

CQ/X Client: User Guide Revision 1.7

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by C. W. Sanders, NO5W

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Original: 31-October-2004.

Revision 1.2: 13-September-2005

Revision 1.3: 05-November-2005

Revision 1.4 22-May-2006

Revision 1.5 23-July-2006

Revision 1.6 21-September-2006

Revision 1.7.1 10-January-2007

Revision 1.7.2 09-May-2007

Revision 1.7.3 09-August-2007

Revision 1.7.4 12-August-2007

Revision 1.7.5 09-September-2007

The Woodlands, TX

Acknowledgements

The author would like to thank the following individuals for providing helpful comments, suggestions, and user feedback during the development of CQ/X.

Jim Stahl - K8MR

Jim has provided many suggestions for improvement including the following that have been implemented. A number of other suggestions from Jim are on the list of future items.

- Options for more economical use of screen real estate and ability to adjust the font size of the log display

- Inclusion of a clock to show remaining time

- Emulation of keystrokes used by NA

- Ability to edit the band/mode when revising a log entry

- Ability to change the current county from the QSO Entry window

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1 Introduction and Quick Start Steps

1.1 Purpose

This guide covers the essential information needed by the user to get CQ/X de NO5W up and running in a minimum amount of time. It also contains additional user help information in the section [Miscellaneous Topics](#)^[10].

Before beginning or even considering to use the program the user should be aware of the [System Requirements](#)^[5] and [Other Requirements](#)^[6]. Please review these.

When you are ready to start consult the [Quick Start Steps](#)^[7].

1.2 System Requirements

Operating System:

- **Windows 2000/XP:** This program was developed and extensively tested on a Windows 2000/XP system. This is the preferred platform.
- **Windows 98SE:** Limited testing has been performed on a Windows 98SE system with no major problems but a few idiosyncrasies noted in the section on [General Problems](#)^[12]. Please report any observed problems not already included to no5w@consolidated.net.
- **Windows 98/ME:** No testing has been performed on a Windows 98 or Windows ME system.
- **Windows 95:** It is not expected that the program will run on a Windows 95 operating system.
- **Windows 3.1:** The program will not run under Windows 3.1
- **DOS:** The program will not run under DOS.

Processor Class: The lowest level machine on which extensive testing has been performed is a 400 MHz Pentium II class machine with 256 MB of memory running Windows XP. Performance is adequate for that level of machine.

Drive Space: With the large size of current disk drives this requirement is largely academic. However the following is offered for those needing to conserve disk space.

- **Core User Interface module:** The core user interface module requires approximately 2MB.
- **Device Modules:** The modules for radios, keyers, GPS typically each require .5MB
- **Transceiver Manuals:** The pdf files for manuals appear to be in the 1.5 - 4.5 MB range.
- **Contest Modules:** The module for each contest can range from .5MB to 1.0MB
- **Map Modules:** A map clipped from Streets and Trips showing a single county and small parts of adjacent counties typically requires about .5 MB as a .bmp file.

If drive space is an issue a minimal installation would be one containing the core user interface module, a device module for a single radio type and a single keyer type and a contest module for a single contest. The requirements for such an installation would be approximately 4MB.

On the other hand an installation for covering a typical "full-bore" Texas QSO Party route of 36 counties with a map image for each county could be in the range 22-25 MB.

1.3 Other Requirements

1. CW Keying Requirements:

Since the program is designed to use an external device for generating CW and keying the transmitter it is necessary for the user to provide one of the following two supported keying devices that interface to the PC via a serial connection:

WinKey: This keyer is supplied by K1EL at: www.k1el.com. It is a very reasonably priced and full-featured kit. Assembly of the circuit components on the board can be performed in an hour or two. Time required to mount the board and connectors in the user-provided cabinet/enclosure depends on the metal-working ability of the builder with the installation of the DB-9 connector being the only challenging part.

Note: WinKeys are currently present in several devices including the following:

1. The USB hub (Navigator) available from [US Interface](http://USInterface.com) contains a WinKey and has been successfully tested with the program. It also contains an auxiliary RS-232 port and supports the CAT interface to the radio which is useful for interfacing a serial GPS and the radio to the PC.
2. The USB Micro CW Keyer, recently introduced by MicroHam, uses the K1EL WinKey and should work with CQ/X although there has been no opportunity to actually test the program with the Micro CW Keyer.

Hamation Keyer: This keyer is supplied by K7MI at www.hamtoys.com. It is a moderately priced fully assembled keyer but with somewhat limited features. It will accept message strings for sending and will also accept a command to change keying speed.

Another device which could serve as an external keyer but is not supported in the current version of the program is:

W5XD Multi-Keyer: This box is primarily for SO2R so it is much more than a keyer. As a keyer it has less functionality than the WinKey but more than the Hamation Keyer. However, it is the most expensive of the three. Control of this device uses the RS232 control signals in such a way that rig control and keyer control can take place over the same port reducing the port requirements. It is available from www.writelog.com. Note: Although this device is not supported in the current version support for it is planned for the near future.

2. Route Planning:

Although not a requirement, it is highly recommended that route planning for mobile QSO party operation be performed using a mapping program that contains county line information. One such program is Microsoft's Streets and Trips.

3. Requirements for Spotting:

Since the program is designed to use an external program for accessing spotting information from DX Clusters it is necessary that you provide such a program if it is desired to use the spotting capability. The spotting features of CQ/X have been tested with the following programs providing the spots over a serial link.

DXTelnet: This program was developed by IK4VYX and is available for a small registration fee from <http://www.qsl.net/wd4ngb/telnet.htm>

ARUser: This program is freeware available from VE7CC at <http://www.ve7cc.net/>.

1.4 Quick Start Steps

Here is a step-by-step procedure for getting started with the program as a standalone station. There is also a file (ExploringCQX.pdf) in the PreviewDocuments directory of the distribution CD that provides about a dozen guided activities for getting acquainted with the program. This file is also accessible from the Help menu.

1. [Installation](#)^[11] - Run the setup exe from the CD and follow the instructions. Once the program is installed you can use the configuration wizard to receive prompts for performing the following steps or you can skip the wizard and configure the program without the prompts.
2. [Setting Up a Radio](#)^[27] - Connect your radio to a desired port and register it with CQ/X using the Radios | Connect menu item.
3. [Setting Up a Keyer](#)^[30] - Connect your external keyer to a desired port and register it with CQ/X using the Keyers | Connect menu item.
4. [Setting Up a GPS](#)^[31] - If you are using a GPS connect it to a desired port and register it with CQ/X using the GPS | Connect menu item.
5. [Messages and Function Key Assignments](#)^[38] - Review the default message and function key assignments and modify as desired.
6. [Starting a New Contest](#)^[49] - Use the menu item Files | New Contest to select the contest, contest categories, operator information, etc.
7. [Setting Up Messages](#)^[38] - Review the messages and [Embedded Message Symbols](#)^[41] making sure that the messages are appropriate for the contest.
8. Review the information in [Calling CQ](#)^[51], [Making a QSO Entry](#)^[51], and [Initiating a Search & Pounce QSO](#)^[55] and test your setup and understanding by making some test QSOs.
9. [Route Planning for Mobile QSO Party Operation](#)^[62] - If you are planning to use CQ/X to operate mobile in a QSO party perform the steps outlined in [Planning Route for Non-Use of GPS](#)^[62] or [Planning Route for Use of GPS](#)^[65] as appropriate.

1.5 Quick Reference Case: No GPS

Before the contest perform the following

1. Use **QPTools | Plan Route** to develop the sequence of counties defining the route.
2. If desired use **QPTools | Post Route Plans** to connect to the County Hunter website to post your route and any comments.
3. Use **Keyer | Edit Message Template** to define the format of your messages. Insert embedded symbols in the messages by first positioning the cursor at the desired point of insertion and right-clicking and selecting the desired symbol from the pop-up menu. Once you are satisfied with your messages save and reload the template. The messages are now ready to be changed as you advance through the counties and work stations. **Note: It is important to perform this step even if you plan to operate only SSB since the program obtains logging information from these messages.**
4. Use **Options | Assign Commands** to assign commands to the function keys.
5. If you wish to have strip maps available for viewing within the program use a mapping tool and a screen capture tool to capture images and save them as bmp files. Then use the **QPTools | Associate Maps** to associate each image file with a county.
6. Use **Radio | Connect/Disconnect** or **Keyer | Connect/Disconnect** to assign the radio and keyer to their respective ports. Be sure to connect and test each device. The next time you close the application be sure to answer Yes to the question "Save New Port Assignments" so that you can easily reconnect all devices to their proper ports.

7. If your radio is not supported or for any other reason (e.g. insufficient number of ports) you do not wish to automatically track the radio use **Radio | Track Radio Manually** to specify frequency and mode.

On Startup/Restart of the program

1. Use **QPTools | Plan Route** to review the sequence of counties and to specify the starting county.
2. Use **QPTools | Associate Maps** to review the map associations and make any desired changes. Use **QP Tools | View Maps** to select a map for viewing and dock the map if it is desired for it to remain in view.
3. Use **Radio | Connect/Disconnect** to connect devices to their respective ports. If you have saved your port assignments you can use the button labeled "Restore from Previous Session" to restore all devices.

During the contest

1. Send CQ (in CW mode using the key you assigned to the CQ message)
2. Enter call of responder and press Enter to send your exchange info
3. Enter received exchange information separated by spaces in any order, referring to the Check grid, if desired, to insure proper interpretation
4. Press Enter to log the contact and send the CQT message. If the contact won't log refer to the Check grid to see what might be missing.

After the contest

1. Before finalizing the log it is a good idea to close and restart the program to ensure that all changes are recorded correctly in the scoring.
2. Use **File | Finalize Logs** to convert the internal log to Cabrillo format. Enter any soapbox comments including statistical results and then use the Browse button to specify the file where the final log is to be kept.
3. Use **QPTools | Prepare Summary Sheet** and the Browse button to specify the file where it is to be saved. It is good idea to create a separate directory in which to save all results from each contest.
4. If desired, or required by the contest, use **QPTools | Prepare County Logs** to prepare these logs.
5. Use **File | Post to 3830 Reflector** to connect to the site to file your 3830 report.
6. Of course, don't forget to also submit your log to the sponsor!

After after the contest

1. It would be greatly appreciated if you would provide feedback regarding your experience (good or bad) using the program including any suggestions for improvements. Provide comments to no5w@consolidated.net.
2. If you are interested in using this program but find that your state QSO Party is not supported in the current version contact NO5W to see if that support is available in the latest version or to find out how you can participate in the development of the necessary files to add that support.
3. Consider adding a GPS to your next outing.

1.6 Quick Reference Case: For GPS Use

Before the contest perform the following

1. Use a mapping program such as Streets and Trips (S&T) to plan your route and locate each of your county crossings. Build and save the file of county crossing information as described in the on-line help topic [Building Routes from Crossings](#)^[68] and use **QPTools | Build Plan From Crossings** to import the crossing information into the program. Save the (S&T) trip file for use during the contest. You can, of course, save these files in any convenient location and with any names that are easy to remember. In my use of the program I have found the maps subdirectory associated with the QSO Party to be a good place to store these files. This is an optional step but is required if you desire real-time estimates of the distance and time to the next county.
2. Use the mapping program to define any waypoints and build a file of these waypoints as described

- in the on-line help topic [Defining Waypoints](#)^[82]. This step is also optional but is required if you desire real-time estimates of the distance to important waypoints.
3. If desired use **QPTools | Post Route Plans** to connect to the County Hunter website to post your route and any comments using cut and paste.
 4. Use **Keyer | Edit Message Template** to define the format of your messages. Insert embedded symbols in the messages by first positioning the cursor at the desired point of insertion and right-clicking and selecting the desired symbol from the pop-up menu. Once you are satisfied with your messages save and reload the template. The messages are now ready to be changed as you advance through the counties and work stations. **Note: It is important to perform this step even if you plan to operate only SSB since the program obtains logging information from these messages.**
 5. Use **Options | Assign Commands** to assign commands to the function keys.
 6. If you wish to have strip maps available for viewing within the program use a mapping tool and a screen capture tool to capture images and save them as bmp files. Then use either the **QPTools | Associate Maps** menu item to associate each image file with a county or use the User Defined Help menu item as described in the on-line help topic [User-Supplied Help](#)^[116]. Note: If you plan to use real-time tracking in a mapping program strip maps do not offer any advantage and you may wish to omit this step.
 7. Use **Radio | Connect/Disconnect** or **Keyer | Connect/Disconnect** to assign the radio, keyer and GPS to their respective ports. Be sure to connect and test each device. The next time you close the application be sure to answer Yes to the question "Save New Port Assignments" so that you can easily reconnect all devices to their proper ports. It is also a good idea to have a diagram showing which devices are attached to which ports.

On Startup/Restart of the program - The configuration wizard will prompt you through most of the following steps or you can skip the wizard and perform them without the prompts.

1. Use **Radio | Connect/Disconnect** to connect devices to their respective ports. If you have saved your port assignments you can use the button labeled "Restore from Previous Session" to restore all devices.
2. Use **GPS | GPS Advises County Change** to set the desired GPS Advisory mode. If you choose AUTO the program will automatically change your messages to correspond to the current county and will locate the next county crossing if you have defined one for the current county. If there is more than one crossing defined for the current county the program will ask you to resolve. (Use **GPS | Resolve Multiple County Crossings**)
3. Use **GPS | Set Parameters** to define and/or import any waypoints and to set up pass through of GPS information to a mapping program such as Streets and Trips. You can also set up any GPS logging features at the same time (e.g. CQ/X QSL-Ready logging).
4. If you are using Streets and Trips you can use **QPTools | Start Interactive Map** to startup Streets and Trips and select the desired trip *.est file. If using another mapping program start it up from the desktop. Another approach to using real-time mapping is to define the mapping program in the User-Defined Help and then to start it from the Help menu. This latter approach avoids the problem of having to remember where the file defining the trip is located. See on-line help topic [User-Supplied Help](#)^[116] for how to set up User-Defined help.
5. In the mapping program connect it to GPS information for real-time position tracking by specifying a port that is connected via a null modem to the GPS Pass Through port defined in step 3 above. Consider using virtual serial ports to save two physical ports (see on-line help topic for details)
6. Use **QPTools | Build Route From Crossings** to import the county line crossing information. This information will be used to calculate the distance and time to the next crossing and, if the AUTO mode is not in use, the resulting sequence will be used to sequence through the counties.

During the contest

1. Send CQ (in CW mode using the key you assigned to the CQ message)
2. Enter call of responder and press Enter to send your exchange info
3. Enter received exchange information separated by spaces in any order, referring to the Check grid, if desired, to insure proper interpretation
4. Press Enter to log the contact and send the CQT message. If the contact won't log refer to the Check grid to see what might be missing.

After the contest

1. Before finalizing the log it is a good idea to close and restart the program to ensure that all changes are recorded correctly in the scoring.
2. Use **File | Finalize Logs** to convert the internal log (...\\CQxClientLogView.log) to Cabrillo format. Enter any soapbox comments including statistical results and then use the Browse button to specify the file where the final log is to be kept.
3. If a separate summary sheet is required use **QPTools | Prepare Summary Sheet** and the Browse button to specify the file where it is to be saved. It is good idea to create a separate directory in which to save all results from each contest.
4. If desired, or required by the contest, use **QPTools | Prepare County Logs** to prepare individual logs for each county.
5. Use **File | Post to 3830 Reflector** to connect to the site to file your 3830 report.
6. Of course, don't forget to also submit your log to the sponsor!

After after the contest

1. It would be greatly appreciated if you would provide feedback regarding your experience (good or bad) using the program including any suggestions for improvements. Provide comments to no5w@consolidated.net.
2. If you have developed a county crossing file for your trip consider sharing it with others for use in future parties by submitting it to no5w@consolidated.net. I will collect these files into a database and add a feature to the program for accessing this data. Better still, if you know of a readily available (i.e. free) source of county crossing information please share information regarding that source.
3. If you are interested in using this program but find that your state QSO Party is not supported in the version you are using, contact NO5W to see if that support is available in the latest version or to find out how you can participate in the development of the necessary files to add that support. Also refer to the "How to Contribute" item under Help.

1.7 Registration

In its current beta test form, and probably for the foreseeable future, the program is being offered free so there is no registration fee.

However, if you use the program please send a note to no5w@consolidated.net. Doing so will allow me to inform you of any updates, significant bugs, etc. I am also interested in your opinion (good or bad) of the program, any problems you encounter in using it, and any suggestions you might have for improving it.

As I hope you appreciate bringing the program to its current state of development represents a significant number of man hours. However, it has been an enjoyable journey and one that I intend to continue by supporting the program and continuing to improve it. I hope that your experience with the program is a good one and that, if you are not already out and about in your state QSO party, use of the program will encourage you to do so.

73/Chuck/NO5W

1.8 How To Contribute

Here are three ways you can contribute to the development of CQ/X, none of which involve transfer of funds or programming.

Extending Support to Other QSO Parties - In order to extend CQ/X to other QSO parties several files need to be developed and/or modified including the following

1. *.def file that CQ/X reads in order to implement the specific rules for the party
2. *_poly.txt polygon files that define the boundaries of all of the counties in the party
3. *.bmp file containing the county outline map of the state
4. *.mlt file that CQ/X reads in order to define the multipliers and the county adjacencies

Item 4 is the most likely place where you can contribute. I have developed a tool, which I will be happy to share, for assembling the *.mlt file from information that you can download from the internet. The most tedious part of this is the process of listing, for each county in the state, those counties that are adjacent to the given county. Depending on the number of counties in the state this could take you ten minutes (Rhode Island) to several hours (Texas). Fortunately Texas (254 counties) is already done! Georgia is the next biggie and it is done also. I have a tool (Global Mapper) for extracting the polygon files from data available from the USGS. It is a commercial tool so developing the polygon files would probably not be of interest to you unless you want to spring for a copy of Global Mapper (~\$200) or know some other way of extracting this data.

County Line Project – If you have used the full GPS capability of CQ/X you know that developing the county crossings file can require a couple of hours of somewhat tedious work – especially if the route involves thirty or more counties. It would be helpful to all users to have a database of these crossings which could be accessed when you start to develop your route plan for an upcoming QSO party. If the crossing you're looking for is in the database you could access it directly without having to use a mapping program along with the tedious positioning of the mouse, data entry, etc. So, consider "recycling" your county crossings file(s) by sending them to no5w@consolidated.net. I will use them to build a database of county crossings and add a feature to the program to allow easy access to that database. Better yet, if you know of a readily available (i.e. free) database from which this type of information can be extracted please share that with me. Or, if you just want to spend a few hours on a rainy non-contest weekend pick out a county(s) and build a crossings file for the major routes crossing the county lines of that county and send the results to me for inclusion in the database. If this project really takes off you might want to check with me first to let me know which county you plan to work on in order to avoid duplicating work that has already been done.

County Polygon Performance Tests – If you have looked at some of the county polygon files or just reviewed the size of some of them you have probably noted that some, notably those for counties whose boundaries are defined by coast lines or rivers, can be quite large – the largest one noted so far on casual observation is Monroe county in Florida which contains approximately 3300 vertices. I have tested the performance of the program on a number of mostly landlocked counties in Texas with good results but it would certainly be interesting and useful to have test results from other, more complicated, counties. So, as you travel around your home state, take your GPS and laptop running CQ/X along for the ride and observe the performance of the program in terms of accuracy of determining each county and your ability to continue to enter QSO information while the program is analyzing the county polygons. Send me your results including the counties tested and some description of the computer used.

I will be glad to acknowledge any significant contributions along the above lines in the "about" screens and/or help files associated with CQ/X.

2 Installation

Installation of CQ/XClient from the distribution CD is straightforward and can be performed using the following steps:

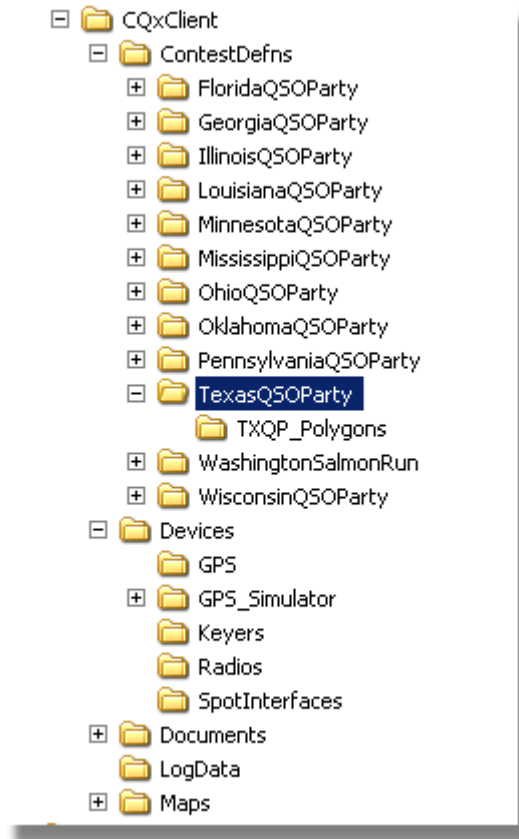
1. Insert disk
2. Navigate to setup.exe
3. Run setup.exe
4. Answer Next Next ...and follow instructions

Beginning with version 1.2 a full set of files in their respective directories are included on the

distribution CD. Should it be necessary to reinstall a single file or two simply copy the file(s) from the distribution CD to the corresponding directory on the target machine. As described in [Directory Structure](#)^[12] the relative directory structure must be maintained in order for the program to work properly. There are no registry settings required by CQ/X.

2.1 Directory Structure

The root directory (CQxClient) may be located anywhere but the following subdirectories under CQxClient and their subdirectories should be located as shown below. Some of the files in these directories are [Required Files](#)^[13].



CQXClient: This is the main directory. It contains the main exe file CQxClient.exe and several supporting files, most of which are related to data required for initializing and restarting the application. The internal log file (CQXClientLogView.log) resides in this directory.

ContestDefns: This subdirectory contains the following types of files

- DLL files: dynamic link library file required for each contest which contains processing specific to that contest. Most QSO parties use the same DLL (TQP.DLL) with specifics for individual parties contained in the *.def files that resides in the subdirectory for that party.
- Definition file - a text file of definition information required for each contest (e.g. OHQP.def which would reside in OhioQSOParty subdirectory)
- Multiplier file - a text file of multiplier information required by contests. These files all have the format of the well-known CTY.DAT file which is one of the files contained in this subdirectory. The county information for each QSO party is contained in a similar (*.MLT) file that has been augmented with information regarding county adjacencies, etc. The *.MLT file for the counties of each QSO party reside in the subdirectory for that party.
- ConList.dat - a text file listing of each of the supported contests, and their DLL, and DEF files

- Polygon subdirectories - a separate directory for each party containing the polygons defining the boundaries of each county of that state. (e.g. TXQP_Polygons contains the polygons for Texas QSO Party)

Devices: This subdirectory contains the following types of files which are contained in subdirectories for each device type.

- Device DLL files - dynamic link library file containing processing specific to that device
- Device Manuals - a PDF file of the User Manuals for each device, if available
- Device Images - an image file for each device, if available

Documents: This subdirectory contains various documents and presentations related to CQ/XClient and CQ/XServer as well as the PDF version of this and other help files.

LogData: This subdirectory contains a DLL (LogData.dll) for performing duping functions and some call sign data base files. It is also one of the locations where the user can create a subdirectory for containing the logs of each contest.

Maps: This subdirectory and the subdirectories under it contain map information for each contest in which mapping is important (i.e. the state QSO parties). These subdirectories are populated by the user. It is recommended that all route-related files (map images, Streets and Trips route files, and county crossing files) be placed in a separate subdirectory for each party.

2.2 Required Files

For information on the required directory structure see the [Directory Structure](#)^[12] topic.

The following files should be considered mandatory and should not be modified or moved

1. Root directory CQxClient - all files
2. Subdirectory ContestDefns - all files
3. Subdirectory Devices - all files in subdirectory DeviceDLLs

3 Configurations

There are a number of ways of configuring CQ/XClient to provide desired capabilities. This section discusses a few of the alternatives including the following. The first configuration is the one envisioned in the initial design of CQ/X and is the one most often used by the author.

- Mobile Operator with GPS and GPS Passthrough: [Single Mobile Operator with GPS and GPS Passthrough](#)^[14]
- Single Operator Basic Configuration: [Single Op: No Spots and No GPS](#)^[15]
- Single Operator Basic Configuration with GPS but No Spots: [Single Op With GPS: No Spots](#)^[15]
- Single Operator Dual PC Configuration with GPS and Spots: [Single Op Dual PC With GPS and Spots](#)^[16]
- Single Operator Single PC Configuration with GPS and Spots
- Single Operator Single Networked PC Configuration with GPS and Spots
- Multi-operator Networked Configurations with GPS and Spots

Note: The networked configurations require CQ/XServer and are not supported in the current version but are planned for a future release.

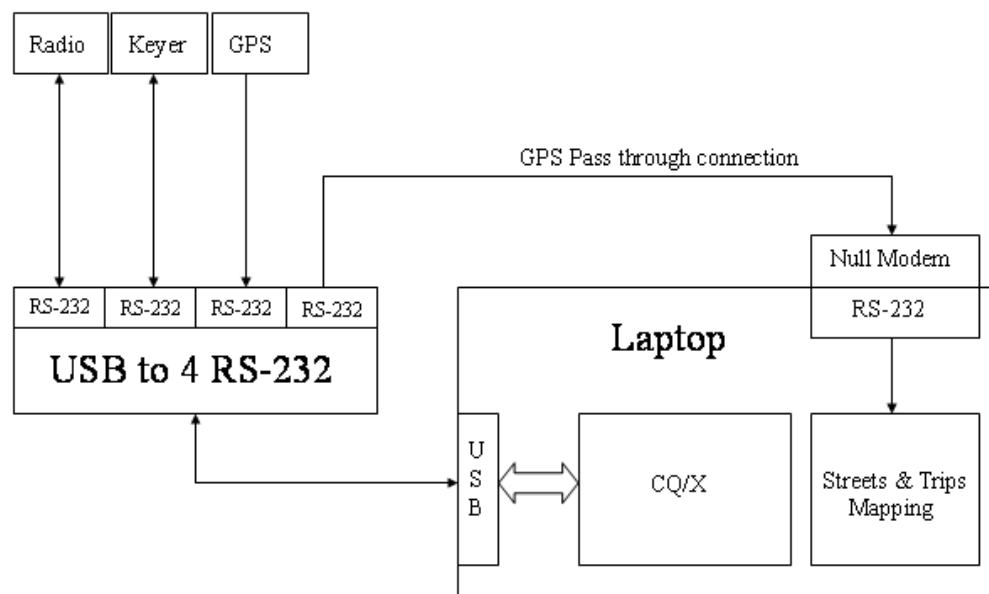
3.1 Single Mobile Operator with GPS and GPS Passthrough

The following configuration would be useful for single op mobile CW operation with a GPS and a mapping program for real-time position tracking.

Here it has been assumed that the PC has a single RS-232 port and a single USB port. The additional RS-232 ports are realized using a USB to 4 RS-232 port expander. The DLLs that implement the serial interfaces shown in this drawing will of course be specific to the chosen radio and keyer and will be loaded by CQ/X when you set up the radio and keyer as described in [Setting Up a Radio](#)^[27] and [Setting Up a Keyer](#)^[30]. In order to use all of the GPS capability of CQ/X it is necessary that the GPS supports the \$GPGAA and \$GPRMC sentences of the standard NMEA-0183 protocol. The SioNMEA DLL providing the GPS interface will be loaded by CQ/X when you set up the GPS as described in [Setting Up a GPS](#)^[31].

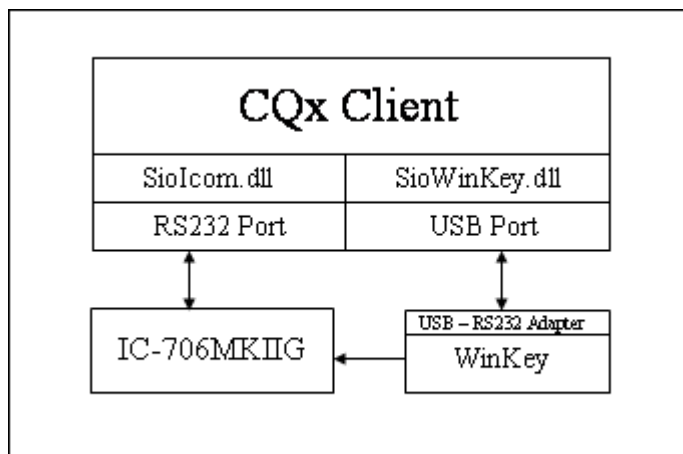
There are a couple of modifications to this configuration that should be mentioned:

1. **GPS Pass Through Connection** - this connection can also be implemented using a virtual null modem as described in the topic [GPS Passthrough Via a Virtual Null Modem](#)^[98].
2. **USB Hub** - The USB-4RS232 hub can be replaced with an interface box (The Navigator) available from US Interface that integrates the WinKey and CAT interfaces and provides an RS-232 port which can be used for the GPS interface. All of this in a single RFI-protected box that also contains a soundcard for recording QSOs and for using other digital modes. Power for the box is obtained from the USB connection. For additional details see [US Interface](#).



3.2 Single Op: No Spots and No GPS

The most basic configuration that includes CW capability is shown in the following diagram where it has been assumed that the PC has a single RS-232 port and a single USB port. If the PC has only USB ports then a second USB-RS232 adapter can be used. My best experience with these adapters has been with the Keyspan devices but others may work as well.

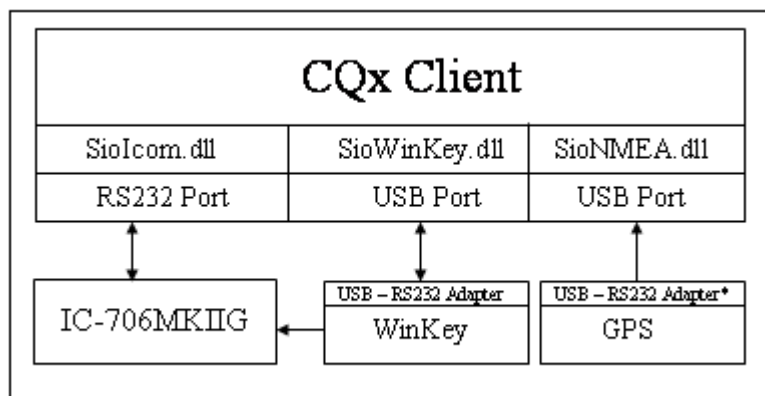


In this example an Icom IC-706 radio and a WinKey keyer have been chosen. The DLLs shown in this drawing will of course be specific to the chosen radio and keyer and will be loaded by CQ/X when you set up the radio and keyer as described in [Setting Up a Radio](#)^[27] and [Setting Up a Keyer](#)^[30].

3.3 Single Op With GPS: No Spots

The following configuration would be useful for single op mobile CW operation with a GPS.

Here it has been assumed that the PC has a single RS-232 port and two USB ports. The USB-RS232 adapter shown with the GPS may or may not be required depending on the particular GPS used as some come with built-in USB capability.



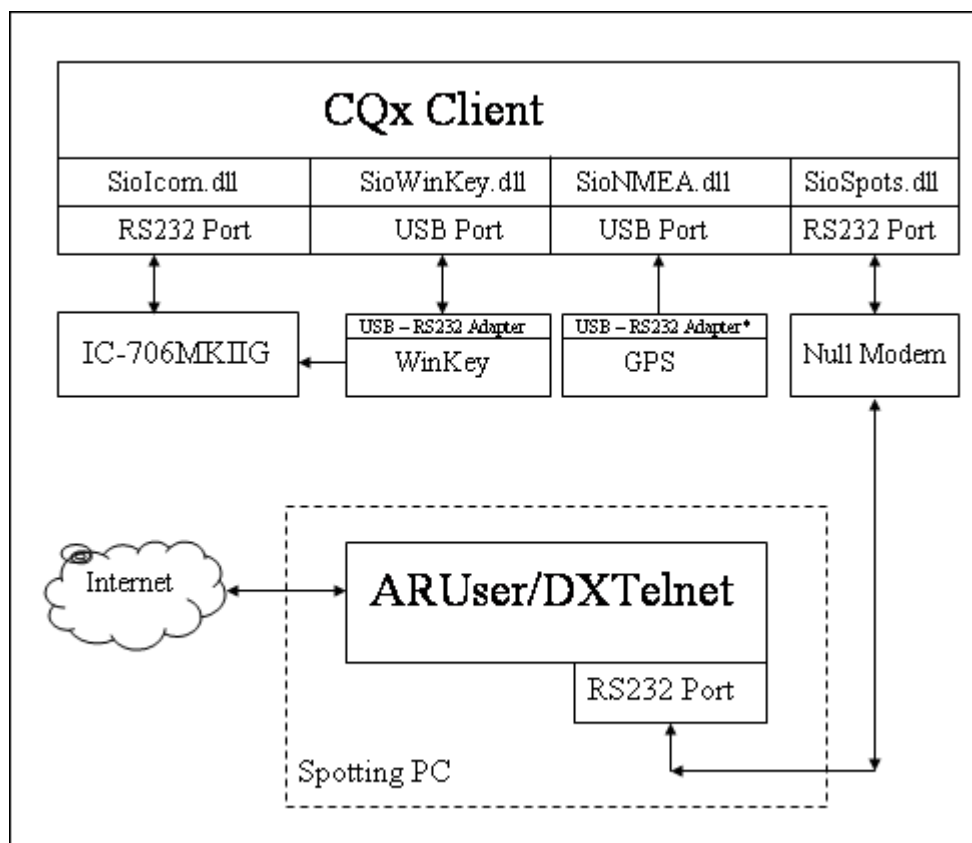
In this example an Icom IC-706 radio and a WinKey keyer have been chosen. The DLLs shown in this drawing will of course be specific to the chosen radio and keyer and will be loaded by CQ/X when you set up the radio and keyer as described in [Setting Up a Radio](#)^[27] and [Setting Up a Keyer](#)^[30]. In order to use all of the GPS capability of CQ/X it is necessary that the GPS supports the \$GPGAA and

\$GPRMC sentences of the standard NMEA-0183 protocol. The SioNMEA DLL providing the GPS interface will be loaded by CQ/X when you set up the GPS as described in [Setting Up a GPS](#)^[31].

3.4 Single Op Dual PC Configuration With GPS and Spots

The following configuration would be useful for single op mobile CW operation with a GPS and with access to a DXCluster node provided, for example, by a cell phone connection that supports internet access.

Here, yet another RS-232 port is required on the CQ/XClient PC since it has been assumed that the PC has a two RS-232 ports and two USB ports. The USB-RS232 adapter shown with the GPS may or may not be required depending on the particular GPS used as some come with built-in USB capability. The requirement for the second PC can be relaxed if yet another RS-232 port is available. This is discussed in [Single Op Single PC With GPS and Spots](#)^[17].

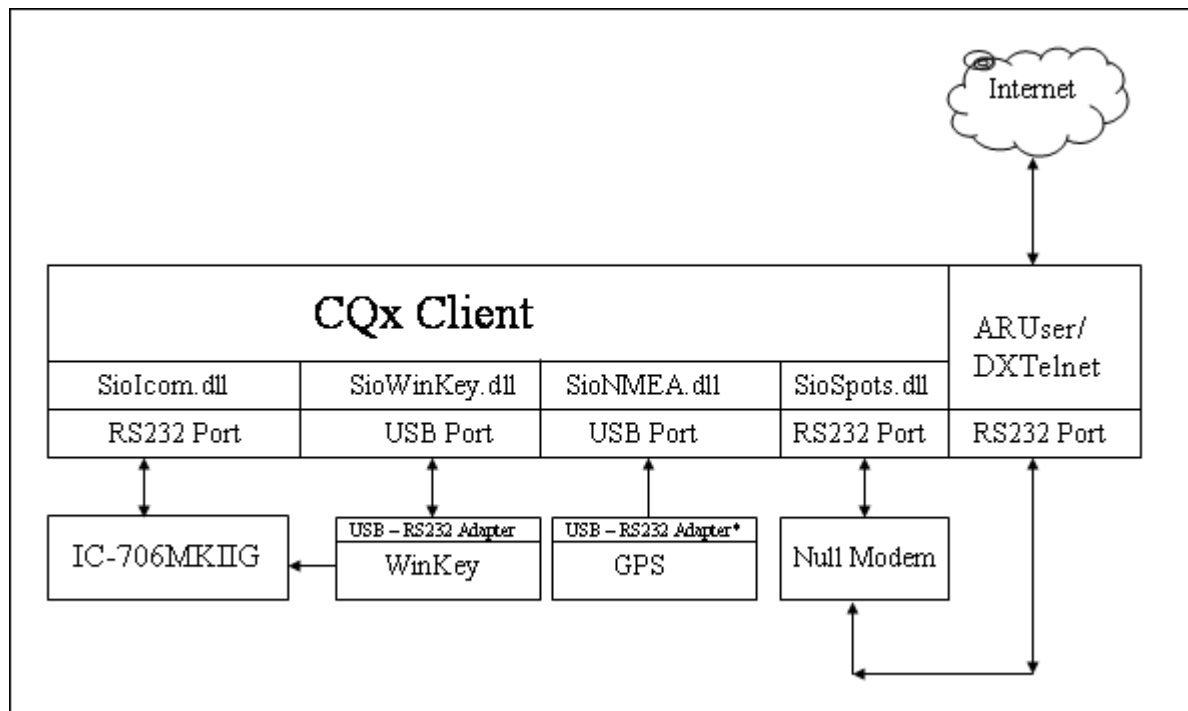


In this example an Icom IC-706 radio and a WinKey keyer have been chosen. The DLLs shown in this drawing will of course be specific to the chosen radio and keyer and will be loaded by CQ/X when you set up the radio and keyer as described in [Setting Up a Radio](#)^[27] and [Setting Up a Keyer](#)^[30]. In order to use all of the GPS capability of CQ/X it is necessary that the GPS supports the \$GPGAA and \$GPRMC sentences of the standard NMEA-0183 protocol. The SioNMEA DLL providing the GPS interface will be loaded by CQ/X when you set up the GPS as described in [Setting Up a GPS](#)^[31]. The SioSpots DLL providing support for receiving spots from the spotting PC will be loaded by CQ/X when you set up the Spots as described in [Setting Up a Spot Source](#)^[32].

3.5 Single Op Single PC With GPS and Spots

The following configuration would be useful for single op mobile CW operation with a GPS and with access to a DXCluster node provided, for example, by a cell phone connection that supports internet access.

Here, yet another RS-232 port is required on the CQ/XClient PC but the need for another PC is eliminated. This requires that the spotting application (ARUser or DXTelnet) run on the same PC as CQ/XClient. In this case the PC must have three RS-232 ports and two USB ports. The USB-RS232 adapter shown with the GPS may or may not be required depending on the particular GPS used as some come with built-in USB capability.



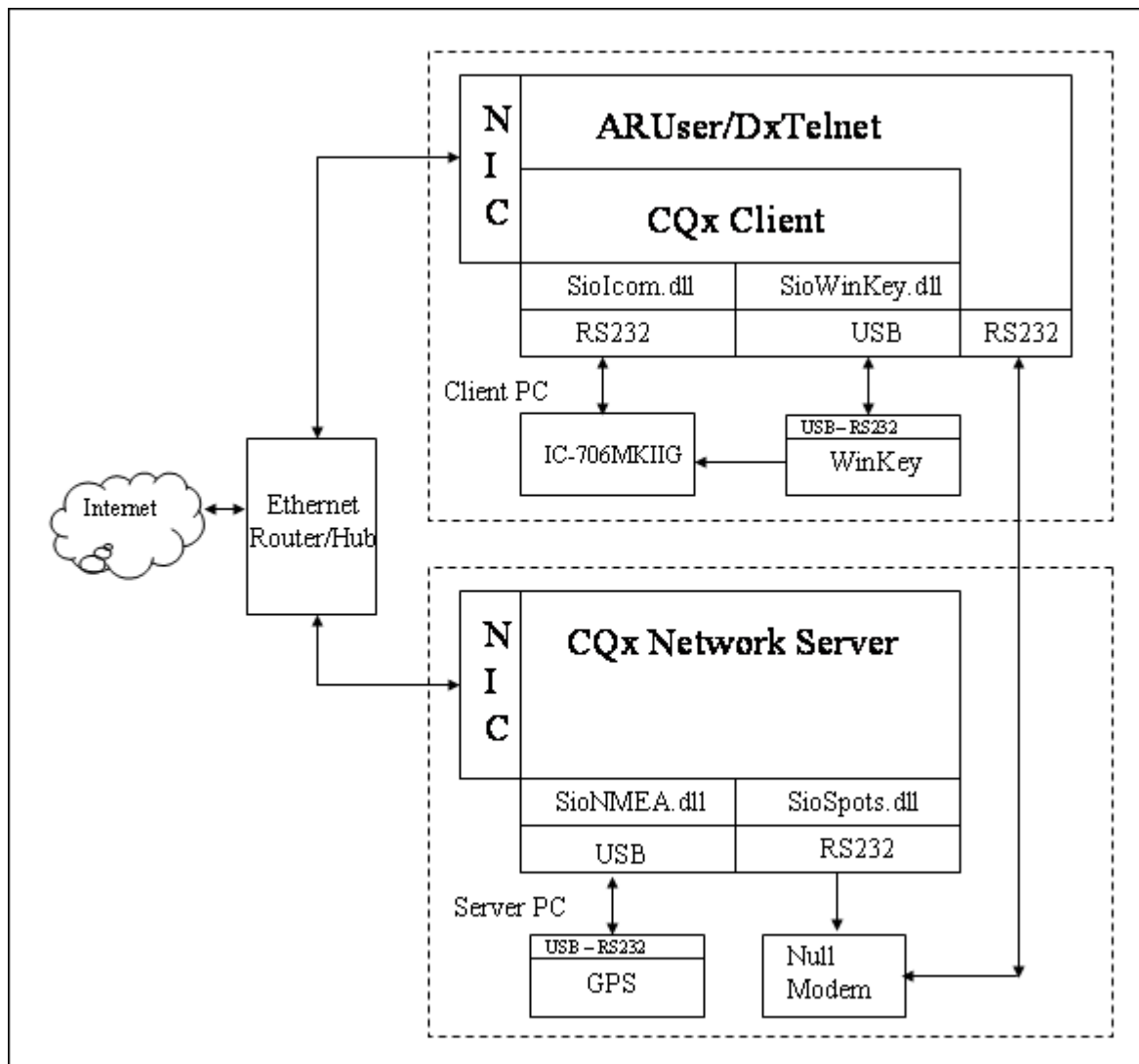
In this example an Icom IC-706 radio and a WinKey keyer have been chosen. The DLLs shown in this drawing will of course be specific to the chosen radio and keyer and will be loaded by CQ/X when you set up the radio and keyer as described in [Setting Up a Radio](#)^[27] and [Setting Up a Keyer](#)^[30]. In order to use all of the GPS capability of CQ/X it is necessary that the GPS supports the \$GPGAA and \$GPRMC sentences of the standard NMEA-0183 protocol. The SioNMEA DLL providing the GPS interface will be loaded by CQ/X when you set up the GPS as described in [Setting Up a GPS](#)^[31]. The SioSpots DLL providing support for receiving spots from the spotting PC will be loaded by CQ/X when you set up the Spots as described in [Setting Up a Spot Source](#)^[32].

3.6 Single Op Dual Networked PC Configuration With GPS and Spots

The requirement for three RS-232 ports on a single PC imposed by the [Single Op Single PC With GPS and Spots](#)^[17] configuration can be relaxed if a network and a second PC is available. The diagram below shows how this could be done using the server application CQ/XServer.

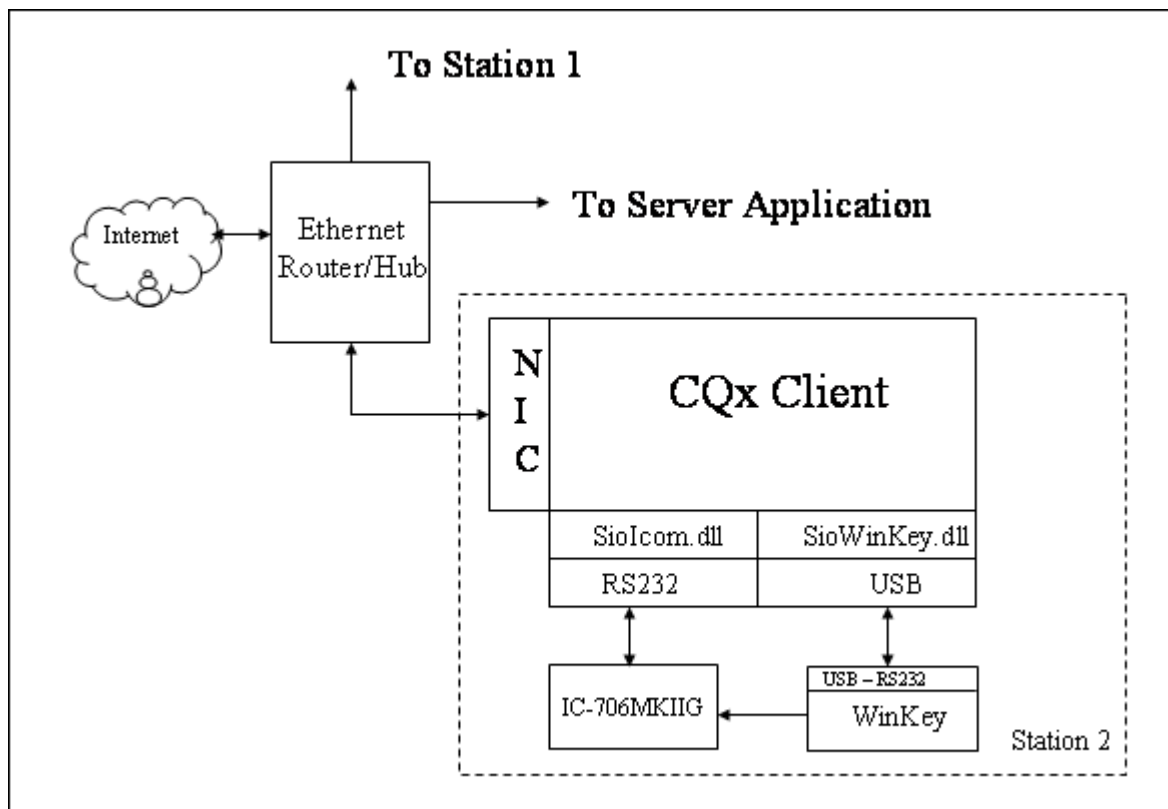
In this configuration the CQ/X Network Server has been introduced on the second (Server) PC. The telnet application ARUser or DXTelnet receives the spots from the internet via the Router/hub and

passes these spots to the server application on the server PC via an RS-232 connection. The server application in turn supplies these spots to the client over the ethernet network. Also, in order to balance the requirements for ports and processing between the two PCs, the GPS has been moved to the server PC. The server application passes the GPS information to the client via the ethernet network.



3.7 Adding a Station for Multi Operations

The configuration described in [Single Op Dual PC Configuration With GPS and Spots](#)^[16] can be easily extended to support a multi-op environment. All that is required is to add a module of the form shown below to the network and to add any inter-station communication management capabilities to the server application. See topic [Setting Up a Networked Configuration](#)^[19] for a step-by-step procedure for setting up a multi-op networked configuration.



3.8 Setting Up a Networked Configuration

Here are the steps for setting up CQ/X to operate in a networked configuration with spotting and a GPS.

The following assumes that the hardware is configured as shown in the drawings accompanying topics [Single Op Dual Networked PC Configuration With GPS and Spots](#)^[17] and [Adding a Station for Multi Operations](#)^[18]. Other configurations are possible. The configuration shown was developed to limit the number of RS-232 ports required on each machine to two (2). The USB-RS-232 adapters that I have successfully tested with WinKey are the Keyspan devices.

1. Set up the hardware as shown on the diagrams mentioned above.
2. Use ipconfig to determine the IP-address of the server machine
3. Check to make sure that all machines are set for UTC
4. Start CQ/X-Server on its machine
5. On CQ/X-Server use File | Operating Positions to set the number of operating positions desired
6. Start the CQ/X-Clients in networked mode and use File | Network Access menu item to register each client with CQ/X-Server assigning each to the desired position.
7. Start the Spot Front End -- either ARUser or DXTelnet may be used. Check the configuration for communication on the appropriate port. 4800 baud is a recommended speed.
8. Use Communications | Serial Ports menu item on CQ/X-Server to set it up to receive spots over the serial port. Baud rate should, of course, be the same as that set up in step 7.
9. Connect ARUser/DXTelnet to the desired node and check that spots begin flowing to CQx-Server and CQx-Clients. Use the Spots menu on each client to filter the spots received by that client.
10. Check operator communications by sending a note or two.
11. For each station check that contest messages are set up properly for the desired contest.

12. For each station check that keyboard commands are set as desired
13. For each station check that the WinKeys are keying the radios
14. For each station check that the computer is tracking radio mode and frequency and that the radio is responding to changes in mode and frequency entered on CQ/X-Client.
15. Check that the logs are initialized on each client.

If it is desired to add one or more other stations simply add a clients as shown in topic [Adding a Station for Multi Operations](#)^[18] and make sure to add the operating position to CQ/X-Server. On these additional stations the USB-RS-232 converter can be avoided if two RS-232 ports are available.

3.9 Multi-op Mobile CW-Capable Configuration Without Spotting

If access to the DX-Cluster is not available and it is desired to set up a multi-op CW-capable configuration including a GPS then the configuration diagrams simplify in the following way:

On the server machine remove the null modem connection that supports the spotting link.

On the client station shown in [Single Op Dual Networked PC Configuration With GPS and Spots](#)^[17] remove the ARUser/DXTelnet application and the RS-232 connection supporting the spotting link to the CQ/X Server.

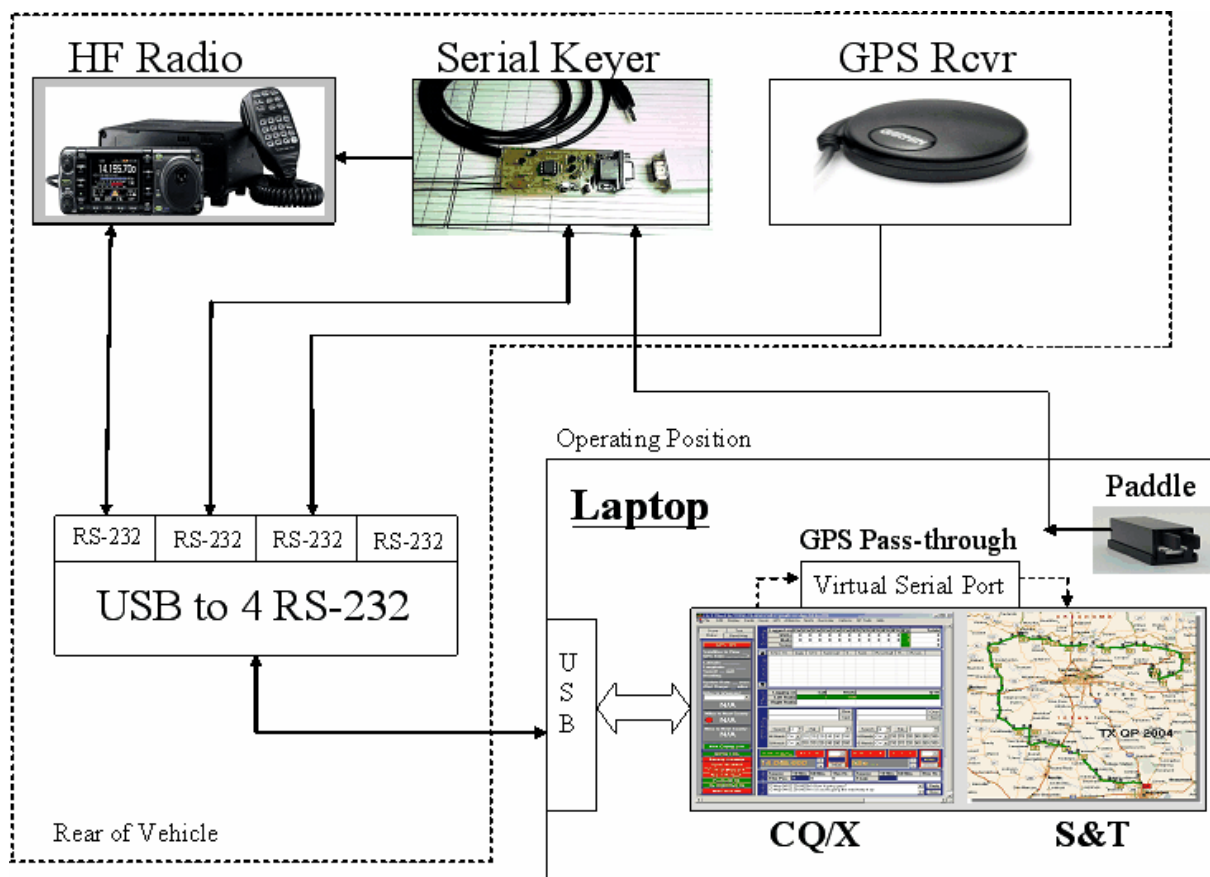
All client machines will have the form shown in [Adding a Station for Multi Operations](#)^[18]

3.10 Using the Server Module

To be supplied.

3.11 Single Mobile Setup at NO5W

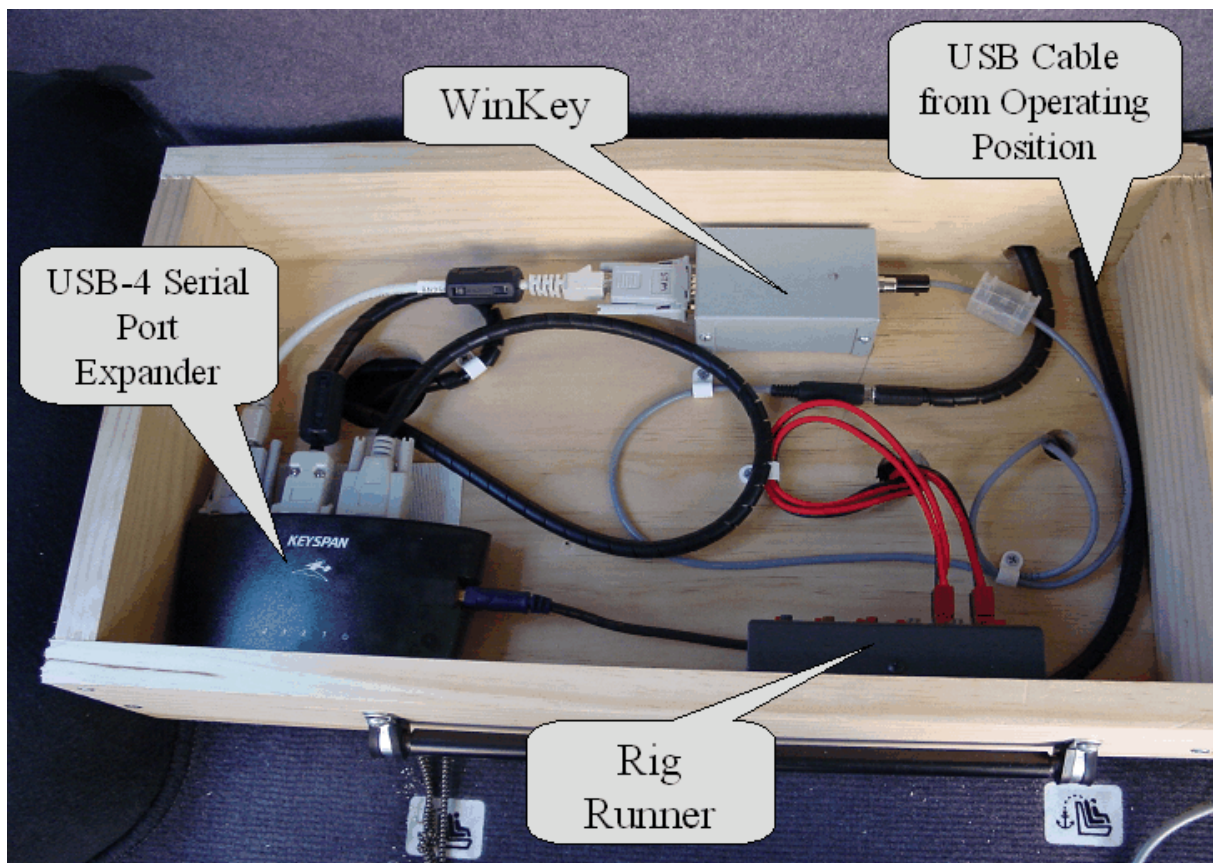
This section provides information on the mobile setup in use at NO5W. The block diagram shows the IC-7000 radio, the Winkey serial keyer, a Garmin GPS-18 PC and a Keyspan USB to 4 RS-232 port expander all of which are located in the rear of the vehicle. The operating position in the passenger seat consists of a lapdesk containing the remote head of the IC-7000, a Palm paddle, and a laptop running CQ/X and Streets and Trips with a pair of virtual serial ports providing communication between the two programs.



Here are some pictures showing the physical installation:



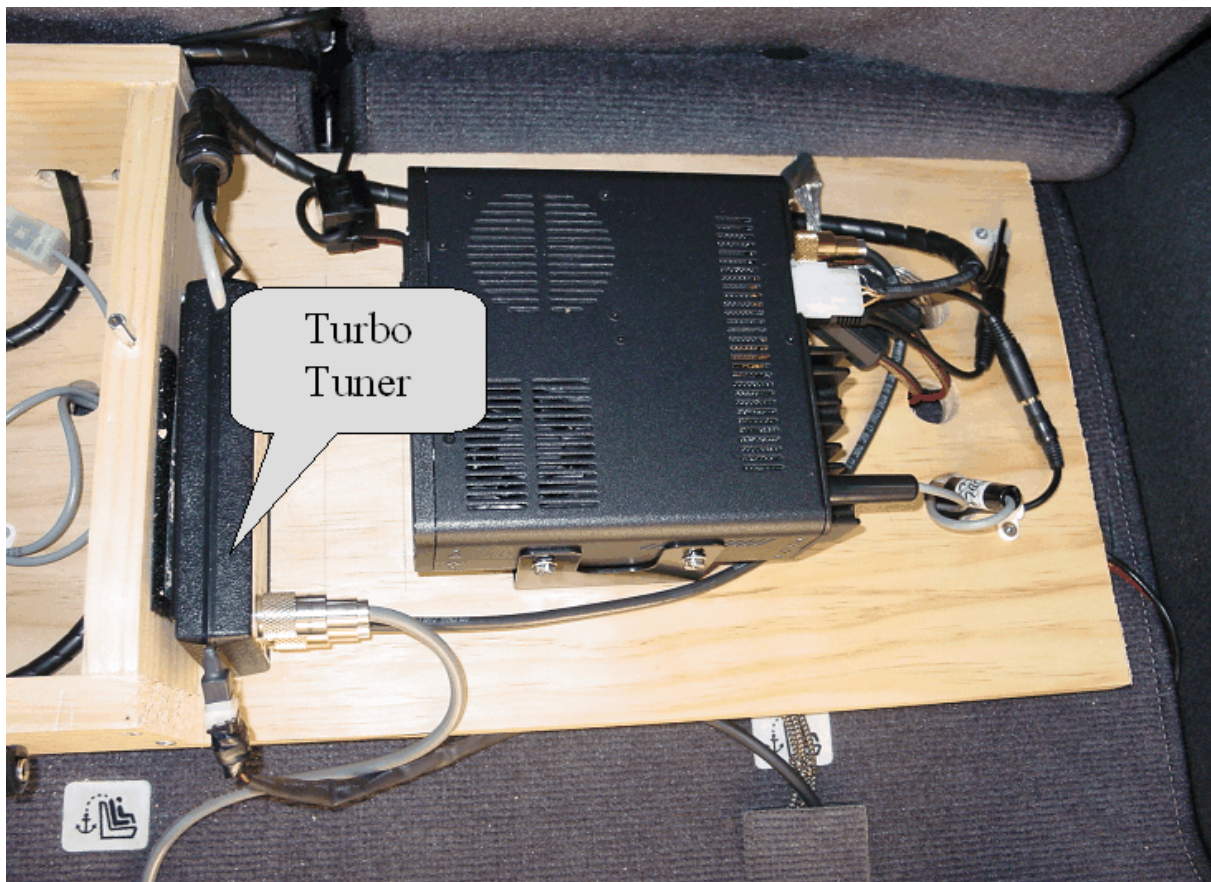
The Operating Position



The rear interface compartment



The GPS mounted on rear side window:



The radio mounting



The antenna mount



The HiQ-4/80 antenna

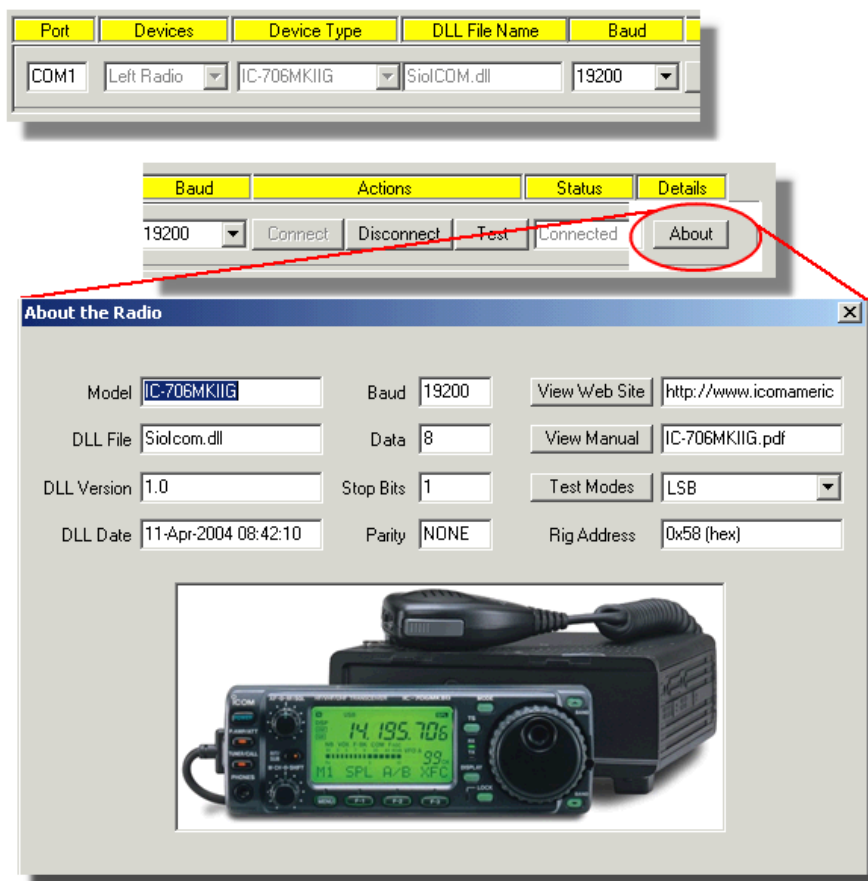
4 Setting Up Devices

4.1 Setting Up a Radio

If you wish to track the radio mode and frequency manually see [Manual Radio Tracking](#)^[29]. Otherwise follow the steps below to set up for automatic tracking.

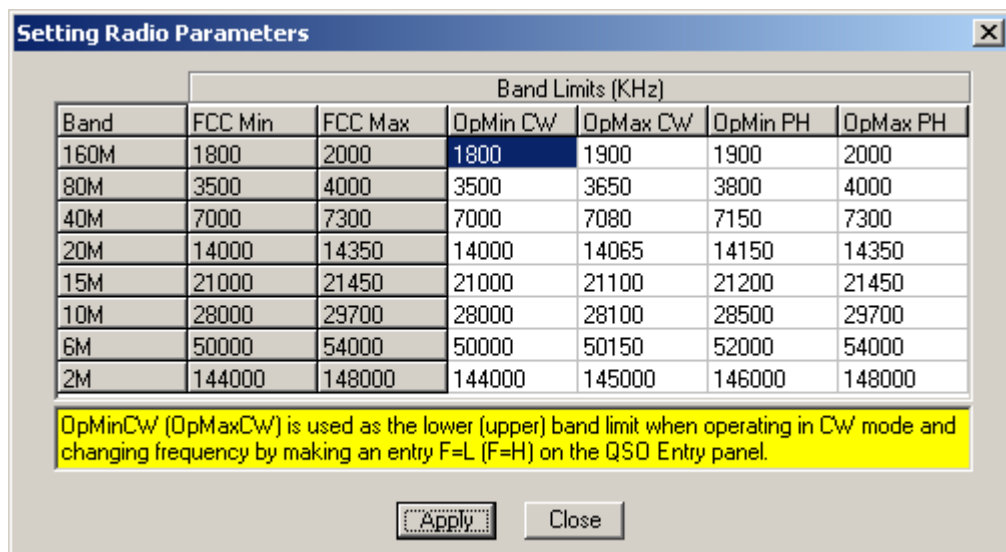
After connecting the radio to the desired serial port perform the following steps to register the radio with CQ/X.

1. Use the Radios | Connect/Disconnect menu item to open the device connection dialog
2. Select the com port to which the radio is connected.
3. Select the radio reference label (Left Radio, Right Radio)
4. Select the radio type (FT-1000MP, IC-706MKIIG, etc)
5. Select the baud rate to be used. Consult the user's manual if necessary.
6. Press the Connect button and note the connection status in the status window.
7. The About button can be used to view additional information about the radio including
 - Access to the vendor web site
 - User manual
 - Date/Version of the CQ/X DLL file used to interface to the radio - this will be especially useful in case it is necessary to report problems regarding the radio interface.



4.2 Setting Radio Parameters

Menu item Radio | Set Parameters is used to set the operating limits of each band-mode combination. These operating limits are used when it is desired to make an entry (F=L or F=H) on the QSO Entry Panel (see [QSO Entry Box](#)^[102] and [Special Keystroke Combinations](#)^[111]) to move to the lower or upper operating limit for the current band-mode respectively. The upper and lower operating limits are set via the following dialog:



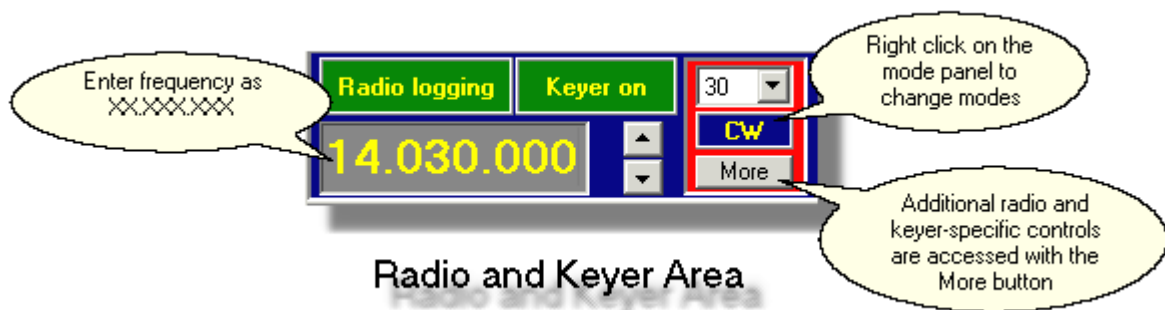
After the desired changes are made click on Apply to save the changes. These band limits are saved across a restart of the program.

4.3 Manual Radio Tracking

If, for whatever reason, you do not wish to and/or can not use the automatic tracking of radio information as described in [Setting Up a Radio](#) ^[27] you can manually maintain radio information for use in logging. To do this check the menu item **Radios | Track Left (Right) Radio Manually** and perform the following steps:

1. Right click the Mode panel for the desired radio and select the desired mode from the popup.
2. Select the Frequency input area for the desired radio and enter the desired frequency (in Hz) using the format xx.xxx.xxx followed by the Enter key.

Note: These are the same steps that are used to enter frequency and mode under automatic operation.



4.4 Radio Interface Health Check

The interface with the logging radio contains communication timeout logic to detect loss of communication with the radio. This runs on a 30 second cycle and alerts the user if there has been more than 45 seconds since the last communication with the radio. The purpose of this feature is to remind the user to re-establish the radio connection following the radio being powered off, for example

during a gas stop. The warning message box contains a button for accessing the dialog for re-establishing communication. After accessing this dialog simply press the Disconnect button and then the Connect button to restart the interface.

4.5 Setting Up a Keyer

Setting up a keyer is similar to [Setting Up a Radio](#)^[27].

After connecting the keyer to the desired serial port perform the following steps to register the keyer with CQ/X.

1. Use the Keyers | Connect/Disconnect menu item to open the device connection dialog
2. Select the com port to which the keyer is connected.
3. Select the keyer reference label (Left Keyer, Right Keyer)
4. Select the keyer type (MiLog, WinKey, etc)
5. Select the baud rate to be used consulting the user's manual if necessary.
6. Press the Connect button and note connection status in the status window.
7. The About button can be used to view additional information about the keyer including
 - Access to the vendor web site
 - User manual
 - Date/Version of the CQ/X DLL file used to interface to the keyer - - this will be especially useful in case it is necessary to report problems regarding the keyer interface.

4.6 Setting Keyer Parameters

Menu item Keyer | Set Parameters is used to set the speed limits of the keyer. These limits are used when it is desired to make an entry (K=L or K=H) on the QSO Entry Panel (see [QSO Entry Box](#)^[102] and [Special Keystroke Combinations](#)^[111]) to move to the minimum or maximum speed respectively. The minimum and maximum keying speeds are set via the following dialog:

Keyer Parameters

Left Keyer Parameters

Minimum Speed: 20
Maximum Speed: 37
Speed Increment: 2
Minimum Weight: -10
Maximum Weight: 10
Weight Increment: 1

Apply Cancel

Right Keyer Parameters

Minimum Speed:
Maximum Speed:
Speed Increment: 1
Minimum Weight: 0
Maximum Weight: 0
Weight Increment: 0

Apply Cancel

Converse

☒ Left Keyer ☐ Right Keyer

Clear

Close

After the desired changes are made click on Apply to save the changes. These speed limits are saved across a restart of the program.

4.7 Setting Up a GPS

Setting up a GPS is similar to [Setting Up a Radio](#)^[27].

After connecting the GPS to the desired serial port perform the following steps to register the GPS with CQ/X.

1. With the GPS OFF turn on the laptop -- see note below.
2. Use the GPS | Connect/Disconnect menu item to open the device connection dialog
3. Select the com port to which the GPS is connected.
4. Select the device type GPS
5. Select the GPS type (NMEA 0183, Garmin)
6. Select the baud rate (4800) to be used.
7. Press the Connect button and note the connection status in the status window.
8. At this point the GPS may be turned ON
9. The About button can be used to view additional information about the GPS including
 - Access to the vendor web site
 - User manual
 - Date/Version of the CQ/X DLL file used to interface to the GPS - this will be especially useful in

- case it is necessary to report problems regarding the GPS interface.
- After closing the device connection dialog you should observe the GPS status information begin updating on the [GPS Status Panel](#)^[78] once the GPS has acquired the satellites. Be sure to set your GPS to output in the NMEA 0183 format as this is the only protocol supported at this time. Speed is obtained from the GPRMC output sentence and all of the rest of the information is obtained from the GPGAA output sentence.

Note:

It has been observed that it is important to make sure that the GPS is turned OFF prior to turning on the laptop and registering the GPS with an application. If the GPS is ON when the laptop is powered up, signals on the serial port from the GPS may appear to be an external mouse connection. This will make control of the mouse cursor extremely difficult, if not impossible, and will probably make it impossible to gain control of the serial port from the laptop.

4.8 Setting Up a Spot Source

The program is capable of receiving spots via a serial connection to any program that can supply spots in the standard format over a serial connection. Two such programs are DXTelnet and ARUser. These can be running on either the same machine as the one hosting CQ/X or on a different machine. Of course the configuration wherein the spot source is running on the same machine as CQ/X will require two additional ports or a virtual pair forming a virtual null modem. On the other hand, the configuration in which the spot source is running on a separate machine will require only one additional port on the CQ/X machine but will require an additional PC. See additional discussion on these considerations in the sections [Single Op](#)^[15], [Multi Op](#)^[18], and [Networked Configurations](#)^[19].

The following addresses only the receiving end of the Spot Source-Spot Receiver connection. Setting up a Spot source is similar to [Setting Up a Radio](#)^[27].

After connecting the Spot Source to the desired serial port perform the following steps to register the Spot Source with CQ/X.

- Use the Spots | Connect/Disconnect menu item to open the device connection dialog
- Select the com port to which the Spots Source is connected.
- Select the device type Spots
- Select the Spots type (DxTelnet, ARUser)
- Select the baud rate to be used.
- Press the Connect button and note the connection status in the status window.
- The About button can be used to view additional information about the Spot Source including
 - Access to the vendor web site
 - User manual
 - Date/Version of the CQ/X DLL file used to interface to the Spot Source
- After closing the device connection dialog you should observe the Spot information begin updating.
- The spots can be further configured using the menu item Spots | Filtering.

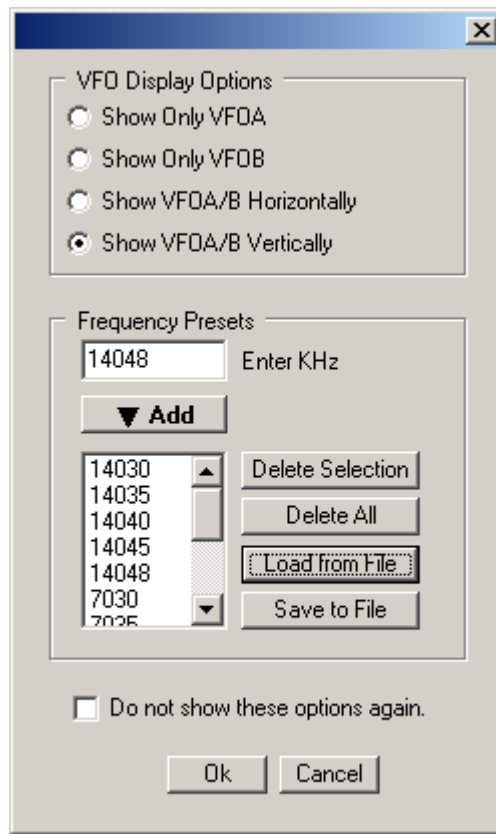
Note: In order to receive spots it is important that the PC be set to UTC. Otherwise CQ/X may think the spots are too old for presentation.

You can also add items to the bandmap as you tune across the band. To do this enter a call in the QSO Entry window associated with the radio and click on the spot button or press the key you have assigned to the "Add Call to Bandmap" task.

4.9 More for Radio Devices

Display and/or control of additional features of a radio are available by selecting the appropriate Left and/or Right More buttons and then selecting Radio from the resulting pop-up menu. The first time this

action is performed in a session the following dialog will be called up to allow the user to select display options and to define frequency presets, if desired.

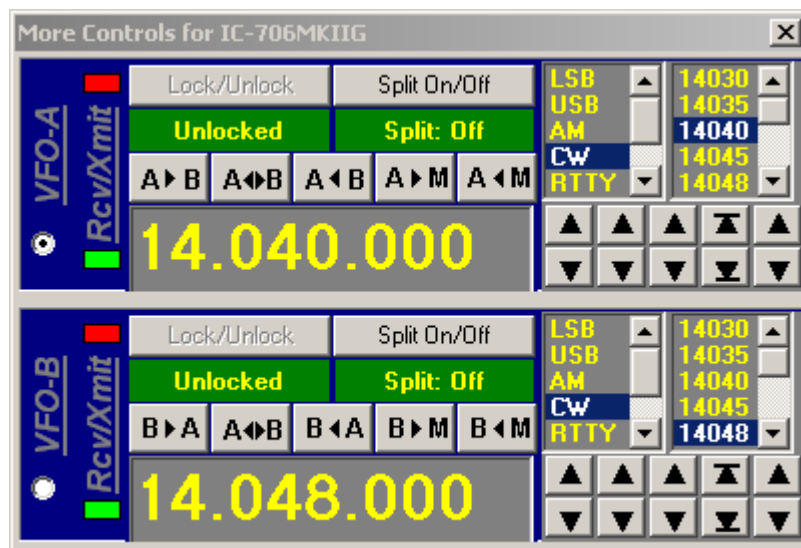


VFO Display Options - allows you to specify either or both of the VFOs for display and, if both are selected, they can be shown in either a horizontal or vertical format.

Frequency Presets - this section allows you to define a set of frequencies (in KHz) which will be available on the control panel associated with each VFO and will allow for rapid selection of frequencies. Presets may be added to the list manually or may be loaded from a file.

If the "Do not show ..." checkbox is checked this panel of options will not appear on subsequent uses of the More | Radio button until the radio is disconnected and connected again.

Closing this dialog will result in the following non-modal dialog for controlling frequency, mode, and other features of the radio. In the dialog below both VFOs have been chosen to be displayed in a vertical arrangement.

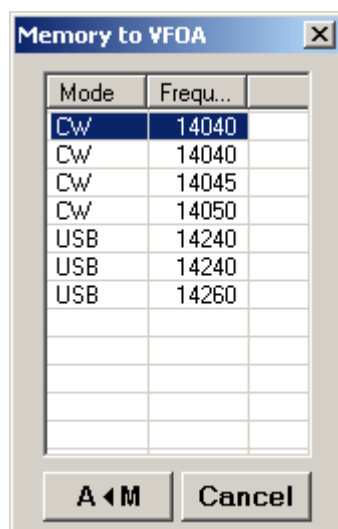


Active VFO - In this example the radio button corresponding to VFOA has been selected making VFOA the active VFO. Any changes in the frequency or mode of the radio will be reflected on VFOA. Likewise any changes to the mode and/or frequency of the VFOA elements of this dialog will cause the data to be written to the radio. Any changes to the inactive VFO will not be written to the radio and any changes in the radio will not be reflected in the inactive VFO.

Transferring VFO Data - Data may be transferred/exchanged between the two VFOs and between each VFO and memory as follows



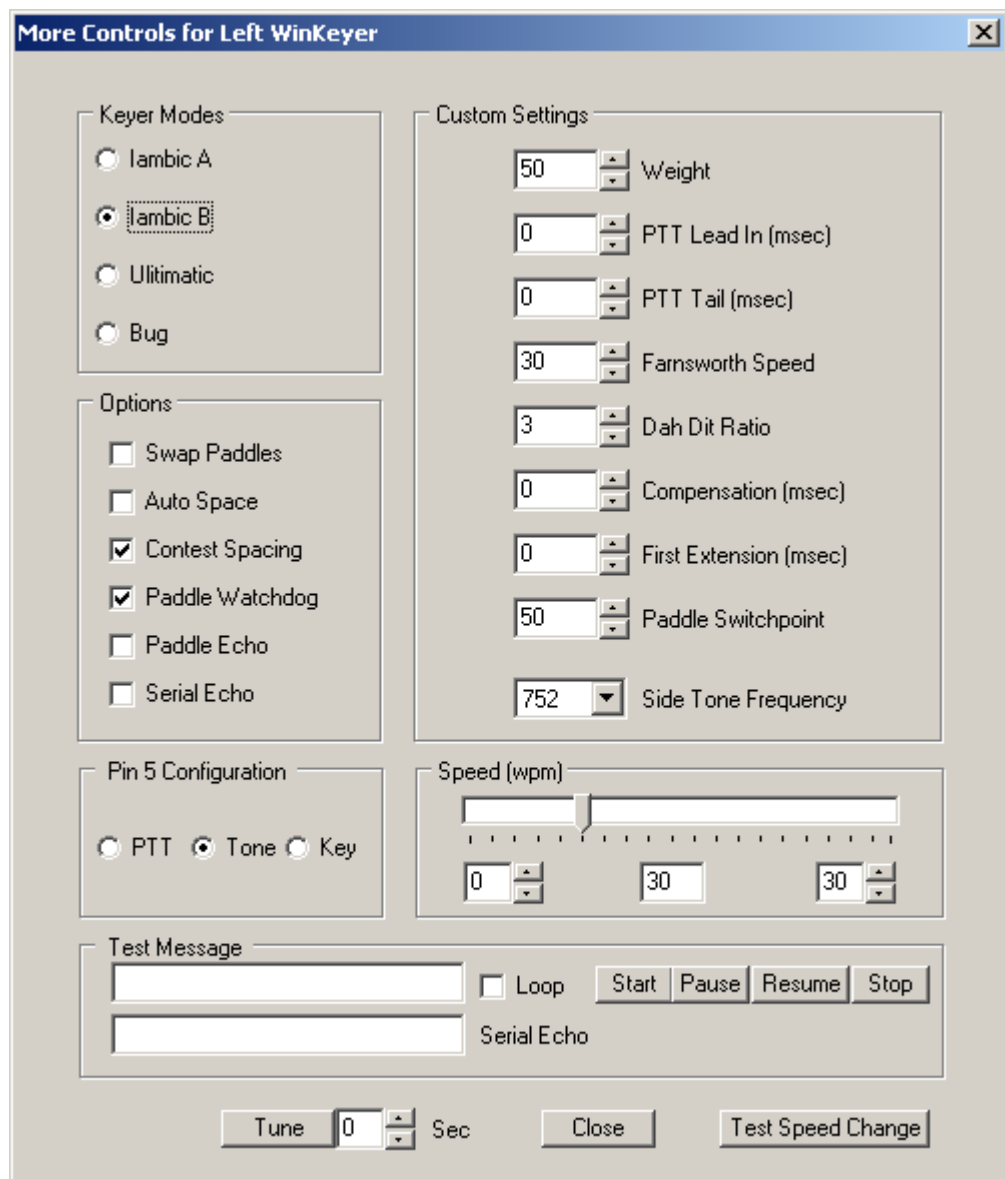
- The left most button transfers the mode and frequency of VFOA to VFOB.
- The next button causes the mode and frequency of the two VFOs to be exchanged.
- The next button transfers the mode and frequency of VFOB into VFOA.
- The next button transfers the mode and frequency of VFOA into memory. Loading of the memories can be performed either manually by inputting various frequencies and modes by hand and then pressing this button. Alternatively select various modes and frequencies on the radio and then, using the active VFO, write the data to memory.
- The right most button causes a list of previously stored memory locations to be displayed from which a given element can be selected and written to the VFO. Use the cursor keys or the mouse to select the desired memory data and then perform any of the following to cause the transfer from memory to the VFO to take place: Press Enter, or Double click, or Press the lower left hand button.



VFO memories are saved across a restart of the program so that, once set up, it will not be necessary to manually reestablish these memories.

4.10 More for WinKey

All of the parameters of the WinKey can be configured by selecting the appropriate Left and/or Right More buttons and then selecting Keyer from the resulting pop-up menu. This will call up the following dialog on which the keyer parameters for WinKey may be set. A description of these parameters follows. Further details can be found in the WinKey documentation provided by K1EL at the [WinKey Homepage](#):



Keyer Modes - Iambic A, Iambic B, Ultimatic, and Bug keying modes are supported by the WinKey keyer. In Iambic mode the keyer makes the dits and dahs automatically based on the paddle pressed. In Bug mode the keyer makes the dits and the user makes the dahs. In either Iambic mode alternating dits and dahs are sent if both paddles are held closed. In mode B an extra alternate dit or dah is sent after both paddles are released. In Ultimatic mode when both paddles are pressed the keyer will send a continuous stream of whichever paddle was last pressed.

Options | Swap Paddles - If this box is checked then the right and left paddles will be swapped from normal wherein the left paddle is the dit paddle and the right paddle is the dah paddle.

Options | Auto Space - If you pause for more than one dit time between a dit or dah WinKey will interpret this as a letter-space and will not send the next dit or dah until full letter-space time has elapsed.

Options | Contest Spacing - When Contest Spacing is selected WinKey reduces the wordspace time

by one dit. Instead of 7 dits per wordspace, contest spacing uses six dits per wordspace.

Options | Paddle Watchdog - When this option is enabled the keyer will be disabled after 128 consecutive dits or dahs to guard against either of the paddles being accidentally held continuously closed.

Options | Paddle Echo - When this option is selected each character keyed using the paddle will be echoed back to the host PC after the character has been completely sent.

Options | Serial Echo - When this option is selected each character keyed by the WinKey will be echoed back to the host PC after the character has been completely sent.

Custom Settings | Weight - A proportional amount is either added or subtracted from the length of all dits and dahs. Keying speed is unaffected since any increase in key down time is subtracted from key up time.

Custom Settings | PTT Lead-in - The PTT output of Winkey can be used to switch a transmitter or amplifier over to transmit mode in advance of (prior to) keying. The PTT Lead-in setting controls the amount of time between switching to transmit mode and start of the actual keying.

Custom Settings | PTT Tail - This setting controls how long the transmitter or amplifier being controlled by the PTT signal will remain in the transmit mode after keying has stopped.

Custom Settings | Farnsworth Speed - When the speed setting of the Winkey is below the Farnsworth speed characters are sent at the Farnsworth speed and the inter-character space is adjusted to obtain the desired keying speed in WPM. When the speed setting of the Winkey is above the Farnsworth speed Farnsworth keying is disabled.

Custom Settings | Dah Dit Ratio - Changing this setting changes the ratio of dah key down time to dit key down time away from its normal 3:1 value.

Custom Settings | Compensation (msec) - Keying compensation allows a fixed amount of key down time to be added to all dits and dahs to compensate for shortening of the dit and dah elements produced when some transceivers are operated in QSK mode. Key compensation is similar to weighting but differs from weighting in that the time added under compensation is independent of the keying speed.

Custom Settings | First Extension (msec) - The first extension setting adds a specified amount of time to the first element in a keying sequence to offset the shortening of the first element due to slow break-in response of some radios.

Custom Settings | Paddle Switchpoint - This setting controls the time delay between when sensing of the next paddle press enabled following sensing of the current press. If this setting is too small unwanted dits or dahs will be sent. If the setting is too large the paddle keying will feel sluggish since you will not be able to get ahead of the keyer.

Custom Settings | Sidetone Frequency - In addition to the CW keying output Winkey provides a auxiliary output that may be selected to be the PTT control, sidetone, or the keying line. When sidetone is selected as the auxiliary output the frequency of the tone may be changed using this custom setting.

Pin 5 Configuration - These buttons allow the user to specify the role of the auxiliary output: PTT, sidetone, keying.

Speed (wpm) - This group of controls allows you to adjust the speed of the keyer in words per minute using the slider. The speed setting is read out in the box in the middle of the slider. The range of adjustment may be changed using the dials on the left and right to adjust the minimum and maximum speeds respectively. Note that if the speed is set below the Farnsworth speed characters will be sent

with inter element spacing corresponding to the Farnsworth speed. If the speed is set above the Farnsworth speed Farnsworth keying is disabled. The speed setting may be tested by pressing the Test Speed Change button to send the test message at the specified speed.

Test message - Enter a message in this box and then press start to test the capability to start, stop, pause, and resume the keyer. If looping is enabled the message will continue to loop until looping is disabled. Serial echo and/or Paddle echo of the sent message can also be observed if either or both of these options have been enabled.

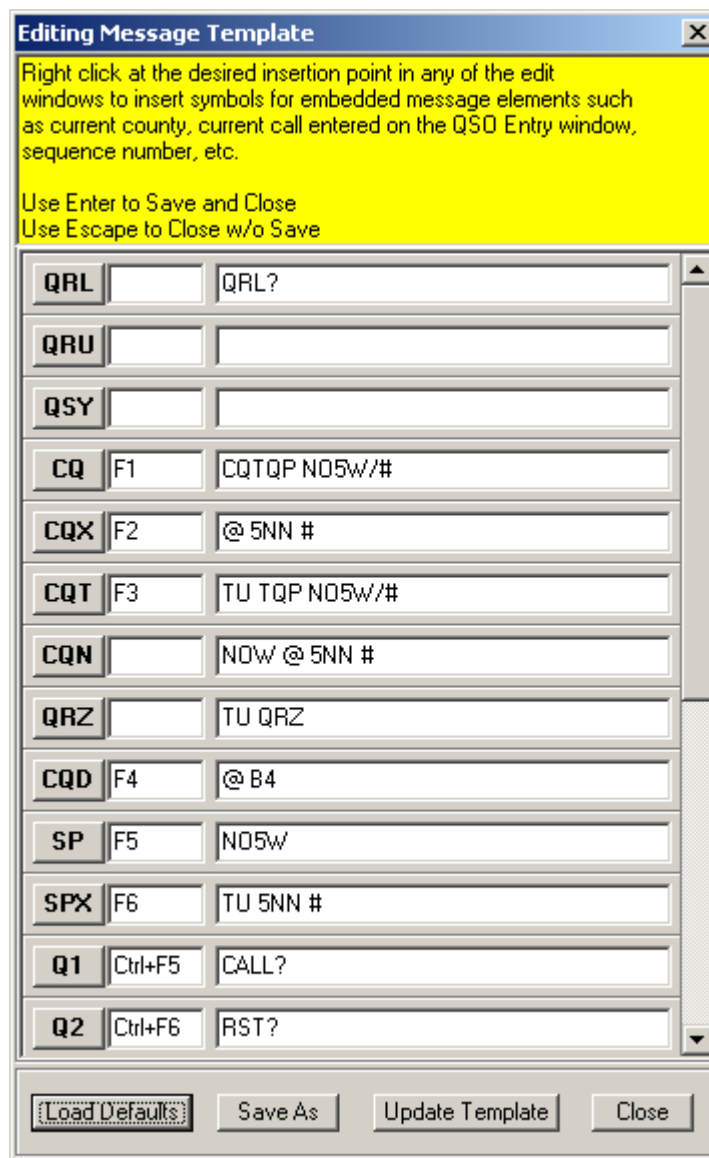
Tune (sec) - Pressing of the Tune button will key the transmitter for the specified number of seconds.

5 Messages and Function Key Assignments

This section discusses how to define messages and how to assign function keys to those messages. It also describes certain [Embedded Message Symbols](#)^[41] that are used to reference certain QSO information that will replace the embedded symbol when a QSO is being made.

5.1 Setting Up Messages

Each contest will require a potentially unique set of messages and it is up to the user to define these messages in the message template. To do this use any of the menu items Keyer | Edit Message Template, Keyer | Load Message Template From, or Keyer | Load Default Messages to load the following dialog for editing the messages. The default messages provided are specific to the selected contest and type of operation (internal mobile, internal fixed, external) but will need to be changed to include your specific information (name, call sign, etc) as required by the contest. Any of the above menu items will cause the following dialog to appear for changing the messages.



Editing Message Template

Right click at the desired insertion point in any of the edit windows to insert symbols for embedded message elements such as current county, current call entered on the QSO Entry window, sequence number, etc.

Use Enter to Save and Close
Use Escape to Close w/o Save

QRL		QRL?
QRU		
QSY		
CQ	F1	CQTQP N05W/#
CQX	F2	@ 5NN #
CQT	F3	TU TQP N05W/#
CQN		NOW @ 5NN #
QRZ		TU QRZ
CQD	F4	@ B4
SP	F5	N05W
SPX	F6	TU 5NN #
Q1	Ctrl+F5	CALL?
Q2	Ctrl+F6	RST?

Load Defaults Save As Update Template Close

Enter the desired message content and [Embedded Message Symbols](#)^[47] in each of the message edit windows. This dialog also shows the function key that will cause the message to be sent. The function key assignments may be modified using the menu item **Keyer | Assign Function Keys** as described in [Assigning Function Keys](#)^[47].

When you have completed the message definitions you can save and apply the messages in the message template using the **Update Template** button. The message definitions will remain, across a restart of the program, as defined in the message template until you again modify the message template using the menu item **Keyer | Edit Message Template**. Following the Update operation the current messages are displayed on the Messages page in the upper right hand area of the main display. You can also save the current message template in a file for later use across changes in contests. This is done using the menu item **Keyer | Save Message Template As** or the **Save As** button on the above dialog. This will allow you to define and save message definitions for various contests and then you can use the menu item **Keyer | Load Message Template From** to restore the message template. If you do not explicitly save the message template following an edit session the template will be saved automatically when you exit the message editing area but will not be applied.

If you have inserted county symbols (# and/or !) representing the current and next counties in the message template these symbols must be resolved in the actual message area prior to making a QSO. If there are unresolved county symbols present in the message template when it is saved, the [Message Resolution Dialog](#)^[107] will be activated to request resolution and to provide access to several methods of resolution.

A typical basic set of message definitions and their associated function keys are shown below for the Texas QSO Party.

Multipliers	Messages	Commands	Notes
QRL			
QRU			
QSY			
CQ	F1	CQTQP NO5W/#	
CQX	F2	@ 5NN #	
CQT	F3	TU TQP NO5W/#	
CQN	F3	TU NOW @ 5NN #	
CQD	F4	@ B4	
SP	F5	NO5W	
SPX	F6	R 5NN #	
Q1	Ctrl+F5	CALL?	
Q2	Ctrl+F6	RST?	
Q3	Ctrl+F7	CTY?	
Q4	Ctrl+F8		
Q5			

Note that the user has assigned messages CQ, CQX, CQT/CQN the function keys F1, F2, and F3 respectively. Using these function keys a run QSO could proceed in the following way after resolving the county symbols.

1. Press F1 to send CQ
2. On receipt of a responder's call sign enter it on the [QSO Entry Box](#)^[102] and press F2 or Enter
3. If the responder requests a repeat press F2
4. On receipt of the responder's exchange information enter it on the [QSO Entry Box](#)^[102] and press F3 or Enter to send the thank you message, log the contact, and request the next caller.

For a description of the role and use of the CQN message see the discussion in [Handling a Second Caller](#)^[53].

The assigned function keys respond by sending their associated message regardless of the state of

the QSO. On the other hand the Enter key is sensitive to the current state of the QSO and will send a message based on that state.

You could also set up a function key for each of the components of the exchange and in that case step 3 above could be replaced by pressing the function key associated with the requested item. See also [Making a QSO Entry](#)^[51]. In general when running stations it is easiest to simply enter the information and press Enter allowing the Enter key to carry you to the next state and then, if a fill or repeat is requested by the responder, an appropriately defined function key is used to provide that fill.

5.2 Embedded Message Symbols

The following symbols have special meaning when embedded in messages.

- The @ symbol refers to the call sign currently in the [QSO Entry Box](#)^[102] for the Logging Radio and applies to all contests.
- The # symbol is used to refer to the current county in the message template for mobile operation in state QSO parties. When the mobile route is started the # symbol in the message template is replaced by the abbreviation of the first county and then subsequent county abbreviations replace the current county when the Next County menu item is executed.
- The ! symbol is used to refer to the next county in state QSO parties. When the mobile route is started the ! symbol in the message template is replaced by the abbreviation of the second county and then subsequent county abbreviations replace the next county when the Next County menu item is executed.
- The ^ symbol is used to refer to the current QSO number in contests requiring that information in the exchange

Using the Edit Messages Dialog described in [Setting Up Messages](#)^[38] you can either type these symbols directly into the appropriate message array or you can right click in the desired message box and select the symbol from the resulting pop-up menu.

The county symbols (# and !) are resolved to a specific value when either of the following are true:

- A route plan has been defined and a starting county has been specified - see [Planning Route for Non-Use of GPS](#)^[62]
- A GPS is in use and the GPS Advisory Mode is AUTOMATIC - see [GPS Advisory Modes](#)^[88]

Attempts to send the messages CQ, CQX, SP, SPX while there are unresolved county symbols present in the messages will result in an error message of the form "Messages have unresolved county symbols # and/or ! - Please correct". This error is corrected by any of the following

1. Selecting the current county by double-clicking on the desired county in the [Route Planning Dialog](#)^[63]
2. Setting the GPS Advisory mode to AUTOMATIC in which case the GPS will set the current county and will obtain the next county from the route plan.

One could also manually resolve the error by editing the message template and replacing the # and ! by the abbreviation of the current and next counties but this is not recommended since it defeats the automatic message management features of the program.

5.3 Required Messages

The following messages must be defined and must be consistent regardless of whether operation will be CW or Phone. These messages must be defined since the information they contain will be used to determine part of the information to be logged.

CQ - This is the message sent to solicit a QSO in Run mode. The call sign contained in this message is used in constructing the log.

CQX - This is the message sent as the exchange when a Run mode QSO is made. This message is parsed for the information required by the log.

CQT - This is the message sent at the end of a Run mode QSO to thank the responding station and to solicit the next QSO. Ending the QSO with the Enter key will cause the CQT message to be sent.

QRZ - This message is required if you want to end a Run mode QSO with a message different from the normal CQT message while retaining the option to use the CQT message for this purpose. Ending the message with the Ctrl+Enter key combination rather than the simple Enter key will cause the QSO to be logged and the QRZ message to be sent. Use of the QRZ in combination with CQT can also be auto-scheduled as explained in [Auto-scheduling QSO Ending Messages](#)^[54].

CQN - This message is required if you want to be able to handle two callers back to back as described in the topic [Handling a Second Caller](#)^[53]. This message should have the combined format of a CQT and CQX message. Something of the form "TU NOW @ 5NN #"

SP - This is the message used to request a QSO in the Search and Pounce mode. Usually it will be simply the call sign of the requesting station but can be of any form desired by the user.

SPX - This is the message sent as the exchange when an S&P QSO is being made.

All other messages are optional. However, if you plan to operate CW, it is highly recommended that the [Query Messages](#)^[108] associated with the QSO entry items be defined.

5.4 Associating Messages with QSO Entry Items

Query Messages

The messages labeled Q1, Q2, Q3, Q4, Q5 are special query messages used to query the responding station to request fills of missing items. The left-most column of the [QSO Entry Check Grid](#)^[102] is associated with query message Q1, the next item to the right is associated with query message Q2, and so on. As long as there is missing information on the row of the [QSO Entry Check Grid](#)^[102] corresponding to the logging radio, logging of the QSO will not take place. When operating CW and attempting to log an incomplete QSO (by pressing Enter) the query message associated with the left-most missing item will be sent.

Query messages can also be controlled by function keys if function keys have been assigned to them.

5.5 Available Function Key Commands

Although each of the following tasks may be performed with the mouse either through menu selection or selection of page tabs, it is best to assign some of them to function keys depending on the operating style/requirements of the user and the particular contest.

The following tasks can be assigned to the function keys using the steps described in [Assigning Function Keys](#)^[47].

- **Access Band Map Page** - Pressing the function key assigned to this task causes the page containing the Band Map information to be visible if it is not already so.
- **Access Commands Page** - Pressing the function key assigned to this task causes the Commands Page containing the assigned commands information to be visible if it is not already so.
- **Access GPS Page** - Pressing the function key assigned to this task causes the page containing the GPS information to be visible if it is not already so.
- **Access Logs** - Pressing the function key assigned to this task causes the [Log Display Grid](#)^[103] to be focused and the last entry in the log to be selected. Use the cursor up/down keys to select other log entries and then press the Enter key if it is desired to revise that entry. This will open the [QSO Revision Dialog](#)^[106] on that QSO. Revision of the QSO then follows the steps described in [QSO Revision Dialog](#)^[106].
- **Access Maps Page** - Pressing the function key assigned to this task causes the MapsPage containing the currently docked map to be visible if it is not already so. If no map has been docked on the page then you should first define a route, then associate maps with counties, and then use View Map to call up the desired map. While viewing the map you can dock it on the Maps Page. Once on the page the assigned function key can be used to bring it into view.
- **Access Messages Page** - Pressing the function key assigned to this task causes the MessagesPage containing the function key assigned message information to be visible if it is not already so.
- **Access Multipliers Page** - Pressing the function key assigned to this task causes the MultipliersPage containing the status of each of the multipliers to be visible if it is not already so.
- **Access Soap Box** - Pressing the function key assigned to this task causes the Soap Box dialog to become active if it is not already so.
- **Access Where Am I** - Pressing the function key assigned to this task causes the Where Am I dialog to become active if it is not already so.
- **Access Previous QSOs** - If the menu item Display | Use Right Radio Area for Previous QSO Info has been checked and keys assigned to presenting data in this area pressing the function key assigned to this task will access the latest element in the information grid.
- **Add Call to Bandmap** -Assign this command to a key to enable the key to add the call in the currently focused [QSO Entry Box](#)^[102] to the bandmap. The call will be recorded along with the current frequency of the radio associated with the QSO Entry Box..
- **Clear Entry Window** - Assign this command to a key to enable the key to clear the entry window of the logging radio.
- **Clear RIT Frequency** - Pressing the function key or key combination assigned to this task causes the RIT frequency of the LoggingRadio to be set to zero. It should be noted that not all radios support PC control of RIT.
- **Increment Band** - Pressing the function key assigned to this task will increase the band of the logging radio.
- **Decrement Band** - Pressing the function key assigned to this task will decrease the band of the logging radio.
- **Increment Mode** - Pressing the function key assigned to this task will increase the mode of the

logging radio.

- **Decrement Mode** - Pressing the function key assigned to this task will decrease the mode of the logging radio.
- **Decrement Speed** - Pressing the function key assigned to this task causes the keying speed to be decreased by the keying increment set up using the menu item Key | Set Keying Parameters.
- **Increment Speed** - Pressing the function key assigned to this task causes the keying speed to be increased by the keying increment set up using the menu item Key | Set Keying Parameters.
- **Modify Fi Msg** (i=1, 2, ...8) - Assign this command to a key to enable the key to initiate modification of the message associated with function key Fi. This will open up the Message Template Editor with focus on the message associated with the given function key. This is one of the function key assignments available in the NA emulator.
- **Move RIT Frequency Down** - Pressing the function key or key combination assigned to this task causes the RIT frequency of the LoggingRadio to be decreased by one step. It should be noted that not all radios support PC control of RIT.
- **Move RIT Frequency Up** - Pressing the function key or key combination assigned to this task causes the RIT frequency of the LoggingRadio to be increased by one step. It should be noted that not all radios support PC control of RIT.
- **Next County** - Pressing the function key assigned to this task will cause the county in a QSO party to change to the next county along a defined route. See the discussion in [Route Planning for Mobile QSO Party Operation](#)^[62].
- **Previous County** - Pressing the function key assigned to this task will cause the county in a QSO party to change to the previous county along a defined route. See the discussion in [Route Planning for Mobile QSO Party Operation](#)^[62].
- **Request Fills** - Pressing the function key assigned to this task will cause the message associated with a needed fill on the Logging Radio to be sent. If a fill is needed for more than one item the request associated with the left most item in the [QSO Entry Check Grid](#)^[102] will be sent. See also [Associating Messages with QSO Entry Items](#)^[42].
- **Remove last QSO** - Pressing the function key assigned to this task deletes the last QSO added to the log.
- **Revise last QSO** - Pressing the function key assigned to this task selects the last QSO added to the log and then opens the [QSO Revision Dialog](#)^[106] on that QSO. Revision of the QSO then follows the steps described in [QSO Revision Dialog](#)^[106].
- **Send Previous Exchange from Left Radio** - Pressing the function key assigned to this task causes the exchange message from the previously logged QSO from the left radio to be sent. If a key is assigned to this task it will be useful for responding to fill requests after the contact has been logged on the left radio.
- **Send Previous Exchange from Logging Radio** - Pressing the function key assigned to this task causes the exchange message from the previously logged QSO from the current Logging Radio to be sent. If a key is assigned to this task it will be useful for responding to fill requests after the contact has been logged.
- **Send Previous Exchange from Non-logging Radio** - Pressing the function key assigned to this task causes the exchange message from the previously logged QSO from the current non-Logging

Radio to be sent. If a key is assigned to this task it will be useful for responding to fill requests received via the non-logging radio after the contact has been logged and after the logging status has been switched to the other radio. This could be the case wherein a contact has just been made and logged on the S&P radio and logging status has been switched back to the Run radio when a fill request comes in from the S&P contact.

- **Send Previous Exchange from Right Radio** - Pressing the function key assigned to this task causes the exchange message from the previously logged QSO from the right radio to be sent. If a key is assigned to this task it will be useful for responding to fill requests after the contact has been logged on the right radio.
- **Send A1** - Pressing the function key or key combination assigned to this task causes the message defined as A1 to be sent. This message is the answer you want to send in response to a request for fill of the item from the first column (call-sign) of the [QSO Entry Check Grid](#)^[102].
- **Send A2** - Pressing the function key or key combination assigned to this task causes the message defined as A2 to be sent. This message is the answer you want to send in response to a request for fill of the item from the second column of the [QSO Entry Check Grid](#)^[102].
- **Send A3** - Pressing the function key or key combination assigned to this task causes the message defined as A3 to be sent. This message is the answer you want to send in response to a request for fill of the item from the third column of the [QSO Entry Check Grid](#)^[102].
- **Send A4** - Pressing the function key or key combination assigned to this task causes the message defined as A4 to be sent. This message is the answer you want to send in response to a request for fill of the item from the fourth column of the [QSO Entry Check Grid](#)^[102].
- **Send A5** - Pressing the function key or key combination assigned to this task causes the message defined as A5 to be sent. This message is the answer you want to send in response to a request for fill of the item from the fifth column of the [QSO Entry Check Grid](#)^[102].
- **Send CQ** - Assign this command to a key to enable the key to send message CQ.
- **Send CQD** - Assign this command to a key to enable the key to send message CQD.
- **Send CQX** - Assign this command to a key to enable the key to send message CQX.
- **Send CQT** - Assign this command to a key to enable the key to send message CQT and log the QSO.
- **Send Q1** - Pressing the function key or key combination assigned to this task causes the message defined as Q1 to be sent. This message is the one that will be sent if the item from the first column (call-sign) of the [QSO Entry Check Grid](#)^[102] needs a fill.
- **Send Q2** - Pressing the function key or key combination assigned to this task causes the message defined as Q2 to be sent. This message is the one that will be sent if the item from the second column of the [QSO Entry Check Grid](#)^[102] needs a fill.
- **Send Q3** - Pressing the function key or key combination assigned to this task causes the message defined as Q3 to be sent. This message is the one that will be sent if the item from the third column of the [QSO Entry Check Grid](#)^[102] needs a fill.
- **Send Q4** - Pressing the function key or key combination assigned to this task causes the message defined as Q4 to be sent. This message is the one that will be sent if the item from the fourth column (if one exists) of the [QSO Entry Check Grid](#)^[102] needs a fill.

- **Send Q5** - Pressing the function key or key combination assigned to this task causes the message defined as Q5 to be sent. This message is the one that will be sent if the item from the fifth column (if one exists) of the [QSO Entry Check Grid](#)^[102] needs a fill.
- **Send QRL** - Assign this command to a key to enable the key to send message the message defined as QRL.
- **Send QRU** - Assign this command to a key to enable the key to send message the message defined as QRU.
- **Send QSY** - Assign this command to a key to enable the key to send message the message defined as QSY.
- **Send SP** - Assign this command to a key to enable the key to send message SP which is typically used to send your call sign when in search and pounce mode. Of course it can be used to send your call sign at any time.
- **Send SPX** - Assign this command to a key to enable the key to send message SPX which is typically used to send the exchange when in search and pounce mode. Of course it can be used to send that information at any time.
- **Show Mult QSOs** - Pressing the function key assigned to this task causes a list of all QSOs with the multiplier currently entered in the [QSO Entry Box](#)^[102] to be presented. Note: this requires that the user has selected to show this type of information in the right hand radio area. See topic [Customizing the Display](#)^[109] for details.
- **Show Station QSOs** - Pressing the function key assigned to this task causes a list of all QSOs with the station currently entered in the [QSO Entry Box](#)^[102] to be presented. Note: this requires that the user has selected to show this type of information in the right hand radio area. See topic [Customizing the Display](#)^[109] for details.
- **Silently Log QSO** - Pressing the function key assigned to this task causes the QSO entered on the [QSO Entry Box](#)^[102] corresponding to the Logging Radio to be logged without sending any CW signals.
- **Toggle Logging Radio** - Pressing the function key assigned to this task causes the Logging Radio state to be switched to the other radio if it is enabled. Both radios must, of course, be enabled for this key to perform its function.
- **Toggle Max/Min Speed** - Pressing the function key assigned to this task causes the speed of the keyer currently assigned to the Logging Radio to change between its minimum and maximum values which are set up using the KeyerParametersDialog. If the speed is not initially at either the max or min value it will enter the toggle cycle at the max/min value that is most distant from the current speed. If the current speed is equidistant from the max and min values it will enter the toggle cycle at the minimum value.
- **Toggle Preset/Max Speed** - Pressing the function key assigned to this task causes the speed of the keyer currently assigned to the Logging Radio to change between its preset speed and maximum speed. The maximum speed is set up using the KeyerParametersDialog. The Preset speed is set up anytime the keyer's speed combo box is used to set the speed or when a speed increment/decrement is performed.
- **Toggle Preset/Min Speed** - Pressing the function key assigned to this task causes the speed of the keyer currently assigned to the Logging Radio to change between its preset speed and minimum speed. The minimum speed is set up using the KeyerParametersDialog. The Preset speed is set up anytime the keyer's speed combo box is used to set the speed or when a speed

increment/decrement is performed.

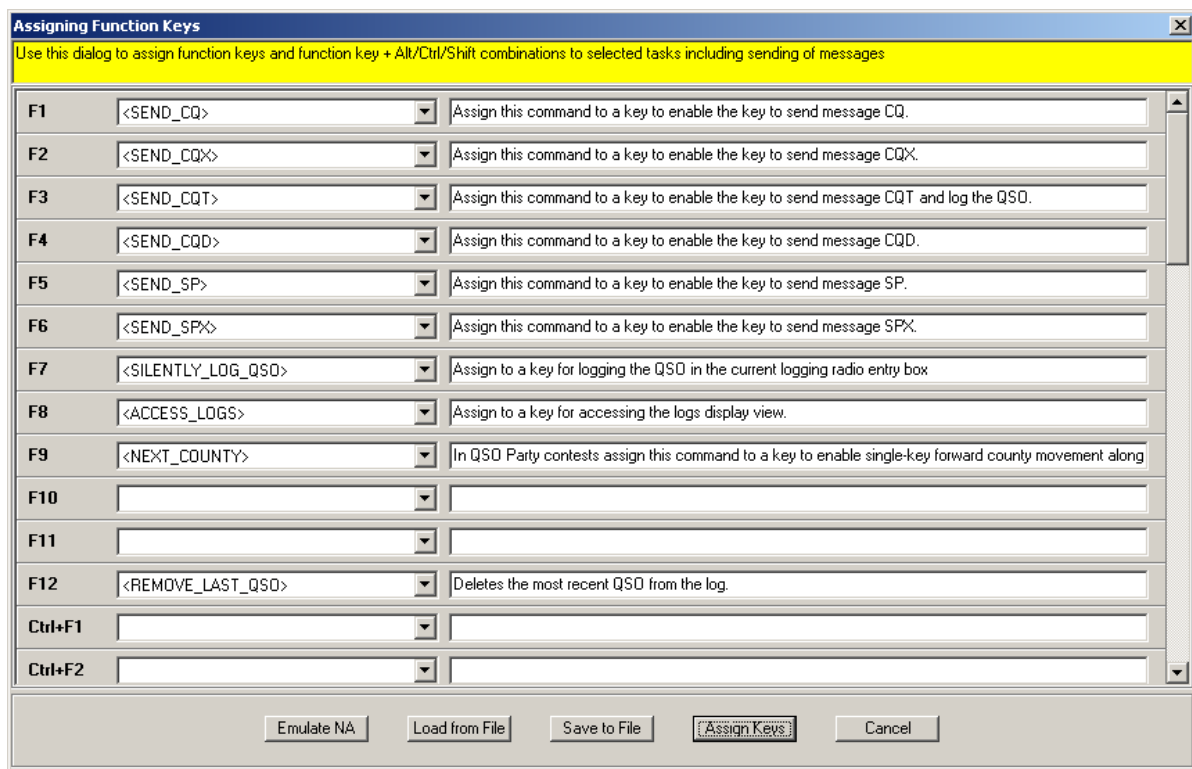
- **Toggle RIT Status** - Pressing the function key or key combination assigned to this task causes the RIT On/Off status of the LoggingRadio to be changed to the alternate state. It should be noted that not all radios support PC control of RIT.
- **Toggle XIT Status** - Pressing the function key or key combination assigned to this task causes the XIT On/Off status of the LoggingRadio to be changed to the alternate state. It should be noted that not all radios support PC control of XIT.
- **Update GPS Now** - Pressing the function key or key combination assigned to this task causes the displayed GPS information to be updated on the next receipt of data from the GPS.

The assignments are recorded on the Commands Page for reference by the user and will persist across a restart of the program..

5.6 Assigning Function Keys

Although all tasks may be performed by point and click operations with the mouse either through menu selection or selection of page tabs, it is best to assign some often used tasks to function keys depending on the operating style/requirements of the user.

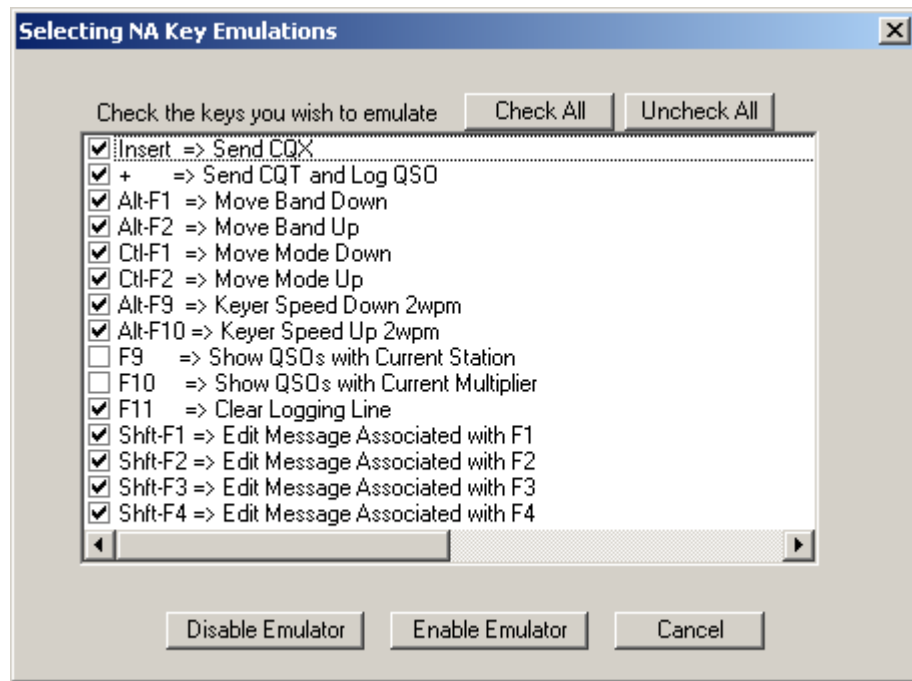
Function keys F1-F12, as well as the combination Alt+Fx, Ctrl+Fx, Shift+Fx may all be assigned to specific tasks using either of the menu items Keyer | Assign Function Keys or Options | Assign Commands. Choosing either of these menu items will activate the following dialog which contains a listing of the function keys, a combo box for selecting the task to be performed by the key, and a window that provides a brief description of the task. A set of default key assignments, specific to the selected contest, may be used as a starting point by pressing the button labeled Load Defaults. See [Available Function Key Commands](#)^[42] for a list and description of the tasks that can be assigned.



After completing the assignments pressing the Assign Keys button will set up the keys to perform the specified function and will close the dialog. On closing the dialog the task assignments will appear on the CommandsPage. After closing the dialog the assigned task can be initiated by either pressing the assigned function key or by clicking on the associated button on the CommandsPage the former being, of course, the preferred approach.

The assigned commands will be retained across a restart of the program so it is not necessary for the user to explicitly save the command set. However, the user may find it useful to save certain sets of commands for use across changes in the contests being worked. This can be done using the Save To File button with later loading of the file using the Load From File button.

Using the Emulate NA button you can also assign keys to emulate some of the keys used by NA. Use of this button will activate the following dialog which contains a check list of the available key emulations as shown in the following screen shot.



Use either the mouse or the Enter key (by highlighting the desired item and pressing Enter) to toggle the check mark by each of the items. Once satisfied with the selections press the Enable Emulator button to enable all of the checked items. Note that, the enabled emulation is retained across a restart of the program. So, if you always use the same emulation, you will only have to perform this operation once.

Pressing the Enable Emulator key will setup the associated tasks of the checked items in the Assigning Function Keys dialog. Pressing the Disable Emulator button will deselect and clear the key assignments of all of the keys associated with the emulator.

6 Operating a Contest

6.1 Starting a New Contest

When CQ/X starts up it provides the following options

Resume Current Contest - use this option if it is desired to continue a contest following a restart of the program. In this case all logging and duping will pick up where it left off when CQ/X was closed

Start a New Contest - use this option if it is desired to start a new contest. In this case a dialog will be presented for filling in user information which will be used in constructing the final summary sheet and the final Cabrillo version of the log. Once satisfied that the user information is correct pressing Ok will start the new contest. If a contest log already exists you will be asked to review the information and can save the existing log if that is desired. Otherwise all logging and duping information will be cleared and a new log file will be created.

It is also possible to start a new contest after CQ/X has been started. To do this use the File | Start New Contest menu item and fill in the information.

6.2 Restarting a Contest

Following a shutdown of CQ/X you can restart the program and pick up where you left off but you will need to perform the following. A startup wizard (see [Using the Startup Wizard](#)^[50]) is available to walk you through these steps:

1. Use **Radio | Connect/Disconnect** to connect devices to their respective ports. If you have saved your port assignments you can use the button labeled "Restore from Previous Session" to restore all devices.
2. Use **GPS | GPS Advises County Change** to set the desired GPS Advisory mode. If you choose AUTO the program will automatically change your messages to correspond to the current county and will locate the next county crossing if you have defined one for the current county. If there is more than one crossing defined for the current county the program will ask you to resolve. (Use **GPS | Resolve Multiple County Crossings**)
3. Use **GPS | Set Parameters** to define any waypoints and to set up pass through of GPS information to a mapping program such as Streets and Trips. You can also set up any GPS logging features at the same time (e.g. CQ/X QSL-Ready logging).
4. If you are using Streets and Trips you can use **QPTools | Start Interactive Map** to startup Streets and Trips and select the desired trip *.est file. If using another mapping program start it up from the desktop.
5. In the mapping program connect it to GPS information for real-time position tracking by specifying a port that is connected via a null modem to the GPS Pass Through port defined in step 3 above. Consider using virtual serial ports to save two physical ports (see on-line help for details)
6. If you are not using a GPS you will be asked to restart/reestablish your route plan. If the starting county is in your previously defined plan simply double-click on the desired starting county when the Route Planning dialog comes up. If you are deviating from your original plan you will need to use the route planning dialog to build your new plan.
7. If you are using a GPS use **QPTools | Build Route From Crossings** to import the county line crossing information. This information will be used to calculate the distance and time to the next crossing and, if the AUTO mode is not in use, the resulting sequence will be used to sequence through the counties. If you are using the AUTO mode then the current county will be automatically detected and selected as the starting point in your route.

6.3 Using the Startup Wizard

A startup wizard is provided to walk you through the main steps required to configure the application. This includes the following activities:

1. Setting up Devices as described in [Setting Up a Radio](#)^[27], [Setting Up a Keyer](#)^[30], and [Setting Up a GPS](#)^[31]
2. Setting GPS Parameters as described in [Setting GPS Reporting Parameters](#)^[83]
3. Defining a Route Plan as described in [Planning Route for Non-Use of GPS](#)^[62] and [Planning Route for Use of GPS](#)^[65], and [Route Planning for Mobile QSO Party Operation](#)^[62]
4. Defining a Tracking Map
5. Reviewing/revising the Message Template as described in [Setting Up Messages](#)^[38]
6. Reviewing/revising keyer speed and weight parameters.
7. Reviewing/revising radio band limit parameters.
8. Defining the Display Options
9. Defining [User-Supplied Help](#)^[116]
10. Defining Keystrokes and [Assigning Function Keys](#)^[47]
11. Setting the session clock by setting/verifying the sessions of the contest as described in [Setting up the Session Clock](#)^[117]

6.4 Loading Calls from Previous Logs

Use the menu item **File | Load Exchange Info** to load calls and other information contained in logs from previous contests or from files. The extraction of information from these files assumes that the call is the rightmost space-separated substring that qualifies as a callsign. It is also assumed that the exchange information (if any) is everything to the right of the extracted call. So the following type of lines would result in a call being imported

```
ACall
xxxxxxx ACall
xxxxxxx ACall ExchangeInfo
QSO: 14045 CW 2004-02-28 1501 NO5W      599  PIK W0GXQ      599 MN
```

the latter case being recognized as a Cabrillo-like line wherein the call that will be imported will be W0GXQ and the exchange information will be 599 MN.

6.5 Calling CQ

To begin a CW Run mode QSO you can do either of the following:

- press the function key assigned to the CQ message or
- use Shift+Spacebar.

See [Assigning Function Keys](#)^[47] for information on setting up a function key to call CQ.

6.6 Making a QSO Entry

Run Mode QSO

- After receiving a response to a CQ enter the call sign of the calling station in the [QSO Entry Box](#)^[102] and press Enter. In CW mode if you are unsure of the call sign or only copied part of it and want to send the call or part of it followed by a question mark hold down the shift key and press Enter. This will send the contents of the right most substring along with a question mark. Also see note below regarding use of the Spot windows for initiating a QSO.
- In CW mode the CQ exchange message (CQX) will then be sent. In Phone mode you will provide the exchange.
- Press the space bar and enter the exchange information sent by the calling station in the [QSO Entry Box](#)^[102] in any order with spaces separating the items. Again if you are operating CW and are unsure of the exchange and want to send a substring followed by a question mark hold the shift key down and press Enter.
- If all required items have been successfully parsed these items will show up in the [QSO Entry Check Grid](#)^[102] and no columns in that grid will be blank for the logging radio. Pressing Enter again will cause the QSO to be logged and the CQT message to be sent in CW mode.
- On the other hand If there are missing exchange items in the [QSO Entry Check Grid](#)^[102] the QSO will not be logged and, in CW mode, the [Query Messages](#)^[108] associated with the missing item will be sent. If you are operating Phone mode and pressing Enter and the contact is not being logged review the [QSO Entry Check Grid](#)^[102] to see what entries might be missing and request a fill.

S&P Mode QSO

- Request an S&P QSO in CW mode by pressing the function key assigned to the SP message or by pressing the space bar while holding down the Alt key.
- After successfully requesting an S&P QSO enter the received exchange information in the [QSO Entry Box](#)^[102] in any order separated by spaces
- In CW mode press either the Enter key or the function key assigned to the SPX message to send

the exchange information. In Phone mode press the Enter key and give the exchange information.

- Make sure the call sign and other QSO information is correct
- Press Enter to log the QSO

Note: Using the Spot windows to initiate a Run Mode QSO

When operating mobile in a QSO party there is not a lot of need for the Spot windows. Also, since stations can be worked many times as you change bands, modes, and counties there will be a group of frequent callers. Use of the Spot window to initiate a QSO offers an alternative for entering the calls of responding stations. Instead of typing in the call it can be picked from a list of similar calls which, in the often rough mobile environment, may be easier than typing in the call. Here's how it works.

1. Under the Options menu check the item labeled Use Spot Windows for Call Search.
2. This will activate the dialog described in [Loading Calls from Previous Logs](#)^[51] asking you to identify source files for the calls.
3. During a run with the focus in the applicable Spot window issue a CQ as described in topic [Calling CQ](#)^[51]
4. When a station responds type any letters from its call into the Spot window and press either Enter or Shift+Enter. Enter by itself will carry you to the next step. In CW mode Shift+Enter will issue a message containing the entered string followed by a question mark and will retain focus in the Spot window.
5. The small form shown below will be activated. This form contains a list of all calls from the source files specified in step 2 that contain the entered substring.
6. If the responding call is in the list use the cursor keys to scroll down(up) to the call and press Enter or Shift+Enter. The Page Up (Page Down) keys will take you to the bottom (top) of the list. If the call is not in the list it can be entered in the edit box just above the list -- use tab to get there. Type the call in the edit box and press Enter. If you are operating CW pressing Shift+Enter with the focus in the list box will send the highlighted call followed by a question mark.
7. Pressing Enter alone closes the form, transfers the call to the [QSO Entry Box](#)^[102], and begins transmitting the CQX message.
8. Following entry of the responding station's exchange information and pressing Enter to log the QSO focus is returned to the initiating Spot window.

In step 3 you can also include a question mark in the string entered into the Spot window. In this case pressing Enter will cause the entered string along with the question mark to be transmitted if you are operating CW and the Spot window will retain the focus. Removal of the question mark will then advance you to step 4. However, use of the Shift+Enter avoids having to remove the question mark to advance to step 4 and should be the preferred approach.

K4 calls

ESC closes form
Shift+Enter sends <Call>?
Enter begins QSO with <Call>

K4BAI

K4AMC

K4BAI

K4BK

K4IA/M

K4JM

K4KH

K4KWK

K4LTA

K4MF

K4MUT

K4XI

K4YFH

K4YT

6.7 Handling a Second Caller

Assume you call CQ and copy two callers (CALL1 and CALL2) and wish to respond to CALL2 immediately after logging the contact with CALL1 rather than sending the normal CQT message. Use of the Alt+Enter key combination allows CALL2 to be buffered for processing and the contact with CALL2 to be initiated using the CQN message. The only requirement is that the QSO Entry line should have one of the following possible formats when the combination Alt+Enter is pressed.

CALL1 CALL2
CALL1 EXCHANGE1 CALL2
CALL1 CALL2 EXCHANGE1
CALL1 SUBEXCHANGE1 CALL2 SUBEXCHANGE2

In other words CALL2 must be the rightmost call on the entry line.

In the above, Alt+Enter must be pressed prior to logging the contact with CALL1 (otherwise CALL2 will be regarded as a correction to CALL1).

Once Alt+Enter is pressed the entry line will become

```
CALL1  
CALL1 EXCHANGE1  
CALL1 EXCHANGE1  
CALL1 SUBEXCHANGE1 SUBEXCHANGE2
```

and CALL2 will be saved in a next call buffer.

On logging the contact with CALL1 the next call buffer will be examined and, if it contains a call, that call will be copied into the entry line and message CQN will be sent. If the next call buffer is empty then the normal CQT message will be sent. So an appropriate message for CQN, when operating mobile in a QSO party where signal report and county are the exchange items, would be something like: NOW @ 5NN #.

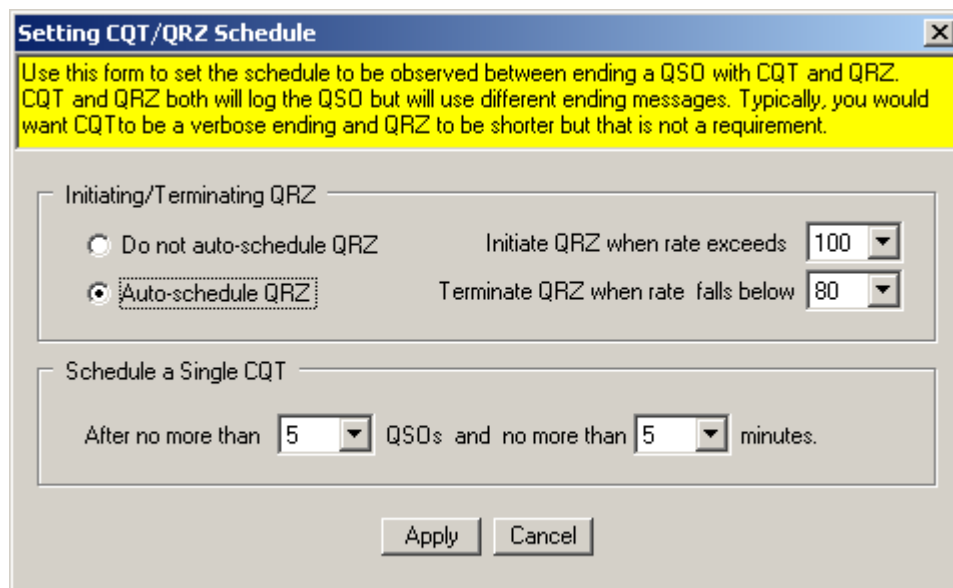
So here is one of the possible sequences:

1. Press Shift+Spacebar to call CQ
2. When W5ZL and W5XX respond type W5ZL in the QSO Entry window
3. Press Enter to respond to W5ZL
4. While the exchange is going out to W5ZL type W5XX to the right of W5ZL
5. Type the exchange information from W5ZL to the right of W5XX
6. Press Alt+Enter to save W5XX to the next call buffer
7. Press Enter to log the contact with W5ZL. This will copy W5XX to the QSO Entry window and send the CQN message with W5XX as the call.
8. Type the exchange information for W5XX and press enter to log the contact with W5XX and to send the CQT message.

Note also that Steps 6 and 5 could have been interchanged.

6.8 Auto-scheduling QSO Ending Messages

The normal message for ending a QSO is the CQT message but, as explained in [Required Messages](#)⁴²¹ it is possible to end a QSO with the QRZ message either explicitly using the key combination Ctrl+Enter or by setting up a rule for the use of CQT vs QRZ using the following dialog:



Although not a requirement, the intent of the QRZ message is to provide a shorter alternate to the CQT message for use when the pileup is large and the rate correspondingly high. This dialog allows you to set up the following parameters that will control the automatic selection of CQT versus QRZ ending messages.

- Rate at which use of the QRZ message should begin
- Rate at which the ending message should revert to CQT
- Maximum number of QSOs that can be completed without a CQT message
- Maximum number of minutes allowed between use of a CQT message

6.9 Initiating a Search & Pounce QSO

To request an S&P QSO press the function key assigned to the SP message.

To begin a Search & Pounce mode QSO you can do either of the following:


- press the function key assigned to the SP message or
- use Alt+Spacebar which requires less hand movement than the function key.

See [Assigning Function Keys](#)  for information on setting up a function key to do SP.

Initiating a Search and Pounce QSO will set the Enter key into the search and pounce mode. The next press of the Enter key will first look for any missing exchange items and, if there are some, will send the corresponding request for fill (Q1, Q2, Q3,...). If there are no missing exchange items the Enter key will log the QSO and send the SPX message which, for some contests (e.g. Sprint) may be different from the CQX message. At the end of the S&P sequence the Enter key will be set back into the CQ mode.

6.10 Revising a Log Entry

Any of the following procedures can be used to revise a QSO after it has been logged.

1. Double-click on the desired QSO in the Logs part of the main display using the left mouse button
2. When the [QSO Revision Dialog](#)  appears enter/modify the QSO information.

3. Click on the Save button or press the Enter key which will close the dialog and return focus to the [QSO Entry Box](#)^[102] currently in use.
4. If the menu item Display | Recalc Score on Each Log Revision is checked the log will be rescored and the [Score Display Grid](#)^[104] will be updated. Otherwise recalculation of the score will not be performed until requested by using the menu item Display | Recalculate Score Now.

Alternately, if the <ACCESS_LOGS> command has been assigned to a key or key combination as described in [Available Function Key Commands](#)^[42], the following procedure can be used to revise a QSO

1. Press the key(s) assigned to the <ACCESS_LOGS> command
2. Use the up/down cursor keys to highlight the QSO to be revised and press Enter
3. When the [QSO Revision Dialog](#)^[106] appears enter/modify the QSO information.
4. Click on the Save button or press the Enter key which will close the dialog and return focus to the [QSO Entry Box](#)^[102] currently in use.
5. If the menu item Display | Recalc Score on Each Log Revision is checked the log will be rescored and the [Score Display Grid](#)^[104] will be updated. Otherwise recalculation of the score will not be performed until requested by using the menu item Display | Recalculate Score Now.

Another option, applicable only to the last QSO logged, is available if the command <REVISE_LAST_QSO> has been assigned to a function key. Use of this option provides direct access to the [QSO Revision Dialog](#)^[106] for the most recently logged QSO. Follow steps 3 and 4 of the procedure described above.

6.11 Running Stations from a Multi-County Boundary

Some QSO parties allow for operation on county lines and/or at points where two or more counties meet. CQ/X provides a means of efficiently running stations from these locations. It consists of a three step process

Step 0: You should first insure that the county resolution symbol (#) is included in the CQX and SPX messages using the menu item Keyer | Edit Message Template (see Note 1 below). Next perform the following steps to define your "trip" around the counties involved in your multi-county operation.

Step 1: The [Multi-County Setup Dialog](#)^[119] is used to define the multi-county location. This dialog plays the same role in multi-county operation as the Route Planning Dialog shown in topic [Planning Route for Non-Use of GPS](#)^[62] does for road trip operation.

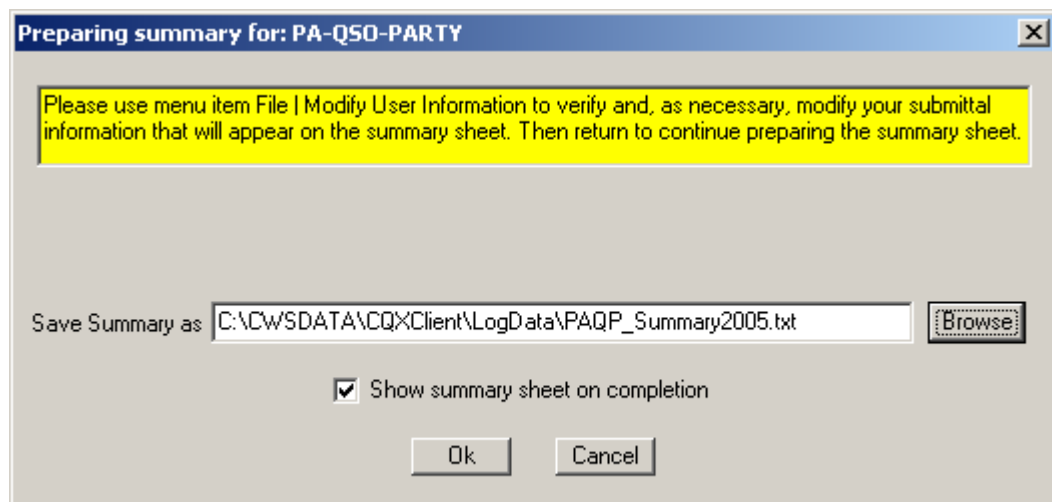
Step 2: The [Multi-County Messaging and Logging Dialog](#)^[120] is used to send exchanges and log contacts.

It is of course important to choose such operating points with safety as the number one criterion. This generally will exclude operations from the side of roadways. Multi-county operation is best suited for expedition style portable but non-mobile operations from locations such as farmer's fields, etc.

Note 1: Think of the multi-county operation as a mobile that is visiting each of the counties involved on each of the QSOs. When you save the message template you will be asked via the [Message Resolution Dialog](#)^[107] to resolve the unknown county. On this dialog press the Resolve Later button since the resolution will come from the multi-county operation defined using the [Multi-County Setup Dialog](#)^[119] in Step 1.

6.12 Preparing a Summary Sheet

Using the menu item QP Tools | Prepare Summary Sheet will activate the following dialog:



If you need to make any changes to the user information prior to preparing the summary use the File | Modify User Information to make those changes. Use the Browse button to specify a file name to which the summary sheet should be saved. You can view the summary sheet on completion by checking the provided checkbox prior to pressing the Ok button.

6.13 Finalizing the Logs

When you are ready to finalize the logs for submitting to the sponsor using the menu item File | Finalize Logs will call up the dialog shown below which opens up showing the Cabrillo header information, the comments previously prepared using the menu item File | Prepare Soapbox. Also shown will be several sample lines from the QSO portion of the Cabrillo file. Note that in the current version it is necessary to enter your claimed score in the Header memo.

Finalizing Cabrillo Log

Header

START-OF-LOG: 2.0
 CALLSIGN: N05W
 CATEGORY: Mobile
 CATEGORY-ASSISTED: NON-ASSISTED
 CLAIMED-SCORE:
 CLUB: Northwest Houston ARS

Soap Box

K5PTC(1)
 N1LN(1)
 K5NZ(1)

Thanks to the following stations for contributing more than half the QSOs

K6LL(2)
 K7QQ(2)
 N4ZZ(1)

Prepare Statistics Paste from Clipboard

Sample QSO Lines

QSO: 14040 CW 2005-08-02 1303 N05W	1	FRAN	K5NZ	78
QSO: 14040 CW 2005-08-02 1303 N05W	2	FRAN	N1LN	56
QSO: 14040 CW 2005-08-02 1304 N05W	3	FRAN	K6LL	3
QSO: 14040 CW 2005-08-02 1304 N05W	4	FRAN	K7QQ	23
QSO: 14040 CW 2005-08-02 1304 N05W	5	FRAN	K5PTC	34
QSO: 14040 CW 2005-08-02 1304 N05W	6	FRAN	N4ZZ	4

Save Cabrillo to this file

C:\CWSADATA\CQXClient\LogData\K8MR_OQP_05_CAB.TXT Browse

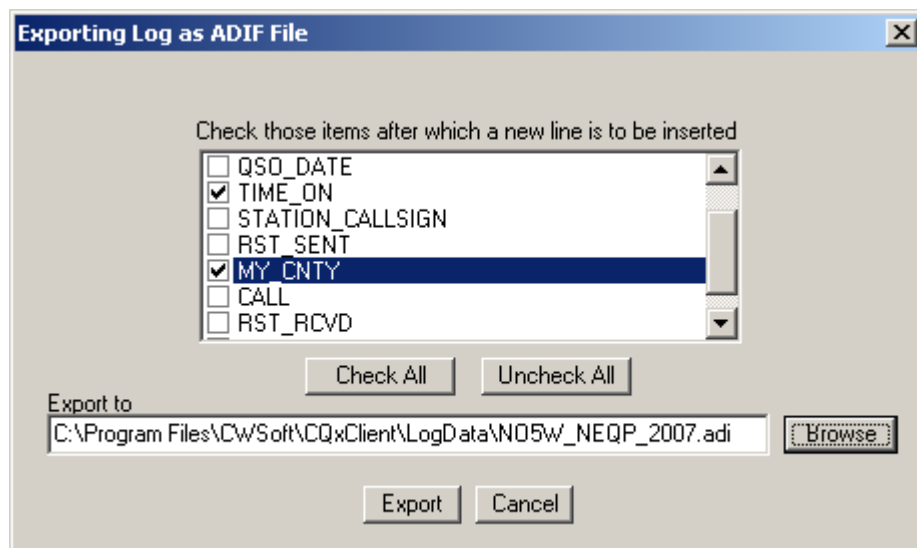
Save Cancel

Pressing the Prepare Statistics button will activate the dialog for [Preparing Statistical Results](#)^[114]. Once satisfied with the formatting of the statistical results use the appropriate button on the dialog for preparing statistical results to copy the results to the clipboard. Closing that dialog will return you to the dialog for finalizing the log. Position the cursor where you want the statistical results to be inserted and then press the button labeled Paste from Clipboard.

Once satisfied with the soapbox comments use the Browse button and resulting dialog to specify the file to which the finalized logs should be saved.

6.14 Exporting Logs to an ADIF File

Using the menu item File | Export Log As ADIF File it is possible to export the log information in the standardized tagged file Amateur Data Information Exchange format. Clicking on this item will activate the following dialog where simple line break formatting to a selected output file can be set up and initiated.



Here the user has selected to have the frequency, mode, date, and time information on the first line of each record followed by a line of sent information and then by a line of received information. If it is desired to have each item appear on a separate line you can, of course, place a check mark next to each item.

6.15 Operating Non-QSO Party Contests

With version 1.7 support for the following non-QSO party contests was added. This topic provides some special considerations that the user should be aware of when operating these contests.

- [ARRL Sweepstakes](#) ⁵⁹
- [North American QSO Party](#) ⁶⁰
- [North American Sprint](#) ⁶⁰
- [NCCC Sprint](#) ⁶¹
- [RAC Winter Contest](#) ⁶¹
- [IARU-HF Contest](#) ⁶¹

6.15.1 ARRL Sweepstakes

In the ARRL Sweepstakes there are two numerical type entries in the exchange,

1. a sequence number and
2. a two digit check year.

The parsing logic uses the following rules to resolve the ambiguity between these two items where N represents any single digit and P represents any precedence character, CK represents a one or two-digit check, and SEC represents a section indicator.

- In any input string of the form N P CK SEC, N will be interpreted as the sequence number and CK as the check number
- a sub-string of the form NNN or NNNN, space-delimited from the rest of the string, will be parsed to a sequence number
- a sub-string of the form NP (or NNP, or NNNP, or NNNNP), space-delimited from the rest of the string, will be parsed to a sequence number N (or NN or NNN or NNNN) and precedence P
- a sub-string of the form N P (or NN P), space-delimited from the rest of the string, will be parsed to a sequence number N (or NN) and precedence P

- a sub-string of the form P, space-delimited from the rest of the string, will be parsed to a precedence P

Sequence numbers greater than 99 can be entered with or without the precedence. So, in general it is best to input the sequence number and the precedence as a single string. When in doubt you can always review the check grid to see how the input is being parsed.

The above applies to entries made in the [QSO Entry Box](#)^[102] as well as those made in the [QSO Revision Dialog](#)^[106].

The upshot of these rules is

If you need to revise the sequence number and wish to do that revision by typing the new sequence number to the right of the check you should either type the sequence number as a three digit number with leading zeros as necessary or type the sequence number followed, without a space, by the precedence.

For example if you are working W5XYZ and initially miss the sequence number and type

W5XYZ A 58 STX

You then ask for a fill of the number and receive 12. You can type the number on the end of the string as 012 making the entry read

W5XYZ A 58 STX 012

Alternately you could type the number on the end of the string as 12A making the entry read

W5XYZ A 58 STX 12A

Either of the above will be correctly interpreted by the parsing logic. However if you simply enter 12 on the end of the existing string the 12 will be interpreted as a revision of the check year and the sequence number will remain unfilled in the check grid.

6.15.2 North American QSO Party

In the NAQP contests the exchange is a name and state/province/country. There is the possibility of ambiguity in the case of the string AL which could be either name=AL or state=AL. In this case the order of entry of name and state needs to be CALL NAME STATE. For example the following entries will have the indicated results

K0AD AL MN will be logged as Name=AL, State=MN
 W4YZ AL will be logged as Name=AL, State=AL
 W4YZ NC AL will be logged as Name=AL, State=AL
 W4YZ NC AL NC will be logged as Name=AL, State=NC

6.15.3 North American Sprint

In the North American Sprint contests the exchange is a sequence number, a name, and a state/province/country. There is the possibility of ambiguity in the case of the string AL which could be either name=AL or state=AL. In this case the order of entry of name and state needs to be NAME STATE. For example the following entries will have the indicated results

K0AD 123 AL MN will be logged as Name=AL, State=MN
 W4YZ 123 AL will be logged as Name=AL, State=AL
 W4YZ 123 NC AL will be logged as Name=AL, State=AL
 W4YZ 123 NC AL NC will be logged as Name=AL, State=NC

QSY Rule - After making a solicited* (CQ) contact in the NA Sprint a station must QSY by at least 5KHz before soliciting another contact or by least 1KHz before requesting a search and pounce contact. The background color on the frequency display is used in the following way to indicate ability to make these two types of contacts under the QSY rule:

- Red - The current displayed frequency is such that neither a CQ nor a S&P QSO may be made
- Black - The current displayed frequency is such that a S&P QSO may be made but a CQ QSO may not.
- Gray - The current displayed frequency is such that either a S&P or a CQ QSO may be made

*Note: A solicited (CQ) contact is any contact initiated with a CQ or QRZ as well as any contact made on a frequency inherited by the station by virtue of that station making a S&P contact with the previous "owner" of the frequency.

6.15.4 NCCC Sprint

The NCCC Sprint is similar to the North American Sprint contests with the following exceptions

- The same station can be worked multiple times on the same band provided 1 contact separates the contact in both logs.
- Back-to-back contacts on different bands are OK.
- NAQP Multipliers count once per band, as in NAQP
- KH6 is a multiplier
- The 5kHz QSY rule reduced to 1kHz
- 160 meter QSOs permitted, as in NAQP
- 100 watts or less power, as in NAQP
- 30-minute contest period
- Scoring is total QSOs times sum of multipliers on each band, as in NAQP

For further comments see [North American Sprint](#)⁶⁰.

6.15.5 RAC Winter Contest

In the RAC Winter Contest the exchange is a signal report and either a sequence number, if sender is a non-Canadian station, or a Canadian province abbreviation if the sender is a Canadian station. The signal report defaults to 599 or 59 as appropriate for CW or SSB. If it is desired to enter something other than the default append an R to the non-default signal report - e.g. 579R to input a signal report of 579.

6.15.6 IARU-HF Contest

In the IARU-HF Contest the exchange is a signal report and either a zone number, a member society abbreviation, or an IARU official's designator (AC,R1,R2,R3). The signal report defaults to 599 or 59 as appropriate for CW or SSB. If it is desired to enter something other than the default append an R to the non-default signal report - e.g. 579R to input a signal report of 579 or 49R in order to enter a non-default signal report like 49 for phone. The latter will also avoid the possible ambiguity with zone 49.

The user should also be aware of the following duplication in the member society abbreviations:

ARM - Moldava(ER) and Monaco(3A)
DARC - Dominica(J7) and Germany(DL)
GARS - Ghana(9G) and Gibralt(ZB)
MARS - Maritius(3B8) and Montserrat(VP2M)
RCH - Haiti(HH) and Honduras(HR)

To insure that the proper multiplier credit is given for these member society abbreviations the

abbreviations will be logged as:

ARM-ER
ARM-3A
DARC-J7
DARC-DL
GARS-9G
GARS-ZB
MARS-3B
MARS-VP
RCH-HH
RCH-HR

When the Cabrillo log is finalized the -XX designators will be removed from the log.

7 Route Planning for Mobile QSO Party Operation

Two types of route planning are available. The one you choose will depend on whether or not you are planning to use a GPS.

Planning a route if a GPS is not going to be used. In that case the route plan will consist simply of a list of counties in the order in which they are to be covered. See [Planning Route for Non-Use of GPS](#)^[62] for information on setting up this list.

If a GPS is going to be used to provide real-time estimates of the distance to the next county the route plan must include the latitude and longitude of the planned county crossings. See [Planning Route for Use of GPS](#)^[65] for information on setting up the county crossing information. Once the county crossing information has been setup the list of counties will be generated from the crossing information.

7.1 Planning Route for Non-Use of GPS

If you are planning to use a GPS to provide a real-time estimate of distance to next county you should build your route from county crossing information using the steps described in [Planning Route for Use of GPS](#)^[65].

If a GPS will not be used you can simply follow the steps below to create a list of counties in your route.

1. Use the QSO Party-specific menu item QSO Party | Plan Route
2. From the Route Planning dialog choose the first county in your route
3. Once the first county is chosen it will be transferred to the Counties in Route and the drop down box in the Next County Selection area will change to contain only those counties that are adjacent to the most recently selected county.
4. Continue by selecting each county to add to the list and use the Add To Route button to add the county
5. Repeat until all of the desired counties have been added
6. Use the Save to File button to save the list to a file to avoid having to repeat the above steps at a later session.
7. It is highly recommended that you use a mapping tool such as MS Streets and Trips to determine your actual route through the county sequence and to determine that it is actually possible to drive between counties A and B. To refine the route in Streets and Trips you may find it useful to import the sequence of county polygons. Use the button labeled Prepare Polygon Sequence to prepare the sequence of files to import.

Route planning for Texas QSO Party

To use this planning tool perform the following steps.

1. Select a first county. This county will be automatically transferred to the route.
2. Continue by selecting and then using the Add To Route button to add the next county.
3. Repeat the selection and addition of next county until all desired counties have been added in the proper sequence.
4. You can then start your route by double-clicking on the desired starting county or you may continue your planning using a
5. If you have a copy of mapping software such as MS Streets & Trips it is recommended that you complete your planning using that program. If desired, prior to doing the planning with the mapping software you may find it helpful to save the route as a sequence of county crossings. Use the button labeled Prepare Polygon Sequence and then start your interactive mapping session by either returning to the mapping software or by using the Use Interactive Map button.

Note: As each next county is added the Next County selection combo box will change to reflect those counties that are adjacent to the last county added.

First County in Route

County Abbreviation

Next County Selection

County Abbreviation

Counties in Route

County	Abbreviation
Montgomery	MGMY
GRIMES	GRIM
WALKER	WALK
TRINITY	TRIN
HOUSTON	HOUS
ANDERSON	ANDE
LEON	LEON

Unique Counties

County Changes

7.2 Route Planning Dialog

The Route Planning Dialog is useful for planning a route in the case where no GPS is to be used or to prepare a sequence of polygon files for use in planning the actual driving route, or as a preliminary step to building the file of county crossings for use with a GPS.

First County in Route

County: Andrews Abbreviation: ANDR

Next County Selection

County: HOWARD Abbreviation: HOWA

Add to Route ▼

Counties in Route

County	Abbreviation
Andrews	ANDR
ECTOR	ECTO
CRANE	CRAN
UPTON	UPTO
GLASSCOCK	GLAS

Unique Counties: 5
County Changes: 4

Buttons: Delete Last Entry, Restart at Selection, Restart, Delete All Entries, Load from Restart File, Load from a File, Save to a File

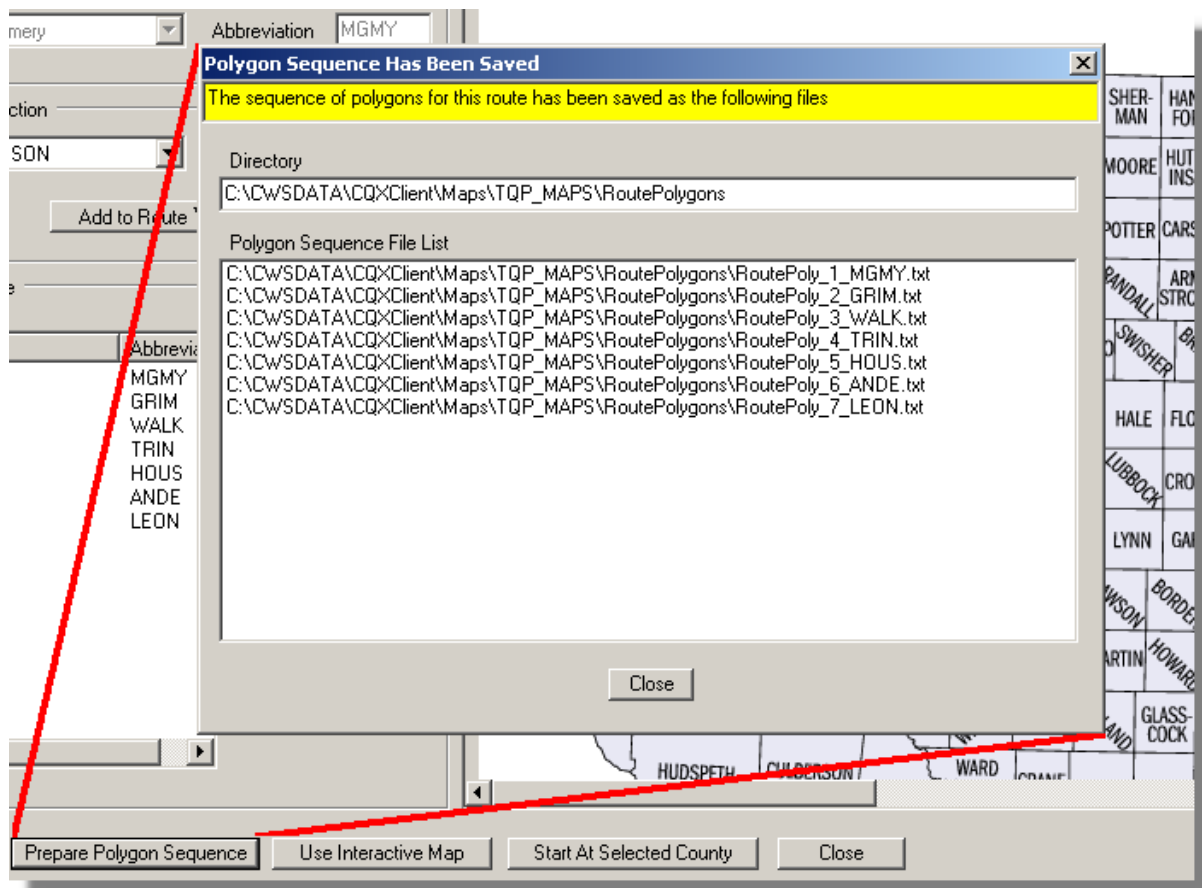
After selecting the First County in Route, additional counties adjacent to the previously selected county will appear in the Next County combo box. Selecting the desired next county and pressing the Add to Route button will add the selected county to the route list.

Buttons along the right hand side of the Counties in Route list allow you to perform various operations including: deleting the last entry, deleting all entries, loading from a file and saving to a file.

As the name implies, the Restart button enables you to completely restart the route building process.

The Restart at Selection button enables you to delete all of the entries after a selected entry in order to resume the route building at the selected county.

The button labeled Prepare Polygon Sequence (shown in the screen shot below) allows you to create the sequence of county polygon files for the Counties in Route. These files will be named RoutePoly_n_Abbrev.txt where n is the position of the county in the sequence and Abbrev is the abbreviation for the county. They will be saved in subdirectory (RoutePolygons) of the maps directory for the given QSO party. Importing these files into a mapping program will give a polygon representation of the route from which a driving route can be developed.



Another button allows the user to export the sequence of counties as a KML file for use with Google Maps.

7.3 Planning Route for Use of GPS

Using an on-board GPS will allow you to obtain real-time estimates of the distance to the next county crossing. In order to make use of this feature you must describe the planned route to a sufficient level of detail -- namely information must be available to the program regarding the latitude and longitude of each county crossing.

This information is fairly easy to obtain if you have access to trip planning software that contains county line information. One such program is Streets and Trips from Microsoft. In the following it will be assumed that you have access to this program. The steps for planning a route using Streets and Trips are:

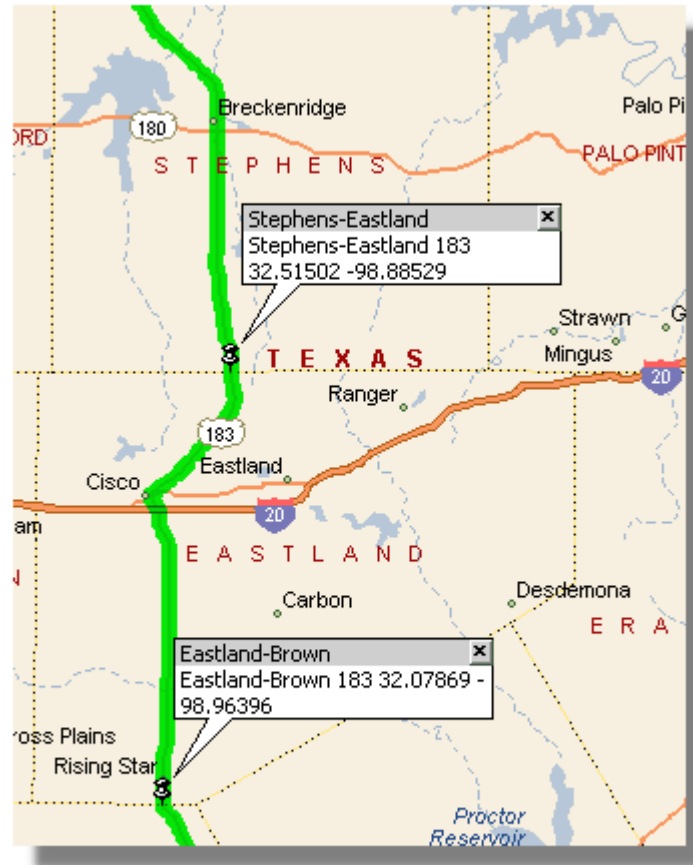
1. Choose the TQP | Build Route From Crossings menu item
2. The resulting screen contains instructions and a button for starting Streets and Trips to either build a new route or restart the planning of an existing route.
3. After planning of the route is completed use the pushpin and location sensor in Streets and Trips to annotate each of the county crossings in the driving order using the following convention

FromCounty-ToCounty HwyLabel Latitude Longitude

where the highway label (HwyLabel) is included for reference in case there is more than one crossing involving the same from and to counties. The above line of data is space delimited so it is important to remove any spaces in the county names when entering the From and To county names. For example Red River should be entered as RedRiver. Be careful to apply the proper sign to the latitude and

longitude (North = +, West = -).

4. At this point you can save the trip or continue to [Adding County Crossing Information](#)^[66].



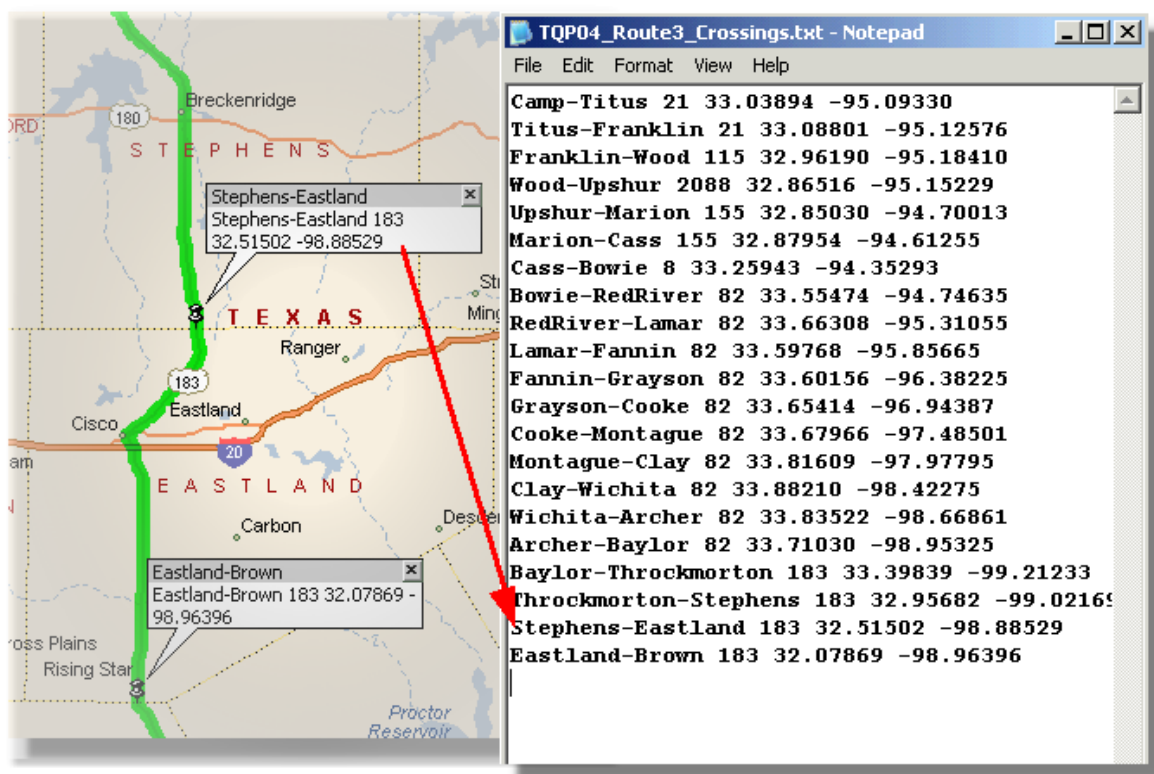
County Crossing Annotations

7.4 Adding County Crossing Information

In this section it is assumed that you have developed a trip plan using Streets and Trips and have annotated each county crossing as described in [Planning Route for Use of GPS](#)^[65]. The following procedure can be used to import this information into CQ/X.

1. Start up Streets and Trips and access the appropriate trip file.
2. Open a text editor such as Notepad
3. Proceeding in the driving direction highlight each of the county crossing annotations and copy and paste that information into the text editor.
4. Once complete save the text editor file
5. Streets and Trips and/or the text editor can be closed at this point if desired.
6. In CQ/X use the TQP | Build Route From Crossings option
7. At the instruction screen press the button labeled Assign Crossings. This will start an Open file dialog from which the desired county crossing file can be selected.
8. Opening the desired crossing file will populate the [Building Routes from Crossings](#)^[68] dialog on which the county crossings are listed in trip order along with the distance between each of the crossings and the minimum, maximum, and average distances of the distances between them.

9. To select a starting county from the county crossings screen double click on the desired From county. This will save the route and the county crossing information for use by CQ/X. You can also just press the Apply button which will select the first From county as the starting county.
10. Following this the route will be started and a dialog will be presented requesting a review of the resulting messages. If the DLL associated with the QSO Party is not the latest version a message box may appear requesting the user to start the route from the QP Tools | Start Route menu item.



Streets & Trips

Crossings for Import into CQx

7.5 Importing County Crossing Information

Once county crossing information has been captured in a text file (see [Adding County Crossing Information](#)^[66]) that information may be imported to define a route or to restart a session after CQ/X has been shut down for lunch or the evening QSO Party recess or for whatever other reason.

To import this information do the following:

1. Select the QSO Party Tools menu item labeled Build Plan From Crossings
2. When the instruction panel comes up press the Assign Crossings button and select the desired county crossing file from the open file dialog.
3. This will populate the county crossing information on the [Building Routes from Crossings](#)^[68] dialog and will validate the sequence of From and To counties is consistent -- i.e. the To County from the previous crossing is the From County for the current crossing. It will also perform a reasonability check on the latitude and longitude. Any items that need correcting will be flagged.
4. Correct any items by either typing into the edit boxes or by using the buttons for reversing the county names in a flagged crossing or for reversing the signs of latitude and/or longitude. On closing this dialog an opportunity will be provided to save any changes either in the existing file (default) or by choosing another file name.

5. Press the Apply to define the starting point of the route at the From county on the first row of the dialog. If it is desired to start the route at another county double click on that county where it appears as a From county.
6. The above steps set the starting county, import the list of county crossings and associated data into the program, and initialize the messages. If an older version of the DLL associated with the QSO party is being used the final step to initialize the route and associated messages must be performed as a manual step in response to a message box that will appear requesting the user to start the route using the menu item under QSO Party Tools labeled Start Route. If this occurs you should request a new DLL since many changes have been made since that earlier version.

7.6 Building Routes from Crossings

The Building Route From Crossings dialog is a dialog showing the from and to counties of each county crossing as well as the highway number, the latitude and longitude and the distance between the crossings. An example is shown below:

Building route from C:\CWSADATA\CQXClient\Maps\lqp_maps\TQP04_Route2_Crossings.txt

■ Indicates incorrect county sequence
 ■ Indicates incorrect latitude and/or longitude

From County	To County	Hwy	ID	Latitude	Longitude	Miles To Next*
Camp	Titus	21	0	33.03894	-95.09330	3.89
Titus	Franklin	21	1	33.08801	-95.12576	9.38
Franklin	Wood	115	2	32.96190	-95.18410	6.96
Wood	Upshur	2088	3	32.86516	-95.15229	26.32
Upshur	Marion	155	4	32.85030	-94.70013	5.48
Marion	Cass	155	5	32.87954	-94.61255	30.35
Cass	Bowie	8	6	33.25943	-94.35293	30.60
Bowie	RedRiver	82	7	33.55474	-94.74635	33.39
RedRiver	Lamar	82	8	33.66308	-95.31055	31.81
Lamar	Fannin	82	9	33.59768	-95.85665	30.31
Fannin	Grayson	82	10	33.60156	-96.38225	7673.23
Grayson	Cooke	82	11	33.65414	96.943871	7653.54
Montague	Cooke	82	12	33.67966	-97.48501	29.91
Montague	Clay	82	13	33.81609	-97.97795	25.98
Clay	Wichita	82	14	33.88210	-98.42275	14.50
Wichita	Archer	82	15	33.83522	-98.66861	18.53

* Miles To Next is the straight-line/great circle distance to the next county line and is only an estimate of the driving distance.

Minimum distance
 Average distance
 Maximum distance

When this dialog is activated a scan of the resulting fields is performed to determine if the county

sequences are consistent with the requirement that the To County of the previous row is the From County of the current row and to determine if the latitudes and longitudes are reasonable. Reasonability checks on latitude and longitude are based on a check to determine whether the point is within the rectangle that bounds the state sponsoring the QSO party. Since the most common problem is failure to include a negative sign on the longitude a button is provided for reversing the sign.

Any suspect items are flagged for correction and must be corrected prior to applying the crossings. Corrections are made by either direct entry into the suspect field or by using the buttons. An opportunity to save a new version of the crossings file including the corrections is provided when the dialog is closed.

Note: If you import a file and it contains a number of latitude and/or longitude errors and there are no obvious sign errors the most likely source of the problem is that the imported file is not for the current state. In that case you should close and browse for another file to import.

7.7 Starting a Route

The starting county of a route is specified on either of the following dialogs depending on whether or not the route has been planned for use of a GPS

If the route is not being planned for use of a GPS plan the route and define the starting county using the [Route Planning Dialog](#)^[63]. Then highlight the starting county and press the button labeled Start At Selected County or double-click on the desired starting county. This will define the route and the starting county and will start the route.

If the route is being planned for use of a GPS plan the route, define the county crossings, and import the county crossings using the [Building Routes from Crossings](#)^[68] dialog. Then press the Apply button or double click on the desired starting county where it shows as a From county. This will define the route and the starting county and will start the route. If you have GPS Advises County Change enabled in AUTO mode the automatically detected current county will be used as the starting county.

7.8 Changing Counties

County Changes Based on Route Plan or GPS Data

Once a route has been started you can change counties either manually or, automatically if a GPS is being used and the county crossing information has been defined to support the GPS.

To change to the next county manually use the Next County option under the QSO Party Tools menu item for the QSO party. This can be accomplished with either the mouse, with the key stroke sequence **Alt+Q, N** or by pressing a function key if one has been assigned to the Next County task as described in [Assigning Function Keys](#)^[47]. The first time the Next County operation is performed or at the start of a route a message box will appear requesting that the modified messages containing county abbreviations be verified for correctness. If desired, this message box can be bypassed on subsequent county changes.

If the automatic county change feature has been enabled county changes will occur when a county crossing has been reached and as soon as no QSO is underway. See [Setting Up Automatic County Changes](#)^[86] for further details on configuring this feature.

Use the Previous County option under the QSO Party Tools menu item to move backwards through the counties in the route. In order to do this you should first set the GPS Advisory Mode to OFF.

County Changes from the QSO Entry Boxes

In order to use any of the above methods you must either be using the GPS Auto-Advisory mode or must have set up a route plan. If you have not established a route plan and wish to change counties manually type # as the right most element on either the left or right [QSO Entry Box](#)^[102]. This will activate a small form containing a focused drop down list of the counties. Typing the first letter of the desired county will bring the list to the first county starting with that letter. If necessary use the cursor down/up keys to access the desired county and either press Enter or use the mouse to click on the Apply button. This will change all messages, etc to reflect the selected county. If you are using the GPS Auto-Advisory feature described in [GPS Advisory Modes](#)^[88] it will be disabled but the current county being detected will continue showing on the You Are In/Out array. After applying the desired county, focus will be returned to the [QSO Entry Box](#)^[102] from which the action was initiated.

7.9 Adding Strip Maps to the Route

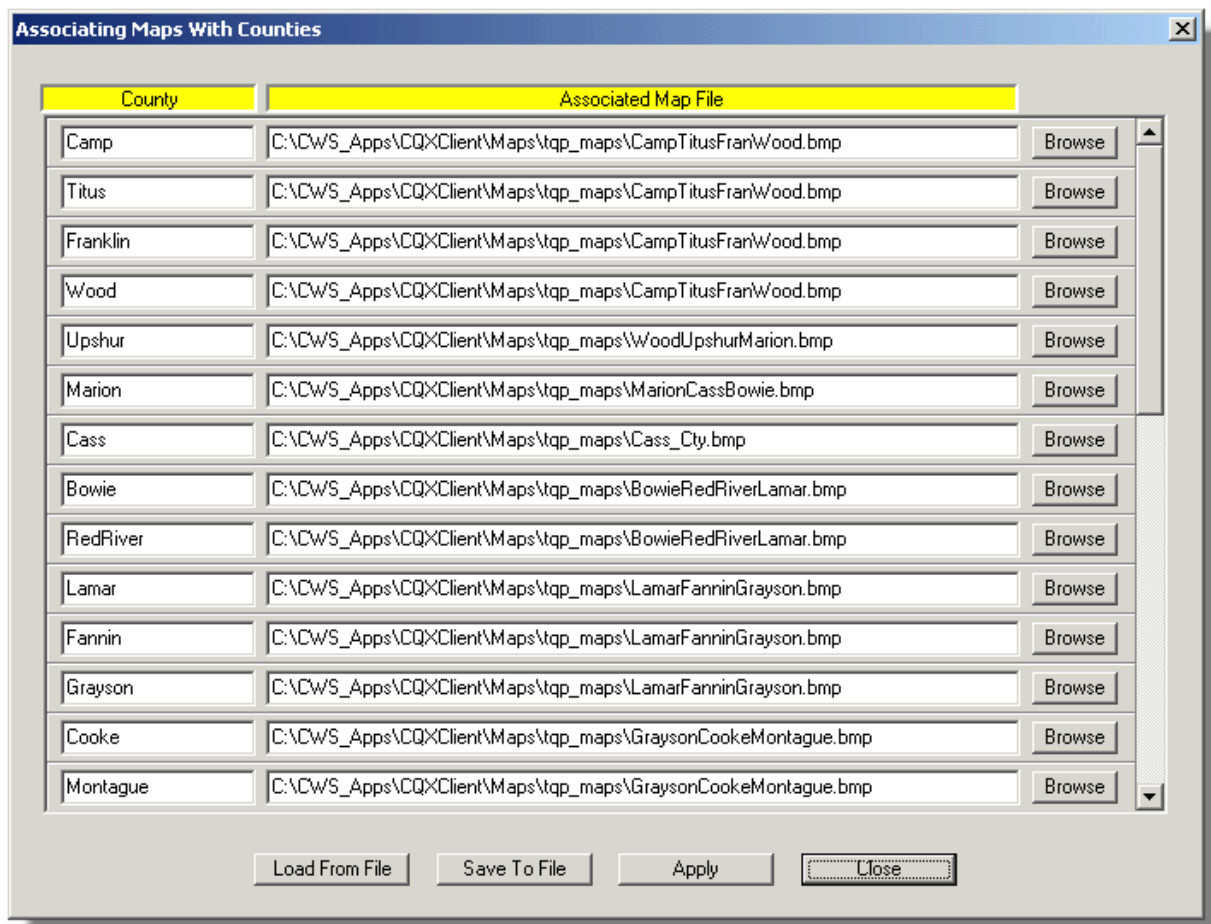
If desired, a set of "strip maps" may be added to the program and associated with each of the counties in the route. After the route has been developed and finalized using a trip planning tool simply select portions of the route and perform a screen capture of the desired map region and save the captured image as a .bmp file.

To associate the captured image with a county use the QP Tools | Associate Maps option which will bring up the [Associating Maps With Counties Dialog](#)^[70]. For each county browse to the name of the associated map file, select the file and press the Open button in the Open File dialog to copy the complete path and name of the file to the edit box associated with the selected county. Once done use the Save To File button to save the associations for later use. To make the associations available to the program press the Apply button.

For an alternative approach for making strip map information available see topic [User-Supplied Help](#)^[116].

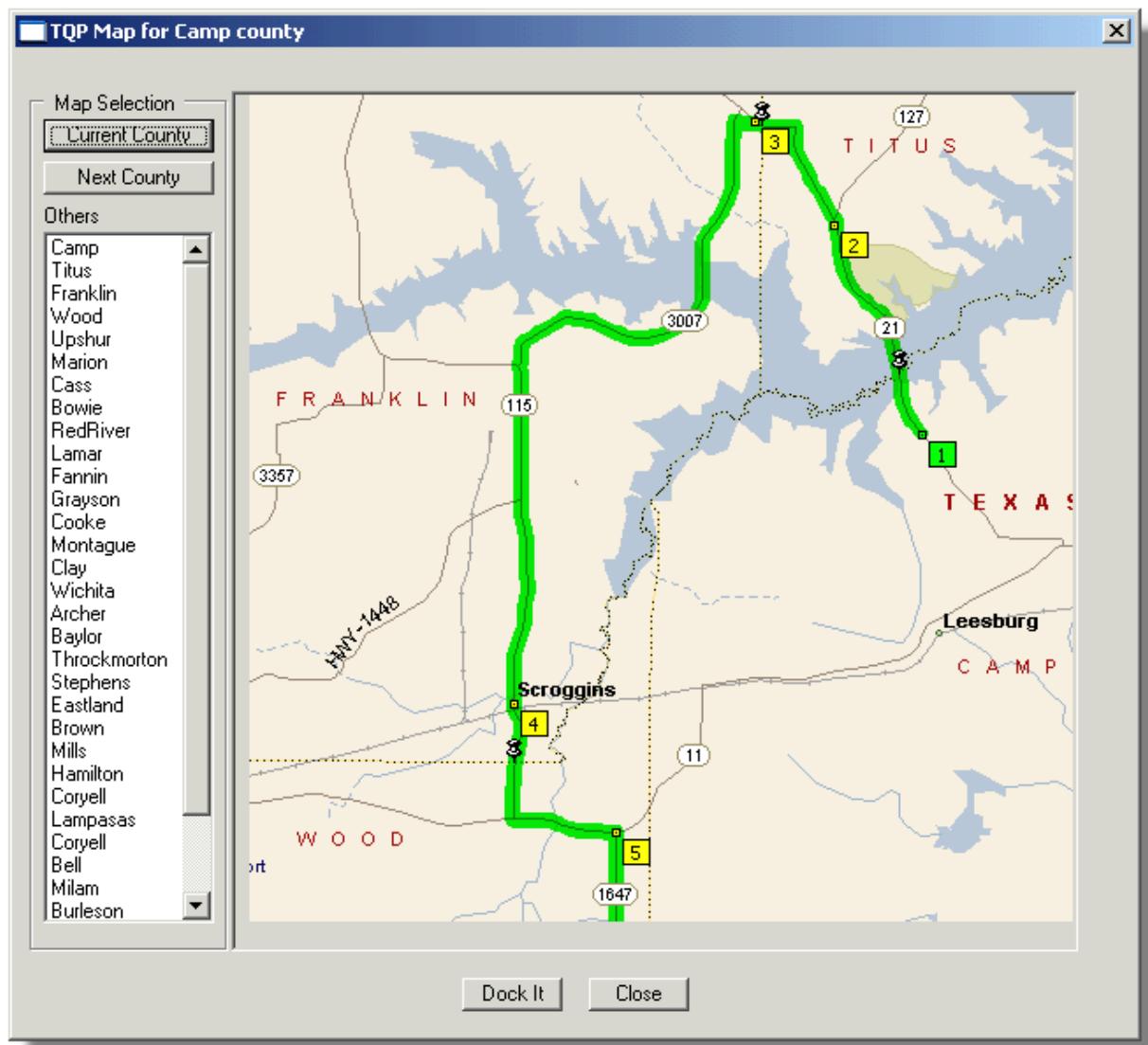
7.10 Associating Maps With Counties Dialog

The following dialog allows for a map file to be associated with each county on the route as described in topic [Adding Strip Maps to the Route](#)^[70]. An alternative approach is to use [User-Supplied Help](#)^[116].



7.11 Viewing Strip Maps

Once a set of "strip maps" has been created and associations made between the counties on the route and the maps as described in [Adding Strip Maps to the Route](#)^[70], the maps may be selected for viewing using the QP Tools | View Maps menu item. This will cause the following map selection/viewing dialog to appear.



The Current County button will cause the map associated with the current county to be presented in the viewing window and similarly for the Next County button. Maps associated with other counties may be selected by double-clicking the county name in the list provided along the left hand side of the dialog.

The above dialog is a modal dialog so it will not be possible to perform other activities until the dialog is closed. If it is desired to have the map remain visible while performing other activities the Dock It button should be used. This will close the dialog and add the map to a scrollable window in the tab control on the right hand side of the main display where it will remain visible as long as the Maps tab is selected.

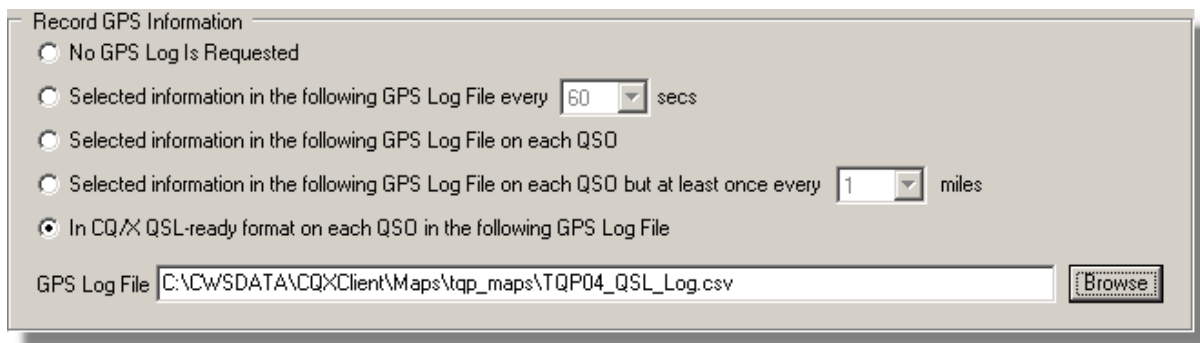


You can also use the [User-Supplied Help](#)^[116] to provide access to a set of strip maps.

Prior to setting up strip maps you should also review how to set up the GPS Passthrough feature described in topics [Setting up a GPS Pass Through](#)^[97] and [GPS Passthrough Via a Virtual Null Modem](#)^[98]. Using the pass through feature there is little need for the strip maps.

7.12 Using GPS Logging

If you have GPS capability there are several options available to enable you to log your position as you traverse your QSO party route. These options may be accessed under the GPS | Set Logging Parameters item to call up the Setting GPS Reporting Parameters dialog. The following options are available for logging your position:

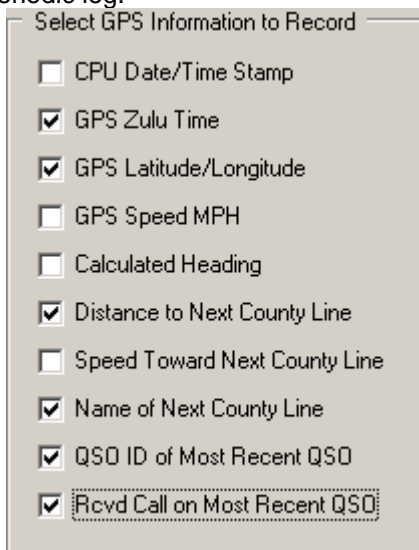


Record GPS Information

☐ No GPS Log Is Requested
☐ Selected information in the following GPS Log File every secs
☐ Selected information in the following GPS Log File on each QSO
☐ Selected information in the following GPS Log File on each QSO but at least once every miles
☒ In CQ/X QSL-ready format on each QSO in the following GPS Log File

GPS Log File

- **No GPS Log** - this is the default option
- **Periodic Logging of selected information** - specify the period and use the check boxes under Select GPS Information To Record to select the information to be logged and specify the name of the logging file to produce a periodic log.



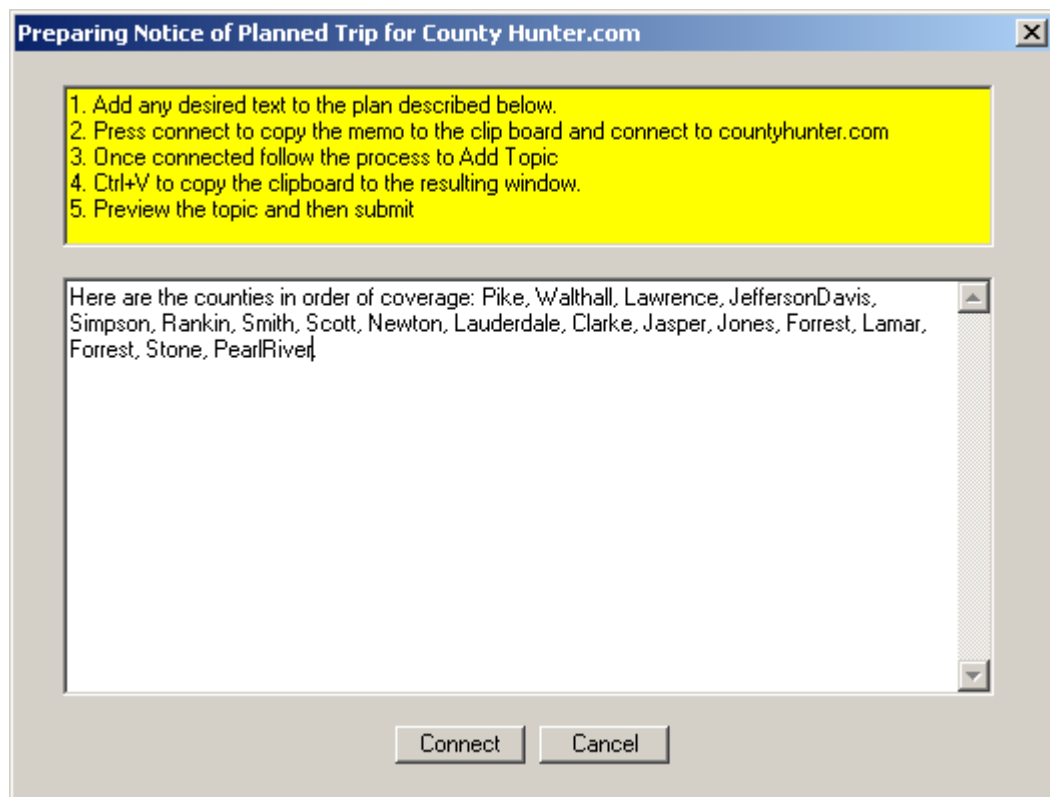
Select GPS Information to Record

☐ CPU Date/Time Stamp
☒ GPS Zulu Time
☒ GPS Latitude/Longitude
☐ GPS Speed MPH
☐ Calculated Heading
☒ Distance to Next County Line
☐ Speed Toward Next County Line
☒ Name of Next County Line
☒ QSO ID of Most Recent QSO
☒ Rcvd Call on Most Recent QSO

- **Log Selected Information on Each QSO** - Use the check boxes under Select GPS Information To Record to select the information to be logged and specify the name of the logging file to produce a log on each QSO
- **Log Selected Information on Each QSO and at Least once every so many miles** - this option is similar to the previous one except that it insures logging sufficient to recreate the route. Select the information to record and the maximum distance between logs and the name of the log file to produce QSO information along with track information.
- **CQ/X QSL-ready format on each QSO** - this option produces a fixed selection of information in a fixed format on each QSO. The format is such that the information can be easily imported into a mapping program such as Streets and Trips for production of a "QSL" showing where each QSO was made along with QSO type information for each contact. See topic [CQ/X QSL Format](#)⁹⁵ for details.

7.13 Posting Trip Plans

Once you have planned your mobile operations for a QSO party and have a sequence of counties that you are going to cover your plan can be posted to [County Hunter Dot Com](#) using the menu item QP Tools | Post Route Plans. This will bring up the following dialog with the sequence of counties filled in.



Add any desired text around the list of counties and then press connect. This will copy the text to the clipboard and will connect you to the county hunter site. Once on the site follow the normal process for adding a topic under Planned Trips and once the appropriate entry window comes up use Ctrl + V to paste in your writeup.

7.14 Exporting Crossing Data As a KML File

Google Maps provides a neat way to distribute your route via the internet using a KML file. CQ/X provides the capability of exporting to a KML file either from the [Route Planning Dialog](#)^[63] or the [Building Routes from Crossings](#)^[68] dialog.

Route Planning Dialog --

Prepare the sequence of counties as described in [Route Planning Dialog](#)^[63] and then press the button labeled Export As KML File after which you will get the dialog shown below. If you don't find a button by that name you need to go to the Downloads page of www.no5w.com to download the patch dealing with the preparation of KML files. You may also want to review the document entitled "Posting Routes Using Google Maps" that is available on the website.

Building Routes from Crossings Dialog --

After preparing and then importing your crossing information as described in the following topics

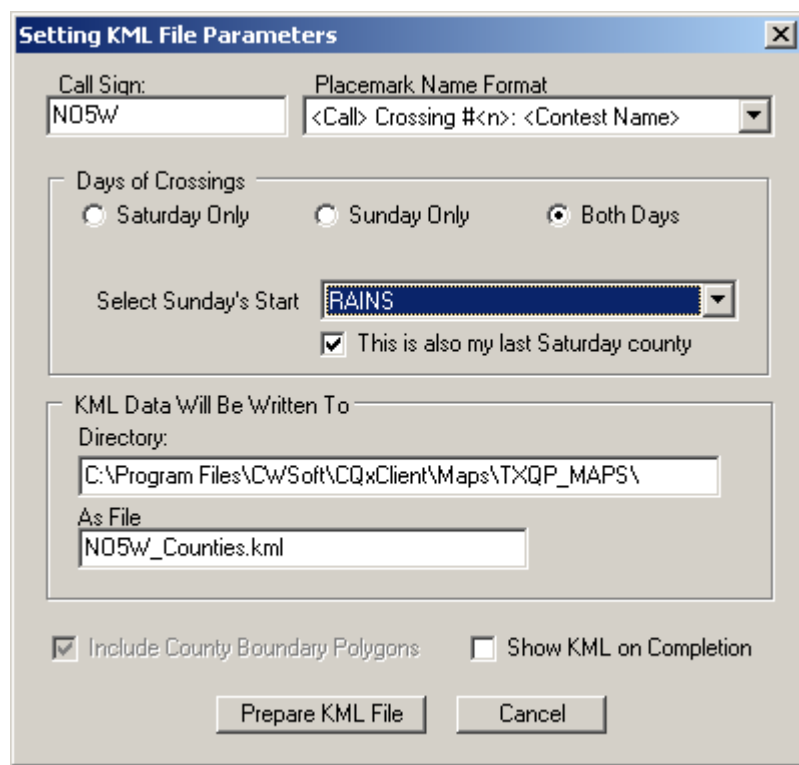
- [Adding County Crossing Information](#)^[66] and
- [Importing County Crossing Information](#)^[67]

you can use the Export As KML button on the [Building Routes from Crossings](#)^[68] dialog to create the KML file. If you don't find a button by that name on the dialog you need to go to the Downloads page of www.no5w.com to download the patch dealing with the preparation of KML files.

First we have to prepare the KML file and then we have to make it available to Google Maps. Here are

the steps.

Prepare KML File - Once you click on the Export As KML button the following dialog will appear.




The dialog box is titled "Setting KML File Parameters". It contains the following fields and options:

- Call Sign:** A text box containing "N05W".
- Placemark Name Format:** A dropdown menu showing "<Call> Crossing #<n>: <Contest Name>".
- Days of Crossings:** Three radio buttons: "Saturday Only", "Sunday Only", and "Both Days". "Both Days" is selected.
- Select Sunday's Start:** A dropdown menu showing "RAINS".
- This is also my last Saturday county:** A checked checkbox.
- KML Data Will Be Written To:**
 - Directory:** A text box containing "C:\Program Files\CWSoft\CQxClient\Maps\TXQP_MAPS\".
 - As File:** A text box containing "N05W_Counties.kml".
- Include County Boundary Polygons:** A checked checkbox.
- Show KML on Completion:** An unchecked checkbox.
- Buttons:** "Prepare KML File" and "Cancel".

- Fill in the call sign you want to appear on each of the county crossing notations on the Google Map
- Select the format of the notation - two are available
- Specify your days of operation and if its both days select the starting county for Sunday and indicate whether that county will also be your last county on Saturday
- In the case of preparing the KML file from the county line crossing data you also have the option of including the county boundaries.
- Note the name and destination of the file[1]
- Press the Prepare KML File button.

Note 1: If for some reason you want to change the name of this file be sure to go into the KML file and change the <name> element in the document section to have the same name.

Note 2: If you want to add a note to appear at some point on your route look at the structure of the data in the <Placemark> tag and add a placemark of similar structure that contains your note along with the coordinate info. Be sure to end the structure with the </Placemark> tag.

That completes the preparation of the KML file. If you want to view/edit it use Notepad or another text file viewer, or check the box labeled ShowKML on Completion.. Here is an [Example KML File](#) . If you decide to edit this file be careful to preserve the structure.

Make KML File Available to Google Maps

- Save the file on a webserver. Perhaps you have your own personal web host that will do this. If it is available you might also want to have a link to it posted on the web page of the QSO party you are participating in. Another alternative, if it is available, would be for the QSO party to host it on their website.

- Now copy the URL from the previous step into the Google Maps search field
- After Google Maps completes its search you should see your data as a series of points on the map and there will be instructions on the page showing your map that describe how to send it as a link. Code will also be provided that you can copy and paste into a web page if you wish to embed the map.

7.15 Example KML File















Here's an example KML file consisting of three placemarks.

```
<?xml version="1.0" encoding="UTF-8"?>
<kml xmlns="http://earth.google.com/kml/2.1">
<Document>
  <name>NO5W_Crossings.kml</name>
  <Placemark>
    <name>NO5W Crossing #01 TX-QSO-PARTY</name>
    <description>From-To: Montgomery-Waller County Line on FM1488
    </description>
    <Point>
      <coordinates>-95.80184,30.18993
      </coordinates>
    </Point>
  </Placemark>
  <Placemark>
    <name>NO5W Crossing #02 TX-QSO-PARTY</name>
    <description>From-To: Waller-Harris County Line on FM1488
    </description>
    <Point>
      <coordinates>-95.94424,30.14838
      </coordinates>
    </Point>
  </Placemark>
  <Placemark>
    <name>NO5W Crossing #03 TX-QSO-PARTY</name>
    <description>From-To: Harris-Waller County Line on FM1488
    </description>
    <Point>
      <coordinates>-95.95420,30.14457
      </coordinates>
    </Point>
  </Placemark>
</Document>
</kml>
```

8 GPS-Related Topics

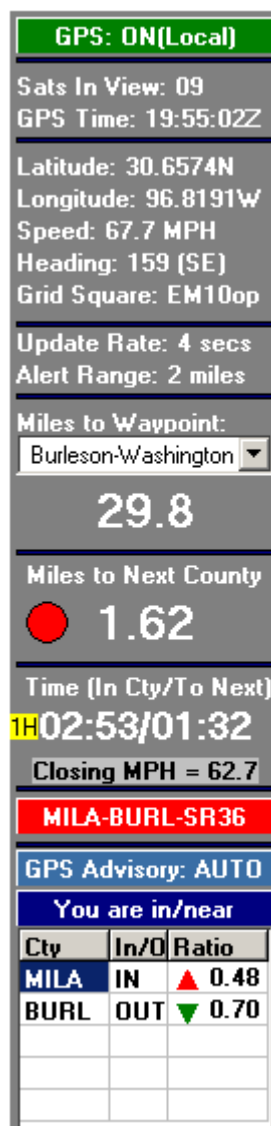
Additional GPS-related topics are covered here including:

- [GPS Status Panel](#)⁷⁸
- [Defining Waypoints](#)⁸²

- [Setting GPS Reporting Parameters](#)  83
- [Setting Up Desired Speed Indicators](#)  85
- [Setting Up Automatic County Changes](#)  86
- [Using Where Am I](#)  86
- [GPS Advisory Modes](#)  88
- [County Locator](#)  88
- [County Boundary Polygons](#)  91
- [Reporting Your Position](#)  94
- [CQ/X QSL Format](#)  95
- [Preparing CQ/X GPS QSL Logs](#)  96
- [Setting up a GPS Pass Through](#)  97
- [GPS Passthrough Via a Virtual Null Modem](#)  98
- [Using a Networked GPS](#)  99
- [Using GPS Recorder](#)  99

8.1 GPS Status Panel

Information supplied by the GPS is presented under the GPS tab found on the left hand side of the main display.



The GPS panel contains the following information:

- **GPS Status** - Indicates On/Off status and whether GPS is client (Local) or server (Remote) based.
- **Sats in View** - The number of satellites in view of the GPS receiver
- **GPS Time** - The time in hours:minutes:seconds UTC received from the GPS.
- **Latitude** - The latitude received from the GPS on the last update.
- **Longitude** - The longitude received from the GPS on the last update.
- **Speed** - The speed in Miles Per Hour of the vehicle as reported by the GPS.
- **Heading** - The direction of travel computed as the direction of the vector connecting the most recent two position points reported by the GPS. When the vehicle is stationary Heading remains at the last computed value and is highlighted in red to indicate that it is not being updated. North is taken as the

zero reference for the heading with positive values indicating directions East of North and negative values directions West of North.

- **Grid square** - The six-character grid square containing the vehicle's current position.
- **Update Rate** - The number of seconds between GPS display updates. The program does not control the rate at which data is received from the GPS but only the rate at which new information is presented on the display. The default value for this parameter is 10 secs. You can modify it using the menu item GPS | GPS Parameters. Using that same menu item you can set up to use a different update rate as the distance to a county line crossover becomes less than the Alert Range.
- **Alert Range** - When the distance to the next county line crossing point becomes less than the Alert Range the period for updating the GPS information, including county detection, will change to the value defined on the GPS parameter setting dialog reached via menu item GPS | GPS Parameters. Also the panel listing the name of the next county line crossing will turn red and remain so until the county line has been crossed and a new county line crossing is present on the panel at which time the update period will revert to the normal update rate.
- **Miles to Waypoint** - The radial ("crow flies") distance from the current position to the selected waypoint. Waypoints are defined using the menu item GPS | Define Waypoints as described in the [Defining Waypoints](#)^[82] topic.
- **Miles to Next County** - The radial ("crow flies") distance from the current position to the next county line assuming that you have entered a route plan that contains the county line crossings in the order in which they will be encountered. See topics [Adding County Crossing Information](#)^[66], and [Importing County Crossing Information](#)^[67] for details of how to set up this information. The color of the traffic light symbol next to the miles to next county data is an indicator of desired speed and is determined by the relationship between the Minutes to Goal and Minutes to Next County described in [Vertical Score Format](#)^[104]. The colors are green, yellow, or red and are determined in the following way:
 - Green if Minutes To Goal < Minutes To Next County - 5
 - Yellow if Minutes To Goal >= Minutes To Next County - 5 and < Minutes To Next County + 5
 - Red if Minutes To Goal >= Minutes To Next County + 5
- **Time (In Cty/To Next)** - The "In" part of this display element shows the total time (Minutes:Seconds) spent in the current county updated on each update from the GPS. The time in each county is tracked as county changeovers occur so that the Time In Cty represents the total time in the county in the case where a county is entered more than once. The "To Next" part of the display element shows the estimated number of minutes to the next county line based on current closing speed and distance to the county line crossing point as specified in the crossings file. Closing speed is computed as the component of the speed along the vector from the current position to the position of the county crossing. For reference the closing speed is shown at the bottom of this display area. When the closing speed becomes negative (indicating that the vehicle is moving away from the crossing) the "Time To Next Cty" is shown as NC. When the closing speed drops below a user-configurable threshold speed the Time To Next Cty is not updated until the closing speed again exceeds the threshold or becomes negative. The estimated Time To Next Cty is highly dependent on the track taken to the county crossing and the current speed of the vehicle and is most useful when the vehicle is close to the county crossing and is closing in on the county crossing under uniform straight-line motion. See also the discussion under topic [Setting GPS Reporting Parameters](#)^[83]. Time In County results for each county are saved in the restart file so that accumulations can continue where they left off prior to the shutdown. On the start of a new contest the Time In County for the first county will not begin accumulating until at least one QSO has been worked. Accumulated Time In County for all counties activated is shown under the Status tab on the left side of the main display.
- **Next County Line Indicator** - The next county line is shown in the format

<FromCounty-ToCounty-HwyID>

where the county names are shown in abbreviated form and the HwyID is whatever string you entered to identify the highway when you constructed your crossings-based route plan. This assumes you have entered a route plan that contains the county line crossings in the order in which they will be encountered. See topics [Adding County Crossing Information](#)^[66], and [Importing County Crossing Information](#)^[67] for details of how to set up this information.

- **GPS Advisory Indicator** - This panel shows the mode that the operator has set for the GPS [County Change] Advisory which can be any of the following modes: OFF, MANual, AUTOMATIC. See topic [GPS Advisory Modes](#)^[88] for details.
- **You Are In/Near Indicator** - This grid uses your current position along with radius, center of the county bounding circle, and USGS data representing the county boundary of each county to display a list of all of the near counties and an (IN/OUT) indication of the county that you are currently in. Any county not in the list will not be valid for a QSO at this time. However, of course, only one of the counties on the list will be the actual current county and this is indicated with IN. Beside each of the counties there is also an indicator of the ratio of the distance to the county reference to the county radius. An up/down arrow provides an indicator of whether this ratio is increasing or decreasing. These two indicators taken together will indicate which counties are about to exit the list - for example in the screen shot below San Patricio (SPAT) county is about to exit the list since its ratio is near 1.0 and is increasing. See topics [County Locator](#)^[88] and [County Boundary Polygons](#)^[91] for additional details.

GPS: ON(Local)

Sats In View: 08
GPS Time: 16:38:48Z

Latitude: 27.7057N
Longitude: 97.7281W
Speed: 57.5 MPH
Heading: -146 (SW)

Update Rate: 10 secs
Alert Range: 2 miles

Miles to Waypoint:
Goliad-Victoria US59

77.6

Miles to Next County
● 11.14

Time (In Cty/To Next)
20:11/11:52
Closing MPH = 56.3

NUEC-KLEB-US77

GPS Advisory: AUTO

You are in/near

Cty	In/O	Ratio
NUEC	IN	▲ 0.52
JWEL	OUT	▼ 0.57
KLEB	OUT	▼ 0.67
SPAT	OUT	▲ 0.96

8.2 Defining Waypoints

If a GPS is available it is useful to define a set of Waypoints so that a real-time indication of the distance to a selected waypoint will be available. Waypoints are similar to, but handled separately from county crossings, and are simply points of interest along the route (Best BBQ in TX, Home QTH, Saturday Night Motel, etc).

To define a set of waypoints use the menu item GPS | Define Waypoints. This will cause the dialog [Setting GPS Reporting Parameters](#) to appear. In the Define Waypoints area of this dialog enter a waypoint descriptor followed by the latitude and then the longitude of the waypoint using spaces to separate the three items. Then press the Add button to add the waypoint to the list.

Once defined on this dialog the program will continue to use these waypoints until modified. However it is a good idea to save the waypoints to a file in order to manage multiple sets of waypoints. Waypoints can be imported from a file using the button labeled "Load Waypoints from File" on this dialog.

Another approach to defining waypoints is to first compile a file using a mapping program such as Streets and Trips. Here are the steps for this approach.

1. Start up Streets and Trips and access the appropriate trip file.
2. Open a text editor such as Notepad
3. Place a pushpin at each of the desired waypoints and place a description in the pushpin balloon.
4. Using the location tool add latitude and then longitude information to the pushpin balloon.
5. Now highlight each of the waypoints in turn and press Ctrl+C to copy the waypoint information to the clipboard. Then use Alt+Tab to access the text editor and then, after positioning the cursor at the next line, use Ctrl+V to copy the waypoint information into the text editor. Note that there will be tabs between some of the data elements instead of spaces. It is not necessary to remove these tabs as they will be handled properly by the Waypoint import process.
6. Once complete save the text editor file with a meaningful name in a logical location that you can remember. The maps subdirectory for the given QSO party would be one such location but you may want to define your own subdirectory for all of your files associated with the QSO party.
7. To insure that the waypoints appear in the desired order you may want to add A-, B-, C-, ... to the beginning of each descriptor.

8.3 Setting GPS Reporting Parameters

Use the following dialog, accessed via the main menu items: GPS | Set Parameters, GPS | Setup GPS Log, and GPS | Define Waypoints, to change GPS reporting parameters

Setting GPS Parameters

Time Between GPS Display Updates: 10 secs Min. Speed to Update Estimated Time to Next Cty: 45 mph

C/L Alert Range (miles): 2 4 (update secs) ☒ Enable GPS Passthrough Via Port: COM5

Record GPS Information

☐ No GPS Log Is Requested

☐ Selected information in the following GPS Log File every 60 secs

☐ Selected information in the following GPS Log File on each QSO

☐ Selected information in the following GPS Log File on each QSO but at least once every 1 miles

☒ In CQ/X QSL-ready format on each QSO in the following GPS Log File

GPS Log File: C:\Program Files\CWSoft\CQxClient\LogData\TQP06_QSL_Log.txt

Select GPS Information to Record

☐ CPU Date/Time Stamp

☐ GPS Zulu Time

☐ GPS Latitude/Longitude

☐ GPS Speed MPH

☐ Calculated Heading

☐ Distance to Next County Line

☐ Speed Toward Next County Line

☐ Name of Next County Line

☐ QSO ID of Most Recent QSO

☐ Rcvd Call on Most Recent QSO

Define Waypoints

Name	Latitude	Longitude
Travis-Williamson I35	30.479...	-97.672...
Williamson-Milam US79	30.610...	-97.217...
Milam-Burleson SR36	30.640...	-96.800...
Burleson-Washington SR36	30.321...	-96.507...
Washington-Waller US290	30.129...	-96.186...
Waller-Harris FM1488	30.144...	-95.954...
Harris-Waller FM1488	30.148...	-95.944...
Waller-Montgomery FM1488	30.189...	-95.804...

- **Time Between GPS Display Updates** - see topic [GPS Status Panel](#)⁷⁸
- **C/L Alert Range** - County Line Alert Range and associated update period. Set these values to have the update rate automatically changed when the distance to the next county line becomes less than the Alert Range. See topic [GPS Status Panel](#)⁷⁸. Changing to a smaller update period will tend to improve the accuracy of the county line crossing determination but will add to the CPU loading.
- **Min. Speed [required] to Update Estimated time to the next county** - this parameter enables you to control the minimum vehicle closing speed at which the estimate of the time to reach the next county crossing is updated. If this parameter is set too low the time displayed will fluctuate significantly under variable speed situations (e.g. passing through small towns with numerous stoplights or when deciding to stop by the side of the road to tend to the remaining pileup). Setting this parameter in the range of 50-60 mph will allow a reasonable estimate to be maintained. In this case the estimated time will be the time required once you are back underway at the previous "cruising" speed.
- **Enable GPS Passthrough Via Port** - checking this box allows you to pass GPS data to another application. Assuming sufficient ports are available this can be used to pass data to a mapping program such as Streets and Trips. See topic [Setting up a GPS Pass Through](#)⁹⁷ for details.

- **Record GPS Information** - In this group box you can specify whether or not you wish to record information from your GPS and, if so, the following means of logging that information
 1. Log selected GPS-related information on each QSO in a separate file which you specify. In this mode the information to be recorded may be customized using the check boxes in the area labeled **Select GPS Information to Record**.
 2. Log selected GPS-related information periodically in a file which you specify and at a period which you specify. In this mode the information to be recorded may be customized using the check boxes in the area labeled **Select GPS Information to Record**.
 3. Log selected GPS-related information on each QSO or whenever a specified distance has been covered since the previous update of the GPS log (whichever comes first) in a separate file which you specify. In this mode the information to be recorded may be customized using the check boxes in the area labeled **Select GPS Information to Record**.
 4. Log information in CQ/X QSL-ready format on each QSO. This option creates a log of each QSO with information arranged in comma separated value (csv) format suitable for direct import into Streets and Trips as a set of pushpins annotated with information about the QSO and located on the map at the position where the QSO took place. After the QSO party you can send stations a QSL file which, assuming they have streets and trips, can be imported to produce a nice set of QSLs showing location of the QSO. For additional discussion see topic [CQ/X QSL Format](#)^[95].
- **Waypoint definitions** - To add a new Waypoint to the list enter the Name, Latitude, and Longitude of the Waypoint in that order as a space delimited string and press the Add button. It is important that the latitude and longitude be entered with the correct sign (N/E=+, S/W=-).

This dialog also allows the waypoints to be loaded from a file. If a large number of waypoints are going to be defined it is probably easiest to develop a file of waypoints using a trip planning tool such as Microsoft's Streets and Trips in a manner similar to that described in [Adding County Crossing Information](#)^[66].

1. Start up Streets and Trips and access the appropriate trip file.
 2. Open a text editor such as Notepad
 3. In Streets and Trips annotate each of the waypoints along the route with Waypoint Name, Latitude, and Longitude.
 4. Once all of the waypoints have been annotated save the trip file
 5. High light each of the waypoint annotations and copy and paste that information into the text editor.
 6. Once complete save the text editor file
 7. Streets and Trips and/or the text editor can be closed at this point if desired.
 8. In CQ/X use the GPS | Define Waypoints option to access the above dialog
 9. Use the Load Waypoints from File button to import the waypoint file.
 10. To make the waypoints available to the program press the Apply button.
- Although waypoint definitions will persist from one session to another it is a good idea to save any important collection of waypoints in a file for later use. Buttons are available for saving and loading waypoints to/from a file.

8.4 Setting Up Desired Speed Indicators

The traffic light symbol next to the miles to next county data on the [GPS Status Panel](#)^[78] is an indicator of desired speed. In a future release it is intended that the parameters for controlling the color of this symbol will be user-configurable based on QSO rate and distance to the next county line.

In the current release the colors are not user-configurable and are independent of QSO rate. The default colors are green, yellow, or red based only on the distance to the next county

Green - greater than ten miles to the next county

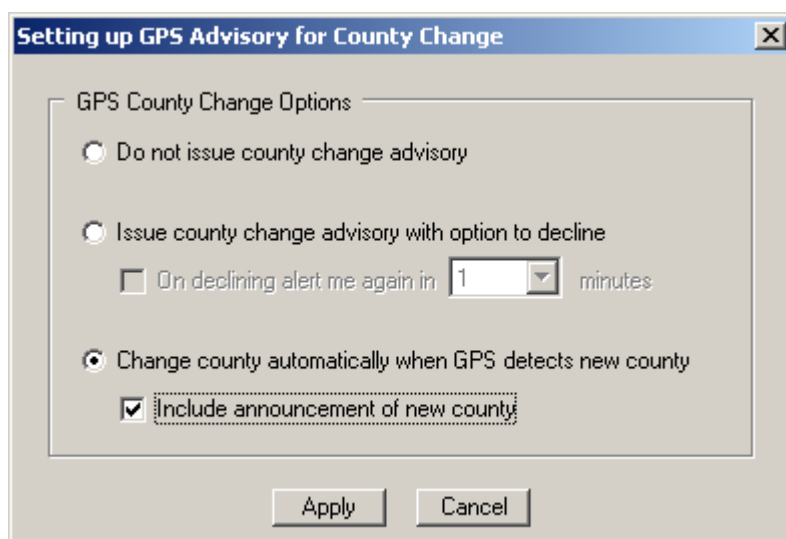
Yellow - less than ten but more than five miles to the next county

Red - less than five miles to the next county

This feature will be configurable in a future release.

8.5 Setting Up Automatic County Changes

After connecting to and starting the GPS use the menu item GPS | GPS Advises County Changes to access the GPS Advisory Mode selection dialog shown below. Choose the AUTO mode and then click OK. This will allow the GPS to change the county automatically whenever a new county is detected and a QSO is not in progress. If a QSO is in progress the county will be changed as soon as the QSO is logged. The mode of the GPS Advises County Changes feature is displayed on the [GPS Status Panel](#)⁷⁸. If you want an announcement of new county to occur when in CW mode check the indicated checkbox on the GPS Advisory Mode dialog.



8.6 Using Where Am I

Under the main menu item labeled GPS there is a subitem labeled "Where Am I?" Selecting this item will bring up the following Where Am I Dialog which shows the current latitude and longitude, the current nearest waypoint and nearest county crossing as well as distance to each. Upon selection of the down arrows the distance to all waypoints and county crossings in ascending order of distance from the current location will be listed. Also included is a small (typically < 4) list of counties, one of which is the county in which you are currently located (see topic [County Locator](#)⁸⁸ for details).

Where Am I?

Latitude: 30.2188 Nearest County Line: MGY-WALL Nearest Waypoint: Sweetdream Place

Longitude: -95.7359 Miles to Nearest: 4.12 Miles to Nearest: 14.37

County Line	Distance	Waypoint	Distance
MGY-WALL	4.12	Sweetdream Pl...	14.37
WALL-GRIM	5.48	Hempstead H...	20.27
GRIM-MGY	10.32	Mike's K5NZ P...	35.92
MGY-WALK	25.00	Brenham Hwy ...	41.31
WALK-TRIN	48.82	Cameron	86.13
HOUS-MADI	59.65	Belton Hwy 81...	117.47
TRIN-HOUS	61.55	Lampasas	156.67
MADI-LEON	62.09	Evant	168.21
LEON-RBSN	80.05	Bettie	185.33
RBSN-LIME	85.85	Goldthwaite	189.09
LIME-FALL	92.44

You are in one of the following counties

Abbre...	Full Name	County Radius ...	Miles to County Seat
HARR	Harris	46	39.00
MGY	Montgomery	32	18.24
WALL	Waller	26	21.91

Map File:

When this dialog is called up a small file named CQX_WhereAmI.txt containing the latitude and longitude information is written out. If Streets and Trips is available pressing the View Map button will open up that application. Using the Streets and Trips data wizard to import the CQX_WhereAmI.txt file will cause the current position to be pinpointed on the map.

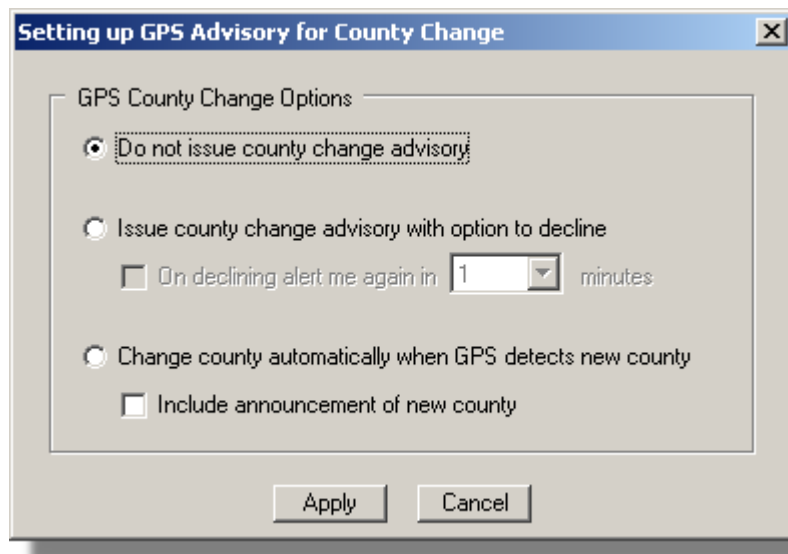
Another more elegant way of pinpointing current location on the map is to simply interface a GPS to the mapping program. There are at least three ways to do this while continuing to provide GPS input to CQ/X :

1. Purchase a second GPS and interface it to the mapping program using a separate port. This requires an additional GPS and an additional port, either serial or USB depending on the capabilities of the GPS and the mapping program.
2. Purchase or build an RS-232 splitter to split the signal from a single GPS so that both the mapping program and CQ/X can listen to the GPS. This requires an additional serial port and construction or purchase of an RS232 splitter.
3. Provide a GPS pass through capability in CQ/X wherein it passes the GPS sentences to the mapping program. If the mapping program only supports RS232 serial input then this option will require two additional serial ports: one for the pass through output of CQ/X and one for input to the mapping program. This capability is provided and is described in detail in topic

[Setting up a GPS Pass Through](#)^[97].

8.7 GPS Advisory Modes

As explained in [County Boundary Polygons](#)^[97] the GPS can determine which county you are currently in by performing an analysis of the USGS county boundary polygon. You can choose to use this information in three ways by getting county change advisories from the GPS in the following three modes. To change the GPS Advisory mode use the menu item GPS | GPS Advises County Change. This will cause the following dialog to appear



- **GPS Advisory OFF:** This mode is the default and is selected by choosing the option labeled "Do not issue county change advisory". In this mode it is the responsibility of the operator to realize, from information in the You Are In/Near grid or road signs, that it is time to change counties. If a route has been defined that includes the sequence of counties this can be done by pressing the key assigned to the Next County task until the desired county is present. If no such route is defined the messages affected by the county change will need to be changed manually.
- **GPS Advisory MANual:** This mode is selected by choosing the option labeled "Issue county change advisory with option to decline". In this mode a pop up window is presented to the operator indicating the need for a county change. The operator may either Accept or Reject the county change. On acceptance the county will be automatically changed by the program using the message template defined for the contest. On rejection the program will again alert the operator to the need for a change after a sufficient time or distance has elapsed.
- **GPS Advisory AUTOMatic:** This mode is selected by choosing the option labeled "Change county automatically when GPS ...". In this mode the program automatically changes the county when the need for the change is detected by the GPS. If a QSO is in progress when the need for the change is detected the change will occur as soon as any in progress QSO is logged using the message template defined for the contest. If the option to announce the new county is checked and you are operating in CW mode the message 'NEW <county abbreviation>' will be sent twice when the changeover to the new county occurs.

8.8 County Locator

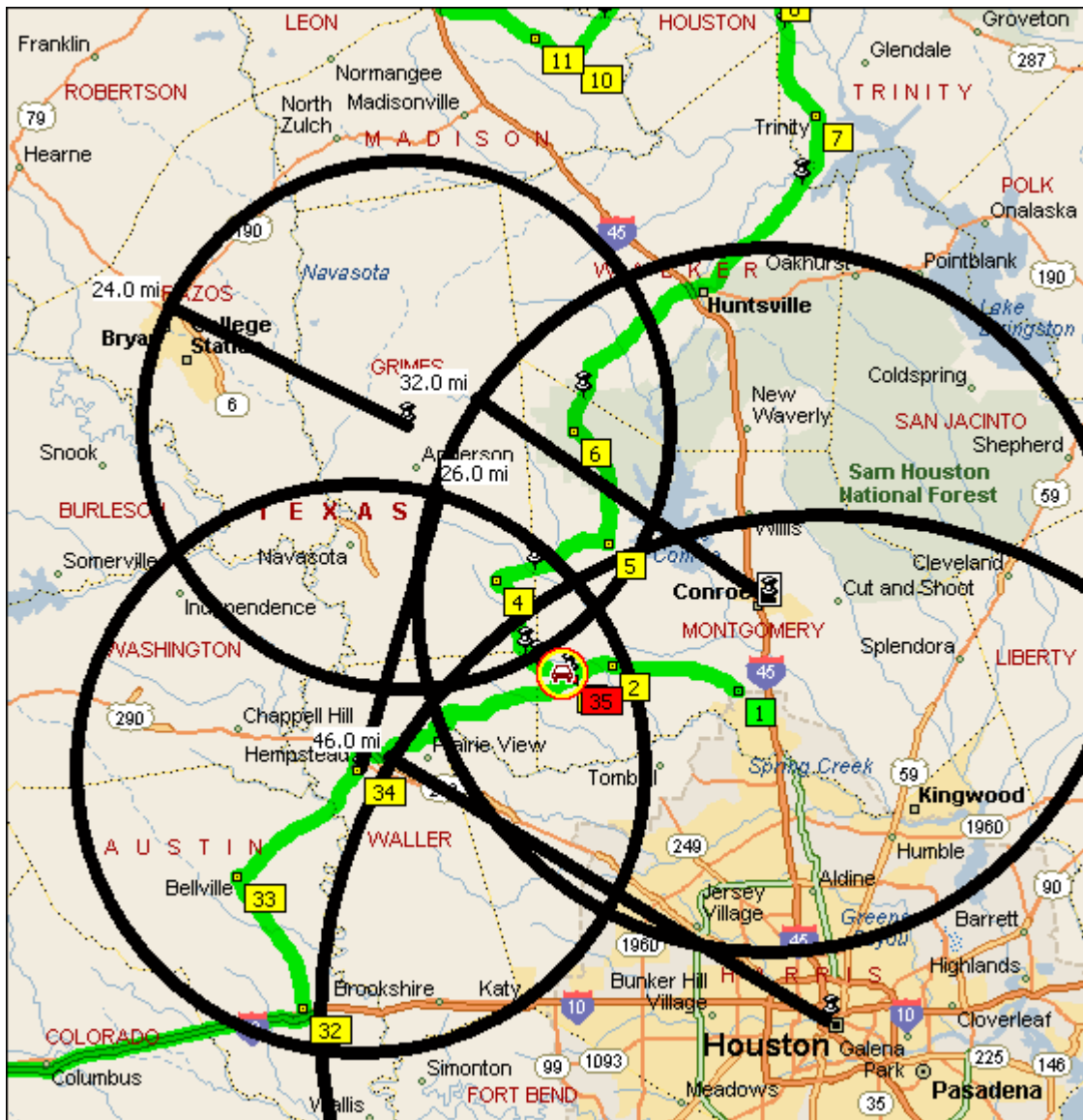
On the [GPS Status Panel](#)^[78] as well as the Where Am I Dialog there is a small list entitled "You are in/near [the following counties]". To understand how to use this information it is helpful to understand

how it is developed. It should be noted that none of the work involved in the steps below is required of the user since this is all done during the development of the data files that support the particular QSO party or during program operation. The information is presented solely to help you understand the meaning of the information presented.

Step 1: County Reference Point Determination - Associated with each county is a reference point which is the latitude and longitude of a bounding circle that is determined during first access of the county polygon file to be the center of the smallest circle that completely encloses the county.

Step 2: Determination of Each County Radius - Once the center point is determined an iterative process is used to make sure all points on the county polygon are included in the bounding circle. The center point of the bounding circle as well as its reference are written back out to the county polygon file for future use.

An Example: The screen shot below illustrates this for Harris, Waller, Montgomery, and Grimes counties and a hypothetical TQP route. The small car on the map shows the current position which will be noted to be within the Harris, Montgomery, and Waller footprints but outside the Grimes footprint. For this example it can be seen that the footprints encompass significant areas outside of their respective counties and this leads to some uncertainty as to which county in the list one is actually located in. The program uses the [County Boundary Polygons](#)⁹¹ to resolve this uncertainty. If a map with real-time tracking is being used then this uncertainty may also be resolved by consulting that map.

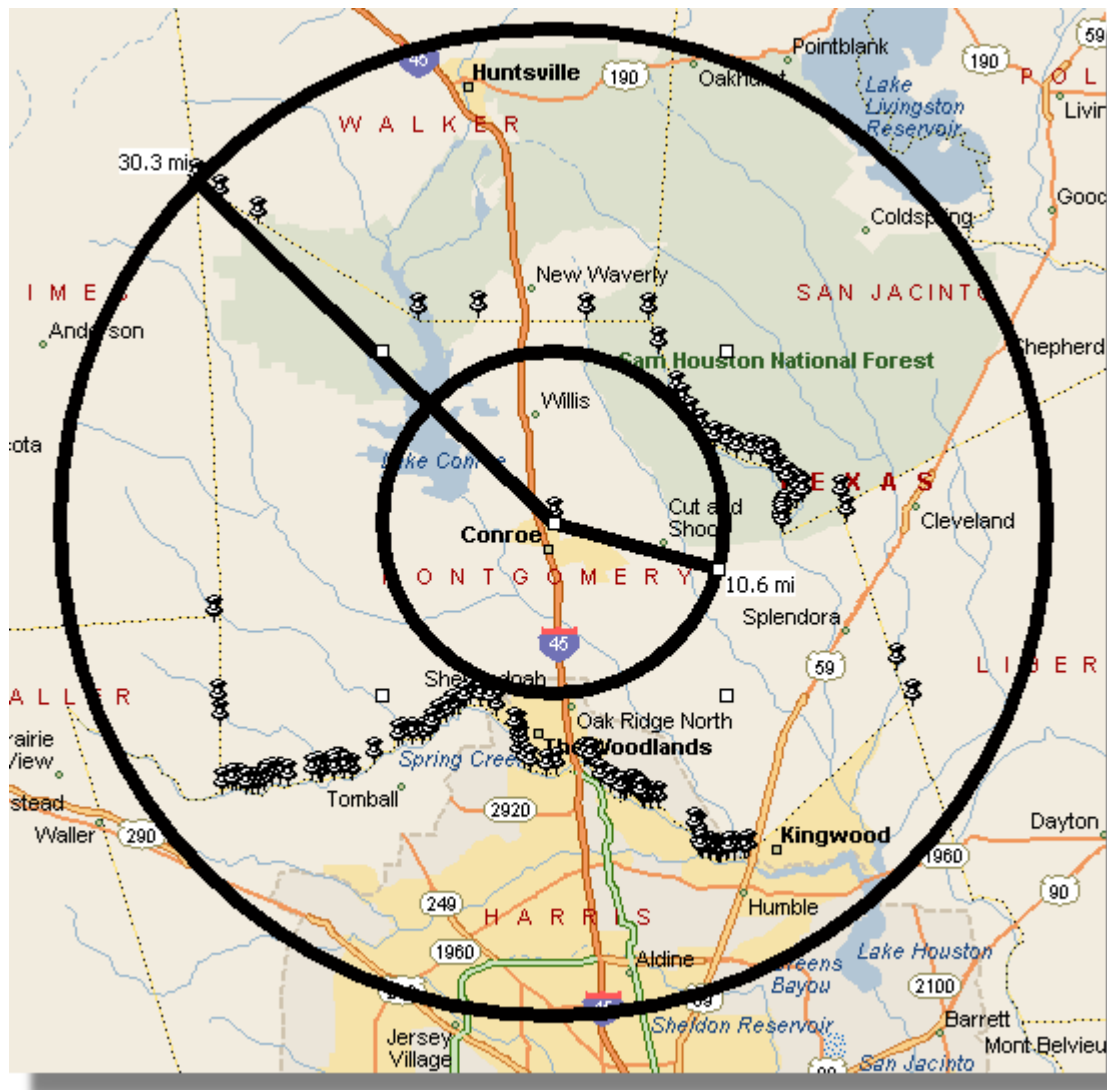


Step 3: Analysis of County Boundary Polygons - A final determination of the county location can be made by analyzing the boundaries of each of the counties that pass the screening tests performed by comparing distance to the reference point to the radius of the bounding circle. The polygon test is performed only on those counties that pass the screen and is based on the county boundary information that is available from the USGS. See topic [County Boundary Polygons](#) for other details.

Use As County Abbreviation Validity Check: The original impetus for developing this feature of the program was to provide a validity check on a manually entered county abbreviation. When a county abbreviation is entered in the (CQ, CQX, SPX) message fields a check is made to ensure that the county abbreviation is contained in the short list of counties in which you could be located. If the abbreviation is not in the list then the entered abbreviation is flagged as an error.

8.9 County Boundary Polygons

The polygon description of each county has been obtained by downloading USGS data from the internet and processing each county in the QP state into a file with the name <CountyAbbrev>_polyXY.txt. During this processing an analysis is made of each county polygon to determine the geometric center of the county and the radius of the smallest circle that can be circumscribed on the polygon. Also a calculation is made to determine the radius of the largest circle with center at the geometric center that can be inscribed in the polygon. The geometric center and radius information is written to the county file along with vertex information with each vertex converted from Longitude-Latitude format to X-Y format with the origin of the X-Y coordinate system located at the center of the bounding (outer) circle. The following screen shot shows the inner and outer circles for Montgomery County, TX along with pushpins representing some of the vertices of the county polygon.



These inner and outer bounding circles are used to provide a quick screening analysis on first starting the GPS to determine the current county.

- **Outer Circle Screen** - If the current location is not within the outer circle of a county that county does not need to be examined any further.

- **Inner Circle Screen** - If a county is found whose inner circle contains the current location then that county is the current one. If no such county is found then the counties passing the Outer Circle Screen must be examined in detail. This analysis uses a winding number algorithm to count the number of times the polygon encircles the current location. The only county having a non-zero winding number will be the county containing the current location.

During operation once the current county is determined a pool of adjacent county polygons is formed which will be examined on each update of the GPS to determine whether there has been a county change. If there has been a change the pool will be updated with possibly new counties and cleaned of any counties that are no longer adjacent to the current county. The pool typically consists of no more than 5-6 counties which considerably reduces the number of counties that need to be examined in detail on each GPS update. Should it occur that the pool of counties has no county that contains the current point(see note) then a rebuild of the pool is performed in which all counties are examined using the above screening process.

Note: If the list of counties adjacent to county A is missing county B then the pool formed when the current location is in county A may not contain county B. On transitioning from county A to county B examination of the counties in the pool will not find county B so the search for the "IN county" will be unsuccessful. When this is detected a rebuild is necessary to determine the "IN county".

8.10 Adding Polygonal Regions

The menu item **QP Tools | Add Polygon Region** provides a means of augmenting the USGS polygon boundary files. The problem addressed by this menu item is that the USGS polygons apparently model the landmass but do not include bridges over long expanses of water.

Bridges over ordinary rivers present no problem but it may be necessary to augment these files when there are bridges that span a long expanse of water. This was discovered while operating the 2007 Florida QSO party in which part of the route included the long bridge on I-275 in the Tampa area. It was also noticed in Charlotte county while on the I-75 bridge across Charlotte Harbor.

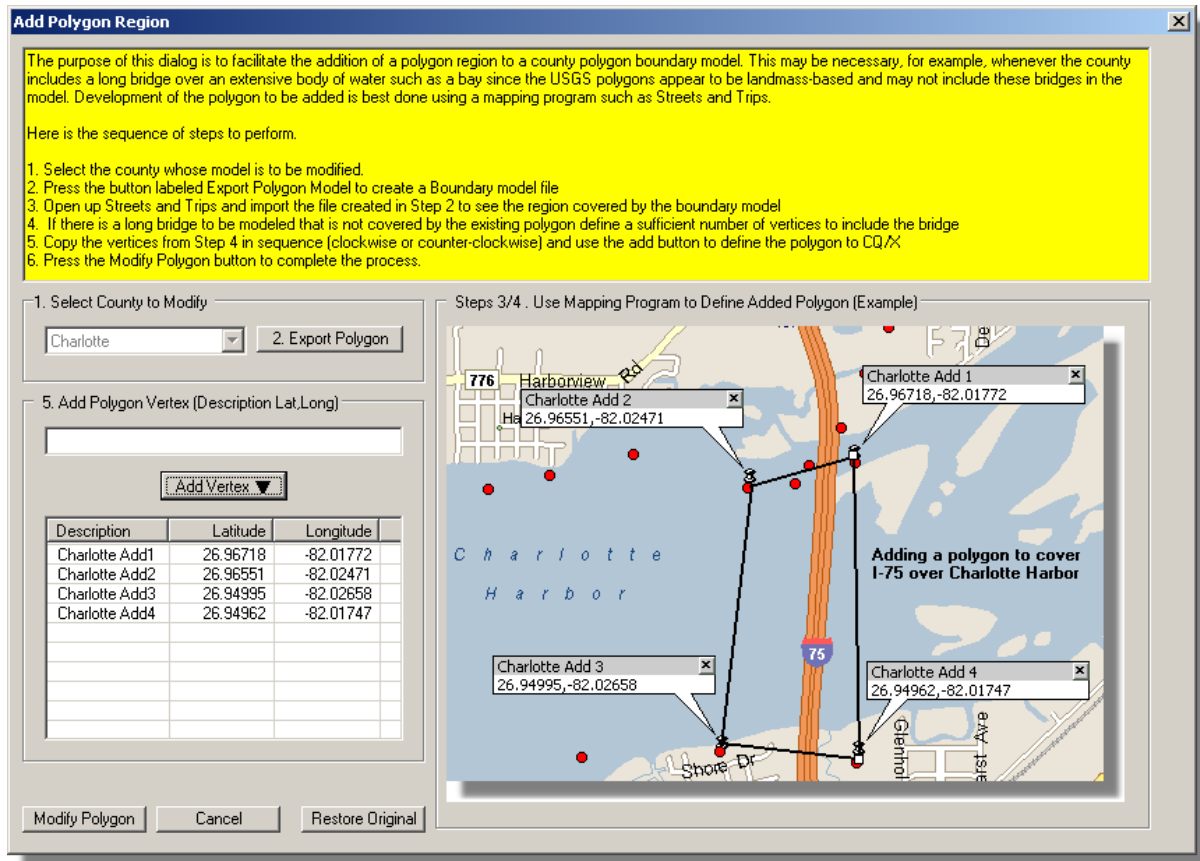
The case of the I-275 bridge turned out to be especially critical since there are two county lines (Manatee-Hillsborough) and (Hillsborough-Pinellas) defined on the bridge.



In order to have the county changes correctly performed the user has two options:

1. Manually change the county using the special # keystroke as described in [Special Keystroke Combinations](#)^[117].
2. Modify the USGS polygon models for the affected counties by adding polygons that include the bridge.

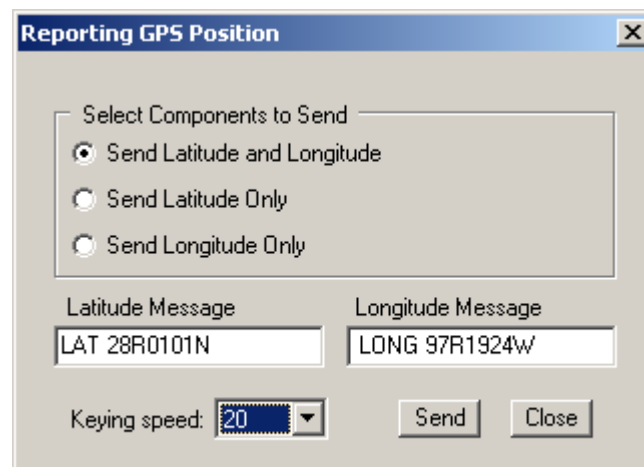
The first method has the disadvantage that it requires the user to remember to change back to automatic county detection once the bridge has been crossed while the second method allows the user to continue using the automatic county detection feature even while traversing the bridge. Adding polygons to model a long bridge should of course be done prior to setting out. The dialog below facilitates this approach and includes instructions on its use. The dialog also provides a means of restoring the original files if necessary.



In the Tampa Bay case described above the polygon models for Pinellas, Hillsborough, and Manatee would all need to be augmented to include appropriate parts of the I-275 bridge. For simplicity Charlotte Harbor was used to illustrate steps 3 and 4 in the dialog. However, modeling the I-75 bridge across Charlotte Harbor is not critical since Charlotte county is on both sides of the bridge. The only thing that will happen in this case is that no IN county will be present while traversing the bridge but the messages will continue to reflect presence in Charlotte county.

8.11 Reporting Your Position

If you have a GPS interfaced to CQ/X and are requested to post your latitude and longitude or if things get slow and you simply want to pass tracking information to listeners this can be done using the key combination Ctrl + L. This will snapshot the GPS coordinates and activate the following dialog.

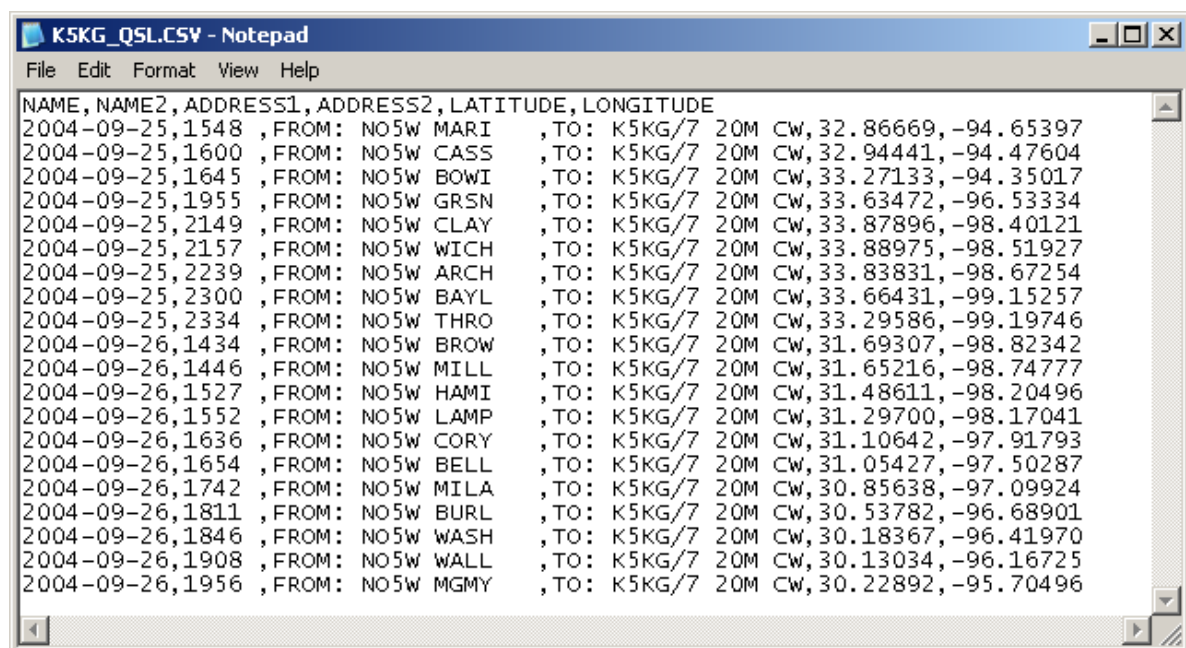


Once this dialog appears use the cursor keys to select which of the components of position to send and then either click on the Send button or press Enter to send the message. Generally you would start by sending both components and then, in response to a request for repeat of a specific component, would send only the requested component.

The dialog is activated with a keying speed of 20 wpm. To change the speed tab to the speed combo box and use the cursor keys to select the desired speed. When the dialog is closed the speed will revert to the last value it had prior to activating the dialog.

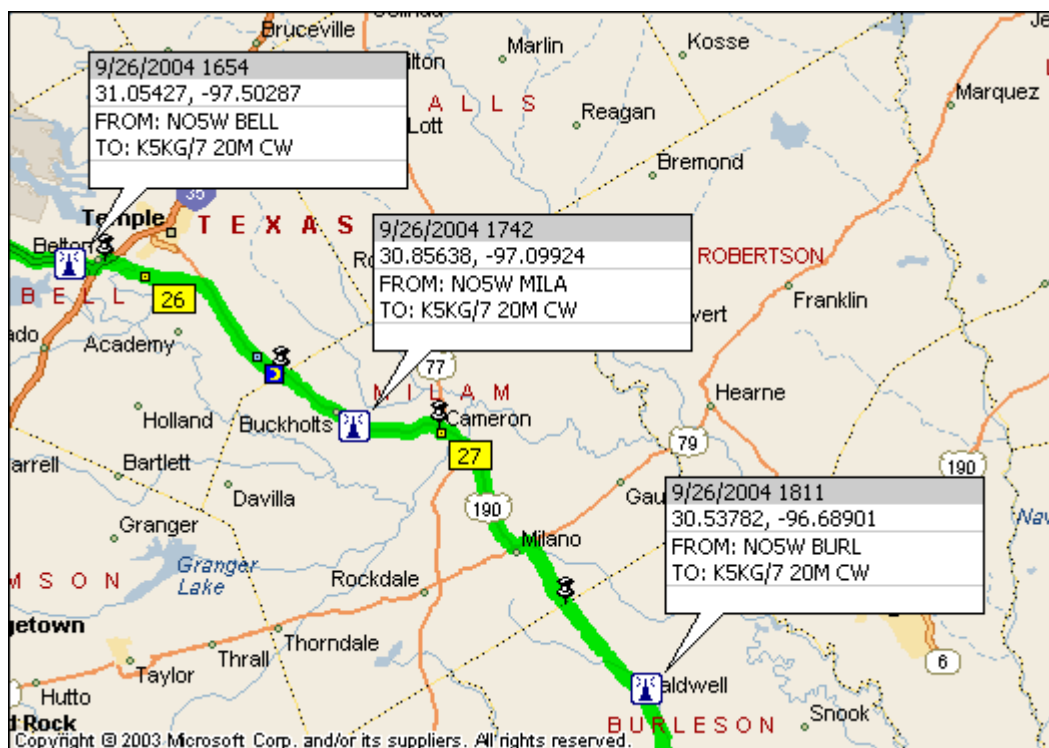
8.12 CQ/X QSL Format

The CQ/X QSL format is simply a format for logging the position at which a QSO was made in order to easily import the information into a mapping program such as Streets and Trips for display of the QSO on a map. After the QSO party the file produced using the CQ/X QSL format can be easily parsed for all of the contacts with a given station resulting in a file of the following form:



Using the data import capability of Streets and Trips the above information can be imported onto a

map showing the QSO Party route along with a pushpin for each of the contacts in the above file. Turning on selected pushpins shows information in the following form where the Bell, Milam, Burleson QSOs are shown

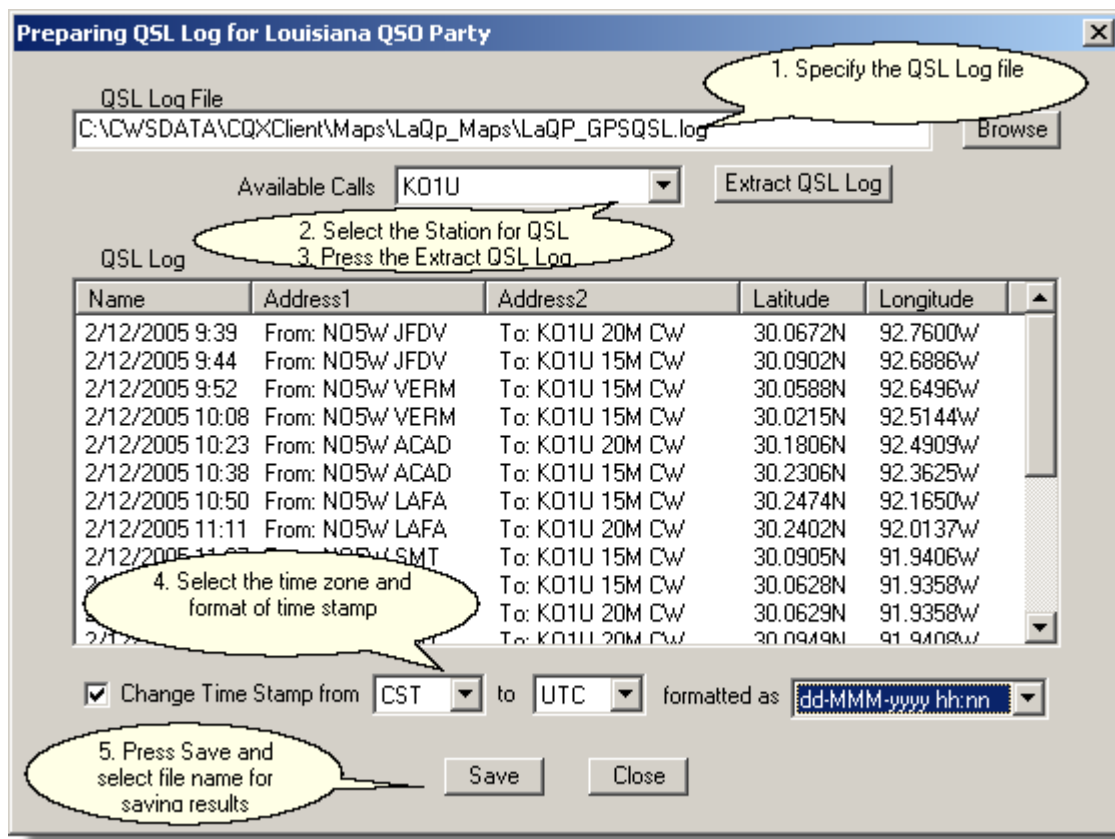


Production of these "QSLs" could be performed either by the in-state station or, to minimize the workload on that station, the CSV file along with a list defining the route could be supplied to the requesting station with production of the "QSLs" performed by the requesting station using their own copy of Streets and Trips. As an enhancement to the latter approach the sponsor of the QSO Party could collect the GPS logs and route plans of all in-state GPS-enabled mobile stations and make them available for download from their web site -- after the closing date for log submittal of course.

Hint: When producing the QSLs from a screen with resolution of 1024x768, a screen capture of a region of height = 365 pixels and width = 565 pixels will fit nicely on 4x6 paper.

8.13 Preparing CQ/X GPS QSL Logs

If you have GPS capability and have turned on the GPS QSL-ready logging feature described in [Using GPS Logging](#) [73] at the end of the party you can produce interesting map-based QSLs. To produce the QSL-enabled log for any given station requires extraction of that station's QSOs from the total GPS QSL log. This can be done using the main menu item QP Tools | Prepare QSL Log Files. Selection of this menu item will activate the following dialog for preparing the logs



Specifying the file containing the GPS QSL log will fill the Available Calls drop-down box with all of the calls found in the log. Selection of a call and pressing the Extract QSL Log button will fill the list box with information for each of the QSOs with the selected station. If it is desired to change the time stamp format with each log entry this can be done by checking the Change Time Stamp check box and supplying the necessary information. The final step is to save the results to a file of your choosing.

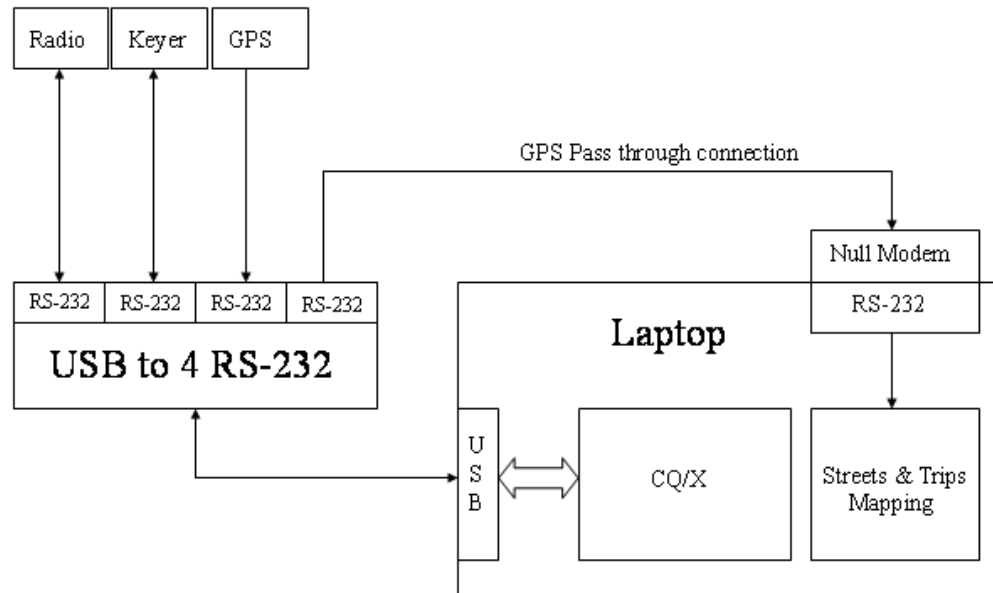
Following the above process will produce a file with the proper format to import into Streets and Trips as a set of push pins with sufficient information in each pushpin balloon to document the QSO as described in [CQ/X QSL Format](#)^[95]. The header information in the resulting file is the same as that shown in the above screen shot and is present to "fool" Streets and Trips into importing the information in a certain way.

After importing the information into Streets and Trips select one of the resulting push pins and then under the Data menu item select Data Set Properties to change the appearance of the push pins and to change how the information in the pushpin balloons is presented.

8.14 Setting up a GPS Pass Through

The SioNMEA.DLL module developed for use with CQ/X is capable of passing the data received from the GPS through to a mapping application such as Streets and Trips. To reduce loading only the GPGL sentences are passed. Ability to use this capability depends on the availability of sufficient serial ports to support the radio, keyer, GPS and the GPS pass through. A USB to 4 serial port expander is ideal for this application with three of the ports used for radio, keyer, and GPS the remaining port can be used for the pass through connection connecting via a null modem to the single on-board serial port found on the laptop. The diagram below shows the setup. Topic [GPS Passthrough Via a Virtual Null Modem](#)^[98] describes how to use two virtual serial ports to form a virtual null modem in order to eliminate the two physical serial ports and null modem associated with

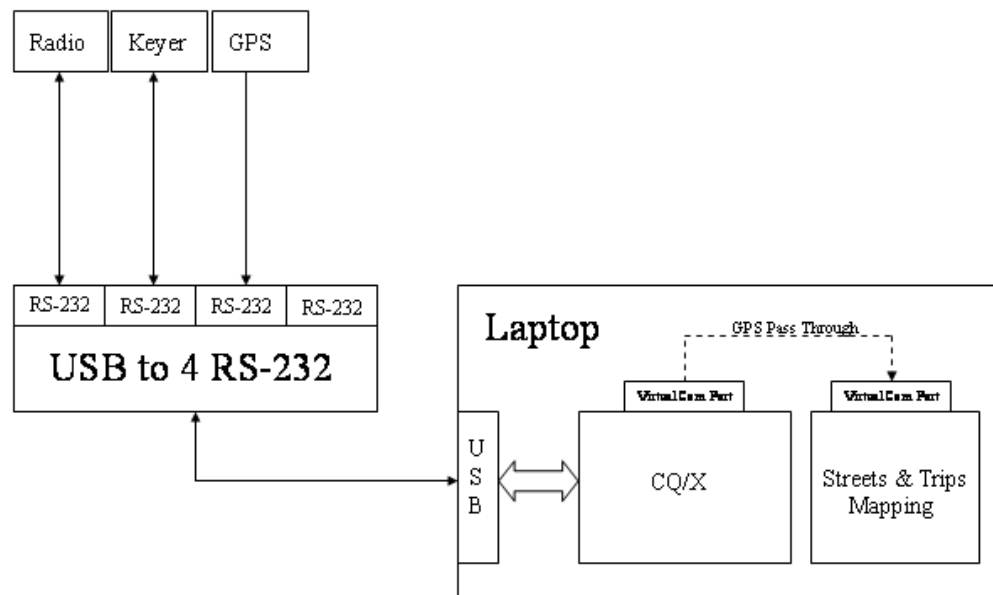
the GPS pass through.



8.15 GPS Passthrough Via a Virtual Null Modem

The two additional serial ports shown in the configuration diagram in [Setting up a GPS Pass Through](#)^[97] can be eliminated using a pair of virtual serial ports to form a virtual null modem. In this case the virtual null modem is used to pass the GPS data directly from CQ/X to the mapping program (e.g. Streets and Trips) without using any physical serial ports as shown in the diagram below.

Virtual null modem software is available from several sources including [Phil Covington's SDR Page](#). If you wish to use this approach with Streets and Trips you should verify that the virtual null modem software is build 114 or later as this is the earliest version that meets all the requirements of Streets and Trips (this warning may also apply to other mapping programs). Also be sure to modify the install.bat file to install the two virtual com ports at port numbers that you are not currently using.



8.16 Using a Networked GPS

Note: This feature requires the use of the CQXServer module and is a future capability not supported in the current release. If you have need for this capability please contact the author to determine its availability.

For a multi operation a single GPS can be connected to the server PC with GPS signals being distributed across the network. To do this

1. First establish the network using the procedure described in [Setting Up a Networked Configuration](#)^[19].
2. Once the network is established choose menu item GPS | Server GPS on the client machines.
3. Each machine will then have GPS data and essentially all of the operations normally used with a standalone GPS can be used. For any exceptions or cautions see the notes below .

Notes:

1. When using the the Server GPS the update rate should be set on the server machine.
2. When first establishing the GPS Pass through option in a networked configuration it is best to set the update rate to four seconds or less, otherwise the mapping program may time out with a message indicating no data is being received. Once the pass through connection is established the update rate can be increased somewhat if that is desired or necessary.

8.17 Using GPS Recorder

The menu item **Recorder | GPS Record/Playback** provides a means of spawning a program (SimGPS.exe) for recording and playing back GPS information. The recordings produced can be

useful in testing and/or demonstrating CQ/X in those situations where it is not feasible to take the audience on an actual trip. When the record/playback program is spawned the following dialog will be presented.

Recording GPS Information - To record GPS information use the GPS Passthrough feature to pass GPS information to the recorder from CQ/X. Perform the following steps:

1. In CQ/X make sure the GPS is ON and that GPS Pass through has been set up to pass data via connected ports
2. After selecting **Recorder | GPS Record/Playback** select the port to be used to receive GPS information from CQ/X
3. Make sure the port is set for 4800/8/1/None
4. Click on the Connect/Record button to connect the port
5. In the Record area specify the following:
 - Sentence types to record
 - File to record the data to
6. Click on the Start button to start the recording

7. Use the Current Data area to view the data that is currently being recorded.
8. Use the Stop button to stop the recording.
9. If it is desired to create a file of latitude and longitude pairs for example to import into a mapping program to show the path defined by the recording use the menu item File | Export Record as Path Data.

Playing back GPS Information - To playback GPS information perform the following steps:

1. In CQ/X make sure it is setup to receive GPS information via an appropriate port (real or virtual)
2. Configure the CQ/X for simulated GPS use just as you would for normal use
3. Select **Recorder | GPS Record/Playback** and select the port to be used to send GPS information to CQ/X
4. Make sure the port is set for 4800/8/1/None
5. Click on the Connect/Playback button to connect the port
6. In the Playback area specify the following:
 - Sentence types to send
 - File to obtain the data from
 - File to obtain waypoints from in case you wish to start/end the playback at waypoint positions other than the beginning and ending of the file
7. Press the Play button to begin the playback and the Stop/Reset button to reset playback to the start.

Note: A pair of virtual serial ports acting as a virtual null modem is a very convenient way to interface the GPS Recorder/Simulator to CQ/X. See the discussion in topic [GPS Passthrough Via a Virtual Null Modem](#) ⁹⁸ that describes a source for virtual serial ports.

Caution: While it is possible to use the feature to set CPU time from the simulated GPS you should avoid this since the date/time information in the source file will be significantly different from true time.

8.18 Using the GPS to Set CPU Time

Once the GPS has acquired the satellites you can use the menu item GPS | Set CPU Time from GPS to synchronize the CPU time to the GPS signal to within the update period of the GPS. This converts the UTC time of the GPS to whatever local timezone you have set on the CPU and maintains this local timezone.

Note: If you prefer to manually set the CPU time using Control Panel you should do so prior to setting up the GPS. Setting of the CPU time via the Control Panel while the GPS is running and connected to CQ/X may cause the GPS logic to stop updating. If this happens simply use the menu item GPS | Connect/Disconnect and resulting dialog to disconnect and then reconnect the GPS.

9 Miscellaneous Topics

This section discusses the following topics

- QSO Entry Box
- QSO Entry Check Grid
- Query Messages
- Route Planning Dialog
- Associating Maps With Counties
- Setting up a Backup Log
- Customizing the Display
- Special Keystroke Combinations

- Moving Spots to the Spot Window
- Preparing Statistical Results

9.1 QSO Entry Box

Each radio has an edit box for entering QSO information. However, in most mobile QSO party operation SO1R will be the operating mode so the right hand radio area can be used to present information on previous QSOs with the station/mult entered in the QSO Entry window by choosing that option under the Display menu item and setting up the necessary function keys to initiate the search for previous QSO information. The screen shot below indicates that K5NZ has been worked in two previous counties (TITU and SMIT) on 40M CW while the user was in NUEC.

In the QSO Entry window data may be entered in any order separated by spaces and will be parsed into the separate items required by the contest. The results of this parsing are shown in the [QSO Entry Check Grid](#)^[102]. Once the required information is complete pressing Enter will cause the log to be updated with data from the entry box associated with the LoggingRadio.

Here is a screen shot of a QSO in-progress on the left radio. In this case K5NZ is being worked in RRIV county on 40 meters and is a new mult as indicated by the yellow highlighting in the entry window. The QSO Entry area also contains summary GPS information in the format [CurrentCounty TimeInCurrentCounty][MilesToNextCounty MinutesToNextCty NextCounty]

The screenshot shows the QSO Entry window with the following elements:

- QSO Entry Box:** Contains the call sign **K5NZ** and county **RRIV**, highlighted in yellow. A callout bubble states: "Yellow indicates new mult".
- GPS summary:** Displays "[KLEB 08:40 13:43 JWEL]". A callout bubble states: "GPS summary".
- QSO Needs Indicator:** Shows a table of needs for M-Needs and Q-Needs. The 40M band is highlighted in red. A callout bubble states: "Mult and QSO needs indicators Red is current band White indicates need on band Gray indicates not needed on band".
- Previous QSOs Table:**

Freq	M...	Sent ...	Rcvd Call	Rcvd...
7040	CW	NUEC	K5NZ	TITU
7040	CW	NUEC	K5NZ	SMIT

You can also change keying speed and the frequency of the radio by making an entry in the corresponding QSO Entry Box as well as requesting a key down for a number of seconds, etc -- see topic [Special Keystroke Combinations](#)^[111] for details.

9.2 QSO Entry Check Grid

The QSO Entry Check Grid shows the results of parsing the information entered in the QSO Entry box. There is a separate row for each of the two radios. Highlighting designates the radio and associated QSO Entry box for the radio that currently has the logging status. In the example below K5NG was initially entered in BOWI county and then a correction was made changing the call to K5NZ. The QSO Entry Check Grid shows the results of parsing the items in the [QSO Entry Box](#)^[102]

Check	Logging on	Call	RS(T)	QTH
	Left Radio	K5NZ	599	BOWI
	Right Radio			

QSO Entry	Clear		Freq	M...	Sent ...	Rcvd Call	Rcvd...	
	Spot		7040	CW	NUEC	K5NZ	TITU	
	599 RRIV		7040	CW	NUEC	K5NZ	SMIT	
	11.42		7040	CW	KLEB	K5NZ	RRIV	
	[SPAT 02:27][11.42 14:22 NUEC]							
	M-Needs	CW	10	15	20	40	80	160
	Q-Needs	CW	10	15	20	40	80	160

As long as there is missing information on the row corresponding to the logging radio, logging of the QSO will not take place. When operating CW and attempting to log an incomplete QSO the query message associated with the left most missing item will be sent. See

[Associating Messages with QSO Entry Items](#)^[42] for details on setting up these query messages.

Also note in the above screen shot that the operator has been in county SPAT for 02:27 minutes, that the mileage to the next county (NUEC) is 11.42 miles and the estimated time to reach NUEC is 14:22. The most recent exchange with K5NZ was from RRIV and the operator has also requested a listing of all of the QSOs with K5NZ two of which were from NUEC and one from KLEB while K5NZ was in TITU, SMIT, and RRIV all contacts being on 40M CW.

9.3 Log Display Grid

The Log Display Grid is a view into the QSO log in essentially the form the QSOs will appear in the final log. It can be used to access previous QSOs for making revisions of received information where necessary. Sent information is shown in gray and received information in yellow. The arrow symbols on the left of the display may be used to scroll to the top or bottom of the grid.

Double-clicking on any entry or selecting an entry and then pressing Enter will call up the [QSO Revision Dialog](#)^[106] with information filled in for the selected log entry.

Local Log	KHz	M...	Date	UTC	Sent Call	S...	Sent ...	Rcvd Call	R...	Rcvd...
	14046	CW	2004-...	1955	N05W	599	MGMY	AB7RW	599	WA
	14046	CW	2004-...	1956	N05W	599	MGMY	K5KG/7	599	UT
	14046	CW	2004-...	1956	N05W	599	MGMY	AA4FU	599	NC
	14046	CW	2004-...	1957	N05W	599	MGMY	K7QQ	599	WA
	14046	CW	2004-...	1958	N05W	599	MGMY	N4PN	599	GA
	14046	CW	2004-...	1958	N05W	599	MGMY	K4LTA	599	TN
	14046	CW	2004-...	1959	N05W	599	MGMY	K6VVA	599	CA
	14046	CW	2004-...	1959	N05W	599	MGMY	WA3HAE	599	PA

Access to the most recent QSO can be obtained by any of the following methods

1. Double-clicking on the last entry
2. Pressing keys Alt+E to call up the Edit main menu item and then key R to access the revision dialog
3. Pressing any function key that has been assigned to the <REVISE_LAST_QSO> command.

Access to the Log Display Grid may be obtained by clicking with the mouse or by pressing any function key that has been assigned to the <ACCESS_LOGS> command described in [Available Function Key Commands](#)^[42].

9.4 Score Display Grid

The score tally, including bonus points, is kept in this grid

Bonus	10CW	15CW	20CW	40CW	80CW	160CW	TotalCW	Totals
QSOs	0	0	11	2	0	0	13	13
Mults	0	0	4	2	0	0	8	6
Score								1234

Use the menu items Display | Scoring - Show Current Mode Only, Show Current Band Only, Show All Bands and Modes to modify the visible band/mode cells.

Click on the button labeled Bonus to see the bonus points that have been included. This will activate a dialog of the following form.

Bonus Point Information

The following bonus points have been included in your score

Bonus points for activating Aransas(ARAN) = 1000

The following bonus points are available

Need 3 more Qs to earn bonus credit for activating Montgomery(MGMY)

Need 1 more Qs to earn bonus credit for activating SanPatricio(SPAT)

Close

9.5 Vertical Score Format

To create more room for the [Log Display Grid](#)^[103] it is useful to convert the score grid to a vertical format as shown below. This is done using the menu item **Display | Move Score to Left Panel**

Status	GPS	
Band Map	Score	
Band	QSOs	Mults
10CW	21	9
15CW	0	0
20CW	0	0
40CW	0	0
80CW	0	0
60CW	0	0
talCW	21	-
10PH	0	0
15PH	0	0
20PH	0	0
40PH	0	0
80PH	0	0
60PH	0	0
otalPH	0	-
Totals	21	9
Score = 1567		
Included Bonus		
MILA Results		
Time in Cty	04:25	
QSOs in Cty	4	
Rate in Cty	53	
Goal in Cty	50	
Mins to Goal	52	
Mins to Next	22	
Current Speed	57.5	
Suggest Speed	24	
Avg. QSO/Cty	20	
Planned Ctys	30	
Projected Qs	600	

When a GPS is in use and county crossings have been defined the vertical format has the added advantage of allowing presentation of results for the current county as well as projections for the contest. In the example above the operator has been in MILAm county for 4 minutes and 25 seconds and has made 4 QSOs against his selected goal of 50. His in-county rate is 53 QSOs per hour and at this current rate he will need to spend at least 52 more minutes in the county to reach this goal. Based on his current speed and distance to the county crossing there are only about 22 minutes remaining in the county so if the goal is to be met either a stopping location needs to be found or, if feasible, a new speed of about 24 mph (probably not feasible) would allow continued forward progress while allowing time to reach the targeted goal of 50 QSOs.

The average QSO per county includes a projection of the number of QSOs that will be worked in the current county by using the current QSOs in the county, the rate in the county and the Minutes to the Next county. Using this approach in the above example the average number of QSOs per county is

projected to be 20 and with the indicated 30 counties planned the current projection for total QSOs is 600.

The relationship between Mins to Goal and Mins to Next is used to modify the color of the traffic light symbol on the [GPS Status Panel](#)^[78].

Note that data under the county results is updated on each update cycle of the GPS data which is typically every 10 seconds. So, after logging a new QSO, you should see the data update after no more than 10 seconds but not immediately.

Note also that Mins to Next and Suggest Speed require that county crossing information is available so that an estimate of the time to the next county can be obtained.

9.6 QSO Revision Dialog

The QSO Revision Dialog appears when either a double-click is performed on an entry in the [Log Display Grid](#)^[103] or the Enter key is pressed once a row of the [Log Display Grid](#)^[103] has been selected. The only enterable areas on this dialog are the edit box labelled Revised QSO Entry and the band and mode selection windows. When the dialog opens the cursor will be positioned at the end of the Revised QSO Entry edit field. Information is entered in the same way in this edit field as it is in the [QSO Entry Box](#)^[102]. The dialog is presented in large fonts to improve visibility in the mobile environment.

Revising a Log Entry

Original Log Entry
 NO5W Left 7050 CW 2007-07-28 1642 NO5W 599 NORMA AK1W 599 WORM

Check

Version	RcvdCall	RcvdRST	RcvdQTH	
Original	AK1W	599	WORMA	
Revised	AK1W	599	BERMA	

Revised QSO Entry
 AK1W 599 WORMA BERMA

Edit Band/Mode

New Band **40** New Mode **CW**

Save Cancel

As indicated in the screen shot above, the dialog shows the following information:

- **Original Log Entry** - a read-only edit box that shows a duplicate of the row of the [Log Display Grid](#)^[103] on which the double-click was performed
- **Check Grid** - a read-only grid showing the original information received from the contacting station and the results of the revision

- **Revised QSO Entry** - an edit box for entering the revised information for the contact. Information is entered in the same way in this edit box as it is in the [QSO Entry Box](#)^[102]. In other words the element(s) to be revised can be either modified by positioning the cursor at the element and making the revision or by entering the new versions of the element(s) at the right hand end of the edit box in any order. As revisions are made in the edit box the interpretation of the information will be shown in the Check Grid. The program will always parse the entered string to pick up the right-most element of each type.
- **Edit Band/Mode** - these windows provide the capability to modify the band and/or mode on which the QSO took place. This part of the dialog will probably only be of use when manual radio tracking is being used and the operator has forgotten to change the band/mode.

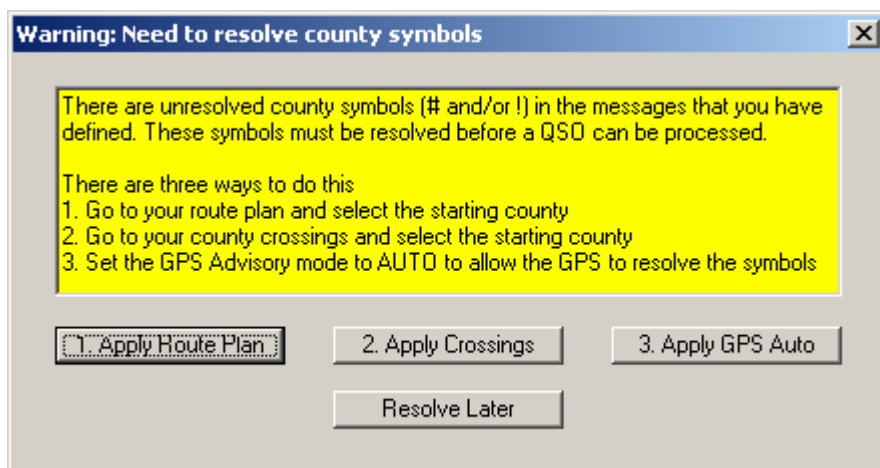
Once you are satisfied with the revision press Save to capture the revision for mult and dupe processing and for constructing the final logs. The dialog will close and you will observe the changes reflected in the [Log Display Grid](#)^[103]. If the menu item Display | Recalc Score on Each Log Revision is checked the changes will also be reflected in the [Score Display Grid](#)^[104], otherwise the changes will not be reflected until the menu item Display | Recalculate Score Now is selected.

If it is decided not to make the revision press Cancel or the Escape key to exit the revision dialog.

All of the function keys F1 - F12 remain available for sending messages while this dialog is open. Function keys assigned to commands are not available while this dialog is open.

9.7 Message Resolution Dialog

If there are unresolved county symbols (# and !) present in the message template when it is saved, the dialog shown in the screen shot below will be activated to request resolution and to provide access to three methods of resolution.



Method 1: Apply Route Plan - Use this method if you have defined your route as a simple sequence of counties but have not defined your route via a sequence of county crossings. Clicking the Apply Route Plan button will provide access to the [Route Planning Dialog](#)^[63] from which you can double-click on the desired current county. This will replace the county symbols (# and !) with the abbreviations for the current and next counties on the messages array. Of course the template itself will continue to contain the symbols so that it can be used when a county change operation is performed.

Method 2: Apply Crossings - Use this method if you have defined your route as a sequence of county

crossings for use with a GPS but are not using the AUTO mode of the [GPS Advisory Modes](#)^[88]. Clicking the Apply Crossings button will provide access to the dialog for selecting a file of county crossing information for import as described in [Importing County Crossing Information](#)^[67].

Method 3: Apply GPS Auto - Use this method if you have a GPS connected. Clicking the Apply GPS Auto button will set the GPS advisory mode to AUTO, the GPS will detect the current county and if a sequence of county crossings has been defined will determine the next county. The current and next counties will be used to replace the county symbols (# and !) with the abbreviations for the current and next counties on the messages array.

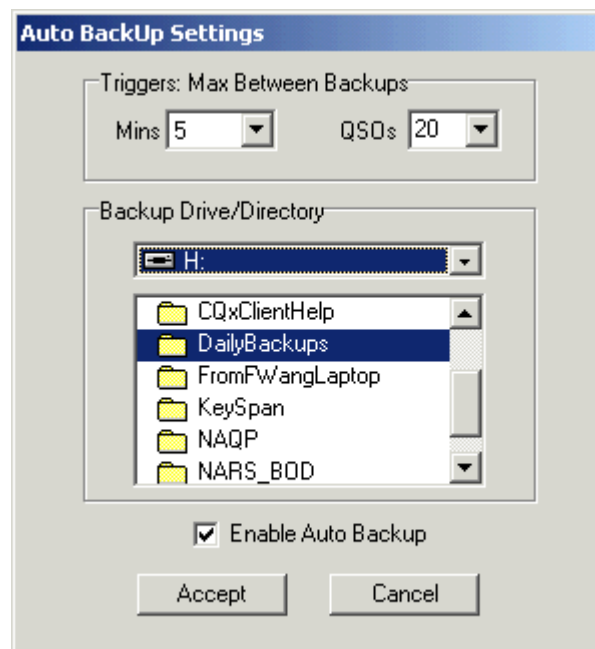
9.8 Query Messages

The messages labeled Q1, Q2, Q3, Q4, Q5 are special query messages used to query the responding station to request fills of missing items. The left-most column of the [QSO Entry Check Grid](#)^[102] is associated with query message Q1, the next item to the right is associated with query message Q2, and so on. As long as there is missing information on the row of the [QSO Entry Check Grid](#)^[102] corresponding to the logging radio, logging of the QSO will not take place. When operating CW and attempting to log an incomplete QSO (by pressing Enter) the query message associated with the left-most missing item will be sent.

Query messages can also be controlled by function keys if function keys have been assigned to them.

9.9 Setting Up a Backup Log

To set up a backup log use the File | Setup Backup Log item. This will activate the Auto Backup Dialog shown below in which the backup drive and directory as well as the maximum minutes and maximum QSOs between backups may be set. After checking the Enable Auto Backup box press Accept to activate the backup process.



A backup file of the form Copy(n) of CQxClientLogView will be written to the specified directory whenever

1. the number of QSOs since the last backup exceeds the maximum QSOs between backups or

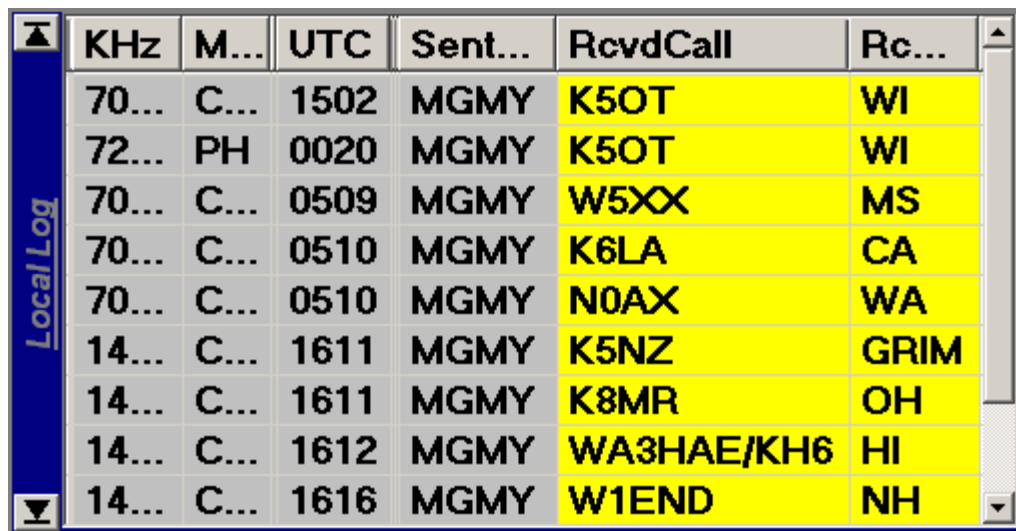
- the time since the last backup exceeds the maximum time between backups and there has been a change in the log since the last backup.

9.10 Customizing the Display

The appearance of the display can be customized in the following ways all of which are covered under the Display menu item:

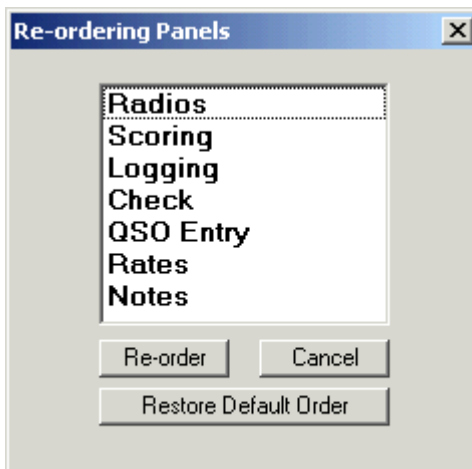
QSO Entry Fonts - Use this option to change the color, size, font face, etc of the font used in the [QSO Entry Box](#)^[102]. Changing this font will cause the entry font to change for both radios as well as for the Spot windows associated with both radios and the search list used in conjunction with the Spot window when it is used to initiate QSOs as described in [Making a QSO Entry](#)^[51].

Log Display Fonts - Use this option to change the color, size, font face, etc of the font used in the [Log Display Grid](#)^[103]. Changing this font will usually require resizing of the columns of this grid. Users who regard certain elements of the grid to be redundant or unnecessary can hide or partially hide those elements by resizing the columns. Of course a large font will require that the display contain fewer lines of the log. The overall size of the log display can be increased by moving the [Score Display Grid](#)^[104] to the left hand tab panel and converting it from horizontal to [Vertical Score Format](#)^[104]. Use the menu option **Display | Move Score to Left Panel** to do this. Additional screen real estate can be allocated to the log display by moving the Notes display to the right hand tab panel by using the menu item **Display | Move Notes to Right Panel**. Both of these actions are retained across a restart of the program, as is the Log Display column sizing so it is only necessary to perform this configuration step once. The screen shot below shows an example wherein the log display fonts have been set to 14 point bold.



KHz	M...	UTC	Sent...	RcvdCall	Rc...
70...	C...	1502	MGMY	K5OT	WI
72...	PH	0020	MGMY	K5OT	WI
70...	C...	0509	MGMY	W5XX	MS
70...	C...	0510	MGMY	K6LA	CA
70...	C...	0510	MGMY	N0AX	WA
14...	C...	1611	MGMY	K5NZ	GRIM
14...	C...	1611	MGMY	K8MR	OH
14...	C...	1612	MGMY	WA3HAE/KH6	HI
14...	C...	1616	MGMY	W1END	NH

Rearrange Panels - Use this option to change the order of presentation of the central panels for Radios, Scoring, Logging, Check, QSO Entry, Notes, and Rates. Selecting this menu item will activate the following Reordering dialog. To change the order of the panels simply drag the items to their desired new positions and press the Re-Order button. If it is desired to return to the default order press the button labeled Restore Default Order. The panel order is retained across a restart so the ordering will remain until a decision is made to change it again.



Use Right Radio (QSO Entry) Area for Previous QSO Information - Since the majority of mobile operations will not be SO2R one of the dual entry areas for Left and Right radios is redundant. Choosing this option allows the user to query the log for information regarding previous QSOs with the station or multiplier that is currently entered in the [QSO Entry Box](#)^[102]. This, for example, could be used with the NA Key Emulator in which F9 is used to query the log for all QSOs with the station whose call is entered and F10 is used to query the log for all QSOs with the multiplier that is entered. This area of the display can be accessed using either the mouse or by setting up a function key to execute the task Access Previous QSOs. With a row of the list of previous QSO information highlighted pressing Enter or double-clicking with the mouse will cause the radio to be set to the frequency and mode associated with the highlighted QSO. This, of course, requires that the user assign the radio and keyer in use to the left radio/keyer.

View Local Logs - In multi-op situation use this option if it is desired to see only the log of the local station and not the combined log of the team. The label on this panel will indicate the current Local/Team selection.

View Team Logs - In multi-op situation use this option if it is desired to see the combined log of the multi-op team. The label on this panel will indicate the current Local/Team selection.

Scoring - Show Current Mode Only - In a multi-mode contest use this option to show only the current mode on the scoring grid while "squeezing" the other mode.

Scoring - Show Current Band Only - In a multi-band contest use this option to show only the current band on the scoring grid while "squeezing" the other bands.

Scoring - Show All Bands and Modes - Use this option to show all bands and modes allowed in the contest.

Hide GPS - Use this option to hide/unhide the GPS panel.

Size to Fit Center Panels - Use this option to accommodate other applications that might need to be visible on screen (e.g. a mapping program such as Streets and Trips in mobile operation for a QSO party). The display will be sized to the width of the center panels and positioned to show only the center panels where the main actions of QSO Entry, Logging, Score Reporting, Radio Control, etc occur.

9.11 Special Keystroke Combinations

The following are special key stroke combinations that allow some control actions to be performed without use of the mouse. See also [Assigning Function Keys](#)^[47] for a description of how to program the function keys and combinations (Alt+, Ctrl+, Shift+) function key to perform various tasks.

Keystrokes Associated with Keying

- **Ctrl+C** - Enter conversational mode
- **Ctrl+D** - Decrement keying speed by a single step
- **Ctrl+I** - Increment keying speed by a single step
- **Shift+Space bar** - Send CQ message on the logging radio

Keystrokes Associated with QSO Entry Panel

- **Ctrl+Y** - Request a QSY
- **Ctrl+R** - Toggle the logging radio status to the other radio
- **Ctrl+W** - Clear the QSO Entry box of the logging radio
- **Ctrl+S** - Clear the Spots Entry box of the logging radio
- **Shift+Enter** - In CW mode if the [QSO Entry Box](#)^[102] has the focus the keystroke combination Shift+Enter will send a message consisting of the rightmost substring entered in the QSO Entry window followed by a question mark.
- **Alt+Enter** - If the [QSO Entry Box](#)^[102] has the focus the keystroke combination Alt+Enter allows you to queue up a second (right most) call entered in the QSO Entry Box for processing immediately after the first call is processed. This is explained in detail in [Handling a Second Caller](#)^[53].
- **Enter K=ss** as right most item to change keying speed where
ss=numeric value or
"L" for minimum speed assuming you have set a minimum speed using Keyer | Set Parameters menu item
"H" for maximum speed assuming you have set a maximum speed using Keyer | Set Parameters menu item
- **Enter F=ffffff** as right most item to change frequency where
ffffff=numeric value of new frequency in Hz
"L" for lower operating limit for the current band and mode as set using Radio | Set Parameters menu item
"H" for upper operating limit for the current band and mode as set using Radio | Set Parameters menu item
- **Enter M=mmm** as right most item to change the mode where
mmm="C" or "CW" changes the mode to CW
mmm="U" or "USB" changes the mode to USB
mmm="L" or "LSB" changes the mode to LSB
- **Enter TUNE=tt** as right most item (1<=tt<=99) to force keying of the radio for tt seconds. Terminate prior to tt seconds using the ESCape key.
- **Type a #** (no Enter required) as right most item to activate a dialog from which a new county can be chosen. Select the desired county and press Enter to change all county-dependent messages, etc. The user can elect to have the combo box filled with all counties or, if a GPS is in use, to have the combo box filled with counties that are in the vicinity of the current GPS specified latitude and longitude. Note that, once the county is specified in this way, the GPS Advisory mode will be set to OFF and it is up to the user to return it to any other desired state.

Note: In the items above for Enter K=, Enter F=, etc the K, F must be space separated from any string on its left.

Keystrokes Associated with the GPS

- **Ctrl+P** - Request an immediate update of the position. The update will occur on receipt of the next data from the GPS which will usually be within 1 second.
- **Ctrl+L** - Send location information in the form of latitude and longitude of current position. A dialog will appear and allow sending latitude and longitude or only latitude or only longitude. The latter two

would be useful in answering requests for repeats of one or the other of latitude and longitude.

- **Ctrl+N** - Send next county information in the form <Next Cty> + "IN ABT " <Minutes> " MINS" where the time part of this message will be sent only if the time estimate is available.

Keystrokes Associated with a QSO Party QP Tools Plug-in Menu

- **Alt+Q** - Process access to the QP Tools menu item associated with each QSO party
- **Alt+Q then N** - Change to the next county on a defined QSO party route

Keystrokes Associated with Spots

- **Left Shift+CursorUp** - If you are using Spotting you can access the spots using this key combination. As described in [Moving Spots to the Spot Window](#)^[112] holding down the left shift key and pressing the CursorUp key will move the Spot pointer up the list of spots and will bring the currently selected spot into the Spot window of the [QSO Entry Box](#)^[102]. Similar use of the CursorDown in combination with the LeftShift key will move the spots pointer down the list.

Keystrokes Associated with the Spot Window

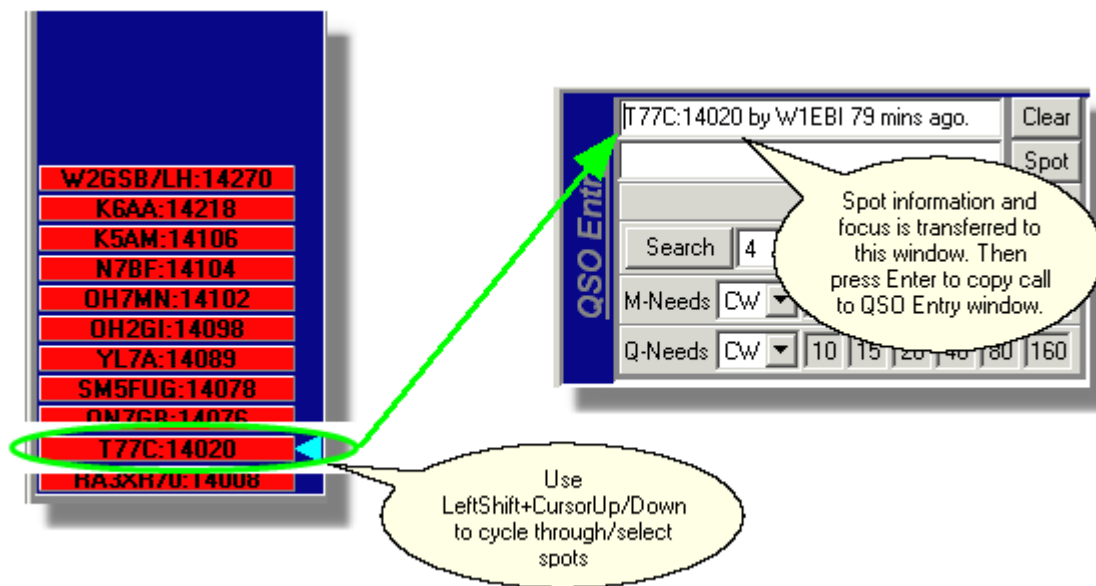
- **Shift+Enter** - If the option to use the Spot windows for searching for calls containing specified substrings is selected it is possible to search to pick the call from a list rather than typing in the entire call. As explained in topic [Making a QSO Entry](#)^[51] this can be useful in mobile QSO party operation wherein it is possible to work the same station numerous times as changes are made in the band, mode, and/or county. When using this option in CW mode the keystroke combination Shift+Enter will send a message consisting of the string entered in the Spot window followed by a question mark, whereas the Enter key alone will activate the list of possible calls.

9.12 Moving Spots to the Spot Window

When using the spotting feature a spot can be selected and transferred to the Spot window just above the [QSO Entry Box](#)^[102] using one of the following methods

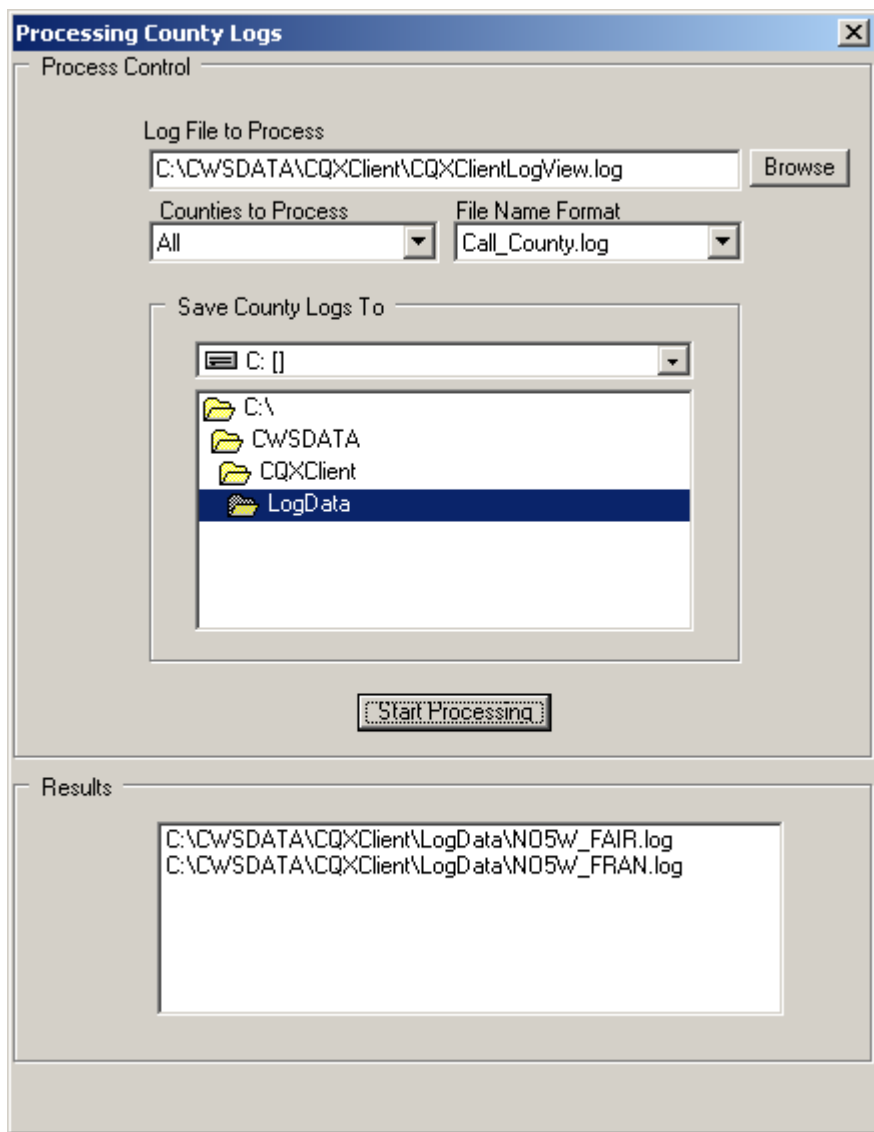
1. Click on the spot with the left mouse button
2. Use the key combinations LeftShift+CursorUp (LeftShift+CursorDown) as described in [Special Keystroke Combinations](#)^[111] to cycle through the spots on the current band.
3. Tune the radio across the band and as the frequency comes within the selected bandwidth the spot will transfer. Once the radio is tuned outside of the bandwidth of the spot it will be deleted from the Spot Window.

Once a spot is selected information on that spot will appear in the Spot Window just above the QSO Entry box of the LoggingRadio and focus will be transferred to that window. If the Spot Window has the focus pressing Enter will transfer the spotted call and the focus to the QSO Entry box.



9.13 Preparing County Logs

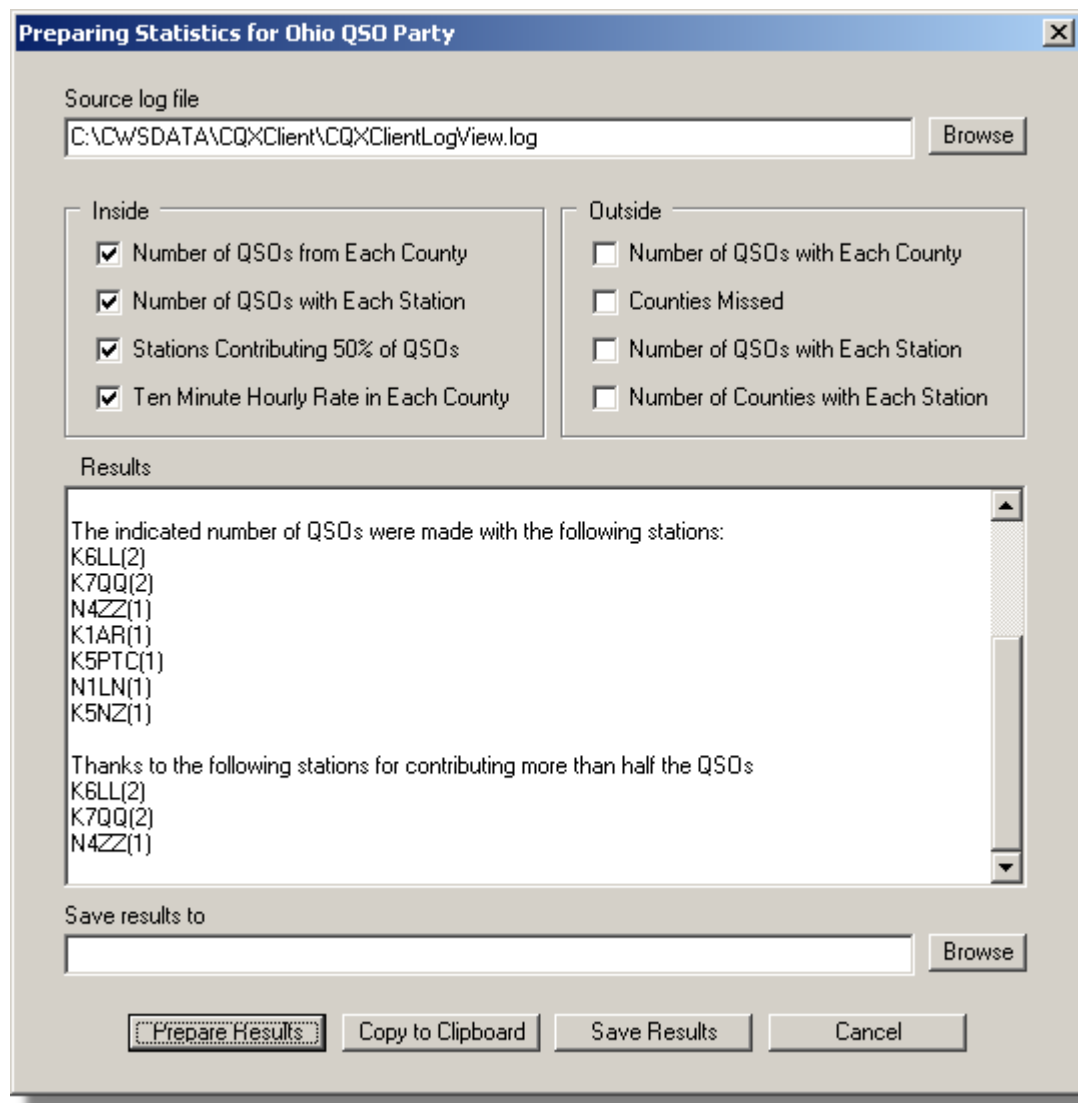
If it is desired to separate the composite log into a series of individual logs for each county use the menu item Preparing County Logs under QP Tools. This will activate the following dialog in which you can specify which counties you wish to process and the location to save these county logs to. It is best to create a directory to contain these logs.



The files containing the logs are shown in the Results memo. If it is desired to review any of these logs double-click on the desired file name in this memo.

9.14 Preparing Statistical Results

After the contest, preparation of the 3830 report and soapbox comments for the log is aided by the item QPTools | Prepare Statistics. Available options depend on whether the user is an in-state or out-of-state participant and are shown below.



The [initial] **Ten Minute Hourly Rate in Each County** is computed by taking the number of QSOs that occurred in the ten minute period immediately following the first QSO in the county and multiplying by six.

Results are written to the Results memo for viewing and for further editing. Once satisfied with the formatting of the results use Browse to specify a desired path and file name for saving the results to and then press Save Results.

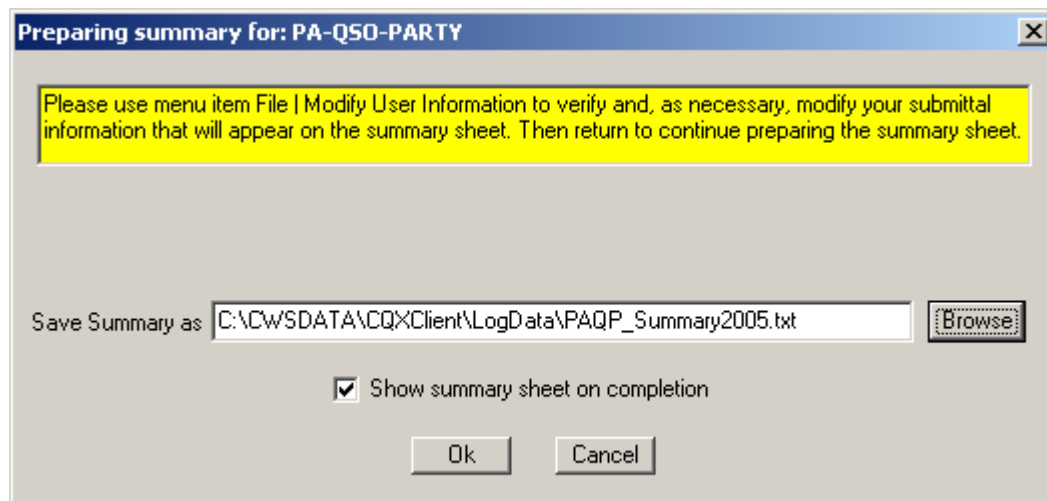
Copy to Clipboard can be used if it is desired to transfer the contents of the results memo into another form or file such as when [Finalizing the Logs](#)⁵⁷.

9.15 Preparing a Summary Sheet

Many contests require the submission of a summary sheet along with the logs. Menu item QPTools | Prepare Summary can be used to perform an analysis of the log for the specific information required by the contest and inserting it in a template specific to the contest.

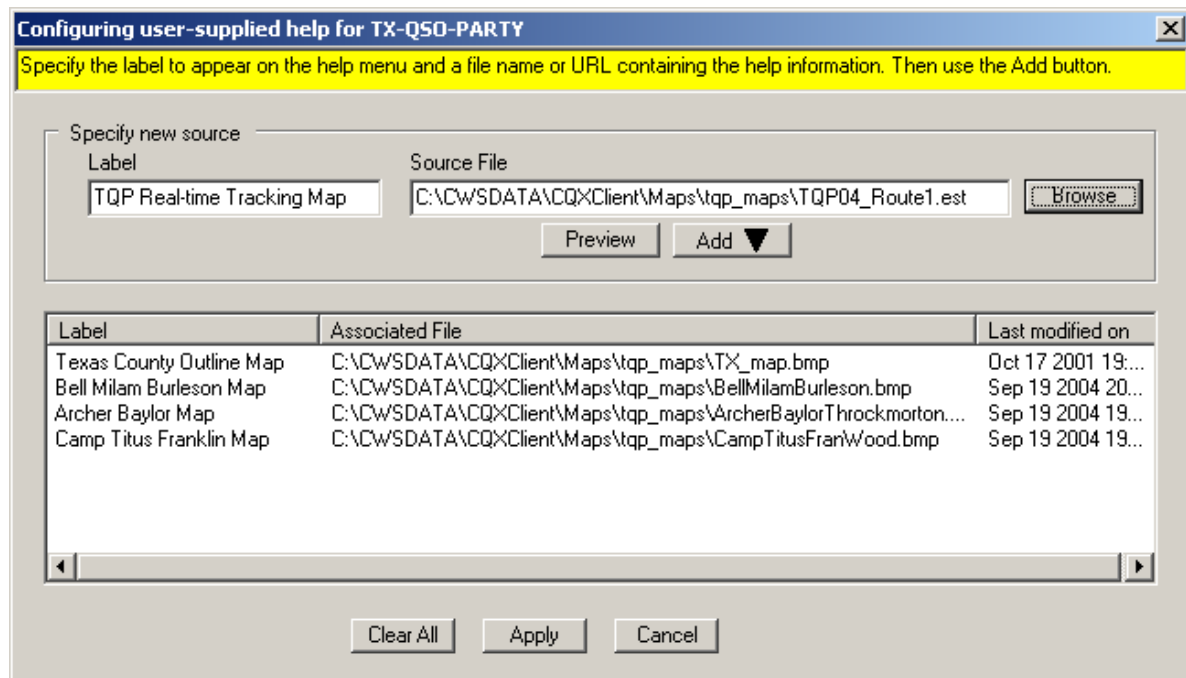
Prior to beginning preparation of a summary sheet it is a good idea to review the information defined

when the contest was begun to see if any changes are needed. This can be done using menu item File | Modify User Information. When you are satisfied with the user information return to select the QPTools | Prepare Summary menu item. This will bring up the following dialog allowing you to browse to a location to save the results to and to request a display of the completed sheet:

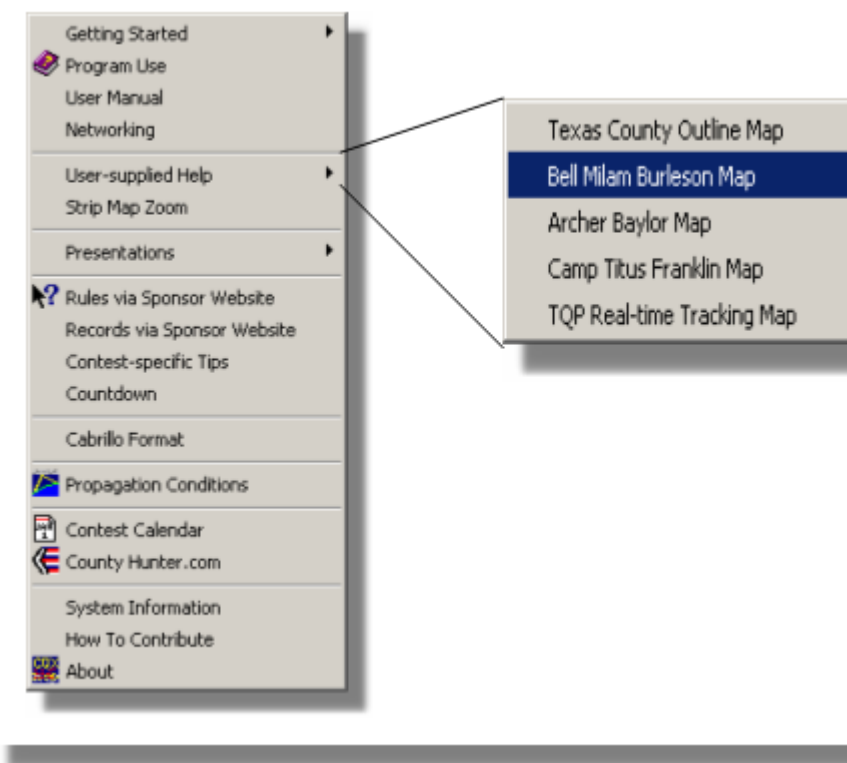


9.16 User-Supplied Help

You can add access to your own help information using the menu item Options | Configure User-Supplied Help which will activate the following dialog.



As the instruction panel at the top of the dialog indicates you supply a label for the help and a source file and then use the Add button to add that topic to the list. After applying the list of help topics they will appear under the Help menu as submenu items to User-Supplied Help as shown below.



As this screen shot suggests User-Supplied Help is an alternative method for providing access to strip maps. It can also be used to activate Streets and Trips running, for example, the file used to plan the trip. This can be a handy way of avoiding having to rummage around during the contest for the trip planning file. Clicking on menu item TQP Real-time Tracking Map in the above example will cause Streets and Trips to open the specified *.est file.

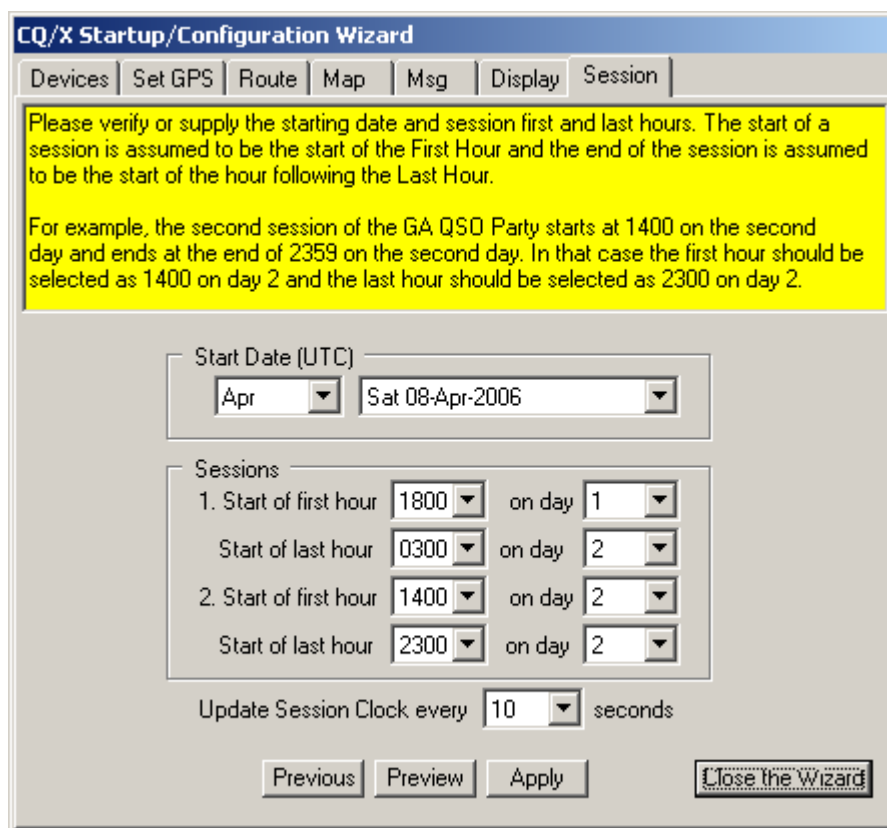
Bitmap (*.bmp) and text files (*.txt) are handled by the program whereas other files are processed by shelling out to the application recognized by the file associations (*.pdf, *.doc, etc). So if you use a mapping program other than Streets and Trips inserting the appropriate file in the user help should cause it to open and run with the specified file.

Some other types of information that I have found useful to place under User-Supplied help are:

- Latest contest rules downloaded from the sponsor web-site in either pdf or mht (single file web page) format
- e-Mail confirmation of hotel reservations for Saturday and/or Sunday evening lodging
- Driving instructions prepared for the driver.
- Operating plans of other mobiles

9.17 Setting up the Session Clock

The title bar of the main form contains a session clock that displays the time (in HH:MM:SS) remaining in the current session or the next session if there is no current session -- e.g. before the contest starts or during the intermission period between a two-session contest. Since most contests have well-defined start dates and session definitions that information, where available, is included in the contest definition file so it is only necessary for you to verify the information and to make any necessary changes. This is done using the following dialog which is one of the dialogs called by the startup wizard.



CQ/X Startup/Configuration Wizard

Devices | Set GPS | Route | Map | Msg | Display | Session

Please verify or supply the starting date and session first and last hours. The start of a session is assumed to be the start of the First Hour and the end of the session is assumed to be the start of the hour following the Last Hour.

For example, the second session of the GA QSO Party starts at 1400 on the second day and ends at the end of 2359 on the second day. In that case the first hour should be selected as 1400 on day 2 and the last hour should be selected as 2300 on day 2.

Start Date (UTC)
 Apr Sat 08-Apr-2006

Sessions

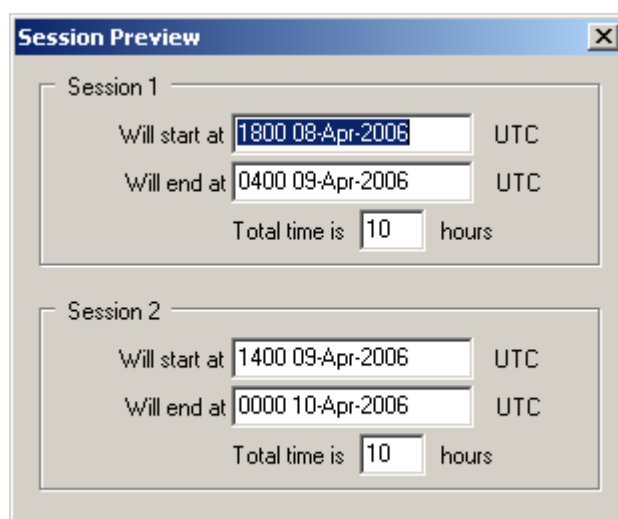
1. Start of first hour 1800 on day 1
 Start of last hour 0300 on day 2

2. Start of first hour 1400 on day 2
 Start of last hour 2300 on day 2

Update Session Clock every 10 seconds

Previous Preview Apply Close the Wizard

On this dialog all dates and times should be entered as UTC. Selecting a month for the contest will fill the associated date combo with all of the weekend days of that month from which the date containing the start hour of the first session can be selected. Then hour and day of the Start and End hour of each session are selected. Note that all hours are defined by their start times so that in the example above the first session actually ends at 0400 on UTC Sunday 9-Apr-2006 and the second session ends at 0000 on UTC Monday 10-Apr-2006. The preview button can be used to check the results of the settings as shown below prior to applying them. Once satisfied with the session definitions press Apply to activate the session clock.



Session Preview

Session 1

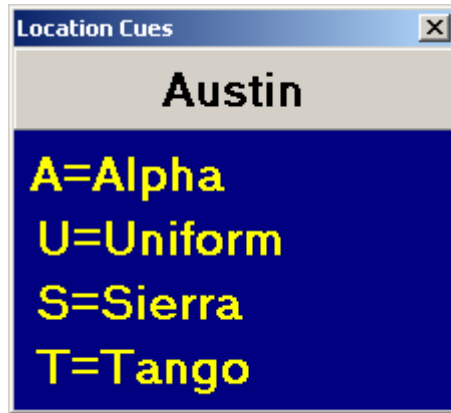
Will start at 1800 08-Apr-2006 UTC
 Will end at 0400 09-Apr-2006 UTC
 Total time is 10 hours

Session 2

Will start at 1400 09-Apr-2006 UTC
 Will end at 0000 10-Apr-2006 UTC
 Total time is 10 hours

9.18 Location Cues for SSB Operation

When operating SSB it is useful to know the full name of the county in addition to the abbreviation. Also since I operate very little SSB I often stumble over the proper phonetics to use and what will actually come out is unpredictable. The menu item Display | SSB-Show Location Cues will present this information in a non-modal "always on top" window that changes as the counties change. The screen shot below shows an example:



When operating SSB I find it handy to locate this window just below the QSO Entry panel.

9.19 Multi-County Setup Dialog

Prior to setting up a multi-county operation you should go to the

The dialog shown below is used to define the counties involved in a multi-county operation.

Use of this dialog is similar to that described in the topic [Planning Route for Non-Use of GPS](#)⁶². A first county in the multi-county is chosen and then successive counties are added. If the route has been defined in terms of county line crossings it is possible, using the Next County Line button, to pull the multi-county operation from that data. A pair of radio buttons allows the user to specify whether the exchange information is to be sent as separate exchanges for each county or a single exchange containing the names of each of the counties

Setting up multi-county operation

Use this dialog to setup the counties involved in a multi-county line operation.
 1. Select the counties involved
 2. [Optional] provide GPS coordinates of operating point as decimal degrees
 3. Specify the exchange mode for the multiple QSOs

Select a County to Start
 County: Gonzales Abbreviation: GONZ

Next County Selection
 County: ATASCOSA Abbreviation: ATAS
 Add to Route ▼

Counties in Multi-County Operation

County	Abbreviation
Gonzales	GONZ
KARNES	KARN
WILSON	WLSN

Clear List
 Next County Line

Location Description (Optional)
 Label: Latitude: Longitude:

Exchange Mode
☒ Send a separate exchange for each county
☐ Send a single exchange containing all counties

Prepare Polygon Sequence Apply Close

9.20 Multi-County Messaging and Logging Dialog

This dialog is used to run stations from a multi-county location and is accessed using the QP Tools | Initiate Multi-County Operation menu item. It can be used for sending separate exchange for each of the counties or for sending a single exchange that has the county information for all of the counties. The choice of multiple or single exchanges is made during the setup of the multi-county operation as described in [Multi-County Setup Dialog](#)^[119]

Multiple Exchange Case: After defining the CQ and CQT/QRZ messages focus the QSO Entry window and press Enter to call CQ. When a station comes back enter the call and press Enter. This will send the exchange for the first county. Enter the exchange information received from the caller and press Enter. If all information is complete the Log button for the first county will assume the focus and pressing it will log the QSO and move the focus to the Send button for the second county. If there is

missing information, as there apparently was in the example below, a query message will be sent requesting a fill. After this information is entered logging and sending of the exchange for the other counties proceeds with the following keys

- **Enter Case 1:** If a **Log button has focus** Enter will advance the focus to the next Send button if there are remaining counties to log, or, if all counties have been logged Enter will cause the CQT message to be sent and will reset the status indicators and clear and return focus to the QSO Entry window.
- **Enter Case 2:** If a **Send button has focus** Enter will cause the associated message to be sent
- **Tab --** advances the focus in the following sequence Send->Log->Send->Log ...->Log->QSO Entry window
- **Shift +Tab** advances the focus in the opposite direction

Single Exchange Case: After defining the CQ and CQT/QRZ messages focus the QSO Entry window and press Enter to call CQ. When a station comes back enter the call and press Enter. This will send a single exchange containing location information for all of the counties. Enter the exchange information received from the caller and press Enter. If all information is complete the associated Log button will assume the focus and pressing it will log the QSO as multiple entries in the log and will return the focus to the QSO Entry window, clear the window and cause the CQT message to be sent. If there is missing information in the received exchange a query message will be sent requesting a fill.

Multi-County Messaging and Logging

Messages

CQ: CQTQP N05W TQP CQT: TUTQP N05W GONZ/KARN/WLSN

Exchanges and Logging

QSO Entry: K5KG **Fills are needed**

Multiple Exchanges

County	Abbreviation	Msg @ = K5KG	Action/Status	
Gonzales	GONZ	@ 5NN GONZ	Send <input checked="" type="checkbox"/>	Log <input type="checkbox"/>
KARNES	KARN	@ 5NN KARN	Send <input type="checkbox"/>	Log <input type="checkbox"/>
WILSON	WLSN	@ 5NN WLSN	Send <input type="checkbox"/>	Log <input type="checkbox"/>

Single Exchange

Message: Send ☐ Log ☐

Close

10 Test Results, Limitations, and Known Problems

CQ/X has been tested during each stage of development as well as during actual contest operation including the following:

1. 2004 Texas QSO Party. See [3830 Report for 2004 Texas QSO Party](#).

2. 2005 Louisiana QSO Party. See [3830 Report for 2005 Louisiana QSO Party](#).
3. 2005 Mississippi QSO Party. See [3830 Report for 2005 Mississippi QSO Party](#).
4. 2006 Oklahoma QSO Party. See [3830 Report for 2006 Oklahoma QSO Party](#).
5. 2006 Georgia QSO Party. See [3830 Report for 2006 Georgia QSO Party](#).
6. 2006 Texas QSO Party. See [3830 Report for 2006 Texas QSO Party](#).
7. 2007 Mississippi QSO Party. See [3830 Report for 2007 Mississippi QSO Party](#).
8. 2007 Florida QSO Party. See [3830 Report for 2007 Florida QSO Party](#).

To date the development of CQ/X has been focused almost exclusively on state QSO parties and the use of GPS and other features that have a useful role in those contests for the single mobile operator. Because of this focus certain features that one would normally expect to find in a modern contest logging program are absent or at best have limited capability. These include:

- Support for a limited number of contests - Texas QSO Party, Ohio QSO Party, Pennsylvania QSO Party, Washington Salmon Run, Illinois QSO Party, Louisiana QSO Party, Mississippi QSO Party, Georgia QSO Party, Oklahoma QSO Party, California QSO Party, Florida QSO Party, and the Colorado QSO Party in the current version.
- An efficient means for operating on a county line was not provided in the initial versions but is provided beginning with this version(1.6). See topics [Running Stations from a Multi-County Boundary](#)^[56], [Multi-County Setup Dialog](#)^[119], and [Multi-County Messaging and Logging Dialog](#)^[120].
- Support for a limited number of radios - Icom primarily with Yaesu and Kenwood available in beta.
- Limited support for SO2R - Two entry areas are provided and multiple keyers and radios can be interfaced but there is no audio switching, etc, so SO2R support must be considered as incomplete in this version. In SO1R operation it is recommended that you use the left radio since this enables use of the right radio QSO Entry area for display of previous QSO information with the current station/mult.
- Limited support for networked operations - a networked version is nearing completion with the remaining work mostly in the area of protecting and recovering from network failures.

Plans are to address each of the above limitations in future releases with the first bullet item being the one most likely to be addressed first since that is the area of most need to support my own personal operating preferences.

10.1 Operating Results

The first full use of CQ/X during actual contest operation was the 2004 Texas QSO Party which is the contest for which it was originally developed. See [3830 Report for 2004 Texas QSO Party](#) . During this contest the following setup was used and tested extensively during approximately 1100 QSOs covering 33 Texas counties:

Radio: IC-706MKIIG
 Keyer: Winkey
 Port Expander: Keyspan
 USB - RS232 Adapter: Keyspan
 GPS: Garmin Street Pilot III
 Paddle: Palm mini paddle
 Laptop: Dell D400 running XP
 Networking: None
 SO1R/SO2R: SO1R

The program has also been tested/used in the following QSO parties

1. Louisiana QSO Party. See [3830 Report for 2005 Louisiana QSO Party](#).

2. Mississippi QSO Party. See [3830 Report for 2005 Mississippi QSO Party](#).
3. Oklahoma QSO Party. See [3830 Report for 2006 Oklahoma QSO Party](#).
4. Georgia QSO Party. See [3830 Report for 2006 Georgia QSO Party](#). Radio was upgraded to IC-7000.
5. Florida QSO Party. See [3830 Report for 2007 Florida QSO Party](#).

No significant problems were noted during these operations but you should consult the topic [Cautions and Situations to Avoid](#)^[123].


10.2 General Problems

Problem GEN-1

Problem Area: Behavior of escape key under Win98SE.

Opened On: July 16, 2004

Description: On most of the forms you can press the escape key to close the form. It has been noted that under Win98SE use of the escape key causes the form to be minimized rather than closed.

Workaround: Use the mouse and the normal close/cancel button or standard form close point  to close a form.

Status: Open

Problem GEN-2

Problem Area: Inclusion of "dummy" signal report when logging the Wisconsin QSO Party.

Opened On: December 20, 2005

Description: The Wisconsin QSO party requires only two elements (Call and QTH) in the exchange which is different from most other QSO parties which require three elements. To avoid creating special-purpose logic just for the WIQP a "dummy RST" (isn't that what most signal reports are anyway!) is logged. This RST will be removed when the log is finalized.

Workaround: Do not include a signal report item in the messages (CQX, SPX). As noted above, the dummy RST will be removed when the log is finalized using menu item File | Finalize Log. However, you should not attempt to import the finalized log back into CQ/X.

Status: Open

10.3 Cautions and Situations to Avoid

Here is a list of situations that I have encountered while using the program that have caused me some lost time and frustration.

USB Connection -- make sure that your USB connection to the laptop as well as to the USB-RS232 expander is secure and can not move within the connector. If not secured the USB connector may "wiggle" within the receptacle causing loss of the connection to all devices and forcing a restart of the laptop. This wiggle could be caused for example by the operator stretching his legs and moving the lap desk. I use an extension USB cable that is securely fastened to the lap desk very close to where it will connect to the laptop. The other end of the extension cable provides a secure connection to the USB cable running to the back of the vehicle where the expander resides.

Unplugging the USB Connection - a corollary to the above caution is to **never** unplug the USB connection between the laptop and the expander **while the program has devices connected**. It is permissible, and sometimes advantageous, to unplug the USB connection once all devices have been Disconnected using the Port Assignments dialog. Sometimes it is useful to do this as a quick way of

releasing previously used serial ports in case you get into a situation wherein the program thinks the serial ports are in use.

Pit Stops -- Well, of course, these cannot be avoided! But there is a best way to handle the inevitable stops for gas and bio-breaks. Even with the use of the Wizard it takes awhile to restart the program so it is best to leave it running during the stop. This requires sufficient battery support to keep the laptop running for 10-15 minutes so make sure the supply for the laptop is fully charged.

- **Radio Shutdown/Restart** - You will probably want to shut down the radio during the stop to protect against voltage spikes on restarting the engine. If so just turn off the radio and after engine startup turn it back on. After restarting the radio you should go to Radio | Connect/Disconnect menu item and access the Connect/Disconnect dialog. Press the Disconnect and then the Connect buttons corresponding to the radio and verify that the program again recognizes the radio. In some cases you may need to jiggle the tuning knob and possibly change the mode or band of the radio to cause the program to read the radio data. When jiggling the tuning knob be sure you have the frequency of the radio unlocked!
- **GPS Shutdown/Restart** - Follow a procedure similar to the above if it is necessary to shutdown and restart the GPS. Some units eat batteries and when this is the case they will automatically shutdown when they sense loss of external power. For this reason I have found that powering the GPS from an always on source is very useful. I use a Garmin GPS-18PC located in the rear of the SUV looking out the driver side window and powered via a cigarette lighter connector connected to a RigRunner, also in the rear of the vehicle. Of course you want to eventually disconnect the power to avoid the possibility of draining your vehicle battery.
- **Keyer Shutdown/Restart** - It is generally not required to shutdown the keyers.

Closing laptop cover - It may be laptop dependent but on my machine, a Dell Latitude D400, closing the cover while the program is attempting to communicate with the GPS, keyer, and radio, causes the XP error message "This application has encountered a problem and must close". If you need to close the laptop cover and do not wish to shutdown the application completely then use menu Keyer | Connect/Disconnect (or similar item under GPS and Radio) and press the Disconnect All button on the resulting dialog. When ready to restart just open the cover and use Keyer | Connect/Disconnect and press the Connect All button to restore communication with the devices.

10.4 User Interface Problems

None reported.

10.5 Radio-Related Problems

Problem RADIO-1

Problem Area: Use of CQ/X and Turbo Tuner with IC-7000.

Opened On: September 20, 2006

Description: The Turbo Tuner and CQ/X must share the CI-V port and do not appear to play well together. It is difficult to get both to work at the same time.

Workaround: The Turbo tuner requires that the radio look like an IC-706MKIIG so here is what you need to do

1. Set the Baud rate in the IC-7000 to 300
2. Set the CI-V address in the IC-7000 to 0x58 (the standard address of the IC-706MKIIG)
3. In CQ/X select the IC-706MKIIG as the radio rather than the IC-7000.
4. Also see problem RADIO-2.

Status: Open, and likely to remain so until next upgrade of the Turbo Tuner software.

Problem RADIO-2

Problem Area: Order of Assigning Radio Port Affects Performance.

Opened On: September 20, 2006

Description: In assigning devices to comm ports it is best to assign the radio first.

Workaround: Assign the radio first followed by the keyer and GPS in any order.

Status: This appears to only be an issue when using the Turbo Tuner.

Problem RADIO-3

Problem Area: Powering the radio off and then back on causes communication with the radio to be lost

Opened On: September 20, 2006

Description: This problem will lead to frequency/mode errors in logging.

Workaround: Remember to always re-establish the radio interface following a radio shutdown.

Status: Closed. Time-out logic was added to detect loss of communication and to alert the user.

10.6 Keyer-Related Problems

Problem KEY-1

Problem Area: Behavior of WinKey interface under Win98.

Opened On: June 1, 2004

Description: The interface will not drive the WinKey keyer under Win98.

Workaround: None known

Status: Open

10.7 GPS-Related Problems

Problem GPS-1

Problem Area: Behavior of GPS interface on attempting to connect.

Opened On: September 1, 2005

Description: The operating system complains on an attempt to connect the GPS. On a few occasions when using the Connect All button to initialize the GPS the operating system complains with a message indicating that the "application" has encountered an error and must shut down. Apparently the application being referenced is the DLL that implements the GPS interface. When this happens you should note that the GPS status panel continues to indicate that the GPS is OFF.

Workaround: I have found that the GPS connection is usually successful on the second try so simply press the Disconnect button associated with the GPS and then press the Connect button. After doing this it is a good idea to check that the program is still alive.

Status: Closed. This problem has been fixed in version 1.7.2.

Problem GPS-2

Problem Area: GPS Auto Advisory fails to update county on crossing a county line.

Opened On: April 28, 2007

Description: When crossing a long bridge across Tampa Bay the IN County went blank and Auto Advisory failed to update the county-dependent messages.

Workaround: Use the # key to manually change counties.

Status: Closed. A dialog has been introduced in version 1.7.2 to allow the user to augment the USGS polygon data to include long bridges over water in which there are county changes. See topic [Adding Polygonal Regions](#)^[92].

Problem GPS-3

Problem Area: GPS is detected as a mouse rendering the machine unusable.

Opened On: July 9, 2007

Description: If a GPS is connected to a serial port while the machine is booting up it will be detected as a mouse and will render the machine unusable.

Workaround: This is a result of the auto-detection process performed by the operating system during boot-up. Microsoft provides a tool (COMDisable) that allows the user to disable this auto-detection process on selected com ports. See the following link for a description of this tool and for a link from which it can be downloaded [COMDisable Tool](#).

Status: Closed. Use the COMDisable tool if you encounter this problem..

11 Revision History

11.1 Revision 1.0

Revision 1.0 Initial Release 21-August-04

11.2 Revision 1.1

Revision 1.1 dated 3-August-05 includes the following changes

1. Removed reference to old e-mail address
2. Modified the [GPS Status Panel](#)^[78] topic to include new items including Heading, Miles to Waypoint, a description of use of closing speed in Mins to Next County, GPS Advisory Modes, and GPS Pass Through.
3. Revised the topic [Assigning Function Keys](#)^[47]
4. Added the topic [Defining Waypoints](#)^[82]
5. Added the topic [Adding Strip Maps to the Route](#)^[70]
6. Added the topic [Viewing Strip Maps](#)^[71]
7. Added the topic [Associating Maps With Counties Dialog](#)^[70]
8. Added the topic [Setting GPS Reporting Parameters](#)^[83]
9. Added the topic [QSO Revision Dialog](#)^[106]
10. Added the topic [Log Display Grid](#)^[103]
11. Completed the topic [Available Function Key Commands](#)^[42]
12. Completed the topic [Route Planning Dialog](#)^[63]
13. Completed the topic [Editing a QSO](#)^[55]
14. Added the topic [Using Where Am I](#)^[86]
15. Added the topic [More on WinKey](#)^[35]
16. Added the topic [CQ/X QSL Format](#)^[95]
17. Added the topic [More for Radio Devices](#)^[32]
18. Added the topic [Posting Trip Plans](#)^[74]
19. Added the topic [Preparing CQ/X GPS QSL Logs](#)^[96]
20. Added the topic [Reporting Your Position](#)^[94]
21. Added the topic [Preparing Statistical Results](#)^[114]
22. Added the topic [Setting up a GPS Pass Through](#)^[97]
23. Added the topic [County Locator](#)^[88]
24. Added the topic [GPS Advisory Modes](#)^[88]
25. Added the topic [County Boundary Polygons](#)^[91]
26. Added the topic [GPS Passthrough Via a Virtual Null Modem](#)^[98]
27. Added the topic [Using a Networked GPS](#)^[99]

28. Added the topic [Finalizing the Logs](#)^[57]
29. Added the topic [Preparing a Summary Sheet](#)^[56]
30. Added the topic [Preparing County Logs](#)^[113]
31. Added the topic [How To Contribute](#)^[10]
32. Added the topic [Quick Reference Case: No GPS](#)^[7]
33. Added the topic [Quick Reference Case: For GPS Use](#)^[8]
34. Continued adding some keywords.
35. Corrected some typos and made minor wording changes.

11.3 Revision 1.2

Revision 1.2 dated 13-September-05 includes the following changes most of which are related to internal programming changes to support rules of additional QSO parties:

1. Added support for Pennsylvania QSO Party
2. Added support for Washington State Salmon Run
3. Minor revisions to several topics including updating screen shots of dialogs that had been modified

11.4 Revision 1.3

Revision 1.3 dated 05-November-05 includes the following changes many of which are related to internal programming changes to support rules of additional QSO parties:

1. Added support for the Illinois QSO Party
2. Added support for the Louisiana QSO Party
3. Added support for the Mississippi QSO Party
4. Added support for the Georgia QSO Party
5. Added support for the Oklahoma QSO Party
6. Added support for the Florida QSO Party
7. Added support for the Wisconsin QSO Party
8. Fixed problem wherein sequence numbers were logged incorrectly when Silently Logging QSO
9. Fixed a message formatting problem wherein the embedded serial number symbol (^) was incorrectly formatted if it was not space-separated from the remainder of the message
10. Added ability of program to gracefully degrade when the GPS advisory mode is AUTO and there are missing county polygons.
11. Added User-Supplied Help capability that allows user to provide their own help information - see [User-Supplied Help](#)^[116].
12. Added access to an Exploring CQ/X document to the Help | Getting Started menu.
13. Added menu item QPTools | Sample Crossing/Waypoint Files for easy reference on the format of these files.
14. Converted the Waypoint file from comma-separated format to space-separated format to promote consistency with the format of the Crossings file.
15. Disabled the Save Raw GPS data capability and moved it to a separate GPS Record/Playback application.
16. Added the capability to write out the sequence of county polygons for a route developed in the [Route Planning Dialog](#)^[63] to enable easy import into a mapping program for use in trip planning and modified the topic accordingly.
17. Fixed problem with the popup for resolving multiple county crossings when there were no multiple county crossings.

11.5 Revision 1.4

Revision 1.4 dated 22-May-06 includes the following changes:

1. Added support for the Minnesota QSO Party
2. Fixed a GPS startup/initialization problem
3. Re-installed the Connect All button on the ports form
4. Added option to automatically announce new county
5. Added the topic [Using GPS Recorder](#)^[99]
6. Replaced the polygon inside/outside ray-crossing logic with winding number logic
7. Revised the [Directory Structure](#)^[12] topic to reflect the new directory structure.
8. Added [Setting Radio Parameters](#)^[28] and [Setting Keyer Parameters](#)^[30] topics.
9. Added information regarding changing keying speed and frequency in topics [QSO Entry Box](#)^[102] and [Special Keystroke Combinations](#)^[111]
10. Added Display menu item SSB-Show Location Cues (see [Location Cues for SSB Operation](#)^[119]) to show full county name and phonetics when operating SSB.
11. Added the topic [Using GPS to Set CPU Time](#)^[101].
12. Added support for the Michigan QSO Party
13. Added support for the Seventh Call Area QSO Party (7QP)
14. Added support for the New England QSO Party
15. Added the [Score Display Grid](#)^[104] topic.
16. Added the option to recalculate the score after each log revision or on demand and revised the topic [Revising a Log Entry](#)^[55] to reflect this option.
17. Revised the [Changing Counties](#)^[69] topic to reflect the ability to change the current county from the QSO Entry box.
18. Revised the topic [Making a QSO Entry](#)^[51] to reflect the option to use the Spot windows for initiating a QSO.
19. Revised the topic [Assigning Function Keys](#)^[47] to reflect the capability of assigning keys to emulate the keys used by other programs (NA and CT).
20. Added the capability of using the right radio QSO entry area for presenting information about previous QSOs with either the currently entered call or multiplier and revised the topic [Customizing the Display](#)^[109] to reflect this capability
21. Added a Startup Wizard to walk the user through the main startup steps and added the topic [Using the Startup Wizard](#)^[50] to summarize this capability.
22. Added a session clock and associated topic [Setting up the Session Clock](#)^[117].
23. Added basic support for the Icom IC-7000.
24. Added the [Cautions and Situations to Avoid](#)^[123] topic.
25. Fixed a problem related to daylight savings time in the countdown feature.
26. Added a Time In County element to the [GPS Status Panel](#)^[78] and ability to capture the Time In County for each county activated.
27. Added support for the Alabama QSO Party
28. Replaced the search feature in the QSO Entry area with a panel that provides a single line of GPS information in the form [CurrentCty TimeInCurrentCty][MilesToNextCty MinsToNextCty NextCty] and revised the [QSO Entry Box](#)^[102] topic accordingly.
29. Added a feature to enable the user to enlarge the logging window by either moving the [Score Display Grid](#)^[104] to the left hand tab panel and/or moving the Notes panel to the right hand tab panel. Also added the ability to change the font size and other properties in the [Log Display Grid](#)^[103]. See [Customizing the Display](#)^[109] for details.
30. Added ability to change the mode from the [QSO Entry Box](#)^[102] and modified the associated topic.
31. Fixed an Enter-key sequencing problem that occurred on the first QSO following use of the Shift+Spacebar for calling CQ.
32. Added an acknowledgement section to the user manual to acknowledge suggestions from users.

11.6 Revision 1.5

Revision 1.5 dated 23-July-06 includes the following changes:

1. Modified the county polygon analysis method so that all polygons being analyzed have the same reference point for the conversion from latitude/longitude coordinates to rectangular X/Y coordinates. The original approach used a different reference point for each county resulting in small gaps along the boundary between two adjacent counties. This change required adding the latitude/longitude based polygons to the data base.
2. Improved the accuracy of the polygon sequence available from the [Route Planning Dialog](#)^[63] by using the original USGS latitude/longitude polygons rather than re-creating them from X/Y based polygons.
3. Added a dialog for easy entry of frequency and mode when initiating manual radio tracking.
4. Added support for the California QSO Party.
5. Fixed a sequence number problem that occurred on restart when using a single sequence number rather than county-specific sequence number for each county.
6. Fixed a sequence number problem wherein duplicate contacts resulted in reuse of the sequence number.

11.7 Revision 1.6

Revision 1.6.3 dated 21-September-06 includes the following changes:

1. Added support for multi-county QSO origination.
2. Added support for networked operation
3. Added spell checking to the [Building Routes from Crossings](#)^[68] dialog.
4. Improved coordination between the Plan Route and Build Route from Crossings dialogs.
5. Corrected a problem with the club list population code.
6. Corrected a problem in the Auto Backup process.
7. Documented the problem with Turbo Tuner and CQ/X sharing CI-V port in IC-7000 and workaround.

11.8 Revision 1.7

Revision 1.7.2 dated 09-May-07 includes the following changes:

1. Added support for the Kenwood TS-480 including support for multiple VFOs and RIT/XIT
2. Added support for the [ARRL Sweepstakes](#)^[59] contest.
3. Added support for the [North American QSO Party](#)^[60].
4. Added support for the [RAC Winter Contest](#)^[61].
5. Added support for the [North American Sprint](#)^[60].
6. Revised the process for [Assigning Function Keys](#)^[47].
7. Fixed a problem with text alignment in the [Log Display Grid](#)^[103] that occurred following font re-sizing.
8. Fixed a problem with the height of the [Log Display Grid](#)^[103] that occurred following font re-sizing causing the most recent QSOs to be hidden..
9. Fixed a problem wherein the configuration wizard was calling an obsolete version of the function key assignment dialog.
10. Revised the Exploring CQ/X document including more detail on using the GPS simulator.
11. Revised the Exploring CQ/X document to include a section on [Assigning Function Keys](#)^[47].
12. Removed leading zero from the Next County report described in [Special Keystroke Combinations](#)^[111] under keystrokes associated with the GPS.
13. Added a feature wherein Shift + Enter sends the right most substring of the focused [QSO Entry Box](#)^[102] followed by a question mark.

14. Added [Setting Keyer Parameters](#)^[30] and [Setting Radio Parameters](#)^[28] to the wizard.
15. Added a message and user decision point that is activated if the user tries to manually change counties while the GPS is in AUTO advisory mode. Decision to continue with manual entry disables the AUTO advisory mode.
16. Added the capability to test a radio interface from the Test button of the Port Assignments dialog.
17. Fixed the previous log import process used to load calls and exchange information from files as described in topic [Loading Calls from Previous Logs](#)^[51].
18. Added the section [Single Mobile Setup at NO5W](#)^[20].
19. Support for networked operation has been removed from this release pending completion of improvements in the error-handling/recovery capabilities. If your application requires networking please contact the author to determine status and availability of this capability.
20. Fixed a problem wherein the embedded message symbols in the message template would get replaced with the actual data. In the case of embedded county symbols this would cause the automatic updating of the county information to malfunction.
21. Fixed a problem with the GPS interface that would cause it to throw an error message on startup.
22. Added support for the Icom IC-756 Pro III and for com port COM3.
23. Added a Trips facility to the GPS Simulator to make it easier to access the necessary playback files and enabling the user to define their own trips.
24. Added a set of default message and key assignments specific to each supported contest and a mechanism for loading them to provide a starting point for defining your own custom messages and key assignments.
25. Added ability to monitor frequency status for CW contests having a QSY rule. See [North American Sprint](#)^[60] topic.
26. Fixed a problem in the Build Route From Crossings processing wherein a blank line or missing data caused an error.
27. Added a feature wherein use of Alt + Enter allows the user to que up a second caller and a message (CQN) by which to initiate an exchange with the second caller immediately after logging the QSO with the first caller. See [Special Keystroke Combinations](#)^[111] and [Handling a Second Caller](#)^[53].
28. Added a section to the score grid, when it is in [Vertical Score Format](#)^[104], to show results for the current county when a GPS is in use including QSOs in the county, hourly rate in the county, remaining time required to reach QSO goal, etc.
29. Added a feature wherein use of Ctrl+Enter allows the user to end a QSO with a message (QRZ) other than the normal CQT.
30. Added a feature [Auto-scheduling QSO Ending Messages](#)^[54] for alternating use of CQT/QRZ messages based on the current 10 minute QSO rate.
31. Added a [Radio Interface Health Check](#)^[29] to detect loss of communication with the logging radio.
32. Added a feature [Adding Polygonal Regions](#)^[92] for augmenting the USGS boundary files when it is necessary to model a bridge over a long expanse of water.

Revision 1.7.3 dated 09-August-07 includes the following changes:

1. Added an option for the county selection combo box on the dialog resulting from entry of the # character (see [Special Keystroke Combinations](#)^[111]) to either display all of the counties in the state or only those that are in the vicinity of the current GPS latitude and longitude.
2. Fixed problems with the Remote (server-based) GPS including Time to Next County, ability to log GPS information, etc.
3. Added capability to automatically change the GPS display update rate when distance to a county line crossing becomes less than a user-defined Alert Range.
4. Added a progress bar on startup/restart.
5. Added a calculation and display of four/six-character grid square indicator to support VHF/UHF contests. See [GPS Status Panel](#)^[78].
6. Added support for the Colorado QSO Party.
7. Improved support for VHF bands where allowed in some QSO parties.
8. Added support for the [IARU-HF Contest](#)^[61].
9. Fixed a problem wherein the multiplier array was not updating when changing modes from CW to PHone.

10. Added support for the Northern California Contest Club Sprint. See topic [NCCC Sprint](#)^[61].
11. Added the capability to export the logs to an ADIF formatted file. See topic [Exporting Logs to an ADIF File](#)^[58].
12. Fixed a sequence number parsing problem in the ARRL Sweepstakes module.
13. Added radio tuning to the bandmap to allow spots to be selected by tuning across the band.
14. Fixed scoring problems in the NAQP and NA Sprint modules related to the handling of multipliers.

Revision 1.7.4 dated 12-August-07 includes the following changes:

1. Added support for the Arkansas QSO Party.
2. Added Help menu access to the State QSO Party calendar maintained by WA7BNM.

Revision 1.7.5 dated [to be determined] includes the following changes:

1. Added the capability to export the county crossings data to a KML file for Google Maps - see [Exporting Crossing Data As a KML File](#)^[75].
2. Fixed several problems with multi-county operation including a crash on calling up the [Multi-County Messaging and Logging Dialog](#)^[120] and failure to include sequence numbers in the outgoing message.
3. Added support for the IC-718
4. Fixed problems with the user interface including:
 - Failure to highlight misspelled county names on the [Building Routes from Crossings](#)^[68] dialog.
 - Hiding/minimizing some dialogs under certain conditions causing the program to appear to be locked up.
5. Added the capability to export a sequence of counties from the [Route Planning Dialog](#)^[63] as a KML file.
6. Fixed a problem with GPS logging of the grid square.
7. Fixed a problem wherein a # symbol would appear for about 10 seconds in the message array causing a problem if a QSO was attempted during that time.

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