



XDE-RTTY

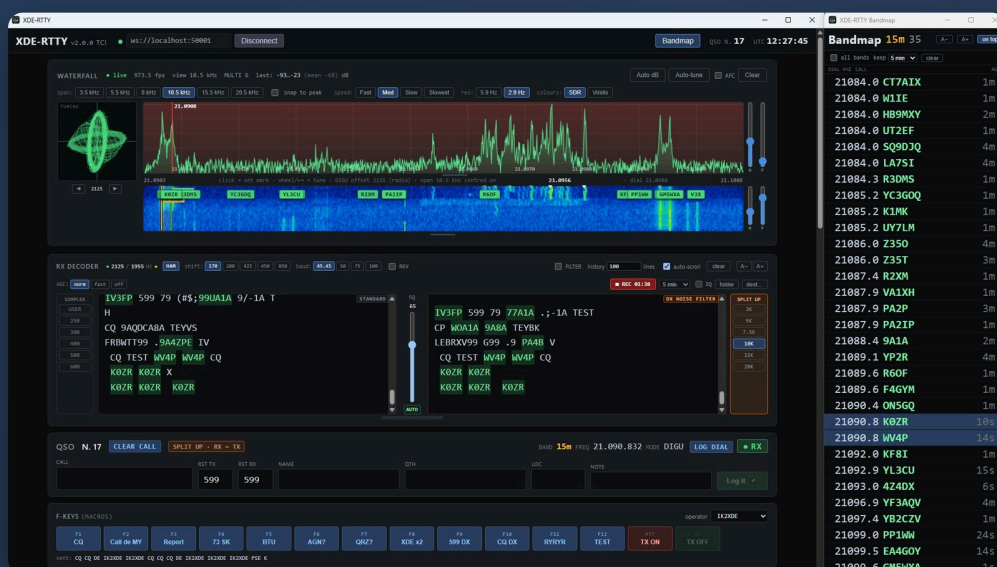
RTTY terminal and QSO log for TCI radios

Version 2.1.0 · User Manual · Windows and Linux (beta)

NEW DX NOISE FILTER — a second decoder for weak and fading signals

NEW Automatic SPLIT UP MODE for DX EXPEDITION with Multi Decoder

NEW NB and automatic NOTCH · CALL DATABASE UPDATE · Linux version (beta)



FREWARE FOR HAM RADIO USE

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1. Introduction and requirements

XDE-RTTY is a lean, fast RTTY terminal for everyday operating, designed for radios controlled over **TCI** (Transceiver Control Interface), such as the SunSDR family with **ExpertSDR3 v1.3.2 or later**, using the latest **TCI 2.1** protocol. Audio, frequency, mode, PTT, RX filter and AGC all travel over the single TCI connection: no virtual audio cables, no CAT ports, no COM-port PTT.

Main features

- **DX NOISE FILTER:** a second RTTY decoder built for weak, fading and disturbed signals, side by side with the standard one. On real off-air recordings it made half the errors of the standard decoder on 40 m and a third on 20 m. See [chapter 8](#).
- **Automatic SPLIT UP MODE for DX EXPEDITION with Multi Decoder:** transmit on the dial and listen up to 12.5 kHz above it, with every caller decoded, labelled on the waterfall and listed in the bandmap. One click on a caller moves only your receiver there — no second VFO, no split setup on the radio. See [chapter 13](#).
- AFSK RTTY demodulator and modulator (45.45, 50, 75, 100 baud; shifts 170, 200, 425, 450, 850 Hz; normal or reversed).
- **Spectrum and waterfall** in the style of an SDR panorama, centred on the radio dial, with high resolution (down to 2.9 Hz), SDR or Viridis colours and side level controls.
- **Multi-channel decoder:** callsigns decoded anywhere in the passband are shown on the waterfall and in a separate **bandmap** window (skimmer style).
- Tuning scope (crossed ellipses), AFC/NET, Auto-tune, click-to-tune.
- **12 programmable F-keys** (plus an optional second row on Ctrl+F1...F12), TX ON/TX OFF and a **KEY** window for live keyboard sending.
- **General QSO log** with multiple logs and multiple operators, automatic ADIF file, ADIF import/export.
- Logged frequency of your choice: **DIAL** (the frequency shown on the radio) or **MARK**.
- **UDP output** to other loggers: ADIF, N1MM+ or WSJT-X format, including live status (frequency, mode, callsign being worked).
- **NB** (noise blanker) and automatic **NOTCH:** static crashes and steady carriers are removed before the decoders.
- Country lookup (BIG CTY), callsign suggestions (Super Check Partial) and **CALL DATABASE UPDATE:** a database of active callsigns, kept up to date automatically, to recognise stations better on the waterfall and the bandmap.
- **One ExpertSDR setup for RTTY and FT8/FT4:** switching between XDE-RTTY and WSJT-X (or similar) needs no change on the radio ([chapter 3.2](#)).
- Available for **Windows** and **Linux** (beta).

Requirements

Item	Requirement
Operating system	Windows 10 or 11: 64-bit (x64) and 32-bit (x86) installers. Linux (beta, 64-bit) : <code>.deb</code> package for Ubuntu 22.04 or later, Debian, Linux Mint and derivatives; <code>.AppImage</code> for other distributions.
Web runtime	Windows: Microsoft Edge WebView2 (already present on up-to-date Windows 10/11; the installer fetches it if missing). Linux: WebKitGTK, installed automatically with the <code>.deb</code> package.
Radio	A transceiver or SDR software with a TCI server — SunSDR with ExpertSDR3 v1.3.2 or later . XDE-RTTY uses the latest TCI 2.1 protocol.
Internet	Optional: only to download the country file (BIG CTY), the SCP callsign database and the call database, which are then kept up to date automatically.

Before you start: set the ExpertSDR **DIGL Modulator Offset to 2125 Hz** and the RX **DIGI** filters exactly as shown in [chapter 3.2](#). Without these settings XDE-RTTY cannot show the correct frequencies. Leave **DIGU** as you use it for FT8/FT4 (offset 0): it needs no change.

2. Installation

1. Download the installer for your Windows: `XDE-RTTY_2.1.0_x64_en-US.msi` (64-bit, recommended) or `XDE-RTTY_2.1.0_x86_en-US.msi` (32-bit).
2. Double-click the file and follow the wizard. XDE-RTTY is installed for all users of the PC and a shortcut is added to the Start menu.
3. Start **XDE-RTTY** from the Start menu.

Windows SmartScreen / antivirus. The installer is not digitally signed. The first time, Windows SmartScreen may show "Windows protected your PC": click **More info → Run anyway**. Some antivirus programs may flag a new, unsigned installer as suspicious through heuristic (machine-learning) detection: this is a false positive. If it happens, restore the file from quarantine or allow it.

Linux (beta)

The Linux version is the same program as on Windows, with the same functions. It is still **beta**: it works, but needs more testing on more distributions and computers before the final version. Please report any problem (Telegram t.me/xde_rtty).

Package	Install and start
<code>XDE-RTTY_2.1.0_amd64.deb</code> Ubuntu, Debian, Mint...	Double-click the file, or in a terminal <code>sudo apt install ./XDE-RTTY_2.1.0_amd64.deb</code> . Then start it from the applications menu (XDE-RTTY) or by typing <code>xde-rtty</code> .
<code>XDE-RTTY_2.1.0_amd64.AppImage</code> all others	No installation: <code>chmod +x XDE-RTTY_2.1.0_amd64.AppImage</code> , then <code>./XDE-RTTY_2.1.0_amd64.AppImage</code> . If it complains about FUSE, install the <code>libfuse2</code> package or start it with <code>APPIMAGE_EXTRACT_AND_RUN=1 ./XDE-RTTY_2.1.0_amd64.AppImage</code> .

On Linux the automatic update announces the new version and opens the download page: install the new package like the first one, settings and logs are kept. For a report, start the program from a terminal with `RUST_LOG=debug xde-rtty` and send the lines it prints.

Updating and uninstalling

First start. On a 1920×1080 screen (or larger) the main window fills the screen except a column on the right, where the bandmap opens at full height. Resize and move both as you like: the layout is remembered at exit. *Settings → Default layout* brings back the starting layout at any time.

To update, simply install the new version over the old one: settings, logs and macros are kept. To uninstall, use *Settings → Apps* in Windows. Your logs are not deleted by uninstalling.

Automatic update (from 1.9.4). About 5 seconds after start-up XDE-RTTY looks on www.xdenews.net/xdertty/ for a newer version. If there is one, the window **New version available** shows what is new: **Download and install now** or **Later**. The installer is downloaded with a progress bar and checked (size and SHA-256) before anything runs; then XDE-RTTY closes, the new version installs (only a progress bar; Windows may ask for permission) and restarts by itself. On the first start after an update, **WHATS-NEW.txt** opens with the news in English and Italian. In *Settings*: **Check for new release** (on by default) turns the check at start-up on or off, **Check now** checks at once, **What's new** opens the file again.

Version 1.9.3 or earlier has no automatic update: install 1.9.4 or later by hand once, the following versions arrive by themselves.

Where your data is kept

Data	Location
Logs (internal format)	%APPDATA%\net.xdenews.xde-rtty\logs\
Automatic ADIF copy of the open log	Documents\XDE-RTTY\<log name>.adi (folder can be changed in Settings)
REC recordings	Documents\XDE-RTTY Recordings\<date>\<band>\ (folder can be changed)
SCP database, call database, country file	%APPDATA%\net.xdenews.xde-rtty\
Settings, macros, window positions	Saved automatically by the program.

On Linux: program data in `~/local/share/net.xdenews.xde-rtty/`, ADIF in `~/Documents/XDE-RTTY/`, recordings in `~/Documents/XDE-RTTY Recordings/`.

Backup. The ADIF file in `Documents\XDE-RTTY` is rewritten after every change and can be imported into any logger: it is your simplest backup.

3. Setting up the radio (ExpertSDR / TCI)

3.1 Enable the TCI server

Software and protocol. XDE-RTTY uses the latest **TCI 2.1** protocol. With SunSDR radios use **ExpertSDR3 v1.3.2 or later**: older versions (ExpertSDR2, early ExpertSDR3) may not offer every TCI 2.1 command used by the program (DIGL/DIGU offset, RX filter, DDS panorama centring).

In ExpertSDR open the TCI settings, enable the TCI server and note its port (default `50001`). In XDE-RTTY the address is already set to `ws://127.0.0.1:50001`: right when the program runs on the same PC as ExpertSDR with the default port. Otherwise change it: `ws://127.0.0.1:<port>` on the same PC, `ws://<PC address>:<port>` when ExpertSDR runs on another computer of the network.

On connection XDE-RTTY automatically:

- starts the receive audio stream over TCI (48 kHz) and prepares the transmit audio stream;
- switches the radio to **DIGL** mode (and does so again before each transmission if needed);
- reads the RX filter, the AGC and, when available, the DIGL offset.

3.2 ExpertSDR settings — REQUIRED

⚠ IMPORTANT — DO THIS FIRST

ExpertSDR3 v1.3.2 or later · TCI 2.1

Before using XDE-RTTY set the two ExpertSDR panels below. Almost every "does not decode", "wrong frequency" or "filter not centred" problem comes from these settings.

TX → DIGL Modulator → Offset = 2125 Hz

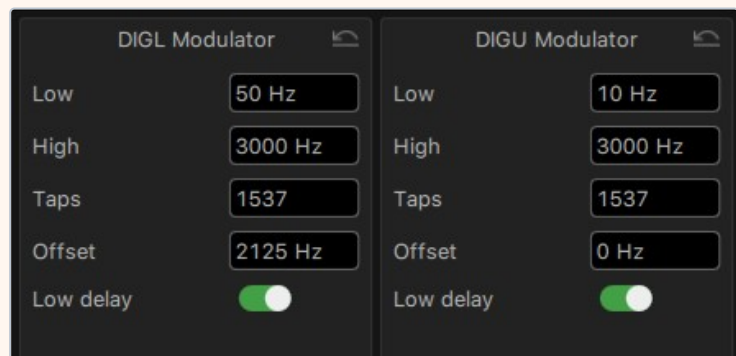


The DIGI filter settings panel is divided into two main sections: AGC and FILTER. The AGC section has two columns: 'Fast' and 'Normal'. The FILTER section has a 'Taps' input and a 'F. WIDTH' section with two columns: 'Low' and 'High'.

AGC	
Fast	Normal
Attack	1,0 ms / 1,2 ms
Decay	200 ms / 400 ms
Hang time	400 ms / 800 ms

FILTER	
Taps	F. WIDTH
1500	Low / High
	3200 / 0 Hz / 3200 Hz
	500 / 1960 Hz / 2460 Hz
	400 / 2010 Hz / 2410 Hz
	300 / 2060 Hz / 2360 Hz

RX section → DIGI filter



The DIGL and DIGU Modulator settings panels are side-by-side. Each has a 'Low' and 'High' section, a 'Taps' input, an 'Offset' input, and a 'Low delay' toggle.

DIGL Modulator	
Low	High
50 Hz	3000 Hz
1537	1537
2125 Hz	0 Hz
Low delay	Low delay

DIGU Modulator	
Low	High
10 Hz	3000 Hz
1537	1537
0 Hz	0 Hz
Low delay	Low delay

TX section → DIGL Modulator and DIGU Modulator

TX section → DIGL Modulator (RTTY with XDE-RTTY)

Item	Value	Why
Low	50 Hz	Lower edge of the transmitted audio.
High	3000 Hz	Upper edge: mark 2125 and space 2295 are well inside.
Taps	1537	Filter length (as in the picture).
Offset	2125 Hz	Essential. The radio display then shows the mark frequency, like FSK and the RBN skimmers.
Low delay	On	Faster switching.

TX section → DIGU Modulator (FT8 / FT4)

Item	Value	Why
Low / High	10 / 3000 Hz	The usual FT8/FT4 transmit band.
Taps	1537	As in the picture.
Offset	0 Hz	Leave it at 0 , as WSJT-X and similar programs want it. RTTY in SIMPLEX does not use it; in SPLIT UP XDE-RTTY sets it equal to DIGL by itself and puts it back afterwards (chapter 13).
Low delay	On	Faster switching.

RX section → DIGI filter

F.WIDTH (button)	Low	High
3200	0 Hz	3200 Hz
500	1960 Hz	2460 Hz
400	2010 Hz	2410 Hz
300	2060 Hz	2360 Hz

The **3200** filter (0–3200 Hz) is the wide one, ready for FT8 and FT4 in DIGU; in XDE-RTTY it is the one **USER FILTER** restores. The narrow filters are centred on **2210 Hz**, halfway between mark (2125) and space (2295), so both tones always stay inside. AGC (Fast / Normal) and Taps 1500 as in the picture.

In XDE-RTTY → *Settings* → *Radio* keep *Read DIGL offset from the radio* on and, as a fallback, the **same offset, 2125**.

One setup for RTTY and FT8/FT4.

With these ExpertSDR settings — DIGL at 2125 for RTTY, DIGU at 0 for FT8/FT4, DIGI filter 3200 ready for the wide digital modes — **nothing has to be changed on the radio** when you switch from XDE-RTTY to WSJT-X, JTDX or similar programs, and back. Even in SPLIT UP, which uses DIGU, XDE-RTTY sets the offset by itself and restores it when you go back to SIMPLEX or close the program.

3.3 Why the DIGL offset matters

XDE-RTTY works in AFSK on lower sideband (**DIGL**). The ExpertSDR **offset** is the audio tone that falls exactly on the frequency shown on the radio display. With the standard RTTY tones (mark 2125 Hz, space 2295 Hz) and offset **2125**, the display shows the **mark frequency** of the station you are tuned to — exactly like a radio in FSK, the RBN skimmers and DX cluster spots. A station spotted on 7.045.000 is tuned by setting the radio to 7.045.000.

Example with offset 2125, radio on 7.045.000: your mark is transmitted on 7.045.000 and your space on 7.044.830 (170 Hz below), as in FSK.

XDE-RTTY tries to read the offset from the radio; if the radio does not report it, it uses the value written in *Settings* → *Radio*. The waterfall axis always shows the offset in use and its source:

DIGL offset 2125 (radio) or (settings).

If the waterfall frequencies look wrong (the scale does not match the radio display), the DIGL offset in ExpertSDR and the one in XDE-RTTY differ. Make them both 2125. DIGU has nothing to do with it.

3.4 Power and drive

The transmit level is set by the radio's **DRIVE** control and by *TX level* in XDE-RTTY settings (100% = full drive). Leave TX level at 90–100% and set the power on the radio. RTTY is a 100% duty-cycle mode: use a power level your amplifier can sustain continuously.

TX delay (Settings → Transmit, 0–200 ms, default 0): after PTT XDE-RTTY waits this long in silence — no RF — before the transmission starts, so the radio and a linear amplifier have already switched to TX. 15–20 ms is enough for most amplifiers. Every transmission then begins with a short steady MARK tone before the first character, so the other station's decoder locks on.

Amplifier. The switching sequence towards the amplifier (the radio's TX/KEY output and its delay) is set in ExpertSDR, and it works for every mode. TX delay in XDE-RTTY adds a safety margin for RTTY.

3.5 Receive filter and AGC

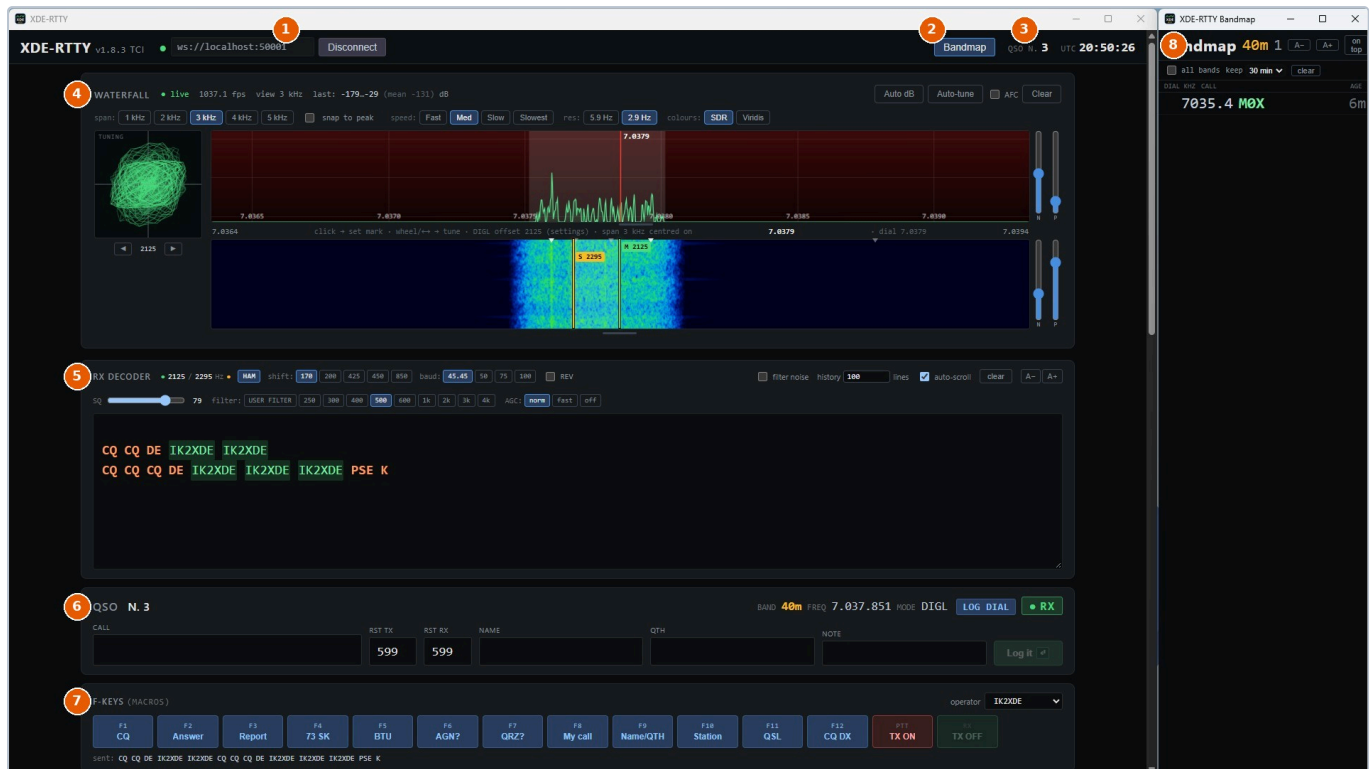
The RX filter and AGC of the radio can be controlled directly from XDE-RTTY (chapter 7). **USER FILTER** restores the filter you set yourself in ExpertSDR.

4. Quick start: your first QSO

1. Start ExpertSDR, enable TCI and set **TX → DIGL Modulator → Offset = 2125 Hz** and the RX DIGI filters as shown in **chapter 3.2** — this is essential.
2. Start XDE-RTTY. The header already holds the TCI address `ws://127.0.0.1:50001` (change it if your port or PC differ): click **Connect**. The dot turns green and the waterfall shows **live**.
3. Open **Settings** (at the bottom of the window) and fill in *My call, My name, My QTH, Locator*. Check that *DIGL offset* is 2125.
4. In the RX decoder press **HAM** (mark 2125, shift 170, 45.45 baud, normal).
5. Tune a station: click on its **mark** trace on the waterfall, or turn the mouse wheel over the waterfall to tune the radio until the station's two traces sit on the green (M) and yellow (S) markers. Decoded text appears in the RX window.
6. Click a callsign in the RX text (green chip): it goes into the **Call** field.
7. Answer with **F2**, send the report with **F3**, and so on. Press **Esc** to stop a transmission at any moment.
8. Fill in Name/QTH if you like (click words in the RX text to copy them) and press **Enter** (or **Log it**) to log the QSO.

Calling CQ: press **F1**. When someone answers, click his callsign in the RX text and press F3.

5. The main window



Main window with the bandmap window on the right.

- 1 **TCI connection:** address of the TCI server and Connect/Disconnect button. The dot is green when connected.
- 2 **Bandmap:** opens or closes the bandmap window (chapter 12).
- 3 **QSO N.** (QSOs in the open log) and the **UTC** clock.
- 4 **Waterfall** panel: spectrum, waterfall and tuning scope (chapter 6).
- 5 **RX decoder:** received text and decoder settings (chapter 7).
- 6 **QSO** entry form (chapter 9).
- 7 **F-keys** and TX ON/TX OFF (chapter 10). Below them: the **log** and the **settings** (scroll down).
- 8 **Bandmap** window, movable and resizable.

Size and position of the main window and of the bandmap are remembered. The whole interface can be scaled with **Ctrl** + **+** / **-** / **0** or **Ctrl** + mouse wheel.

6. Spectrum and waterfall



Waterfall panel.

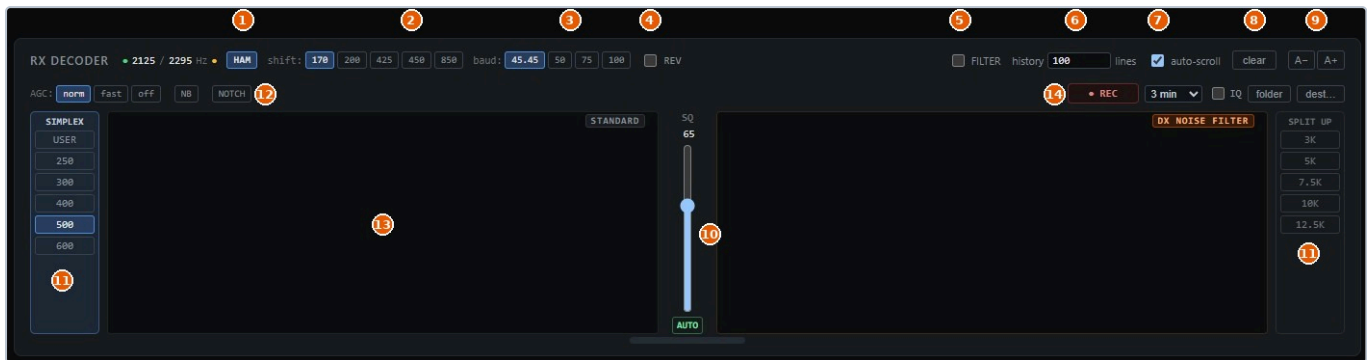
- 1 **Span:** width of the displayed band. **SIMPLEX:** 1, 2 or 3 kHz centred on the radio dial (default 2 kHz). **SPLIT UP:** 3.5, 5.5, 8, 10.5 or 13 kHz starting 0.5 kHz below the dial, always tied to the filter (filter + 0.5 kHz): changing one changes the other.
- 2 **Snap to peak:** a click on the waterfall moves to the strongest signal within ± 150 Hz. Off = the click goes exactly where you click.
- 3 **Speed:** waterfall scroll speed (Fast, Med, Slow, Slowest). Slower speeds keep brief signals by peak-holding.
- 4 **Res:** frequency resolution. **5.9 Hz** follows fast keying well; **2.9 Hz** draws thinner, sharper mark/space lines but reacts more slowly.
- 5 **Colours:** **SDR** (blue noise, signals green $\rightarrow$ yellow $\rightarrow$ red, like the radio panorama) or **Viridis**.
- 6 **Auto dB** sets the waterfall levels from the noise inside the RX filter. **Auto-tune** finds the best RTTY pair among the detected peaks and sets mark and shift. **AFC** follows a station that is off frequency (up to ± 40 Hz around your TX mark), within a fraction of a second; with AFC on, **NET** makes your TX follow too. **Clear** clears the waterfall.
- 7 **Tuning scope:** crossed ellipses. A correctly tuned RTTY signal draws a cross: a horizontal and a vertical ellipse, of similar size.
- 8 **◀ ▶:** move the mark by 5 Hz (hold to repeat). The number is the current mark tone (Hz).
- 9 **Spectrum:** the signal trace with a frequency grid; the grey band is the radio RX filter. Click to set the mark; wheel to tune.
- 10 The red line is the **radio dial** (VFO), with its frequency.
- 11 Spectrum level controls: **N** = noise threshold (up = the noise sinks lower, cleaner baseline); **P** = height of the peaks (1 $\times$ –4 $\times$).
- 12 **Divider:** drag up or down to give more room to the spectrum or to the waterfall. Below it, the frequency axis: left edge, centre (= dial) and right edge, the mode and the DIGL offset in use.
- 13 **Waterfall:** newest line at the top. Green marker **M** = mark, yellow **S** = space; they turn red while transmitting. Decoded callsigns appear as green labels (red = already worked on this band).
- 14 Waterfall level controls: **N** = noise level (what is blue), **P** = level that turns red.
- 15 **Resize handle:** drag to make the whole spectrum + waterfall panel taller or shorter.

Mouse and keyboard on the waterfall

Action	Result
Click on a trace	Sets the mark there (RX and TX). The radio is not retuned.
Mouse wheel /  	Tunes the radio by 10 Hz (wheel up / → = frequency up).
with  / with 	100 Hz / 1 kHz steps.
 / 	±1 kHz.
Click on a callsign label	Loads the call into the QSO form and tunes the radio so that the station falls on your mark. The radio panorama is re-centred on the new frequency (TCI DDS), so the VFO line stays in the middle where "zoom center" works. In SPLIT UP mode the click moves only the receiver (RX mark/space) onto the station and your TX stays on the dial;  +click = real QSY.
Right-click on a label	Loads the call without retuning.

Getting the best picture. Choose SDR colours, press **Auto dB** with a signal present, then fine-tune with the N/P controls. For RTTY stations close together try Res 2.9 Hz.

7. RX decoder



RX decoder panel in SIMPLEX: tones, shift, baud and REV at the top; AGC, NB, NOTCH and REC below them; SIMPLEX filters on the left, the STANDARD and DX NOISE FILTER windows with the SQ slider between them, SPLIT UP filters on the right.

- 1 **HAM**: amateur standard — mark 2125 Hz, shift 170 Hz, 45.45 baud, normal. On the left, the mark/space tones in use.
- 2 **Shift**: 170, 200, 425, 450, 850 Hz.
- 3 **Baud**: 45.45, 50, 75, 100.
- 4 **REV**: reverses mark and space (reversed signals, some utility stations).
- 5 **FILTER**: shows only lines containing a known callsign (SCP) or an operating word (CQ, DE, RST, 73...).
- 6 **History**: decoded lines kept (20–1000, default 100).
- 7 **Auto-scroll**: keeps the newest text in view; scrolling up pauses it.
- 8 **Clear**: empties the RX window.
- 9 **A- / A+**: text size.
- 10 **SQ** (squelch): how clean a signal must be before the RX window starts printing. Once a station opens it, it stays open through its fades and closes a few characters after the station stops. 0 = everything, noise included. **AUTO** sets the recommended value (65), right for every band and filter: noise between signals stays quiet and weak stations still print.
- 11 **Filter**: radio RX filter set over TCI, in two groups.
SIMPLEX MODE (DIGL, you receive where you transmit): **USER FILTER** (the filter set in ExpertSDR), **250, 300, 400, 500, 600 Hz**, centred on the mark/space pair and following it. Span 1–3 kHz.
SPLIT UP MODE (DIGU, you transmit on the dial and receive above it): **3K, 5K, 7.5K, 10K, 12.5K** — receive window from 0.5 kHz below the dial to dial + 3 / 5 / 7.5 / 10 / 12.5 kHz. See [chapter 13](#).
When you **change band on the radio**, one second later XDE-RTTY goes back to the default: SIMPLEX, 500 Hz, span 2 kHz.
- 12 **AGC** of the radio: norm, fast, off. With AGC off a gain field appears (–20...120 dB).
NB (noise blanker): removes static crashes, electric-fence clicks, ignition noise and other short impulses that would otherwise garble one or more characters.
NOTCH (automatic notch): finds and removes by itself steady carriers near the signal (birdies, a station tuning up, harmonics); RTTY tones, being keyed, are never removed.
NB and NOTCH act on the decoders only (the waterfall and REC show the audio as received) and are **on by default** (blue button): switch them off only to compare.

13 Received text. Your own transmitted text is shown in orange. Callsigns are green buttons: **click** = load into the QSO form (red = already worked on this band). **Click an ordinary word** to copy it to the form: the first word goes to Name, the next to QTH. A **WW locator** (JN45 or JN45MQ) goes to **Loc** whenever you click it, and is never shown as a callsign button.

14 ● REC: receive-only recording (REC section below).



The same panel in **SPLIT UP 7.5K**: the SPLIT UP column is active (orange), the tones are swapped for DIGU (mark 2125, space 1955) and your signal on the air stays identical to DIGL.

Layout of the RX windows (from 2.0)

The **STANDARD** and **DX NOISE FILTER** windows ([chapter 8](#)) are always open, side by side and always the same width. Left to right:

SIMPLEX column	USER, 250, 300, 400, 500, 600 Hz (item 11).
STANDARD	The standard decoder.
SQ	The squelch slider, vertical, with its value and the AUTO button (item 10). It acts on both windows.
DX NOISE FILTER	The second decoder.
SPLIT UP column	3K, 5K, 7.5K, 10K, 12.5K (chapter 13).

Drag the small grip under the windows to make both taller or shorter; the height is remembered. AGC, NB, NOTCH and REC are in the row above the windows.

REC — receive-only recordings

At the end of the SQ row, **● REC** records what you are receiving, without transmitting: to compare filters, bands and decoders, or to keep a sample of a band opening or a contest. Choose the length (**1, 3, 5, 10 min**, default 3) and, if you want, **IQ**, then press **● REC**. While recording the button blinks red and shows the time left; it stops by itself when the time is up (press it again to stop earlier), and **SAVED** appears. Then change filter or band and press it again. REC does not start while you are transmitting.

File	Content
...mp3	The RX audio as XDE-RTTY receives it (MP3, mono, 48 kHz, 96 kbps — about 0.7 MB per minute; plays in any audio player).
...std.txt	The text of the STANDARD decoder.
...dx.txt	The text of the DX NOISE FILTER (filled when the DX NOISE FILTER is on).
...info.txt	UTC date and time, dial, mode, filter (and the edges reported by the radio), tones, shift, baud, REV, SQ, RX windows, AGC, DIGL/DIGU offset, panorama centre.
...iq.wav	With IQ : the radio's I/Q stream over TCI (stereo, 32-bit float, 48 kHz around the panorama centre, about 23 MB per minute).

The text files get a `[+mm:ss]` line every 30 seconds, to line them up with the audio. All the files of one recording share one name: date, UTC time, dial, mode and filter, e.g. `20261017_1405Z_14085.0_DIGL_500` (SPLIT UP: `...DIGU_5K`; USER FILTER: `USER` + width). Files are never overwritten (-2, -3... is added).

Recordings go to `Documents\XDE-RTTY Recordings`, one sub-folder per day and band:

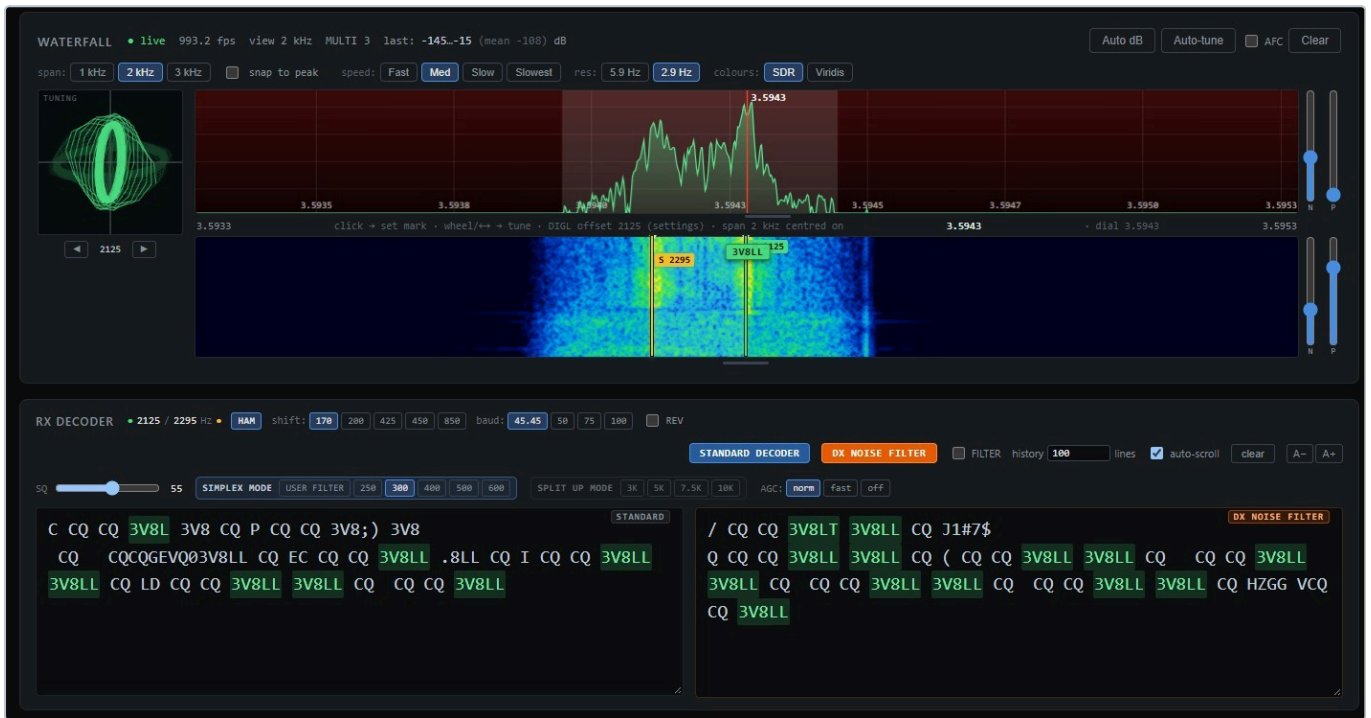
`...\2026-10-17\20m\`. **dest...** (or *Settings* → *REC folder*) chooses another folder; **folder** opens the folder of the last recording.

Useful for reports. If a station is copied badly, a 3-minute REC with its info file shows exactly what XDE-RTTY received and what both decoders printed: the best material to improve the decoders.

8. DX NOISE FILTER

DX NOISE FILTER — a second RTTY decoder built for weak and fading signals.

It runs beside the standard decoder on the same audio and prints in its own window. Where the standard decoder turns a weak, fading or disturbed station into garbage, the DX NOISE FILTER often still gives clean copy: on real off-air recordings it made half the errors of the standard decoder on 40 m and a third on 20 m.



STANDARD DECODER and DX NOISE FILTER side by side on 80 m: 3V8LL calling CQ in noise and QSB. Left, the standard decoder (3V8L, 3V8;), .8LL...); right, the DX NOISE FILTER copying 3V8LL almost every time.

8.1 Two windows, always open

The STANDARD window (left) and the DX NOISE FILTER window (right) are always open side by side, at equal width: you read whichever copies better. Both use the same tones, shift, baud, SQ, history and **clear**. Callsigns are clickable in both (red = already worked on this band), a click on an ordinary word fills Name/QTH (a locator goes to Loc), and your transmitted text is shown in orange.

8.2 What it does

The DX NOISE FILTER is tuned for the conditions where RTTY copy normally falls apart: signals close to the noise, QSB and deep fades, selective fading, flutter on polar paths, stations slightly off tune and strong neighbours a few hundred Hz away. It runs continuously beside the standard decoder, with no settings of its own: it uses the same tones, shift, baud and SQ.

8.3 Which decoder when

Condition	Better	Notes
Strong, clean signal	Both	Same copy. The standard decoder prints a little sooner.
Weak signal near the noise (QRN, static, low S-meter)	DX	It still copies where the standard decoder prints garbage.
QSB, slow fading, deep fades	DX	It keeps copying through the fades.
Selective fading, flutter, polar / auroral paths	DX	Far fewer errors on fading signals.
QRM: strong station a few hundred Hz away	DX	With a much stronger neighbour neither copies: narrow the radio filter (250/300 Hz).
Station off-tune, drifting	DX	More tolerant of mistuning.
Right after a QSY or a click on a station; the first characters of a transmission	STANDARD	It prints from the very first character. The DX NOISE FILTER needs one or two characters to lock on and runs about one character behind.
Fast contest exchanges with good signals	STANDARD	No delay. Keep the DX window open beside it for the weak callers.
Short static crashes, impulsive QRN	Try both	With very dense crashes both suffer.

In practice: read the left window for strong stations and quick replies, the right one when a station is weak, fading or disturbed.

8.4 Results

On real off-air recordings the DX NOISE FILTER made about **half the errors** of the standard decoder on a weak, fading 40 m signal and about **a third** on 20 m; on fading signals the gap is wider still. The standard decoder itself has also been much improved in recent versions, in noise and above all in fading.

The DX NOISE FILTER is an original design of XDE-RTTY: no code and no trained model of other programs are used.

9. QSO entry

QSO form and F-keys.

In **SPLIT UP** mode a badge above the form shows `SPLIT · TX 7.040.0 · RX 7.046.2` when you are receiving away from your TX frequency; the **RX = TX** button brings the receiver back onto your own frequency.

Next to **QSO N.** the light-blue **CLEAR CALL** button empties the call and the other fields (like `Esc` / `Ctrl+W`) and puts the cursor back in Call.

- 1 Call.** While you type, callsign suggestions from the SCP database appear (`↑` `↓` to choose, `Tab` / `Enter` to accept). `Space` jumps to Name and, if you worked him before, fills in name and QTH from the log. **Typing a frequency** (e.g. `14080.5` or `7.045.000`) and pressing Enter tunes the radio there.
- 2 RST TX / RST RX** (default 599).
- 3 Name** of the other operator.
- 4 QTH**, then **Loc**: his WW locator (4 or 6 characters, written in the ADIF as GRIDSQUARE and sent via UDP). Click name, QTH and locator in the RX window and they land in name and QTH. The **Call** field is narrower than in older versions, to make room for it.
- 5 Note** (free comment, goes into the ADIF COMMENT field).
- 6 Log it:** saves the QSO. Same as `Enter` in the form or `Ctrl+Enter` anywhere.
- 7 LOG DIAL / LOG MARK:** which frequency is logged. Above it: band, frequency that will be logged and mode.
- 8 RX / TX** indicator of the radio.
- 9** Country, continent and CQ zone of the callsign (country file), plus **WKD** flags: red *WKD 40m* = already in the log on this band; *WKD xn* = worked n times on other bands.

DIAL or MARK?

DIAL (default) logs exactly the frequency you read on the radio display. With the DIGL offset at 2125 this is also the mark frequency, so DIAL and MARK give the same value — the standard RTTY convention. **MARK** logs the RF frequency of your mark tone computed from dial, offset and mark tone: useful when you work with a mark tone other than the offset.

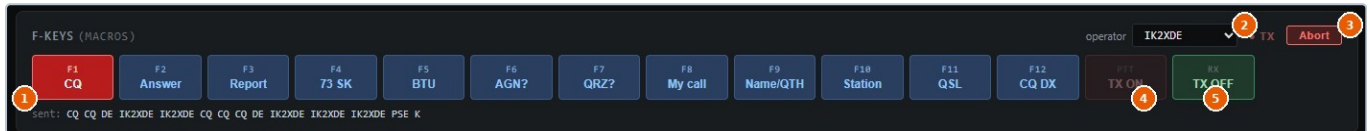
Keys in the QSO form

Key	Function
Enter	Log the QSO (or QSY if a frequency is typed in Call).
Ctrl + Enter	Log the QSO from anywhere in the program.
Tab / Shift + Tab	Next / previous field.
Esc	Close suggestions, then clear the form.
Ctrl + W (or Alt + W)	Wipe the form.
Ctrl + D	Delete the last logged QSO (press twice within 3 s).

10. F-keys, transmission and the KEY window

9.1 F-keys

The twelve macro keys **F1...F12** send their text as soon as you press the key on the keyboard or click the button. While a key is transmitting it turns **red**. The line *sent:* shows the last text sent. With *Second row* enabled in Settings, **Ctrl+F1...Ctrl+F12** give twelve more macros. The **operator** selector on the right chooses whose data (`<MYCALL>`, `<MYNAME>` ...) the macros use.

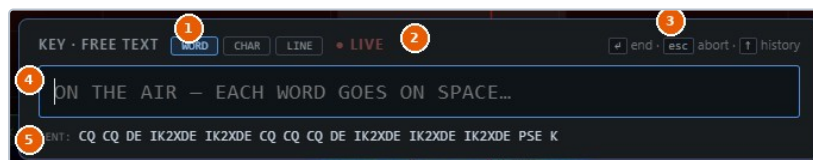


During a transmission.

- 1 The F-key being sent is red.
- 2 ● **TX**: the program is transmitting.
- 3 **Abort**: stops the transmission at once (same as `[Esc]`).
- 4 **TX ON**: keys the radio and sends idle (diddle) until TX OFF, and opens the KEY window so that everything you type goes on the air. F-keys pressed meanwhile join the same transmission.
- 5 **TX OFF**: sends whatever is still queued, then returns to receive.

Safety. `[Esc]` always stops the transmission immediately. If a live transmission has nothing new to send for 60 seconds, the program unkeys the radio by itself.

9.2 The KEY window (free text)



KEY window — open with Ctrl+K or TX ON.

Open it with `[Ctrl]+[K]` (or `[Alt]+[K]`), or with **TX ON**. Text is converted to upper case (RTTY uses the Baudot code).

- 1 **Sending mode.** **WORD** (default): the radio keys up when the window opens; each word goes out when you press Space, so you can correct it until then. **CHAR**: every key goes out as you type it. **LINE**: write the whole line, Enter sends it.
- 2 ● **LIVE**: you are on the air.
- 3 `[Enter]` ends the transmission (after the queued text), `[Esc]` aborts, `[↑]` recalls earlier texts.
- 4 Input field. Macro tokens such as `<CALL>` work in WORD and LINE modes.
- 5 Text already sent.

11. The log

The screenshot shows the XDE-RTTY log panel. At the top, there are buttons for 'LOG (17)', 'IK2XDE' (with a dropdown arrow), 'New log', and 'Logs...'. On the right, there are buttons for 'A-', 'A+', 'Export ADIF', and 'Clear'. Below these is a text field showing the ADIF file path: 'C:\Users\LOG\Documents\XDE-RTTY\IK2XDE.adif'. The main part of the panel is a table with columns: #, DATE, UTC, CALL, BAND, FREQ, RST TX, RST RX, NAME, QTH, LOC, NOTE, and OP. The table contains 10 rows of log entries. A vertical scrollbar is on the right side of the table. Numbered callouts 1-9 point to specific UI elements: 1 points to the 'LOG' button, 2 to 'New log', 3 to 'Logs...', 4 to 'A-'/'A+', 5 to 'Export ADIF', 6 to 'Clear', 7 to the ADIF file path, 8 to the table, and 9 to the 'x' icon in the 'OP' column.

#	DATE	UTC	CALL	BAND	FREQ	RST TX	RST RX	NAME	QTH	LOC	NOTE	OP
18	2026-10-18	15:54	OH3FM	40m	7.041.590	599	599					IK2XDE
17	2026-10-16	19:28	ON6MX	40m	7.041.972	599	599	MARTIN	OOSTENDE			IK2XDE
15	2026-10-16	19:21	R5DF	40m	7.042.000	599	599					IK2XDE
14	2026-10-16	19:19	F5PNP/QRP	40m	7.042.000	599	599	PASCAL	PARIS			IK2XDE
13	2026-10-16	19:11	OZ1ADL	40m	7.042.992	599	599					IK2XDE
12	2026-10-16	19:08	F6FJF	40m	7.042.992	599	599					IK2XDE
11	2026-10-16	19:02	TA3DJ	40m	7.043.003	599	599					IK2XDE
10	2026-10-16	18:59	IK8YFU	40m	7.042.997	599	599					IK2XDE
9	2026-10-16	18:47	OK1DLA	40m	7.043.000	599	599	LUDEK	PRAHA			IK2XDE
8	2026-10-15	19:12	S52R	40m	7.043.000	599	599	TONE	CRNOMELJ			IK2XDE

The log panel.

- 1 Open log:** choose which log is in use. You can keep several logs (e.g. one per callsign or per activity).
- 2 New log:** starts a new, empty log; the current one is kept.
- 3 Logs...:** list of all logs — open, rename, delete, and **Import ADIF...** (reads an ADIF file into a new log, including name and QTH).
- 4 A- / A+:** text size.
- 5 Export ADIF:** saves the log as an ADIF file wherever you want.
- 6 Clear:** deletes every QSO of this log (click twice to confirm).
- 7** Path of the **automatic ADIF file**, rewritten after every change.
- 8** QSO list, newest first; 10 rows visible, scroll for the others. Columns: #, date, UTC, call, band, frequency, RST, name, QTH, note, operator. **Click a cell** to edit it (Enter saves, Esc cancels).
- 9** **x:** removes that QSO.

Quick edits from the keyboard

- Ctrl+N**: add or edit a note on the last QSO.
- Ctrl+Q**: correct the callsign of the last QSO (**Tab** switches to the name; **↑/↓** or **Ctrl+Q** again move to older QSOs). Enter saves, Esc cancels.

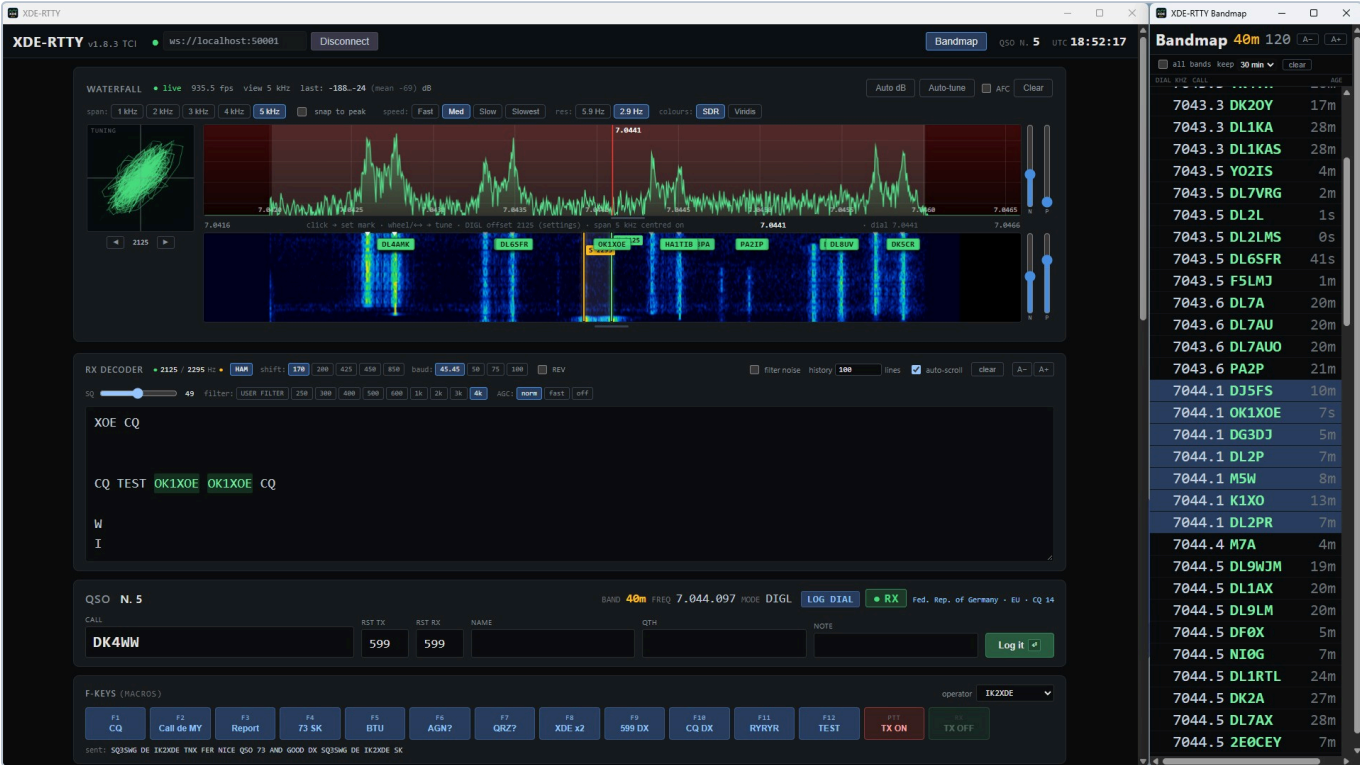
What is written in the ADIF

CALL, QSO_DATE, TIME_ON, BAND, FREQ, (in SPLIT UP mode also FREQ_RX and BAND_RX), MODE (RTTY), RST_SENT, RST_RCVD, NAME, QTH, COMMENT, OPERATOR, STATION_CALLSIGN, MY_GRIDSQUARE and, from the country file, COUNTRY, CONT, CQZ, ITUZ. The file can be imported into any logging program.

In **SPLIT UP** mode **FREQ** is your **transmit** frequency and **FREQ_RX** the frequency you **received** the station on — as DX expedition logs and Club Log expect.

12. Multi-decoder (MULTI RX) and bandmap

Besides the main RX decoder, which copies the station on your mark, XDE-RTTY runs a **multi-channel decoder** over the whole passband of the radio. Every RTTY station it copies reliably gets a **callsign label on the waterfall** and a row in the **bandmap** window, like an RTTY skimmer. One click on a label or on a row loads the call and tunes the radio onto the station.



Multi-decoder in action on 40 m: 4 kHz filter, 5 kHz span, a label on every station and 120 stations in the bandmap.

How to set it up

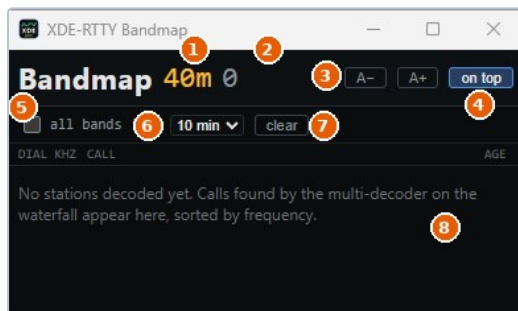
Setting	Recommended
RX filter (decoder panel)	The multi-decoder only sees what passes the radio filter. To listen wide use SPLIT UP 3K-12.5K (chapter 13); in SIMPLEX use USER FILTER with a wide filter set in ExpertSDR.
Span (waterfall)	Set automatically with the filter in SPLIT UP (filter + 1 kHz).
Res	2.9 Hz for thin, well separated traces when the band is crowded.
Bandmap "keep"	10-30 min during a contest or a busy band.



Waterfall with the multi-decoder labels: click a label to load the call and QSY onto it.

Why SPLIT UP? In DIGL nothing above the carrier can be received, so in SIMPLEX the passband can never reach more than about 2 kHz above the dial. SPLIT UP mode switches the radio to DIGU and opens the receive window *above* the dial, up to 12.5 kHz: exactly where the callers of a DX pileup are. The header of the waterfall shows **MULTI n**, the number of signals the multi-decoder is copying right now.

The bandmap window



Bandmap window.



DL5ZBS in red: already worked on this band. The highlighted row is the station you are tuned to.

Every callsign the multi-decoder copies appears in the bandmap, sorted by frequency. The colour tells how sure it is and whether you have worked it:

Colour	Meaning
Green	Sure: in the SCP database, or a call of the call database copied twice (with <i>Accept all valid callsigns</i> , also any proper callsign copied as many times as needed).
Light blue	Uncertain: a call of the call database copied once, a proper callsign in neither database copied the same as many times as needed (shown as read), or a call read with a character wrong that matches a single SCP call (that call is proposed, e.g. read <i>DL7AV</i> → <i>DL7AU</i>). With <i>Accept all valid callsigns</i> , also a call copied only once. The tooltip shows what was read. It turns green by itself as soon as a sure copy comes in.
Yellow	Worked on another band.
Red	Already in the log on this band.

Yellow and red win over green and light blue. Uncertain calls appear **only in the bandmap**: the waterfall labels and the RX text show sure calls only. Always check a light-blue call on the air before logging it.

1	Current band.
2	Number of stations listed.
3	A- / A+ : text size.
4	On top : keep the window above the others.
5	All bands : show stations of every band, not only the current one.
6	Keep : how long a station stays in the list after it was last decoded.
7	Clear : empties the list.
8	Station list: frequency (DIAL or MARK, as chosen for the log), callsign, age. Click = load the call and tune the radio onto the station, keeping the VFO in the centre of the radio panorama. Right-click = remove from the list. Colours as in the table above.

How a callsign is accepted

Every call decoded by the multi-decoder (and by the main decoder) goes through these checks, in order, before it reaches the waterfall and the bandmap:

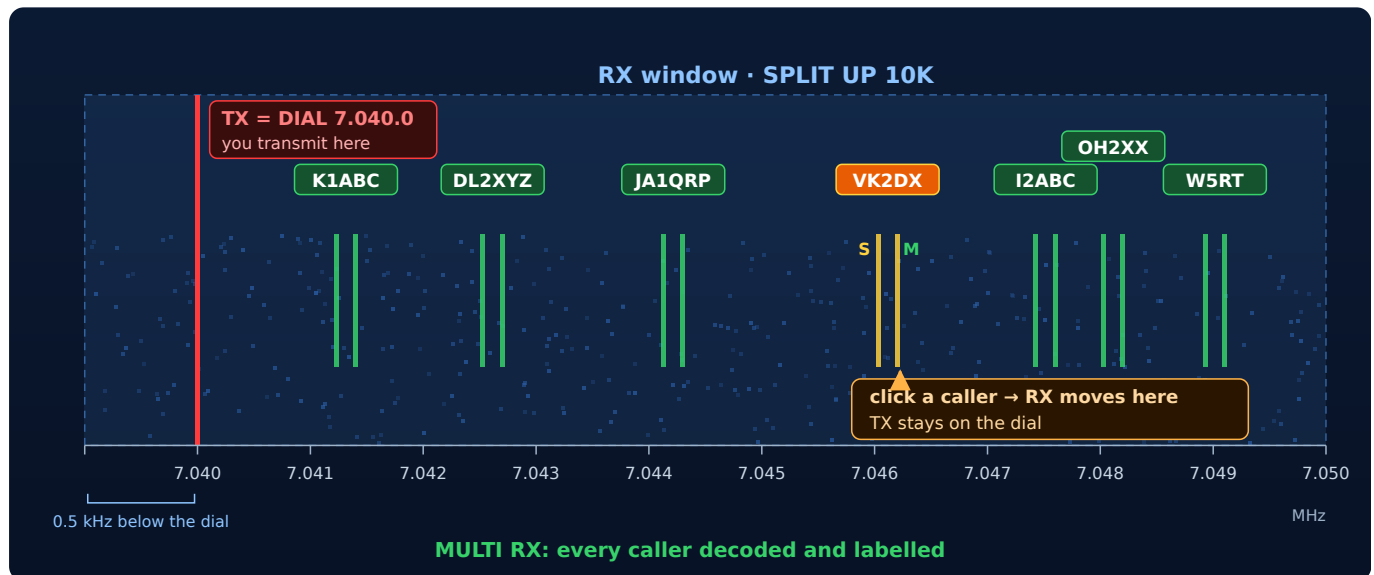
1. **Complete.** A call is taken only once a space or a new line follows it: while *DL7AUO* is still arriving letter by letter, *DL7A* and *DL7AU* are never considered. A word whose start was lost is ignored too.
2. **In the SCP database** (master.scp, the contest stations) → valid.
3. **In the call database** (active callsigns) → shown at the first copy, as uncertain; sure at the second.
4. **In neither database**: it must have a proper callsign structure (prefix, digits, suffix) and be copied the same several times (2 to 4, more for an unusual kind of callsign). It is then shown as uncertain; with *Accept all valid callsigns* (*Settings*) as sure.
5. **Uncertain (bandmap only, light blue).** Besides the cases above, a call read once that matches a single SCP call but for one character (that call is proposed), or, with *Accept all*, any proper call copied once. A sure call on the same signal (within 100 Hz) removes the uncertain ones.
6. **Truncated calls on the same signal.** If, within 100 Hz, one call is the beginning or the end of another (*DL7A*, *DL7AU*, *DL7AUO*), the longer one is kept and the pieces are removed; a piece arriving after the full call is not added.

7. **Only the station of the frequency.** On each signal the bandmap shows the station holding the frequency (the one calling CQ, TEST or QRZ). Stations calling or working it there are not listed on that signal, and are taken off if they were: they appear on the frequency where they call themselves.
8. **Never your own call.** When the other station sends your callsign, it is not spotted: the station call and every operator profile's call, in any portable form (IK2XDE/P, I/IK2XDE...), are left out of the waterfall and the bandmap.

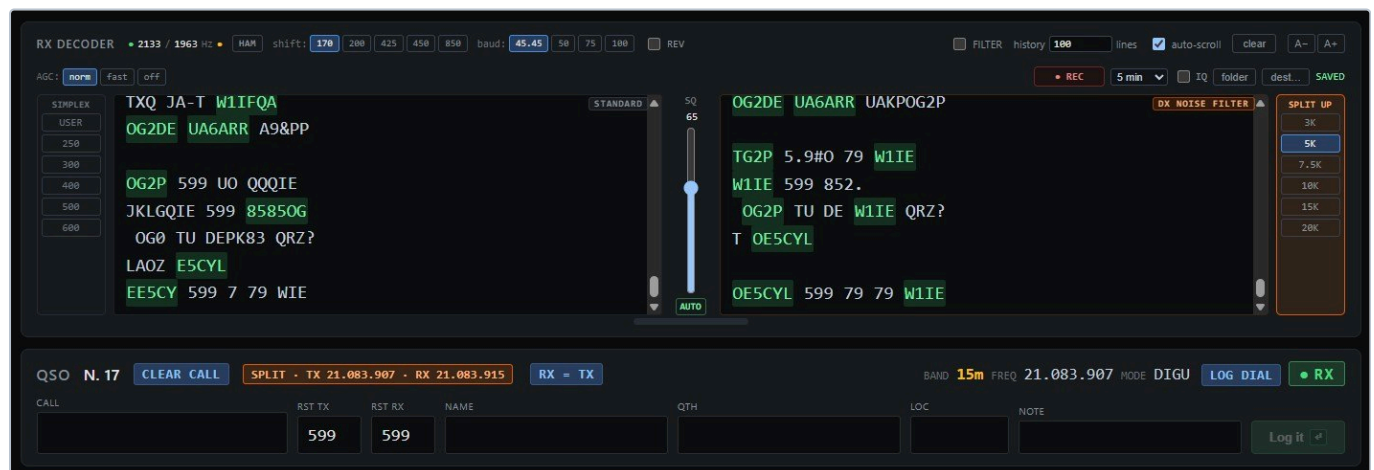
13. SPLIT UP MODE for DX expeditions

Automatic "SPLIT UP MODE" for DX EXPEDITION with Multi Decoder.

Transmit on your frequency, listen to the whole pileup up to 12.5 kHz above it, see every caller decoded and labelled, and pick the next one with a single click. Common RTTY programs need the radio's second VFO, a manual split and an operator who finds callers by ear; in XDE-RTTY it is one button.



SPLIT UP 10K: you transmit on the dial (red line); the receive window opens from 0.5 kHz below the dial to 10 kHz above it; the multi-decoder labels every caller; a click on VK2DX moves only the RX marker there.



SPLIT UP in use: the receiver (RX) has moved onto a caller, TX stays on the dial; the QSO form shows SPLIT · TX ... · RX ... and the RX = TX button.

13.1 How it works

1. In the RX decoder panel press **3K**, **5K**, **7.5K**, **10K** or **12.5K** in the **SPLIT UP MODE** group — choose how far up the pileup is spread.
2. XDE-RTTY does everything else automatically: switches the radio to **DIGU** (setting the DIGU offset equal to DIGL by itself), sets the RX filter from 0.5 kHz below the dial up to dial + width, sets the matching

waterfall span and lays the mark/space tones the right way round (no REV needed: on the air your signal is identical to DIGL).

3. **You keep transmitting on the dial** (red line). The radio is never retuned, the panorama stays where it is.
4. The **multi-decoder** copies every caller in the window: a green label on the waterfall and a row in the **bandmap**, sorted by frequency; stations already in the log on this band are red. The header of the waterfall shows **MULTI n**, the number of signals being decoded.
5. **Click a caller** — label, bandmap row or trace on the waterfall: only the receiver (M/S markers) moves onto him, and the call is loaded into the QSO form. The QSO form shows **SPLIT · TX ... · RX ...**.
6. Send your F-keys as usual: you answer on your own frequency, he stays where he is. Log with Enter: **FREQ** = TX, **FREQ_RX** = RX, also sent to your logger via UDP.
7. **RX = TX** brings the receiver back onto your frequency; **Ctrl**+click on a caller is a real QSY. Press any **SIMPLEX** filter (250–600 Hz) to return to normal operation: DIGL, RX back on your TX mark, span 2 kHz.

13.2 Filters and spans

SPLIT UP	Receive window	Waterfall span
3K	dial – 0.5 kHz ... dial + 3 kHz	3.5 kHz
5K (typical)	dial – 0.5 kHz ... dial + 5 kHz	5.5 kHz
7.5K	dial – 0.5 kHz ... dial + 7.5 kHz	8 kHz
10K	dial – 0.5 kHz ... dial + 10 kHz	10.5 kHz
12.5K	dial – 0.5 kHz ... dial + 12.5 kHz	13 kHz

Filter and span always move together, in both directions: choosing a span in SPLIT UP sets the matching filter, and vice versa.

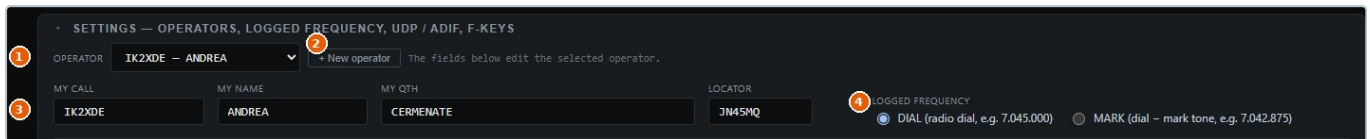
12.5K is the widest window ExpertSDR allows (its DIGU filter ends at 15 kHz audio). Should the radio narrow a filter anyway, the span follows the edges it reports.

Automatic DIGU offset. Nothing has to be set in the ExpertSDR DIGU Modulator: on entering SPLIT UP XDE-RTTY remembers the radio's DIGU offset (usually 0, for FT8/FT4), sets it equal to DIGL (2125) and puts it back when you return to SIMPLEX, change band, disconnect or close the program. The dial then reads your mark frequency in SPLIT UP too, and WSJT-X finds the radio as it left it.

Not only for DX expeditions. SPLIT UP works for anyone running a pileup that calls up: special event stations, rare entities, contest stations working split. With Res 2.9 Hz and a 10K–12.5K window the multi-decoder can follow up to 32 callers at the same time.

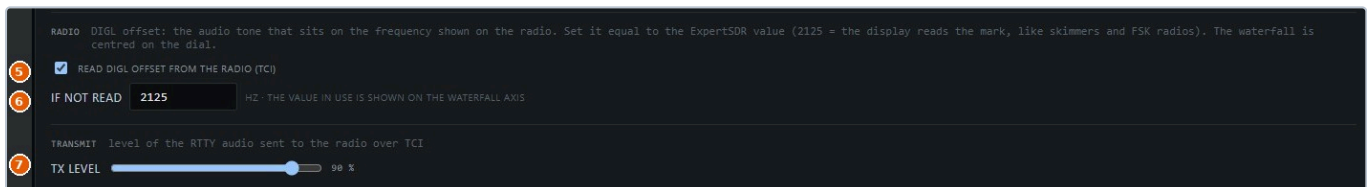
14. Settings

The settings panel is at the bottom of the main window (click its title to open or close it). Everything is saved automatically.



Settings — operators and logged frequency.

- 1 **Operator:** choose the operator profile. Each profile has its own call, name, QTH and locator; the operator is written into every QSO (OPERATOR field).
- 2 **+ New operator:** adds a profile (useful for club or family stations).
- 3 **My call, My name, My QTH, Locator** of the chosen operator, used by the macros and written to the ADIF.
- 4 **Logged frequency:** DIAL (the radio dial) or MARK (dial – mark tone), like the button in the QSO form.



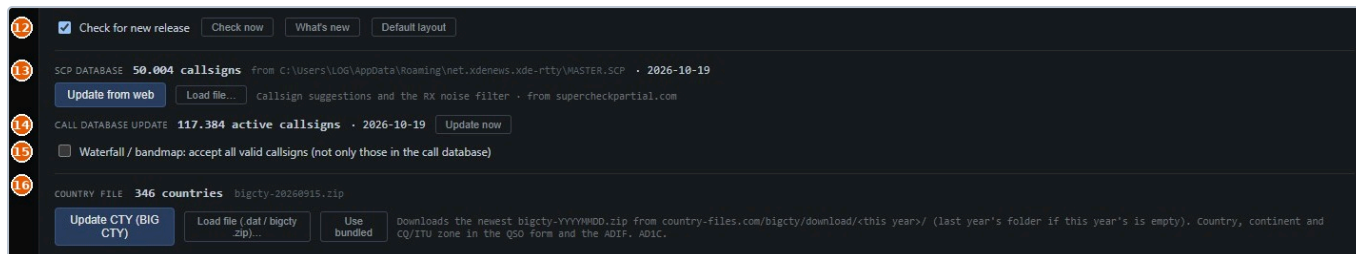
Settings — radio and transmit.

- 5 **Read DIGL offset from the radio (TCI):** when on (default), the DIGL offset reported by the radio is used.
- 6 **If not read:** DIGL offset (Hz) used when the radio does not report it — or always, if 5 is off. Use the same value as in ExpertSDR: **2125**. The waterfall axis shows the offset in use.
- 7 **TX level:** level of the RTTY audio sent to the radio over TCI (10–100%). 100% = full drive; set the power on the radio. Below it, **TX delay** (0–200 ms, see 3.4).



Settings — QSO output: ADIF file, REC folder, UDP.

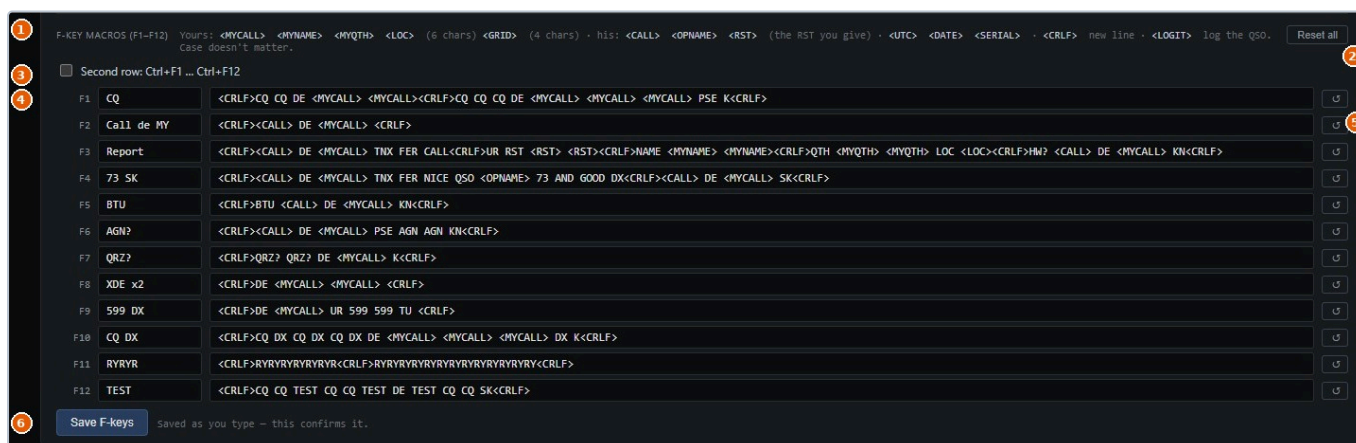
- 8 **ADIF file:** every QSO is also written to an ADIF file; *Choose folder...* picks the folder (default Documents\XDE-RTTY).
- 9 **REC folder:** where the REC recordings go (default Documents\XDE-RTTY Recordings).
- 10 **Send each QSO via UDP as:** sends every QSO to another logger in the chosen format (ADIF, N1MM+ or WSJT-X), to the given address and port; **Test** sends a test packet (chapter 15).
- 11 **Also send live status:** frequency, mode, TX state and the call being worked, live, before the QSO is logged (WSJT-X and N1MM+ formats). Below: the usual ports and how to reach another PC (LAN address or broadcast).



Settings — update, callsign databases, country file.

- 12 **Check for new release** (on by default): new-version check at start; **Check now** checks at once; **What's new** opens the news; **Default layout** puts the main window and the bandmap side by side, as at the first start ([chapter 2](#)).
- 13 **SCP database**: *Update from web* (supercheckpartial.com) or *Load file...* (MASTER.SCP). Used for suggestions, the noise filter and the bandmap; the downloaded copy is refreshed automatically every week. Beside it: number of calls, file and date.
- 14 **Call database update**: database of active callsigns used, together with the SCP, to recognise stations on the waterfall and the bandmap. It is downloaded and kept up to date automatically; here you see how many calls it holds and the date of the last update. *Update now* updates it at once.
- 15 **Accept all valid callsigns** on waterfall and bandmap (not only those in the databases): a call in neither database, copied as many times as needed, is shown as sure instead of uncertain.
- 16 **Country file**: *Update CTY (BIG CTY)* downloads the newest file from country-files.com; *Load file* accepts a .dat or the bigcty zip; *Use bundled* goes back to the included file. Gives country, continent and CQ/ITU zones in the QSO form and the ADIF.

The settings also hold the **fonts** of the RX decoder, the QSO form and the log (any installed font, size in pixels and **Force slashed 0**, to tell 0 from O).



Settings — F-key macros.

- 1 List of the **macro tokens** (table below). Case does not matter.
- 2 **Reset all**: back to the default macros.
- 3 **Second row**: a second row of macros on Ctrl+F1...Ctrl+F12.
- 4 For each key: **label** (written on the button) and **text** to send.
- 5 ↺ restores that key's default text.
- 6 **Save F-keys**: macros are saved as you type; this button confirms it.

Macro tokens

Token	Replaced by
<MYCALL>	Your callsign (selected operator).
<MYNAME> <MYQTH>	Your name and QTH.
<LOC> / <GRID>	Your locator, 6 / 4 characters.
<CALL>	The callsign in the QSO form.
<OPNAME>	His name, from the Name field.
<RST>	The report you give (RST TX).
<UTC> <DATE>	UTC time and date.
<SERIAL>	Progressive QSO number.
<CRLF>	New line.
<LOGIT>	Logs the QSO when the macro is sent (e.g. at the end of the 73 macro).

Default macros

Key	Label	Text
F1	CQ	<CRLF>CQ CQ DE <MYCALL> <MYCALL><CRLF>CQ CQ CQ DE <MYCALL> <MYCALL> <MYCALL> PSE K<CRLF>
F2	Call de MY	<CRLF><CALL> DE <MYCALL> <CRLF>
F3	Report	<CRLF><CALL> DE <MYCALL> TNX FER CALL<CRLF>UR RST <RST> <RST> <CRLF>NAME <MYNAME> <MYNAME><CRLF>QTH <MYQTH> <MYQTH> LOC <LOC> <CRLF>HW? <CALL> DE <MYCALL> KN<CRLF>
F4	73 SK	<CRLF><CALL> DE <MYCALL> TNX FER NICE QSO <OPNAME> 73 AND GOOD DX<CRLF><CALL> DE <MYCALL> SK<CRLF>
F5-F12	BTU, AGN?, QRZ?, XDE x2 (your call twice), 599 DX, CQ DX, RYRYR, TEST — edit them freely.	

15. Sending QSOs to another logger (UDP)

XDE-RTTY always keeps its own log and ADIF file. In addition it can send every logged QSO, over the network, to the logging program you normally use. Choose the format that your logger accepts.

Format	Usual port	What is sent
ADIF record	2333	One plain ADIF record per QSO. For loggers with an "ADIF over UDP" input.
N1MM+ contactinfo	12060	The N1MM Logger+ XML broadcast (<code><contactinfo></code>), accepted by many loggers and network tools. Live status: <code>RadioInfo</code> and <code>LookupInfo</code> .
WSJT-X	2237	The same messages WSJT-X sends when a QSO is logged, accepted by every logger that works with WSJT-X/JTDX. Live status: <code>Status</code> + <code>Heartbeat</code> .

Setting it up

1. In your logger enable the UDP input (ADIF, N1MM or WSJT-X, depending on what it supports) and note its port.
2. In XDE-RTTY, *Settings* → *QSO output*: tick **Send each QSO via UDP**, choose the same format, enter the address and the port.
3. Address: `127.0.0.1` if the logger runs on the same PC; the IP of the other PC (e.g. `192.168.1.20`) if it runs elsewhere on your network; a broadcast address (e.g. `192.168.1.255`) to reach every PC.
4. Press **Test**: a harmless packet is sent (an ADIF comment, an N1MM ApplInfo or a WSJT-X heartbeat — never a QSO). The result appears next to the button.
5. Log a QSO and check that it appears in your logger.

Live status

With **Also send live status** (WSJT-X or N1MM+ format) the logger is kept informed, before the QSO is logged, about frequency, mode, TX/RX state and the **callsign typed in the Call field** — so it can show previous QSOs, country and so on while you work the station. The frequency sent is the one XDE-RTTY logs (DIAL or MARK). Messages are sent on every change and refreshed every 15 seconds.

In **SPLIT UP** mode both frequencies go to your logger: `FREQ` (TX) and `FREQ_RX` (RX) in the ADIF and WSJT-X formats, `txfreq` and `rxfreq` in N1MM+ contactinfo.

Which format for my logger? Check its documentation for "UDP", "ADIF over UDP", "N1MM broadcast" or "WSJT-X integration". Loggers that integrate WSJT-X/JTDX generally accept the WSJT-X format; contest and network loggers often accept N1MM+.

16. Keyboard and mouse summary

Key	Function
F1 ... F12	Send macro.
Ctrl + F1 ... F12	Second macro row (if enabled).
Esc	Stop the transmission immediately (otherwise: clear the QSO form).
Ctrl + K / Alt + K	KEY window (free text).
Enter / Ctrl + Enter	Log the QSO (in the form / from anywhere).
Ctrl + W	Wipe the QSO form.
Ctrl + D (twice)	Delete the last QSO.
Ctrl + N	Note on the last QSO.
Ctrl + Q	Correct call/name of the last QSO.
Wheel, ← → on the waterfall	Tune 10 Hz (Shift 100 Hz, Alt 1 kHz).
PgUp / PgDn on the waterfall	Tune ±1 kHz.
Ctrl + + / - / 0	Enlarge / reduce / reset the interface.

Mouse	Function
Click on waterfall or spectrum	Set the mark.
Click on a callsign label / bandmap row	Load the call and tune onto the station. In SPLIT UP: move only the RX onto the station (TX stays on the dial).
Ctrl + click on a label / bandmap row	In SPLIT UP: real QSY onto the station.
Right-click on a label	Load the call without tuning (waterfall) / remove (bandmap).
Click on a call in the RX text	Load it into the QSO form.
Click on a word in the RX text	Copy it to Name, then QTH.
Click on a log cell	Edit it.

17. Troubleshooting

It does not connect to the radio

Check that the TCI server is enabled in ExpertSDR, that the port in the address is the same, and that ExpertSDR is running. If ExpertSDR runs on another PC, use that PC's IP address and allow the port in its firewall.

The waterfall frequencies do not match the radio

The DIGL offset in XDE-RTTY (Settings → Radio) is different from the one in ExpertSDR. Set both to 2125. The axis shows the offset in use. The ExpertSDR DIGU offset stays at 0: in SPLIT UP XDE-RTTY handles it.

I only receive garbage

Press **HAM**. Check shift and baud of the station (most amateur traffic: 170 Hz / 45.45 baud). Try **REV**. Tune so that both traces sit on the M and S markers (look at the tuning scope). Raise **SQ** if noise prints between signals.

Low or no output power

Check *TX level* (Settings → Transmit), the radio's DRIVE control and that TX audio over TCI is allowed in ExpertSDR. If the message *"The radio does not allow transmitting here"* appears, ExpertSDR does not allow TX on this band: check the band and its TX settings in ExpertSDR.

The waterfall is all blue or all red

Press **Auto dB** with a signal present, then adjust the N/P controls next to the waterfall.

The country file or SCP download fails

Download the file with your browser (bigcty-YYYYMMDD.zip from country-files.com, MASTER.SCP from supercheckpartial.com) and use *Load file....*

The antivirus deleted the installer

It is a false positive caused by the unsigned installer. Restore it from quarantine or use the MSI installer.

Where are my recordings?

In `Documents\XDE-RTTY Recordings\<date>\<band>\`, or in the folder chosen with **dest....** The **folder** button next to REC opens the last one. If the info file says "I/Q: no stream received", the radio did not send the I/Q stream over TCI: the WAV is recorded anyway.

The update does not install

Allow Windows to run the installer when it asks for permission. If it still fails, download the MSI from the web site and install it by hand: settings and logs are kept.

Linux: reporting a problem

The Linux version is beta. Start the program from a terminal with `RUST_LOG=debug xde-rtty` (or with the AppImage), reproduce the problem and send the lines it prints, with the name of your distribution.

Where is my log?

In the program (Log panel) and, as ADIF, in `Documents\XDE-RTTY\`.

18. Version history

Version	Main changes
2.1.0	New TX delay : a short silence after PTT before any RF, so the radio and the amplifier are already in TX. Updated to the TCI 2.1 protocol: a clear message if the radio does not allow transmitting on a band. REC: RX audio saved as MP3 (about 8 times smaller); I/Q stays WAV.
2.0.9	SPLIT UP: the radio's DIGU offset is set by itself and restored afterwards — the same ExpertSDR setup works for RTTY and for FT8/FT4. TCI address preset (ws://127.0.0.1:50001). Also available for Linux (beta). New pictures in the manual.
2.0.8	New CALL DATABASE UPDATE: more stations recognised on the waterfall and the bandmap, fewer false calls; kept up to date automatically.
2.0.7	New noise blanker (NB) and automatic notch (NOTCH) in the RX panel: better copy with static crashes and with carriers near the signal.
2.0.6	Improved STANDARD decoder in noise and fading. Faster AFC: a caller slightly off frequency is copied at once. Reports and numbers copied correctly more often. Larger frequency in the QSO window and beside the dial line.
2.0.5	Bandmap and waterfall: improved choice of the stations shown — on each signal, the station that holds the frequency.
2.0.3	Bandmap and waterfall: improved recognition of the station on each signal. SPLIT UP 12.5K: waterfall and spectrum show the whole window.
2.0.2	Improved QSO sending over UDP in WSJT-X format: QSOs are logged by WSJT-X compatible loggers, with QTH and note in their own fields.
2.0.1	More stations on the waterfall and the bandmap (improved multi-decoder). SPLIT UP 12.5K replaces 15K/20K, which the radio does not allow; the span follows the filter the radio really sets. Date of the SCP file in Settings. New pictures.
2.0.0	New RX decoder layout: STANDARD and DX NOISE FILTER always open side by side at equal width, SIMPLEX filters on the left, SPLIT UP filters on the right, vertical squelch between the windows, one grip for the height of both. Default layout optimised for 1920×1080 with the bandmap at the right (<i>Settings</i> → <i>Default layout</i>). Telegram channel for news.
1.9.9	SPLIT UP: new 15K and 20K windows, starting 0.5 kHz below the dial; the multi-decoder follows more stations. Filter and span back to the default after a band change on the radio. Updates install without a console window.
1.9.8	General code optimisation; manuals updated.
1.9.7	Bandmap: more stations shown, calls not yet in the SCP database in light blue. Loc (WW locator) field in the QSO form and the log. Narrower Call field. REC shows "SAVED" at the end.
1.9.6	Improved receiver (standard decoder and multi-decoder). Improved squelch, AUTO button next to SQ.
1.9.5	REC : receive-only recordings of 1–10 minutes — RX audio (WAV), the text of both RX windows, an info file and optionally the radio's I/Q — in sub-folders by date and band, destination folder selectable. Bandmap: uncertain calls in light blue (the one SCP call a character away from what was read).
1.9.4	Automatic update : new versions found on www.xdenews.net , downloaded, checked and installed; WHATS-NEW.txt opens after the update; <i>Check for new release</i> in Settings.

1.9.0 – 1.9.3	DX NOISE FILTER: second decoder for weak and fading signals, with STANDARD DECODER / DX NOISE FILTER buttons (standard, both, DX). Improved standard decoder. US FIGS layout (apostrophe). Own callsign never spotted. "Filter noise" renamed FILTER.
1.8.9	No more truncated callsigns on the bandmap and the waterfall (DL7A / DL7AU instead of DL7AUO): calls are taken only when complete, and on the same signal the full call replaces its pieces. TCI 2.0, ExpertSDR3 v1.3.2 or later.
1.8.6 – 1.8.8	Automatic SPLIT UP MODE for DX EXPEDITION with Multi Decoder: filters in two groups, SIMPLEX (250–600 Hz) and SPLIT UP (3K–10K, receive above the dial in DIGU, span tied to the filter); click a caller to move only the RX; FREQ + FREQ_RX logged and sent via UDP; multi-decoder spotting more reliable on wide windows, main-decoder calls on the bandmap too, MULTI n indicator.
1.8.4	CLEAR CALL button; worked stations shown in red in the bandmap; QSY from bandmap/spots keeps the VFO centred on the radio panorama.
1.8.3	Side level controls (N/P) for spectrum and waterfall; resizable spectrum + waterfall panel.
1.8	Spectrum above the waterfall, SDR-style colours, higher resolution (5.9 / 2.9 Hz), movable divider; TX ON opens the KEY window; UDP live status (WSJT-X Status, N1MM+ RadiInfo/LookupInfo).
1.7	DIGL offset support (read from the radio or set in Settings); waterfall centred on the dial with frequencies increasing left to right, as on the radio.
1.6	New layout and colours; tuning scope beside the waterfall; RX filters 250 Hz – 4 kHz centred on the station.
1.4	Radio RX filter and AGC from the program; adjustable TX level; second row of F-keys (Ctrl+F1...F12); font size buttons.
1.3	Separate bandmap (skimmer) window; option to accept all valid callsigns; window size and position remembered.
1.2	UDP output in N1MM+ and WSJT-X formats; more robust country file download.
1.1	Multiple operator profiles; BIG CTY download; automatic ADIF file; UDP output (ADIF).
1.0	First release: RTTY terminal for TCI radios with general QSO log, 12 F-keys, TX ON/OFF, 450 Hz shift, DIAL/MARK logged frequency.

19. Licence

XDE-RTTY is freeware for ham radio use: it is free of charge for radio amateurs and may be freely copied and shared.

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Website, updates and this manual: www.xdenews.net/xdertty/

73 de **IK2XDE Andrea**