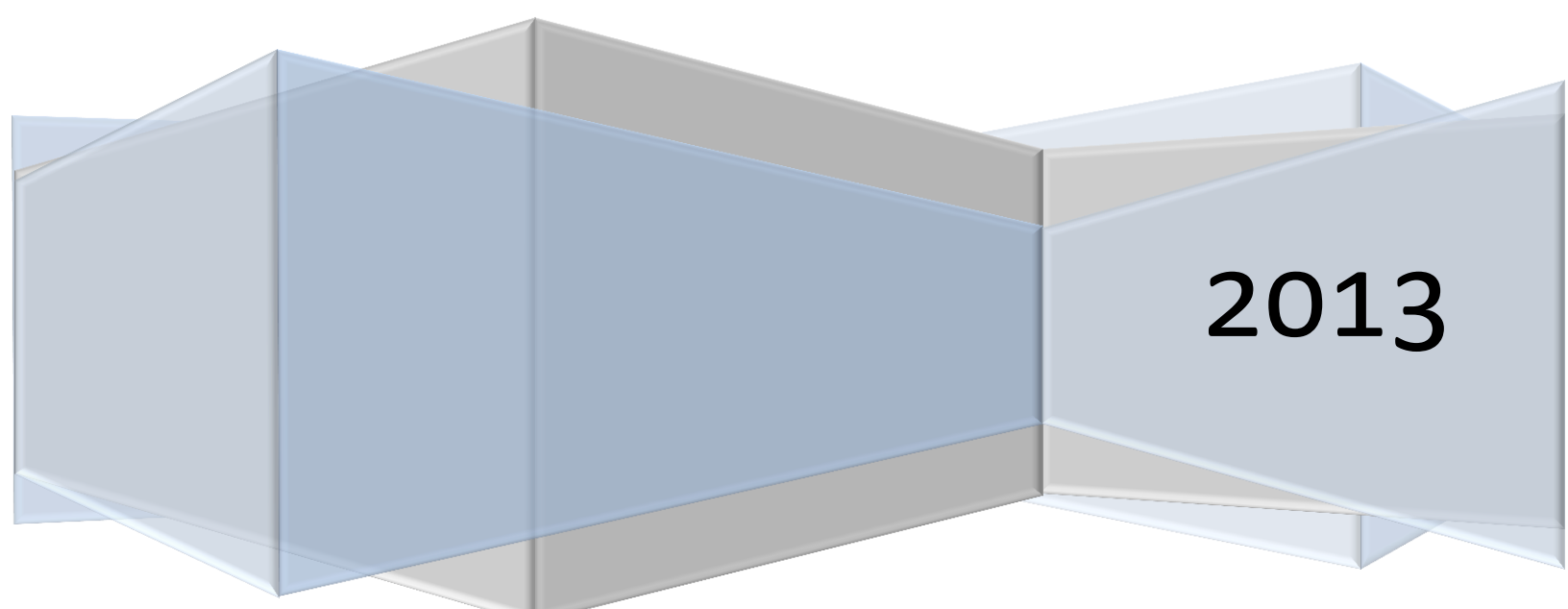


HRD Software LLC

HRD Rig Control

Ham Radio Deluxe V6.0

Tim Browning (KB3NPH)



2013

HRD Rig Control

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Introduction

Ham Radio Deluxe is a suite of programs designed to provide everything the avid amateur radio operator needs all in one package.

Rig Control, Logbook, Digital Modes, Rotor Control, and Satellite Tracking are all built into the software. Each module has its own sub-set of features and all modules are designed to communicate with each other so total integration is achieved.

Although the different modules in HRD can be run separately, to take full advantage of the power and versatility built into the software, it's best to run the entire suite.

Minimum System Requirements

HRD is an advanced program with the latest in database and information management. Because of the large amount of storage and memory that the software uses, a certain minimum level of hardware support is needed. Essentially the rule is, the older and smaller (in storage) the hardware, the slower the database and lookups will operate. Also, very large databases will slow down storage.

Notes: HRD will NOT run properly on Windows 2000 or any 16bit version of Windows such as Win95/98/ME.

Minimum System Requirements

Windows XP SP3

1GB RAM Memory

10GB unused hard drive storage

Pentium 5 (P5) Processor

1024x768 256 color display

Windows 7

4GB RAM Memory

50GB unused hard drive storage

Dual Core Processor

1920x1080 Hi-Color display

Another very important requirement, especially for Rig Control, is a quality connection between the computer and the radio. Different radio manufacturers have different requirements as far as cables to connect their radios to a computer CAT control. Its best to check your radio user's manual to determine the proper cables and connection requirements.

In general most radios require an RS-232 connection at the computer end. Most computers today do not come equipped with RS-232 ports. If you are using a desktop computer it is to your advantage to purchase an RS-232 card and install it in your computer. They can be found on E-Bay for around \$15.00, give or take.

For those who use laptops or computers where you can't install an RS-232 card you will have to have a good quality USB/Serial converter. Here's where things can get interesting. There are many of these converters available that are very inexpensive. A word to the wise...STAY AWAY FROM THEM. The problem is a few years ago the market was flooded with counterfeit Prolific chip sets. Many of these chip sets were used to build these inexpensive converters and the

drivers were poorly written. According to the Prolific website the company has recently started BRANDING products with legitimate Prolific chip sets. They are marked with the Prolific logos, a part number and serial numbers and other information that identifies the parts as genuine.

Ham Radio Deluxe however puts an extremely heavy load on the RS-232 ports and have found that cables and converters with the FTDI chip sets seem to work best. These products are extremely reliable and it is recommended you use a cable or converter that has this chip set.

You can check on the HRD Software LLC website to find dealers where you can purchase these cables and converters, or they are available on E-Bay, and many DO advertise the use of the FTDI chip sets in their products.

Supported Radios

Ham Radio Deluxe supports over 80 radios from major manufacturers. The following is a list of currently supported models.

Elecraft

K2, K3, KX3 (in K3 mode)

FlexRadio

PowerSDR

ICOM

IC-7000, IC-703, IC-706, IC-706MkII, IC-706MkIIIG, IC-707, IC-718, IC-7200, IC-725, IC-726, IC-728, IC-729, IC-7200, IC-735, IC-736, IC-737, IC-738, IC-7400, IC-746, IC-746Pro, IC7410, IC-751A, IC-751A (Piexx), IC-756, IC-756Pro, IC-756ProII, IC-756ProIII, IC-7600, IC-761, IC-765, IC-7700, IC-775DSP, IC-7800, IC-9100, IC-781, IC-821H, IC-910H, IC-R10, IC-R20, IC-R7000, IC-R75, IC-R8500, IC-R9000, IC-R9500

ICOM

PCR-1000

Kenwood

R-5000, TS-140S, TS-2000, TS-440S, TS-450S, TS-480, TS-50S, TS-570, TS-590, TS-60S, TS-680S, TS-690S, TS-790, TS-850, TS-870, TS-940S, TS-950, TS-B2000

Microtelecom

Perseus

SDR-RADIO

Ten-Tec

Argonaut, Jupiter, OMNI VII (Radio), OMNI VII (Remote), Orion, RX-350, Eagle

Yaesu

FT-100, FT-1000D, FT-1000MP MkV, FT-600, FT-817, FT-840, FT-847, FT-857, FT-890, FT-897, FT-900, FT-920, FT-990, FT-2000, FT-450, FT-950, FTDX-5000, FTDX-9000

Although your radio appears on the supported list not all functions on some radios are available to be controlled via CAT. The available functions for a particular radio may be limited due to the command set installed in the radio by the manufacturer.

Getting Started

The first step in getting started with Ham Radio Deluxe is to install the software. If you purchased Ham Radio Deluxe from a vender or hamfest, insert the CD in your computer to start the installation process. If you have not yet gotten a copy of Ham Radio Deluxe you can download the latest version from the HRD Software website at www.hrdsoftwarellc.com.

If you have not yet purchased Ham Radio Deluxe, you can still download the latest version from the website. Once you run the program and are presented with the registration screen, if you are connected to the internet, just type in your callsign and hit OK and you will automatically be granted a 30 day trial license. If you **ARE NOT** connected to the internet, the trial period is seven (7) days.

Registering HRD

When you first install and start Ham Radio Deluxe you will see the software registration screen. The following is a step by step procedure to register HRD if your computer is not connected to the Internet. These are step by step instructions to insure you will be able to get your software up and running the first time you try.

Manual Registration

MANUAL REGISTRATION/NO INTERNET CONNECTION

New User Key

Welcome to HRD!
Thank you for trying our product.

If you purchased HRD from a dealer, please enter the Purchase Key and your Callsign below.

Type the key that is found on the sticker inside your CD case or that was sent to you with your subscription.

Purchase Key: - - -

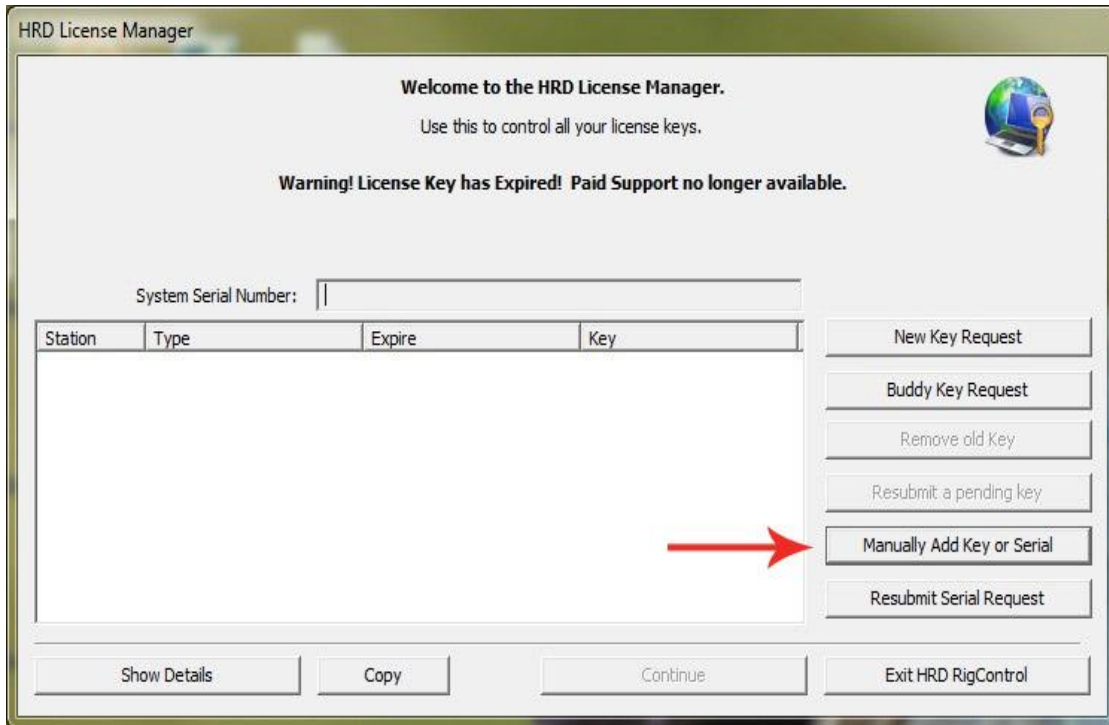
Type the key that is found on the sticker inside your CD case.
If you purchased HRD from the website, leave the purchase key blank.

Callsign:

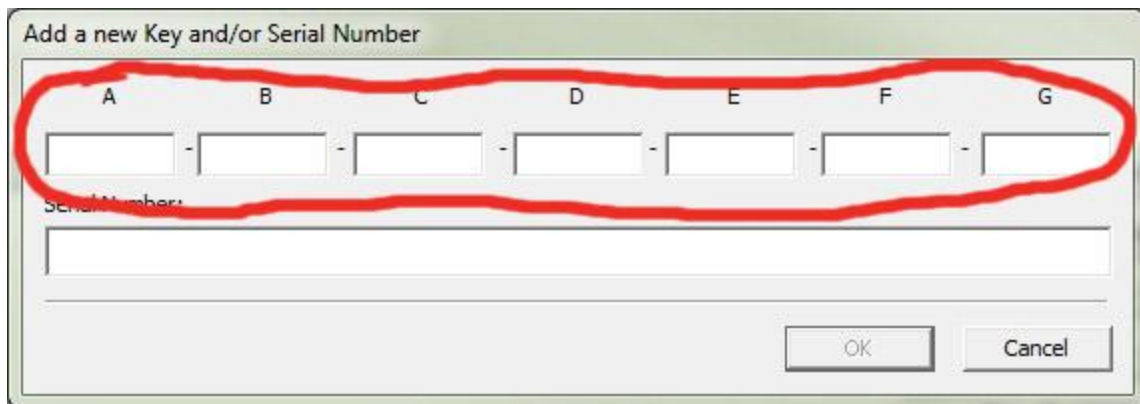
Type your callsign. This is the primary callsign for this license.

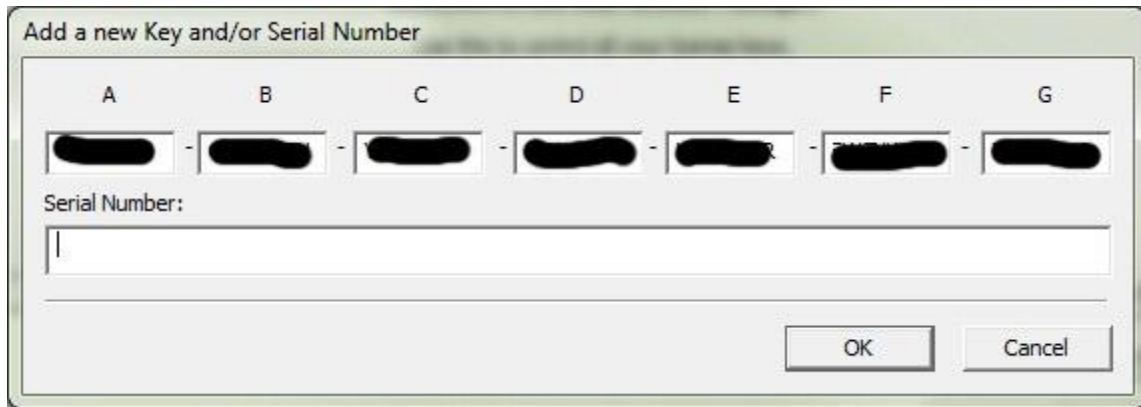
On the above screen enter your **callsign** in the lower field and press **OK**

On this next screen click on the **Manually Add Key or Serial** button.



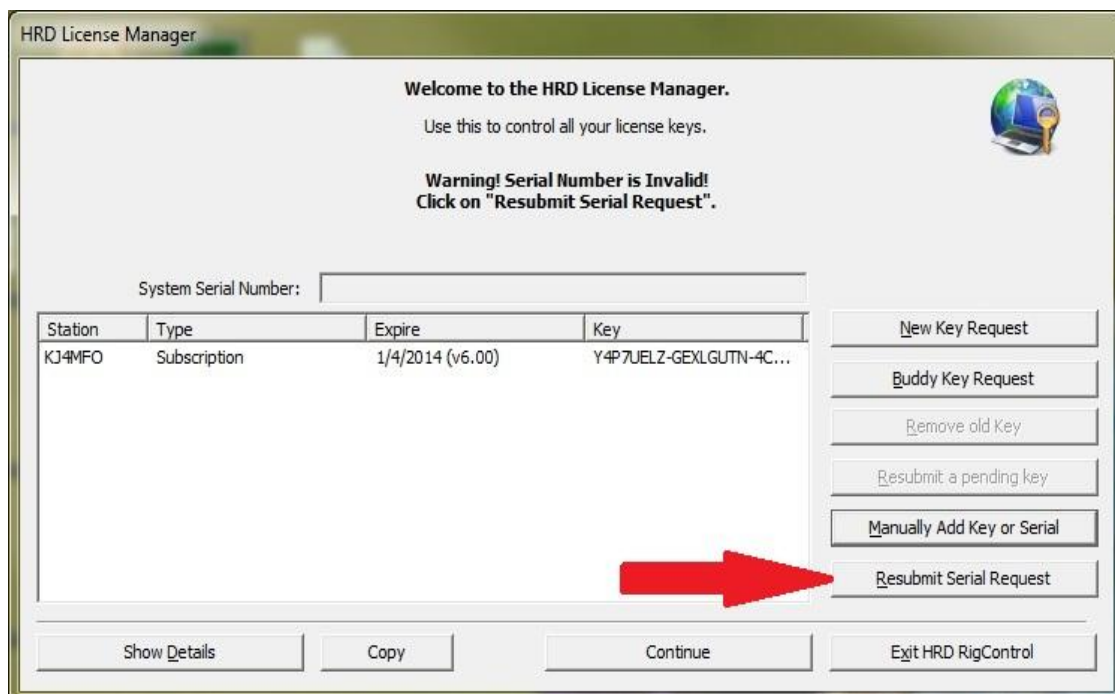
Now you will come to the window where you enter your license key. If you do not have this key, please send an e-mail to key@hrdsoftwarellc.com to request a key.



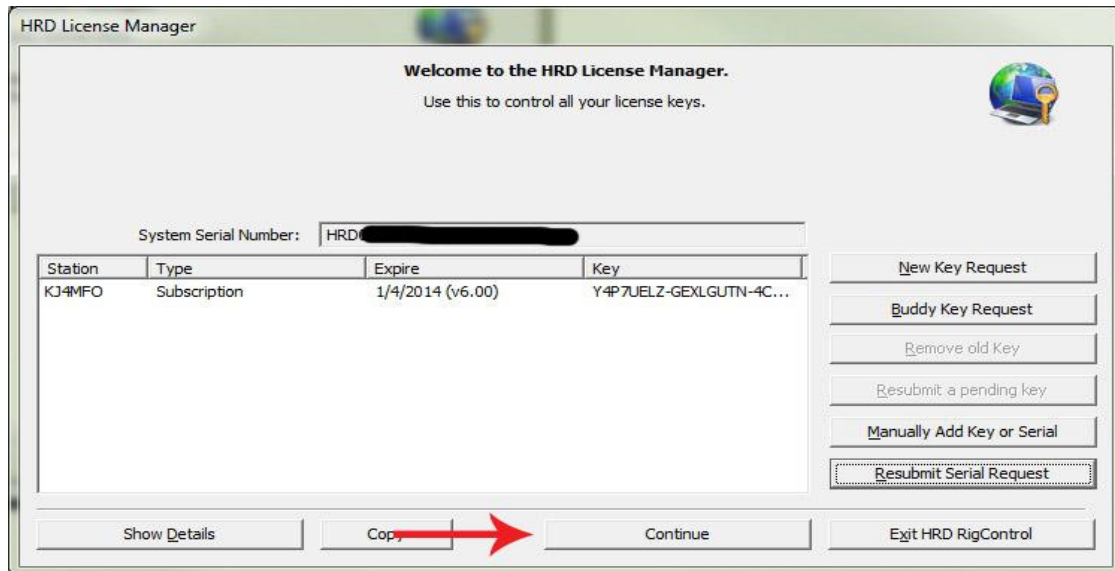


After you have typed or copied and pasted your key, click on OK.

You will now be at the Welcome Screen. If you see the **Warning** message indicating the **Serial Number is Invalid**, click on the **Resubmit Serial Request** button.



A serial number will appear in the System Serial Number box and you are ready to click on the **Continue** button.



Clicking on the Continue button will take you to the Radio Setup screen in Ham Radio Deluxe.

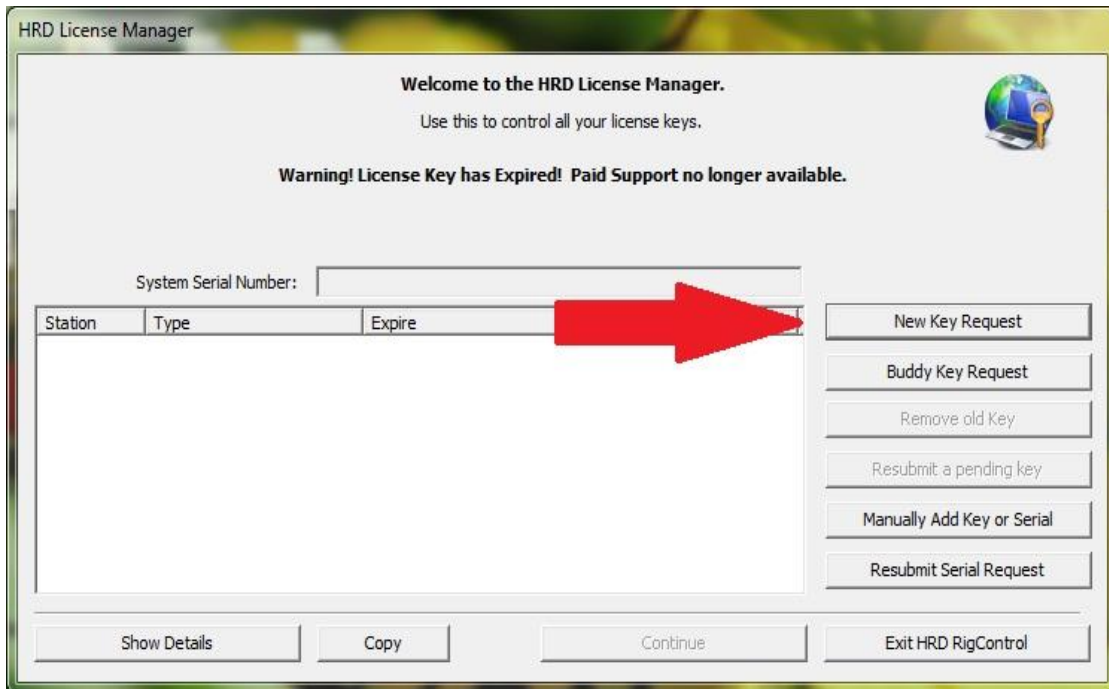
Internet Registration

This next section will cover the registration for those who **DO** have an internet connection.

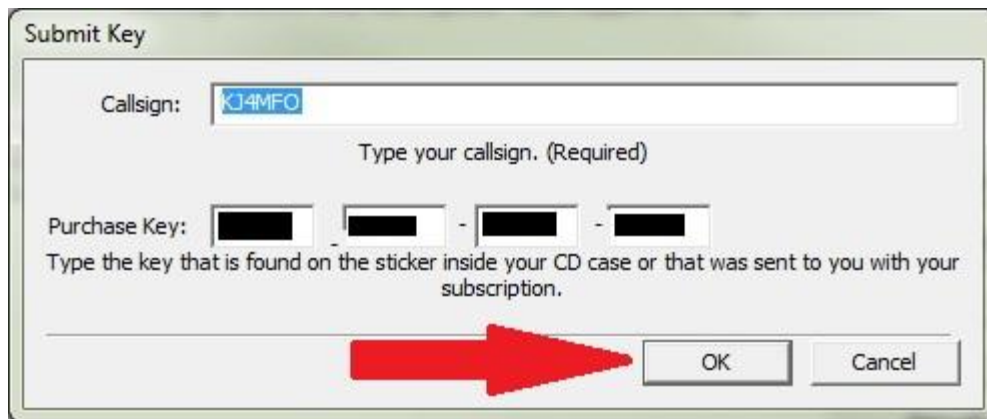
After installing and running the Ham Radio Deluxe software you will see the following screen. Enter your callsign and click OK.



On this next screen click the **New Key Request** button.

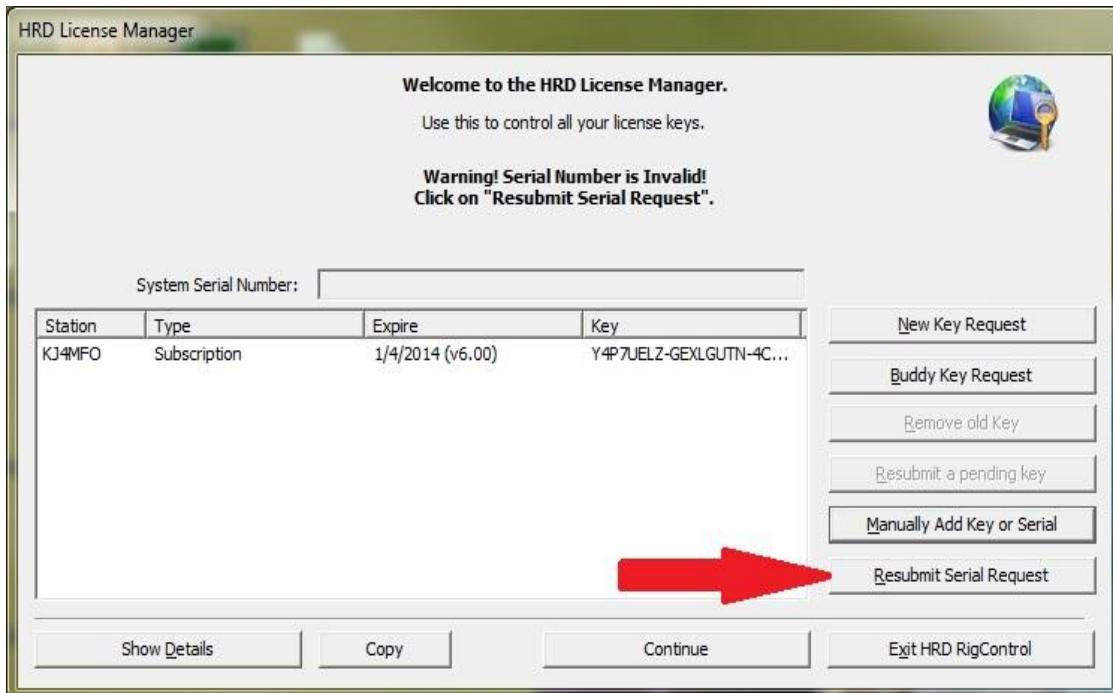


You are now at the screen where you again enter your callsign and your purchase key, which you should have received by e-mail. If you haven't received this key please send an e-mail to key@hrdsoftwarellc.com to request a key.

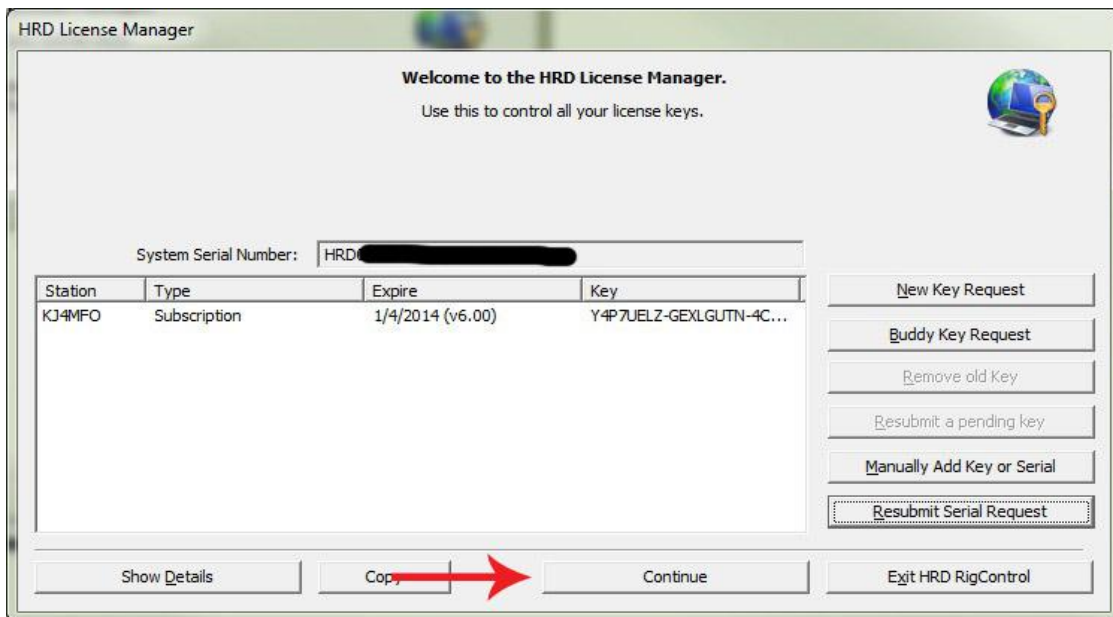


Once you have entered your callsign and purchase key, click on the OK button.

The Welcome Screen will now return and if you see a **Warning Serial Number is Invalid** message like the one below, click on the Resubmit Serial Request Button.



A new serial number will appear in the System Serial Number box. You are now ready to click on the Continue button at the bottom.

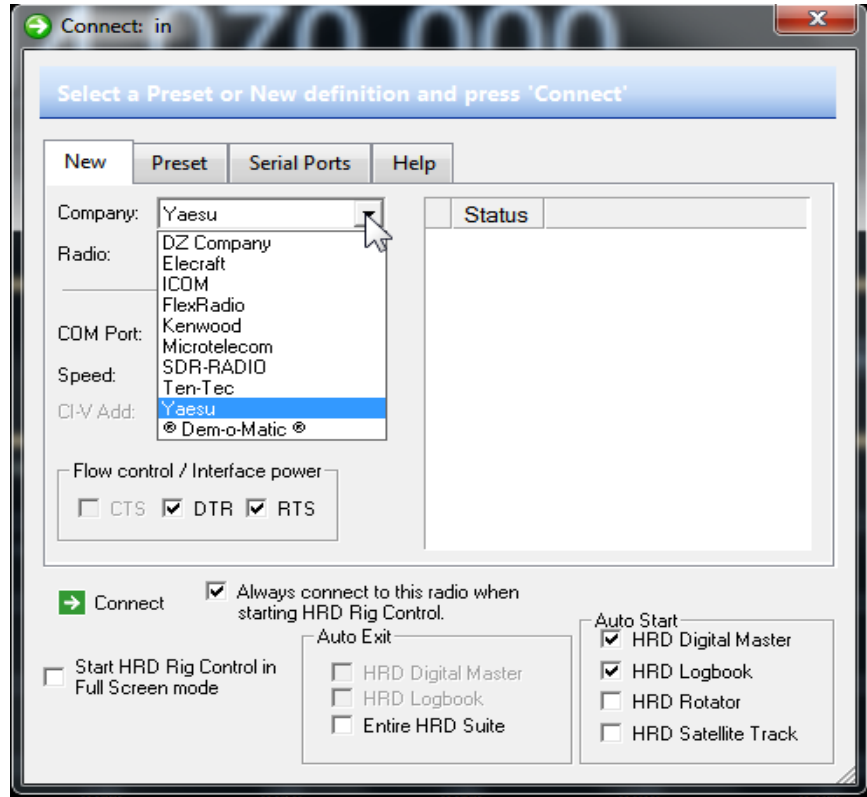


Once you have clicked the Continue button you will be presented with the Ham Radio Deluxe radio setup screen.

Radio Setup

If you haven't done so yet, shut down your computer and connect your cables from the computer to the radio. Turn on your radio and re-start your computer. The next screen you should see is the radio connection setup screen. This is where you select your radio and set some parameters to allow the HRD Rig Control software to connect to your radio.

Select Radio



Radio Setup Screen

Company

Select your radio manufacturer from the drop-down list. The Dem-o-Matic radios do not require a COM port, they are for demonstrating HRD when you do not have a suitable radio available.

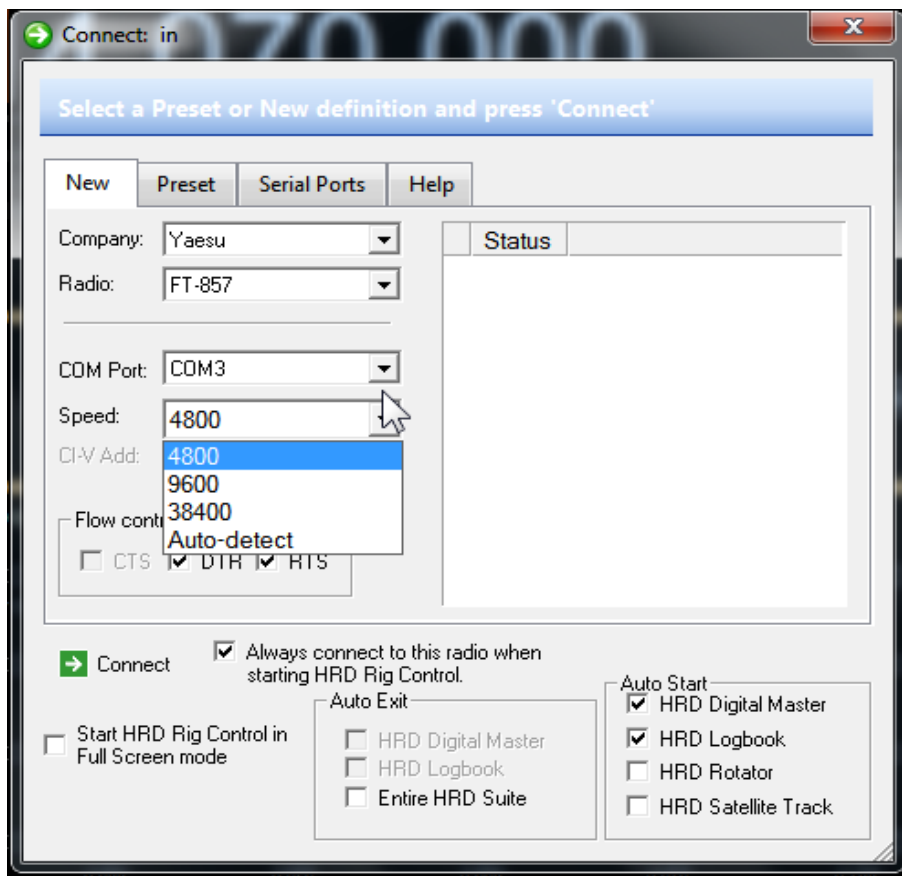
FlexRadio: you must install the virtual serial port drivers from Philip Covington (N8VB). These are used to provide the connection between HRD and the PowerSDR software which must be running before you try to create the connection with HRD. More information is available from <http://www.flex-radio.com/>.

ICOM: disable the CI-V Transceiver option for best performance.

Kenwood: make sure Packet communication mode is switched OFF (if supported). Most Kenwood radios require CTS and RTS to be ON for flow control.

Select Your Com Port

Select your radio model from the drop-down list.



COM Port

The COM port on this computer where you have connected the radio interface cable. Make sure that you do not have other programs using the same port. It is recommended you NOT use the Auto-Detect. The Auto-Detect can sometimes fail to detect the port.

Speed

The speed used for communicating with the radio, check the speed setting via the radio's configuration menu. Again, it's not recommended to use the Auto-Detect. Also remember that **"FASTER IS NOT ALWAYS BETTER"**. Sometimes faster speeds can cause timing problems when sending commands back and forth between HRD and the radio. The important thing is that you set the speed in HRD and the port speed in the radio the same. Check your radio manual to find out how to set the com port speed.

Select Flow Control

CI-V Address

ICOM only: the address assigned to the radio, consult the radio's manual for the default address. This can also be configured via the radio's configuration menu. A list of default addresses can be found at the end of this section.

CTS

Enables the CTS flow control, required for Kenwood radios.

DTR

Enables the DTR line when the COM Port is opened and leaves it on, usually to provide power for an interface cable. For Yaesu CT-62 and ICOM CT-17 interfaces this can be left unchecked (off).

RTS

Enables the RTS line when the COM Port is opened and leaves it on, usually to provide power for an interface cable. For Yaesu CT-62 and ICOM CT-17 interfaces this can be left unchecked (off).

Next, put a check in the boxes for DTR and RTS. Some radios don't require both of these settings checked so they can be unchecked if there is a failure to connect to the radio.

If you will be connecting more than one radio to HRD and you would like the current one to be the default radio, place a check in the box where it says "**Always connect to this radio when starting HRD Rig Control**".

On the lower part of the setup panel you see several other options. You can select to have HRD start in the FULL SCREEN mode by putting a check in the box. You will also see a group for Auto Exit. These options are not yet implemented in V6.0. There is also check boxes to allow the other modules in the HRD suite to start when the Rig Control is started. It isn't necessary to auto-start all of the modules. They can be started from within the different displays.

Default CI-V Addresses (ICOM)

04 = IC-735	06 = <unknown>	08 = R7000
10 = IC-275	12 = IC-375	14 = IC-475
16 = IC-575	18 = IC-1275	1A = R71
1C = IC-751A	1C = IC-IC-751A (Piexx)	1E = IC-761
20 = IC-271	22 = IC-471	24 = IC-1271
26 = IC-781	28 = IC-725	2A = R9000
2C = IC-765	2E = IC-970	30 = IC-726
32 = R72	34 = R7100	36 = <unknown>
38 = IC-728	3A = IC-729	3C = IC-737

3E = IC-707	40 = IC-736	42 = IC-820
44 = IC-738	46 = IC-775DSP	48 = IC-706
4A = IC-R8500	4C = IC-821H	4E = IC-706MkII
50 = IC-756	52 = IC-R10	54 = <unknown>
56 = IC-746	58 = IC-706MkIIG	5A = IC-R75
5C = IC-756Pro	5E = IC-718	60 = IC-910H
62 = IC-78	64 = IC-756ProII	66 = IC-746Pro
66 = IC-7400	68 = IC-703	6A = IC-7800
6C = IC-R20	6E = IC-756ProIII	70 = IC-7000
74 = IC-7700		

If you are sure everything is set properly on this screen your ready to click the CONNECT icon (the little green box with the arrow in it). If all settings are correct the next screen you should see is the main HRD Rig Control display.

Problem Solving

Windows returns the error 'Access Denied' when the COM port is held open by another program.

If the frequency is showing random values make sure you have actually connected to a radio and not to another device connected to you PC such as a PDA or mobile phone. Also look at the USB <=> serial converter issues below.

Check the baud rate.

Check that a CI-V interface (ICOM) or special Yaesu cable such as the CT-62 is receiving power from the COM port, normally by selecting DTR and/or RTS.

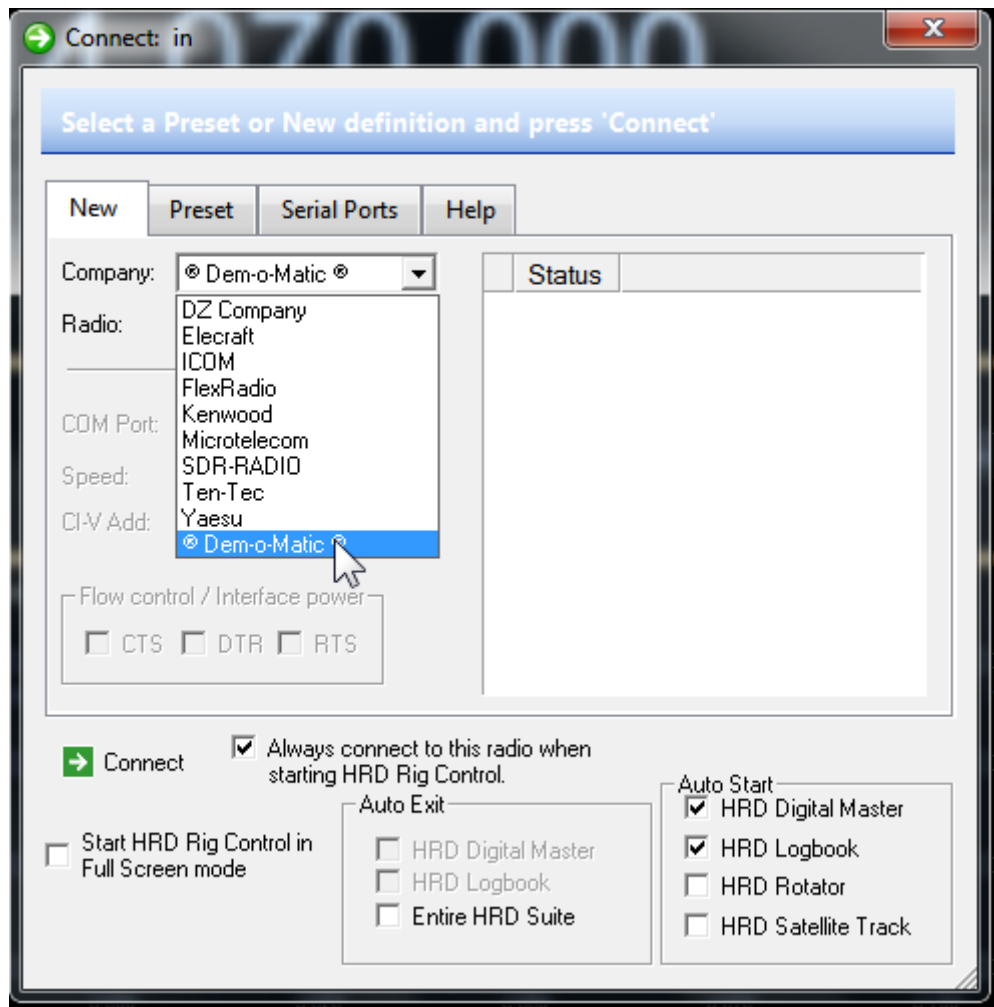
If you are using a USB <=> serial converter then:

- Make sure you have installed the latest manufacturer's drivers,
- Not all USB <=> serial converters can handle the load from modern control software.

If you are using a USB hub:

- Make sure it is a powered hub (has its own power supply), otherwise it may not be able to provide enough current to power the converter.

Dem-O-Matic



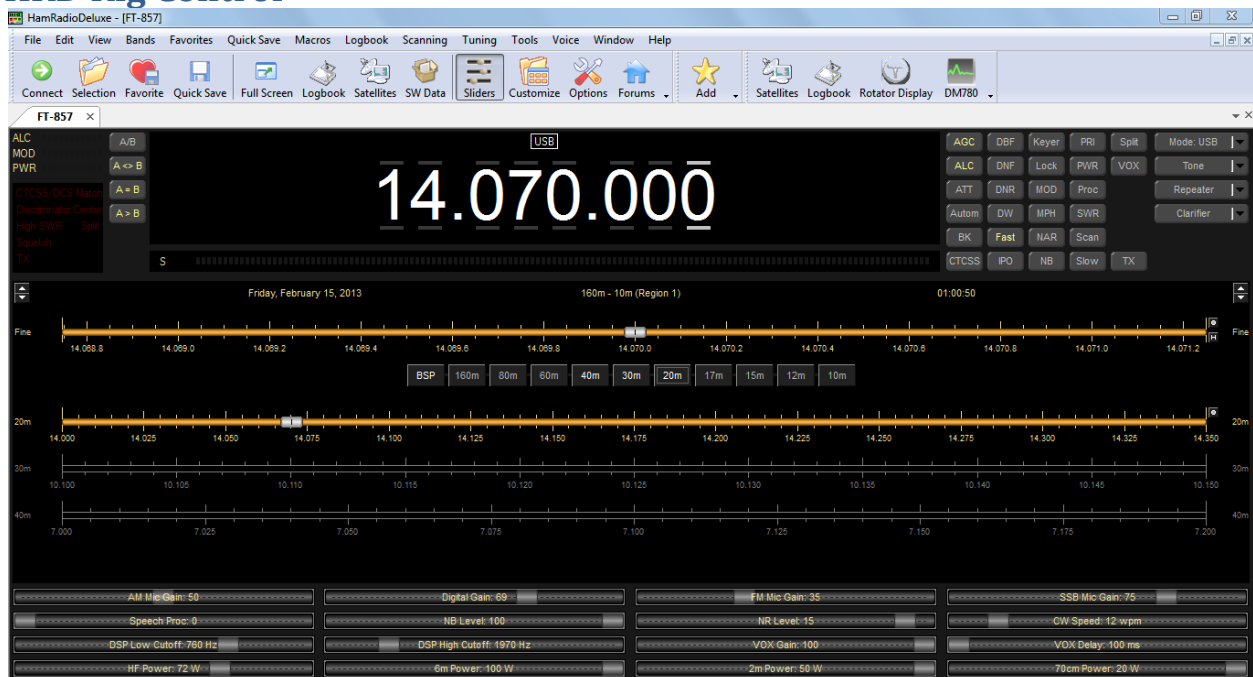
A nice feature included in the setup panel is known as the Dem-o-matic mode. This mode simulates having an actual radio connected to the computer and controlled by HRD.

In the Company drop-down box select the last option which is Dem-o-matic. In the Radio drop-down menu select any one of the radios available.

When you press the connect button in the Dem-o-matic mode, HRD will start and operate just as if there were a radio connected.

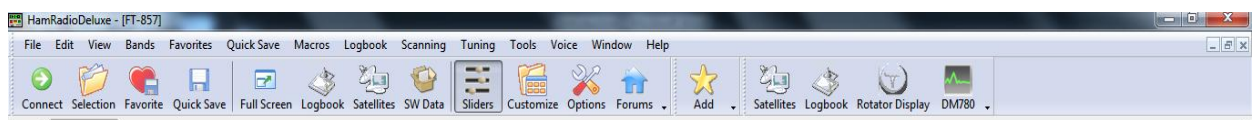
You will be able to log QSOs in the logbook or if you have an audio interface such as a Signalink or similar connection between the computers soundcard and the radio you will be able to operate in the digital modes. The only thing that would not function is the Rig Control. You would have to set frequencies and modes on your radio manually and adjust the DEMO radio in HRD to match frequency and mode for logging purposes.

HRD Rig Control



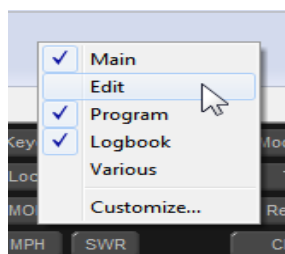
HRD Rig Control Screen

Once everything is configured properly in the Radio Setup Panel and the HRD Rig Control software is able to connect to your radio you will be presented with a screen similar to the one in the above illustration. Your display may differ somewhat depending on the which radio you are using and the radio controls that are available for CAT control. In this manual we are using a Yaesu FT-857D.

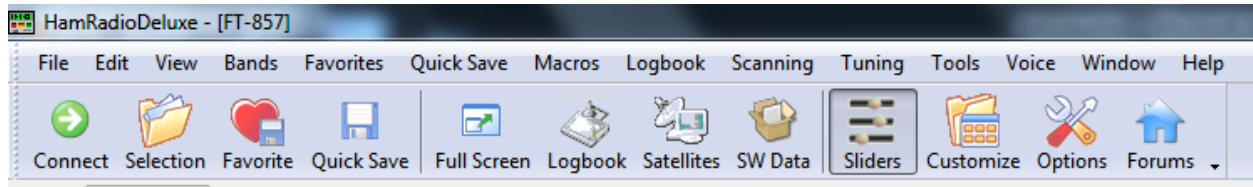


Rig Control Toolbar

At first glance the HRD Rig Control screen looks very complicated. In reality, once you start using it you will find it is quite simple to navigate around. The toolbar is actually divided into several sections and is very customizable. We will break it into sections and explain what each icon and command does.



Placing your cursor on a blank portion of the toolbar and right clicking brings up a menu that allows you to customize the icon toolbar or even hide parts or all from view. We will now remove the check marks from the Program and Logbook portions and take a close look at only the Main icon toolbar.



Main Toolbar

Actually there are two toolbars displayed here. We have a Text Menu across the top and the icon toolbar under the Text Menus.

Starting from the left, clicking on the **Connect** icon brings up the **Connect Panel**. This is where we configured our radio and connections to the radio when first installing the HRD software.

The next **Selection** icon opens a panel that can be pinned to the Rig Control display and contains many of the features and data managers used in the Rig Control program.

The **Favorite** icon opens a window that allows you to create and save new folders in your Favorites list. We will talk about that a little later. For now we will just say that if you do create a new folder you need to enter at least one frequency in it, at the time of creation, or it will not be saved when you exit the window.

If you're listening to an interesting frequency, it could be a net, a short-wave broadcast or just about anything and you would like to hold onto the frequency, clicking on the **Quick Save** icon places the frequency in a special data file where you can retrieve it later.

The **Full Screen** icon expands the default view to a full screen view. Pressing the F4 key will return the screen view to normal. Also the F4 key will toggle between the full screen and the normal view.

The **Logbook** icon opens the HRD Logbook display.

Clicking the **Satellites** icon opens the Satellite tracking module.

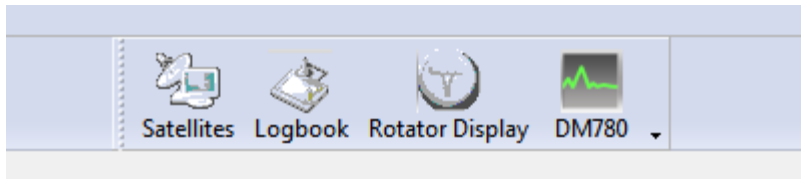
For those who are SWL fans, HRD contains an optional SWL Frequency Database. Pressing the **SWL Data** icon opens a floating window that contains this database.

The **Sliders** icon is a toggle that displays or hides the slider controls located on the lower portion of the Rig Control Display.

The **Customize** icon allows you to customize the radio display by adding or removing buttons and sliders from the display. It also allows you to change the font and colors displayed for the buttons.

Options opens the options menu for HRD Rig Control.

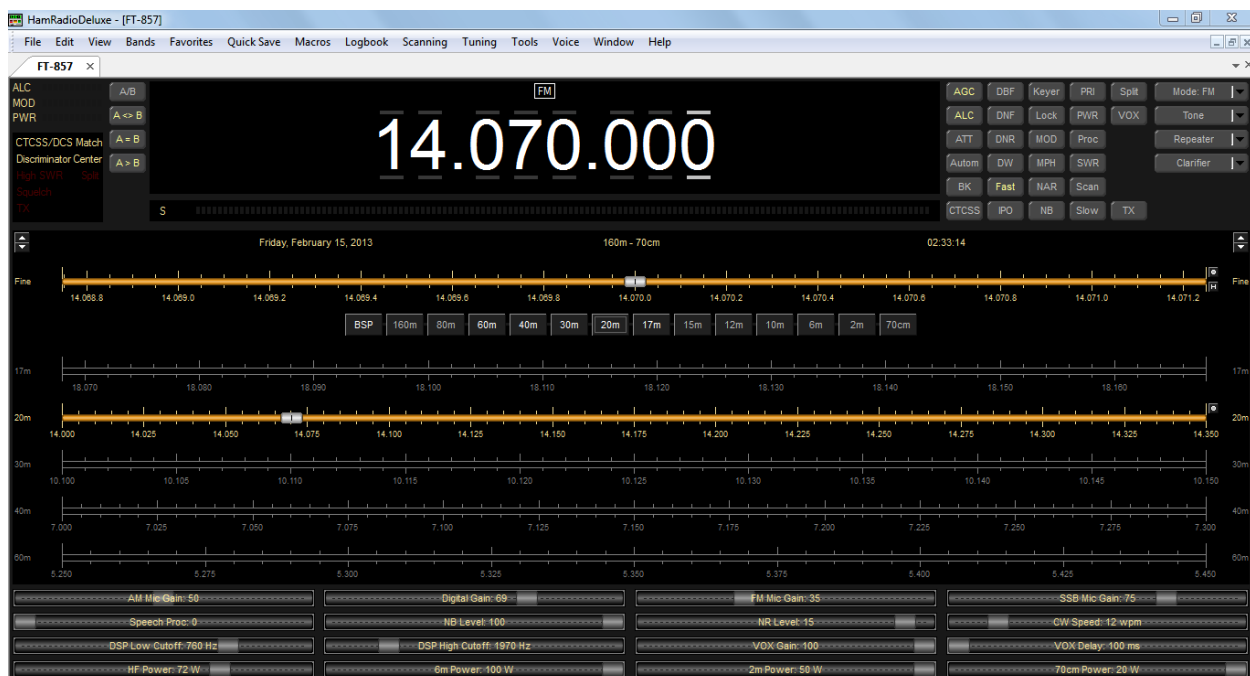
The **Forums** icon opens your web browser to the HRD Software Support Forums.



Program Icons

We have closed the Main icon toolbar and opened the Programs Toolbar. If you did not configure the Radio Setup Screen to automatically open these programs when you run Ham Radio Deluxe, you can now open them from here by clicking on the program icons.

For those who would rather have the extra space on the display and use the Text Menus to access the features, the icon toolbars can be completely hidden by removing the check marks from all the options when right clicking on a blank portion of the toolbar.



Rig Control with Icon Toolbars Hidden

The Rig Control module has many features and options built in. We will first look at some of the features, on the layout, and how they work.

Tuning The Radio

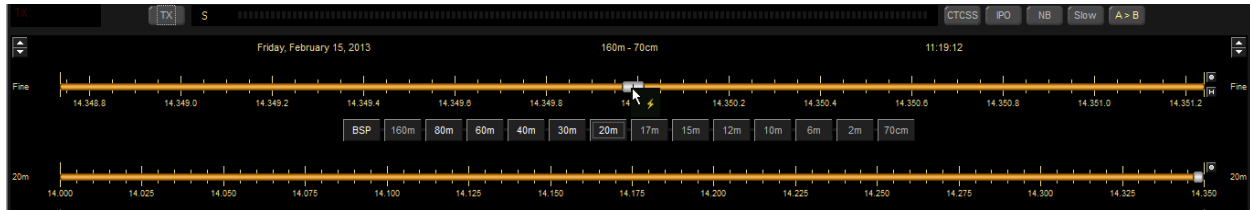
The most obvious display is the digital frequency display. There are several ways to adjust the frequency using HRD Rig Control.

Mouse Wheel: When you place your cursor on a digit in the display and rotate the mouse wheel in the digit is incremented/decremented depending on the scroll direction

Up/Down: The **up-arrow**, **down-arrow**, **+** and **-** keys increment/decrement the active digit.

Mouse-click: Select a digital by clicking over the digit. To increment / decrement click above / below the center of the digit. Holding the mouse button down will increment/decrement the digits continuously.

Direct Entry: To enter values by placing your cursor on a digit and press a numeric key (0-9). The active digital is updated and the cursor moves to the next digit to the.



Tuning Bars

You can also tune the frequency settings by using the tuning bars. The ones shown in the above illustration are for the 20 meter band. The upper tuning bar is for FINE tuning the radio. If you place your cursor on the silver tuning indicator in the center of the top tuning bar, click and hold the left mouse button then slide the indicator to the right or left you will see the frequency numbers incrementing/decrementing according to which direction you move the mouse.

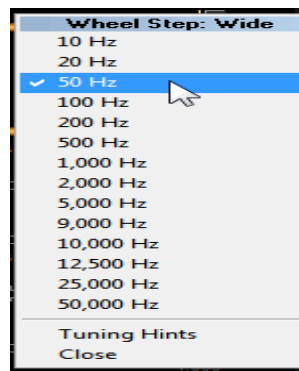
You can also just hold the cursor in position on the center indicator and left-click and you will see the tuning bar move under the mouse position to adjust the frequency.

The upper tuning bar is for FINE tuning and only displays a segment of the, in this case, 20 meter band. The lower tuning bar is for COARSE tuning and displays the entire range of the 20 meter band.

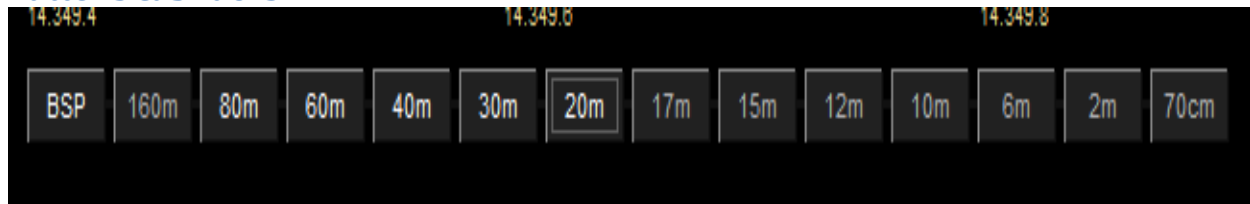


On the right end of the upper tuning bar you will notice two very small icons. Clicking on the round dot brings up a menu where you can select the increment that each click of the mouse wheel will move the frequency indicator.

Clicking on the lower icon allows you to select the width of the band segment displayed for this tuning bar. In this case it is set to 1.0 KHz

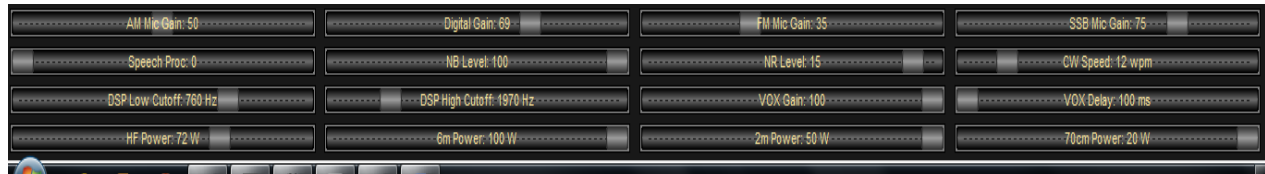


Buttons & Sliders



What's a radio without buttons. One set of buttons on our HRD Rig Control display is the **BAND SELECT** buttons. When a band button is pressed the rig returns to the last frequency and mode used on that band.

BSP (bandspread) – when you press BSP a new layout is dynamically created. The current band is split into multiple segments, for example the 20m band (14 MHz – 14.350 MHz) can be split into 7 segments, each of 50 kHz.



On the bottom portion of the display we have our slider controls. In our case, with the Yaesu FT-857 we have sliders to control our RF Power on HF, 6 Meter, 2 Meter and the 70 Centimeter bands. There are also sliders to control the Vox, Mike gains, DSP Cutoff filters and others. The sliders you may have displayed could be different.



Buttons, Buttons and more buttons. On the upper right of the display are more buttons. Most of these are toggle buttons to turn different options in the radio on and off. A few present drop-down menus to select options from like the CTCSS button which allows you to select the tone frequency used for repeater PL tones. You can also turn the

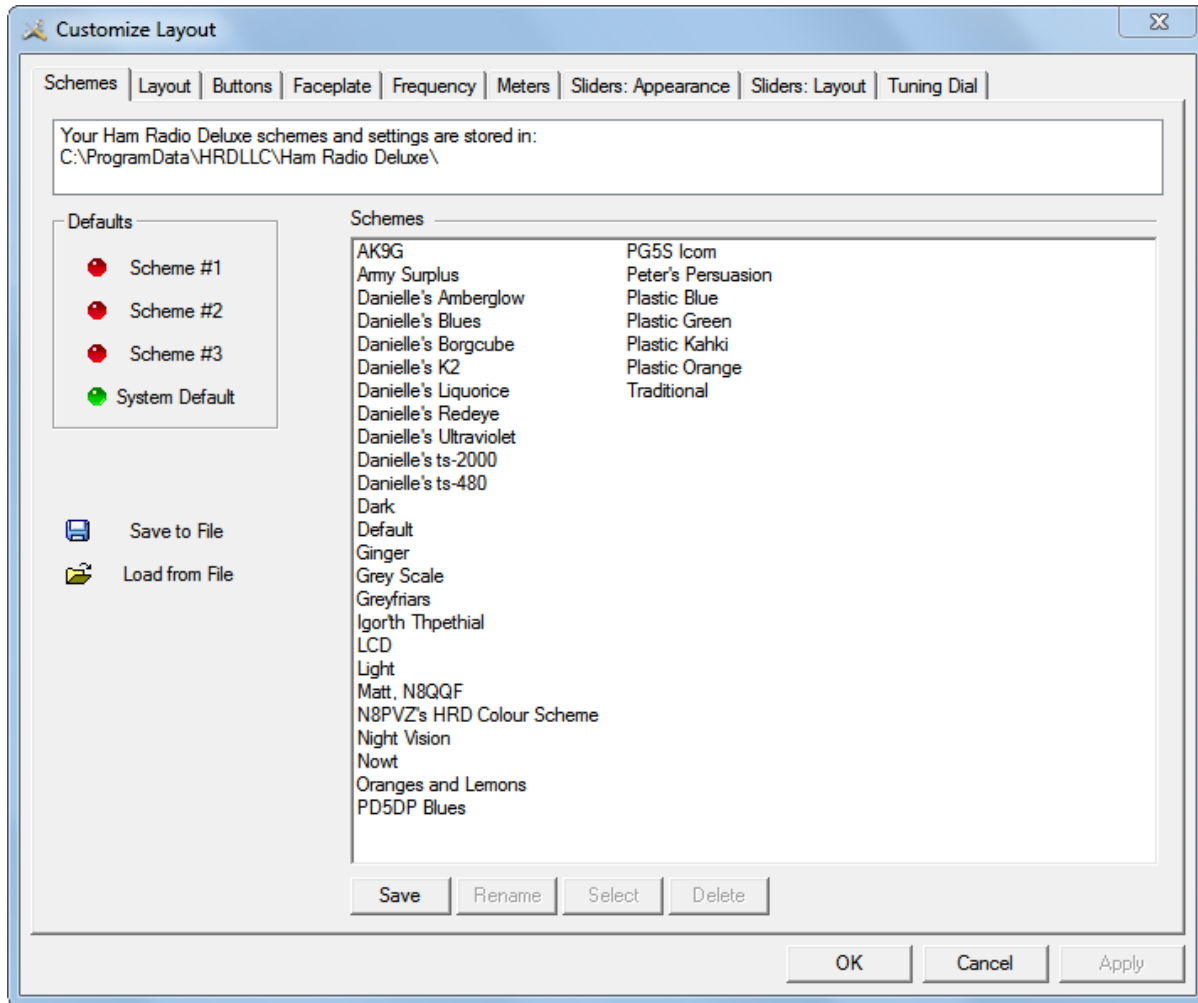
tones on and off by clicking on the Tone button on the right of the display. The Mode button allows you to select a mode, such as USB, LSB, DIG, CW, FM, or what ever mode you wish to operate the radio in.

As mentioned before, all these buttons may be different according to your radio and the CAT command set installed in the radio by the manufacturer. All the buttons and sliders are however, configurable.

Customizing Your Layout

From the menu click on TOOLS then come down to and click on CUSTOMIZE LAYOUT or pressing the Ctrl+F8 keys brings up the menu to customize your HRD display.

Schemes

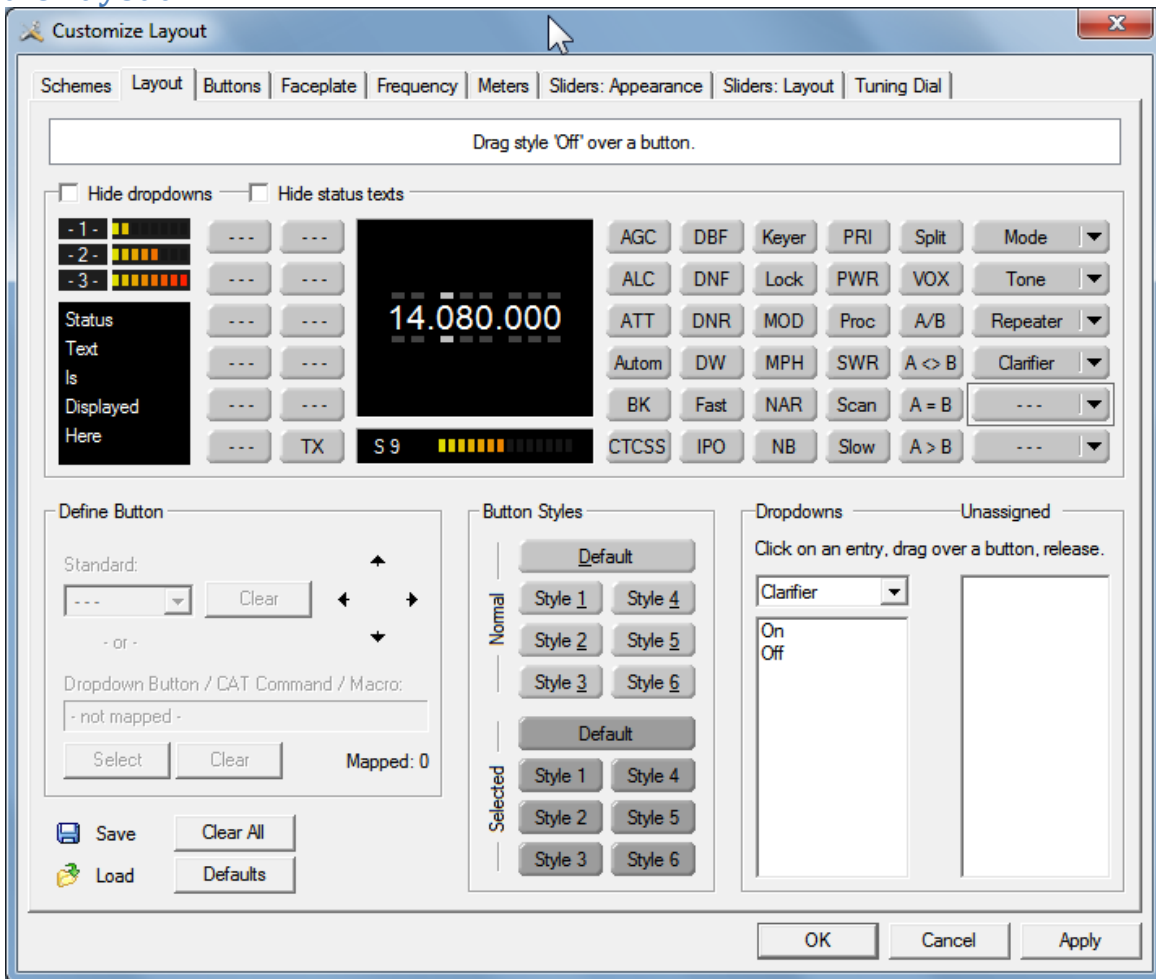


Customizing Menu

The first tab on the display is **Schemes**. Schemes are pre-defined customizations created by Simon Brown, the original author of HRD and by many other early HRD users. There are four default schemes shipped with HRD: Scheme #1 - #3 and the System Default. The HRD team and the HRD users have created the other schemes. Special thanks to Danielle, from Northallerton, UK for creating some of the more popular schemes.

Select a default scheme by pressing the scheme button (or select an entry and press *Select*); select one of the other schemes by double-clicking on the entry in the *Schemes* list. To save the current layout press *Save* – you will be prompted for a Scheme name. Use *Rename* and *Delete* to organize the available schemes.

Radio Layout



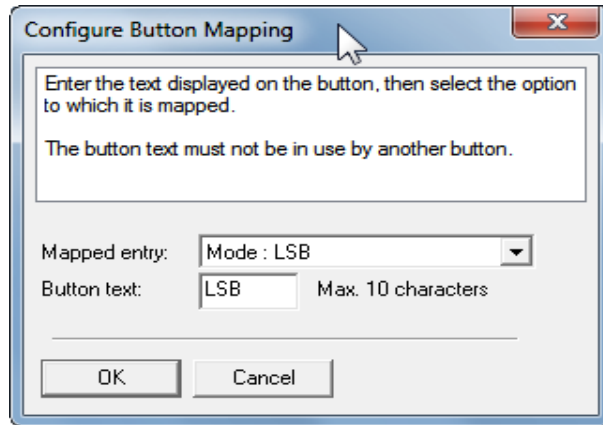
Radio View Layout

HRD is a data-driven program. For each radio there is a table of supported commands and associated button / dropdown / slider names. The layout order is more-or-less alphabetical. An early complaint was that the buttons positions were not user-definable; as a result the Layout window was designed. Don't be put off by the amount of information in this window – take it slowly and read the information here.

Dropdown Button / CAT Command / Macros

You can create new buttons - for example, to create a USB button from the Mode dropdown: Select an empty button position – the selected entry will start to blink (you can reposition this button later), Press *Select* (above the *Save* and *Load* buttons), In the *Configure Button Mapping* window select Mode : USB and enter the text to appear on the new button, then press *OK*

Button Mapping



Configure Button Mapping

The previously empty button position now has a new value – *USB!*

Hiding

Hide dropdowns hides the dropdown buttons to the right of the layout window, releasing two columns where you can assign new button definitions. *Hide status texts* hides the three top-left meters (-1-, -2-, -3-) and the status text area underneath, releasing two columns where you can assign new button definitions.

Moving Entries Move the selected entry by simply dragging it with the mouse or by using the four arrow-buttons.

Removing Entries To remove an entry either drag it into the *Unassigned* list or right-click on the button and select *Clear* from the popup menu.

Dropdowns Select the dropdown menu, and then simply drag an entry to an unused location in the display. If you drag to a location that already has a definition the current definition is removed, if a standard button it is returned to the *unassigned* list.

Unassigned Entries in the *Unassigned* list are standard buttons that are not currently displayed. Simply drag an entry to an unused location in the display. If you drag to a location that already has a definition the current definition is removed, if a standard button it is returned to the *Unassigned* list.

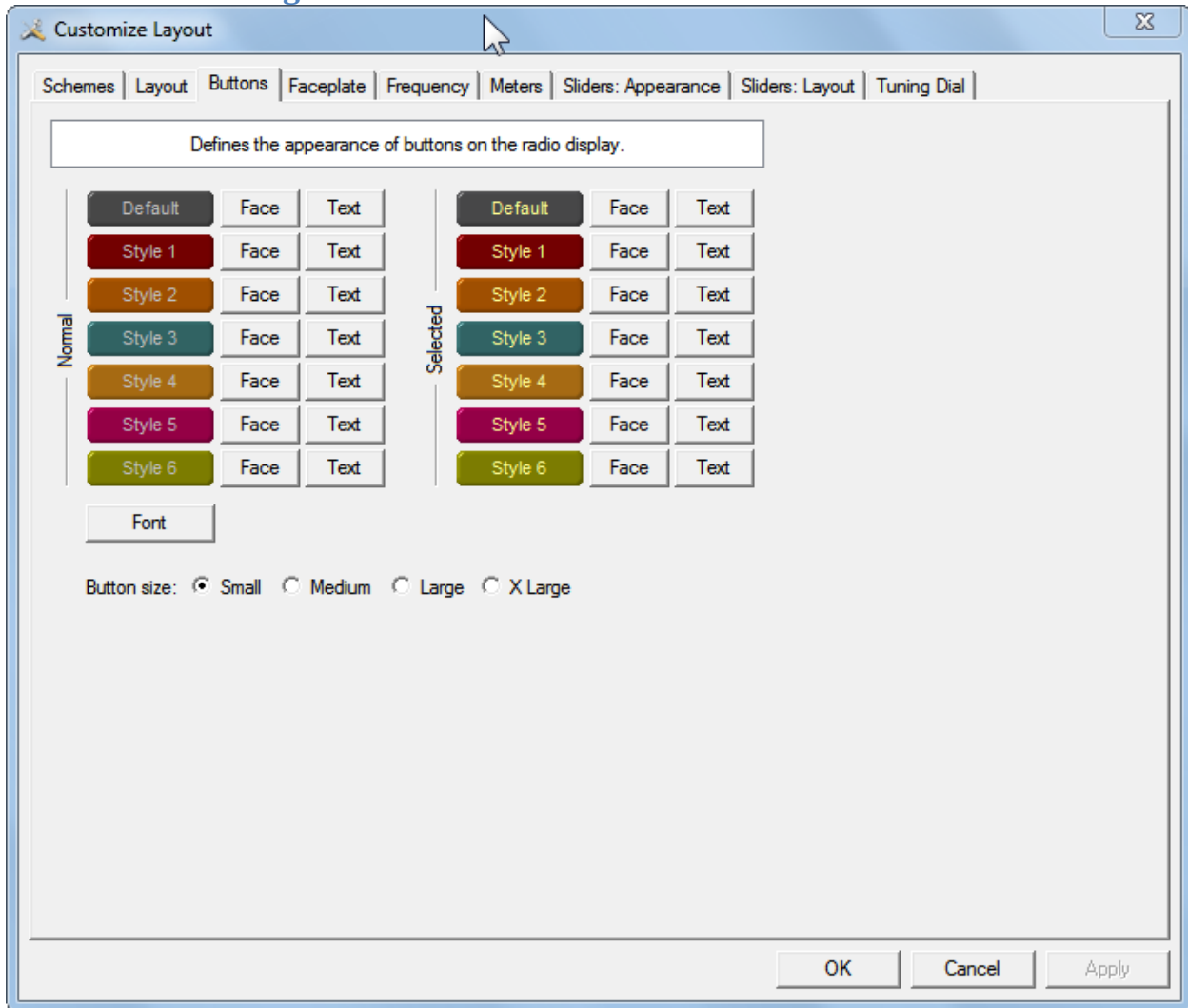
Styles

In the Buttons pane you define up to seven button styles, shown here in the Button Styles group. To assign a style to a button either: Drag the style over the button, or Click a style to apply it to the currently selected (blinking) button.

Save / Load

To distribute your layouts with other users of your radio model use the *Save* and *Load* buttons.

Button Customizing

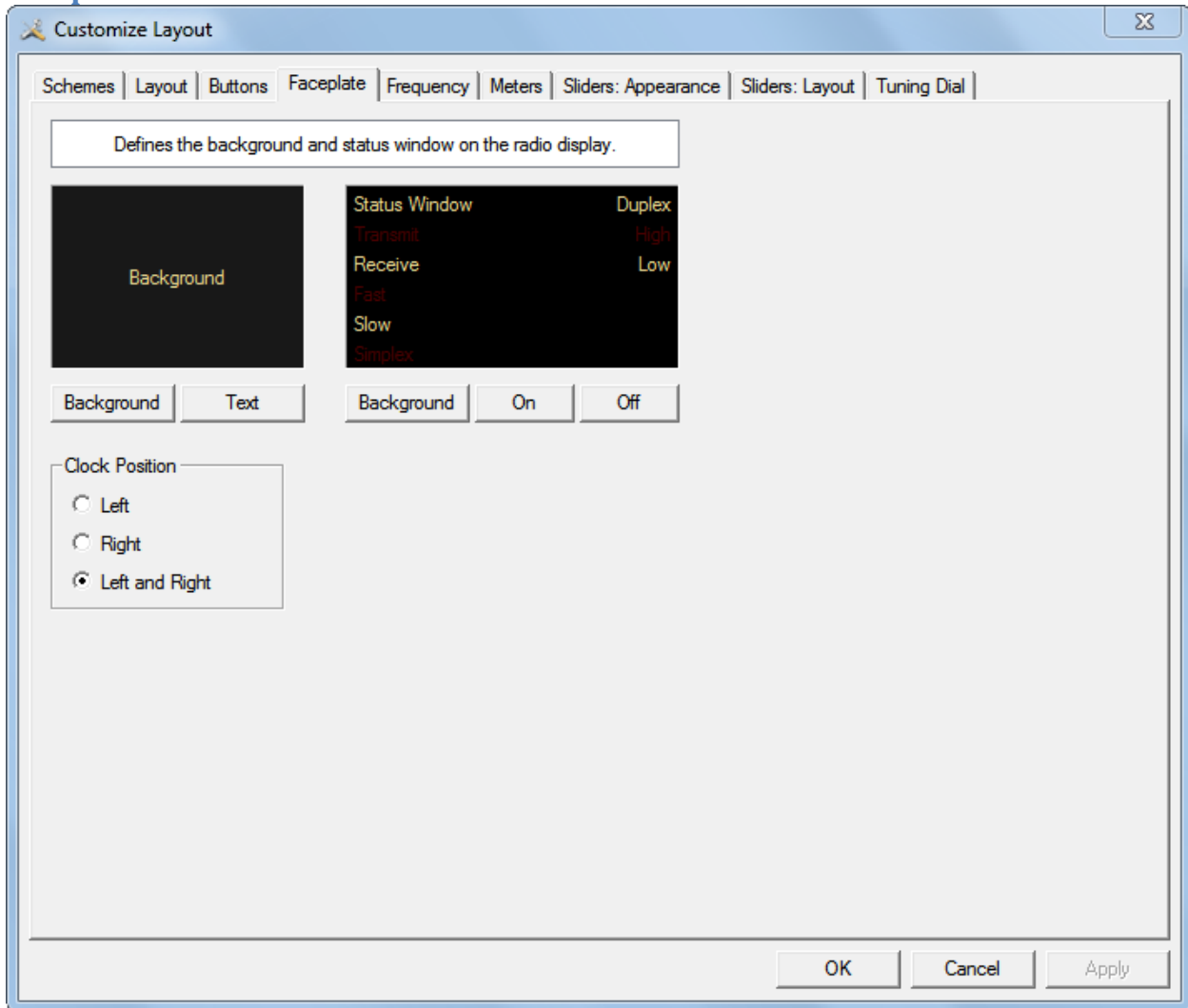


Customize Buttons

When customizing buttons you can define: Seven button color combinations, the font, and the button size.

The default button size is small. This is so that users with low resolutions such as 800 x 600 still have a usable configuration. There are no rules when using the button size. Select the size which pleases you most. For the technical readers the button size is tied to the font size of the radio display form (font is Microsoft Sans Serif, size is 8, 9, 10 or 12 point). Changing the font size simply changes the font assigned to the form.

Faceplate



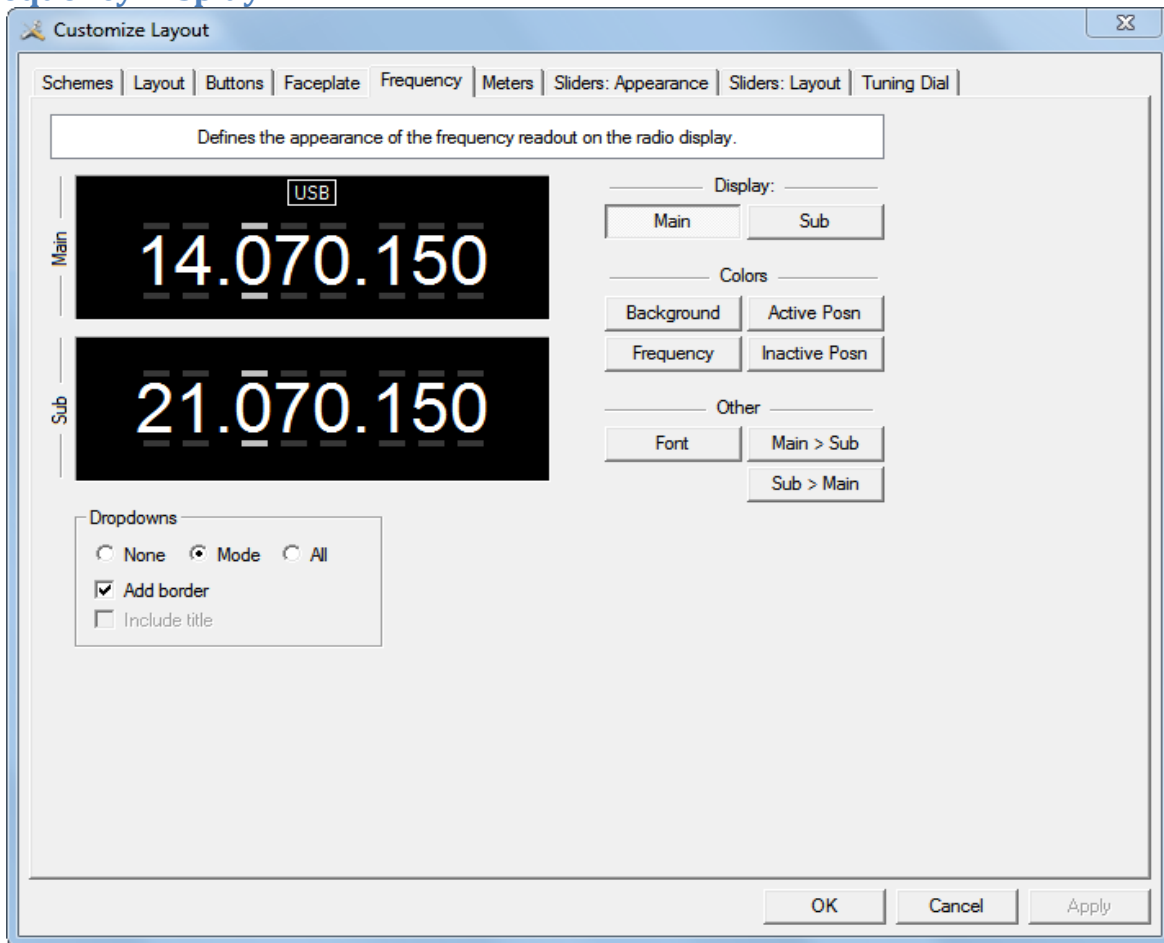
Faceplate

Background These colors are applied to the background area of the display and to the transmit meters (if any) such as PWR, SWR and ALC.

Status Window The status window displays information which you cannot normally change using buttons or sliders in HRD. Typical examples are Scanning status, Split mode and Memory channels.

Clock Position The clock is displayed to the left, right or both sides of the band title.

Frequency Display



Frequency

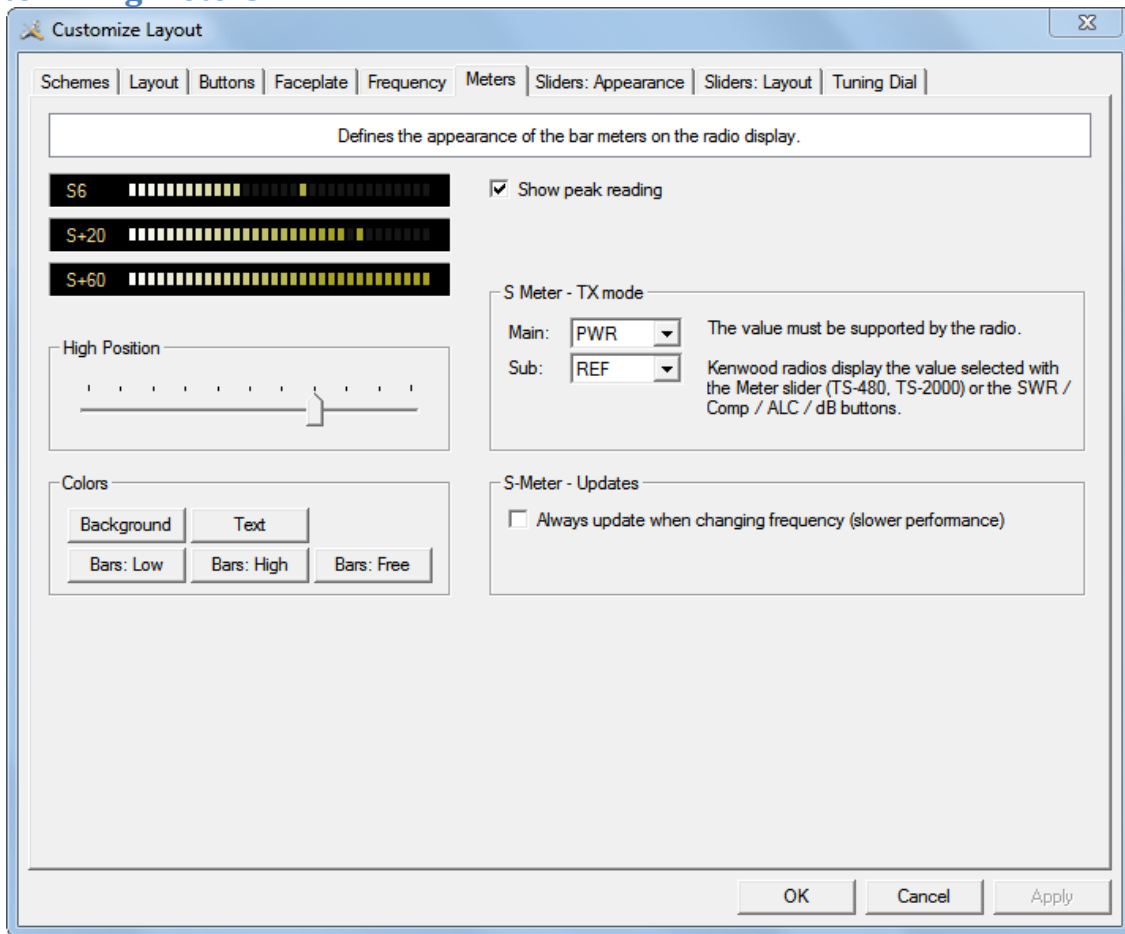
If your radio supports simultaneous access to two VFO"s (Kenwood, some Yaesu) then HRD will display two VFO"s, otherwise just one VFO is displayed. First select the VFO you are updating – main or sub. The colours you can set are: Background, Frequency – the digits, Active Posn – the bar above and below the current digit, Inactive Posn – the bar above and below the other digit,

The Font can also be set, use the Main > Sub and Sub > Main buttons to copy settings between VFO"s.

Dropdowns The dropdown buttons (Mode, Filter...) can be displayed at the top of the main frequency display. Select: None (no dropdowns), Mode (only the mode dropdown) or All (all dropdowns).

If *Mode* or *All* is selected you can check *Add Border* to add a border around the text. If *All* is selected you can check *Include Title* to add the Dropdown button,,s title (if there is room).

Customizing Meters

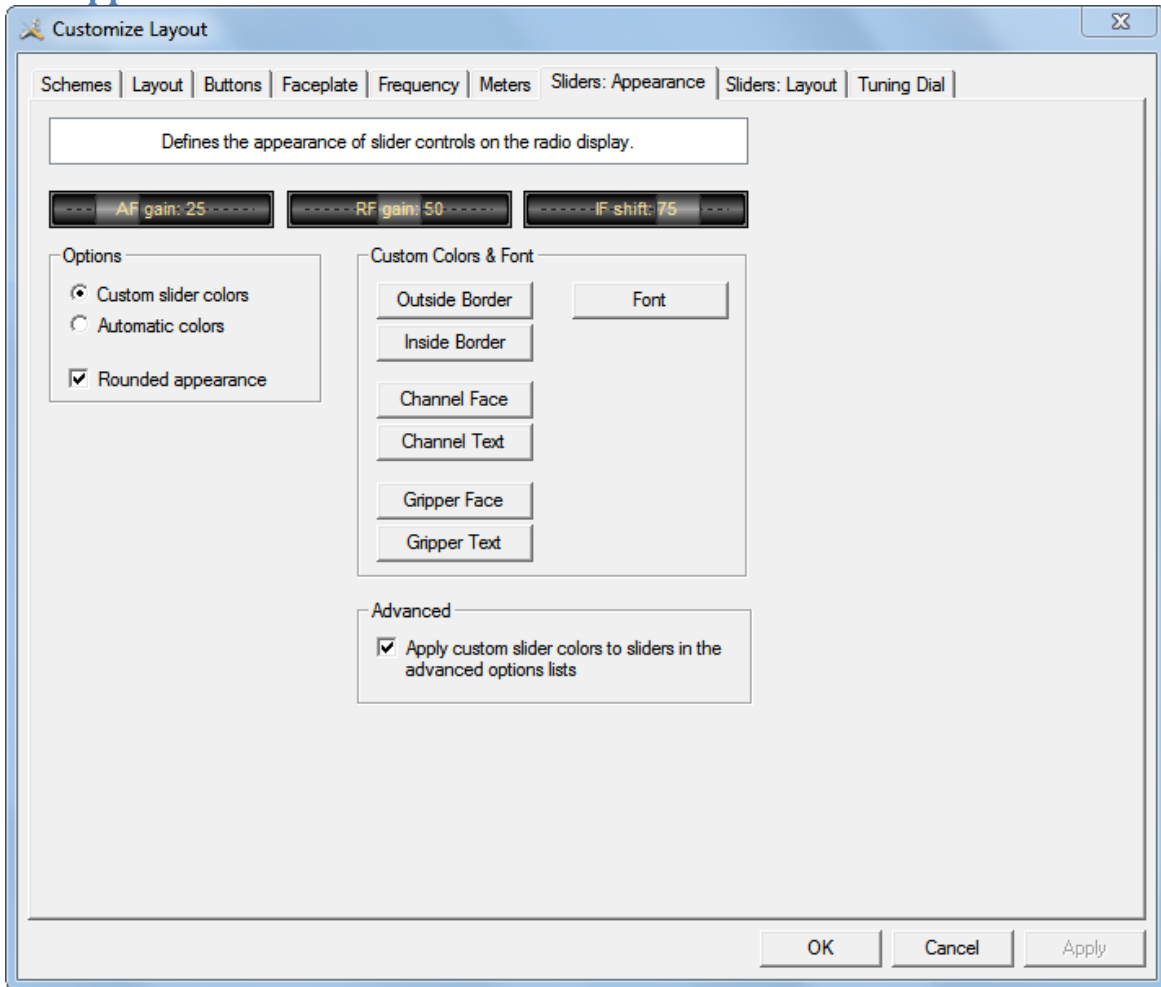


Meters

The design aim of the bar meters was heavily influenced by a Sony stereo, still giving fine service after some 15 years of abuse. The *Background* and *Text* colours should be obvious. There are three graduation colors: Bars: Low – the first bar color, Bars: High – the color at the position set by the High Position slider, and Bars: Free – the color for the free (empty) bars.

If you check *Show peak reading* the recent peak value is displayed. When HRD is in TX mode the S Meter value is replaced by the value selected in the *Main* and *Sub* dropdowns, the value you select *must be displayed by HRD in the upper right hand corner of the display*. For Kenwood radios the value to be displayed is selected with the meter slider or the individual buttons (SWR / Comp / ALC / dB). If you check the *Always update...* option then the S Meter is updated when you change frequency – this results in slower performance.

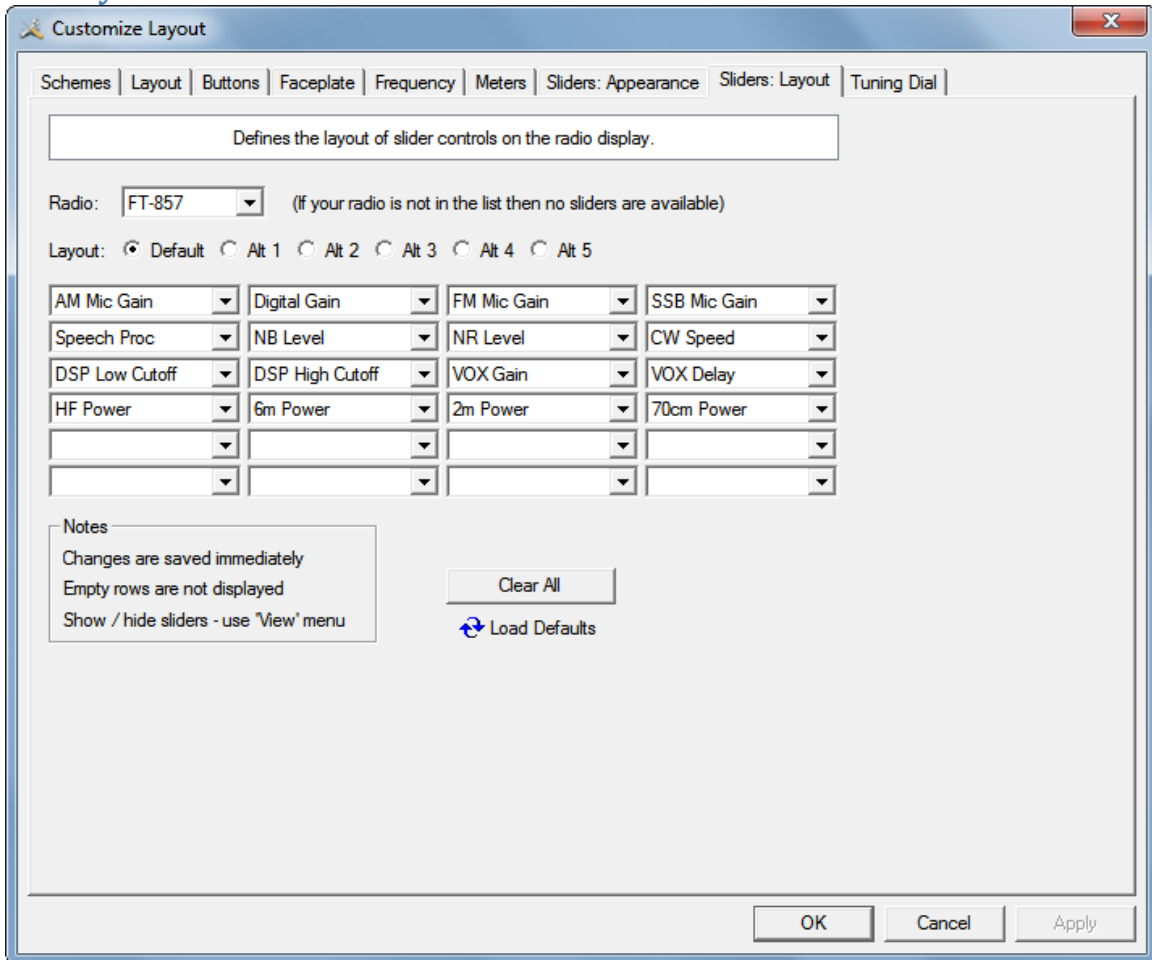
Slider Appearance



Slider Appearance

If supported by your radio, sliders are displayed at the bottom of the display. Here you define the appearance of the sliders. These colors are optionally applied to the sliders in the *Advanced* selection windows (select *Advanced* from the *View* menu).

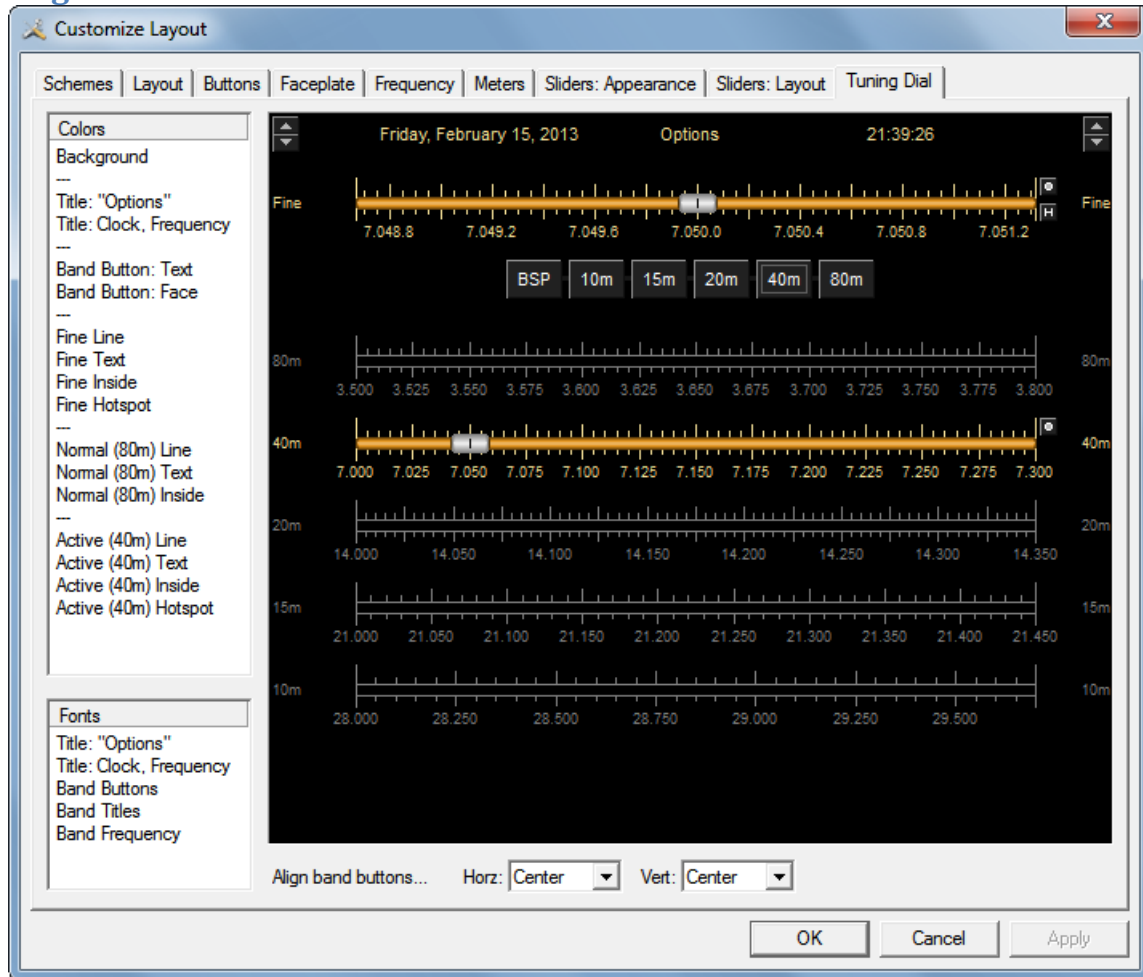
Slider Layout



Slider Layout

Here you select the sliders to be displayed. Define up to 6 layouts, for example one layout for SSB and another for CW

Tuning Dial



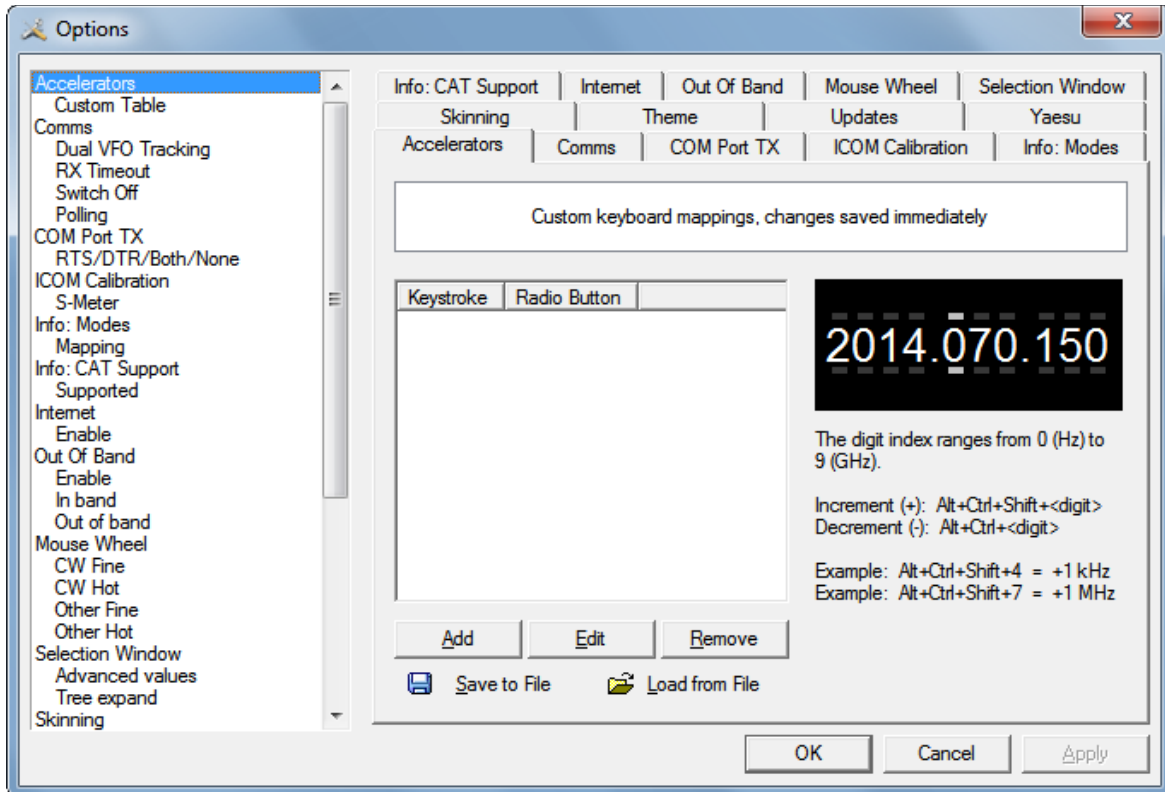
Tuning Dial

Here you define the colors, fonts and band button positions.

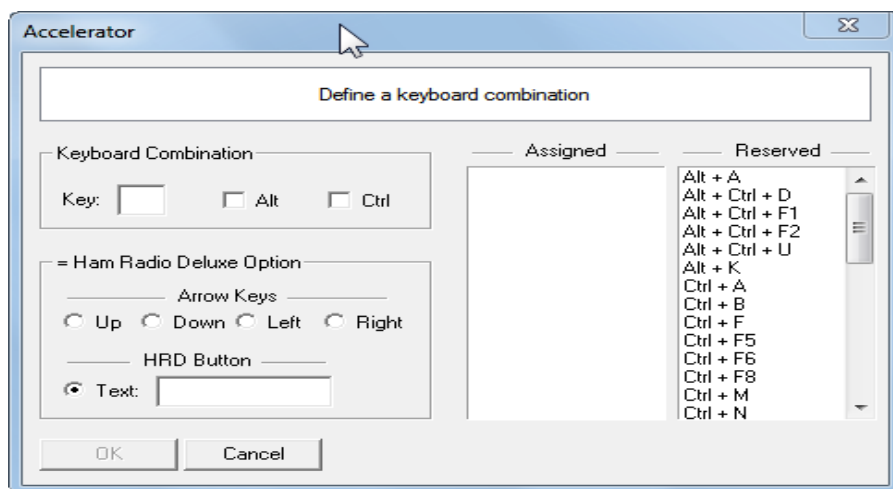
Program Options

Accelerators

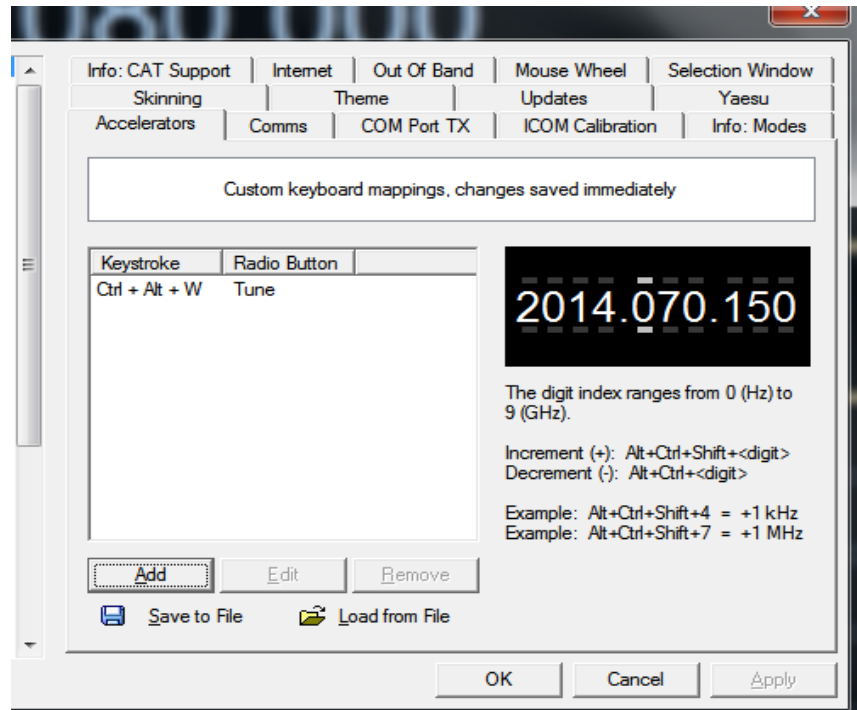
From the Rig Control menu bar, clicking on Tools > Program Options, or pressing the F8 key on the keyboard brings up the main Program Options menu.



The Accelerator tab is where we define accelerators for use with the Keyboard or with programmable interfaces such as the Griffin Powermate. When you press *Add* the definition window is displayed.

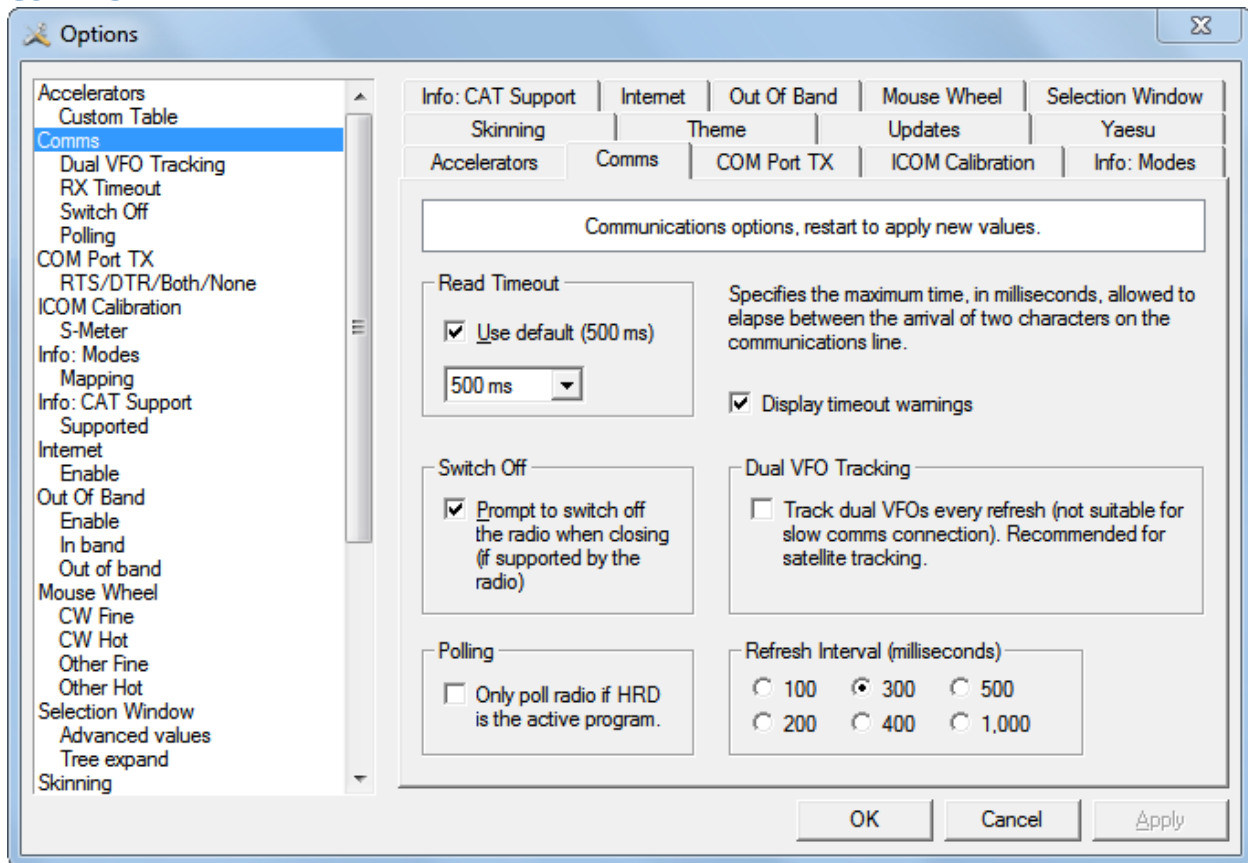


First notice on the right are pre-assigned keys, therefore we cannot use those again. As an example we will assume we want to assign the key combination **Ctrl+Alt+W** to the **Tune** button. In the **Key** field we would enter the letter **W**. We would then click in the **Alt** and the **Ctrl** box. Near the bottom of the screen you see HRD Button with a tick in the radio button to the left of Text. In that field we would enter the word **Tune**. At this point the OK button becomes active so press OK now.



After clicking the OK button you will return to the main screen and as you can see, you have assigned the Ctrl+Alt+W key combination to the Tune button in HRD. Now, just click the Save to File button below the text screen to save your key assignment to a file.

Comms



Comms

Normally you will not have to change the default settings.

Read timeout – serial port timeout.

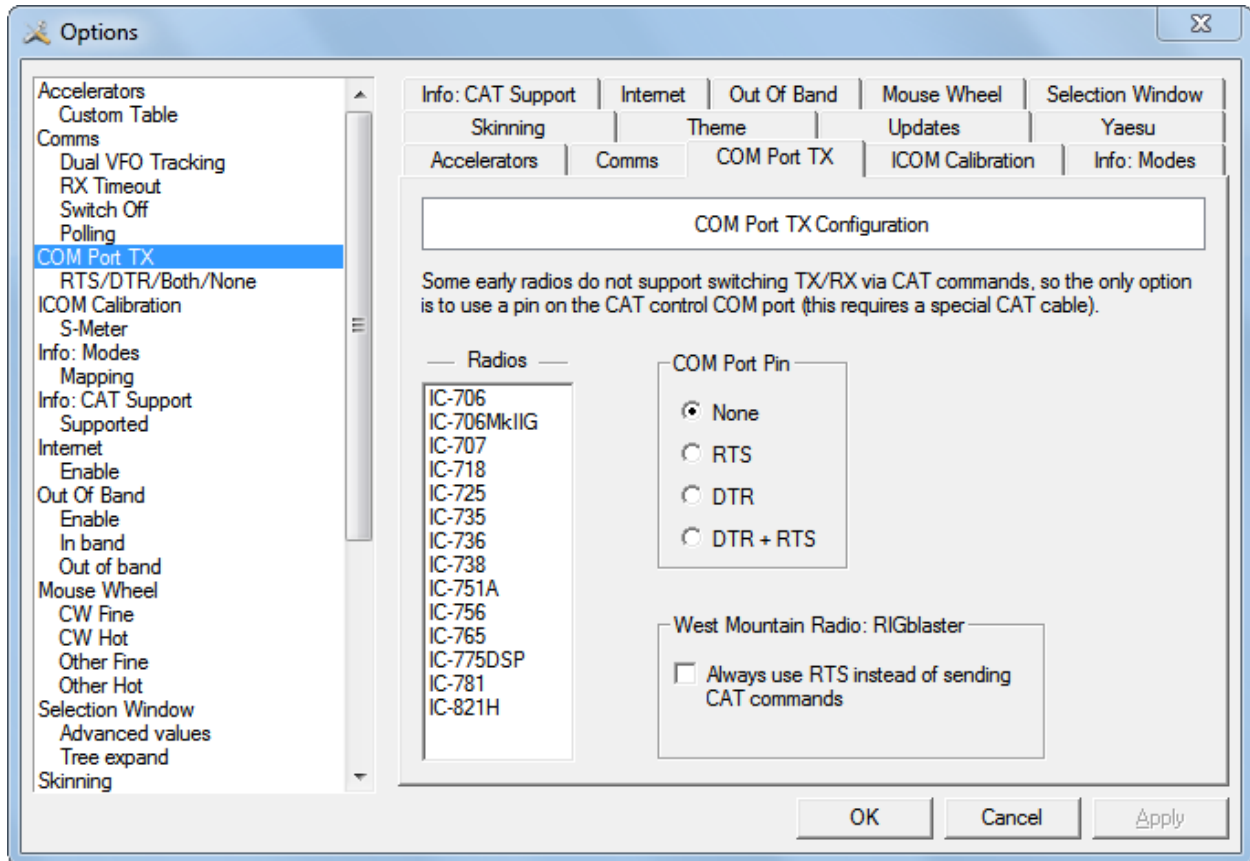
Switch off – some radios such as the FT-817 can be powered down using a CAT command. If this option is selected you are prompted to switch off the radio.

Polling – to reduce CPU load for slower systems.

Dual VFO tracking – if selected both VFO"s are tracked on every refresh.

Refresh interval – the interval between consecutive refreshes of the display.

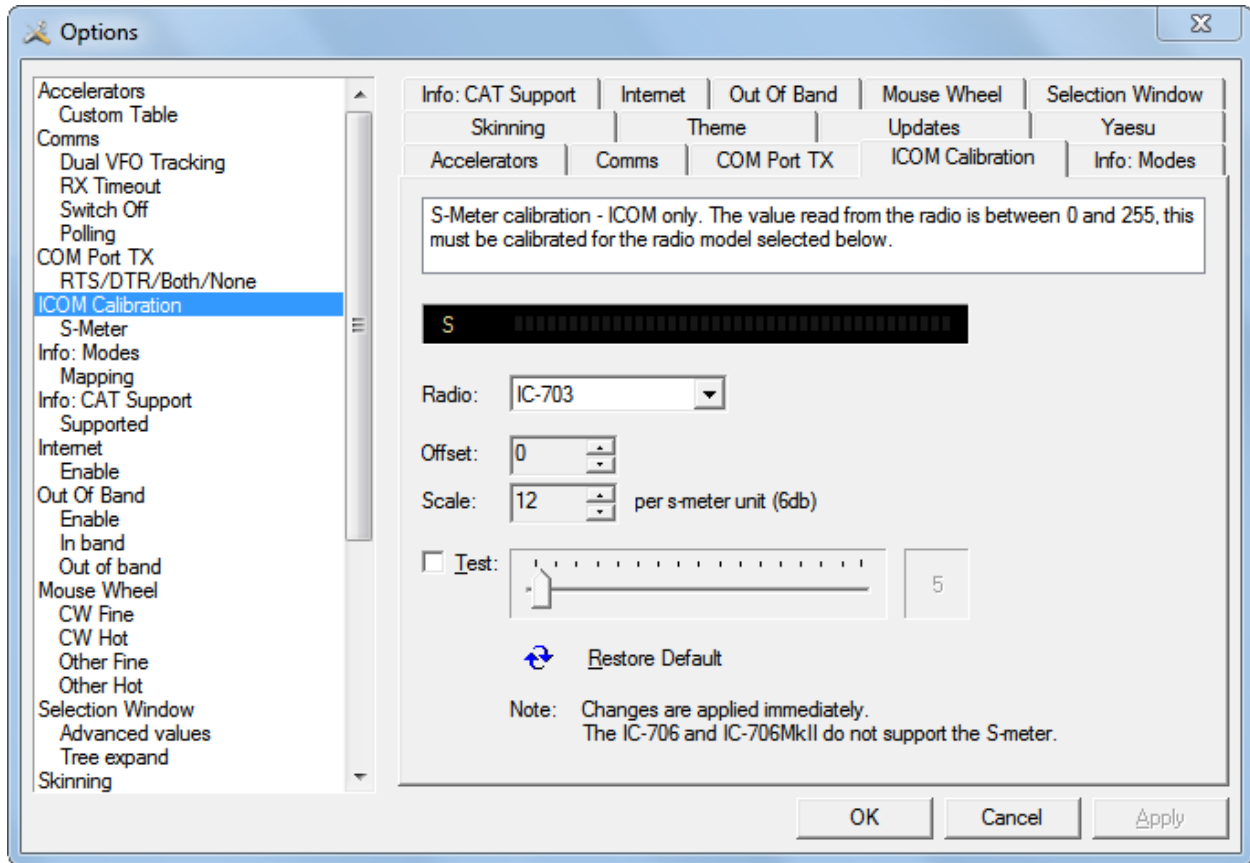
Com Port TX



Com Port TX

Some early ICOM radios do not support switching between TX and RX using CAT commands. The only way to enable computer controlled TX/RX this is by toggling a COM port pin. You require a special CAT cable if you select this option.

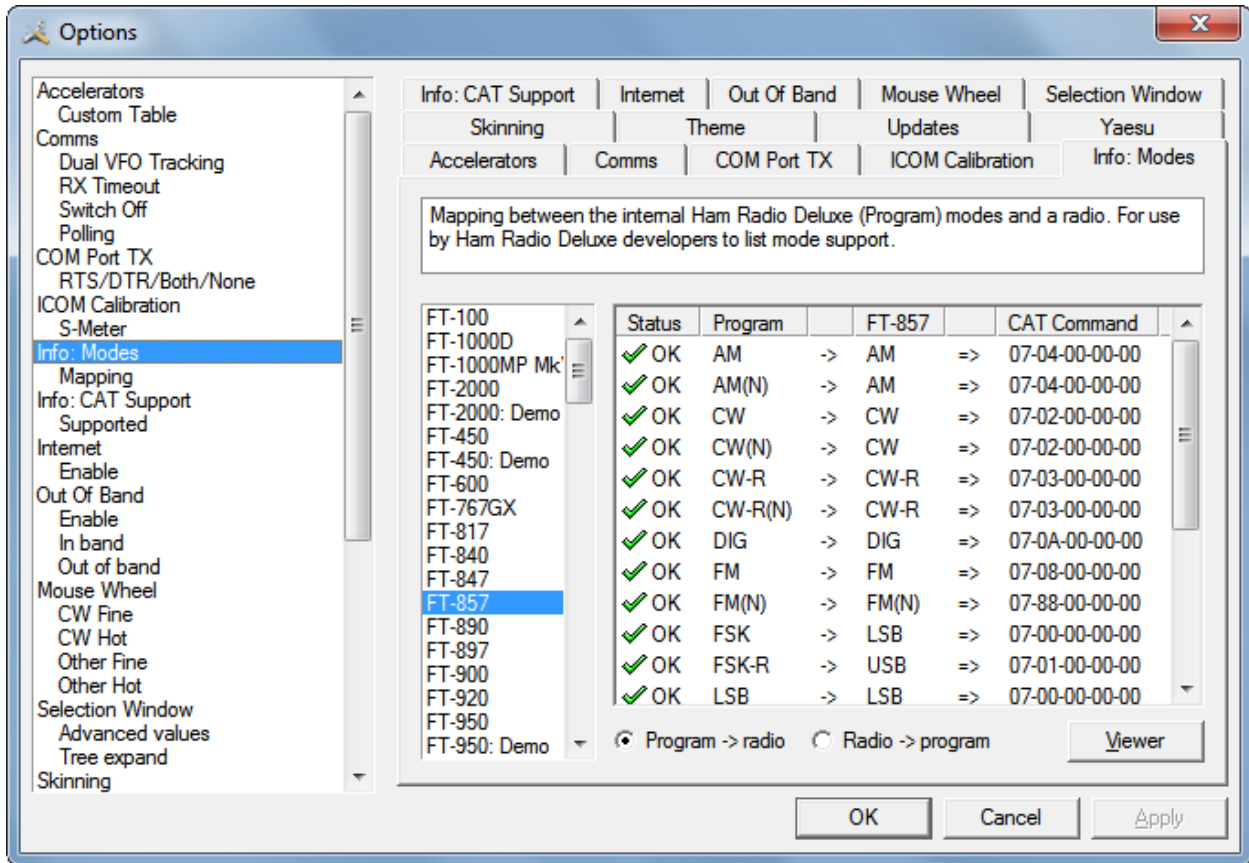
ICOM Calibration



Icom Calibration

ICOM radios return a S Meter value between 0 and 255, normally 0 is S0, 12 is S1 and so on. As a S Meter unit is 6 dB the algorithm applied is to divide the returned value by two to get dB, then divide dB by 6 to get S units. Some radios such as the IC-706 have a different logic – use the Offset and Scale values to adjust the returned values so that the S Meter in HRD corresponds to the S Meter on your radio

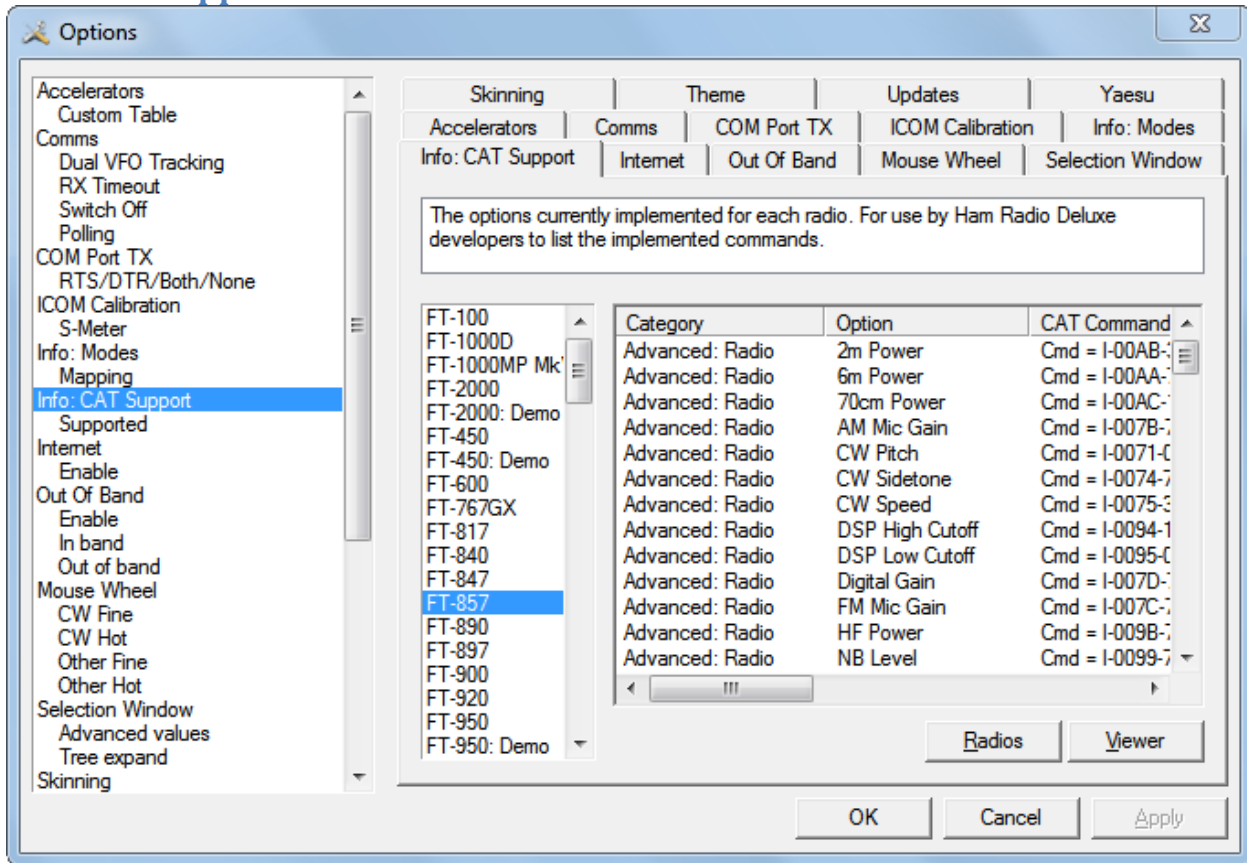
Info: Modes



Info: Modes

Mainly for use by the HRD programming team, all modes for each radio are listed. For each mode the mapping to the internal HRD mode is shown.

Info: CAT Support

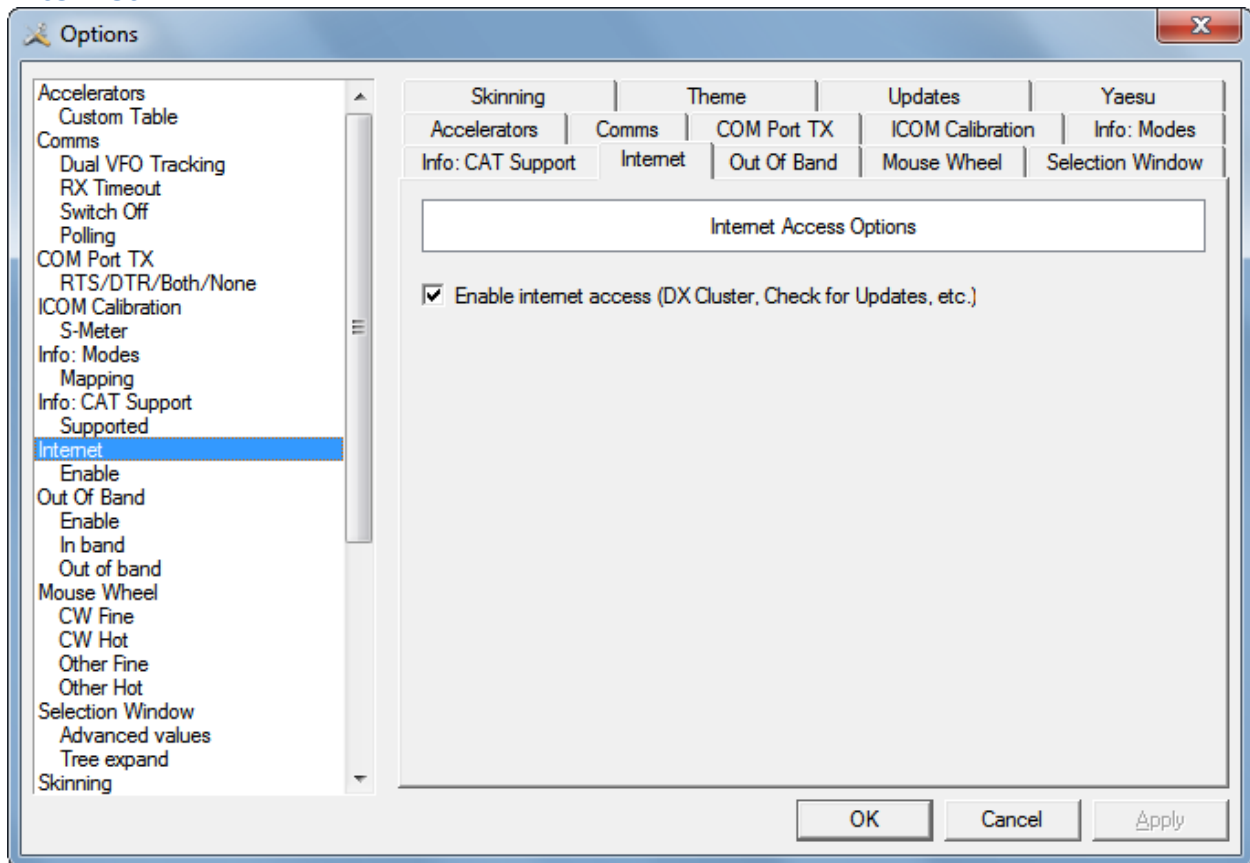


Info: CAT Support

Mainly for use by the HRD programming team, all commands are listed for each radio. Press *Radio* for a list of all supported radios. To display the commands:

1. Select a radio,
2. Press Viewer.

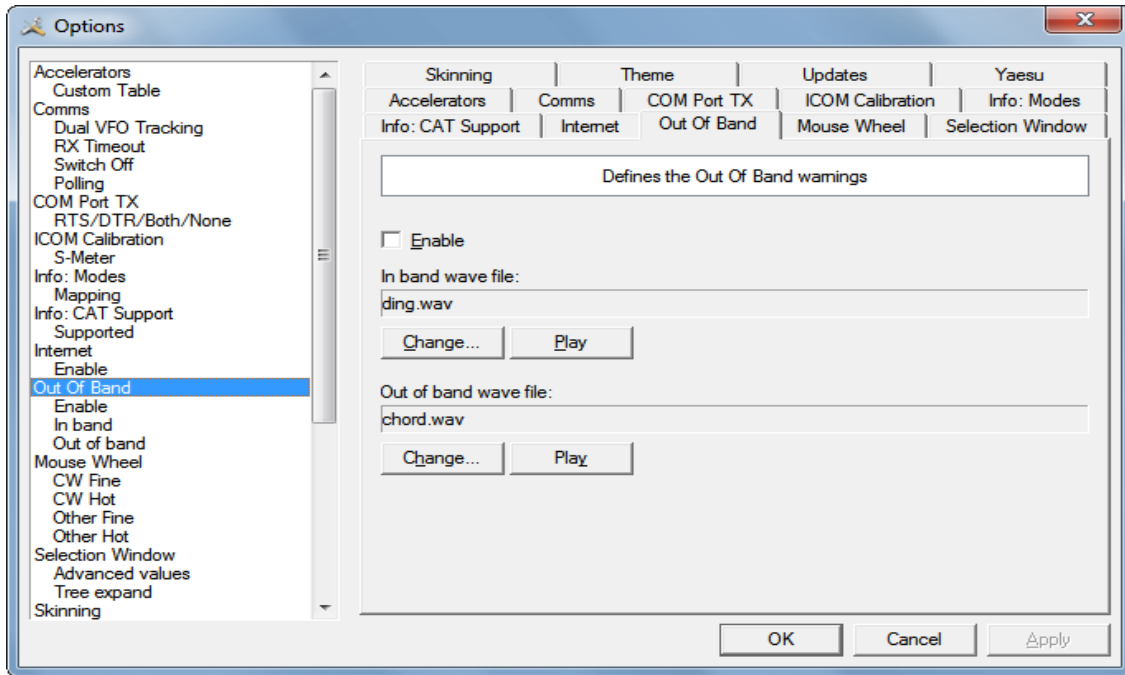
Internet



Internet

HRD is able to detect whether you have an Internet connection with `InternetGetConnectedState()`. Uncheck this option if you do not want Internet access.

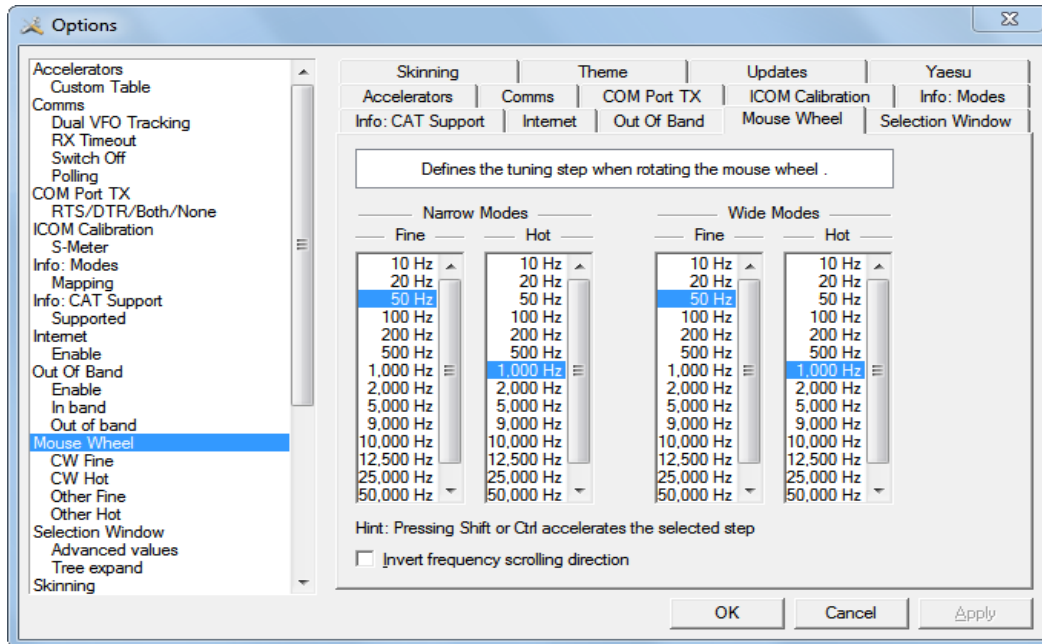
Out Of Band



Out Of Band

Configure the optional sound files played when you tune in / out of band.

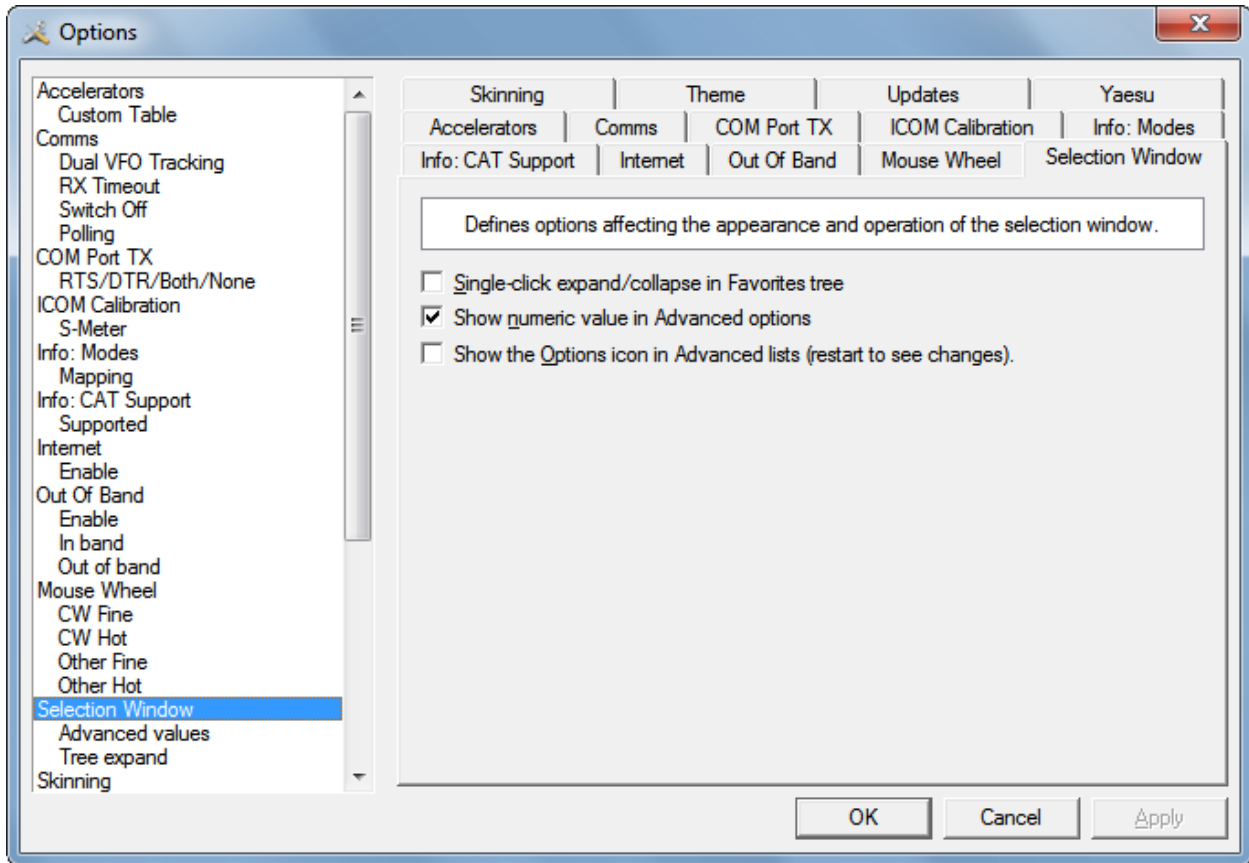
Mouse Wheel



Mouse Wheel

Define the tuning step when rotating the mouse wheel over the active tuning bar.

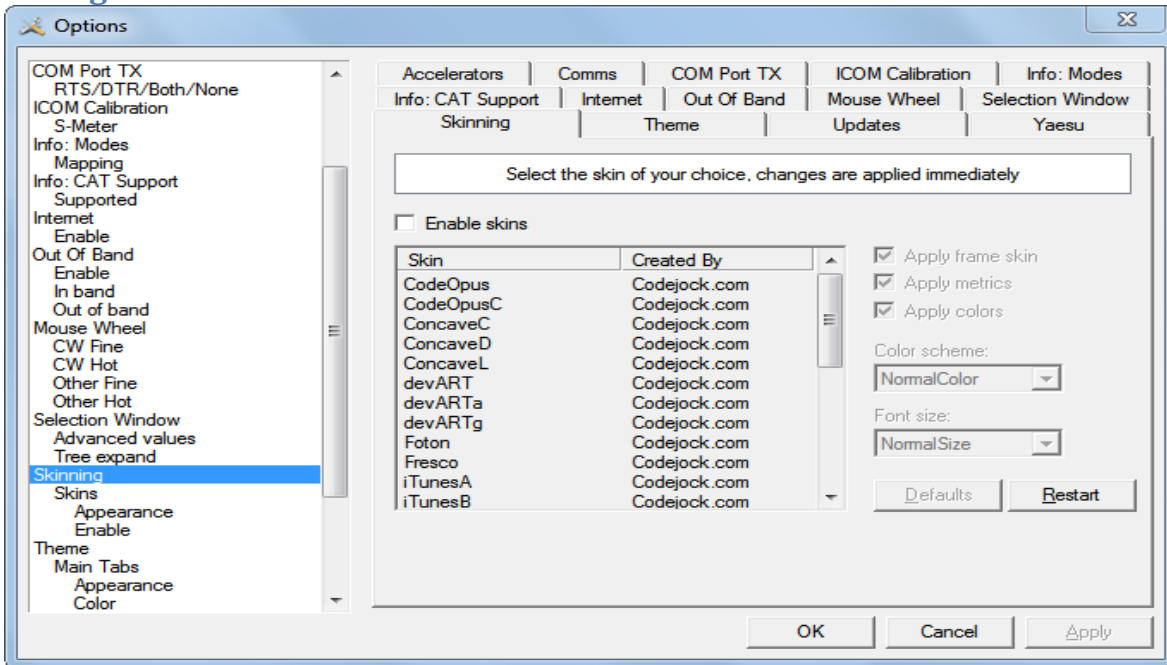
Selection Window



Selection Window

Adjust the appearance and operation of the selection window. Single-click – normally the Favorites tree folders are opened/closed with a double-click. Check this option to enable single-click operation. Show numeric value – the Select Windows Advanced slider values are optionally superimposed on the slider. Show the Options icon – historical support for the version 2 advanced slider look and feel.

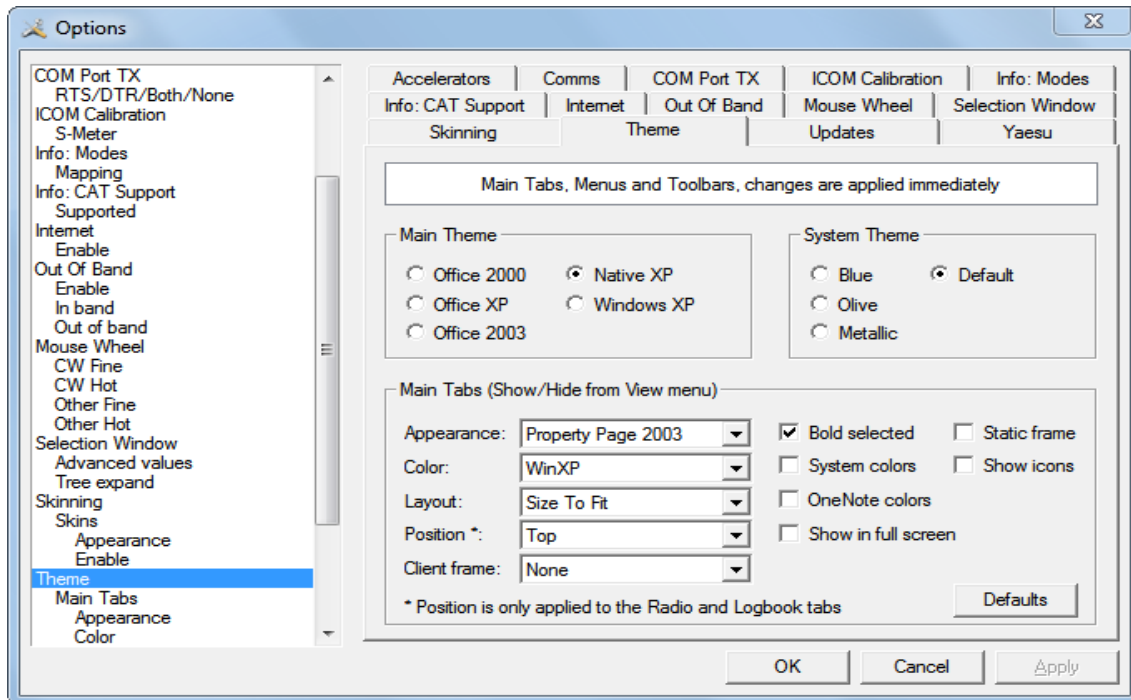
Skinning



Skinning

Select and install various skins. Changes are applied immediately.

Themes



Themes

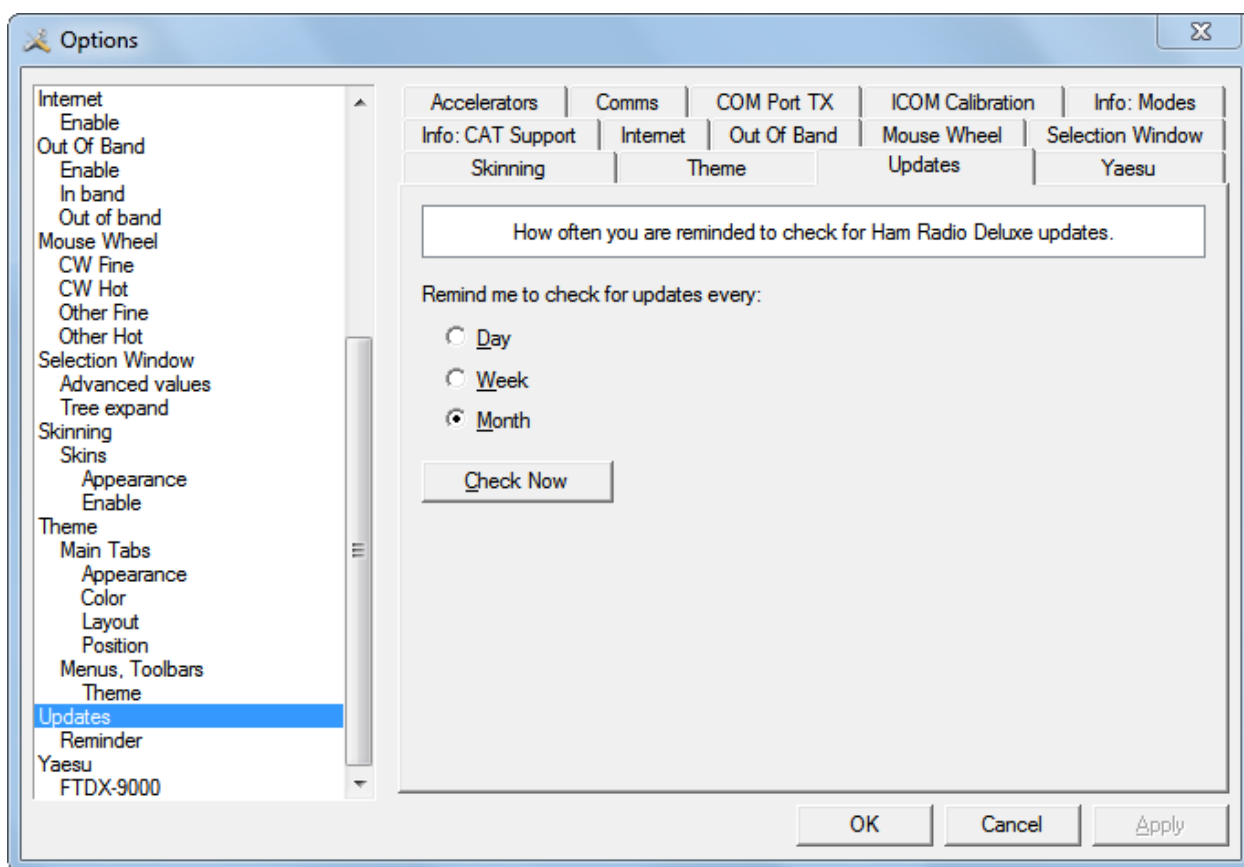
HRD uses the excellent programming library from Codejock Software to support toolbars, main window tabbing and docking pane options. Docking panes are used for optional windows such as: *Bandscope*, *Calendar*, *DX Cluster*, *Logbook*, *Selection*, Shortwave Database and WinKey.

Main Theme Select whichever visual theme you want – Office 2003 is an acceptable default.

System Theme When you select Office 2003 or Windows XP for Menus and Toolbars you can select an optional System theme.

Main Tabs If you have more than one main window open – for example Radio and Logbook – then the main tabs are a useful way of switching between windows.

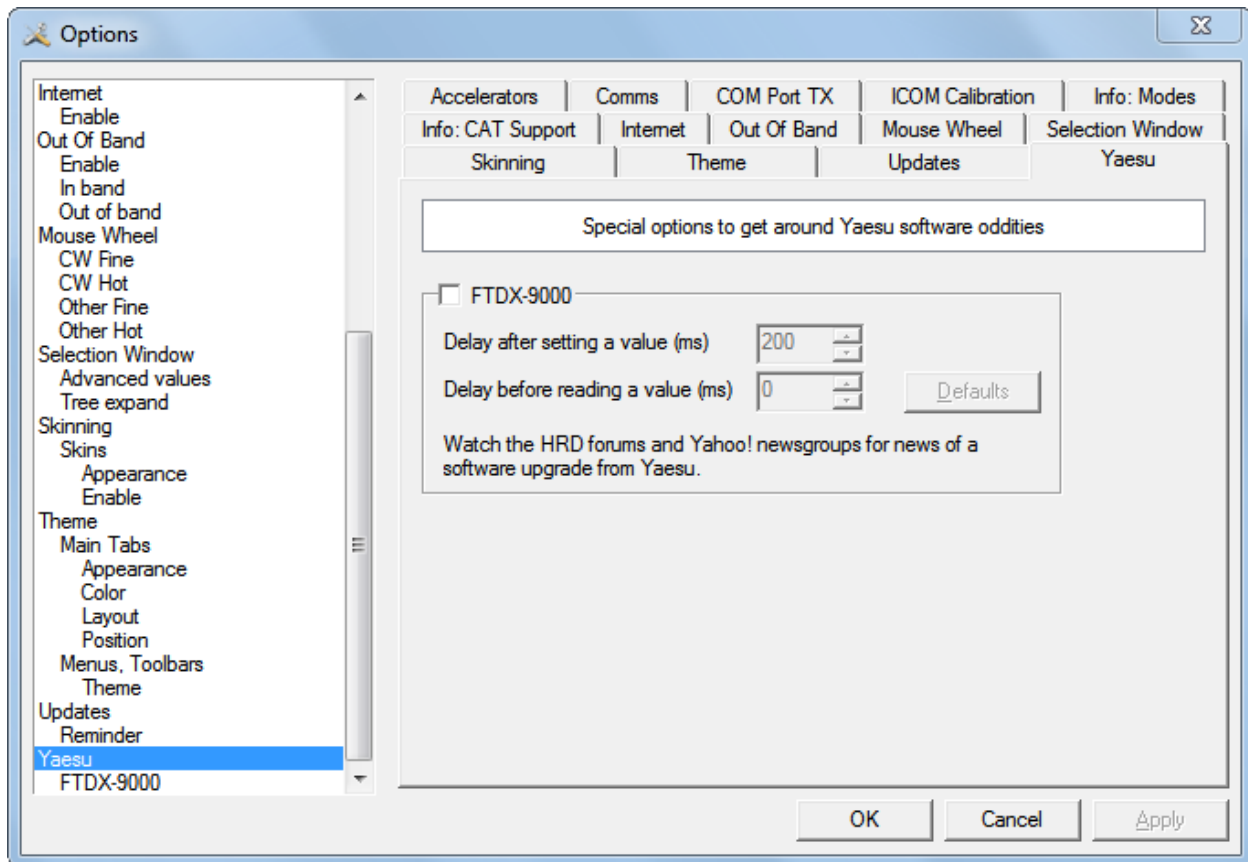
Updates



Updates

Select how frequently HRD reminds you to check for new updates.

Yaesu



Yaesu

This is a Special option for Yaesu radios. Due to firmware „features“ in the FTDX-9000 it is necessary to wait up to 250ms after writing a command to the radio. With any luck Yaesu will fix this at some date in the future.

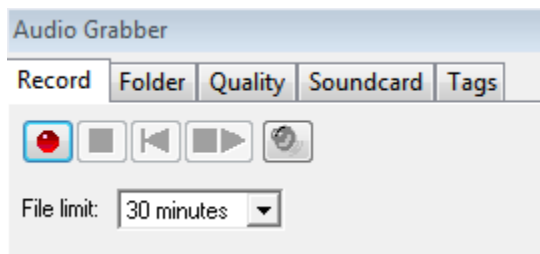
Audio Grabber

On the HRD Menu bar, clicking on Tools > Audio Grabber opens a floating pane at the bottom of the Rig Control window.



Audio Grabber

With the Audio Grabber you can record and store incoming audio, from your radio, in MP3 files using the MP3 tags to store information about the radio settings (or any other information you feel to be important).



The illustration shows you have the standard recording buttons. From left to right: **Record**, **Stop**, **Reset** current recording, **Restart** (close current file first), **Browse** for MP3 files.

You also set a file limit – a downside of MP3 is that the tags are written at the end of the file when it is closed, so to avoid losing information in the event of an unexpected event it is best to use more, smaller files.

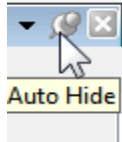
You see there are five tabs along the top of the display.

Record tab is the one currently showing. Clicking on the Folder tab opens a dialog to allow you to select where the recorded file is stored.

Quality tab is where you select the bandwidth and quality. Modern computers have more than enough CPU power to support a very high quality. A bandwidth of 4.5 kHz is usually acceptable unless you are recording a WFM broadcast.

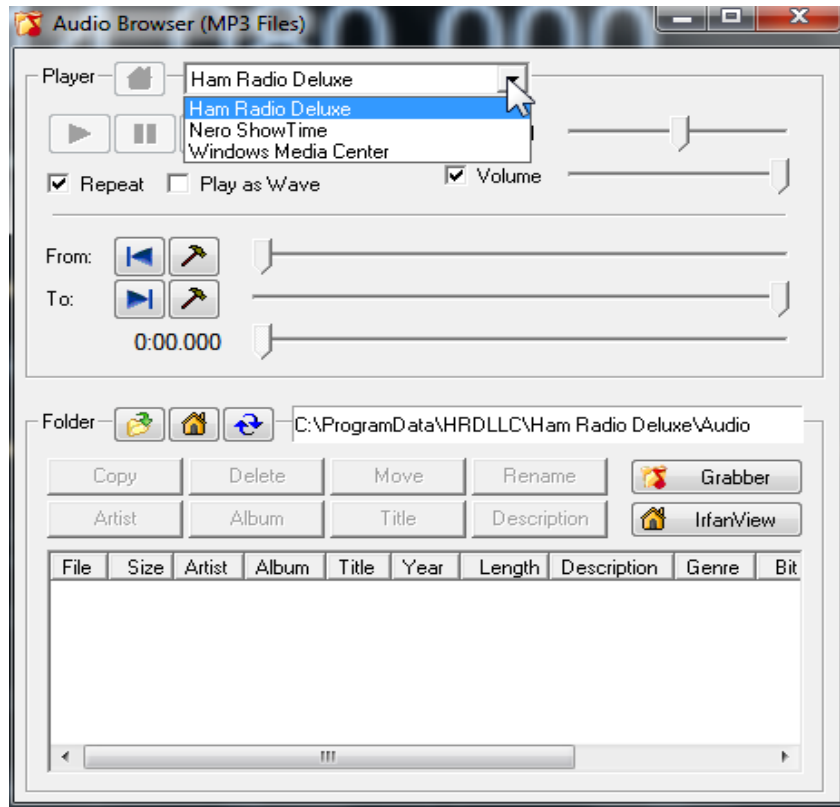
Soundcard tab contains a drop-down box where you select the soundcard used for the incoming signal.

Tags tab Here you see the values stored in the MP3 tags. To change the default settings just type in a new entry over the old one and press the Apply button.



While we're looking at this floating pane, you will notice a **"PUSH-PIN"** in the upper right corner. With the Push-Pin in the position shown, the associated pane is **PINNED** to the display. If you click on this pin, it will turn on its side. When the pin is pulled, the pane is **"UN-PINNED"** and will **collapse** to a tag at the bottom or side of the main display. You will see this used in all modules in Ham Radio Deluxe.

Audio Browser



Audio Browser



Select the folder to browse



Select default folder



Refresh the current folder

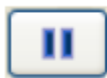
On the left are icons and definitions that are used on the browser. A basic MP3 player is built into HRD, however you can select an alternate player such as the excellent Windows Media Player. Press *Default* to select the default player

MP3 Player Options

Select a file to play from the list at the bottom of the window.



Play currently selected file



Pause



Start again



Stop

From



Start at beginning of file



Set 'From' to the current position

To



To end of file



Set 'To' to the current position

Use the *From* and *To* slider positions to select the part of the file to repeated over and over and over again. This is useful for determining exactly what the station was sending. **Other Options**

The other options are:

Copy – copy the selected files to another folder.

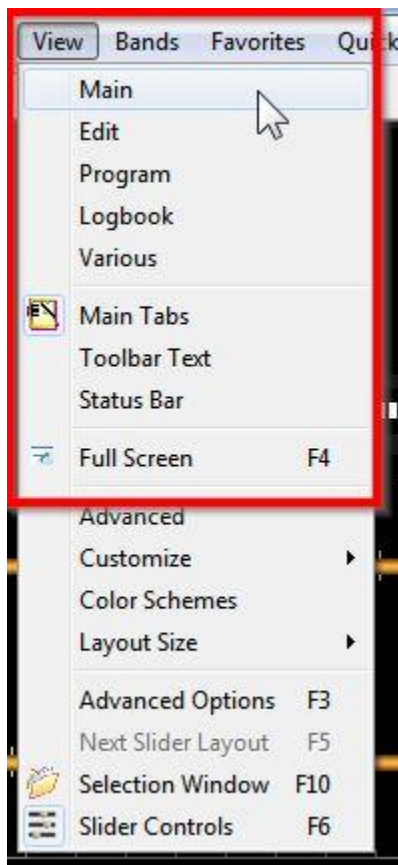
Delete – delete the selected files.

Move – move the selected files to another folder.

Rename – rename the selected file.

Artist / Album / Title / Description – change the MP3 tags.

View Menu



Clicking on **View** on the Text Tool bar brings up the menu you see on the left. The items listed inside the red box, starting with **Main**, are toggles for the Icon Tool bar.

Clicking on **Status Bar** displays the status bar at the bottom of the main display.

Clicking on **Full Screen** or pressing your **F4** key toggles the full screen mode. In the Full Screen mode you will not see any menus. Pressing F4 will return to the normal view.

Selecting **Advanced** opens the Selection Window to the Advanced options menu.

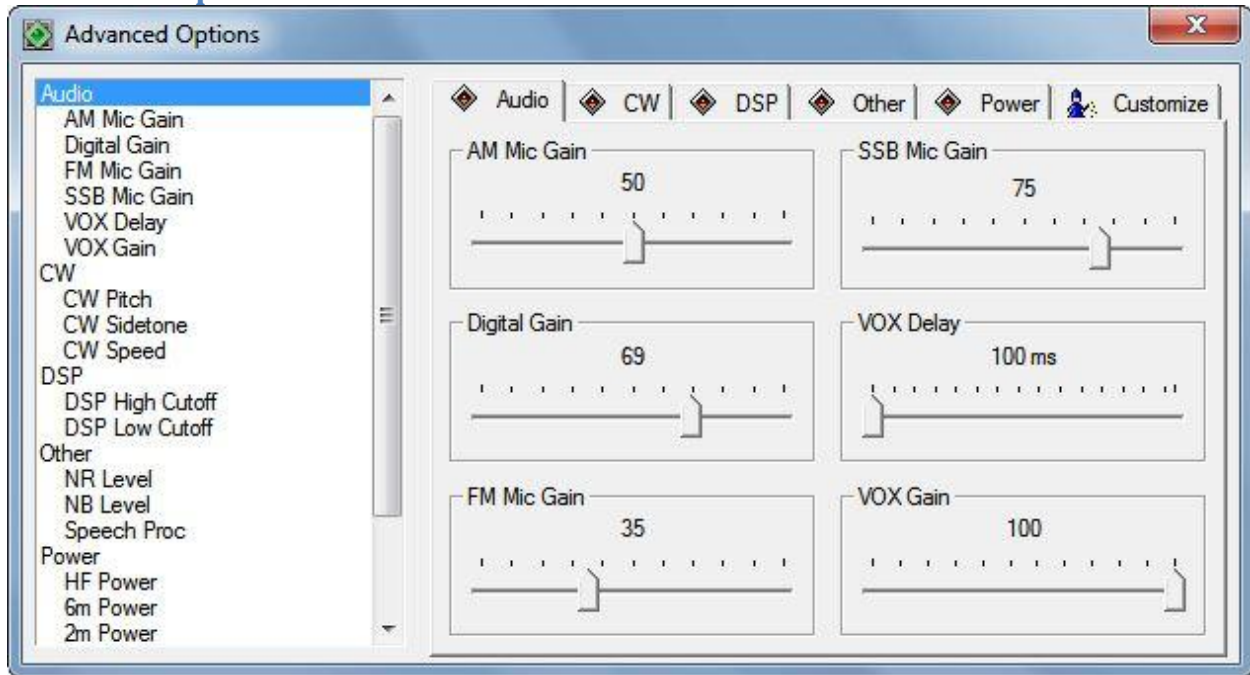
Clicking **Customize** brings up a menu allowing you to access the Framework Themes window, customize the layout, and load the Default layout for the Rig Control Display.

Color Schemes allows you to edit the schemes of the display and **Layout size** lets you select a small, medium or large radio display.

Slider Controls allows you to edit and configure the sliders on the Rig Control display.

We have save the Advanced Options and the Selection Window for discussion all their own.

Advanced Options



The Advanced Options allows you to adjust commonly used radio controls from within the Rig Control program. There are six tabs across the top of the window, each providing access to certain controls. The tabs and controls will vary depending on the radio and manufacturer. Here we are connected to a Yaesu FT-857D.

Audio Tab

The Audio tab gives you access to five gain controls and the VOX delay settings.

CW Tab

The CW tab has sliders to adjust the CW Pitch, Sidetone Frequency and the CW speed.

DSP Tab

Access to the DSP High and Low Cutoff filter sliders

Other Tab

Accesses the Noise Reduction, Noise Blanker and the Speech Processor controls.

Power Tab

On this tab you will find sliders for, in our case, HF, 6 Meter, 2Meter, and 70Centimeter RF power settings.

Customize Tab

Allows you to customize, Page Layouts, Navigation Windows and Display Style.

Selection Window

Clicking Selection Window or pressing the F10 keyboard key pins the Selection Window to the Rig Control display. From the Selection Window you have access to ALL of the major menus and data managers available in one place.



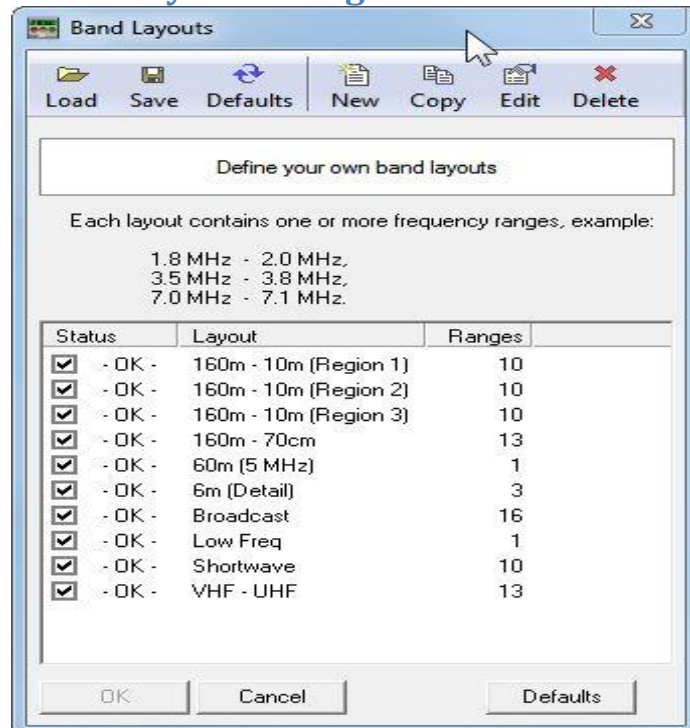
Bands

We'll start with the **Bands** menu. What we see here are the default bands available in Ham Radio Deluxe. The bands are defined, in the defaults, according to the Region. There's also a band definition that covers all frequencies included in the 160m to the 70cm bands. The 60m band is also defined.

These bands not only define the frequency ranges for the bands but they also provide information for Rig Control to generate the Band Buttons displayed on the Rig Control display.

These bands can be edited or custom ones may be created by using the Bands Manager.

Bands Layout Manager

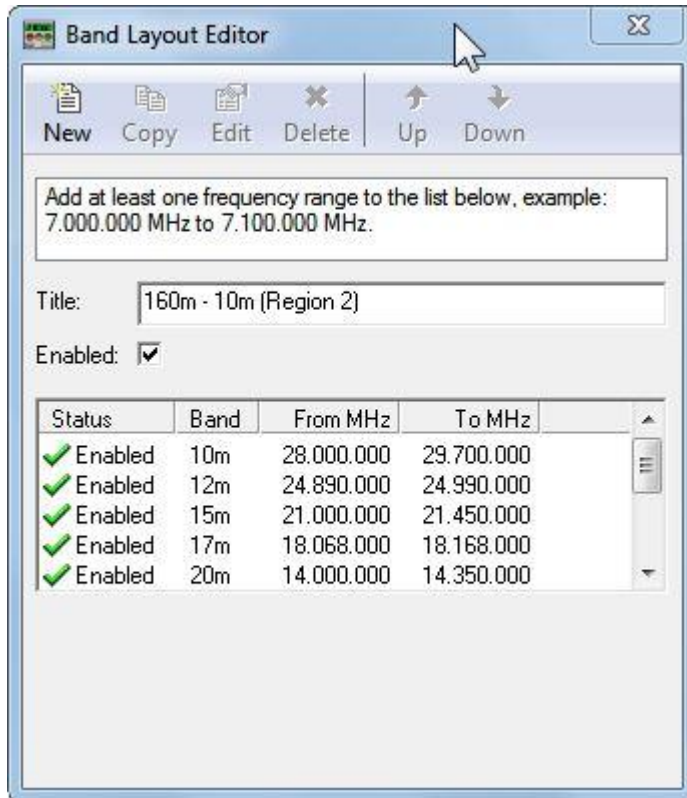


From here you can also enable and disable the button displayed by checking or unchecking the Status check box.

For example, if you uncheck the 6m (default) band in the display and click OK the 6m (Default) band will no longer show up in the Band Menu.

Edit A Band

Highlight one of the bands and clicking EDIT, on the top menu, opens the band editor.



In our example, we highlighted the 160 – 10m (Region 2) band.

As you can see in the sliding window, each band is defined using it's From Frequency and it's To Frequency. These can also be changed if you were to select a band, say 10m, press the Edit key on the menu bar and you could edit the frequency range to suite your need. This feature allows us to create CUSTOM bands, which will be discussed later in this section.

If you choose to edit a frequency range for a band, select the band, click on Edit and the editor window will open. Change the frequency range in this window and click OK. You will return to this Layout Editor. To save the new changes you may have to grab the lower edge of the editor with your cursor and

hold the left mouse button down and drag it downward until you see the OK and Cancel buttons on the bottom of the editor. Click the OK button and your changes will be saved and you can close out of the editors. Your changes will be reflected in the band in the band menu.

Creating Custom Bands

This next section will explain, in detail, how you can create CUSTOM Bands, which in turn will generate the band button on the Rig Control Display.

Let's use as an example you are a General Class operator. You would like to create a 20 meter band and button that would only cover the frequencies you are permitted to use for Voice communications.

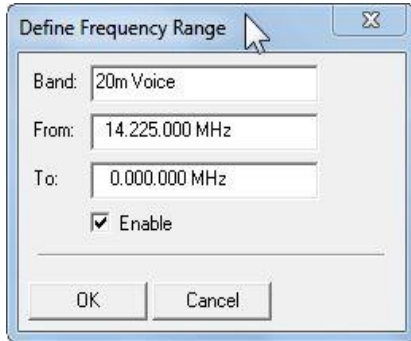
According to regulations a General Class license holder can operate voice on 20 meters between the frequencies of 14.225 MHz and 14.350 MHz.

To create our custom band, select BANDS from the SELECT screen, and select MANAGER.

Let's assume you are in Region 1, so you want to make your custom button available when you select the Region 1 Bands. Click on the Manager at this point, highlight the 160m to 10m (Region 1) band and press EDIT on the toolbar.

You're now in the band editor, so now, you might want to grab the top or bottom and drag the window up or down to stretch it so you can see the OK and CANCEL buttons at the bottom.

We will assume you don't want to delete the current 20m frequencies, so click on the NEW button on the top of this editor.



In the Define Frequency Range window opens enter the band title **20m Voice**. Move to the From field and delete the current entry. Now enter **014.225.000 MHz**. This MUST be entered with the leading **zero**.

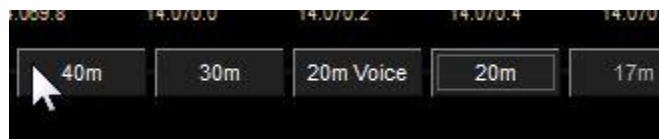
Move to the To field, clear the window and enter **014.350.000 MHz**.

Make sure the Enable box is checked and click the OK button.

When you click the OK button you will return to the main editor and your new band will be located on the bottom of the list. Now, highlight your new entry and click on the UP ARROW on the Toolbar until your new entry is below the current 20m entry.

Now, you can choose to either leave the current 20m entry enabled and have 2 buttons on your display, or you can disable it by removing the check in the box in front of it and only your new button will be displayed.

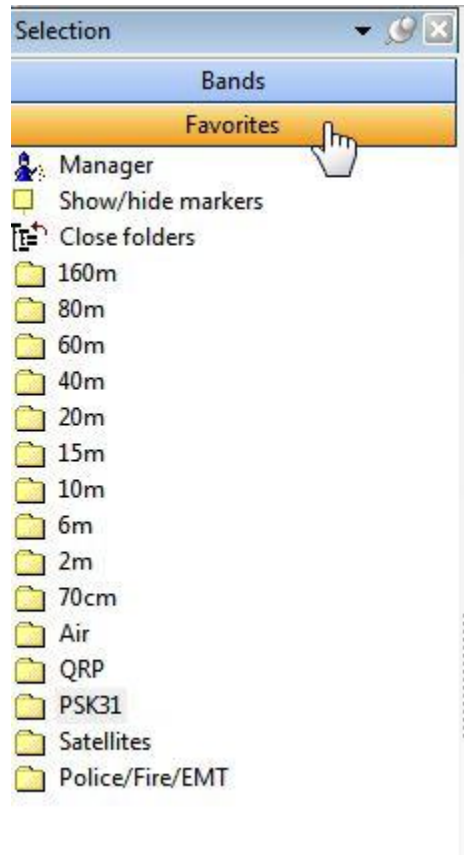
When your sure everything is correct, click the OK button and your addition will be saved in the bands list and a new button will appear on your Rig Control Display.



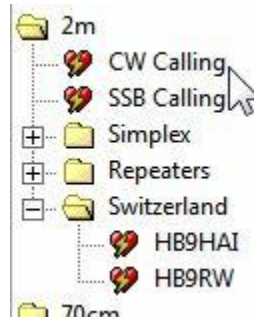
New Button Displayed

With this feature you can edit any band so only the frequencies are shown which are allowed by your License class. You can then activate the Out-Of-Band alarms to notify you when you tune outside of your allowed frequency ranges.

Favorites



The Favorites menu acts just like your radios memory function. Within the Favorites you can create folders for your favorite bands then within each band folder you can enter your favorite frequencies or even create sub-folders for things like Nets you access or repeaters, or just about anything you would like.

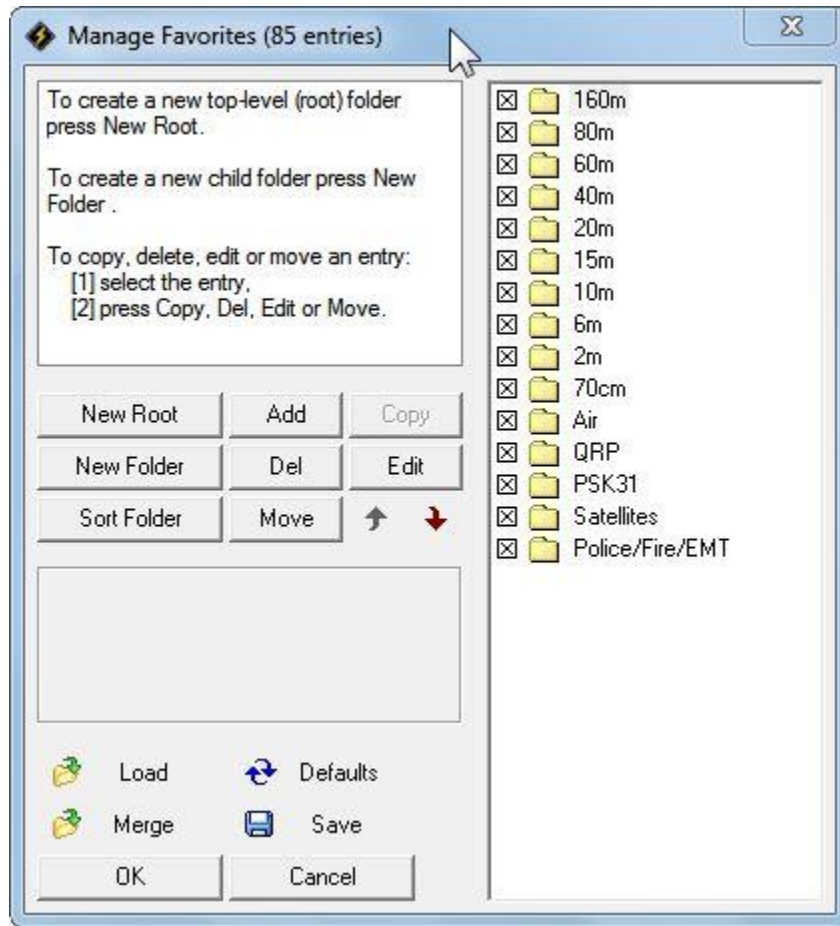


As an example, here we have opened the 2m folder, showing calling frequencies, and folders for Simplex, Repeaters, and Switzerland, each containing frequencies. These names, folders and frequencies can all be changed using the Favorites Manager. At the top of the Favorites are a

couple commands. The Close Folders collapses any and all folders you might have expanded. The Show/Hide Markers function, when clicked on, places a marker on the Rig Control Tuning Bar to indicate each frequency contained in a highlighted folder. This feature can come in very handy when trying to find your favorite Net frequency quickly. Just open the band folder and click on

the frequency or Network name, depending on how you have it set up, and your radio will be automatically tuned to that frequency.

Editing Favorites



Favorites Manager

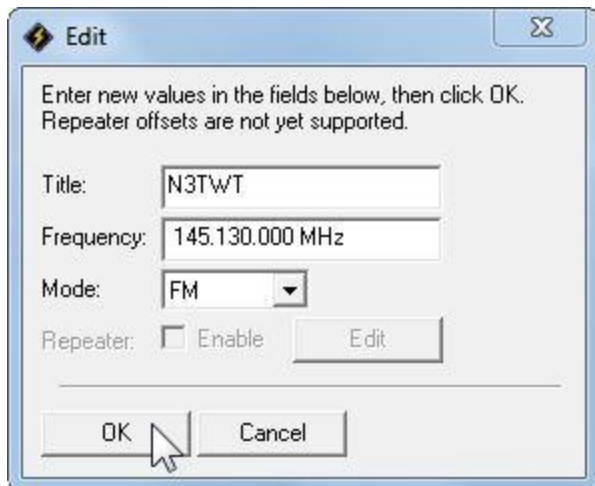
Clicking on the Manager on the Favorites menu opens the Favorites Manager dialog box. Basic instructions for creating top level sub-folders are included on the screen along with editing commands of Copy, Del, Edit and Move. Notice the “X” in the box to the left of each folder. By clicking on and removing the “X” you can disable the folder. When disabled (the “X” removed) the folder will not appear in the Favorites Menu.

Edit A Folder



In our example we are going to add a new frequency to the 2m folder. To do this, we double left-click on the folder to open it.

Since we want to ADD a new frequency to the 2m folder, clicking on the ADD button opens the Editor window.

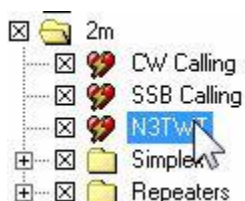


Once in the Editor window we enter a Title for our new frequency. In this example we have entered the callsign of a local repeater

Next we drop down and enter the frequency. If you are entering a frequency such as **14.070.00** it must be entered as **014.070.000**. If you have completely cleared this field before entering the frequency, it will only allow you to enter the digits and when you move your cursor outside the field the MHz will automatically be added.

We now use the drop-down arrow to select the mode, in this case FM. Now, press the OK

button.



When you press the OK button in the Editor, you will be returned to the Manager screen and you will see the entry we just made has been added. If by chance the new entry is not in the proper position in the list, using the up and down arrows on the Managers tools can move it into the position where you want it within the folder. All that is left now is to

press the SAVE button on the bottom of the Manager screen and your new entry will be saved to the Favorites menu. When you press Save, a window will open and ask you if you would like to overwrite an existing file. Select YES to save the file used by HRD. After you save the edited file, if you would like a back-up copy, you could navigate to a different drive, folder, or whatever and save an additional copy incase something should happen and the original would have to be replaced.

Now, just click the OK button on the Favorites Manager to exit and return to the normal screen. You will now see your new addition in the 2m folder on the Favorites menu. When you want, just open the 2m folder, click on the N3TWT icon and the radio will automatically tune to that frequency and change to the FM mode.

This same procedure is followed to add new folders to your favorites. Just remember, a new folder will NOT be saved to the favorites menu unless there is at least ONE frequency entered in it.

Quick Save

This is a simple way of marking a frequency as being interesting – you are monitoring three QSO"s with a single radio and you want to quickly switch between the frequencies – for example during a 6m sporadic-E opening. Each definition consists of the frequency in Hertz and mode; definitions are saved in the registry. To switch between Quick Save definitions use the accelerator key combinations for the *Quick Save* menu options *Next (Ctrl+F5)* and *Previous (Ctrl+F6)*.

Add Entry

Select **Add** from the Quick Save menu or just click the Quick Save button. An entry is added to the Quick Save pane in the Selection window.

Markers

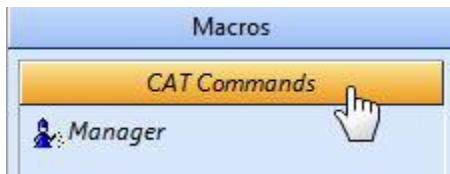
To display markers in the HRD display select **Show Markers** from the Quick Save menu. The marker size is selected from the Marker Size option in the Quick Save menu.

The popup text is displayed as you move the mouse pointer over a marker. The text is constructed from the frequency and mode.

Macros

HRD supports two types of custom definitions, CAT commands, and combinations of standard HRD input fields. Macros are selected from the *Macros* pane in the Selection window

Cat Commands



A CAT command macro is a command that you define yourself, containing one CAT commands as describer in your radio's handbook. The commands you enter must be supported by your radio. Use CAT commands to add support not provided by the HRD interface.

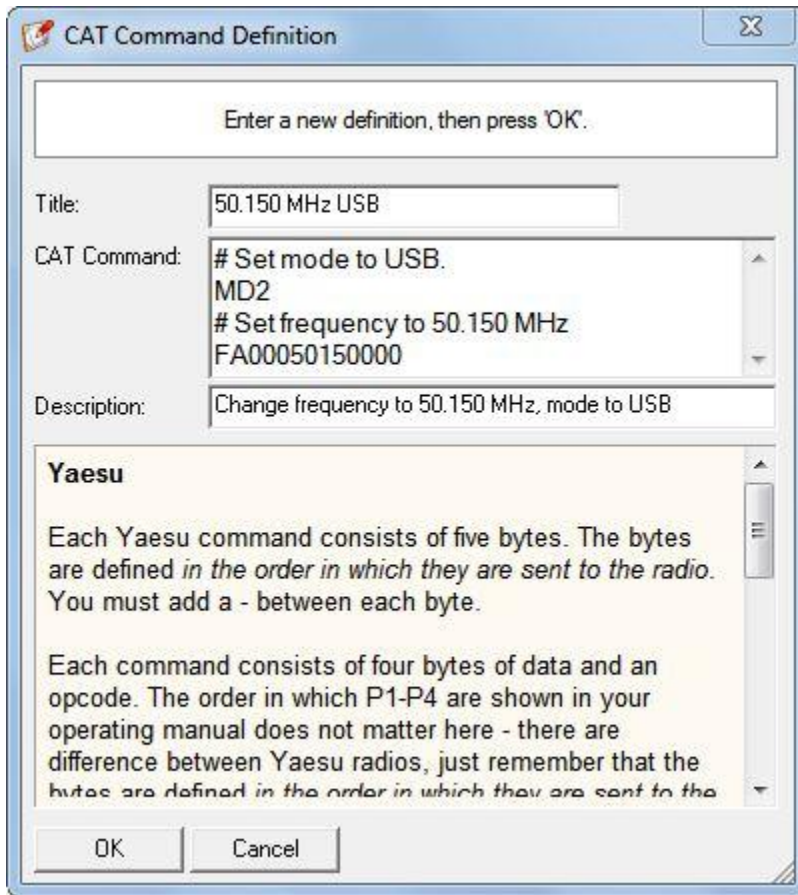
Cat Command Manager

To enter the Manager, either press *Manager* in the *Macros*> **CAT Commands** pane or select **CAT Command Manager** from the Macros menu.



Cat command Manager

Pressing the **New** button in the CAT Command Manager opens the editor where you input your new command definition.



In this example a Kenwood command is defined for the TS-480. The mode is set to USB and the frequency to 50.150 MHz. In the *Title* field enter "50.150 MHz USB".

In the *CAT Command* field enter: # Set mode to USB MD2

Set frequency to 50.150 MHz FA00050150000.

In the *Description* field enter "Change frequency to 50.150 MHz, mode to USB".

Now press *OK*. The new definition is added to the list in the Manager window.

Protocols

Elecraft and Kenwood

Each command consists of 2 alphabetical characters (lower or upper case) and optional parameters. Please read your operating manual for command information.

The terminating semicolon (;) is not necessary, it is added automatically.

TS-480

Set mode to LSB: MD1

Set mode to USB: MD2

Set AF gain to 0: AG0000

Set AF gain to 100 ..: AG0100

Select VFO-B: FT1

You can define more than one command; to do this start each command on a new line.

Special Commands

Comment: # Some interesting text. Pause of 250 ms ..: @ 250

ICOM

ICOM radios use the CI-V format to communicate with the radio. Please read your operating manual for command information. Each entry defined here consists of:

[1] command

[2] optional sub-command and

[3] optional data.

You must add a - between each byte (each byte is two hexadecimal characters).

IC-7800

Set mode to LSB: 06-00

Set mode to USB: 06-01

Set AF to 0: 14-01-00

Select preamp 2: 16-02-02

MOD I/P (data off) MIC ...: 1A-05-00-31-00

MOD I/P (data off) SPDIF ..: 1A-05-00-31-07

You can define more than one command; to do this start each command on a new line.

Special Commands

Comment: # Some interesting text.

Pause of 250 ms ...: @ 250

Ten-Tec

In general Ten-Tec commands are two character commands followed by data and a carriage return <cr> or <0x0d>. Do NOT add the carriage return - this is added automatically. Some data must be sent in binary format, hexadecimal is used to represent binary data. To set Split mode on for the Argonaut the documented command is *O<0x01><0x0d> which is entered here as *Ox01, that is *O (Split mode) + x (switch to binary) + 01 (Split On). The carriage return <0x0d> is not added. Please read your operating manual for command information. When you enter x the format switches to binary mode - two hexadecimal characters per byte. Only enter x once, even if entering more than one byte of data. Argonaut

Set mode to LSB: *M2

Set mode to USB: *M1

Set split mode on ...: *Ox01

Set split mode off ...: *Ox00

Jupiter

Set mode to LSB: *M2

Set mode to USB: *M1

Set AF gain to 32: *Ux20

Set filter to 450Hz .: *Wx1D

You can define more than one command; to do this start each command on a new line.

Special Commands

Comment: # Some interesting text.

Pause of 250 ms ...: @ 250

Yaesu

Starting with the FTDX-9000 Yaesu has changed the CAT protocol to one very similar to that used by Kenwood. So if you are fortunate enough to have the FTDX-9000 please use the Kenwood commands – see Elecraft and Kenwood.

Each Yaesu command consists of five bytes. The bytes are defined in the order in which they are sent to the radio. You must add a - between each byte.

Each command consists of four bytes of data and an OpCode. The order in which P1-P4 are shown in your operating manual does not matter here - there are difference between Yaesu radios, just remember that the bytes are defined in the order in which they are sent to the radio. Please read your operating manual for command information.

FT-817

Set mode to LSB ...: 00-00-00-00-07

Set mode to USB ...: 01-00-00-00-07

Split on: 00-00-00-00-02

FT-1000MP

Set mode to LSB ...: 00-00-00-00-0C

Set mode to USB ...: 00-00-00-01-0C

Split on: 00-00-00-01-01

You can define more than one command; to do this start each command on a new line.

Special Commands

Comment: # Some interesting text.

Pause of 250 ms ...: @ 250

Macros: Default

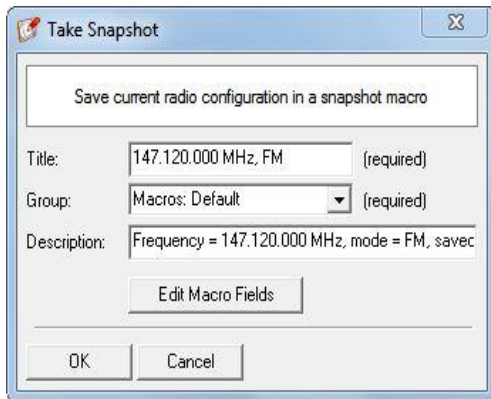


This option allows you to create macros that are similar to the Favorites. The difference being with this tool you can set a frequency, mode, RF Power, Filters, and other parameters then take a “Snapshot” and automatically generate the macro.

Snapshot

Let's use as an example, you have a local repeater that operates on 147.120.000 MHz. First, Tune your radio to that frequency and set the mode to FM. Since the repeater is close to you, you only need 5 watts of power to access it, so we set our 2-meter power to 5 watts. We know this repeater requires a PL tone, so we set the CTSCC tone to Encode.

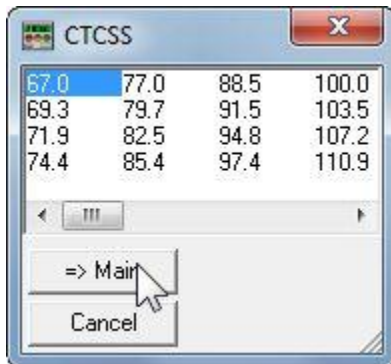
Once you have the settings correct, you click on the "Take Snapshot" option.



Our Snapshot window will open. Here you can change the GROUP to one you already have or add a new group by typing over the text in the Group field. In this case, we will leave the group set to default.

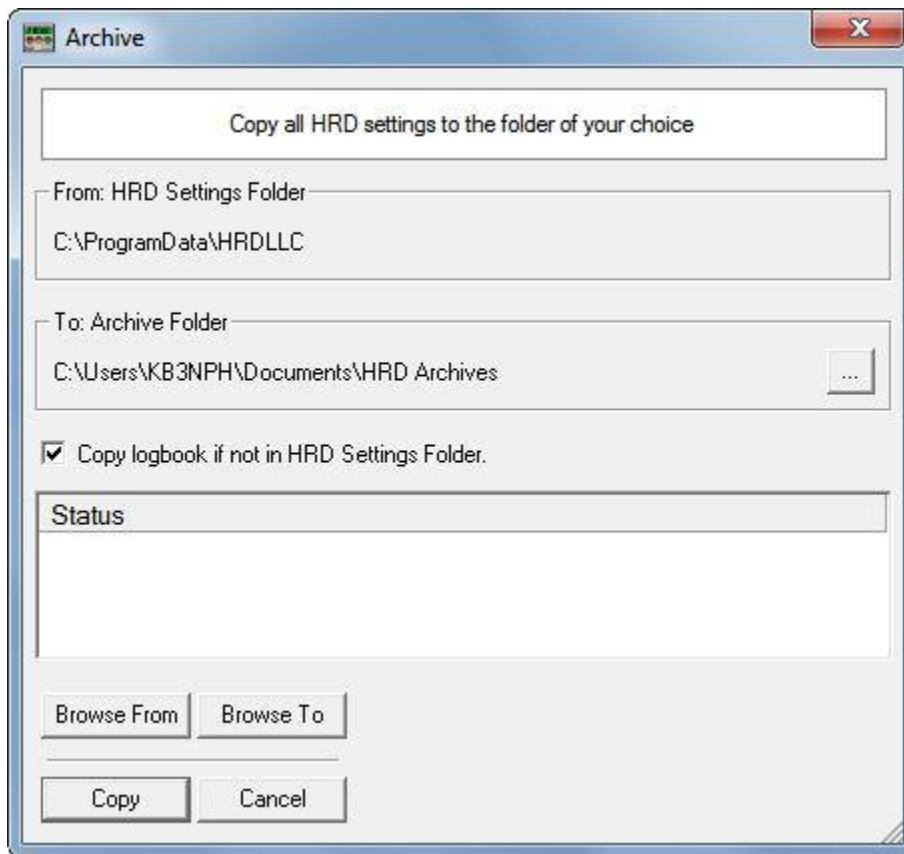
Click on the OK button and your macro will be created in the Macro: Default group.

When you select this macro in the future, it will automatically set up the parameters you have set and all that remains is you clicking on the CTSCC button on your main display, select the PL tone used and click on →More.



Create HRD Archive

On the Rig control menu bar, click on Tools and select Archive from the drop-down menu.

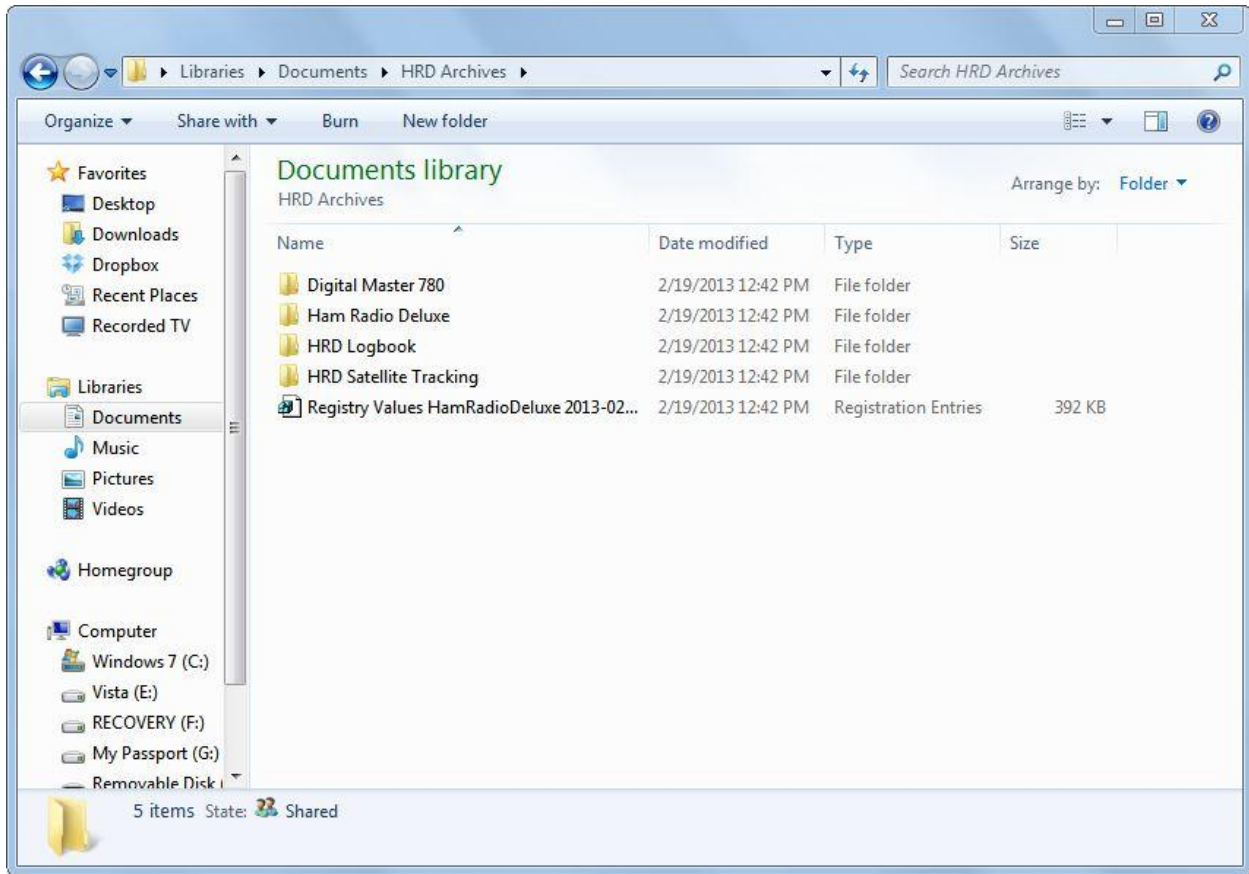


This dialog box allows you to create a full archive of your HRD data folders and also creates a backup of all the Registry Keys used by Ham Radio Deluxe. This option comes in handy in the event you have a hard drive crash and have to re-install your software.

The From: folder is automatically selected in the utility window.

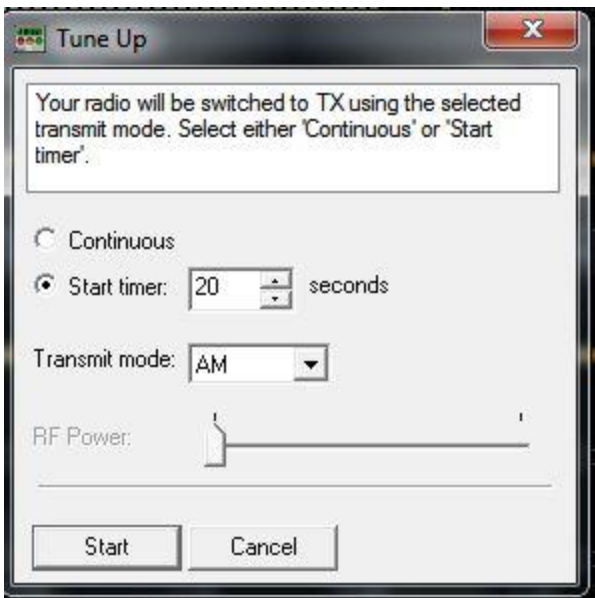
The To: folder is user selectable. It's recommended you choose a location not on your main drive, such as a flash drive or external hard drive.

Once these items are selected, click the Copy button at the bottom of the window and your archive will automatically be created.



HRD Archive Directory

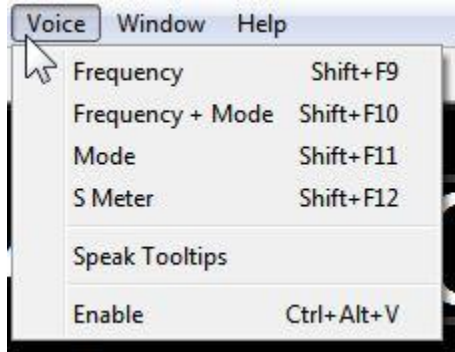
Tune-Up



A Tune-Up function is available from the Tools menu on the HRD Rig Control screen. This allows your radio to be switched to Transmit to allow your antenna tuner to adjust the SWR.

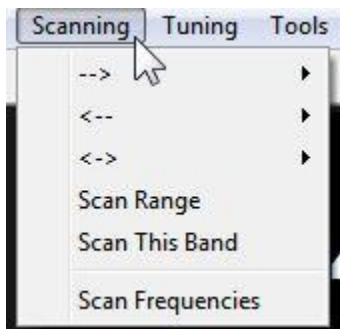
Select a mode, such as AM or CW, (selecting AM normally reduces power to 25 watts on most rigs). You can then select a timed interval for keeping the transmitter keyed, or you can select continuous, which keys the transmitter until you manually un-key it. You can also select the RF Power with the slider on the display.

Voice Synthesizer



Selecting VOICE on the toolbar opens a menu that allows you to enable or disable the built-in Voice Synthesizer. It also allows you to select from the list the item/items you would like to have a voice announcement made for.

Scanning

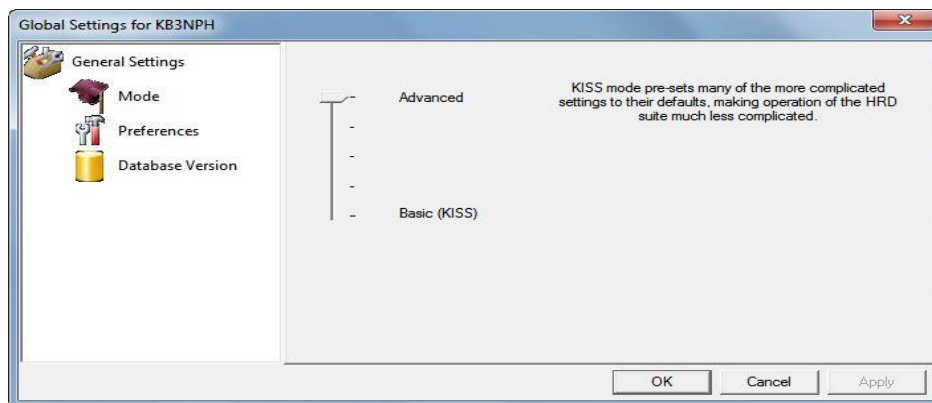


The Scanning tool allows you to choose how you would like a scan to be performed. It allows you to set a frequency range within a band, or allows you to select the entire band to be scanned.

The Scan Frequencies option allows you to import frequencies from your Favorites list. An example would be if you have many local 2 meter repeaters in your area and have them programmed into your favorites list, they could be loaded into the frequency scanner window which would then allow you to scan your entire list of repeaters for an active station.

HRD Global Settings

Tools > HRD Global Settings opens the settings screen.



Here you can adjust for simplified menus or an advanced menu system. Also in Preferences, you can set the programs to show Miles vs Kilometers, F vs C temperatures, etc.

