

Northern California Contest Club

Excellence In Amateur Radio Contesting

International DX Convention – Contest Academy 2025

“How to have fun contesting in FT Modes”

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...more contesting and NCCC info at nccc.cc

...more UFO info at k6ufo.com



1st Question: Why Contest?

- A fun and challenging way to make many contacts and work new locations. A contest “concentrates” activity on the air during the contest period.
- A structured environment (playing field) to practice and improve your skills. All games use rules to guide the play and reward the player. In radio contests the goals are new contacts and “Multipliers” (new countries, new states, new Grid Squares, ...)

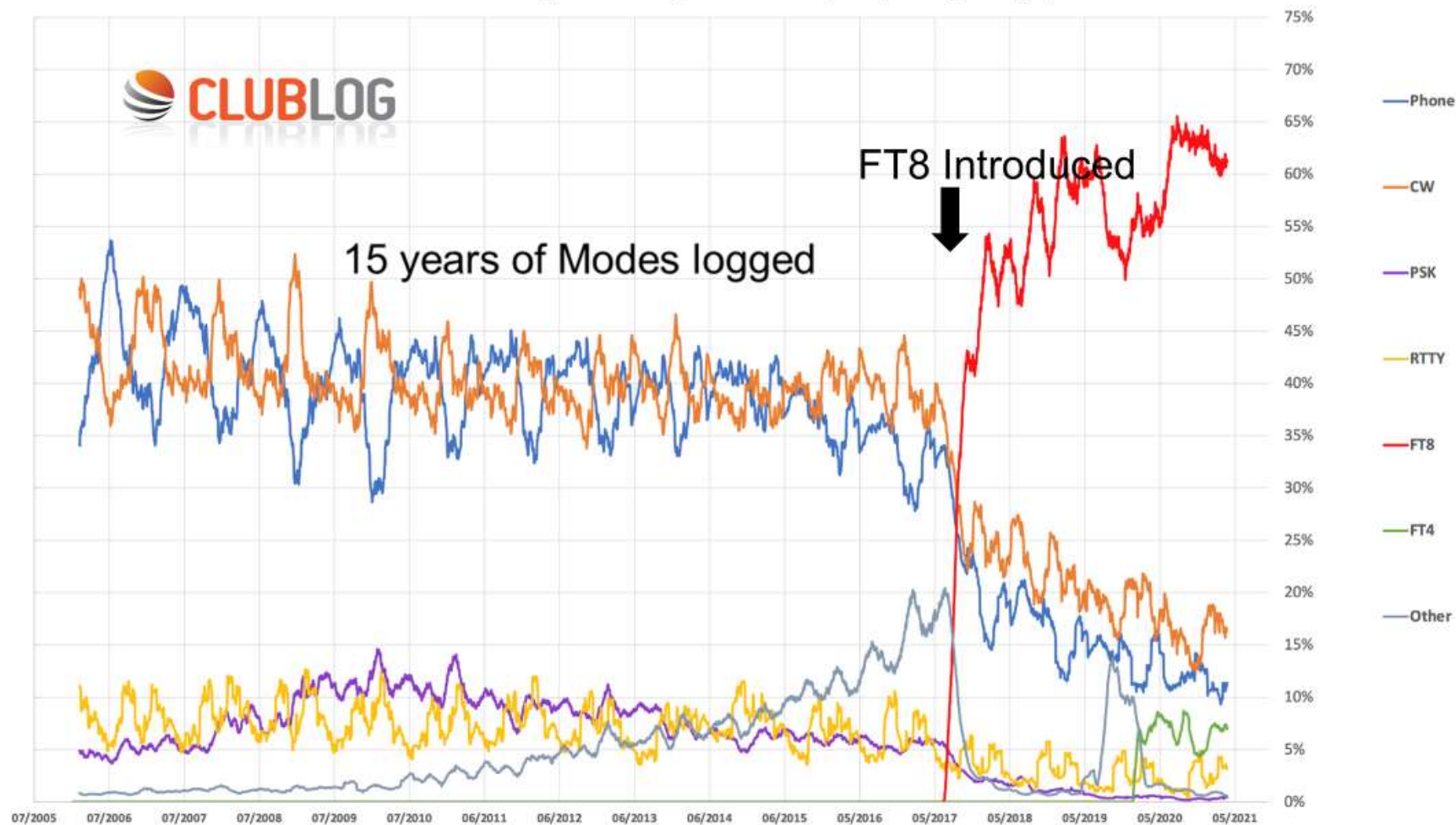
2nd Question: Which mode: SSB, CW, RTTY, FT8?

- Different strengths and weaknesses.
(Ease vs. speed (rate) vs weak signal ability vs ...)
- Different popularity.
(SSB most popular, CW well-loved, FT8 high levels of activity,...)
- Being proficient on many modes keeps your interest up, and helps your DXing.

What is FT8?

- FT8 is an Amateur Radio operating mode, like CW, SSB, FM, ...
- Requires connecting a computer to your radio, like Packet, PSK31, RTTY,...
- Introduced in mid 2017, within a year it became not only the most popular “digital” mode, but the most popular of ANY mode!










Modes logged in Club Log - 2006 to 2021 (60 day moving averages)



Clublog: “Most Active Modes” chart for 1 week, Feb 21 – 28, 2025

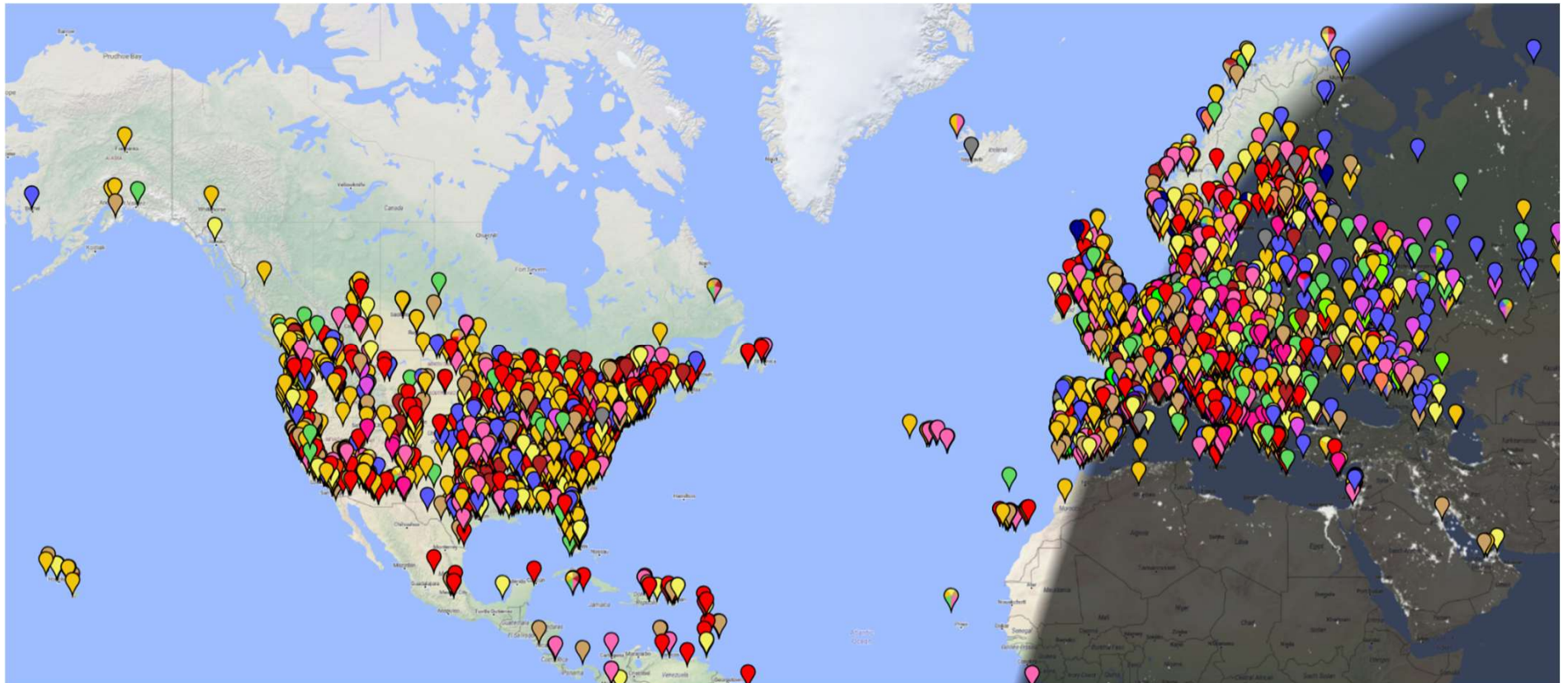
Most active modes

This chart illustrates which modes are being used most heavily during the period of this report.

Mode	% Use	QSOs	Graph
FT8	55.57	730,385	
SSB	15.05	197,851	
FT4	13.79	181,204	
CW	11.96	157,237	
RTTY	3.05	40,064	
MFSK	0.28	3,730	
FM	0.14	1,798	
DIGITALVOICE	0.04	464	
PSK	0.02	125	

Why is FT8 popular?

- Good for weak signals, can work distant stations “DX” with low power and small antennas, at least 6 dB better than CW, and 20 dB better than SSB.
- No need to learn high-speed morse code.
- Operating is quiet, unlike operating Phone.
- Fixed 15-second cycles, with a set of “canned” messages and auto-sequencing.
- Can operate with less attention, so you can multi-task other activities.
- Lots of daily activity, there is always someone to contact
- Automatic spotting of everyone on the air, see PSK Reporter pskreporter.info



Contest Academy - FT8 Contesting

Why is this a Contest Academy topic?

- FT8 is the most popular mode for daily operation and DX chasing. It has become the "daily driver" on the bands. Some of this **popularity** will spill into contesting.
- Entering a fast-paced SSB or CW contest can be intimidating, but the fixed FT8 cycles reduce the frantic pace and **let the newcomer join in.**
- Learning to contest in FT8 can gain you DX, improve your daily FT8 skills, and **help setup software logging and radio control** that will help you in other contests.
- The more experience you gain in FT8 contesting, the better you will do in FT8 DXing, and other contesting. (If you find you don't like FT8, its easy to switch to RTTY contesting, or just stick to CW/SSB. Only FT8 when you need the DX 😊.)
- Some of this info is similar to "RTTY Contesting" but you cannot find RTTY in daily use.

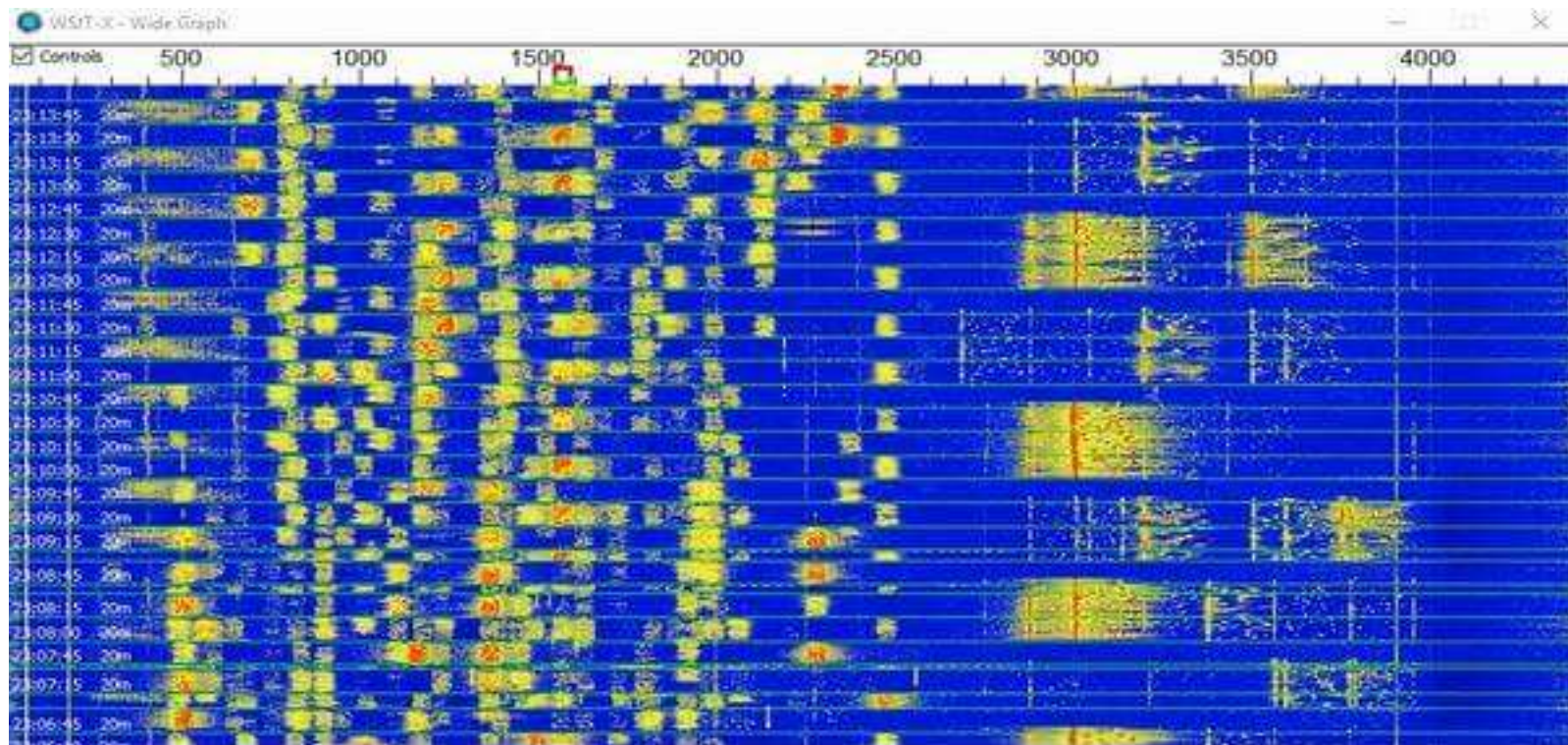
Why Contest?

- A fun and challenging way to make many contacts and work new locations.
- A structured environment (playing field) to practice and improve your skills.

FT8 or FT4 or ?

In this talk "FT8" means the FT8 and FT4 modes that are used in contests, with some VHF/UHF contests also using MSK144, JT65b, and Q65.

FT4 is faster than FT8 if signals are strong and clear and few repeats are needed. FT4 is 3.5 dB less sensitive and requires 1.6 times the bandwidth, but it offers the potential for twice the QSO rate. More stations use FT8 than FT4, but there will often be new stations in the other mode.



In contests, the “traditional” modes (SSB, CW, RTTY) are still more popular, but FT8 is in 4th place, and just getting started...

CQ WW SSB 2024:	10,098 logs submitted (started 1948)
CQ WW CW 2023:	7,648 logs (started 1948)
CQ WW RTTY 2023:	3,357 logs (started 1986)
WW Digi 2024:	1,397 logs (started 2019)
ARRL Digi 2024:	1,169 logs (started 2022)
FT Challenge 2024:	637 logs (started 2018)

SSB and CW will continue, and so will FT8.

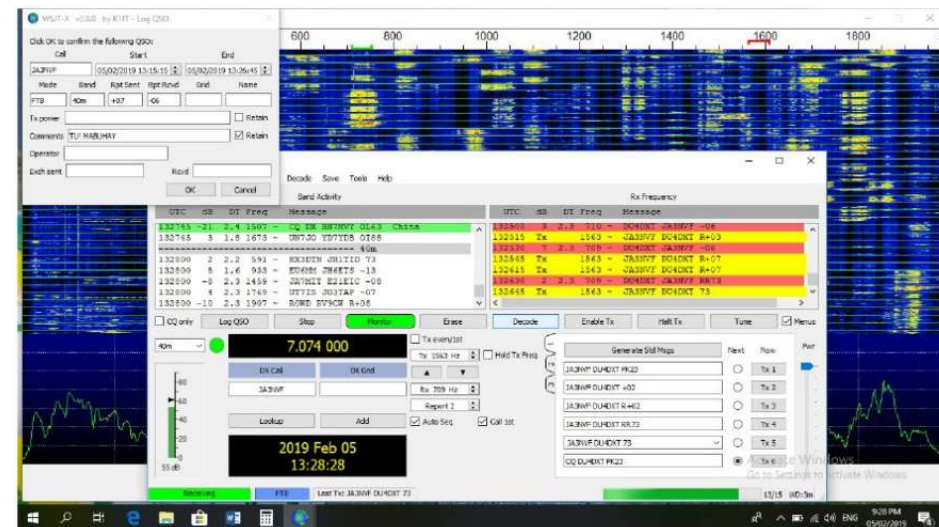
Upcoming FT8 contests by date:

ARRL Digi	June 7, 2025
ARRL VHF	June 14, 2025
ARRL Field Day	June 28, 2025
CQ WW VHF	July 19, 2025
WW Digi	August 30, 2025
FT Challenge	December 6, 2025

Weekly FT4 NS on Thursday night (Friday 01Z), uses shortcut confirmations.

Some State QSO Parties allow FT8: (TX, 7QP, NEQP, DE...)

Most VHF/UHF contests, and SOTA and POTA allow FT8 contacts.



FT8? Isn't it "boring?"

WW Digi Single Op winner made 1,210 QSOs in 24 hours
ARRL Digi SO winner made 1,530 QSOs in 24 hours
FT Challenge SO winner made 1,733 QSOs in 24 hours
...there are more stations to work, limited by the FT8/FT4 cycles.

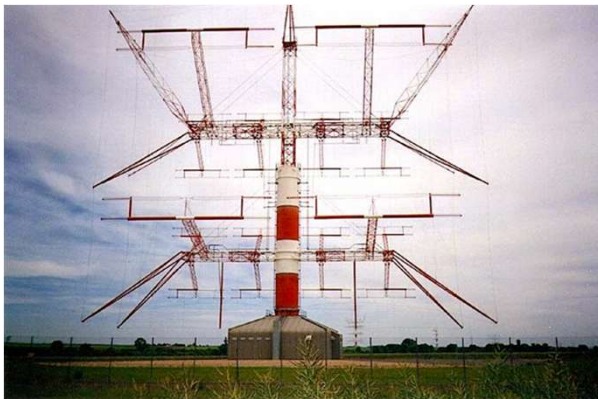



The FT8 contesting challenge is to get the "most" out of each cycle.
(new DX, new grid, most points, longest distance, ...)

FT8 is "easier" than understanding distorted SSB voices or decoding CW in your head. This **frees the operator for other contest tasks** like looking for rare DX or Multipliers, operating SO2V or SO2R, check propagation, check other bands, check DX spots, ...

FT8 is "paced" by the cycles, so you do not need quick reflex responses like are needed in SSB and CW contesting. **Less tiring and less stressful.** (But, less pileup adrenaline rush.)

FT8 is able to work very weak signals and marginal openings to rare locations. You don't need big antennas or high power, and you don't need to strain to listen and hear it.

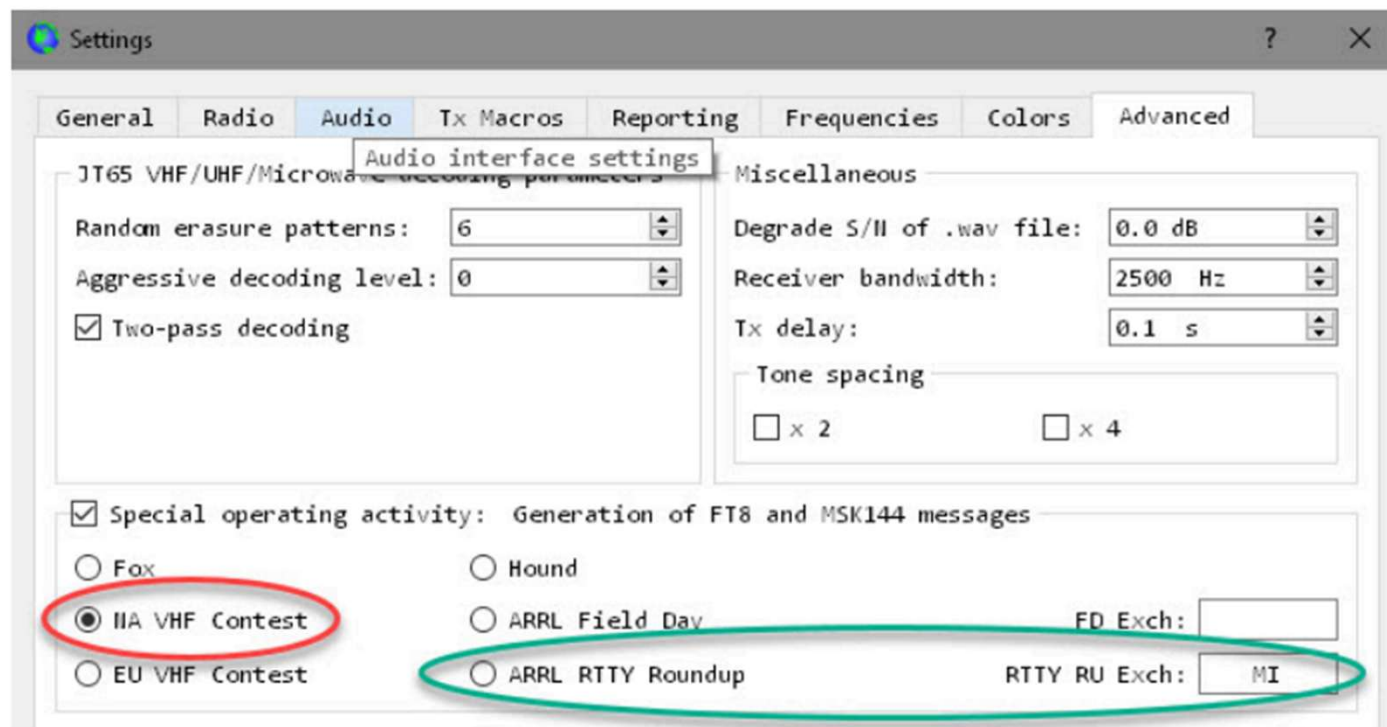


Step 1: Get on FT8 with the WSJT-X software and your radio. Use the help files, tutorials, YouTube, help from friends, ...  get on FT8 About 676,000 results

Can I contest with WSJT-X alone? Yes, and that's the way to start. WSJT-X can produce ADIF format logs and a few types of Cabrillo logs.

WSJT-X has normal modes and "contest" modes called "Special operating activity" that changes the messages, Auto-seq, and color coding. (File, Settings, Advanced)

Configuration for a Specific Contest (WSJT-X only)



I recommend you stay "mainstream" with WSJT-X software to get the largest user base for support, and the latest released features. There are other FT8 software/decoders for certain needs:

JTDX provides more decoder options, and more sequence and filtering options.

MSHV allows multiple streams (not in contests) and multi-answering auto-seq queues.

DigiRite is integrated with Writelog logging for Mult identification, queues, ...

WSJT-Z provides extended filtering, automation (not allowed most contests), alerts, ...

GridTracker and JTAlert provide maps, alerts, lists of active callsigns "Call Roster", ...

Note re "automation." Most contests say something like: "Each QSO must require some action by the operator, e.g., selecting a QSO partner." In contests: no Robots, no Fox/Hound or SuperFox.

FT Frequencies:

Usual FT8	Usual FT4	Contest FT8	Contest FT4
3573	3575	3590	3580
7074	7047.5	7090	7080
14074	14080	14090	14080
21074	21140	21090	21080
28074	28.180	28090	28080
50313/323	50318	50340	50330
144174	144150		

There may also be Dxpeditions and other digital modes between x.070 – x.095 Also, ITU Region 1 (EU) and Region 3 (JA) digital stations may be operating "down low" x.030- x.070.

Big Improvement: Connect WSJT-X by “UDP broadcast” to a **contest logging program**. Better Dupe checking, Mult identification, Prefill, available QSOs and Mults per band, Rates, Scoring calculation and easily creating a log for submission to the contest sponsor.

The most widely used contest logging program is N1MM+, followed by N3FJP, Win-test, DXlog, Writelog, ... Some are better at “digital” e.g., N1MM+, Writelog.

On the Right, WSJT shows the decoded stations on this cycle. (1 Mult, 2 available stations)
On the Left, N1MM shows all decoded stations over several cycles. You can see more Multipliers (6), more CQing stations (17), and eliminate Duplicates you’ve already worked. You can click on a call to load them into the WSJT messages, ready to go!

The screenshot displays the WSJT-X v2.0.0 interface. On the left, a window titled 'WSJT Decode ...' shows a list of decoded stations with columns for Call, Freq, and Msg. On the right, the main window shows 'Band Activity' with columns for UTC, dB, DT, Freq, and Message. The interface includes a menu bar (File, Configurations, View, Mode, Decode, Save, Tools, Help), a status bar showing '20m' and '14.074 000', and various control buttons like 'CQ only', 'Log QSO', 'Stop', 'Monitor', and 'Erase'.

Call	Freq	Msg
W7AMC	1140	CQ W7AMC DM26
KA1YQC	525	CQ KA1YQC FN42
WB0IWG	1353	CQ WB0IWG EN06
JA1FVE	1751	CQ JA1FVE PM95
CO8LY	1989	CQ CO8LY FL20
KK5ZV	2548	CQ KK5ZV EL29
KM6GUO	879	CQ KM6GUO CM88
ZS1SBW	1943	CQ ZS1SBW JF95
N2KBF	1272	CQ N2KBF FN20
OA1F	1711	CQ OA1F FI03
CE1ANF	2791	CQ CE1ANF FG46
NX0I	1651	CQ NX0I EM29
W5BN	457	CQ W5BN FN33
KD5SYI	1091	CQ KD5SYI DM81
N7XG	1233	CQ N7XG CN84
W6DPM	393	CQ W6DPM DM04

UTC	dB	DT	Freq	Message
220500	-14	0.8	2411 ~	ZS1SBW NYOV +10
220500	-11	0.8	315 ~	CQ CO2VE EL83 Cuba
220500	-1	0.2	898 ~	AISI C5YK 73
220500	-9	0.3	995 ~	CQ NSAB EN82 U.S.A.
220500	10	0.1	1128 ~	JQ1SUO K1BMW CM99
220500	-4	-0.1	1405 ~	OA1F KM4ODS FM04
220500	-6	0.2	1651 ~	N3LFC W7OM R+02
220500	4	0.3	1863 ~	ZS1SBW K6JEY DM03
220500	-7	0.1	1915 ~	CQ WA6MBL DM13 U.S.A.
220500	-17	0.6	1989 ~	KN4PPD CO8LY 73
220500	-8	0.2	2091 ~	K6QU HI8S +03
220500	-13	0.1	2280 ~	HR1LW KD2GXL FN30
220500	-5	0.2	2648 ~	CQ VE6BTC DO33 Canada

Connecting WSJT-x by “UDP broadcast” to a contest logging program.

Read the N1MM+ or WSJT-X manuals.

In WSJT-x go to File, Settings, Reporting, in the UDP Server section check the 3 boxes.
In N1MM+ go to Configurer, WSJT/JTDX Setup, click the first Enable box.

The screenshot shows the 'Settings' dialog box with the 'Reporting' tab selected. The 'UDP Server' section is highlighted with a red box. It contains the following fields and options:

- Logging:
 - Prompt me to log QSO (Op Call: VE3KI)
 - Log automatically (contesting only)
 - Convert mode to RTTY
 - dB reports to comments
 - Clear DX call and grid after logging
- Network Services:
 - Enable PSK Reporter Spotting
- UDP Server (highlighted):
 - UDP Server: 127.0.0.1
 - UDP Server port number: 2237
 - Accept UDP requests
 - Notify on accepted UDP request
 - Accepted UDP request restores window
- N1MM Logger + Broadcasts:
 - Enable logged contact ADIF broadcast
 - N1MM Server name or IP address: 127.0.0.1
 - N1MM Server port number: 2333

The screenshot shows the 'Configurer' dialog box with the 'WSJT/JTDX Setup' tab selected. The 'N1MM+ Logger needs to be restarted for changes made below to take effect.' message is at the top. The 'WSJT-X and JTDX UDP Settings' section is highlighted with a red box. It contains the following settings:

- WSJT-X and JTDX UDP Settings:
 - WSJT and JTDX UDP connection settings. IP Address and port must match each programs settings. This allows UDP message communications to take place, usually done on port 2237. Logging from other programs can also take place, usually done on port 2333. (Radio #1 Default: 2237)
 - Radio #1 Settings (highlighted):
 - Enable:
 - IP Address: 127.0.0.1
 - UDP Port: 2237
 - Radio #2 Settings:
 - Enable:
 - IP Address: 127.0.0.1
 - UDP Port: 2239
- JTDX / Others TCP Settings:
 - Sets the IP Address and port that an external program can connect to N1MM+ via TCP Port for logging purposes. The Default port for JTDX is 52001. (Radio #1 Default: 52001 - Radio #2 Default: 52006)
 - Radio #1 Settings:
 - Enable:
 - IP Address: 127.0.0.1
 - TCP Port: 52001
 - Radio #2 Settings:
 - Enable:
 - IP Address: 127.0.0.1
 - TCP Port: 52006
- Path to WSJT/JTDX (highlighted):
 - WSJT/JTDX Path Used for SO1V,SO2V mode and Radio1 in SO2R: C:\Hamradio\WSJT\wsjx\bin\wsjx.exe
 - WSJT/JTDX Path Used for SO2R Radio 2: C:\Hamradio\WSJT\wsjx\bin\wsjx.exe
 - Command Line Params: Not Set
- Auto Load the WSJT Band Details Window when WSJT-X/JTDX Loads. (highlighted):
 - Radio #1: Enable
 - Radio #2: Enable

Other FT8 Contesting tips:

Periodically switch odd/even cycle and FT8/FT4. There will be new stations and mults.

Don't be afraid to CQ. When people see you CQ, **they call you.**

You are always "Split" (RX across the bandwidth, TX in a clear space.)

Don't be afraid to go above first 2-3 kHz, in a busy contest other people will go there too.

Use the contest suggested frequencies, but if you run out of contesters you can go to the "regular" FT8 frequencies and work "non-contesters". Be ready to send a "R-11" signal report if needed to advance the QSO, even if not needed by your contest. To reduce "frustration with non-contesters" don't call CQ, only answer other CQs or stations that have already sent the Grid Square or other info that you need.

Minimizing NILs (**Not In Log**): Because of FT8 decoding's "error-correction" you always have the callsign and exchange info correct. But points are lost when one person doesn't think the QSO completed and doesn't put the contact in the log. In FT8, NILs have been higher (5%) than in other modes (2%). Be careful in crowded conditions to complete. Watch for other station to repeat a report (R CM97) until you confirm (RRR or RR73 or 73). Be willing to send extra 73s, but don't require it yourself.

Always be making progress by calling or responding on every TX cycle.

(Except if you need to check that you are TX in a "clear" space.)

FT8 Contest Strategy examples:

ARRL Digital Contest: Exchange is Grid(4), Score is sum of distance-based QSO points.

From K6OK re ARRL Digital Contest 2023: My strategy was simple -- there are no mults, it is 100 percent distance-based, so the whole game is maximizing kilometers per Q. Used DX clusters to monitor propagation to select the band that was open the farthest. With every decode cycle, I chose the most distant station that had a reasonably workable signal. Reflecting that my mode mix was 80% FT8, 20% FT4, consistently FT8 was where the best DX was.

WW DIGI Contest: Exchange is Grid(4), Scoring is QSO pts x sum of Grid(2) all bands.

From K6OK re WW DIGI 2023: It is really a "grid collection" contest, so I used the DX clusters and HamAlert to help find unworked grids on each band.

Additional FT8 Contesting Resources:

WW Digi Operating Tips: <https://ww-digi.com/operating.htm>

Contest University presentations: <https://www.contestuniversity.com/files/>
look for W0YK – RTTY – FT8 – Digital Contesting

European FT8 Club: User Guides, Operation Guides, Settings...
<https://europeanft8club.wordpress.com/>

Questions?
Comments?
Suggestions?

Go have fun!