

AUTOMATIC FT8 OPERATING COMPANION

Hamilton Auto FT8

Setup guide . Windows release 1.0.62

Hear, call, exchange, complete, log automatically. Hamilton runs the full FT8 contact sequence inside WSJT-X, JTDX, or MSHV. This guide walks you through download, installation, engine configuration, the first contact, and every setting you can tune. About ten minutes from start to finish.

IMPORTANT . READ BEFORE OPERATING

Automation is allowed. Unattended operation is not. Hamilton Auto FT8 automates the FT8 contact sequence it does not remove your duty as control operator. United States amateur regulations require a control operator to be present at the station during transmissions, except in narrowly-defined automatic-control situations that do not apply to FT8 operation on the customary calling frequencies.

Think of Hamilton like autopilot, not auto-driver. Stay at the radio while it runs. Be ready to stop transmitting immediately if any regulatory issue occurs.

U.S. licensees: 47 CFR 97.109 (station control) . 97.213 (telecommand of an amateur station). Other countries: consult your national radio regulator.

WHAT HAMILTON DOES EVERY FT8 CYCLE

| | |
|--------------------|---|
| 01 HEAR | Picks the next callable station from your engine's decodes |
| 02 CALL | Tells your engine to reply: "THEIRCALL YOURCALL YOURGRID" |
| 03 EXCHANGE | Continues the standard exchange (signal report then R+report) |
| 04 CONFIRM | Sends 73 when the other station acknowledges, closes the QSO |
| 05 LOG | Auto-closes the Log QSO dialog so you don't have to click |

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01 . ABOUT 2 MINUTES

Download and install Hamilton

Get the installer from autoft8.com, run it, and Hamilton's window will open. We'll configure your engine before clicking Start.

From autoft8.com, click the green **Download Now** button. You'll get an installer called `Hamilton_Auto_FT8_Setup_1.0.62.exe`. Double-click it.

WINDOWS MAY WARN YOU ABOUT THE INSTALLER THIS IS NORMAL

Because Hamilton is a small independent project, Windows hasn't yet learned that it's safe. You may see a blue screen that says "**Windows protected your PC**".

Click the small **More info** link, then click the **Run anyway** button. This warning shows for every new program from a small publisher.

The installer is straightforward: click **Next**, accept the license, click **Install**. When it finishes, leave **Launch Hamilton Auto FT8** ticked and click **Finish**.

Hamilton's window will open. Leave it open but **do not click Start yet**. We need to configure your FT8 engine first.

02 . REFERENCE

Pick your FT8 engine

Hamilton works with three Qt-based FT8 engines. Pick whichever you already use; Hamilton detects automatically and adapts its labels. Sections 03, 04, and 05 walk you through each engine's configuration.

| ENGINE | WHO IT'S FOR | NOTES |
|---------------|---|---|
| WSJT-X | Most operators the original from K1JT et al. The default choice. | Fewest moving parts, broadest community. |
| JTDX | DXers and contesters JTDX has a sharper decoder and contest mode. | Auto Seq checkbox must be ON. See Section 04. |
| MSHV | Multi-stream operators who want simultaneous QSOs. | Different protocol quirks; Hamilton translates UDP automatically. |

HOW HAMILTON SUPPORTS MULTIPLE ENGINES

Hamilton uses a UDP proxy that sits between your engine and its internal contact manager. When JTDX or MSHV is running, Hamilton translates their UDP identifier strings so the contact manager (originally built for WSJT-X) accepts the packets. You don't see any of this it just works. The activity feed will display `Translating UDP id: 'JTDX' to 'WSJT-X'` as confirmation.

03 . ABOUT 2 MINUTES

Configure WSJT-X for Hamilton

WSJT-X has to be told to accept UDP commands from Hamilton. One critical checkbox.

Open WSJT-X. From the top menu click **File** then **Settings** (or press F2). Click the **Reporting** tab.

MATCH THESE SETTINGS EXACTLY

| | |
|--|------------------------------------|
| UDP Server | 127.0.0.1 |
| UDP Server port number | 2237 |
| Accept UDP requests | CHECK THIS the critical one |
| Notify on accepted UDP request | CHECK THIS |
| Accepted UDP request restarts decoding | recommended (optional) |

WITHOUT "ACCEPT UDP REQUESTS" CHECKED, HAMILTON CANNOT WORK

This is what lets Hamilton tell WSJT-X who to call and when to transmit. If you skip this checkbox, Hamilton will start and look fine but it will never make a contact. It's the most common reason for support emails. Check it.

ALSO CONFIRM ON THE GENERAL TAB

On the **General** tab, confirm your callsign and grid square are correct. Hamilton reads these from WSJT-X automatically.

AUTO SEQ KEEP IT CHECKED

On WSJT-X's main window (not Settings), the **Auto Seq** checkbox at the bottom must be checked. This is what tells WSJT-X to advance through the QSO sequence (signal report to RR73 to 73) automatically.

Click **OK** at the bottom of Settings, then **restart WSJT-X completely**. These settings don't take effect until WSJT-X is restarted.

04 . ABOUT 2 MINUTES

Configure JTDX for Hamilton

JTDX has a few more checkboxes than WSJT-X and a couple are easy to miss. Get these right and JTDX behaves identically under Hamilton.

Open JTDX. From the top menu click **File** then **Settings**. Click the **Reporting** tab.

REPORTING TAB

| | |
|--------------------------------|----------------------------------|
| UDP Server | 127.0.0.1 |
| UDP Server port | 2237 |
| Accept UDP requests | CHECK THIS same as WSJT-X |
| Notify on accepted UDP request | CHECK THIS |

BEHAVIOR TAB WHERE JTDX DIFFERS FROM WSJT-X

| | |
|---|---|
| Auto Sequencing | Set to mode 3 (Call based on end of decoding) |
| RR73 to log | CHECK THIS (closes the QSO and triggers logging) |
| Decode all signals in receive bandwidth | CHECK THIS |
| Tx watchdog | Leave default or raise to 5+ minutes |

THE AUTO SEQ CHECKBOX JTDX HAS TWO, BOTH MATTER

JTDX has TWO Auto Seq controls and BOTH must be active. WSJT-X has only one.

1. Behavior tab "Auto Sequencing" dropdown (mode 3 = the right value). This sets the BEHAVIOR but doesn't switch sequencing on by itself.

2. The "Auto Seq" checkbox at the bottom of the JTDX main window (not in Settings on the main UI itself). This is the master ON switch.

If you set mode 3 in Settings but leave the main-window checkbox unchecked, JTDX accepts the initial call but gets stuck on message 1 and never advances. This is the #1 JTDX support question.

MAIN WINDOW CHECKBOXES (BOTTOM ROW)

| | |
|----------|---|
| Auto Seq | CHECKED master ON switch (read the box above) |
| Call 1st | unchecked when checked, conflicts with Hamilton filters |

Hold Tx Freq

Your preference (doesn't affect Hamilton)

Tx even/1st

Your preference (controls TX time slot)

Click **OK** and **restart JTDX completely**. Same rule as WSJT-X Reporting settings only take effect after a restart.

05 . ABOUT 2 MINUTES

Configure MSHV for Hamilton

MSHV's settings interface uses different terminology than WSJT-X / JTDX but the underlying protocol is the same. Hamilton's UDP proxy handles the translation. You just need to enable the UDP server.

Open MSHV. From the top menu click **Options** then **Settings** (the menu structure varies slightly by MSHV version). Look for the **Reporting** or **UDP** section.

UDP SETTINGS

| | |
|---------------------|-------------------|
| UDP Server | 127.0.0.1 |
| UDP Server port | 2237 |
| Enable UDP server | CHECK THIS |
| Accept UDP requests | CHECK THIS |

Confirm your callsign and grid are set correctly on the **Station** page. Restart MSHV after saving these settings.

MSHV MULTI-STREAM IS NOT YET SUPPORTED

Hamilton treats MSHV as a single-stream engine even if MSHV is configured for multiple simultaneous QSOs. Multi-stream coordination is a planned future feature. For now, run MSHV in single-stream mode for the cleanest behavior.

06 . ABOUT 1 MINUTE

Start everything in the right order

Order matters the first time. After that, it's the same routine every session.

THE TWO-STEP STARTUP

First, start your FT8 engine (WSJT-X, JTDX, or MSHV) and make sure your radio is connected. Two things must be working before Hamilton can do anything:

- **You can see decodes** filling the band activity panel every 15 seconds. If not, fix your audio chain first Hamilton can't make contacts on a band you can't hear.
- **Your engine can key your radio.** Push the **Tune** button briefly to confirm PTT works. If your radio doesn't transmit when you press Tune, Hamilton's commands won't get on the air either.

Second, click the START button in Hamilton's window.

WHAT YOU SHOULD SEE THE ACTIVITY FEED

Within about 5 seconds, the activity feed should show all of these:

- Hamilton Auto FT8 v1.0.62 ready
- Bundled Python: Loaded
- FT8 engine: Loaded
- UI Automation: available
- Operator: YOURCALL . Grid: AA00aa
- UDP proxy listening on 127.0.0.1:2237
- Verifying engine UDP (10s)
- Engine UDP confirmed
- Listening for <Engine> ready to make contacts

YOU'RE DONE WITH SETUP

From now on: **engine first, Hamilton second, click Start.** Three actions, in that order, every time.

07 . REFERENCE

Tour of the Hamilton interface

Hamilton's main window has five regions. Most of the time you'll only watch one the activity feed.

HEADER STRIP

Across the top: Hamilton logo, app name, version number, your operator callsign and grid square. The header reads your station info from your engine if you change callsign in WSJT-X mid-session, Hamilton will detect it and restart its contact manager with the new callsign automatically.

STATUS BANNER

Just below the header, a colored banner tells you Hamilton's overall state:

| | |
|--------------|-------------------------------------|
| Gray | Stopped click Start when ready |
| Amber | Starting up connecting to engine |
| Green | Running actively making contacts |
| Red | Error see activity feed for details |

ACTIVITY FEED EMOJI LEGEND

Each log entry has an emoji prefix indicating type:

- **Checkmark** Setup success message
- **Antenna icon** Network activity (UDP)
- **Rocket** Engine started or ready
- **Target** Auto-clicker matched a popup
- **Gear** Settings or callsign change
- **Phone** Calling a station / QSO event
- **Chart** Diagnostic info (schema, packet types)
- **Refresh** UDP id translation (JTDX/MSHV)
- **Warning** Usually fetch failures
- **Error X** Needs attention
- **Up arrow** Update available banner

CONTROL BAR

Bottom row of buttons. From left to right: **Start/Stop** (the main control), **CQ when idle** toggle, **Settings** (gear icon), **Save engine diagnostic** (troubleshooting), and **Check for updates** (manual fetch).

08 . REFERENCE

CQ when idle and Activation modes

CQ when idle lets Hamilton call CQ on your behalf, automatically either as a tactical fill-in when nobody's responding, or as your primary mode of operation when you're activating a park or summit. Two modes; they behave very differently.

ENABLING CQ WHEN IDLE

From Hamilton's main window, click the **CQ when idle** button in the control bar. A popup will ask which mode you want.

THE GENTLE DEFAULT

Hamilton spends most of its time looking for decoded stations. If the band goes quiet no callable stations decoded for N minutes Hamilton calls CQ to drum up activity, then goes back to hunting when responses come in. You set the idle threshold (in minutes) when you enable the mode.

When to use: Casual operating, contesting, mixed activity bands.

ACTIVATOR MODE IMMEDIATE CQ

In Activator mode, Hamilton calls CQ **immediately** on Start and continues calling CQ until someone responds. The activity feed announces CQ calling: ON (activator mode immediate). When a station responds, Hamilton works them, then resumes calling CQ.

HOW HAMILTON TOGGLES ENABLE TX

Both Search and Activator modes require Hamilton to drive your engine's **Enable Tx** checkbox via Windows UI Automation. This works for WSJT-X, JTDX, and MSHV Hamilton auto-detects which engine is running. You should visually see the Enable Tx checkbox toggle ON in your engine when CQ-when-idle activates.

If Enable Tx doesn't toggle: make sure only ONE engine is running (Hamilton can get confused if multiple engines have windows open simultaneously).

09 . ABOUT 2 MINUTES

QRZ Logbook setup

Hamilton can push every QSO to your QRZ Logbook automatically after it's logged. ADIF 3.x via HTTPS to QRZ's official endpoint. You need a QRZ Logbook subscription (separate from QRZ.com regular membership) and an API key from QRZ.

GET YOUR QRZ API KEY

Log in to QRZ.com. Click **Logbook** then **Settings**. Look for **Logbook API Key**. Copy the long alphanumeric string.

ENTER IT IN HAMILTON

In Hamilton, open **Settings**. Scroll to **QRZ Logbook**. Paste your API key. Click **Save**.

VERIFY IT WORKS

Make a test contact. After the QSO closes and gets logged, watch the activity feed for QRZ Logbook: submitted YOURCALL to THEIRCALL. If you see QRZ Logbook: rejected, the API key is wrong or your subscription has lapsed.

PRIVACY NOTE

Hamilton submits ONLY the QSO data your engine generated (callsign, signal report, frequency, time, mode). Nothing else is sent to QRZ. The submission is encrypted in transit.

10 . REFERENCE

QSL World integration

Hamilton can submit every QSO to your QSL World operator profile in real time.

WHAT GETS SUBMITTED

- Every completed FT8 QSO with full ADIF data
- Your operator info (callsign, grid)
- Country / DXCC / continent / CQ zone / ITU zone (resolved from contact's callsign)
- Signal report exchange and timing

YOUR OPERATOR PROFILE

Visit qslworld.com/op/YOURCALL (replace YOURCALL with your actual callsign). You'll see a real-time dashboard of your recent QSOs, award progress (DXCC, WAS, WAC, etc.), and a world map of your contacts.

ENABLING SUBMISSION

In Hamilton's Settings, scroll to **QSL World** and toggle **Auto-submit QSOs** ON. From that point forward, every completed QSO will appear in your operator profile within seconds.

11 . REFERENCE

Complete Settings reference

Open Settings by clicking the gear icon in Hamilton's main window. Below is every option and what it does.

OPERATOR INFORMATION

Read-only section. Shows the callsign and grid Hamilton detected from your FT8 engine. If either is wrong, fix it in the engine itself Hamilton always trusts the engine.

CQ CALLING

CQ when idle Toggle ON/OFF. When ON, opens mode selector.

Mode: Search Call CQ only after N minutes of band silence

Mode: Activator Call CQ immediately and continuously

Idle threshold (min) Search only how long to wait before calling CQ

LOGBOOK SUBMISSION

QRZ Logbook Enable + your QRZ Logbook API key

LoTW (coming) Reserved for upcoming tqsl.exe integration

QSL World Auto-submission to QSL World toggle ON/OFF

AUTO-CLICKER

Auto-close Log QSO dialog ON by default. Dismisses Log QSO popup via UIA

Match window title Defaults to "Log QSO" only edit if your engine renames it

SOUNDS AND NOTIFICATIONS

Contact made sound Play a short tone when a QSO completes

Filter rejection sound Play a different tone when a decode is filtered out

Banner duration How long status banners stay visible (seconds)

ADVANCED

Filter file path Opens ft8ctrl.yaml in Notepad see Section 12

Save engine diagnostic

Dumps UI Automation tree of your engine for support tickets

Check for updates

Manually check autoft8.com/auto-ft8.json for newer releases

Reset all settings

Restores defaults

12 . REFERENCE

Filter file ft8ctrl.yaml

All of Hamilton's call-selection rules live in one file: %LOCALAPPDATA%\HamiltonAutoFT8\FT8Commander\ft8ctrl.yaml. Open it from Settings then Advanced then Filter file path. The most useful settings:

| | |
|------------------|---|
| min_snr | Weakest signal you'll work. Default -18. |
| max_snr | Strongest signal (above is likely local). Default +3. |
| lotw_users_only | True = LoTW members only. False = call anyone. |
| retry_time | Minutes before re-calling the same station. Default 15. |
| tx_power | Your TX power in watts. Logged with each QSO. |
| tx_retries | Times to retry an unanswered call. Default 5. |
| continents | List of continents (NA, SA, EU, AF, AS, OC). Empty = all. |
| callsign_pattern | Regex pattern only call stations matching this pattern. |
| cq_zones | List of CQ zones (1-40). Empty = all. |
| BlackList | Callsigns Hamilton will NEVER call. |

EDITING THE FILTER FILE

Hamilton must be restarted after editing ft8ctrl.yaml for changes to take effect. Click Stop, edit and save, then click Start. The file is YAML indentation matters. If you break the syntax, Hamilton won't start. Keep a backup before editing.

13 . REFERENCE

In-app update system

Hamilton checks for a newer version on every startup and surfaces an in-app banner when one's available.

WHAT HAMILTON CHECKS

Five seconds after launch, Hamilton fetches `https://autoft8.com/auto-ft8.json` and reads the latest field. If that version is newer than the one you're running, a banner appears at the top:

```
Update available: v1.0.63 see autoft8.com
```

DISMISSING AN UPDATE

Close the banner to dismiss it. Hamilton remembers which version you dismissed the banner won't reappear until a newer version (greater than the one you dismissed) is published. So dismissing 1.0.63 won't suppress 1.0.65.

MANUAL CHECK

Settings then **Check for updates** runs the check immediately and shows a popup with the result either the available version, or a specific failure reason like `HTTP 404, network: ...`, or `running latest`.

14 . REFERENCE

Troubleshooting

Common issues and the fix. Most problems are configuration in the FT8 engine, not Hamilton.

HAMILTON SAYS "ADDRESS ALREADY IN USE" WHEN I CLICK START

Another program is using port 2237. Most common culprits: JTAAlert, GridTracker, an old copy of Hamilton that didn't shut down cleanly, or a second engine instance. Close those and try again.

HAMILTON SAYS IT'S RUNNING BUT NEVER CALLS ANYONE

Five things to check in order:

- **"Accept UDP requests" checkbox** in your engine's Reporting tab. Checked? This is the answer 95% of the time. Restart the engine after enabling.
- **Enable Tx button** on your engine's main window must be highlighted. If you have CQ when idle enabled, Hamilton toggles this for you. Otherwise toggle it yourself.
- **Auto Seq checkbox** at the bottom of your engine's main window must be CHECKED. (JTDX especially see Section 04.)
- **Filter too strict** open ft8ctrl.yaml. If lotw_users_only is True and nobody on the band is a LoTW user, Hamilton has no one to call. Set to False to test.
- **Single engine running** if WSJT-X AND JTDX are both open, Hamilton can't tell which one to drive. Close all engines except the one you want to use.

JTDX REPLIES BUT GETS STUCK ON MESSAGE 1

Classic JTDX issue. JTDX has two Auto Seq controls and both must be active. See Section 04's callout box that fixes it 100% of the time.

CONTACTS START BUT NEVER COMPLETE

Almost always an audio or PTT issue, not Hamilton. Confirm your engine can complete a contact manually first. If manual contacts don't complete, the problem is in your audio chain or radio interface.

UPDATE BANNER NEVER APPEARS

Settings then Check for updates manually. The popup will show the actual reason. Most common cause: the auto-ft8.json file on the server hasn't been updated to a higher version than what you're running.

HAMILTON FEED STAYS MOSTLY QUIET

Quiet between contacts is normal. Hamilton writes a line every time it makes a decision (sees a decode, picks a station, opens or closes a contact). Between contacts, the feed stays still. It comes alive when callable stations appear.

WINDOWS SAID THE INSTALLER WAS UNSAFE

SmartScreen warning. Click **More info** then **Run anyway**. SmartScreen flags any installer that hasn't been downloaded by enough people yet to build "reputation".

STILL STUCK

Email support@qslworld.com with:

- A screenshot of Hamilton's activity feed showing the issue

- Which FT8 engine you're using (WSJT-X, JTDX, MSHV) and its version
- Your Hamilton version (top of the activity feed)
- A one-line description of what you were trying to do

We answer within one business day.

REMINDER

Operator responsibility

Hamilton automates the FT8 contact sequence. It does not relieve you of the duty to be present at the station as control operator. Don't walk away from a transmitting station. Stay at the radio while Hamilton is running.

U.S. licensees: 47 CFR 97.109 and 97.213. **Other countries:** consult your national radio regulator.

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