Icom Web-Remote

User Manual

Browser remote control for IC-9700, IC-705 and IC-7300

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Website: https://df6ax.de

Project page: https://df6ax.de/en/blog/icom-web-remote.html

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Transmitting only with a valid amateur radio licence.

This manual describes operation in the browser. How to install Icom Web-Remote on a Raspberry Pi and connect it to the radio is described in the Installation Guide (in the program under `/en/icom-remote/installation.html`).

Contents

1. Overview 3
2. Operation 4
3. HF (IC-7300) 6
4. Digimodes 7
5. RC-28 tuning knob 10
6. Troubleshooting during operation 11
7. Licence and notes 12

1. Overview

Icom Web-Remote runs as a service on a computer on the radio's network and holds the only session to the radio there. Any number of browsers can watch and operate at the same time; all of them see the same state.



The operation page (here an IC-9700 on a 70 cm repeater)

- **Header**: radio selection (left), notices, “Digimodes”, “Manual”, “Settings”, connection status, RC-28 and “Start audio”.
- **Display**: frequency, mode, filter, offset and tone (VHF/UHF) or preamp, AGC, NB, NR (HF), S-meter and, while transmitting, power, SWR and ALC meters.
- **Transmit**: PTT, 1750 Hz tone burst (VHF/UHF) or tuner (HF), microphone and speaker selection.
- **Spectrum**: spectrum and waterfall of the radio with span and mode.
- **Control panels**: Tuning and bands, mode and filter, Repeater (VHF/UHF) or HF functions, Levels, VFO.

Several radios

If several radios are configured, you select them at the top left via the radio name. The radio used before stays connected for another five minutes, so you can switch back without logging in again.

2. Operation

Audio and microphone

1. Click **“Start audio”** at the top right – browsers only play audio after a click.
2. In the “Transmit” panel, select your computer's devices under the speaker and microphone icons. Sound cards that belong to a radio are locked so that the received audio is not fed back into the radio.
3. To talk, tick **“Microphone (browser)”**.

Audio and microphone only work via HTTPS (or directly on the server). Via HTTP a notice with a link to the HTTPS address appears at the top.

Setting the frequency

- The **mouse wheel** over a digit of the frequency display changes exactly that digit.
- The **arrow keys** ↑/→ and ↓/← go one step up or down.
- The buttons « ‹ › » in the “Tuning” panel go one or ten steps; you choose the step size next to them (“Step”).
- Type in a frequency (e.g. `145.600` or `14.200`) and press **“Set”** or Enter.
- **Clicking in the spectrum** tunes to that frequency; the mouse wheel in the spectrum moves in steps.
- Band buttons jump to the band; the program remembers frequency, mode and settings for each band (band memory).

Mode, filter, repeater

- Mode (LSB, USB, CW, AM, FM, DV …), filters FIL1–FIL3 and DATA in the “Mode” panel.
- **Repeater** (VHF/UHF): simplex, DUP− or DUP+, offset, tone (TONE) or tone squelch (TSQL) with CTCSS frequency.
- **Levels**: AF, squelch, RF, transmit power, microphone gain and the volume in the browser.
- **VFO**: VFO A/B, A=B; Main/Sub on the IC-9700.

Transmitting

> Transmit only with a valid amateur radio licence. Before transmitting, check that the frequency is clear.

- **PTT**: hold the button or hold the **space bar**. Releasing it ends the transmission.
- A **transmit time limit** (default 180 s, Settings) switches off a forgotten PTT. If the connection of the transmitting browser drops, transmission ends as well.

- **1750 Hz** (VHF/UHF): sends the tone burst for repeaters, length set under “Burst length” (0.3–3 s). The tone is sent as audio over the network connection.
- Before transmitting with the browser microphone, the program sets the radio's modulation source to LAN or USB (can be disabled in the settings). If there is no transmission for 5 minutes, it restores the previous setting so that the microphone on the radio works again (time adjustable, 0 = never).

Spectrum

You select span and mode (CENTER, FIXED) above the spectrum. If the scope output on the radio is off, the button “Enable scope output” appears. In transverter or QO-100 operation, display and spectrum show the converted frequency (RX/TX offset in the settings).

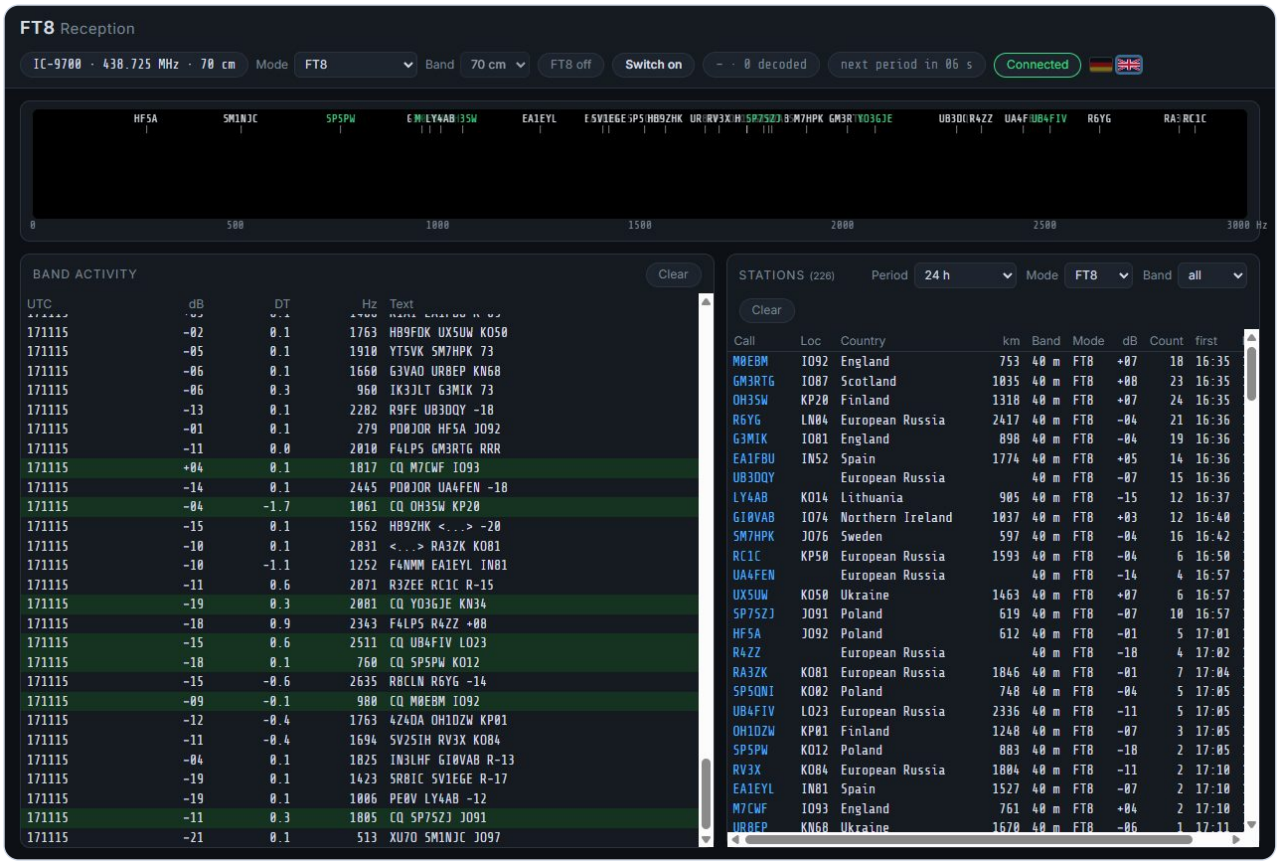
3. HF (IC-7300)

With an HF radio, the interface shows the HF functions instead of the repeater controls:

- **P.AMP / ATT**, **AGC** (fast, mid, slow), **NB** and **NR** with level, **ANF** (automatic notch), **COMP** (speech compressor) with level.
- **Split** (transmit on VFO B), A ↔ B, **RIT**.
- **TUNE** starts the built-in antenna tuner. **Caution: the radio briefly transmits a carrier while doing so.** “Tuner on” switches the tuner in permanently.
- The default step size is 100 Hz.

4. Digimodes

The **“Digimodes”** button opens a separate window (`/ft8`). At the top you select mode and band and switch reception on. All digimodes are **receive only** (exception: FT8, see “Transmitting FT8” below); nothing is uploaded to the internet.



The digimode window in FT8 mode with band activity and station list

When switched on, the program sets the radio to the appropriate frequency, mode and filter width; when switched off, it restores the previous state. In transverter or QO-100 operation (RX offset) the displayed band applies: the program sets the radio so that the display shows the FT8 frequency of that band (QO-100: 10489.540 MHz). If the band is not defined for the mode or the radio cannot reach the frequency, nothing is changed on the radio.

Mode	Decoded by	Notes
FT8, FT4, WSPR	Server (WSJT-X)	Band activity, station list with country and distance. The clock must be accurate.
RTTY	Browser	Click the signal in the waterfall (centre between the tones); shift, baud rate and reverse selectable.
PSK31/63/125	Browser	Phase display, AFC follows ±30 Hz.
CW	Browser	Click the tone; speed (about 8–50 WPM) is detected.

SSTV	Server	Formats detected automatically via VIS or selected manually; images in the gallery.
Weather fax	Server	DWD Pinneberg 3855, 7880, 13882.5 kHz; charts in the gallery.
QO-100 beacon	Browser	Tune the middle beacon to about 1500 Hz; the radio is not changed.

For the modes decoded in the browser, decoding only takes place while the window is open. FT8, SSTV and weather fax keep running on the server even when no window is open. The gallery shows the saved images; × deletes an image (a second click confirms). “Clear” on band activity and the station list removes the saved entries.

Transmitting FT8

You can work FT8 QSOs from the FT8 window, also from a phone. The program handles the sequence (locator, report, RR73, 73); **you start every QSO and every CQ run yourself**. The program never searches for or calls stations on its own. Transmitting is only allowed for radios you explicitly enable. Tested on 24 Nov 2026 with the IC-705 via QO-100 (CQ run with automatic next caller).

Enabling (page `/config`):

- Enter callsign and locator (nothing is transmitted without both).
- Tick “Allow FT8 transmit” for the radio (default: off). On the IC-7300 also set the “DATA MOD” menu to `0067` (IC-9700: `0116`, IC-705: `0119` and “Value for “LAN” or “USB”” = 3 for WLAN): the program sets it to USB for transmitting and restores the old value after the modulation restore time or on a clean shutdown; otherwise the radio’s microphone would be modulated. Without this menu nothing is transmitted (“DATA MOD menu missing”), nor when the radio is not in USB-D/LSB-D.
- Global: choose “FT8 transmit level” so that the radio’s ALC does not react; “FT8 lead (s)” compensates delays in the audio path; “CQ run ends after (min)” (default 10).
- In the “Digimodes” window select mode FT8 and switch reception on; only then are the controls active, otherwise the reason is shown next to the status.

Operation:

- **Click a line** = call that station (as in WSJT-X). On a CQ line or a foreign QSO the sender is called immediately; on a line addressed to your callsign the sequence continues at the matching step. Your own transmissions appear as lines marked “▶TX”.
- **CQ** starts a CQ run. With **“next caller”** ticked the program then takes over a station that calls you and afterwards calls CQ again. Without the tick the run ends after the first QSO.
- **STOP** aborts immediately, even in the middle of a transmission.

- **TX frequency**: click in the waterfall (200–2900 Hz). The current value is shown in the “TX … Hz” badge; red dashed marker = transmit, green = receive frequency of the other station.

Safety rules: If the expected reply does not arrive, a step is repeated at most three times, then the QSO is abandoned. A CQ run ends after the configured time (“CQ run ends after (min)”, default 10 minutes) without a click from you (a QSO in progress is still completed). If no FT8 window is connected any more (e.g. phone locked), a running QSO is finished, then nothing new is started. Manual PTT, burst, RC-28 PTT, switching FT8 off, changing mode, band or radio, loss of the radio connection and changes to the settings (e.g. turning “Allow FT8 transmit” off) end the run immediately and release PTT. The radio’s TX time-out stays active as well.

Log: Completed QSOs are listed in the log at the bottom of the window (stored locally only, nothing is uploaded). The “ADIF” link downloads them as an `.adi` file (`/api/ft8/adif`, LAN/VPN only) for your logging program.

5. RC-28 tuning knob

You can connect the Icom RC-28 in two ways:

- **To the server** (Raspberry Pi): plug it in – it is detected automatically (the “RC-28” indicator at the top turns green).
- **To your own PC**: in Chrome or Edge via HTTPS, click “RC-28” in the header and select the device.

Switching off: while an RC-28 is connected, a click on “RC-28” in the header switches it off (shows “RC-28 off”), e.g. so it cannot detune the radio during FT8. Knob and buttons are then ignored and a held TRANSMIT is released. Another click switches it back on. The setting applies to all browsers, is saved and is the same as “Use RC-28” on `/config` (takes effect at once, no restart).

Control	Function
Tuning knob	Tuning in the selected step size (for FM/DV several detents per step, adjustable)
F1	Change step size
F2	1750 Hz tone burst
TRANSMIT	Transmit while pressed

6. Troubleshooting during operation

Problem	Solution
“Disconnected”, radio does not respond	Is the radio switched on and on the network? After several logins in quick succession the IC-9700 locks out for about 60 s – the program retries by itself and shows this.
No audio	Did you click “Start audio”? Is the page opened via HTTPS? Check the speaker in the “Transmit” panel and the AF level.
Microphone audio does not arrive	Is “Microphone (browser)” ticked and the correct microphone selected? The browser must have granted access.
No spectrum	Click “Enable scope output” (if visible).
FT8 without decodes	Check the server's clock (`timedatectl`); is the band open? Is WSJT-X installed (jt9 path in the settings)?
Update fails	Read the message on the settings page; is the internet reachable? If necessary, run the installation line again.

7. Licence and notes

Icom Web-Remote is free software under the **MIT licence** (file `LICENSE`): Copyright © 2026 Frank Rose, DF6AX. You may use, copy, modify and distribute the program; it is provided without any warranty.

- Transmitting is only permitted with a valid amateur radio licence. The operator is responsible for all transmissions.
- The page does not have a login yet – only make it available on your own network or via VPN.
- FT8/FT4/WSPR use `jt9` and `wsprd` from WSJT-X (GPL), which are installed separately.
- Icom, IC-9700, IC-705, IC-7300 and RC-28 are trademarks of Icom Inc. This project is not affiliated with Icom.

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