Field Day Primer

Fourth Edition
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Fourth edition edited by Jim Heedles, WW1Y

Forward

For more than a decade, the Nashua Area Radio Club has participated in the American Radio Relay League's Field Day, most often with one of the larger operations involved in the exercise. The club has been consistently among the top ten scoring clubs in the country; and placed first, overall, in 1995 and 1996.

The Field Day Primer was first published in 1994 with two objectives in mind:
1) To provide an introduction to Field Day for those who have not been involved in past Field Days, and
2) To serve as a guide to Field Day participants (in the hope that we could move up in the overall standings).

This, the fourth edition of the Primer, has been revised somewhat to include some additional information in with reorganized pullouts.

The author, as usual, would appreciate any constructive comments for improvement or suggestions for additional topics to be included, when and if subsequent editions are prepared.

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1. What is Field Day?

Field Day is a competitive event sponsored by the American Radio Relay League (ARRL). The objective for participating individuals and organizations is to contact as many other stations as possible on any or all of the amateur bands (except for the 10, 18 and 24 MHz "WARC" bands) during the 27 hour operating period (1800 UTC Saturday through 2100 UTC Sunday). There are limitations on how much of the 27 hour period may be used depending upon when station setup is begun. Field Day is normally conducted on the last full weekend in June of each year.

Competition is open to all United States and Canadian (including the Yukon and Northwest Territories) amateurs. Although foreign amateur stations may be contacted for credit, they are not eligible to compete.

Emphasis is placed on learning to operate under simulated emergency conditions and acquainting the public with amateur radio through the competition's scoring structure.

2. How is the Nashua Area Radio Club involved?

The Nashua club conducts Field Day as a multipurpose event. It provides an opportunity to expose the general public to amateur radio . It is the major social event of the year for the club. It provides an opportunity for "friendly" competition with other ARRL affiliated clubs throughout the country. And it provides an opportunity for learning new skills related to station setup and operating.

The club's Field Day activity is publicized in the local media to alert the general public to the event and its location. Club members conduct informal tours of the operating stations and answer questions regarding the Field Day operation and ham radio for non-ham visitors.

Socializing among the members and visitors competes heavily with the actual Field Day related operating activities. The Saturday evening meal is a large scale event that draws additional club members and guests to the site for a family outing.

The Nashua Area Radio Club participates in "Class A," (one of several categories of competition) which is for club and non-club portable operation. In this class, stations must be set up at locations that are not regular station locations. Additionally, use of permanently installed station facilities or structures permanently installed for Field Day use are prohibited.

In recent years, the club setup has been located behind an orchard located off of Ridge Road in Hollis, NH; where we are hosted by "Buzz" Muzzey, KA1OMJ .

Beginning at 1800 UTC on the Friday before the Field Day operating period, club members transform the grassy fields and forest clearings into what has been described as a small city. The transformation is complete by the time the operating period begins 24 hours later. Because the club begins setup on Friday, operating time is limited to 24 of the overall 27 hour operating period.

In addition to tower erection, antenna installation, and shelter (tents/camping trailers) setup for stations; setup involves major logistics facilities. The club's own "PSNH" (Private Service NARC Hams) set up electrical power generation facilities and run distribution wiring to all of the operating locations. A large field kitchen area is set up where meals are prepared and served. Portable sanitary facilities are placed at strategic locations around the site. Signs are placed to guide people to and through the site area.

3. Preparation.

Preparations for Field Day actually begin, each year, about three to four months before the event. A series of planning meetings are conducted by the volunteer Field Day "Incident Commander". No one individual could possibly handle all of the arrangements necessary for a successful Field Day on the scope of the Nashua club's. Thus, volunteers assume the responsibility for various areas of preparation. These areas include "PSNH", the kitchen, and each of the operating stations planned for service during Filed Day. The coordinating meetings provide a scheduled forum to report on progress of preparations, problem areas encountered and sharing ideas for improving club performance.

The Station Master.

Early in the planning stage, one individual assumes the responsibility as "Station Master" for each station that will be operating during Field Day. Typically, there will be a station master for each band and/or mode planned for use. In some cases, such as "VHF," one individual may assume the responsibility for several bands and/or modes.

As the title implies, the Station Master is the “Master” of a station; with the responsibility of ensuring that all required equipment, supplies, and immediate area facilities are available and operational at the start of the operating period. Further, the Station Master must arrange for primary and relief operators needed to maintain operations during the full 24-hour operating period.

The Nashua Area Radio Club owns and provides many of the major items needed to set up the stations. Towers, guy wire, several HF antennas, Generator, and coaxial cable needed to put stations on the air on both modes (SSB and CW) on the HF bands are available from club assets. The Station Master should verify the availability and condition of an antenna and coaxial cable for his particular station. “PSNH” only garuantees AC power to within 50 feet of your equipment, so be prepared to bring an extension cord.

A sample checklist is attached that should be helpful to the Station Master. For the most part the items listed are the minimum items needed, although some adjustments may be made depending on the experience level and preferences of the station operators. One “item” not listed that should be considered is a tool kit containing sufficient tools to perform minor electronic and electrical repairs, such as replacement of cable connectors.

Computer logging.

The Nashua club uses computer logging for all of the high volume stations. In addition to making the job of logging much easier during the contest, it makes the post-contest job of score calculation and double checking for duplicate contacts much easier. Before computer logging, dupe checking and scoring took weeks of effort by several people. Since all logs are computerized using the same logging software (“CT” by K1EA), the merging of logs, duping, and preparing the formal entry is accomplished in a matter of a few hours by one person.

The preferred computer type for Field Day is a laptop (either 80386 or 80486 preferred) with an internal hard drive. If provisions for an external monitor and/or keyboard are included, so much the better for ease of use.

The software used is copyrighted, and strict procedures are followed to ensure that unauthorized copies are not distributed. Prior to the start of the operating period, a single revision level copy of the software is installed on the logging computers by one designated individual. Immediately following the operating period, the same individual collects the log files on floppy disks and removes the logging program files from the computer hard disk. Station Masters planning on obtaining a computer for logging should coordinate with someone familiar with the hardware and operating system requirements for the logging program to ensure compatibility.

Electromagnetic Interference.

Minimizing interference between many stations operating simultaneously within such a small geographic area (all stations must be within a 1000 foot diameter circle) is a major technical challenge. There are many things that must be considered to keep the interference level down to a point that other stations can be heard and contacted. Selection of transceivers and antennas, location of towers, orientation of antennas, assignment of stations to towers, all must be considered. Even with power being limited to the 100 watt class, as we do, interference can be a serious and frustrating problem in a multi-transmitter environment.

Locations for the towers, assignment of stations to the several towers and orientation of antennas have been optimized empirically based on experience at the site. With continuing refinements, the layout has continued to work very well, as evidenced by the record number of contacts logged in 1995, and again in 1996.

Use of transceivers that exhibit a minimum of transmitter “phase noise” is very important. Transmitters with high phase noise broadcast broadband noise across large sections of the spectrum that cannot be filtered out by nearby receivers. Even though the transmitters may comply with FCC requirements, the small distances involved at the Field Day site can result in locally generated noise being much higher than the signal level of the stations that are being worked. There are several models of solid state, synthesized transceivers that are notorious for their phase noise. Newer transceivers have been improved as this type of problem has become more well known.

On the receiver side, transceivers with a “bullet proof” front end are essential. With the potential for more than a dozen transmitters being on the air at the same time that one station is trying to hear a weak signal, the receiver must be able to tolerate very high “out of band” RF levels without generating (internally) unacceptable intermodulation products. Certainly the preferred complement of transceivers would be in the classes of the IC-781 or IC-765. To minimize internal receiver intermodulation, receiver RF amplifiers (preamplifier) should be switched OFF. If the receiver has a built in, selectable attenuator; try adding 10 dB of attenuation while watching the receiver’s S-meter. If the S-meter reading drops by more than 10 dB when the attenuator is switched in, the receiver front end is “overloaded,” and you will probably be able to copy stations (even weak ones) with the attenuator.

Following the 1994 Field Day, the club invested in a quantity of bandpass filters (materials purchased by the club and assembled as a club project coordinated by Pauline, KA1LDF). The filter design was published in the June 1994 issue of QST. They were designed specifically for use in Field Day, multi-transmitter environment and are used for both transmit and receive, handling 150 Watt transmitter outputs comfortably. Two such filters were used in 1994 by NO1V and WS1E at the 20 and 40 meter CW stations and worked very well for them. A sufficient number of the filters are now available to equip all of the stations operating from 80 through 10 meters, CW and SSB.

All (well, almost all) of the club owned antennas are monoband types. This is the preferred type for all stations since these antennas do not radiate or receive out of band signals as efficiently as those within their design frequency range. This reduces the level of transmitted harmonics and noise levels, and conversely reduces the received level of nearby transmitter signals. With stations on both the phone and CW portions of the HF bands, the best antennas for this situation are not the ones you would choose for your home station! The higher the VSWR on the portion of the band(s) you are not using, the better the antenna is at Field Day!

By the way...unless that fluorescent desk lamp that your thinking about using has been proven to be “quiet,” leave it home and grab an incandescent table lamp!

4. Operating.

As stated previously, the object of operating during Field Day is to log valid contacts with as many other stations as possible during the allowed operating period. A valid contact requires exchanging callsigns and an “exchange” that is comprised of the stations class and ARRL/Canadian section.

The “class” is composed of a number and a letter. The number signifies the number of stations being operated and will usually be between 1 and 23. Most participants will use between 1 and 6 stations, with the higher numbers being rarely heard. The letter (A, B, C, D, or E) signifies the type of operation. “A” meaning club or group of 3 or more amateurs operating portable with emergency power (generator, battery, etc.). “B” is used by one or two people operating portable with battery power. “C” is used by mobile stations. “D” is used by home stations operating from their normal commercial power source. “E” signifies a home station operating with emergency power. These “class” definitions may also be found in one of the two pullouts included in the “Primer.”

The class in which the Nashua club will operate during the 1997 Field Day is 29 Alpha. For the purposes of the example exchanges that follow, this value is used for the club, and 3 Alpha is used for the other station (AA4NC).

The “class” information is followed by the “section,” which for the Nashua club’s operation is “New Hampshire” or “NH.” Many states have more than one ARRL section, and it is a good idea to have a list of the sections and their common abbreviations handy at the operating position.

A pullout sheet is included that contains a complete list of the ARRL/CRRL sections and definitions of the Field Day operating classes.

Typical Contacts.

Phone. On phone, in response to hearing another stations "CQ," you respond with the full callsign (N1NH) being used by the club for Field Day. If the station you call hears you, he will respond giving your callsign and his exchange information. You enter the information in the log and respond with your exchange information including callsign. On CW, the process is the same. A typical "search and pounce" contact would go as follows:

	Phone	**CW**
He calls	CQ Field Day Alpha Alpha Four November Charlie	CQ CQ FD de AA4NC
You would respond	November One November Hotel	N1NH
He answers with	N1NH Three Alpha North Carolina	N1NH 3A NC
You complete your part with	Twenty-nine Alpha New Hampshire, N1NH	29A NH N1NH
He confirms and moves on...	Roger, QRZ Alpha Alpha Four November Charlie	“TU QRZ AA4NC" or "TU AA4NC"

When "running" a frequency (staying on the same frequency and calling CQ), roles are reversed from the above and would go like this:

	Phone	**CW**
You make a general call	CQ Field Day, CQ Field Day November One November Hotel	CQ FD N1NH
You listen...and hear	N1NH here is Alpha Alpha Four November Charlie	AA4NC
You respond	Alpha Alpha Four November Charlie Twenty-nine Alpha New	AA4NC 29A NH

	Hampshire	
He answers	“Three Alpha North Carolina" or “Three Alpha North Carolina AA4NC”	"3A NC" or “3A NC AA4NC”
You confirm and move on	Roger, QRZ November One November Hotel	TU N1NH
You listen, and if no one answers, repeat	CQ Field Day, CQ Field Day November One November Hotel	CQ FD N1NH

Operating Tips.

To maximize the number of contacts, there are several practices that should be followed.

Call CQ. Most of the Field Day participating stations will be "casual" operations whose goal may be to work their last needed state for Worked All States or 5-Band Worked All States. These stations will not be calling CQ! They will be tuning the bands "searching and pouncing" on stations that they need to achieve their individual goals. The ONLY way to log a contact with one of these stations is to keep "N1NH" on the air to be heard and called by them.

Keep your calls and listening periods short. Don't make stations wait for you to end a long winded "CQ." Give them frequent opportunities to call you. Similarly, allow enough time for someone to begin a response before calling again, but don't wait longer than necessary. Timing this properly takes some practice. On CW, using QSK if available on the transceiver allows you to catch the "slow starter."

It is tough to know when to stop CQing and go to a "search and pounce" mode of operation. There are a few stations, serious competitors, in the 2 to 6 station classes that may not do much, if any, "search and pounce" operation. If the rate at which you are getting calls drops off, there may be another station on your frequency that you can't hear (and can't hear you) because of propagation. If the adjacent frequency is clear, you may want to move up or down a bit and try there. Otherwise, a quick pass through the band "searching and pouncing" may be more productive, at least until you can find a new frequency to camp out on, and...you know...**call "CQ!"**

When you are in the "search and pounce" mode, the logging program's "CHECK PARTIAL" feature is invaluable for identifying stations worked before. As soon as you have typed at least 2 characters in the CALL field, a list of all calls in the log containing that character sequence will be displayed. As additional characters are entered, the list is updated.

Even after operating in many contests, the decision of when to "search and pounce" is a difficult one, and always subject to second guessing afterwards. If in doubt....**call "CQ!"**

Don't Ragchew. Even though Field Day is a somewhat "laid back" contest, don't fall to the temptation to ragchew, especially if you have been receiving one or more responses to each CQ call. The serious competitor will not wait for you to finish chatting! He will recognize that he could log 2, 3 or more contacts while he waited (and possibly you could also have logged as many more!).

Keep your transmissions short. Not only to save your voice but to save time for other contacts, keep the content of your transmissions short and limited to only the essential information. It is not discourteous to omit "73" from the end of each contact. If you are "searching and pouncing," you need not formally acknowledge receipt of the "CQing" stations information but need only to respond with your own. If you didn't catch all of his information, a simple "AGAIN?" on phone, or "?" on CW should be enough to get the information repeated before you give your portion of the exchange.

Use the full callsign. When "searching and pouncing" always call the station using your full callsign, never just the last two letters. No competent operator working a frequency wants to have to ask anyone to repeat their call if they can copy it initially. They can't copy it if you don't give it! The two letter "call" is very poor operating practice at any time, regardless of how often you may hear it in DX pile ups.

Don't bother duping during the operating period. If you are stuck using a paper log, follow the advice about CQing to the limit, and don't waste time checking to see if a station calling you has been logged before. Let the stations calling you do the duping during the contest. If you follow the advice to call CQ throughout the contest, your dupe rate will be no worse than if you used one and you will log more contacts (based on my own experience at least).

Rework "dupes" that call you. Even if you have worked him before, it is faster to work him again and indicate "dupe" in the log than it is to discuss it. There is no score penalty for working a station more than once on a band, as long as points are not claimed for the duplicate contact(s).

Always end with your callsign. It is very frustrating to be rapidly tuning across a band, "searching and pouncing" and hear a "CQ" or "TEST" and then silence. You know the station is looking for contacts, but who is it? You have to make a quick decision whether to wait for the station to call again; to call him "blind," not knowing whether you have worked him before; or to move on without calling him.

Either of the first options are time consuming and utterly wasted if you have worked before.

Frankly, the best option for maximum time efficiency is to quickly store the frequency in memory and move on. Check back later, (switching between Memory and VFO modes) in between other contacts. Don't force these measures on others or lose needed contacts...always end with the callsign!

"QRZ N1NH" **not** "N1NH QRZ"

CT Basics

If you can, it is best if you familiarize yourself with the use of the logging program before Field Day starts. If you are not a registered user of CT, or cannot visit someone who is for a "training" session; you should study the following summary of functions important for using the program for the Field Day contest.

Starting CT

During preparations of the computer for use in the contest, a special file will be installed so that if you need to restart the program you simply need to type **"NARC"** and **<ENTER>**. The special "batch" file will load CT and bypass several setup screens so that the main logging screen will come up automatically. This file is also invoked on startup. A practice log file is also installed. To use it, type **"PLAY"** and **<ENTER>**.

The first thing you need to do is to make sure that the proper band and mode are set. The active logging line is near the lower left corner of the screen, with a flashing cursor in the callsign field. To the left of the cursor are two numbers the first (far left) is the QSO number, the second number is the band. At the right end of the logging line, the mode is shown "CW" or "SSB"). Once a contact has been logged, CT “remembers” the last band and mode.

To change the band use **ALT-F1** or **ALT-F2**. You will see the "Summary" window to the right on the screen. **ALT-F1** will cause the band to change in order to move the band "up" the Summary Window list. To get a full view of the Summary Window use **ALT-S**. Conversely, **ALT-F2** will cause the band to change in order to move the band "down" the "Summary" window list. The current band also is highlighted in the "Summary" window.

To change the mode use **CTRL-F1** or **CTRL-F2**. If the "Check Partial" window is not visible at the top left of the screen, enable that function by pressing the **F8** key. Now you are ready to begin logging contacts!

Logging a Contact

The flashing cursor is in the callsign field on start up and after each contact is logged, so you are ready to enter the next contact’s callsign. Simply type in the call and when ready to copy the exchange, hit the **Spacebar** (or **Tab** key) (I find the spacebar most convenient). This moves the cursor to the field for the station's Class. Enter the Class as you copy it, and hit the **Spacebar** again. You will then be in the Section field where you enter the ARRL/CRRL section abbreviation of the station. When the contact is completed, press the **<Enter>** key, at which point the contact will be logged to disk and the cursor will jump to the callsign field for the next contact.

Each time you hit the spacebar the cursor will move from one field to the next, rotating through all of the field into which you need to enter data. The left and right arrow keys move the cursor within the current field for editing.

Oops! If, while "searching and pouncing," you find that you have worked a station before; you can "wipe" out the information that you had entered with a single key stroke. The **F11** key (or **ALT-W** combination if you don't have an "AT-Type" keyboard erases all data entered in the current log line.

Help! A series of "Help" screens can be accessed which provide a tabulation of the key combinations and commands for most CT functions. This is accessed by the key combination **ALT-S**. **<Page Down>** and **<Page Up>** move you through the screens, and **<ESC>** closes the help window.

Recording operator changes.

CT has a feature to record short "notes" that you should use to record operator changes. The key combination **ALT-N** pops up the Note window. Simply type your note, such as "WS1E off, K2TE on" and hit **<Enter>**. The note

will be saved in the log file, time tagged. (This feature is also handy for keeping track of the number of "WOWs" you get because of the 15A class!)

To quit CT you can use any of three ways. Type "QUIT" in the callsign field and hit <Enter>, or use a key combination of ALT-Q or ALT-X.

CT to the Max!

To fully utilize the capabilities of CT, the station must be equipped with a computer/radio interface and either a voice keyer supported by CT or a CW keying interface. Few of us will be so equipped, so I will leave it to the Station Master to ensure that all operators are familiar with operating his (or her) particular setup. I have a template on my keyboard that includes all of the functions usually required during a (CW) contest.

Some food for thought.

In 1993 N1NH lost to AD6T by 1,323 points. With an average of only an additional **1.225** contacts per station per hour, N1NH would have had the overall high score!

In 1995 N1NH recorded the high score (21,648 points) for all participants. In 1996 N1NH again recorded the high score (21,756 points) for all participants. In 1997 **we** are the target that others will be out to beat! We can win again! And... we don't need to operate QRP/battery to do it!

In case you are curious, the overall record score for Field Day was set by K6CAB operating 15A (battery powered) in 1994, with a score of 30,150 points.

ITU Recommended Phonetics

Alfa	**E**cho	**I**ndia	**M**ike	**Q**uebec	**U**niform	**Y**ankee
Bravo	**F**oxtrot	**J**uliet	**N**ovember	**R**omeo	**V**ictor	**Z**ulu
Charlie	**G**olf	**K**ilo	**O**scar	**S**ierra	**W**hiskey	
Delta	**H**otel	**L**ima	**P**apa	**T**ango	**X**-Ray	

Station Master Checklist

Item	Source	Chk	Item	Source	Chk
Shelter (tent, camper)			Table		
Rug to protect tent floor			Chairs (2)		
Antenna			Desk Lamp		
Coaxial Cable			Notepad		
Transceiver			Pencils/Pens		
Memory Keyer or Voice Keyer			Flashlight		
Keyer Paddles or Microphone			Spare Batteries for flashlight		
Headphones (2 sets)			50-ft (#12 or heavier) extension cord		
Y-Adapter (for headphones)			Multi-outlet surge protected power strip		
Computer System or Log Sheets			Insect repellent		
Dupe sheets (if no computer)					

Field Day Entry Categories

Exchange is Operating Category and ARRL/CRRL Section.

Class	Meaning	Example
A	Portable: 3 or more amateurs	4A - 6 amateurs with 4 radios out in a field somewhere
B	Portable: 1 or 2 amateurs	2B - 2 amateurs with a radio each,
C	Mobile: Car, boat, plane	1C - Most contacts with amateurs in cars
D	Home: Regular power	1D - The casual operator from home
E	Home: Emergency Power	2E - Two transmitters at home on emergency power

ARRL / Canadian Section designators

ARRL/Canadian Sec	Abbr.	Prefixes, alternates	ARRL/Canadian Sec	Abbr.	Prefixes, alternates
Alabama	AL	AL	North Texas	NTX	NT
Alaska	AK	AK, KL7	Northern Florida	NFL	NFL
Alberta	AB	ALT, ALB, AB, VE6	Northern New Jersey	NNJ	NNJ, NN, NJ
Arizona	AZ	ARI, AZ	Northern New York	NNY	NNY
Arkansas	AR	AR	NYC-Long Island	NLI	NY, NL
British Columbia	BC	BC, VE7	Ohio	OH	OH
Colorado	CO	CO	Oklahoma	OK	OK
Connecticut	CT	CT, CN, CON	Ontario	ON	ON, VE3
Delaware	DE	DE, DL	Orange	ORG	ORG, ORA
East Bay	EB	EB	Oregon	ORE	OR
Eastern Massachusetts	EMA	EM	Pacific	PAC	PAC,HAW,HI,GU
Eastern New York	ENY	EN	Province of Quebec	PQ	PQ, QU, VE2
Eastern Pennsylvania	EPA	EP	Puerto Rico	PR	PR, KP4
Eastern Washington	EWA	EW	Rhode Island	RI	RI
Foreign, except Canada	DX	DX	Sacramento Valley	SV	SV, SAC
Georgia	GA	GA	San Diego	SDG	SDG
Idaho	ID	ID	San Francisco	SF	SF, SANF
Illinois	IL	IL	San Joaquin Valley	SJV	SJV, SANJ
Indiana	IN	IN	Santa Barbara	SB	SB
Iowa	IA	IO, IA	Santa Clara Valley	SCV	SCV
Kansas	KS	KA, KS	Saskatchewan	SK	SA, SK, VE5
Kentucky	KY	KY, KTY	South Carolina	SC	SC
Los Angeles	LAX	LAX	South Dakota	SD	SD
Louisiana	LA	LA, LOU	South Texas	STX	ST
Maine	ME	ME, MAI	Southern Florida	SFL	SFL
Manitoba	MB	MB, MA, VE4	Southern New Jersey	SNJ	SNJ, SN
Maritime Provinces	MAR	MAR,MR,NFD, NB, PEI, LAB, NS, VE1	Tennessee	TN	TN, TEN
Maryland-DC	MDC	MD, DC	Utah	UT	UT
Michigan	MI	MI	Vermont	VT	VT
Minnesota	MN	MIN, MN	Virgin Islands	VI	VI, KP2, KV4
Mississippi	MS	MIS, MS	Virginia	VA	VA
Missouri	MO	MO	West Texas	WTX	WT
Montana	MT	MON, MT	West Virginia	WV	WV
Nebraska	NE	NE	Western Massachusetts	WMA	WM
Nevada	NV	NEV, NV	Western New York	WNY	WNY
Newfoundland-Labrador	NL	VO1, VO2	Western Pennsylvania	WPA	WP
New Hampshire	NH	NH	Western Washington	WWA	WW
New Mexico	NM	NM	Wisconsin	WI	WI, WS
North Carolina	NC	NC	Wyoming	WY	WY
North Dakota	ND	ND	Yukon, Northwest Terr.	YU	YU, NW

CT Quick Reference Guide

Key	Description	Key	Description	Key	Description
F1	Send CQ	Shift F1	Set CQ	Alt F1	Band down
F2	Send exchange	Shift F2	Set exchange	Alt F2	Band up
F3	Send confirm	Shift F3	Set confirm		
F4	Send call (N1NH)	Shift F4	Set call	Alt F7	Send QSO before msg
F5	Send his call			Alt F8	Wipe QSO (Also Alt-W)
F6	Send custom 1	Shift F6	Set custom 1		
F7	Send custom 2	Shift F7	Set custom 2	Ctrl F1	Mode down
F8	Check partial	Shift F8	Super check	Ctrl F2	Mode up
F9	Check call	Shift F9	Set QSO before msg		
F10	Check country	Shift F10	Zone check	Ctrl F9	Rate graph
F11	Wipe QSO				
F12	Check unique				
Alt-B	Show schedules window	Ctrl-A	Beginning of field	<Enter>	Log QSO
Alt C	Toggle countries window	Ctrl-D	Delete character	Ins	Same as F5, F2
Alt-E	Make a schedule	Ctrl-E	Move to end of field	+	Same as F3, <Enter>
Alt-H	Show help window	Ctrl-G	Go to log line number	-	Show split freq window
Alt-K	Toggle keyboard mode	Ctrl-K	Delete rest of line	ESC	Panic stop
Alt-M	Show multiplier window	Ctrl-W	Wipe field	→	Move forward one char
Alt-N	Show notes window			←	Move back one char
Alt-Q	Save log and quit	Home	Start of field	↓	Move to next Call
Alt-R	Show rate window	End	End of field	↑	Move to previous Call
Alt-S	Show summary window	Space	Toggle Call & Info	Tab	Move to next field
Alt-U	Super check partial			Shift-Tab	Previous field
Alt-W	Wipe QSO (Also Alt-F8)	PgDn	Scroll forward 1 pg	Backspace	Delete previous char
Alt-X	Save log and quit	PgUp	Scroll back 1 page	Del	Delete char on cursor
Alt-Z	Show zone map			Ctrl-PgUp	Scroll backward 24 hs

Command Line Commands (Enter in the callsign field)

AutoSave Save the log file to the floppy in drive A - ***Drive A Only! You must have a formatted floppy inserted!***

Quit Saves log and exits

NoAutoSave Turn off Autosave

Seven fields of log file

1	2	3	4	5	6	7
QSO Number	Band	Time UTC	Callsign	Received Category	Received Section	Received Mode