

# A Guide to Ham Radio Contests

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## Introduction

Ham radio contests are fun, but many hams are intimidated by the rapid-fire calls and the mysterious numbers that are being exchanged. Fear not: this guide will equip you to contest with skill and confidence.

Once you figure out how contests work and learn what software and hardware to use, you are going to have fun! Contests are a great way to build up your QSO count and add interesting DX contacts.

Hams have different reasons for getting into contests. There are competitive hams who enter contests to win. But winning a major contest requires innate talent, top notch equipment, dedication, and years of practice. Some hams take contests extremely seriously: I've heard of hams who can work two radios simultaneously with the sound from one in the left earphone and sound from the other in the right. Relax. Just because you can't win the Masters Tournament doesn't mean you can't have fun golfing. Repeat after me: "This is a hobby, not a job or an assignment. I am doing it for fun". Got it? OK, then let's get started.

## Getting information about contests

There are *many* contests every year. In fact, there's probably a contest underway at almost any time somewhere around the world. So once you get started with contesting, you'll have plenty of opportunity to practice your skills.

There are small contests like state QSO parties, and there are major international events like the ARRL DX contest. Generally, smaller contests are easier to start with than the big ones.

The biggest contests during the year are:

- **ARRL DX Contest** – 3<sup>rd</sup> full weekend in February for CW; 1<sup>st</sup> full weekend in March for SSB.
- **CQ World Wide Contest** – Last full weekend in October for SSB; last full weekend in November for CW.
- **CQ World Wide WPX Contest** – March for SSB; May for CW
- **ARRL "Field Day"** – The last weekend in June

To get started, you need to know where to find a calendar of contests and how to get the rules for each contest. The recommended web site for this is:

<http://www.hornucopia.com/contestcal/contestcal.html>

ARRL also has a contest site: <http://www.arrl.org/contests>

Here is a section of the contest list for April, 2011:

April 2011	
+ NCCC Sprint	0230Z-0300Z, Apr 1
+ SOC Hank Kohl Memorial CW Bash	0000Z-2359Z, Apr 2
+ LZ Open 40m Sprint Contest	0400Z-0800Z, Apr 2
+ ARCI Spring QSO Party	1200Z, Apr 2 to 2359Z, Apr 3
+ SP DX Contest	1500Z, Apr 2 to 1500Z, Apr 3
+ EA RTTY Contest	1600Z, Apr 2 to 1600Z, Apr 3
+ Missouri QSO Party	1800Z, Apr 2 to 0500Z, Apr 3 and 1800Z-2359Z, Apr 3
+ QCWA Spring QSO Party	1800Z, Apr 2 to 1800Z, Apr 3
+ RSGB RoPoCo SSB	1900Z-2030Z, Apr 3
+ RSGB 80m Club Championship, CW	1900Z-2030Z, Apr 4
+ ARS Spartan Sprint	0100Z-0300Z, Apr 5
+ SARL 80m QSO Party	1700Z-2000Z, Apr 7
+ NCCC Sprint	0230Z-0300Z, Apr 8
+ Montana QSO Party	0000Z, Apr 9 to 2400Z, Apr 10
+ JIDX CW Contest	0700Z, Apr 9 to 1300Z, Apr 10
+ PODXS 070 Club PSK 31 Flavors Contest	1200-1800 local, Apr 9
+ New Mexico QSO Party	1400Z, Apr 9 to 0200Z, Apr 10
+ EU Spring Sprint, CW	1600Z-1959Z, Apr 9
+ Georgia QSO Party	1800Z, Apr 9 to 0359Z, Apr 10 and 1400Z-2359Z, Apr 10

There are four state QSO parties (Missouri, Montana, New Mexico, and Georgia) as well as CW, RTTY, and PSK-31 contests. The dates and times are in Zulu time (UTC). To get detailed information about a contest, just click the '+' at the left end of the line. Here is information about the Georgia QSO Party:

Georgia QSO Party	
Status:	Active
Mode:	CW/Digital, Phone
Bands:	160, 80, 40, 20, 15, 10, 6m
Classes:	Single Op (CW/Phone/Mixed)(QRP/Low/High) Multi-Single (CW/Phone/Mixed)(QRP/Low/High) Multi-Multi (CW/Phone/Mixed)(QRP/Low/High) Rover Single Op (CW/Phone/Mixed)(QRP/Low/High) Rover Multi-Op (CW/Phone/Mixed)(QRP/Low/High)
Max power:	HP: >150W LP: 150W QRP: 5W
Exchange:	GA: RST + county non-GA: RST + (state/province/"DX")
Work stations:	Once per band per mode
QSO Points:	1 point per phone QSO 2 points per CW QSO
Multipliers:	GA Stations: Each state+DC and VE province/territory once per mode non-GA Stations: each GA county once per mode
Score Calculation:	Total score = total QSO points x total mults
E-mail logs to:	gqlogs[at]iham[dot]us
Mail logs to:	John Laney, K4BAI PO Box 421 Columbus, GA 31902-0421 USA
Find rules at:	<a href="http://gqp.contesting.com/Rules.htm">http://gqp.contesting.com/Rules.htm</a>

The information screen for the Georgia QSO Party shows that you can operate in CW, digital, and phone modes. The exchanged information for non-Georgia hams is the signal report (“59”) and your state. Multiplier points are awarded for each Georgia county you work. Notice the last line says “Find rules at” and provides a URL you can click to get the official, detailed rules for the contest.

## Contest rules

“Rules?! There aren’t any rules in a knife fight!” Well, there *are* rules in ham radio contests. Before jumping into a contest you need to read the summary rules such as shown above, and you need to download and read the detailed rules. For example, note that the Georgia QSO Party does not include the 12m and 17m WARC bands (see below), and you are only allowed to work a station once per band per mode.

In addition to the specific contest rules, you always have to observe FCC rules and good operating practice. Although there are no dedicated frequencies in the ham bands, there are some frequencies with long-standing networks such as 14.300 where the Maritime Network provides valuable support for off-shore sailors. You should avoid these frequencies. The WARC bands (12m, 17m, and 30m) may not be used for contesting (see [http://en.wikipedia.org/wiki/WARC\\_bands](http://en.wikipedia.org/wiki/WARC_bands)).

## Sprint contests

One type of contest that occurs often is called a “**Sprint**”; for example, see the calendar entries for April 1, 2, 5, 8, and 9. A sprint is like a tag match: If you call CQ and make a QSO, then you must QSY to a different frequency before you can call CQ again or make another QSO. See the detailed rules, but generally you must move at least 5 kHz before making another QSO. The station that contacted you inherits your frequency and can use it until they make a QSO.

Here are the actual rules for a typical sprint: “If any station solicits a call (by sending ‘CQ, QRZ?’, ‘going up 5 kHz,’ or any other means of soliciting a response, including completion of a QSO where the frequency was inherited), they are permitted to work only one station in response to that solicitation. They must thereafter move at least 1 kHz before calling another station or at least 5 kHz before soliciting other calls. Once a station is required to QSY, that station is not allowed to make another QSO on the vacated frequency until or unless at least one subsequent QSO is made on a new frequency.”

## Hardware for Contesting

Contests are not only a test of operating skills; they are also a great test of radio equipment. A contest will utilize more features of your radio than any other ham activity. However, if you don't have an Icom 7800, don't worry. You can have fun and log many QSOs with any radio. I logged hundreds of contest QSOs with my Yaesu FT-897D "starter" radio using 100 Watts and a G5RV antenna.

Here are some radio features that are desirable for contesting:

### Radio features for contesting

- **Power** – One of my friends is fond of saying "*Life is too short for QRP.*" This is especially true for contests. When you are competing with dozens of stations for the attention of a rare contest contact, you want all the power you can get. If you get into contesting, you may want to revisit your dream of adding an amp. Because of the narrow bandwidth, CW and digital modes like PSK-31 allow low power stations to be more competitive with high power stations than they are when working SSB.
- **Antenna** – Power is great, but antenna gain can make even a 100 watt station out shine a 1.5 kW station. A directional antenna like a Yagi or a hexbeam will be a great advantage in a contest. Not only does it boost your power, but it also reduces QRM from stations in other directions.
- **Filters** – Major contests are a "concerto of QRM". There are *no* clear frequencies; everywhere you tune you will hear two or more stations bleeding over. In situations like this, you want tight filters with steep cutoff. Roofing filters that block strong stations in the front-end are helpful. The best radios have adjustable filters that you can tighten from above and/or below as required to reduce QRM. I typically use a filter between 1.6 kHz and 2.1 kHz wide when working major contests.
- **Audio compression** – Most radios have an audio compression feature that reduces the dynamic range of your audio signal so that the average transmitted power is higher. You want to engage compression for contests. It is a good idea to get a friend to listen to your transmission before a contest with various levels of compression selected, so that you can determine which level of compression provides the maximum "punch" without making you too hard to understand.
- **Voice and CW memories** – Some high-end radios contain one or more "memories" where you can store prerecorded voice or CW announcements. This can save your voice or fist when you are calling CQ over and over for hours.

## Headset

It is inconvenient to use a hand microphone while contesting, because it takes time to pick it up and set it down while typing in contest exchanges. Desk and boom microphones are likely to give you a stiff neck because you can't move your head around. So you should buy a headset with earphones and microphone.

There are a number of good headsets available, and you may want to visit other hams who contest to try out their equipment. My favorite headset is the Heil Proset-6 (which replaced the HC-5). The Proset-6 has an excellent cartridge that produces full-range, natural sounding audio. They also make a Proset-4 that has a narrow audio bandwidth for added "punch" in contests, but I would rather have the natural sound especially since I also use it for ragchewing.



## Footswitch

For rapid call/exchange/log sequences, you need a footswitch to operate PTT. Heil sells a FS-2 footswitch, but I believe there are better footswitches available. I have a small footswitch I bought on eBay for about \$20. MFJ and Linemaster sell footswitches that look good. The "sustain" foot switches for electronic pianos will *not* work because their contacts are N.C.



## Memory keyers

### *I-Mate memory keyer for Icom radios*

If you have an Icom 756 Pro III, IC-7600, IC-7700, or IC-7800, you may benefit from purchasing an I-mate from The BetterRF Company (<http://www.betterrf.com/i-mate.html>). The I-Mate has four buttons on the top that trigger transmission of the prerecorded message in each of the radio's memories.



### *MFJ-434B voice memory keyer*

MFJ makes a MFJ-434B voice keyer that works with many types of radios (<http://www.mfjenterprises.com/Product.php?productid=MFJ-434B>).





### **Idiom Press K-5 CW memory keyer**

Idiom Press makes a Logikey K-5 memory keyer specifically for CW calls (<http://www.idiompres.com/k5.php>).



### **Contest logging software**

Normal logging programs like Ham Radio Deluxe are not suitable for contest logging. Specialized contest logging programs know what information must be exchanged for each contest, they present it quickly and allow rapid entry, they compute contest scores, and they generate log files in the appropriate format for submission. Don't worry: you can export your log from these programs and import it into your regular logging program when the contest is over.

The two most popular contest logging programs are AC Log (<http://www.n3fjp.com/ACLog.htm>) and N1MM (<http://n1mm.hamdocs.com>). You won't go wrong with either program. My preference is for N1MM because it is the most widely used contest logging program, it is a unified program with information about all contests, it is updated frequently (usually more than once a week), and it is completely free. Check for updates to your logging program shortly before each contest.

### **A brief look at N1MM**

N1MM is a full-featured contest logging program that has been enhanced steadily for a number of years. A full manual is available from <http://n1mm.hamdocs.com/tiki-index.php?page=Manual&structure=All+Documentation>. I'm not going to attempt to teach you how to use N1MM, but I will point out a few features.

### **Setting station data**

When you first install N1MM, you must enter your station information. If it doesn't prompt you, click "Config" on the logging screen and select "Change your station data". It will display a screen with blank fields like this:

**Edit Station Information**

Tip: You need to fill out this form or the program will not perform properly... Also, make sure your computer date and time are set to the LOCAL date and time zone for your location.

Call: W4PHS

Name: Phil Sherrod

Address: [Empty]

Address: [Empty]

City: Brentwood State: TN Zip: 37027

Country: USA

Grid Square: EM66NA CQ Zone: 4 ITU Zone: 8

License Class: Extra Latitude: 36.003 Longitude: 86.845

Station TX/RX: Icom IC-7600 Power: 100

Antenna: G5RV Ant. height o.g.: 60 a.s.l.: 660

ARRL Section: TN Packet Node Call: K1TTT

Rover QTH: [Empty]

Club: Tennessee Contest Group

email address: PhilSherrod@comcast.net

SMTP Server addr: x.x

Buttons: Ok, Help, Cancel

Once you enter your station data, N1MM will store it and automatically use it for each contest you enter.

### Starting a new contest log

When you are ready to start a new contest, click “File” on the menu bar followed by “New log in database”. Note, you do *not* want to click “New database”. You can (and should) store all of your contest logs in the same database. N1MM will display a screen with a drop-down list of the contests it knows about.

Select Contest Type for New Log

Log Type: QSOPARTY

Start Date: 2011-04-17

**Contest** | Associated Files

Operator Category: SINGLE-OP

Band Category: ALL

Power Category: HIGH

Mode Category: MIXED

Overlay Category: N/A

Note - the program does not validate categories. Check the contest rules for valid categories.

State for Log Type QSOPARTY: GA

Edit Section List

Import Section List

Show Rules (Internet access required)

Sent Exchange: TN

Omit RST. E.g. CQ/W/W: 05 SS: A 56 EMA

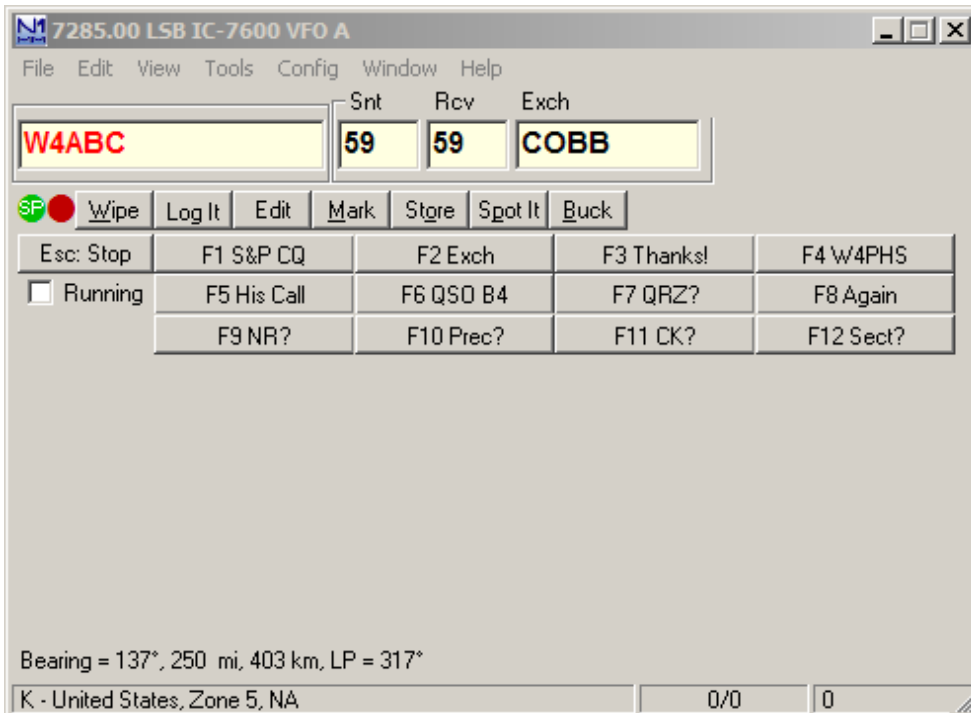
Operators: W4PHS

Update Ops from Log

Soapbox Comments

OK Help Cancel

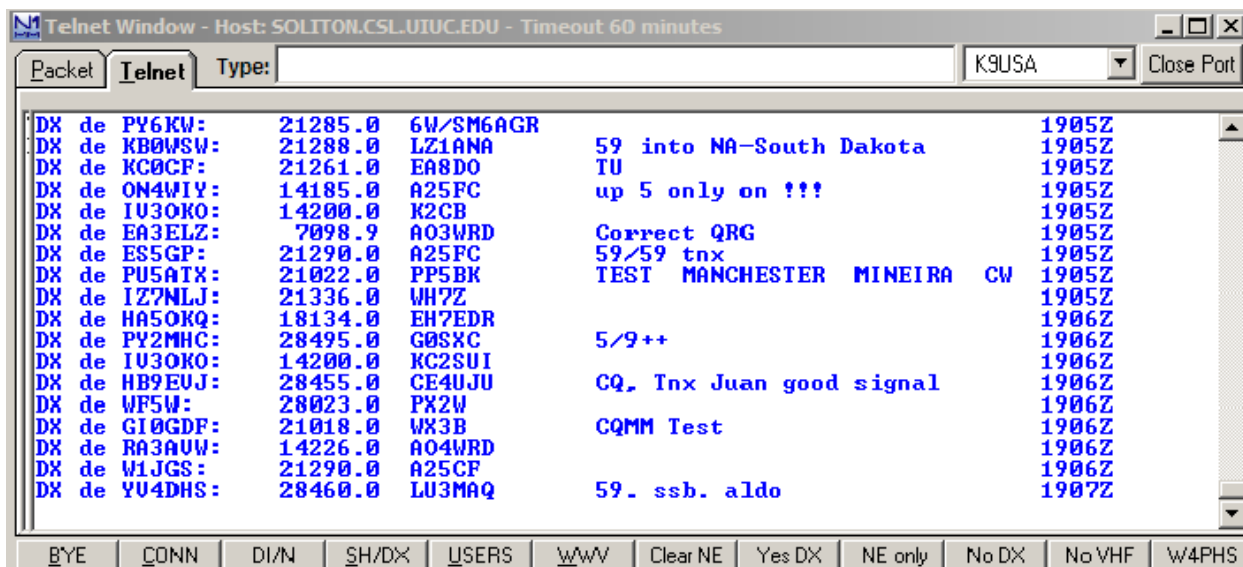
Select the contest in the “Log Type” field, check the starting date (remember, to use Zulu time/date), and select the categories (see below). If you are entering a QSO party, select “QSOPARTY” from the contest list, and select the specific state from the “State for Log Type QSOPARTY” field (see above). When you finish, click OK to close this screen and return to the main logging screen. N1MM will modify the fields on the logging screen to display and accept only the information that is relevant to the exchange for the contest.



To log an entry, enter the call sign in the first field, send the information shown in the “Snt” field, enter the received signal report in the “Rcv” field (N1MM will default to “59”), and enter the other exchange information you receive in the “Exch” field. In the case of the Georgia QSO Party, this will be the Georgia country name or abbreviation. Click “Log it” or press Enter to store the entry in the log and clear the fields.

### Spotting and multiplier screens

N1MM has several tools to help you find stations to work. In order to use the spotting and multiplier screens, you need to connect to a spotting site from which N1MM can download information. To do this, open the spotting log Telnet window, select a spotting server from the drop-down list, enter your call sign in the “Type” field, and press Enter. I have had good success using the K9USA spotting server.



Once you connect to a spotting site, N1MM will start displaying a running log of spotting entries that is updated as spots are posted. It also will start updating the spotting frequency log and multiplier tables. In the screenshot below, the multiplier table is on the left, and the frequency spotting list is on the right. You can reposition them.

The spotting frequency list shows entries for stations in the band you're tuned to. You can double click an entry in the list to tune to the frequency of the station and enter the station's call sign in the log entry field. Spots for stations that are multipliers are shown in red. Spots for entries that are not relevant to the contest or which you have already worked are shown in gray.

The multiplier table shows a count of the number of multiplier stations currently available on each band along with a list of recently spotted multipliers. You can double click a station entry in the multiplier list to tune to it and enter its call sign.

Note that the spotting list shows only entries for stations on frequencies in the band you are tuned to, whereas the multiplier table shows entries for multiplier stations in any band.

**Available - 72 Mults 111 Qs of 139 total spots**

Mults	Qs
0	0/0
10	13/13
7	14/14
10	15/15
<b>26</b>	<b>42/42</b>
19	27/28

Call	Freq	Dir	Mode	TS	S/N
IT9WLK	3629.0	050°	LSB	04-17 190303	
IT9JZK	3635.0	050°	LSB	04-17 190226	
9A65CWW	3772.0	046°	LSB	04-17 185720	
IZ8FQG	3635.0	050°	LSB	04-17 185543	
RV4HJ	3519.4	024°	CW	04-17 185207	
UY5R	3519.4	035°	CW	04-17 185058	
RU3PA	3519.4	030°	CW	04-17 185041	
RC2SS	3519.4	028°	CW	04-17 184905	
SP/DK9HAG...	3558.0	038°	CW	04-17 184846	
RW4HH	3519.4	024°	CW	04-17 184713	
RW3WR	3519.4	032°	CW	04-17 184647	

**IC-7600 VFO A**

**3772.00** SH/DX Wide

LSB

## Contest categories

Most contests allow you to enter in one of several categories. When starting a new contest log in N1MM, there will be a drop-down list where you can select from the available categories for the contest.

## Mode and band category

Some contests allow operation in multiple modes – SSB phone, CW, or digital. You can specify if you are operating in multiple modes (“mixed”) or only in a single mode. If the contest is run on multiple bands, you can specify if you are working multiple bands or a single band.

## Power category

There are usually three power categories:

- QRP – Typically 5 watts and less
- Low power – Typically 150 watts and less
- High power – Typically anything above 150 watts

## Single and Multi-operator category

If you wish to work together with other hams in a club or have a “QSO party” at your house, you can operate in the multi-operator category.

## Assisted or unassisted category

If you use any sort of assistance during the contest, then you must enter the “assisted” category. Assistance includes using **spotting lists** either within the logging program or Internet sites, and it includes help from other hams who provide spots or who log QSOs for you. So if you plan on using a spotting list, you must enter in assisted mode.

## Contest scoring

The basic goal of all contests is to log lots of QSOs, but some QSOs count for more points than others. The contest rules will spell out exactly how many points you get for each QSO. For example, domestic contacts may add one point to your score, and DX contacts may add two points. Sometimes there are bonus stations that add more points if you work them. AC Log and N1MM understand the scoring rules for contests and will dynamically update and display your score as you log QSOs.

Typically, you are only allowed to work a given station once on a given band and/or a specific mode. Duplicate entries (“Dups”) do not count and may actually reduce your score. Contest logging software like AC Log and N1MM keep track of each station you’ve logged and notify you if you attempt to add a duplicate entry.

## Multipliers

In addition to adding points to your score, some QSOs count as “multipliers”. Your total score is multiplied by the sum of the multiplier points. For example, in the CQ WPX contest, each unique prefix (W4, W5, UA2, etc.) increments the multiplier. Working additional stations with the same prefix adds points to the score, but it does not increase the multiplier. So, if your point score is 5000 and your multiplier total is 20, then your total score is  $5000 \times 20 = 100000$ . Obviously, you want to give priority to working stations that count as multipliers.

N1MM displays multiplier entries in bold red type in the spotting list making them easy to see. In the case of CQ WPX, when you log a prefix, all other entries with the same prefix will change automatically from red to black. N1MM also has a separate screen just for multipliers; it shows available multipliers on *any* band, not just the one you're tuned to.

## Spotting screens

Spotting screens are your best friend in a contest. A spotting screen displays a list of the stations that other hams have worked along with their last known frequencies. There are spotting web sites such as DX Watch (<http://www.dxwatch.com/>) and DX Summit (<http://www.dxsummit.fi/DxSpots.aspx>), and there are spotting screens built into logging programs. For contest work, it is better to use the spotting screens built into the logging program, because (1) you can double click an entry in the list to tune the radio and fill in the logging screen with the station call and frequency, (2) multiplier entries are shown in red, (3) stations you've already worked are shown in dim gray.

In Search and Pounce mode (see below), you can start at the lowest legal frequency in the band and work upward while clicking on entries in the spotting list. When you hit the upper end, you can either switch to a new band or start the sweep again at the bottom and scan for new entries. Don't work downward because you'll be rescanning stations you just checked, and if you aren't careful you will get into the Advanced and Extra class regions without noticing it.

N1MM has a separate spotting screen that displays only stations that count as multipliers, and it shows the stations on all bands, not just the one you're working. You can double click a station entry on that screen to switch the band, tune to the frequency, and initialize the logging screen. N1MM also has a screen displaying the number of multiplier stations available on each band.

Logging programs have a "Spot" button you can click to submit a spot report through the Internet to the central spotting system. If you find a station that is running a frequency but which isn't on the spot screen, work the station first, and then spot them.

"Self spotting" (adding a spot entry for yourself) is prohibited. If you encounter a friend working a frequency, by all means spot them. But don't ask a friend to spot you.



## Modes of operation

There are two primary ways to work a contest – “Running” and “Search and Pounce”. There are pros and cons to each method.

### Running a frequency

When you “run” a frequency, you find a (relatively) clear frequency and call “CQ contest” to attract people. Hopefully as soon as you work one person, another person will be ready to call you. If you are lucky, you will be the recipient of an incoming pileup. If you can get a run going and handle it, this is definitely the fastest way to log QSOs.

In the case of small to medium contests like state QSO parties, running a frequency is relatively easy. It’s usually easy to find a clear frequency (don’t forget to ask “Is this frequency in use?”), and the QRM and incoming traffic are likely to be light enough to make it easy to understand call signs.

The form of the CQ call depends on the contest. For small contests that most people may not even know about, you should say something like “CQ contest. CQ Tennessee QSO party. W4PHS listening.” If most people seem to know about the contest, you can shorten it to “CQ contest. W4PHS.” In digital modes and CW, the call is often shortened to “CQ test”, but you will rarely hear that on SSB.

For major contests where virtually everyone is involved, the exchanges used when running a frequency are very brief. The station may just say their call sign to indicate they are ready for another call.

You may hear stations just saying “QRZ” to solicit the next call without giving their call sign or simply accepting a new call without saying anything. This may be legal in the country where they’re working, but the FCC requires USA hams to give their call sign every 10 minutes and “at the end of each communication” (97.119(a)). So when you’re running a frequency, you should say your call sign or “(call sign) QRZ” or “(call sign) CQ contest” at the end of each QSO to solicit the next call.

Running a frequency in a major contest is challenging. First, there are likely to be no clear frequencies, so you have to try to wedge yourself into a relatively inactive frequency. If you go QRT for two minutes for a bathroom break, a squatter is likely to claim the frequency. Weak stations also have problems running in major contests because their signal may be covered up by adjacent strong stations. If you try running and don’t get any responses, don’t waste a lot of time; either QSY to a better frequency or switch to search and pounce mode.

The intensity and QRM for a major contest make it hard to understand call signs. Some contest masters have an amazing ability to pick out a call sign within milliseconds from

a huge pileup, but most hams find it challenging. If you're just getting started with contesting, you may want to stick with Search and Pounce on major contests for a while.

### **Search and Pounce**

When operating in "Search and Pounce" ("S&P") mode, you look for stations calling "CQ contest" and try to work them. This mode is usually much slower than running a frequency, but it is easier because (1) you don't have to find a clear frequency, and (2) you can use spotting screens to get the call sign of the station set up before trying to work them. It is recommended that hams new to contesting start out using Search and Pounce mode.

### **Contest exchange information**

Different information is exchanged for each contest. Refer to the contest rules to find out what you need to send and log. Good contest logging programs like N1MM customize the QSO information screen so that it has the appropriate information for the contest you're working.

### **Sequence numbers**

Many contests exchange a sequence number that gets incremented for each QSO. N1MM and other logging programs automatically display and increment sequence numbers. During an exchange you will send your current sequence number and then receive and log a number provided by the other station. The QSO only counts for points if the sequence numbers match when the results are scored.

### **Signal reports**

By gentlemen's agreement, all signal reports given in contests are "59". This avoids having to listen for and log the actual number. So even if you can barely hear a station, you report and log their signal as "59".

Here is a typical contest exchange with sequence numbers:

“RA1ABC” (Russian station ready for the next call)

“W4PHS” (I offer my call sign)

“W4PHS copy 59 2107” (He acknowledges me and gives his signal report and number)

“W4PHS, QSL, copy 59 147” (I acknowledge with my signal report and number)

“RA1ABC” (He is ready for the next call)

## Submitting contest logs

If you work a contest, you should submit a log to the contest authority for scoring. Most contests will allow credit for a certain number of “uniques” that show up in logs but who do not submit logs themselves. Occasionally hot disputes break out when winning stations claim a large number of “uniques” (see [http://www.radio-sport.net/iaru\\_scoring09a.htm](http://www.radio-sport.net/iaru_scoring09a.htm)) As a responsible contester, you should always submit a log if you work a contest. I recommend *not* responding to a “CQ contest” call unless you’re working the contest, because you won’t know the rules or the exchange.

Contest logs should be submitted in Cabrillo format. Contest logging programs like N1MM can generate the appropriate formats for all major contests. The contest rules will explain how to submit log files. When submitting a log via e-mail, most contests want you to put only your call sign in the subject field. Save a copy of your log file in case the submission is lost or there are any questions about it later.

Once the contest is over, you should generate an ADIF log file and import it into your normal logging program. Also, if you use Logbook of The World (<http://www.arrl.org/logbook-of-the-world>), you should digitally sign and submit your log to LoTW.

## Tips for better contesting

There are an endless number of tips and techniques developed by practiced contesters. Here are some of mine.

- **Work multipliers first** – As explained above, QSOs that add to the multiplier count are much more important than other QSOs. So look for multiplier stations, and try to work them before spending time on other stations. N1MM shows multipliers in red in the spotting list, and it has a separate screen that shows multipliers available on any band.
- **Note important multipliers** – If you can’t bust a big pile-up on a needed multiplier, write the frequency down or put it in your other VFO, and check back

later when the pile is smaller or propagation has changed. Multipliers are important, but so is rate. If you can't get a multiplier after a while, note it, and move on rather than spending too much time trying.

- **Work blocks of stations in the same direction** – If you have a directional antenna, point your antenna in a direction where there are multiple stations and run down the spotting list working as many as possible. Then swing the antenna and run down the list again. For example, point the antenna towards Japan and work all Japanese stations, then swing it to Europe and work them, then swing it to South American and work all of them. This will save a lot of time waiting for your antenna to come around. N1MM shows the direction of each station in its spotting log.
- **Try calling fast or late** – When working a pileup, sometimes it's best to give your call sign as quickly as possible to get ahead of others, and sometimes it works best to be the last call sign given in the pileup. Listen to the station and see how they respond. If they respond quickly to early calls, then try to do that. If they wait for the calls to thin out, then try calling late. You also may give your call, pause for a short while, and then give it again so you are at the front and the end of the calls.
- **Be mindful of band openings** – Some bands may be open for short periods or only during daylight hours, so you should work them while you can. Since the higher frequency bands tend to close as the sun sets, you should work them until they start to close and then move to progressively lower frequency bands. If you work through the night, start checking the high bands as the sun rises. You may have a chance to work some DX stations before others wake up and discover the openings.
- **Alternate between running and search and pounce** – If you can get a run going, stick with it. But if things dry up, don't spend a lot of time calling CQ. Go into search and pounce mode for a while then try running again. Also, consider trying to get a run going on a new band where there may be hams cruising who haven't worked you. While you're in S&P mode, give priority to picking up important multipliers that you didn't get while running.
- **Use the extra class areas if you can** – In major contests where QRM is a problem, try working the extra class and/or advanced frequency ranges if you are licensed for them. Usually there is significantly less QRM in the extra class region than the general class region.

- **Be careful where you tune** – When moving up and down a spotting list of stations, make sure you don't accidentally get outside of your licensed frequency range. If you have a general class ticket, be careful you don't click a station in the extra class region that you see on the spotting list. Even if you have an extra class ticket, be careful that you don't get outside of the USA frequency band, because there may be DX stations on frequencies we can't use. Since the extra and advanced regions are at the lower end of bands, the safest thing for a general class operator to do is to start at the lowest legal frequency in the general class band and work the spotting list toward higher frequencies. Remember that you must be 3 kHz above the bottom of the band in LSB mode and 3 kHz below the top in USB mode.
- **Be prepared to break through a pile-up** – While waiting your turn in a pile-up, figure out the exchange information you're likely to receive. If there is QRN or QRM when you get your turn, you'll have a much better chance of copying it on the first try. For example, if you hear the station sending sequence numbers 413, 414, you know that you'll receive 415 if you get called next.
- **Be succinct** – Don't waste time with extraneous information in contests. If the exchange is a signal report and sequence number, then give only that. Don't give your name, QTH, equipment, weather report, or anything else. When making a call, give only your call sign; do not give the call sign of the station you're trying to work.
- **Use the standard phonetic alphabet, and give your full call sign** – The easier it is for a station to understand your call sign, the more likely they are to work you. So always use the standard phonetic alphabet. Always give your full call sign rather than just the suffix, because stations don't want to waste time asking for the full call sign.
- **Take advantage of DX opportunities** – Contests are a great way to add new DX entries to your log. When you are scanning the spotting screens, keep an eye out of countries you've never worked, and pounce on them when they show up. This may be your only chance during the year to work some rare country.
- **Consider hosting a "QSO party"** – It's great fun to work contests with friends. Consider inviting some friends over to your house for a contest where you work single-station, multi-operator mode. Or, if you're a member of a club, consider setting up a multi-station club event.

- **Take breaks and refresh yourself** – There are dedicated contesters who seem to be able to work non-stop 48-hour contests without taking a break, but most of us need to stop occasionally and get refreshed. Struggling to hear call signs in a pile-up and working hard to break through a pile-up are tiring. When you get tired you'll start making mistakes, and your rate will drop. Keep contesting fun: take breaks, rest, and occasionally let the XYL know you're still alive.
- **Find a contesting "Elmer"** – One of the best ways to get started with contests is to find another ham with experience in contests who can "Elmer" you. If you can find a contest club, you should be able to find someone who enjoys being a mentor. My contesting mentor was Pete Rimmel, N8PR. Not only did Pete teach me most of what I know about contests, he also provided valuable material for this guide. Thank you Pete!

## Contest clubs

Half the fun of contesting is talking about the contest and bragging about your score or marveling at some friend's triumph. There are many contest clubs where hams share their contest experiences and sometimes get together for QSO parties at someone's house. Check with local hams, and see if you can find a contest club near you. Here in Tennessee, we have The Tennessee Contest Group (<http://www.k4ro.net/tcg/index.html>).

## Time to get started

OK, it's show time. Pick out a contest you want to try, read the rules twice, and jump in. Don't worry about embarrassing yourself; people are too busy in contests to pay attention to blunders. And I promise that no one is going to come over and beat you up if you make a mistake.

Remember the *prime directive*: **Ham radio is a hobby, not a job. Have fun, take breaks, and don't get too serious about all of this.**

**73 – W4PHS**