ellipse indicators of old RTTY terminal units. One tone draws a line across, the other a line up (the two tones are written on the axes). When the signal is tuned, they make a **+** with equal arms. Off tune, the arms open into tilted ellipses; tune until they close up and stand straight. With the wrong shift chosen, the arms stay short and messy. The trace fades over a fraction of a second, so you can watch it as you tune. Settings ▸ Waterfall ▸ *Show RTTY tuning indicator* switches it off.



- **Shows:** 0 - 3 kHz, 0 - 4 kHz, or 1 kHz or 400 Hz around the tones. The narrow ones are handy for PSK31. The same choice is in Settings ▸ Waterfall.
- If the input isn't there (radio switched off, cable unplugged) or another program is using it, the window says so. Press **Retry** when it's back.

Linux: the list shows *System default*, PulseAudio or PipeWire when present, and the sound cards by name (*Show all devices* lists every ALSA device). If the radio's sound card is in use by another program, such as fldigi or WSJT-X, choose *System default*, PulseAudio or PipeWire, which can share it. If the waterfall says the audio library is missing, install PortAudio (Debian / Ubuntu: `sudo apt install libportaudio2`). On PipeWire systems the `pipewire-alsa` package is needed (it is usually already installed), and on some minimal systems your user must be in the `audio` group.

macOS: the first time, macOS asks whether HFConverse may use the microphone - that is the radio's sound card. Allow it. If you said no, switch it on in System Settings ▸ Privacy & Security ▸ Microphone.

Fax (Mode ▸ Fax)

Mode ▸ Fax... receives HF fax - the weather charts and other images that weather services send on shortwave - from your radio's audio. HFConverse decodes it itself, so it works with every modem; the modem is left as the Terminal had it. It listens to the same audio input as the Waterfall, so choose the radio's USB sound card in **Settings ▸ Audio** first. **Close** (or Mode ▸ Terminal) goes back to the Terminal.

Tuning. Type the station's published frequency, as in its schedule, in **Station kHz** and press **Enter**: HFConverse fills in **Dial kHz** 1.9 kHz below it (7878.1 for a station on 7880) and sets the radio there, as CF and Dial work on the PACTOR screen. Typing the dial instead fills in the station frequency. The radio should be on USB. **Set Frequency**, **Read From Radio** and the step buttons work as on the other mode screens. Nearly all stations send 120 lines a minute, the setting in the box beside the buttons.

Receiving a fax.

- Each fax begins with a start tone. When HFConverse hears it, it starts drawing, lines the fax up from the lines that follow (its left edge, and the slant a sound card running a little fast or slow would give) and picks the right width (IOC 576 or 288) by itself.
- A new start tone always starts a new fax: whatever is on the screen is saved first (unless it already was) and the screen cleared - also when the last fax's stop tone was missed.
- The lamp beside the line above the fax flashes **amber** while a fax comes in and turns **solid green** when it has finished; it's grey while waiting.

- The fax ends on its stop tone and is saved as a PNG in the Fax folder (see *Fax viewer*, below), named with the station (when it's one of the Fax favourites), the date and time it started (UTC) and, when it started at one of the station's timetable times, the chart, e.g. *HFC fax DWD Hamburg-Pinneberg 2026-11-17 1050 UTC Surface analysis North Atlantic, Europe.png*.
- **Open viewer** counts the faxes saved since the fax viewer last showed them - *Open viewer (3)* - so after leaving **Auto** running you can see how many came in; its tooltip lists the latest five. The status bar shows today's tally (UTC day): *Today (UTC): 6 faxes received, 2 ended with no signal*.
- If the signal fades or never comes, the fax ends by itself after two minutes with no signal (*Fax ended (no signal ...)*). Whatever came in before the signal went is kept and saved as usual; a fax that was only noise isn't saved.
- Tuned in part-way through a fax? Press **Start now**: it draws from that moment, and **Set left edge** lines it up. Between faxes, when the station sends only a steady tone, **Start now** says so and keeps waiting instead of drawing white lines.
- **Auto** (lit as delivered) is what makes a fax start by itself on its start tone; switched off, only **Start now** starts one. It's the same setting as the first tick in Settings ▸ Fax.
- **Stop** ends the fax now, **Save** saves it now and **Clear** clears it and waits for the next start tone.

If the fax comes out wrong.

- **It leans:** press **Straighten**, then click the top and then the bottom of a line in the fax that should go straight down. The whole fax is drawn again, straight.
- **It's split down the middle:** press **Set left edge**, then click where the fax's left edge should be.
- **It's stretched or squashed:** check the lines a minute - 120 for nearly all stations.
- **Esc** gives up a Straighten or Set left edge.

Fax favourites. The **Favourites** box lists weather fax stations from around the world, each station on each of its frequencies; a frequency marked with hours is only used then (UTC). Picking one fills in Station kHz, sets the radio and sets the speed and width boxes. A line under the fax then says what that station sends next, from its timetable - e.g. *DWD Hamburg-Pinneberg (checked November 2026) - next: 1050 UTC Surface analysis North Atlantic, Europe (in 25 min)* - and **Timetable** shows the whole day. ★ **Save current** keeps the frequency in Station kHz as a station of your own (an EmComm net, say). **Manage…** opens the Fax favourites, where each station's name, speed, width, frequencies and timetable can be changed and stations added or deleted; a supplied station you delete doesn't come back by itself. Some stations come with frequencies only, where no current timetable could be found.

Keeping the timetables current. Stations change their timetables now and then. **Settings ▸ Fax ▸ Update** fetches the latest: NOAA's five US stations straight from NOAA, the rest from the HFConverse website. Each station shows when its timetable was last checked. Your own stations, and supplied ones you've changed, are left as they are (**Undo my changes**, in Manage…, puts a supplied one back).

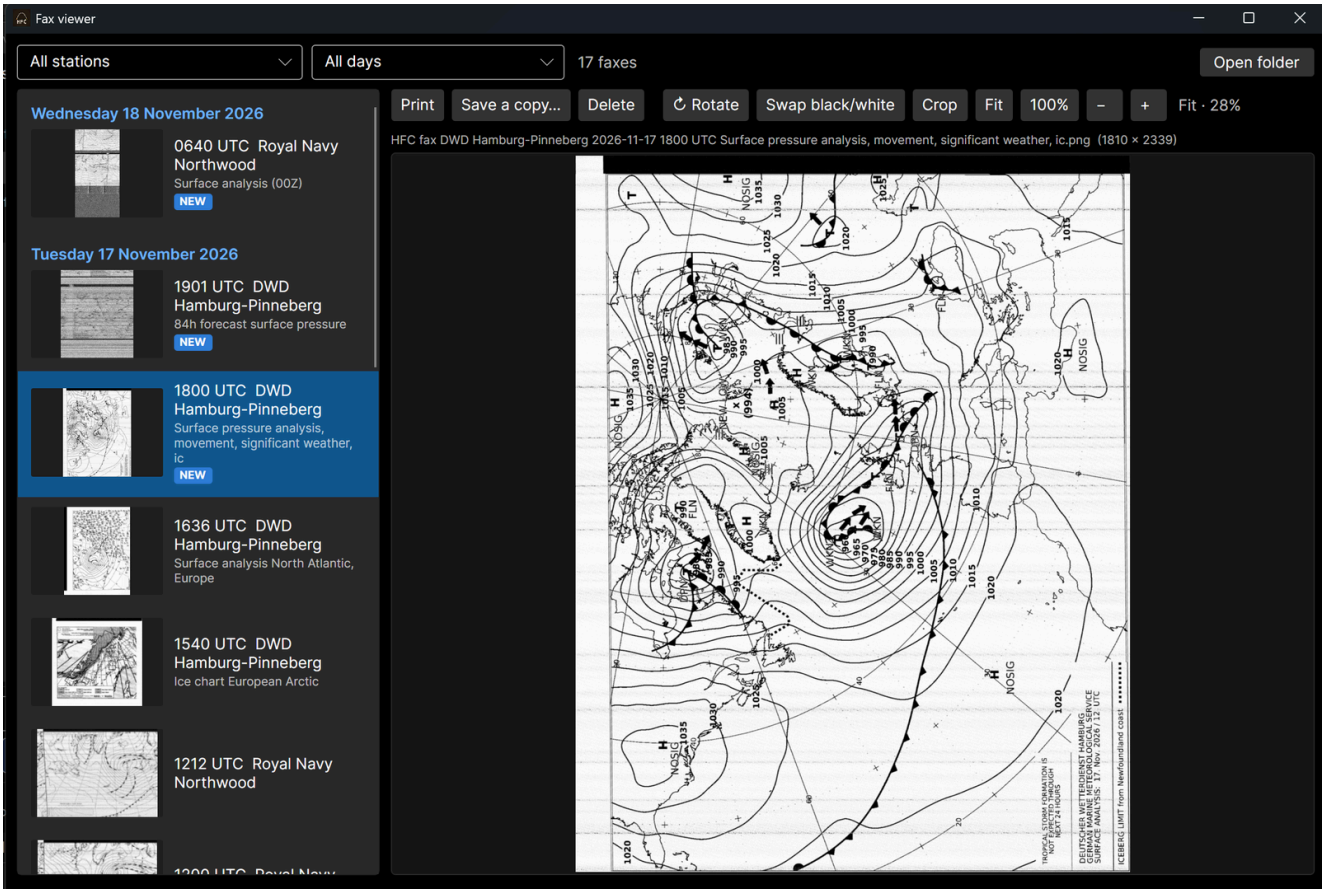
Auto switch. In a station's timetable (**Manage…**), tick **Capture** against the faxes you want - **All like this** ticks every time with the same chart. With **Settings ▸ Fax ▸ Switch to the Fax screen for faxes ticked Capture**, a card appears in the top right corner of the main window two minutes before each one: *Fax coming up - DWD Hamburg-Pinneberg at 1050 UTC (Surface analysis ...) on 3855 kHz. Switching to Fax in 0:59* with **Switch now** and **Skip**. Thirty seconds before the switch, if nobody has answered, it's replaced by a red card counting down: *Switching to Fax in 30 seconds*. With no answer HFConverse switches by itself a minute before the fax,

tunes the radio (the frequency you last picked for that station, if it's in use at that hour) and waits for the start tone. When the fax has ended it goes back to the screen, mode and frequency you were on, and On the Air comes back as it was - unless you used the Fax screen meanwhile (tuned, Stop, Clear), when it stays there. It never switches during a link or while sending: the card says the fax will be missed, and HFConverse switches if the link ends in time. While a mailbox is answering callers the fax is skipped, unless **Switch even while a mailbox is answering callers** is ticked. When two ticked faxes overlap, the first wins. Already on the Fax screen, it just retunes - never cutting into a fax that's coming in.

Printing. Settings ▸ Fax ▸ Print each fax when it's saved sends every saved fax to the printer chosen under it - **HFConverse printer** as delivered (the one in **Settings ▸ Printing**), or any other the computer has (**Refresh** looks again, **Test print** prints a test page) - one page, scaled to fit the paper in **Settings ▸ Printing**, with no dialog (**Only faxes ticked Capture** for just those). Windows prints through Windows' own printing; macOS and Linux through `lp`.

Settings ▸ Fax: start a fax on its start tone, end it on its stop tone, and save each fax when it ends - all ticked as delivered. **Update** brings the fax stations' frequencies and timetables up to date. The auto switch and printing ticks are described above.

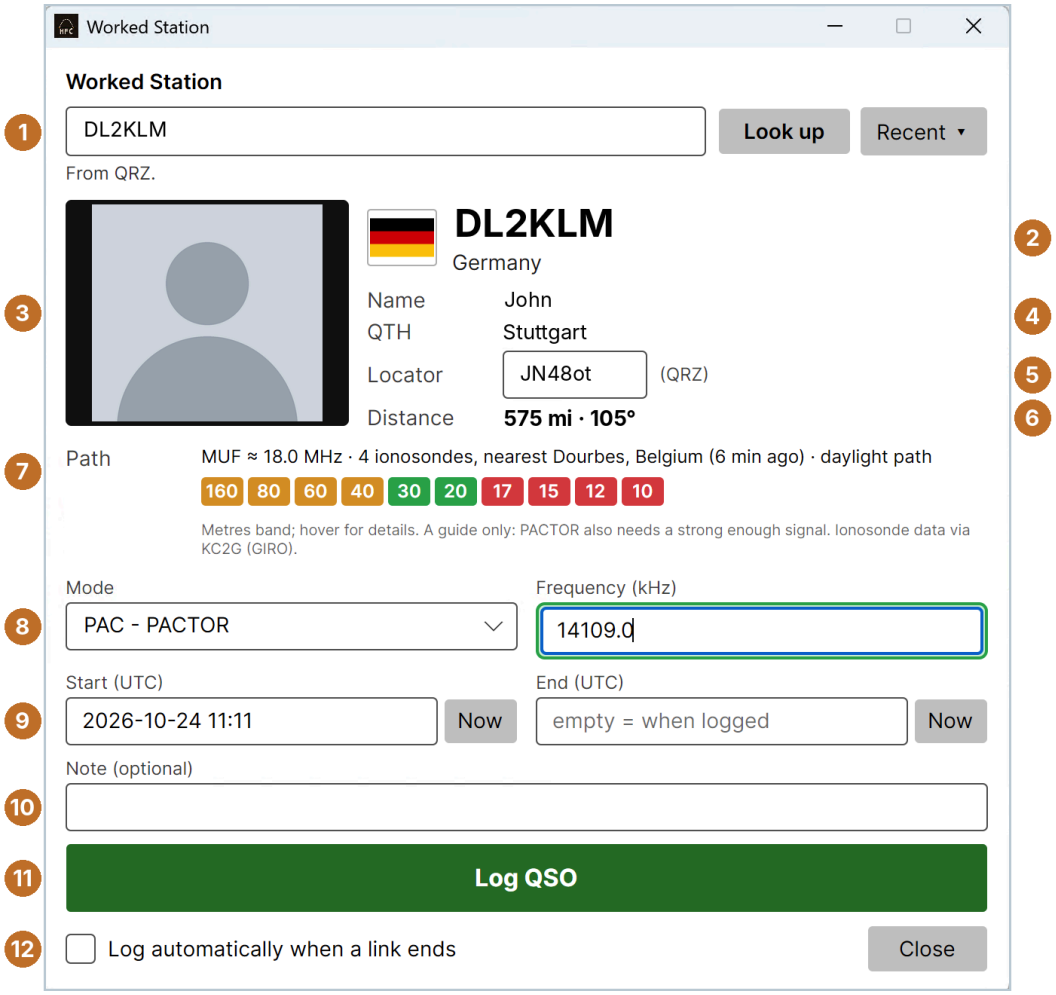
Fax viewer. Open viewer opens the fax viewer, a window that can stay open beside the Fax screen. On the left are the saved faxes, newest first under each day (UTC), each with a small picture, its time, station and chart; those saved since you last opened the viewer are marked **NEW**. Pick one to see it large on the right: **Fit** shows it whole, **100%**, **+** and **−** (or Ctrl + mouse wheel) zoom, and dragging moves it about. The two boxes at the top show only one station's faxes, or one day's. **Print** prints it on the printer chosen in Settings ▸ Fax; **Save a copy…** saves it elsewhere; **Delete** (or the Delete key) moves it to the Recycle Bin (the Trash on macOS and Linux), where it can be got back. **↻ Rotate** gives it a quarter turn clockwise each press - once for a chart sent on its side, twice for one sent upside down, four times and it's back as it was - and **Swap black/white** puts right one that came out as a negative - both change the file itself. **Crop**: drag a box round the part you want, then **Save cropped** saves it as a new file beside the fax (… *cropped.png*). **Open folder** opens the Fax folder itself. New faxes appear in the viewer as they're saved.



On the Air. Fax only listens, so it's never announced: opening the Fax screen takes you off the air (Station ▸ On the Air says so), and **Go on the air** doesn't work from it. If you were on the air when you opened it, you go back on the air as you were when you leave it, with the frequency and mode of the screen you go to.

Worked Station (callsign lookup)

The **Worked Station** window shows you who you're working. Open it from **Station ▸ Worked Station…** (or have it open automatically at startup — see Settings). Type a callsign and press **Look up**, or let it fill in automatically from the **Working** callsign box on the QSO, RTTY, PSK31 or AMTOR screen.



1. **Callsign**, **Look up** and **Recent ▾** — type a call and look it up, or pick one of the last 10 stations you logged. The line below says where the details came from.
2. **Station** — flag, callsign and country, worked out from the callsign. A **Worked before** line under them shows when you last logged them.
3. **Photo** — their profile picture, if their record has one. The details sit beside it, so the window stays short enough for a small screen.
4. **Name** and **QTH** — from QRZ.com or HamQTH.
5. **Locator** — type one in, or HFConverse takes it from On the Air or the lookup; the label says which.
6. **Distance** — and the beam heading to them.
7. **Path** — the MUF to them now, and each band from 160 to 10 m: green good, amber marginal, red closed.
8. **Mode** and **Frequency** — filled in from the screen you're on. The Frequency box is outlined in the path colour for that frequency: green here, as 20 m is open to them.
9. **Start** and **End (UTC)** — **Now** puts the current time in. End left empty is the moment you press Log QSO.
10. **Note** — optional, saved with the QSO.

11. **Log QSO** — puts the contact in your log.
12. **Log automatically when a link ends** — logs PACTOR and AMTOR links without pressing Log QSO.

Recent ▾ — beside **Look up**, it lists the last 10 different stations in your QSO log, newest first, with the date, band and mode (`G4QRS · 17 Oct · 30 m · PACTOR`). Pick one and it's filled in and looked up, just as if you'd typed it. **Show all in the QSO Log…** at the bottom opens **Log ▸ QSO Log…** with everything you've worked.

It works the other way too. A callsign you type here and look up goes into the **Working** box of the screen you have open (PACTOR, AMTOR, RTTY or PSK31), or the **Callsign** box on the Terminal, so `<CALL>`, Connect and Log QSO use it. While a link is up, the Working box is left alone: looking up a station mentioned during a QSO doesn't change who you're working, and a note under the box says so.

It shows:

- **Country and flag** — worked out from the callsign itself, so they always appear, even with no internet. (UK nations show their own flag — an MW call shows the Welsh dragon, a GM call the Scottish saltire, and so on.)
- **QRZ.com link** — beside the callsign, **QRZ.com ↗** opens the station's page on qrz.com in your web browser. A portable call opens the base callsign's page (LA/G4QRS opens G4QRS), as QRZ has no pages for calls with a "/". If your browser is signed in to QRZ you see the full details there.
- **Name, QTH and locator** — from QRZ.com and/or HamQTH.com, if you've entered your lookup details in Settings.
- **A photo** — the operator's profile picture, if their record has one (blank otherwise).
- **Distance and beam heading** — the great-circle distance (in miles or kilometres, your choice in Settings) and the bearing in degrees, handy for pointing a beam. This needs your own locator set in **Settings ▸ Station**, and the other station's locator.
- **Their locator, without QRZ or HamQTH.** The **Locator** line is a box you can type in, and HFConverse takes the locator from the first of these it has: **the one you typed** (remembered for that callsign from then on), then **their On the Air entry** (HFConverse stations send their own locator when they go on the air; the list is checked even with the On the Air window closed), then **QRZ / HamQTH**. The label beside the box says which: *(you entered)*, *(On the Air)* or *(QRZ)* / *(HamQTH)*. Distance, bearing, the Path line and the log all use it, and so does the `<THEIRLOC>` macro token. Something that isn't a locator (4, 6 or 8 characters, e.g. `JO65` or `JO65mr`) shows *not a locator* and isn't kept. Empty the box to forget yours and go back to On the Air or the lookup.
- **Path** — With **HF conditions** switched on (see *HF conditions*), an estimate of the path to them right now:
  - one line with the **MUF** (the highest frequency that should reach them now), where it comes from (the nearest ionosondes and how old their readings are) and whether the path is in daylight, e.g. `MUF ≈ 16.6 MHz · 2 ionosondes, nearest Juliusruh (12 min ago) · daylight path`;
  - a row of **bands**, 160 to 10 m (160, 80, 60, 40, 30, 20, 17, 15, 12, 10): **green** = good (well below the MUF), **amber** = marginal (near the MUF, or 160/80/60/40 m on a long daylight path, where absorption is likely), **red** = closed (above the MUF). Hover over a band for the figures. A K index of 5 or more takes everything down a step;

- the **Frequency** box at the bottom is outlined in the same colours for the frequency in it, so you can see at a glance whether where you are should reach them. Hover over it for the figures.

With no estimate it says why: no locator for them, or **no ionosonde near the path** (they're sparse over the oceans, Africa and parts of Asia), in which case it doesn't guess. The ionosonde data comes from KC2G (prop.kc2g.com, from the GIRO network), fetched every 15 minutes while the window shows a path. It's a guide, not a promise: the MUF says whether a band can reach them, not whether the signal will be strong enough for PACTOR.

The window sizes itself to fit what it shows, so there's nothing to scroll; it remembers where you put it.

Setting up lookups

In the **Settings ▸ Lookup & Presence** tab, enter your **QRZ.com** and/or **HamQTH.com** username and password. QRZ requires a paid XML subscription for full data; a HamQTH account is free. You can fill in either or both — if both are set, HFConverse tries QRZ first and falls back to HamQTH. Leave a username blank to switch that provider off. Your passwords are stored securely, separately from your other settings (on Windows encrypted for your user account), so they don't go with a settings backup.

Each provider has a **Test** button beside it: press it to check your credentials without leaving Settings — it attempts a real login and shows the result in green (connected) or red (with the reason it failed).

Choose **miles or kilometres** for the distance readout there too, and optionally tick **show the Worked Station window on startup**.

The flag and country always work with no account and no internet — the online details (name, QTH, locator, photo) are the part that needs a provider.

Logging a QSO

QSOs are logged in the **Worked Station** window, and nothing goes into the log without you seeing it there first, times included.

When a link ends. After a PACTOR or AMTOR link closes, the **Worked Station** window comes up, whichever screen you're on (even if the other station called you while you were on the Terminal): it opens if it was closed, is restored if it was minimised, and comes to the front. It's filled in with:

- **Callsign** — from the modem's `*** CONNECTED TO …` line (for AMTOR, from the **Working** box, since AMTOR shows the SELCALL), looked up as usual.
- **Mode** — PAC (PACTOR) or TOR (AMTOR).
- **Frequency (kHz)** — from the mode screen, or the Terminal's QSY box.
- **Start (UTC)** — when the link connected.
- **End (UTC)** — when the link ended.

Everything can be changed. Check it, add a **Note** if you like, and press **Log QSO**. A call that never connects doesn't bring the window up.

Log automatically when a link ends — a tick at the bottom of the window, off to start with, and remembered. With it ticked, the QSO is logged as soon as the link ends; the window still comes up and says what went in, e.g. "QSO with OH2PQR logged ✓ (PAC - PACTOR), 17:50 - 17:53 UTC". With it off, nothing is logged until you press **Log QSO**.

Start and End. Times are UTC, written as `yyyy-mm-dd hh:mm`, the same as in **Edit QSO**. What's in the boxes is exactly what goes into the log (ADIF `TIME_ON`, and `TIME_OFF` / `QSO_DATE_OFF`) and to your external logger.

- **Start** is the link's connect time. With no link, it's the time the station was shown in the window, so correct it if the QSO began earlier.
- **End** is the link's end time. Leave it **empty** and it's the moment you press **Log QSO**.
- **Now** beside either box puts the current time in it, e.g. press it by **Start** as an RTTY, PSK31 or Unproto QSO begins.
- The end can't be before the start, and a time HFConverse can't read isn't saved: the line under **Log QSO** says what to fix.

Log QSO… on the PACTOR or AMTOR screen brings up the Worked Station window the same way. During a link it fills in the link, with **End** empty; for half an hour after a link you didn't log, that link; otherwise the **Working** callsign with **Start** as now (for an Unproto or FEC contact, which has no link). It never logs by itself; press **Log QSO** in the window.

RTTY and PSK31: QSO Start / QSO Stop. RTTY and PSK31 have no link to mark when a QSO starts and ends, so you do. Press **QSO Start** (beside the Name box) when the contact begins: the start time is taken there and then, and the button turns **blue** and reads **QSO Stop** (hover over it to see when it started). Press **QSO Stop** when you're done: the end time is taken and Worked Station comes up with the **Working** callsign, the mode (RTTY or PSK - PSK31), the dial frequency and both times, the same as after a PACTOR link. Check it and press **Log QSO**.

- You don't need a callsign to press **QSO Start**. If Working is still empty when you press **QSO Stop**, Worked Station waits with the QSO's mode, frequency and times; type or look up the callsign (or put it in Working) and press **Log QSO**. Nothing is ever logged without a callsign.
- **QSO Start** is greyed out until you press **Start RTTY** (or **Start PSK31**), and again after **Stop RTTY** (or **Stop PSK31**). A QSO already running can still be stopped with **QSO Stop** afterwards.
- With **Log automatically when a link ends** ticked, **QSO Stop** also logs straight away, as long as there's a callsign in Working; otherwise it waits as above.
- While the button is blue, changing mode, **Close** or quitting asks *QSO still running*: **Stop and save to log**, **Discard** or **Cancel**. After **QSO Stop** the QSO is looked after by *A QSO not logged yet* (below) until you log it.

A QSO not logged yet. Once a link has ended, its QSO waits in Worked Station until you log it or discard it, so nothing is lost by accident:

- The boxes stay as they are: they don't follow the screen or the radio, and a new callsign from the **Working** box isn't taken. A line under **Log QSO** says the QSO isn't logged yet, with a **Discard** button.
- **Changing mode** (the Mode menu, a spot in another mode), **Start RTTY**, **Start PSK31**, **Close** on a screen, **Mode ▸ Terminal**, closing Worked Station and **quitting HFConverse** first ask *QSO not logged*, showing the station, mode, frequency and times: **Save QSO to log** logs exactly what's in Worked Station and carries on; **… without saving** discards it (**Log QSO…** won't bring it back); **Cancel** stays where you are. If the QSO can't be saved as it stands (a time HFConverse can't read, say), nothing changes and Worked Station comes to the front to say what to fix.
- **A new link ending before the last one was logged** doesn't lose the earlier one: Worked Station shows "Earlier QSO with OH2PQR (17:50 - 17:53 UTC) isn't logged." with **Log it** and **Discard**, and the question above covers both.

- **Discarding puts Worked Station back.** If Worked Station was closed or minimised when HFConverse brought it up for the QSO, discarding the QSO (**Discard**, or **… without saving**) closes or minimises it again. Once the QSO is logged (by **Log QSO**, automatically, or **Save QSO to log**), or if you press **Cancel**, it stays open and what happens to it is up to you. If you open, minimise or close it yourself in the meantime, HFConverse leaves it as you put it.
- With **Log automatically when a link ends** ticked, none of this comes up: the QSO is already logged.

When nothing is waiting, Worked Station's **Mode** and **Frequency** follow the screen you're on, including when you open a screen or press **Start RTTY** / **Start PSK31**.

Any station you look up in Worked Station can be logged the same way, from any screen:

- The **Mode** and **Frequency** fill in from the screen you're on. They also **follow the radio** while the window is open: **Set Frequency**, **Read From Radio**, picking a favorite or a scan stopping puts the new frequency (and the screen's mode) in the boxes. A value you typed yourself is replaced the next time the frequency changes.
- On the **Terminal**, the Frequency comes from its Radio QSY box (Set Frequency / Read From Radio); pick the **Mode** from the dropdown, or type the **Frequency** yourself.
- **Start** is the time the station was shown (or the link's, if it's the station you're linked to); **End** is empty.
- The **Log QSO** button stays disabled until there's a callsign, a mode and a frequency.

Logged QSOs go into HFConverse's log (**Log ▸ QSO Log…**) and, if it's switched on, to your external logger. The button changes to **"Logged ✓"** so you can't log the same contact twice by accident; it re-arms when a new station is shown or a new link ends. The name logged is the one the lookup found, or else the name in the screen's **Name** box. Signal reports are recorded as 599 (the usual convention on these modes).

> **Worked before?** If you've logged a station on HFConverse before, an amber **"Worked before on HFC"** badge appears when you look them up, with the date and mode you last worked them.

The QSO log

Your contacts are kept in a simple **ADIF** log file. HFConverse's log is deliberately modest — it's not a full logbook (dedicated logging programs like Log4OM do that job): it's there to record your HFConverse contacts and hand them on cleanly.

The mode is logged in **ADIF's own names**, both in the log file and in what goes to your external logger. **PACTOR** is logged as `PAC`, **AMTOR** as `TOR`, and **PSK31** as `PSK` with the submode `PSK31`; **RTTY** is `RTTY`; **Packet** is `PKT`. (`PACTOR` and `AMTOR` aren't ADIF mode names, so loggers such as Club Log would file them as DATA.) The Mode box in **Log QSO**, **Edit QSO** and **Worked Station** lists the ADIF names with a label: **PAC - PACTOR**, **TOR - AMTOR**, **RTTY**, **PSK - PSK31** and **PKT - Packet**. The QSO log shows them the same way. The operating screens and On the Air say PACTOR and AMTOR. A PACTOR QSO is logged with its level when HFConverse knows it: **PAC2 - PACTOR-2**, **PAC3 - PACTOR-3** or **PAC4 - PACTOR-4** in the Mode box, written to the ADIF file as `PAC` with the submode `PAC2`, `PAC3` or `PAC4`. A PACTOR-1 link, or one whose level isn't known, is plain `PAC`. You can change it in the Mode box before you log.

Open **Log ▸ QSO Log…** to see it. The window lists your contacts newest-first, with their **start and end time** (UTC, e.g. `2026-10-06 14:30-14:42z`), with a **search** box to filter by callsign, and an **Export ADIF…** button that saves a copy of the log you can import into any other logging

program or upload to LoTW/eQSL. If you log a QSO while the window is open, it appears in the list straight away.

Editing and deleting a QSO

To correct a QSO, select it and press **Edit…**, or double-click it (or select it and press Enter). The **Edit QSO** window lets you change everything: callsign, start and end time (UTC, as `2026-10-08 16:18`; leave the end empty if there isn't one), mode, frequency (kHz), RST sent and received, name, QTH, locator, country and note. Press **Save**. It checks that the callsign isn't empty, that the times are valid with the end not before the start, and that the frequency is a number in kHz.

To remove a QSO, select it and press **Delete** (or the Delete key). HFConverse asks first.

- **A backup is kept.** Before each edit or delete, the log as it was is saved as `hfconverse-log.adi.bak` in the same folder, so a mistake can be put right by hand. Only the latest change is kept.
- **Nothing else is lost.** QSOs you didn't change are written back exactly as they were, including any ADIF fields HFConverse doesn't show (from an import or another logger). An edited QSO keeps those fields too, except a band or submode, which goes when you change the frequency or the mode.
- **Your external logger isn't changed.** Edits and deletes are made in HFConverse's log only and aren't sent to Log4OM/HRD, which would add the edited QSO as a second contact. Change it there too.

Sending QSOs to another logger

If you already run a logging program like **Log4OM**, **Ham Radio Deluxe** or **DXKeeper**, HFConverse can send each QSO to it automatically over your network, so your main logbook stays complete.

In **Settings ▸ Logging & QSL ▸ QSO Logging**, tick **Send logged QSOs to an external logger**, choose the **Logger**, and set the **host** (use `127.0.0.1` if the logger runs on the same PC) and **port**:

- **ADIF over UDP** (Log4OM, Ham Radio Deluxe, Logger32 and others): in your logger, add an ADIF-message UDP inbound on that same port (in Log4OM: Connections ▸ Inbound).
- **DXKeeper (DXLab, TCP)**: DXKeeper doesn't take UDP, so HFConverse talks to it over its own TCP link. Choosing it sets the port to **52001**, which is right with DXLab's usual base port of 52000 (DXKeeper's Defaults tab); DXKeeper must be running.

From then on, logging a QSO in HFConverse also sends it to that logger, and each send is noted in the diagnostic log (`EXTERNAL LOG: …`), so a problem report shows whether it got there. Your own local log is always kept regardless of this setting.

Radio control (CAT)

HFConverse can control your transceiver's frequency in several ways, chosen in **Settings ▸ CAT Configuration**:

- **None** — no frequency control; you set the radio's frequency by hand. Frequency controls in the operating screens are disabled.
- **Modem drives the radio (Modem-TRX)** — the modem itself controls the radio through its own transceiver-control port, using whichever "language" your radio speaks (see *Choosing your radio type*, below). You set your radio type, port parameters, and a frequency offset.

- **PC drives the radio** — HFConverse controls the radio itself over the radio's own USB cable (or serial CAT port), with nothing else to install. For modern Yaesu, Kenwood and Icom radios: FT-991/991A, FT-891, FT-710, FTDX10, FTDX101D/MP, FT-2000/2000D (through its RS-232 CAT jack - straight serial cable or USB-serial adapter - with Menu 028 CAT BAUD RATE set to the same speed), FT-450/450D (through its CAT jack, the same way, with Menu CATRATE set to the same speed - not DATA, which turns the jack into an RTTY port), TS-480, TS-590S/SG, TS-890S, TS-2000, IC-7300 / IC-7300MK2, IC-705, IC-7100, IC-7610, IC-9700 and IC-7200. See *PC drives the radio*, below.
- **Hamlib** — HFConverse talks to a separately-running `rigctld` program (part of the free Hamlib software package), which in turn talks to your radio. Useful for radios that have no direct connection to the modem — a network-controlled SDR transceiver, for example.
- **FlexRadio API (direct)** — for FlexRadio owners, HFConverse talks straight to the radio's own network API, with no separate `rigctld` process to run. Enter your Flex's IP address (and slice, if you use more than one) in Settings. To control any other radio from the PC, use **Hamlib**.

Set Frequency, Read From Radio, and (on the QSO screen) Favorites all work the same way whichever of the four live modes you've chosen (Modem-TRX, PC drives the radio, Hamlib or FlexRadio API), on the Terminal, QSO and RTTY screens alike. Pick whichever mode matches how your radio is actually connected and configure it there; if CAT is set to **None**, those controls stay disabled and you set the frequency by hand.

Changing CAT while connected. A change in **Settings ▸ CAT Configuration** — the method (for example from **Modem drives the radio** to **Hamlib** after moving to a different modem and radio) or its settings — takes effect as soon as you press **Save**, with no need to disconnect: HFConverse closes the old connection to the radio (and the `rigctld` it started, if its settings changed), sets up the new one and reads the frequency, so the Terminal shows straight away whether the radio answers. **Modem drives the radio** sends commands to the modem, so it waits until no link or transmission is up.

Choosing your radio type

When CAT is set to **Modem drives the radio**, start by picking your **Radio Type**. The fields underneath it change to match, so you'll only ever see the settings your particular radio actually needs.

One thing worth knowing before you pick: **some newer Yaesu radios aren't controlled as "Yaesu" at all.** The FT-450, FT-950, FT-2000 and FT-9000 use a Kenwood-style protocol on their remote-control port, not Yaesu's own. If you have one of these four models, set Radio Type to **Kenwood**, then use the **"This radio is"** field that appears underneath to pick the Yaesu option shown there — Radio Type itself stays on Kenwood. If your Yaesu is a different model, set Radio Type to **Yaesu** as normal, and pick your exact model from the list that appears — setting the frequency works either way, but the modem needs to know your exact model before "Read from radio" will work.

Elecraft KX3 (and other radios with a weak CAT output). Set Radio Type to **Kenwood**, and the baud rate to **9600** (19200 also works) — the same in HFConverse and in the radio's **RS232** menu. Avoid 38400: the KX3's serial output is too weak for the modem's input at that speed, so setting the frequency works but the frequency read back comes out garbled. HFConverse sends the baud rate to the modem every time it connects, so a P4 Dragon's return to 38400 after power-up doesn't matter.

Icom radios (CI-V) — address and levels

For an Icom with **Modem drives the radio**, the cable runs from the modem's TRX control port to the radio's **REMOTE** (CI-V, 3.5 mm) jack: CI-V to the jack's tip, ground to its sleeve. Not to the radio's USB port or ACC socket. On a **P4 Dragon** (DR-7800/DR-7400) the CI-V line is **pin 6 ("ICOM")** of the 13-pin Remote socket, with ground on **pin 12 or 13** (DR-7X00 Installation Guide, section 6.3). A few settings catch people out:

- **CI-V Address** — type it exactly as the radio's own CI-V menu shows it, which is **hexadecimal**: `94` for an IC-7300, `88` for an IC-7100, and so on (`94h`, `$94` and `0x94` are accepted too). HFConverse converts it to the `$94` form the modem needs; you can check it in the **command preview** at the bottom of the panel, e.g. `TRX TYpe ICOM 19200 $94`. (The modem itself would read a plain `94` as *decimal* 94 — a different radio address.)
- **Control Levels don't apply to Icom.** The modem drives an Icom's CI-V line from its own dedicated pin, so there's no V24/TTL choice, and the field is hidden when Radio Type is ICOM.
- **Baud rate** — match the radio's **CI-V Baud Rate** setting; if the radio is on **Auto**, any rate up to 19200 will do. Icom's REMOTE jack only goes **up to 19200 baud**, although the modem's list goes up to 115200. Settings shows a warning under Baud Rate if you pick a higher rate with Radio Type ICOM. If **Read From Radio** fails, this is the first thing to check: the modem asks the radio at this baud rate and, if the radio is set to a different fixed rate, simply gets no answer (the Terminal log then says so). If another program already works through the modem (e.g. SafecomLink), use the same baud rate it uses.
- **Offset** — HFConverse only sends a TRX offset when it isn't 0 (0 is the modem's default), and always with a decimal point (e.g. `1.4`); the P4 Dragon rejects a bare `TRX Offset 0` with "BAD ARGUMENT". When HFConverse's offset is 0 it sends `TRX Offset 0.0` at connect, clearing any offset left in the modem (typed in its trx menu, or set by another program). HFConverse converts CF to dial itself, so an offset in the modem as well would be applied twice. Normally leave this at 0 and set the **CF offset** (Settings ▸ Equipment) instead.
- **Reading the frequency back** — the modem answers `TRX FREQUENCY: 10145.000 kHz`. HFConverse tells you exactly why a read failed — see *When a frequency read fails*, below. Whenever the modem prints `TRX FREQUENCY: …`, the open screen's frequency box follows it — also when you type `trx f` in the **cmd:** box.

Save validates the address: it must be a hex value from 00 to FF.

NMEA Icom marine radios (such as the IC-M802 and IC-M803): pick **NMEA ICOM** as Radio Type and type the radio's ID in hex, as its menu (and Winlink or Airmail) shows it, e.g. `20`. HFConverse sends `TRX TYpe NMEA 4800 32`: these radios always use 4800 baud, and the modem takes the ID in decimal (hex 20 is 32), as the command preview shows. The SCS manual says the modem can set an NMEA Icom's frequency but can't read it back, so HFConverse doesn't try: **Read From Radio** is off (its tooltip says why), there's no frequency read on connect or when a screen opens, **Set Frequency** never turns red, and **Test Connection** only checks that the modem accepts the radio settings. The **The radio can't report its frequency** box in Settings shows ticked for these radios.

> If modem-driven CAT doesn't work, the **diagnostic log** (Help ▸ Copy diagnostic log — see *Reporting a problem*) contains the exact `TRX TYpe …` line, the modem's reply and what HFConverse made of the frequency read. The alternative for an IC-7300 is to let the PC drive it over its USB cable (*PC drives the radio*, below).

PC drives the radio (Yaesu, Kenwood and Icom over USB)

With **PC drives the radio**, HFConverse talks to the radio over the radio's own CAT port: the USB cable on a modern rig, or its serial CAT socket. You don't need Hamlib or any other program.

1. Connect the radio's USB cable to the computer. On Windows, install the radio maker's USB driver first (Yaesu and Icom: the Silicon Labs CP210x driver from their websites). macOS and Linux have it built in.
2. In **Settings ▸ CAT Configuration**, choose **PC drives the radio**, then your radio's **Make** (Yaesu, Kenwood or Icom) and **Model**.
3. Choose the **CAT Port**. A modern Yaesu (and the TS-890S) shows up as **two** COM ports, an *Enhanced* one and a *Standard* one. Choose the **Enhanced** port; the Standard one is for PTT and keying. On Windows, Device Manager shows which is which. On a Mac or Linux PC, the lower-numbered of the pair is usually the Enhanced one.
4. **Baud Rate** fills in with the radio's factory setting when you choose the radio. It must match the radio's own **CAT RATE** menu: the line under Baud Rate names the menu for your radio. If you've changed the radio's setting, choose the same speed here.
5. Press **Test Connection** (under *Radio Test*). It reads the radio's frequency and its ID, e.g. "*Connected — Yaesu FT-991 / 991A reports 14105.000 kHz (radio ID 0670)*". Then press **Save**.

When HFConverse connects to the modem it also opens the radio's port, and the Terminal shows *[Connected to the Yaesu FT-991 / 991A on COM5 at 4800 baud, radio ID 0670]*. From then on, **Set Frequency**, **Read From Radio**, following the dial and **CAT driven mode change** work exactly as with Hamlib.

Radios marked "(test)" haven't been confirmed on air yet. They're built from the makers' CAT manuals. If yours is one of them, please let us know how it goes (Help ▸ Report a problem). The diagnostic log records every command HFConverse sends to the radio and every reply (`CAT TX …` / `CAT RX …`). Confirmed on air so far: Icom IC-7300, Kenwood TS-890S, Yaesu FT-2000 / 2000D, Yaesu FT-450 / 450D.

PTT. As with Hamlib, the SCS modem keys the radio through its PTT line, and **Also key PTT via CAT** stays off for PACTOR. **Test PTT** keys the radio for two seconds. A Yaesu confirms that it's transmitting; a Kenwood doesn't report it, so HFConverse asks you whether the radio keyed.

One program at a time. While HFConverse is connected, it holds the radio's CAT port, so no other program can open it. That includes **Test Connection** in Settings. Disconnect first, or use **Read From Radio** on the Terminal to check the link.

Icom radios. An Icom shows up as a single COM port. **Baud Rate** must match the radio's **CI-V Baud Rate** (an IC-7300 is delivered on **Auto**, which follows HFConverse). Enter the radio's **CI-V Address** as its menu shows it, in hex: it fills in with the factory address when you choose the radio (94 for an IC-7300, B6 for the IC-7300MK2, A4 for the IC-705). HFConverse only takes answers sent to it, so it works with the radio's **CI-V Transceive** on and **CI-V USB Echo Back** on or off. **USB-Data** sets USB with the radio's DATA mode on. An Icom confirms **Test PTT** itself.

Setting up Hamlib (rigctld)

Hamlib is a free, separate program from the SCS/HFConverse world — it's the standard way a lot of ham radio software talks to a radio it doesn't have a built-in driver for. HFConverse doesn't open a serial port or talk to your radio directly in this mode: **you run `rigctld` yourself** (Hamlib's background daemon), and HFConverse connects to *it* over a plain TCP connection. This is the right choice for a radio that has no direct link to the modem — a network-controlled SDR transceiver is the typical case.

There are two separate links to get right, and it helps to hold them apart from the start: **rigctld to your radio** (a serial cable, or a network connection), and **HFConverse to rigctld** (always a TCP connection, normally on port 4532). Most setup trouble comes from mixing the two up.

1. Install Hamlib

Install it on the machine that can actually reach your radio. That doesn't have to be the same machine running HFConverse — the two only need a network path between them — but the simplest setup by far is both on one computer.

Hamlib is published by the Hamlib project itself; on Windows take the official release build, on macOS it's usually installed with Homebrew, and on Linux it's in your distribution's package manager (often as `libhamlib-utils`).

> **Windows: note where it installed to.** The Windows build typically lands somewhere like `C:\Program Files\Hamlib-w64-4.7.2\bin\` and doesn't necessarily add itself to your PATH. If a command that starts with `rigctld` comes back as "*not recognised*", that's all this is — change to that folder first (`cd "C:\Program Files\Hamlib-w64-4.7.2\bin"`) and run it from there. Nothing is broken.

2. Find your radio's model number

Every radio Hamlib supports has a number, and this is what tells rigctld which "language" to speak. Run `rigctl --list` to see them — it's a long list (well over a thousand), so filter it rather than scrolling: `rigctl --list | findstr /i yaesu` on Windows, or `rigctl --list | grep -i yaesu` on macOS and Linux. If `rigctl` isn't recognised, it's the PATH point above — run it from the Hamlib folder.

> **FlexRadio owners — a genuine trap.** Model **2036** looks like the obvious choice and turns up in plenty of forum posts, but it only emulates legacy Kenwood CAT over the network. Models **23005–23012** are the modern native backends, one per slice (A–H), and talk to the radio's own network API directly. **23005** (slice A) is the one to start with. The SmartSDR desktop application does **not** need to be open for it to work.

3. Fill in the Hamlib settings in HFConverse

In **Settings ▸ CAT Configuration**, set Control Method to **Hamlib**, then complete the panel underneath:

- **Host** — where rigctld is running: `127.0.0.1` if that's this same computer, otherwise that machine's IP address.
- **Port** — the port rigctld listens on for programs like HFConverse. `4532` unless you deliberately change it.
- **Rig Model** — the number you found in step 2.
- **Radio Device** — what rigctld connects to on the *radio* side: a serial port (`COM3`, `/dev/ttyUSB0`) for a cabled radio, or `address:port` for a networked one (a FlexRadio's own API

is port 4992, so `192.168.1.50:4992`). HFConverse never opens this itself — rigctld does. Put **just the port** here, not a `rigctl` command: the Rig Model and Serial Speed have their own boxes, and HFConverse builds the command for you. If the box holds a command or extra words, an amber note says so under it, and HFConverse won't start rigctld until it's fixed.
- **Serial Speed** — only for a cabled radio; leave it blank for a networked one.

4. Copy the command and start rigctld

As you fill those in, the **Command preview** box at the bottom of the panel builds the exact command to start rigctld with. Click **Copy command**, paste it into a terminal window, and run it. The button stays disabled until Rig Model and Radio Device are both filled in, since a command with gaps in it wouldn't run.

Two things to know about that terminal window:

- **rigctld must stay running for the whole session.** It's not a background service — it runs in that window, and closing the window stops it, which will take your radio control down mid-QSO. Leave it open and minimised.
- **Start rigctld before you connect in HFConverse**, not after. HFConverse looks for it at connect time.

Or let HFConverse start rigctld for you

You can skip the terminal window: tick **Start rigctld automatically when HFConverse connects** (Settings ▸ CAT ▸ Hamlib, under the Command preview). Then, each time HFConverse connects:

- **It checks first.** If a rigctld is already running on Host:Port (you started it, it's in your Startup folder, or another program uses it), HFConverse uses that one and starts nothing. If that rigctld is set up for a different radio model than Settings, the Terminal log says so. If something that *isn't* rigctld is using the port, HFConverse starts nothing and tells you.
- **Otherwise it starts rigctld** with your Rig Model, Radio Device and Serial Speed, hidden in the background, and closes it again when you disconnect. It **never stops a rigctld it didn't start**. On Windows, the rigctld it started also ends automatically if HFConverse itself crashes, so it can't be left holding the radio's COM port.
- **Finding rigctld:** leave **rigctld path** blank and HFConverse looks on your PATH and in the usual Hamlib install folders (on Windows `Program Files\hamlib-w64-…\bin`, and WSJT-X's own `rigctld-wsjtx.exe`; on macOS Homebrew/MacPorts; on Linux `/usr/bin`). If there are several, it uses the newest. **Find** fills the box with what it found, **Browse…** lets you point to it yourself, and **Test** checks the file really is rigctld and shows its version.
- **If something goes wrong** — rigctld not found, the radio's COM port already in use, the radio switched off — the modem still connects normally; only CAT is unavailable, and the Terminal log says why, including rigctld's own message. If the rigctld HFConverse started stops mid-session, HFConverse starts it again after 5 s, 30 s and 2 minutes, then every 5 minutes for as long as the modem is connected; a restarted rigctld that doesn't answer within 60 s is stopped and tried again. Meanwhile a red **CAT** tag shows at the top of the window, and the Terminal says why rigctld stopped (for example "it crashed - heap corruption, a fault inside Hamlib") and when CAT is back.
- **Not on the modem's port**: if **Radio Device** is the modem's own COM port, HFConverse doesn't start rigctld and the Terminal says so. HFConverse has that port open for the modem, so rigctld could never reach the radio.
- **Changing the settings**: save a new Host, Port, Rig Model, Radio Device, Serial Speed or rigctld path while connected and HFConverse connects to the radio again straight away. A

rigctld it started with the old settings is closed and a new one started. A rigctld you started yourself is never closed: close and restart it yourself if its settings are wrong.
- The **[Connected to rigctld …]** line appears once per connection, not again every few seconds while HFConverse keeps trying.
- Only works when rigctld runs on this computer (Host `127.0.0.1`). HFConverse does not include Hamlib — install it once from the Hamlib website (Windows) or your package manager (`brew install hamlib`, `sudo apt install libhamlib-utils`).

If you want more detail while you're getting things working, add `-vvvvv` to the end of the command by hand — rigctld will then report every exchange with the radio, which makes it obvious whether the problem is at the radio end or HFConverse's.

5. Prove it works before you rely on it

Connect in HFConverse as normal, then:

- Press **Read From Radio** on the terminal screen. A frequency appearing means the whole chain — HFConverse → rigctld → radio — is working.
- Run **Test PTT** (Settings ▸ CAT Configuration ▸ Radio Test). It keys the radio briefly after a confirmation prompt, then reads the radio's *own* reported state back to check it genuinely keyed rather than just accepting the command. Worth doing once before you trust PTT in a real QSO.

If it doesn't work

What you see	What it usually means
`rigctld` "is not recognised" / "command not found"	rigctld isn't on your PATH. `cd` to the Hamlib folder and run it from there.
rigctld exits immediately, complaining it can't open the port	Something else already has the radio's serial port — a logger, or another CAT program. Only one program can hold it at a time. Close the other one.
rigctld reports "Permission denied" on Linux	Your user isn't in the `dialout` group, which owns serial devices. Add yourself, then log out and back in.
rigctld starts, but HFConverse's log says it can't reach it	The **HFConverse → rigctld** link. Check Host and Port match where rigctld is actually listening, and that rigctld is still running in its window.
Both connect, but "Unable to read radio frequency"	The **rigctld → radio** link. Usually the wrong model number, or the wrong Radio Device/Serial Speed. Restart rigctld with `-vvvvv` and watch what it says when you press Read From Radio.
Linux: it worked yesterday, not today	`/dev/ttyUSB0` / `ttyUSB1` swapped over. Start rigctld with the radio's `/dev/serial/by-id/…` name (e.g. `rigctld -m 3073 -r /dev/serial/by-id/usb-Silicon_Labs_CP2102…IC-7300…-if00-port0 -s 115200` for an IC-7300, with `-s` matching the radio's **CI-V USB Baud Rate**), and pick the modem's by-id name in HFConverse.
Works in Fldigi, but HFConverse says "Connection refused"	Fldigi normally uses Hamlib directly and doesn't start rigctld, so nothing is listening on 127.0.0.1:4532. Close Fldigi (only one program can hold the radio's port), then start `rigctld` yourself — or tick **Start rigctld automatically** — with the same radio model, port and baud rate as in Fldigi, and press **Read**. To use both at once, set Fldigi's rig control to Hamlib model **NET rigctl** (2) at 127.0.0.1:4532 so it shares the same rigctld.
More than one rigctld / "address already in use"	Only run one rigctld. On Linux, `pgrep -a rigctld` lists them and `pkill rigctld` stops them; `fuser /dev/ttyUSB0` shows which program holds a port.

PTT (PC drives the radio, Hamlib and FlexRadio API)

The modem keys the radio — leave CAT PTT off. With Hamlib or the FlexRadio API, CAT is for the frequency; transmit/receive switching comes from the SCS modem's own **PTT line** on the radio cable (on a FlexRadio, the accessory socket). The modem drops that line to receive between every PACTOR packet (about every 1.25 seconds) to hear the other station's acknowledgements. HFConverse doesn't key PTT over CAT by default: keying from the modem's "sender" status would hold the radio in transmit through those listening gaps, so the other station would never be heard. When HFConverse connects to rigctld or the Flex, it sends PTT off once, releasing a radio left keyed.

- **Also key PTT via CAT** (Settings ▸ CAT Configuration, off by default) keys PTT over CAT as well. Only use it for a station with **no** PTT line from the modem — PACTOR links won't work

that way, because CAT can't switch fast enough.

- **Fail-safe watchdog.** If PTT is somehow left continuously keyed for an extended period (about 10 minutes — well beyond any normal PACTOR over or RTTY transmit burst), it is forced off automatically, regardless of what the rest of the app thinks the state is.
- **Test PTT** (Settings ▸ CAT Configuration ▸ Radio Test) briefly keys the radio, after a confirmation prompt, and — unlike simply trusting that rigctld or the Flex API *accepted* the command — reads the radio's own reported PTT state back to confirm it actually keyed, then confirms it cleanly unkeys again afterward. Use this once after setting up Hamlib or the FlexRadio API, to prove the whole chain (HFConverse → rigctld/API → radio) genuinely works before relying on it in a QSO.
- If a PTT command is ever rejected, you'll see a note in the terminal log (`rigctld did not accept PTT on/off` or the FlexRadio equivalent) rather than it failing silently.

Modem-TRX (the PTC driving the radio directly) is unaffected by any of this — PTT there is a dedicated hardware line (manual: Pin 3) the modem switches itself, independent of CAT, so none of the above applies.

Reading the radio's frequency

With CAT set to **Modem drives the radio**, **Hamlib**, or **FlexRadio API**, HFConverse reads the radio's *current* frequency and shows it for you automatically: when you first connect, and again each time you open the QSO, RTTY, PSK31 or AMTOR screen (the radio is the source of truth, so it's re-read rather than remembered). You can also press **Read From Radio** on the terminal or any of those screens at any time. If the radio doesn't answer, you'll see an **"Unable to read radio frequency"** message on the terminal; on the operating screens it quietly keeps your last-used frequency instead.

With **Modem drives the radio**, **Set Frequency**, **Read From Radio** and picking a favorite don't send anything to the modem while a link (or your own CQ / Unproto transmission) is in progress. The modem's radio command would go out to the other station as text, and changing frequency would drop the link anyway. The status line says so instead. Hamlib and FlexRadio API aren't affected.

When a frequency read fails (Modem drives the radio)

HFConverse reads the modem's reply to `TRX Frequency` up to the modem's next `cmd:` prompt, and ignores anything the modem decodes on air meanwhile. It waits briefly after an **empty** first reply, because the PTC-IIIusb sends the frequency, with a second prompt, a moment after an empty one.

The Terminal log says which of these happened:

- **"The modem asked the radio but got no answer"** — the modem replied with just its prompt. The radio isn't answering the modem: check the CAT baud rate (Icom: 19200 at most), the CI-V address, and that the cable goes to the radio's REMOTE/CAT socket. A quick test: type `TRX F 14109` in the cmd: box. If the radio changes frequency, the cable and address are fine and only the reply isn't getting back.
- **"The modem doesn't recognise the TRX command"** — the modem answered `*** ERROR: PSE TYPE HELP`. It has no transceiver control (for example a PTC-IIe or PTC-IIex). Pick your modem model in Settings ▸ Equipment ▸ Modem Model (or on the Connect screen) and use **Hamlib** instead.
- **"The modem refused the command"** — any other `*** ERROR` reply. The log shows the reply; check the CAT settings and the command preview.

- **"The modem replied '…', but HFConverse couldn't read a frequency from it"** — the radio link works and HFConverse is at fault. Please report it with the diagnostic log (see *Reporting a problem*).
- **"The modem didn't come back to its cmd: prompt"** — usually because a link is active (frequency reads only work in standby or Listen).
- **A `*** BAD ARGUMENT` reply to `TRX TYpe …` counts as a refusal too.** The modem then keeps its previous radio settings, and with the wrong Yaesu model it reads back a wrong frequency. The Terminal names the command and the reply. Check the baud rate (it must match the radio's own CAT setting), the radio type and the model.
- **The sub-model (`TRX YType` for Yaesu, `TRX KType` for Kenwood) is sent before `TRX TYpe`,** as the SCS manual requires. The command preview shows the same order.
- **If you type `trx` in the Terminal, the modem stays in its transceiver menu** (the `trx:` prompt) until you type `Quit`. HFConverse sends `Quit` before its own commands, and says so in the Terminal.

A radio that takes the frequency but never reports it. Some set-ups set the frequency correctly but never answer a read — for example some P4 Dragon modems with an Icom IC-7300, where the modem doesn't pass the radio's reply back in the mode HFConverse uses. Tick **The radio can't report its frequency (set it only)** in Settings ▸ CAT Configuration: HFConverse then still sets the frequency, but doesn't read it back — no read on connect or when a screen opens, **Read From Radio** greyed out (its tooltip says why), **Set Frequency** never red, and **Test Connection** only checks that the modem accepts the radio settings. To have the frequency read back as well, control the radio from the PC instead: **Hamlib** over the radio's USB port. When the read on connect gets no answer, the Terminal's message points to this box. With a **DR-9400** the box is always ticked: its firmware can't read the frequency back.

HFConverse also checks the modem's reply to the `TRX TYpe …` line when it connects. If the modem refuses it, the Terminal says so once and skips the frequency read on connect, which would only fail the same way. **Settings ▸ CAT Configuration ▸ Test Connection** gives the same explanations. If you press **Read From Radio** while a read is already in progress (for example the one on connect), HFConverse waits for that read instead of starting a second one.

With **Modem drives the radio**, **Test Connection** and **Test PTT** use HFConverse's open connection to the modem, so they work while you're connected. They don't run while a link, call or transmission is under way.

Connecting takes about half a second longer because HFConverse waits for the modem to answer the connect-time settings before it configures transceiver control.

The frequency buttons: what the colours mean

Set Frequency and **Read From Radio** show what the radio has done, on the PACTOR, AMTOR, RTTY and PSK31 screens and the Terminal.

The button	Means	What to do
Orange text	HFConverse has sent the frequency (or asked for it) and is waiting for the radio	Nothing — it clears in well under a second
Set Frequency text flashing orange	You've typed a frequency in the box that isn't on the radio yet	Press **Set Frequency** (or Enter) to send it. **Read From Radio** puts the radio's frequency back instead
Normal	The radio and HFConverse agree	—
Red	The radio didn't answer, refused, or is on a different frequency. Hover over it to see which	Check the radio and the CAT link, then press the button again. It stays red until you do
Set Frequency and Read From Radio flashing red in turn	You turned the radio's dial during a link or while announced on the air	**Set Frequency** puts the radio back; **Read From Radio** takes the radio's new frequency. Either stops the flashing at once

When you're not in a link and not on the air, turning the dial needs nothing from you: HFConverse follows the radio by itself and the status line says "*Following the radio*". It checks every couple of seconds (not during a scan or while you're transmitting). A frequency set during a favorites scan shows orange until the radio confirms it, and red only if the radio stops confirming the steps.

The colours and dial-following need **Hamlib** or the **FlexRadio API**. With **Modem drives the radio**, the modem can't be asked repeatedly, so there's no dial-following, and inside RTTY or PSK31 the buttons never go orange or red because the radio can't be read back there.

CAT driven mode change

With **Hamlib** or the **FlexRadio API**, HFConverse can also put the radio in the right mode. In **Settings ▸ CAT Configuration ▸ CAT driven mode change**, each HFC mode has its own choice:

HFC mode	Choices
PACTOR (and the Terminal)	Leave alone, USB, USB-Data, RTTY
AMTOR	Leave alone, USB, USB-Data, RTTY
RTTY	Leave alone, USB, USB-Data, RTTY
PSK31	Leave alone, USB, USB-Data, RTTY

All start on **Leave alone**, so nothing changes until you choose. It sets the mode when you open the PACTOR or AMTOR screen, when you press **Start RTTY** or **Start PSK31**, and whenever HFConverse sets the frequency on that screen (**Set Frequency**, a favorite, a scan step or a spot), just before the frequency. With Hamlib it reads the radio's mode first and only changes it if it's different. It never changes the mode during a link, a call or a transmission. Use **USB-Data** if your

radio only takes audio from its rear socket in data mode. The modem sends RTTY as audio tones, so the radio's **RTTY** mode only works if your radio accepts audio input in that mode; otherwise use USB or USB-Data. If the radio refuses a mode, the frequency is still set and the status line says so. With **Modem drives the radio** the mode can't be set: the modem's TRX menu has no mode command.

Max PACTOR Level — what the modem is actually using

The **Max PACTOR Level** dropdown (Settings ▸ Equipment ▸ Modem) is what HFConverse *asks* the modem to use, sent automatically every time you connect. It's also sent the moment you click **Save** (or, during a link or transmission, as soon as that ends), and the Terminal confirms it (`*** Max PACTOR Level now 3 (MYLevel 3). ***`). The PACTOR screen's **Max** box, favourites and the scan follow it too, unless you've picked a level in the Max box for this session. If your modem doesn't support the level you've picked (for example, PACTOR-4 on a PTC-IIusb or PTC-IIIusb, which go up to PACTOR-3), HFConverse asks for the highest level your modem supports instead, and Settings says so under the dropdown ("HFC sends 3 – the SCS PTC-IIusb has no PACTOR-4"). Once you're connected, a second note shows the level the modem **actually reports back**, and explains when that's different from what HFConverse sent.

> **PTC-IIusb and PACTOR-3.** PACTOR-3 on the PTC-IIusb is part of SCS's licensed Professional firmware. HFConverse sends the level you choose, up to 3, and the modem decides: with the licence it runs PACTOR-3; without it, it stays at level 2 (after SCS's 20 trial connects), and Settings tells you that's why the modem reports 2.

> **SCS P4 Dragon (DR-7800/DR-7400) owners — picking level 3 specifically:** these modems ship with a compatibility mode switched on by default (for working with older PACTOR software) that has an odd side effect: asking for **level 3** makes the modem silently store **level 4** instead. It only affects a deliberate choice of 3 — 1, 2 and 4 all work exactly as selected, and if you just leave it on the modem's maximum you'll never notice, since 3-becomes-4 and "already 4" land in the same place. If you do need to genuinely cap a link at PACTOR-3 on one of these modems, Settings will show a note explaining this when level 3 is selected; HFConverse doesn't currently turn that compatibility mode off for you.

Modem audio output level (FSK/PSK)

Separately from your radio's own power and mic-gain, the modem itself has a **transmit audio output level** you can adjust — how "loud" the modem drives the radio's audio input. This is in **Settings ▸ Equipment ▸ Modem**, underneath **Max PACTOR Level**, as two sliders:

- **FSK output level** — used for FSK modes (PACTOR-1, AMTOR, RTTY), 30–3000 mV peak-to-peak, default **60**.
- **PSK output level** — used for PSK modes (PACTOR-2/3), 30–3000 mV peak-to-peak, default **140**.

> **Open Settings in standby to read or change these.** If you open Settings while a link, a call or a transmission is in progress, HFConverse doesn't read the modem's current levels or send new ones — the modem is in converse mode, where a command would go on air as text. The sliders then show your saved values, greyed out, with a note saying why.

When no modem is connected, the sliders show the levels you last saved. Once you're connected they show the modem's own current values — while HFConverse is reading those from the

modem the sliders are briefly disabled, with a "Reading current FSK/PSK/PACTOR levels from the modem…" note, so an edit you make can't be quietly overwritten by that read finishing a moment later. **Changes only take effect when you click Save** in the Settings window, the same as every other setting — dragging a slider doesn't change anything on the modem until you save.

> **How to use these:** set your radio's own mic-gain/drive level first, using whatever facility your radio provides — these sliders are for **fine trim** afterwards, not the primary way to set your transmit audio. The manual recommends leaving the PSK level near its default (140) and doing most of your level-setting with the radio's mic-gain instead.

> **The modem forgets these every time it is switched off.** Both levels live in the modem's memory only — power it off and they return to 60 mV FSK / 140 mV PSK, whatever you had set. HFConverse remembers the levels you save here and **sends them back to the modem automatically each time it connects**, so a power cycle doesn't cost you your settings; you'll see a line in the terminal log confirming what was restored. Two things worth knowing: HFConverse only does this once you've saved these levels at least once (until then it leaves your modem exactly as it finds it), and if the modem restarts while HFConverse is still connected it can't tell — reconnect to get your levels back.

Serial baud rate (PC to modem)

The speed HFConverse and the modem talk to each other over the serial cable is set in **Settings ▸ Equipment ▸ Modem**, under **Baud rate**. The dropdown is greyed out until you're connected, and lists the rates your particular modem supports — plus **Auto**, which lets the modem work the speed out for itself each time it powers up.

When you're connected, the dropdown shows what the modem is currently set to. Change it and click **Save** and you'll see: **"Baud rate change will take place following a modem reboot."** This is the modem's own behaviour, not a limitation of HFConverse — it only adopts a new serial rate at its **next power-on**. A reset command won't do it; the modem has to be physically switched off and on. HFConverse remembers the new rate and will use it when you reconnect afterwards.

> **If you're unsure, leave it on Auto.** A fixed rate is mainly useful when the modem is switched on by a timer, or needs to be ready for a host-mode program the moment it powers up, without waiting to be spoken to first.

Modem clock (date and time)

Every time it connects, HFConverse sets the modem's date and time (`DAte` / `TIme`), so the modem's own log and mailbox timestamps are right — and so modems without a running clock, such as the P4 Dragon, aren't left waiting for it at startup. **Settings ▸ Equipment ▸ Modem ▸ Modem Clock** chooses which time is used:

- **UTC** (default) — the usual choice in amateur radio, matching your QSO log.
- **PC local time** — the same time as your computer's clock.

There's no switch to turn it off; setting the clock is harmless on modems that keep their own. The terminal log shows the time that was sent. If the modem restarts while HFConverse is still connected, reconnect to set it again.

Settings reference

Open with **Settings ▸ Configuration…**. Most changes take effect as soon as you press **Save**. A few are only read when HFConverse connects to the modem or starts — **Modem Model**, **Callsign**, **Selcall**, **Send identity on connect**, **Show transmitted text live**, **Modem tones**, the **diagnostic log**, the **modem clock** time zone, your **modem commands after connect**, the **theme** and the **station profiles**. If you change one of these, a message after Save lists them, with **Restart now** (HFConverse closes and starts again) or **OK** (they take effect the next time it starts). Settings are organised into focused tabs:

- **Station** — your identity (callsign, selcall, operator name, QTH, locator, email) and postal address.
- **Equipment** — radio/TRX, antenna and power, plus your **modem model** (the same list as the Connect screen; changing it here takes effect at the next connect), modem behaviour, the **serial baud rate** between PC and modem, (under Max PACTOR Level) the **FSK/PSK transmit output level** sliders, **CF offset**, **PACTOR favorites** shown as dial or centre frequency (see *Frequency and favorites*), and **Modem Clock** (UTC or PC local time) — see *Modem audio output level*, *Serial baud rate* and *Modem clock*, above.
- **Lookup & Presence** — QRZ/HamQTH lookup credentials (with **Test** buttons), distance units (miles/km), and announcing as Listening when Listen goes on. (Auto announce on CQ / link-up is the **Auto announce** button in the On the Air window.)
- **Terminal & Modes** — **Character set** (see *Umlauts and other accented letters*), **Text size** of the console panes (10–24 point, default 14; also Ctrl + plus / minus / 0 — see *The Terminal*), terminal defaults (local echo, hex view, line-ending), **Show modem status changes in the log** (off by default), **Tones (TOnes)** (below), **CQ lines per call** and **Repeat Auto CQ** (see *Repeat Auto CQ*), **Show transmitted text live** (see *Seeing your text as it's transmitted*), the **diagnostic log** (see *Reporting a problem*), the Keyboard-to-Keyboard (QSO) over-mode, **PACTOR Duplex** (see *PACTOR Duplex (automatic changeover)*), **Ask before End QSO** (on by default) and **Start with Live text on** (see *Live text*), **Start with Robust (%) ticked**, **Sounds** (two notes up when a link connects, down when it ends, both on by default — see *Seeing and hearing the link*; and a sound for a CQ heard while listening, off by default) and **RTTY** (a printer just for RTTY Capture to Print — see *Capture to Print*). A coloured line separates the sections on each tab.
- **Packet** — the APRS beacon HFConverse sends to the modem every time the Packet screen opens: on or off, position (from your locator if you like), interval, comment, path, symbol and, on a Dragon, a status text. **Leave as the modem has it** as delivered. See *Packet (Robust Packet)*.
- **Modem Mailbox** — the settings of your PTC's built-in mailbox: only mail addressed to you, direct mode, the welcome text and whether it's sent, and telling callers about waiting mail. See *Modem Mailbox (PTC modems)*.
- **Audio** — the radio's receive audio for Station ▸ Waterfall and Mode ▸ Fax (the radio's USB sound card, another sound card or a FlexRadio DAX channel; off as delivered), with **Refresh** and **Show all devices** (macOS and Linux); **Listen** checks the level for 3 seconds. See *Waterfall (Station ▸ Waterfall)*.
- **Waterfall** — **Speed**, **Shows**, **Colours** (Classic, Blue, Fire, Green or Grey), **Brightness** and **Contrast**; **Auto black level**; **Double-click sets the frequency**; **Drag to change the frequency**; **Show RTTY tuning indicator**; **Show On the Air callsigns**. Smoothing is in the Waterfall window. See *Waterfall (Station ▸ Waterfall)*.

- **Fax** — **Start a fax when its start tone is heard**, **End the fax when its stop tone is heard** and **Save each fax when it ends** (all on as delivered); **Update** for the fax stations' timetables; **Switch to the Fax screen for faxes ticked Capture** (with **Switch even while a mailbox is answering callers**), and **Print each fax when it's saved** (with **Only faxes ticked Capture**), all off as delivered. See *Fax (Mode ▸ Fax)*.
- **Printing** — HFConverse's **Printer** (the computer's default printer as delivered) and **Paper** (**A4**, **US Letter** or **US Legal**; the usual size for the computer's region as delivered), with the number of characters and lines an RTTY page holds on it, and **Test page** (a ruler across the top and bottom and numbered lines, to check the margins). Fax charts and RTTY Capture to Print use this printer unless **Settings ▸ Fax** or **Settings ▸ Terminal & Modes ▸ RTTY** chooses another; both use this paper.
- **Logging & QSL** — **QSO logging** (sending a copy of each logged QSO to an external logger - ADIF over UDP, or DXKeeper over TCP; QSOs themselves are logged in **Worked Station**, see *Logging a QSO*) and **My QSL Card** (upload your card image).
- **Scanning** — how the favorites scan behaves: **time on each channel**, **stay after activity**, **play a sound when activity is found**, **treat a busy channel as activity** and, for the Terminal scan, **when a station connects** (see *Scanning the favorites*).
- **Appearance & Startup** — the interface **theme**, **Text colours** (Classic, Black on white or White on black — see *The Terminal*), **Reset window positions** (see below), auto-connect on startup and its countdown, and whether to show the **On the Air**, **Worked Station** and **Terminal** windows on startup. **Windows in front of the main window** has a tick box each for **On the Air**, **Worked Station** and the **Terminal** window, all ticked to start with. Ticked, the window always stays in front of the main window. Unticked, the main window can be laid over it, for example a tall main window with those windows arranged around it; choose the window from the menu again to bring it to the front. A change applies the next time that window opens. **All the other HFC windows** does the same for the rest (they are listed under it): Macros, Image transfer, Favorites, HFC-Sync, Modem Mailbox, the QSO Log, the QSL Album, HF Conditions, the Waterfall, the On the Air Map and Report a problem. **Interface size** — **Compact** (85%), **Normal** or **Large** (115%) — makes everything in the main window smaller or larger: buttons, labels, the menu bar and the text panes. Compact suits a small screen with high Windows scaling, for example 1920 × 1080 at 150%. It applies when you press **Save**. (Drop-down lists, menus once opened and tooltips keep their usual size.) **Check for a new version of HFConverse when it starts** (ticked to start with) — see *Checking for a new version*.
- **CAT Configuration** — transceiver control mode and its parameters (see *Radio control*).

Changes saved in Settings reach the screens that are already open straight away.

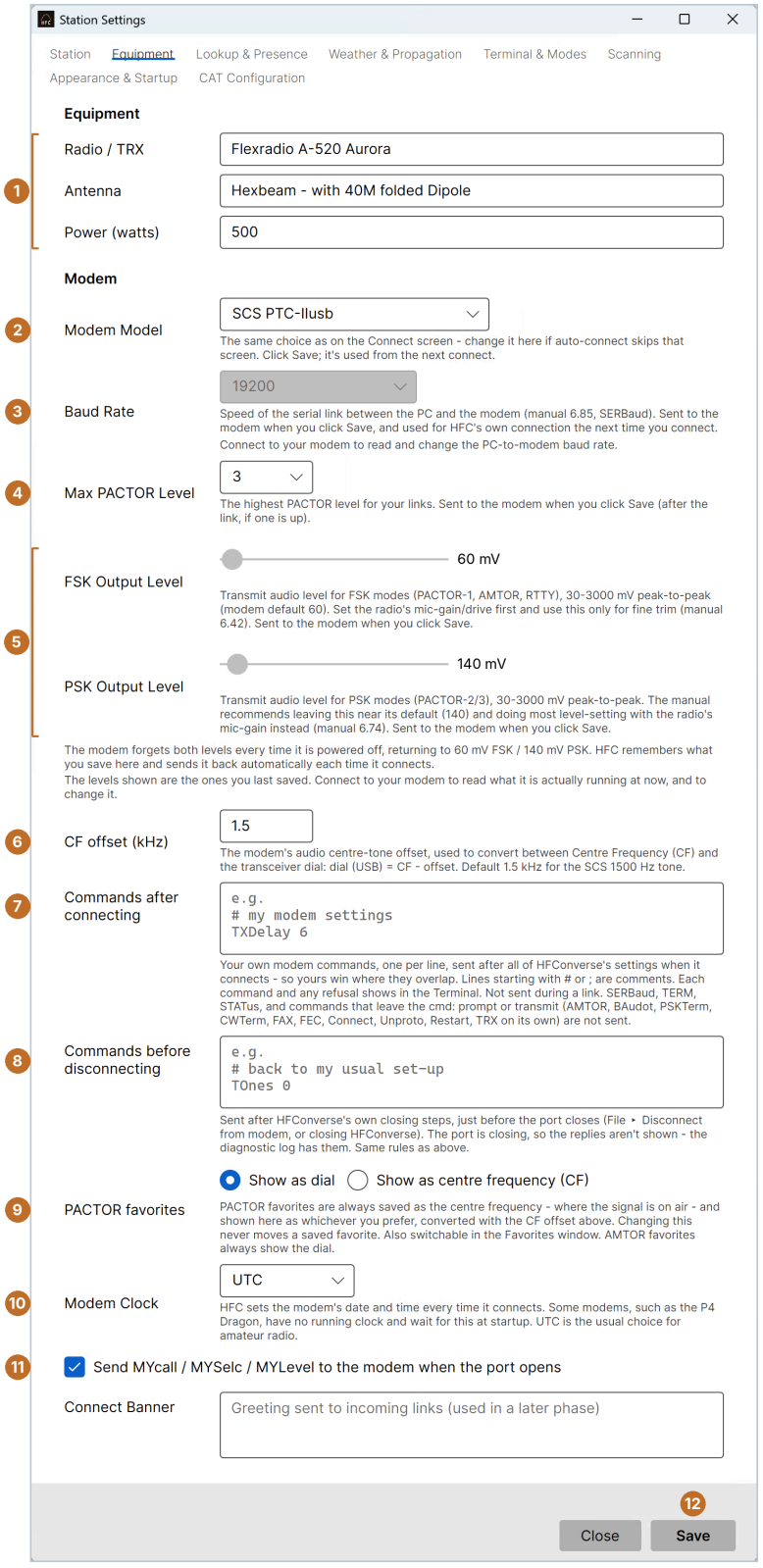
Windows open where you left them. HFConverse remembers where each window was on your desktop and how big it was — the main window, Settings, Favorites, Macros, On the Air, the log viewer, the QSL album, Worked Station and image transfer windows — and opens it there, at that size, next time. A window that was maximised opens maximised. Small pop-ups (confirmations and messages) open centred. If a saved spot is no longer on any screen (a monitor unplugged, a laptop undocked, a resolution change), the window opens centred on your main screen instead. On Linux desktops using Wayland, the desktop decides where windows go, so only the size and maximised state are restored there. If a window ends up somewhere awkward, press **Settings ▸ Appearance & Startup ▸ Reset window positions**: every window opens in its default place from the next start.

Window size. The main window can't be made smaller than **1100 × 560**, so the QSO screens' panes and buttons always fit. If your screen's usable area is smaller than that (for example a 1366 × 768 laptop with display scaling at 125%), HFConverse lowers the minimum to fit your screen. A window saved at a smaller size opens at the minimum.

The **Favorites** windows (PACTOR, AMTOR, RTTY and PSK31) open at **560 × 800** and can't be made smaller than **560 × 640**, so the list, its details and the whole edit panel stay readable.

The Equipment tab

Settings ▸ Equipment holds your radio details and the modem's own settings.



1. **Radio / TRX**, **Antenna** and **Power (watts)** — your station. The radio and antenna fill the `<RADIO>` and `<ANTENNA>` macro tokens.
2. **Modem Model** — the same choice as on the Connect screen. Change it here if auto-connect skips that screen; it's used from the next connect.
3. **Baud Rate** — the serial speed between PC and modem. Greyed out until you're connected (see *Serial baud rate*).
4. **Max PACTOR Level** — the highest PACTOR level for your links, sent to the modem when you click **Save** (see *Max PACTOR Level*).
5. **FSK** and **PSK Output Level** — the modem's transmit audio level. Set the radio's mic-gain first and use these only for fine trim (see *Modem audio output level*).
6. **CF offset (kHz)** — converts between centre frequency and dial: dial (USB) = CF − offset. 1.5 kHz suits the SCS 1500 Hz tone.
7. **Commands after connecting** — your own modem commands, sent after HFConverse's settings (see below).
8. **Commands before disconnecting** — your own commands, sent just before the port closes (see below).
9. **PACTOR favorites** — show favorites as the dial or the centre frequency. They're always saved as the centre frequency (see *Frequency and favorites*).
10. **Modem Clock** — UTC or your PC's local time (see *Modem clock*).
11. **Send MYcall / MYSelc / MYLevel** — ticked, HFConverse sets your callsign, SELCALL and PACTOR level in the modem each time the port opens. The SELCALL goes only if one is set, and the level is capped to what your modem can do (the Terminal says so if it had to lower it). The modem clock and audio levels are set either way.
12. **Save** — sends the changes to the modem and saves them.

Your own modem commands at connect and disconnect

Settings ▸ Equipment has two boxes for modem commands of your own, one command per line, as you'd type them in the cmd: box. Lines starting with `#` or `;` are comments.

- **Commands after connecting** are sent after all of HFConverse's own settings when it connects (callsign, levels, tones, Duplex, radio control, mailbox, clock), so yours win where the two overlap. They go one at a time, each waiting for the modem's reply. They show in the Terminal, and any the modem refuses get a note there; the rest still go.
- **Command files. Load from file…** and **Save to file…** under **Commands after connecting** load a text file of modem commands into the list, or save the list as one, so a working set-up can be kept. On the Terminal, **Send command file…** (Quick Commands) sends such a file to the modem straight away, one line at a time, each waiting for the modem's reply — for example your packet / APRS settings, or all your settings after a modem reset. The same rules apply: one command per line, `#` and `;` start comments, nothing is sent during a link, and commands that transmit or leave the cmd: prompt are skipped. The Terminal shows each reply and, at the end, how many were accepted and which weren't (with the line number). Click the button again (**Stop sending**) to stop after the current line.
- **If the modem stops answering.** When one of your commands (or a line of a command file) gets no reply at all, HFConverse stops there and sends nothing more by itself, not even Listen or its mailbox check. A PTC with a Packet Radio link already up does this after a `pac` command: it joins the packet link, and anything sent from then on goes out as text. End the packet link with `D` in the **cmd:** box, then close and reconnect to the modem.
- **Commands before disconnecting** are sent after HFConverse's own closing steps, just before the port closes (**File ▸ Disconnect from modem**, or closing HFConverse) — for

example to put the modem back the way another program expects it. The port is closing, so their replies aren't shown; the diagnostic log has them.

- **Radio settings through the modem.** With **Modem drives the radio**, a line `TRX T` followed by the radio's own CAT command (in hex for Icom and Yaesu, as text for Kenwood) passes that command to the radio. For example, on an IC-7300 (CI-V address 94), `TRX T FEFE94E01A05006701FD` in **Commands after connecting** switches its data-mode audio to the ACC socket, where the modem is, and `TRX T FEFE94E01A05006703FD` in **Commands before disconnecting** puts it back to USB. Leave out mode commands: HFConverse sets the radio's mode itself (**Radio mode when HFC sets the frequency**). The *Connecting It All Together* guide has more.
- **A Dragon answers calls only while HFConverse runs.** On a P4 Dragon (DR-7400 / DR-7800) or DR-9400, HFConverse sends `CONType 3` (accept all connects) when it connects to the modem, so it can be called even if another program left it set to 0. On **File ▸ Disconnect from modem** and when HFConverse closes it sends `CONType 0`, so the modem doesn't answer calls while nobody is there: a Dragon has no mailbox, so the caller would get nobody. It isn't sent during a link. Your own **Commands after connecting** and **Commands before disconnecting** come after it, so you can still choose otherwise. PTC modems are left alone, so their mailbox keeps answering calls.
- **Changeover, break-in and QRT characters.** HFConverse sends `CHOchr 25`, `BKchr 25` and `QRTChr 4` when it connects to the modem, SCS's defaults and the characters it uses itself (Ctrl-Y to hand the link over or break in, Ctrl-D to end it). Another program can leave them changed: on one DR-7800 the break-in character was 15, so pressing Changeover while the other station held the link did nothing, and only End QSO got the link back.

Neither list is sent while a link or a transmission is under way. A few commands are never sent from these boxes, because HFConverse depends on them or they would leave the cmd: prompt or transmit: **SERBaud**, **TERM**, **STATus**, **AMtor**, **BAudot**, **PSKTerm**, **CWTerm**, **FAX**, **FEC**, **Connect**, **Unproto**, **Restart**, and **TRX** on its own (TRX with a command, such as `TRX Offset 0.0`, is fine). A blocked line gets a note saying why. Both lists are saved with your other settings, follow station profiles, and are included in **Settings ▸ Back up / Restore**.

Saving and unsaved changes

The **Save** button writes your settings; **Close** leaves the window. If you've made changes and try to Close (or close the window with the X) without saving, HFConverse asks whether to **Save**, **Discard**, or **Cancel** — so you can't lose edits by closing the window absent-mindedly.

Theme (light, dark or system)

Under **Appearance & Startup** you can choose a **Dark** (default), **Light**, or **System** interface. **System** matches your computer's own light/dark setting. Light mode applies to the menus, dialogs and panels; the terminal, QSO and RTTY console panes keep their own colours, set with **Settings ▸ Appearance & Startup ▸ Text colours** (Classic, Black on white or White on black). A theme change — including System — **takes effect the next time you start HFConverse** (System reads your computer's setting at startup), and the setting shows a reminder when a change is pending.

Fault finding

Look for what you see in the left column. Each fix is short; the section named in it has the full story. If nothing here fits, use **Help ▸ Copy diagnostic log** and send it in (see *Reporting a problem: the diagnostic log*).

Connecting to the modem

What you see	Likely cause	What to do
Status line says **"No response - check modem"**	The modem is off, unplugged, or you picked the wrong port	Switch the modem on, check the cable, and pick the right port (see *Getting started*)
"Could not find file 'COM17'" (or another COM number) after the PC has slept	The Bluetooth or USB link hasn't come back yet	Turn Bluetooth off and on, or the modem off and on, then press **Connect** (see "*Could not open COM…*" *after the PC has been asleep*)
"ONLY AVAILABLE ON PACTOR" or **"PSE TYPE HELP"**, and an `**-A-**` prompt	The modem was left in another mode	See the section of that name under *Help, About & supporting HFC*
Mac: no modem port in the list	The USB driver isn't installed or allowed	See *Connecting on a Mac* in *Getting started*
Mac: the P4 Dragon won't connect over USB	—	Connect it by **Bluetooth** instead
Linux: it worked yesterday, not today	`/dev/ttyUSB0` and `ttyUSB1` swapped round	Pick the modem's `/dev/serial/by-id/…` name (see *Connecting on Linux*)

Radio control and frequency

What you see	Likely cause	What to do
Set Frequency or **Read From Radio** red	The radio didn't answer, or is on another frequency	Hover over the button for the reason; check the radio and CAT link (see *The frequency buttons: what the colours mean*)
Set Frequency and **Read From Radio** flashing red in turn	You turned the dial during a link or while on the air	Press **Set Frequency** to go back, or **Read From Radio** to keep the new frequency
"rigctld did not accept the frequency" or **"Unable to read the radio frequency"**	The link from HFConverse to rigctld, or from rigctld to the radio	See *If it doesn't work* under *Setting up Hamlib (rigctld)*
Connected to rigctld, but **no frequency** ever comes back	rigctld is talking to the wrong port, often the modem's own (`started rigctld … on COM17`, where COM17 is the modem)	Set the radio's own port in Settings ▸ CAT ▸ Hamlib ▸ **Radio Device** and Save; HFConverse restarts its own rigctld at once
The radio's mode (USB / USB-Data / RTTY) doesn't change	The setting is **Leave alone**, or you use **Modem drives the radio**	See *CAT driven mode change*
"no answer from the radio on COM… at … baud"	The wrong COM port (on a Yaesu, the Standard one instead of the Enhanced one), Baud Rate not matching the radio's CAT RATE / CI-V Baud Rate, or on an Icom the wrong CI-V Address	Choose the Enhanced port, and set Baud Rate to the radio's CAT RATE (see *PC drives the radio*)
"couldn't open COM…"	Another program has the radio's port. (While HFConverse is connected, **Test Connection** and **Test PTT** use its own open connection to the radio; only if you've changed the radio's settings without saving do they say HFConverse has the port)	Close the other program. For a test of changed settings, press **Save** (or Disconnect) first
"couldn't open COM…" … rigctld (Hamlib) is still running	A rigctld still has the radio's port — usually after switching from Hamlib to *PC drives the radio*. HFConverse closes the rigctld it started itself when you save, but never one started by hand or by another program	In Settings, press **Save** before **Test Connection**. Otherwise close rigctld (or the program that started it, or restart the PC), then Disconnect and Connect again

What you see	Likely cause	What to do
Red CAT tag at the top of the window, "the rigctld HFC started has stopped (… it crashed …)"	rigctld itself crashed - a fault inside Hamlib, sometimes set off by the radio's USB serial port dropping out	HFConverse starts it again by itself. If it happens often, stop Windows switching the radio's USB port off (see *USB ports that drop out (modem or radio)*). Report repeated crashes to the Hamlib team with the radio model, Hamlib version and exit code
"the radio stayed on … kHz" or **"the radio refused …"**	The radio didn't take the frequency or mode, e.g. outside its range, or locked	Check the radio's display; the diagnostic log shows the exact command and reply

Operating

What you see	Likely cause	What to do
The transmitter won't stop	The modem is still sending	Press the red **Receive / STOP** (see *If the modem seems stuck transmitting*)
Still in PSK31 after **Stop PSK31**	The modem didn't take the command	Type `PT` in the cmd: box (ESC first)
An F-key shown in **orange**	The macro needs something that isn't there yet, usually the **Working** callsign	Hover over the key to see what's missing
Links won't start, or keep repeating (often AMTOR, sometimes PACTOR)	The radio switches between transmit and receive too slowly	A radio limit: try **Long path**, and see *Is your radio fast enough?* under *AMTOR*
An AMTOR QSO is strong on the waterfall but nothing appears, with Listen on	Listen follows PACTOR, not another station's AMTOR ARQ link	Switch on **Monitor ARQ** on the AMTOR screen
What you type with **Live** on AMTOR stays in Compose	The other station has the link	It goes out when the link turns to you; press **Ctrl+Y** (Break in) to ask for it
Duplex stays orange	The modem didn't confirm the change	Press it again; if it keeps happening, send the diagnostic log
Changing mode asks to stop a transmission or end the QSO first	Something is still going out (or a PACTOR link is up)	Choose **Stop and switch** / **End QSO and switch**, or **Cancel** to carry on (see *Operating modes (the Mode menu)*)
HFConverse has **closed by itself** (gone when you come back to it)	It hit an unexpected error (recorded in a crash file)	Send the newest `crash-<date>-<time>.txt` from the `logs` folder (**Help ▸ Open data folder…**) with the diagnostic log of that session

On the Air

What you see	Likely cause	What to do
Amber **Paused** light	A screen is on a frequency outside 1–30 MHz	Nothing — you're back on the list as soon as a screen is on HF
"Enter a valid frequency in kHz (1000-30000)"	The Frequency box is empty or outside HF	Set an HF frequency on the screen, or type one in
A **"Couldn't go on the air"** box	The On the Air server turned the announcement down, or couldn't be reached. The box gives the reason, and it's also in the diagnostic log	If it says it couldn't reach the server, check the internet connection and any firewall. Otherwise report it with the reason shown (Help ▸ Report a problem)
Still on the list after **Go off the air**	The list hadn't caught up yet	HFConverse checks a few seconds later and removes you again if needed; the status line says what happened. At the latest it clears within 15 minutes

Help, About & supporting HFC

The **Help** menu has these items:

- **Donate to HFC…** — HFConverse is free. If you find it useful and would like to contribute towards its development, this opens a short, no-pressure window with a link to the donation page. It's entirely optional — there are no nag screens, and the app is fully functional whether or not you ever donate.
- **Support…** — opens the HFConverse support/help page in your web browser (for help *using* the software — as distinct from donating).
- **Report a problem…** — sends a bug report or a suggestion, with the diagnostic log and screenshots, straight to the Public Beta bug list on the website — see *Reporting a problem from HFConverse*.
- **What's new…** — the changes in the last five versions, newest first, with a link to the **Change log** page on the website, which has every version (see below).
- **About HFConverse…** — shows the version, author, a short description, the people who helped shape HFConverse, and a link to donate.

When you update to a new version, HFConverse shows a **What's new** window once: the version you're now on, the changes in it (and in any versions you skipped, newest first), and a pointer to the Donate option. It's shown once per update, never repeatedly, and never on a fresh install. **Help ▸ What's new…** shows the changes in every version at any time.

"Could not open COM…" after the PC has been asleep

If the modem's COM port won't open, HFConverse keeps trying for about 15 seconds ("Waiting for COM17…") before giving up, because after the PC wakes from sleep a USB or Bluetooth port often needs a moment to come back. If it still can't open the port, the Terminal log explains what to try instead of showing only the Windows error:

- **Bluetooth port** — shown in Device Manager as *Serial over Bluetooth* (*Seriell-über-Bluetooth*), common with the P4 Dragon. A Bluetooth COM port always stays in the port list, even when the modem can't be reached; Windows only connects to the modem when the port is opened. After sleep that link often isn't up, and Windows reports it with the misleading "*Could not find file 'COM17'*". Switch Bluetooth off and on again in Windows, or switch the modem off and on, then press **Connect**.
- **USB port** — unplug the modem's USB cable and plug it in again. It may come back under a different COM number, so check the port list on the Connect screen (**Refresh**).
- **"In use by another program"** — close the other program, or check Task Manager for a second copy of HFConverse still running.
- **To stop it happening after sleep** — for Bluetooth, in Device Manager open the Bluetooth adapter ▸ Properties ▸ **Power Management** and untick **"Allow the computer to turn off this device to save power"**; using the modem's USB connection instead of Bluetooth also avoids it. For a USB port, see *USB ports that drop out (modem or radio)* below.

USB ports that drop out (modem or radio)

Windows saves power by switching off USB devices it thinks are idle. A modem or radio on a USB serial port can then drop out: the modem's COM port won't open after the PC has slept, or Hamlib's rigctld loses the radio and HFConverse shows a red **CAT** tag at the top of the window. Two Windows settings stop it:

1. **Device Manager** (right-click Start ▸ **Device Manager**):
   - Under **Ports (COM & LPT)**, open the modem's port and the radio's port (for example *Silicon Labs CP210x USB to UART Bridge (COM20)*) ▸ **Power Management** and untick **"Allow the computer to turn off this device to save power"**. Not every port has this tab; if it's missing, skip it.
   - Under **Universal Serial Bus controllers**, do the same for each **USB Root Hub**.
2. **USB selective suspend** — Control Panel ▸ **Power Options** ▸ **Change plan settings** (for the plan in use) ▸ **Change advanced power settings** ▸ **USB settings** ▸ **USB selective suspend setting**: **Disabled** (on a laptop, for both *On battery* and *Plugged in*). If **USB settings** isn't listed, the PC doesn't offer it and step 1 is enough.

"ONLY AVAILABLE ON PACTOR" or "PSE TYPE HELP" errors, and an `**-A-**` prompt

The modem keeps its operating mode while HFConverse is closed. If it was left in AMTOR (or RTTY, PSK31 or CW, for example by another program), its prompt looks like `**-A-** (GXYZ):>` instead of `cmd:`, and PACTOR commands sent there are rejected. Your callsign would even be taken as the AMTOR selcall.

HFConverse checks for this when it connects. If it finds one of these prompts — or the modem's status says RTTY/CW, which is how it reports RTTY, CW and PSK31 even when it's in the typing mode and shows no prompt at all — it returns the modem to PACTOR before sending any of your settings: it clears anything waiting in the modem's send buffer (Ctrl-X), sends `PT` (with ESC first except in AMTOR), and if that doesn't work, tries once more and then the CW exit (ESC `DD`, ESC `PT`). The Terminal shows "*[The modem was left in … sending PT to return it to PACTOR]*" followed by "*[Modem back at the PACTOR cmd: prompt]*". **File ▸ Disconnect from modem** and quitting HFConverse also return the modem to PACTOR on the way out if it's still in one of these modes.

If the modem doesn't come back, HFConverse says so and sends none of your settings to it. Type `PT` in the command box (for RTTY, CW or PSK31, press ESC first), then Disconnect and Connect again. Switching the modem off and on also brings it back to PACTOR.

Where HFConverse keeps your data

Everything HFConverse saves lives in **one folder outside the program**, so installing a new version, or replacing or renaming the program folder (as many Linux and macOS users do), never touches it:

- **Windows:** `%APPDATA%\PactorModemControl` (i.e. `C:\Users\<name>\AppData\Roaming\PactorModemControl`)
- **macOS and Linux:** `~/.config/PactorModemControl` — a hidden folder (or `$XDG_CONFIG_HOME/PactorModemControl` on Linux if set). In the macOS Finder press **Cmd+Shift+G** and paste the path.

Help ▸ Open data folder… opens it. In station profile 2 it opens profile 2's own `profile-2` folder inside it (its settings, favourites, logs and backups); the QSO log, macros and QSL cards are shared, one level up. What's in it:

File / folder	What it is
`station-settings.json`	All your settings
`hfconverse-log.adi`	Your QSO log — the QSOs you've logged from Worked Station (standard ADIF, readable by other loggers)
`hfconverse-log.adi.bak`	The QSO log as it was before your last edit or delete in the QSO Log window
`my-qsl-card.jpg`	Your own QSL card
`QslAlbum/`	QSL cards you've received
`macros.json`	Your macros
`favorites.json`, `favorites-amtor.json`	Your frequency favourites
`command-history.json`	The cmd: box history
`window-placement.json`	Where each window was and its size (see *Windows open where you left them*)
`remembered-folders.json`	The folder each kind of file dialog last used (see below)
`captures/`	QSOs written by **Capture** (see *Capturing a QSO to a file*). HFConverse never deletes them
`logs/`	Diagnostic logs (last 10 connections), and a `crash-<date>-<time>.txt` for each time HFConverse closed on an error (last 10)

File dialogs remember their folder. Each kind of file dialog opens in the folder you last used for that kind of file: saving a received picture, choosing a picture to send, mailbox backups (saving and restoring share one folder), saving a mailbox message, exporting the QSO log and your QSL card. If that folder has since been moved or deleted, the dialog opens where it always did. Each station profile remembers its own folders.

To **back up** HFConverse, or move it to another computer, use **Settings ▸ Back up settings…** (below), or copy this whole folder with HFConverse closed. The Worked Station window's QRZ/HamQTH lookup results aren't stored — only the QSOs you log are.

Backing up and restoring your settings

Settings ▸ Back up settings… saves everything HFConverse keeps into one `.zip` file, for example before you reinstall the operating system or move to another computer:

- settings (both station profiles), favourites (PACTOR, AMTOR, RTTY, PSK31) and macros;
- the QSO log, your QSL card and the QSL album;
- the names and locators you've typed, window positions and remembered folders;
- your HFC-Sync messages (always);
- with the tick **Include modem mailbox backups** (off to start with): your modem mailbox backups too. The file is then larger.

Not included: **saved passwords** (QRZ / HamQTH), which are locked to the computer and user, so they couldn't be read on a new installation; and the diagnostic logs.

Settings ▸ Restore settings… puts a backup back:

1. Choose the backup `.zip`. HFConverse shows when and where it was made, and HFConverse's version then, and asks before changing anything. It won't restore during a link or transmission.
2. On **Restore and restart**, HFConverse closes, starts again, and puts the backup in place before it reads any settings, so nothing from the running copy is saved back over it.
3. What you had just before is kept as `before-restore-<date>.zip` in the data folder (**Help ▸ Open data folder…**), so a restore can be undone by restoring that file.
4. A message then says what was restored. Enter your saved passwords again in Settings, and on a different computer check the modem and radio ports.

Automatic backups. In **Settings ▸ Backup**, **Back up my settings** (on to start with) makes the same backup each time HFConverse closes and keeps the last **5** (choose 1 to 20; the oldest is deleted). They go in the **Backups** folder of the data folder - **Open backups folder** in that tab shows them - named like `hfconverse-settings-20261121-143205.zip`, and **Restore settings…** puts any of them back. The optional modem mailbox backups aren't in them; with two station profiles, each one makes a backup when it closes.

A backup made on Windows restores on a Mac or Linux, and the other way round.

Reporting a problem from HFConverse

Help ▸ Report a problem… sends a bug report or a suggestion straight to the HFConverse **Public Beta bug list** on the website — no web page or email needed — and gives you a reference number back.

- **Callsign and email** come from Settings ▸ Station; you can change them in the window. The email is required — it's only used if there are questions about your report. If Settings ▸ Station has no email, type it in the window and it's saved there for next time.
- **Filled in for you:** the HFConverse version, your operating system, the modem, the CAT method and the station profile.
- **Type** (Bug or Suggestion) and **Mode** (it starts on the screen you have open).
- **Title** — a one-line summary, shown on the bug list (at least 5 characters).
- **What happened?** — what you did, what you expected and what you saw, at least 20 characters. Your title and description are shown publicly on the bug list with the reference number and status; your callsign and email are not.
- **Diagnostic log** — the latest one (the current connection's, if you're connected) is attached, zipped. **View…** shows it exactly as it will be sent: your user name in folder paths (`C:\Users\`

`<name>\…`) is replaced with `<user>`, and where the file is kept on your computer isn't sent. Tick **Leave the log out** to send the report without it.

- **Screenshots** — up to 3 PNG, JPEG or GIF pictures (an animated GIF too, e.g. a short screen recording of the problem), each up to 5 MB. **Add screenshot…** picks a file; **Capture HFC window** adds a picture of the HFConverse main window as it is now.
- **Tick the box** to agree to sending the report, the log and the screenshots, then press **Send** (it stays greyed out until everything needed is filled in; the line above the buttons says what's missing). The link under the tick box opens the website's privacy note: what a report contains, who sees it and how long it's kept.

After sending, HFConverse shows the reference number; you can follow the report on the Public Beta bug list (`mw0gbq.hamserve.uk/beta`). If a newer version of HFConverse is out, it says so and offers the Downloads page — the problem may already be fixed. Reports from older versions are still welcome. A copy of every report is kept as a zip file in the `reports` folder in your data folder (**Help ▸ Open data folder…**).

If the report can't be sent — no internet connection, or the website refuses it (the message says why) — the copy is still saved in `reports`, and HFConverse offers to open the **report form** on the website (`mw0gbq.hamserve.uk/beta/submit.php`), where you can send it by hand with the log.zip and screenshots from that file. If the website refused it, put right what the message says and press **Send** again; the window stays open.

To have a report deleted, reply to the email address in the bug report email.

Reporting a problem: the diagnostic log

HFConverse keeps a **diagnostic log** for each connection: every byte sent to and received from the modem (with control characters such as `<ESC>` and `<QRT>` shown by name), HFConverse's own status messages, and — for frequency reads — the modem's exact reply and whether HFConverse could read a frequency from it. It starts with a header naming the HFConverse version, your computer's operating system, the modem, the port and your CAT settings, so a log explains itself.

- **Help ▸ Copy diagnostic log** copies the current connection's log (or, if you're not connected, the most recent one) to the clipboard — paste it straight into your bug report.
- **Help ▸ Open data folder…** opens your data folder (see above); the diagnostic logs are in its `logs` folder:
  - **Windows:** `%APPDATA%\PactorModemControl\logs` (i.e. `C:\Users\<name>\AppData\Roaming\PactorModemControl\logs`)
  - **macOS:** `~/.config/PactorModemControl/logs` — a hidden folder; in Finder press **Cmd+Shift+G** and paste the path
  - **Linux:** `~/.config/PactorModemControl/logs` (or `$XDG_CONFIG_HOME/PactorModemControl/logs` if set)

  Each connection gets its own file, `hfc-session-<date>-<time>.log`; the last 10 are kept.
- **If HFConverse closes by itself.** If HFConverse ever stops on an unexpected error, it writes what went wrong at the end of that session's diagnostic log and in a `crash-<date>-<time>.txt` file in the same `logs` folder (the last 10 are kept). Send both with your report: they say exactly where the error happened.
- It's on by default. To turn it off, untick **Settings ▸ Terminal & Modes ▸ Diagnostic log (for bug reports)**; the change applies from the next connect.

> **What's in it:** your modem traffic — callsigns, QSO and CQ text, modem settings. It never contains your passwords. Glance through it before posting it anywhere public.

The best report is: what you did, what you expected, what happened — plus the diagnostic log from the connection where it happened. **Help ▸ Report a problem…** sends both together.

Checking for a new version

A few seconds after HFConverse starts, it asks the HFConverse website which is the newest version — at most once a day. If a newer one is out, a message says *HFConverse 0.1.0.3 is available – you have 0.1.0.2* (for example), with three buttons:

- **Downloads** opens the download section of the HFConverse website. Install the new version in the usual way.
- **Skip this version** — you won't be asked about that version again, but you will be when a later one comes out.
- **Later** — you'll be asked again at the next check, the next day you start HFConverse.

The message also shows the address of the download page as a link (**mw0gbq.hamserve.uk/#get**). Clicking it opens the page and leaves the message open, so you can still choose **Skip this version** or **Later**. The message also lists **what's new** in that version, with a link to the full **Change log** on the website.

Nothing is sent but the HFConverse version you have — no callsign, no settings — and if the website can't be reached, HFConverse says nothing and carries on as normal. To turn the check off, untick **Check for a new version of HFConverse when it starts** in **Settings ▸ Appearance & Startup**. The website's privacy note explains the check: https://mw0gbq.hamserve.uk/privacy.html#update-check.

Checking your version

Help ▸ About HFConverse… shows your version number (four parts, e.g. `0.1.0.0`). When something HFConverse-specific (QSL cards, image transfer) behaves unexpectedly between two HFConverse stations, it's worth checking you're both on the same version.

Appendix: a note on frequencies and modes

- Frequencies throughout HFConverse are entered in **kHz** (e.g. `14083.0`). (In the QSO log they are stored in MHz, as the ADIF standard requires — HFConverse converts for you, so you always type kHz.)
- The QSO log records modes by their ADIF names: **PAC** (PACTOR), **TOR** (AMTOR), **RTTY** and **PSK** (PSK31) — see *The QSO log*.
- For RTTY and AMTOR with the standard tone settings, your transceiver sideband matters — check your modem's manual for the correct sideband for the tone pair you've selected.
- RTTY is conventionally operated at **45 baud, 170 Hz shift** on the amateur HF bands.

Thanks

HFConverse is written by Martin MW0GBQ. It was shaped by the people below: the alpha testers' reports, logs and on-air tests are behind much of what's described in this manual. Thank you all. The same names are in **Help ▸ About HFConverse…**.

Name	Callsign	Contribution
Dave	G4AON	Alpha testing
Stef	DM5TU	Alpha testing
Helge	SA7SKY	Alpha testing
Wolfgang	OH6DL	Alpha testing
Demetre	SV1UY	Alpha testing
Manfred	DH1ME	Alpha testing
George	SV1GGY	Alpha testing
Gary	NC3Z	Alpha testing
Paul	PA2PF	Alpha testing
Gerard	G0NWE	Alpha testing
Chris	G1FEF	Hosts the On the Air list at hamserve.uk
Claude AI (Anthropic)		Programming, web design, document management

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