SDC (Software Defined Connectors) Flex Connectivity Manual

Everything in this document assumes you are running the SmartSDR API within this application and using SDC contest functionality.

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Software Overview SDC is a full featured program which adds advanced functionality to Software Defined Radios. Full support for FlexRadio 6000 series, Expert SunSDR, as well as other miscellaneous SDR receivers. Although this documentation is written specifically for Flex users, some of this guide may apply to other devices.

SDC offers an **all on one contesting solution** with built in **CW and Digital skimmer**. Since it uses the FlexRadio API, a third party "bridge" is no longer required to run a skimmer like CW Skimmer written by Afreet Software. This skimmer is totally integrated into the software package so its powerful features can be utilized throughout the program. Along with the skimmer, SDC offers a **full featured Telnet Server** allowing you to collect spots from multiple sources including the SDC skimmer and feed them to the SDC contest spot list(s) as well as having the ability to send them to other 3rd party programs.

The program will allow you to run the skimmer outside a contest and has a unique function called "599 mode" which can tag stations working up as they send their exchange with a DX station and show it on the Flex Panadapter. You can also run digital modes outside of the contest. These are great tools for those that like to chase DX!

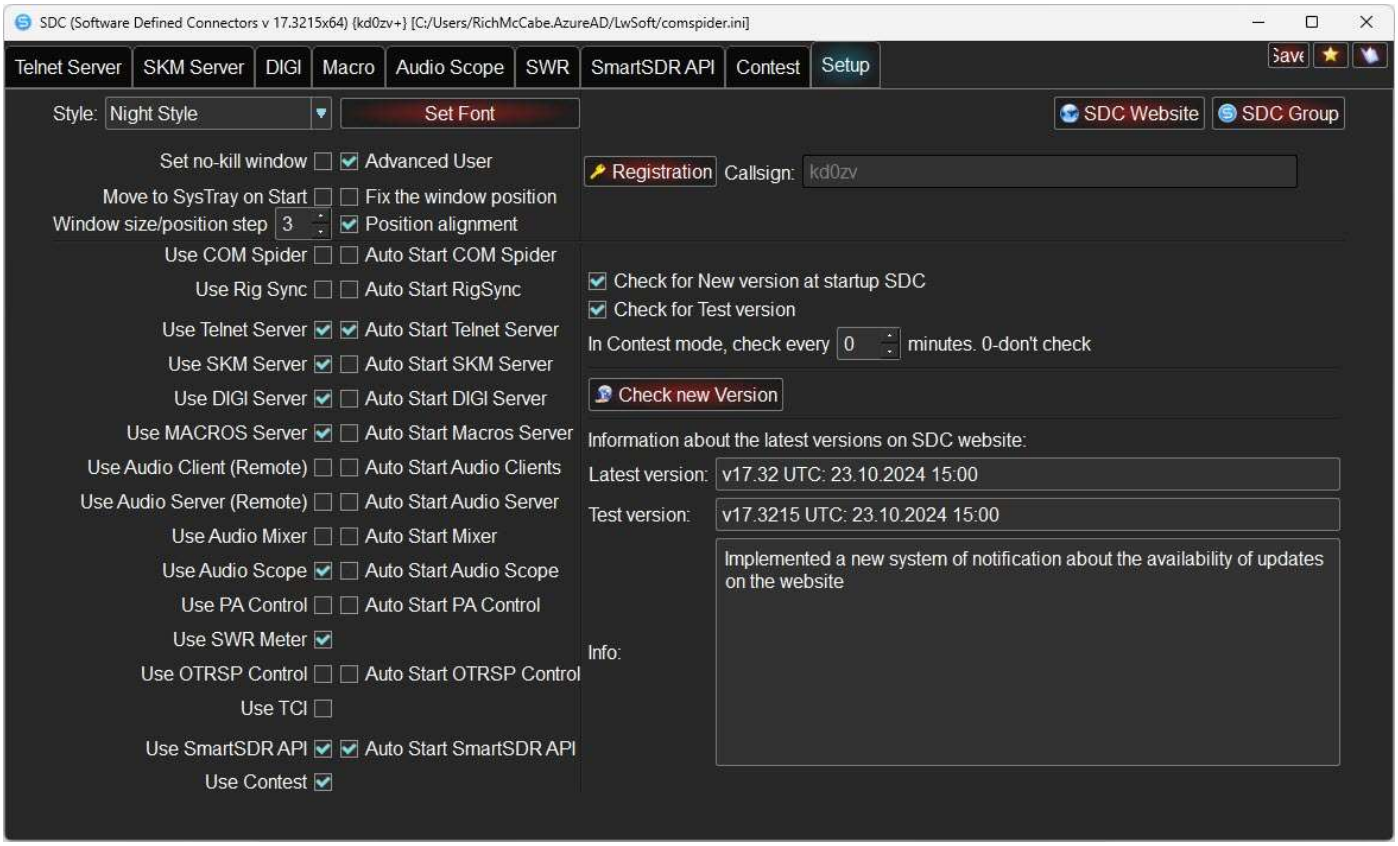
Complete list of program features:

- **SmartSDR API** – This connects this program to the Flex 6XXX series radios and provides transceiver control and IQ streams to operate digital modes and skimmers.
- **Telnet Server** – This is a full featured Telnet Server that will aggregate multiple spotting sources into one stream.
- **SKM Server** – Full featured skimmers for CW, RTTY and PSK.
- **DIGI Server**– Set of modems for decoding RTTY and BPSK**.** Running a digital contest does not require these to be setup as the contest mode will handle that automatically. But if you are going to work digital modes outside of a contest this will need to be configured.
- **Macros Server** – Programable Macro panel for SSB, DIGI and CW.
- **Audio Client (Remote)** – Not covered in this document.
- **Audio Server (Remote)** – Not covered in this document.
- **Audio Mixer** – Creates audio stream connection. Not covered in this document.
- **Audio Scope** – Audio Spectrum and Oscilloscope.
- **PA control** – Power amplifier control. Not covered in this document.
- **SWR meter** – Plots SWR over band.
- **OTRSP control** – Transceiver Sound Management via OTRSP Protocol. Not covered in this document.
- **TCI** – Not pertinent to Flex Radio
- **Contest** – Full featured contesting software package.

This manual will cover the basics of getting SDC up and running with a Flex Radio 6000 series. It will cover the following:

Contents

Setup Tab

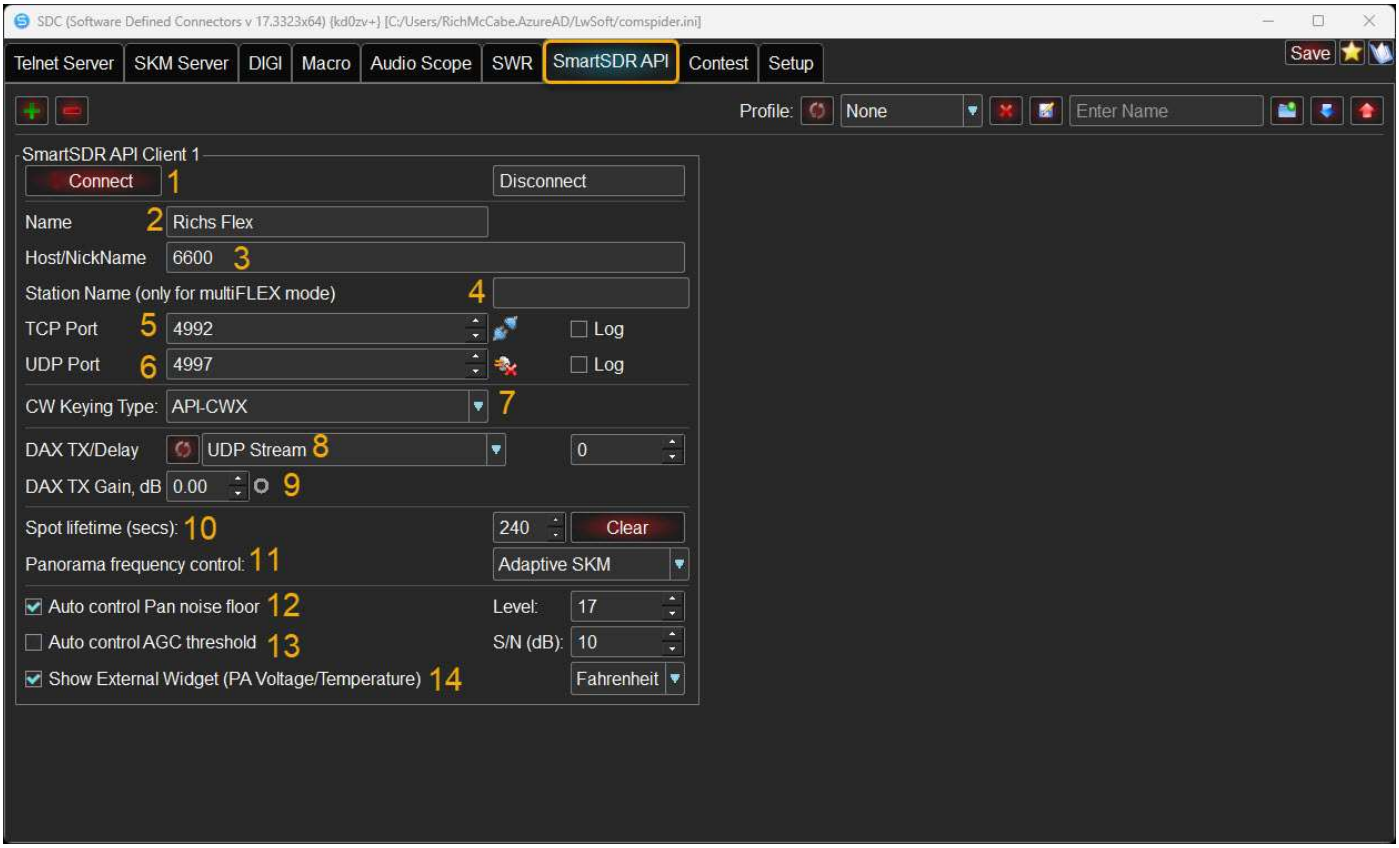


On the setup Tab you can turn on features for the program, enter your registration key, set the programs style(theme) as well as the font you would like to use with the program.

There are also check boxes for:

- **Set no-kill window** - the program will not close when clicking on the X-close of the window. The program window will be minimized in the windows tray.
- **Move to SysTray on Start** – When starting the program, it is minimized directly to the tray near the clock. To view the program, go to the tray and click the SDC icon.
- **Window size/position step** and **Position Alignment**. This assists you in aligning windows position and size. The step value is in pixels.
- **Fix the windows position** This locks current windows position and size so they cant accidentally be moved.
- **Advanced User** - Adds additional features to the application including CW keying options, advanced spotting, additional DIGI options and more. Recommend leaving this checked.
- **Check for new updates** – This will automatically check the SDC server for new updates. You have option to check on startup, every 30 minutes while in contest mode and check for Test (Beta) version. The most current version will be shown for latest and also the test version.

Configuring SmartSDR API



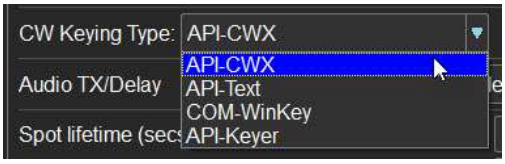
1. **Connect**. Use to establish a connection with transceiver (or disconnect).
2. Enter a user-friendly name in the **Name** field. This is not critical for operation.
3. Enter **Host/Nickname**. This must match the nickname of your radio found in the Flex Radio setup menu.
4. Enter **Station Name** if running MultiFLEX.
5. **TCP port**. This is the port used to connect to the Flex Transceiver. Start with the default ports and try to connect. If you get an error message, try the next available port.
6. **UPD port**. After connection to the transceiver TCP port, this UDP port number will be sent to the transceiver, in which the SDC program will receive data, e.g. IP stream. **Note:** Connection icon for this port will **only appear if the SDC subsystem is running**, which will request data to be transmitted over this connection. Otherwise, Icon may appear as above.

7. **CW Keying Type.** Only available if Advanced user is enabled. (More information below)
8. **Audio TX /Delay.** This is used in SSB, RTTY, BPSK. The **delay** is the time between turning on TX mode and the start of Audio file transmission. Useful when working with an amplifier. Setting value to **UPD Stream** is recommended and will be automatic. Otherwise, you need to select the **audio device** created by the SmartSDR program for audio data transmission. If you revert to a manual setting, restart SmartSDR to initialize. **One caveat when selecting UPD stream is the normal SmartSDR DAX will not function so it will not be available for other applications while SDC is running.**
9. **DAX TX Gain,dB** When configured for "UPD stream" this option will be available and allow you to adjust your TX level.
10. **Spot Life(secs):** This is how long the spot will live on the Flex Panadapter in seconds (example: 600 seconds = 10 minutes).

11. **Panorama frequency control:** (Adaptive Pan, Adaptive SKM, Auto ON, Auto OFF) This controls the behavior of how the panadapter reacts when clicking on a spot that is off the display to the right or left and not visible. If you have it set to **Auto OFF**, then Smart SDR is in control of the behavior and the panadapter will not be adjusted to bring the spot slice into view. If you have it set to **Auto ON** it will adjust the display, so the spot is centered on the panadapter. **Adaptive PAN** - Does not keep the IQ band from going beyond the Band Plan of the skimmer. Works well for SSB contests. **Adaptive SKM** - Prevents the IQ band from going outside the Band Plan, as it additionally controls the panorama width.

12. **Auto control Pan noise floor.** This adjusts the noise floor location visually on the panadapter to the value specified. The purpose is to adjust the noise floor automatically, so it stays in the same location off the bottom edge of Panadapter. This is very useful if you have SmartSDR window shrunk to small size.
13. **Auto control AGC threshold** S/N (dB). Automatically adjust the AGC-T. This is a personal preference but 6 -10dB are common values.
14. **Flex Widget** - Shows DC input voltage and PA temperature selectable in Celsius or Fahrenheit. The widget can be moved around on screen, resized by dragging border and right clicking on the widget allows you to change colors. You can change the transparency of widget by using mouse scroll will while over the widget. Note: Unpredicted results can be found when placing widget over windows task bar.

CW Keying Type This gives you options on how SDC will send CW. *(advanced user mode only)*

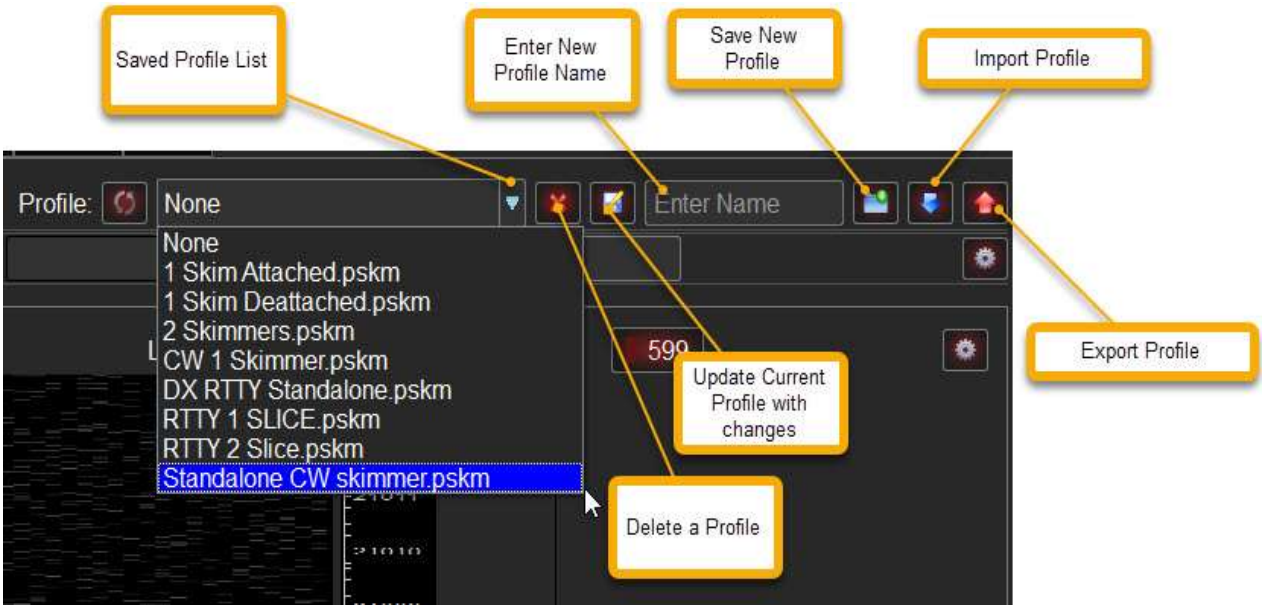


- **API-CWX** - Full support for all modes for contesting. Callsign correction during transmission, terminal mode, acceleration/deceleration symbols work. This mode is offered by default.
- **API Text** - the text to be transmitted is passed to the transceiver via the client API. You cannot use the acceleration/deceleration of the keyer speed within the text. SDC-Contest will not work to correct the callsign while transmitting it.
- **Flex Winkey** - CW keying will be performed via COM Port WinKeyer in SmartSDR CAT settings. **Note**: will not work with external WinKeyers.

Understanding profile usage

SDC profiles are a powerful feature that allows you to save and recall custom setups with ease. These profiles can be used to load customized settings and even window layouts. Some of the SDC applications have several profiles you can load. As an example, the Contest application allows you to save and load Contest profiles, Station Profiles, Macro Profiles, Layout profiles and Audio profiles.

See below for the standard profile usage. Please note some things like switching profiles will require stopping whatever profile is running, changing the profile, and restarting.



Special note on saving layout profiles (window locations). Make sure the edges of your SDC windows are fully on screen. If they are off screen at all, the window location will not be saved properly.

Brief explanation of profiles associated with a contest.

Contest Profile – This is where you select the contest you plan to operate. Contest may be downloaded from LW-SOFT.com or created from scratch.

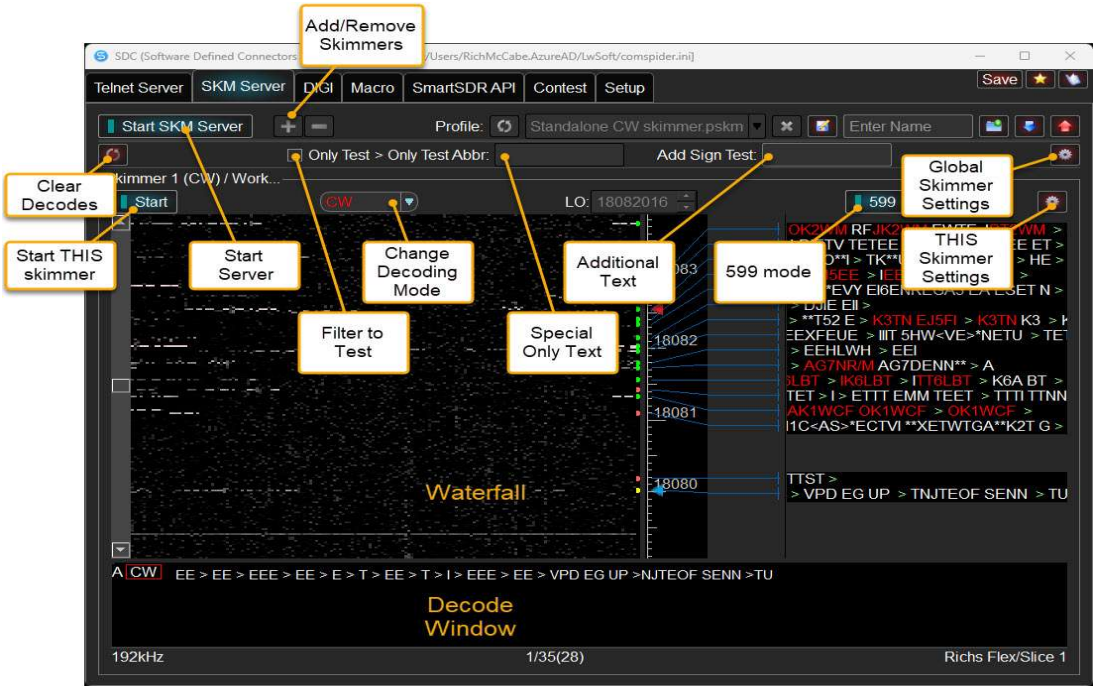
Station Profile – This loads the station profile including operator name, callsign, location information, rig and antenna information, contest category (example SO2R low power), etc.

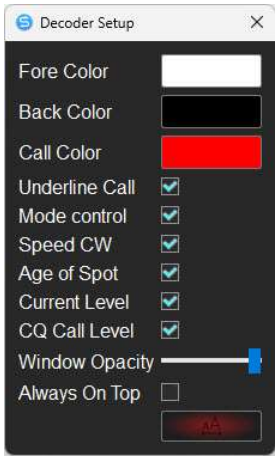
Macros Profile – This loads the macros in your QSO window. You can create tailored macros dependent on the contest.

Layout Profile – Once you locate and size your windows on our monitor(s) you can easily recall that layout. You can optimize layouts for RTTY contests, CW contest, operating SO2R, etc. Note that some windows locations are nested within other profiles and can't be applied by just saving the layout profile. As an Example, the SKM server profile is independent and handles the layout for things associated with it.

Audio Profile – This loads audio profiles with the levels found in the QSO window settings. This automatically adjusts the audio levels for RX volume(s), TX Monitor(s) and balance control.

Configuring the SKM Server (and skimmers)

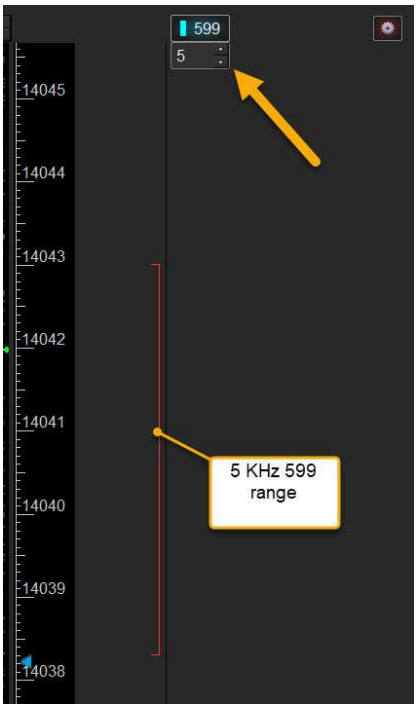




Right click on Decode window for options.

Please note there are two gear icons for settings. One **global setting** which can be found in the main SDC program and one **setting for each skimmer** you create. Operational info can be found towards the end of this document under User Interface – Skimmer Window.

Everything here is self-explanatory except for the following:



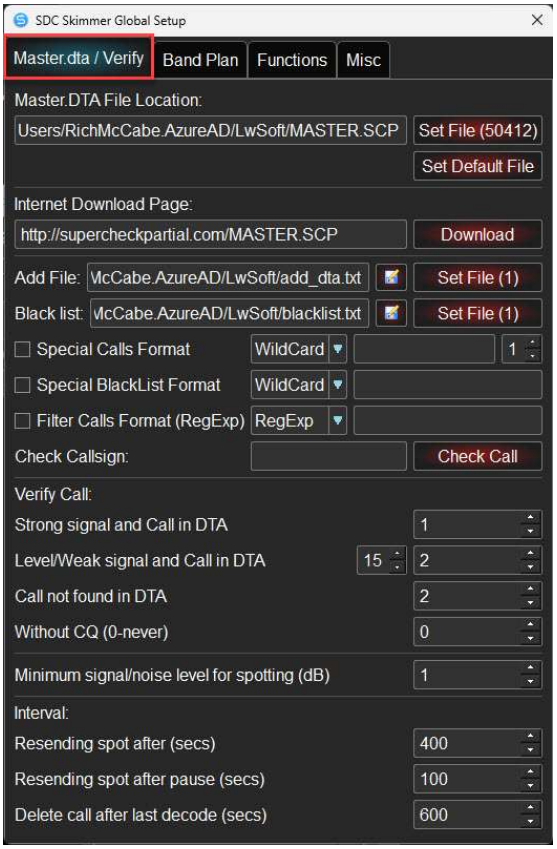
- **Add/Remove Skimmers**. With the SKM server stopped, you can add or remove additional skimmers (with unique settings). The example above has just one skimmer but pressing the + button will stack additional skimmers horizontally.
- There is a checkbox for **Only Test**. When checked, only stations sending TEST or WSEM will be spotted. You can filter this down even further by adding text in the **Only Test > Abbr:** field.

  You can specify several options separated by commas, semicolons, or spaces. For example, by specifying "MM", you will receive spots only for those stations that add the letters MM to the call: CQ MM ..., TEST MM ...

  This feature can be accessed from the ActiSpot window as well.

  Additional words can be added to the **Add Sign Test** field.
- **599 mode** – See Skimmer Global Settings for full details. But enabling this mode will open a drop down where you can specify how many kHz you want to listen for 599. The Skimmer will display a box showing that range (see right) and the Flex Panadapter will have [ ] showing this range as well.
- **Clear Decodes** - The decoded callsigns table will be cleared and spots will be issued without waiting for the end of the spot issue interval.

Skimmer Global Settings



[Master.dta/Verify Tab] – In the top section you can set the location of the Master Data file which is a database to check the validity of a decoded callsign. There all also options to download an updated file from the internet, add a callsign to a locally created data file, add a callsign to a blacklist and check a callsign to see if it is included in the database.

A callsign validity is based on three things. Its presence in the above data files, the number of times it was decoded and the signal strength of the station.

Under **Verify call** you can set the conditions that must be met before a call is considered verified.

Strong signal and Call in DTA - This is the number of times that a strong signal station that was found in the data files must be decoded correctly before it will be considered verified.

Level/Weak signal and Call in DTA – This is how many times a weak signal that was found in the data files must be decoded correctly before being considered verified. The spin box sets the threshold level that determines the strength of the signal.

Call not found in DTA – Set how many times a callsign that is not found in the databases must be decoded correctly before being considered verified. **Without CQ is** how many times the call must be decoded if no CQ is preset

Minimum Signal/Noise level for spotting (dB) - If you do not want to show spots for weak stations, enter a value in dB here. As an example, to filter out stations with a signal strength less than 12 dB, specify 12. To disable this feature, enter a value like -10.

Under the **interval**: section there are settings for:

Resending spot after (secs) - A repeat spot will be issued if the callsign is decoded N seconds after the previous spot.

Resending spot after pause (secs) - If the station has been idle for more than the specified time (the operator took a break or was working on a different band) and the station started working again, a repeat spot will be issued.

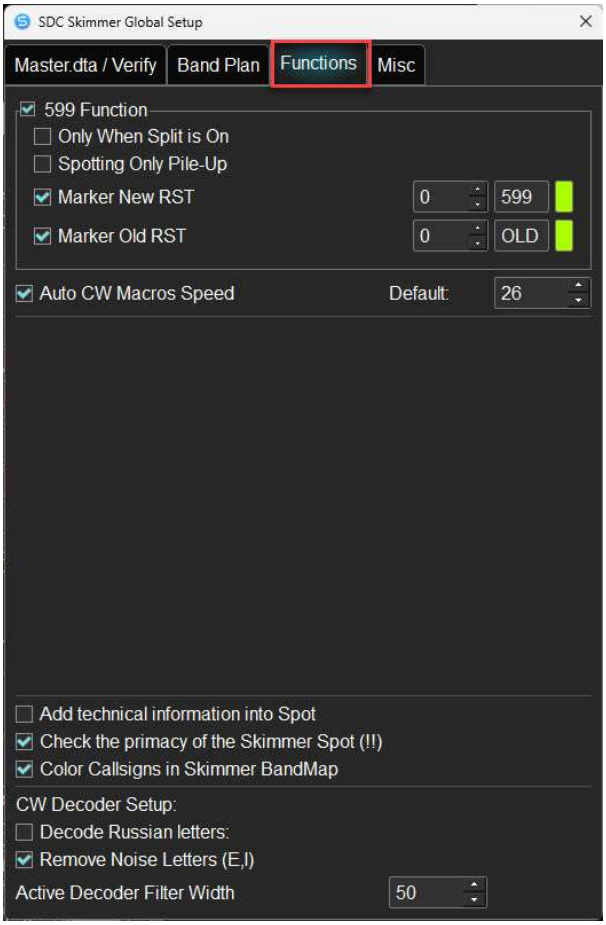
Delete call after last decode (secs) - If more than the specified time has elapsed since the last spot, the callsign is deleted from the memory and bandmap of the skimmer.

Band Plan Tab

[Band Plan Tab]

Configure your **Global** band plan here. The red cells are band stop filters (BSF) and they are designed to create sections where you exclude spots. FTx modes would be a good example of areas you want to ignore. The BSF filters can be toggled on and off using the BSF button at bottom. At the top you will find a standard profile toolbar to save and recall various band plan profiles.

[Functions Tab] – Checking the **599 function** will add a toolbar item "599" to the Skimmer. This toolbar allows you to place a label in the correct location on the Flex Panadapter for stations sending their 599 in the exchange. This is helpful when DX stations are working up so you can get an idea where the DX is listening. When the next 599 is heard it replaces the previous 599 with a new label. In this example we use 599 for the most recent exchange and OLD for the previous one. Watching this gives you a good indication of the DX stations receiver movement up or down the band.



When you select the 599 option on the toolbar you get a dropdown that allows you to select how many KHz to listen for 599s in the pile up. You will see a red bracket on the skimmer showing this range.

Only When Split is ON – The 599 function will only be activated when your Flex is running split.

Spotting Only Pile-Up - If this box is checked when running 599 mode only the stations within the 5NN range will be sent as a spot.

Marker New and Old RST – The **labels can be ASCII characters** (enter value in left dropdowns) **or text** as shown in right dropdowns. The color for Old and New RST can be set as well.

Auto CW Macros Speed Default – Automatically adjusts your keyer speed when a new station is selected from the SpotList. The new WPM will be adjusted to between your set sending speed and the station on Spotlist decoded speed. As an example, if your sending speed is set to 20 wpm and the station on Spotlist is sending at 30 wpm, enabling this feature will adjust your sending speed to 25 wpm for this one contact. Additional settings can be found under contrast [Macros] tab.

Check the primacy of the Skimmer Spot (!!) - This will add **!!** to the spot comments if spot is found on your SDC skimmer but not found on the telnet servers yet. *(advanced user mode only)*

The above feature allows you to see and jump on spots that your skimmer is picking up that other people have not been alerted to on the telnet clusters. You have a very high probability of working this spot first.

Color Callsigns in BandMap – This allows contest colors to be used in the skimmer BandMap.  This icon will appear on skimmer when this is enabled. If running the skimmer while a contest is not loaded, default theme colors will apply.

Decode Russian letters: - Enable decoding of Russian letters.
Remove noise Letters (E, I) - Delete characters decoded from the noise.
Active decoder Filter Width - The width of the decoder filter, which displays the text in the decoder window.

[Misc Tab]

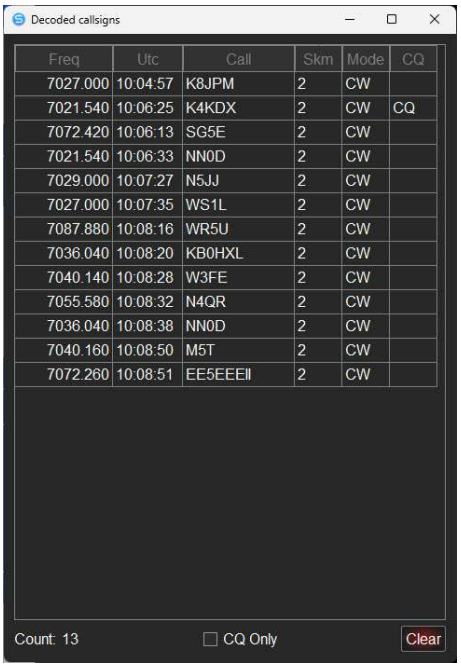
TCP Broadcast Data - This broadcast spots from the skimmers on the specified port to an external program. This is similar to the function available under the Telnet server but only broadcasts skimmer data and not the aggregated telnet and skimmer data.

Add Technical Information to into Spot - This adds some technical information to the spot in the comments field. *(advanced user mode only)*

Enable Oscillograph – This is for developer use and adds process info to a call when clicked on the skimmer. Recommended you leave unchecked.

Spot frequency accuracy - This controls the precision of the frequency sent in the data stream. As an example, 14.010.00 vs 14.010.000.

Show a table of decoded callsigns – Adds a window showing all the combined decodes from running skimmers to one window. Clicking a spot will QSY the appropriate slice to the spot frequency.

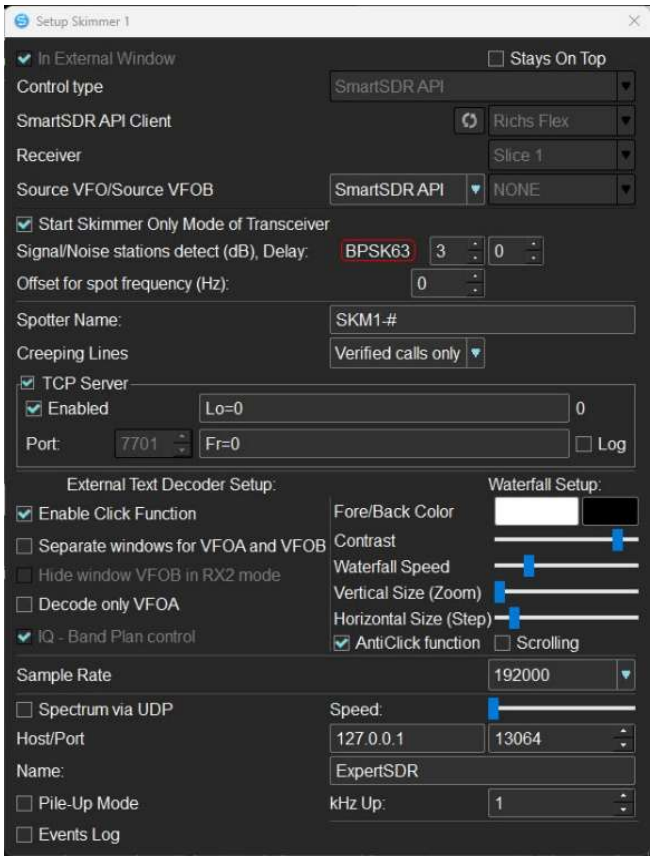


The CQ in the right CQ column indicates this station is calling CQ. All columns can be sorted by clicking the column heading at the top and if you want to see only stations calling CQ, there is a checkbox at the bottom for that.

The "count" at bottom shows the total number of decodes for all skimmers.

Please note: This is all decoded callsigns and not necessarily the spot. So, if UT4LW is sending "W1AW 599 001" then W1AW will show up as well.

Skimmer settings (unique settings for each skimmer)



In External Window undocks the skimmer from the main SDC program. You can also undock the decoder(s) at the bottom of the skimmer(s). **NOTE:** If you are NOT running "in external window" you can easily drag the decoder back to the skimmer window. However, if you are running an external window, you will not be able to do this. You need to stop the skimmer, uncheck the box for external window, start the skimmer again and drag the window back when it's running under main program (not external mode).

The **Stays on Top** checkbox locates the skimmer above other windows.

For SmartSDR transceivers select **Control Type** SmartSDR API. For the **SmartSDR API Client** choose your rig name and Slice 1 for the **Receiver**. If you want two Slices on the same Skimmer that decode individually, change the **SourceVFO/Source VFOB** to Slice 2. Two slices on the same skimmer works great for chasing DX working up. This allows you to see the DX station as well as your TX frequency when working split. You will see a triangle marker for your RX and TX.

Start Skimmer Only Mode of Transceiver – This syncs mode of skimmer to transceiver. This should be default in most circumstances.

Signal/Noise stations detect (dB), Delay – Skimmer is a set of decoders. The decoder starts if the signal is stronger than the noise by 3 dB and its duration exceeds the value set in the program. **Note:** Reducing these values can lead to false decoder starts and create a big load on the processor.

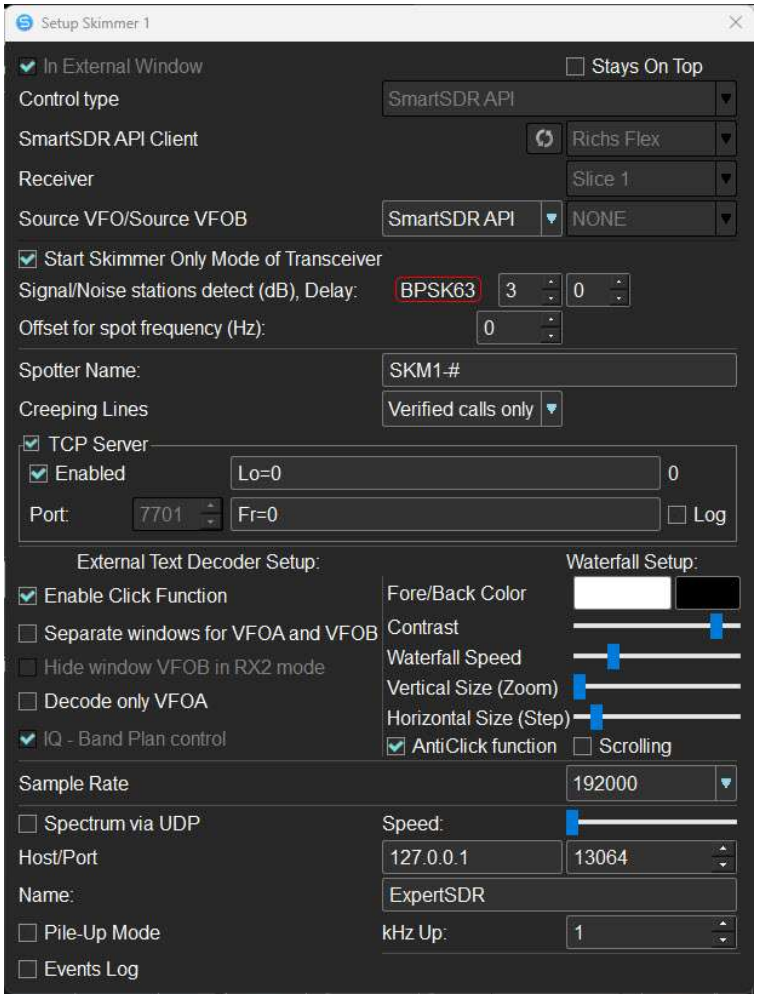
If you set 3 and 3, the signal duration must be longer for the decoder to start. This will protect the skimmer from noise but may distort the first letter of the text. **Offset for spot frequency (Hz)** – If there is any deviation between the skimmer frequency and spot/click frequency, you can make fine adjustments here.

Spotter Name - Enter a user friend name. This is what will show up on the SpotList under the "from" column. This tells you where the spot came from so you can tell it is from local skimmer(s) or online Telnet.

Creeping lines are a great feature that decodes each line individually in your IQ stream including those outside your slice filter width. This adds a visual view and does not affect the actual decoding. The options are **OFF**, **Verified Calls Only** and **All Stations.** **Off** shuts off the creeping lines completely. **All Stations** will add all stations decoded without any sort of quality verification. And finally, **Verified Calls Only** checks the callsign against the criteria you set in Global Settings on the Master.dta/Verify Tab.

TCP Server: Outputs the spots from this skimmer to the port specified.

Enable Click Function - Allows you to transfer callsigns that show up in the decode window to the QSO Window by clicking.



Separate Windows for VFOA and VFOB – Creates two decoder panels at bottom of main skimmer window. One for each VFO/Slice.

Hide window VFOA and VFOB – Not applicable to FlexRadio.

Decode only VFO A – Not applicable to FlexRadio.

IQ band plan control – Enables small IQ window. See section "Understanding IQ Bandplan Control."

Waterfall Setup – Allows to you change the **background** and **foreground** colors of the waterfall, the **contrast**, **speed** and **size**.

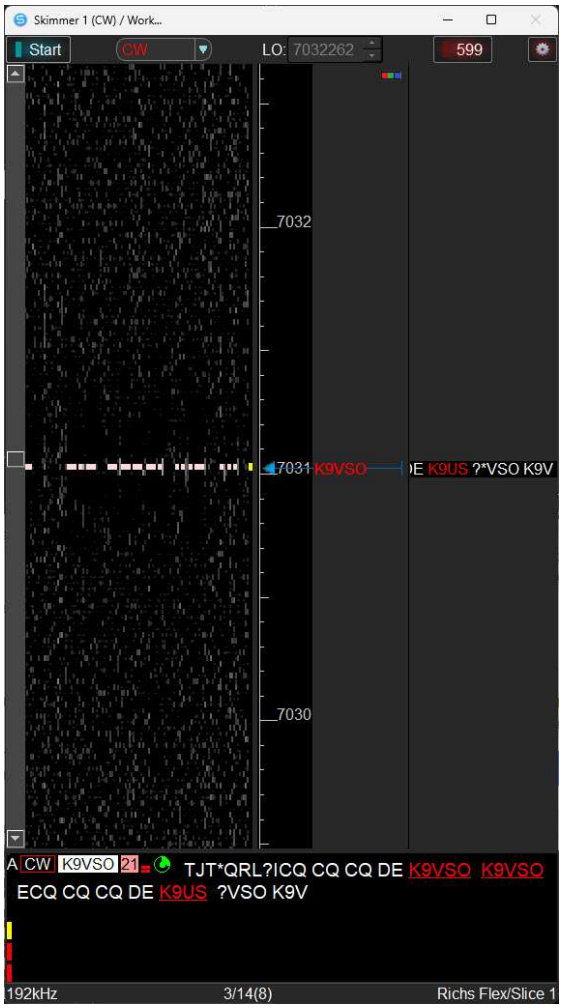
AntiClick function removes interference from the waterfall.

Scrolling Turns on instant refresh for the skimmer waterfall and provides a more fluid experience. This potentially could increase CPU load so uncheck if needed.

Sample Rate – This is the sample rate from SmartSDR DAX. Higher sample rates will give you a wider decoding window.

Spectrum via UPD – This is for sending spots and 599 data to 3rd party programs like N1MM and is outside the scope of this document as you are encouraged to use the SDC contest application.

Skimmer Window(s) *(external window option)*

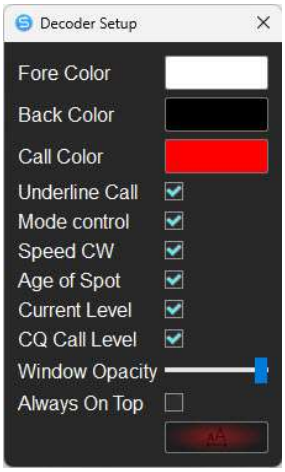


The image on left shows skimmer **"In External Window".**

You can start and stop the skimmer from this window, change mode and enable the 599 feature.

In this configuration we have creeping lines turned on with just one slice connected.

External window has all the same options as when you run it internally in the main SDC program window including using two slices (same band only).



Right clicking the decoder window at the bottom gives you options for turning on features and configuring the colors inside the decoder window.

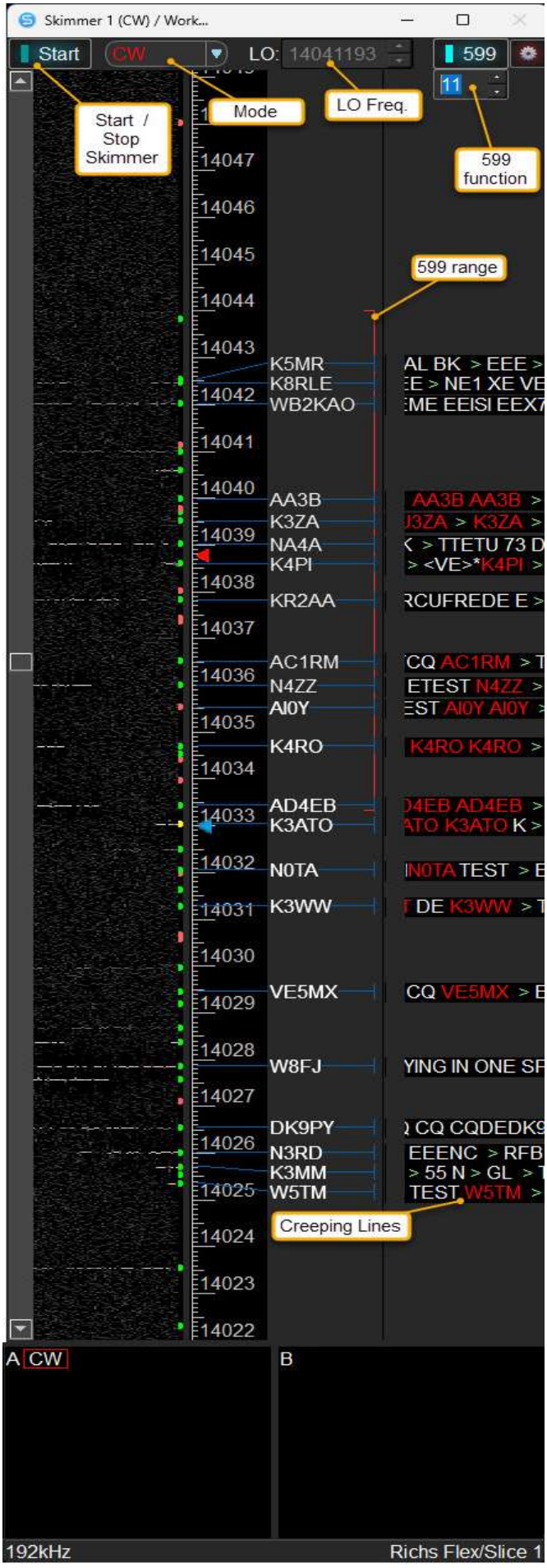
The decoder window at the bottom can be detached and placed anywhere on the monitor which is useful when working a contest.

You can use contest colors on decoded callsigns in the skimmer window by checking the box under Skimmer > Global settings "Color callsigns in BandMap". This icon  will appear when this is enabled. If not enabled normal theme pallet colors will be used.

At the bottom of the skimmer window, you will see the IQ stream width on the left (192 kHz in this case), the client and slice on the right and decoder information in the middle.

The decoder information 3/14(8) can be broke down as follows:

3 - The number of decoded callsigns.
14 - The number of active decoders at a given time.
(8) - Number of active decoders. The remaining 6 decoders have not yet been removed and are in a state of waiting for a signal. If no signal appears, the decoder will be removed.



Standalone Skimmer usage (DX pileups)

If you **chase DX** and want to use the skimmer in a standalone mode it is recommended you create and save a standalone profile using the following skimmer settings.

- **Receiver** set to Slice 1 & **Source VFO/Source VFO B** set to Slice 2.
- Check the box **Separate windows for VFOA and VFOB**
- **Creeping Lines** set to all stations.

All other settings to your personal preferences.

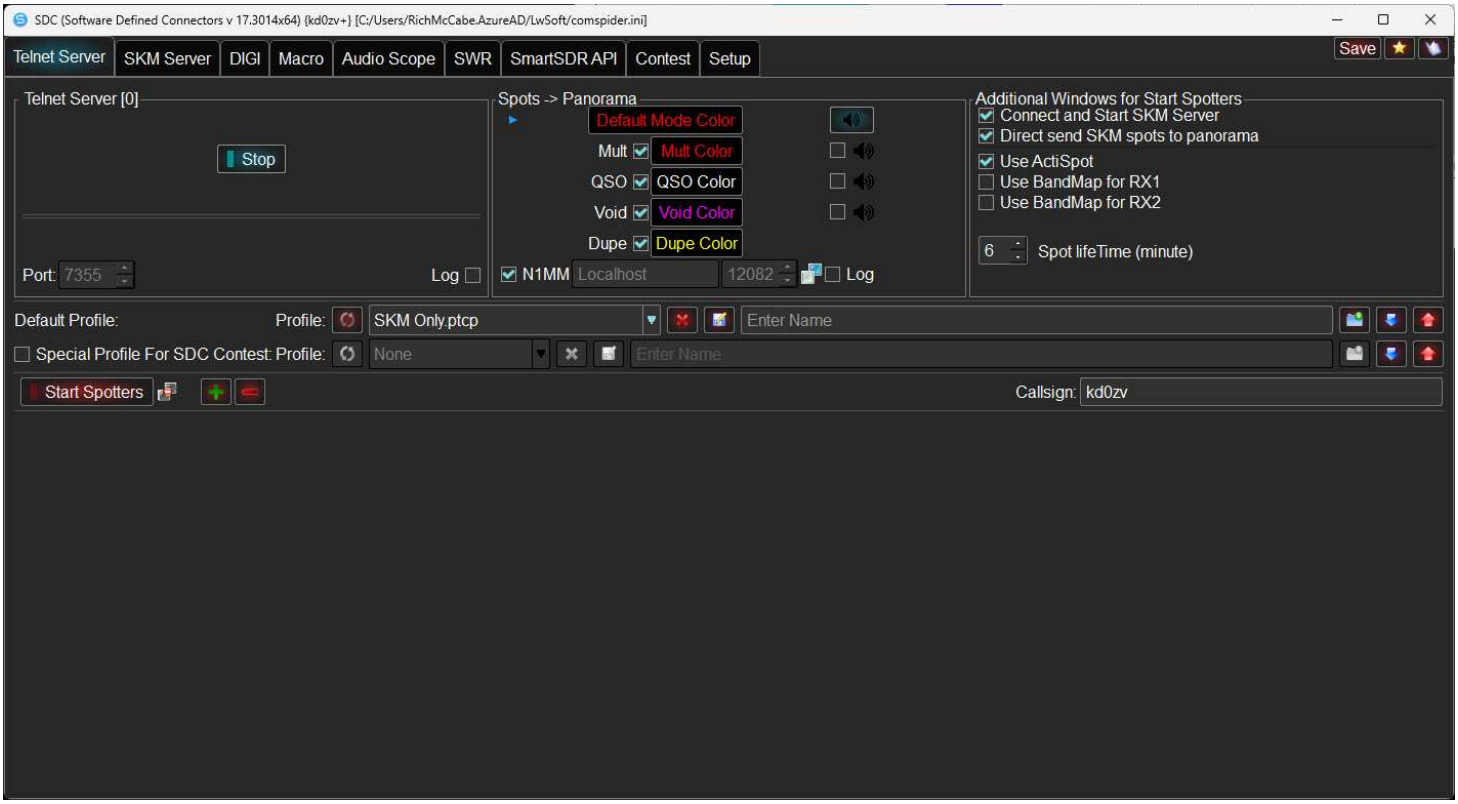
To use, just **start the SKM server**, enable the 599 functions at the top of the skimmer window and set the range of the pileup you want to monitor (11KHz in the left example). **Start the Telnet server.**

When the Flex is in split mode your Slice A will show on the skimmer frequency scale as a blue triangle and your Slice B (transmit frequency) will show up as red triangle.

If your skimmer hears the station working the DX and decodes 5NN it will display that on your Flex Panadapter with whatever indicator you have set as “Marker New RST” (skimmer>global settings>functions tab). When your skimmer hears another station send 5NN it will update the panadapter and change the previous 5NN to whatever you have “Marker Old RST” configured to.

Configuring the Telnet Feature

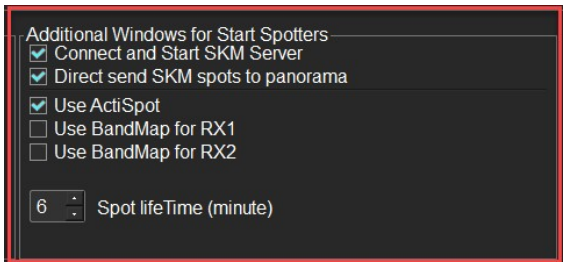
SDC includes a full featured Telnet Server that can aggregate multiple spot sources (including its own skimmer). These can be forwarded to other programs via TCP or used within SDC.



Telnet Server - This is what aggregates all spot sources together. It has a Start/Stop button to start and stop the server. Here you specify the TCP port the combined stream will be sent on. There is also an option to log the data being sent. The data can be saved to a file in the user folder, viewed in HEX formatted and be filtered with the following log options:

- **To** - Show messages that have been sent from SDC to another program/port
- **From** - Show messages that come to the SDC from another program/port
- **My** – Internal messages that are generated while the SDC program is running. Used for support troubleshooting.

Additional Windows for Start Spotters (see right)



- **Connect and Start SKM Server** will automatically start the SKM Server when you start any of the spotters.
- **Direct send SKM Spots to panorama**
- **Use ActiSpot** turns on the ActiSpot window when any spotter source is activated either SKM or Telnet.
- **Use BandMap** for RX 1 and RX2 will turn on a bandmap window for each available receiver when any spotter source is activated.

Spots > Panorama

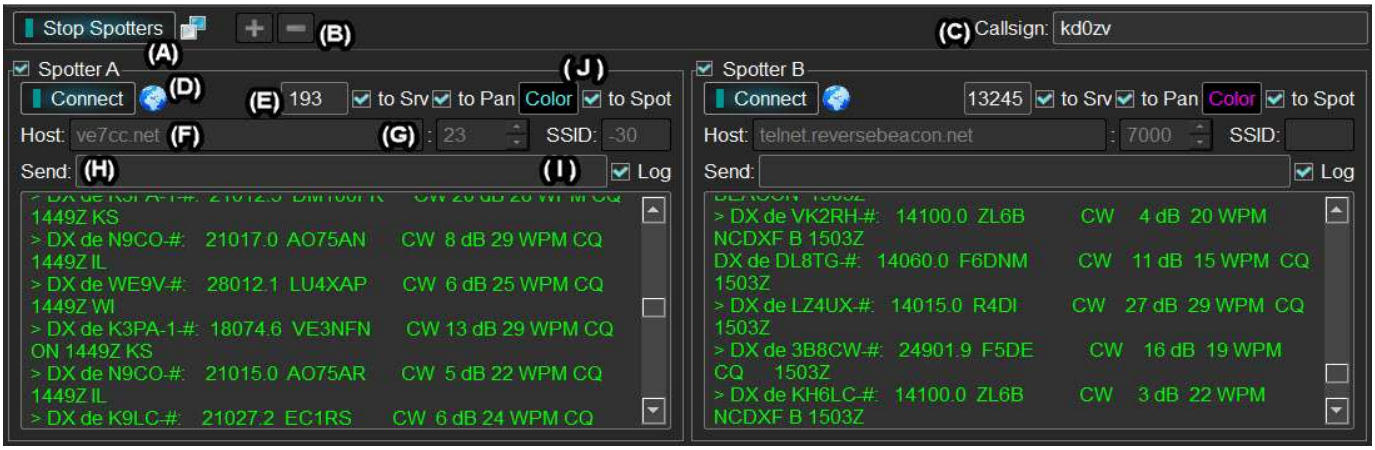
This is the color of spots sent to the Flex Panadapter **IF** a 3rd party software package is connected to the SDC Telnet server and correct protocol is received. If the Spots-> Panorama has a single blue triangle next to Default and Bypass mode color these colors are not being used. If there are arrows like shown on right, a 3rd party program is connected, and these colors are being used.

Profile Section

This is where you can save and choose profiles for the spot sources. This works like all other profiles (See SDC profile usage)

Special Profile For SDC Contest Profile – When checked this is a special profile that will automatically be loaded when SDC detects software connecting to the SDC Telnet server that uses a special protocol with information about the type of spots. Examples are N1MM, 5Mcontest and Log4HX. If this special profile is activated SDC will use the colors in the Spot->Panorama above and those colors will be sent to the Flex Panadapter.

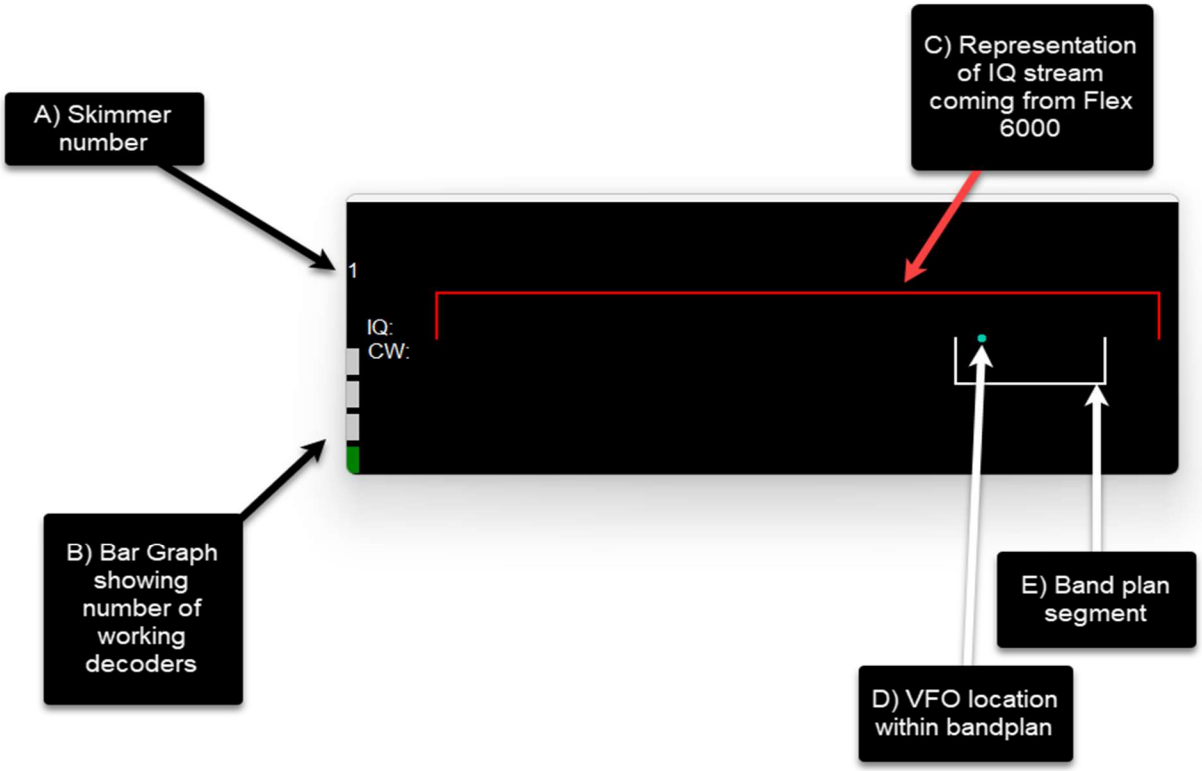
[Telnet] Spotters Window



A) **Stop/Start Spotters button**. This will start all spotters that have been added. In the example above it includes VE7CC.net and the Reverse Beacon Network.
B) **+/- buttons**. When the spot sources are stopped you can add or remove spotters. Clicking the (-) will remove the spot that is the furthest to the right. You can add many sources here and all will be combined for the telnet server to be resent on the port specified on the telnet server section.
C) **Callsign**. This is your callsign that will be used when connecting to another telnet source.
D) **Connect**. This connects/disconnects the spot source above it. You can start and stop these sources individually without using the Stop/Start (A) button.
E) This is the number of spots that have been sent from this source.
F) **Host:** Enter the address of the telnet server you plan to receive spots from.
G) **Port:** Enter the port number the telnet server uses you are connecting to.
H) **Send:** You can send commands to the telnet server on this line. As an example “SET/NOFT8”
I) **SSID:** If you are using custom SSIDs on the server you are connecting enter the SSID number. As an example, enter -30 for SSID 30. If you desire, you can save these to a profile for easy retrieval.

If you want to see spot activity in the above window(s) the **Log box must be checked** on each spotter even though spots are being sent.

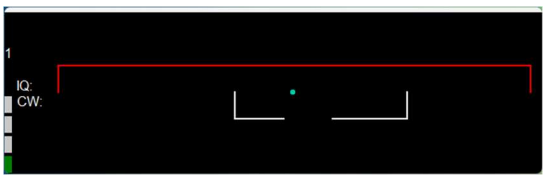
IQ Bandplan Control



This is a very powerful tool but easily misunderstood. This display gives you a visual indication of where your bandplan falls into the IQ steam from the transceiver and where your VFO falls within your bandplan.

A) This shows the number of the Skimmer it is associated with. This is very useful when you are running multiple skimmers.
B) This is an indicator to show the number of working decoders.
C) The upper red box represents the IQ sample rate coming from the Flex. (48000,96000,192000, etc.) the higher the sample rate the more of the spectrum you can decode.
D) This dot shows the location of the Slice (VFO) within the bandplan.
E) This is the mode specific bandplan as configured in SKM server > Global settings.

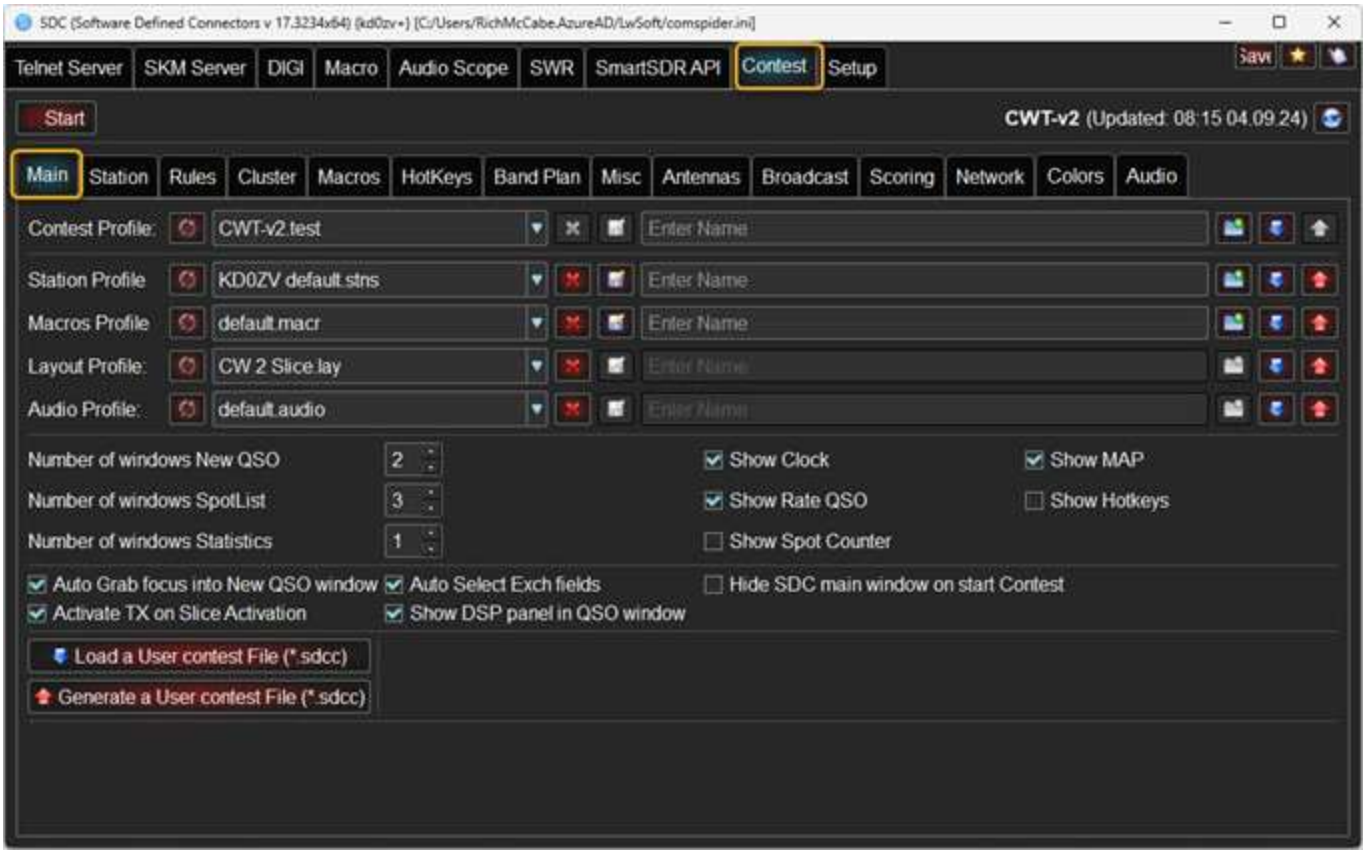
One thing to note is if you see a missing segment(s) on the lower white bandplan (see below) this indicates a Band Stop Filter (BSF) in your SKM skimmer global band plan. The BSF is designed to remove sections of the bandmap you will not be operating and do not want decoded. These band stop filters do not apply to incoming telnet connections.



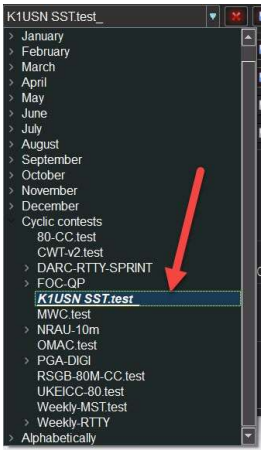
If the white bandplan moves outside of the red IQ stream and starts to flash. This indicates you could be missing spots as the skimmer can only decode what is inside the red IQ stream. Panning the SmartSDR display may help bring the white bandmap into the decode window.

SDC has included features to help overcome some FlexRadio IQ stream shortcomings when you are running contests and QSYing by clicking a spot. See Panorama frequency control under the SmartSDR API section.

[Contest > Main Tab]

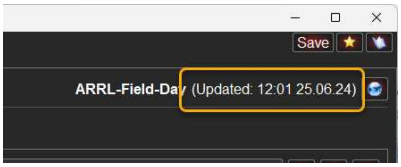


The top section is where you can load and save profiles associated with the contest you plan to operate.



Contest Profile - Start by loading a contest from the Contest Profile. The program comes with all current contest profiles.

The contest name shown at top right also shows information about when the contest was updated (shown right). Always check the website for newer versions of the contest file.



If you want to **customize a profile** and save it, then you need to enter the name to the right and "add new profile". It will be saved to the LwSoft/Contest/UserRules folder. If you do not do this any changes to the included profile will be overwritten on the next program update. All saved custom profiles will be shown ***bold italic with underline***. See above. *This is version 17.3123 and newer.*

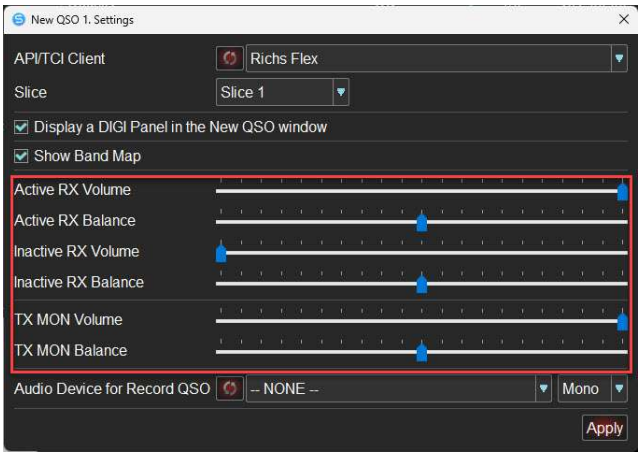
Contests can be manually imported by selecting the **Load a Contest File (*.sdcc)** at the bottom of this window. Profiles can also be exported by using the **Generate a contest file (*.sdcc)**.

Station Profile – This loads the station profile with the configuration located in the next tab [Station]

Macros Profile – This loads the macros in your QSO window. You can create tailored macros dependent on the contest.

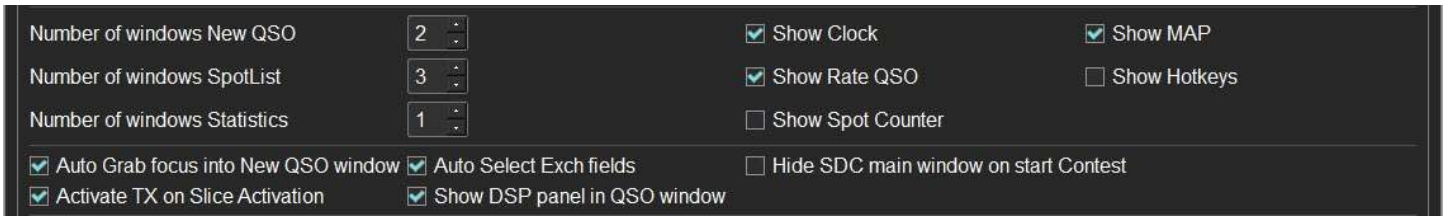
Layout Profile – Once you locate and size your windows on your monitor you can easily recall that layout. You can optimize layouts for RTTY contests, CW contest, operating SO2R, etc. Note that some windows locations are nested within other profiles and can't be applied by just saving the layout profile. As an Example, the SKM server profile is independent and handles the layout for things associated with it.

Audio Profile – This loads audio profiles with the levels found in the QSO window settings (right). This automatically adjusts the audio levels for RX volume(s), TX Monitor(s) and balance control. More on this can be found later in this document.



These **audio profiles** can be quickly selected from the ActiSpot window.

Below the profiles section you will find some additional configuration.



On the left side you can specify how many **QSO windows** you want the program to create when starting the contest, how many **SpotList** and how many **Statistics** windows. You can also add a clock, show QSO rates, interactive map, spot counter and Hotkeys window.

Auto Grab focus on New QSO window – Transfers the input focus to the New QSO window if you click on the callsign on the transceiver panadapter.

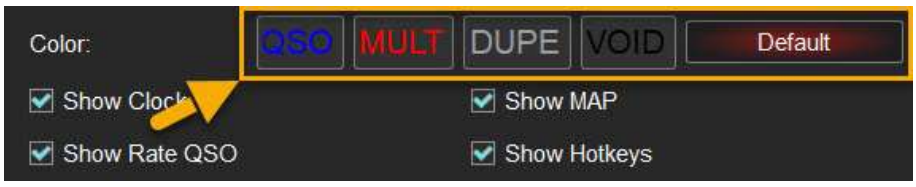
Auto Select Exch fields – When checking this box, it moves the cursor to the beginning of any automatically entered exchange so it will replace the current value as soon as you start manually typing an exchange. Otherwise, the cursor is at the end of whatever is in the exchange box.

Hide SDC main window on start Contest – This minimizes the main SDC window when starting a contest.

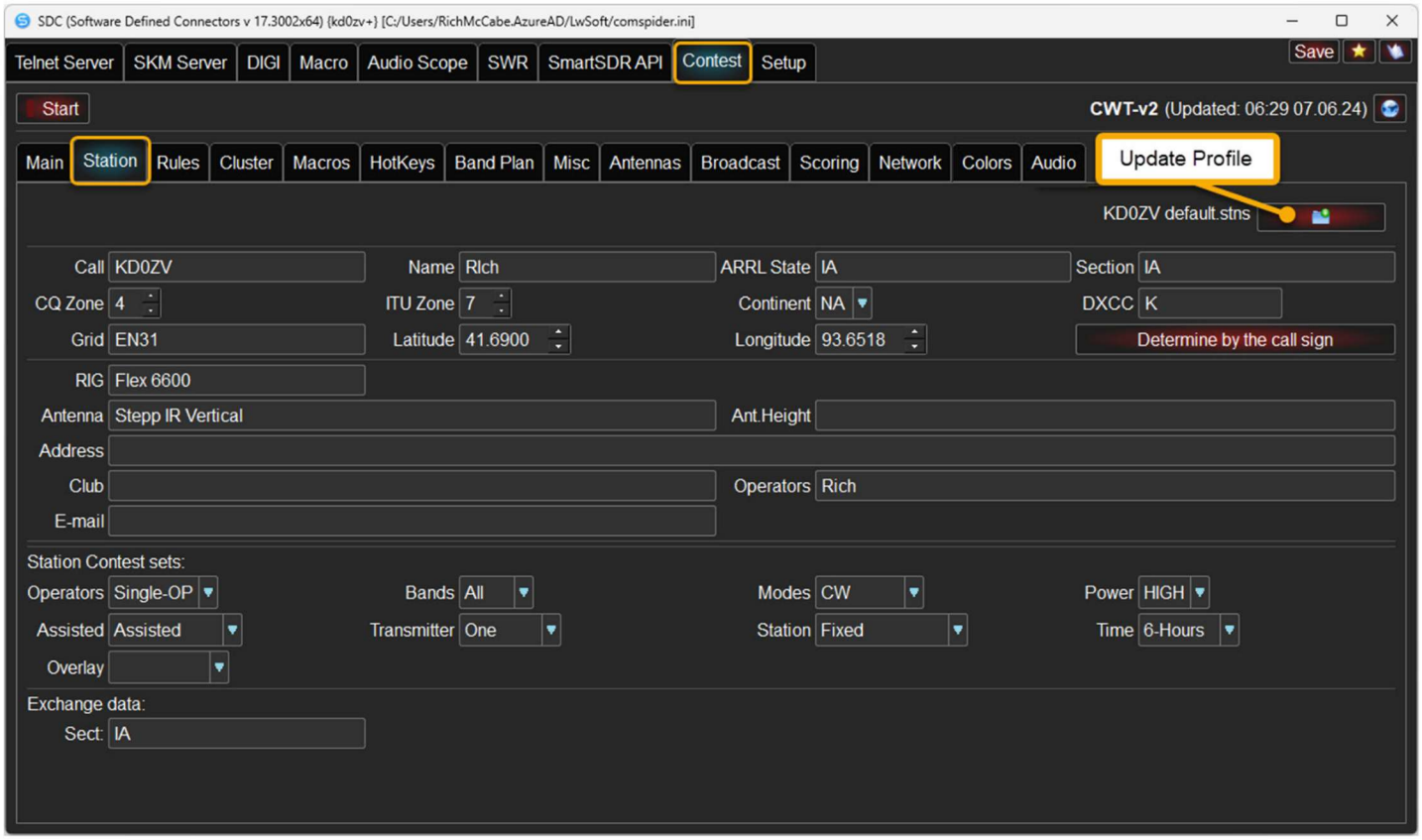
Active TX on Slice Activation – When running two QSO windows for SO2R operation, whatever QSO window is active will be set to transmit. SDC does this automatically when checking this option.

Load a contest file will load any .sdcc contest file (available at https://www.lw-sdc.com). **Generate a contest file** will export the current contest file with any changes in the same format as mentioned above.

Color: - Allows you to customize colors for **QSO**, **MULT**, **DUPE** and **VOID** contacts that appear in the SpotList, Log and QSO window(s).



[Contest > Station Tab]



This is where you add your personal information including callsign, name, rig and antenna, contest category and other station location information.

In the **Station Contest sets** section below that configure the category information you plan to run (Single-OP, Assisted, etc.)

Exchange data – Some contests will require additional exchange data to be entered here. If you get the message shown to the right, this information needs to be added. This area may be empty depending on the contest.

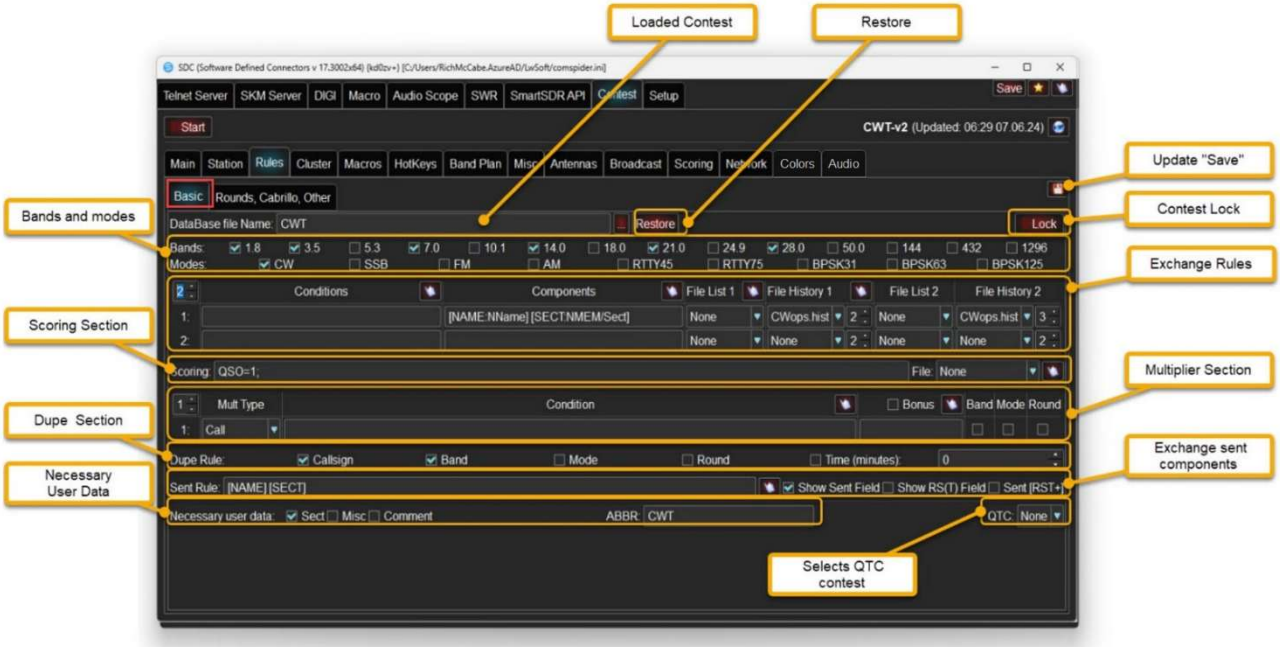
The field shown is contest dependent and defined by **Necessary user data** in the Rules tab. The above example shows “Sect” for section but could be Misc or Comment based on what is checked under rules.

QUICK TIPS

Once you have entered your latitude and longitude coordinates verify your location by opening the map. If your station shows halfway around the world, correct by adding/removing the – in front of the coordinates.

Configuring a Contest

[Contest > Rules Tab]



NOTE: This section in the manual is a work in progress. Creating contests is very complex and because of this we will be adding the details a little of the time. Check back to this section as new manuals are published

Loaded Contest – This is the name of the current loaded contest.

Restore – If you have created a backup copy of the contest using "Create backup copy" in the log window, you can restore it from here. Note: Contest must be stopped before you restore.

Update – This saves the current rule set after making changes.

Contest Lock – This locks the configuration of the contest so no changes can be made.

Bands and Modes – Check the box(s) for whatever bands and modes are allowed in the contest.

Exchange Rules – This is the start of where you set up your exchange.

The exchange rules consist of three different sections:

- **Conditions** – The condition under which the rule is used.
- **Components** – The components (parts of the exchange)
- **Assist files** – Files used to assist in filling out the exchange (File List 1 or 2 and File History 1 or 2).

In the top left corner of this section is a box where you can set the number of rules. It can be anywhere from one to four. The above example has 2 rules.

Clicking the icon above each of these sections will bring up helpful information (if available) for this section.

Conditions: You can choose one or several conditions from the below list.

CONTINENT: - continent
CONT:list - List of continents
MCONT - My continent (see Station).
OCONT - Not my continent (see Station).
DXCC: - country
DXCC:list - List of DXCC
MDXCC - My DXCC (see Station).
ODXCC - Not my DXCC (see Station).
DXCCN: - area (SM0, K3, UR1)
DXCCN:list - List of areas
MDXCCN - my region.
ODXCCN - Not my area.
WPX: - WPX
WPX:list - List of WPX
CQ: - CQ zone (01, 16,...)
CQ:list - List of zones
MCQ - My zone (see Station).
OCQ - Not my zone (see Station).
ITU: - ITU zone (01, 16,...)
ITU:list - List of zones
MITU - My zone (see Station).
OITU - Not my zone (see Station).
CALL: - The callsign
CALL:list - The list of callsign
/: - Callsign ends with ... For Example: /:M,MM

Components: These are the components of the exchange.

Name	Default Format	Default Regular Expression
[CALL]	T	\w{3,8}
[DXCC]	T	\w{1,3}
[WPX]	T	\w{1,3}
[CQ]	00	\d{1,2}
[ITU]	00	\d{1,2}
[SECT]	T	\w{1,6}
[CONT]	XX	[A-Z]{2}
[GRID2]	XX	[A-Z]{2}
[GRID4]	XX00	[A-Z]{2}\d{2}
[GRID6]	XX00XX	[A-Z]{2}\d{2}[A-Z]{2}
[MISC]	T	\w{1,10}
[DXCCN]	T	\w{1,4}
[NAME]	T	\w{1,20}
[COMMENT]	T	\w{1,20}
[QTH]	T	\w{1,20}
[NR]	000	\d{1,5}
[UTCT]	0000	\d{4}

Component script: [NAME:Par:Par…]

NAME - The name of the component.
:par - addition parameters. Each parameter begins with a colon.
:Par :

:F - Format;
:R - Regular expression for find component in received number
:G - Regular expression for find component in DIGI mode
:N - Name for QSO filed (if Separate)
:# - Optional component
:U - Do not analyze symbols when entering (No to Upper, No Rus keyboard to Eng)
:P - Do not look for the previous value
:T - transformation text.
:V - field visible always
:H - create history

:F Format
000 - numbers. If the number of digits is less than the number of zeros in format, then the missing numbers will be replaced by zeros.
For example :: F000. When entering number 12, 012 will be shown. When entering 1234, 1234 will be shown.
99 - Only two digits. The introduction of a smaller or more digit is not allowed.
X - Mandatory for entering a letter. XX - two letters must be entered.
T - Any text. Both letters and numbers.

:R Regular expression for find component in received number
To search for the component in the control number, a regular expressions system are used.
[0-9] or \d - digital symbol
[A-Z] or \X - letter
\s - space
{n} - exact number of characters
{n1,n2} - The number of characters from n1 to n2
If the parameter :R is not defined, then it will be taken from the default values.

:G: For DIGI. Regular expression for finding a component in a decoded text.
It works similarly :R. If this parameter is not declared, then the value is accepted from :R

:N - Name for QSO filed (if Separate)
If this parameter is not defined that the field name will be taken from the default values.

:# - means that the component is not required for entering
This parameter means that this component of the control number may not be for all QSO.

:U - Do not analyze symbols when entering (No to Upper, No Rus keyboard to Eng)
This parameter means that the automatic translated register transfers to large letters and the automatic transfer of national characters to the English code page will be disabled.

:P - Do not look for the previous value
Usually, to enter the component in the new QSO, its value from the previous QSO will be proposed. This parameter means that the data from the previous QSO will not be transferred to the component entry field.

:T - transform the received text.
:TIOTA - transform the text into IOTA format. For example, NA12 will be transformed into text NA-012.

:H - create history
An automatic history is created for this field, which can be used in future contests. Before the start of the next contest you delete all QSOs from the table. However, this history is not deleted and can be used in a new contest.

For example: [NAME:H]|[SECT:FT:NNum/Sect:H]. The values of the Name and Sect fields are stored in the history and will be offered in the next contest.

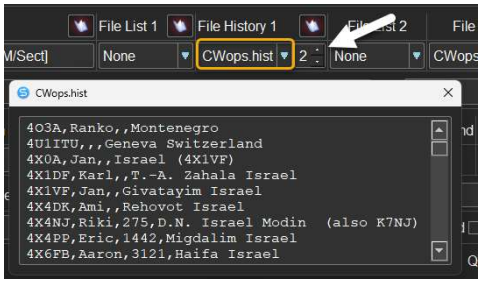
Script for the use of several input components.

Each component is defined within the boundaries of square brackets. You can sequentially determine up to 3 different components.
For example:
[SECT:FXXX][CQ] - the control number consists of two components: sector and number of the CQ zone. Entering the values of the components is carried out sequentially in one field of the New QSO window.
[SECT:FXXX]|[CQ] - section and zone CQ are separated by the symbol "|" - Introduced in separate fields of the New QSO window.
[SECT:FXXX]^[CQ] - if the components are separated by the symbol "^", then when entering it will be automatically determined which component.

Assistance Files

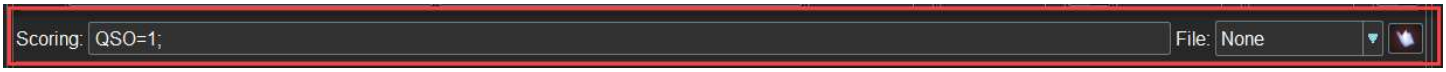
Assistance (help files). These files are designed to help you get the correct exchange entered and logged. They may assist you in auto filling a name, state, member number, etc., as well as help you enter a correctly formatted exchange. As mentioned above these files have either the .list extension or .hist extension. The default location for these files is C:\Users\Your_User_Name\LwSoft\Contest\HelpFile.

These assistance files are simple text files and can be selected by using the combo box arrow on the right. You can right click on the file name (CWops.hist in right example) and directly edit the file. The number shown with a white arrow dictates what column the data will be pulled from. In this case 4O3A's name Ranko will be retrieved as it's the second column. It will be added to the name field in the contest. You can also right click and browse the database if the contest is started.



Third Party Files – you can use 3rd party files from other online sources if desired. They will work with either space, semi-colon, single pipe or comma delimitated format. The **File List** will read data from whatever is in the first column. By default, the **File History** is read from the second column, but this can be changed by choosing a different column number next to the File History drop down. Be sure to edit the files extension to either .list or .hist so SDC can read the file.

Scoring



The script consists of consecutive expressions separated by semicolons. Each expression consists of a condition, arithmetic operation and a variable. All calculations are done in order from top to right.

Arithmetic operations:

= (equals). All previous calculations are ignored.
* (multiply). The resulting value from the previous steps is multiplied by the specified constant.
+ (add). The specified constant is added to the value obtained from the previous conditions.

<> Comparison operations:

: equals or list
< less
<: less or equal
> more
>: more or equal

Condit ions	Description	Options (M-like mine, O-other)	Examples
QSO	Any QSO		QSO=1
MODE:	List of bands		MODE:1.8,3.5,7.0*2
CONT:	List of continents	MCONT, OCONT	CONT:EU,AS=4; MCONT=1; OCONT=2
DXCC:	List of countries by DXCC	MDXCC, ODXCC	DXCC:EI,GM,GJ=1; MDXCC=0; ODXCC=2
DXCCN:	List of areas		DXCCN:UR0,UR1
CQ:	List of CQ zones	MCQ, OCQ	CQ:15,16=1; MCQ=1,OCQ=2
DISTRICT	List of Districts (number from Prefix)	MDISTRICT, ODISTRICT	DISTRICT:3,4,5=8; OTHERDISTRICT*2
ITU:	List of ITU zones	MITU, OITU	ITU:10,11=2; MITU=1; OITU=4
CALL:	List of callsign		CALL:UT4LW*2
/:	For callsigns with slash		/:M,MM=3
INFILE	Calling list in the file		INFILE*10
IFSECT	If the SECT field is not empty		IFSECT*4
IFSECT < >	SECT field comparison operation		IFSECT>:12=15; IFSECT<10=4; IFSECT:PA,OK=13
IFMISC	If the MISC field is not empty		IFMISC=10
IFMISC< >	MISC field comparison operation		IFMISC>:12=15; IFMISC<10=4; IFMISC:PA,OK=13
MSECT	If the Sect field is equal to my Sect	MYSECT	MYSECT=5
OSECT	If the Sect field is not equal to my Sect	OTHERSECT	OSECT=15
MMISC	If the Misc field is equal to my Misc	MYMISC	MYMISC=5

OMISC	If the Misc field is not equal to my Misc	OTHERMISC	OMISC=15
TIME:T1,T2	UTC time is included in the T1 ... T2 interval		TIME:0100,0459*2 TIME:230000,045959+2
WCALL:	Wildcard Mask for the call sign		WCALL:G?6*=5
STEP:s	Number of steps, length s + 1		STEP:500; 750km: 750/500+1 = 2
DISTGRI D:	Distance between Grid2/4/6		DISTGRID:2; DISTGRID:4
DIST:d1,d2	If the distance from d1 to d2		DIST:0,500=3;DIST:501,1000=5;...
PWR:p	If the power specified in Station		PWR:LOW=2; PWR:QRP*5...
CQTABL E	point from csv file		
WPXCW	point calculate on CQ WPX CW rule		
WWCW	point calculate on CQ WW CW/SSB rule		

AND and OR. If it is necessary to have several conditions in one, then the signs are used:

& - And

| - Or

For example: MCont&MItu=3; DXCC:OK,OM|OCONT*4;

Denial condition:

! - the negation symbol is entered before the colon:

For example: DXCC!:K,VE=3 - if Dxcc is not K, or VE, then 3 pts

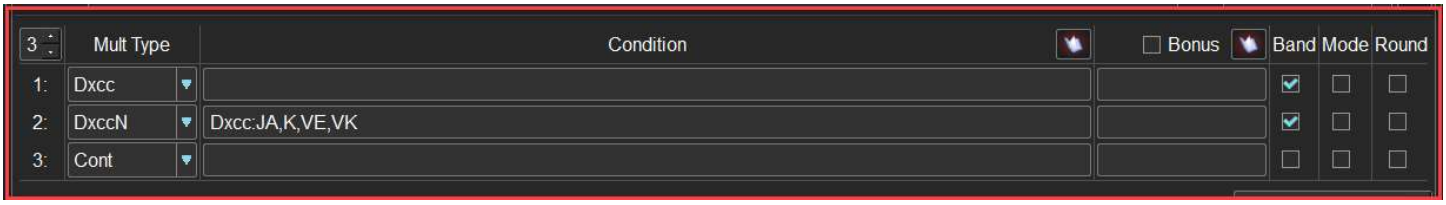
CQTABLE - Point from csv file, where the rows are my zone, the columns are the zone of the correspondent. Separator - ;

Example file:

2;14;10;13;16;18;22;20;25;30;36;37;39;21;22;19;20;17;11;25;29;29;22;22;16;28;2
5;31;39;35;14;36;25;29;34;39;40;47;44;15
14;2;15;8;7;16;16;12;16;23;24;30;30;12;14;16;19;20;19;19;25;31;26;30;28;35;35;
40;50;50;25;47;14;21;21;28;33;36;37;6

10;15;2;8;11;9;13;14;18;21;28;28;30;26;28;27;29;27;21;32;37;39;32;31;24;37;33;
40;43;35;11;32;29;35;35;42;48;50;52;20
13;8;8;2;3;8;10;8;12;18;22;25;27;19;

Multipliers



SDC-Contest allows maintaining up to 6 types of multipliers. Select the number from the box on the top left.

Setting up a multiplier consists of the following steps:

- Select the type of multiplier
- Setting conditions.
- Setting the scope of the multiplier.

The multiplier type is selected from the drop down

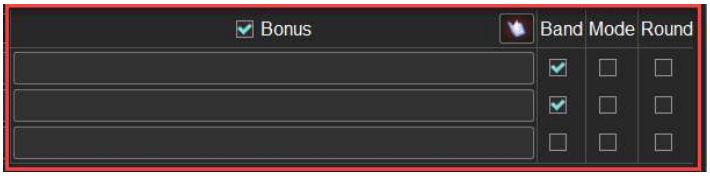
Setting the conditions for applying the multiplier is carried out through the script in the Condition field using one or several conditions from this list:

CONT:list - List of continents
MCONT - My continent (see Station).
OCONT - Not my continent (see Station).
DXCC:list - List of DXCC
MDXCC - My DXCC (see Station).
ODXCC - Not my DXCC (see Station).
DXCCN:list - List of areas
MDXCCN - my region.
ODXCCN - Not my area.
CQ:list - List of zones
MCQ - My zone (see Station).
OCQ - Not my zone (see Station).
ITU:list - List of zones
MITU - My zone (see Station).
OITU - Not my zone (see Station).
CALL:list - The list of callsign
SECT:list - List of SECT field values.
IFSECT - If the SECT field is Not empty
MISC:list - List of MISC field values.
MSECT - Sect = Field "Sect" in Station Set tab. (MSECT; MSECT!;)
MDISTRICT - District in his Call = District from my Call
ODISTRICT - District in his Call # District from my Call

/:list - for the callsigns that ends with /+list

! - negative symbol.
For example: CQ!: 29.21 - all zones except the 29th and 21st

Several conditions are divided by signs & - "and", | - "Or"
For example: MCont|Itu:16,17 - My continent, or ITU zone = 16, or 17



If the contest you are operating includes bonuses for multipliers, check the “bonus” checkbox to increase the size of this column and enter the information.

Band, Mode and Round allow where the multiplier will be added. Checking band will add the multiplier for each band separately, Mode will add multiplier for each modulation type worked and if the contest is done in rounds the multiplier will be added for each round separately. Rounds are configured in the Rounds, Cabrillo, Other tab.

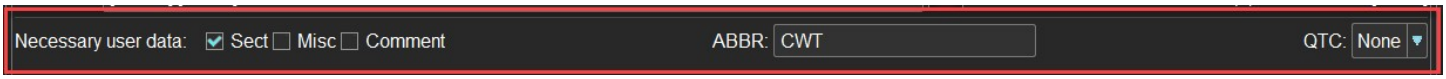
Sent Rule

Enter the components that will be included in your sent exchange. In the above example your name and section will be sent as configured under the station tab.

Show Sent Fields - Display Sent field in New QSO windows
Show RS(T) This adds RST sent/received field to New QSO windows
Sent [RST+] If you are using [RST+] in your macro checking this box will include RS(T) in your exchange for the current contest profile and increase the speed steps based on value set in Contest > Macros

Using [RST+] macro instead of [RST] in the QSO window macros will save you reconfiguring the macros on contest that does not use RST. The RST can be turned on and off using the **Sent [RST+]** above in our contest profiles.

Necessary user data

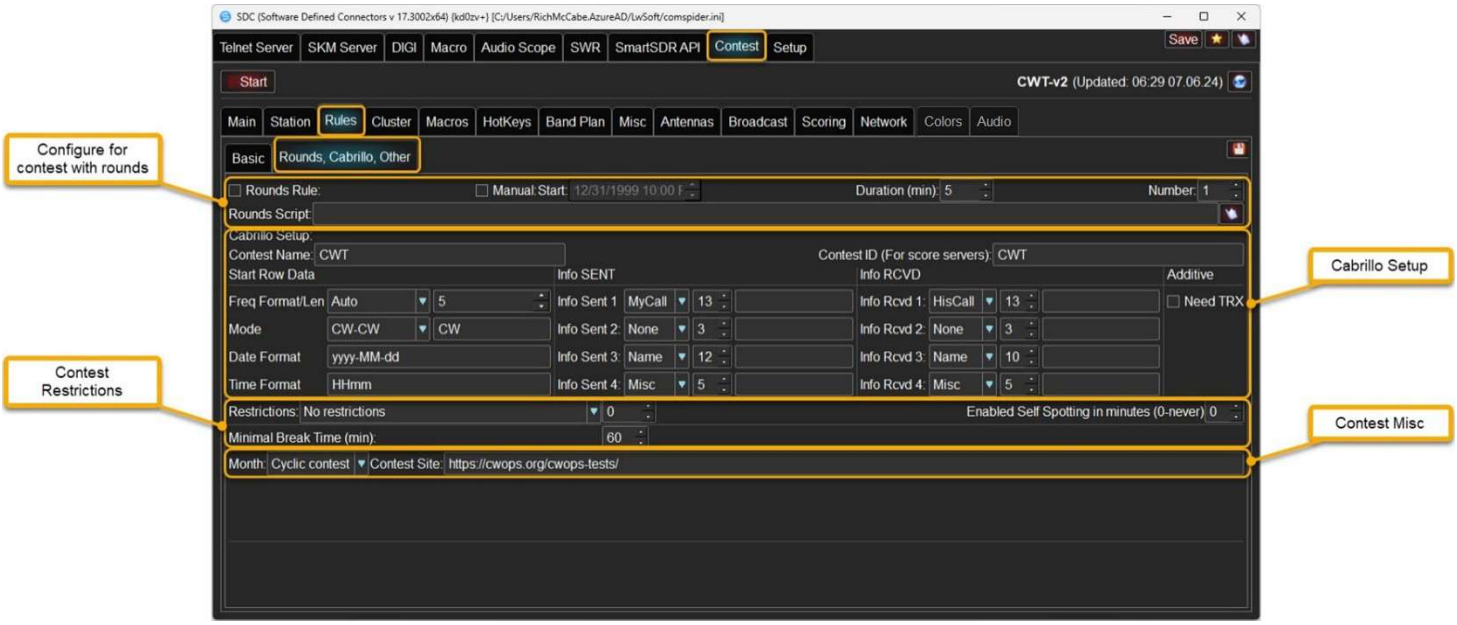


Section, Misc and Comment - If the contest requires the user to pre-enter the required data in the appropriate fields, then these checkboxes are checked.

ABBR is the abbreviation of contest. It will be used in macro [ABBR].

QTC: If the contest is a QTC type exchange, you can select the type. Received, Send or Both. Additional configuration is required including in the functional key message’s editor. More info coming later.

[Contest > Rounds, Cabrillo, Other Tab]



Rounds setup - If you are working a contest that is segmented into rounds you can configure the contest in the rounds section. Check the box to activate this feature. You can set the start time, the duration of each round and the number of them.

Rounds Script (choices):

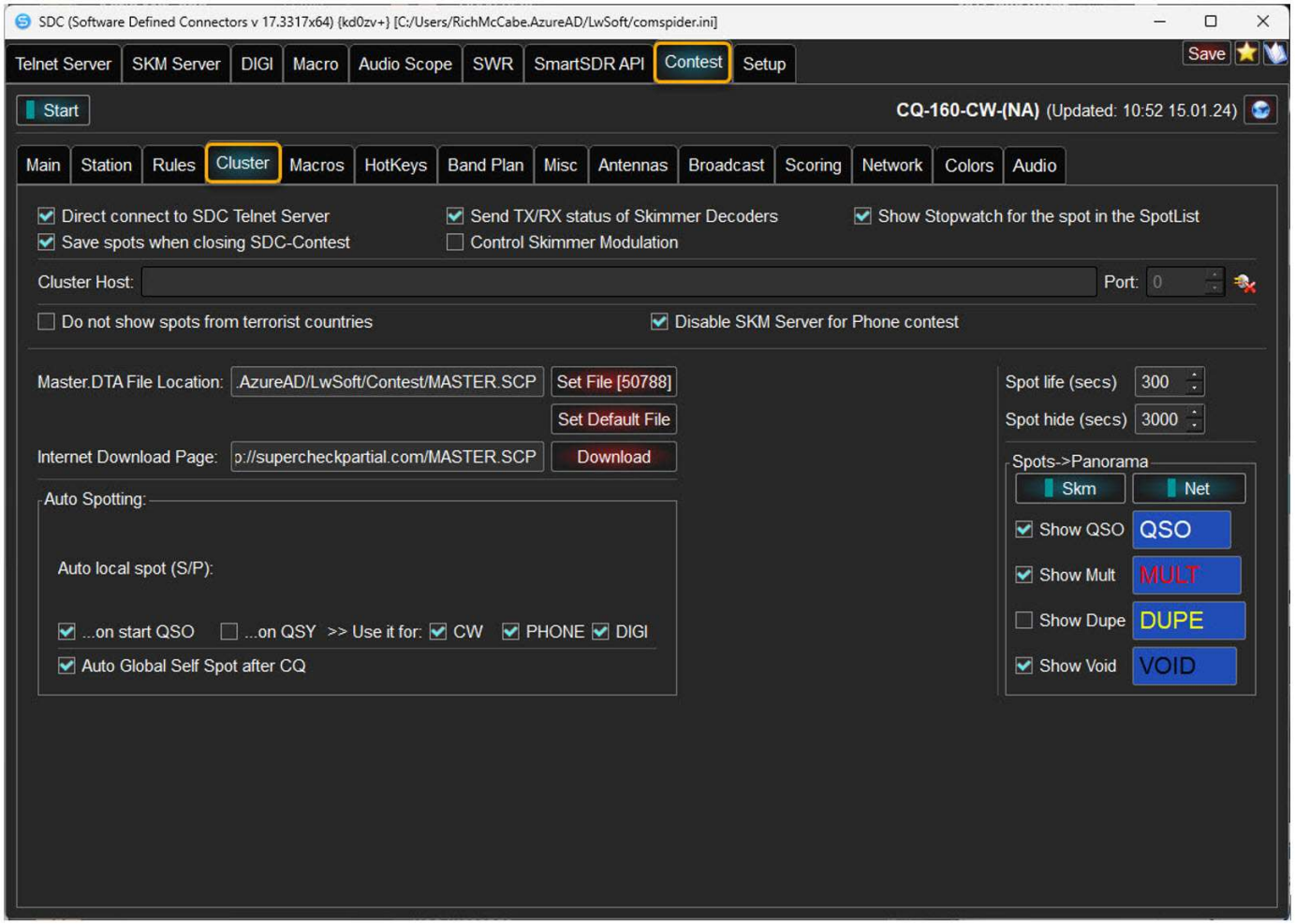
- RESET_NR = reset NR counter in New Round
- RESET_SCORE = Scoring for each round

Cabrillo Setup - In this section you can configure the program to output the log in Cabrillo format. The data for the file header will be taken from the "Station" tab. The default format for the contest is CQ-WW-CW:

Contest Restrictions – Here you setup restrictions if it applies to contest. As an example, a contest might not allow you to make band changes more than every X minutes. Or have a minimum break time. Some contest have rules regarding self-spotting so there is a timer to set the time or disable.

Contest Misc – You can choose the month you want the contest to appear in when selection contest or cyclic (reoccurring). Entering the Contest site in http format will provide you a hyperlink where you can click to the contest site for more information.

[Contest > Cluster Tab]



Direct connect to SDC Telnet Server – Connects a SDC contest directly to the SDC Telnet server which can be configured under the main [Telnet Server] tab.

Save spots when closing SDC-Contest – This keeps recent spots in memory. If you close the program momentarily when you reopen the program your previously received spots will be there, and you will not have to wait for them to repropagate.

Send TX/RX status of Skimmer Decoders – In the "SpotList" windows, there will be a **TX** column that displays the status of the correspondent: listening/transmitting. This will only work for spots from SDC-SKM Server.

Show Stopwatch for the Spot in the SpotList – This shows a small stopwatch on SpotList with a visual indication of the value of the spot. This will be covered in more detail under the User Interface – Spot List.

Cluster Host – When the “direct connect to SDC telnet server” box is not checked you can specify an Alternate telnet server.

Do not show spots from Terrorist Countries - Ignore Spots from countries deemed to be involved in Terrorism.

Disable SKM server or Phone Contest – If only SSB, AM, FM modes are allowed by the contest rules, the SKM-Server will be turned off when SDC-Contest starts.

Master DTA file location - This is the location of the data file which is one of the methods to verify callsigns.

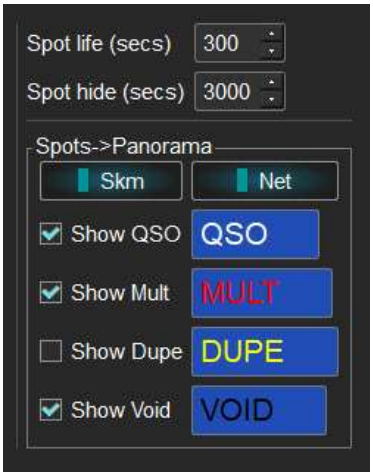
Internet Download Page – Internet location where the actual master.dta file is updated from. Download button allows you to download and overwrite the current file.

Auto Spotting – This function allows you to spot yourself locally (TX frequency) and/or globally to the internet telnet server.
Auto local Spot (S/P) You can spot locally on start of QSO and/or on QSY after making a Search and Pounce contact.

The checkbox for **Auto Global Self Spot after CQ** sends your call to the cluster after calling CQ.

There are checkboxes for **"Use it for"** CW, Phone and DIGI s you can chose the modes you want this automation to apply to.

Spot Info and Colors- This controls if and how the spots are sent to the Flex Panadapter.



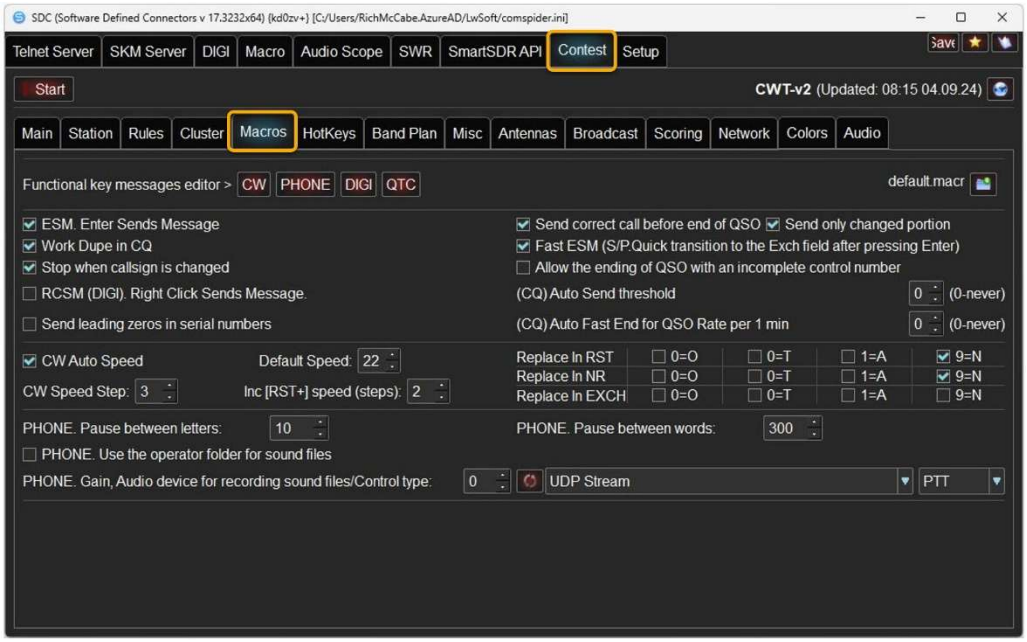
Spot life (secs) is how long the spot will live on the Flex display before dropping off. **Spot hide (secs)** is how long a spot will be hidden when you right click a call on the Spot list and select "Do not show spot for xxx seconds"

The **Spot > Panorama** SKM and Net turn on what is sent to Flex. The checkbox(s) will turn what type of spots are sent.

Show QSO, **Show Mult**, **Show Dupe** and **Show Void** can be checked to send that type of spot to the Flex as well as customize the color on the Panadapter.

These spots can also be quickly selected/deselected from the ActiSpot Window.

[Contest > Macros Tab]



ESM – (Enter Sends Message). This is designed to automate the QSO process and step through the exchange using just the enter key.

Work Dupe in CQ - This will allow you to work and log a DUP contact. Normally the program tries to inhibit you from doing this.

Stop when callsign is changed - When using CW keying type API-CWX, COM-Winkey or API-Keyer. While you are transmitting a call sign, you will see an underscore bar - it shows the characters that have been transmitted. You can add/modify/delete characters that have not yet been transmitted. If you start correcting characters that have already been transmitted, the transmission will stop.

RCSM (DIGI) Right click sends message The RCSM mode is only applicable in DIGI modulations. It is a simulation of pressing the Enter key with the right mouse button.

For example, when the callsign is moved to the callsign field, you can click the right mouse button anywhere on the digital terminal - this will signal the start of a QSO. This is the same as pressing the Enter key in the callsign field.

When using the CW keying type API- TEXT - the transmission is stopped either way.

Send leading zeros in serial numbers – If your exchange includes a serial number, you can add leading zeros. As an example, your first contact will be 001 instead of just 1.

Send correct call before end of QSO - When operating in run mode if you correct an improperly entered callsign after you have responded to the station a corrected callsign will be sent with the End QSO key.

Send only changed portion – This goes along with the above function. If you corrected a call and this is checked, only the changed prefix or suffix will be sent.

Fast ESM (S/P. Quick transition to the Exchange field after pressing enter) - After sending your callsign in **S/P mode** the enter key advances to the exchange field automatically instead of staying in the callsign field.

Allow the ending of QSO with an incomplete control number – This allows you to log a QSO with an incomplete exchange.

(CQ) Auto Send threshold – When in CQ "Run" mode this is the number of characters that needs to be entered in New QSO window Call box before the transceiver automatically begins to transmit. As an example, if you have the value set to four when you have entered UT4L the transceiver will start to TX when you hit the next character and send UT4LW as an example.

(CQ) Auto Fast End for QSO Rate per 1 min – When your QSO rate exceeds this value the QSO will end with the **Fast End QSO** entered in the message editor settings. Entering zero disables this feature. Every three QSOs, a regular macro will still be transmitted.

CW Auto Speed - Automatically adjusts your keyer speed when a new station is selected from the SpotList. The new value will be split between your sending speed and the station on Spotlist decoded speed. As an example, if your sending speed is set to 20wpm and the station on Spotlist is sending at 30wpm enabling this feature will adjust your sending speed to 25wpm for this one contact.

CW Speed Step – This is how much your CW speed will increment when using the Page Up/Page down keys and when using special characters > < in the macros. For example, if your step is set to 2 and your macro is **>>TEST<< UT4LW** the word "TEST" will be transmitted 4 WPM faster than the call sign.

Inc [RST+] speed steps – If speed ramp is allowed in contest rules you can send your RST exchange faster by using the [RST+] variable in your macro and setting the speed steps here. As example: If setting this value to 6 your RST will be sped up 6 wpm faster than your base sending speed. The Sent [RST+] checkbox in the Sent rules section under the rules tab must be checked.

Cut numbers - On the right side you will see **Replace in RST**, **Replace in NR and Replace in Exchange**. This allows you to use cut numbers O, T, A and N to shorten the exchange.

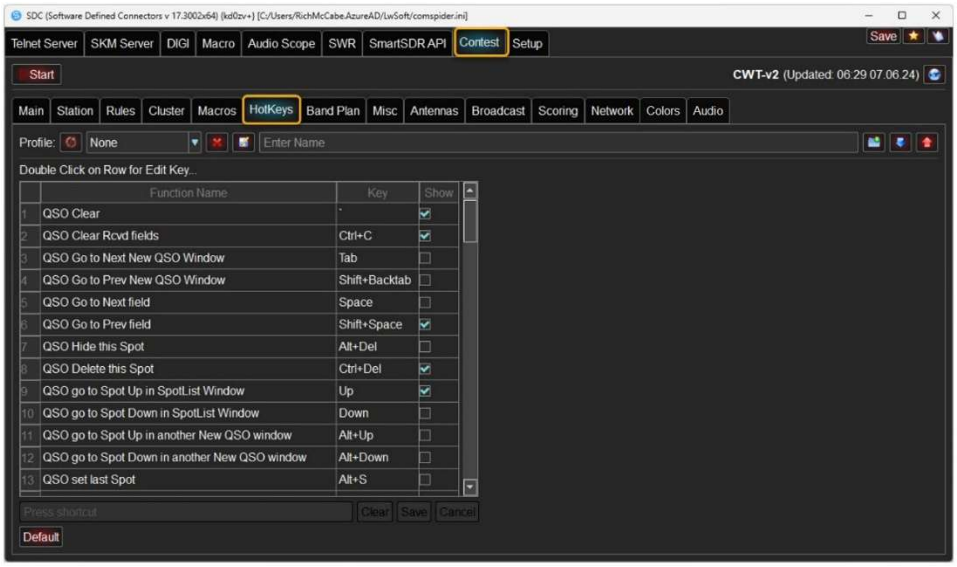
PHONE Pause between letters and PHONE **Pause** between words will add spacing between letters and words (in milliseconds when using sound files to send. See Macro section for more information on sound file configuration and formatting.

PHONE. Use the operator folder for sound files. Check this box to store the sound files in the users LwSoft folder.

PHONE. Gain, Audio Device for recording sound files/Control type. Adjust the gain in dB. The gain can be tweaked after initial recording, your computer's audio recording device including UPD (Flex 6000/8000 series only) and the control type PTT, Threshold (value will appear) and Timer.

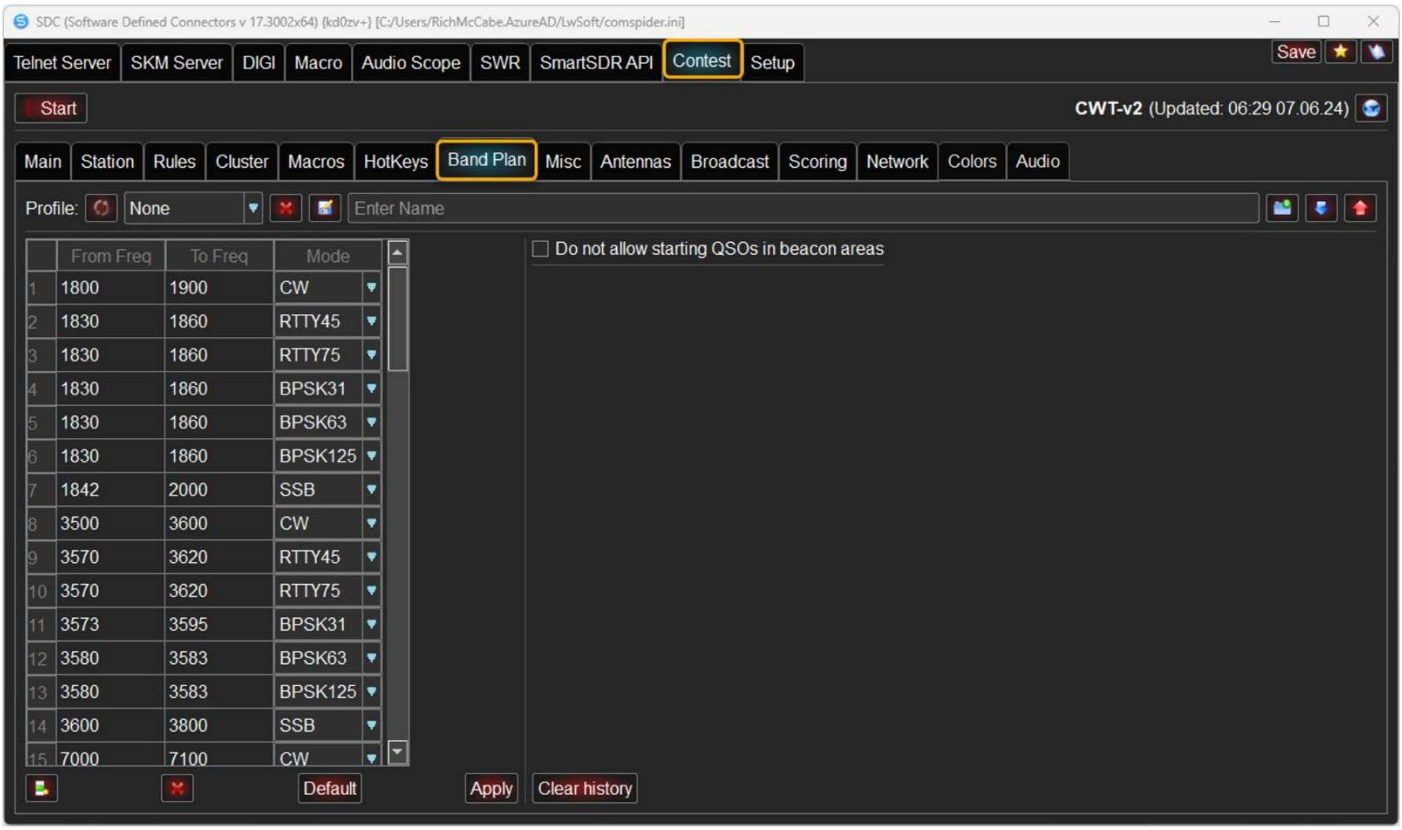
[Contest > HotKeys Tab]

HotKeys are keyboard shortcuts to add efficiency during a contest. This window is to help you remember/recall your favorite command functions and provides you with a visual list. “Show HotKeys” needs to be checked on the Main Tab for this window to be visible.



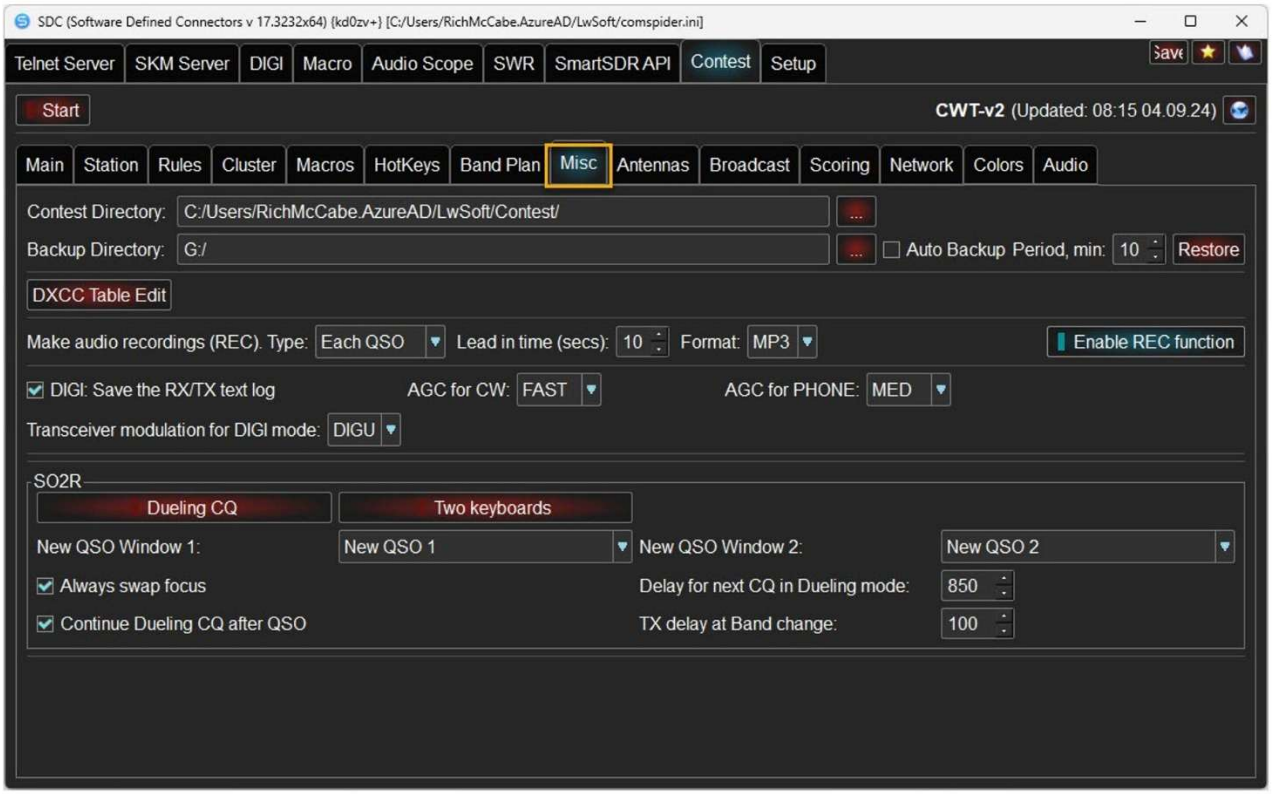
The profile can be saved/recalled as a profile.

[Contest > Band Plan Tab]



This tells the program what frequency ranges are associated with what modes. This helps filter out modes not associated with the current contest. This bandplan works in conjunction with the Band Stop Filters (BSF) in the SKM Server Global Settings >Band Plan. This, like many features in SDC can be saved/recalled as a profile.

[Contest > Misc Tab]



Contest Directory: - This is the location of the contest database, contest profile and various other file and folders related to the contest.

Backup Directory: - Auto Backups can be set. Specify the location for the backups and the frequency in minutes. This will be backed up at this interval while the program is running. You can restore a backup from this location using the restore button.

DXCC Table Edit - Is a table showing all the DXCC entities. This includes their entity number, CQ zone, ITU zone, Continent, Lat/Long, and GMT time. This information assists in many functions including statistics, plotting interactive maps and even automated rotor control.

Make Audio recordings of QSOs – You can choose "**None**" which will disable audio recordings, "**Each QSO"** which make separate recording for each QSO (with timestamp and Callsign) and "**Permanent"** which records entire contest. You can choose the format you want to save in. **Activate REC** enables recording. The recorded files can be found in the user/lwsoft/contest/record folder. The **lead in time** adds additional recording time to the front of the file (before QSO started). For this to work you need to pick the audio recording device under QSO window settings. Example: DAX Audio RX1 or the UPD stream (preferred).

Selecting **MP3 format** for audio recordings will reduce file size and take less space on your hard drive.

DIGI: Save the RX/TX text log - Saves the QSO text from the digital modem.

You can set default **AGC** for CW and Phone as well as the default mode when running digital.

----- SO2R Section-----

Dueling CQ - This is for operating SO2R in run mode on two New QSO windows. The software will automatically toggle back between the QSO windows and call CQ on both. This can be enabled from this location or the ActiSpot window.

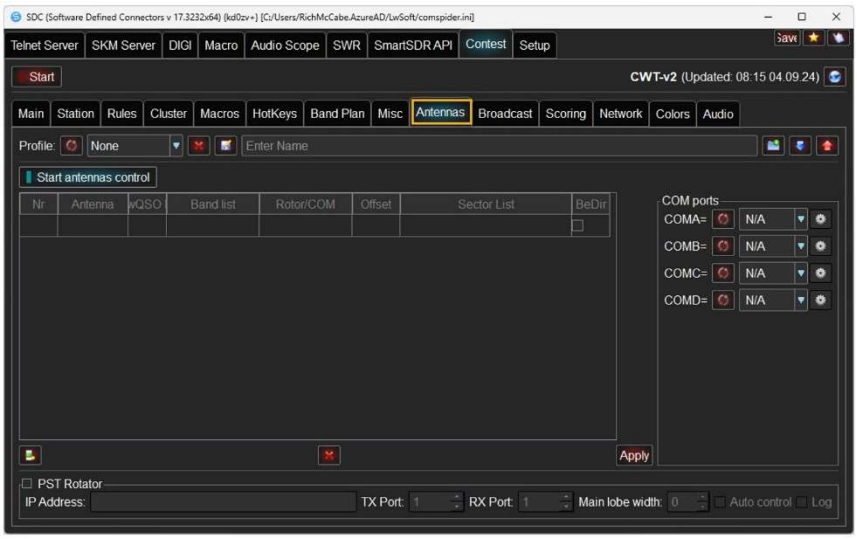
Two Keyboards – Enabling this will allow you to run two physical keyboards and attach each one to their own New QSO window. Select the proper New QSO Window 1 and 2 for each.

Always Swap Focus - During CQ mode in one window, the focus will automatically move to the other window.

Delay for next CQ in Dueling mode – This is the delay before starting CQ in the other window.

Continue Dueling CW after QSO – Automatically continue CQ after saving a QSO.

[Contest > Antennas Tab]

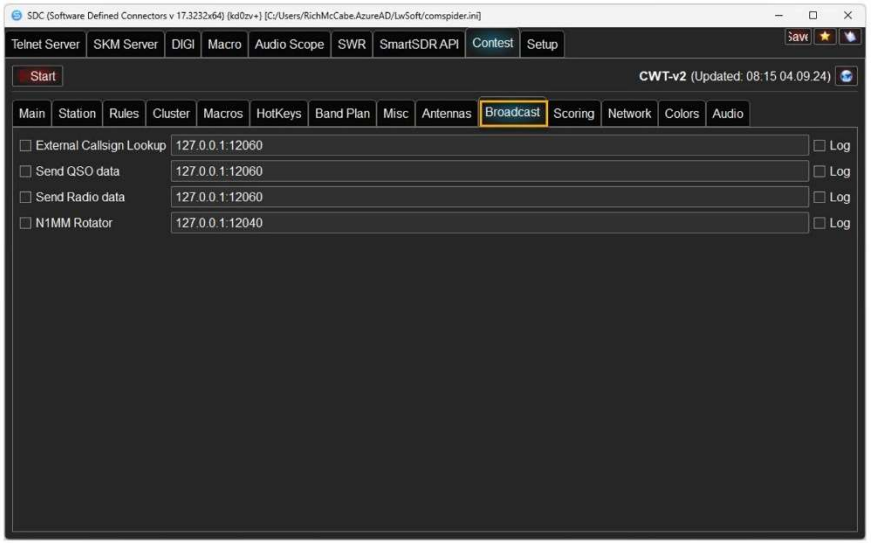


You can configure automatic antenna selection depending on the QSO parameters. The result will be used in packet transmission through the Broadcast system (see below). These messages can be processed by other programs, e.g. FreqEZ Band Decoder.

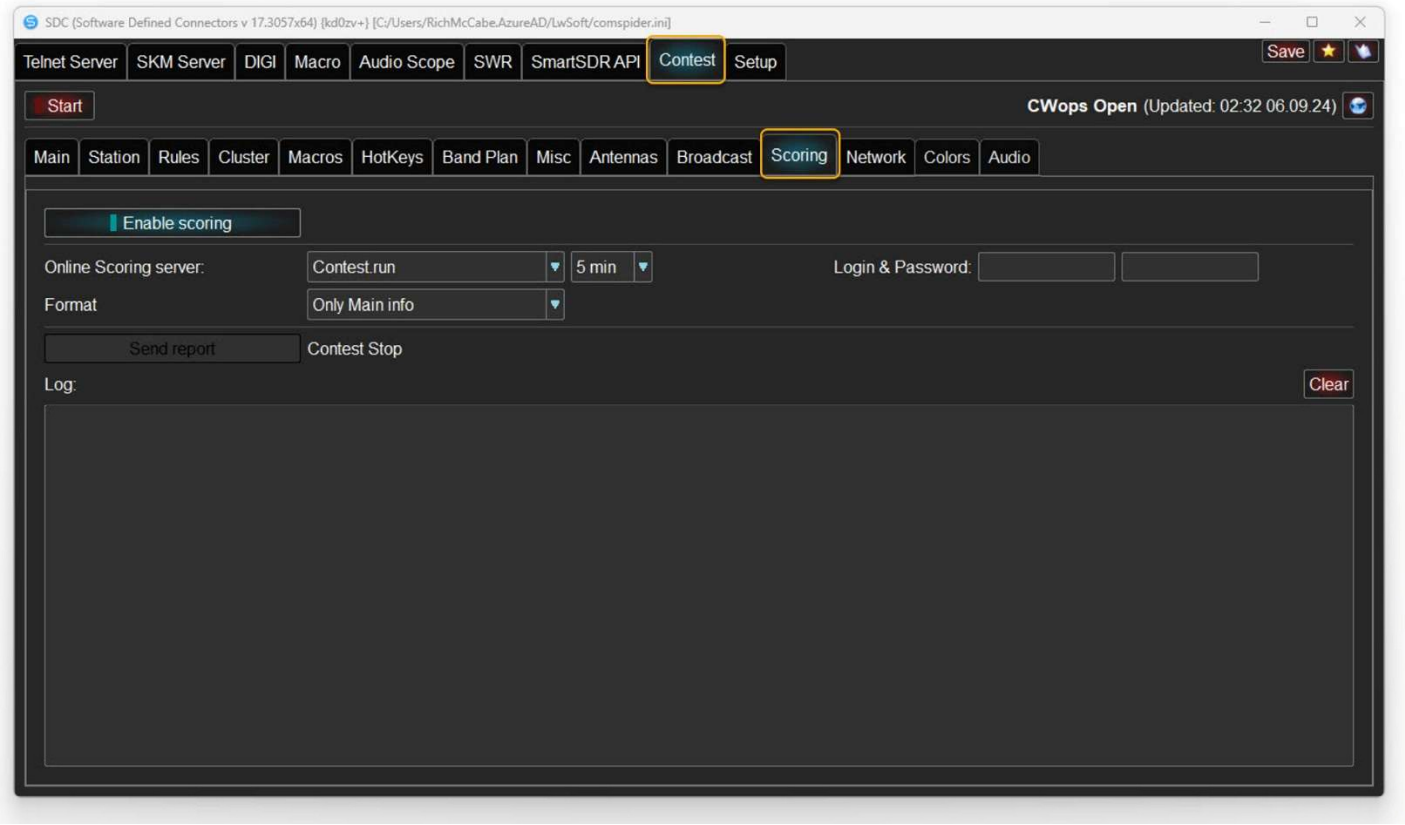
PST Rotator information can be added her as well.

[Contest > Broadcast Tab]

This is used to broadcast QSO data and Radio data. In the right example radio data is being sent to a local host address (127.0.0.1) on port 12060. This is the same format used in many amateur radio programs including Log4om and N1MM.

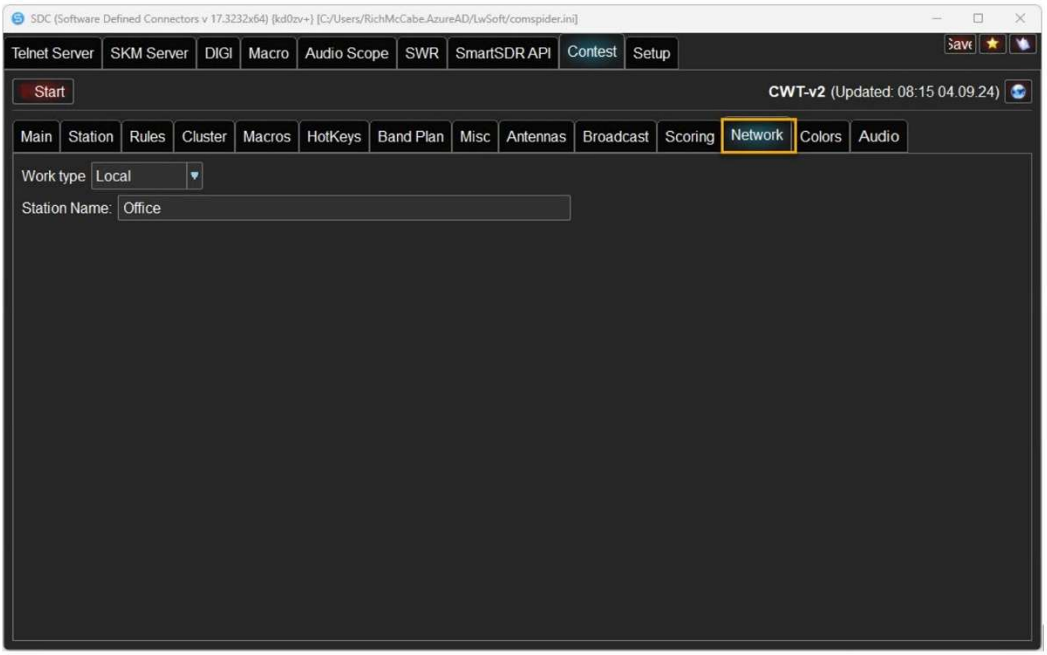


[Contest > Scoring Tab]



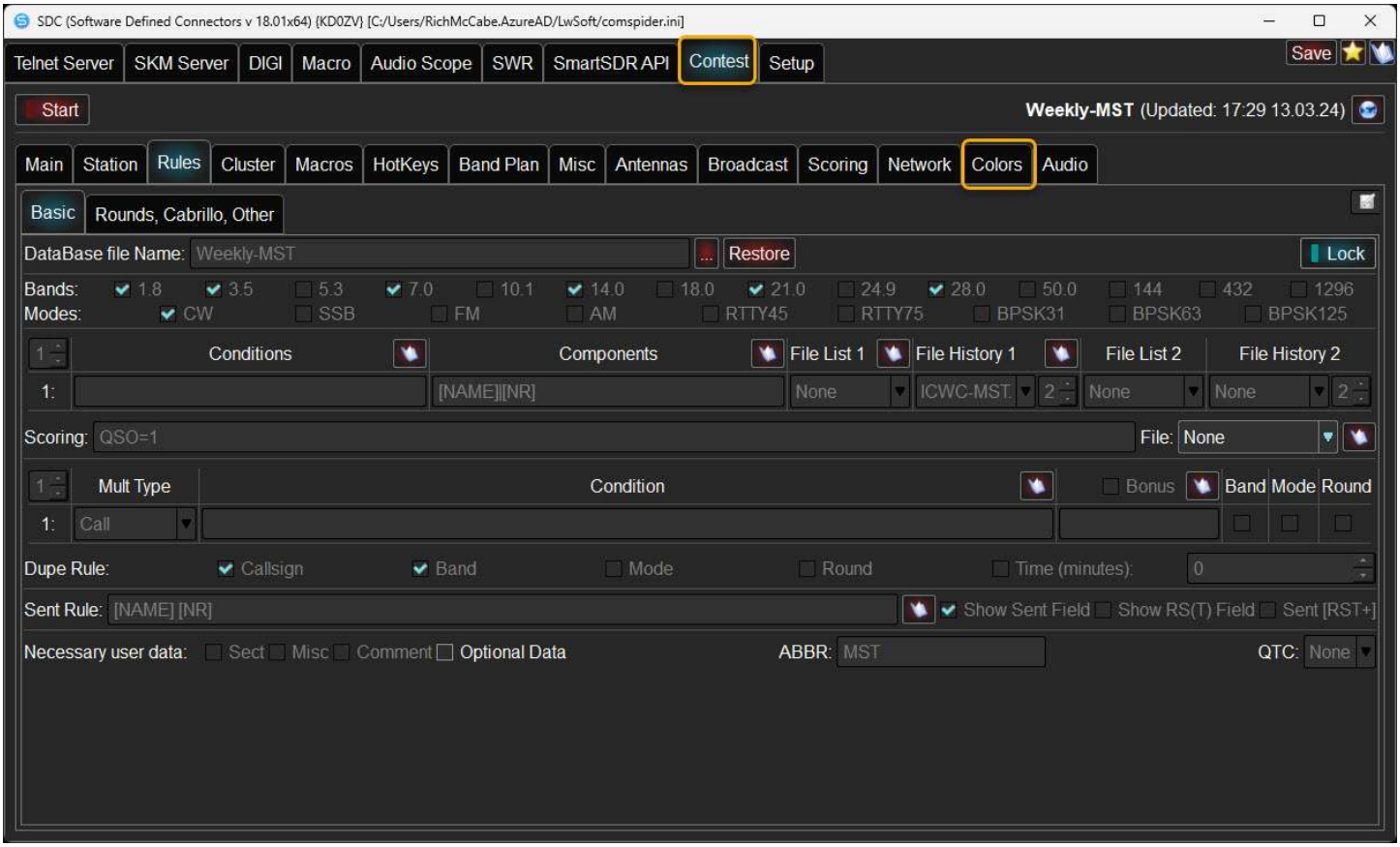
If you want to score on a online server, you can do it here. Choose your online server, the upload interval and the format

[Contest > Network Tab]



Upcoming feature. Not available at this time.

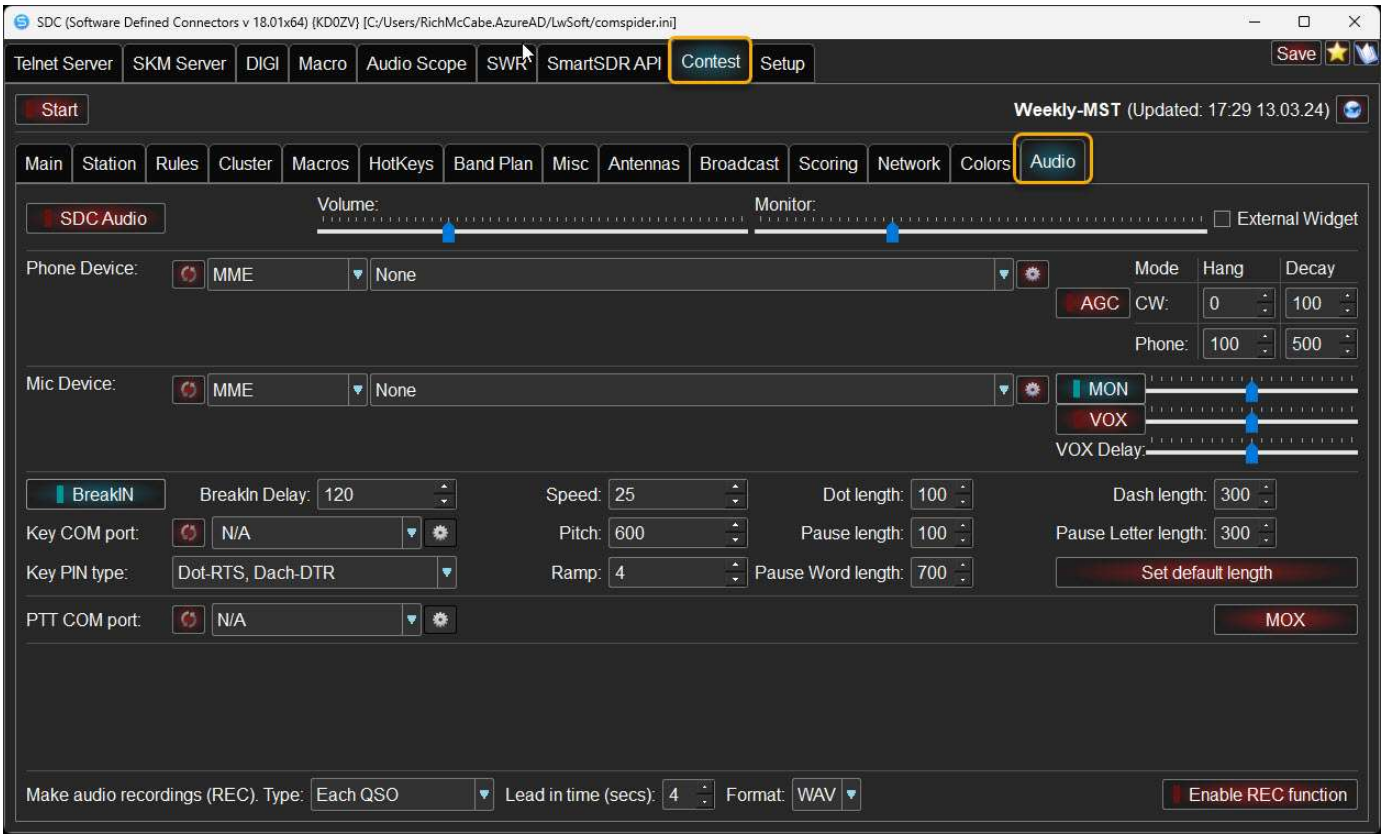
[Contest > Colors Tab]



You can change the colors of some elements of the SDC-Contest program.

These colors will be used to display call signs in the "New QSO" window

[Contest > Audio Tab]

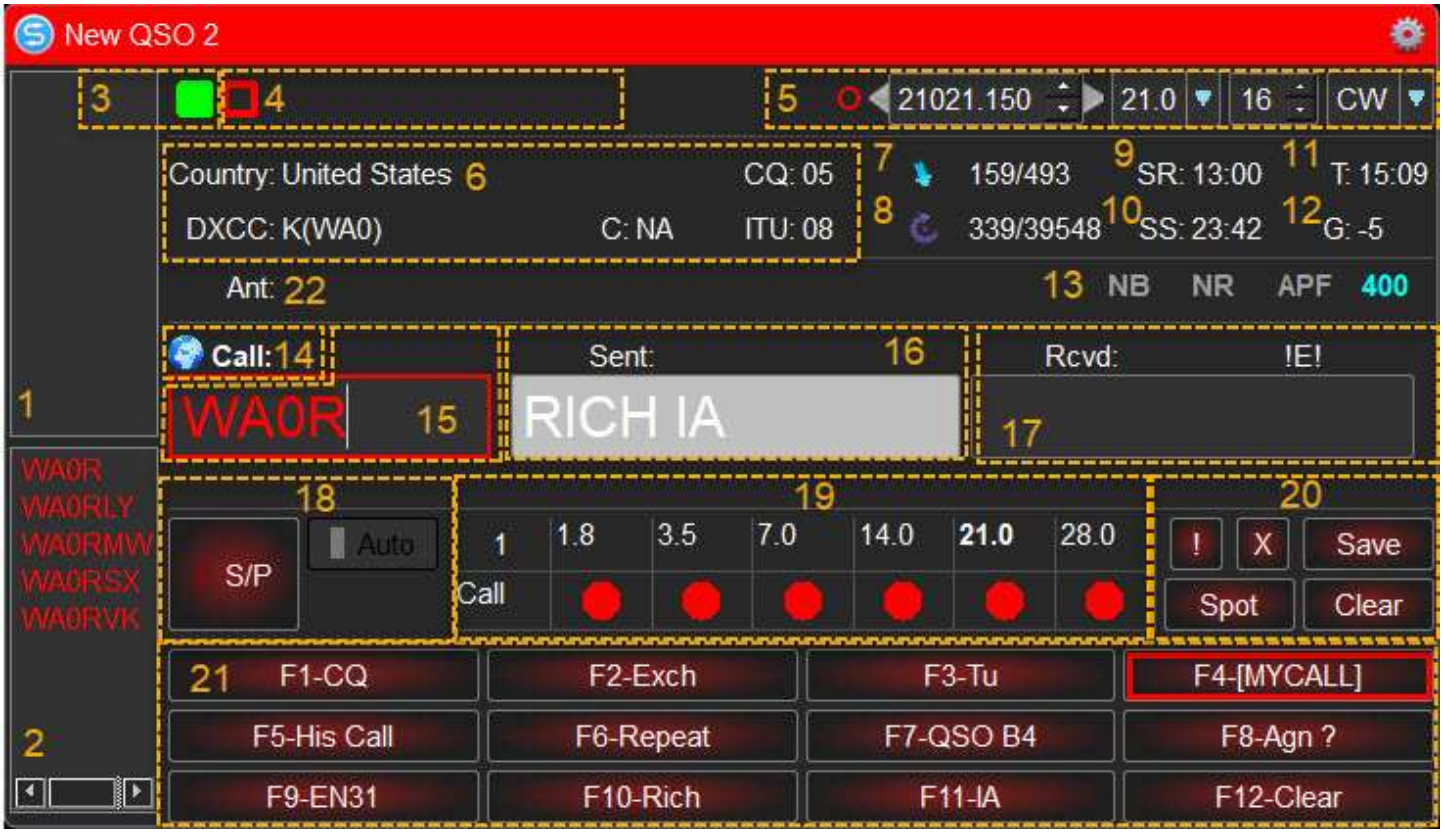


Info coming soon

User Interface

Here you will find information about the various operating windows and their usage.

New QSO Window(s) *(without digital interface)*



1) **Information assist window(s)** These windows offer dynamic content dependent on the type of contest loaded. Window 2 may provide callsign check function or windows 1 and 2 may even be combined when cursor has moved to the exchange field offering suggestions for proper exchange.
2) See above. Note: A third window may be added depending on contest.
3) Shows the **RX/TX condition** of the transceiver on slice associated with the QSO window. There is some additional functionality here. For Example, If the contest rules forbid transmissions (e.g. regulated band change times), the TX box is crossed out.
4) This area **echoes** what is being sent on digital and CW modes and shows audio scope when operating SSB.
5) **Current frequency, band, CW speed and mode**. Changes can be made to all these items. As an example, you can change band or mode from here. The current frequency also works as a **"Frequency Stack"** to recall previous frequencies (up to 5).

SSB Audio Scope

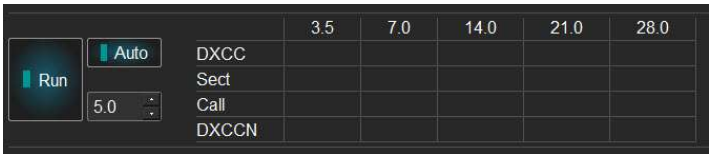
In each New QSO window, the frequency stack is automatically maintained. You can return to the previous/next frequency using the buttons next to the frequency field, or using the hotkeys Ctrl+Left/Ctrl+Right.

If you have been on a frequency for more than 4 seconds, that frequency is automatically stacked.
The frequency is also written to the stack if there is already data in the stack and you press Ctrl+Left. For example:
You were operating on 14010.000 for more than four seconds. This frequency is stacked.
If you click a spot at 14020.000 but decide to go back to the previous frequency. You can press the Ctrl+Left key.

The program will write the frequency 14020.000 to the stack and move to the frequency 14010.000. After that, if you press Ctrl+Left you will return to the frequency 14020.000.

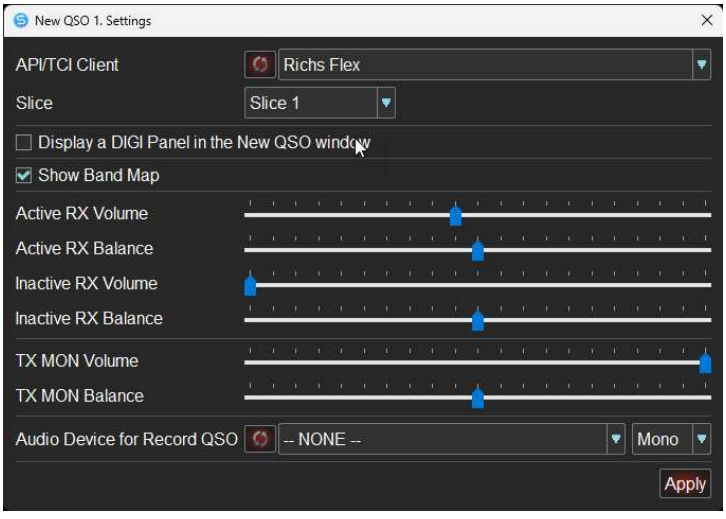
6) This shows **location information** about the station entered in the call box.
7) **Short Path** - Bearing and distance (kilometers) to the station.
8) **Long Path** - Bearing and distance (kilometers) to the station.
9) **Sunrise time** of the station you are working.
10) **Sunset time** of the station you are working.
11) This shows the **current Zulu Time**.
12) **GMT time offset** for the station you are working.
13) **Flex DSP** Allows control of Flex DSP filters and shows current filter width of slice (mode dependent)
14) Link to stations **QRZ.com page.**
15) Stations **Callsign**
16) The **Exchange** you are sending.
17) The **exchange of the station you are working** (Field layout changes automatically depending on contest) If you see **!F!** above this field it indicates you the exchange you have entered is not formatted properly.
18) **Operating Mode** (Search/Pounce or Run). When in Run mode the auto button is available which will automatically repeat your CQ test on whatever interval you set.

19) Visual indication of **available multipliers and QSOs**. The section dynamically changes with the contest you have loaded.



20) **Mark button** will mark that contact in the log for later review, **Spot** will spot the contact locally or globally, **Save** will save the current contact and **Clear** will remove it from the callsign field. You can use **Ctrl + F** to save instead of clicking this button.
21) **Macro Keys.** Right click to edit macros for both run and search & pounce. You can also configure function key/short cuts with right click. See setting PHONE macros as the bottom of this section
22) **Current Antenna** being used if using Automated antenna switching. (See Contest>Antenna tab).

Clicking on the **gear icon** will open the settings associated with this QSO window. In here you select which client (transceiver) the program is connected to, and which slice this QSO window is attached to.

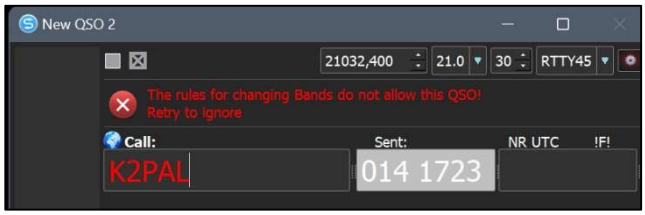


The **sliders** are to control the volume levels and balance of each slice as you move back and forth while working SO2R. You can lower the volume of one slice and raise the other. This applies to your TX monitor as well. These slider settings can be saved to an audio profile which can be recalled under Contest > Main > Audio profile or from the dropdown on the ActiSpot window.

Note: The TX MON balance works only in CW mode on FlexRadio. It is ignored in digital and SSB.

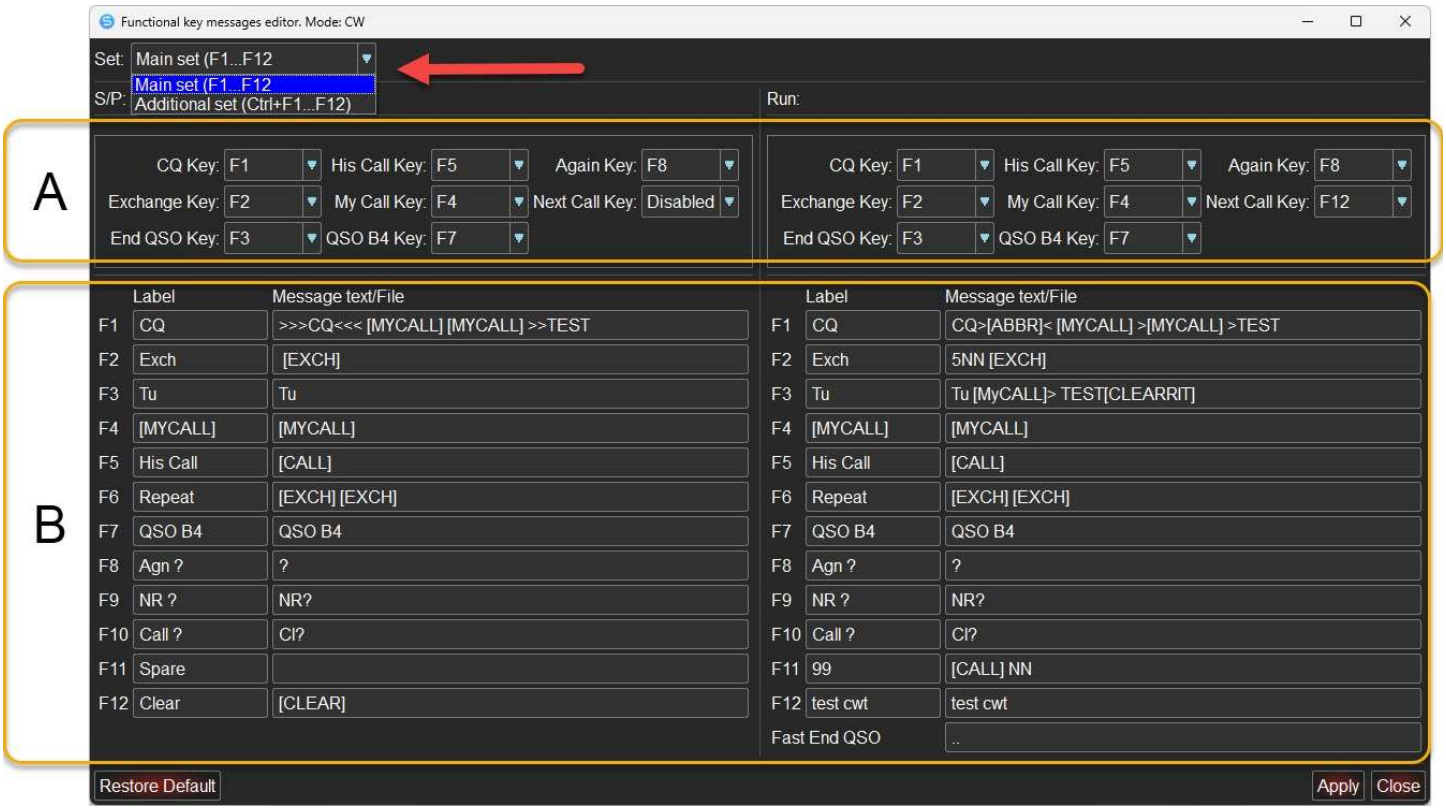
Audio Device for Record QSO. Select the proper device you want to use to record QSO with and optionally Mono or Stereo format.

When your contest profile includes a digital mode, additional functionality will be available. Checking the **DIGI Panel in the New QSO window** box will add the digital panel to the bottom of the QSO window. If left unchecked it will be a separate window.



If you are working a contest that has **rule restrictions** about changing bands, operating times, etc., you may get a message like the example to the left. Also if you enter an exchange that does not have formatting that follows contest protocol you will get a message warning you about **incorrect exchange number**, You will have to retry to force the contact to be logged.

Functional Key Messages Editor



The Functional Key Messages Editor allows to program what is sent from each macro keys and what part of ESM (enter sends messages) process the macro key is part of. By default, SDC comes pre-configured, but you can tweak the settings to meet your needs. Right clicking on any macro key will open the editor.

To start with there are two modes that can be edited. S/P (search and pounce) and Run mode which is where you are the station calling CQ. On the left is the **S/P configuration** and on the right is the **Run configuration.**

Each Macro Key (F1 to F12) can be programmed individually by editing the fields in the lower section "B". The label is what you are going to see on the buttons in the New QSO window and what is entered in the Message text/File field is what will be sent. **Note:** The F1 is designed to automatically switch to Run mode and send CQ.

The Message text/File can be a combination of static text or macro variables (see reference section at the end of this document for variable list)

Example breakdown:

CQ [MYCALL] [MYCALL] [ABBR] TEST sends… CQ KD0ZV KD0ZV SPDX TEST

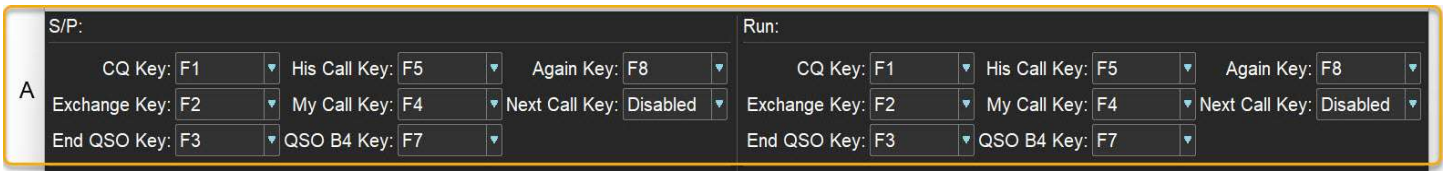
CQ (static text)
[MYCALL] KD0ZV from Contest>Station “Call” settings
[MYCALL] KD0ZV from Contest>Station “Call” settings
[ABBR] “SPDX” from Contest/Rules ABBR at bottom of page ***
Test (static text)

*** Each contest has different necessary user data that may need added to the contest rules section mentioned above.

You can program two different sets of macros. One set using the CNTRL Key and one set without. See red arrow.

QUICK TIPS You can add special characters > < in the macros to speed up or slow down sections of your exchange. For example, if your macro has **>>TEST<< UT4LW** the word "TEST" will be transmitted faster than the call sign. The amount each special character increments the speed is configured under contest > Macros.

Once your Macro keys are programmed you can tell SDC what part of the QSO process they are part of.



Section A (above) shows the steps/sequence of the QSO.

Typically, in **Run mode using ESM** the process steps from **F1**(CQ Key) to **F2** (Exchange Key) to the **F3** (End QSO Key) which finishes the QSO and logs the contact.

Typically, in **S/P mode** the process starts with **F4** (My Call) button. The **F4** will stay active as long as the cursor stays in the Call field. Once you advance the cursor to the exchange field the **F8** (Agn ?) button will become active until the start of an exchange has been entered or a properly formatted exchange (depending on contest). Once that has been entered it will switch to the **F2** (Exch) button. Hitting enter will send your exchange and log the call.

Call stacking - In a digital contest when operating in Run mode, SDC can stack and queue callsigns when you get more than one station replying to your CQ. Queued calls are shown in the left section of the New QSO window. There is a special function “Next call key” as seen above. Select an available function key for this operation and then program the Message text/File field with something like:

TU Now [CALL] [RST] [EXCH] de [MYCALL]

Using this key will start a QSO with the next station in the queue and using works like “now” or “next” will let the station know they are next up.

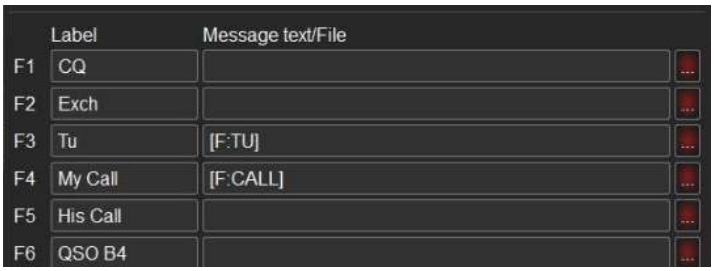
QUICK TIPS If you are working a contest running S/P mode and the Macro key advances to the next step when you start entering the other contacts exchange info, you can hit enter when ready to start sending your exchange and finish entering theirs. If you finish entering their exchange before SDC is finished sending yours, the complete exchange will be logged.

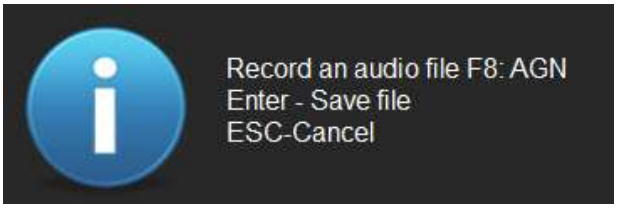
Recording PHONE macros - SDC has a built-in function to record WAV files for phone contests. You must first select your recording device under Contest/Macros "Audio device for recording sound files"

To record the individual recordings, it is a two step process. First of all, under the Functional key messages enter a macro in the following format.

[F:CALL] In this case the file name is CALL. When recording it will create a file called CALL.WAV.

Once you have your file names set up you can close this window.



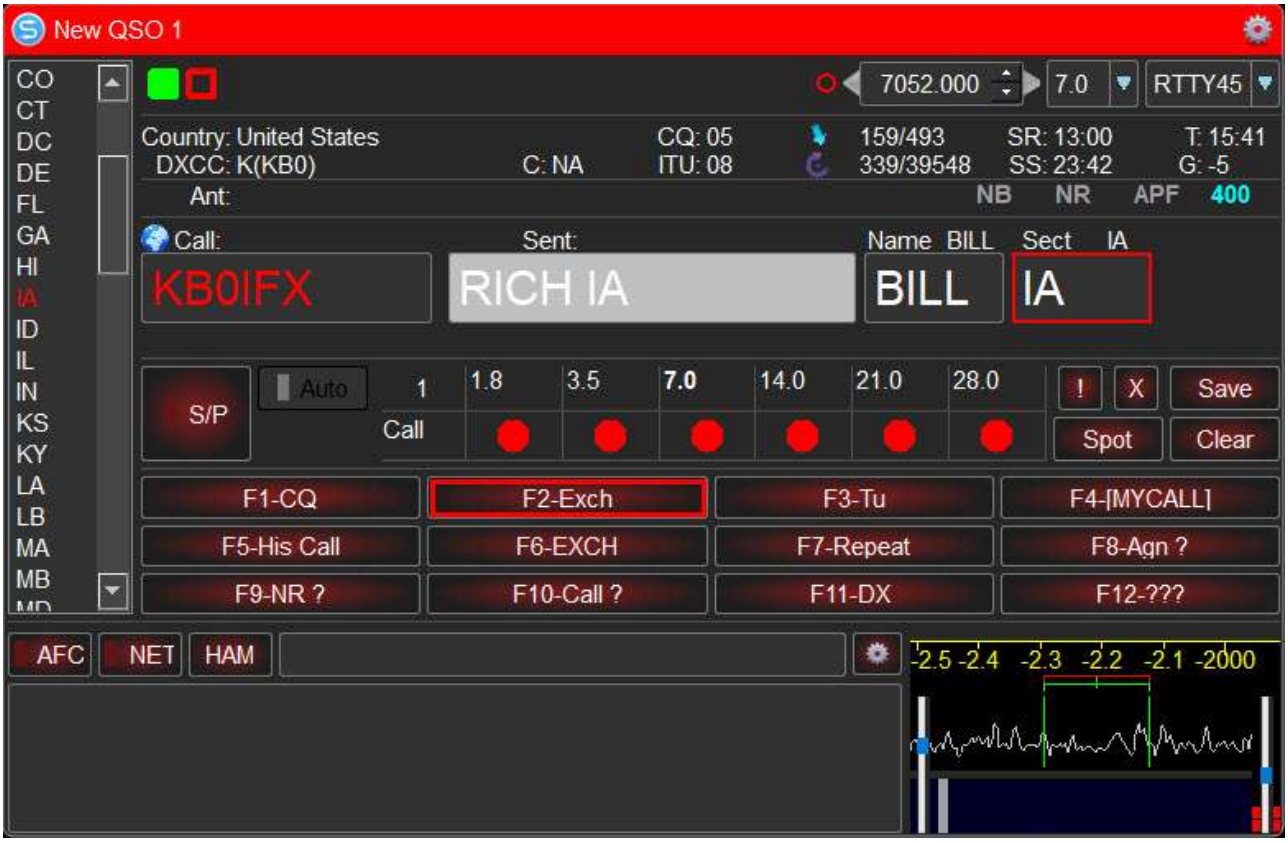


Back in the QSO window with the window active press CNTRL+SHIFT and whatever Function Key you are programming. So, to program F3 press CNTRL+SHIFT+F3. When doing this you will get a message in the New QSO window give you the option to Enter after recording to save the WAV file or ESC to cancel.

If the file name already exists, you will be prompted to overwrite.

The Audio Files will be saved in the user/LWsoft folder under sound and inside the operator folder in there if you have the "Use the operator folder for sound files" checked under Contest/Macros towards the bottom of page.

New QSO Window(s) *(with digital interface)*



Above shows the additional information when **DIGI Panel in the New QSO window** checked. Note: The Contest profile must include a digital mode, or this panel will not be available.

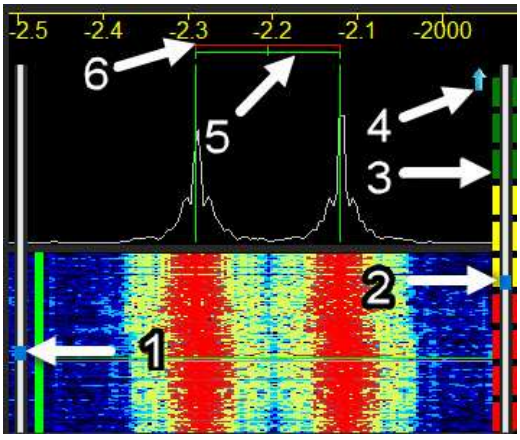
1) **Decoder Window**
2) This field shows **inverted text** in the event the control characters are not decoded correctly.
3) **FFT display.** Can be resized by dragging and style changed to dark (see settings)

AFC – Automatic Frequency Control. This will automatically tune a signal that is in close proximity.

NET - Holds the transmit frequency equal to the receive frequency.

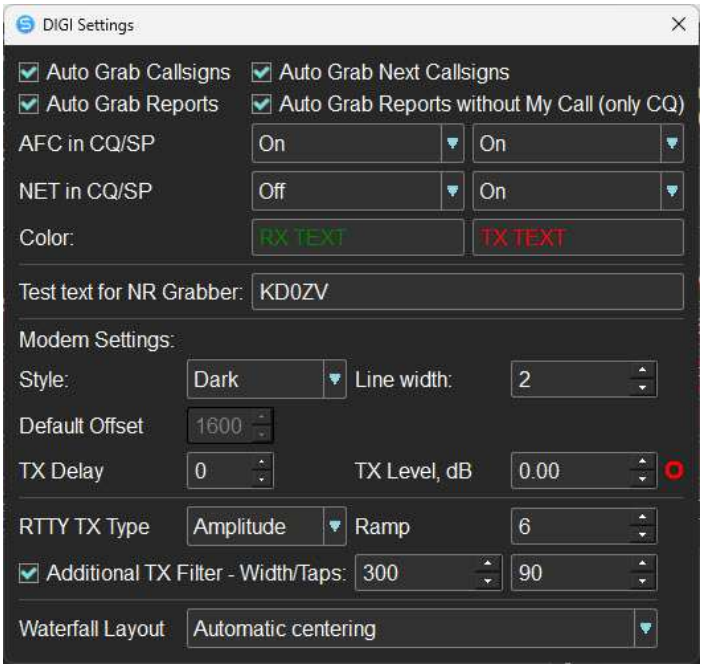
HAM – Reset the frequency offset. For example, AFC **Shift**s the receive band to the side. If you press HAM, this offset is reset to zero.

FFT Window (dark style)



1) Contrast. Adjust the contrast on the waterfall.
2) Demodulator sensitivity threshold.
3) Bar Graph showing signal level.
4) Sync arrow.
5) Tuning guides for receiver.
6) Tuning guides for transmitter.

Clicking on the **gear icon** will open the settings associated with this digital window.



Auto Grab Callsigns - This will automatically grab and enter the other stations callsign in the callsign box.
Auto Grab Next Callsigns – When enabled a third box will be added to the left side of QSO window and calls will be queued.
Auto Grab Reports - This will grab the digital exchange if it follows typical formatting and enter in the exchange fields.
Auto Grab Reports without my Call – When in CQ "Run" mode their exchange will automatically be captured and entered even if they do not include your callsign.

AFC in CQ/SP determines if Automatic Frequency Control will be enabled by default when entering that mode. The left dropdown is for CQ "Run" mode, and the right drop down is for S&P mode.
NET in CQ/SP determines if NET will be enabled by default when entering that mode. The left dropdown is for CQ "Run" mode, and the right drop down is for S&P mode.

Color: Here you can set the RX and TX colors

Test Text for NR Grabber This field is used to **debug** the grabber. You can test how the exchange will be captured. Whatever you add here will be added to the decoder window for testing.

Under **Modem Settings** you can change the theme **Style** between Dark and Light. Change the **Line width** of the Mark/Space guides, and several other options. *Advanced User mode must be enabled for a few of these options to be visible.*

Style: Sets the style of the FFT window (dark or light). **Line Width:** Thickness of tuning Guides

TX Delay: This is the time between turning on TX mode and the start of audio file transmission.
TX Level, DB: Controls the digital output audio signal level. The round indicator to right shows when drive level has been exceeded.

RTTY Type: Amplitude is the default setting, but TX shaping can be modified by changing to Soft or Sharp.

Ramp The number of samples during which the phase / amplitude change occurs.

Additional TX filter: Width and Taps changes the shape of the transmission bandpass.

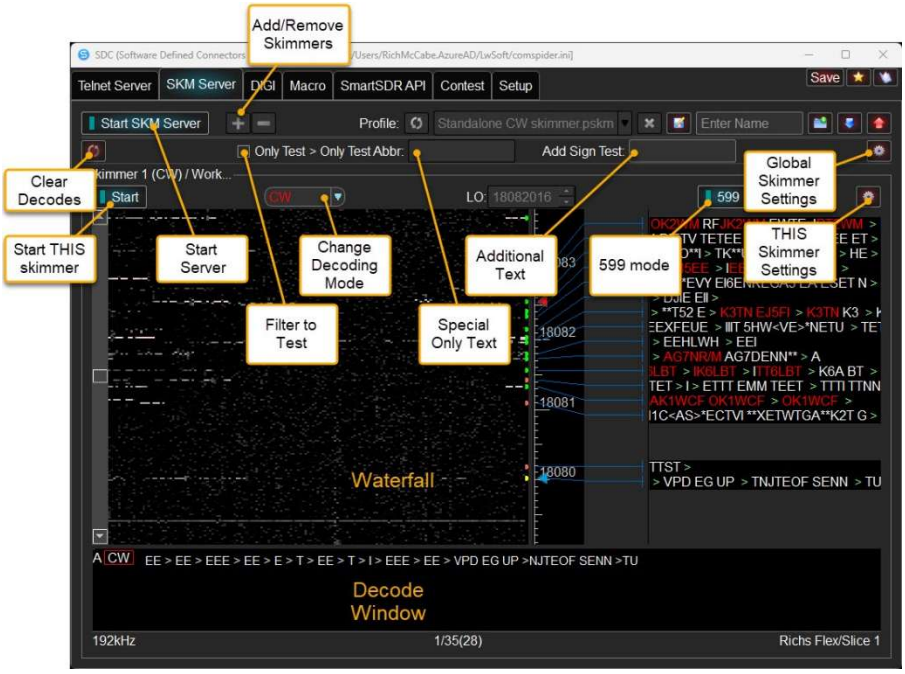
At the bottom you have **a Waterfall layout.** Automatic Centering is recommended and will always center the waterfall, but you can sync with your RX filter band (follows receiver) or use "handle" where you can adjust manually. The left mouse adjusts side to side and the right mouse adjusts width when handle is chosen.

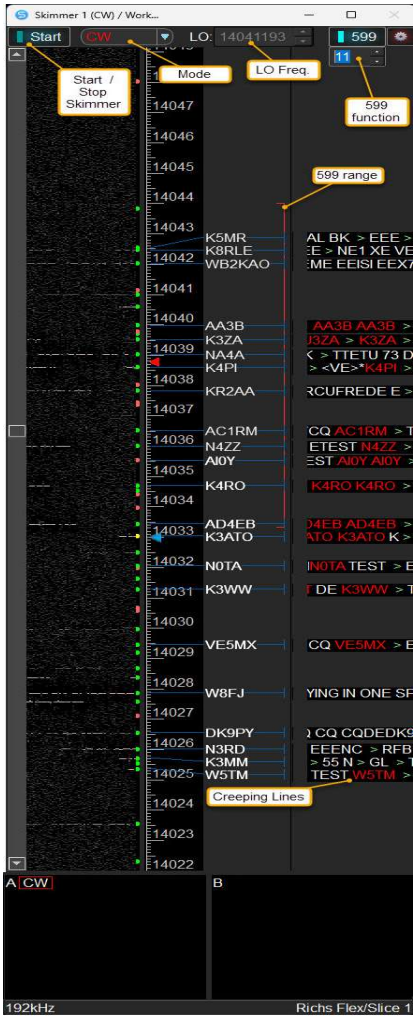
Terminal Window (ALT -T)

While contesting the **Alt**-T key will bring up a terminal (macro) window. This is great for quick fills, corrections or personal messages. The Enter text line below will enter direct text as you type. Clicking the gear will allow you to customize the keys for Phone, Digital and CW modes.

Skimmer Window

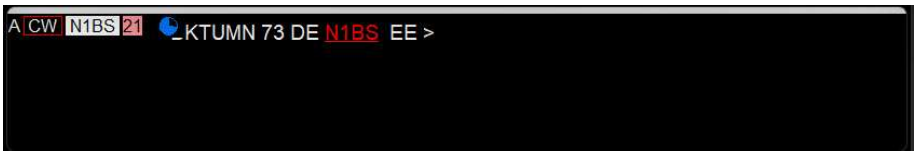
The skimmer can be used either inside the main SDC window or "in external window". Below are both examples.



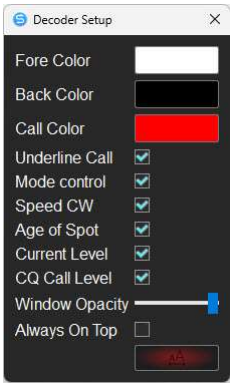


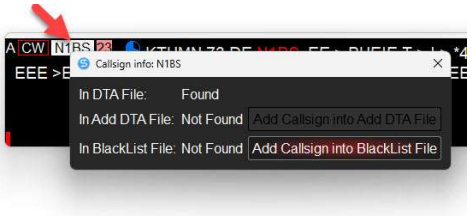
Skimmer configuration was covered in the beginning of this document so refer to "Configuring the SKM Server (and skimmers)" for detailed setup information and Standalone Skimmer usage (DX pileups).

The external window version (upper right) shows two decoder windows at the bottom for Slice A and Slice B. The blue triangle on the frequency scale shows the Slice A frequency and the red show Slice B. The decoder windows can be de-attached in either of the above examples.



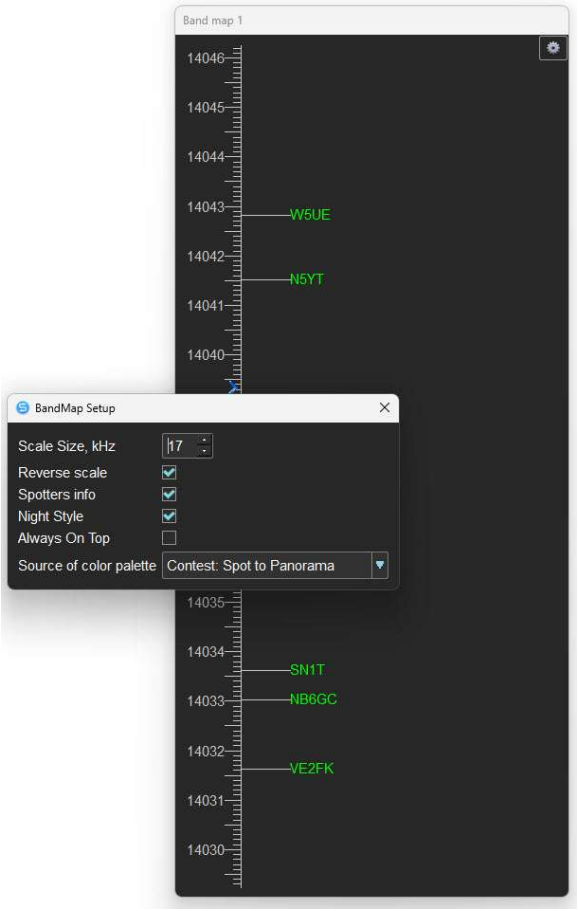
The de-attached decoder window (above) shows a letter (A) to indicate which slice this decoder belongs to. The mode (CW), the callsign you are decoding, the WPM the station is sending at and a stopwatch showing information about the spot. For more information about stopwatch, refer to SpotList section. These options as well as other settings can be configured by right clicking on the decoder screen. (image at right)





Right clicking on the decoded callsign will bring up a menu that shows if the callsign is verified in the master data file or the additional data file. It also allows you to add the callsign to a personal blacklist or remove it if it's already there. (image at left)

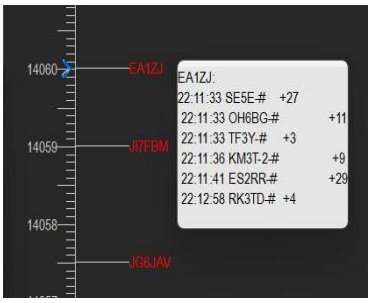
Band Map Window(s)



Each band map window can be configured individually.

Scale Size, KHz – Is the visible frequency range on the window. In this example it is showing from about 14.029 to 14.046 (17 KHz). You can also right click on scale and hold and move mouse up/down to change the scale without opening menu.

Reverse Scale - This determines the direction of the scale. Reversed show higher frequencies at top.



Spotters Info – When mousing over the callsign in band map this will provide additional spotter info provided by telnet connection (see left)

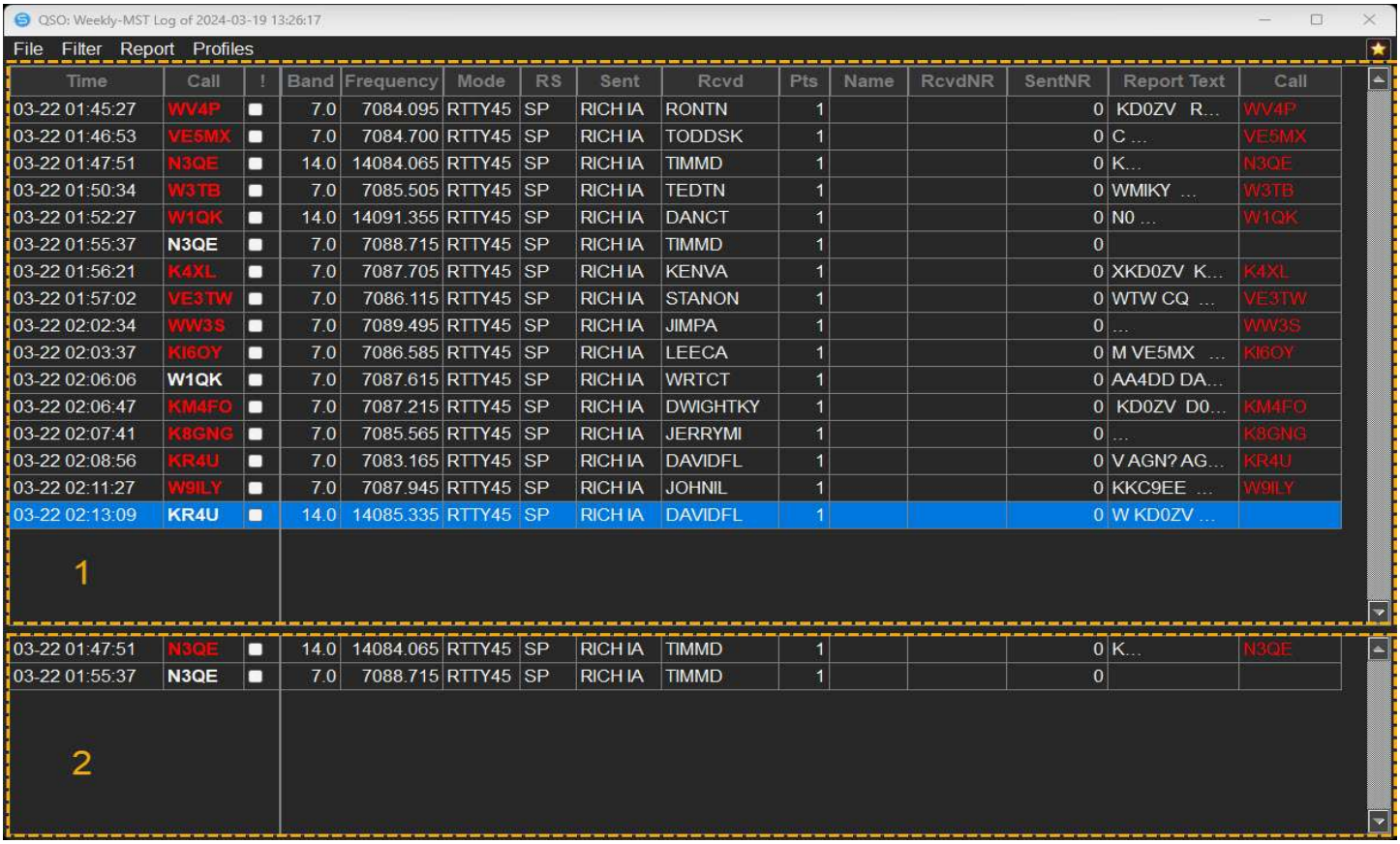
Night Style – This is a dark theme as shown on the right.

Always on top – Checking this box will place the band map on top over other windows.

Source of color palette – This option is only available when contest is running. If using just the Telnet Server and band map this will not be visible.

- Telnet server: Spot to Panorama. Callsign colors come from how configured in the center panel located on the [Telnet Server] Tab.
- Contest: Main. Callsign colors come from the configuration on the [Main] tab within contest.
- Contest: Spot to Panorama. Callsign colors come from the configuration listed under contest on the [Cluster/Master] tab.

Log Window



The logging window is where all your logged contacts are stored. The window is made up of rows and columns and has two sections.

1. The upper section is all the contacts you have logged during this contest.
2. The lower section shows you current contest information about the callsign you currently have entered in the QSO window callsign field. This allows you to see the bands and modes you have already worked this station on during this contest.

This log window has a menu item called profiles. You can update all profiles at once from there.

You can not only edit contacts in your log from here but also the following functions.

File Menu

Start a new Log - Creates a new contest log within the same database.
Select Log - Selecting a log from the list of previously saved contest logs.
Clear current log - removes all QSOs from the current log. This log is not deleted from the list.
Delete current log - removes all QSOs from the current log. The log is removed from the log list.
Create Backup copy - creates a database backup that includes all logs.
Restore from Backup copy - restores the database from a backup. All data of the current database will be lost.
Import from Cabrillo Format file - adds records from the "Cabrillo" file to the current log.
Browse B4 Table – Viewing and editing table “B4”
Fix the windows position This locks current windows position and size so they cant accidentally be moved.

Filter Menu

Select Marked QSO – Shows QSO previous marked for review. They will show with checkbox in the !

column.
Select CQ Zone Comparison – If the contest includes an exchange with CQ Zone this filter allows you to check what you logged against the actual DXCC value before submitting your log.
Clear Filters - Clears any of the above filters.

Minimizing the Log Window is a quick way to minimize all windows.

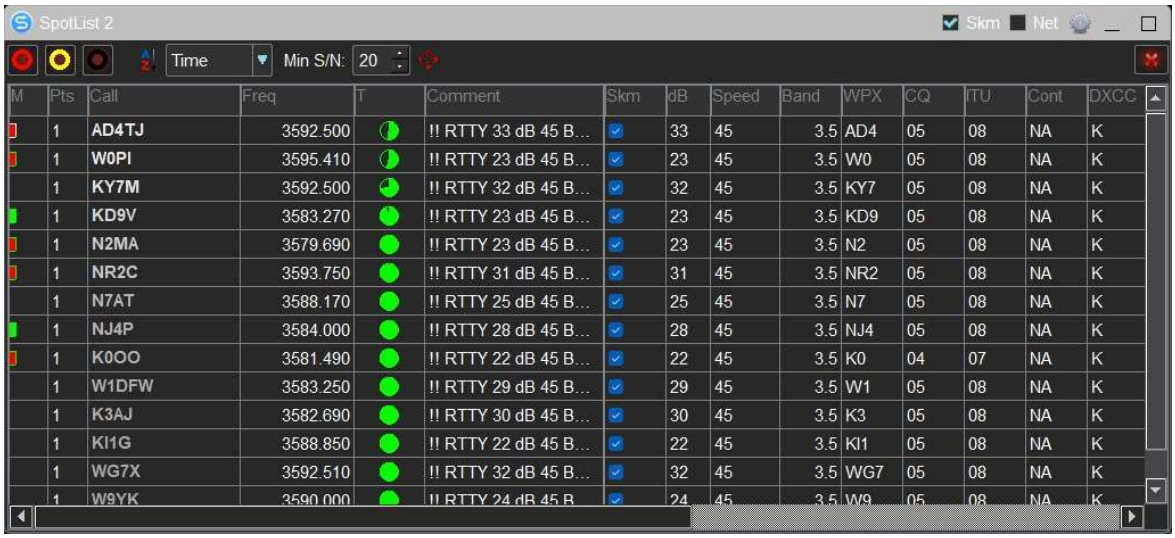
Report Menu
This menu allows you to create/edit your log in ADIF and Cabrillo Format as well as export to 3830 format.

Profiles Menus
This is a convenient way to save your current Layout Profile, Telnet Profile and Skimmer profile along with the option to save all at once.

To **edit a contact**, you can either right click the contact and edit or just double click.

At the bottom is an audio player that allows you to replay an audio file of the QSO.

SpotList Window(s)



The SpotList window(s) are powerful and will direct you to your next **"best"** contact if used properly. This should be a focal point in your contest layout when working S/P mode as you will be working through your QSOs using your arrow keys in this window. How this window is sorted and filtered is going to be contest dependent but is your key to success.

As an example, I recently participated in a WPX CW contest, and the number of spots was simply overwhelming when the contest started. The Spotlist was scrolling so fast you could hardly keep track. To get things under control I bumped the **Spinbox** on the top toolbar to about 13 dB which filtered out the weaker stations that I potentially could not copy or at minimum had to work harder to get. This

allowed me to blow through the loud stations quickly and thin out the list at a rate well over 120 QSOs/hr. Once things slowed down, I started dropping the dB level, picking up the weaker stations on a Spotlist now scrolling at a more manageable level.

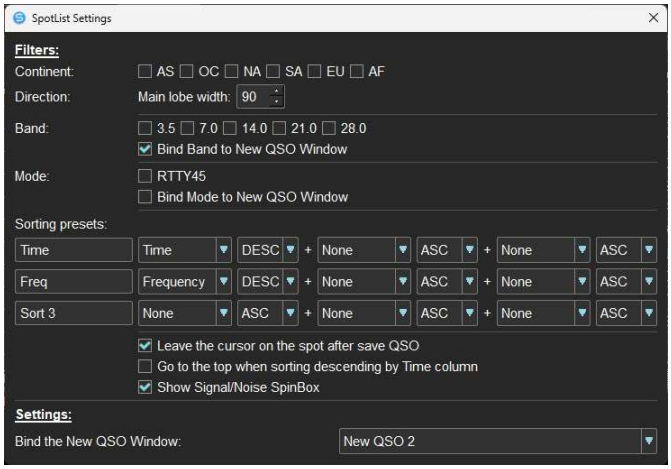
Since winning the contest is about points and not number of contacts, I wanted to focus on multipliers and stations with higher points values. The filter buttons on the top left allowed me to filter the list to **mults only** and setting up custom filters (presets) in the Spotlist settings allowed me to sort and prioritize the skimmer spots with the most value.

Another thing I found useful was setting up a third Spotlist that was NOT bound to a QSO window or band. This SpotList was receiving all spots from my skimmer(s) and an online telnet server on all bands. This gave me a good idea where the activity was, so I knew when it was time to QSY to a different band.

Clicking on the **gear icon** will open the settings associated with this window.

Starting at the bottom under settings you see a dropdown that allows you to attach or bind this spot list to a currently open QSO window. A typical setup would include SpotList 1 bound to New QSO 1 and SpotList 2 bound to New QSO 2. **DO NOT bind two different SpotList to the same QSO window.**

Back to the top under the **filter** section. You can filter this SpotList to continents, bands, direction, and modes specific to the contest profile you have loaded. The SpotList can also be bound to the Band and Mode of the QSO window.

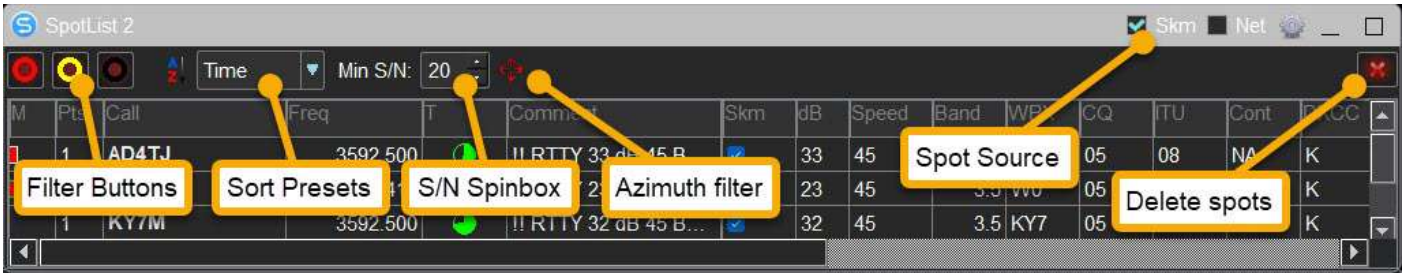


The middle section allows you to create complex **Sorting Presets** which can be selected from the menu bar (see menu bar below)

Leave the Cursor on the spot after save QSO - Without this checked the saved QSO will be removed from the SpotList unless the (Dup Filter is selected). Leaving on will show you where you left off.
Go to the top when sorting descending time column – When you get to bottom of list when sorting by time it will take you back to the top automatically.
Show Signal/Noise SpinBox – Adds a Signal to Noise filter to menu bar. (see menu bar below)

A **!!** in the beginning of comments field are spots that have been seen by your skimmer and have not been spotted on telnet clusters yet. You have a higher probability of success working stations with this tag. This function is turned on in SKM Server>Global Settings Functions tab **"Check the primacy of the Skimmer Spot".** Advanced user must be enabled to see this function and an internet spotter added to Telnet server. Note: You can turn off "telnet" in each Spotlist if you choose so outside spots will not display and the **!!** function will still work.

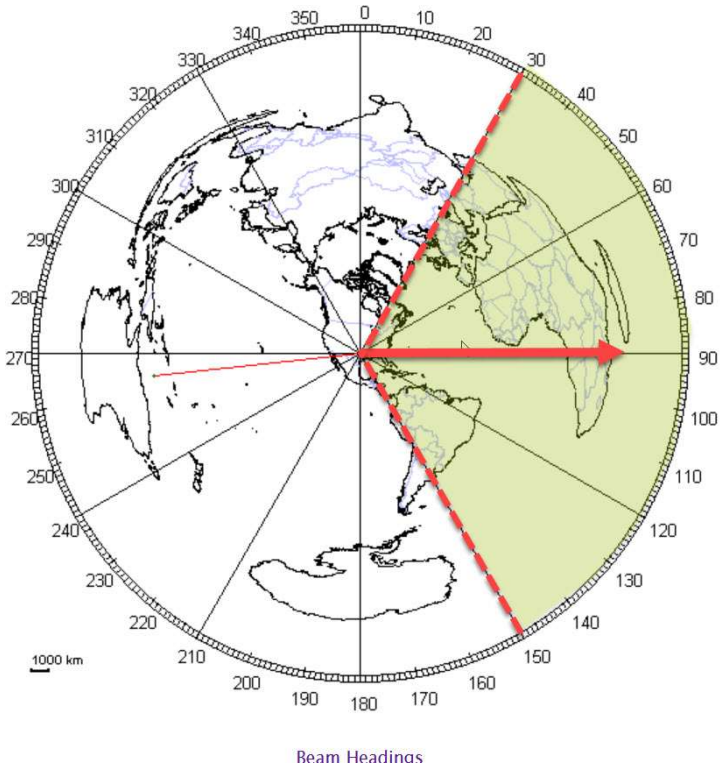
[SpotList > Toolbar]



On the left there are three buttons, The colors will change based on your settings in Contest [Main Tab]. The left button filters the list to Multipliers, the middle is duplicate (B4) and the right is Void contacts (contacts with no points value)

The drop down to the right that currently shows Interactive is where you select **Sorting Presets** that can be created in the settings menu.

The **Min S/N Spinbox** is a threshold for the stations that will appear. This filters out stations with signal strength lower than the value selected.



Beam Headings

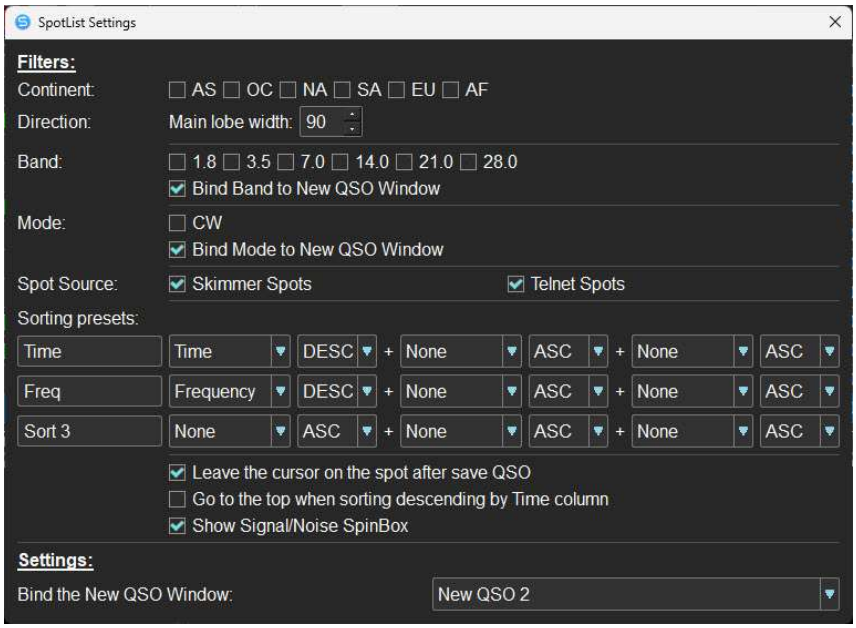
Azimuth control filters your spots to a specific heading. You can set direction in 30-degree increments and the "lobe" width of that heading. In the example (left) centered on the United States, the direction is set to 90 degrees with a lobe width of 120 degrees. The SpotList will be filtered to the area in yellow.

This is activated by clicking the azimuth icon in the Spotlist toolbar.

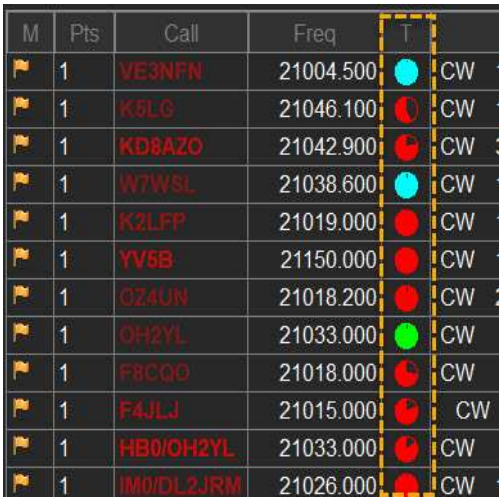
When activated it will change to an arrow.  Holding your mouse over the arrow and rotating the mouse wheel will make the azimuth (beam heading) change in 30-degree increments. The arrow above shows a heading of 90 degrees which matches the great circle map to the left.

Spot Source – Allows you to filter where your spots are coming from. You can select Skimmer Spots, Telnet Spots or both. Note: both unchecked will show all spots.

The lobe width (yellow) is set in Spotlist settings. In the example to the right a width of 90 degrees has been selected.



The **red X** is a menu with delete functions. The gear as usual is your settings menu. Right clicking on the SpotList table gives you a menu with additional options.



The **T** column contains a dynamic **Stopwatch**. This function is enabled in Contest>Cluster Master. "Show Stopwatch for the spot in SpotList."

The purpose of the **Stopwatch** is to give you a quick visual indication of how recent and popular a spot is. The quicker you can jump on an unreported spot, the more likely you will make the contact.

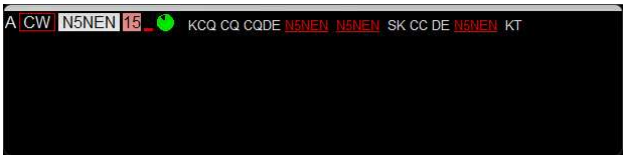
Colors: If the Stopwatch is **Green** this contact has been spotted less than three times on clusters. If it is **Grey**, it has been spotted less than 6 times and if it's **Red** it has been actively spotted more than 9 times.

Fill: The stopwatch fill amount shows the age of the spot. In the example to the right, the station was just spotted, and the green fill process has just begun.

The timer to the left is green meaning it has been spotted less than 3 times. It's a little over 15 seconds old as you can tell by the position of the green being just past the three o-clock position.

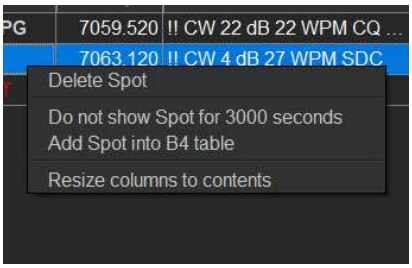
Once the spot is older than 1 minute the stopwatch switches from seconds to minutes and the fill in the Stopwatch begins to shrink. In this example the Stopwatch is at the shrinking six o-clock position which indicates that the spot is about 30 minutes old. The red color indicates it has been spotted more than 9 times.

In summary, you have a much better chance of working TF3IRA because they are a new spot (about 7 seconds) and have been spotted less than 3 times, compared to working F5IN who was spotted about 45 minutes ago and has been spotted more than 9 times.



Note: The Stopwatch is also shown on the decoder window if enabled.

Right click – If you right click on a spot, you will get the menu shown at the right.



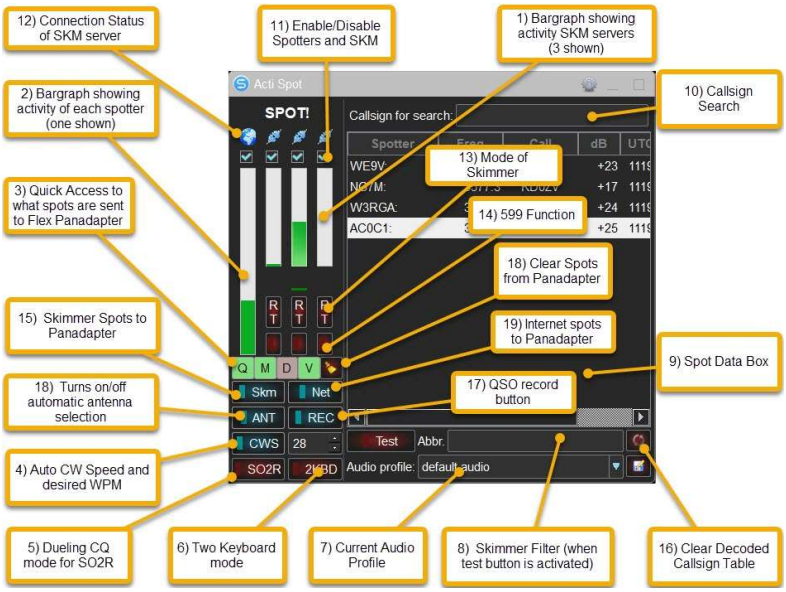
The **Delete spot** will delete the spot from the Spotlist until it's spotted again.

Do not show this spot for XX seconds will hide the spot based on the time set in Contest>Cluster Master. Whatever you set "Spot hide (secs)" will be the value applied here.

Add Spot into B4 table will make the spot not appear again and send it to a B4 Table associated with this log session. You can view these hidden spots by going to File > Browse B4 Table in your log window. This is useful for hiding stations not working the contest like someone calling CQ POTA in the middle of a contest.

Resize column to contents. Sometimes the columns get narrowed down to the point you cannot see them anymore or the configured font size is too large to fight. Clicking this option will expand the columns automatically to fit the text.

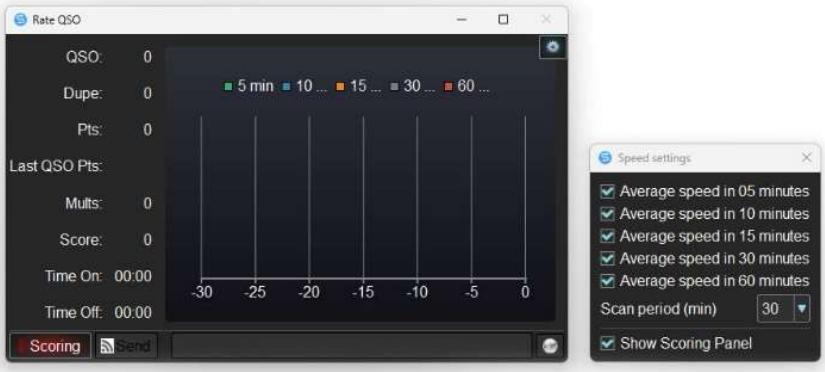
Acti Spot Window



The **Acti Spot Window** is a powerful window that brings a lot of important functions to one place. It provides visual indicators to important information and gives quick access to common features you might want to switch on or off or adjust during a contest. This application is enabled by checking "Use ActiSpot" before starting your Spotters.

1) **Bar graph showing activity of SKM server –** An indicator showing the amount of activity coming from skimmer.
2) **Bar graph showing activity of each spotter(s) -** An indicator showing activity from each spot source. There will be one vertical bar graph for each skimmer.
3) **Quick Access for what spots are sent to Flex Panadapter –** You can turn on/off what kind of spots are sent to the Flex Panadapter. **Q**so, **M**ult, **D**up and **V**oid.

4) **Auto CW Speed On/Off and your desired WPM value –** Quick access to turn on and off the CWS auto speed which can be found under Contest > Macros
5) **Dueling CQ Mode –** Enables dueling CQ mode. See SO2R section for more info.
6) **2 keyboard mode –** Enables 2 keyboard mode available under Contest > Misc.
7) **Current Audio Profile –** Sets your current audio profile which is also available under Contest > Main.
8) **Skimmer filter –** Quick access to filtering spots coming from the SKM server. Clicking the Test button and entering text after abb: will filter the SpotList to spots that meet that criteria.
9) **Spot Data box –** Your callsign will automatically be shown here when you are spotted. (external spotter must be configured in Telnet Server)
10) **Callsign Search –** Searches for other calls spot info.
11) **Enable/Disable Spotters and SKM –** These checkboxes give you a quick way to disable spot streams (skimmer and telnet)
12) **Connection status of spotters and SKM –** Gives a visual indication if the skimmer or spotter(s) are connected.
13) **Skimmer mode –** Shows the mode the skimmer is decoding in.
14) **599 function –** This turns on and off the 599 function available at the top of the skimmer window
15) **Skm –** Toggles on/off if the skimmer spots are sent to the Panadapter
16) **Clear decoded Callsign table -** The decoded callsigns table will be cleared and spots will be issued without waiting for the end of the spot issue interval.
17) **This toggles the QSO record functionality on and off.** Settings defined under Contest > Misc.
18) Turns **automatic antenna selection** on and off
19) **Net**- Toggles on/off if the internet telnet spots are sent to the Panadapter
20) Clear spots on Panadapter

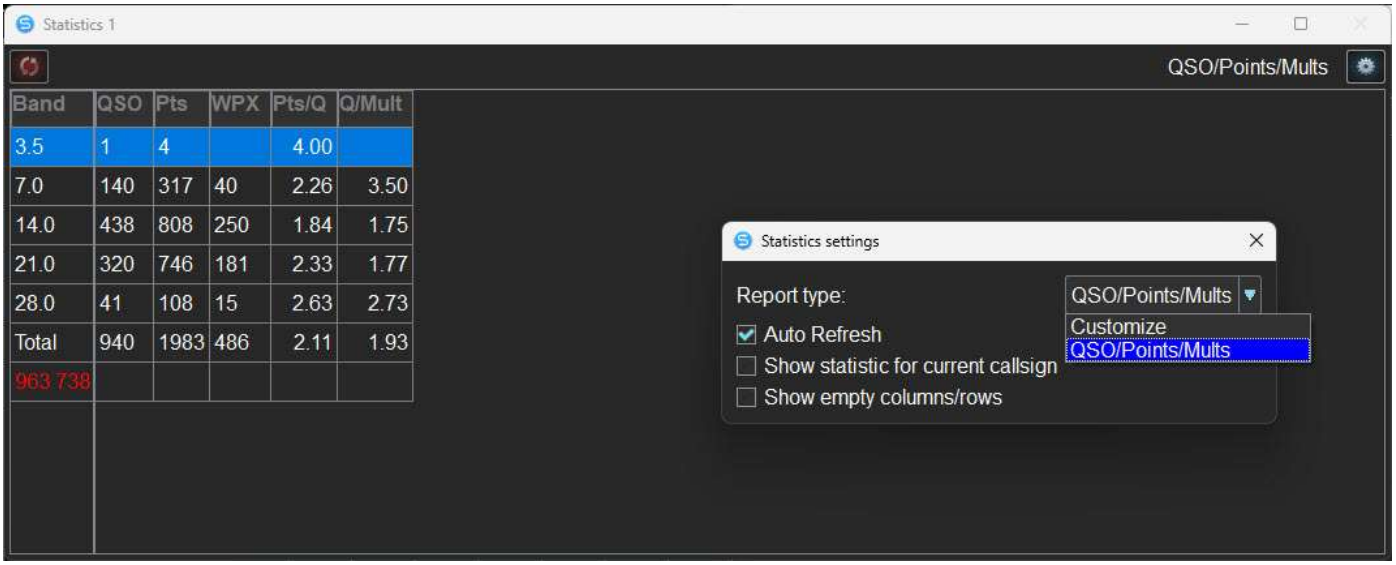


Rates Window – this shows your current rate of QSOs worked. Clicking the gear opens your settings which allows you to set the length of the scan period in minutes and also how you want it to be calculated. QSOs per 5/10/15/30/45 or 60 minutes.

The statistics on the left show info about current contest including number of contacts, dupes and points. Under settings check the "show scoring panel" box to include it on the bottom of your Rate window.

[Contest > Spot Counter] If enabled under Contest>Main a counter window will be displayed. This shows total spots for each band for skimmer and/or online telnet server.

Statistics Window



The statistics windows will show information for the current contest. You can **preselect a custom report** or **customize** the table by selecting what data you want to see in columns across the top and rows down the side. The table will automatically refresh as you make contacts unless you uncheck the **Auto refresh** in the menu. If you do, you will have to manually refresh the table to get current statistics using the icon on the top left. Checking the box that says **show statistics for current callsign** will only show statistics for whoever you have entered in the call box on New QSO window. **Show empty columns/rows** will turn on all available columns for the data chosen. In the above example your table would show all bands down the left and all prefixes across the top.

If you are in a contest where you have logged hundreds or thousands of contacts, turning off the auto refresh may help with performance issues.

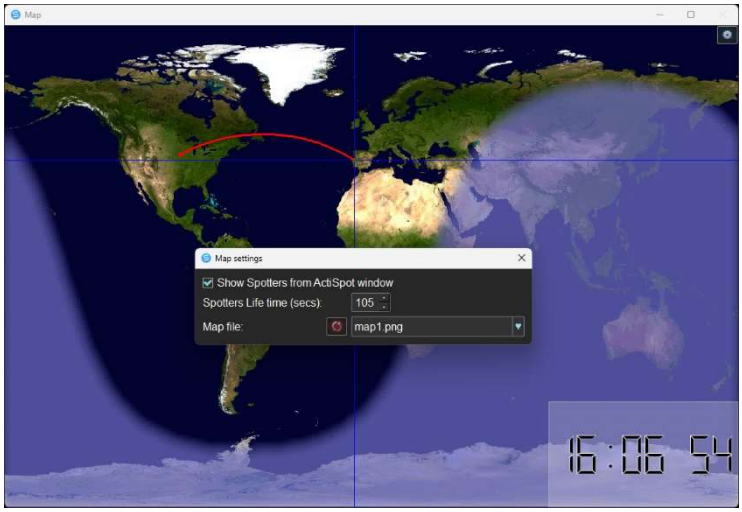
Clock

The clock shows UTC time. If you are working a contest with rules that involve timed band changes you will get an additional clock on the right. A red box indicates you cannot transmit because you have not met the time criteria. If the box is green, you can transmit according to the rules of the contest.

You can drag the clock window to the map window and save space. Holding your mouse over the newly placed clock and rotating the mouse wheel changes the background opacity of the clock.

Available Mults & QSOs – Window to give you an indication of band activity. Shows the number of QSOs and multiplier QSOs on each band.

Map



Interactive Map that shows a line to the location of the person you have in the New QSO window call box. In the settings you can also show Spotters from ActiSpot window with pins. The **Spotters Life time** is the time in seconds the pin will live on the map before disappearing. You will be able to see the spotters that have sent a spot for your station in the cluster. The color of the spotter indicates the signal strength of your station:

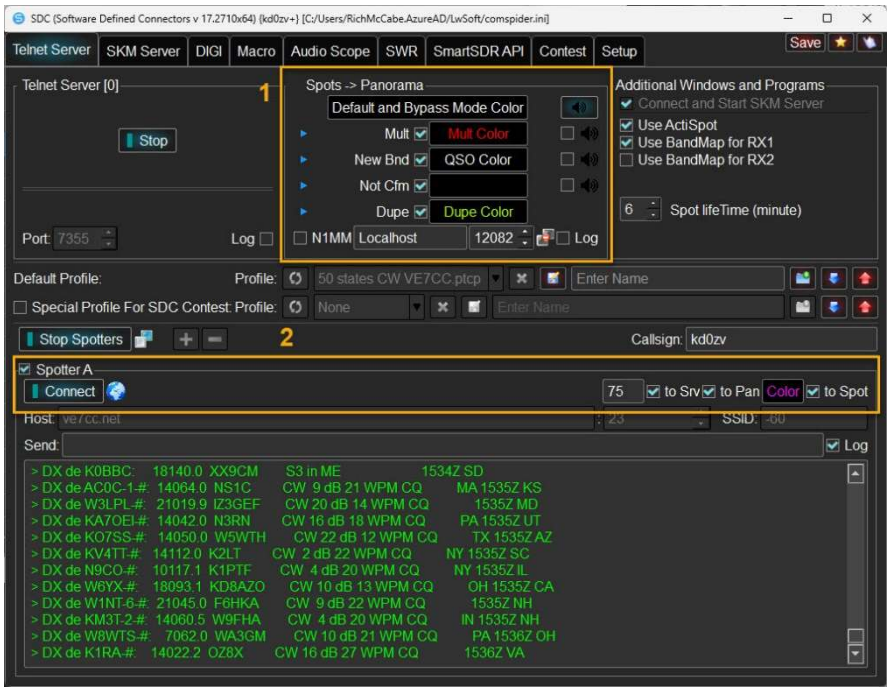
- Up to 15 dB is gray.
- up to 30 dB – green.
- up to 40 dB – yellow.
- above 40 dB - red.

The Map file changes the background image based on the map.png files located in \user\LwSoft\Contest\Maps folder.

In the above image, you can see the clock has been added to the map. This is done by dragging and dropping the clock onto the map window. Holding your mouse over the clock and rotating the mouse wheel changes the clock's background opacity.

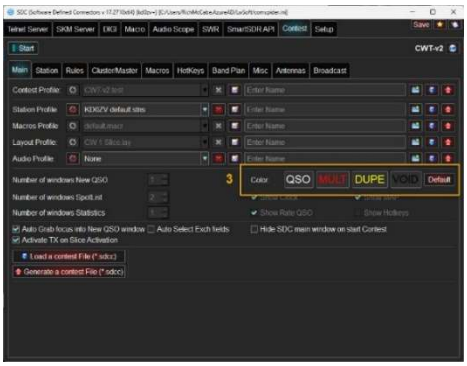
A word on Spot Colors

Spot colors can be configured in six locations. The purpose is to tell you the type of spot (New QSO, Mult, DUP, VOID). Additionally, colors may give you an indication of where the spot originated.



#1 Spots > Panorama which can be found under the Telnet Server tab. The data to create these spots comes from an outside application or logger. SDC senses if the program connected has the proper protocol for Mult, New, Dup, etc. and if so, the colors will be used. If the format is not correct it will use the Default and bypass Mode Color configured. If the Spots-> Panorama has a single blue triangle next to Default and Bypass mode color these colors are not being used. If there are arrows like shown on right, a 3rd party program is connected, and these colors are being used.

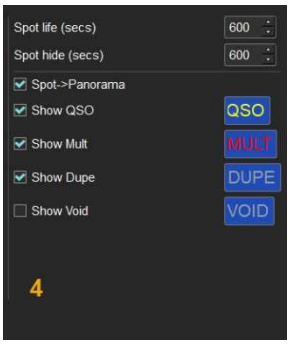
#2 Unique color for each spotter - Also, on the telnet page you can add additional Spotter(s). Each one of these spotters can be configured with its own color and will show up on the Flex Panadapter with the color selected.

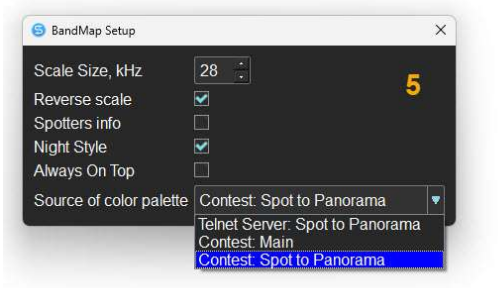


#3 Contest [Main] Spots - When a SDC contest is loaded the colors on the Contest [Main] tab (shown left) will send colors to the **SpotList**, **New QSO** window(s) and **Band map**(s) (dependent on bandmap settings).

#4 Contest [Master/Cluster] Spots - Also, when a contest is loaded the colors that will be sent to the Flex Panadapter can be configured under the [Cluster/Master] tab located under contest (shown below right). In addition to setting colors, you can turn off items by unchecking them. The **Spot Life** which is the amount of time the spot will live on the panadapter and **Spot hide** time which is a function found in the SDC contest SpotList can be set here.

As mentioned above the Band Map colors are dependent on the actual band map settings.





#5 BandMap Spots colors - In Contest mode the band map can receive spot colors directly from any of three locations:

- The **Telnet Server**
- Colors set in the **Contest: [Main]**
- **Contest: Spot to panorama** found under the [Cluster/Master] tab.

Note: When not contesting, "Source of color palette" will not be visible and the colors will come from the skimmer and whatever color is specified for each individual spotter source. **#6 Conest colors** can now be set under Contest [Colors].

Skimmer Global Settings > **Color Callsigns in BandMap** – This allows contest colors to be used in the skimmer BandMap. If running the skimmer while a contest is not loaded, default theme colors will apply. This icon will appear when this is enabled.

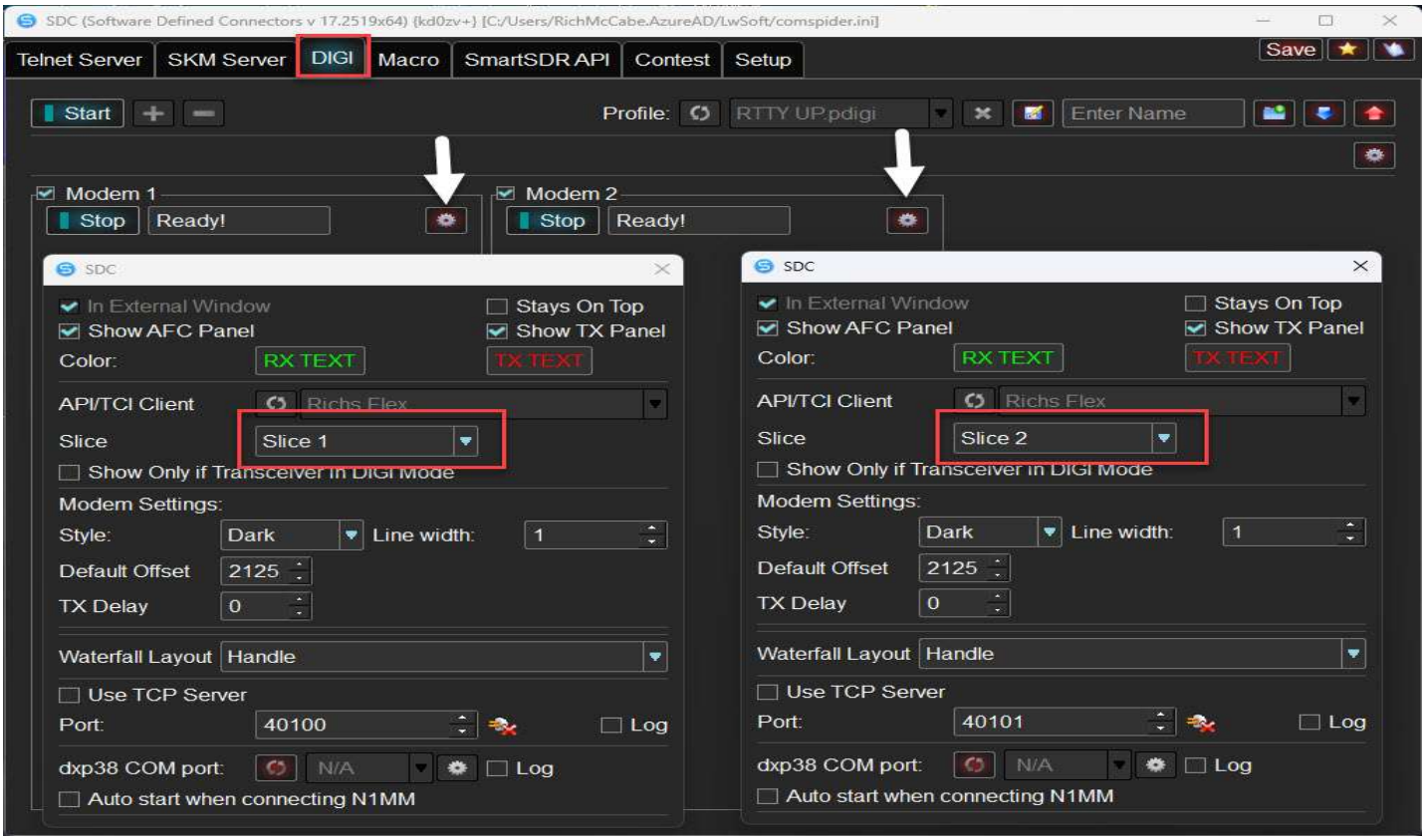
Configuring the DIGI function for standalone usage

If you want to work digital DX using the decoder and macro keyboard including DX working up **(without using the contest mode),** you can use the following configuration. It will require setting things up on the following tabs:

- Macro
- DIGI

Starting with the DIGI tab.

Click the setup icon on Modem 1 and select "Slice1" as shown below. Click the setup icon on Modem 2 and change the Slice to Slice 2 as shown. All other settings are typical and a good starting point. Check "Show AFC panel" and "Show TX Panel" to add those features to the top of your decoder window.



Misc options. If **Show only if Transceiver in DIGI mode** is checked the DIGI model will not start if the Flex is not in a digital mode. The **Style** selects a dark or light theme. **Line width** sets the vertical line thickness for mark and space guides. Default offset is your standard mark offset.

TX Delay is This is the time between turning on TX mode and the start of audio file transmission.

Use TCP Server Sends the data stream on the specified port for use with external programs. **dxp38 com port** is not related to FlexRadio use.

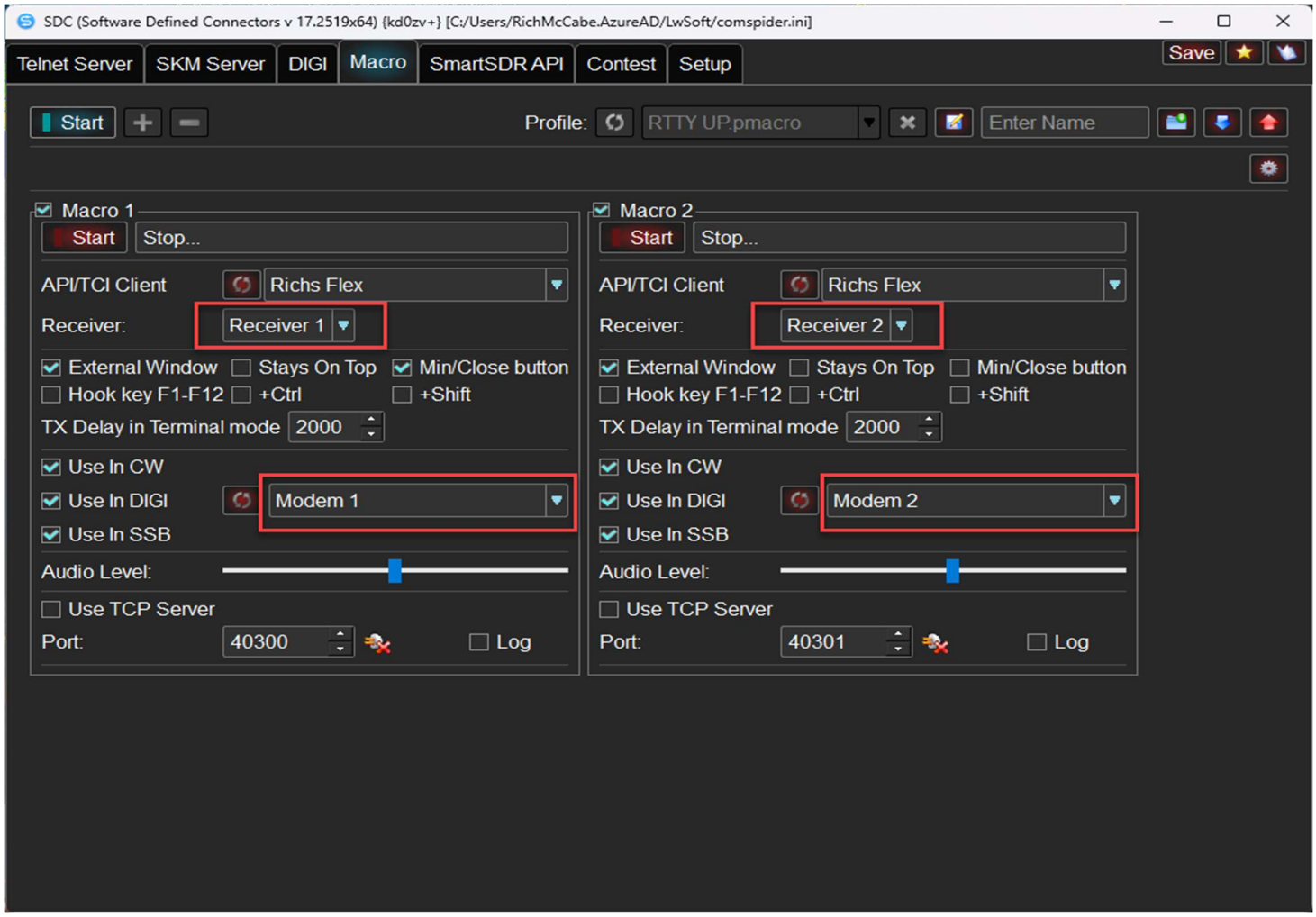
Waterfall layout. Automatic Centering is recommended and will always center the waterfall, but you can sync with your RX filter band (follows receiver) or use "handle" where you can adjust manually. The left mouse adjusts side to side and the right mouse adjusts width when handle is chosen.

Next Select the Macro Tab....

Configuring the Macro Function

Below we have set up two Macro panels, one for each slice. But for simplicity you might just want to setup one panel for your TX slice “Modem 2”.

Change the receivers and Modems as shown below.



Other settings according to your personal preference.

External window is not required if sending data via TCP server. The below examples are shown with the “external window” checked.

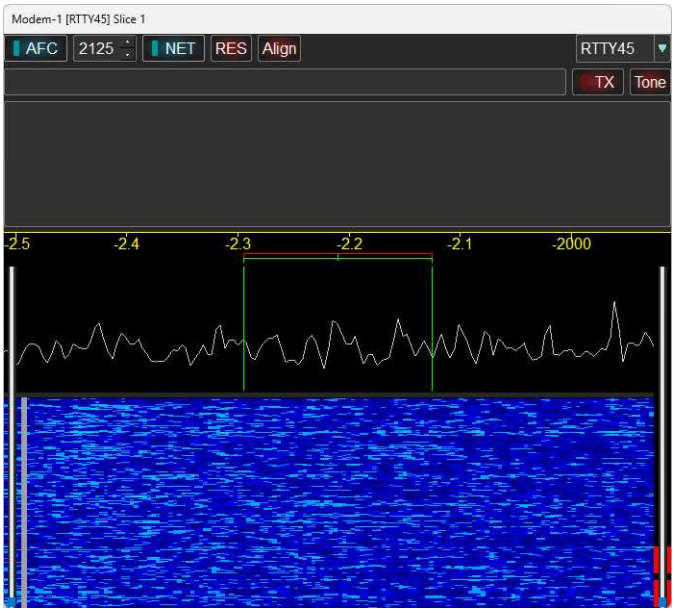
Hook Key F1-F12: Takes control of function keys so the F1-F12 always remains active. Checking the +**Ctrl** and/or +**Shift** box requires you to add those keys to the function keys to make work. Windows only.

TX Delay in Terminal mode: Is the time in milliseconds the macro is delayed after TX starts.

Audio Level: Is the Output level when playing Audio files (wav)

Use TCP Server: Sends the data stream on the specified port for use with external programs.

Modem Windows



After starting you will get modem windows that look like the one on the left.

AFC – Automatic Frequency Control. This will automatically tune a signal that is in close proximity.

NET - Holds the transmit frequency equal to the receive frequency.

Align – Return the decoder to the default offset without losing the station. The frequency will be **Shift**ed to continue receiving the station.

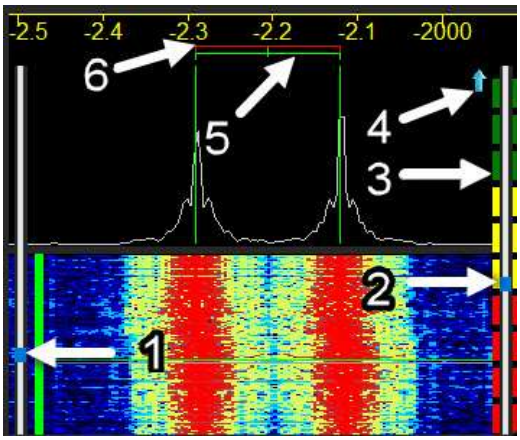
RES- Reset. Will return the decoder to the default offset.

Mark and space tones are set by the drop-down box next to **AFC**. (2125 shown).

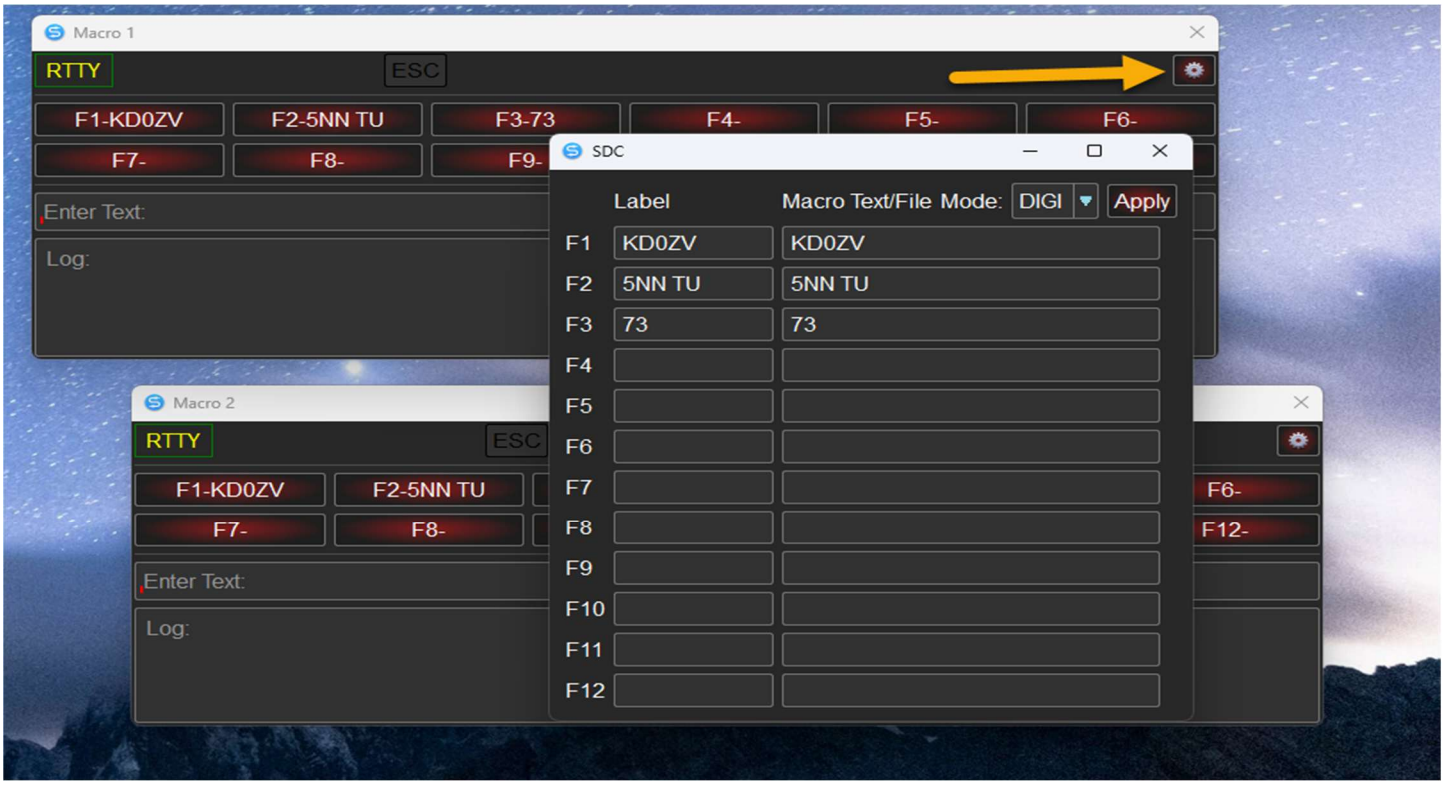
TX – This sends whatever you have typed into the line next to it on the tool bar.
Tone – This puts the transmitter in transmit mode with a tone. The TX light from above should illuminate.

FFT Window (dark style)

1) Contrast. Adjust the contrast on the waterfall.
2) Demodulator sensitivity threshold.
3) Bar Graph showing signal level.
4) Sync arrow.
5) Tuning guides for receiver.
6) Tuning guides for transmitter.



Macro Windows



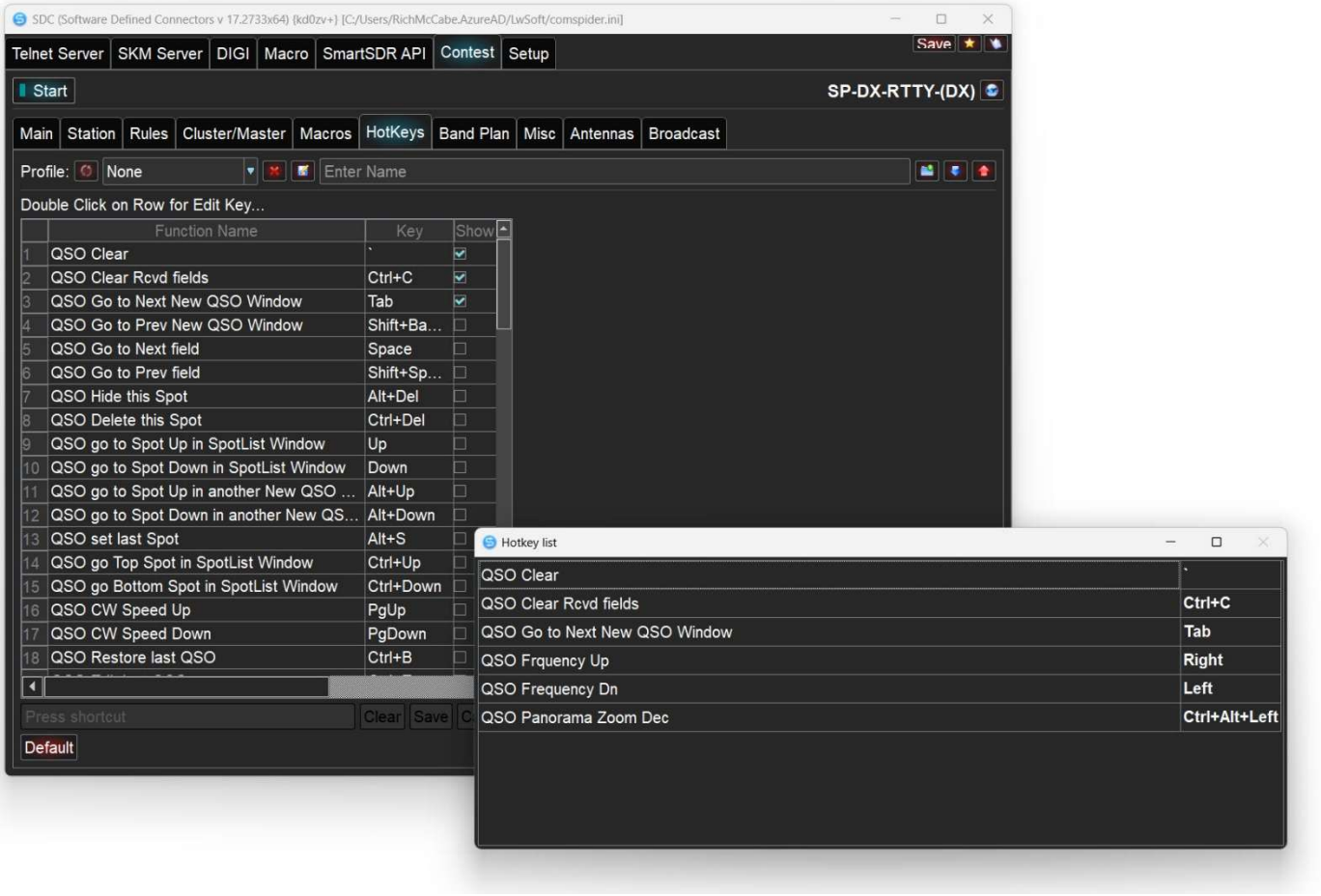
You can save preset Macros with labels F-1 to F-12 by clicking the setup (gear) icon on the top right. The system wide Macros are mode independent. You can also type text directly on the Macro window where it says Enter Text. The area below will "log" the sent text after each macro send is complete.

SSB Macros

SDC can send prerecorded wave files for calling CQ and sending exchange. SDC comes with prerecorded WAV files located in c:\program files\LwSof\SDCx64\sound. You can create your own wav files using programs like Audacity. Custom wav files should be recorded in 16 bit and saved in the user\LwSoft\contest\sound folder.

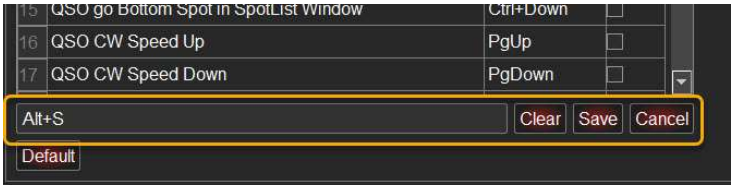
For information on the macro variables see the reference section at the end of this document.

Hotkey Window



The Hotkey list is a small window you can turn on for quick reference to your favorite Hotkeys. You can save these lists as named profiles to be recalled later.

The table shows the function name, keystrokes and a column that says show. Checking the box in the show column will make that hotkey visible in your hotkey list.



You can edit the various functions using your own keystrokes if you desire. Just double click the function name and the edit window to left becomes active. Just type the serious of keys you want to be associated with this function and hit save.

SWR Plotter

SDC includes a SWR application that will plot an SWR curve for your current antenna using the transmitter of your Flex.

You can change to the band you wish to test directly from this application. Be advised the transmitter will start transmitting and plotting the SWR curve automatically when using this band change method. You can set the **start** and **stop** (range) of what you desire to plot and the **step**. As an example, with a step set to 50 on the example to the left, the transmitter will key the radio briefly and take a SWR reading at 14.000, 14.050, 14.100 until it reaches the upper limit of 14.350. The smaller the number the smoother and more detailed the resulting chart will be.

The **start button** starts the process and pressing again will stop. **Clear** will clear the chart.

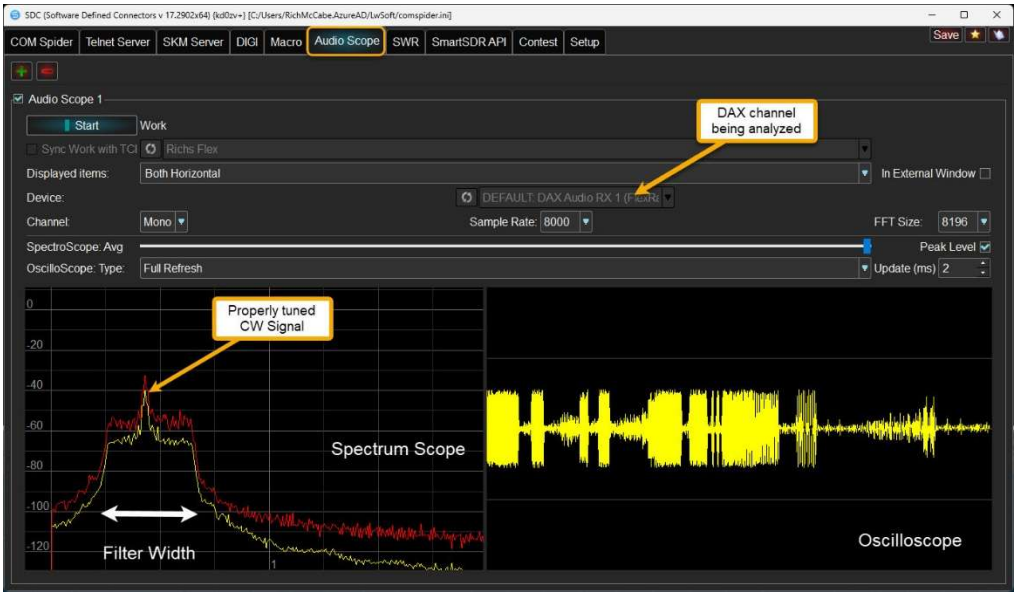
Under history, the top box is the current file name of the scan. You can rename it if desired and click the save icon to the right of this box. These saved scans can be recalled from the drop-down box below and can be added to the compare function by selecting the saved scan and hitting the **green + sign**. The legend at the top of the chart shows the name each line is associated with. You can compare up to four scans. Please note when comparing scans, they must all have the same start, stop and step values.

In the example above, I am comparing my SteppIR vertical in ¼ and ¾ wave mode.

You can also select which client (Flex transceiver), and which slice on the right.

Note: These scans are only saved for this SDC session and will self-clear when you close the program.

Audio Scope



SDC contains an audio scope that samples audio from Flex Slice DAX Audio. In the left example DAX Audio RX1 is selected.

To add an Audio Scope click the green + button. You can add multiple scopes configuring each per slice and type. Clicking the red – button removes the last added scope.

There is a **Start button** for each added scope. Clicking it will start that instance and clicking it again will stop it.

You can set up an **Oscilloscope**, **Spectrum scope** or both. When you use both they can be displayed in either a vertical or horizontal layout (shown above). The center divider between the two can be moved using your mouse.

Sync Work with TCI – Not related to Flex Transceivers

Displayed items: – Here you can select if you want to use the Oscilloscope, Spectrum Scope and in which layout configuration if you chose both.

Device: – Select the DAX channel you want to sample.

In External window – Checking this box will open the Scope in an external window when you start the scope.

Channel: – Here you can select if you want to sample the left or right channel or sum them to mono.

FFT Size: – Number of bins on display which controls the resolution of display.

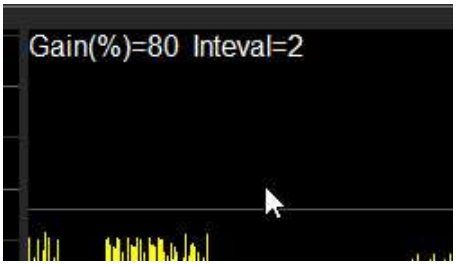
Sample rate: – This is the samples per second the oscilloscope will sample.

Spectroscope Avg: – This slider controls averaging on the Spectrum scope which will smooth the signal line and remove jitter.

Peak Level: – Checking this will add a second line (red) on the spectrum scope showing the peak level.

Oscilloscope type: – Full Refresh, 50% refresh, Scrolling.

Both scopes can be **adjusted using the mouse**. Left clicking the spectrum scope adjusts the vertical position. Right click and dragging side to side and up and down changes the horizontal and vertical scaling. Right clicking on the oscilloscope adjusts the gain and interval (update).



Note: depending on your computer speed you may find some values to be CPU intensive and do not display properly. Adjust accordingly.

Working "QTC" Contests *(this section is work in progress from documentation standpoint)*

SDC allows you to work a contest with QTC format. When you download a QTC contest profile the option is enabled under Contest>Rules on the bottom right. The options are None (no QTC contest), Send, Receive or both. Send is used when you are sending the QTC, Receive is if you are receiving it and both is a contest when you are sending and receiving.

When working a QTC contest you will see some QTC information under the Call box. The info may vary slightly depending on if you have QTC send, receive or both selected. In the example on the left "both" is selected

R shows the number of QTCs received from the other station (if applicable)

S shows the number of QTCs sent to the recipient (if applicable)

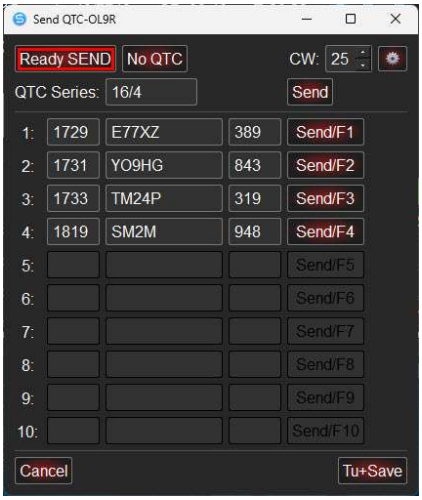
A is the number of QTCs available to send. This can also be viewed in the QTC log window and the Rate QSO window.

You can open the QTC window by pressing Control Z which will open a receive QTC window or Control X to open the send QTC window. The operation of this depends on your QTC setup in rules. As an example, if you have it set to send only then both Control X and Z will open a send window. Same applies if you have it set to receive. Both Control X and Z will open the receive window. Hitting either key a second time will toggle between send and receive windows.

By default when you open this window it will automatically starting transmitting the sequence. It is recommended until you become proficient that you disable this automatic function in the functional key editor found under Contest>Macros. Uncheck Ready message when opening a window. Then just hit Enter to start process.

To the right is the receive QTC window for CW with 4 QTCs in the queue ready to send. Hitting Enter (if the above automatic mode is unchecked) will start the process. Clicking No QTC will send NO QTC as configured in your functional key editor.

The QTC series shows the number of QTC series (sets) that have been logged and the number of QTCs available to send in this set. The very first set would start with 1/. In this example this is the 16th set in the contest and there are 4 available QTCs to send so it's 16/4. As you hit enter it will step down through the QTCs and the other station will confirm they received the QTC or ask you to send it again. You can click Send/F1, Send/F2, etc. to resend the QTC or use the control F1, F2, etc. key. If they confirm every QTC you will just click enter, enter, enter.. through the entire process.

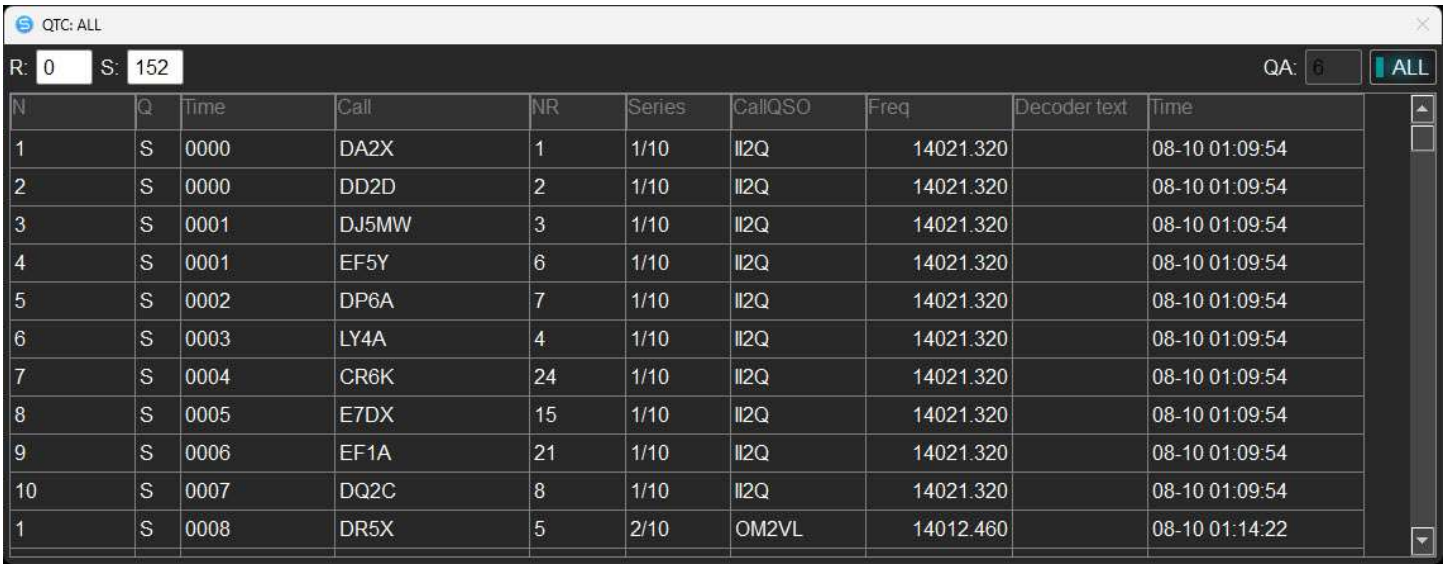


When you finish sending the available QTCs (up to 10) it will move to the TU+Save button where it will send TU and log the contact. I would wait till the other station says TU or acknowledges he got everything before clicking this in case you must resend something.

QTC contests also have an additional log window with two different modes.

The below image has the ALL option (top right) clicked. This shows **ALL** QTCs logged in this contest.

The first QTC set was with station II2Q on 14021.320 mhz. This contest QTC set includes time, callsign and serial number. You can see the first 10 rows are the QTCs sent to II2Q. Note the series 1/10 which indicates it's the first set and included 10 QTCs.



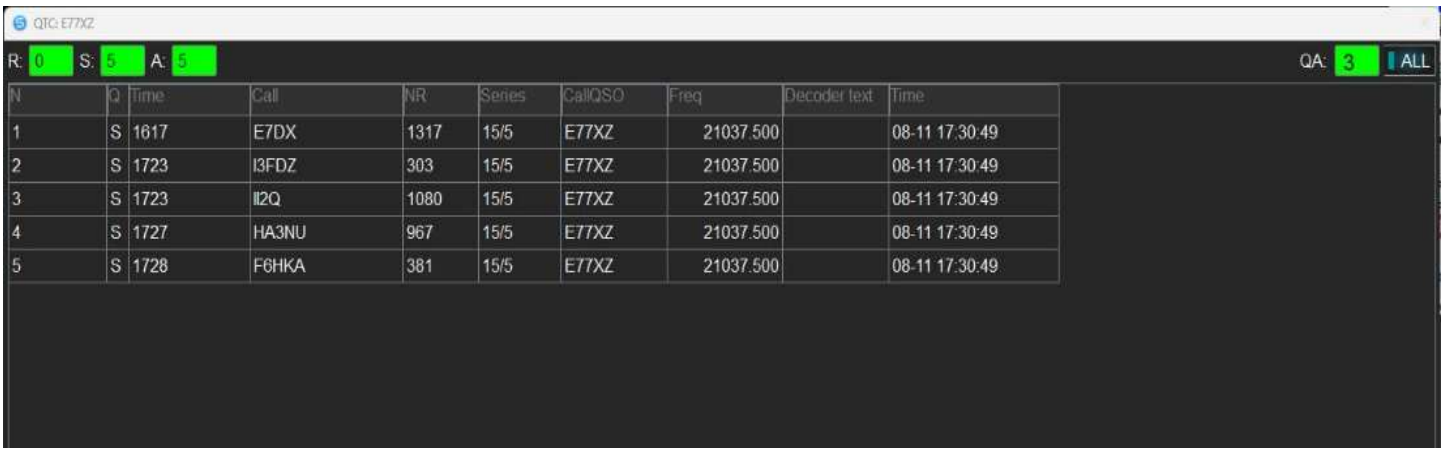
N	Q	Time	Call	NR	Series	CallQSO	Freq	Decoder text	Time
1	S	0000	DA2X	1	1/10	II2Q	14021.320		08-10 01:09:54
2	S	0000	DD2D	2	1/10	II2Q	14021.320		08-10 01:09:54
3	S	0001	DJ5MW	3	1/10	II2Q	14021.320		08-10 01:09:54
4	S	0001	EF5Y	6	1/10	II2Q	14021.320		08-10 01:09:54
5	S	0002	DP6A	7	1/10	II2Q	14021.320		08-10 01:09:54
6	S	0003	LY4A	4	1/10	II2Q	14021.320		08-10 01:09:54
7	S	0004	CR6K	24	1/10	II2Q	14021.320		08-10 01:09:54
8	S	0005	E7DX	15	1/10	II2Q	14021.320		08-10 01:09:54
9	S	0006	EF1A	21	1/10	II2Q	14021.320		08-10 01:09:54
10	S	0007	DQ2C	8	1/10	II2Q	14021.320		08-10 01:09:54
1	S	0008	DR5X	5	2/10	OM2VL	14012.460		08-10 01:14:22

Below is the other mode which is interactive with whatever call is entered in the Callsign box on the QSO window. As with the QSO window the following apply:

R shows the number of QTCs received from the other station (if applicable)

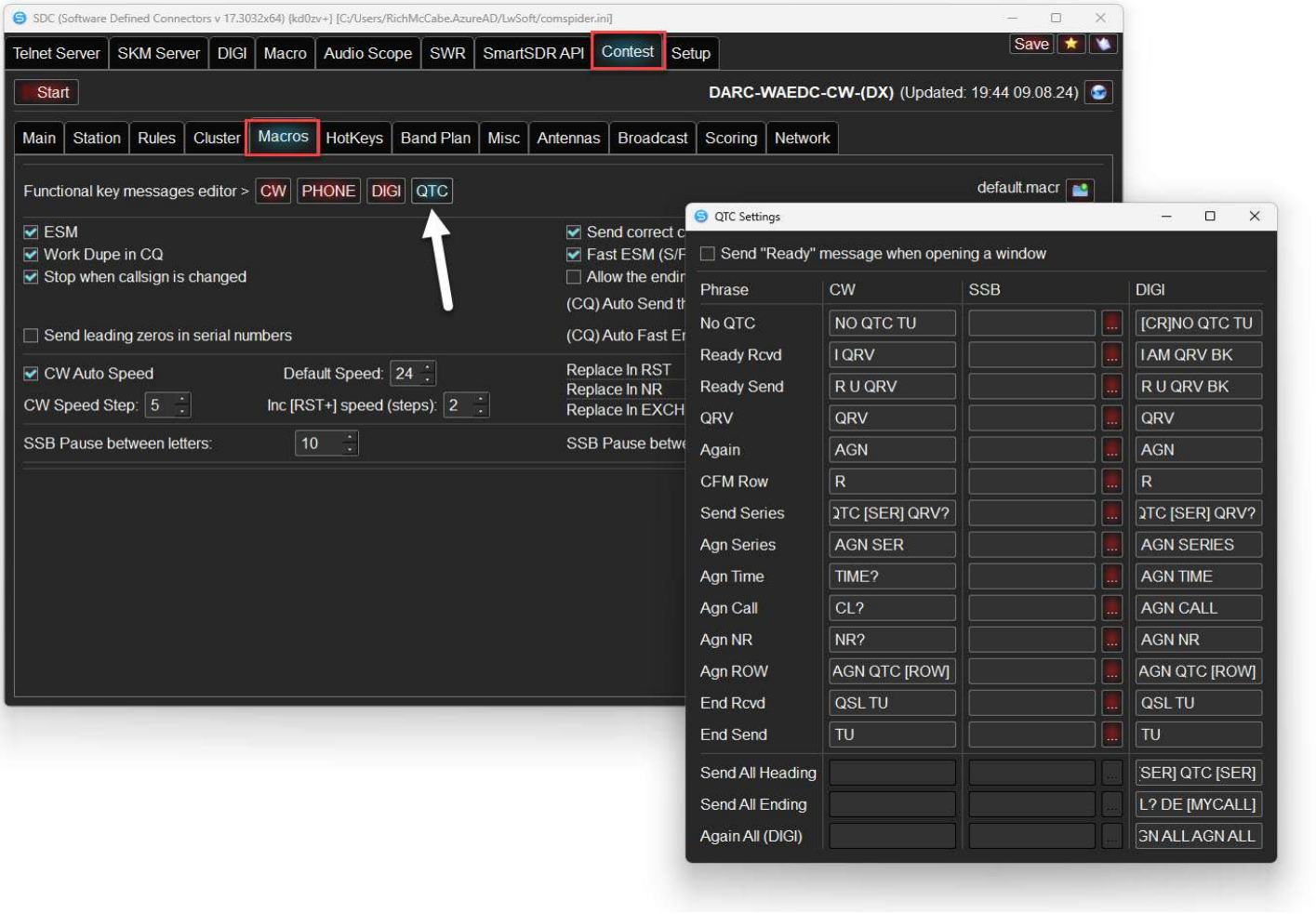
S shows the number of QTCs sent to the recipient (if applicable)

A is the number of QTCs available to send. **QA** on far right shows the number of QTCs available to send.



N	Q	Time	Call	NR	Series	CallQSO	Freq	Decoder text	Time
1	S	1617	E7DX	1317	15/5	E77XZ	21037.500		08-11 17:30:49
2	S	1723	I3FDZ	303	15/5	E77XZ	21037.500		08-11 17:30:49
3	S	1723	II2Q	1080	15/5	E77XZ	21037.500		08-11 17:30:49
4	S	1727	HA3NU	967	15/5	E77XZ	21037.500		08-11 17:30:49
5	S	1728	F6HKA	381	15/5	E77XZ	21037.500		08-11 17:30:49

Below is the functional key editor for QTC. The top check box Send “Ready” message when opening the window will key transmitter automatically and tell other station you are ready when you hit control X or control Z. The other macros can be personalized to your preference.



If you have your Rate QSO window turned on it will give you some additional information. Below the number of QSOs you have **QTC Cfm**: which is the total number of QTCs sent. So, if you sent 10 full sets of 10 this number would be 100. The **QTC Available:** is the number of QTCs in your queue available to send.

Misc Technical information

Macro Variables (*not all macros will work automatically as they must coincide with the contest setup)*

Macro	Description	Source
[MYCALL]	My callsign	Station Tab
[CALL]	His callsign	New QSO window
[RRST]	Received RST	New QSO window
[RST]	Sent RST	New QSO window
[RST+]	Sent RST if the CheckBox "Send RST" checked in the rules	New QSO window.
[RST+EXCH]	Sent RST if the CheckBox "Send RST" checked in the rules + Exchange data	New QSO window.
[REXCH]	Received Exchange data	New QSO window
[EXCH]	Sent Exchange data	New QSO window
[RNR]	Received Control number (001, 123,...)	New QSO window
[RNAME]	Received Name	New QSO window
[RSECT]	Received Section	New QSO window
[RMISC]	Received Misc	New QSO window
[FCALL]	Alternate to [CALL] which allows you to add additional text to macro (see ***)	New QSO window
[NR]	Sent Control number	New QSO window
[PREVRNR]	Previous received control number	Log data
[PREVNR]	Previous sent control number	Log data
[PREVCALL]	Previous his callsign	Log data
[PREVREXCH]	Previous received Exchange data	Log data
[PREVEXCH]	Previous sent Exchange data	Log data
[ABBR]	The abbreviation of the Contest	Rules Tab
[NAME]	Your Name	Station Tab
[SECT]	Sent section text	Station Tab
[MISC]	Sent misc text	Station Tab
[COMM]	Sent Comment text	Station Tab
[UTCT]	Sent UTC time hhmm (0143)	Sent rule
[CR]	New line (DIGI MODE)	Text
[RQTC]	Open QTC RX window	New QSO window
[SQTC]	Open QTC TX window	New QSO window

Internal macros

Macro	Description	Receiver
[CQ]	Set CQ mode (Run)	New QSO window
[SP]	Set S&P mode	New QSO window
[CLEAR]	Clear Call and Exchange data	New QSO window
[CANCEL]	Stop TX	New QSO window

[SAVE]	Save QSO	New QSO window
[FTO_1]	Move cursor to Field 1	New QSO window
[FTO_2]	Move cursor to Field 2	New QSO window
[FTO_3]	Move cursor to Field 3	New QSO window
[FTO_4]	Move cursor to Field 4	New QSO window

External macros

Macro	**Description**	**Receiver**
[RITON]	Set RIT On	Transceiver
[RITOFF]	Set RIT Off	Transceiver
[CLEARRIT]	Set RIT = 0	Transceiver
[SPOTL]	Local spot	Local Cluster
[SPOTG]	Global spot	Global Cluster
[SPOTM]	Self Spot	Global Cluster

SO2R Dueling macros

Macro	**Description**	**Receiver**
[S2R_F1]...[S2R_F12]	Press the F1-F12 key on the other radio	New QSO window

*** The [CALL] variable can't be mixed with regular text on a Macro button. Using the alternate [FCALL] will allow you to mix text with other stations' callsign.

HotKey List

1. QSO Clear	` (back quote key shared with tilde key, most keyboards)
2. QSO Clear fields	Ctrl + C
3. QSO Go to Next New QSO Window	Tab
4. QSO Go to Prev New QSO Window	Shift + BackTab
5. QSO Go to Next field	Space
6. QSO Go to Prev field	Shift + Space
7. QSO Hide this Spot	Alt + Del
8. QSO Delete this Spot	Ctrl + Del
9. QSO go to Spot Up in SpotList Window	Up
10. QSO go to Spot Down in SpotList Window	Down
11. QSO go to Spot Up in another New QSO window	Alt + Up
12. QSO go to Spot Down in another New QSO window	Alt + Down
13. QSO set last Spot	Alt + S
14. QSO go Top Spot in SpotList Window	Ctrl + Up
15. QSO go Bottom Spot in SpotList Window	Ctrl + Down
16. QSO CW Speed Up	Page Up
17. QSO CW Speed Down	Page Down
18. QSO Restore last QSO	Ctrl + B
19. QSO Edit last QSO	Ctrl + E
20. QSO Goto last CQ Frequency	Alt + D
21. QSO Switch CQ/SP	Alt + X
22. QSO Global Spot	Alt + I

23. QSO Global Spot ME	Ctrl + I
24. QSO Local Spot	Alt + L
25. QSO Show Callsign info on QRZ.com website	Ctrl + Q
26. QSO Next Mode	Alt + M
27. QSO Band Up	Alt + B
28. QSO Band Down	Alt + N
29. QSO Frequency Up	Right Arrrow
30. QSO Frequency Dn	Left Arrow
31. QSO Panorama Zoom Inc	Ctrl + Alt + Right
32. QSO Panorama Zoom Dec	Ctrl + Alt + Left
33. QSO Switch Terminal mode	Alt + T
34. QSO Start Auto CQ	Alt + A
35. QSO Save without Macro	Ctrl + Return
36. QSO Save without Verify	Alt + Return
37. QSO Save without Macro and Verify	Ctrl + Alt + Return
38. QSO Fast ending of QSO	Shift + Return
39. QSO Show Mult Previous QSO	
40. QSO Switch On/Off ESM	
41. QSO Switch On/Off RIT	Alt + R
42. QSO Clear RIT	Alt + F
43. QSO Clear AFC	Alt + H
44. QSO Clear Next Calls	Ctrl + N
45. QSO Mark this QSO	Ctrl + M
46. QSO Turn rotor for the callsign (Pass)	Alt + J
47. QSO Turn rotor for the callsign (Long Pass)	Ctrl + J
48. QSO Stop Turn rotor	Ctrl + Alt + J
49. QSO Turn on/off DSP NB	Ctrl + 1
50. QSO Turn on/off DSP NR	Ctrl + 2
51. QSO Turn on/off DSP APF	Ctrl + 4
52. QSO Turn on/off DSP WNB	Ctrl + M
53. QSO Decrease filter width	Ctrl + -
54. QSO Increase filter width	Ctrl + =
55. QSO Turn On/Off Tune	Ctrl + T
56. QSO Add Call into QSO_B4 Table	Ctrl + D
57. QSO Turn on sound for this slice only	Alt + V
58. QSO Show QTC for Receive QTC	Ctrl + Z
59. QSO Show QTC for Send QTC	Ctrl + X
60. QSO SO2R - Emulate F1 in the other window New QSO	Shift + F1
61. QSO SO2R - Emulate F2 in the other window New QSO	Shift + F2
62. QSO SO2R - Emulate F3 in the other window New QSO	Shift + F3
63. QSO SO2R - Emulate F4 in the other window New QSO	Shift + F4
64. QSO SO2R - Emulate F5 in the other window New QSO	Shift + F5
65. QSO SO2R - Emulate F6 in the other window New QSO	Shift + F6
66. QSO SO2R - Emulate F7 in the other window New QSO	Shift + F7
67. QSO SO2R - Emulate F8 in the other window New QSO	Shift + F8
68. QSO SO2R - Emulate F9 in the other window New QSO	Shift + F9
69. QSO SO2R - Emulate F10 in the other window New QSO	Shift + F10
70. QSO SO2R - Emulate F11 in the other window New QSO	Shift + F11
71. QSO SO2R - Emulate F12 in the other window New QSO	Shift + F12
72. QTC Send I AM RX Ready	Ctrl + R
73. QTC Send I AM TX Ready	Ctrl + T
74. QTC Goto Next Field	Space
75. QTC Goto Prev Field	Shift + Space
76. QTC Save and Close QTC window	Ctrl + S

77. QTC Send AGN	Ctrl + A
78. QTC Send My NR	Ctrl + N
79. QTC Send AGN TIME	Ctrl + 1
80. QTC Send AGN CALL	Ctrl + 2
81. QTC Send AGN NR	Ctrl + 3
82. QTC Send AGN NR	Alt + T