

RigSelect Pro

Firmware and Application Release Notes

Release Notes: August 15, 2024

RigSelect App Version 2.10
(No changes to firmware.)

1. The RigSelect App and the whole RigSelect ecosystem was given a nice upgrade with a new feature built into the App that allows extremely easy RigSelect firmware updates.

RigSelect firmware updates can now be made by opening the RigSelect App, connecting to the RigSelect App USB port, and then opening the “Advanced Operation Features” form in the main menu. In the lower right corner is a new button labeled “RigSelect Firmware Upgrade”. Press the button, answer the confirming question with a “Yes”, and the upgrades starts. It takes about 15 seconds and then RigSelect will reboot to load the new firmware.

In the background, you will see the App download four files. These are posted on the RigSelect website and downloaded over an SSL link. The files are placed in the %AppData%/RigSelect directory. The App then launches a Windows Shell and executes the firmware update with the necessary instructions.

This is far easier than the old process of manually downloading a ZIP file, extracting the file, and running a small GUI app and configuring the setup questions correctly. The older ZIP file process will still be maintained and supported.

A tip of the green programming eyeshades to Rick, N6XI for suggesting this feature. Improvements and feature suggestions are always sincerely appreciated!

Release Notes: July 28, 2024

Firmware Version 7.4.5.07.09
RigSelect App Version 2.00
RigSelect Operations Manual 3.5

1. In the firmware the commands #%V and #%U were significantly extended. The syntax described in earlier versions is no longer accurate. Full details to be provided in an upcoming manual revision which is anticipated to have a new chapter on the addition of the Override commands and their potential uses.
2. The good news is there isn't much need to delve into the #%V and #%U command syntax because the RigSelect App was significantly improved with a new form with a graphical representation of the RX relay switching. This includes visual representation of the Override options. There is also an “Override Enable/Disable” command. This can enable or disable all Override options with a single button.
3. It is worthwhile to note that the use of Overrides will cause a slight delay in RX switching. This is estimated to be on the order of a couple of milliseconds. Internally to RigSelect, the firmware

keeps track of which relays need to be switched on or off in a table format. The switching matrix table is 16 columns by 32 rows. This encompasses all possible states of RigSelect's standard switching based upon the features offered.

The Overrides are stored in two additional arrays of 16 bytes... one byte for each relay. One array is for "ON" Overrides which will force a given relay to ALWAYS be turned on. The second array is for "OFF" Overrides which will force a given relay to ALWAYS be off.

During normal operation, the relay settings are read from one of the rows in the main table, then sent to the relay switching function. When Overrides are active there is an extra step where each relay byte must be logically compared with the bytes in both Override arrays before being sent to the relay switching function. This adds a slight delay, so Override processing is turned off when no Overrides are present.

4. Buttons for the #BX, #DX, and #PM were also added to this new "Advanced Operation Features" form. This will make it a bit easier to use these features going forward.
5. The RigSelect Operations Manual received a significant upgrade to include a new chapter on the Override commands, plus updated references elsewhere as appropriate. There were also minor changes and clarifications to wording elsewhere. The manual is now 58 pages long.

Release Notes: June 8, 2024

Firmware Version 7.4.4.06.08

(No changes to App)

1. Feature addition of #%V and #%U commands. These allow individual control and overrides of audio switching tip and ring channels to the audio output. This effectively allows RigSelect to listen to multiple radios on the tip channel, and/or multiple radios on the ring channel audio. The audio signals are effectively overlaid on top of each other by turning on additional relays in the RigSelect audio switching array.

For example, if I am listening to Radio 1 in my left earpiece, and Radio 2 in my right earpiece using RigSelect's A-B Stereo feature, it is possible to also add audio from Radio 3 to either or both earpieces. The command to accomplish this is #%V31 to add Radio 3 to the tip (left) earpiece. To turn this audio back off, you would issue the command #%V30. To add Radio 3 to the ring (right) earpiece, the command is #%U31. #%U30 turn it back off. Adjusting the volume levels on the radios can emphasize any of the three radios independently.

Conceivably, you could listen to Radio 1 in Left and Radio 2 in Right earpieces using A-B Stereo, and then blend in low volume levels of Radio 3 in Left, and Radio 4 in Right earpieces. Don't blame me if your brain explodes in this configuration.

The command syntax is #%VNn. The "V" controls **tip** audio signals. Think of it as a pointy upside-down tip. "N" selects the radio, 1 through 4, that you want to target. The "n" turns the audio on if "1", or off if "0".

Similarly, the #%UNn command controls **ring** audio signals. It's not pointy like the "V".

At this time, the command states are NOT saved to EEPROM, but will persist until changed or RigSelect is rebooted. These commands might be useful as a RigSelect App macro, or as an assignment of a macro to an unused pushbutton function.

When you issue commands that place any override or addition in the overlay, RigSelect will echo back with an "ASP On" notification. ASP is for **A**udio **S**pecial **P**rocessing. When all the overlay commands are reversed, RigSelect will echo back an "ASP off" notification.

ASP will cause some extra CPU work to apply the overlays. I haven't measured it, but I wouldn't be surprised if it were to add a couple of milliseconds to the RX switch time.

2. There was a bug fix of potential out-of-bounds conditions on settings of volume controls for Blend L/R and Sidetone volume levels.
3. There was a minor change to #%BR (Blank Ring) and #%TB (Blank Tip) to be either toggle if no 5th digit is present, or set with #%BRn command where n = 1 for blank, or n=0 for non-blanked.

Release Notes: April 7, 2024

Configuration App Version 1.94

(No changes to firmware)

1. Fixed a minor bug which could cause the App to throw a non-fatal exception at launch. This was caused by an out-of-bounds setting of the blend and sidetone volume levels.
2. Improved the wording of the warnings associated with the backup and restore of the RigSelect EEPROM configuration. Restore in particular takes a long time because serial data has to be throttled back to a slow rate to avoid overflowing the small Arduino serial input buffer.
3. Added a progress bar that appears on the main form during the lengthy EEPROM configuration restore process.
4. Restoring the RigSelect EEPROM configuration now also reloads the new configuration into memory as part of the command. Previously, this had to be done separately which was confusing.
5. Added an L R TX display indicator to the main form. This is essentially a duplicate of the information on the Tools & WinKeyer form. But now this information is on the main form in case the Tools & WinKeyer form is not needed or opened.

Release Notes: February 29, 2024 (Leap Day!)

Firmware Version 7.4.1.02.29

(No changes to App)

1. Added new command and feature to RigSelect. This is the command `##DX`. It sounds exciting, and it is. DX stands for **D**irected by **X**mitter. In the "DX" mode, RigSelect can follow TX switching among multiple transceivers by monitoring the multiple KEY-OUT lines. RigSelect has a direct connection between the ring terminal on the PTT jack with the Programmable Logic Device (PLD) that manages PTT in conjunction with the Arduino type CPU. KEY-OUT lines are active low. If any transceiver starts transmitting, KEY-OUT is activated to a digital low. This is instantly recognized by the PLD hardware which sends an interrupt to the CPU to process the TX change. RigSelect will switch the TX functions (everything but audio) to the transmitting radio within a couple of milliseconds. This is considerably faster than OTRSP because all the decoding and decision making is done by the PLD in hardware, and the result passed to the CPU to immediately implement the required switch pattern. In the unlikely event multiple transceivers are active low simultaneously, the highest numbered radio wins.

RigSelect units built before March of 2024 will require a new PLD chip to provide the logic necessary for DX mode to work. The PLD's are inexpensive, and I will be glad to mail you a replacement PLD with the upgraded logic. The PLD is a square socketed chip near the middle of the main board and is relatively easy to replace. Send me an email if you would like the replacement PLD. This firmware release will work just fine in RigSelect units with the original PLD. Just don't try to use the `##DX` feature without the new PLD because it won't work and will lead to undesired TX switching.

This command is somewhat related to the #BX command introduced on December 12, 2023. The difference is that the BX command uses the KEY-OUT signals to serve as a substitute for PTT in configurations where PTT is not available or unwanted. BX allows KEY-OUT to tell RigSelect that a PTT type condition is occurring, and should activate Blank, Blank/Blend, Latch, and Split-Stereo audio modes if they have been enabled. By contrast, DX mode allows KEY-OUT signals from the transceiver to steer RigSelect's TX functions by switching to the transmitter that is active.

Release Notes: February 4, 2024

Firmware Version 7.4.0.02.04

Configuration App Version 1.93

1. Added RadioA and RadioB allocation indicators to the bottom of the display. These only appear when RigSelect is under computer control (OTRSP) or put into a stereo audio mode either with the Manual Audio Menu commands or with the #ST (Stereo) command. This may be helpful to the contest operator using different pairs of 3 or more radios.
2. A number of bugs were fixed in the implementation of Manual Audio features.
3. A bug/oversight was corrected in the implementation of the #AA_n and #BB_n commands. These allow selection of Radio A and Radio B between any of potentially 4 radios. The command implementation was correct, but there was no immediate indication of the selection on display or physical relay settings.
4. In the App, a "doom loop" was fixed where a disconnected active serial port could hang the program.
5. Fixed bug in the App where a number of large pushbutton configuration commands could overflow the 64-byte serial input buffer on the RigSelect Arduino type processor.
6. Added confirmation tones or dialog boxes to confirm response for all "Save State" buttons. Improved wording on tooltips in the App to explain the purpose and scope of each of the App's four "Save" buttons. (For the record, they are Serial Config and Macro save, EEPROM save of all RigSelect parameters, WinKeyer settings save, and Pushbutton assignment save.)

Release Notes: December 30, 2023

Firmware Version 7.3.8.12.30

Configuration App Version 1.90

1. Added RigSelect command #ED. This dumps the first 1024 bytes of the RigSelect EEPROM to the serial port, bracketed by "###" strings.
2. Added RigSelect command #EL. This loads 1024 bytes received from the serial port into the first 1024 bytes of RigSelect EEPROM. The received bytes are also bracketed with "###" strings.
3. Configuration App received two new commands in the Setup menu list. These are the commands "Backup RigSelect Config to File" and "Restore RigSelect Config from File".

4. The cumulative effect of these improvements allows a user to easily backup RigSelect's complete configuration to a file and reload it at a later time. This might be helpful in migration scenarios, disaster recovery, setup of multiple RigSelect units, or having multiple RigSelect configurations available such as a contest configuration and an everyday operator configuration.

Release Notes: December 12, 2023

Firmware Version 7.3.7.12.12

Configuration App Version 1.88

1. Added additional I/O lines and supporting code to implement the new PAL based digital circuits. These supported new features and have the ability to implement future new features without hardware change by reprogramming the PAL.
2. Addition of the #%BXn command, or Backdoor TX indication (BX). This allows a low going signal on the RING channel of the PTT jack to provide a PTT type indication to the processor. Such a signal might be derived from a "Key Out" port on a transceiver. This signal can trigger Blend, Latch, and Split-Stereo audio processing actions. The BX signal when active will shut down any PTT output going back to the radio to prevent a race type condition.
3. Addition of the #%PMn command, or PTT Master control. This is on for normal PTT operation. When PTT Master is off, all PTT signals to the rear panel are blocked.
4. Improved functionality of Blend On and Blend Off commands. Prior implementation was incomplete.
5. Small occasional bug in display of WinKeyer vs. Paddle was corrected.

Release Notes: October 1, 2023

Firmware Version 7.3.0.09.30

Configuration App Version 1.88

1. Added a menu entry to RigSelect's Config menu and corresponding code to allow baud rate selection for the APP port. Previously this was fixed at 9600 baud. Since the App had the capability to select baud rates, it was an obvious oversight that RigSelect did not have a matching capability. App commands are zippy when tossed back and forth at 38400 baud.
2. Improved error handling in the App to catch errors when the serial port has been accidentally disconnected. For example, such as when baud rate may have been changed. Don't ask how I discovered this bug.
3. App now has the ability to remember screen locations for all three forms and can reload forms in exactly the same place. This is the "Setup/Save Window Locations" menu item.
4. There is also a sister command, "Setup/Default Window Locations" menu item. This will restore Windows default behavior during loading the main form. The other two forms are grouped

adjacent to the main form in this default mode. All positioning commands are contained in the User.Config file and could be changed manually if necessary to recover AWOL windows.

5. Edited and corrected numerous App ToolTips that were impacted by the renaming of various commands, buttons, and new features/improvements.
6. Fixed the unintended swirly cursor that happened when the mouse hovered over the “Key Compensation” label. Labels don’t have tool tips.

Release Notes: September 25, 2023

Firmware Version 7.2.9.09.25

Configuration App Version 1.87

1. By popular request, RigSelect now blanks audio during the boot sequence during firmware boot. It’s possible that the user may still hear an early “R” character from the WinKeyer chip during a cold-power boot since it seems to initialize quicker than the Arduino.
2. Added boundary conditions checks to all App WinKeyer configuration textboxes to prevent out-of-range commands from being entered or saved.
3. Verified that the App WinKeyer Key Compensation text box had a Tool-Tip. This had somehow become lost during a previous compilation by Visual Studio. The tip was intact however upon a VS reload.
4. Changed App menu command labels and resulting form titles to ensure consistency. Actual form titles are a bit more verbose for clarity. Menu labels are terse to avoid wide menu text.
5. And... ta-da! Finally figured out how to place newly opened App forms on the screen next to the main form instead of on top. Having to move forms around on the screen bugged me as well as others. Yay!

Release Notes: September 24, 2023

Firmware Version 7.2.8.09.24

Configuration App Version 1.86

1. Made sure that #%nn serial commands on the Arduino serial port (Serial0) would also hold off display updates as necessary. This was necessary to prevent a very long string of #%nn commands from overflowing the serial input buffer while the CPU was busy servicing the display.
2. Updated the App “Save Setting” menu item so it also saved WinKeyer settings. This is more consistent with reasonable user expectations for this menu item’s functionality.
3. Changed the label on the WinKeyer “settings save” feature from “Save WK Configuration” to “Save WK Settings. Also changed “Push WK Configuration” to “Push WK Settings”, and the group box name to “WinKeyer Settings”. This should make the interface labeling a bit more consistent.

Release Notes: September 22, 2023

Firmware Version 7.2.7.09.21

Configuration App Version 1.85

Important Note: Installing this update will result in the RigSelect App configuration data being lost. It is recommended that this configuration data be rebuilt using the App and saving the configuration. Take a screenshot of the App windows if necessary. (Shift-WindowKey-S)

1. Minor change to location of Firmware Version in the System Menu display. It is now located full time at the bottom of the System Menu and looks like a footer. It looks good!
2. Added a new command #%DV, or Display Version. This command causes RigSelect to send the full version string displayed in the System Menu out as a serial string on the APP serial port. This can be used by the App to ensure that RigSelect is sufficiently up to date to respond to commands appropriately. (This check is not yet implemented may be in the future.)
3. Changed the Root Namespace in the App to "RigSelect_App", and the Assembly Name is "RigSelect App". The installation and desktop shortcuts are now labeled "RigSelect App" without any .EXE notation.
4. After considerable study, it was decided not to attempt to change the directory structure in AppData/Local. The above name and namespace changes have simplified naming considerably, but the evidence hash string that is attached to the directory name is there for a very good reason. The most definitive article found was <https://stackoverflow.com/questions/38429461/how-to-change-the-predefined-userconfig-directory-of-my-net-application>. As it stands now, the .NET Framework/VB Application Framework takes responsibility for making sure that an app is loading the right set of settings. The evidence hash is used to uniquely identify the app. Better to let the Framework Pros handle the job than an attempt to recreate their work and risk ugly issues downstream.

Release Notes: September 20, 2023

Firmware Version 7.2.6.09.20

Configuration App Version 1.82

1. App is now single-instance. It is not possible to accidentally load a duplicate version.
2. Fixed the occasional annoying need to press "Connect" twice when the App is trying to connect to RigSelect after a cold power-on start. Timeout while waiting for connect was increased to 3 seconds, and a second retry of the connection string is sent halfway through the timeout if connection hasn't been established.

Note that sure-fire connections after a cold power-on start require correct configuration of the Serial Port CH340 Driver in Device Manager. A note has been added to the manual to highlight this, and Appendix A has been added to provide details.
3. Made changes to the App to support firmware changes regarding selection of WinKeyer/Paddles. Selection of WinKeyer or Paddles by radio now works as expected either from RigSelect menu, or from the App WinKey/Paddle radio buttons. Square RIG buttons are now isolated from

WinKey/Paddle radio buttons, and both should work as expected. When WinKeyer is selected, the app automatically loads all the WK settings which may have been saved using the “Save WK Configuration” button.

4. Added a menu line item to the RigSelect System menu to allow viewing the firmware version number without having to reboot RigSelect.
5. Changed WinKeyer and Paddle switching commands to not impact TX or RX selection. The #nW and #nP commands now only change the WinKeyer/Paddle assignment. Changes made using the App can be seen in real time on the RigSelect menu if the menu is opened to the WinKeyer menu page. Otherwise, the display is updated as appropriate.
6. Changed the labeling of the “Force OTRSP On” checkbox to “Computer Control On”. Improved the wording of the associated Tool-Tips for this checkbox and the “PTT Active in SO2R” checkbox to minimize confusion.

Release Notes: September 17, 2023

Configuration App Version 1.80

1. Fixed bugs and improved management of WinKeyer PTT Enabled and Speed Polling state. Previous versions could get confused state.
2. Improved PTT Test button function to return WinKeyer PTT state to condition it was in prior to pressing PTT Test.
3. PTT Enabled checkbox now activates and saves immediately. No need to press “Push WK Configuration” to implement this command. Command state responds immediately to check box check or un-check condition.
4. RigSelect Configuration App installation now works as expected. It will seamlessly upgrade an existing version of RigSelect Configuration App and uninstall the old version. User settings like macros and other state selections are preserved across upgrade.

CAUTION: A new installer program is now being used to create the .MSI installation package. You will need to manually un-install any existing RigSelect App versions using the Control Panel/Programs and Features tool. You will also lose macros, pushbutton key assignments, and other state selections that were previously saved when migrating to this new installer environment. Going forward, App upgrades will function correctly.

If you want to manually copy the config file, they were previously stored in the C:\Users\YourName\AppData\Local\RigSelect_Configuration_A folder. You may have to search for the latest version of the user.config file. The new store location is under C:\Users\YourName\AppData\Local\KD6X.

Release Notes: September 12, 2023

Firmware Version 7.2.5.09.12

Configuration App Version 1.74

1. Fixed bugs which caused loss of state awareness with some switching combinations of #%ST, #%RT, and #%TT commands. Also, these commands will set Advanced Display on, and will no longer toggle it off automatically which was confusing.
2. Improved startup sequence so that initial boot up can default to Radio N where N was the active radio when EEPROM was written with the #%EW command, or the menu equivalent, or the App equivalent.
3. Replaced RIG3 LongPress pushbutton macro assignment with a DoubleTap. Added additional DoubleTap pushbutton macro assignments to RIG1, RIG2, and RIG4. There are now 4 empty pushbutton macro assignments available, as well as the ability to reprogram any of the SingleTap front panel pushbuttons if desired. The Configuration app supports the programming of all eight pushbutton assignments.
4. Renamed "Split Audio Menu" to "Manual Audio Menu". The contents of this menu were renamed as "Normal Audio", "Manual A-B Stereo", Manual A-B Follow", Manual A-B Flip. Names changed but features behind the names stayed the same. This is an attempt to differentiate the manual pushbutton operated 2-radio modes from the automated SO2R features.
5. The 3rd line of the display no longer reads the confusing "Split OFF (Normal)". It now reads "Normal Audio" when appropriate.
6. Replaced the display reference on the 3rd line stating "OTRSP Active" when under computer control with the more easily understood words "Computer Control". As was pointed out, OTRSP is the name of a protocol, not an operating mode.
7. #%ST with the 3rd line label "Stereo Toggle On" had a short life. The #%ST command will now toggle the 3rd line on the display between "Normal Audio" and "A-B Stereo Audio". These commands also track correctly when #%RT or #%TT commands are sent. (Note that by definition, changing receiver focus with #%RT has to cancel A-B Stereo.)
8. Note that during "Computer Control", there is a 4th line on the display which will indicate the status of SO2R Features such as Blank, Latch, and Split-Stereo. Headphone modes are indicated in light blue at the bottom of the screen. SO2R TX options, and Headphone modes follow the convention established by the YCCC SO2R Box.
9. Automatic uninstall while updating the App still does not work. However, the installer will not install the new version until the old one has been uninstalled. This is still a work in progress.

Release Notes: September 4, 2023

Firmware Version 7.2.4.09.04

Configuration App Version 1.72

1. Fixed bug which caused display refresh with unrecognized OTRSP commands such as AUX commands which RigSelect does not support.
2. Added pushbutton activity feedback to alert App to resync.
3. Fixed serious bug with multi-command variable overflow. This was causing multi-command pushbutton assignments to work inconsistently if at all, and would also impact other RigSelect variables resulting in bizarre behavior.

Release Notes: September 2, 2023

Firmware Version 7.2.3.08.30

Configuration App Version 1.71

Important Note: Installing this update will require a “Factory Reset” to be performed from the front panel menu to load pushbutton commands correctly into new memory locations.

1. Fixed minor bug where “Stereo Toggle” was not being turned off when #%nG and related commands were sent, either by pushing the button, or sending the RigSelect command.
2. Fixed bugs in App logical implementation of “RX Focus” and “TX Focus” buttons.
3. Fixed bug where it was possible to get incorrect settings of the App checkbox “PTT Active in SO2R”. It was possible for logic to get reversed depending on sequencing.
4. Changed RigSelect command #%PT to #%PTn where n = 0 for PTT blocked to rear panel and n=1 for PTT to be enabled at rear panel when in SO2R modes.
5. Added the ability for programmable pushbutton command strings to contain up to 3 chained RigSelect commands separated by a space.
6. Added new #%nX command to complement #%nG and related commands. #%nX switches the RX and TX focus to RIG n, but does not make any other changes to settings such as Advanced Display, OTRSP, etc. This may be useful when programming some scenarios of front panel pushbutton macro strings.

Release Notes: August 28, 2023

Firmware Version 7.2.2.08.28

Configuration App Version 1.70

1. Fixed bug which caused App Macro2 and Macro3 buttons to playback incorrectly.

2. Fixed bug in RigSelect command `##ST` which caused front panel buttons RIG3 and RIG4 to freeze unintentionally.
3. Added RigSelect commands `##ST`, “Stereo Toggle”, and `##RT`, “Receive Focus Toggle”, and `##TT`, “Transmit Focus Toggle”.
4. Added a new window to the App to allow RigSelect front panel RIGn pushbuttons to be reprogrammed. Also added the capability for the RIG3 “long-press” pushbutton function to be programmed since this button configuration was unused. A single RigSelect `##nnn` command can be assigned to any of these five pushbuttons. Default commands are `##nG` for short press commands, where “n” is the pushbutton number. RIG3 long-press default is blank.
5. Pushbutton configuration capability can be accessed with the new “Button Config” entry in the top drop-down menu bar.
6. Changed the `##DD` “Data Dump” command to `##DDn`. If `n = 0`, the data dump is of RigSelect’s EEPROM settings. If `n=1` the data dump is of RigSelect’s current configuration in memory. This allows RigSelect to be polled after any `##nnn` command is sent, which should keep the App configuration and RigSelect in sync for these otherwise invisible commands. The current setting data dump, `##DD1`, is requested any time a `##nnn` command is sent by the App, whether by a macro button or direct entry into the “Send Cmd” textbox. This data dump command is not present for `##nnn` commands which may have been mapped to front panel pushbuttons. At this time, the App does receive any indication that a front panel button has been pushed. This may be corrected in a future release.
7. `##DD0`, the EEPROM data dump is assigned to the “Read All from EEPROM” button. Pressing this button loads RigSelect’s current settings from EEPROM, and then forwards those settings to the App.
8. Changed the layout of the App Macro 1 through 3 buttons. If no macro has been assigned, the button face is blank. If a macro has been assigned, the first 5 characters of the command are displayed on the button face. As a reminder, macro commands can chain multiple RigSelect commands together if separated by a space. For example, `##BT ##WD` is a valid macro. Reminder that if you want the macro to persist across App restarts, do “Setup/Save Settings.”
9. To erase a macro, clear the Send Cmd textbox, and save the empty command to the macro button. I hesitate to add a “Clear Macros” button for fear that users might delete macro commands unintentionally.