Purpose: The purpose of this document is to outline the steps necessary to configure CQ/X for mobile operation in a state QSO party. The Texas QSO Party will be used as the example. In a few of the steps it will be necessary to have the hardware powered on and connected to the PC.

Getting Started: This document will be more meaningful if you have the program up and running so let's get that out of the way first. On starting the program you will have the option of resuming the previous contest or starting a new one. Select Start a New Contest and select the Texas QSO Party (TX-QSO-PARTY). On the resulting New Contest dialog specify that you will be an **Inside Mobile** operator. You can also fill in other information on the New Contest dialog at your option. Click on the ok button on the New Contest dialog and then enter an operator ID or elect the default N/A and click on the Apply button. This will take you back to the startup wizard. If you are ready to interface your hardware to CQ/X click on the Next button to get to the Port Assignments dialog.

Use the Port Assignments dialog to connect each piece of hardware via the appropriate port and with the appropriate baud rate. Once you've finished with that click Ok and you will be taken back to the startup wizard and will have the option to continue with the wizard by pressing Next. If you want to skip the remaining steps of the wizard click the Previous button and, since this document will walk you through the main steps, elect to Skip the Configuration Wizard. You will get a Validation request which you can just ignore for now by clicking on the Close button.

Overview: So now we're ready to get into the main steps of the setup. Here is an overview roadmap and brief description of the main steps. The data entered in these tasks will be preserved across a restart of the program so, for the most part, they are one time tasks needing to be repeated only if you decide a change is necessary.

1. Key assignments – used to specify the tasks to be carried out by certain assignable function keys
2. Message definition – used to define all of the messages to be used in the contest
3. Keying parameters – used to setup Auto CQ, Enter Sends CQ and other keying options
4. Radio parameters – used to setup radio band limits and some specialized parameters for specific radios
5. GPS parameters - used to setup GPS parameters including update speeds, GPS logging, and GPS pass-through to a mapping program.
6. Waypoint definition – used to define waypoints that will be tracked by CQ/X
7. County line crossings – used to define the points at which you plan to cross each county line. It allows CQ/X to provide estimates of the distance and time to next county

Key Assignments – This is performed using the menu item Keyer | Assign Function Keys to call up the Assigning Function Keys dialog. On that dialog you will see a listing of all the function keys F1-F12 along with combinations of function keys with Control, Alt, and Shift. Also included are some other keys such as INSERT, PLUS, PageUp, PageDown, etc. Next to each key will be a drop down containing a list of the assignable tasks. Selecting a task from the drop down will provide a brief description of the task. In order to get started you may want to use the button labeled Load Defaults to provide an initial set of assignments which you can then customize. Also in the later Operating section of these notes is a list of typical assignments and how they are used. After you have arrived at an assignment for all desired keys click on the **Assign Keys** button to implement that assignment. Note that, if desired, you can setup certain keys to emulate the NA logging program. You can of course always come back to the Key Assignments dialog and change the assignments – including, of course, in the middle of the contest.

Message Definitions - This is performed using the menu item Keyer | Edit Message Template to call up the Editing Message Template dialog. On that dialog you will see a listing of all the user-definable messages. There is a Load Defaults button for loading in a set of messages specific to the chosen contest. That would be a good

place to start. You will want to change to your call sign at the very least. In the messages you will see some symbols like #, !, ^, @ which are used to denote places where variable message items are to be inserted.

> # is the symbol for current county
> ! is the symbol for next county
> ^ is the symbol for sequence number (of course this is not used in Texas QSO party)
> @ is the symbol for the currently entered call sign

Each of the messages has a short name some of them obvious and others not so obvious.

- CQ is the message that will be sent by the <SEND_CQ> task to call CQ
- CQX is the message that will be sent by the <SEND_CQX> task to send the exchange.
- CQT is the message that will be sent by the <SEND_CQT> task as the thank you at end of a QSO
- SP is typically used to drop your call in for a search and pounce QSO
- SPX is the message for sending an S&P exchange
- QS0 is used as a short form of the CQT message and is tied to the [key
- QS1 is used as another short form of the CQT message and is tied to the] key
- QS2 is used as another short form of the CQT message and is tied to the \ key

Note that in order to activate the [,], \ keys used with QS0-QS2 you need to enable the NA emulator using the Key Assignments dialog.

Some not so obvious messages are the Q1-Q5 and A1-A5 messages which are used to request a fill (Q1-Q5) or to answer a request for a fill (A1-A5). These are tied to the individual components of the exchange which, in the case of the Texas QSO Party is CALL, RST, QTH. So, in that case

Q1(A1) will send (answer) request for call
Q2(A2) will send (answer) request for RST – not often used
Q3(A3) will send (answer) request for QTH

When operating CW the requests for a fill are automatically sent based on incomplete exchange information when an attempt is made to log a contact.

Note that once the messages have been edited you should click on the Update Template button to put the messages into effect. You can then view (but not edit) the messages on the Messages tab on the right hand side of the main display. These messages will stay in effect until you modify them using the Keyer | Edit Message Template menu item or clicking on the Edit Messages button on the Messages tab.

When you close the Editing Message Template dialog and there are current county (#) or next county (!) symbols in the messages you will not be able to make a QSO until those symbols have been resolved into actual county abbreviations. This can be done either manually by typing a # sign into the QSO Entry window and selecting the county or by letting the program automatically detect the county. If you are using a GPS the latter would be the preferred method. In order for CQ/X to resolve the next county symbol (!) you must provide it information about the sequence of counties in your route. That will be covered in a later section on route planning.

Keying Parameters - The radio may be keyed by either using an external WinKey or the internal keyer contained in the radio. The former is a general method applicable to all radios and the latter, of course, only

applies to radios that have an internal keyer (presently that means the internal method only applies to the K3). To set the keying parameters you will need to have the relevant hardware device (WinKey or K3) interfaced to CQ/X. This is done through the Port Assignment dialog that can be reached from the menu items Connect/ Disconnect under the Radio or Keyer menus. Once either a radio or a keyer is interfaced use the Set Parameters or Set Radio Internal Keyer Parameters menu items to set up any desired Auto CQ, delay between Auto CQs, and whether to resume Auto CQ following a QSO or a county change. Another keying parameter is whether pressing of the Enter key sends CQ (when the QSO Entry window is blank). That is set by clicking on the Send CQ With Enter Key menu item under the Keyer menu. Keying speed is another parameter and it can be set in a number of ways including the following, once a keying device has been connected to CQ/X.

- Type K=ss (or just =ss) where ss is the desired speed into the QSO entry window followed by Enter
- Select the desired speed from the drop down box near the radio frequency readout on the main display
- Use PageUp/PageDown to increment/decrement the speed assuming that the PageUp/Down keys have been assigned this task

Radio Parameters – The general parameters applying to all radios are the operating min and max frequencies for each band which, once a radio is interfaced to CQ/X, may be set from the Radios | Set Parameters menu item. These are primarily used in search and pounce mode. For example if you are doing S&P from low to high frequencies in the band and want to start back at the low (min) operating frequency you can type F=L into the QSO entry window and the radio will be moved to the operating min frequency. Similarly F=H will take the radio to the max operating frequency.

For the K3 additional configuration parameters may be set by clicking on the More button in the radio area. A small popup menu will appear from which you can access a radio display. On the K3 radio display is a Config button in the lower right hand corner near the RIT knob. Clicking on that button will bring up a dialog for setting additional parameters specific to the K3. These include:

- Hold time for key presses via the mouse when using remote control of the radio
- Paddle speed (internal keyer speed) tracks the speed of an external WinKey
- CW Tuning Aid Always on when in CW
- Maintain Mode across a band change
- Tuning power reduction level and timeout
- Setting of Quick memories
- Preferred power settings based on antenna and mode

GPS Parameters – In order to set these parameters you will need a GPS interfaced to CQ/X. You can do this using the GPS | Connect/Disconnect menu item which will call up the same Port Assignments dialog that was used in interfacing the radio and keyer. Once the GPS is connected use the menu item GPS | Set Parameters to call up the Setting GPS Parameters dialog. The main GPS-related parameters you may want to set are:

- **GPS Passthrough** – this will allow passing GPS data from CQ/X to another program, such as a mapping program like Microsoft's Streets and Trips or Delorme Street Atlas. This communication will be performed over a virtual serial port(VSP) which is software that allows two programs that support serial communication to communicate over a pair of virtual ports configured as a null modem. VSP is not part of CQ/X and must be separately installed and configured. VSP Manager is an excellent version of this software that may be freely downloaded. Use Google to access and download it if you do not already have VSP software installed.

- **Time Between GPS Updates** – this is the time in seconds between processing of GPS data and updating of GPS data on the displays. I typically use the default of 10 seconds but the program may be set for faster updates if the PC can support it. Keep in mind that this determines to some extent how responsive the program will be when crossing a county line. For example at 70 mph you can cover about a quarter mile in 10 seconds. Using the C/L Alert Range parameter you can customize the program to use a faster update rate when it gets within the specified "alert range" of the next county line while using the normal update rate when it is outside the alert range..

- **Record GPS Information** – use this and choose what information to record if you want to record lat/lon associated information. By default a GPS log is kept in a QSL-Ready format which allows creation of location-specific map based QSLs and for Logs on a Map. If you wish to capture any GPS information other than the information in this default GPS log check those items you wish to capture and then provide a file for capturing the information using the browse button to define the file.

- **Define Waypoints** - If you wish to setup Waypoints on your route you can do this using the menu item GPS | Define Waypoints. Waypoints are simply places along your route whose distances from your current location are important and need to be tracked by CQ/X. Typically these might be the distance to important turns or highway changes, or a Saturday night stopping point for dinner or lodging. Of course these can not be completely defined until you have a route plan. You can use the dialog to define these points but it is much easier to use trip planning software such as Streets & Trips. Once defined in S&T you can elect to perform an export to a GPX file and then use the Define Waypoints dialog to import the GPX file. You can also define your waypoints in a text file. If you do it this way your waypoint file should have the following format with each waypoint listed on a separate row of the file.

    WaypointName WaypointLatitude WaypointLongitude

  where   latitudes are listed as decimal degrees and are positive in the northern hemisphere and western longitudes are negative and also decimal degrees and the entries are space-delimited and the waypoint name should not contain any spaces.

County Line Crossings File – If you want CQ/X to be able to provide real-time estimates of the distance and time to the next county you will need to tell it where you are planning to cross each county line. This is done in a text file containing a separate line for each crossing and, of course, requires that you have already decided on what route you will take. The format of each line is

    FromCty-ToCty HighwayID CrossingLatitude CrossingLongitude

where   FromCty is the full name of the county you will be crossing from
ToCty is the full name of the county you will be crossing into
CrossingLatitude is the decimal latitude of the crossing point
CrossingLongitude is the decimal longitude of the crossing point

Since the entries are space delimited there should be no spaces in the county names. So for example the county Red River would be entered as RedRiver.

There are several methods for developing the crossings file but the one requiring the least amount of work is the one described in Developing a Crossing File Using Google Maps. In addition to being the method requiring the least amount of work this method results in data that is used by CQ/X to provide real-time estimates of distances to county line crossings and waypoints based on the actual drive path.

That completes the main steps in setting up the software for a mobile operation. Obviously you should save any created files in locations and with names that make it easy to remember where they are. For the most part the information created in the above steps is carried over automatically across a shutdown-restart of CQ/X. But sometimes you need to reload the information or you may want to have multiple versions of some of the files. In that case you need to know where to find them. A good approach is to define a single directory where all of your files for a particular trip will be located.

Optional Data – Here is some optional data that you might want to supply

Logs from Previous QSO Parties – If you have logs or just simple lists from previous QSO parties you can use them as a database for partial call lookup and for auto-fill. The parser will read the specified file and pick up the last call sign on each line and any information that follows it. So any Cabrillo-formated log can be used but ADIF files may pose a problem depending on how they are formated. You can load the data from these files into CQ/X using the Options menu items Auto-Fill Previous Exchange Info and Show Similar Calls During Entry.

User-Defined Help – If you have information that you would like to have available from the Help menu during the contest you can add it to the Help menu using the Options | Configure User-Supplied Help menu item. These could be pdf files of certain manuals, bmp files of certain screen shots, html files, and simple text files.

Operating as a Mobile - Here's a summary view of how to operate as a mobile. It assumes a certain set of typical key assignments and key combinations for using CQ/X in a mobile QSO party environment have been defined.

Key Assignments – Single Function Keys:

Key	Description
F1	Send the CQ message
F2	Send the exchange message CQX – same for Run and S/P modes
F3	If all items are present in the check grid this key will send the thank you message CQT and log the contact. If there are missing items F3 will send the associated request for fill (Q1/Q2/Q3). Following the CQT message the CQ message or the QRZ message will be sent depending on whether QRZ scheduling is setup and, if so, on the current QSO rate.
F4	Send the worked before message CQD – generally just work the dupes so this is rarely used.
F5	Send your call for S&P or for just responding to request for your call.
F6	Access the Operator Notes dialog for recording a note.
F7	Silently log the QSO
F8	Buffer call sign of a second caller while working the first caller (see note at end on how to use)
F9	Sends the Next County message. e.g. NEXT HARR IN ABT 3 MINS
F10	Homes the cursor and focus to the QSO Entry Window – CQ/X main display must have the focus
F11	Access the Waypoint Tracking Window
F12	Access the log display. Typically this is used to make a revision using the following steps. 1. Press F12 2. If necessary use up arrows to cursor to the QSO you wish to revise and press Enter

	3. In the resulting dialog type in the revision and press Enter 4. The previous step revises QSO, closes the revision dialog, and initiates the CQ message

Key Assignments - Key Combinations

Keys	Description
Shift + Spacebar[1]	Sends CQ. Little finger holds left hand shift key and thumb presses space bar.
Shift + Enter[1]	Sends last word in QSO Entry panel followed by a question mark
Shift + Arrow[1]	Shift + Left Arrow moves RIT down. Shift + Right Arrow moves RIT up.[1]
Enter [1]	Same as F3 if all items are present in the check grid.
Ctrl + N	Sends the Next County message. See F9 above.
Ctrl + T	Opens the Multiple Waypoint Tracking Window – also see F11
Ctrl + W	Clears the QSO Entry panel
Ctrl + F1	Access More button for more radio or keyer controls
Ctrl + F2	Access Score in left hand page control – vertical score arrangement
Ctrl + F3	Access GPS page
Ctrl + F4	Access Similar Calls page – partial call check
Ctrl + F5	Send Query Q1 – CALL? Or whatever message is set up as Q1
Ctrl + F6	Send Query Q2 – RST? Or whatever message is set up as Q2
Ctrl + F7	Send Query Q3 – QTH? Or whatever message is set up as Q3
Alt + F1	Decrement Band
Alt + F2	Increment Band
Shift F1	Move Up the Band by 5 KHz
Shift F2	Move Down the Band by 5 KHz
Shift F3	Move Up the Band by 1 KHz
Shift F4	Move Down the Band by 1 KHz
Shift + F5	Send answer A1 – your station call or whatever is set up as A1
Shift + F6	Send answer A2 – your RST or whatever is set up as A2
Shift + F7	Send answer A3 – your QTH or whatever is set up as A3
Shift + F12	Remove the last QSO in the log. You will be asked if you really want to do this.
Page Up	Increment keying speed – use Keyer | Set Parameters to set increment size
Page Down	Decrement keying speed – use Keyer | Set Parameters to set increment size
ESC	Closes any focused dialog if there is one. Otherwise it stops the keyer.

1. Of course this is only applicable to those radios that have RIT controllability.

From the QSO Entry Panel

Key Entry	Description
=SS (e.g. =35)	Sets the keying speed to SS (e.g. 35)
F=fffff (e.g. F=14040)	Sets the frequency to fffff
F=L	Changes frequency to low band edge defined in radio parameters
F=H	Changes frequency to high band edge defined in radio parameters
#	Brings up a dialog from which you can manually set the current county
Enter	If no fills are needed. clear entry window, log QSO, and send CQT message
[	Clears entry window, logs QSO, and sends the QS0 message.
]	Clears entry window, logs QSO, and sends the QS1 message.
\	Clears entry window, logs QSO, and sends the QS2 message.

The keys [,],\ shown for use with messages QS0-QS2 are dedicated to those messages and are intended for alternate CQT confirmation/QSL messages at the end of the QSO. They each result in sending their associated message and logging the QSO. In order to enable them it is necessary to enable the NA Emulator.

Making a Run QSO
1. Send CQ using either F1 or Shift + Enter, or the Enter key if you have selected "Send CQ with Enter key" under the Keyer menu.
2. Type the responder's call in the QSO Entry window
3. Send CQX (exchange message in CQ mode) using either F2 or the Enter key
4. Type the responder's exchange info in the QSO Entry window
5. Send CQT using either F3 or the Enter key
6. To change something on the QSO Entry window just type it as the right most item of that type and view the Check Grid to verify that the entry was interpreted properly
7. If there is uncertainty about a call you can view similar calls in the Similar Calls window

Buffering a Second Caller During a Run
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 **Buffering Key** (Alt+Enter key combination, or an assigned function key), allows CALL2 to be buffered for processing and the contact with CALL2 to be automatically initiated at the end of the CALL1 QSO using the CQN message. The only requirement is that the QSO Entry line should have one of the following possible formats when the Buffering Key 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, the Buffering Key must be pressed prior to logging the contact with CALL1 (otherwise CALL2 will be regarded as a correction to CALL1).

Once the Buffering Key is pressed the entry line will become

CALL1
CALL1 EXCHANGE1
CALL1 EXCHANGE1
CALL1 SUBEXCHANGE1 SUBEXCHANGE2

respectively 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 assuming F8 has been assigned the role of Buffering Key:

1. Press Shift+Spacebar to call CQ
2. When W5ZZ and W5XX respond type W5ZZ in the QSO Entry window
3. Press Enter to respond to W5ZZ
4. While the exchange is going out to W5ZZ type W5XX to the right of W5ZZ
5. Type the exchange information from W5ZZ to the right of W5XX
6. Press F8 to save W5XX in the next call buffer
7. Press Enter to log the contact with W5ZZ. 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.

Editing Messages
If you need to edit your messages use the following steps
     1. Use menu item Keyer | Edit Message Template to change your messages
     2. Once satisfied with the messages click on Update Template
     3. You will see the new messages appear in the message array on the right hand side
     4. If you have # or ! symbols in your messages you will get a message box asking to resolve them and you will not be able to make a QSO until these symbols are resolved. If you are using a GPS click on the button labeled Auto GPS Auto.
        Important Note: At this point you should wait for the GPS to resolve the # and ! into current and next counties. Make sure you do not have any non-blank characters in the QSO Entry window – if you do the program thinks you are in the middle of a QSO and will not resolve the # and ! until the QSO Entry window contains only blanks.

Interpreting GPS Data in the QSO Entry Area
Often you need to use the left hand paging control for display of information other than that from the GPS. For

example you might want to view the score. For this reason essential GPS information is presented in the QSO Entry Area as shown below.
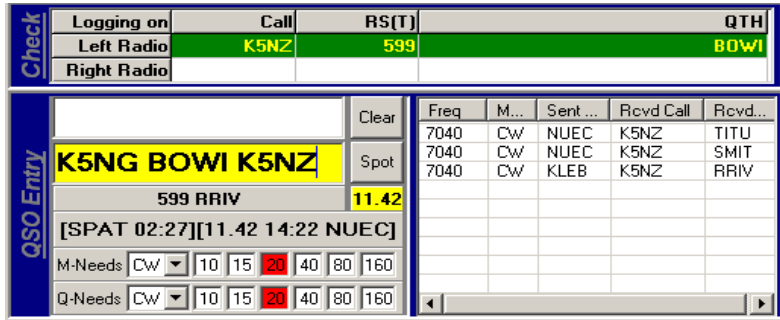

Here the operator is currently in SPAT county and has been there for 2 minutes and 27 secs. The next county is NUEC which is estimated to be 11.42 miles from the operator's current location and at current speed will be reached in about 14 minutes and 22 seconds. Also in the above the operator started out thinking he was working K5NG but then determined it was really K5NZ.

Using the Multiple Waypoint Tracker
If you're helping the driver with the route it is good to know what the next waypoint/turnpoint is and how far it is to that point. It is difficult to remember all of the waypoints and where they fit in the route. The multiple waypoint tracker is provided to assist in this. A screen shot is shown below. Here's how to use it:

- Press the assigned function key (e.g. F11) to call up the Multiple Waypoint Tracker
- Select whether to track the Closest N waypoints or All Waypoints within X miles
- Once those selections are made the resulting list of waypoints meeting your criteria will be updated
- The list will show the name of the waypoint, distance to the waypoint, and color coding will indicate whether the distance is increasing (red) or decreasing (green). If you used the method described in Developing a Crossing File Using Google Maps then your distances to waypoints on the drive path should always be decreasing as long as you are driving forward along the drive path.
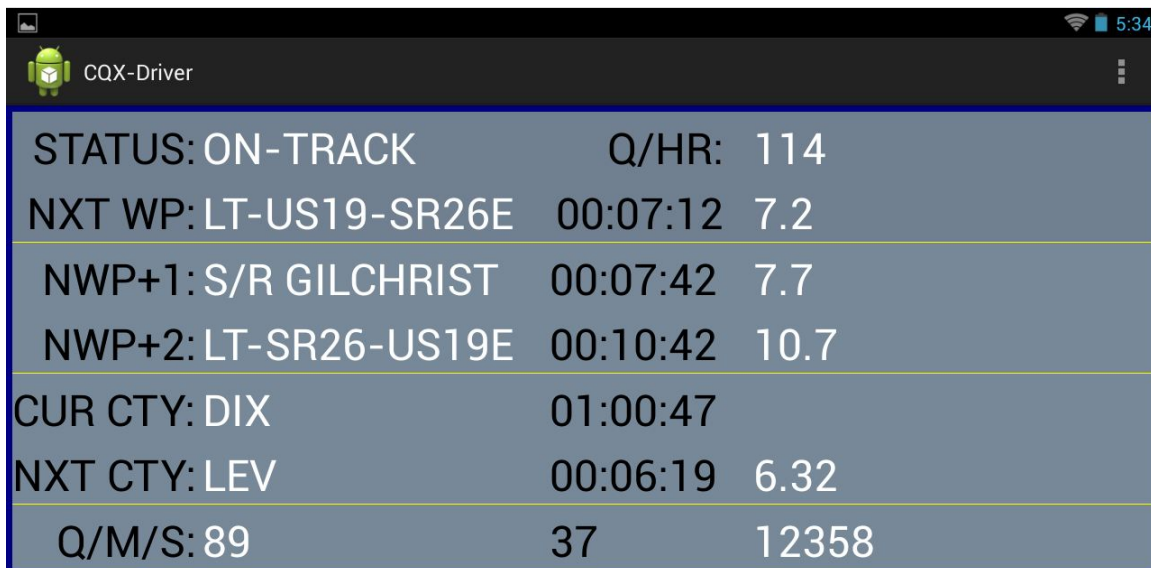- The list will be arranged in order of increasing distance.
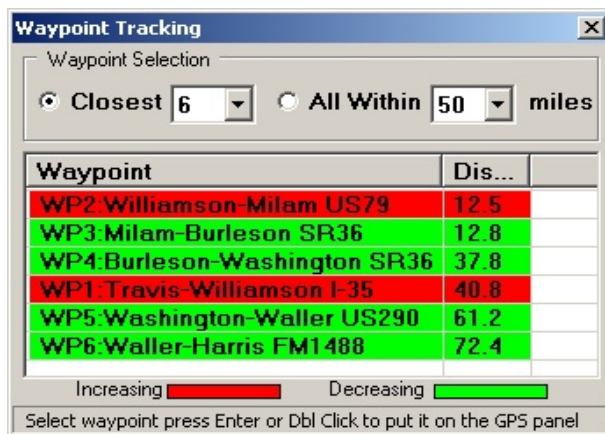
Using the CQ/X-Driver Interface

If you have an Android phone or tablet and a wireless router that you can run from 12 vdc you can provide the driver with an interface into some of the data in CQ/X. The screen shot below shows the information that is currently supported. The first section containing Status and NxtWP is the section of most usefulness to the driver. The display indicates that the driver is on-track following the planned route, that the next waypoint is 7.2 miles down the track and is a left turn from US19 to State Route 26 East and at current speed it should be reached in about 7 minutes (7:12). Following that a stop and run (S/R) is scheduled for Gilchrist county with the planned stopping point 7.7 miles down the track. It is also shown that the current county is DIXie and that the operator has been in DIXie for over an hour – so probably no need to look for a stopping point in DIXie.

What You Need - Here is what is needed in order to implement this interface.

- A wireless router that can be powered from 12v dc
- A wireless- capable laptop
- An Android device that supports wi-fi
- The CQX-Driver.apk file supplied with Patch 180-06
- CQ/X patched at least through 180-06
- In order to have available the real-time data required by the interface you will need to have planned your route using the methods described under menu item **Help | Use Google Map to Create Crossing File** and you should have developed a set of way points that identify the points along your route that you want to monitor. Naming of way points should be done carefully using the minimal length name that still conveys the meaning due to the small screen of the Android device.

				📶 🔋 5:34
🤖 CQX-Driver				⋮
STATUS:	ON-TRACK		Q/HR:	114
NXT WP:	LT-US19-SR26E	00:07:12	7.2	
NWP+1:	S/R GILCHRIST	00:07:42	7.7	
NWP+2:	LT-SR26-US19E	00:10:42	10.7	
CUR CTY:	DIX	01:00:47		
NXT CTY:	LEV	00:06:19	6.32	
Q/M/S:	89	37	12358	

Setup Steps – Here is what you need to do to get the interface going after installing the apk file on the Android device and installing Patch 180-06 on the laptop and powering up the router, laptop, and Android device.

1. Connect the laptop to the network implemented by the router

2. Connect the Android device to the network implemented by the router
3. Use ipconfig from the laptop command prompt making note of the IP Address.
4. Start up CQ/X and perform the normal startup activities. Once data is being received from the GPS use the menu item GPS | Enable Driver Network to start the CQ/X end of the interface.
5. A dialog will appear on CQ/X asking which port number to use. The default is 777 and that has worked well during development and testing. If that port is unavailable you might try something in the range above 49152 (e.g. 49200). Make a note of the port number.
6. Start up CQX-Driver on the Android device. Use the Connect menu item to begin the connection using the IP Address and Port number when prompted.

Using the K3 Control Interfaces

This section is only applicable if you are using a K3 and need to remotely control it.There are two K3 Remote Control interfaces, a large or Full interface, and a small or control subset interface.

Full K3 Interface - The Full interface consists of controls embedded in a screen shot of the K3 front panel and it works in much the same way as the actual panel using mouse clicks with the left mouse click serving the role of a press of a key and the right mouse serving the role of a press and hold of a key. This interface may be left open at all times. However, a major disadvantage of this interface is the amount of screen real estate that it requires. Hence the small K3 interface.

Small K3 Interface – The small K3 interface contains a subset of the most often used controls in a compact format as shown in the screen shot below. Note that there is a single slider control that is shared between all of the controls that require continuous adjustment across a range of values. These controls include:

- VFO A and VFO B frequency
- RIT
- Audio Frequency Gain (AFG), Radio Frequency Gain (RFG)
- Filter Bandwidth XFIL
- Keying Speed (SPD)

To use the slider to control any of these do the following:
1. first click on its associated button.
2. This will assign the slider to that control and will show the limits on each end of the slider
3. Drag the slider with the mouse or use the left and right arrow keys to adjust the slider
4. When you are done click on the Release button to release the slider.
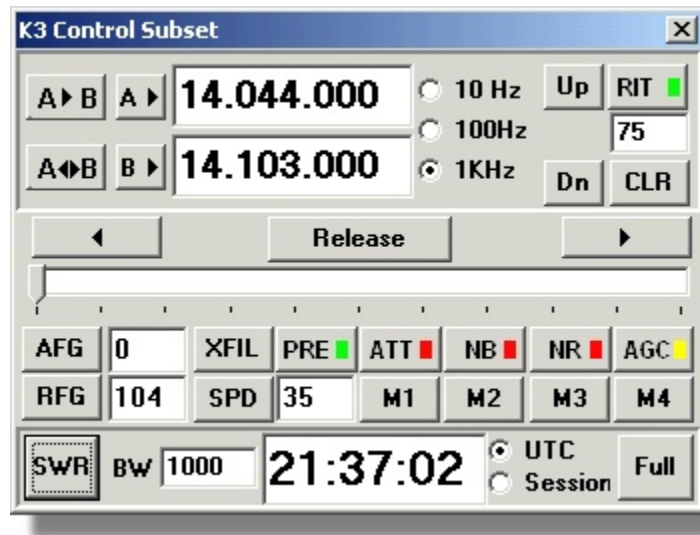
Other controls on the Small K3 Interface operate with a single click. Colors on some of the buttons will show whether the control is currently on (green) or off(red). In the case of AGC yellow indicates medium speed AGC.

SWR Button - When changing bands or whenever you want to check the SWR clicking on the SWR button will reduce power to a specified value (configured using the Full interface), put the automatic antenna tuner into bypass mode, determine and display the SWR in the clock window, and then will return power and antenna tuner to their previous states.

Clock – The clock can be selected to show either UTC or the amount of time remaining in the session. The latter requires that you define the sessions. This is usually done at the beginning but may be done at any time.

Full Button – The Full button closes the K3 Control Subset window and opens the Full K3 Control window.