HAM DX Alert v2.0

User Guide

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What is HAM DX Alert?

HAM DX Alert v2.0 is a real-time DX monitoring tool for amateur radio operators that tracks DX spots from two sources: **DX Cluster telnet connections** and **WSJT-X / JTDX UDP decodes** (FT8, FT4, and other digital modes). The program runs as a standalone Windows application (.exe) and opens a dashboard in your web browser. Key features include: alert system for new DXCC entities, continents, CQ/ITU zones, grids, and callsigns; LoTW and eQSL user verification; PSK Reporter integration; solar data; world map with spots; bidirectional WSJT-X / JTDX control via UDP (Reply, Halt TX, Free Text); ADIF import/export of worked log; and remote access via LAN or internet with PIN protection.

Installation and First Run

1. **Extract the ZIP archive** to a folder of your choice (e.g. `C:\HAM_DX_Alert\`).
2. **Run `HAM_DX_Alert.exe`** by double-clicking it.
3. **On first run,** a setup window will appear asking for your callsign and grid locator. The program then automatically downloads the CTY.DAT, LoTW, and eQSL databases.
4. **Your web browser opens automatically** at `http://localhost:5000` — this is your dashboard.

Note: *Windows Defender or your firewall may ask for network access permission on first launch — allow access for the program to work correctly.*

Main Features

1. DX Cluster

Connect to DX Cluster telnet servers (VE7CC, W3LPL, ON0DXK, and others). Click **Connect** to join or **Disconnect** to leave. You can select a different cluster or add your own in Settings. Spots are displayed in a table with callsign, frequency, DXCC entity, band, LoTW/eQSL status, and comment.

2. WSJT-X / JTDX Integration (Bidirectional UDP)

HAM DX Alert communicates bidirectionally with WSJT-X / JTDX via UDP protocol. The program **receives** all decodes in real time (FT8, FT4, JT65, JT9, MSK144, Q65, FST4...) and displays them in the **Source Decodes** table with SNR, delta frequency, message, DXCC entity, and other data. At the same time, the program can **send commands back** to WSJT-X / JTDX:

Command	Description
Reply	Calls the selected station — WSJT-X / JTDX automatically starts the calling sequence
Halt TX	Stops transmission (TX) in WSJT-X / JTDX
Free Text	Sends free text (up to 13 characters) to WSJT-X / JTDX

💡 **Key feature — one-click calling from the Alert table:** When a new alert appears in the **Source Alerts** table (e.g. new DXCC, new continent, new callsign...), you can **click directly on the callsign in the table** and the program will immediately send a Reply command to WSJT-X / JTDX. This means WSJT-X / JTDX automatically begins calling that station — **no need to**

manually switch windows or search for the station in WSJT-X. Simply click the alert and your radio starts calling!

3. Alert System

The program automatically checks every Cluster spot and every WSJT-X / JTDX decode, alerting you with sound and row highlighting when something new is detected. You can enable/disable filters in the Alerts menu:

Filter	Description
New DXCC	A new DXCC entity you haven't worked yet
New Continent	A new continent (AF, AS, EU, NA, SA, OC)
New CQ Zone	A new CQ zone (1–40)
New ITU Zone	A new ITU zone (1–90)
New Grid	A new grid locator
New Call	A callsign you haven't worked yet

Alerts trigger only on CQ calls — the program will not alert on QSOs in progress. All alerts are logged in **Alert History** which is preserved between program restarts.

Typical workflow: WSJT-X / JTDX decodes a CQ call → HAM DX Alert detects it's a new DXCC (or new grid, zone...) → alert sound plays and the row in the **Source Alerts** table is highlighted → you click on the callsign → the program sends a Reply command to WSJT-X / JTDX → your radio automatically starts calling that station.

4. Worked Log

The program automatically logs QSOs that WSJT-X / JTDX records via the UDP connection. You can also manually import an ADIF file from your logging program (Log4OM, N1MM+, TQSL...) by clicking **Import ADIF** in Settings. The worked log feeds the alert system — the program knows what you've already worked and only alerts on new items. Statistics are shown in the 📈 **Stats** panel (DXCC, grids, zones, continents, callsigns). Export to ADIF format is also available.

5. World Map

The map displays spots from DX Cluster and WSJT-X / JTDX decodes with markers at DX station locations. You can zoom, pan, and see propagation lines from your QTH to the DX station.

6. PSK Reporter

Fetches reports from PSK Reporter for your callsign or any other. Shows who hears you (sender mode) or who you hear (receiver mode) over the last hour, with distances in kilometers.

7. Solar Data

Automatically fetches solar data from hamqsl.com: Solar Flux, Sunspots, A/K index, X-ray, band conditions (80m–10m for day/night), and VHF phenomena. Data refreshes every hour.

8. Callsign Lookup

Click any callsign in the table to view details via HamQTH.com (requires a free account, credentials entered in Settings) and callook.info for US callsigns. Displays name, QTH, country, grid, LoTW/eQSL status.

9. LoTW / eQSL Verification

The program downloads lists of active LoTW and eQSL users and marks in the tables which callsigns use these confirmation systems. Databases can be updated in Settings → Update tab.

10. Remote Access

In Settings, enable **Remote Access** and set a PIN for protection. The program will then accept connections from other devices on your network, so you can access it from a phone or another computer on LAN. You can also set a DDNS hostname for internet access (port forwarding required on your router).

Settings

Open the Settings panel by clicking the gear icon in the dashboard. Main settings:

Setting	Description
Callsign / Grid	Your callsign and grid locator (required for the program to work)
Cluster Host/Port	DX Cluster server address (default: ve7cc.net:23)
WSJT UDP Port	Port where WSJT-X / JTDX sends UDP data (default: 2237)
HamQTH User/Pass	Login credentials for HamQTH.com callsign lookup
Alert Sound	Enable/disable alert sounds for Cluster and WSJT-X/JTDX
Remote Access	Allow access from other devices + PIN protection
Web Port	Port for the web interface (default: 5000)
DDNS Host	Your DDNS hostname for access outside your LAN

Configuring WSJT-X / JTDX

For HAM DX Alert to receive decodes and send commands (Reply, Halt TX, Free Text), you need to configure UDP correctly in WSJT-X or JTDX:

WSJT-X

- Open **File** → **Settings** → **Reporting**
- Set **UDP Server: 127.0.0.1** (or **239.255.0.0** for multicast — see note below)
- Set **UDP Port: 2237** (must match the port in HAM DX Alert Settings)
- Check **Accept UDP requests** — **required!** Without this, Reply from HAM DX Alert will not work
- Check **Enable logged contact ADIF broadcast** — for automatic QSO logging to the Worked Log

JTDX

- Open **Settings** → **Misc** → **UDP Server**
- Enable the UDP server and set the same port (2237)
- Enable accepting UDP requests for control from HAM DX Alert

Multicast — Running Multiple Programs Simultaneously

If you use other programs alongside HAM DX Alert that also receive UDP from WSJT-X / JTDX (e.g. **HRD Logbook, JTAlert, GridTracker**), you need to enable multicast so that all programs receive the same packets instead of competing for them:

- In WSJT-X, set **UDP Server: 239.255.0.0** (instead of 127.0.0.1)

- **Outgoing interfaces**: select your network adapter (Ethernet or Wi-Fi) — **do not use loopback_0**
- Port remains the same (2237) for all programs

Note: *If you are using HAM DX Alert alone without other programs, the standard setting 127.0.0.1 is sufficient. Multicast is only needed when multiple programs need to receive UDP data at the same time.*

File Structure

All files must remain in the same folder as the .exe program:

File / Folder	Description
HAM_DX_Alert.exe	Main program — launch by double-clicking
dashboard.html	Web interface (opens automatically in your browser)
data/settings.json	Program settings (created automatically)
data/worked_log.json	Worked log (worked DXCC, grids, zones...)
data/alert_log.json	Alert history
data/cty.dat	DXCC database (downloaded automatically)
data/lotw_users.txt	Active LoTW users list
data/eqsl_users.txt	Active eQSL users list
data/clusters.json	DX Cluster server list
data/layout.json	Saved dashboard panel layout
sounds/	Alert sounds (generated automatically)

Tips

- **Import ADIF:** Before you start using the program, import your existing log from e.g. Log4OM, N1MM+, or TQSL. This way the alert system will know what you've already worked and will only alert on new entities.
- **Update databases regularly:** In Settings → Update tab, periodically refresh the CTY, LoTW, and eQSL databases (once a month is enough).
- **Phone as a second screen:** Enable Remote Access and open the dashboard on your phone in a browser — you get an overview of spots and decodes while operating your radio.
- **HamQTH account:** Register for free at hamqth.com and enter your credentials in Settings for detailed callsign lookups with name, QTH, grid, etc.
- **Firewall:** If Windows Firewall blocks the program, add HAM_DX_Alert.exe to the firewall exceptions for your private network.

Troubleshooting

Problem	Solution
WSJT-X / JTDX decodes not showing	Verify that the UDP port is the same in both programs and that "Accept UDP requests" is enabled in WSJT-X / JTDX.
Reply not working	WSJT-X / JTDX must have "Accept UDP requests" enabled. The program sends replies to the same address from which WSJT-X / JTDX sends data.
Cluster won't connect	Check your internet connection and make sure you have entered your callsign. Try a different cluster server.
No alert sounds	Make sure Alert Sound is enabled in Settings. Sound works on Windows systems.

Port 5000 is in use	Change the Web Port in Settings to e.g. 5001 or 8080 and restart the program.
Can't access from phone	Enable Remote Access in Settings. Use the LAN IP address of your computer (shown in the console at startup).
Windows Defender blocks the program	Click "More info" → "Run anyway" or add an exception in Windows Defender.

Supported Digital Modes

The program recognizes and correctly displays the following digital modes from WSJT-X / JTDX: **FT8, FT4, JT65, JT9, MSK144, WSPR, Q65, FST4, FST4W**. The mode is automatically detected from UDP packets, and the alert system works equally for all modes.

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