

RHUG APPENDIX A 31 DECEMBER 2008

MARS-ALE SUPPORTED CAT RADIOS

This document is current as of MARS-ALE SE v2.00 build **B200A3** which supports Windows 2000 Professional, Windows XP, Windows XP Professional and Windows Vista.

The list of supported computer controlled HF SSB transceivers and receivers herein is current as of this build. Additional make/model radios equipments are always being added. Should your make/model radio not be listed, please contact the MARS-ALE SDT with the details and any documentation you may have for computer control programming.

As MARS-ALE can now be used by MARS members for both MARS and Amateur Radio, the practice of only supporting HF SSB transceivers capable of full general coverage RX/TX has been relaxed.

When not using the Custom Port Parameter (CPP) interface, all radios are supported at the default factory port parameters if the baud rate selected is 0 at which time the use of the highest supported baud rate will usually be used, an exception is Kenwood Amateur Grade transceivers where the Radio Type selections KENWOOD and KENWOOD_HS are both set to 4800 baud by default due to years of radios only supporting such. At present no radios support "Radio Address" via this interface. Should the user choose to use the Custom Port Parameter interface, they must be sure to configure the radio properly and enter the proper parameters as well as take into consideration that baud rate has an affect of ALE Channel Scan Rate support. It is always best to have your radio powered and attached to the proper serial port at program start.

MARS-ALE supports CAT control of internal ATU and Antenna Ports in a number of make/model radios. However such capabilities of most radios at this time just barely make for good ALE operation, as such the use of external devices is highly recommended. The LDG electronics AT200PC ATU was developed with ALE in mind and is highly recommend if an ATU is required as part of your ALE system, it supports 2 antenna ports internally and with the use of DTS-x external antenna switches up to 6 antenna can be supported.

STATUS: A color coded comment as to the status for each radio is provided as follows:

- | | |
|-----------------|--|
| PENDING | = Demand for support and or development requirements are under review (or awaiting documentation or radio loan). |
| WIP | = Work about to start or in progress, if listed in ALE.EXE for selection it may not yet be completely coded or fully tested. |
| ALPHA | = Coding completed, however test results from user feedback still pending. |
| RELEASED | = Coding completed and fully tested by one or more parties. |

NOTE: Along with the STATUS, **QS/S** shall be used to denote **Quiet Scanning/Sounding**, where the radio is placed into Split Mode operation so as NOT to energize the radios transmit Band Pass Filter (BPF) relays during receive Scanning and Sounding but rather only at transmit. **QS/S** denotes a radio that should or is known to work with **QS/S**. **QS/S** denotes a radio that may not or is known **NOT** to work with **QS/S**. No **QS/S** indication means that the radio has no need for **QS/S** as far as we know. To learn more about **Quiet Scanning/Sounding** see the **QS/S** section within main RHUG. Also, please provide feedback on make/model radios that are found not to work with **QS/S** or that you believe from doing the **SPLIT MODE** test detailed in the **QS/S** section will work if added to **QS/S**.

NOTE: Along with the STATUS, **CAT PTT** shall denote **NO CAT PTT** support by the given radio model and **CAT PTT** will denote CAT PTT is fully supported.

NOTE: Along with the STATUS, **CAT ANT SW** shall denote CAT support by the given radio model for internal Antenna Switch operation channel by channel via configuration.

NOTE: Along with the STATUS, **CPP** shall denote **Custom Port Parameters** are supported for changing the baud rate and perhaps other parameters for the given radio model and not fixed, where the default values are listed immediately after.

NOTE: Along with the STATUS, **CHAN** shall denote support for the given radio model for Radio Memory Channel based scanning which is ENABLED/DISABLED using MMI commands ENABLE CHANNEL or DISABLE CHANNEL.

CUSTOM PORT PARAMETERS (CPP):

On the MIL-STD-188-141 options menu next to the COM port entry (COM ports 1..16 are supported) for CAT control, is a button labeled “Radio 1 Comm Port”, this selects the Custom Port Parameters setup dialog.



The CPP serial port settings are only enabled when the baud rate is other than 0, which tells the tool not to use the hard coded parameters, when 0 (regardless of other entries on this dialog) the default coded parameters are used.

CPP can be entered for only one instance of use, thus when CCP settings are changed for the currently selected radio type selected, if they do not apply to another radio type that may later be selected where said other radio type supports CPP settings, if the parameters selected do not apply, they would need to be updated.

At present there is NO support for any custom Radio Address selection, only the default factory radio address as listed below for any model which requires such is supported.

A dialog box titled "Radio 1 Custom Port Parameters" with a blue header and a red close button. It contains a text area for a "Setup Note" with the placeholder text "Here we can add a note on the radio". Below this are four dropdown menus: "Baud Rate" (9600), "Stop Bits" (1), "Data Bits" (8), and "Parity" (N). There is a text field for "Radio Address" containing "00". At the bottom, there is a checkbox labeled "Disable Radio Pre-Configuration" which is unchecked, and two buttons: "Cancel" and "OK".

If a particular radio model supports CPP selection, then an appropriate Baud Rate along with Stop Bits, Data Bits and Parity can be entered, whenever the Baud Rate is 0, the coded default parameters are used. Changing the baud rate to other than 0 requires selection of all serial port parameters by the user.

The use of CPP is a must for any Kenwood radio that supports greater than 4800 baud if such higher baud rate operation is desired as the default baud rate for all Kenwood models in MARS-ALE, the starting default is 4800 baud regardless of what the factory setting may be due all the years of that baud rate being the only one supported and these selections supporting all Kenwood models.

It is recommended that the highest baud rate be used which any particular make/model radio supports for the best channel scan rate performance. Typically all baud rates support 1 ch/sec, 4800 baud or better is recommended for 2 ch/sec, 9600 baud or better is recommended for 5 ch/sec, 19200 baud or better is recommended for the To DO 10 ch/sec of MIL-STD-188-141B. Some radios due to their CPU ability to process serial port data may not meet a given Scan Rate regardless of the RS-232 baud rate being used.

The selection of "Disable Radio Pre-Configuration" can be made alone for any make/mode radio to disable most (in some cases all) pre-configuration data sent by MARS-ALE to the radio at program start. In the cases of radios which only or can support scanning via radio memory channel programming, the checking of this box will prevent the question being presented to optionally up the radio memory channels against the current MARS-ALE scan group.

Any data may be entered into the setup note section up to 38 characters to note which radio the CCP settings apply to and perhaps why they are being used in lieu of the default settings.

NOTE: A Null Modem cable is also known as a Serial Cross Over Cable or a Serial Laplink Cable. Wiring is as follows:

Radio end pin 2 connected to PC end pin 3

Radio end pin 3 connected to PC end pin 2

Radio end pin 5 connected to PC system ground (pin 5 for a 9 pin plug, or pin 7 for a 25 pin plug).

NOTE: Kenwood radios factory ID which is read at program start, thus you **MUST** have your Kenwood radio powered and attached to the proper serial port at program start to be recognized

NOTE: For radios that require polling (for radio ID and other data) and have time outs based on data being returned such as the Ten Tec Pegasus for one, MUST be attached at program start or else the radio will not be recognized and in some cases the tool will timeout constantly and prompt the user with a message to that affect. However for most make/models you can attach and power the radio after program starts

NOTE: ICOM and FlexRadio models supporting DIG-U and DIG-L for Data Ports are supported using USB-D and LSB-D from CHANNEL ADD or CHANNEL MODIFY during configuration of scan groups.

RADIO MODEL	STATUS	COMMENTS
CODAN	RELEASED QS/S CAT PTT CPP - 38400, 8N1	CODAN NGT ASR, AR, AR Voice, SR for basic control with PC sound device for all MIL-STD-188-141A ALE, 188-141B AQC-ALE and all ALE and MIL-STD-188-110x all data modes. NOTE: RS-232 parameters are 38400 8N1 and null modem cable wiring is required. The 9-way (DB-9 connector) or 15-

		<p>way (DB-15 connector) port can be used and must be configured for CICS operation.</p> <p>NOTE: RX and TX Audio can be wired from the 15-way connector.</p> <p>NOTE: Only 1 and 2 ch/sec scan rates are supported via CICS and the CODAN radio.</p> <p>NOTE: The on CODAN NGT AR and AR Voice the internal ALE modem is an option.</p> <p>NOTE: The CODAN radio must have programmed the same channels that are in the MARS-ALE GROUP/Channels as the CODAN provides limited computer control as it will NOT accept on the fly Frequency and Mode change requests. However, using MARS-ALE with the CODAN you will only scan the channels specified in the selected MARS-ALE GROUP.</p>
CODAN2	<p>PENDING</p> <p>CAT PTT</p>	<p>Codan NGT AR, AR Voice, SR using internal ALE modem for MIL-STD-188-141A ALE operation and PC sound device for 188-141B AQC-ALE and all ALE and MIL-STD-188-110x data modes. 19200 N81. The loan of an example radio for each model from someone or some organization will be required.</p> <p>NOTE: The on CODAN NGT AR and AR Voice the internal ALE modem is an option and required for this support.</p> <p>NOTE: The GROUP/Channels in MARS-ALE must be the same as entered and selected use in the radio due to the CODAN limited computer control interface as it will NOT accept on the fly Frequency and Mode change requests.</p>
DX77T	<p>RELEASED</p> <p>QS/S</p> <p>CAT PTT</p>	<p>Also use for DX-77, DX-77EQ, DX-701 and DX-707. Requires Alinco ERW-4 or compatible computer interface cable. Radio does not support CAT PTT.</p>
FT450	<p>RELEASED</p> <p>QS/S</p> <p>CAT PTT</p> <p>CPP - 38400</p>	<p>Direct RS-232 without need of external level converter. The CAT timeout should be set to 3000ms. This model supports optional use of RTS/CTS, use FT450_HS selection.</p> <p>Support for USER_L and USER_U for the DATA port is made by selecting LSB-D and USB-D respectfully from Channel ADD/MODIFY. Do not use DIG_VOX operation for ALE. NOTE: FSK and FSK_R selections also support the DATA port whereas RTTY is the same as LSB.</p>
FT450_HS	<p>RELEASED</p> <p>QS/S</p> <p>CAT PTT</p> <p>CPP – 38400</p>	<p>Same as FT450 above except support CTS/RTS operation.</p>
FT600	<p>RELEASED</p> <p>QS/S</p> <p>CAT PTT</p>	<p>a.k.a. Vertex System 600</p>
FT650	<p>RELEASED</p> <p>QS/S</p> <p>CAT PTT</p>	<p>Also FT-655. This unit is supported for its 24-56Mhz coverage within our support window of 1.5-88Mhz. An external level converter using a 1/8 inch 3 conductor stereo plug where tip is Serial Data Out from the PC and shield is ground is required from the external level converter. The ring</p>

		should only be connected if the Rx/D line will be monitor for Squelch status for scanning applications which MARS-ALE does not support. This radio does NOT use any BPF relays.
FT757GX	RELEASED CAT PTT QS/S	Radio does not support CAT PTT
FT767	ALPHA CAT PTT QS/S	Radio does not support CAT PTT
FT817	RELEASED QS/S CAT PTT CPP - 38400, 8N2	Also used for FT-817ND, FT-857x, FT-897x.
FT817DIG	RELEASED QS/S CAT PTT CPP - 38400, 8N2	As FT187 but supports DIG mode to use data port at rear of radio.
FT847	RELEASED QS/S CAT PTT CPP - 57600, 8N2	NOTE: Requires the use of Null Modem cable. See the Yaesu section regarding interfacing to the radio otherwise. NOTE: Radio must be turned on before software is started else the radio will not respond commands.
FT890	RELEASED QS/S CAT PTT	FT-890 tested by AAR2EY. This choice supports the older FT-100, FT-747, FT-80C, FT-840, FT-890, FT-900, SB-1400. NOTE: Do not use this selection for the FT-990 as it does not support QS/S operation for that model radio, see the stand alone FT-990 selection. NOTE: An FT-890 QS/S hardware modification is available, refer to the MARS-ALE support files..
FT920	RELEASED QS/S CAT PTT	CAT PTT is not listed in the manual. Coded as others in its class for CAT PTT, feedback from AAR3SJ is that it works. The FT-920 uses a straight RS-232 cable, no external level converter is required.
FT920DATA	RELEASED QS/S CAT PTT	Tested AAR5OI. See FT920 above as well. AAR5OI requested DATA port support for the FT920. Thus DATA-LSB and DATA-USB modes are needed for use with the DATA port. If you use an FT-920 and desire to use the DATA port for your interface point of control, the proper radio selection is "FT920DATA" otherwise select "FT920". The only modes available with the data port are LSB and USB, which for ALE operation is all we need. However, be sure to set the AFSK-FSK switch to AFSK . However, be sure to set the AFSK-FSK switch to AFSK and setup the radio for the +2125hz offset in the U-45 setup menu as the software will subtract 2125hz from the assigned channel frequency so that the radio is on frequency, as the DATA port setup has NO provision for setting a 0hz offset. Also, the operator will need to manually switch from DATA to Voice in multimode operation, it recommended that the B VFO be used in conjunction with radio memory channels. The software is ALWAYS using A VFO. The operator will need to switch back to VFO A unless the Up/Down Channel or

		Scan is used. The mic jack is not active in data mode. Also, the operator will need to manually switch from DATA to Voice in multimode operation and use Channel UP/Down or Scan to go back to ALE data. The RX audio out on this port is a constant-level 100 mV rms @ 600ohm audio output line (as is the AF Jack) which is not affected by the position of the front-panel AF GAIN control. This output should be taken to your sound card Line-In. However, if the gain and range of adjustment is not sufficient, Mic-in may be tried.
FT950	ALPHA QS/S CAT PTT CPP - 38400	Direct RS-232 without need of external level converter. The CAT timeout should be set to 3000ms. This model supports optional use of RTS/CTS, use FT950_HS selection. Support for USER_L and USER_U for the DATA port is made by selecting LSB-D and USB-D respectfully from Channel ADD/MODIFY. Do not use DIG_VOX operation for ALE. NOTE: FSK and FSK_R selections also support the DATA port whereas RTTY is the same as LSB.
FT950_HS	ALPHA QS/S CAT PTT CPP - 38400	Same as FT950 above except support CTS/RTS operation.
FT980	RELEASED CAT PTT QS/S	Radio does not support CAT PTT
FT990	RELEASED QS/S CAT PTT	This selection is specific to the FT-990 and QS/S operation. NOTE: FT-990 requires ROM version 1.2 or later.
FT1000MP	RELEASED QS/S CAT PTT	Use for all FT-1000 series radios. NOTE: FT-1000D requires ROM version 6.0 or later.
FT2000	ALPHA QS/S? CAT PTT CAT ANT SW CPP - 38400, 8N2	Also for FT-2000D.
FT2000HS	ALPHA QS/S? CAT PTT CAT ANT SW CPP - 38400, 8N2	This selection uses the CTS/RTS handshaking. Also for FT-2000D.
FTdx9000	ALPHA QS/S CAT PTT CAT ANT SW CPP - 38400, 8N2	Use setup menu 70 to select the SSB-TX-BPF for either 300-2700hz or to 3000hz BW. Use setup menu 69 to select the SSB mic audio port, this is a poor design if it must be done all the time, most will likely want to use a RigBlaster type interface to the standard 8 pin mic port on the rear of the radio. NOTE: FTDX-9000 CAT support currently suffers a known bug that requires a 200ms pause before data write/reads of a new value which impedes smooth operation.
GENERIC ICOM	REMOVED AS OBSOLETE	Does not support IC-735 or IC-751.

		<p>Implements only basic radio features & PTT if the radio supports CAR PTT. User must select for SPLIT VFO operation to bypass PA filter relays if the radio benefits from such operation.</p> <p>User must enter the proper RS-232 port parameters and the ICOM radio Hex address.</p> <p>It is always best to select an ICOM radio by its model listed under Radii Type where each model has been coded with the factory default address and the highest baud rate the radio supports.</p>
IC78	<p>RELEASED CAT-PTT QS/S CPP - 19200, 8N1</p>	Radio does not support CAT PTT
IC703	<p>RELEASED CAT-PTT QS/S CPP - 19200, 8N1</p>	Can be interfaced for DATA port using USB-D and LSB-D.
IC706	<p>RELEASED CAT-PTT QS/S CPP - 19200, 8N1</p>	Radio does not support CAT PTT
IC706MkII	<p>RELEASED CAT-PTT QS/S CPP - 19200, 8N1</p>	Radio does not support CAT PTT
IC706MkIIG	<p>RELEASED CAT-PTT QS/S CPP - 19200, 8N1</p>	Radio does not support CAT PTT
IC707	<p>RELEASED CAT-PTT QS/S</p>	Radio does not support CAT PTT
IC-718	<p>RELEASED CAT-PTT QS/S CPP - 19200, 8N1</p>	Radio does not support CAT PTT
IC725	<p>RELEASED CAT-PTT QS/S CPP - 9600, 8N1</p>	<p>Radio does not support CAT PTT.</p> <p>NOTE: Factory addressing is used, WRT address diodes D57-D63, only D60 and D62 should be in place for the factory address of 28h. Diode D64 for transceive operation should no be installed either.</p> <p>NOTE: 9600 baud is being used, not the factory default 1200 baud. As such, the CI-V Baud Rate diode, D2 must be in place and D3 must be empty. Also diode D4, the factory default, must be in place for standard 5 byte frequency data.</p>
IC726	<p>RELEASED CAT-PTT QS/S</p>	<p>Radio does not support CAT PTT</p> <p>NOTE: Factory addressing is used, WRT address diodes D57-D63, only D61 and D62 should be in place for the</p>

	CPP - 9600, 8N1	<p>factory address of 30h. Diode D64 for transceive operation should no be installed either.</p> <p>NOTE: 9600 baud is being used, not the factory default 1200 baud. As such, the CI-V Baud Rate diode, D2 must be in place and D3 must be empty. Also diode D4, the factory default, must be in place for standard 5 byte frequency data.</p>
IC728	<p>RELEASED CAT PTT QS/S</p> <p>CPP - 9600, 8N1</p>	<p>Radio does not support CAT PTT. Also use for IC-77.</p> <p>NOTE: Factory addressing is used, WRT address diodes D57-D63, only D60, D61 and D62 should be in place for the factory address of 38h. Diode D64 for transceive operation should no be installed either.</p> <p>NOTE: 9600 baud is being used, not the factory default 1200 baud. As such, the CI-V Baud Rate diode, D2 must be in place and D3 must be empty. Also diode D4, the factory default, must be in place for standard 5 byte frequency data.</p>
IC729	<p>RELEASED CAT PTT QS/S</p> <p>CPP - 9600, 8N1</p>	<p>Radio does not support CAT PTT</p> <p>NOTE: Factory addressing is used, WRT address diodes D57-D63, only D58, D60, D61 and D62 should be in place for the factory address of 3Ah. Diode D64 for transceive operation should no be installed either.</p> <p>NOTE: 9600 baud is being used, not the factory default 1200 baud. As such, the CI-V Baud Rate diode, D2 must be in place and D3 must be empty. Also diode D4, the factory default, must be in place for standard 5 byte frequency data.</p>
IC735	<p>RELEASED CAT PTT QS/S</p> <p>CPP - 9600, 8N1</p>	<p>Radio does not support CAT PTT.</p> <p>The IC-735 is factory set to 1200 baud. It is however recommended that the J22 settings be changed for 9600 baud operation where the first two position set the baud rate where 1 is ON and 2 is OFF. To change the baud rate from 1200 to 9600 you need to remove the PA heat sink.</p>
IC736	<p>RELEASED CAT PTT QS/S</p>	Radio does not support CAT PTT
IC737	<p>RELEASED CAT PTT QS/S</p>	Radio does not support CAT PTT. Also use for IC-737A
IC738	<p>RELEASED CAT PTT QS/S</p>	Radio does not support CAT PTT
IC746	<p>RELEASED QS/S CAT PTT CAT ANT SW</p> <p>CPP - 19200, 8N1</p>	
IC746PRO	<p>RELEASED QS/S CAT PTT CAT ANT SW</p>	<p>Also use for IC-7400.</p> <p>Can be interfaced for DATA port using USB-D and LSB-D.</p>

	CPP - 19200, 8N1	
IC751	RELEASED CAT PTT QS/S	Also use for IC-750. Radio does not support CAT PTT
IC756	RELEASED QS/S CAT PTT CAT ANT SW CPP - 19200, 8N1	
IC756PRO	RELEASED QS/S CAT PTT CAT ANT SW CPP - 19200, 8N1	Also use for Signal One Milspec 1030E-DSP. Can be interfaced for DATA port using USB-D and LSB-D.
IC756PROII	RELEASED QS/S CAT PTT CAT ANT SW CPP - 19200, 8N1	Can be interfaced for DATA port using USB-D and LSB-D.
IC756PROIII	RELEASED QS/S CAT PTT CAT ANT SW CPP - 19200, 8N1	Can be interfaced for DATA port using USB-D and LSB-D.
IC761	RELEASED CAT PTT QS/S ?	Radio does not support CAT PTT. Also use for IC-760.
IC765	RELEASED CAT PTT QS/S	Radio does not support CAT PTT
IC775	RELEASED CAT PTT QS/S	Radio does not support CAT PTT
IC781	RELEASED CAT PTT QS/S	Radio does not support CAT PTT. Also use for IC-780 and Signal One Milspec 1030C
IC7000	RELEASED QS/S CAT PTT CPP - 19200, 8N1	NOTE: Feedback from a none MARS member is that: The IC-7000 front end uses the transmitter LPF bank, which is relay-switched. A diode-switched HPF bank is between the LPF group and the RF preamp. Even in split mode, changing bands on receive will switch LPF's and cause the associated relays to operate and release. For ALE service, you will be better off using a transceiver in which the RF preselector consists of diode-switched BPF's, and the transmitter LPF is not involved in the receiver front end at all. Changing bands on receive in split mode will only switch BPF's.
IC7200	ALPHA QS/S CAT PTT CPP - 19200, 8N1	Can be interfaced for DATA port using USB-D and LSB-D.
IC7600	PENDING	Awaiting documentation and radio address.

	<p>QS/S ?</p> <p>ALPHA</p> <p>QS/S</p> <p>CAT PTT</p> <p>CAT ANT SW</p> <p>CPP - 19200, 8N1</p>	
IC7700		Can be interfaced for DATA port using USB-D and LSB-D.
IC7800	<p>RELEASED</p> <p>QS/S</p> <p>CAT PTT</p> <p>CAT ANT SW</p> <p>CPP - 19200, 8N1</p>	<p>NOTE: QS/S capable WRT the BPF filters, but RF mixer filters are also relay switched, but do not present the problems associated with potential failure of TX BPF relays.</p> <p>Can be interfaced for DATA port using USB-D and LSB-D.</p>
ICF7000	<p>ALPHA</p> <p>QS/S</p> <p>CAT PTT</p>	<p>ICOM internal ALE modem transceiver where the radio is NOT placed into "SELCALL SQUELCHED SCAN" and thus its internal ALE modem is not enabled.</p> <p>This selection is for stand alone operation using the PC sound device for all modem operation. See additional notes below for ICOM Marine Grade radios.</p> <p>NOTE: Radio address must be set to 9.</p>
ICF7000ALE	PENDING	<p>Support using internal ALE modem PENDING required documentation. The loan of an example radio for each model from someone or some organization will be required.</p> <p>NOTE: Radio address must be set to 9.</p>
ICM700PRO	<p>RELEASED</p> <p>QS/S</p> <p>CAT PTT</p>	<p>All ICM units are ICOM Marine grade HF SSB transceivers which are modifiable for MARS operation. The ICF is controlled in the same manor. See IC-M710 above below.</p> <p>NOTE: Radio address must be set to 2.</p>
ICM710	<p>RELEASED</p> <p>QS/S</p> <p>CAT PTT</p>	<p>All ICM Marine grade radio coding/testing is being performed with the IC-M710. External wired ATU's also controlled.</p> <p>NOTE: Radio address must be set to 1.</p>
ICM710RT	<p>RELEASED</p> <p>QS/S</p> <p>CAT PTT</p>	<p>See IC-M710 above notes.</p> <p>NOTE: Radio address must be set to 3.</p>
ICM801E	<p>RELEASED</p> <p>QS/S</p> <p>CAT PTT</p>	<p>See IC-M710 above notes.</p> <p>NOTE: Radio address must be set to 7.</p> <p>NOTE: Remote connector must be set to NMEA.</p>
ICM802	<p>RELEASED</p> <p>QS/S</p> <p>CAT PTT</p>	<p>See IC-M710 above notes.</p> <p>NOTE: Radio address must be set to 8.</p>
ICOM-ICOM	PENDING	<p>An ICOM ham transceiver and ICOM receiver operating in TX/RX using same RS-232 port an CT-17 interface. 9600 baud is the default baud rate. However if both the ICOM transceiver and receiver support higher baud rates, the user can select a common higher baud rate via the Radio 1 interface port settings. The transceiver address will be 28h, the receiver address will be the factory address for whichever ICOM receiver is selected from the Radio 2 choice, if no ICOM receiver is selected from the Radio 2 listing, the</p>

		receiver address of 1Ah will be used. The end user will need to provide for the needed T/R operation with RX muting during TX between the two radios in hardware interfacing.
ICOM-WJCSMA	PENDING	An ICOM ham transceiver and Watkins-Johnson CSMA receiver in TX/RX using same RS-232 port an CT-17 interface. The ICOM transceiver needs to be set to radio address 28h and 9600 baud operation. The W-J receiver needs to be set to radio address 10 and 9600 baud operation. W-J receivers HF-1000, WJ-8710A, WJ8711A, WJ8712A, WJ8712P and WJ8690 and perhaps others are supported. The end user will need to provide for the needed T/R operation with RX muting during TX between the two radios in hardware interfacing.
JRCNMEA	TBD QS/S	For JRC HF NMEA SSB Marine grade radios and attached ATU's for control. NOTE: Radio address must be set to 01.
JST245	RELEASED QS/S CAT ANT SW	No user feedback provided as of yet. Also select for JST-145 operation.
K2/100	RELEASED QS/S ?	Use "KENWOOD" selection, K2/100 emulates a Kenwood TS-570SD. Under no circumstances should you use a standard RS232 cable to connect your K2 to a computer, you MUST use the cable specified by Elecraft in the KIO2 or KPA100 manual to avoid damage to your rig and/or computer. For more information see K/100 notes.
K3	PENDING CAT PTT ? QS/S ? CPP – 38400, 8N1	CAT control follows that of the K2 at this time. The K3 uses a standard RS232 cable. The use of RTS and DTR via radio configuration can be made for PTT support. NOTE: MARS general coverage RX/TX support is planned. NOTE: Awaiting documentation.
K505DSP	RELEASED QS/S	Kachina 505DSP and also for KC105CTX. This radio is fully under computer control, as is the Ten-Tec Pegasus TT550, both designed by the same engineer. Polling is required to keep radio port open. Operates at 9600 baud. See detailed Kachina 505DSP notes in the body of the RHUG.
KENWOOD _HS appended designates support of handshaking	RELEASED QS/S No QS/S for theTS-440 CAT ATU for: TS480, TS870, TS570, TS2000 CAT ANT SW for: R5000,TS480,	Supports 4800 baud 8N2 operation by default. The radio model ID is read at program start and parameters are reset for best ALE operation. If CPP is not used to select a higher baud rate, the TS-480, TS-570, TS-870 and TS-2000 series must be reset to 4800 baud N82. e.g. the factory default setting is 9600 baud on the TS-2000 set menu 56 to 4800 baud. NOTE: Newer models use a straight RS-232 cable, not a null modem cable. NOTE: The TS-440 is excluded from QS/S routines. NOTE: Kenwood recommends that Hardware Handshaking be used to avoid loss of data to the radio, this is especially important at the higher baud rates for communications and the higher ALE Scan Rates. NOTE: For external interfacing an PTT only DTR can be used when handshaking is used as RTS is used for handshaking. For a unit such as the

	TS870, TS570, TS2000	RigBlaster, an alternative approach is to use CAT PTT and place the unit into VOX from Auto.
MICOM	ALPHA 9600, 801 QS/S CAT PTT CHAN	<p>Supports Missile Command (MICOM) models by Motorola (MOBAT COMMUNICATIONS, DIVISION OF TADIRAN COMMUNICATIONS LTD. ISRAEL) such as Micom-H, 2E, 2B, 2BF, 2R, 2ET-RDP, 2ES, 2MF, 2RS, 2TS, 3F, 3R, 3T and perhaps others.</p> <p>This selection will use MARS-ALE and the PC sound device for all operations. Models provide an internal ALE modem are operated in non-ALE mode.</p> <p>Set the radio for 9600 baud operation. Any port of the radio with provides GND, TDX and RDX will work, refer to your radios manual.. Interfacing is straight to the PC RS-232 port.</p> <p>NOTE: At present ONLY radio MEMORY CHANNEL operation is supported. Later MMI commands are used to ENABLE and DISABLE the use of MEMORY CHANNEL support in MARS-ALE, "ENABLE CHANNEL" or "DISABLE CHANNEL" .</p> <p>NOTE: The MICOM-2BF, MICOM-2MF and Micom-H Amateur Radio band versions and perhaps others require the FLN2423 RS-232 option installed for computer control. The radio does Not have an ALE modem option listed.</p>
MICOM_ALE	PENDING	As above in MICOM except supports using internal ALE controller/modem for those Micom models that have the ALE modem installed. Will provide for MIL-STD-188-141A ALE operation using the hardware modem and will use the PC sound device for 188-141B AQC-ALE and all ALE and MIL-STD-188-110x data modes. The loan of an example radio for each model from someone or some organization will be required.
PT8000A	TBD QS/S ?	<p>Hilderbling PT8000A, PT8000B, PT8000C</p> <p>NOTE: Awaiting documentation. Known to follow ICOM CI-V CSMA protocol at this time only.</p>
RF350	PENDING	<p>PLANNED HAARCP Protocol that supports RF-350, RF-350K, RT-1446 URC, AN/URC-119, AN/URC-121(V) basic control with PC sound device for MIL-STD-188-141A ALE, 188-141B AQC-ALE and all ALE and MIL-STD-188-110x all data modes. When radio is placed into remote, no local control is available.</p> <p>Supports remote control board number 10088-6000 which is in the upper left corner of the board located is behind the display board. This is the standard, non-addressable board and is used with the RF-352 remote control and the RF-7210A adaptive controller</p> <p>The software is operating at 9600 Baud, 8-bit data, odd parity, 2 stop bit, no handshake</p>
RF350ALK	RELEASED	Uses an ASCII protocol that supports the Harris RF-350, RF-

	<p>QS/S CAT PTT CHAN CPP - 9600, 701</p>	<p>350K, RT-1446 URC, AN/URC-119, AN/URC-121(V) basic control with PC sound device for MIL-STD-188-141A ALE, 188-141B AQC-ALE and all ALE and MIL-STD-188-110x all data modes. When radio is placed into remote, no local control is available.</p> <p>The J9 REMOTE connection is used for sound card and TNC connections. The radio's inputs are differential, but care must be taken to observe polarity of the audio lines for connection to the computer sound card. Phone operation is via the radio MIC in connection with the RED PTT button. See RF350ALK_TNC for auxiliary interfacing.</p> <p>Supports remote control board number 10088-6000. Part number is located in the upper left corner of the board which is installed behind the display board. This is the standard, non-addressable board and is used with the RF-352 remote control and the RF-7210A adaptive controller. Radios with this card are usually marked with a tag beside the unit identifier stating "THIS UNIT HAS BEEN MODIFIED USING KIT 10191-40029. SEE THE RF-7100-04 MANUAL FOR DETAILS."</p> <p>RS-232 Interface: Radio Remote Control Interface (A1A19, Located behind display panel, p/n 10088-6000) Set S-1 to position 9 (ADAPT) Set S-2 to Position 1 (RS-232) [To use with Harris RF-7210 Adaptive controller, S-2 should be set to position 2 (RS-422.)] Set S-5 to 4 wire audio input/output.</p> <p>The software is operating at 9600 Baud, 7-bit data, odd parity, 1 stop bit, no handshake.</p> <p>NOTE: Radio firmware should be at least Rev Level 604. Rev 601 may work, but Radio must be in USB mode before starting. A firmware upgrade may be required to support ADAPT, please contact AFA1PU for further details at: afa1pu@speakeasy.net</p> <p>Cable Wiring:</p> <table><tr><th>Computer 9-pin D</th><th>Radio 25-pin D</th></tr><tr><td>2 (input)</td><td>3 (output)</td></tr><tr><td>3 (output)</td><td>2 (input)</td></tr><tr><td>5 (Ground)</td><td>7 (Ground)</td></tr><tr><td>4-Jump to 6</td><td>12 Audio Line Out (-)</td></tr><tr><td></td><td>13 Audio Line Out (+)</td></tr><tr><td>7-Jump to 8</td><td>24 Audio Line In (+)</td></tr><tr><td></td><td>25 Audio Line In (-)</td></tr></table> <p>On the Computer DB9, jumper pins 4 to 6 and pins 7 to 8.</p> <p>PAY SPECIAL NOTE TO THE POLARITY OF THE AUDIO LINES.</p> <p>NOTE: Support is also provide for other than the standard RS-232 port parameters in support of the</p>	Computer 9-pin D	Radio 25-pin D	2 (input)	3 (output)	3 (output)	2 (input)	5 (Ground)	7 (Ground)	4-Jump to 6	12 Audio Line Out (-)		13 Audio Line Out (+)	7-Jump to 8	24 Audio Line In (+)		25 Audio Line In (-)
Computer 9-pin D	Radio 25-pin D																	
2 (input)	3 (output)																	
3 (output)	2 (input)																	
5 (Ground)	7 (Ground)																	
4-Jump to 6	12 Audio Line Out (-)																	
	13 Audio Line Out (+)																	
7-Jump to 8	24 Audio Line In (+)																	
	25 Audio Line In (-)																	

		KO6NO serial port adapter which can go to 19200 baud as detailed at: http://www.ko6no.com/web_page_000001.htm														
RF350ALK_TNC	RELEASED QS/S CAT PTT CHAN CPP - 9600, 701	<p>As RF350ALK above, in addition it supports the use of an external TNC/Modem transmit as follows: In REMOTE mode, the only active Audio I/O is from the J9 REMOTE connector so both the TNC and Sound Card connections must be made through the J9 REMOTE connector. PTT is normally disabled in REMOTE mode but MARS-ALE enables the MIC and TB1 PTT. Clicking the RED PTT button allows the MIC to be used for voice contacts. You must remember to click the RED PTT button again at the end of the voice contact to restore audio to the J9 REMOTE connector for ALE/TNC operation.</p> <p>RS-232 SERIAL CONNECTIONS J9-REMOTE Computer Serial Port DB25 Female DB9 Female</p> <table><tr><td>1</td><td>1-NC</td></tr><tr><td>2-----</td><td>3-Tx</td></tr><tr><td>3-----</td><td>2-Rx</td></tr><tr><td>4</td><td>4-jump to-6</td></tr><tr><td>5</td><td>7-jump to-8</td></tr><tr><td>6</td><td>9-NC</td></tr><tr><td>7-----</td><td>5-GND</td></tr></table> <p>AUDIO CONNECTIONS (TNC=PK232) RADIO TNC Sound Card 12-GND-----Brn/Shld---Mic/Line GND 13-Out-----Green-----Mic/Line Input 24-In-----White-----Spkr/Line Output 25-GND-----Brn/Shld---Spkr/Lind GND</p> <p>Hardware PTT (TNC=PK232 TNC) TB1-11-PTT-Red TB1-12-GND-Brn/Shld</p> <p>NOTE: Connect GNDs together (J9-12, J9-25, TNC Brown/Shield, TB1-12) PTT is active when pulled down to 0 volts</p> <p>NOTE: Support is also provide for other than the standard RS-232 port parameters in support of the KO6NO serial port adapter which can go to 19200 baud as detailed at:</p> <p>http://www.ko6no.com/web_page_000001.htm</p>	1	1-NC	2-----	3-Tx	3-----	2-Rx	4	4-jump to-6	5	7-jump to-8	6	9-NC	7-----	5-GND
1	1-NC															
2-----	3-Tx															
3-----	2-Rx															
4	4-jump to-6															
5	7-jump to-8															
6	9-NC															
7-----	5-GND															
RF350KWT	ALPHA QS/S	No user feedback received as of yet. Supports the Harris RF-350 Key West Transmitter with ASCII capable RS-232 board part number 10085-9100														
RF5022	RELEASED QS/S CAT PTT CPP - 9600, 8N1	Supports RF-5022, RF-5020, RF-5122, AN/TRC-510(V), RT-5104(P)/U, RF-5200, RF-5800, AN/PRC-138, RT-1694 for basic control with PC sound device for MIL-STD-188-141A ALE, 188-141B AOC-ALE and all ALE and MIL-														

		<p>STD-188-110x all data modes.</p> <p>NOTE: Radio mode of operation selection must be REMOTE (RMT).</p> <p>NOTE: The RF-5020 exciter itself being 100mw and PIN diode switched is QS/S.</p>
RF5200ALE	PENDING	<p>AN/TRC-510(V), RF-5120, RF-5122, RF-5162, RF-5200, RF-5800, AN/PRC-138, RT-1694 using internal ALE/AQC-ALE and MIL-STD-188-110 modem where supported, otherwise operation for all unsupported data modes via PC sound device. The loan of an example radio for each model from someone or some organization will be required.</p>
RF5800	<p>ALPHA QS/S</p> <p>CPP – 9600, 8N1</p>	<p>For instances where selection RF5022 does not seem to work, such as for AN/PRC-150 radios.</p>
SDR1000 support where user selects radio type KENWOOD	<p>QS/S CAT PTT</p> <p>Follows Kenwood where the user needs to setup computer using CPP interfaced</p>	<p>When Flex Radio ID is set to 019, which is default the radio will be treated as a TS-2000, which is not going to work well.</p> <p>When Flex Radio ID is 900 the SDR1000 will be treated as an SRD1000 and supports FlexRadio SDR-1000 via the CAT interface with the PowerSDR console v1.3.x and later code from Flex Radio. The N8VB vCOM Virtual Serial Ports Driver is required. When using this selection turn off pre-configuration in CPP.</p> <p>NOTE: It is recommended that the SDR1000 radio type selection be used.</p>
SDR1000	<p>RELEASED</p> <p>QS/S CAT PTT</p> <p>CPP – 9600, 8N1</p>	<p>Supports FlexRadio SDR-1000, Flex-5000A, Flex-5000C (possibly Sunair RT-8100) and Flex-3000 via the CAT interface with the PowerSDR console v1.3.x and later code from Flex Radio. The N8VB vCOM Virtual Serial Ports Driver is required.</p> <p>Can be interfaced for DATA port using USB-D and LSB-D.</p> <p>All commands to include the extended ZZxx commands from the SDR1000 CAT Command Dictionary dated February 2007 have been coded.</p>
SEA-235	<p>PENDING</p> <p>QS/S ?</p> <p>CPP – 9600, 8N1</p>	<p>Supports SEA-235, SEA-235R and SEA-245 using SEABUS-232 protocol.</p>
SEA-330	<p>PENDING</p> <p>QS/S ?</p>	<p>Supports SEA-330.</p> <p>NOTE: Requires SEA2320 interface to allow PC connection to the radio. The SEA2320 converts RS232 to RS485 type protocol that the radio uses.</p>
SGC2000	<p>RELEASED</p> <p>QS/S</p>	<p>Also use for PRC-2250MIL.</p> <p>Can make use of straight RS-232 or Null Modem cable when</p>

	CHAN CPP – 9600, 8N1	<p>internal jumper is properly set. From the factory, the radio is configured for a straight cable. Only Pins 1, 2 and 3 should be wired in the RS-232 cable.</p> <p>MARS-ALE supports both direct control and radio memory channel control of these SGC models. If memory channels are used, the radios first 100 user channels need to be configured to match MARS-ALE scan group channels 1..100</p> <p>NOTE: MMI commands are used to ENABLE and DISABLE the use of MEMORY CHANNEL support in MARS-ALE, “ENABLE CHANNEL” or “DISABLE CHANNEL” .</p> <p>NOTE: Due to the nature of the Windows OS, the RS232 ATTENTION timing is subject to interruption and thus the radio will at times not change to the correct channel commanded by MARS-ALE. The only way to completely overcome this is either to use an external hardware ALE modem/controller with these radios, such as the Frederick/NSG M1045 or M2045 or for a hardware microcontroller based interfacing controller to be designed for MARS-ALE use, such as something based on a PIC processor.</p>
SKANTI-8250	RELEASED QS/S ?	Tested by Charles Brain, G4GUO
TK80	ALPHA QS/S	<p>Kenwood TK-80 and TRC-80 using IF-232C or compatible external level converter.</p> <p>The TK-80 will support PC control through the scan rate of 2 ch/sec.</p>
TK90	ALPHA QS/S	<p>Kenwood TK-90 HF radio with the KCT-31 interface cable option for PC control installed per the documentation found in the TK90 Modification Information (MOD) publication version 2.0 date March 2007 or later.</p> <p>In the setup software under COM port settings for the KCT-31 select “PC Command” for the operating mode rather than GPS.</p> <p>The TK-90 will support PC control through the scan rate of 5 ch/sec.</p> <p>NOTE: An optional internal ALE modem (P/N KP2-E) is available which provides stand alone ALE operation which is not supported by this selection.</p>
TK90_HS	ALPHA QS/S	Support for hardware flow control enabled by assigning RTS/CTS to the AUX port using a custom made cable.
T4150	PENDING	Supports Cubic T4150 or T4180 exciter (at radio address 100) mated to a Cubic LCR-2000 family receiver (at radio address 001) and companion COM-1000 amplifier. All units

		<p>on RS-232 bus must be set to the same port parameters.</p> <p>TBD.....</p>
T4180	PENDING	<p>Supports Cubic T4150 or T4180 exciter (at radio address 100) mated to a Cubic LCR-2000 family receiver (at radio address 001) and optional PA5050A amplifier (at radio address 123). All units on RS-232 bus must be set to the same port parameters.</p> <p>TBD.....</p>
TT516	RELEASED QS/S CAT PTT	<p>a.k.a. Argonaut V where the radios memory channels are used in sync with the .QRG file and where the radio memories can be programmed by MARS-ALE.</p> <p>NOTE: This model Ten Tec uses diode switching thus no special programming is needed, no BPF relays to contend with.</p>
TT538	RELEASED QS/S CAT PTT	<p>Supports Ten Tec Jupiter.</p> <p>Do NOT use for OMNI VII TT588 in RADIO MODE as the TT588 has many differences.</p> <p>The TT538 Jupiter native command set requires at a minimum firmware version “1.18 05/12/02” or later in a Jupiter radio as it was at that point that the non-Pegasus PC control interface was added. However, as many bugs have been addressed in the radio with updates thereafter, some of which address the new command set, it is recommended that firmware version “1.28 03/01/06” or later be used. For anyone using firmware version “1.17” or older, you will need to select either TT550 or TT550MA as appropriate.</p> <p>TT538 uses MIC port for both voice and for ALE (on the Jupiter setup menu on the radio, for “Audio Source”, you select “MIC”). With a suitable interface such as a RigBlaster needs to used. PTT can only be DTR as RTS can NOT be used as the radio uses handshaking with the RTS/CTS lines and the Jupiter command set Radio does not support CAT PTT.</p> <p>NOTE: The tool writes the ALE RX channel to VFO A and the ALE TX channel to VFO B all the time as the Jupiter command set dictates that you must write to both VFO A and B. However, the Jupiter command set provides no command to place the radio into SPLIT operation, this must be done manually if the operator desires separate RX/TX frequency operation, otherwise the RX/TX channel will be the RX channel.</p> <p>NOTE: The TT538 can emulate the Pegasus transceiver, however its use precludes front panel operation while using the CAT interface. When uses with the TT550 or TT550MA selections, the Jupiter screen with change to the Pegasus flying horse logo when the radio is addressed with frequency and mode data for the first time. All radios parameters from the front panel will be locked out. There is a volume slider</p>

		<p>control on the Radio Control panel for adjusting receiver audio in Pegasus mode.</p> <p>NOTE: The Jupiter command set does not allow for selection between the mic port and rear auxiliary port for which the TT550 selection must be used.</p> <p>NOTE: The RS-232 serial interface on the Jupiter is controlled by a 16C550 UART located on the DSP board with the parameters fixed at 57,600 baud, No Parity, 8 Data bits, 1 Stop bit. The UART uses hardware handshaking to control the data flow between the PC and the radio, thus RTS/CTS signaling is used which means that only DTR for PTT is available as there is no CAT PTT in the Jupiter command set.</p>
TT550	<p>RELEASED</p> <p>QS/S</p>	<p>TT550 requires polling and uses MIC port for both voice and for ALE with a suitable interface such as a RigBlaster needs to be used. PTT can only be DTR as RTS can NOT be used as the radio uses handshaking with the RTS/CTS lines.</p> <p>NOTE: The RS-232 serial interface on the Pegasus is controlled by a 16C550 UART located on the DSP board with the parameters fixed at 57,600 baud, No Parity, 8 Data bits, 1 Stop bit. The UART uses hardware handshaking to control the data flow between the PC and the radio, thus RTS/CTS signaling is used which means that only CAT PTT or DTR for PTT is available for use PTT.</p>
TT550MA	<p>RELEASED</p> <p>QS/S</p>	<p>TT550MA selection uses the MIC port for Voice and rear AUX port ALE. PTT must be CAT PTT or DTR with your external interface to the rear port. Whenever the tool puts the radio into TX it will select the rear AUX port, in RX, you have the front MIC for your Voice communications using the RED PTT button.</p> <p>NOTE: The RS-232 serial interface on the Pegasus is controlled by a 16C550 UART located on the DSP board with the parameters fixed at 57,600 baud, No Parity, 8 Data bits, 1 Stop bit. The UART uses hardware handshaking to control the data flow between the PC and the radio, thus RTS/CTS signaling is used which means that only CAT PTT or DTR for PTT is available for use PTT.</p>
TT563	<p>PENDING</p> <p>QS/S</p>	TBD. Omni VI
TT565	<p>ALPHA</p> <p>QS/S</p>	<p>For ORION I and also TT566/TT566AT ORION II.</p> <p>Does not provide 2-30Mhz TX operation.</p>
TT585	<p>RELEASED</p> <p>QS/S</p>	Paragon I. Tested by AAR3UO. Radio/PC requires use of Null Modem cable.
TT586	<p>RELEASED</p> <p>QS/S</p> <p>CAT PTT</p>	Paragon II. PTT is supported via Ten Tec extended command.
TT588RAD	ALPHA	Also use for TT588AT, however ATU is not under CAT command.

	QS/S	Supports the OMNI VII RADIO MODE as documented in Model 588 Programmers Reference Guide Rev 1.0, which is not 100% the same as the Jupiter native protocol. To enter RADIO MODE hold down digit 1 on the band stack keyboard until the firmware version string and RADIO appears on the display.
TT588REM	ALPHA QS/S CAT PTT CAT ANT SW CAT ATU	For use for OMNI VII TT588 and TT588AT in REMOTE MODE, a new protocol that places the TT588 series radio into a hands off operation by the user. Can be interfaced for LINE port audio source using USB-D and LSB-D mode selections. When this is the case, the front MIC port for Voice communications is selected when using the RED PTT button. OMNI VII REMOTE MODE as documented in Model 588 Programmers Reference Guide Rev 1.0. To enter REMOTE MODE hold down digit 2 on the band stack keyboard until the firmware version string and REMOTE appears on the display.
T-BUS	TBD	T-Bus protocol support for European Maritime radios by such manufacturers as Sailor, Skanti and others.
VX1700	RELEASED QS/S CAT PTT	Supports VX-1700 and VH-1700HF. An optional ALE (P/N ALE-1) option board can be installed, however for MARS-ALE use, the ALE-1 if installed must NOT be enabled. The VX-1700 will support PC control through the scan rate of 10 ch/sec. RS-232 control can be had by: <ol style="list-style-type: none"> 1. Using a CT-62 or compatible interface attached to the ATU TUNER port. 2. Using the 9-pin D GPS connector with a null modem cable. To use this approach a one time procedure must be followed where switches S4002 and S4003 are placed into position A on the ALE-1 board assembly. Scan rates of 1, 2, 5 and 10 are supported with MARS-ALE. All frequency control is on the fly with MARS-ALE from .QRG file groups. NOTE: When using MARS-ALE the radio is not QS/S as it is when using the ALE-1 option for control as not means of relay bypass is provided.
VX1700J2B	RELEASED QS/S	Same as VX1700 above but supports use of the data port where in the CE-77 software USB or LSB is selected as the J2B mode.

	CAT PTT	
X3	TBD	ICOM X3. Awaiting documentation
XK2100	ALPHA CPP – 2400, 7E1	<p>Rohde & Schwarz XK2000 family of transceivers, XK2100, XK2500 and XK2900.</p> <p>Requires null modem cabling where pins 1 and 9 are not used.</p> <p>NOTE: R&S software by default uses 2400 baud, however it is recommended that a higher baud rate be used with MARS-ALE if scanning greater than 1 ch/sec. Is used.</p>

The current status for radio Receiver support by MARS-ALE is presented here:

NOTE: All receivers are supported by all versions of MARS-ALE.

RADIO MODEL	STATUS	COMMENTS
95S-1	PENDING	Use for Collins 95S-1, 95S-1(A)
AR-ALPHA	PENDING	TBD
ARONE	PENDING CPP – 9600, 8N2	For AR-ONE, AR-ONE/BB. Default RS-232 port settings are 19200,N,8,2 with Xon/Xoff
AR5000	RELEASED CPP – 19200, 8N2	Use for AOR AR5000. Default RS-232 port settings are 19200,N,8,2 with Xon/Xoff
AR7000	RELEASED CPP – 19200, 8N2	Use for AOR AR7000. Default RS-232 port settings are 19200,N,8,2 with Xon/Xoff
AR7030	RELEASED	Use for AOR AR7030
AR8600	ALPHA CPP – 19200, 8N2	Use for AOR AR8600 and AR8600MkII. Default RS-232 port settings are 19200,N,8,2 with Xon/Xoff
DR333		Mckay-Dymek DR333, DR3360 and DR300PCB.
EK890	RELEASED	Use for Rhode & Schwarz EK095, EK890, EK891, EK893 RS-232 port set to 9600,E,7,1 by default.
EK896	RELEASED CPP – 19200, 8N1	Use for Rhode & Schwarz EK895 and EK896 RS-232 port set to 19200,N,8,1 by default.
EK2000	ALPHA CPP – 9600, 7E1	Use for Rhode & Schwarz EK2000 where address is set to 00 for single receiver operation.
FRG100	RELEASED	Use for Yaesu FRG-100
FRG8800	RELEASED	Use for Yaesu FRG-8800
HF1000	RELEASED	Use for Watkins-Johnson HF-1000, HF-1000A
HF2050	RELEASED CPP – 19200, 8N1	Use for Collins HF-2050. HF-2050 Remote control interface (RS-422). All other units only have the RS-422 DB25 female on rear of receiver for remote control using EIA Standard RS-422 wiring. An RS-422 to RS-232 converter is needed. The unit with the pre-selector, has a RS-232 interface option for which a standard RS-232 cable is used.
HF150	PENDING	Lowe HF-150. The IF-150 RS-232 interface cable is required. 1200 baud 8N1. FREQ/MODE and MEMORY supported via RS-232.
HF235	PENDING	Lowe HF-235 and HF-235/F. The HF-235/RC RS-232 option is required 1200 8N1. Radio must be set to address 1. RTS/CTS required.
HF250	PENDING	Lowe HF-250
KENWOOD or KENWOOD_HS	RELEASED	Use for Kenwood R-5000
LCR2000	ALPHA CPP – 19200, 8N1	Use for Cubic LCR-1200, LCR-2000, LCR-2400, SMR-2000, SMR-2400, CDR-3250, CDR-3280. Radio Address is fixed at 001 and default port parameters are 19200 8N1.
MICOM1	TBD	Requires FLN-5062A RS232 interface card.
NRD345	RELEASED	Use for JRC NRD-345. Requires null modem cabling.
NRD525	RELEASED	Use for JRC NRD-525. Requires null modem cabling.
NRD535	RELEASED	Use for JRC NRD-535. Requires null modem cabling.
NRD535D	RELEASED	Use for JRC NRD-535D. Requires null modem cabling.
NRD545	RELEASED	Use for JRC NRD-545. . Requires null modem cabling.

		NOTE: The NRD-545 allows you to disable the band pass filters when scanning to disable the relays, unfortunately it can't be done over the remote interface.
NRD630	TBD	TBD. Awaiting docs
PCR1000	RELEASED	Use for ICOM PCR1000. Radio is used at default 9600 baud. The ICOM OPC-743 or any standard straight RS-232 cable will work.
PRC1500	RELEASED	Supports USB/VCP RS-232 based PCR1500, IC-R1500 and IC-R2500. NOTE: At this time, after the tool is started, if the MIL-STD-188-141 dialog is used to change and settings, clicking OK, will reset the radio and shut it down. A restart of the program will be required to reboot the radio omm.. Port. Connection.
RA6790GM	RELEASED CPP – 19200, 8N1	<p>Use for RACAL RA6790GM, R-2174(A)/URR. May work for other RACAL receivers such as the RA6793A, R-2320/URR series, if so a report would be welcome, if not, inform us what RACAL supported is needed and provide the needed commands if possible.</p> <p>Computer control of the RA6790GM requires installation of the optional A6A1 Microprocessor Board. Should this be missing from your unit, Toronto Surplus (and likely others) have been known to have complete A6A1 and blank A6A1 boards, for more information see: http://www.torontosurplus.com</p> <p>For RS-232 operation soldered jumpers need to be in place on the A6A1 Microprocessor Board as follows: Link1 Install, Link2 Open, Link3 Install, Link4 Install, Link5 Install, Link6 Open. The receiver to PC RS-232 cable, it must be wired for Receiver Address 10, 19200 baud, No Parity, 1 Stop Bit.</p> <p>The cable connector on the A6A1 board on this receiver is a military type plug which can be acquired surplus from William Perry Co., Inc., 702 (Rear) Beechwood Road, Louisville KY 40207, 1-502-893-8724.</p> <p>A pre-wired cable can be purchased from Bill Holland, KC2CNB, http://hollandelectronics.net/, 1-609-693-7281 at a reasonable cost. Just tell him it's for MARS-ALE, if you want a DB9 or DB25 on the PC side and the length you require, 6 foot is standard.</p>
RA6830JD	ALPHA CPP – 19200, 8N1	<p>Also for TCI-4070. RS-232 parameters of: 19200 baud, 8 data bits, No Parity, 1 Stop bit, Receiver Address 85. The receiver must have a (standard 25 pin DIN connector on rear for J-13, otherwise you have a GPIB-488 interface or none installed.</p> <p>NOTE: If you have a GPIB-488 interface, an RS-232 to GPIB-448 converter such as the National Instruments GPIB-232-CV-A will be required, see http://www.ni.com/pdf/products/us/4gpib688-690.pdf</p> <p>NOTE: Receiver RS-232 serial port parameters are 19200 8N1 which are S1 switch selected as 1,2 and 3 OPEN for 19200, 4 OPEN for 1 stop bit, 5 DONT CARE, 6 CLOSED</p>

		for NO PARITY, 7 and 8 CLOSED for 8 data bits. The mother board soldered Links in radio for RS-232 operation are: LINK2, LINK4, LINK7.
R8	RELEASED	Use for Drake R8
R8A	RELEASED	Use for Drake R8A
R8B	RELEASED	Use for Drake R8B
R10	ALPHA CPP – 19200, 8N	ICOM R10
R20	ALPHA CPP – 19200, 8N	ICOM R20
R71	RELEASED	Use for Icom R71
R72	RELEASED	Use for Icom R72
R75	RELEASED CPP – 19200, 8N1	Use for Icom R75
R3030STXx	RELEASED CPP – 19200, 8N1	Use for Cubic models R-3030, R-3050, R-3080, R-3090, R-2307/U, R3030A NOTE: Three choices are available as R3030STX1, R3030STX2 and R3030STX3 for the required number of start characters to be sent. The Radio Address is fixed 01 and default port parameters are 19200 8N1.
R2411/U	ALPHA CPP – 19200, 8N1	Use for Cubic R-2411/U dual receiver. The receiver selected must be set to address 01 and be in REMOTE.
R5000 where KENWOOD is selected	RELEASED CAT ANT SW	Use for Kenwood R5000.
R7000	RELEASED CPP – 19200, 8N1	Use for Icom R7000
R7100	RELEASED CPP – 19200, 8N1	Use for Icom R7100
R8500	RELEASED CPP – 19200, 8N1	Use for Icom R8500
R9000	RELEASED CPP – 19200, 8N1	Use for Icom R9000
R9500	RELEASED CAT ANT SW CPP – 19200, 8N1	Use for Icom R9500
RF590	RELEASED CPP - 19200, 8O2	Use for RF-590, R-2368(A)/URR, RF-590A, R-2368B(V)1/URR, 2368B(V)3/URR RF590H, R-2557A/URC configured to use the Harris HRRCP command protocol. RS-232 parameters are 19200 baud, Odd parity, 8 data bites , 2 stop bits and radio address 1. For the RF-590A, to select Harris HRRCP protocol the A14 board jumper at J20 must be set to jumper pins 2 and 3. On older units, revision E and below, there is no jumper, instead, a jumper wire may be soldered connecting U26-10 to U26-8 that must be removed.
RF-590A	RELEASED	Use for RF-590A, RF590H, R-2368B(V)1/URR, 2368B(V)3/URR, R-2557A/URC with firmware 208C or

	CPP - 19200, 701	<p>above configured to use the ASCII command protocol. User must manually enable the front panel remote switch. Software is written for 19200 baud, Odd parity, 7 data bits and 1 stop bit using radio address 1 operation.</p> <p>For the RF-590A and later units of revision F and above, to select Harris ASCII protocol the A14 board jumper at J20 must be set to jumper pins 1 and 2. On older units, revision E and below, there is no jumper, instead, a jumper wire must be soldered connecting U26-10 to U26-8 for the ASCII protocol.</p> <p>WRT relay chatter, as here is no ASCII command take the top cover off, remove the A19 cover and pull the A19A2 daughter board. Use a thin wire and jumper the two coaxial connectors. Does not effect the BITE and the relays are pulled from the circuit. Submitted by AFA1PU.</p>
RX320	RELEASED	Use for Ten Tec RX320 series and the RX-321 models built for Globe Wireless.
RX330	RELEASED CPP - 9600, 8N1	Use for Ten Tec RX-330 Set parameters to radio address 1 and default 9600 baud with 8N1.
RX331	RELEASED CPP - 9600, 8N1	Use for Ten Tec RX-331 Set parameters to radio address 1 and default 9600 baud with 8N1.
RX340	RELEASED CPP - 9600, 8N1	Use for Ten Tec RX-340. Set parameters to radio address 1 and default 9600 baud with 8N1.
RX350	RELEASED	Use for Ten Tec RX-350. Will also control TT538 Jupiter.
RX400	PENDING	Use for Ten Tec RX-400. Awaiting documentation.
R9200	PENDING	SUNAIR R-9200 pending receipt of documentation. The R-9200 can be computer or remotely controlled via RS232/RS422/RS485/or FSK tones. TO 31R2-4-1034-1, R-9200 Operation and Maintenance Manual, provides more in-depth information on this receiver.
TCI8174	RELEASED CPP - 19200, 8N1	Use for TCI 8074, 8172, 8173, 8174 and perhaps other models. Radio Address 1 (ASCII letter A) where dip switch settings for S1 are 11100000 (1 is up 0 is down) . NOTE: For TCI-4070 see RA6830JD.
VR5000	RELEASED CPP - 57600, 8N1	Yaesu VR-5000. Requires a null modem cable.
WJ8711	RELEASED	Use for Watkins-Johnson WJ-8711 and other WJ receivers.
WJ8711A	PENDING	Use for Watkins-Johnson WJ-8711A and other WJ receivers.
WJCSMA	ALPHA	Use for older Watkins-Johnson receivers via the CSMA port (such as HF-1000, WJ-8710A, WJ8711A, WJ8712A and possibly others) with an ICOM CT-17 or compatible interface with the receiver set to address 10.

WHEN YOUR RADIO MODLE IS NOT LISTED

At present if your radio is not listed by model number follow this advice:

KENWOOD

All Kenwood models to date, except the TS-440 (excluded from SPLIT VFO operation) are QS/S compliant.

Kenwood radios can be selected for use with and without hardware handshaking, for hardware handshaking, use the selections ending in _HS, only DTR can be used for external PTT with HS.

The **KENWOOD** and **KENWOOD_HS** selection supports all models at 4800 baud 8N2. For other RS-232 port parameters the custom port setup must be utilized.

In all cases, if the radio is properly returned, but is not recognized, it will be assumed to be a NEW model Kenwood radio and treated as if it is compatible with the TS-480 series command set. If the radio ID type is NOT returned, the radio will be treated as a basic model for frequency, mode and PTT at the given baud rate.

The Kenwood selections with “HS” appended add Hand Shaking support.

YAESU

It appears that only the FT-990 and FT-920 are QS/S compliant.

YAESU model sub family groupings at present:

FT817 - Select this choice for FT-817, FT-817ND, FT-857, FT-897.

FT890 - Select this choice for FT-100, FT-100D, FT-747GX, FT-840, FT-890, FT-900, FT-990, also for the Heathkit SB-1400 (a.k.a. FT-747GX).

FT1000MP - Select this choice for FT-1000, FT-1000D, FT-1000MP series.

FTDX9000 – Select this choice for the new FTDX-9000 series of radios.

FT2000 and FT2000_HS – Supports the new FT-2000 where the _HS selection supports CTS/RTS hardware handshaking.

FT950 and FT950_HS – Supports the new FT-950 where the _HS selection supports CTS/RTS hardware handshaking.

ICOM:

Most recent ICOM models and some older high end models are QS/S compliant as detailed in the chart herein.

All ICOM radio models are supported by model number using the default factory address and the highest baud rate supported. Select your specific model listed in the “Radio Type” pull down menu. Should a new model come along not specifically listed, select model (transceiver or receiver as the case may be) that is the newest on the list and set your new model radio to auto baud operation and change your new radio’s address to the factory address for that model from the following list.

Transceivers:

IC7800: 6A ,	IC781: 26 ,	IC775: 46 ,	IC765: 2C ,
IC761: 1E ,	IC756PROIII: 6E ,	IC756PROII: 64 ,	IC756PRO: 5C ,
IC756: 50 ,	IC751: 1C ,	IC746PRO: 66 ,	IC746: 56 ,
IC738: 44 ,	IC737: 3C ,	IC736: 40 ,	IC735: 04 ,
IC729: 3A ,	IC728: 38 ,	IC726: 30 ,	IC725: 28 ,
IC718: 5E ,	IC707: 3E ,	IC706MkIIG: 58 ,	IC706MkII: 4E ,
IC706: 48 ,	IC703: 68 ,	IC78: 62 ,	IC7000: 70 ,
IC7200: 76 ,	IC7600: ?	IC7700: 74	X3: ?

Receivers:

ICR9000: 2A ,	ICR7100: 34 ,	ICR7000: 08 ,	ICR8500: 4A ,
ICR9500: 72 ,	ICR75: 5A ,	ICR71: 1A ,	ICR72: 32 ,
PCR-1000: N/A ,	PCR-1500: N/A ,	PCR-2500: N/A ,	ICR10: 52

ICR20: **6C**

Ten Tec: Select from the specific models listed or the ICOM interface for older models as specified in your user manual. Although the Paragon II emulates the IC-765, it has been specifically coded so as to take advantage of extended features such as CAT PTT operation.

MARS-ALE RADIO CONFIGURATION AT PROGRAM START

When the program starts, communications will be established with the selected radio. For some make/model radios it is an absolute requirement that the radio be attached to the PC and powered on. Most radios are configured at program start for parameter settings known to provide best ALE radio operation. For example, the captured display screen below depicts the IC-7000 as the selected radio at start:

```
[13:58:13][CHN 03][*****]
[13:58:13][CHN 03][MARS-ALE Standard Edition (SE) v1.02 Beta started. Running build: B001A8f9 ]
[13:58:13][CHN 03][*****]
[13:58:13][CHN 03][Uncheck MOTD for hardware ALE stations or AQC-ALE interoperability.]
[13:58:13][CHN 03][MARS-ALE SE v1.02 Beta B001A8f9 will expire 01/31/06]
[13:58:13][CHN 00][Radio Setup: IC-7000 initialization completed]
[13:58:13][CHN 00][Radio Setup: IC-7000 set Twin Peak Filter to OFF]
[13:58:13][CHN 00][Radio Setup: IC-7000 set Manual Notch to OFF]
[13:58:13][CHN 00][Radio Setup: IC-7000 set Auto Notch to OFF]
[13:58:13][CHN 00][Radio Setup: IC-7000 set Noise Reduction to OFF]
[13:58:13][CHN 00][Radio Setup: Please set your NOISE BLANKER to OFF]
[13:58:12][CHN 00][Radio Setup: IC-7000 set PREAMP to OFF]
[13:58:12][CHN 00][Radio Setup: IC-7000 set ATT to OFF]
[13:58:12][CHN 00][Radio Setup: IC-7000 set AGC to FAST]
[13:58:12][CHN 00][Radio Setup: IC-7000 supports SPLIT MODE for QS/S]
[13:58:12][CHN 00][Radio Setup: IC-7000 being initialized]
```

Below is the data capture for the IC-7800 at startup, note that the Frequency display is active in this case rather than channel display as selected from the MIL-STD-188-141 options menu:

```
[13:59:48][FRQ 06907000][*****]
[13:59:48][FRQ 06907000][MARS-ALE Standard Edition (SE) v1.02 Beta started. Running build: B001A8f9 ]
[13:59:48][FRQ 06907000][*****]
[13:59:48][FRQ 06907000][Uncheck MOTD for hardware ALE stations or AQC-ALE interoperability.]
[13:59:48][FRQ 06907000][MARS-ALE SE v1.02 Beta B001A8f9 will expire 01/31/06]
[13:59:48][FRQ 10163500][Radio Setup: IC-7800 initialization completed]
[13:59:48][FRQ 10163500][Radio Setup: IC-7800 set Twin Peak Filter to OFF]
[13:59:48][FRQ 10163500][Radio Setup: IC-7800 set RTTY Filter to OFF]
[13:59:47][FRQ 10163500][Radio Setup: IC-7800 set Manual Notch to OFF]
[13:59:47][FRQ 10163500][Radio Setup: IC-7800 set Auto Notch to OFF]
[13:59:47][FRQ 10163500][Radio Setup: IC-7800 set Noise Reduction to OFF]
[13:59:47][FRQ 10163500][Radio Setup: Please set your NOISE BLANKER to OFF]
[13:59:47][FRQ 10163500][Radio Setup: IC-7800 set PREAMP to OFF]
[13:59:47][FRQ 10163500][Radio Setup: IC-7800 set ATT to OFF]
[13:59:47][FRQ 10163500][Radio Setup: IC-7800 set AGC to FAST]
[13:59:47][FRQ 10163500][Radio Setup: IC-7800 partially supports SPLIT MODE for QS/S]
[13:59:46][FRQ 10163500][Radio Setup: IC-7800 set Dual Watch OFF]
[13:59:46][FRQ 10163500][Radio Setup: IC-7800 being initialized]
```

At present, for most radio make/models, no attempt is being made to interrogate that a radio is actually attached or what that radio model may be other than Kenwood models by their radio ID and those that require polling. The software via the display of data similar to above, will actually depict what Kenwood radio is attached and configure it accordingly as Kenwood (and Motorola) are the only manufacturers that provides this level of integration for all their models. Although ICOM is beginning provide radio ID, you still need to know the specific ICOM radio address, which makes it rather moot. To date very few other radios provide this capability.