

Contesting

We are in an age in which to be successful at contesting you also need to be computer savvy.

Progression at HF – software

Contesting software provides operating and station automations, many of which are integrated into mainstream contest logging software. The term 'contest logging software' is rather misleading, since the actual logging of a contest QSO is just a small part of the operating process. As a contester becomes more proficient and comfortable with operating, other functionality becomes important to increase their speed and reduce errors.

Required functions

Let's consider what we want from contest software. Starting with the basics and progressing as our contesting ability improves, we could start using additional functions – they are not all essential to create a contest entry, but they will increase operating effectiveness and enjoyment:

1. Integrate to your radio, so the operating mode and frequency is known to the software. Also, software may be able to command the radio to change band or mode.
2. Support a wide range of HF and VHF contests, though some software focuses on one or the other.
3. Log a contest QSO and exchange with time, date and frequency. Other QSO information is entered manually by the operator, for example callsign and exchange received.
4. Calculate your score. Plot your progress during the contest and provide a summary of your score at the end.
5. Export the log to a Cabrillo, or EDI (for VHF) format, and possibly ADIF too.
6. Check if the callsign is a duplicate ('dupe') so you don't call stations that you have already logged.
7. Validate the logged callsign against a database of known contest callsigns as it is being entered. This is known as 'Super Check Partial'. This provides the useful functionality of suggesting full callsigns that correspond to a partial callsign that you have typed in.
8. Check the DXCC entity (where it is a multiplier).
9. Check if an entered callsign or multiplier has been worked on another band. **Figure 1** shows this in SD contest software. The

user is about to log W3LPL on 40m; this is the 5th band, and it will be a multiplier for MD; MD is still needed on 160m for a mult; other multipliers flagged are K1TZQ in RI, and VA2WA in QC.

10. Check the previous exchange(s) given to you by a particular station to act as verification on subsequent QSOs.

Where the DXCC country is a multiplier, it's important that the contest software correctly identifies the country of an entered callsign. Fortunately, Jim Reisert, AD1C produces a 'country file' [1] which addresses this issue – your contest software should be able to download the latest version. This file also contains ITU and CQ zone information that is useful in contests where they are the exchange.

11. 'Guess' the contest exchange: Some contests require fixed exchanges eg QRA locator, operator name, year licensed, age etc. In these cases, the contest software should have an 'exchange file' that is regularly updated and will 'guess' the exchange for you when you enter the callsign. These are very useful but should be used with caution – always verify what you hear on the air.

12. Display a band map: A 'band map' is a visual representation of the operating band, overlaid with callsigns that you have worked against their frequencies, which are automatically derived from the PC's CAT interface to the radio. Callsigns should be automatically added when you log them in Search & Pounce mode and it's useful to manually add all callsigns to the band map whether they are needed, already worked or even a zero-pointer, since every time you tune across the band you can refer to the band map and quickly pass by stations you don't need or return to stations you do need. The software should colour code callsigns as 'not worked', 'worked already' or 'needed multiplier' and will give you an option to hide zero-point QSOs if you wish. **Figure 2** shows the band map in N1MM+.

13. Connect to the DX Cluster: Having access to the DX Cluster is permitted for entries in the 'assisted' (aka 'unlimited') categories of any contest. Contest software should typically support connection to your favoured DX Cluster node, possibly to more than one. 'Spots' with callsign and frequency will be overlaid on the band map, adding to your manually entered spots. This will help you to quickly identify needed contacts.

14. Integration to data modes software (eg WSJT-X, FLDigi, MMVARI, MMTTY etc).

Figure 3 shows DXLog when used with MMVARI.

The above functions probably represent the most desirable functionality required to operate in contests on CW, phone or data, however further functions will help by automating operator activities:

15. Digital voice keyer: Particularly in longer contests, having a recording of the CQ message (and other messages if the exchange is fixed) can save lots of energy and effort. It also gives you time to do something else eg listen to another receiver.
16. Enter Sends messages: This is particularly popular among CW and data operators, takes a little getting used to, but is well worth the effort. ESM automates sending pre-programmed messages (such as CQ calls, exchanges, and confirmations) when pressing the <Enter> key.
17. Antenna rotation.
18. Operation with Two VFOs (SO2V). As confidence increases, operating a radio with two receivers can increase productivity.
19. Operation with two radios (SO2R).
20. Networking for multi-operator contest teams.

There are many more functions that contesters require, and contest software often offers. The above represents some of the areas that you can use to progress.

Which contest software?

There is no silver bullet solution for contest operating and several products are available. Your selection comes down to personal choice, so try as many as you can. Although options are limited for Linux and Apple IOS platforms (see SkookumLogger [2]), there are some excellent products to choose from for Windows, some of which are free of charge. N1MM+ [3], DXLog [4], Win-Test [5] and SD [6] are described below.

N1MM+

In the early 2000s, Tom Wagner, N1MM embarked on creating what would become the N1MM Logger [3]. As technology and contesting demands evolved, so did the need for more advanced features and a modernised design. Around 2014, the development team decided to rewrite the entire program from the ground up. This huge effort led to the birth of N1MM+. It is the most popular contest program in use and is available to download free of charge.

40m	22:02	354	K1TTT	599	MA
40m	22:04	355	K1TZQ	599	RI
40m	22:07	356	AA3B	599	PA
40m	22:09	357	N3RS	599	PA
40m	22:11	358	VA2WA	599	QC
40m	22:11	359	AA4NC	599	NC
M					
40m	12:17	360	w3LPL	599	MD
Frank 1150					
10 15 20 40 80 160					

FIGURE 1: SD contest software.

DXLog.net

DXLog.net [4] was initiated in 2011 by Krešo, 9A5K as a Win-Test clone but has matured over the years to offer additional high-end functionality. It is now the most popular software among top scoring SO2R single operators. Following Krešo's passing in 2019, Krassy, K1LZ acquired the rights and offered it free-of-charge. DXLog's design allows users to operate it primarily through keyboard shortcuts, keeping their eyes on the screen and their hands on the keyboard, which is crucial during intense contesting. It can integrate to user-written scripts in C# which can facilitate versatility with station automation.

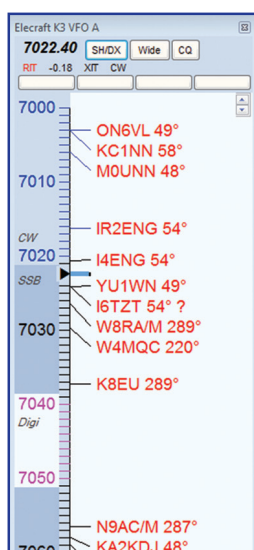
Win-Test

Win-Test [5] was created in 2004 by Oliver, F5MZN and gained popularity quickly as it used the same commands as the old CT for DOS contest software. It has proved itself to be very robust and fast – particularly the multi-operator environments. It's the choice of high-end contesters for its advanced SO2R capabilities but is also very usable as a more basic tool. One of its greatest strengths is its support for user-written LUA scripts, which makes it very versatile. This is a paid-for product.

SD (Super Duper)

SD [6], developed and supported by Paul O'Kane, EI5DI since 1990, is the longest-standing contest software in amateur radio. It is known for its accurate scoring together with its

FIGURE 2: N1MM band map.



user-friendly design which prioritises simplicity and efficiency over complex configurations. As K1CTT said, “keeping it simple is both the hard part and its greatest virtue.” SD runs on Windows, with a character-based user interface, and is intended for single-op unassisted operation. It does not support networks. While it might not have the high-end functionality or graphical appeal of newer programs, SD's reliability and performance have secured its place as a staple for many contesters. It is another free-of-charge product and a great starting point for contest logging, with the manual being only 18 pages.

Other useful software

While many useful functions may be contained within the contest software, there are many other useful (and free!) software products available that will help you as you progress in contesting. Here are a couple:

DX Atlas [7] shows a world map with the Sun's grey-line overlaid, together with selectable ITU and CQ zone numbers, sunrise and sunset times.

Digital modes software: If digital modes contesting interests you, look for contest software that interfaces with the common digital mode products like WSJT-X (for FT* modes), MMANA

and GRITTY and 2Tone (for RTTY), MMVARI and FLDigi (for lots of audio-based data modes).

Computer interfaces

There are lots of useful boxes that can be interfaced to your shack PC when running contest software; here are a few of the common items:

Software-defined radio (SDR) receiver: the SDR receiver (eg SDR Play) can be standalone with an antenna or fed from the IF of your radio. Where the contest software supports it, interfacing with an SDR receiver can show a spectrum view with overlaid 'spots' on the screen.

Win-Keyer [8]: Used for CW, the K1EL WinKeyer (and its clones) connect your PC to a transceiver and send Morse under the control of the contest software or iambic paddle. PC-based applications are inherently prone to timing problems due to the multitasking nature of Windows. Winkeyer buffers PC-generated Morse and produces perfectly-timed elements, even at high speed.

SO2R boxes

'Single Operator, Two Radios' with only one headset, one CW key and one PTT button. A solution is required to focus your transmission through one radio while receiving on the other. SO2R boxes manage the switching. Popular models include the Microham [9] and the K1XM SO2R box [10], however there are lots of homebrew designs on the Internet.

Summary

As you gain more experience as a contest operator, you will start to consider ways to improve your score and your logging accuracy. Contest software provides tools to help you with these, so why not take time to try the various products available and explore the features. With practice you will gain familiarity with the software and your enhanced ways of working.

References

- [1] Country Files by AD1C: country-files.com
- [2] SkookumLogger for IOS: k1gq.net/SkookumLogger
- [3] N1MM+ software: n1mmwp.hamdocs.com
- [4] DXLog software: dxlog.net
- [5] Win-Test software: win-test.com
- [6] SD software: ei5di.com/ Manual at: ei5di.com/sd/sd.pdf
- [7] DX Atlas: dxatlas.com
- [8] WinKeyer: k1elsystems.com/keyers.html
- [9] Microham contesting accessories: microham.com
- [10] K1XM SO2R Box: k1xm.org/SO2R

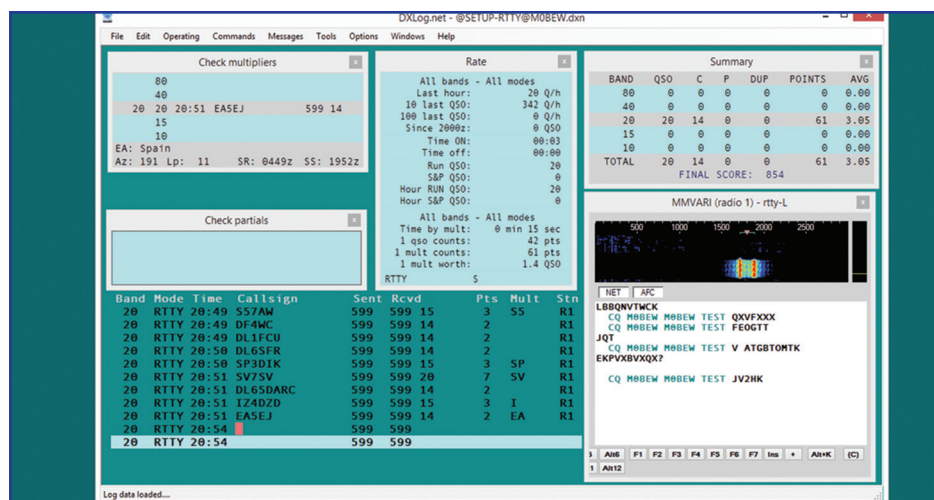


FIGURE 3: MOBEW's RTTY DXLog.