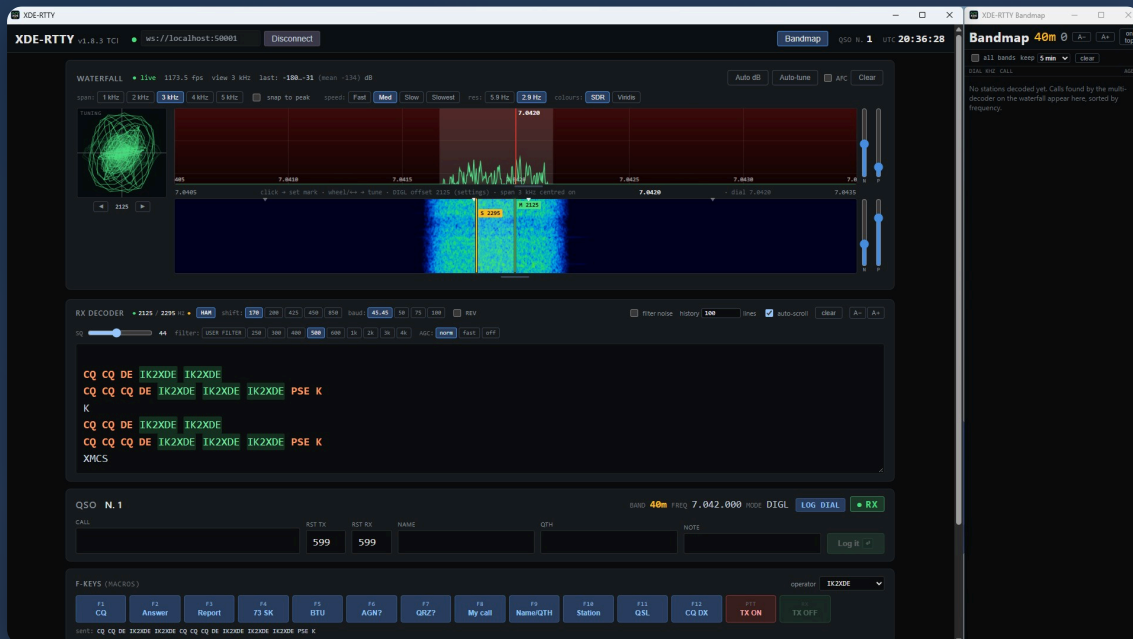




XDE-RTTY

RTTY terminal and QSO log for TCI radios

Version 1.8.3 · User Manual



FREEWARE FOR HAM RADIO USE

by IK2XDE Andrea · www.xdenews.net/xdertty/

Contents

Click a chapter to jump to it.

1. Introduction and requirements
2. Installation
3. Setting up the radio (ExpertSDR / TCI)
4. Quick start: your first QSO
5. The main window
6. Spectrum and waterfall
7. RX decoder
8. QSO entry
9. F-keys, transmission and the KEY window
10. The log
11. The bandmap (skimmer)
12. Settings
13. Sending QSOs to another logger (UDP)
14. Keyboard and mouse summary
15. Troubleshooting
16. Version history
17. Licence

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 ExpertSDR. 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

- 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).
- Country lookup (BIG CTY), callsign suggestions (Super Check Partial).

Requirements

Item	Requirement
Operating system	Windows 10 or 11. 64-bit (x64) and 32-bit (x86) installers are available.
Web runtime	Microsoft Edge WebView2 (already present on up-to-date Windows 10/11; the installer fetches it if missing).
Radio	A transceiver or SDR software with a TCI server (e.g. SunSDR with ExpertSDR2/ExpertSDR3). TCI protocol 1.9/2.0.
Internet	Optional: only to download the country file (BIG CTY) and the SCP callsign database.

2. Installation

1. Download the installer for your Windows: `XDE-RTTY_1.8.3_x64_en-US.msi` (64-bit, recommended) or `XDE-RTTY_1.8.3_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.

Updating and uninstalling

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.

Where your data is kept

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

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

In ExpertSDR open the TCI settings, enable the TCI server and note its port (for example `40001` or `50001`). XDE-RTTY connects to `ws://localhost:<port>` when it runs on the same PC as ExpertSDR, or to `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 The DIGL offset — important

XDE-RTTY works in AFSK on lower sideband (**DIGL**). In DIGL, ExpertSDR lets you set an **offset**: 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) the recommended value is:

DIGL offset = 2125 Hz. The radio display then 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.

Set the **same value** in XDE-RTTY, in *Settings* → *Radio* (see chapter 12). XDE-RTTY tries to read the offset from the radio; if the radio does not report it, it uses the value written in the settings. 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 offset in ExpertSDR and the one in XDE-RTTY differ. Make them equal.

3.3 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.

3.4 Receive filter and AGC

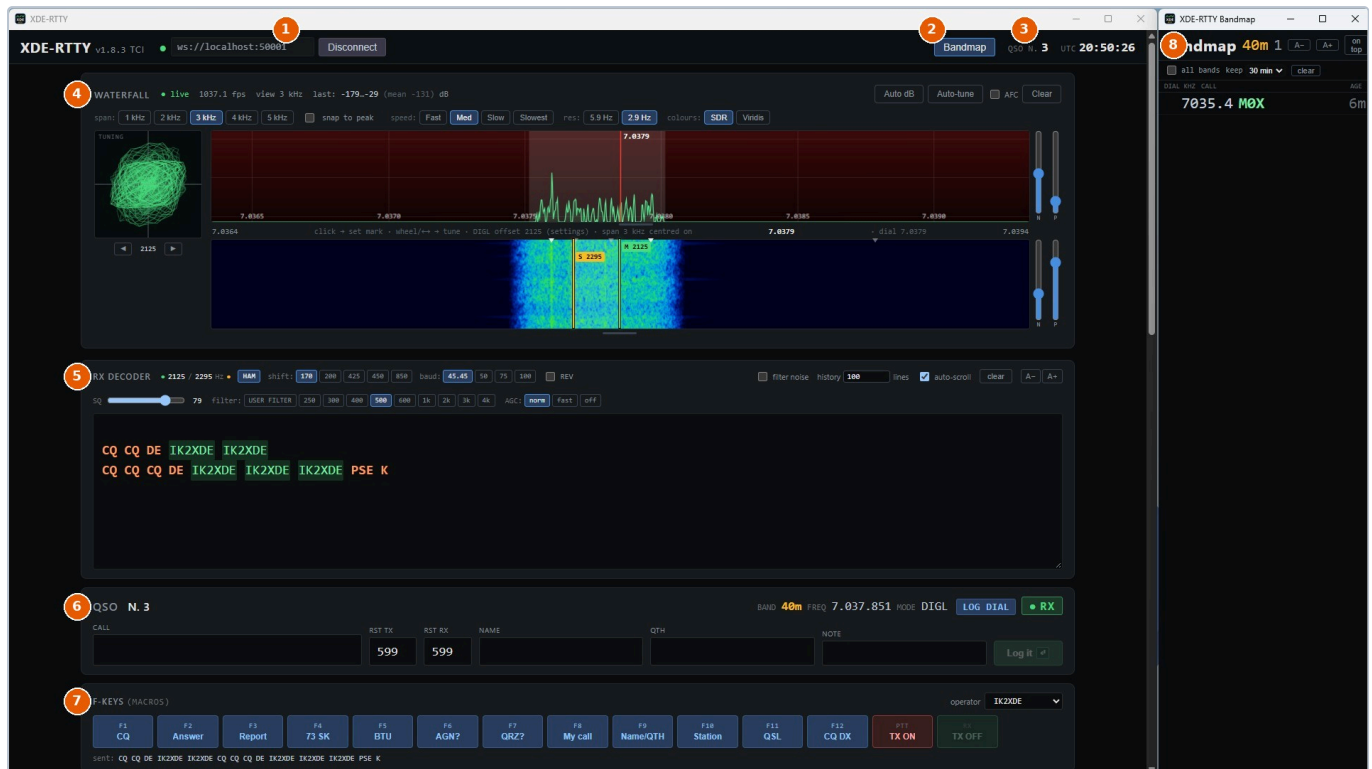
The RX filter and AGC of the radio can be controlled directly from XDE-RTTY (chapter 7). **USER FILTER** restores the filter you set yourself in ExpertSDR.

4. Quick start: your first QSO

1. Start ExpertSDR, enable TCI and set the DIGL offset to **2125** (chapter 3).
2. Start XDE-RTTY. In the header type the TCI address (e.g. `ws://localhost:50001`) and 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 11).
- 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 8).
- 7 **F-keys** and TX ON/TX OFF (chapter 9). 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.

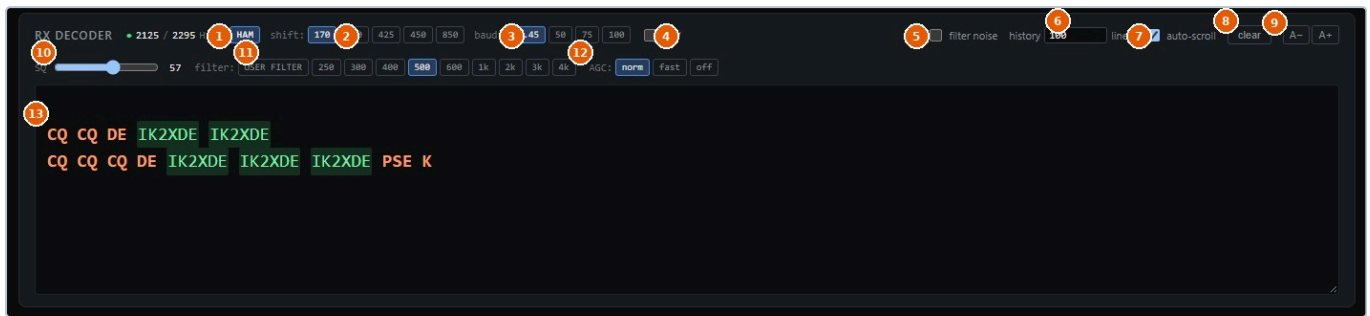
- 1 **Span:** width of the displayed band, 1–5 kHz, always centred on the radio dial.
- 2 **Snap to peak:** a click on the waterfall moves to the strongest signal within ± 150 Hz. Off = the click goes exactly where you click.
- 3 **Speed:** waterfall scroll speed (Fast, Med, Slow, Slower). Slower speeds 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 a few Hz off (± 15 Hz around your TX mark); 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.
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.

- 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 noise:** 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 (squellch):** how clean a signal must be before it is printed. 0 = everything, noise included. Raise it until the noise between signals stops printing.
- 11 **Filter:** radio RX filter set over TCI — 250, 300, 400, 500, 600 Hz, 1–4 kHz, centred on the mark/space pair and following it. **USER FILTER** = the filter set in ExpertSDR. Narrow filters (250–500) for a single QSO; wide ones (1k–4k) let the multi-decoder and the bandmap see the stations around you.
- 12 **AGC** of the radio: norm, fast, off. With AGC off a gain field appears (–20...120 dB).
- 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** (name, QTH) to copy it to the form: the first word goes to Name, the next to QTH.

8. QSO entry

QSO N. 3

BAND 40m FREQ 7.049.717 MODE DIG 7 LOG DIAL 8 RX 9

1 CALL DL0AT 2 RST TX 599 3 RST RX 599 4 NAME 5 QTH 6 NOTE 7 Log it

F-KEYS (MACROS)

10 F1 CQ F2 Answer F3 Report F4 73 SK F5 BTU F6 AGN? F7 QRZ? F8 My call F9 Name/QTH F10 Station F11 QSL F12 CQ DX 11 TX ON 12 TX OFF 13 operator IK2XDE

LOG (3) IK2XDE New log Logs...

ADIF: C:\Users\LOG\Documents\XDE-RTTY\IK2XDE.adf

#	DATE	UTC	CALL	BAND	FREQ	RST TX	RST RX	NAME	QTH	NOTE	OP
3	2026-10-12	20:39	IQ2LZ	40m	7.049.717	599	599	ARI SEZ. LOMAZZO	LOMAZZO	IK2XDE	x
2	2026-10-12	20:38	K1TTT	40m	7.042.000	599	599	DAVID	PERU	IK2XDE	x
1	2026-10-12	17:47	DA125RH	40m	7.045.389	599	599			IK2XDE	x

QSO form and F-keys.

- 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.**
- 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 x n = 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

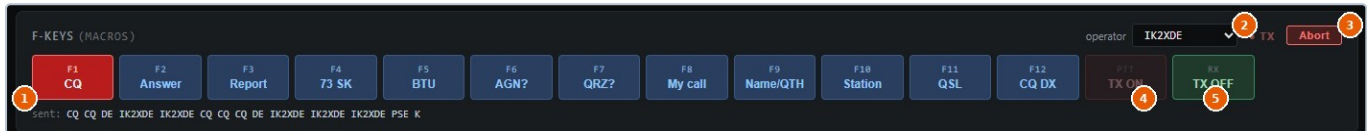
Key	Function
Enter	Log the QSO (or QSY if a frequency is typed in Call).
Ctrl + Enter	Log the QSO from anywhere in the program.
Tab / Shift + Tab	Next / previous field.

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).

9. 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.

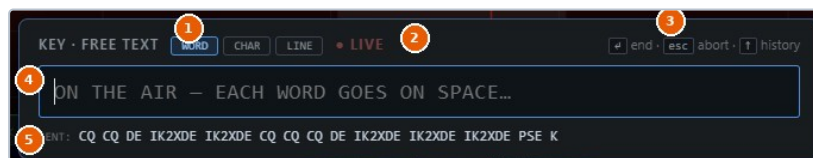


During a transmission.

- 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)

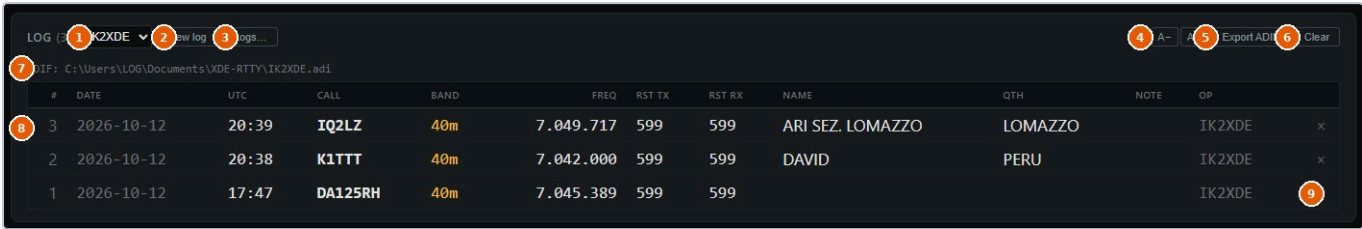


KEY window — open with Ctrl+K or TX ON.

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.

10. The log



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.

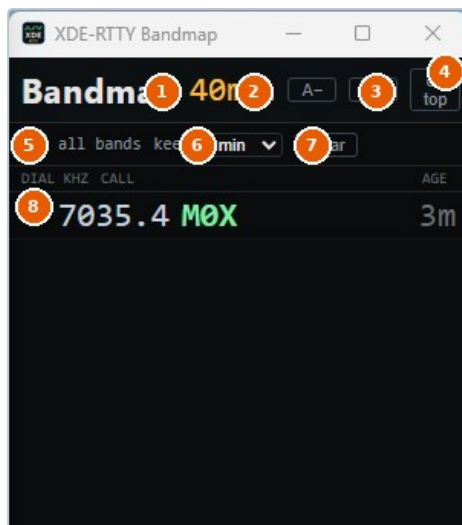
Quick edits from the keyboard

- **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, 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.

11. The bandmap (skimmer)



Bandmap window.

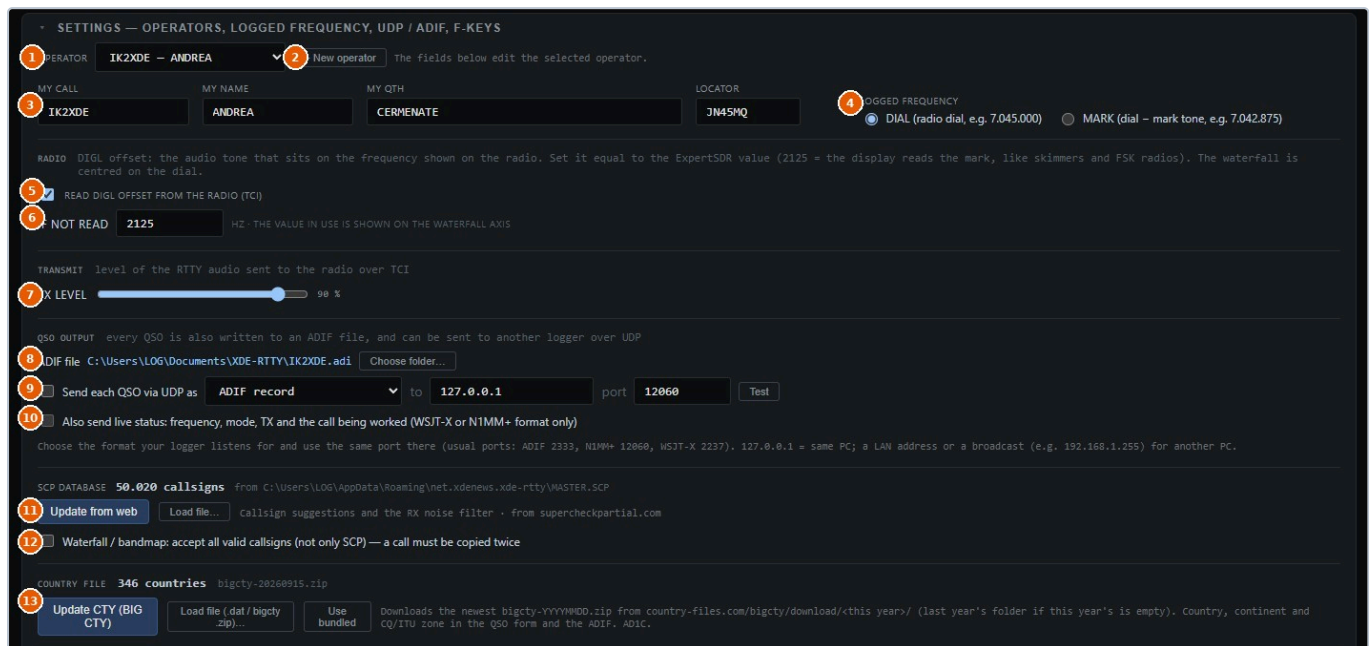
The multi-channel decoder listens to the whole passband of the radio: every callsign it copies reliably appears in the bandmap, sorted by frequency. Use a wide RX filter (2k–4k) and a matching span to see more stations.

- 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. **Right-click** = remove from the list. Stations are removed automatically once you log them on that band; calls in yellow have been worked on another band.

By default only callsigns present in the SCP database are listed. To accept every valid callsign (copied at least twice), enable the option in *Settings* → *SCP database*.

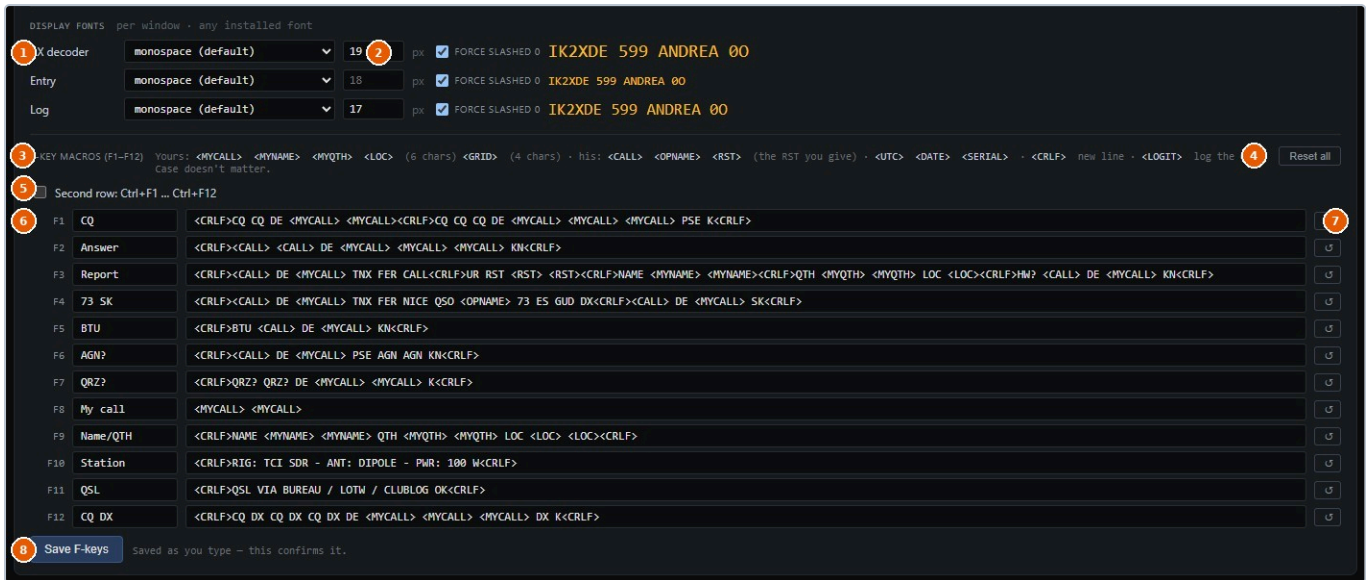
12. Settings

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, radio, transmit, QSO output, databases.

- 1 Operator:** choose the operator profile. Each profile has its own call, name, QTH and locator; the operator is written in every QSO (OPERATOR field).
- 2 + New operator:** adds a profile (useful for club stations or family members).
- 3 My call, My name, My QTH, Locator** of the selected operator, used by the macros.
- 4 Logged frequency:** DIAL or MARK (same as the button in the QSO form).
- 5 Read DIGL offset from the radio (TCI):** when on, the offset reported by the radio is used.
- 6 DIGL offset (Hz)** used when the radio does not report it — or always, if 5 is off. Set it to the value of ExpertSDR: 2125.
- 7 TX level:** level of the RTTY audio sent to the radio (10–100%). 100% = full drive; set the power on the radio.
- 8 ADIF file:** folder of the automatic ADIF copy (*Choose folder...*; Default = Documents\XDE-RTTY).
- 9 Send each QSO via UDP:** format, address and port, **Test** button (chapter 13).
- 10 Also send live status:** frequency, mode, TX state and the callsign being worked, before the QSO is logged (WSJT-X and N1MM+ formats).
- 11 SCP database:** *Update from web* (supercheckpartial.com) or *Load file...* (MASTER.SCP). Used for suggestions, the noise filter and the bandmap.
- 12 Accept all valid callsigns** on waterfall and bandmap (not only SCP ones); a call must be copied twice.
- 13 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* returns to the built-in file.



Settings — fonts and F-key macros.

- 1 **Display fonts** for the RX decoder, the QSO entry and the log: any installed font.
- 2 Size in pixels and **Force slashed 0** (zero with a slash, to tell 0 from O).
- 3 List of the **macro tokens** (table below). Upper/lower case does not matter.
- 4 **Reset all**: restores the default macros.
- 5 **Second row**: enables Ctrl+F1...Ctrl+F12.
- 6 Each key: **label** (shown on the button) and **text** to send.
- 7 ↺ restores the default of that key.
- 8 **Save F-keys**: macros are saved as you type; this 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 (example)
F1	CQ	<CRLF>CQ CQ DE <MYCALL> <MYCALL><CRLF>CQ CQ CQ DE <MYCALL> <MYCALL> <MYCALL> PSE K<CRLF>
F2	Answer	<CALL> <CALL> DE <MYCALL> <MYCALL> <MYCALL> KN
F3	Report	<CALL> DE <MYCALL> TNX FER CALL / UR RST <RST> <RST> / NAME ... / QTH ... LOC <LOC> / HW? <CALL> DE <MYCALL> KN
F4	73 SK	<CALL> DE <MYCALL> TNX FER NICE QSO <OPNAME> 73 ES GUD DX ... SK
F5-F12	BTU, AGN?, QRZ?, My call, Name/QTH, Station, QSL, CQ DX — edit them freely.	

13. 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 Logged ADIF	2237	The WSJT-X binary message, 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.

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+.

14. 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.
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.

15. 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.

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.

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 is my log?

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

16. Version history

Version	Main changes
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+ RadiolInfo/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.

17. 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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XDE-RTTY contains open-source code (the RTTY engine) distributed under the MIT licence, whose notice is reproduced here and installed with the program:

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

73 de **IK2XDE Andrea**