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# SkookumLogger Guide

## Version 5



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## About This Guide

This guide is the primary documentation for people doing amateur radio contesting using an Apple Computer running macOS 10.15 (Catalina) or later and the SkookumLogger application. SkookumLogger is available without cost on the Apple Mac App Store. It is frequently updated to include new features such as support for additional contest events, and to fix bugs.

### Documentation Styles

Most images apply for SkookumLogger running on macOS 13 (Ventura) in Dark mode. Earlier macOS versions may have somewhat different appearances. Ventura replaced “Preferences” with “Settings”, and that terminology is adopted here as well.

**File > New Log...** is a reference to a menu item. **Confirm Quit** (YES) in Logging settings is a reference to a setting a item with that name in the Logging panel of **SkookumLogger > Settings**; when the setting is being described, the default value will appear in parentheses.

### Keyboard Notation

In this guide, ‘⌘A’ means press the Command key (⌘) together with the A key. Similarly **⇧⌘D** means press the Option and Command (⌘) keys plus the D key. Option may be marked as Alt on some keyboards. Ctrl refers to the Ctrl key. Fn refers to the Fn key. The symbol for the option key is **⇧** on some keyboards. The symbol for the return key is **↵** on some keyboards. Text in **this style** refers to SkookumLogger menus, menu items and labels. Also see this [list of symbols](#).

### Document Organization

A table of contents follows the title page, listing the document *sections* and the *chapters* within those sections. A more detailed table of contents is located at the beginning of each section, listing the chapters within the section and the subheadings within each chapter. A PDF viewer with searching facilities, like Preview, can help you find terms when you can’t guess where a topic might be discussed in a table of contents.

The [Introduction](#) section begins with a brief, umm, introduction to amateur radio contests in general and an overview of the desirable features of good contest loggers, followed by somewhat obscure information about using macOS tables and instructions for installing SkookumLogger.

The [Setup](#) section covers one-time settings configuration and the general steps for preparing for a new contest.

[Basic Operating](#) walks you through the fundamental steps for entering a contest and submitting your results to the contest sponsor..

The lengthy [Advanced Operating](#) section looks at how to use additional features in SkookumLogger to improve your performance as a contest operator and techniques for optimizing contest logging.

[External Devices and Networking](#) documents the details of the various kinds of hardware that SkookumLogger can communicate with, along with how SkookumLogger can interact with other applications, including itself via SkookumNet.

The h section has chapters contributed by SkookumLogger describing how they set up and use SkookumLogger with their station equipment and operating style.

The [Reference](#) section has an annotated diagram of the elements in the main window, many in-depth discussions of features, and several FAQs.

### Acknowledgements

Jonathan, GØDVJ, created many previous versions of this guide.

New content has been added from the now-obsolete Help Book, authored by me, and from articles previously presented on the web site Hints page, authored by me, Bud, W2RU, Bob, WA1Z, and John, K1JSM.

Bill Myers, K1GQ

# Introduction

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## Radio Contesting

Amateur Radio contests are one of the more competitive aspects of the Ham Radio hobby. There are many contests organized by sponsors in different countries around the world. They cover the HF bands, VHF/UHF bands and modes such as phone (SSB – Single Sideband, FM – Frequency Modulation), Morse code (CW – Continuous Wave) and data modes (FSK RTTY – Radio Teletype, PSK – Phase Shift Keying, and others.)

Contests range in duration from an hour or so through to 48 hours, and some are arranged in regular repeating championships or series. Each contest has specific objectives for the participants to achieve. For example these can be as simple as just working as many stations as possible in the time period allowed (sometimes known as “rate contests”), but are often augmented with additional aims, such as attempting to work as many countries, zones, regions, islands, grid squares, kilometers or other groups (perhaps members of particular clubs or societies for instance) as possible for either bonus points or a multiplication factor for the individual contact points score. All events however require the operator to not only make contacts efficiently but also copy the required information accurately. This minimum information required to be passed between contacts is known as the exchange. The exchange may or may not be the same for all participants, depending on the contest rules and scoring.

After the contest event, participants submit their logs of contacts with the exchanges in a required format (e.g. Cabrillo) to the contest sponsors or organizers for subsequent adjudication. In recent years, live online scoreboards have also become possible during the contest event.

## Contesting Software

In the distant past, operators in contests would typically record all the contacts in a paper log. This often required lots of work checking and preparing the entry afterwards. In most contests, working the same station twice is not allowed, subsequent repeated ones being known as duplicates or dupes. This also had to be monitored by the operator in the past using paper check sheets of one sort or another.

Over the years, the personal computer has increasingly been used by contest operators to record the contacts made and to prepare the entry for submission to the organizers. As the technology has progressed, such contest logger software has begun providing additional facilities of use to the contest operator, including real time analysis of how far the specific objectives are being met, sending Morse code (CW) or audio calls, analyzing which stations are active on the bands and others. Additionally, some software specifically supports teams of operators taking part in one event and allows for communication between them and synchronization of logged contacts by them.

Many contest loggers have been produced over the years; most of the best ones being produced by experienced contest operators themselves, who understand the precise requirements that contest operating puts on the software. Most of the well-known packages have been written for Microsoft Windows operating system. They include CT, G3WGV, N1MM, N1MM+, WinTest, DXLog, WriteLog, SuperDuper, Minos, FJP Log, and TAClog. Until SkookumLogger, users of the macOS operating system have had a more limited selection to choose from, including RumLogNG, Aether, and MacLoggerDX combined with Cab-Converter. These are “Swiss Army knife” applications that tend to offer general logging facilities with contesting features “bolted on.” SkookumLogger’s prime purpose is contest logging, offering a more comprehensive set of facilities specifically for contesters than general logging software does.

Unlike general logging programs, contest loggers need to be optimized to facilitate quick and accurate entry of only the information which is required per contact. Much of this information is ideally presented by the software so that minimal keying is required to enter or edit the exchange received. This may include pre-populating or auto-completion (known as “pre-filling”) of some information fields. Since different contests have different exchange requirements, the data entry fields must be customized accordingly. Duplicates must be flagged for the operator as soon as possible, and ideally any specific objectives such as new countries, regions, or islands worked should also be highlighted. Information tables should ideally allow the operator to easily see which stations are required or are most valuable for points. Essentially, the software must understand the rules of each contest supported.

Contesters typically employ two modes of operation, known as running and S&P (search and pounce). When running, the operator stays on one frequency and calls CQ, letting other stations answer. In S&P, the operator tunes up and down the bands and answers others who are running. Good contest loggers will understand these two modes and support ways to switch between them.

The rules for most major contests provide separate entry categories for “assisted” and “unassisted” (or “connected” and “unconnected”) entrants. Although the exact definition of those two words

varies somewhat from sponsor to sponsor (ARRL uses “unlimited” instead of “assisted”), “assisted” usually means the use of help from beyond one’s self or one’s own station during the contest period in identifying and working stations, knowing which bands are open to what areas, etc. A superior contest logger will be optimizable for either assisted or unassisted operation; in the former case, it will support sensible presentation of information from the ubiquitous DX Cluster and allow the operator to easily make use of it – by tuning the radio to the correct frequency for a needed contact, for example. A feature known as band-mapping is extremely useful for bringing together information about activity on the band(s) of interest from a variety of sources.

For some of the features already mentioned above, as well as other reasons, a contest logger should connect to the CAT (Computer Aided Transceiver) port of each radio used by the operator and exchange at least frequency and mode information with it. There are also other pieces of hardware which the software can usefully connect to. One is the key jack of the radio for CW so that required Morse messages stored in the computer’s memory can be quickly, easily and automatically sent, letting the operator concentrate on receiving (often at high speeds in contests) rather than constantly switching their brain from sending to receiving and vice-versa. Although some software attempts to generate the keying signal from the computer itself, this is often problematic in achieving reliability of timing due to variation in the computer internal clock speeds. Therefore one common hardware box which has almost become a de facto standard, the WinKeyer by K1EL, is often supported by loggers. Additional interfaces to hardware in the contest operator’s shack that a contest logger can usefully connect to include antenna switches, linear amplifiers, and antenna rotators.

To cope well with both HF and higher band contests, a contest logger needs to understand and reflect the ways that operators of each persuasion typically work. Given the difference in distances and propagation modes worked, signal reports in contests on HF tend to be given consistently as 59(9) for each contact, whereas on the higher bands more genuine reports tend to be used so that there is some indication given to the other party about the number of times the exchange may need to be given to successfully copy it under the prevailing conditions (e.g., aggressive fading). The upshot is that the sent report field is not usually needed for HF contest exchanges whereas for higher band events it is. For the latter, the scoring is usually based on some element of distance calculation between 6 character locator grid squares (based on the Maidenhead system), whereas for HF the scoring is typically based on country, continent or other fixed points per band/mode/contact. This is another example of a difference which the logger needs to accommodate.


Finally, a good contest logging program will minimize the operator’s need to take his or her hands away from the keyboard – whether to use the mouse or to change settings on station equipment. This is especially true when “running” contacts on a single frequency or when interleaving contacts between two separate rigs. Consequently, virtually every feature of SkookumLogger has been designed with that objective in mind. Throughout this Guide you will find reference to “clicking” on an option button or a menu choice. Where such “clicking” might reasonably be expected to be invoked during a contest, SkookumLogger’s author has made every effort to be sure an equivalent keyboard command is available – either as a default or through customization techniques described in the following chapters.

## SkookumLogger Overview

SkookumLogger is an amateur radio contesting application for macOS 10.15 (Catalina) or later.

SkookumLogger supports participation in CW, SSB, FM, FSK (RTTY), PSK and mixed-mode contests on the 6 HF contest bands and 10 VHF/UHF.

All information for a specific instance of a contest or special event is stored in a single file called a log. Log files are identified by the SkookumLogger icon (shown on the title page of this guide) and also by the macOS file extension “sl-binary” if your Mac Finder settings have file extensions visible. There is no practical limit to the number of QSOs in a log. Only one log file can be open at a time.

QSOs are tabulated in the application main window, named the Log window. New QSOs are added by filling in data entry fields and tapping , which automatically saves the updated log after each QSO. QSOs may be separately entered for running and during search & pounce, allowing for the latter to be easily interleaved with the former.

The Log window has many optional utility windows, including:

- ◆ *Pass Information*, showing bands where the entered call, or the multiplier of the entered call, has been worked before.
- ◆ *Checksheets*, showing the number of QSOs logged with six kinds of multipliers: countries, zones, regions, prefixes, grids and other.
- ◆ *Time Tracker*, showing on-time and off-time data.
- ◆ *Rate Tracker*, showing QSO rate statistics.
- ◆ *Score Breakdown*, showing per-band and total QSOs and multipliers, and score.
- ◆ *Activity Tables*, showing tables of known calls with their frequencies, modes, and other information

You can connect a radio to provide frequency and mode for each QSO record. You can connect a K1EL WinKeyer USB ASCII-to-morse generator to send CW from the keyboard or from customizable stored messages. With a radio that has voice message memory functions, you can trigger such voice messages from SkookumLogger.

SkookumLogger can display a global Great Circle map with optional overlays showing the solar terminator, space weather data, receive and transmit antenna patterns, antenna names, and target location of the current QSO. An interface for up to three rotators can also be used to point the transmit antenna towards the current QSO for Green Heron, EasyRotor, or SarTek rotor systems.

A Grid map may also be displayed, which can highlight grid squares worked, as well as the optional overlays already described for the great circle map above. This map of grid squares is especially useful for VHF and up contests where grid square multipliers or bonus points can often be part of the scoring.

Data (PSK/RTTY) contest support is provided for radios that include inbuilt encoders/decoders accessible by CAT connection (such as Elecraft K4, K3S and KX3 etc.). In such data contests, the

received decoded text is displayed in an additional window and stored messages may be sent using the function keys (similar to CW messages).

Hardware support is also provided for linear amplifiers such as KPA500, KPA1500, ACOM 2000A and Alpha87A, for the SteppIR SDA100 antenna controller, for an XK-24 keypad and for YCCC MOAS, SO2R box and SO2R Mini. These YCCC SO2R boxes may also be used instead of the K1EL Winkeyer for sending CW.

With internet access, you can connect to a DX cluster node for sending and receiving DX announcements. Local spots added from another instance of SkookumLogger running on a locally networked machine will also appear in the activity window, uniquely labelled. These data are presented in separate activity windows for each contest band.

SkookumLogger has a database containing the exchanges for stations that you have worked in previous contests, which can pre-fill exchange fields.

You can export a log document in the Cabrillo format for submission to contest sponsors or for log analysis, in the ADIF format for import into other logging software, and in CSV (comma-separated values) format for import into spreadsheet analysis tools such as Numbers or Excel.

Comprehensive statistics reports are also available after a contest, including rate analyses.

Contest operating is supported for single operators using one receiver, two receivers in one radio, and two radios (SO2R). Advanced operating such as 2BSIQ (Two Band Synchronized Interleaved QSOs) is also supported.

Multi-operator support is also provided, either in partner mode where a second operator assists the main operator by listening to calls on the same radio and can prompt for callsigns heard without needing audio conversation, or where both operators are using separate radios and contributing QSOs simultaneously (Multi-Two). These features use SkookumNet, a built-in local networking facility which allows other instances of Mac computers running SkookumLogger to be detected and share information about the current log. "Gab" messages may also be passed between operators using this networking.

If you have a radio with panadapter video output available and a suitable USB frame-grabber interface, the video can be displayed within SkookumLogger. Signals on the waterfall display of an Elecraft K4 can be labelled from the Activities information and colored according to needed status. Pouncing can be achieved by clicking within the SkookumLogger Panadapter window.

A practice mode simulating a contest is provided to help improve CW operating skills in handling pile ups when running a frequency. The practice sessions can simulate multiple stations simultaneously responding to your CQs, with the primary objective of helping you learn how to accurately and quickly pick out individual callsigns in the presence of QRM and band noise. This practice mode can also support some advanced dual radio setups. Practice with S&P is also possible in SkookumLogger, using your radio to tune around finding simulated stations that are calling CQ. These "pouncees" answer you or others calling them to complete simulated QSOs.

Although optimized and intended as a contest logger, SkookumLogger also provides some general logging configurations which can be used for special event stations, etc.



## Table Manipulation

Many SkookumLogger windows contain tables. These tables share behaviors provided by macOS that are not easily discoverable. These behaviors involve using the mouse with the pointer over the table header – the row of labels above the table content.

### Column Size

Hovering over the edge of a column in the header may show the left-right resize pointer, indicating that the column width can be changed for the column to the left of the pointer. Drag left or right to change the width. Each column has minimum and maximum widths which limit how much you can resize the column. The pointer changes appearance when the width is at a limit, and doesn't appear at all when the width can't be changed.

### Column Ordering

Hold the mouse button down on a column title, wait until you see the drag (hand) pointer, then drag left or right to move the column to another location in the table.

### Column Visibility

The **Log > Log Table Columns >** submenu affects the table in the main window. Some of the columns in this table are always visible, and the visibility of some others depends on the contest rules.

The **Activity > Table Items >** submenu has submenus for each Activity window, and the **All Activity Tables Columns** submenu that toggles column visibility to the same state for all activity tables.

Visibilities for table columns can also be toggled by command-clicking anywhere in the table header row to pop up a visibility menu.

### Sorting

Click on a column title to sort the table rows on the contents of that column. Click again to reverse the sort order. Most sorts are alphanumeric.

## Installation

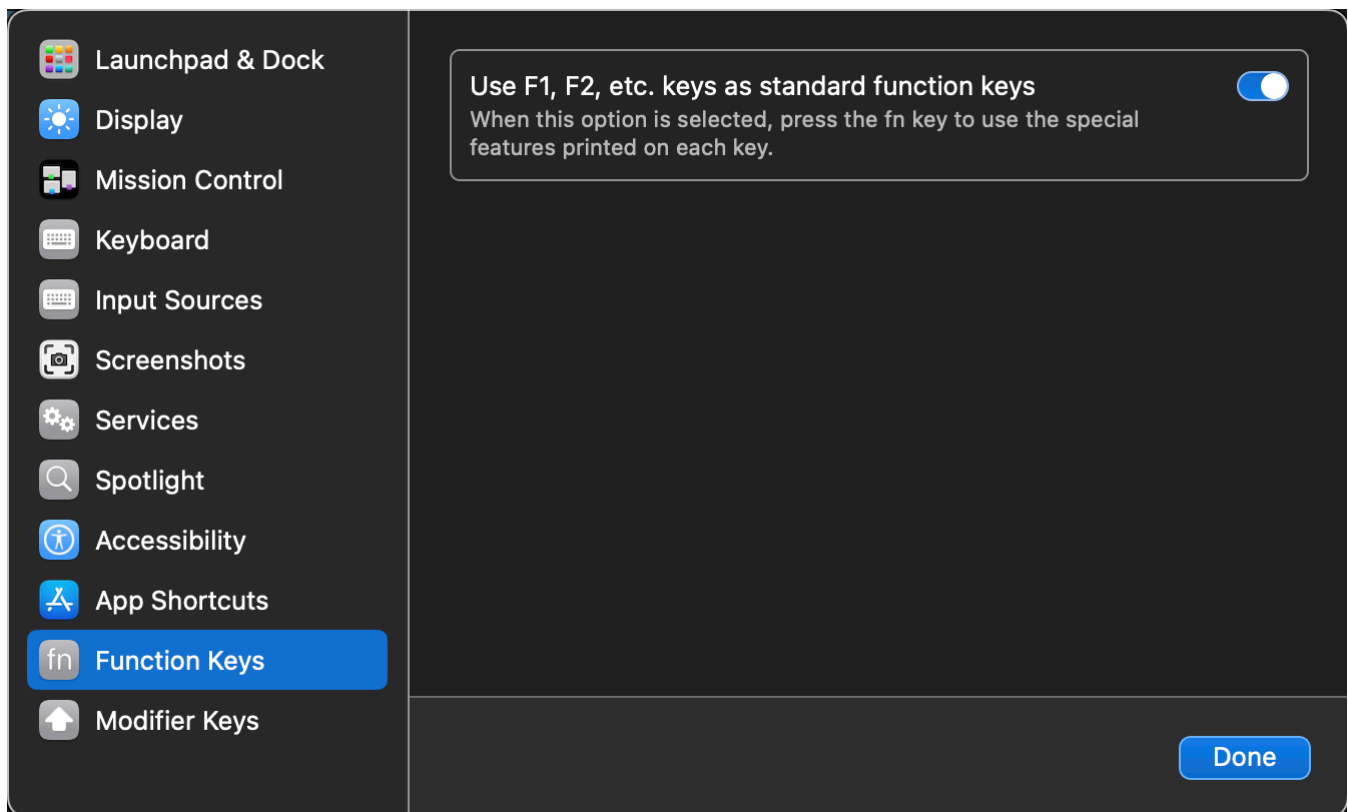
SkookumLogger is available from the Apple Mac App Store. After your first download of the application, Apple will let you know when an update is available. The app does not depend on any other applications.

There are some system settings that are best optimized once-off for using SkookumLogger. The instructions that follow are for macOS 13 (Ventura).

First, macOS sets the function keys to perform the actions indicated by the icons at the tops of the keys. SkookumLogger uses the same keys for often-used actions such as message sending, clearing the logging fields, and toggling between Run and S&P fields. With the system settings, you would need to hold the fn key while tapping a function key to trigger the SkookumLogger action.

Second, macOS defines and enables keyboard shortcuts that override some SkookumLogger. System shortcuts that you don't need should be disabled, and if the remaining shortcuts interfere with SkookumLogger shortcut you should create replacements.

## Using Function Keys as Standard Keys



Choose **Apple > SystemSettings...**, then choose Keyboard near the bottom of the sidebar and click the Keyboard Shortcuts... button to open a floating settings window. Choose the Function Keys item in

the sidebar and slide the button to the right to enable use all of the function keys as standard function keys.

### Disabling System Keyboard Shortcuts

Open the floating settings window as above. Select each item in the sidebar except the App Shortcuts, Function Keys and Modifier Keys items and disable all non-essential shortcuts.

### Defining Shortcuts for SkookumLogger

This isn't necessary when you first begin using SkookumLogger. See [Changing Shortcuts](#) for details.

### Quickly Making SkookumLogger the Active App

SkookumLogger creates an item named **Focus QSO Entry** that shows up in the General category of every app's Services menu when SkookumLogger is running. Choosing this item opens SkookumLogger if it isn't already open, makes SkookumLogger the active application, and sets keyboard focus in the most-recently-focused QSO data entry field. This can be useful when, for example, you are momentarily using another application while the CQ message is being sent, and someone suddenly answers – you need to get back to the entry fields as quickly as possible to enter the call you have heard.

You can define a keyboard shortcut for the service in the Services sidebar item of the Keyboard Settings floating window settings window described above.

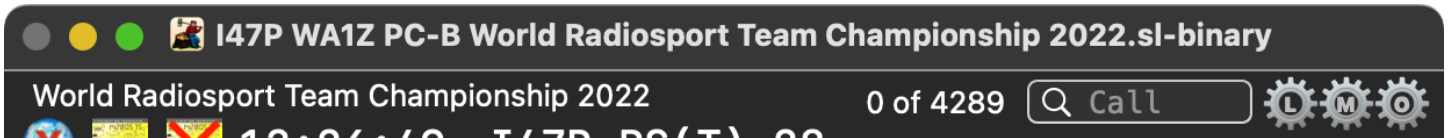
## Settings Window

SkookumLogger settings (nee "preferences") are collected in a window with a tool bar containing buttons that choose one of six panels containing related setting values:



The name of the selected panel is shown in the window title; New Log in the example. The panel name for each icon from left to right are: New Log, Activities, DX Cluster, Logging, Messages, and OpMode.

Choose **SkookumLogger > Settings...** to open the window. Alternatively, the SkookumLogger main window has a row of three settings (gear) buttons that directly open the Logging, Messages, and OpMode panels:



Activity windows and the DX Cluster window also have settings buttons that directly open their settings panels.

## Setup

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## First Time Setup

1. Open the **SkookumLogger > Settings...** window and choose the New Log panel.
2. Set up your Cabrillo defaults in the Cabrillo tab.
3. Set up your sent exchange defaults in the Sent Exchange tab.
4. Close the settings window.
5. Choose **File > New Log...** to create a new log.
6. Optionally, but highly recommended: configure your radio.

*Note:* In macOS 13 (Ventura), Apple changed terminology from Preferences to Settings and introduced an awful new user interface. The steps below separately describe system setting changes for each case. The SkookumLogger user interface and this document use the new term.

## System Preference (Before macOS 13) Recommendations

Turn off the “Close windows when quitting an app” option in the General pane, so that SkookumLogger will open your most-recently-open log at startup.

Turn on the “Use F1, F2, etc. keys as standard function keys” option in the Keyboard tab in the Keyboard pane, so that you don’t need to hold the fn key while tapping a function key to transmit SkookumLogger messages. Also review the settings in the Shortcuts tab if you discover a collision with default SkookumLogger shortcuts.

If you use two displays with SkookumLogger, turn off the “Displays have separate spaces” option in the Mission Control pane, so that open windows will be restored to positions they were in prior to any SkookumLogger restarts.

## System Setting (macOS 13+) Recommendations

- ◆ The “Close windows when quitting an application” option is located in Desktop & Dock settings, within the Windows & Apps group. Turn this off so that SkookumLogger will open your most-recently-open log at startup.
- ◆ The “Use F1, F2, etc. keys as standard function keys” option is buried in Keyboard settings. Click the Keyboard Shortcuts... button, then choose Function Keys in the sidebar. Turn this off so that you don’t need to hold the fn key while tapping a function key to transmit SkookumLogger messages. While there, review the shortcuts in the other sidebar items, and define shortcuts for SkookumLogger in the App Shortcuts sidebar item.
- ◆ The Displays have separate Spaces option is located in Desktop & Dock settings, with in the Mission Control group. If you use two displays with SkookumLogger, turn this off so that open windows will be positioned as you left them across SkookumLogger restarts.
- ◆ If you prefer the Dark system appearance, experiment with the effect of the Increase contrast option in the Display group of system Accessibility settings.

*Note:* If you use a Logitech MX-3 keyboard, hold the “fn” key and Tap the “ESC” key to toggle “Use F1, F2, etc. keys as standard function keys” behavior.

### Help

This guide contains the latest documentation. It is accessible via **Help > SkookumLogger Guide**, which opens the document in Preview or your default PDF app. Open the Table of Contents sidebar to navigate to topics in the document.

*Hint:* macOS shows a search field at the top of the list of Help menu items. Type into the field to find matches in the SkookumLogger menus. This is a convenient way to choose menu items that don't have keyboard shortcuts, without navigating through the menu system with the mouse.

*Hint:* Many user interface elements throughout SkookumLogger have *tooltips* which appear when you hover your mouse over the element.

When you first run SkookumLogger after installing it, you will likely see just the SkookumLogger menus across the top and a single window titled Status Messages. This window logs various status information.

The first thing to do is to complete some basic information for new logs. Chose **SkookumLogger > Settings...**, then chose the New Log panel by clicking the SkookumLogger document icon (the left-most icon in the window toolbar).



## Cabrillo Default Settings

**New Log**

These items provide initial values for settings in new logs. Changes here do not affect existing logs.

**Cabrillo** | Sent Exchange | CW Messages

My call:

**Cabrillo Header Items**

Name:

Email:

Location:

Address:

City:

State/Province:

Postal code:

Country:

Club name:

**Cabrillo Category Items**

Transmitter:

Power:

Operator:

Assisted:

Station:

Time:

Overlay:

**Cabrillo Soapbox**

about 60ft up; W1FV 9-circle RX array.

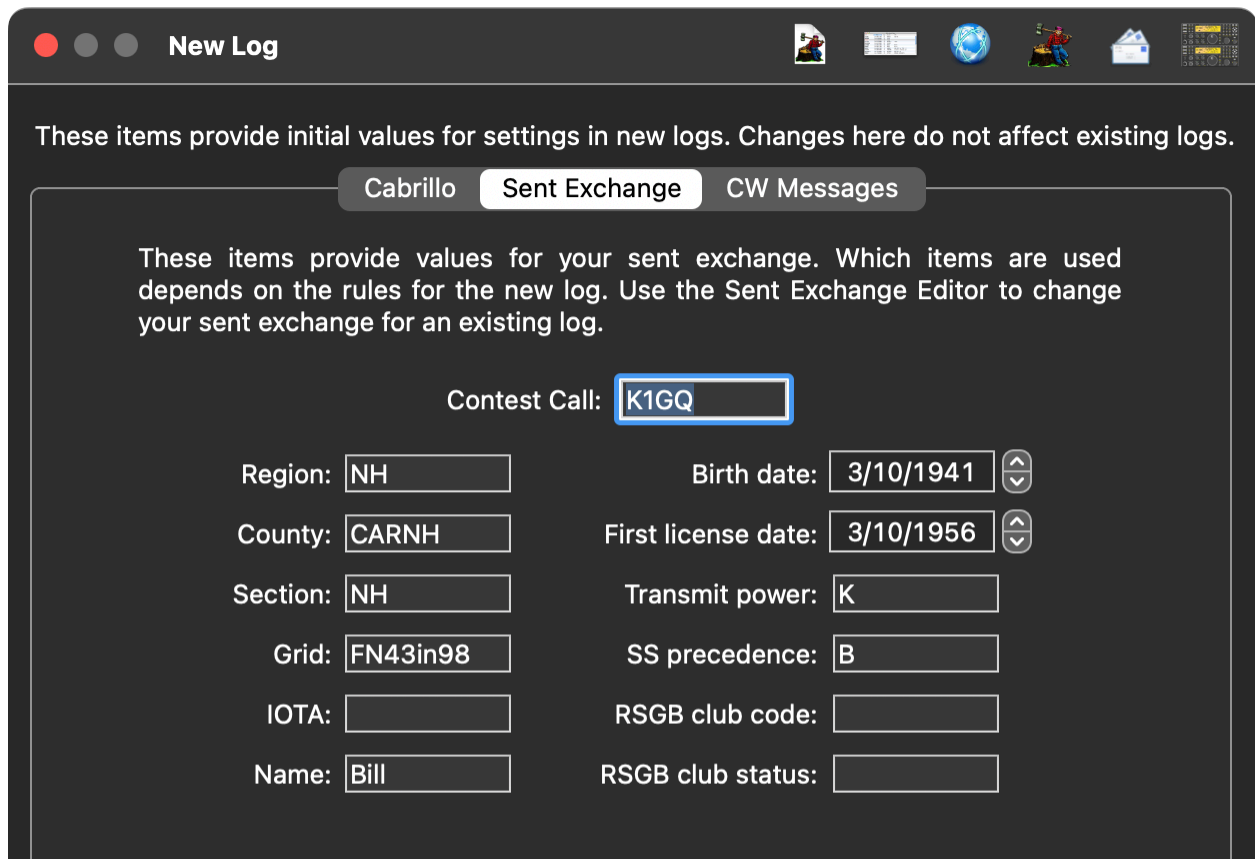
These options are applied each time a Cabrillo file is created.

☐ Request mail certificate
 ☒ Submit to SCP when submitting to sponsor
 ☒ Mark suspect QSOs as X-QSO

Choose the Cabrillo tab to enter defaults for information needed when you generate a Cabrillo file with SkookumLogger. Cabrillo is the name of a log format used universally by contest sponsors for processing your contest entry. When you create a new log in SkookumLogger, most of the fields for the Cabrillo log format are initialized from the defaults in this pane. You can modify the settings for a particular log using **Log > Settings...** without affecting these defaults.

If you forget to change the default **My call** setting to your own call, the Status Messages window will open the Status Messages window every time you start SkookumLogger as subtle reminder.

## Sent Exchange Default Settings



These items provide initial values for settings in new logs. Changes here do not affect existing logs.

Cabrillo Sent Exchange CW Messages

These items provide values for your sent exchange. Which items are used depends on the rules for the new log. Use the Sent Exchange Editor to change your sent exchange for an existing log.

Contest Call:

Region:  Birth date:

County:  First license date:

Section:  Transmit power:

Grid:  SS precedence:

IOTA:  RSGB club code:

Name:  RSGB club status:

Choose the Sent Exchange tab to establish defaults for various kinds of fields in your sent exchange.

The initial values shown here are meant as an examples of what you should enter. SkookumLogger uses these fields when setting up your sent exchange for a new contest log, depending on the contest's rules. The sent exchange is shown in the Prompt line above the log table in the main window. After creating a new log, you should always confirm the Prompt is correct before logging any QSOs; if it wrong, use the [Sent Exchange Editor](#) to correct it.

The Grid field defines the location of your transmitter in Maidenhead locator coordinates. See the [Grid Information Tool](#) for details on this topic.

## CW Messages Default Settings

**New Log**

These items provide initial values for settings in new logs. Changes here do not affect existing logs.

Cabrillo | Sent Exchange | **CW Messages**

These preferences provide default labels and values for the CW messages of new logs. Use the Morse Messages Editor to change messages for an existing log. Do not change the roles of messages with Menu Titles that cannot be edited.

~ sent call      \* received call  
 & sent exchange    + received name  
 # sent serial      ! QSY frequency  
 | half-space      {n message-n

**Morse Messages**

Menu Title	Tokenized Message	Menu Title	Tokenized Message
CQ	CQ TEST ~ ~	Short Acknowledge	TU
Exchange	&	Defend	QRL
Acknowledge	TU ~	Unstack QSO	R NW * &
My Call	~	User 1	USR 1
His Call	*	User 2	USR 2
Call?	CALL?	User 3	USR 3
?	?	User 4	USR 4
NR	NR	User 5	USR 5

**Magic Messages**

	Begin	Continue	End
Run:	{1	{5 {2	{3
Pounce:	{4	R {2	

SkookumLogger stores up to 16 messages that can be sent by pressing a single key. The messages in the left column are associated with the first eight function keys. These defaults are enough to get started. See [Morse Messages Editor](#) to learn about these settings and how to change either the defaults for new logs or the messages for a particular log.

## Message Special Key Settings

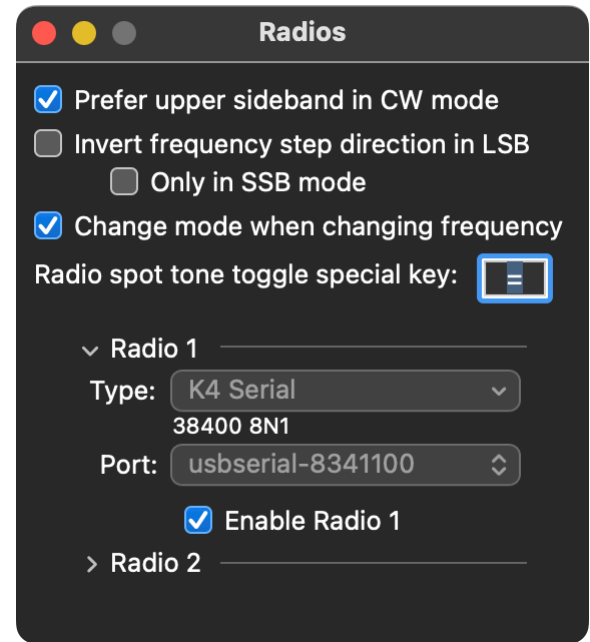
SkookumLogger allows defining [special keys](#) for sending messages with a single key. These include various messages typically used for CQ and exchange passing and acknowledgement, and Magic Message.

## Connecting Your Radio

Before any contest, ensure SkookumLogger is set up to work with the radio(s) you will use. (If your computer is in the shack and permanently connected to the radio then the settings should be remembered for you).

SkookumLogger supports the use of two radios simultaneously, but for now we will assume that you will only use one radio in the contest.

Connect your radio using a suitable cable (perhaps via a Serial to USB converter) to a USB port on your Mac and turn it on. The communications parameters such as baud rate are preset per radio type and displayed under the listed item. Radios such as the Elecraft K4 can also use an Ethernet connection instead of USB, and SkookumLogger supports this using radio type K4 TCP instead of K4 Serial.



Select **Window > External Devices > Radios** to display the Radios window. First select your radio type from the Type drop down menu for Radio 1. The required communications parameters are displayed below the Type selection. Ensure that your radio is set up to match these parameters.

Then select the appropriate Port number which is connected to the radio in the corresponding Port drop down menu. Then click the corresponding Enable Radio 1 checkbox.

With the radio connection enabled, the current frequency and mode of the radio should be displayed above the data entry fields at the top of the main SkookumLogger logging window. Changes to the radio (e.g. frequency and mode) should be reflected in this information. If 'NS' (not supported) is displayed then the radio has not been recognized and you should check the connections and parameters again.

If for any reason you cannot yet connect your radio to your computer, you should select the Phantom option on the Other sub-menu for Type. This will allow you to set frequency and mode manually. The easiest way to set the frequency manually is to type it in the call entry field and tap . For example, typing 3560 will result in setting the frequency to 3.560MHz in the 80m band. Typing CW or another recognized mode into the call field and tapping will similarly set the mode. You can also select mode from the **Radio 1** menu.

## Contest Log Setup

There are three important steps for setting up to operate in a specific contest event:

1. Select the contest event
2. Check the start date
3. Check the sent exchange

You may want to do three additional tasks; these can be done any time before or during the contest:

1. Customize the Cabrillo info
2. Customize the log table
3. Set up additional windows

These steps are detailed below, using the CQWW DX SSB contest as an example. Additional guidance for contests which involve CW or data modes is provided later.

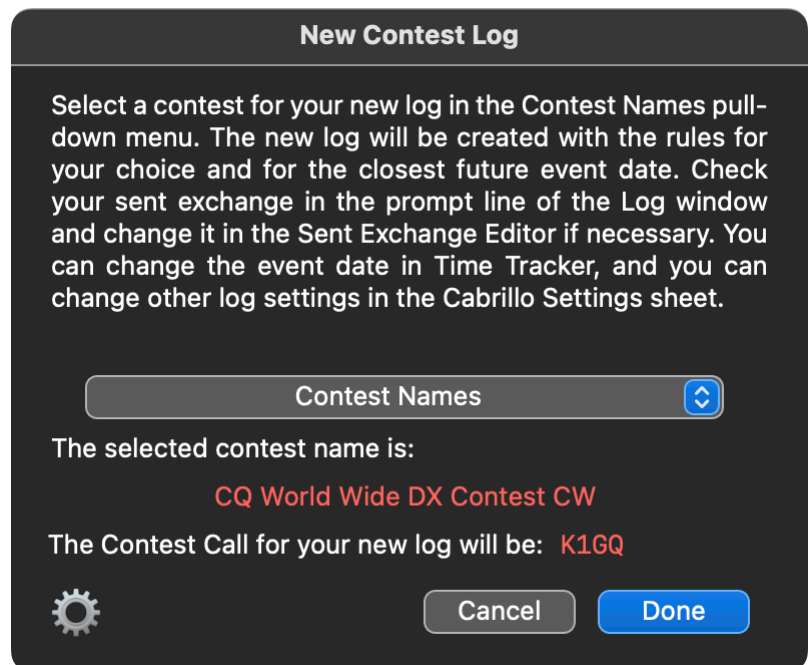
### Select The Contest Event

Choose **File > New Log...** to open the New Contest Log window. The default selected contest is CQ World Wide DX Contest CW. Use the Contest Names drop down Contest Names to choose the name for the contest you want to enter. In this example, select **CQ > CQ World Wide DX Contest SSB**. For contests where there is an "inside" or "outside" option, be sure to select the relevant one depending on your location to ensure that the exchange, scoring and other parameters will be correctly configured (e.g., for the All Asian contests, select the Inside option if you are in Asia and "outside" if you are not).

Click the Done button once your selected contest is displayed below the drop down menu. A new logging window opens, replacing an existing logging window if one exists, and the normal macOS save file dialog appears. Choose a location and name for your log file and click Save.

**Note:** If you cancel the Save dialog, SkookumLogger will ask you to name and save it as soon as the first contact is logged, which may not be as convenient!

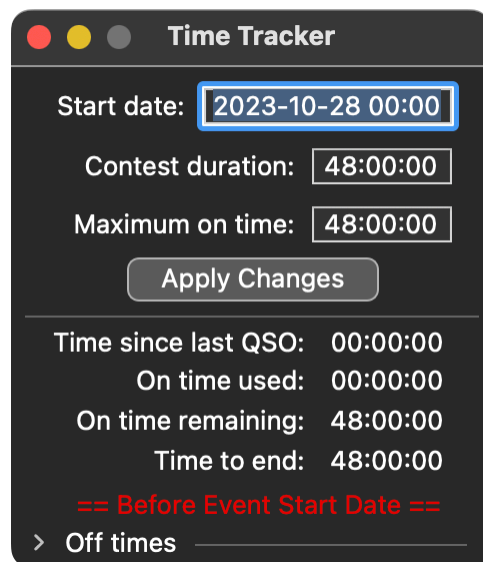
After saving, the file name is displayed in the main window title bar.



SkookumLogger is now configured to know the rules of this particular contest, including what the exchange format is, what multipliers, if any, are involved, what constitutes a dupe, and what the scoring is for the contest.

## Check the Start Date

Choose **Window > Tools > Time Tracker** to open the Time Tracker window. This window shows information about the start, duration and end for the next running of you new contest. Sometimes SkookumLogger gets the start date wrong. Verify that Start date is correct; if not, edit value and choose **Apply Changes**. See [Time Tracker](#) for more information.



The screenshot shows the 'Time Tracker' window with the following fields and values:

- Start date: 2023-10-28 00:00
- Contest duration: 48:00:00
- Maximum on time: 48:00:00
- Apply Changes button
- Time since last QSO: 00:00:00
- On time used: 00:00:00
- On time remaining: 48:00:00
- Time to end: 48:00:00
- == Before Event Start Date ==
- > Off times

## Check the Sent Exchange

The sent exchange is displayed in the prompt text above the data entry fields of the logging window, to the right of the current UTC time display. SkookumLogger tries to populate the sent exchange correctly for you, from the information that you originally entered in [Sent Exchange Default Settings](#). In our example the sent exchange is Contest Call, RS(T) and CQ zone. The zone value is derived from the Contest Call.

21:53:13 K1CX RS(T) 5

If you need to correct the exchange, choose **Window > Editors > Sent Exchange Editor**.

## Customize the Cabrillo Info

Choose **Log > Cabrillo Settings...** to display the settings sheet for the log. On the left, you will see much of the information you originally entered in [Cabrillo default settings](#). If any of this information is incorrect for the contest you are configuring, alter it at this stage. On the right, you will see a set of drop down menus offering various Cabrillo category items. Ensure that each item is set appropriately for the sections of the contest that you will enter. Add other operators to the list Operator Calls list for multi-operator entries; these will show up in the **Log > Operators** submenu where you can select one as the active operator during the contest.

Click Done once you have completed this step. If you have selected Non-Assisted as the Assisted: category option, you should disable your DX Cluster connection. If the DX Cluster symbol (🌐) below the contest name in the main logging window has a red cross through it, you are not connected. Clicking the symbol toggles your connection.

## Customize the Log Table

You can choose to reorder and hide or show many of the available log table columns. See [Table Manipulation](#) for how to do this. For example, you may only want to display the Operator column if the configuration is a multi-operator setup. Columns flagging multipliers relevant for the particular contest chosen are automatically displayed and can not be removed. In the CQWW example these are "C" for country multipliers and "Z" for zone multipliers.

The "D" and "SQ" columns are always visible. The "D" column of the log table identifies duplicate QSOs as defined in the rules for the particular contest. The "SQ" column identifies suspect QSOs. See [Suspect QSOs](#) for details.

## Open Additional Windows

The final step is to open and lay out the SkookumLogger windows that you prefer as an operator. This can be largely a matter of personal preference, and will be highly dependent on the number, screen size, and resolution of any monitor(s) you use. For most contests you may want to show [Activity](#) windows, the [Score](#) and [Rate Tracker](#) windows. Some contests specify that the operator must take some time off during the event. The [Time Tracker](#) window tracks how much time has been used and how many off periods have been taken.

In the case of the CQ WW DX contest, you might want to open the Countries and Zones [Checksheets](#) to keep track of worked and needed multipliers. Since CQ WW DX is a multi-band contest, you may also want to open the [Pass Information](#) window. This instantly tells you, for callsigns entered, the bands and modes where you need or have worked that entity. You can then decide whether to ask the station if they can be on another needed band too. The Pass Information window also offers an excellent way to see in a very screen-efficient window whether you've missed some easy multipliers on this or other bands. For those without room on a small screen to open the full multiplier checksheet, this can be very useful.

Drag and resize the auxiliary windows to suit your layout. See [Example Window Layouts](#) for ideas.

Now SkookumLogger is set up and customized for your contest.

## Setting Up a Contest From an Earlier Log

You can create a new log from an existing log, to preserve the base log's contest rules, sent exchange, message definitions, and Cabrillo settings:

- ◆ Open the log file that will be the base for your new log.
- ◆ Choose **File > Save Log As...** to create a copy of the log. The Log window title will change to the name you specify in the Save dialog. Do not use the same name as the base log unless you want to discard the base log.
- ◆ Choose **Log > Reset Log** to remove the QSOs, set the serial number to 1, and change the start date to the next occurrence.

## Other Setup Tasks

### Review Logging Settings

[Logging settings reference](#) lists these options, their purposes, and their default values. You may want to turn on *Remap ' ' key to '?' key in Call field*, *Refuse to log incomplete QSOs*, and *Confirm Quit*, and review the default choices in Fonts and Colors.

For Phone contests you can now skip to [Making contacts](#) and start logging. Otherwise for contests involving CW, read on to the next section, or for a data mode contest (PSK/RTTY) check out the [last section](#) of this chapter.

### Setting Up Extra Items for a CW Contest

If the contest involves CW, you will want to additionally configure SkookumLogger to use a [CW keyer](#) to send CW messages.

Messages for a new log are initialized from the Messages tab of New Log settings. Use the [Morse Messages Editor](#) to customize those messages as needed, without affecting the defaults.

Check that the correct Morse message is played when you press function keys. Note that the four buttons on top of your WinKeyer USB are also associated with messages 1 through 4.

### Setting Up Extra Items for a Data Mode Contest

SkookumLogger supports some radios that have inbuilt encode/decode capability for RTTY / Frequency Shift Keying (FSK) or Phase Shift Keying (PSK). Use the [Data Messages Editor](#) to define what gets sent to the encoder, and the [Text Decode/Encode](#) window to send arbitrary text to the encoder and see text delivered by the decoder.



## Basic Operating

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## Making Contacts

SkookumLogger is designed to make it simple and fast to enter contacts. Information is entered in the entry fields within one of the QSO Entry panes. See [Log Window Components](#) for a description of your primary contesting interface. For now, assume that all data entry takes place in the same QSO Entry pane. Use of both panes is covered later in [Why there are two QSO entry panes](#).

### Entering Contacts for a SSB Contest

CQ World Wide DX Contest SSB 0 of 0

16:45:59 K1CX RS(T) 5

Sent Exchange

SSB 21.000.000 +000 RUN 35 WPM

+ Double Multiplier +

K NA 5 8 223° 1491km EM83vc 0 United States: AL-FL-GA-KY-NC-SC-TN-VA

For the purposes of an example, we will assume the contest is again the CQ WW DX SSB Contest. SkookumLogger has configured four entry fields for this contest: received call, sent report, received report and received CQ zone, from left to right. The thick border around the call field indicates that the field will process keyboard input.

To create a new QSO:

- ◆ Enter a call in the left-most field. After you have typed more than two characters, SkookumLogger will display needed status (Double Multiplier in the example above), and will fill the pane to the left of the entry pane with calls that are [partially matched](#) to the entry call.
- ◆ Tap the space bar to move the cursor to the zone field, skipping over the report fields. As the zone number can usually be determined from the call prefix, SkookumLogger will fill a zone number in for you, indicate that the number is a guess by shading the zone field background, and select the zone. Type over the guess if you need to change it; the shading will disappear.
- ◆ Tap to log the QSO. The log file is automatically saved.


Tapping the tab key instead of space bar will cycle through all four fields in left to right sequence, while shift-tab will do the same but from right to left. Tabbing or shift-tabbing beyond the leftmost or rightmost field will cycle back (wrap around) to the other end of the entry fields. In this way, you can easily edit any details before committing the contact to the log table.

In HF contests, participants typically send 59(9) reports (as a cue for the other information) rather than genuine/variable reports. Using space bar to move between fields skipping the report fields is therefore useful. In higher band contests, reports are more variable as discussed in a later section.

The prompt line in large text above the Run QSO Entry pane reminds you of your sent exchange. For contests where the exchange includes a serial number, the number to give the station you are working updates as you log QSOs.

To clear all contact details input into the entry fields, choose **Log > Clear Focused QSO Entry**. The default shortcut for this menu is F11.

## Editing a Logged QSO

Should you wish to edit any details of a committed (logged) contact, double-click the cell to be changed in the Log table. If the cell content doesn't then become selected, information for that table column cannot be changed. Tap  or double-click another cell to commit the change. These changes are automatically saved in the log file. Score changes as a result of the edit are automatically updated at that time unless the number of logged QSOs exceeds the **Automatically rescore logs smaller than** value in Logging settings.

You can also edit the last QSO that you logged as follows:

- ◆ Enter the values to be updated into their entry fields.
- ◆ Choose **Log > Correct Last QSO**.

These steps will copy the non-empty entry fields to corresponding fields in the logged QSO. This feature is particularly helpful when one field has a typo

Choose **Log > Append to Last QSO Notes** to quickly add information to that field.

## Deleting a Logged QSO


Choose **Log > Delete Last QSO** to erase the most-recently added entry in the Log table. Or, select one or more rows in the Log table and choose **Log > Delete Selected QSOs**. In general it is better not to delete any contacts actually made, even if incomplete and non-scoring. This helps the adjudication process. This also applies to duplicates, which should never be deleted. You cannot be sure what the other station logged on each occasion and so leaving them in ensures the best chance of claiming at least one good contact. You are not penalized for duplicates in your score in any contest. It is safe to delete the last QSO in serial number contests, but otherwise deletion will cause gaps in the sent serial sequence that may upset some adjudicators.

## Entering Contacts in a CW Contest When Using Messages

Let's suppose you are running a frequency in a CW contest. You will typically follow these steps: (*Note:* These steps assume the default shortcut key assignments for clarity of what keys to press).

- ◆ Tap F1 to transmit your CQ message.
- ◆ When someone answers, type their call in the call field and tap F5 (His Call) followed by F2 (Exchange) to transmit his call and your exchange. You can tap F5 before you have finished entering the complete call as long as your typing stays at least one character ahead of what is being sent; this is called *type-ahead*.

*Hint:* **Messages > His Call + Exchange** combines these two key presses.

- ◆ If they respond with their exchange, navigate to the entry fields as described for SSB logging and fill in the information.
- ◆ If they instead ask you to repeat your exchange, tap F2.  
*Hint:* In serial number contests, tap F2 to transmit just your serial number.

- ◆ When you have their exchange, tap F3 (Acknowledge) and ↵ to transmit your acknowledgement and log the QSO.

*Hint:* **Messages > Acknowledge + Log QSO** combines these two key presses.

Now let's suppose you are searching and pouncing. Typically you will then follow these steps:

- ◆ Type a call into the call entry field to determine needed status.
- ◆ Tap F4 (My Call) to respond to his CQ. Repeat as needed until he responds to you with his exchange. If he is clearly responding to you but has your call wrong, tap F4 until he gets it right.
- ◆ Fill in the remaining entry fields. If you need a repeat, tap F7 (?).
- ◆ When you have his complete exchange, tap F2 to transmit your exchange. Repeat as needed until he acknowledges your exchange.
- ◆ Tap ↵ to log the QSO.

These sequences for running and for searching and pouncing may seem complex, but actually you soon get used to the routine and are able to concentrate more on receiving incoming CW.

If at any time you need to stop a CW message being transmitted, either tap the escape key (the shortcut for **Messages > Abort**) or touch a paddle connected to your WinKeyer unit.

If you need to transmit any un-programmed CW information you can use a connected paddle key to do this. Alternatively you can use **Morse > Keyboard Mode (⌘K)** and type what you want sent. Use the same command again to exit Keyboard Mode.

## Entering Contacts in a Data Contest

SkookumLogger supports a number of data contests for logging only. These include RTTY (FSK), Phase Shift Keying (PSK) and Machine Generated Modes (MGM) as defined by RSGB. However, full support (processing the data signals in addition to logging QSOs) requires a radio which can generate and decode the data signals internally, and is limited to the data modes that the radio can support. If you are using some other external means to generate and decode data modes and SkookumLogger just for logging, use the Phantom radio type to set frequency and mode manually. For modes other than FSK and PSK, choose Data as the mode.

For radios that support FSK or PSK encoding/decoding internally, SkookumLogger offers specific features. One is the ability to send messages as with CW and SSB, but using [separate set of messages](#). The QSO process is very similar to that described in the previous section.

In addition you will want to open the [Text Decode/Encode](#) window. This shows decoded text from the radio in the normal text color, and transmitted text in red. You can use the **Grab** command to copy any received selected text into the QSO entry field with keyboard focus. You can also use the lower text entry field to send arbitrary text.

Some mixed mode contests accept QSOs using data modes that require WSJT-X software to complete them (e.g. FT8). After the contest, use WSJT-X to generate an ADIF file from its log, then [merge that file](#) into your log.

## Entering Contacts in a VHF/UHF Contest

The steps when entering contacts in a contest on the higher bands (VHF/UHF) are very similar to those already described, although some features of SkookumLogger allow additional techniques to be employed.

When a station calls you on a run frequency, it may be advantageous to check the bearing information and tweak the antenna rotor to peak up the signal before completing the contact.

●	CW	144.065.400	+000
+	Needed QSO	+	
PD4HDB	599	599	32
PA EU 14 27	79° 384km J032hn	384	Netherlands

SkookumLogger uses coordinates in the Countries database to compute bearing for a call. This bearing can be inaccurate for calls in a geographically large or close-in country, so SkookumLogger will provide a more accurate bearing when possible, using information from a previous QSO in your log or in your Exchange database. This case is indicated by a hollow [target point](#).

Also it is customary to send and receive genuine RS(T) reports on the higher band contests and so it may be better to tab between the fields to include the report entry fields rather than using the Spacebar which skips straight to the other fields.

**Note:** When you Tab into a Report field, the second digit (signal strength) is highlighted by default so that the S (strength) component may be simply overtyped if that is the only (often) edit required. Should you need to replace the entire report with a new one, ⌘A will select the whole content of (any) current field for this purpose.

## Entering QTCs in WAEDC Events

The Worked All Europe DX Contest (WAEDC) events include the feature that non-European participants can, in addition to making a normal QSO, send reports of QSOs already made (QTCs) to European participants, which offers the chance for both sides to achieve additional points. See [QTCs](#) for instructions on how to do this.

## After the Contest is Over

This chapter deals with the processes that you might typically follow once the contest is finished, including sanity checking your log for obvious errors flagged during the contest, generating your entry file, and the methods of submitting it. Note that most contest rules preclude adding additional logged info for contacts after the contest, whereas a reasonable correction at the end might be realizing that you mistakenly typed a letter O for a zero, for example.

Before you submit your log, it is recommended that you first sort the log on the SQ (suspect) column and deal with any QSOs that were flagged as suspect during the contest. Then re-sort by Date/Time column before proceeding with log submission.

You may also want to check the selections made for your contest entry in **Log > Cabrillo Settings...** to confirm your entry sections and perhaps add some comments in the Cabrillo Soapbox field, about how you found the conditions, your experiences, etc.

In [Analysis and Log Aggregation](#), we will cover other things you may want to do after the contest, including analysis of your performance and how to aggregate individual SkookumLogger contest logs into a single general logging program such as MacLoggerDX, RUMLogNG or Aether, for reference (e.g. QSL and statistical tracking for example).

## Submitting Your Contest Log

Once you have finished operating in the contest, you are ready to create the file you will send to the contest adjudicators. This uses a standard Cabrillo format. Some adjudicators provide a website to upload your entry and some provide an email address to send it to as an attachment.

**Submit Log Via Web Browser**

**Submit Log Via Apple Mail**

**Submit Log for SCP**

Selecting **File > Submit Log Via Web Browser...** will generate the Cabrillo format entry file and then open your browser to the correct page to upload it. Complete the process on the website and you're done!

Selecting **File > Submit Log Via Apple Mail...** will generate the Cabrillo format entry file and then create a new mail message with the address of the adjudicators pre-filled and the entry file included in the message as an attachment. Start Mail first, generate the file, send the constructed email and you're done!

Alternatively, selecting **File > Export Cabrillo...** will simply create the file. A standard macOS File Save dialog will appear and you should choose the name and location that you wish to save the Cabrillo file.

After the file is written, you can open it with a text editor such as macOS's TextEdit program to check that all the header declarations are as you would want them (these will have been generated from your SkookumLogger settings information and the options selected in the Cabrillo settings for this contest). Also perform a quick check that the total number of contacts in the Cabrillo file is as you would expect from what you worked in the contest.

If all seems well, you can submit this file to the contest sponsors/adjudicators by visiting the relevant website or creating an email as appropriate. If you are unsure, check the rules website for the contest using **Help > Contest Rules**.

## Posting to 3830

Long ago, it was customary for testers to meet with other tester after a contest on 3830 kHz. to exchanges raw scores and experiences. That same exchange now happens via the internet. To participate:

- ◆ Choose **Help > 3830 Scores Web Site**.
- ◆ Click on the contest name in the Submittal Forms sidebar.
- ◆ Fill in the form:
  - ❖ Use the SkookumLogger Score window for the Summary section.
  - ❖ Optionally copy the Soapbox from **Log > Cabrillo Settings...** to the Comments section.

## Advanced Operating

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## Creating a New Log

When you choose **File > New Log...**, SkookumLogger presents the New Contest Log window. Select the name of the contest for your new log, then click Done. SkookumLogger will present a standard file save dialog. You can save the log document anywhere you like with any name you like.

The new log will have start date set for the next occurrence of the contest, and Cabrillo, sent exchange and CW messages set from your settings. In **Log > Cabrillo Settings...**, Cabrillo Category, the Mode item will be set to one of CW, SSB, FSK, PSK, Data, or FM for single-band contests, and to Mixed for multi-mode contests. The Band item will set to All for multi-band contests, and to the appropriate band for single-band contests.

*Note:* The “next occurrence” is the first contest start date after the date that you created the log. That date may not be what you expect when you create a log in the middle of a contest. Don’t do that, or use Time Tracker to edit the start date.

You can review and edit these settings for your new log in Time Tracker, Sent Exchange Editor, Morse Messages Editor, and the Cabrillo settings sheet, respectively. Changes that you make in these editors affect only the log document, not the default settings values.

*Important:* After setting up a new log, always check that the sent exchange prompt (shown in large bold text in the Log window) is what you expect. Use the Sent Exchange Editor to make corrections as necessary. You must make these corrections before logging any QSOs.

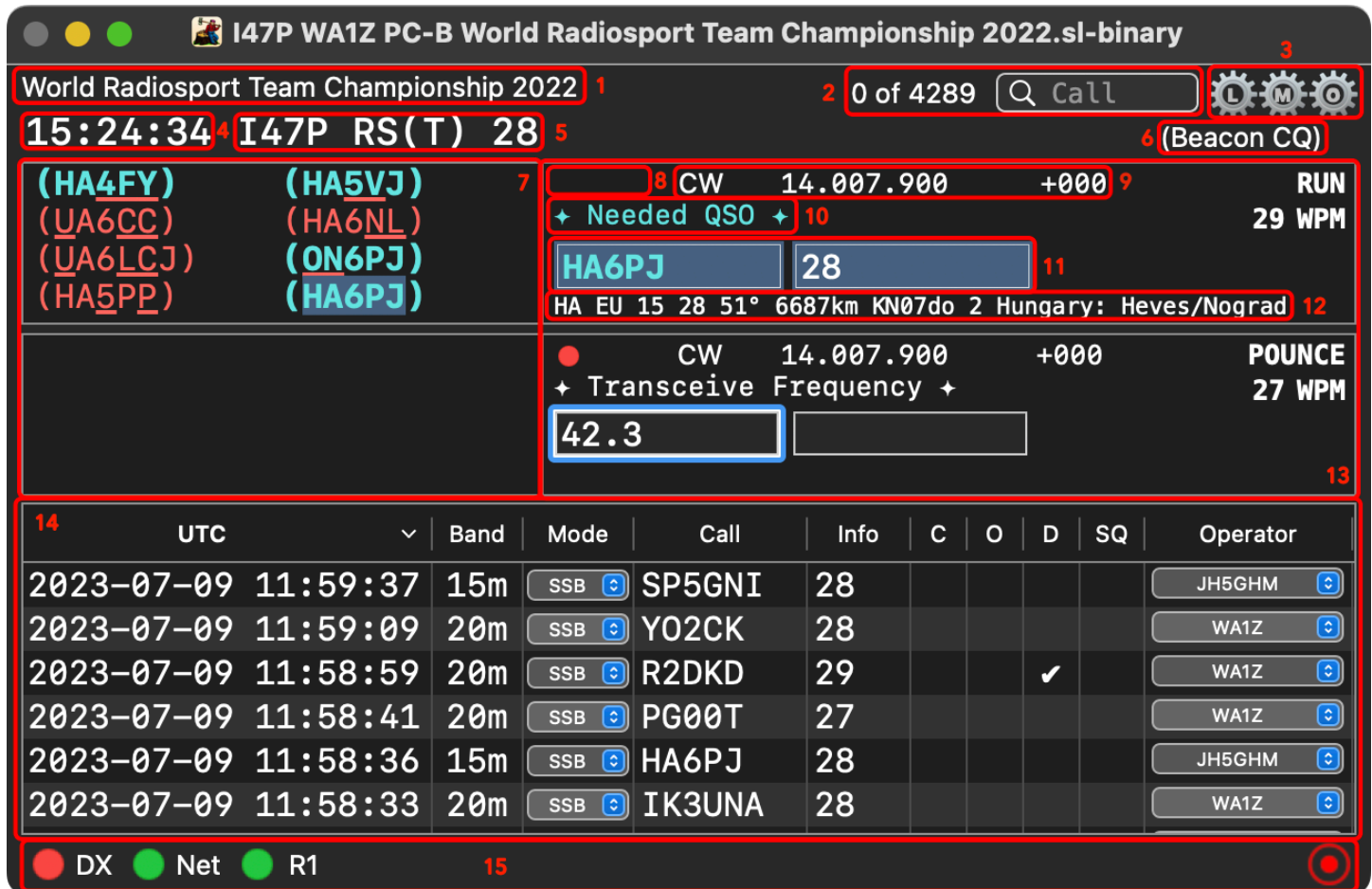
You can create a new log from an existing log, to preserve that log’s contest rules, sent Exchange, message definitions, and Cabrillo settings:

- ◆ Open the log that will be the basis for your new log
- ◆ Choose **File > Save Log As...** to create a copy of the log
- ◆ Choose **Log > Reset Log** to remove the QSOs, set the serial number to 1, and change the start date to the next occurrence.

## Log Window

The main window in SkookumLogger is known as the Log window, and is the most important user interface in the app.

### Log Window Components

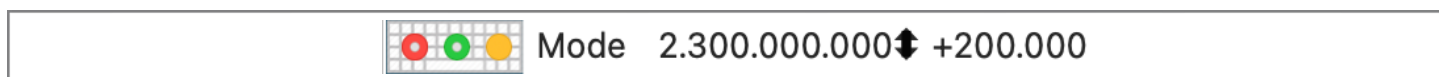


The title bar shows the user-defined file name. The window Close button is disabled because SkookumLogger always shows one and only one Log window. Use File menu items to create a new log or open an existing log; either approach closes the existing Log window and opens a new Log window.

1. The contest name, which defines the log's rules.
2. Search the log table, see [Using Search](#).
3. Settings panel buttons for Logging, Messages, OpMode.
4. Current UTC time.
7. Sent exchange prompt showing your contest call and exchange.
8. [Beacon CQ](#) status.
9. [Partials panes](#).

- 10.State gumdrop indicators, , see [QSO Entry pane icons](#).
- 11.See [Radio Information](#).
- 12.Call entry field status, see [QSO Status Information](#).
- 13.QSO entry fields.
- 14.[QSO Information](#).
- 15.[QSO Entry panes](#).
- 16.[Log Table](#).
- 17.Status indicators for DX Cluster, SkookumNet, Radio 1, and for Radio 2 in 2T2R operating mode.  
Red indicates not available, Green indicates available. The indicators are buttons that toggle status. Command-clicking an indicator open the relevant window instead of changing status.  
The bullseye appears when [audio recoding](#) is enabled, and pulses when recorders are running.

## QSO Entry Pane Icons



Each QSO Entry pane has icons that appear, or not, depending on context. These icons are located in the top row of the pane beginning at the top left corner. This image shows an artificial condition where all of them are visible:

Here is what they mean:

- ✦ The keyboard icon behind the gumdrops is visible when Keyboard Mode is on.
- ✦ The red gumdrop means the QSO Entry pane has transmit focus. It always appears in one pane and not the other pane. The tiny white gumdrop centered on the red gumdrop appears in the 2T2R mode when Alternating CQ is on.
- ✦ The green gumdrop appears in the 2T2R mode to indicate whether or not you are listening to the pane's radio. The tiny white gumdrop centered on the green gumdrop appears when 2BSIQ is on.
- ✦ The yellow gumdrop appears in the 2T2R mode when the pane is in pounce mode.
- ✦ The up/down arrows after the receive frequency display appear when the frequency has been modified to be above or below a central frequency by the **Log > Bump Run Frequency** command.

## Suspect QSOs

The Suspect QSO log table column, labeled SQ, is displayed for all contests, to flag contacts that SkookumLogger cannot match with the rules of the contest such as time outside the contest period or missing elements in the received exchange. Select one or more suspect QSOs in the log table, then choose **Log > Explain Selected Suspect QSOs** to open a window explaining why the QSOs are marked as suspect. If you correct a suspect issue, the suspect status will be edited the next time

the Rescore Log function runs. Suspect QSOs are ignored when computing your score and various other statistics. Type "X-QSO" in the Notes field to force on the SQ flag.

Use the **Mark suspect QSOs as X-QSO** in the Cabrillo pane of New Log settings to instruct score checkers to exclude your suspects when analyzing your log. You should use this feature instead of deleting suspect QSOs because score checkers may penalize the station you worked.

## Radio Information

SkookumLogger converts VFO and RIT/XIT offset frequency information from the radio into main receive frequency, transmit frequency, and, if the radio has a subreceiver, subreceiver frequency. The subreceiver frequency is not displayed, but is used in the 1T2R operating mode and can be set by the user.

The first line in each QSO entry pane shows mode, main receive frequency, and transmit frequency offset. The mode is NA represents an unrecognized mode. The offset is positive when the transmit frequency is above the receive frequency.

When you have an active radio connection, SkookumLogger gets that information from the radio. When you don't have a radio connection, you can set the information for the Phantom radio type manually using [text commands](#).

When you choose **Radio > Bump Run Frequency**, arrows appear after the radio frequency indicating the direction of the bump.

When sending messages, the [color of the radio mode text](#) changes indicating the status of the message queue.

## QSO Status Information

The line above the QSO entry fields in each QSO entry pane displays what SkookumLogger will interpret what you have typed into the call field. When the call field content looks like a call, the color of the status line is determined by the needed status for the call and the status line shows the needed status in text. When the content looks like a text command, the status line shows the name of the command. This text is selectable so that you can define it as a Voice Over hotspot.

## QSO Information

The line below the entry fields in each QSO entry pane displays everything SkookumLogger knows about the call in the call field. The bits of information are separated by spaces. The information line has a help tag for each bit of information.

- ◆ Name if available. See [Name prompts](#).
- ◆ Entity information: prefix, continent, CQ Zone and ITU zone, from the Countries database.
- ◆ Location information: short-path bearing and distance, Maidenhead grid. The location is determined as follows:
  - ❖ If the QSO has a received grid field and the content is valid, use that.
  - ❖ If your Exchange database has a grid entry for the call of the QSO, use that.

- ❖ If your Exchange database has a US State entry for the call of the QSO, use the grid for the state.
- ❖ If the contest rules for the log have Region information for the QSO, use the grid for the region.
- ❖ If the Countries database has an entry for the call of the QSO, use the grid for the latitude and longitude of that entry.
- ◆ QSO points
- ◆ Country names and administrative districts, from the Countries file.

## Log Table

The log table shows a row for each completed QSO. You can customize which columns are visible in the log table by right-clicking on the table heading row or using the **Log > Table Columns** menu; you can sort and resize columns.

The Band data is determined from Tx Freq and is not editable.

The D column identifies duplicates.

The Ro column identifies Rovers.

The SQ column identifies suspects.

The C, G, O, P, R, Z columns identify Country, Grid, Other, Prefix, Region, and Zone multipliers, respectively.

## Editing Log Table Entries

All table columns are normally editable except Band, Tx Exchange, and the flag columns like D. Editing is disabled when [Keyboard Mode](#) is active.

To edit a QSO, first select a row in the log table. You can do that by clicking on a row in the table, or by choosing **Log > Focus Log Table**. Use the up and down arrow keys to change the selected row. When a row is highlighted, click on the cell to be edited, or use tab and shift-tab to select an editable cell. Then type in your change.

Columns that have popup menus are skipped over by tab key navigation and you will need to use the mouse to change their values.

Changing the Operator popup selection also selects that operator in the **Log > Operator >** submenu.

Use **Log > Focus Recent QSO Entry** to return to the most recently active QSO entry field when you have completed edits.

Use **Log > Append to Last QSO Notes** transfers keyboard focus to the Notes cell in the log table row for the last QSO and positions the insertion point after existing content. When you finish editing (tab or return), focus is transferred back to the most recently focused QSO Entry field.



The **Log > Correct Last QSO** command copies the content of each non-empty entry field in the QSO entry pane to the most recent QSO. You can define a special key shortcut for this command in the **Correct Last QSO special key** option in Logging settings.

Changes to logged QSOs can affect duplicate detection, scoring, and other information. The **Automatically rescore logs smaller than** option in Logging settings sets a threshold to prevent time-consuming rescoring for larger logs. For large logs, use **Log > Rescore Log** and **Activity > Update Needed Flags** during a slow period or off time.

The Notes column may contain information derived from the QSO. This information is surrounded by « and » and is updated when the log is rescored. You may add and edit any text after the » character; that text will be preserved during rescoring. One type of derived note is distance between you and the worked station in km, available for most contests where the exchange is grids. The other type is multiplier information from the Countries database or the appropriate Multiplier database, available for most contests when the contest exchange is not grids.

## Searching in the Log Table

You can find QSOs in the log that contain a string that you type into the search field. To begin the search, click the search field or choose **Log > Focus Log Search Field**. Click the magnifying glass to change the name of the log column to match against, then begin typing. The log table changes as you type to show QSOs that contain the typed characters. If the call entry field is not empty when you choose **Log > Focus Log Search Field** and the search field is set to match Call, the log is immediately searched for QSOs with the call.

The “m of n” label to the left of the search field indicates how many rows are selected (m) and how many are displayed (n) as the result of a search.

Press escape to end the search.

If the **Automatically search option** is enabled in Logging settings, then typing into a call field searches the log to show only QSOs with calls that contain what you have typed when you type the third character. This can be useful in QSO Parties when you want to quickly review QSOs for a particular rover.

## QSO Data Entry

The QSO Entry pane text fields contain received exchange information for pending QSOs. The row of text entry fields has items for the received call and other exchange entry fields. The number and type of the exchange fields depend on the contest name. The fields are ordered left-to-right in the same orders and they are transmitted. Each of the entry fields has a help tag that identifies what is expected as content. The two QSO Entry panes are identical and create the same information in your log, with the exception that SkookumLogger keeps track of which pane created each QSO. The only place where this flag is used is the statistics report.

You can use the mouse to change keyboard focus to any of the QSO entry fields, or use the keyboard to move focus left and right. The tab key moves keyboard focus to the next field on the right, or to the first field when the last field has focus. Shift-tab moves keyboard focus in the other direction. Tapping the spacebar acts like the tab key, except that it skips over signal report entry

fields. The Notes entry field accepts anything you can type, including spaces, so you need to use the tab key or the mouse to navigate out of that field. **Log > Focus Call Field** jumps keyboard focus to the call field for the active QSO entry pane.

**Note:** Entry field navigation in the ARRL Sweepstakes contest is slightly different from other contests. Initially the call field is focused. The spacebar then jumps focus to the first field (number), and thereafter spacebar behaves normally until the navigation logic is reset by logging a QSO or clearing the entry pane.

Standard macOS behavior when a non-empty text entry field becomes focused is to select all of the existing text. SkookumLogger overrides this behavior for the call field and for report fields:

- ◆ When the call field becomes focused and the content contains a question mark, then the question mark is selected. Otherwise the content is deselected and the cursor is positioned at the location it had when the call field lost focus.
- ◆ When a report field becomes focused and the content has at least two characters, the second character (the 'S' digit) is selected.

In addition, the ***Position cursor at end of entry field*** option in Logging settings changes the standard behavior for all other entry fields.

The arrow keys are helpful when editing content in a focused text entry field:

- ◆ All arrow keys first deselect the content.
- ◆ Control-Left moves the insertion point to the beginning of the content.
- ◆ Control-Right moves the insertion point to the end of the content.
- ◆ Left move the insertion point over the previous character, or to the beginning of the content if it was selected.
- ◆ Right moves the insertion point over the next character, or to the end of the contest if it was selected.

There are many other macOS text editing keyboard shortcuts that involve modifier keys. In addition, macOS text fields also supports many emacs keyboard commands.

When using the [Call Stacking](#) feature, separate calls with a comma. With [straddlers](#), separate calls with a forward slash. You can also set radio bands, modes and frequencies, and rotator bearing, using [text commands](#).

When keyboard focus leaves the call field, SkookumLogger searches your log and your Exchange database for previous QSOs with that call and uses the results to pre-fill other QSO entry fields. When a field content is set this way, the background color for the field is changed to the ***Entry field background highlight color*** defined in Logging settings.

When a QSO entry field expects codes like states, counties, oblasts, etc., **Edit > Complete** shows a list of the expected codes. If you type something first, the list will be restricted to codes that begin with what you have typed. Use the up and down arrow keys to select a list entry, then press return to choose the selected entry.

The QSO entry fields have [formatters](#) that affect what happens as you type. The behavior of a formatter depends on what kind of information SkookumLogger expects for the field. All formatters define a list of acceptable characters and silently ignore all other characters. For example, a serial number field accepts only digits and a few cut number characters.

Press the return key to log a QSO with the data in the entry pane with keyboard focus, and clear the the entry fields. SkookumLogger will not stop you from logging incomplete QSOs unless you enable the ***Refuse to log incomplete QSOs*** option in Logging settings. The log document is automatically saved after adding a QSO.

### Exchange Pre-fill

When you enter a call and navigate to the next QSO entry field (tap spacebar or tab), SkookumLogger may fill in the content of some non-empty exchange fields. An exchange value entered this way is identified by changing the entry field background color. If you edit the exchange value, the background color is changed back to the default color. If you edit the call and trigger another pre-fill, only those fields with highlighted backgrounds will be changed.

There are several sources of exchange pre-fill information, including QSOs in your current log, entries in your Exchange database, and the Countries file.

You should always listen to the exchange to confirm that the guessed pre-fill value matches what was sent to you. Always log what was sent, with the exception of zones – when you are certain the sent zone is incorrect, log the pre-filled value. For example, sometimes casual contesters send CQ zone or a serial number when ITU zone is required.

### IARU Society Code Pre-fill

When a call ends in “HQ”, SkookumLogger looks up the country for the call in the Countries database, then looks for the society code for that country in a table of societies constructed from data published on the IARU web site. It is possible that the country for call ending in HQ doesn’t map to a society code; OHØHQ for example. Log what you hear.

That table is also used when populating the Other Multipliers checksheet, to identify suspect received exchanges, and to supply the completion list (option-esc) in the received exchange field. Official society codes are not unique; SkookumLogger disambiguates internally by appending the country code to ambiguous society codes like CARS. Log the code as sent; the checksheet will show the disambiguated code, CARS-ZF or CARS-5B for example.

Not all society station calls end in “HQ”, and some don’t send the official society code for their country. Log what you hear.

### Rovers and Straddlers

Rovers are mobile contesters who operate from more than one location during a contest. In some contests, working a rover using the same call from different locations is a valid QSO rather than a duplicate.

## Identifying Rovers

When the rules for a contest allow rovers, the Log table has a column titled Ro, with cells containing a checkbox. A new logged QSO with a known rover is automatically marked as a rover.

SkookumLogger automatically checks for new rovers when logging a QSO, by comparing the location for the new QSO with the locations for previous QSOs with the same call. If a different location is found, the call is marked as a rover. You can manually identify a call as a rover by checking the pane for any QSO with that call; SkookumLogger will then check the boxes for all the other QSOs with that call. You should do this when you first work a call known to be a rover, due to the special treatment described below.

When a contest has rovers, SkookumLogger cannot determine the needed status until the location (Info) field is filled. When the location field is empty, the status is indicated by adorning the call with the “May be multiplier” color and font. When the location field is pre-filled by guessing the location from a previous QSO, the call might be incorrectly marked as a duplicate. To prevent this case, pre-fill for a known rover is disabled.

To quickly see all logged locations for a rover, enable the ***Automatically Search*** option in Logging settings.

## Being a Rover

Use the Sent Exchange Editor to change your location before logging QSOs from a new location.

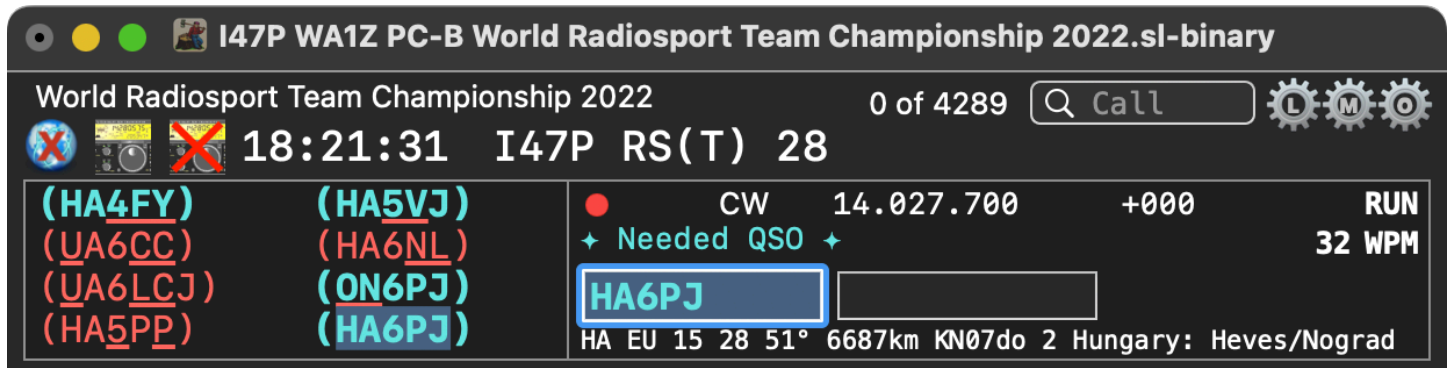
## Country-line QSOs (Straddlers)

Some QSO Parties allow rovers to sit near (straddle) county lines and provide credit for the counties on each border. This is indicated by sending the multiple locations separated by forward slashes. If you are straddling yourself, separate the locations in the Sent Exchange Editor. When you log a straddler QSO, SkookumLogger will manufacture separate QSOs for each combination of sent and received locations. QSOs with straddlers will be marked as rovers by the identification logic above.

You can use **Log > Correct Last QSO** to update the call and received locations for the most recent set of manufactured QSOs. To update received locations, you must enter the complete specification – each location separated by slashes – in the QSO Info entry pane.

## Partial Call Matching

When you type into a call entry field, SkookumLogger looks in internal sets for known calls similar to the partial call you have typed, and lists up to eight known calls in the Partial pane to the left of the QSO Entry Pane. Each of the listed calls is adorned with font and color indicating its needed status.



The internal sets are the Super Check Partial (SCP) database, your Exchange database, and a “good calls” set containing logged calls and your activity announcements. The source set for a known call is identified by characters surrounding the call:

- ◆ ( and ) for calls in the good calls set
- ◆ [ and ] for calls in your Exchange database
- ◆ Otherwise no adornment for calls in SCP

When there is a known call that exactly matches the partial call, the background color of the Call entry field is set to the **Entry field background highlight color** in Logging settings. In the example, the call is exactly matched, all of the calls are already logged because SCP is disabled in the WRTC contest, and the red calls aren’t needed because that have been worked on 20m.

SkookumLogger begins looking for similar known calls when you have typed at least 3 characters. You can type a question mark when you know there is a character at that location in the partial call but you have no idea what the character is.

Use the list of calls in the Partial pane to judge whether or not what you have typed is a good call, and to guess what characters you might be missing. But do not rely on the list, always enter what you hear.

SkookumLogger has two approaches for judging similarity between a partial call and a known call. *Contains* similarity is the default. *Fuzzy* similarity is enabled instead with the **Use fuzzy similarity** option in Logging settings.

### Contains Similarity

When there are no question marks in the partial call, known calls that contain any characters before and after the partial call that you have typed are considered similar.

If the partial call contains one or more question marks, Contains similarity finds known calls that match the other characters in the partial call along with any letter or number substituted for question marks.

## Fuzzy Similarity

Fuzzy similarity applies a variation of the Levenshtein Distance algorithm, created by JH5GHM, to consider the likelihoods of changes to the partial call needed to convert it into a known call. For CW mode, the consideration includes similarity of morse code characters. The list of known calls has the most likely match at the bottom right (closest to the call entry field) and proceeds upward with less likely matches. The known calls are grouped by the similarity value determined by the algorithm. Calls with the same similarity value are then grouped by their source and sorted alphabetically within those sub-groups.

Underlines in a known call identify characters that are present in the partial call. Use ***Underline unmatched characters*** to instead underline characters that are not present in the partial call. The color for the underline is set to ***Partial match underline color*** in Logging settings. In the example, ***Use fuzzy similarity*** and ***Underline unmatched characters*** are on, and ***Partial match underline color*** is red.

## Using Partial Call Matching

When you hear only part of a call, a glance at the Partial pane will often provide a good idea of the correct call. Additionally, if you have typed a complete call and it is not matched, you might suspect that you misheard the call.

*Hint:* When CQing on CW, if you have a partial call and need the caller to send his call again, use the His Call message instead of Again to stimulate just that caller to repeat; too often Again will cause everyone in your pileup to begin transmitting.

## Why There Are Two QSO Entry Panes

A basic QSO has a timestamp (date and time together), a frequency, a radio mode, a sent exchange, and a received exchange. SkookumLogger fills in the first four of these items when you log a QSO, by copying them from the *candidate* QSO in the active QSO Entry pane. You provide the components of the received exchange by typing into the text entry fields inside the QSO Entry pane. The components of the exchange are specified by the contest rules. SkookumLogger sets up the entry fields according to those rules.

The most straightforward way to work with the QSO Entry panes is pick one and enter all of your QSOs there. However, with two panes you can work with two candidate QSOs at the same time. This provides interesting and useful possibilities:

- ◆ While the sequences described in [Basic Operating](#) for completing QSOs apply to both QSO Entry panes, if you log run QSOs in the Run pane and pounce QSOs in the Pounce pane, SkookumLogger can use knowledge of which pane is active to choose for you the messages to transmit when using Magic Message or Begin QSO/End QSO.
- ◆ The candidate QSOs are independent, so you can use one of the QSO Entry panes to “store” information.
- ◆ The items in an Activity table are a set of possible candidate QSOs. You can transfer candidate QSOs back and forth between an Activity table and the Pounce QSO Entry pane, for even more information storage and use.
- ◆ The [transfer from Pounce to Activity](#) table can be automated to happen when you change the radio frequency and the call field in the Pounce QSO Entry pane isn’t empty.
- ◆ The [transfer from Activity to Pounce](#) can be automated to happen when the radio frequency is near a table entry.
- ◆ You can type information into one QSO Entry Pane while transmitting the candidate QSO information in the other pane.

By the way, logged QSOs know which QSO Entry pane created them, enabling a variety of silly statistics reports for post-contest amusement.

## Keyboard Focus and Transmit Focus

Fully leveraging SkookumLogger logging feature requires understanding two important concepts: *keyboard focus* and *transmit focus*. Keyboard focus determines which QSO Entry pane accepts what you type. Only one text field at a time within an application can have keyboard focus. A focused text field has a thick border called a *focus ring*. **Log > Focus Recent QSO Entry** changes keyboard focus from anywhere within SkookumLogger to the most recently focused text entry field. Other commands in the Log menu toggle keyboard focus between the QSO Entry panes and assign keyboard focus to a particular pane, always returning focus to the most recently use text field within the pane.

Transmit focus determines which candidate QSO is used when transmitting messages. Again, there are commands for toggling and assigning transmit focus for QSO Entry panes. The pane with transmit focus has a red gumbdrop at the top left corner.



## Operating Modes

SkookumLogger supports three operating modes:

- ◆ One Transmitter One Receiver (1T1R) – A transceiver with no subreceiver or with subreceiver dedicated to diversity reception.
- ◆ One Transmitter Two Receivers (1T2R) – A transceiver with a subreceiver, also known as Single Operator 2 VFOs (SO2V).
- ◆ Two Transmitters Two Receivers (2T2R) – Two transceivers, also known as Single Operator 2 Radios (SO2R).

You choose which operating mode is active in OpMode settings.

### 1T1R and 1T2R Behavior

In the single radio modes, the QSO Entry panes are labeled Run and Pounce, SkookumLogger interacts with Radio 1, and Radio 1 should be connected to the Morse Keyer KEY 1 output. The QSO entry pane that has transmit focus tracks radio frequency and radio mode and so determines where you are transmitting. When you change transmit focus from one entry pane to the other, the radio is changed to the frequency and mode of the newly-focused QSO pane.

Use **Log > Toggle QSO Entry Focus**, **Log > Focus Run QSO Entry** or **Log > Focus Pounce QSO Entry** to choose which of the Run and Pounce entry boxes reacts to keyboard input. The pane with keyboard focus has an entry field with a thicker border called the focus ring.

Use **Log > Toggle Transmit Focus**, **Log > Toggle Transmit Run**, or **Log > Toggle Transmit Pounce** to choose which of the entry boxes tracks changes in radio frequency and mode. The pane with transmit focus is identified by a red gumdrop at the top right corner. If you change transmit focus change while a message is playing, the message is aborted.

If you prefer to always have keyboard and transmit focus on the same pane, choose the **Transmit focus follows keyboard focus** option in OpMode settings. When you do this, you give up the ability to enter QSO information in one pane while sending a message using the frequency and mode of the other pane.

Some messages depend on which of Run or Pounce has transmit focus. Grabbing activities transfers information to the Pounce entry pane.

### K4 RIT/XIT Management

The K4 TCP module in SkookumLogger automatically manages the on-off state for K4 VFO A RIT and XIT as follows:

- ◆ When Run has transmit focus, turn on RIT and turn off XIT.
- ◆ When Pounce has transmit focus, turn off RIT and turn on XIT.

With that logic, you can use the OFS knob or a K•Pod to tune around near your transmit frequency when running, and adjust your transmit frequency without changing receive frequency when doing S&P. The K4 limits the offset to less than +/- 10 kHz.

The K4 panadapter shows the VFO A receive frequency with a blue cursor, and the transmit frequency with a red cursor when transmit frequency is different from receive frequency. Both cursors displays correctly account for RIT/XIT state and offset value.

## 1T2R Behavior

This operating mode has independent settings from the 1T1R operating mode but otherwise has all the features described above. In addition, when Run has transmit focus then Pounce tracks the subreceiver frequency, and when Pounce has transmit focus then the subreceiver listens to the Run frequency. Also, the ***Pounce receive frequency change ...*** options in Activities settings apply when Run has transmit focus.

For this mode, unlock transmit focus from keyboard focus using the [1T2R Transmit focus follows keyboard focus](#) option so that you can type into the Pounce QSO Entry pane at the same time as transmitting in the Run QSO Entry pane.

With two receivers, SkookumLogger automatically sets the subreceiver to listen to the receive frequency for the QSO Entry pane without transmit focus. So, your second receiver will hear your run frequency when Pounce has transmit focus (to alert you when somebody transmits there), and your pounce frequency when Run has transmit focus (to know when to pounce). Also, when Run has transmit focus the Pounce QSO Entry pane tracks the subreceiver frequency, (to find new pounce candidates). Of course, the main receiver listens to the frequency of the QSO Entry pane that has transmit focus.

Listening to two receivers involves stereo audio, which can sometimes limit how well you can hear the station you are trying work. Use **Radio 1 > Toggle SubRX** to turn the second receiver on and off, which also toggles stereo audio on and off.

Instead of tuning the radio's second receiver frequency, you can use **Activity > Set SubRX** to jump the second receiver directly to an activity frequency.

## 1T2R Scenarios

A typical scenario when using DX Cluster to populate activity tables is:

- ◆ Enable the ***Fills QSO entry from nearby activity*** option
- ◆ CQ with keyboard focus and transmit focus in the Run pane
- ◆ Tune the subreceiver, stopping when a needed QSO is automatically entered in the Pounce pane
- ◆ Listen to the needed QSO when not CQing to determine when to call
- ◆ Toggle keyboard focus and transmit focus to Pounce to work the needed QSO while monitoring your run frequency

A typical scenario when not using DX Cluster might be:

- ◆ Enable the ***Creates activity from QSO entry and clears entry*** option
- ◆ CQ with keyboard focus and transmit focus in the Run pane

- ◆ Tune the subreceiver, stopping when you hear a possibly-needed call
- ◆ Change keyboard focus to Pounce and type the call
- ◆ Tune the subreceiver away to add the call to the activity table and clear the Pounce entry pane; grab from the table to work later
- ◆ Or, change transmit focus to Pounce to work the call

## 2T2R Behavior

In the 2T2R mode, the entry panes are labeled Radio 1 and Radio 2. This operating mode uses both Radio 1 and Radio 2. You must connect KEY 1 and KEY2 of your keyer to the corresponding radios. SkookumLogger does not manage sub-receivers in this mode. The Radio 2 and 2T2R menus are added to the menu bar and the R2 status icon is added to the bottom bar of the Log window.

The Log window has additional [gumdrops](#) for this operating mode.

Command names for managing keyboard focus and transmit focus are changed. Use **Log > Toggle QSO Entry Focus**, **Log > Focus Radio 1 QSO Entry**, or **Log > Focus Radio 2 QSO Entry** to change keyboard focus. Use **Log > Toggle Transmit Focus**, **Log > Transmit on Radio 1**, or **Log > Transmit on Radio 2** to change transmit focus. If you change transmit focus while a message is playing, the message is aborted.

When transmit focus and keyboard focus are different, SkookumLogger automatically changes transmit focus to the entry pane with keyboard focus when you start a message, and when you enter Keyboard Mode.

2T2R has run and pounce submodes for each radio. Pounce mode for a radio is identified by a yellow gumdrop in the radio's QSO entry pane.

You can copy QSO information from an Activity window into either QSO entry pane. **Activity > Grab to Radio 1** (click) copies to the Radio 1 pane; **Activity > Grab to Radio 2** (shift-click) copies to the Radio 2 pane. The frequency and mode for the corresponding radio are changed, and keyboard focus is not changed.

**2T2R > Swap Radios** interchanges radio frequencies and modes, run/pounce submodes, audio routings and keyer speeds between Radio 1 and Radio 2.

**2T2R > Bump Transmit Frequency** cycles the current transmit radio frequency +100, -200, 0 Hz to get re-spotted by skimmers.

See [2T2R Scenarios](#) for descriptions of these remaining 2T2R menu items:

**2T2R > Automatically Enable Alternating CQ**

**2T2R > Listen to Radio 1**

**2T2R > Listen to Radio 2**

**2T2R > Listen to both radios**

**2T2R > Enable 2BSIQ Audio Routing**

2T2R > Radio 1 and 2T2R > Radio 2

2T2R > 2BSIQ.

## 2T2R Examples

The example below by WA1Z describes a traditional approach for doing SO2R with SkookumLogger, using one keyboard for both radios. JH5GHM documents his full-blown 2BSIQ practices as YouTube videos – search for Katsuhiko Kondou.

## 2T2R Audio Routing

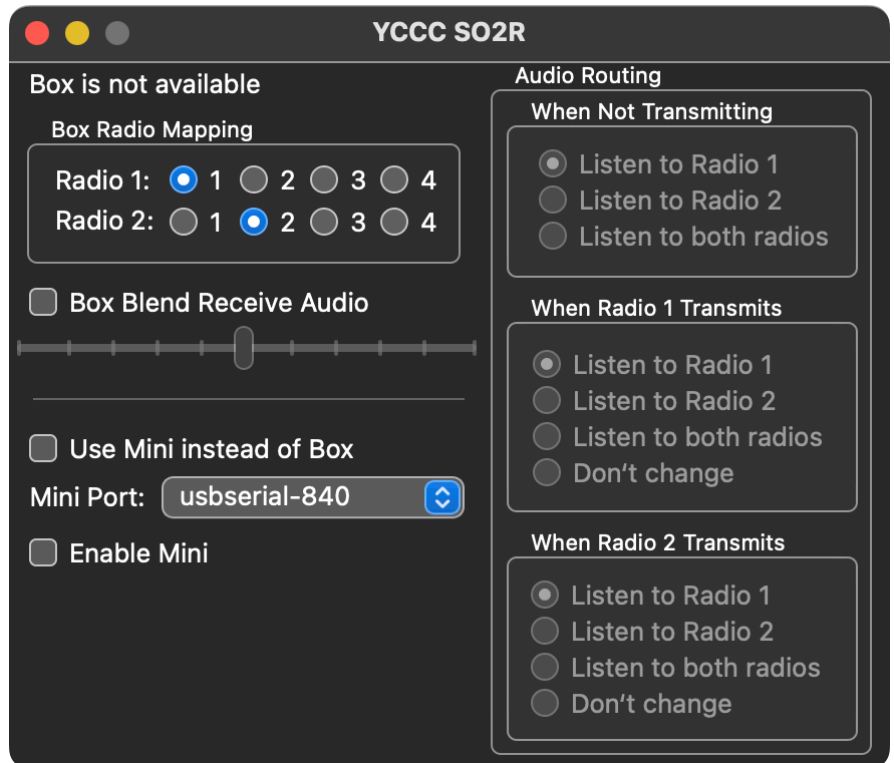
With two radios, you need a way to switch key, PTT, and transmit audio between the radios, because you are not allowed to transmit simultaneously on both radios. Additionally, you need a way to configure stereo headphones to listen to either or both radios. These function are handled by external switching hardware controlled by SkookumLogger.

SkookumLogger supports two SO2R devices produced as kits by the Yankee Clipper Contest Club (YCCC), the YCCC SO2R+ Box and the YCCC SO2R Mini, and also the Neo by JH5GHM. Each provides computer-controlled switching between two radios for audio signals, a foot switch, and an internal CW keyer. The Box has indicators, toggle switches, and a CW speed pot, the Mini is a much smaller unit with no radio mapping, blending, indicators, or controls. and the Neo is similar to the Mini with indicators.

When the operating mode is 1T1R or 1T2R, SkookumLogger sets the SO2R switches to use Radio 1, disables the audio routing choices and turns off blending in the user interface.

Choose **Window > External Devices > YCCC SO2R** to configure your audio switch.

The SO2R Box uses USB-HID and will be discovered automatically when plugged in and turned on, with a message in the Status Messages window. The Mini and Neo are USB-serial devices with the usual [Port chooser](#). To choose between the YCCC SO2R Box and the Mini or Neo, choose the Use Mini instead of Box option.



Set the TRANSMIT and RECEIVE switches on the SO2R Box to AUTO. Choose the association between SkookumLogger Radios 1 and 2 with the output ports on the SO2R Box using the Box Radio Mapping buttons.

SkookumLogger always switches the microphone to the radio with transmit focus. Receive audio switching is more complex; you can choose to listen to Radio 1 in both ears, to Radio 2 in both ears, or to both radios with Radio 1 in left ear and Radio 2 in right ear. Use the **2T2R > Listen To Radio 1**, **2T2R > Listen To Radio 2**, or **2T2R > Listen To Both** commands or the corresponding buttons in **When Not Transmitting**. For the YCCC SO2R Box, you can control blending between the two receive channels using the **Box Blend Receive Audio** slider.

Green [gumdrops](#) at the top-right corner of the Radio 1 and Radio 2 QSO entry boxes indicate which radios you are listening to.

When SkookumLogger is sending messages, it manages receive audio switching for you. When a message begins sending on Radio 1, the receive audio configuration changes to your selection in the 'When Radio 1 Transmits' button group. Similarly, when a message begins sending on Radio 2, the choice in the 'When Radio 2 Transmits' button group applies. When message sending ends, the receive audio configuration changes back to the choice in the 'When Not Transmitting' button group.

**2T2R > Enable 2BSIQ Audio Routing** turns on additional routing change behavior when not sending a message:

- ◆ **Log > Focus Radio 1 QSO Entry** sets routing to Listen to Radio 1 if Radio 1 already has keyboard focus.
- ◆ **Log > Focus Radio 2 QSO Entry** sets routing to Listen to Radio 2 if Radio 2 already has keyboard focus.
- ◆ **Messages > Abort** sets routing to Listen to both radios.

These additional routing changes are temporary. They do not affect the choice in the 'When Not Transmitting' button group, which will be restored at the end of the next message transmission.

### 2T2R Operating Scenarios

The following sections concisely describe what happens for the basic SO2R and 2BSIQ configurations.

The **2T2R > Automatically Enable Alternating CQ** and **2T2R > Enable 2BSIQ Audio Routing** commands are on/off toggles, with the on state for Alternating CQ and 2BSIQ indicated by a checkmark preceding the menu item.

There are three basic SO2R scenarios without special audio routing: Run on one, S&P on the other, Run on both or S&P on both radios. The advanced 2BSIQ (Two Band Simultaneous Interleaved QSOs) techniques has two scenarios, with and without special audio routing.

### *SO2R running on one radio, S&P on the second*

When one radio is running and the other is S&P, Alternating CQ determines whether or not Beacon CQ is used on the Run radio and 2BSIQ is off, establishing the basic environment for SO2R run & pounce.

- ◆ When tapping F1, CQ is sent from the Run radio. If transmit focus is set to the S&P radio, it will first be switched to the Run radio.
- ◆ All messages, except the CQ message, are sent from the radio which has keyboard focus
- ◆ Changing transmit focus always interrupts message sending
- ◆ Messages, including CQ, to the both radios are queued and will be sent in order.
- ◆ Ongoing CQ is not interrupted by changing keyboard focus
- ◆ The defend message is sent to the Run radio, changing transmit focus if necessary
- ◆ When enabling keyboard mode, transmit focus follows keyboard focus
- ◆ Always follows audio routing setting

### *SO2R running on both radios*

Both radios are running, with Alternating CQ and 2BSIQ off. Practice mode supports this configuration.

- ◆ When tapping F1, CQ is sent from radio which has transmitting focus
- ◆ Other messages except for defend are sent from radio which has keyboard focus
- ◆ Ongoing CQ is not interrupted by keyboard focus
- ◆ **Any message including CQ is interrupted by transmitting focus change**
- ◆ Message, including CQ, is always queued, not interrupt ongoing message regardless of which radio to transmit
- ◆ Transmit focus except for CQ follows keyboard focus when transmitting
- ◆ Defend message is sent to different radio which does not have keyboard focus and transmitting focus moves to different radio
- ◆ When enabling keyboard mode, transmit focus follows keyboard focus
- ◆ Always follows audio routing setting

### *SO2R S&P on both radios*

Both radios are pouncing, with 2BSIQ and Alternating CQ off. In this configuration you can send CQ messages, but neither of Beacon CQ or Alternating CQ is applicable. This provides the basic environment for SO2R pounce & pounce.

- ◆ When tapping F1, CQ is sent from radio which has transmitting focus
- ◆ All messages are sent from radio which has keyboard focus

- ◆ Any message including CQ is queued
- ◆ Ongoing CQ is not interrupted by keyboard focus
- ◆ Transmit focus except for CQ follows keyboard focus when transmitting
- ◆ Defend message is sent to radio which does not have keyboard focus
- ◆ When enabling keyboard mode, transmit focus follows keyboard focus
- ◆ Always follows audio routing setting

### *2BSIQ operation without special audio routing*

In this configuration, Alternating CQ is on and 2BSIQ is off. This provides the basic environment for 2BSIQ with no special audio routing.

- ◆ When tapping F1, CQ is sent from different radio which has transmitting focus and transmitting focus moves to different radio
- ◆ Other messages except for Defend are sent from radio which has keyboard focus
- ◆ Next CQ from different radio starts immediately after the end of non-interrupted CQ and transmitting focus moves to different radio
- ◆ Next CQ from different radio starts immediately after the end of either of End QSO or Short Acknowledge and transmitting focus moves to different radio
- ◆ Ongoing CQ is interrupted by sending message from the same radio (not from different radio, but following CQ does not happen)
- ◆ Ongoing CQ is not interrupted by keyboard focus, but following CQ does not happen regardless of which keyboard is focused
- ◆ Any message including CQ is interrupted by transmitting focus (even for the same radio)
- ◆ Message including CQ is always queued, not interrupt ongoing message regardless of which radio to transmit
- ◆ Defend message is sent to different radio which has keyboard focus and transmitting focus moves to different radio
- ◆ When enabling keyboard mode, transmit focus follows keyboard focus
- ◆ Always follows audio routing setting

### *2BSIQ operation with special audio routing*

This is the most advanced environment for 2BSIQ including special audio routing. Both Alternating CQ and 2BSIQ are on.

- ◆ When tapping F1, CQ is sent from different radio which has transmitting focus and transmitting focus moves to different radio
- ◆ Other messages except for Defend are sent from radio which has keyboard focus



- ◆ Next CQ from different radio starts immediately after the end of non-interrupted CQ and transmitting focus moves to different radio
- ◆ Next CQ from different radio starts immediately after the end of either of End QSO or Short Acknowledge and transmitting focus moves to different radio
- ◆ Ongoing CQ is interrupted by sending message from the same radio (not from different radio, but following CQ does not happen)
- ◆ Ongoing CQ is not interrupted by keyboard focus, but following CQ does not happen regardless of which keyboard is focused
- ◆ Any message including CQ is interrupted by transmitting focus (even for the same radio)
- ◆ Message including CQ is always queued, not interrupt ongoing message regardless of which radio to transmit
- ◆ Defend message is sent to different radio which has keyboard focus and transmitting focus moves to different radio
- ◆ When enabling keyboard mode, transmit focus follows keyboard focus
- ◆ Follows audio routing setting except, when not transmitting:
  - ◆ Tapping ESC listens to both radios
  - ◆ Focus radio 1 when radio 1 has keyboard focus listens to radio 1
  - ◆ 'Focus radio 2 when listening to radio 1' listens to both radios (radio 2 now has gained focus)
  - ◆ Focus radio 2 when radio 2 has keyboard focus listens to radio 2
  - ◆ Focus radio 1 when listening to radio 2 listens to both radios (radio 1 now has also focused)



## Data Entry Techniques

### Stacking Calls

If you hear more than one call answering your CQ call, you can type them separated by commas in the call entry field. Then you can complete QSOs with each call without editing the call field, as follows:

- ◆ Transmit the Begin QSO message.
- ◆ Enter the received exchange.
- ◆ Transmit the End QSO message. SkookumLogger will remove the call just sent. If another call exists, SkookumLogger will then transmit the 'Unstack QSO' message.

The default Unstack QSO message is "R NW \* &", which sends a short acknowledge for the previous QSO together with a hint that a new QSO is about to begin immediately, followed by the unstacked call and your exchange. You can customize this message in the [usual way](#).

### County Line Straddlers

With [straddlers](#), separate counties with a forward slash.

### Text Commands

Text commands are things you type into a call field that do not look like calls. Press return after entering the command to apply the command and clear the call field. Commands that affect radio frequency or mode apply the to radio with transmit focus in 1T1R and 1T2R, and to the radio with keyboard focus in 2T2R.

#### *Frequency text command*

Type a frequency in kHz into either call field. You can include a decimal point in the frequency. If you have the **Remap ' ' key to '?' key in Call field** option enabled in Logging settings, a question mark in the typed frequency will be treated as a decimal point.

If the frequency is less than 1000, it is treated as offset from the current band edge in kHz. The radio is set to transceive on that frequency.

If you type an asterisk (\*) before the frequency, the frequency is processed as above and used to set the transmit frequency without changing the receive frequency.

If you type an ampersand (&) before the frequency while Run has transmit focus, the subreceiver will be set to the frequency. If the operating mode is not 1T2R, or if Pounce has transmit focus, or if Radio 1 doesn't have a subreceiver, or if Radio 1 is in SPLIT mode, or if the subreceiver diversity mode (K3) is on, nothing happens.

Also see the [Radio Frequency Editor](#).

#### *Band text command*

This command recognizes a band name typed into a call field and sets the radio to that band.

Band names end in either 'M' or 'CM'. The call field converts lowercase letters to uppercase for you.

The accepted band names are 160m, 80m, 60m, 40m, 30m, 20m, 17m, 15m, 12m, 10m, 6m, 4m, 2m, 125cm, 70cm, 33cm, 23cm, 13cm, 9cm and 6cm.

### *Mode text command*

This command converts what you type into a radio mode and sets the radio to that mode.

Type CW to change the radio mode to either LCW or UCW. The choice is determined by the ***Prefer upper sideband in CW mode*** option in the **Radios** window..

Type SSB to change the radio mode to LSB or USB. LSB is used when the radio transmit band is below 20m, otherwise USB is used.

Type FSK, PSK, DATA, or FM to change to those modes. If the radio does not support the mode, the command is ignored.

### *Bearing text command*

This command converts what you type into bearing in degrees and begins turning rotator 1 to that bearing.

Type a bearing in degrees followed by the degree symbol (°) to change rotator 1 bearing. The degree symbol is typed as option-shift-8.

## Custom Keyboard Behavior

The function keys are the only way to trigger an action like sending a message with a single keypress. A standard mac keyboard has 12 function keys; not enough. An extended keyboard has 7 more; still not enough. SkookumLogger has two ways to add more single-key actions. The first, named *special keys*, assigns an action to a key that is otherwise not used in QSO entry. The second uses an external keypad.

### Special Keys

A special key is a single character typed on your keyboard that is either a punctuation character or a symbol character, with the except of these characters that are used for other purposes in QSO entry fields:

& \*, . / ? ° - \_

Special keys are recognized only when a QSO entry field has keyboard focus.

*Note:* In SkookumLogger 4.3 or newer, if you have previously defined a now-illegal special key, that definition will be silently removed. Simply redefine the action with another key.

#### Messages special keys

The message-sending commands that can be triggered by a special key are listed in the **Special Keys** tab of **Messages** settings. It is important to define just a few that you will use often and leave the rest empty, so that you can develop muscle-memory for when to tap each key. One approach is to define only the Magic Message V1 special key. In that case, you need to be comfortable with the context-sensitive decisions that SkookumLogger makes for you about which of 6 messages to send, and what to do when a decision is wrong. Another approach is to define the Begin QSO and End QSO special keys; in this case SkookumLogger chooses one of 2 messages for each key that depend on run/pounce transmit focus. Those who don't trust software to make decisions for them will want to use other message special key choices.

#### Correct Last QSO special key

This command is helpful for quickly correcting typos in the most recently logged QSO. The QSO entry fields are empty after logging a QSO, so you simply enter the correction(s) in the field(s) with the typo and run the command to replace the typo. The special key definition is entered in the **Correct Last QSO special key** field of **Logging** settings.

#### Focus activity table special key

The **Activity > Focus Table for Current Band** command quickly changes keyboard focus to the an activity table for the current band, where you can then select and grab an activity, again using only the keyboard. The definition for **Focus activity table** in **Activities** settings is an alternate way to trigger this command.

#### Radio spot tone toggle special key

This special key is defined in the [Radios](#) window, used for quickly turning the radio spot function on and off.

## XK-24 Keypad

This [keypad](#) is an external device connected by USB, with 24 keys. Each key has two backlights, red and blue. The keys have replaceable labels. SkookumLogger automatically detects this device and enables the connection when it is discovered at startup.

Pressing a key sends a key ID to SkookumLogger, which performs a task associated with the ID and may indicate the task result using blue and red backlights behind the key. The backlights blink when an error occurs. Holding a key for more than 0.5 seconds performs the task for Radio 2 instead of the default, Radio 1.

Some examples of uses for the keypad:

- ◆ Choosing among a set of directional receive antennas, with the buttons located in a 3 x 3 group indicating the direction, a backlight on to indicate the selected antenna, and the center button used to select the direction appropriate for the call in the QSO entry field with transmit focus.
- ◆ Choosing among different transmit antennas, using backlights to indicate which are selected for each of two radios, and blinking backlight to indicate YCCC MOAS conflicts.
- ◆ Choosing one of four panadapter settings, again using a backlight to indicate the selection.



## Keypad Button Menu

The effect for each button is configured in a popup menu that lists the available commands. Most commands are prefixed with the name of the corresponding SkookumLogger menu and perform the same function as choosing them from the menu.

The **Select Antenna for Key ID** command chooses receive and transmit antennas. When you press a keypad key, the ID for the key is identified at the bottom of the window. You associate this ID with an antenna choice using the Keypad ID property in the [antenna switching configuration file](#).

The **Select Best Antennas** command combines commands for selecting the best transmit antenna and the best receive antenna for the current target bearing.

The blue button backlight indicates a selected antenna or a Elecraft [P3 span setting](#). The four P3 span choices also apply to the Elecraft K4 panadapter. For Radio 2 antennas, the backlight is red. If both red and blue backlights are lit, the antenna switch has reported a conflict – one radio tried to select an antenna in use by the other radio.

2T2R > 2BSIQ  
 2T2R > Listen to Both Radios  
 2T2R > Listen to Radio 1  
 2T2R > Listen to Radio 2  
 2T2R > Radio 1  
 2T2R > Radio 2  
 2T2R > Swap Antennas  
 2T2R > Swap Radios  
 Activity > Create  
 Activity > Grab to Radio 1  
 Activity > Grab to Radio 2  
 Log > Correct Last QSO  
 Log > Delete Last QSO  
 Log > Toggle Transmit Focus  
 Messages > Abort  
 Morse > Key Down  
 Morse > Keyboard Mode  
 Morse > Step Speed Down  
 Morse > Step Speed Up  
 None  
 Radio 1 > Decrease Bandwidth  
 Radio 1 > Increase Bandwidth  
 Radio 1 > Toggle Submode  
 Radio 2 > Toggle Submode  
 Radio > Focus P3  
 Radio > Normalize P3 Medium  
 Radio > Normalize P3 Narrow  
 Radio > Normalize P3 Wide  
 Rotator > Set Rotator 1 to Long Path  
 Rotator > Set Rotator 1 to Short Path  
 Rotator > Set Rotator 2 to Long Path  
 Rotator > Set Rotator 2 to Short Path  
 Rotator > Set Rotator 3 to Long Path  
 Rotator > Set Rotator 3 to Short Path  
 Select Antenna for Key ID  
 Select Best Antennas  
 ✓ Select Receive Antenna for Key ID  
 Steal Frequency  
 k4macros.py  
 up2.py

## Script Support

*Beware:* Here be advanced topic.

The bottom two items are examples of commands that are defined via external scripts. To add a script where SkookumLogger will find it, copy it into `~/Library/Application Scripts/com.k1gg.SkookumLogger` and make it executable.

The script is invoked with a single command line argument which is the path to a JSON file. The format of the JSON file is described below.

### JSON Format

Key	Data Type	Description
key_id	integer	The index of the XK-24 key that was pressed. A single script can be used to handle various keypad keys
active_radio	integer	An index matching the <code>id</code> in the <code>radios</code> key
radios	list	A list of entries as described in the Radio Keys table

### Radio Keys

Key	Data Type	Description
id	integer	A unique ID for this radio. This zero-indexed and will be 0 for SkookumLogger Radio 1 and 1 for Radio 2
enabled	bool	<code>true</code> if the radio is enabled, otherwise <code>false</code>
main_frequency	integer	The frequency of the main receiver in Hz
sub_frequency	integer	The frequency of the sub receiver in Hz
xmit_frequency	integer	The radio's transmit frequency in Hz
mode	string	The current radio mode
band	integer	The current radio band, e.g. <code>40</code> for 40 meters
is_tcp	bool	<code>true</code> if the radio is configured to use TCP/IP, <code>false</code> otherwise
ip_addr	string	The ip address of the radio, exists only if <code>is_tcp</code> is <code>true</code>
ip_port	integer	The ip port of the radio, exists only if <code>is_tcp</code> is <code>true</code>
serial_port	string	The name of the serial port used by the radio, exists only if <code>is_TCP</code> is <code>false</code> . May be <code>null</code> if no serial port is associate with the radio.

Key	Data Type	Description
serial_baud	integer	The serial baud rate of the serial port used by the radio, exists only if is_TCP is false. May be null if no serial port is associate with the radio.
serial_parity	integer	The serial parity of the serial port used by the radio, exists only if is_TCP is false. May be null if no serial port is associate with the radio.
serial_stop_bits	integer	The serial stop bit of of the serial port used by the radio, exists only if is_TCP is false.

*Example Script up2.py*

```
#!/usr/bin/env python3
```

```
import json
import pprint
import subprocess
import sys
```

```
def main():
    with open(sys.argv[1]) as fh:
        data = json.load(fh)

    # Note that data['key_id'] holds the XK-24 key pressed
    # so a single script could service multiple keys

    # Choose the info for the active radio

    radio = data['radios'][data['active_radio']]

    #Check if we're a TCP K4
    if radio['type'] != 'K4 TCP' or not radio['is_tcp']:
        pprint.pprint(radio)
        print("ERROR: Only K4 TCP radios are supported")
        sys.exit(1)
    else:
        # Send the command to the IP:port of the K4
        # for complex scripts you might open a proper socket, for
        # this script just invoking a shell script using netcat (nc)

        cmd = 'UP;UP;'
        ip_addr = radio['ip_addr']
        ip_port = radio['ip_port']
        subprocess.run(f"echo '{cmd}' | nc {ip_addr} {ip_port}", shell=True)

    return 0
```

```
if __name__ == '__main__':  
    sys.exit(main())
```

### Keyboard Maestro

This is a powerful app that can associate keyboard keys with one or more SkookumLogger commands. It is useful when you want to use keys that are not accessible as shortcuts in macOS preference, such as caps lock and keypad keys on extended keyboard. It can access any menu item in SkookumLogger using the default shortcut if there is one, or the names of the menus in the path to the menu item.

See [Using Keyboard Maestro](#).



## Fonts and Colors

SkookumLogger uses the System monospaced font in order to display slashed zeros. You can choose the font style for all QSO entry fields except the Call field from a menu listing font weights.

Text adornments (font style and color together) indicating needed status are applied to the call entry fields and QSO Status Information in QSO Entry panes, to the calls in Activity tables, and to known activity cursors in the Panadapter window.

*Suggestion:* Use heavier font weights to emphasize needed calls.

Open the Logging panel to access Fonts and Colors settings. Click a color well to open the system Color chooser. If you alternate between Dark mode on and off, use the colors in the Developer palette with names beginning with “system, which adapt to system appearance mode changes.”

**QSO entry style** (Regular) determines the weight of the text displayed in QSO entry fields other than the Call field. The font is monospaced with a slashed zero, and has nine weight styles between Ultra-light and Black.

The items with both a font style chooser and a color well determine appearance of calls based on their needed status. *Note:* the font for **Worked before** and **Zero-point QSO** is always Regular-italic.

**Buddy** (Regular, systemPurple) is used for your own call and for call that match those in your [Buddy Calls list](#). Orange can be a good choice for this.

**Worked before** (Regular-italic, systemRed) is used when the call is would be a duplicate according to the contest rules. Red is a good color for this status.

**Needed multiplier** (Regular, systemGreen) is used when the call would be a new multiplier. A medium green color is one option to use for this.

**May be multiplier** (Regular, systemYellow) is used when SkookumLogger believes the call might be a new multiplier but can't be sure. This condition occurs when multiplier status depends on more than just the call.

**Needed QSO** (Regular, systemMint) is used when the call hasn't been worked before and isn't a needed multiplier or a possible multiplier. Blue might be a good choice for this as hopefully many calls typed in will fall into this category.

**Zero-point QSO** (Regular-italic, systemGray) is used when the call is known to not contribute QSO points. A thin weight and neutral color are suitable for this case.



When SkookumLogger doesn't have enough information to determine status for a call, it uses the system default text color (white in Dark mode, black when Dark mode is off). Common cases for this are an invalid call or contest rules that require received location information to check for dupes.

***Partial match underline color*** (systemRed) is used for underlining characters in known calls in the Partials pane that are either matched or not matched, depending on the **Underline unmatched characters** Logging setting.

***Entry field background highlight color*** (unemphasizedSelectedTextBackground) determines the background color for the call field when the call is exactly matched to a known call in the Partials pane, and for other QSO entry fields when SkookumLogger has pre-filled the field value. In addition, the color determines the highlight color behind the text of an exactly-matched call in the Partials pane.

## Activities

An *activity* encapsulates information about a particular signal heard on the air by you or – if connected to DX Cluster – by others. The information is extracted from DX Cluster announcements and from your logged QSOs. Activities may also be created manually or automatically via options in Activities settings. Activities are displayed in tabular format in a separate window for each band. They can also be displayed graphically in a [Panadapter](#) window.

### Activity Windows

Call	Age	Freq	Mode	° Bearing	Info	Source	By Me
N5ME	1	*14.054.000	CW	249	14 dB 15 WPM V	KM3T-2-#	
N2TNN	1	*14.050.900	CW	234	13 dB 20 WPM V	VE6WZ-#	
KE3Z	4	*14.043.000	CW	236	31 dB 20 WPM V	W1NT-6-#	
EL2DT	1	*14.035.000	CW	105	tnx CQ	JH1GEX-7	
RA3QTT	1	*14.031.000	CW	39	09 dB 23 WPM V	3D2AG-#	
LY2PX	1	*14.026.100	CW	41	26 dB 26 WPM V	UA4M-#	
G5VZ	1	*14.025.200	CW	52	08 dB 27 WPM V	LZ4AE-#	
<rx>	1	14.024.980	CW			radio	✓
EW3W	1	*14.014.900	CW	45	16 dB 25 WPM V	RU9CZD-#	
VE3CG	1	*14.013.000	CW	284	19 dB 19 WPM V	AA4VV-#	
N4RSS	1	*14.005.300	CW	224	14 dB 25 WPM V	WC8GOP-#	

You can have any combination of thirteen activity windows open at the same time. You manage your activity window using items in the **Window > Activity Tables** menu.

Activities are presented in a table. The two popup lists above the table have choices for which among all activities for a band are displayed in the table.

The **Call** column content use the fonts and colors defined in Logging settings to distinguish needed multipliers, needed QSOs, and duplicates.

In a WAEDC contest, # preceding a call identifies a station that can send/receive QTCs, and the prohibited emoji 🚫 identifies a station that has refused QTCs.

The call column for the current radio band also shows pseudo-activities named <rx> and <subrx> at the frequencies for your receiver and subreceiver. When the frequency of a pseudo-activity is near an activity, the activity is selected. The **Frequency tolerance** option in [Activities Settings](#) defines “nearness”.

**Note:** The subreceiver pseudo-activity appears only in 1T2R mode.

The **Age** column displays how many minutes have elapsed since the activity was added to the table. The **Activity age limit** option in [Activities Settings](#) sets the threshold for removing old activities from the table. **Tip:** to reset all of the activity tables, temporarily change the limit to 1.

The **Frequency** column displays the transmit frequency for the activity. The frequency is preceded by an asterisk if the activity has differing receive and transmit frequency. This can occur if QSO information is detected, and when you create a spot from Pounce QSO that has a transmit offset. Grabbing an offset activity will set up the radio in split mode. **Note:** QSO means "I am listening on ...", used by stations operating split to indicate the frequency they are listening to.

The **Mode** column lists the mode for each activity. For some DX Cluster announcements, SkookumLogger has to guess mode from frequency. When the guess is wrong, you can correct it by selecting the activity and choosing the correct mode with the appropriate **Activity > Set Mode to** menu item.

The ° **Bearing** column contains the short-path bearing from your location to the call, determined when the activity is created.

The **Info** column contains either information extracted from the DX Cluster spot comment field when the spot source is a skimmer, or, for internally-generated activities, the received QSO exchange information. See [Skimmer Filters](#) for details on the extracted information.

The **Source** column identifies the origin of the activity. When the source is a skimmer, the source call has "-#" as the suffix.

The **By Me** column contains checkmarks for internally-created activities.

You can choose which columns are visible, rearrange and resize columns, and sort on a column; see [Table Manipulation](#). **Activity > Activity Table Items** also manages table column visibilities, individually for each band, or for all tables.

## Activity Settings

The gear icon at the top right corner of each Activity window opens the Activity Settings window. The properties defined here apply to all Activity windows.

### **Activity age limit** (60) –

Activities with ages greater than the limit are discarded. Activities generated by skimmers are separately aged out with a 10 minute limit.

### **Table update interval** (1.0) –

Determines how often SkookumLogger updates the activity tables from queues of incoming activities.

**Frequency tolerance** (200) – Determines the matching tolerance when comparing frequencies for removing nearby activities, highlighting nearby activities, and autofilling nearby activities. When set to zero, no nearby activities are removed or highlighted.

**Focus activity table special key** () – Assigns a single key as the shortcut for changing keyboard focus from the Log to the Activity table for the log's current band.

**Remove old activities near new activities** (YES) – Prevents accumulating many activities near the same frequency.

**Activity >Create clears QSO Entry** (NO) – clears the QSO entry pane fields for the pane with keyboard focus after creating an activity from the contents of that pane.

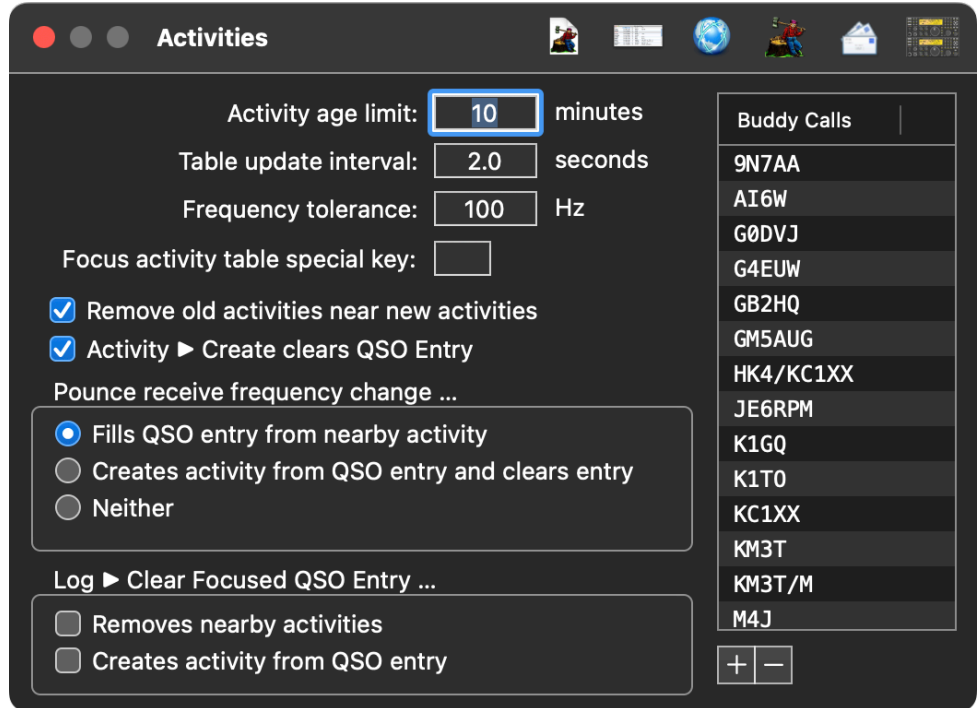
### **Pounce receive frequency change ...**

**Fills QSO entry from nearby activity** (NO) – Fills Pounce QSO entry fields from an activity near the pounce receive frequency. If there is no activity within the tolerance, the entry fields are cleared. "Near" is  $\pm$  the **Frequency tolerance** setting. While tuning near an activity in Pounce mode, the receiver frequency may snap back to the activity frequency unless you tune slowly.

**Creates activity from QSO entry and clears entry** (NO) – Creates an activity when tuning by more than the tolerance after entering a call, using the information in the Pounce QSO entry pane before clearing the entry fields.

**Neither** (YES)

**Log > Clear Focused QSO Entry ...**



**Removes nearby activities** (YES) – removes activities near the same frequency as the radio when clearing a QSO entry pane.

**Creates activity from QSO entry** (NO) – If the QSO entry call field has a valid call sign, adds a new activity to the Activity table for the current band using the information in the QSO entry fields, then clear the QSO Entry Pane.

The **Buddy Calls** list has two roles. First, any call in the list is exempted from filters that you may apply to your activity tables. Second, the list supplies the elements of the <buddies> token for DX Cluster “always pass” [spot filtering](#), so that announcements for your buddies will always pass the filter. The list is alphabetically ordered. To add a call, click the + button, then edit the “new buddy” item. Be sure to include your contest call so that spots for you are distinguished in activity tables.

The calls in the list of buddies are adorned with the **Buddy** font style and color when the calls appear in activity tables, partials lists, and call entry fields.

## Activity Commands

The Activity menu has items for interacting with the active Activity window. The active window responds to your keyboard input, used for navigating the rows in the table, and for applying commands to the selected table row. To make an Activity window active, click on the Activity window with the mouse, use **Activity > Focus Table for Current Band**, or choose an item in the **Window > Activity > Tables** menu.

**Note:** While an Activity window has keyboard focus, the content is not updated. This makes it easier to interact with specific rows in the table.

The **Focus activity table special key** option in Activities settings defines a single-key shortcut for the **Activity > Focus Table for Current Band** command.

To select a row in the activity table of an active Activity window:

- ◆ Use the up or down arrow keys
- ◆ Begin typing a call
- ◆ Click on the row

The Activity menu items with “-click” in their name select the row and apply the action in one step.

If the call field of the QSO pane with keyboard focus is not empty, **Activity > Announce** and **Activity > Create**, construct an activity from the information in the QSO pane and add it to the Activity table for the QSO’s band. In the Announce case, the activity is converted to a DX announcement and sent to your DX Cluster connection.

### Focus Table for Current Band

Announce	⌘ =
Create	⇧ ⌘ =
<hr/>	
Grab to Pounce (click)	⌘ ⇐
Set Pounce (⇧-click)	⇧ ⇐
Set SubRX (⌘-click)	⌘ ⇐
Delete (⌘-click)	⌘ ✕
Add to Reject List (⇧⌘-click)	⇧ ✕
<hr/>	
Call Refused QTC	
Set Mode to CW	
Set Mode to SSB	
Set Mode to FSK	
Set Mode to PSK	
<hr/>	
Update Needed Flags	
Activity Table Items	>

**Activity > Grab to Pounce (click)** loads the activity into the Pounce QSO entry fields and changes keyboard focus to the Pounce entry pane. In the 2T2R operating mode, this item is **Activity > Grab to Radio 1 (click)** and loads the activity into the Radio 1 QSO entry fields, changing the radio mode and frequency but not changing which entry pane has keyboard focus. The 2T2R *Grab spots to transmit/not-transmit radio* OpMode setting changes this item to **Activity > Grab to Transmit Radio (⇧-click)**, loading the QSO entry fields for the radio with transmit focus.

**Activity > Set Pounce (⇧-click)** loads the activity into the Pounce QSO entry fields without changing keyboard focus. In the 2T2R operating mode this item is **Activity > Grab to Radio 2 (⇧-click)** and loads the activity into the Radio 2 QSO entry fields, changing the radio mode and frequency but not changing which entry pane has keyboard focus. The 2T2R *Grab spots to transmit/non-transmit radio* setting changes the item to **Activity > Grab to Not-transmit Radio**, loading the QSO entry fields for the radio without transmit focus.

When the *Pounce receive frequency change ... Fills QSO entry from nearby activity* option is on in Activities settings, the **Activity > Set Pounce** command is automatically executed as you tune the receiver across an activity. If there is no nearby activity, the Pounce QSO entry is cleared.

**Activity > Set SubRX (⇧-click)** changes the subreceiver frequency of the current transmit radio to the frequency of the activity.

**Activity > Delete (⌘-click)** removes the activity from the table.

**Activity > Add to Reject List (⇧⌘-click)** removes the activity from the table and adds the activity's call to a list of calls are ignored when processing DX Cluster spots. The list is saved in the `RejectedCalls.txt` file, in the [Applications Support](#) folder. Typically, use this feature for calls that are frequently bad spots.

**Activity > Call Rejected QTC** adds the call in the active QSO entry pane to a list of calls that refused when you asked to exchange QTCs. Calls in that list appear in Activity tables flagged with the prohibited emoji: 🚫. The command is hidden except for the WAEDC contest. The list is emptied when you start SkookumLogger, reset the log, or change to a different log.

**Activity > Update Needed Flags** update status for all activity tables. Editing a logged QSO can invalidate the needed status for activities; this won't be noticed for logs that exceed the *Automatically rescore logs smaller than* Logging settings limit.

## Locally Networked SkookumLogger Activities

When two more computer running SkookumLogger are using [SkookumNet](#), activities created on one computer show up on all other computers.

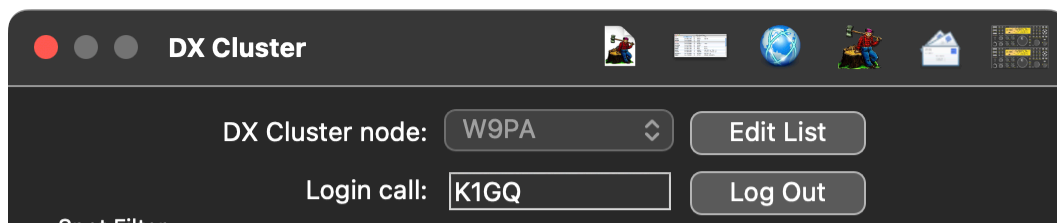


## DX Cluster

Some contests or entry categories require that the operator doesn't use any externally provided information to find stations to work, generally known as unassisted categories. In SkookumLogger, you should disconnect (log out) in the DX Cluster setting window to ensure that external sources do not add entries to the Activity windows. The DX status icon in the main window should be red, indicating no connection with a large red X.

SkookumLogger supports AR Cluster version 6.1 nodes in order to take advantage of the CT1BOH algorithm for assessing skimmer spot quality. Other types of nodes may or may not work as described here.

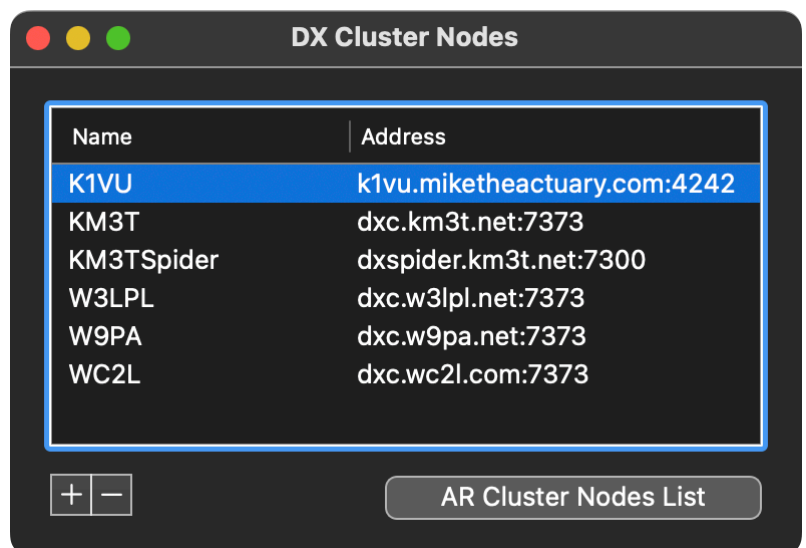
## Logging In



To log in to a AR Cluster node, choose a node name in the **DX Cluster node** popup list, enter a call (which isn't necessarily the same as your own call or your contest call) in the **Login Call** text field, then click Log In. You can use any call you want as the login call, but be aware that spot filters that you set up on the node are associated with that call. SkookumLogger remembers the log in status across sleep/wake and quit/restart cycles and automatically logs in when necessary. SkookumLogger also monitors traffic to detect outages.

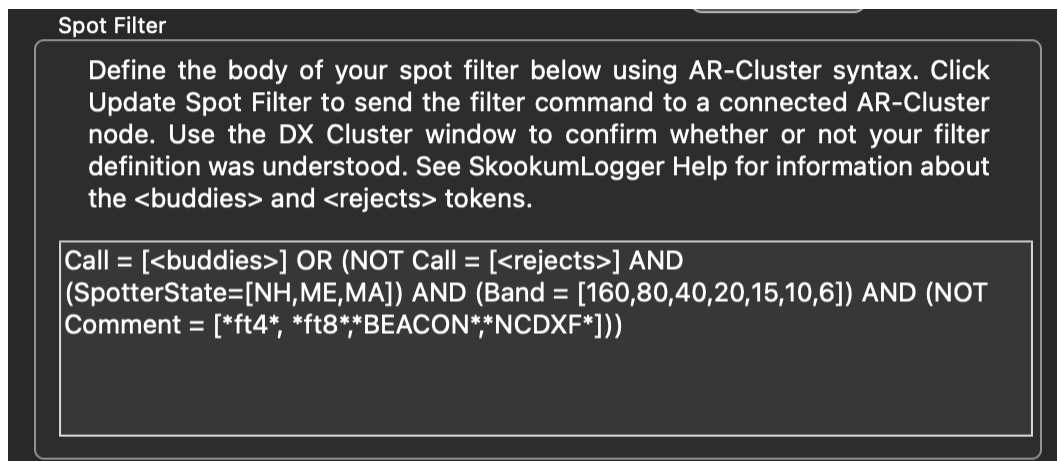
## Node List

The DX Cluster Nodes popup list has a few pre-defined sites. You can add or remove items by clicking **Edit List** to open the DX Cluster Nodes window with a table listing node names and URLs. The **Name** for a node can be anything you like. **Address** must be a valid URL, optionally followed by a colon and a port number. SkookumLogger assumes the port number is 23 (the telnet default) when none is supplied. Click the **AR Cluster Nodes List** button to visit a web page containing a large table of DX Cluster nodes, included their addresses and their software versions.





## Spot Filters



When you connect to a DX Cluster node running version 6 of the AR Cluster software, you receive DX announcements, termed spots, from all around the world. If you do this, you should choose the Assisted item for the Assisted: choice in the Cabrillo Category Items box in your settings opened by **Log > Cabrillo Settings....**

During a contest, there can be millions of spots per day. SkookumLogger converts received spots into activities and displays them in Activity tables for each band. The conversion eliminates some of the spots, but that processing can interfere with other concurrent processing by SkookumLogger so it is better to eliminate spots before they are sent to you. You do this by defining a spot filter. Spot filters are stored on the node that you are connected to, and reduce the number of spots that are sent to you without affecting anyone else. Each node maintains a spot filter associated with your login call, independent of your spot filters on other nodes.

You can use SkookumLogger to define a spot filter in DX Cluster settings. The challenge is understanding what to enter there. While **Help > AR Cluster Spot Filter Guide** opens a web page containing the documentation for spot filter syntax, that syntax is unfamiliar to those without a computer science or mathematics background. Also, some of the terms in the documentation are ill-defined. This note attempts to elaborate on that latter point.

### Default Filter

This is the default spot filter provided by SkookumLogger:

```
(
  (NOT (Call=[<rejects>])) AND
  (Call=[<buddies>]) OR
  (
    (Band=[160,80,40,20,15,10,6,4,2]) AND
    (NOT Comment=[*PSK*,*TTY*,*BEACON*])
  )
)
```

I've used multiple lines and indenting to clarify the elements of the filter. Some things to note about the construction of a spot filter:

- ◆ Placing parentheses properly is critical. Better to use extra pairs than too few.
- ◆ Balancing parentheses is also critical. There must be the same number of open parenthesis characters as there are close parenthesis characters.
- ◆ My convention is to make boolean logic words all caps: OR, AND, and NOT in the example, but case does not matter.
- ◆ Square brackets denote comma-separated lists of items to be matched, as in the Bands list.
- ◆ The asterisk matches any printable character, as in the Comment list.

The first clause in the filter, `(NOT Call=[<rejects>])`, means "do not send me any spots for calls in my rejects list". Your rejects list is populated using **Activity > Add to Reject List**. I use this to filter out common busted calls. The next clause in the filter, `(Call=[<buddies>])`, means "send me any spot for a call in my list of buddies." Your buddies are defined in the Buddy Calls table in [Activities](#) settings. The contents of these two lists are filled in when you choose Update Spot Filter in DX Cluster settings.

OR after the buddies list clause means "also send me spots that pass the following clauses." There is one following clause, itself containing two clauses separated by AND, meaning "both of these clauses must be satisfied."

The Band clause restricts spots to contest bands between 160m and 2m. The Comment clause, with the NOT prefix, requires that delivered spots must not contain the characters PSK, TTY, or BEACON in their comments fields.

### Source Filters

So far, these examples deliver spots from everywhere in the ham universe. During contests you may want to see spots only from sources near you, since you will be more likely to hear the spotted station. You can devise a filter based on the spotter's location with a clause like one of these:

```
(SpotterItuZone = [4,8,9])
```

```
(SpotterState = [ME,NH,VT,MA,RI,CT])
```

### QSO Party Filters

Out-of-state entrants in state QSO parties want to see only spots for in-state calls. To do this, add a clause like this one for NEQP:

```
(State = [ME,NH,VT,MA,RI,CT])
```

The node determines the state from the call's license address. When you know a call with a out-of-state address is operating in-state, add that call to your Buddies list.

### Skimmer Filters

Skimmers generate nearly all of the CW spots and many of the digital mode spots. These spots are distinguished by Source calls that end with -#. SkookumLogger provides special handling of the

comment field for these spots. To enable receiving spots from skimmers and the special comment field format, send this command to your AR Cluster node (using the DX Cluster window) after you log in:

```
set dx extension skimmerquality
```

The setting should be remembered when you log in again with the same call so you should only need to do this once.

The skimmerquality extension has three parts:

- ◆ *Validation* – When a call is first spotted, it is tagged with "?" (unverified) in the last column of the spot's comment field. If the call of an unverified spot closely resembles an already verified spot on the same frequency, the verified call is provided within parenthesis in the spot's comment field. When two or more skimmers agree on the spot, it is considered verified and the tag becomes "V".
- ◆ *Frequency* – When a verified spot appears more than 0.35kHz off its verified frequency, the spot is tagged "Q" for QSY. Once verified, this becomes the new verified frequency and it is tagged "V".
- ◆ *Probability* – The algorithm checks unverified spots for resemblance with already verified spots and spots at or near the same frequency. If the resemblance is high enough, the spot is considered busted "B" and the corrected call is provided within parenthesis in the spot's comment field.

When a spot is received that includes a call in the comment field, SkookumLogger replaces the spotted call with that call and changes the flag to c or C for spots marked with "?" and "B" respectively, to indicate that the spotted call has been replaced by a corrected call.

SkookumLogger shows the processed comment field in the Info column of the activity table. The Info field for a typical good CW skimmer spot might be:

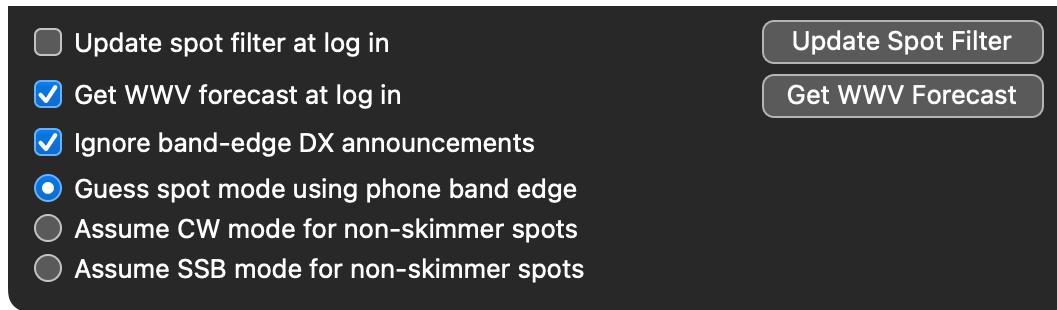
**16 dB 26 WPM V**

Where "16 dB" is the signal-to-noise ratio measured by the source skimmer.

### [Complete Filter Documentation](#)

This [link](#) leads to the AR Cluster web documentation page for DX Spots. The section titled Set DX Filter about halfway down the page describes all of the spot filtering options.

## Other Settings



☐ Update spot filter at log in

☒ Get WWV forecast at log in

☒ Ignore band-edge DX announcements

☒ Guess spot mode using phone band edge

☐ Assume CW mode for non-skimmer spots

☐ Assume SSB mode for non-skimmer spots

Update Spot Filter

Get WWV Forecast

**Update Spot Filter at log in** (NO) sends your spot filter to the node each time you log in, so that you don't have to remember to do that yourself after changing your buddies list or your rejects list. This feature relies on the node sending a line beginning with "Welcome" when you log in; standard AR-Cluster nodes do that and other node types usually do not.

**Update Spot Filter** for use if you have changed it after log in.

**Get WWV Forecast at log in** (NO) asks the AR-Cluster node to send a table of recent WWV propagation forecast data. When received, SkookumLogger displays the most recent data at the lower left corner of [Map](#) windows.

**Ignore band-edge DX announcements** (YES) discards activities for frequencies at a lower band edge. Some illiterate DX cluster users send band-edge spots with messages in the information field as a way to broadcast to everyone.

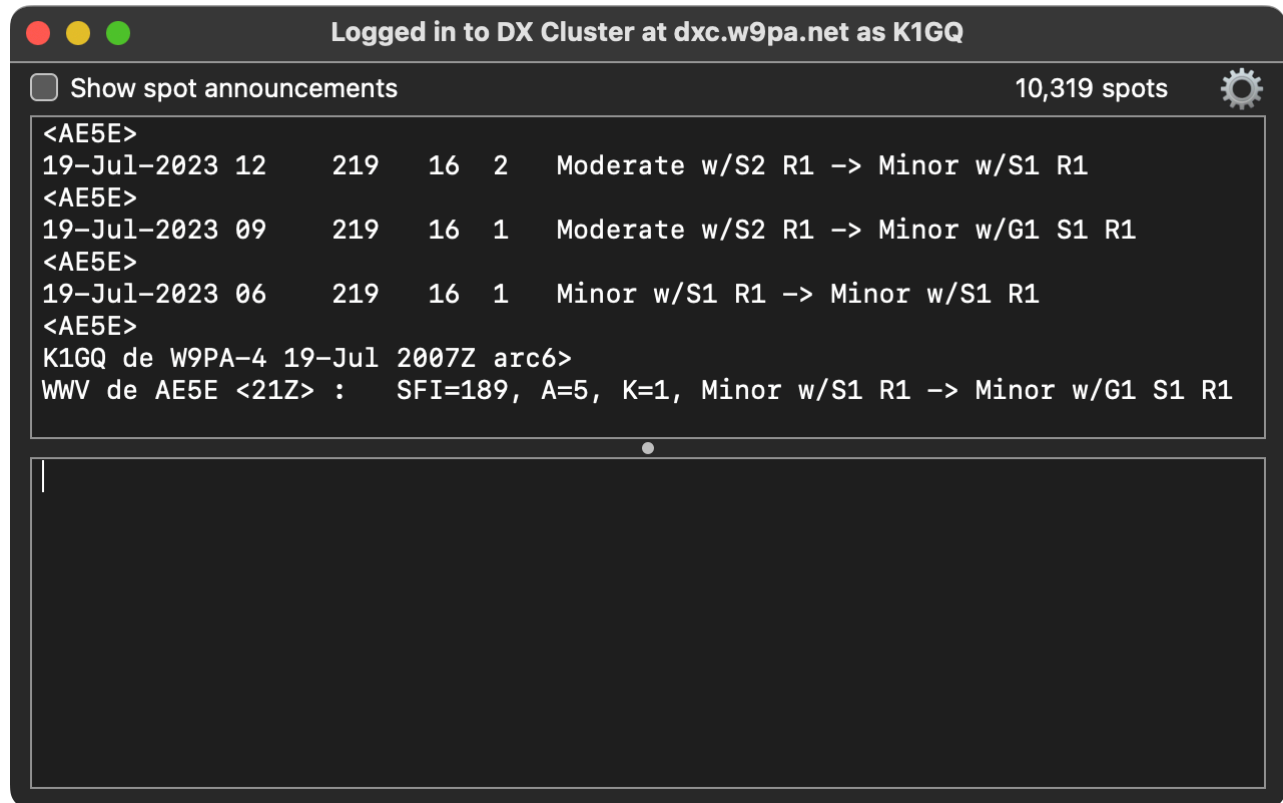
Skimmers cannot generate spot for voice modes (yet), so spots for those modes are generated by humans. While skimmer spots contain reliable mode information in the comment field, human-generated spots do not, due to an oversight in the design of DX announcements.

**Guess spot mode using phone band edge** (YES) guesses mode when needed based on the spot's frequency relative to the phone band edge.

**Assume CW mode for non-skimmer spots** (NO) is useful when the contest mode is CW only.

**Assume SSB mode for non-skimmer spots** (NO) is useful for SSB-only contests and the phone band edge is ill-defined, like the CQ 160m SSB contest.

## Terminal Window



Choose **Window > DX Cluster** to open a terminal interface for interacting with a DX Cluster connection.

The upper text box shows messages received from the DX Cluster. SkookumLogger processes DX announcements for you, so the DX Cluster window normally hides those messages. Choose **Show spot announcements** to see them.

To send a message to the node, click in the lower pane, type a command, then press return. You can resend a previous line by setting the insertion point anywhere in that line and pressing return.

## Messages

SkookumLogger can transmit stored messages. For CW mode, the messages are defined in SkookumLogger and transmitted via your [CW Keyer](#). For SSB mode SkookumLogger uses your radio's voice memories. For FSK/PSK modes, the messages are defined in SkookumLogger and transmitted via your radio's text-to-data encoder.

SkookumLogger assigns specific roles to most messages. You can change the names and definitions of some messages, but you should not change their roles because other messages depend on them.

Start a message transmission by choosing a message in the menu, or by using its keyboard shortcut, or by pressing a [special key](#). You can also start CW messages 1 through 4 by pressing one of the four buttons on your WinKeyer, and abort message sending by tapping your WinKeyer paddle.

When you trigger a message, information about the message is added to the end of a queue. If the queue is empty, the message begins transmitting immediately, and is removed from the queue when the complete message has been sent. If the queue is not empty when transmitting ends, the next message in the queue begins transmitting.

This approach allows you to chain messages by triggering them without concern for overlapping the triggers – the queue handles when they will be transmitted. For example, you can send your call twice by quickly tapping F4 twice; the queue takes care of including a space between them.

SkookumLogger manipulates the color of the mode text in the QSO Entry pane with transmit focus to show you the status of the queue:

- ◆ Normal text color (black or white depending on Light/Dark display mode) when the queue is empty.
- ◆ Blue when transmitting a CQ message.
- ◆ Red when transmitting a message that isn't a CQ message.
- ◆ Orange when transmitting a message and another message is in the queue.

The **Messages > Abort** command immediately stops keyer sending, practice mode sending and radio (DVR) transmission, pauses Beacon CQ, stops Alternating CQ, resets Magic Message, clears the CW message queue, and sets receive audio routing. You should do this when (rarely) the queue stalls, indicated by a colored mode text when no message is transmitting.

The Messages menu is divided into several groups of items that transmit messages:

- ◆ Basic Messages – Simple messages with no side-effects. Many are used as components of compound messages and intelligent messages.
- ◆ CQ Messages – Messages for various CQing techniques, including beacon CQs and alternating CQs for 2T2R.
- ◆ Compound Messages – These messages combine basic messages to construct common messages that can be transmitted with a single key press.

- ♦ Intelligent Messages – Messages that depend on context.

## Basic Messages

The default titles and content for basic messages in new logs are defined in the CW Messages tab of New Log settings. The titles appear on the Messages menu. You can customize some of the titles, marked with † below, using either the default settings to affect all new logs, or the Morse Messages Editor for the current log.

Use the Morse Messages Editor to define the content of these messages for CW mode, and the Data Messages Editor to define content for data modes. For SSB, use the SSB tab in Messages settings to associate a basic message with a DVR message number.

The content of CW and Data messages can include tokens that are substituted just before the message is transmitted.

**Messages > Exchange** – Your sent exchange, displayed in the prompt line of the Log window.

**Messages > Repeat Serial Number** – The serial number for the current QSO, or for the previous QSO if the current QSO is empty.

**Messages > Repeat Exchange** – The sent exchange, omitting the report if any.

**Messages > Acknowledge** – Your “I got it, thanks” message.

**Messages > My Call** – Your own contest call.

**Messages > His Call** – The other station’s call.

†**Messages > Call?** – Ask to repeat call.

**Messages > Again?** – Ask to repeat what was just sent.

†**Messages > Number?** – Ask to repeat number.

**Messages > Short Acknowledge** – A concise acknowledge for use when you know another caller is waiting.

**Messages > Defend** – A “frequency is in use” message. In 2T2R, the message is sent on the radio that doesn’t have keyboard focus. If necessary, sending is aborted and transmit focus is changed to that radio. Morse message tokens are not processed in this message.

†**User 1 ... User 5** – Messages to be fully customized by you.

## CQ Messages

SkookumLogger increments a counter each time you send a CQ message, including customized messages with CQ in their title. The count is displayed in the Score window.

**Messages > CQ** – The basic CQ message. For 1T1R and 1T2R, transmit focus is changed to Run before transmitting if the **CQ changes focus to Run** option is on in Messages settings. For 2T2R, transmit focus is toggled before transmitting.

**Messages > Beacon CQ** – Transmits the basic CQ message. When the message ends, the basic CQ message is added to the message queue again after a delay determined by the **CW Beacon**

**Delay** setting in Messages settings. When a Beacon CQ message is transmitting and **Abort** is triggered, beacon CQing is paused. When paused, triggering the CQ message resumes beacon CQing. Sending with the paddle, or typing into a Run QSO entry field when the **Typing stops CQ** option in Messages setting is enabled, also pauses beacon CQ. The label Beacon CQ appears in the Log window below the search field and the menu item is checked when beaconing. The label changes to (Beacon CQ) and the checkmark on the menu item changes to “–” when beaconing is paused. In either of these states, choosing **Messages > Beacon CQ** turns beaconing off.

**Messages > Alternating CQ** (2T2R only) – Transmits the the basic CQ message. When the message ends, the message is added to the message queue again with no delay, and transmit focus is toggled. When an Alternating CQ message is transmitting and the **Typing stops CQ** option is on and transmit focus matches keyboard focus, typing into a QSO entry field invokes **Messages > Abort**. If keyboard focus is changed while Alternating CQ is transmitting, alternating stops when the CQ ends. Alternating CQ is also started by tapping the F1 (CQ) key with **2T2R > Automatically Enable Alternating CQ** checked, if both radios are in run mode (no yellow gumdrops).

## Compound Messages

Compound messages combine basic messages to construct common messages that can be transmitted with a single key press. These messages cannot be directly edited because their content depends on the content of their basic messages components.

**Note:** Messages with Focus in their title may tell your radio and amplifier to change frequency and begin transmitting with almost no delay. Transmitting might begin before your radio/amplifier has completed the change, which can cause hot-switching or clipping of the beginning of the message. To avoid this possibility, do not use these compound messages. Instead use the equivalent focus command and basic message, waiting for the frequency change to complete before starting the message.

Messages with Log in their title log the QSO for the entry field that had keyboard focus at the time the message was added to the message queue.

When the **Correct mode** option in Messages settings is on, compound messages with Log in their title will prepend the call about to be logged if it differs from the call that was transmitted as His Call.

**Messages > Call Again** sends the content of the call field with transmit focus, with ‘?’ appended when the content has less than 3 characters. In 2T2R, the beginning of the message is delayed by the duration of your sent exchange at the current sending speed. This is an alternative to simply sending **Messages > His Call** to stimulate someone to call again when you have part of their call.

## Intelligent Messages

When SkookumLogger knows whether you are running or searching and pouncing, it can decide for you what messages to transmit. You enable that feature simply by running in the RUN QSO Entry pane and pouncing in the POUNCE QSO Entry pane.



**Messages > Magic Message V1 or V2** – Walks through making either a run QSO or a pounce QSO, based on which QSO entry pane has keyboard focus while pressing the same key at appropriate times. See [Magic Message](#).

**Messages > Begin QSO** – Transmits either **Messages > His Call + Exchange** or **Messages > My Call**, depending on run/pounce mode at the time the message is added to the queue. For 1T1R and 1T2R, the mode is determined by transmit focus. For 2T2R, the mode is determined by the submode (yellow gumdrop) for the radio with keyboard focus at the time the message is added to the queue.

**Messages > End QSO** – Transmits either **Messages > Acknowledge + Log** or **Messages > Exchange + Log**, depending on run/pounce as above.

## Messages Settings

SSB | QTC(CW) | QTC(SSB) | Special Keys

These items define the radio DVR number to play in SSB mode when you choose an item in the Messages menu. Set the number to zero for unused messages. Do not change the roles of the first four messages if you use any compound message that includes any of those four basic messages, such as Magic Message, Begin QSO, and End QSO.

CQ	<input type="text" value="1"/>	?	<input type="text" value="5"/>
Exchange	<input type="text" value="2"/>	Short Acknowledge	<input type="text" value="6"/>
Acknowledge	<input type="text" value="3"/>	Defend	<input type="text" value="7"/>
My Call	<input type="text" value="4"/>	User 1	<input type="text" value="8"/>

Radio 1 CW beacon CQ delay:  sec ☒ Correct mode

Radio 1 SSB beacon CQ delay:  sec ☒ Typing stops CQ

Radio 2 CW beacon CQ delay:  sec ☒ CQ changes focus to Run

Radio 2 SSB beacon CQ delay:  sec ☒ Send leading zeros in serial numbers

☒ Cutify leading zeros in serial numbers

☐ Enable message chaining

Magic Message Protocol:

Click the gear icon labeled M in the main window, or choose the messages icon in the **SkookumLogger > Settings** window to display Messages settings.

The SSB tab defines the DVR message number to play for some Messages menu items. You should create DVR messages that correspond to the message names. Set the DVR number to 0 to tell SkookumLogger not to play that message. For example, if your radio has three DVR channels, you might assign the first channel to CQ, the second to Acknowledge, the third to My Call, and assign 0 to the other five messages.

The QTC tab in Messages settings defines CW messages that are transmitted when sending or receiving a QTC series. These message apply only for WAEDC contest logs.

Some QTC messages are sent automatically as described in [QTC Series](#). Others with a function key in their label are sent when you press that key while the QTC Series window is active. Messages

that involve sending the series number and count are prepended to those values and you will need to include a space at the end of your prefixed string.

The Special Key tab in Messages settings defines additional single-key shortcuts to augment the limited supply of function keys. These keystrokes are recognized only when a QSO entry text field has keyboard focus. You can leave the definitions empty for any of the commands that you do not intend to use via this mechanism. To define a special key, type any single character that isn't a digit, a letter, or one of these symbols `*`, `.`, `/`, `?`, `°`:

*Hint:* Begin QSO and End QSO are the most powerful of these items. Assign them to semicolon and apostrophe, respectively.

The four **Beacon CQ Delay** (4.0) values set the interval between the end of your CQ message and the beginning of the next CQ when Beacon CQ mode is on. The delay for FSK and PSK messages is fixed at 5 seconds.

**Correct mode** (NO) sends the received call before logging if it was changed after it was sent.

**Typing stops CQ** (NO) aborts a CQ message and pauses Beacon CQ mode when you type into a QSO entry field for the entry pane with transmit focus.

**CQ changes focus to Run** (YES) automatically switch transmit to Run before sending the CQ message. This option does not apply for 2T2R. When Pounce has transmit focus and switching to Run causes a band change, SkookumLogger waits 1 second before beginning to send the CQ message.

**Send leading zeros in serial numbers** (YES) prepends zeros to sent serial numbers smaller than 100.

**Cutify leading zeros in serial numbers** (YES) sends T instead of 0 for prepended digits.

**Enable message chaining** (YES) queues a message when you tap a send key while a message is already sending. Turn this off to ignore sent key presses while a message is sending, which can be important in keyboard-intensive operating scenarios like 2BSIQ.

## Messages Editor

**Morse Messages Editor**

**Message Tokens**

~ sent call      # sent serial      \* received call      {n message-n  
& sent exchange      ! QSY      + received name      | half-space

**Morse Messages**

Menu Title	Tokenized Message	Menu Title	Tokenized Message
CQ	CQ TEST ~	Short Acknowledge	TU
Exchange	&	Defend	QRL
Acknowledge	TU ~	Unstack QSO	R NW * &
My Call	~	Short CQ	TEST ~
His Call	*	NR ?	NR
Call?	CALL?	CWT	BILL NH
?	?	His Name	HI +
Again	AGN	User 5	USER 5

**Magic Messages**

	Begin	Continue	End
Run:	{1	{5 {2	{3
Pounce:	{4	R {2	

The Morse Messages Editor customizes basic message titles and content for CW messages. Changes that you make with this editor are saved with the current log and do not affect other logs or the default messages in the Messages tab of New Log settings.

Some of the Menu Title items are editable. Text that you enter here also appears for the corresponding items in the **Messages** menu.

All message definitions in SkookumLogger can contain plain text and tokens. The plain text is case-insensitive, and may include any characters recognized by the WinKeyer. Unrecognized characters are ignored when sending a message.

Tokens are placeholders for information that depends on your log, such as the received call or the sent serial number. When you trigger sending a message, SkookumLogger quickly scans the message definition for tokens and replaces them with suitable plain text.

The available message tokens are:

sent call (~) – The call sign in the Call field of the sent exchange.

sent exchange (&) – The content of *Morse Sent Exchange Template* in the [Sent Exchange Editor](#). In CW mode, SkookumLogger automatically sends the content of the Sent Report entry field before sending the exchange message when the current log has a Sent Report entry field. That field does

not accept alphabetic characters, although "9" is converted to "N" when sending. So, for example, you cannot create the "ENN" abomination.

sent exchange field (&1 ... &5) – the components of the sent exchange for contests where the exchange has up to five fields (think ARRL Sweepstakes). Use these messages to respond to requests to repeat a specific field.

sent serial (#) – The next serial number, shown in the exchange prompt of the log window.

received call (\*) – The content of the Call field of the active QSO data entry pane. When the token for **received call** is at the beginning of a message, it is sent with call type-ahead, and the sent call is remembered for detecting whether or not the call field changed afterward.

received name (+) – The content of the Name field of the active QSO entry pane. If there is no Name field, SkookumLogger looks for a name associated with the received call in your Exchange database.

message-n ({n}) – Inserts the n-th (1 through 16) basic message definition. The first column of messages are numbered 1 through 8, and the second column message numbers are 9 through 16. The special token "{0}" inserts the content of the sent exchange info field, typically used when the info field is an administrative code such as a county. You can include multiple message-n tokens in a message, but be careful not to construct an endless message by directly or indirectly referencing the same message.

QSY frequency (!) – Inserts the transmit frequency (in kHz) for the QSO entry pane that does not have transmit focus (the pane without the red dot). Use this to a message for passing a station you have just worked to another band. In 2T2R, when transmit focus and keyboard focus are different SkookumLogger automatically changes transmit focus to the entry pane with keyboard focus when you start a message. In this case, the frequency in the QSY message will be the frequency for the radio that had transmit focus before the change and it will be transmitted on the radio with transmit focus after the change. When using SkookumNet, the frequency is [determined differently](#).

half space (|) (CW messages) – Inserts a space with half the duration of the normal space between Morse characters.

CRLF (}) (data messages) – Starts a new line.

There are two simple rules to be aware of when defining messages:

- ♦ The **CQ** message is the message that plays when Beacon CQ mode is active.
- ♦ The token for message-n must not be used in the definition for message-n, or in any other message referenced by message-n.

## CW Messages

SkookumLogger requires a WinKeyer or certain WinKeyer emulations to send CW messages. The tested emulations are the keyers in the two YCCC SO2R devices, including a customized version of the YCCC SO2R Mini by JH5GHM.

**Note:** it is possible to send messages using a radio with a CW text encoder, which is the same thing as a builtin CW keyer. This has limitations: call type-ahead and keyboard mode are unavailable. See [Text Decoding and Encoding](#).

Use **Window > External Devices > Morse Keyers** to set up your keyer.

Each SkookumLogger log has a set of 16 basic CW messages and 6 Magic Message messages. When you create a new log, the messages are copied from the definitions in the CW Messages tab of New Log settings. Choose **Window > Editors > Morse Messages Editor** to open a window for customizing messages in an existing log. Changes that you make in the editor are saved in the log document and do not affect preference values.

In CW mode, the relevant **Messages** menu items are disabled unless Practice Mode is enabled or a supported keyer is available. The SO2R Box+ is available if it is turned on; other keyers are available when their serial port connections are enabled.

## DVR Voice Messages

In SSB mode, SkookumLogger can play up to eight radio DVR messages for radios that have voice message playback. The **Messages > Record Voice Message >** menu items instruct your radio to begin recording one of up to eight DVR messages. Use **Messages > Save Recording** to end the recording. You may find it easier to get the message length just right with these keyboard actions than with buttons on your radio. The radio is in transmit mode during the recording. An Elecraft K4 stores the recording in a buffer, and can be discarded without affect the existing message using **Messages > Cancel Recording**.

See the SSB tab in [Messages](#) settings to assign which DVR message plays for when you choose a message item in the Messages menu.

## Synthesized Voice Messages

SkookumLogger 4.6 or newer leverages the macOS Personal Voice and Live Speech features, available in Sonoma on silicon Macs, to send voice messages in a manner similar to CW message sending. You define the messages in a voice messages editor, and trigger a message using the same keyboard shortcuts. SL replaces message tokens with text, optionally replaces words – typically call signs – with phonetics for the characters in the words, then converts the text to speech. This feature is named the Voice Keyer.

### Enabling the Voice Keyer

When you first start SkookumLogger on a computer that satisfies the requirements for using the Voice Keyer, you will see an Alert asking permission to use Personal Voice. If you click Allow, the permission alert won't appear anymore when you start SkookumLogger. A permission status message will appear in the Status Messages window when you start SkookumLogger. If you have no personal voices on your computer, a second status message will appear explaining that Voice Keyer cannot be enabled.



When the Voice Keyer is enabled, you will see two "waveform" status buttons next to the recording icon at the bottom right corner of the log window, corresponding to Radio 1 and Radio 2:



The status button without a slash indicates that the Voice Keyer is using speech synthesis when sending SSB messages. Otherwise, the Voice Keyer uses the radio DVR, if available. Click the button to toggle voice keyer enabling, command-click to open the Voice Messages Editor. The Radio 2 voice keyer status button is disabled unless the operating mode is 2T2R. Sending with the DVR is the default when the Voice Keyer is not enabled.

## Voice Messages Editor

**Voice Messages Editor**

Radio 1 Radio 2

☐ Use radio DVR ☒ Use synthesized voice messages Output Device: No Value

**Message Tokens**

~ sent call # sent serial \* received call [ ] speak in phonetics and  
& sent exchange ! QSY frequency + received name plane number

**Voice Messages**

Default Voice: Bill's Personal Voice Default Pitch Multiplier: 1 Default Rate: 0.5

Menu Title	Tokenized Message	Voice	Pitch	Rate
CQ	CQ contest,[-],[-]. co	No Value	1	0.5
Exchange	&	No Value	1	0.5
Acknowledge	Thanks,[-]	No Value	1	0.5
My Call	[-]	No Value	1	0.5
His Call	[*]	No Value	1	0.5
Call?	Give me your call.	No Value	1	0.5
?	Give me the number.	No Value	1	0.5
NR	Again?	No Value	1	0.5

**Phonetics**

Reset Defaults

A Alfa	B Bravo	C Charlie	D Delta	E Echo	F Foxtrot	G Golf	H Hotel	I India	J Juliett
K Kilo	L Lima	M Mike	N November	O Oscar	P Papa	Q Quebec	R Romeo	S Sierra	T Tango
U Uniform	V Victor	W Whiskey	X X-ray	Y Yankee	Z Zulu	/ Stroke			
0 Zero	1 One	2 Two	3 Three	4 Four	5 Five	6 Six	7 Seven	8 Eight	9 Nine

**Voice, Pitch and Rate for other Messages menu items**

Beacon CQ:	CQ	His Call + Exchange:	His Call
Alternating CQ:	CQ	Exchange + Log QSO:	Exchange
BeginQSO (Run):	His Call	Short Acknowledge + Log QSO:	Short Ack
EndQSO (Run):	Acknowledge	Acknowledge + Log QSO:	Acknowledge
BeginQSO (Pounce):	My Call	His Call + Acknowledge + Log QSO:	Acknowledge
EndQSO (Pounce):	Exchange	Acknowledge + QSY + Log QSO:	Default
		QRG:	Default
		Other messages:	Default

**Window > Editors > Voice Messages Editor** opens the editor for changing the current log's voice messages. The menu item is hidden when the Voice Keyer is not enabled. The items in the Radio 2 tab are disabled unless the Operating Mode is 2T2R. Use the **Voice Messages** tab in **New Log** settings to define default messages for new logs.

The two **Use radio DVR** radio buttons select either the existing radio DVR scheme or the Voice Keyer.

The **Output Device** chooser is currently disabled because Apple does not allow applications to redirect Personal Voice audio. The default output goes to the Output selected in System Sound preferences.

The **Voice** choosers lists all of your available Personal Voices.



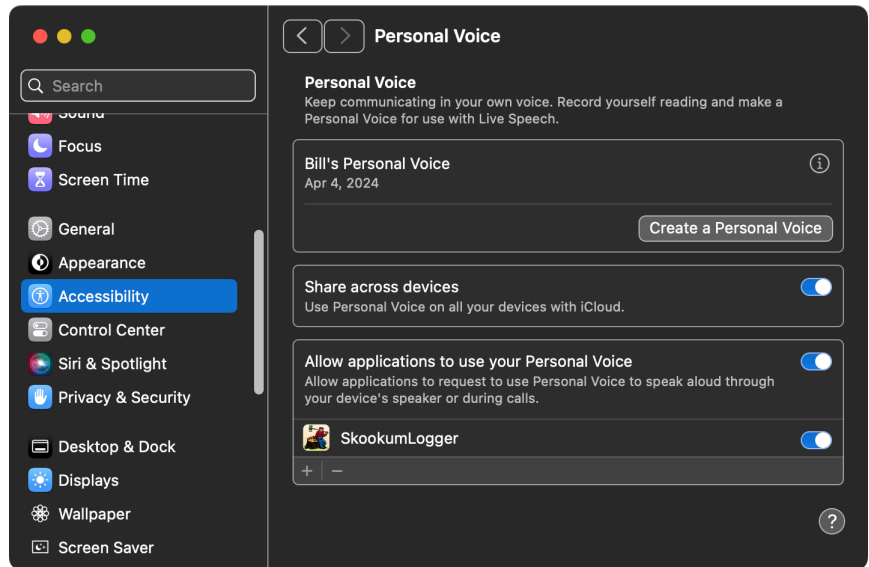
## Preparing to Use Personal Voice

See [this support article](#), for details about creating and naming Apple Personal Voices. You will need to begin in the Personal Voice system setting panel, found in the Sound group of Accessibility settings.

Click the info icon to rename the voice.

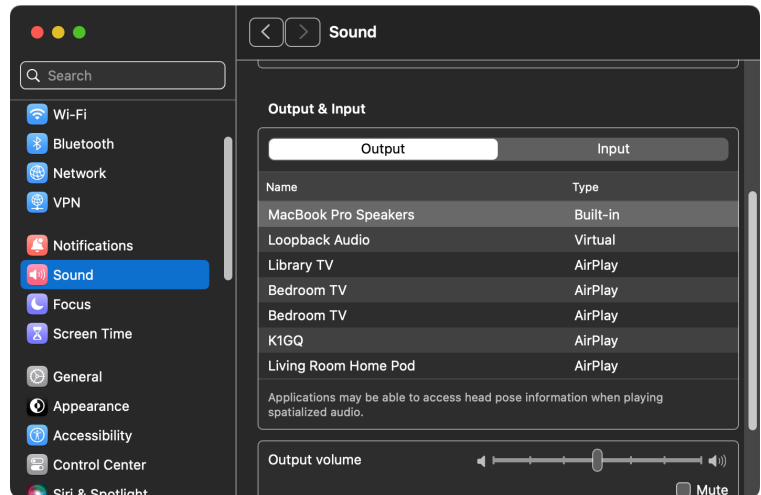
You must enable “Allow applications to use your Personal Voice”.

Optionally, also enable “Share across devices” to use your voices on other computers or iOS devices via iCloud using your Apple ID. There is no simple way to manually transfer voices between devices.



SkookumLogger will ask permission to use personal voices when it next begins running. If you choose Allow, the application icon will show up in the Personal Voice panel the next time you open the panel.

Use the Output & Input group in Sound system preferences to choose where voice messages output by SkookumLogger will go. In the example, messages will play to the computer speakers. The Output list will include all items that can accept audio, including audio codecs built into radios or SO2R devices attached to a USB port. You may need to mute system sounds that also play to the selected output device.



## Voice Message Syntax

Voice message definitions have a special notation, in addition to the message tokens you know and love for CW messages. When you surround text or a token with brackets, the Voice Keyer speaks the message character-by-character using phonetics. For example, the sent call token without brackets says “K1GQ”, while [~] says “Kilo One Golf Quebec”. Additional notes and advice:

- ◆ Callsign type-ahead is not available; type the complete call before triggering a message that includes the \* token.
- ◆ Trick: text followed by a comma, semicolon, colon or period+space, followed by more text, adds a delay in the spoken text. The duration of the space is shortest for a comma, longest for a period. Do not use these punctuation characters inside square brackets.



- ◆ Do not nest brackets.
- ◆ Question mark affects the pronunciation of the preceding word.
- ◆ Fussing with the spelling of phonetics can be useful. For example, to change which syllable is emphasized in 'Quebec' use 'Cuebec', or use 'Keylow' to slightly stretch 'Kilo'..
- ◆ Spaces preceding left bracket are ignored.
- ◆ /M in a callsign is phoneticized as 'Mobile'.
- ◆ /MM is phoneticized as 'Maritime Mobile'.
- ◆ /P is phoneticized as 'Portable'.
- ◆ Otherwise '/' and the remaining text are phoneticized.
- ◆ Magic Message works with these limitations:
  - ◆ The content for a message is taken from in the CW Messages Editor.
  - ◆ The content can be only references to voice messages 1 through 9, no other text.

### *Voice Message Properties*

Each of the 16 basic messages has, in addition the message definition, a choice for the personal voice and settings for **Pitch** multiplier and **Rate**. The table at the top right in the window shows which properties will be used for compound messages. For example BeginQSO (Run) uses the properties for the His Call message. These properties provide options for tailoring things like the "urgency" of you voice messages. Pitch Multiplier can be changed between 0.5 and 2 with default 1. Rate can be change between 0 and 1 with default 0.5.

### *Phonetics*

The fields in the Phonetics box supply the words that are synthesized when speaking characters. You can customize these, typically to overcome intelligibility problems. For example, you might change the phonetic for 2 from Two to Tu-oo. The checkboxes below the digit phonetics disable custom phonetics for numbers.

### *Known Issues*

- ◆ Radio 2 tab item enabling doesn't notice changes in operating mode.
- ◆ Command-clicking a Voice Keyer status button should select the editor radio tab corresponding to the button.
- ◆ QTC messages have not been tested for WAE In Europe.
- ◆ Not all radios support PTT via CAT.

### *Voice Messages for QTCs*

Use the new QTC(SSB) tab in Messages settings to set messages for exchanging QTCs in the WAEDC contest.

## Data Messages

SkookumLogger can send stored messages via your radio's text encoder for FSK or PSK modes. Choose **Window > Editors > Data Messages Editor** to open a window for customizing the messages.

Data (FSK/PSK) messages are similar to CW messages. The primary difference is an addition token (}) for inserting CR and LF characters in order to start a new line in the receiver's display. Also, SkookumLogger does not automatically insert 599 when sending the exchange (& token) so that you can choose how many times to repeat the signal report.

## Magic Message

The concept behind this feature is that you press the same key to send messages while completing a QSO, and SkookumLogger magically determines which messages to send. This behavior is popularly known as Enter Sends Message (ESM), where "Enter" refers to the return key (↵) on Apple keyboards.

There are two versions of the decision logic. You choose which version is active using **Magic Message Protocol Version** in [Messages Settings](#). When version 1 is selected, the hot key for sending is defined by **Magic Message V1** in the Special Keys tab of Messages Settings. When version 2 is active, the hot key is the return key, as well as the enter key on extended keyboards. For version 2, the shortcut for Log > Log QSO is changed from ↵ to ^↵. When version 2 is active, the version 1 hot key has no effect. Hot keys have no effect when no QSO entry fields has keyboard focus.

**Note:** When the version choice is Off, neither of the hot keys are active. This state enables a subtle behavior while entering QSO information: If you enter a call, enter the received exchange, erase the received exchange, toggle back to the call field and possibly edit the call, then tap tab or spacebar, the exchange will be prefilled. That pre-fill does not happen when Magic Message is on.

## Magic Message Version 1

Version 1, designed by GØDVJ, offers the flexibility to use a variety of keys for triggering Magic Message, see [Special Keys](#). GØDVJ uses the key below the escape key at the top left corner of the keyboard, easy to locate without looking and conveniently adjacent to the Abort key. Tapping the hot key transmits one of three messages for each of the Run and Pounce operating modes, depending on the operating mode when you first trigger Magic Message. You define defaults for the six messages and set the decision logic version in the CW Messages tab of New Logs settings. Choose **Window > Editors > Morse Message Editor** to customize the messages for an existing log.

When Run has keyboard focus:

- ◆ If necessary, change transmit focus to Run.
- ◆ If the Run call entry field is empty, transmit the Run Begin (CQ) message.
- ◆ Otherwise if your exchange has not been sent, transmit the Run Continue (his call and your exchange) message.

- ◆ Otherwise transmit the Run End (typically acknowledge) message and log the QSO.

When Pounce has keyboard focus:

- ◆ If the Pounce call field is empty and **CQ changes focus to Run** is on ( [Messages settings](#)), clear all Pounce entry fields, change transmit focus and keyboard focus to Run, and start the logic above.
- ◆ Otherwise if the call entry field has keyboard focus, transmit the Pounce Begin (your call) message.
- ◆ Otherwise if your exchange has not been sent, transmit the Pounce Continue (exchange) message.
- ◆ Otherwise transmit the Pounce End message and log the QSO.

## Magic Message Version 2

Version 2 uses the return key (↵) as the trigger, also known as “Enter Sends Message” (ESM). The logic for which message is sent is similar to that in the Windows DxLog contest logger. The logic depends on whether SkookumLogger is in Run or Pounce mode.

Normally, the return keys logs a QSO whether or not it is valid. When version 2 is active, use control-return (⌘↵) to do that.

If none of the QSO entry field are focused when return is tapped, nothing happens.

You can send any message at any time without confusing the Version 2 logic, which doesn't depend on remembering the sequence of previous messages.

The definitions for these six messages are used:

- ◆ F1 CQ
- ◆ F2 Exchange
- ◆ F3 Acknowledge
- ◆ F4 My Call
- ◆ F5 His Call
- ◆ F7 ? (Again)

## Run Mode Behavior

When return is tapped in Run mode:

- ◆ If the Call field is focused and empty, send the CQ message. If a CQ repeat mode was paused, also resume the mode.
- ◆ If the Call field is focused and not empty, send the His Call and Exchange messages.
- ◆ If the Call field is not focused:
  - ❖ If all other entry fields have valid content, log the QSO and send the Acknowledge message.

- ❖ Otherwise, send the Again message.

### Run Mode Usage

When you get a response to a CQ, enter the call and tap return to start sending His Call and Exchange. When you have entered the complete call, tap spacebar to move focus to the next entry field. You can start sending His Call before entering all of the call as long as you stay one character ahead of the His Call message (this is 'type-ahead').

*Hint:* Enable the **Typing stops CQ** option in Messages setting to pause repeat CQing.

Fill in each of the remaining QSO entry fields. When ready, tap return. If any of the fields is invalid the Again message should stimulate the caller to repeat his exchange so you can correct the invalid field(s). Use the spacebar, tab, or shift-tab to navigate focus to an invalid field. Tap return to try again to log the QSO and send Acknowledge. If you edited the Call, move focus out of that field before tapping return.

*Hint:* Enable the **Correct mode** option in Messages settings to send an edited call before the Acknowledge message.

### Pounce Mode Behavior

When return is tapped in Pounce mode:

- ◆ If the Call field is focused, send the My Call message.
- ◆ If the Call field is not focused:
  - ❖ If all other entry fields have valid content, send the Exchange message and log the QSO.
  - ❖ Otherwise send the Again message.

### Pounce Mode Usage

When the target station responds to your call, navigate to each of the other entry fields, enter the information, then tap return. If any of the fields is invalid the Again message should stimulate the caller to repeat his exchange so you can correct the invalid field(s). Once all fields are valid, tapping return logs the QSO without sending any message.

### Invalid Entry Fields

SkookumLogger has rules for each kind of QSO entry field that ignore or convert illegal characters as you type them. For example, a serial number field can contain only digits; the rules convert AENTO letters to digits. With that feature, most kinds of entry fields are invalid only if they are empty.

Fields other than Call may be pre-filled as you enter a call, so you don't need to fill in those fields yourself unless there is an empty field or the pre-filled value is wrong.

*Hint:* Turn off **Position cursor at end of entry field** in Logging settings to select pre-filled content when you navigate into an entry field. Then whatever you type replaces the pre-filled value instead of appending to the end of the value.

If you want to log a QSO without correcting all invalid fields, tap control-return. The QSO will be marked SQ. You can then use **Log > Correct Last QSO** to change missing or incorrect information, or edit in the log table later on.

## Serial Numbers

When your sent exchange includes a serial number, the [Sent Exchange Prompt](#) shows the serial number to send. The prompt applies for the QSO entry pane that has keyboard focus in 2T2R, and otherwise for the pane that has transmit focus (indicated by the red gumdrop).

The prompt shows the serial number that will become part of the logged QSO. When you send a CW or Data message that includes the sent exchange, the serial number will be inserted for you. For SSB, you must say the serial number yourself.

A serial number is reserved as soon as you send it. The reserved serial number for each QSO entry pane is shown next to right of the call field, 21 in the example. When you use **Log > Clear Focused QSO Entry** to abandon a QSO, the reserved serial number will be returned to the serial number pool unless a serial number after it has been used.

●	CW	21.010.000	+000	RUN	32 WPM
21	M4J	559		19	
(Jon) G EU 14 2	Received Call J002ma 1 England				
	CW	21.010.000	+000	POUNCE	36 WPM
	call	599		20	

Sometimes you need to resend a serial after you have logged a QSO. The serial numbers for the most-recently-logged Run and Pounce QSOs are shown beneath the keyer speeds at the right edge of the QSO entry boxes 19 and 20 in the example, with the number for the pane with transmit focus colored red.

If you send the Exchange message or the Repeat Serial Number Message while the call field is empty, SkookumLogger uses the red serial number instead of the prompt value. When the sent exchange doesn't include a serial number, the Repeat Serial Number Message sends the number of QSOs you have logged.

All of this complexity reduces the chances that the serial in a logged QSO will differ from the serial that was sent. If you manually send a serial number that is different from the serial number that was logged, you should edit the Sent Serial field in the logged QSO to correct the number to what was actually sent. Otherwise, the station you worked will be penalized, and in some contests you will also be penalized.

## Correct Mode

In correct mode, when about to log a QSO, SkookumLogger tests whether or not the call field matches what was sent as part of a CW message. If not, SkookumLogger adds the call to the acknowledge message. The mode is enabled by the **Correct mode** option in Messages setting.

## Keyboard Mode

Keyboard mode (also known as Immediate Morse mode) is available when the mode of the radio with transmit focus is CW, FSK, or PSK. In the CW case, the [keyboard icon](#) appears, and you choose the command again to exit the mode. In the FSK or PSK case, keyboard focus is transferred to the text entry field at the bottom of the [Text Decode/Encode](#) window.

In keyboard mode for CW, everything you type while any QSO entry field has keyboard focus is diverted directly to your keyer and transmitted immediately. The content of the entry field is not changed.

**Note:** The Special Keys pane in Messages settings has an *Ignore Special Keys in Immediate Morse mode option*. Use this to prevent special key definitions from interfering with keyboard morse entry.

In data mode, nothing is transmitted as you type into the text field until you type return. Then, the entire content of the field is transmitted and keyboard focus is transferred back to the Log window.

You should use a keyboard shortcut for this command, the default is ⌘K. The caps lock key is ideal for this, but cannot be assigned as a shortcut except via [Keyboard Maestro](#).

## Call Stacking

Call stacking is an advanced CW feature that supports entering more than one call at a time into a call field, separated by commas. The first call in the list is the “active” call, used by SkookumLogger for tasks like duplicate testing and partials matching. Logging a QSO or clearing a QSO entry field promotes the next entry in the list to be the active call and sends the Unstack QSO message.

This feature helps you chain QSOs when you are able to copy multiple callers answering your CQ. The default definition for Unstack QSO is “R NW \* &”. Use call stacking as follows with keyboard focus and transmit focus in the Run QSO Entry pane:

- Type a call followed by a comma and another call.
- When the first caller stops transmitting, send His Call + Exchange. While the message is transmitting, you can edit his call or the call after the comma call as needed.
- When you have finished entering the received information for the first caller, send Acknowledge + Log. The QSO with the first caller is logged, the call and trailing comma is erased, and the Unstack QSO message is sent, substituting the newly-active call for the received call token.
- When you have finished entering the received information for the newly-active caller, send Acknowledge + Log again to log the newly-active caller and possibly proceed to the next stacked call as above.

Call stacking also works with the Begin QSO message in place of the His Call + Exchange message and the End QSO message in place of the Acknowledge + Log message, and with Magic Message V1.

## Matching a Caller's CW Speed

When you pounce on a CW station who is CQ-ing much slower than you are, you might want to temporarily match his speed for that QSO. SkookumLogger provides for this through **Messages > Morse > Set Pounce WPM**, which searches the current band's activity table for a match to the call in the Pounce call entry field. If a match is found and the activity specifies WPM in the Info column, your WinKeyer is temporarily set to that speed. The original speed is restored when you change transmit focus.

Set Pounce WPM is hidden in 2T2R and disabled unless Pounce has transmit focus. The temporary override of Pounce WPM does not affect the displayed WPM.

To use this feature, first assign a shortcut to the menu item (see [Defining shortcuts](#)). Then grab an activity table and press the shortcut key before calling the station.

*Hint:* GØDVJ assigns the shortcut `⌘-` (option-minus) to this menu item. That shortcut may not work when macOS interprets it as meaning "type an 'n-dash'". In that case, control-minus should work.

## QSO Parties

The general theme for a United States State QSO Party divides participants into two groups. One group is stations inside a state or several adjacent states, and the other group are the outside stations. Competition is between stations within the same group.

Stations in the outside group get QSO points only for working stations in the inside group. The inside stations send an exchange with a component that identifies their location – typically a county or state-county code. The same station can be worked once for each different code. A station which changes locations during the contest is termed a rover.

Stations in the inside group get QSO points for everyone they work. Rovers in the inside group may work the same station once for each different location code that they send.

Some QSO parties allow county-line straddling, where an inside station is located on one (or more) county borders. In that case, a single “real” QSO includes more than one location code in the exchange, resulting in separate QSOs in the log for each of those codes, for each side of the QSO.

### Identifying QSO Party Multipliers

SkookumLogger distinguishes needed QSOs and needed multipliers using fonts and colors that you define. In QSO parties, SkookumLogger cannot always determine needed status from the call alone; it needs to know whether or not the call is an inside station, and if so it needs to know the location (e.g. county). When SkookumLogger cannot determine that a potential QSO is either certainly needed or certainly not needed, the needed status is May Be Multiplier.

### Discovering Rovers

A rover is a station that changes location during a contest. You can work a rover multiple times without the QSOs being dupes, as long the locations are different.

How do you know when a station is a rover? You don’t know for sure until you hear the station send a location code different from what you heard before. Some clues that a station might be a rover:

- ◆ The call ends in /m
- ◆ The call is in a list of rovers (AKA mobiles) at the contest sponsor’s web site
- ◆ The call ends in /<location code> (you should not enter that suffix in the call field)
- ◆ The call is known to you to be a rover; e.g, WA1Z

### Being a Rover

If you are operating as a rover, use throughout the contest. When you change locations, change your sent exchange in the Sent Exchange Editor. If you are straddling a county boundary, enter the codes separated by a slash.

It is common practice to append your county after your call when CQing. To do this without changing your CQ message every time you change counties, set the CQ message in the Morse Message Editor to something like this:

CQ NEQP ~ &



The ~ token expands to your contest call, followed by the slash, followed by your sent exchange. Use a space instead of a /, because, for example, some software will treat the call and location together as your call.

### Working Straddlers

An inside station straddling a country boundary will send two (or more) location codes. Type the codes into the QSO entry field separated by a forward slash. When you log the QSO, SkookumLogger creates separate log table entries for each location.

Yes, when both ends of one real QSO are straddlers, the result is four QSOs in the log. Hey, I don't make the rules.

### Operating in Concurrent QSO Parties

Set up your log for the QSO Party that you want SkookumLogger to score for you. Log whatever the other station sends for their location, whether or not it is a location that your selected log type expects. For example, in NEQP Inside, when you work N7XU and he sends ORDES, log that; SkookumLogger will figure out that you just worked OR, the state code expected by NEQP Inside rules. After the contest, export your Cabrillo file and send it to the sponsors of each of the concurrent contests; the sponsor will score your log appropriately and not penalize you for zero-point QSOs.

### Inside/Outside Status Logic

SkookumLogger has a list of the acceptable location codes for each QSO party that it supports. If the content of Info field for a candidate QSO matches an entry in that list, then the candidate QSO is known to be Inside.

Otherwise, if your in-memory exchange database (which includes logged QSOs) has a record for the call of the candidate QSO, and that record has a US state code field, then if the value of that field matches the state code associated with the location codes, the candidate QSO is known to be Inside, otherwise it is known to be Outside.

Otherwise, if the DXCC code for the candidate call isn't the same as the QSO party inside DXCC code, the candidate QSO is known to be Outside. For example, the DXCC code must be KH6 for the Hawaii QSO Party.

Otherwise, if the Countries database specifies possible state codes for the candidate call and none of them match the state code associated with the location codes, the candidate QSO is known to be Outside.

Otherwise, the Inside/Outside status is not known.

### Needed QSO Status Logic

SkookumLogger computes a hash for a candidate QSO as described below, and looks for a match in a set of hashes for logged QSOs. If a match is found, the candidate would be a duplicate.

The hash is a string with components of the hash depending on the contest rules. The format for QSO parties is:

<received call><band><mode><sent location>\_<received location>

The <band> component is omitted when QSOs are not per-band. The <mode> component is omitted when QSOs are not per-mode. This can have trouble identifying duplicates for county-line straddlers before they are logged

When you type a call that is already in the log, SkookumLogger pre-fills the location field from the previous QSO. However, setting the rover flag prevents pre-filling the location field in Outside QSO Parties, to prevent rovers being as duplicates you enter the (county) location.

## QTC Series

The Worked All Europe DX Contest (WAEDC) has a unique feature termed QTCs that involves a complex set of rules for increasing your score by sending or receiving information about previous QSOs during the contest. Entrants outside Europe may send QTCs only to entrants inside Europe, so logging software support depends on whether you are inside Europe (receiving QTCs) or outside Europe (sending QTCs). The components of a QTC series are the QTC series number, the count of QTCs in the series, and the fields of each QTC (derived from a prior QSO made by the sender of the series): time, call, and received serial. The series number and count are expressed as a pair separated by a forward-slash; for example, 21/10. Time is expressed as two hour digits concatenated with two minute digits; for example 0123.

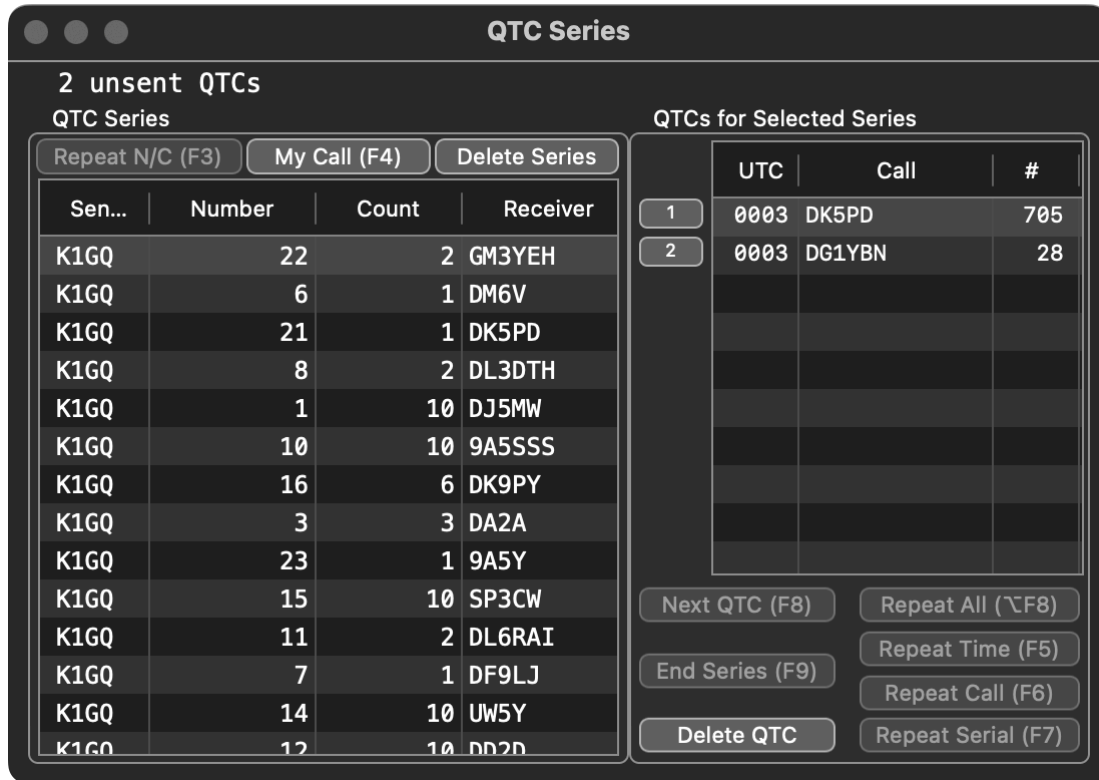
There are some intricate details:

- The maximum number of QTCs that a sender may transmit to a particular receiving entrant is 10. They may be distributed across as many as ten separate QTC series.
- A QSO with a receiver may not be sent to that receiver as a QTC.
- A QSO may be sent only once as a QTC.
- The exchange of a QTC series does not count as a contest QSO unless serial numbers are exchanged in the normal fashion. In that case, normal duplicate rules apply. It is not required to log a contact made for the sole purpose of exchanging QTCs; that information is embedded in the QTC series records.

The **Activity > Call Refused QTC** command adds the call in the active QSO entry pane to a list of calls that have refused when you asked to exchange QTCs. Calls in that list appear in Activity tables flagged with the prohibited emoji: 🚫. The command is hidden except for the WAEDC contest. The list is emptied when you start SkookumLogger, reset the log, or change to a different log. If you are operating in unassisted mode and would normally have your Activity window closed, in WAEDC you may wish to keep the that window open (but disconnected from any external spotting sources) for quick reference.

The prohibited symbol is also displayed for activities (calls in the Activity tables) that have already exchanged 10 QTCs with you. Otherwise, if the call can exchange QTCs with you, the activity is flagged with the sharp character: #. This condition is true if the mode for the activity matches the log's mode and either you or the activity is in Europe and the other is not.

## QTC Series Window



SkookumLogger supports both sending and receiving QTC series with a special window, opened via **Window > QTC Series**. This menu item is disabled when the log's contest type isn't WAEDC. You should keep the QTC Series window open during the contest. The status line at the top of the window updates each time you change the content of the current call entry field, showing important information about potential QTCs for that station.

When the QTC Series window is active, SkookumLogger changes the commands associated with some function keys. In CW mode, there are many WAEDC-specific [QTC messages](#) that can be customized. [Keyboard Mode](#) is available when the QTC Series window is active, but only when no table cell is selected for editing.

The Delete Series button is always enabled, it removes the selected QTC series from your log, resets the sent-as-QTC flags for the associated QSOs and returns keyboard focus to the Log window. You might want to delete a series if it wasn't properly completed.

### Sending QTCs

As you type call signs into the Log window, the status line at the top of the QTC Series window shows whether or not that call can receive QTCs. To respond to a QTC? request, make the QTC Series window active using the **Log > Begin QTC Series** keyboard shortcut, which causes SkookumLogger to perform one of three actions:

- ◆ If transmitting a QTC series is already underway, return keyboard focus to the QTC Series window.

- ✦ Otherwise, if the receiving station is not eligible to receive QTCs, transmit the **I have no QTCs** message and return keyboard focus to the Log window.
- ✦ Otherwise, create a new series and transmit the Begin Series message followed by “N/C”, where N is the series number and C is the count of QTCs about to be sent. The receiving station should indicate ready to receive, typically by sending QRV. If the receiver asks for a repeat of the series preamble message, choose Repeat N/C (F3).

Alternatively, use the **Log > His Call + Begin QTC Series** keyboard shortcut to prepend the receiver’s call to the messages sent above. Neither of these messages is sent if a series is already underway when you activate the QTC Series window.

When a new series is created, all of the QTC Series table items are filled in for you, the QTCs for Selected Series table is filled with information from your log, and the first row in that table is selected.

Choose Next QTC (F8) to send the selected row. SkookumLogger indicates that the QTC for a row has been sent using your Worked Before font. If the radio mode is CW, SkookumLogger also sends the three items in the selected row as a Morse message. The selected row is automatically advanced appropriately until you reach the end of the table. Continue choosing Next QTC until all rows have been sent, then choose End Series (F9).

The Repeat buttons are convenience commands for sending fills for parts of CW QTCs. They apply to the QTC of the selected row in the QTCs for Selected Series table. You can change the selected row after sending all QTCs using the up and down arrow keys. You also can resend all of a particular QTC using the buttons showing the row labels. The shortcuts for these buttons are  $\mathbb{R}n$ , where n is the QTC number (use 0 for QTC 10). Note that these shortcuts apply only when the QTC Series window is active.

Once you have started a new series, you can finish at any time by choosing End Series, even if the number of QTCs indicated by the count has not been transferred. If you are in run mode, End Series also sends the End Series message.

## Receiving QTCs

The QTC Series window has two tables labeled QTC Series and QTCs for Selected Series. The following discussion refers to these tables as the series table and the QTCs table, respectively. SkookumLogger extends standard tab key behavior in the two tables to facilitate data entry when receiving a QTC series:

- ✦ When a cell in the series table is selected, tab selects the cell in the column on the right in the same row unless the current column is Count; in that case tab selects the Time cell for the first row in the QTCs table. Shift-tab selects the cell in the column on the left in the same row unless the current column is Sender; in that case shift-tab selects the cell of the Count column in the same row.
- ✦ When a cell in the QTCs table is selected, tab or spacebar selects the cell of the column on the right in the same row unless the current column is Serial (#); in that case, if there is a next row then tab transmits the Acknowledge QTC message and selects the Time cell in the next row.

Otherwise, tab deselects all table cells. Shift-tab selects the cell of the column on the left in the same row unless the current column is Time; in that case shift-tab selects the cell in the Serial column of the same row.

When you type a call in the Log window, the status line at the top of the QTC Series window shows whether or not you can receive QTCs from that station. To ask for a QTC, choose Log > Begin QTC Series. If you were already receiving a QTC series, SkookumLogger simply changes keyboard focus to the QTC Series window. Otherwise, in the normal case, SkookumLogger adds a new series to the QTC Series table, fills in the Sender call, sets the series number to 0, sets the series count to the number of QTCs that the sender may send to you, and transmits the Do you have QTCs? message. If the sender responds no, choose End Series (F9); SkookumLogger will delete the new series and change focus back to the Log window. If the sender responds by asking for your call, choose My Call (F4).

When the sender responds by transmitting his QTC number/count, the steps in receiving a series proceed as follows:

- ◆ Type the series number, press tab to select the Count cell.
- ◆ Type the count, press tab to transmit the Ready to receive message and select the first QTC Time cell.
- ◆ Type four digits, press tab to select the Call cell.
- ◆ Type the call, press tab to select the Serial cell.
- ◆ Type the serial, press tab to transmit the Acknowledge QTC message and select the Time cell for the next QTC.
- ◆ Repeat entry of QTC information using the three steps above until you have filled all of the QTC table rows.
- ◆ Choose End Series to transmit the Acknowledge Series message and return keyboard focus to the Log window.

If the sender transmits only two time digits, SkookumLogger will prepend the hour digits from the previous QTC when you tab out of the Time field. Typing anything other than a digit into the the Time or Serial cells is ignored, except for A, E, N, or T which are converted to 1, 5, 9 and 0 respectively.

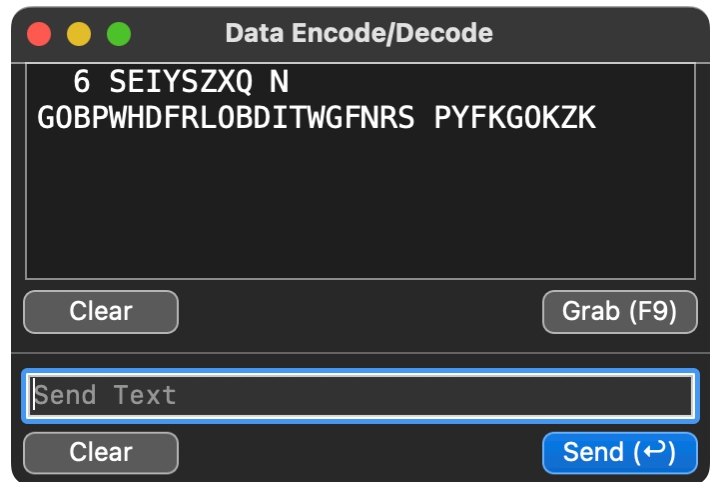
You should try to have the QTC for the current row completely filled in before you press tab in the Serial column. You can use the four Repeat buttons below the table to transmit CW messages asking for fills. To change keyboard focus to an incomplete cell:

- ◆ Press shift-tab to select the cell to the left of the current cell. If the current cell is in the Time column, then the cell in the Serial column of the same row is selected.
- ◆ Or, double-click on the cell to be edited.
- ◆ Or, use the keyboard shortcut for the QTCs table row button ( $\mathbb{R}n$ ) to select the Time cell in nth row, then tab to the cell to be filled.

## Text Decoding and Encoding

Some radios have decoders that convert signals into text and encoders that convert text into signals, for CW, FSK and PSK modes.

**Window > Text Decode/Encode** displays decoded text in a resizable window. You must enable text decoding in your radio in order for this window to display any content. The window also has a text entry field for input to the radio text encoder.



### Using Decoded Text

The Grab feature allows you to copy selected words in the decoded text to QSO Entry fields:

- ✦ Set keyboard focus to the QSO Entry Pane field you want to fill
- ✦ Select the received text that you want to copy and tap the Grab button

Alternatively, double-clicking on a word copies it to the call field of the QSO entry pane with keyboard focus.

*Note:* For some radios, received text that contains a semicolon is truncated at the location of the semicolon.

*Note:* [Morse Keyboard](#) mode cannot use the CW encoder.

### Sending Text

- ✦ Use **Log > Send Data Message** to quickly transfer keyboard focus to the Sent Text entry field.
- ✦ Type arbitrary text into the entry field.
- ✦ Tap Send to transmit the text.
  - ❖ Keyboard focus is immediately transferred back to the Log window.
  - ❖ The transmitted text is added to the decode text pane, colored red.

*Note:* Some radio encoders limit the length of the text.

### Sending Stored Messages

If the radio mode is FSK or PSK:

- ✦ Use the [Data Messages Editor](#) to define message text.
- ✦ Use **Messages** menu items to send messages.

If the radio mode is CW:

- ✦ Ensure that the Text Encode/Decode window is open.

- ◆ Ensure that no external morse keyer is enabled.
- ◆ Use the [Morse Messages Editor](#) to define message text.
- ◆ Use the **Messages** menu items to send messages.

*Note:* Call type-ahead is [not available](#) with the CW encoder.

*Note:* CW sending speed is controlled by the radio.



## Practice Mode 2

The original practice mode implementation has been entirely redone to improve performance, capability, and maintainability. The new version is solid, but still being enhanced and documented in detail. Feedback of any sort is invited.

Practice mode simulates operating in a CW contest, using SkookumLogger just as you would on the air. The simulation creates two kinds of stations that send and receive CW messages, called *runners* and *pouncers*. These stations come and go and work each other during a simulation sessions. You hear CW from these "simulated" stations through your Mac's audio output.

One (1T1R and 1T2R) or two (2T2R) "user" stations are controlled by you. You determine whether a user station is a runner or a pouncer by which QSO Entry Box has transmit focus (or the radio submode for 2T2R). You determine the frequency for a user station just as you would on the air. As you tune across the lower 50 kHz of a band, you hear runners working pouncers and, if your user station is a pouncer you can work those runners. When your user station is a runner, pouncers will find you and call. You send CW messages just as you would during a real contest.

When a simulated station is created, a call, a CQ response message and an exchange message are defined for that station. The call is chosen randomly from a subset of the SCP database, which typically has more than 40000 calls. The subset is based on contest rules, for example, mostly US and Canadian calls for QSO Parties. The CQ response is normally just the call; about 10% of the time it is the call repeated twice. Each simulated station will provide consistent exchange values (Example: if you hear a station send a serial number, their next exchange will contain serial number + 1). The exchange message is specific for these support CW contests:

- ◆ Any contest with CQ or ITU zone alone as the exchange
- ◆ Any Inside and Outside QSO Party except Maine and QRP-ARCI
- ◆ All Asian Dx Contest
- ◆ ARRL International DX Contest
- ◆ ARRL and Winter Field Day
- ◆ ARRL Sweepstakes
- ◆ European HF Championship
- ◆ Generic Serial Number Contest
- ◆ IARU HF Championship
- ◆ Medium Speed Test
- ◆ North American QSO Party
- ◆ Russian DX Contest
- ◆ World Radiosport Team Championship

Practice mode doesn't require a WinKeyer, although if you have one connected you can control your transmit sending speed with the SPEED knob on the WinKeyer.



## Settings

Choose **Window > Practice** to open the practice mode options. Click the **Start** button to begin a simulation session. When the session cannot be started, an alert window will explain why. Otherwise, the button title changes to **Stop**.

**Allow logging incomplete QSOs** overrides your setting for the **Refuse to log incomplete QSOs** option in Logging settings.

**Disable After** turns off practice mode after you have logged the specified number of QSOs with no errors. Subtract that number from the number of QSOs in the log to determine how many bad QSOs you logged. Setting the value to 0 disables this feature.

**User Station** properties affect what simulated stations you hear you hear when running, and your transmit monitor.

**Maximum Callers** limits the number of pouncers calling you. The number for a particular pouncer is chosen randomly between 0 and this limit. After the first CQ by a user station in runner mode, the number of pouncers for that station is between 1 and the limit after each QSO is logged.

**Variable Number of Callers** randomly chooses the number of your callers, between 0 and Maximum Callers, after each of your QSOs. When turned off, the number of callers starts at Maximum Callers, decreases one at a time as you log QSOs, and resets when you have worked the set of original callers.

**Soft Receive Bandpass** replaces the default brickwall receive filter with a more realistic CW audio bandpass filter.

**QSK** enables simulation of receive audio (simulated stations and noise) heard between characters in your messages, with **Tail** affecting how much you hear. When off, receive audio is muted during your message sending.

The screenshot shows the 'Practice' settings window. It has a dark theme. At the top, there's a title bar with standard window controls. Below the title bar, the 'Practice' section includes a checked checkbox for 'Allow logging incomplete QSOs', a 'Disable After' field set to '0' with the text 'successful QSOs' to its right. The 'User Station' section contains 'Maximum Callers' (4), a checked 'Variable Number of Callers', 'Soft Receive Bandpass' (unchecked), 'QSK' (unchecked), 'Tail (sec)' (0.04), and 'Monitor' settings for two radios (Amplitude: 10%, Pitch: 300 Hz). The 'Simulated Stations' section includes 'Number of Runners per Band' (10), 'Number of Pouncers per Band' (50), 'Runner QSOs before QRT' (25), a checked 'Allow Lid Pouncers', 'Query Probability (%)' (8), 'Query Maximum Count' (1), 'Speed (WPM)' (30 for Center, 10 for Spread), and 'Amplitude (%)' (50 for Center, 90 for Spread). The 'Propagation Model' section has 'Noise Amplitude (%)' (0.5 for both), 'Noise Bandwidth (Hz)' (1,000 for both), a dropdown set to 'Perfect', and 'Perfect within (km)' (3,000). A 'Start' button is at the bottom right.

**Monitor Amplitude** and **Monitor Pitch** affect the audio tone you hear when sending messages, separately for each user station. The range of amplitudes is 0% to 100%. The range of pitches is 300 Hz to 900 Hz.

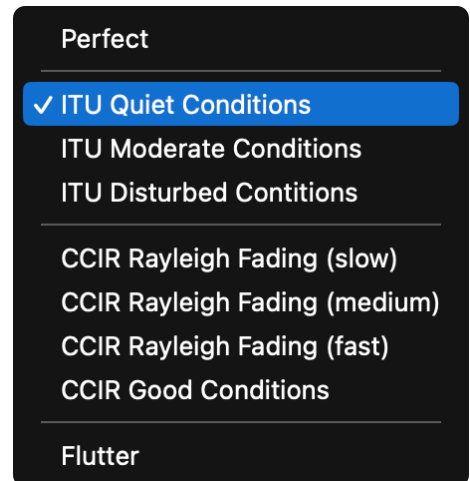
**Propagation Model** affects the character of the audio to simulate HF propagation.

**Noise Amplitude** and **Noise Bandwidth** simulate receiver noise.

The popup button lists several standard HF path models, based on the W7AY CocoaPath app. **Perfect** bypasses all models. The **ITU** models depend on the latitude at the midpoint between you the other station, and are most realistic for world-wide contests. The **CCIR** and **Flutter** models are appropriate for more specific types of propagation effects.

**Perfect within** bypasses the propagation model for relatively close stations.

**Simulated Stations** properties apply to simulated (i.e., non-user) stations.



**Number of Runners per Band** specifies the number of simulated stations that are running on a given band. The bands which are populated correspond directly to the band(s) of the user station(s).

**Number of Pouncers per Band** specifies the number of stations that are scanning looking for runners to call on each band. The bands which are populated correspond directly to the band(s) of the user station(s).

**Runner QSOs before QRT** specifies the maximum number of QSOs a simulated runner will complete before disappearing (replaced by another simulated runner on the same band, but likely a different frequency).

**Allow Lid Pouncers** enables simulation of various kinds of lid-like behavior, including sending ?, NR? or AGAIN? when they should send their exchange.

**Query Probability** sets the likelihood of a pouncer requesting information that has already been sent.

**Query Maximum Count** determines how many times a pouncer will annoy you like that.

**Speed** applies to all simulated stations. The speed for a particular runner or pouncer is randomly set within **Spread** of the **Center** speed.

**Amplitude** applies to all simulated stations. The amplitude for a particular runner or pouncer is randomly set within **Spread** of the **Center** amplitude, and is also affected by the Propagation Model.

## Practice Behavior

The practice processor has rather intricate rules for what to do when a user station is a runner or a pouncer. The goal is to behave just as would be the case on the air. The best way to learn what to expect is to experiment. In either case, you can tune your radio to hear stations at different pitches and move them into or out of the passband.

When you log a QSO, diagnostic information about the QSO appear in the Notes field.

### *User Station Runner Behavior*

Abort (escape key) – Stop transmitting immediately. No callers will call until after you transmit CQ or Again.

CQ (F1 or any message with CQ in the title) – Transmit the CQ message and prepare for the ensuing pileup.

Exchange (F2) – Transmit the user station's exchange and listen to the exchange message for the caller with call exactly matching the call in the Run call entry field.

Acknowledge (F3) – Transmit an acknowledge message and begin listening for additional callers in the pileup.

MyCall (F4) – No action.

HisCall (F5 or any message with the received call token as the first character) – Transmit the first character in the call. When transmission ends, send the next character. Repeat until there are no more characters. Then, begin listening to responses of callers with calls similar to what you just sent.

Again (Any message containing ? in the title) – If the previous transmitted message was Exchange, perform the processing for Exchange, above. Otherwise, begin listening to the CQ response messages for all callers in the pileup.

Defend – Transmit a defend message. If there is a simulated runner on the frequency, they will immediately stop any QSO in progress and move to another frequency.

User (Any user message not usurped by the above rules) – No action.

His Call + Exchange, Begin QSO – Transmit the first character in the call. When transmission ends, send the next character. Repeat until there are no more characters. Then send the Exchange message, resulting in the action described for that message.

Log QSO (return key) – Compare the information in the logged QSO with the information for the caller with call exactly matching the content of the Run call field from the pileup. List errors in the Notes field for the QSO. The caller will then move on to another frequency. If **Variable Number of Callers** is not enabled, and this was the last caller, new simulated pouncers will move to your frequency to attempt to reach **Maximum Callers**.

Short Acknowledge + Log QSO, His Call + Acknowledge + Log QSO, Exchange + Log QSO, Acknowledge + Log QSO, End QSO – Perform the Log QSO action, then begin listening to the CQ response messages for all callers in the pileup.

### *User Station Pouncer Behavior*

Practice mode creates several pounce pileups on whatever band(s) the user station is on. You find a pounce pileup by, wait for it, tuning your receiver. If you change the radio band, pileups will appear on the new band. If you're practicing assisted, simulated runners can be viewed by opening an [Activity](#) window for the band you're on.

To work the runner in a pounce pileup, send BeginQSO, MyCall, or MagicPounceBegin after the runner ends his CQ or Ack. The caller will answer you rather than other callers most of the time. Sometimes the runner will send ? or nothing at all and you will need to try again. If QSK is enabled, you may hear other callers. Use EndQSO, Exchange, or MagicPounceContinue to respond when the runner sends you his exchange. A runner may use similar "again" tactics to get you to repeat your exchange. If not using EndQSO, use LogQSO (return) or MagicPounceEnd to log the QSO.

Some runners do not send their own call very frequently, or perhaps not at all. Sending the query message (?) may cause these lid runners to send their CQ.

The list of other callers updates after each QSO that the runner makes. A runner disappears after working **Runner QSOs before QRT** stations, and a new runner will appear on a different frequency.

### **Practice Mode Hidden Settings**

*Note:* This is an advanced topic for macOS geeks.

Practice mode has many settings that aren't accessible in the SkookumLogger user interface. If you are comfortable using a plist editor, the preference names and their roles and default values are documented here.

The SkookumLogger preference file is ~/Library/Containers/com.k1gq.SkookumLogger/Data/Library/Preferences/com.k1gq.SkookumLogger.plist. This file contains all of the SkookumLogger settings that you have changed from their defaults.

Preference names are case-sensitive strings. Preference value types are Boolean, String, or Number. The default value is shown in parentheses following the name.

#### *Notes Field Annotation*

##### ***PracticeShowSentCallsigns (NO)***

This prints all call signs sent during a specific run QSO in the Notes field. The resulting list allows you to identify calls you sent incorrectly over the course of the QSO.

##### ***PracticeShowSpeedAmplitudePitch (NO)***

This prints other information related to each QSO in the Notes field.

- ◆ morse speed (wpm)
- ◆ amplitude (%)
- ◆ pitch (Hz)
- ◆ time to complete the QSO (sec)

- ◆ which radio (1 or 2)
- ◆ number of active callers
- ◆ number of tapped BeginQSO key
- ◆ number of tapped Call Again key
- ◆ number of tapped Again key
- ◆ number of tapped His Call key (or My Call for a pounce QSO)
- ◆ number of tapped Exchange key
- ◆ number of tapped other keys
- ◆ "Run" if this QSO was made while running or "Pounce" if while pouncing

### *Imperfectly Matched Callers*

When there is no perfect match to a call after sending your exchange, these settings affect which in the list of current callers will call again.

#### ***PracticeMaxMatchedCallsign (NO)***

When enabled, the caller which has the most characters matched to the call sign field will call. Otherwise, the first one (not best match) in the callers list which includes any of characters will call. If no characters match, the (Levenshtein) shortest distance caller will call.

#### ***PracticeMaxMatchedThreshold (3)***

This specifies the minimum number of characters that need to be matched when PracticeMaxMatchedCallsign is YES.

#### ***PracticeCallAgainQueryProbability (80)***

After sending a call (or partial call), tapping the Again key will cause some callers to call again. Query Probability (%) specifies the fraction of callers who will call after hearing the Again message.

#### ***PracticePouncerCorrectCallWithExchangeEnablePct (15)***

If a caller hears a callsign that almost matches their own, but then the runner also sends an exchange, the caller will reply to the exchange this percentage of the time. Typically the caller will prefix their exchange with a corrected call, but see PracticePouncerDoNotCorrectCallWithExchangePct.

#### ***PracticePouncerDoNotCorrectCallWithExchangePct (5)***

Sometimes a caller decides to send their exchange although the runner sent an imperfect call. Typically this exchange will be prefixed by a corrected call, but this percentage of the time it won't be.

***PracticeClosestPouncerAlwaysReplies (NO)***

Setting this to YES will result in a single caller always replying to any call sent. This will be the caller with the callsign closest to the call sent by the runner. For example sending a single "K" will result in a single caller from a pileup replying with their callsign even if multiple callers have a callsign containing "K"

***Call Again Delay***

Center and spread (seconds) for callers that call again when you don't respond right away.

***PracticeCallersRetransmitTimerEnable (YES)******PracticeCallersRetransmitTimerCenter (3.0)******PracticeCallersRetransmitTimerSpread (5.0)******Lid Serial Cut Numbers***

These enable lid callers that send cut numbers, set the percentage of callers that are lids and the percentages of those callers that are type1 and type2 lids. Type1 lids send 'O' instead of '0'. Type two lids send 'T' instead of '0' and 'E' instead of '5'. Both types will also send 'A' for '1' and 'N' for '9'. These values also enable other "lid" behavior like runners never sending their callsign or pouncers calling you again even if you've worked them before.

***PracticeEnableLidCallers (YES)******PracticeLidCallersRatio (25)******PracticeLidtype1CallersRatio (50)******PracticeLidtype2CallersRatio (10)******PracticeLidtype2CallersDupeRatio (10)***

Some lid callers will add a "flourish" to their sent exchange. The following preferences control this. The values are relative to other values in their group and do not have to sum to 100. Both type 1 and type 2 lid callers will potentially send Lid1 flourishes.

***PracticePouncerExchangeLid1PrefixNoneWeight (90)******PracticePouncerExchangeLid1PrefixCallerWeight (5)******PracticePouncerExchangeLid1PrefixRunnerWeight (3)******PracticePouncerExchangeLid1PrefixLid2Weight (2)***

If the caller decides to add a Lid2 flourish, it is chosen from the weighted list below.

***PracticePouncerExchangeLid2PrefixBKWeight (50)******PracticePouncerExchangeLid2PrefixQSLWeight (50)***



### *QSY Request Respondents*

Sets the percentage of callers who respond to a request to QSY (any message that contains the QSY token). Those callers will call later on the QRG frequency you send.

#### ***PracticeQSYRatio (40)***

Sets the distribution of responses to a QSY request. The values are relative to other values in this group and do not have to sum to 100.

#### ***PracticeQSYResponseWeightAccept (40)***

#### ***PracticeQSYResponseWeightQueryQRG (20)***

#### ***PracticeQSYResponseWeightQueryAgain (10)***

#### ***PracticeQSYResponseWeightDecline (10)***

#### ***PracticeQSYResponseWeightNoResponse (20)***

### *Caller Speed and Amplitude Probability Distributions*

#### ***PracticeUseLogNormal (NO)***

The default probability distribution for simulated station speed is Gaussian. The log-normal distribution concentrates speeds more tightly around the center.

#### ***PracticeUseContinuousUniformDistributionForAmplitude (NO)***

The default distribution for amplitude is Gaussian. The uniform distribution spreads amplitudes more evenly.

### *Pileups Generated By Simulated Runners*

#### ***PracticeMaximumAICallers(2)***

#### ***PracticeCallBackProbability(90)***

The percentage of simulated runners who will answer you the first time that you call.

#### ***PracticeMaximumAIRunnerQRG(50000)***

The maximum frequency span (Hz) up from the band edge where simulated runners will call CQ.

#### ***PracticeRunnerQSOsBeforeQRT(25)***

The minimum number of QSOs that a pouncee will make before going QRT and being replaced by another simulated runner.

#### ***PracticeLidPounceeRatio(5)***

Used to determine the probability with which a simulated runner is a lid. Lids may not ever send their callsign while running or other sub-optimal behaviors.

### QSO Party

*PracticeQsoPartySingleCountyWeight(75)*

*PracticeQsoPartyCountyLineWeight(23)*

*PracticeQsoPartyMultiCountyLineWeight(2)*

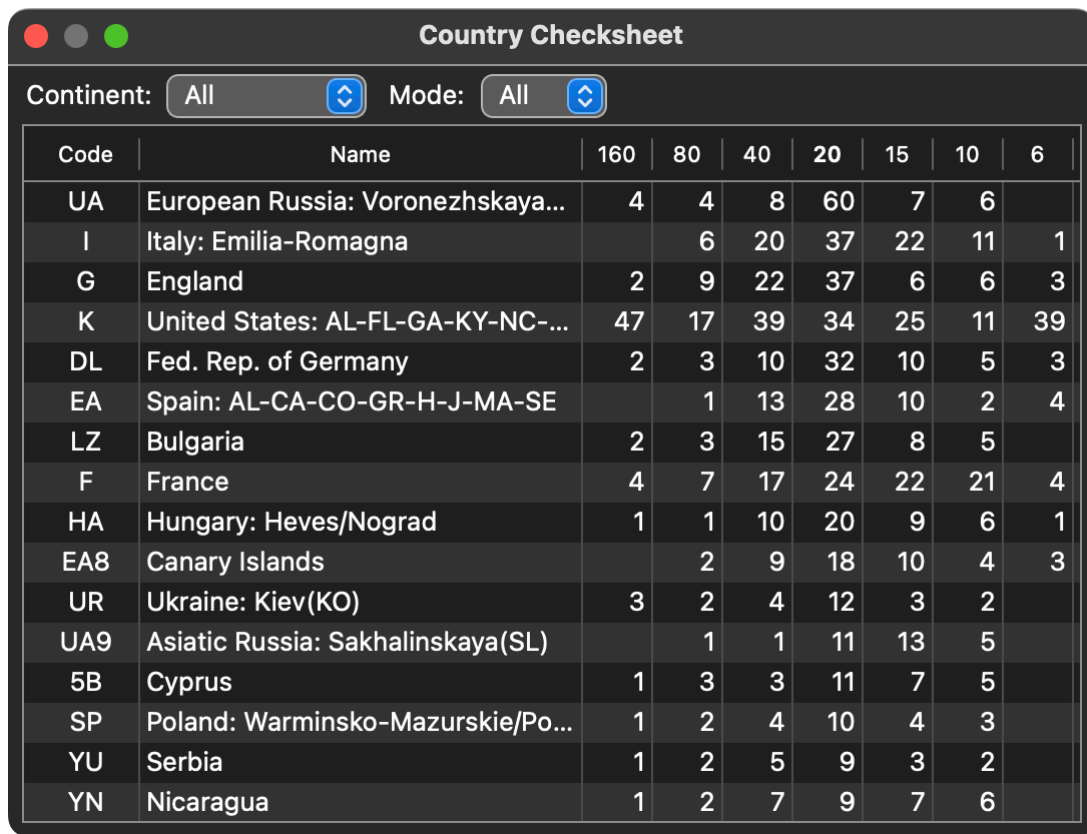
### Inside/Outside Contests

*PracticeUserSidePercentForInsideOutsideContests(10)*

For contests having inside/outside semantics this is the percentage of stations that will call from the user's "side". As an example if you're practicing California QSO Party Inside and this value is set to 5, you'd expect roughly 5% of callers to be California stations.

These preferences determine the distribution of county line straddlers for QSO parties where straddling is supported. SingleCounty will result in stations sending a single county abbreviation. CountyLine will result in stations straddling a county line (they will send 2 counties separated by a slash). MultiCounty will result in stations sending 3 or more counties separated by slashes. When more than 1 county is sent, the counties will always be actual adjacent counties.

## Checksheets



Code	Name	160	80	40	20	15	10	6
UA	European Russia: Voronezhskaya...	4	4	8	60	7	6	
I	Italy: Emilia-Romagna		6	20	37	22	11	1
G	England	2	9	22	37	6	6	3
K	United States: AL-FL-GA-KY-NC-...	47	17	39	34	25	11	39
DL	Fed. Rep. of Germany	2	3	10	32	10	5	3
EA	Spain: AL-CA-CO-GR-H-J-MA-SE		1	13	28	10	2	4
LZ	Bulgaria	2	3	15	27	8	5	
F	France	4	7	17	24	22	21	4
HA	Hungary: Heves/Nograd	1	1	10	20	9	6	1
EA8	Canary Islands		2	9	18	10	4	3
UR	Ukraine: Kiev(KO)	3	2	4	12	3	2	
UA9	Asiatic Russia: Sakhalinskaya(SL)		1	1	11	13	5	
5B	Cyprus	1	3	3	11	7	5	
SP	Poland: Warminsko-Mazurskie/Po...	1	2	4	10	4	3	
YU	Serbia	1	2	5	9	3	2	
YN	Nicaragua	1	2	7	9	7	6	

A checksheet is a table of multipliers, such as countries, with columns for each band and counts indicating how many QSOs you have made with each multiplier on each band.

SkookumLogger has six kinds of checksheets for different kinds of multipliers: Countries, Regions (states, provinces, etc.), Grids (Maidenhead locators), Prefixes, Zones, and "Other". The Other multiplier type is used for contests where there are two sets of multipliers of the same kind, typically regions, and for contests with odd-ball multiplier types like unique call signs and IARU Societies.

Checksheet windows are opened by items in the **Window > Checksheets >** menu. Checksheets that do not apply for the current contest are disabled in the menu. You can rearrange checksheet table columns and sort the rows using standard table customization gestures.

- ◆ To quickly scroll to the row containing a multiplier code, click on any row to make the table active, then type the code.
- ◆ Click on a band column to sort the table in order to group most-worked or not-worked multipliers.

The multipliers for some checksheets are grouped by area. For example, countries are grouped by their continent. You can limit the checksheet table to show one group by choosing the group name in an area pop up menu above the table.

Checksheets also have a Mode pop up button. When you have set your Cabrillo Category Mode (**Log > Cabrillo Settings...**) to a single mode, the Mode pop up shows that mode. Otherwise – Mixed mode – the Mode pop up lists all of the modes specified by the log's contest rules and choosing a mode changes the table to show the number of QSOs with each multiplier for that mode. When multipliers are not per-mode, consult the Score Breakdown tool window to see your multiplier counts.

Checksheets with a large number of possible entities (grids, zones) or unpredictable number of entities (prefixes, other) list only multipliers that you have worked at least once.

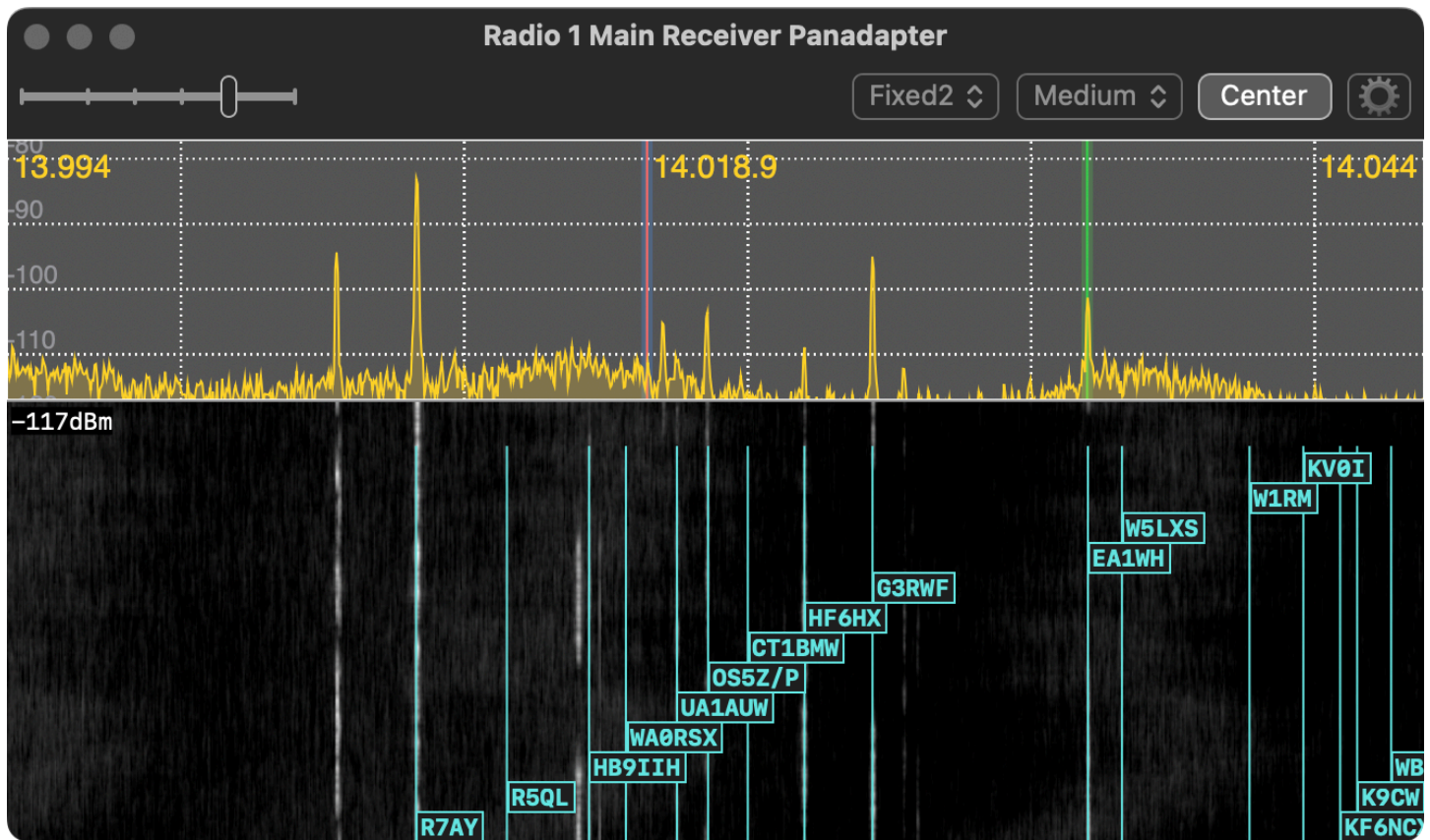
When you edit an already-logged QSO, the checksheets may become invalid. Use **Log > Rescore Log** command to rebuild the checksheets.

When a contest has ARRL section multipliers, the **Window > Checksheets > Section Checkoff** command is available to open a display of worked sections.

## Panadapters

A panadapter is a display that shows signal information from a receiver over a range of frequencies. Typically, the display contains two panes. The upper pane is an x-y plot with frequency along the x axis and signal amplitude along the y axis; this is often called a spectrum plot. The lower pane is called a waterfall, also with frequency along the x axis, but with time along the y axis and colors associated to signal amplitude. The range of frequencies is called the *span*, and the point at the center of the x axis is the *center frequency*. The center frequency may either follow the receiver, called *track mode*, or remained unchanged as the receiver changes frequency, called *fixed mode*. The signal level at the baseline of the spectrum plot y axis is the *reference level*, and the range of the y axis is the *scale*.

Some radios output data for the spectrum plot as a stream of numbers. With that data, SkookumLogger can create a panadapter in a window on your Mac. The window is resizable, and a splitter between the two panes determines how much of each pane is shown.

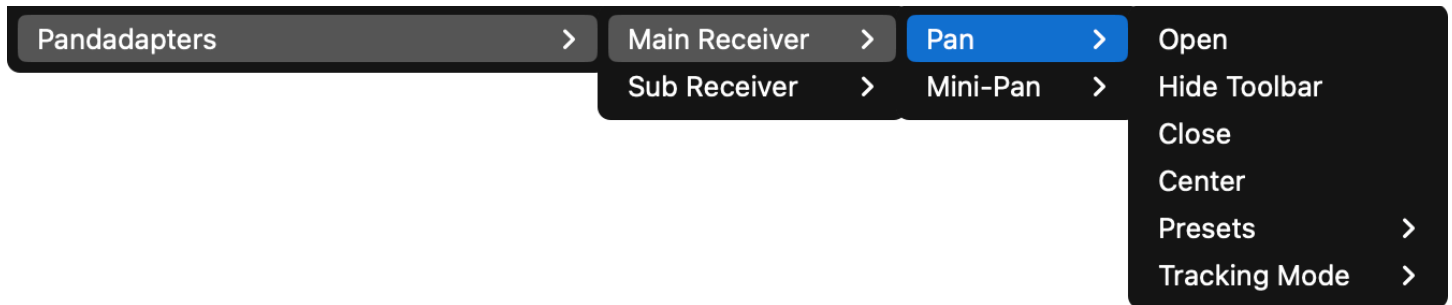


The number “-118dBm” is the reference level (baseline) for the spectrum plot. The dotted horizontal grid line spacing is 10 dB and the vertical grid line spacing is span-dependent (10 kHz in the example) and are positioned at integral frequencies (7010, 7020, 7030, and 7040 in the example). The solid vertical lines are *cursors*, explained below.

SkookumLogger can display up to 8 panadapter windows. For each radio: a Panadapter window for the Main Receiver and the Sub Receiver, and a Mini-Pan window for each receiver. The

Panadapter window is a typical view of signals over a substantial frequency range, while the Mini-Pan shows a fixed-size narrow view centered on the receiver frequency.

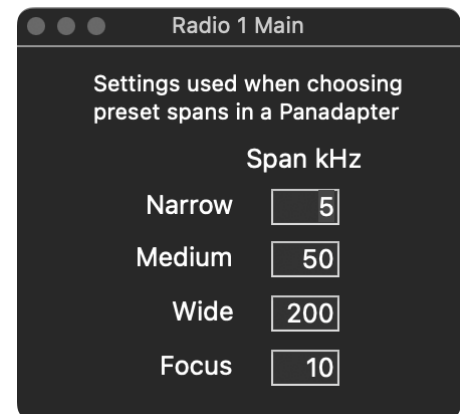
The windows are opened, closed and controlled by deeply-nested menu items in their Radio menus.



These menu items do not have keyboard shortcuts, and it isn't possible to use macOS Keyboard Settings to add shortcuts because the item titles are not unique. Instead, use [Keyboard Maestro](#), because it handles the complete path a menu items, which is unique.

The window toolbar has several items that control and display radio panadapter settings. These items apply only to Panadapter window; the Mini-Pan windows don't have any items except the smoothing factor slider.

- ◆ The gear button opens a settings window for defining preset panadapter span values.
- ◆ The Smoothing slider controls how heavily the data is averaged, using an exponential moving average, separately for each panadapter. The minimum setting does no smoothing at all, while larger settings decrease jaggedness in the spectrum and waterfall displays at the expense of delaying how quickly signals appear and disappear.
- ◆ The "Fixed2" popup menu chooses the panadapter tracking mode and displays the current choice. The displayed choice updates if you change the tracking mode using radio controls. Since the choice affects both the Main Receiver and Sub Receiver Panadapters, the popup menu isn't shown in the Sub Receiver Panadapter window.
- ◆ The "Medium" popup menu chooses one of four preset choices and shows the most recent choice; the choice does not update if you change the span using radio controls:
  - ◆ Narrow, Medium and Wide set the span to the value determined in settings and the center frequency so that the lower edge of the span is an integer multiple of the span width above the band edge. For example, choosing Medium when the receiver frequency is 14060 kHz and the Medium span is 50 kHz sets the lower edge to 14050 by setting the center frequency to 14075.



- ◆ Focus sets the span to the value from settings and the center frequency so that the current receiver frequency is 5% above the lower edge of the span. Use this for split pileups.
- ◆ The Center button sets the center of the panadapter span to the receiver frequency.

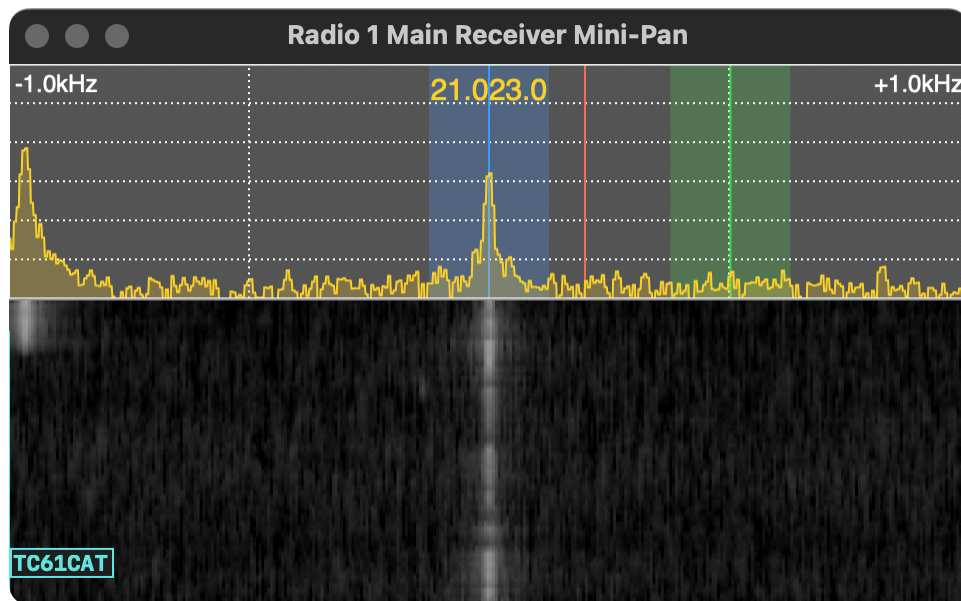
When the radio provides certain information via CAT, it is possible to determine the frequency for any point in the panadapter view. Then, SkookumLogger can set the radio frequency when a user clicks in the view, and overlay activity information on the view.

The remainder of this chapter is specific to a K4 using an ethernet connection and firmware version R31.B2 or newer, using the K4 TCP radio type. The K4 provides all four data streams with some caveats:

- ◆ The Sub Receiver data is not available when SUB is off or the PAN setting in DISPLAY isn't A+B.
- ◆ The Sub Receiver Mini-Pan data is identical to the Main Receiver data when DIVERsity is on.

*Note:* Sometimes a data stream stalls resulting in a blank display to recover, close and reopen the window.

## Radio Cursors



SkookumLogger displays cursors for main receiver frequency, subreceiver frequency, and transmit frequency in the spectrum pane of all four windows, and briefly extends them into the waterfall when any of those frequency changes. The colors for these cursors match the K4 display:

- ◆ A blue line shows the main receive frequency. The line is surrounded by a semi-transparent rectangle with width determined by receiver bandwidth and offset determined by radio mode-dependent shift. When the mode is FSK, the blue line is at the mark frequency and a second dotted line is drawn at the space frequency.
- ◆ A green cursor similarly represents this information for the subreceiver.
- ◆ A red line represents the transmit frequency.



All three of these cursors are always present, but of course you don't see them when they are outside the bounds of the panadapter frequency span.

## Grab Cursor

When a panadapter window is active and the mouse cursor is over the window content, SkookumLogger draws a vertical white line at the horizontal mouse coordinate and displays the frequency at that coordinate near the top of the line. If the tracking cursor is near an activity cursor, SkookumLogger also displays the call for the activity. Clicking the mouse performs the action listed below, then makes the Log window active.

Grab Cursor Click Actions for 1T1R and 1T2R

Modifier	On Activity	Action
none	no	Clear entries, set frequency for entry pane with Transmit Focus
none	yes	Grab activity
control	no	Change focus to Run, clear entries, set frequency
command	yes	Delete activity
shift & command	yes	Reject activity

Grab Cursor Click Actions for 2T2R

Modifier	On Activity	Action
none	no	Clear entries, set frequency for Radio 1
none	yes	Grab activity to Radio 1
shift	no	Clear entries, set frequency for Radio 2
shift	yes	Grab activity to Radio 2
control	no	Change focus to Radio 1, turn off pounce submode, set frequency
shift & control	no	Change focus to Radio 2, turn off pounce submode, set frequency
command	yes	Delete activity
shift & command	yes	Reject activity

These click actions are similar to those for clicking in Activity tables.



## Activity Cursor

SkookumLogger draws a vertical lines in the waterfall pan at the frequencies of activities for the radio's band. These activity cursors are labeled with the activities' calls, and they are adorned with the needed colors for the activities. The visible activities do not depend on the Activity table filter choices.

## Using the Panadapters

A panadapter provides situational awareness at a glance. Locate the windows near your Log window where you can inspect them without turning your head.

### *Grabbing a run frequency*

- ◆ Click inside a panadapter window to show the grab cursor.
- ◆ Position the grab cursor over an empty frequency.
- ◆ Control-click. The radio will be set to transceive on the frequency you chose, and both transmit focus and keyboard focus will be changed to the Run entry box.

### *Grabbing an unknown signal*

- ◆ Click inside a panadapter window to show the grab cursor.
- ◆ Position the grab cursor over a signal that is isn't identified with an activity cursor.
- ◆ Click. The QSO entry box with transmit focus (red gumdrop) will be set to transceive on the grab cursor frequency and keyboard focus will be returned to that entry. You can then type a call to determine the signal's needed status, and choose Activity > Create to add the signal to the Activity table.

### *Grabbing an activity*

- ◆ Click inside a panadapter window to show the grab cursor.
- ◆ Position the grab cursor over an activity, so that the activity's call is attached to the grab cursor.
- ◆ Click. The activity is copied to Pounce, focus is changed to Pounce, the radio is set to the new Pounce frequencies.

### *Running in 1T1R mode*

Set transmit focus and keyboard focus to Run. Open the main receiver mini-pan window. Turn off SPLIT and set the main receiver where you want to run.

When Run has transmit focus, SkookumLogger turns RIT on and XIT off. Tuning the RIT/XIT offset causes the the spectrum plot to recenter without affecting the transmit frequency. Use this behavior to move the receiver to a caller outside your passband without moving your transmit frequency. Use CLR or a K•Pod function key to return the main receiver frequency to your transmit frequency; the plot will recenter again. With a K•Pod, use the knob to control the RIT/XIT offset.

### *Search and Pouncing in 1T1R mode*

Set transmit focus and keyboard focus to Pounce. Open the main receiver mini-pan window. Turn off SPLIT and set the main receiver to a station you want to call.

When Pounce has transmit, SkookumLogger turns RIT off and XIT on. Tuning the RIT/XIT offset changes your transmit frequency without changing the receive frequency or recentering the spectrum display. Use this behavior to set your transmit frequency where the station you are calling is most likely to hear you; sometimes zero-beat to a previous caller, sometimes where nobody else is calling, usually not where the target was spotted. Clear the offset as above to transmit exactly where you are listening. With a K•Pod, use the knob to control the RIT/XIT offset.

### *Cracking Pileups in 1T1R mode*

Set transmit focus and keyboard focus to Pounce. Open the main receiver panadapter. Turn off SPLIT and set the main receiver to a station you want to call. Choose the Focus preset mode.

Listen to the target station while watching the pileup in the panadapter. The pileup will subside somewhat when the target is working somebody; the station being worked will be among those still transmitting. Identify that station by whether or not he is transmitting only when the target is not transmitting, this is surprisingly easy to do as long as you can hear the station. You want to call at or near the frequency of the station just worked; use XIT offset to transmit at that frequency, as shown by the red radio cursor.

Sometimes the target station will change where he is listening after one or a few QSOs. You may be able to detect a pattern in which direction he moves his receiver and choose a relatively clear spot to call in anticipation. In another pattern, the target will jump to one edge of the pileup when he is reaching the other edge. Basically, you want to do something more intelligent than parking on one frequency and hoping he will tune across you.

The range of the RIT/XIT offset, 10 kHz, may not be large enough to cover the entire pileup. In that case, leave the offset at zero, turn on SPLIT, and position the transmit cursor with VFO B. In this configuration you can also turn on SUB to listen to both the target and to where you will be transmitting.

### *Setting Pre-amplification Level*

Your ability to copy a signal depends on the signal-to-noise ratio (SNR), where the noise is a combination of noise arriving from your antenna and noise generated inside your receiver. When the antenna noise is much larger than the receiver noise, the receiver noise has no effect on SNR. A preamp can raise the antenna noise to accomplish this condition.

You can use a panadapter to see how much pre-amplification is helpful, like this:

- ◆ Select DISPLAY > REF LVL > MAN.
- ◆ Set the reference level so that the “grass” level in the spectrum plot is well above the baseline.
- ◆ Increase pre-amplification. If the grass level decreases, the added pre-amplification has improved the SNR. If not, you should decrease pre-amplification, perhaps by adding attenuation, to improve large-signal handling.

## Map Windows

SkookumLogger has two map windows. Each contains an azimuthal equidistant (also known as great-circle) projection centered on your geographic coordinates. One, the Great Circle Map, displays the entire earth with ocean and country borders and, optionally, worked countries. The other, the Grid Map displays a section of the earth with Maidenhead grid boundaries and, optionally, worked grids. Choose **Window > Maps > Show Great Circle Map** and **Window > Maps > Show Grid Map**, respectively. You can open both map windows at the same time.

The [Maps web page](#) describes how to request map images for your location and download maps for your location.

The **Window > Maps** submenu has three groups of items. The bottom group applies to both map windows, while the upper two groups have separate items with the same behavior for each map window. The item names are rather elaborate so that you can assign you own keyboard shortcuts. Some of these items are duplicated in buttons in the map window title bar.

Zoom In and Zoom Out change the size of the map without changing the size of the window. The size of the zoom step is  $\sqrt{2}$ . Normally, changing the size of the window does not change the size of the map. Fit in Window resizes the map to fill the window and turns on autoresizing so that window size changes also change the map size. When you zoom or center the map, autoresizing is turned off. Control-option-click and shift-control-option-click zoom in and out respectively, without panning the map.

Center shifts the map within the window so the map center is aligned with the window center. The map windows have scrollbars that you can use to pan a zoomed-in map within its window. You can also pan by dragging with the mouse. And you can option-click on a point in the map pans the map to center the clicked point in the window. In either case, you cannot pan beyond the limits of the map, so these gestures are most useful when zoomed in several steps.

Change Map opens a file chooser for selecting a map image file. The files available at the Maps web page have the coordinates of the map center embedded in the image data; you can use any of them to see what the world looks like from other places than your own QTH, with all of the functionality described below. Download the files you find interesting and store them anywhere on your computer. SkookumLogger remembers the most-recently opened map image across restarts. Note: Show the Map window before you use this command.

Mouse clicks inside the map can also control rotator 1 and your receive antenna choice. These gestures are listed in the help tag for the map.

- Show Great Circle Map
  - Zoom Great Circle Map In
  - Zoom Great Circle Map Out ⌘ –
  - Fit Great Circle Map in Window
  - Center Great Circle Map
  - Change Great Circle Map...
- 
- Show Grid Map
  - Zoom Grid Map In
  - Zoom Grid Map Out
  - Fit Grid Map in Window
  - Center Grid Map
  - Change Grid Map...
- 
- ✓ Target Point
  - Worked Countries
  - ✓ Terminator Overlay
  - ✓ TX Antenna Overlay
  - RX Antenna Overlay
  - ✓ WWV Report

⇧-drag to pan

⌘-click to center clicked point in the window

⇧⌘-click to zoom in

⇧⇧⌘-click to zoom out

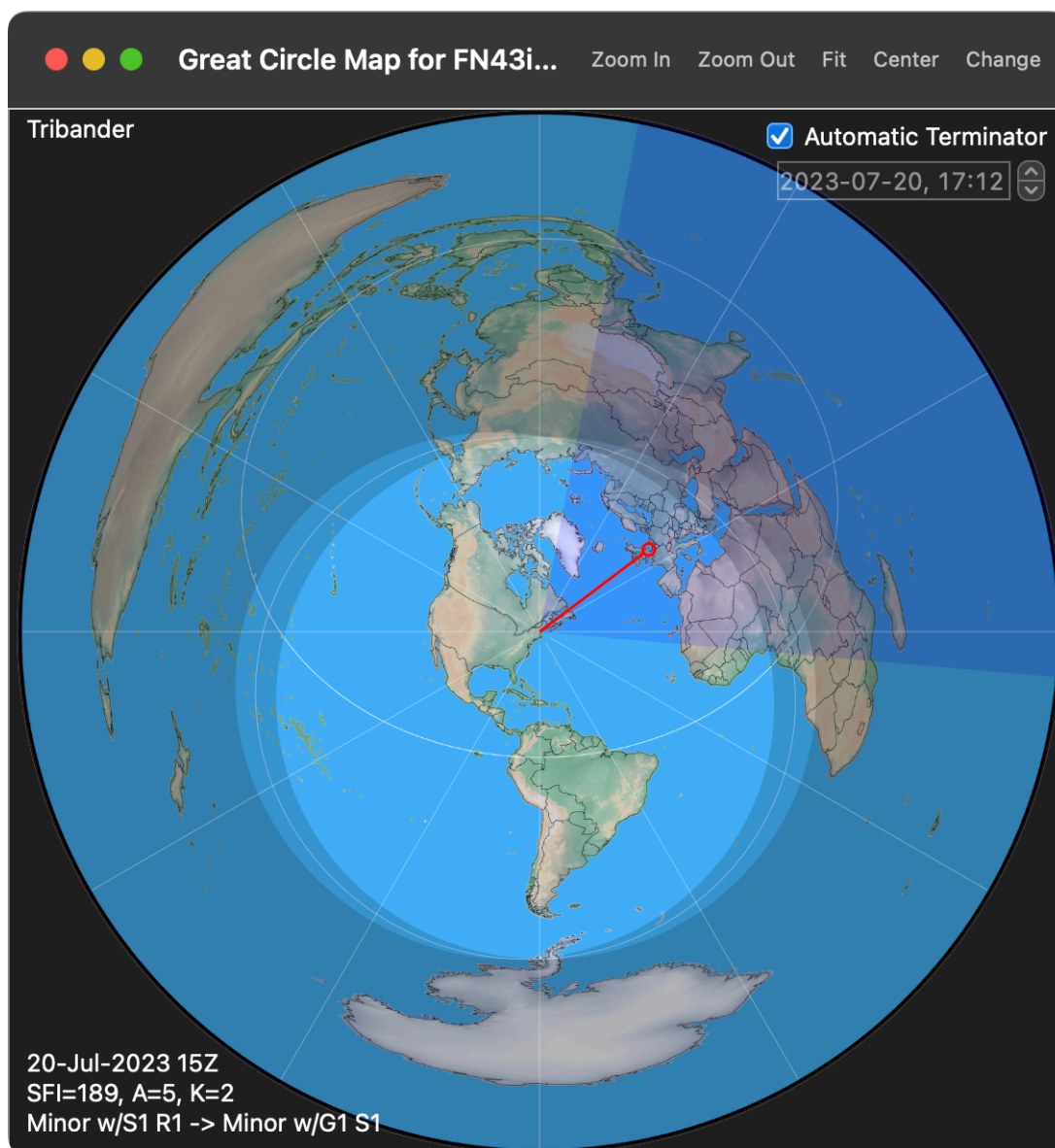
⌘-click to turn rotator

⇧⌘-click to turn rotator (long path)

⇧⌘-click to choose RX array

⇧⇧⌘-click to choose RX array (long path)

Each window has six overlays – graphics drawn on top of the map. Five of them are turned on and off with the items at the bottom of the **Window > Maps** submenu. The sixth overlay is a compass rose comprising 12 white radial lines from map center to map edge spaced 30° apart.



## Target Point Overlay

The target point graphic is a line from the center of the map (your location) to a dot at the location of the call in the QSO call entry field, colored red in the example. The color for the target point graphic is chosen to contrast well with the colors in the map image.

When SkookumLogger finds grid for the call in either your current log or your exchange archive, it draws a donut at the end of the line. Otherwise, the coordinates are determined from the Countries database and SkookumLogger draws a solid dot. As a special case for UK contesters, if the contest name contains 'RSGB' and the contest bands are all above 10m, SkookumLogger draws nothing instead of the solid dot.

## Worked Countries Overlay

When **Window > Maps > Worked Countries** is checked, the call field is empty, and the current log has country multipliers, SkookumLogger draws a small target-like dot at the center of each worked country. For the Grid map, worked grids are shaded.

## Terminator Overlay

The terminator is the dividing line between points on the earth that are illuminated by the sun, and points that are not illuminated. That line is drawn as white in the terminator overlay. The sunlit area in the overlay is transparent, while the unlit area is translucent.

The fuzzy shading on each side of the terminator corresponds to the location of the terminator 30 minutes before and after the current time. The current time is shown at the top right corner. The current time is automatically updated every 1 minutes unless the Automatic Terminator checkbox is turned off; then you can enter any time of year into the date picker.

Great circle paths approximately aligned with the fuzzy area around the terminator are known as gray line paths. Propagation along these paths is sometimes enhanced, and sometimes favors the long path to a target as well. Other enhancements can happen when either or both ends of the target path are inside the fuzzy region around the terminator.

## Antenna Overlays

The TX Antenna and RX Antenna overlays show antenna patterns as pie-shaped segments for the selected transmit and receive antennas. A segment is shaded where the antenna lobe gain is less than 5 dB (one S-unit) below the peak gain. Patterns for Radio 1 are translucent blue; patterns for Radio 2 are translucent red.

The names of the active transmit antennas are listed at the top right corner of the map.

When the transmit antenna is rotary, the overlay updates when antenna bearing changes.

To configure your antenna information, a [configuration file](#) in JSON format is required. A separate application exists to test the configuration you have specified, and similar code for antenna selection via an external YCCC MOAS switch has been integrated into SkookumLogger.

### WWV Report Overlay

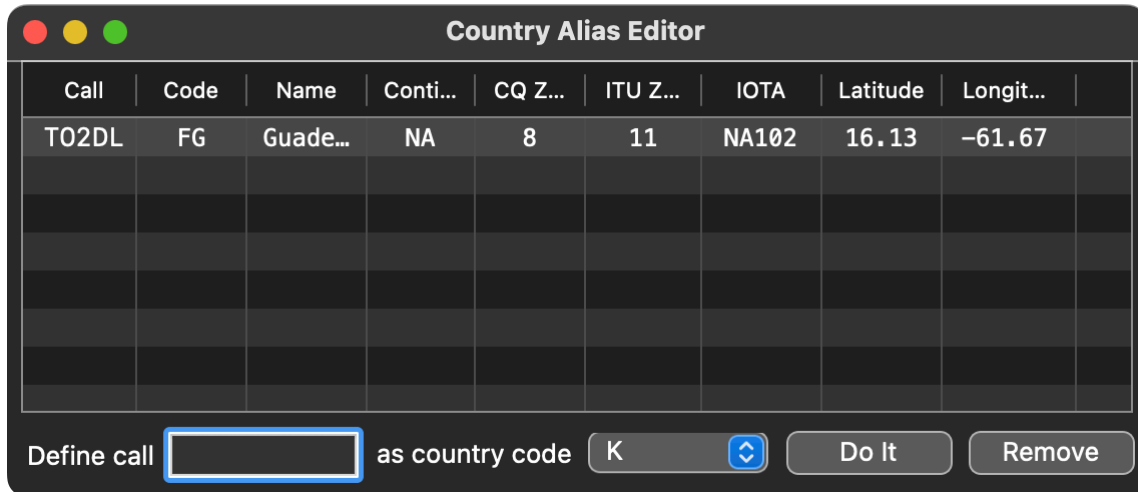
This overlay is a simple reformatting of the DX Cluster WWV announcement messages presented at the lower left corner of the map window. The messages are broadcast every 3 hours, commencing at 00Z. The bottom line shows Geomagnetic storm (G) and Radio blackout (R) levels in the past 24 hours and predicted levels for the next 24 hours. See the NOAA reference below for details about these levels.

The messages are broadcast every three hours, and SkookumLogger needs to be connected to a DX Cluster node when a broadcast happens. Alternatively, you can manually request the most recent WWV forecast, or automatically request a forecast when opening a DX Cluster connection; see [DX Cluster settings](#). To understand the WWV terminology visit [NOAA Space Weather Scales](#) and [DX.QSO.NET Propagation](#).

## Editor Windows

Use an editor window for changing settings during a contest. Open an editor using **Window > Editors >**.

### Country Alias Editor



Choose **Window > Editors > Country Alias Editor** to open a window to define information to associate with a call. For example, you can create an entry for R7BA/9, associating that call with the UA country code in EU, instead of UA9 in AS as would have been determined from "R9BA". Or you could add an IOTA definition, or provide a definition for a call that is unknown in the countries database.

To create an entry in the table, enter a call sign in the Define call field, choose a country code in the popup list, and press Do It. The parameters for the selected country code are used to populate the remaining columns in the table. You may then optionally edit values in columns other than Code and Name. For example, you might want to change the Latitude and Longitude coordinates (the default coordinates are based on population centroids, and are not likely to be accurate for a geographically large country). To delete an entry, select the row and press Remove. The custom list is saved each time it is changed, and applies for all situations where SkookumLogger needs to look up information for a call.

The country code list has hundreds of entries, making it cumbersome to manually scroll to a selection. To auto-scroll, select the button by pressing the tab key, then type the first character of a country code.

You can also use this editor to deal with invalid calls like 8J1C70Y. SkookumLogger logger will allow you to enter anything in the Define Call, and will treat it as a valid call once you have assigned a country code for that call.



## Sent Exchange Editor

Choose **Window > Editors > Sent Exchange Editor** to display the Sent Exchange editor.

When you create a new log, SkookumLogger guesses an appropriate sent exchange using the contest rules and information that you provide in the Sent Exchange tab of the New Log settings pane. The sent exchange for the next QSO is displayed in the main window. If the guess is wrong or you need to change an exchange field because, for example, you have changed counties in a QSO party, use this editor.

*Important:* You *must* set your sent exchange properly before you log a QSO.

It is important to ensure that the sent exchange is correct before you log any QSOs because each logged QSO contains the sent exchange information and that information cannot be changed. The Call field must be the call you transmit during the contest. This field is copied from the **Contest Call** value in the Exchange tab of New Log settings when you create a new log. The remaining exchange fields depend on the contest name. SkookumLogger initializes these fields from New Log Exchange settings but sometimes will guess wrong, particularly for contests where the exchange includes a “regional” location. For example, my “State-County” for NEQP is NHCAR, while the “State-County” for W2RU in that contest would be NY.

When the label above the input fields in the editor indicates a county is needed, you can use completion to see a list of county codes. **Edit > Complete** shows the list. If you type something first, the the list will be restricted to codes that begin with what you have typed. Use the up and down arrow keys to select a list entry, then press return to choose the selected entry.

In addition to the sent exchange fields for logged QSO, SkookumLogger also guesses the Morse Sent Exchange Template, associated with the & token in CW messages. The Morse Sent Exchange Template field updates if you change a value in a sent exchange field. You can customize the template, but customizations will be lost if you subsequently change an exchange field value. You might want to customize, for example, by using the | character to modify spacing. Changes that you make in the editor are saved in the log document and do not affect Exchange settings values.

The template recognizes all of the Message Tokens listed in Messages settings except the sent exchange token (&) and the message-n token({n}). In general you should use tokens in the template. In addition to the tokens, the template may contain any character recognized by WinKeyer. Unrecognized characters are ignored when sending a message. Do not 5NN or, worse, ENN in the template; SkookumLogger prepends the report to the sent exchange message as prescribed by contest rules.

## Morse Messages Editor

See [Messages editor](#).



## Data Messages Editor

**Data Messages Editor**

**Message Tokens**

~ sent call	# sent serial	* received call	{n message-n
& sent	! QSY	+ received name	} CRLF

**Data Messages**

Menu Title	Tokenized Message	Menu Title	Tokenized Message
CQ	}CQ TEST ~ ~ CQ	Short Ack	TU
Exchange	599 # #	Defend	QRL
Acknowledge	73 ~ CQ }	Unstack QSO	R NW * &
My Call	~ ~	User 1	USR 1
His Call	}*	User 2	USR 2
Call?	CALL CALL	User 3	USR 3
?	NR NR NR	User 4	USR 4
Again	AGN AGN	User 5	USR 5

**Magic Messages**

	Begin	Continue	End
Run:	{1	{5 {2	{3
Pounce:	{4	R {2	

The **Data Messages Editor** customizes basic message content for data modes. Customizable menu item titles are changed using the Morse Messages Editor. Changes that you make with this editor are saved with the current log and do not affect other logs.

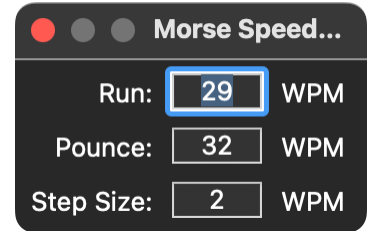
Choose **Window > Editors > Data Message Editor** to open the editor. The editor is similar to the Morse Message Editor, with the CRLF token available instead of the half-space token. The example window shows how CRLF is used to cause line-spacing at the receiver.

## Morse Speed Editor

The Morse Speed Editor is a small window for setting keyer speeds and speed step size.

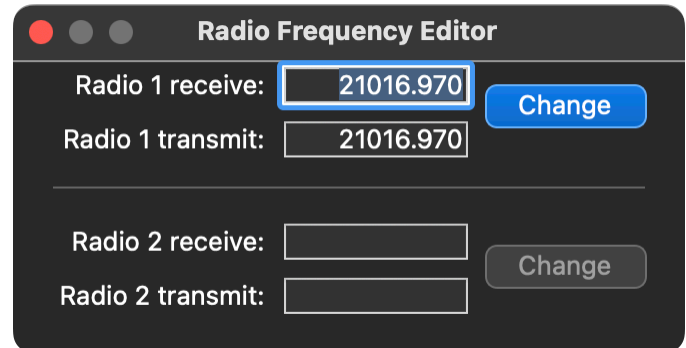
Choose **Window > Editors > Morse Speed Editor** to open the editor.

The labels Run and Pounce change to Radio 1 and Radio 2 in the 2T2R operating mode.



## Radio Frequency Editor

You can set the radio's frequency directly from SkookumLogger, using **Window > Editors > Radio Frequency Editor**, including different frequencies for transmit and receive, whenever split is supported via CAT control for a radio type. This is most often useful for working split in phone contests that enjoy worldwide participation by operators limited to different phone segments by their national regulatory agencies.



If the entered frequency is less than 1000, it is treated as an offset from the band edge for the current band. When you do not change the transmit field, SkookumLogger assumes you want to transceive on the receive frequency. When the transmit and receive frequencies do differ, SkookumLogger shows the TX offset value in the Log window in yellow to remind you. You can use the same editor to set frequencies when radio type is set to Phantom; when you are not using CAT control, this allows you to set the frequency for the log manually.

Also see the [Frequency](#) text command.

## Tool Windows

Tool windows are generally passive displays for showing information during a contest without needing take keyboard focus. Use **Window > Tools >** to open a tool window.

### Rate Tracker

The Rate Tracker tool has four groups of bar meters giving you various measures of how quickly you are logging new QSOs. Each of the groups has a number entry field for setting the maximum value of the meters in the group.

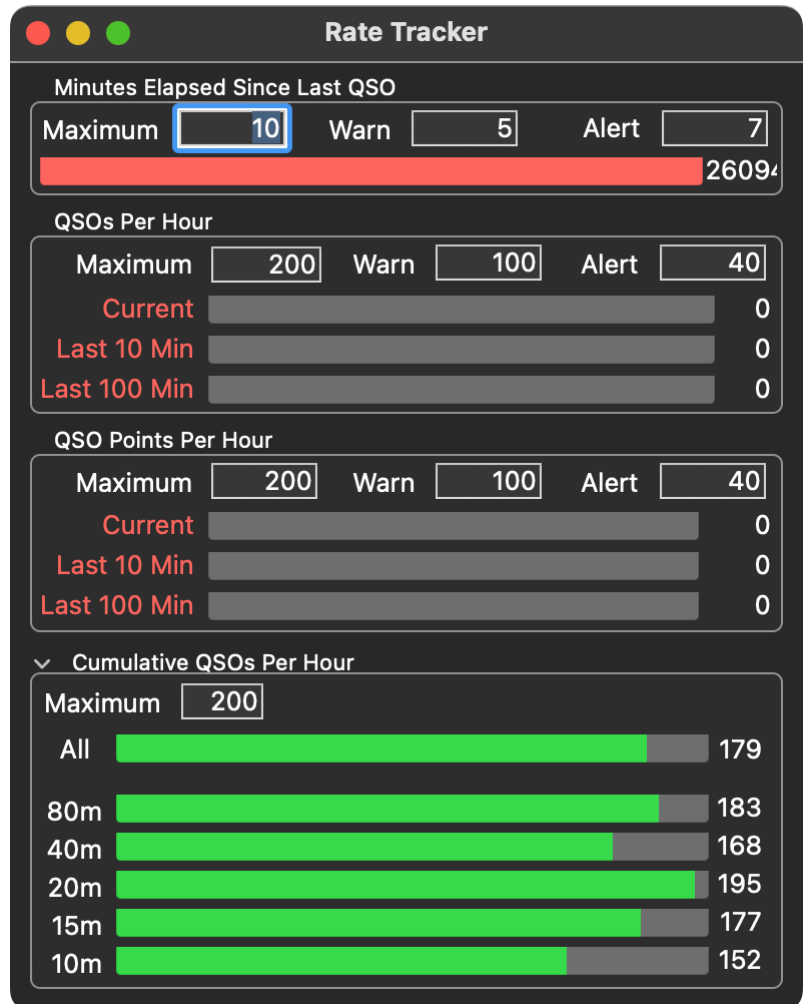
The Minutes Elapsed Since Last QSO bar is colored green when the value is less than the Warn level, yellow when the value is between Warn and Alert, and red above Alert.

The bars in the QSOs Per Hour and the QSO Points Per Hour groups are colored red when the value is less than the Alert level, yellow when the value is between Alert and Warn, and green above Warn. The Current meter values are computed using the value of **Rate averaging interval** in Logging settings.

The Cumulative QSOs Per Hour bars show rates per band. Some testers use these bars to determine if they are spending too much time or not enough time on a band.

Having the Rate Tracker window open will give you a feel for how many QSOs and points you are making in a time period, and how long has elapsed since the last QSO logged. If rates slow you may decide to change strategy in some way, such as changing bands.

Of course not all contest events are purely about QSO rate - multiplier searching in some events might be an important activity – in which case the QSO points rate will be more useful to monitor than the raw QSO rate.



## Time Tracker

The Time Tracker tool displays, umm, time information for your log.

All contests have a beginning and end. Time Tracker shows the beginning as **Start date**, and determines the end by adding the Contest duration to the start date. SkookumLogger presets these fields for new logs, but you should *a/ways* check them for a new log before you begin making QSOs. Some contests limit the amount of operating time to less than the duration. In this case, the Maximum on time field shows the limit, the limit may depend on your entry category.

Some contests, typically USA QSO parties, have a break in the middle. SkookumLogger handles these using a list of mandatory break periods.

The [Suspect QSO](#) (SQ) flag is set for QSOs logged outside the contest period. The **Do not test for Suspect times** option in Logging settings disables this test.

“On time” is the accumulated time during which you are making QSOs during the contest period. “Off time” is the accumulated time during which you were not making QSOs. SkookumLogger detects the beginning of an off time by comparing the difference between the current time and the time of the most recent QSO against the Minimum off period field, shown when you expose the Off times panel. Some contests specify this value, otherwise SkookumLogger sets it to 10 minutes. The value affects rate tables presented in your statistics report. Shorter off periods generally “improve” your rates. The Begin time of an off time is the most recent QSO time. When you log the next QSO, the off period ends and the **End** time of the off time is set to that QSO’s time and SkookumLogger resumes accumulating on time. The table of all off times is reported in the Cabrillo header.

You can create a new log for a contest any time before the end of the contest. When calendar data is not available for a new log, the start date is set to the current date and the duration is set to two days. You can edit the Start Date, Contest Duration and Maximum On Time items. Use the Apply Changes button to save the changes and update the current log.

Changing the Time Category item in your Cabrillo settings sheet affects the Maximum On Time value appropriately. The Not Applicable choice returns the value to the default for Single Operator entrants.

When you aren’t familiar with the start date and off time requirements for a contest, use **Help > Contest Rule Summary** or **Help > Contest Rules** to open a rules page in your default web browser.

Begin	End	Minutes

### *How Start Date and Duration are determined*

When you start SkookumLogger, a table of contest information is downloaded from the internet and stored on your computer. That table contains data from the Alphabetical pages in the WA7BNM Contest Calendar for every active contest – over 700 of them. When you make a new contest log, SkookumLogger consults that table to determine the start date, duration, and other information. When the new contest isn't present in the table, SkookumLogger sets the start date to the current date and the duration to two days. Of the 260+ contests supported by SkookumLogger, these are presently not in the table:

== Generic ==

Generic Grid Square Contest

Generic Info Contest

Generic QSO Party

Generic Serial Number Contest

== Nontest ==

General Logging

Special Event Station

== Other ==

Latvian Mechanical Key Activity

Concurso 80 m CW URE Manises

Jock White Memorial Field Day

Polish Straight Key Contest

Swedish Monthly Test CW

Swedish Monthly Test SSB

== RSGB ==

RSGB 160m Affiliated Societies (Club Calls) Contest

RSGB 23cm UK Activity Contest

RSGB 2m Affiliated Societies Contest

RSGB 2m FM Activity Contest

RSGB 2m Low Power Contest

RSGB 2m Marconi Contest

RSGB 2m May Contest

RSGB 2m Trophy Contest

RSGB 2m UK Activity Contest

RSGB 4m Affiliated Societies Contest

RSGB 4m CW Contest

RSGB 4m Trophy Contest

RSGB 4m UK Activity Contest

RSGB 6m Affiliated Societies Contest

RSGB 6m CW Contest

RSGB 6m Trophy Contest

RSGB 6m UK Activity Contest

RSGB 6m-70cm Christmas Cumulatives Contest  
 RSGB 70cm Affiliated Societies Contest  
 RSGB 70cm FM Activity Contest  
 RSGB 70cm Low Power Contest  
 RSGB 70cm Trophy Contest  
 RSGB 70cm UK Activity Contest

## Score Breakdown

Score											
Score: 5,724,096 1 mult = 9.4 Qs										5,109 CQs	
Band	QSOs	Q-CW	Q-SSB	Points	QP-CW	QP-S...	Mults	Country	Other	Dupe	Suspe...
80m	558	448	110	1304	971	333	71	48	23	17	0
40m	1043	828	215	2760	2085	675	91	60	31	28	0
20m	1311	942	369	4404	3144	1260	108	74	34	20	0
15m	1027	802	225	3611	2726	885	108	75	33	23	0
10m	261	202	59	698	500	198	70	48	22	1	0
ALL	4200	3222	978	12777	9426	3351	448	305	143	89	0

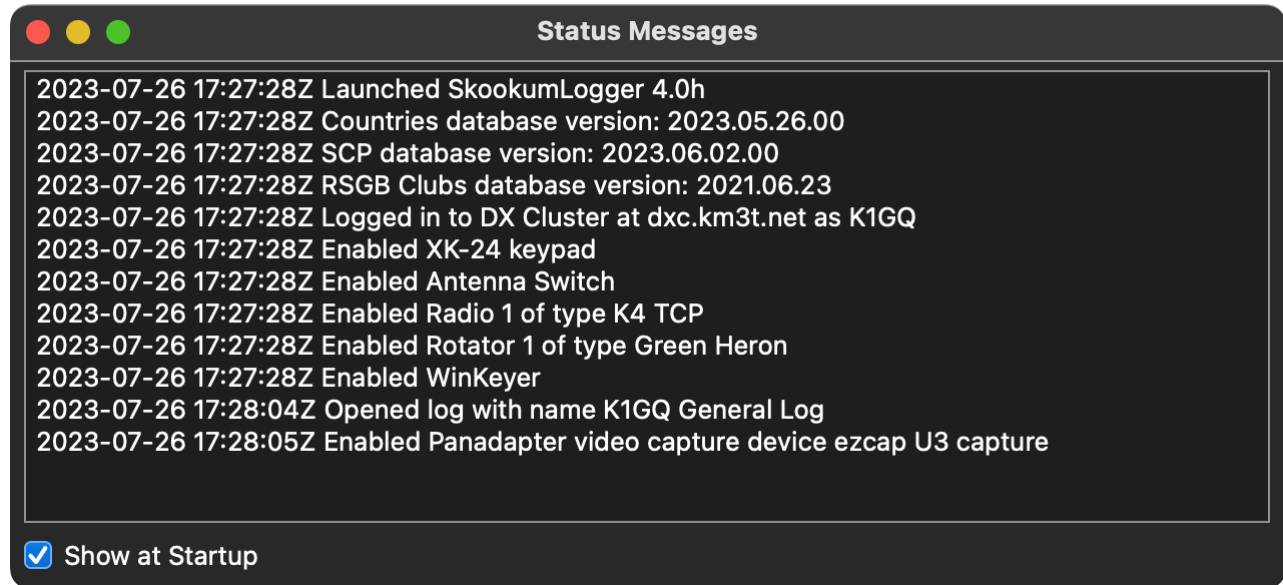
The Score tool shows a per-band breakdown of QSOs, QSO points, multipliers, duplicates, and suspects.

The value for a multiplier in terms of QSOs is total QSOs divided by total multipliers, and is accurate only when all QSOs have the same point value.

When you edit a logged QSO, the score and other information may become invalid.

SkookumLogger has to rescan all of your QSOs to update the information, which can be time-consuming, so the update is performed automatically as determined by ***Automatically rescore logs smaller than*** in Logging settings. In any case, you can manually cause an update with the **Log > Rescore Log** command.

## Status Messages



The Status Messages tool displays status messages from SkookumLogger. The example shows startup messages and log file changes. Uncheck Show at Startup if you don't want to see the messages. In that case, when SkookumLogger thinks you should know right away about a change in status, it opens the window for you.

*Note:* The checkbox will be ignored if you haven't change **My Call** in New Log settings from the default.

## Pass Information

The Pass Information tool window shows the call in the QSO entry pane with keyboard focus, with a table of symbols indicating the bands where you need that call or the multiplier(s) for that call. The ❖ symbol indicates needed, \_ indicates not needed. You use the information to decide whether or not to ask the station to move to another band or mode – traditionally termed “passing” a station.

Needed Pass Information			
K1GQ			
Band	QSO	Country	Other
80m	_❖	_	❖
40m	_❖	_	❖
20m	_	_	❖
15m	_	_	❖
10m	❖❖	_	❖

The number of markers in each column depends on whether or not QSOs and multipliers are per-mode. In the case of multiple-mode contests, hover your cursor over the table to see the help tag defining the mode-ordering of the symbols.

In the example, K1GQ is a needed QSO on 80m and 40m SSB, and both modes on 10. The Country of K1GQ isn't needed on any band, but the Other multiplier is needed.

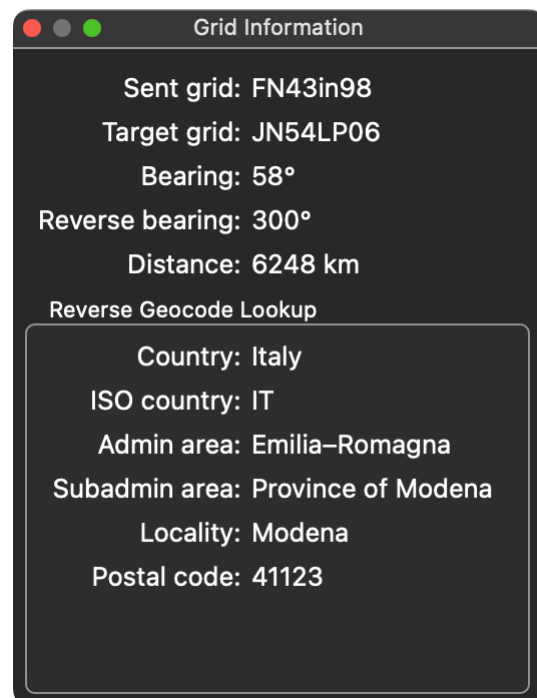
## Grid Information

The Grid Information tool window displays your grid and information about a target grid. The Sent grid field is initialized with the **Grid** value in the Sent Exchange pane of New Log settings. In

contests with grid as part of the exchange, Sent grid tracks the grid that you set in the Sent Exchange Editor. If the ***Automatically set sent grid*** option in Logging settings is on, your sent exchange grid tracks your computer's grid using the macOS location service. Your Mac will need a good wireless connection to the internet, possibly via an iPhone hotspot. You may see a "not available" message if you don't have WiFi enabled, or if Location Services is not enabled in Security & Privacy system settings.

The Target grid field is determined from the location for the [Target Point](#).

The **Reverse Geocode Lookup** pane shows additional information about the target location available via an internet query. The empty space at the bottom of that pane shows potential error messages associated with the lookup.



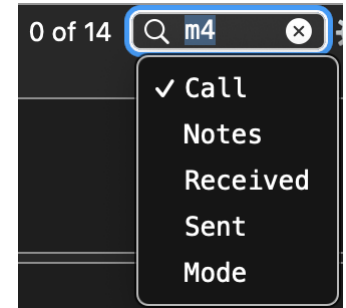


## Analysis and Log Aggregation

SkookumLogger provides a number of features that allow you to analyze your log during and after the contest which may assist in understanding how to improve your performance next time. This chapter covers these features together with how to export your individual SkookumLogger contest logs into other software to aggregate them into a single QSO database for subsequent analysis.

### Using Search Log to Analyze Contacts

During the contest, the Search feature in SkookumLogger allows you to review information about the stations you have worked. The Search field is located towards the top right of the main SkookumLogger logging window. Clicking the magnifier icon in the search field allows you to list and select the log table column to search on. As you type into the search field, the log table displays only QSOs that contain what you have typed in the chosen column. The numbers to the left of the search field are the number of selected QSOs (0) and the number of matching QSOs (14).



There are many examples of how you can use this search. First it can be of use to quickly find all instances of a particular call. Then you can check needed band/modes or, in the case of a duplicate, you can tell the station what exchange they gave you in the previous contact.

A second way to use the search is for contests where the multiplier is based on some unusual detail of the received exchange which is not covered by SkookumLogger's standard country, zone or multiplier tables. One example of this is the number of Club Stations worked in the RSGB Club Calls contest. Club stations are logged as C before the club name in the exchange. Therefore searching the log for the pattern ' C ' in the Received field returns the required analysis.

A final example of how to use the search feature is to search for specific contents in the Notes field, in cases where you want to flag particular issues, and have entered a comment or flag of some sort in the Notes field of the relevant contacts in the log table.

The ***Automatically search*** option in Logging settings copies what you type into the search field and sets the target column to Call. The effect is that the log shows only QSOs with calls that contain what you have typed. This is convenient in contests with rovers, although perhaps disturbing the first time you use it.

### Rate Breakdown Analysis

**File > Rate Breakdown Report** produces a detailed breakdown of QSO rates with multipliers (if applicable) over the duration of the contest. The format is HTML and the report will open in your default browser. The file, QSOPointsBreakdown.html, can be found in the [application support folder](#). Alternatively, use your web browser to save the report in webarchive format in a more accessible place where it won't be overwritten.

**Note:** See the note in the next topic.

## Statistics Report

**File > Statistics Report** processes your log to compute rate statistics and other summary information, then produces a report in HTML before displaying this in your default browser. The processing is time-consuming for large logs and will block the SkookumLogger user interface until it completes. The file, StatisticsReport.html, can be found in the [application support](#) folder. Alternatively, use your web browser to save the report in webarchive format in a more accessible place where it won't be overwritten.

*Note:* On Sonoma 14.1, your web browser may show something like this:

# Safari Can't Open the Page

Safari can't open the page. The error is: "The operation couldn't be completed. Operation not permitted" (NSPOSIXErrorDomain:1)

To work around this new security policy, either drag the StatisticsReport.html to your desktop and double-click it, or give your web browser full disk access in System Settings -> Privacy & Security -> Full Disk Access.

## ADIF Export

Many contest operators want to aggregate their individual contest logs into a single large database of contacts made. This may be for analysis purposes or for award or QSL tracking for example. Other macOS general logging programs that do this can import standard Amateur Data Interchange Format (ADIF) files. SkookumLogger provides a feature to export individual contest log data to ADIF for this purpose. Simply choose **File > Export ADIF....** A standard File Save dialog will appear and you should choose a name and location to save the file.

The ADIF exported file may also be used directly by programs such as TQSL for signing and uploading contest logs to ARRL's Logbook of the World (LotW), but in most cases if you are aggregating contest logs from SkookumLogger into a general logging database application then the latter will also handle LotW interaction.

## Numbers Export

SkookumLogger provides a means to export all the log table data for a contest in comma separated values (CSV) format, facilitating import into spreadsheet software such as Apple's Numbers or Microsoft Excel. Further sorting and analysis is then possible using such software. To do this, choose **File > Export to Numbers....** A standard File Save dialog will appear and you should choose a name and location to save the file.

## External Devices and Networking

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## Overview

In general, you should turn on all your external hardware before starting SkookumLogger, and stop SkookumLogger before turning external hardware off. That allows SkookumLogger to keep track of which devices you are using and manage them for you at startup.

You manage devices in windows listed in the **Window > External Devices >** menu. Some windows have a Type chooser when more than one kind of a class of devices (for, example, different amplifiers) is supported. Windows that access devices using the RS232 serial protocol have Port choosers for selecting the serial port for the device and an Enable checkbox for starting and stopping communication with the device. Windows that access devices using the TCP network protocol have a Settings... button in place of the Port chooser.

*Note:* These general remarks no longer apply to the [Radios](#) window.

Some external devices identify themselves when plugged in and turned on. SkookumLogger doesn't need choosers or an Enable checkbox for them. The YCCC SO2R Box and the XK-24 Keypad examples of these devices.

*Hint:* While SkookumLogger remembers which external device window are open across restarts, most are rarely needed once configured. A quick way to open a window without navigating the nested menu tree is:

- ◆ Use **⌘?** to open the **Help** menu
- ◆ Begin typing the window name into the search field
- ◆ Use down-arrow to select the desired menu item in the search result list
- ◆ Tap return.

## Serial Devices

Many of the external devices supported by SkookumLogger communicate with the computer using the antique "RS232" serial protocol. These devices require a USB-serial adapter to convert the electrical connection between serial and USB standards. In some cases, the adapter is built into the external device. In other cases you need to provide the adapter yourself.

macOS automatically discovers USB-serial adapters when they are plugged in. SkookumLogger gets a list of those adapters when it starts up, and keeps the list updated while it is running. The port names reported by macOS depend on the information provided by the adapters. Some adapters have unique ID numbers that become part of the port name and do not change when macOS is rebooted. Others do not have unique ID numbers, so macOS assigns a mysterious ID based on the location of the device in the USB device tree each time it reboots, and so the device name will change if you plug the cable into a different port.

You can find out if a USB-serial adapter has an ID as follows:

- ◆ Open the System Information app (it's in the Utilities folder inside your Applications folder)
- ◆ Choose the USB item in the Hardware group in the sidebar

- ◆ Select a leaf in the USB Device Tree. USB-serial devices usually have “Serial” or “UART” in the name
- ◆ If the properties for the selected item includes a Serial Number, the adapter has an ID

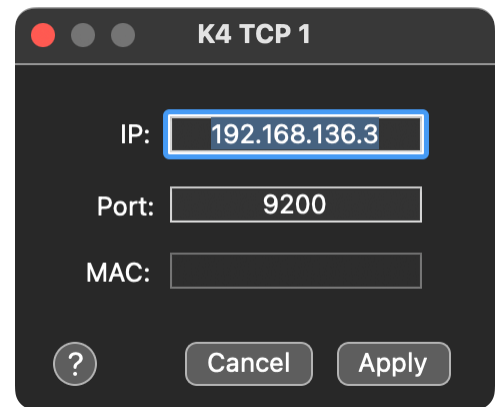
Apple is gradually locking down access to macOS internals to improve security. Sooner or later, that will break the old way of dealing with USB-serial device “drivers” – called kernel extensions (kexts). Apple itself has been quietly replacing kexts with driver kit extensions (dexts) that handle some third-party devices. “Quietly” because I have yet to find documentation for which devices Just Work. By trial-and-error, I know that FTDI and the USB-serial device inside the YCCC SO2R Mini do Just Work. Caveat: the latter device is a widely-used inexpensive product that fails to specify a unique ID for each chip (FTDI does this). Also see the discussion by [Don Agro](#).

## TCP Devices

Communicating with a TCP device requires that you define the TCP IP address and port number for the device. You do this by choosing opening the appropriate window in the **Window > External Devices >** submenu, choosing the Type for the device, then tapping the Settings... button.

The TCP Settings window title shows your device type, with 1 or 2 appended for amplifiers and radios. The window has three fields:

- ◆ IP – The network address for the device. This address must be reachable from your computer. If the device gets its address via DHCP, it may change; when that happens you will need to update this setting. Consider defining a static address for you device in your router. For example, the IP value for my K4 radio is 192.168.136.3. Note: For a K4 with R31 or newer firmware, you can use “K4-SNnnnn.local” as the IP address, where nnnnn is the number shown by the Radio Serial Number menu item.
- ◆ Port – The port number defined by the device for communication with logging software. The port number for all K4s is 9200.
- ◆ MAC – This setting is disabled unless the device supports wake-on-LAN. For my KPA1500, which does support wake-on-LAN, the MAC value is 54:10:ED:D8:C3; 6 hexadecimal numbers separated by colons. If you get this format wrong, SkookumLogger will report the error to the Status window and wake-on-LAN won’t work until you correct the problem.



Use the Enable checkbox to start communicating with a TCP device. If something causes a disconnect, the Enable checkbox will be turned off.

Wake-on-LAN works a bit differently when the device is sleeping. You need to tap the Power On button to wake up the device. Once awake, you can use the Power On button to turn power off, which returns the device to sleep mode.

## Port and Device Names

A port name for a serial device is an uninformative combination of letters and digits provided by macOS, such as usbserial-A6043VCY. The port name is formed by macOS using the serial number provided by the USB-serial adapter chip, A6043VCY in the example. Some chip manufacturers do not supply a serial number, in that case macOS creates one based on the location of the adapter in the USB Device Tree. As a consequence, the port name for a serial device may change when plugged into a different place in the tree.

Some radios present two serial port names on the same computer USB port. Normally you can use either port name in SkookumLogger, with the exception of ICOM radios, where the second port may not support CI-V. Generally, use the port name with the smaller last digit in the name for this case.

SkookumLogger remembers the port name associated with each enabled device, so that it can re-enable the device when starting up. This scheme will fail when the saved port name is not available because the port name changed. You will need to determine the new port name and choose that in the [Port Chooser](#) before re-enabling the device.

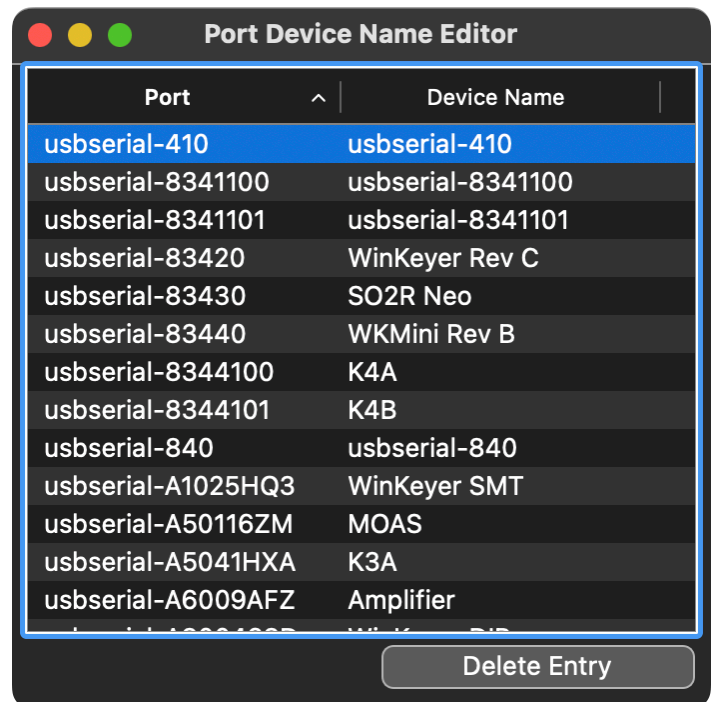
To determine the association between an external device and the port name for the device, watch the Status Messages window while you unplug and replug the USB cable to the device. You should see a message like “Serial port usbserial-83420 became active”.

You can, optionally, define a device name that will appear instead of the port name in port choosers, using the Port Device Name Editor.

## Port Device Name Editor

Choose **Window > External Devices > Port Device Name Editor** to create a memorable name to be used in place of a port name. The Port column contains the port names of every serial device that SkookumLogger has seen. The names in the Device Name column are initially the same as the port names, but you can edit cells in that column. For example, I’ve associated ‘usbserial-A1025HQ3’ with my WinKeyer SMT. The names you see in Port Choosers are the names in the Device Name column that are currently connected. So, if the usbserial-410 port isn’t plugged into an external device, it won’t show up in port chooser list. Device names that you create must be unique.

Delete Entry can be used to thin out the list. Each time macOS reports a newly discovered



serial port to SkookumLogger, the port name is added to the table in the Device Name Editor, unless it is already there.



## Port Choosers

The Port popup list for a serial device shows a list of the RS232 serial ports connected to your computer. The names in the list are either port names, or device names that you have defined as aliases for port names. Ports in the list that are in use (enabled) are grayed out so that you cannot try to use them for another device.

```
Rotator
WinKeyer SMT
usbserial-8341101
usbserial-8341100
KPA1500
```

When an enabled port becomes inaccessible in macOS, usually because either the cable was disconnected or the device was turned off, the lost port disappears from all port chooser lists.

SkookumLogger remembers the port chooser selection and the Enable state. When starting up, SkookumLogger re-enables ports that were enabled when quitting.

## Type Choosers

The Type popup list for an external device lists supported hardware names, such as types of radios. When you choose a list item, SkookumLogger shows the expected serial port properties for the selected hardware in small text below the chooser. You must ensure that the hardware is set to those properties.

The Type chooser is disabled (grayed out) when the device is enabled.

When the Type choice contains "TCP", the Port popup button is replaced by a button labeled Settings... that opens the TCP Settings window.

SkookumLogger remembers the last Type chooser selection when quitting.

```
Elecraft >
Flex >
ICOM >
Kenwood >
TenTec >
Yaesu >
Other >
```

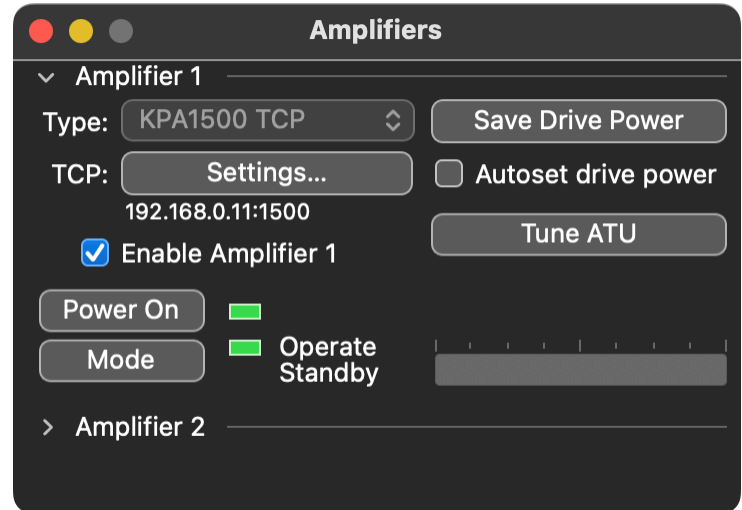
## Phantom devices

For some kinds of devices, such as radios and amplifiers, the device type choosers include a device named Phantom. This device type simulates the behavior of a basic real device. Simulation is useful, for example, when you don't have a radio connected to SkookumLogger but you want to set frequency and mode for logging a QSO – you would [text commands](#) to do this after enabling the Phantom radio type.

## Amplifiers

Choose **Window > External Devices > Amplifiers** to open the window for managing your amplifiers. Amplifier 1 is associated with Radio 1 and similarly for Amplifier 2.

Except for the ACOM 2000A, the Power On button can toggle the amplifier power on and off, and the Mode button can toggle the amplifier between Standby and Operate. For the KPA1500, the Tune ATU button starts the tune process for the amplifier and the bar graph displays amplifier forward power with 250 W tick marks between 40 and 2000 W.



The primary role of the amplifier interface is to control drive power based on whether the amplifier is in operate mode or standby mode. To do this, SkookumLogger needs to be able to read and set the transmit power level of your radio. You can define drive powers for each amplifier type, for each amplifier mode, for each contest band, and for each radio mode. The default drive powers are 25 W for operate mode and 100 W for standby mode.

To define a drive power setting, set the radio band, mode and transmit power level, then tap the Save Drive Power button. To enable SkookumLogger control of drive levels, turn on the Automatically set drive power option. The Track Radio applies to the KPA1500 amplifier. When enabled, SkookumLogger sends the radio transmit frequency to the amplifier to select the appropriate ATU settings without transmitting.

The Elecraft K3 or K4 with either the KPA500 or the KPA1500 combination and the AUX cable does all of this automatically, and also changes the amplifier band when the transceiver changes bands. For these radio-amplifier combinations, you should uncheck the option Automatically Set drive power and the 3 options.

For the KPA1500 with firmware 3.03, SkookumLogger supports automatically choosing per-frequency-bin ATU memories for up to 32 antennas. When the transmit antenna is changed, perhaps due to a radio frequency change, SkookumLogger tells the amplifier to change which memory to use. There is no need for keying the radio or for searching for best match. See [About the KPA1500 Amplifier](#) section in the Antenna Switching chapter.

If you want to use drive power management without a serial connection to an amplifier, choose the Phantom amplifier type.

Another role of the amplifier interface, for the ACOM 2000A only, is preemptively changing the ATU segment within a band when the radio transmit frequency changes to a new frequency that would cause a segment when transmitting begins. There is no configuration needed for this role.

**Note:** If you use Automatically set drive power with the ACOM 2000A, you should disable the RCU-programmed amplifier option that causes the amplifier to automatically return to OPR mode

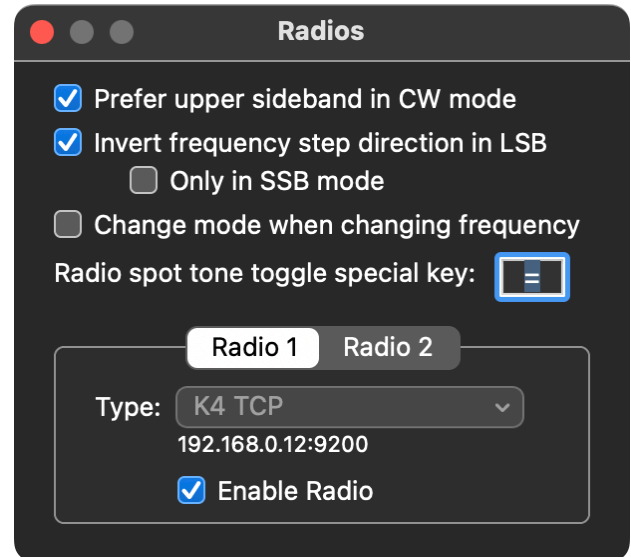
following any STDBY period initiated by a “soft” fault. Otherwise, it is possible that the amplifier will switch to OPR while an in-process message (such as from an F-key) is delivering RF from the transceiver at the level you have previously set for the amplifier’s STDBY mode, thus potentially overdriving the amplifier tube grids and triggering one or more faults, including total amplifier shutdown. Alternatively, do not use Automatically set drive power.

## Radios

Radios are configured in the Radios window, opened via **Window > External Devices > Radios**. This user interface has changed in version 5.1.

SkookumLogger supports connections to one or two radios at a time. You choose the type and enabled status for each radio. You control enabled radios via commands in the Radio 1 and Radio 2 menus.

SkookumLogger reads and writes frequencies and modes; it is not a full-fledged radio control program. You can transmit on only one radio at a time. The transmit radio is identified by a red gumdrop in the corresponding QSO entry pane. The type of an enabled radio is shown as the first item in its Radio menu.



The menu bar has a **Radio 1** menu, and a **Radio 2** menu when the 2T2R operating mode is on. The top item in these menus is a label identifying the radio's type. Other items on these menu depend on the capabilities of the radio.

Two buttons, labeled R1 and R2, in the status bar at the bottom left corner of the Log window are green when the radio is enabled. Clicking a status button toggles the enabled status. Command-clicking a radio status button also opens the Radios window.



These options affect both radios:

***Prefer upper sideband in CW mode*** – Chooses which “sideband” to use when setting the radio mode to CW.

***Invert frequency step direction in LSB*** – Commands that step VFOs or RIT/XIT offset step the opposite direction in LSB, optionally Only in SSB mode.

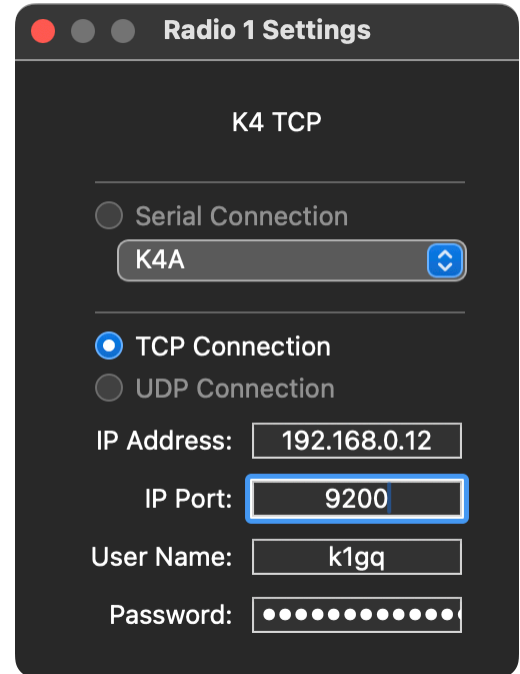
***Change mode when changing frequency*** – Guess the appropriate mode using the [phone sub-band table](#) when setting radio frequency.

***Radio spot tone toggle special key*** – A single key shortcut for turning the radio spot function on and off.

## Radio Communication Settings

SkookumLogger can communicate with radios connected to your computer via a serial UART, or via your computer's LAN. Choosing a type in the Radios window opens a settings window to establish the properties for the connection. In the example the K4 TCP radio type is known to support a LAN connection using the TCP protocol, and unsupported connection types are disabled. For LAN connections, the IP address and port are required, some radios may also require a user name and password. For UART connections, you must choose the [serial port name](#). Settings are remembered across restarts, but are not remembered per-radio type.

**Note:** The IC-7610 supports either Serial or UDP connection. Both connection types support displaying the main receiver scope waveform data in Panadapter window. The UDP connection is more responsive but potentially more buggy due to lack of LAN API documentation.



**Radio 1 Settings**

K4 TCP

☐ Serial Connection

☒ TCP Connection

☐ UDP Connection

IP Address: 192.168.0.12

IP Port: 9200

User Name: k1gq

Password: ●●●●●●●●

Serial radios are polled to track things like frequency and mode. When the radio does not respond for more than about 15 seconds, SkookumLogger posts an alert to inform you that the connection has died and disables the connection. To recover after addressing the cause of the disconnect, open the Radios window and click the Enable button.

## Flex Radios

John, K1JSM, provided the information below. Please do not contact John if you have issues.

Using a Flex radio with SkookumLogger requires communication between SkookumLogger and third-party software, instead of communicating with real hardware. SkookumLogger assumes the third-party software is SmartSDR for macOS, available on the App Store, and that SmartSDR is running on the same computer as SkookumLogger. To configure the connection:

- ◆ In the SkookumLogger Radios window, choose Flex > SmartSDR in the Type dropdown list.
- ◆ In the SkookumLogger Radios window, click the Settings... button, enter 127.0.0.1 for the IP and 5001 for the port.
- ◆ In the SmartSDR CAT Control window, choose Kenwood TS-2000 CAT in the Type dropdown list, and set Port to 5001.
- ◆ Enable the connection in each application.

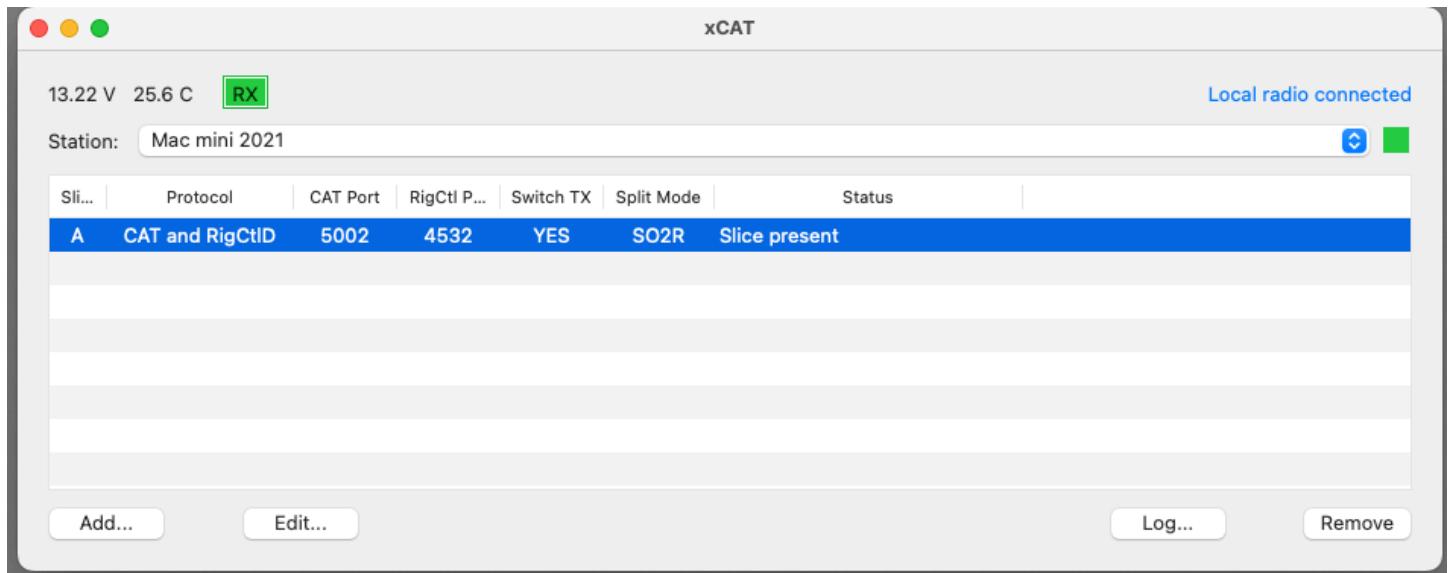
Radio 1 in SkookumLogger corresponds to CAT Control 1 in SmartSDR, and similarly for Radio 2. Each radio should use a different port.

See Section 4 in the SmartSDR for Mac manual for more information.

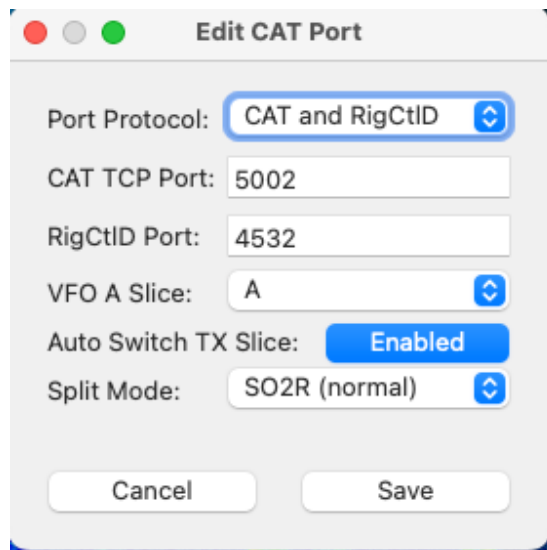
### Using xCat

As of SmartSDR version 2.3.06, there is a significant lag between changing frequency in SmartSDR and having the new frequency show in SkookumLogger. A workaround is to use the xCat application from Tom, DL3LSM. To configure this connection:

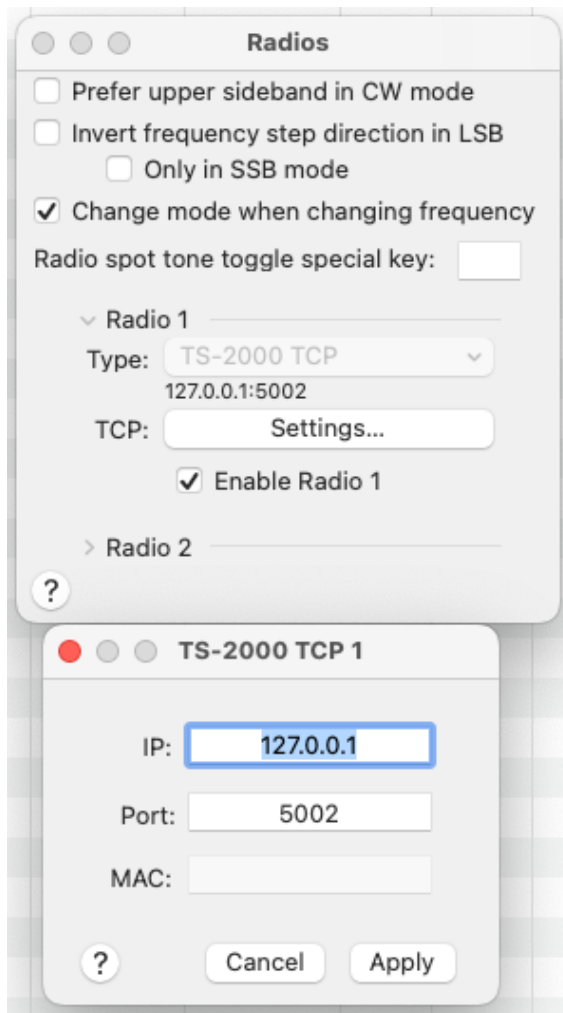
- ◆ In the SmartSDR Radio > CAT Control window, uncheck enabled.
- ◆ Open the xCat application, version 2.0 as of 1/1/2023, and add Slice A data.



- ◆ Click the Edit... button and set the properties in the Edit CAT Port window.



- ◆ Open the SkookumLogger Radios window and set or confirm that the Radio 1 type is TS-2000, that the IP address is 127.0.0.1 and that the Port is 5002, to match the corresponding properties in xCat.



Test by changing frequencies in SmartSDR. SkookumLogger entry window should follow frequency changes almost instantly. Another test: open an activity window in Skookum, select a band, click on a spot and the radio should be immediately tuned to that spot's frequency and mode.

## CW Keyers

The primary device for sending CW with SkookumLogger is a version 2 or version 3 K1EL WinKeyer. If your WinKeyer model has two KEY outputs, SkookumLogger can use it for 2T2R (SO2R) operation on the CW mode. The settings for a WinKeyer are adjusted in the Window > Morse Keyers window.

Any keyer not sold by K1EL and claiming to be a WinKeyer or support the WinKeyer protocol is a software emulation. I've yet to encounter an emulation that wasn't imperfect in one way or another. SkookumLogger supports two emulations, one in the YCCC SO2R Box+ and the other in the YCCC SO2R Mini. SkookumLogger has dedicated work-arounds for the defects in these emulations, but they still remain inferior to a true K1EL device. The CW settings for these emulations are adjusted in the Window > Morse Keyers window. The only reason to use these emulations if you have a real WinKeyer is to simplify the many physical connections needed for SO2R.

*Note:* The YCCC SO2R Mini keyer needs corrected [firmware](#).

*Note:* JH5GHM has designed a substitute for the YCCC SO2R Mini called the Neo, which can be used by SkookumLogger in place of the Mini. The Neo has a different physical shape, status LEDs and other improvements, along with different [firmware](#).

You choose between a WinKeyer and an emulation with **Use SO2R keyer** in the Morse Keyers window. You choose which emulation to use in the YCCC SO2R window. You can enable a real WinKeyer and one of the emulations at the same time, then alternate between them with the **Use SO2R keyer** option.

Each keyer setting has a help tag that describes its meaning and range of values. SkookumLogger remembers keyer property settings and applies them when you choose the active keyer.

SkookumLogger associates the KEY 1 WinKeyer output with Radio 1 and the KEY 2 output with Radio 2.

The **Ratio** and the **Sidetone** settings are not applicable to the YCCC SO2R keyers. For the SO2R+ Box, the range and resolution of the **PTT Lead Time** and **PTT Tail Time** settings are different, as described in the help tags.

If you have a WinKeyer USB, the four buttons on the top of the keyer play the F1 ... F4 messages.

If you are using the SO2R+ Box in 2T2R mode, then you might also be using Alternating CQ mode. If so, you may notice that that last character of your CQ message is truncated because transmit focus is changed before the message is completely transmitted. To prevent truncation, add a space at the end of your CQ message.

### WinKeyer Mini

This device, unlike WinKeyer USB, does not have a potentiometer on the front to adjust the speed of the CW. When using the WinKeyer Mini in SkookumLogger, you must use the application's CW speed controls to change the speed.



## WinKeyer Characters

The spacing between characters and words in your CW messages can be fine-tuned using features of your WinKeyer:

- ◆ To change the duration of the word space, change the **Contest Spacing** option in the Keying group in the Morse Keyers window. The standard duration for a word space is 7 units. Contest spacing shortens the duration to 6 units. This spacing was popularized by K1EA in his CT contest software, and is also known as "CT" spacing.
- ◆ To fine-tune the spaces between characters or words, insert the vertical bar character (|) in your message definitions. The vertical bar character is the WinKeyer gap character. Each vertical bar adds a key-up delay of half a unit.

A unit is the duration of the key-down portion of a dot, equal to  $1200/\text{speed}$  in milliseconds, with speed in words per minute. The duration of a dash is 3 units. The duration of the space between dots and dashes forming a Morse character is 1 unit. The duration of the space between Morse characters is 3 units.

You can use any of the characters recognized by the WinKeyer in Morse messages; unrecognized characters are ignored. You can use any of the recognized characters in Keyboard Mode as well, except that characters defined as Special Keys take precedence unless you enable **Ignore Special Keys in Keyboard Mode** in the Special Keys pane of Messages settings.

## Keyer Speed

The current keyer sending speed for the QSO entry with transmit focus is displayed at the right edge of the entry pane. Changing transmit focus changes speed.

You can change the speed with the keyer speed pot, with **Messages > Morse > Step Speed Up** and **Messages > Morse > Step Speed Down**, and with the Morse Speed Editor. The speed step size is defined in the Morse Speed Editor.

The **Messages > Morse > Set Pounce WPM** command is hidden in 2T2R and disabled unless Pounce has transmit focus. The command searches the activity table for the current band for a match to the call in the Pounce call entry field. If a match is found and the activity specifies WPM in the Info column, your WinKeyer is silently set to that speed. The temporary override of Pounce WPM changes the color of displayed WPM. The original speed is when you change transmit focus.

The SO2R Box keyer SPEED pot behavior is different from a real WinKeyer. The Pot Minimum and Pot Range settings are ignored, instead the minimum is 15 WPM and the maximum is 45 WPM.

The SO2R Mini does not have a speed pot. For either emulation, you can set speed to any value between 5 and 99 WPM using the Morse Speed Editor window or the Step Speed commands in the Messages > Morse > menu.

## Antenna Switching

SkookumLogger can control your antenna relays using a YCCC Master Of Antenna Switching (MOAS II) device. The technical documentation is the MOAS II Programming manual V1.0 linked at the end of the Downloads section at the [MOAS II](#) site. You may want to skim this document to learn about capabilities and terminology. The user interface for switching controls is a combination of menu items in the Radio menus, displays in the Map windows, and the XK-24 keypad.

SkookumLogger reads a JSON file named AntennaConfiguration at startup to define your antennas, how they are related to your rotators, and how they are switched. This document describes the expected content of that file.

A default configuration file is built into SkookumLogger. The content of that file is listed [below](#) as an example. You can create your own configuration file with a plain text or JSON-aware editor and place it in the SkookumLogger support folder to override the default configuration.

GQAntennaTest is an app for testing a configuration file outside SkookumLogger, where it can present details about issues that it may discover. Contact me for a copy of that app.

SkookumLogger supports one MOAS, two radios, three rotators and 63 antennas.

## Configuration File Specification

The configuration file is a plain text file that must conform to the JSON syntax.

### About JSON

This is a brief description of the JSON syntax. Consult the internet for more definitive information.

A JSON file contains a group of key - value pairs. A *key* is case-sensitive string with no spaces. A *value* is a string, a number, a boolean (true or false), a list (array), or a group (dictionary). Pair elements are separated by a colon. Each pair must end with a comma except the last pair in a group. The order of of pairs within a group does not matter.

All strings must be wrapped in double quotes (but *not* curly quotes). Lists are wrapped in [ and ]. List elements are separated by commas. Groups are wrapped in { and }.

In the following, keys appear in bold type, omitting the required quotes.

### Miscellaneous Top-level Pairs

The optional **Comment** key has a string value. These pairs are ignored when loading the configuration.

The required **MOASSerialPortName** key has a string value. The MOAS port name will always begin with "usbserial-" followed by 8 letters and digits.

The optional **HotSwitchDelay** key has a number value, between 0 and 9999 ms. The default is 0 ms.

The required **Antennas** key has a list value. Each list element is a group describing a single physical antenna.

### *Antennas List Group Pairs*

The required **AntennaID** key has a unique number value between 0 and 63.

The optional **KPA1500AntennaID** key has a unique number value between 1 and 32.

The optional **KPA1500AntennaPort** key has a number value of 1 or 2.

The required **AntennaName** key has a unique string value that appears on menus and the SkookumLogger maps.

The optional **KeyID** key has a number value between 1 and 24 that associates the antenna with a XK-24 keypad key.

The optional **RotatorID** key has a number value 1, 2, or 3, associating a rotator with the antenna. The presence of this key identifies the antenna as rotary.

When **RotatorID** is present, the optional **MainLobeOffsetFromRotatorBearing** key has a number value in degrees.

When **RotatorID** is not present, the required **MainLobeBearing** key has a number value in degrees that specifies the direction of the antenna pattern main lobe. For dipoles this is the broadside direction for the fundamental (halfwave) band.

The optional **ReceiveOnly** key has a boolean value that treats the antenna differently from TX antennas. The **RotatorID** key is ignored and the **MainLobeBearing** is required.

The optional **IsSteppIr** key has a boolean value that, for SkookumLogger, identifies the antenna is to be associated with a radio when selected for use with that radio. Then, SkookumLogger sends frequency change information for that radio to the SteppIr controller.

The optional **ConflictsWithOtherAntennas** key has a list value containing other antennaID numbers that cannot be selected at the same time this antenna is selected. Each antenna always conflicts with itself.

The required **BandSegments** key has a list value. Each list element is a group describing bands supported by the antenna.

### *BandSegment Group Pairs*

The optional **IsDefault** key has a boolean value that identifies the antenna as the default choice for the band of segment.

The required **BandName** key has a string value that is one of the band names supported by SkookumLogger or "Any". The SkookumLogger band names are: 160m, 80m, 40m, 30m, 20m, 17m, 15m, 12m, 10m, 6m, 4m, 2m, 125cm, 70cm, 33cm, and 23cm. "Any" supports dummy loads.

The optional **Radio10nly** and **Radio20nly** keys have boolean values that flag a band segment as useable for only one of the two radios. This supports separate dummy loads for each radio.

The required **PatternTypeName** key has string value that identifies the characteristics of the azimuthal antenna pattern for drawing on the SkookumLogger great circle maps. The recognized

values are Omnidirectional, Unidirectional, Bidirectional, DipoleHarmonicA, DipoleHarmonicB, and DipoleHarmonicC. Case matters.

The three DipoleHarmonic patterns apply for half-wave dipole operated on a higher frequency, A for an 80m dipole used on 15m, B for a 40m dipole used on 15m, and C for a 40m dipole used on 6m. All of these patterns are four-lobe cloverleaves with a null in the direction specified by the **MainLobeBearing** value, with slightly different lobe orientations and lobe beamwidths. I estimated the lobe orientations and beamwidths using miniCocoaNEC for dipole a 60 high over average ground to generate the azimuth pattern at the elevation angle for the first peak in the elevation plane. Lobe beamwidth is the full angle between points 5 dB (one S-unit) down from the lobe peak. The values are built into SkookumLogger.

The **MainLobeBeamwidth** key is required for Unidirectional and Bidirectional patterns, with number value in degrees.

The required **Radio1Relays** key has a list value. The list elements are MOAS relay numbers between 0 and 63.

The optional **Radio2Relays** key has a list value. The list elements are MOAS relay numbers between 0 and 63.

The optional **Radio1AlternateRelays** key has a list value. The list elements are MOAS relay numbers between 0 and 63. See [Alternate Relays](#).

The optional **Radio2AlternateRelays** key has a list value. The list elements are MOAS relay numbers between 0 and 63. See [AlternateRelays](#).

## Default Antenna Configuration

```
{
"Comment" : "MOASSerialPortName required, begins with usbserial- for the FTDI UART",
"Comment" : "HotSwitchDelay optional, number between 0 and 9999 ms",
"Comment" : "Antennas required, a list of groups",
"Comment" : "Antenna list element -- a group",
"Comment" : "    AntennaID required, between 0 and 63",
"Comment" : "    AntennaName required, will appear on menus",
"Comment" : "    KeyID optional, between 1 and 24",
"Comment" : "    MainLobeBearing required for non-rotary directional antennas, degrees",
"Comment" : "    RotatorID required for rotary antennas, between 1 and 3",
"Comment" : "    MainLobeOffsetFromRotatorBearing optional, degrees, for rotary antennas",
"Comment" : "    ReceiveOnly optional true, omit for transmit antennas",
"Comment" : "    ConflictsWithOtherAntennas optional",
"Comment" : "    BandSegments required, a list of groups",
"Comment" : "        BandSegment list element -- a group",
"Comment" : "        IsDefault, optional true, omit unless antenna is the default for this
frequency segment",
"Comment" : "        BandName required, string",
"Comment" : "        PatternTypeName required, string one of Omnidirectional,
Unidirectional, or Bidirectional",
"Comment" : "        MainLobeBeamwidth required except for Omnidirectional, full angle
degrees",
"Comment" : "        Radio1Only optional, true if segment is available only for radio 1",
"Comment" : "        Radio2Only optional, true if segment is available only for radio 2",
"Comment" : "        Radio1Relays optional, list of values between 0 and 63",
"Comment" : "        Radio2Relays optional, list of values between 0 and 63",
"Comment" : "        Radio1AlternateRelays optional, list of values between 0 and 63",
}
```

```
"Comment" :      "Radio2AlternateRelays optional, list of values between 0 and 63",
"MOASSerialPortName" : "nada",
"Antennas" :
[
  {
    "AntennaID" : 1,
    "AntennaName" : "40m Receive Vertical",
    "ReceiveOnly" : true,
    "BandSegments" :
    [
      {
        "IsDefault" : true,
        "BandName" : "40m",
        "PatternTypeName" : "Omnidirectional"
      }
    ]
  },
  {
    "AntennaID" : 2,
    "AntennaName" : "Tribander",
    "RotatorID" : 1,
    "BandSegments" :
    [
      {
        "IsDefault" : true,
        "BandName" : "20m",
        "PatternTypeName" : "Unidirectional",
        "MainLobeBeamwidth" : 60
      },
      {
        "IsDefault" : true,
        "BandName" : "15m",
        "PatternTypeName" : "Unidirectional",
        "MainLobeBeamwidth" : 55
      },
      {
        "IsDefault" : true,
        "BandName" : "10m",
        "PatternTypeName" : "Unidirectional",
        "MainLobeBeamwidth" : 50
      }
    ]
  },
  {
    "AntennaID" : 3,
    "AntennaName" : "80m Dipole",
    "MainLobeBearing" : 50,
    "BandSegments" :
    [
      {
        "IsDefault" : true,
        "BandName" : "80m",
        "PatternTypeName" : "Bidirectional",
        "MainLobeBeamwidth" : 100.0
      }
    ]
  },
  {
    "AntennaID" : 4,
    "AntennaName" : "40m Dipole",
```

```

    "MainLobeBearing" : 50,
    "BandSegments" :
    [
        {
            "IsDefault" : true,
            "BandName" : "40m",
            "PatternTypeName" : "Bidirectional",
            "MainLobeBeamwidth" : 80.0
        }
    ]
}
]
}

```

## About the KPA1500 Amplifier

This Elecraft product has two output ports labeled ANT 1 and ANT 2. The internal antenna tuner remembers settings per frequency bin and per port. Firmware version 3 introduced the ability to remember settings for up to 32 virtual antennas. The virtual antennas are described in the antenna switch configuration file by **KPA1500AntennaID** and **KPA1500AntennaPort**. Each transmit antenna in the file may optionally include these key-value pairs. The antenna ID value must be unique across all antennas and between 1 and 32, and should not be used for receive-only antennas. The antenna port value should be 1 or 2; if not specified then the port is set ANT 1.

SkookumLogger uses these two key-value pairs when opening a TCP or serial connection to the amplifier, to establish the set of virtual antennas and their ports. Once configured, changing the current transmit antenna or band also changes the amplifier ATU settings.

## About the XK-24 Keypad

The XK-24 USB keypad has 24 keys, each with a blue backlight, a red backlight, and a user-customizable label. SkookumLogger automatically discovers the device at startup. The **Window > External Devices > XK-24 Keypad** window has an array of 24 menus for associating key presses with SkookumLogger functions. These are the functions relevant to antenna switching:

Select Antenna for Key ID – Select the transmit antenna associated with the key's ID in the configuration file. Press a key and release within one-half second to select the antenna for Radio 1. Press and hold for more than one-half second to select the antenna for Radio 2.

Select Receive antenna for Key ID – Select the receive antenna associated with the key's ID in the configuration file, for Radio 1.

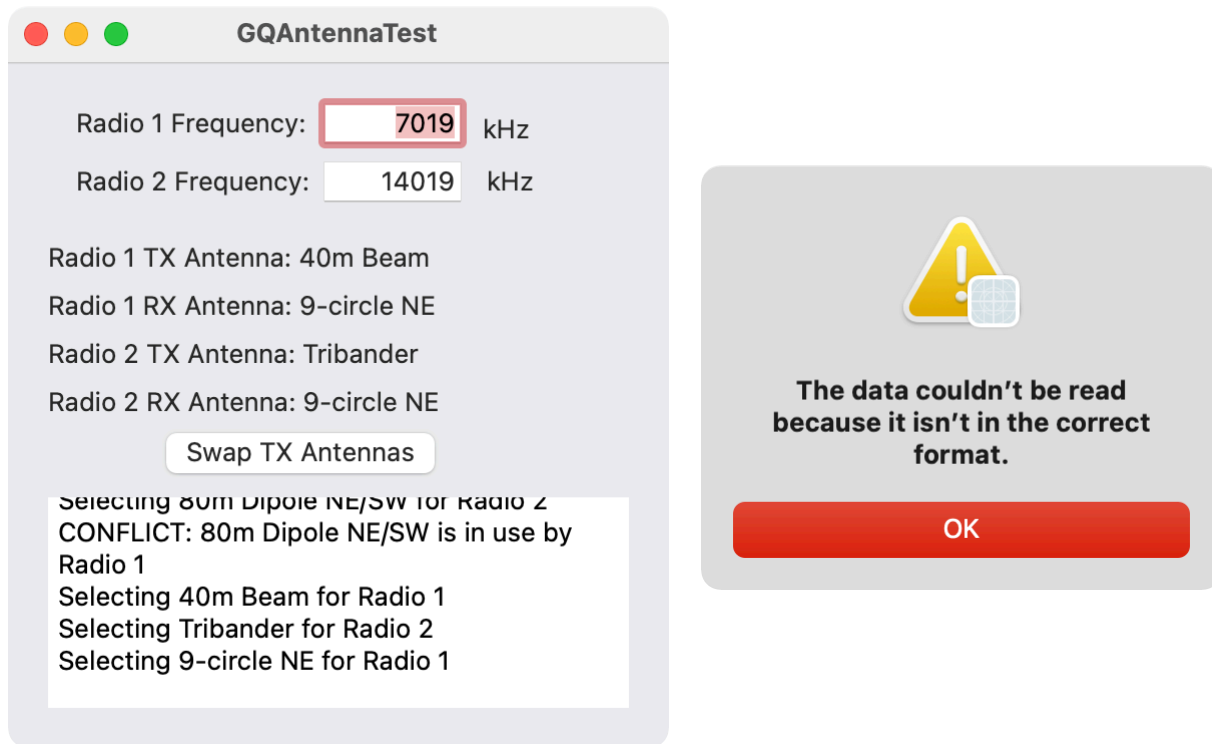
Select Best Antennas – Choose the transmit and receive antennas with main lobe bearings closest to the Radio 1 target station bearing.

Rotator > Set Rotator n to Target Bearing – Turn rotator 1, 2, or 3 to the Radio 1 target bearing.

When a key is pressed and released, the XK-24 Keypad displays the Key ID.

When a transmit antenna is selected for Radio 1, the blue backlights for other Radio 1 transmit antennas are turned off and the blue backlight for the selected antenna is turned on. If the

selection causes a MOAS conflict, the blue backlight blinks, indicating that Radio 1 has no transmit



antenna. The red backlights behave similarly for Radio 2.

## About GQAntennaTest

This test app reads a configuration file and has a simple window that displays antenna choices and status, input fields for setting radio frequencies, and a button for a Swap TX Antennas function. The menu bar has Radio 1 and Radio 2 menus which display TX and RX antennas available for the current frequencies and choose which antennas are selected.

Terminology:

*Select* means enable a specified set of antenna relays.

*No Antenna* means no TX antenna relays are selected, typically due to a conflict.

*Conflict* means that MOAS has rejected a selection request, as, for example, trying to use the same antenna for both radios.

## Loading a Configuration

After starting GQAntennaTest, use File > Open to load a configuration file. If the syntax of the file is incorrect, macOS will display this unhelpful alert:

The best way to find syntax errors is to copy the text of the configuration file and paste into an online JSON validation site. <http://json-validator.com> is ugly but effective. Indenting is unnecessary but helpful. BBEdit has a JSON mode that detects some types of errors, handles indentation, and understands how to edit plain text.



When loading the file, GQAntennaTest confirms that no required keys are missing, and that no keys are unknown. Optional keys can be omitted. After loading, Several sanity tests are run:

- All BandSegment.BandName and BandSegment.PatternTypeNames values are valid.
- All BandSegments with IsDefault value true are for different bands.
- Antenna.MainLobeBearing is specified for all antennas except rotary antennas and Omnidirectional antenna patterns.
- BandSegment.MainLobeBeamwidth is specified when the BandSegment.PatternTypeName is either Unidirectional or Bidirectional.

You can load the same or a different configuration file without restarting the app.

### Startup

After loading a configuration, the test app attempts to set up and activated the MOAS. If only a “loaded” configuration message appears in the status box, either the MOAS is not powered on, the USB cable is not connected, or the port name is wrong in the configuration file.

### Behavior

When activation succeeds, the test app sets initial frequencies for the two radios, resulting in initial TX antenna selections. You can choose various antennas from the Radio 1 and Radio 2 menus, and enter frequencies in kHz to see how the configuration reacts.

### 2T2R Interlock

To guarantee that the radios cannot transmit at the same time, connect the radio KEY OUT lines to MOAS TX inputs 1 and 2, and the corresponding MOAS INHIBIT outputs to the radio inhibit inputs.

### Antenna Hot-switch Prevention

To guarantee that an in-use antenna won't be changed while transmitting, connects the radio KEY OUT lines to the MOAS TX inputs 1 and 2. MOAS will delay changing the TX antenna while transmitting until after the TX input has been high (not transmitting) for the number of milliseconds specified by the *HotSwitchDelay* value. For example when using QSK, to prevent switching between code elements and letter spaces and to allow switching during word spaces, set the delay to 200 ms. The duration of a word space with CT spacing is 240 ms at 30 WPM.

### Conflicting Antennas

The two radios cannot select the same antenna; this is a conflict condition detected by MOAS. You can add other conflict conditions that prevent selecting other antennas when an antenna is in use. The outcome of a conflict is to select “No Antenna” (no relays) for the radio that caused the conflict.

### Frequency Changes

The BandSegment groups for an antenna determine the bands that the antenna supports. When a radio frequency change is a band change, the app creates a list of all antennas with segments that contain the new band, and updates the radio menus. Then an antenna for the radio is selected:



first, select the previous antenna for the new band, if not found select the default antenna in the list, if not found select the first antenna in the list.

## Dummy Load

When a segment band name is "Any", the antenna (typically a dummy load) will always appear on the menu. If it is the only item on the menu, then it will be selected by the above rule when a radio changes to a band with no antennas. Use the *Radio1Only* and *Radio2Only* keys to create two dummy loads that do not conflict.

## Receive Antennas

The antennas listed in the TX Antennas menu may be used for both transmitting and receiving. The antennas listed in the RX Antennas menu have the *ReceiveOnly* value equal to true. These antennas do not conflict with TX antennas or other RX antennas. Instead, whichever RX antenna was most recently selected is used for both radios. This handles my receive antenna, which has eight directions switched by MOAS, one direction at a time, and will work for remotely-switched beverages that share a common feed line into the shack.

## Swap TX Antennas

This function interchanges the two radios' transmit antennas, only if swapping would yield usable antennas on both radios. If not, nothing changes.

## Alternate Relays

An alternate set of relays for a TX antenna segment is used to select a different antenna for a radio while the other radio is transmitting. *Radio1AlternateRelays* applies when radio 2 is transmitting, and *Radio2AlternateRelays* applies when radio1 is transmitting. If the array of relay IDs is empty, "No Antenna" will be selected. If the pair is not present in the segment configuration, the selected antenna will not be switched.

## Using the Configuration File with SkookumLogger

Name the file `AntennaConfiguration.json` and place it in the [Application Support](#) folder. If you edit the file, you will need to restart SkookumLogger to reload the file.

SkookumLogger does most of the sanity testing that is performed by GQAntennaTest, but displays issues only to the debug log.

## Default Antenna Configuration

The default configuration describes four antennas, a receive-only vertical for 40m, a tribander for 20m, 15m and 10m, and dipoles for 40m and 80m. The tribander is associated with Rotator 1.

```
{
  "MOASSerialPortName" : "nada",
  "Antennas" :
  [
    {
      "AntennaID" : 1,
      "AntennaName" : "40m Receive Vertical",
```

```
"ReceiveOnly" : true,
"BandSegments" :
[
  {
    "IsDefault" : true,
    "BandName" : "40m",
    "PatternTypeName" : "Omnidirectional"
  }
],
{
  "AntennaID" : 2,
  "AntennaName" : "Tribander",
  "RotatorID" : 1,
  "BandSegments" :
  [
    {
      "IsDefault" : true,
      "BandName" : "20m",
      "PatternTypeName" : "Unidirectional",
      "MainLobeBeamwidth" : 60
    },
    {
      "IsDefault" : true,
      "BandName" : "15m",
      "PatternTypeName" : "Unidirectional",
      "MainLobeBeamwidth" : 55
    },
    {
      "IsDefault" : true,
      "BandName" : "10m",
      "PatternTypeName" : "Unidirectional",
      "MainLobeBeamwidth" : 50
    }
  ]
},
{
  "AntennaID" : 3,
  "AntennaName" : "80m Dipole",
  "MainLobeBearing" : 50,
  "BandSegments" :
  [
    {
      "IsDefault" : true,
      "BandName" : "80m",
      "PatternTypeName" : "Bidirectional",
      "MainLobeBeamwidth" : 100.0
    }
  ]
},
{
  "AntennaID" : 4,
  "AntennaName" : "40m Dipole",
```

```
"MainLobeBearing" : 50,  
"BandSegments" :  
  [  
    {  
      "IsDefault" : true,  
      "BandName" : "40m",  
      "PatternTypeName" : "Bidirectional",  
      "MainLobeBeamwidth" : 80.0  
    }  
  ]  
}  
]
```

## Antenna Rotators

Rotators are configured in the Rotators window, opened via **Window > External Devices > Rotators**.

SkookumLogger can control up to 3 rotators. Commands in the Rotator menu set rotator bearing:

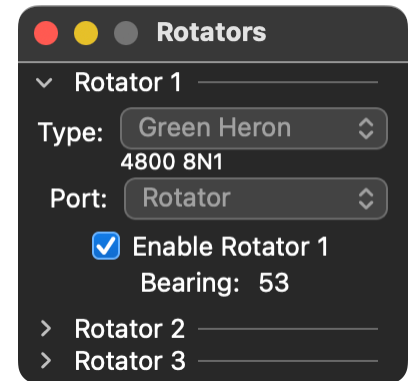
- ◆ **Rotator > Set Rotator x to Target Bearing** turns rotator x to the bearing for the target, where x is 1, 2, or 3.
- ◆ **Rotator > Set Rotator x to Target Long Path Bearing** turns rotator x to the long path bearing for the target.
- ◆ **Rotator > Automatically Turn Rotator x** turns rotator x to the bearing for the target whenever the target changes.
- ◆ **Rotator > Stop Rotator x** halts rotating of rotator x.
- ◆ **Rotator > Stop All Rotators** halts all rotators.

These commands are hidden when the corresponding rotator is not enabled. The target bearing is determined by the call in the active QSO entry pane. When the target isn't defined, the Set Rotator x commands are disabled.

Clicking with various modifier keys on a point in a Map window can also control rotator bearing.

The bearing text command applies for Rotator 1.

To connect to such a device, choose **Window > External Devices > Rotators** and select the correct rotator Type and Port. Check the Enable option for the Rotator and where supported, the bearing will be displayed under the checkbox.



## Stepplr Controller

SkookumLogger can interface with the “Data In/Radio” serial port on an SDA 100 controller in order to automatically adjust the antenna to the transmit frequency of Radio 1. The optional Transceiver Interface for the SDA 100 is required. To enable this feature:

- ◆ Connect your computer to the Data In / Radio port through a USB-serial adapter and a crossover RS-232 cable with only RXD, TXD, and GND pins wired.
- ◆ Set up the SDA 100 Transceiver with Din = 38400 and Mode = 9000D.
- ◆ Enable the SDA 100 Autotrack mode.
- ◆ Choose **Window > External Devices > Antennas**.
- ◆ Select the SDA 100 serial port in the Stepplr Port chooser and check the Enable Stepplr option in the Antennas window.

When Radio 1 changes transmit frequency and the new frequency differs from the previous frequency by more than 9 kHz, SkookumLogger sends the new frequency to the SDA 100. The 9 kHz hysteresis prevents unnecessary antenna adjustments if you happen to change transmit frequency often across an SDA 100 tuning segment boundary.

## SO2R Mini Firmware

The YCCC SO2R Mini is an Arduino-based computer-controlled device that provides computer controlled switching of two radios, including audio routing for stereo headphones and a microphone, foot switch control of radio push-to-talk (PTT), and CW keying and PTT via an emulation of the K1EL WinKeyer by K3NG. Learn more at [SO2R Mini Web Site](#).

SkookumLogger fully supports the Mini. However, the firmware has several bugs. You can eradicate them by updating the Mini firmware. The update procedure that is provided on the SO2R Mini web site is unsuitable for macOS. Use these steps to do the update on macOS:

- ◆ Install the avrdude app following the instructions at this [page](#).
- ◆ Download [this hex file](#), provided by JH5GHM.
- ◆ Connect the Mini USB cable to your mac.
- ◆ Determine the port name for your Mini using SkookumLogger. It will be like usbserial-1420.
- ◆ Disable the Mini in SkookumLogger if it is enabled.
- ◆ Open Terminal and change directory (cd) to the the folder containing the downloaded hex file.
- ◆ Enter this command, replacing "usbserial-1420" with the port name for your Mini:  
avrdude -c arduino -p atmega328p -b 57600 -P /dev/cu.usbserial-1420 -U  
flash:w:k3ng\_keyer.mini.hex

Neo owners can apply the same procedure using [this hex file](#), changing k3ng\_keyer.mini.hex to k3ng\_keyer.neo.hex in the command, and holding the upload button while running the command. The upload button is on the bottom of the Neo.

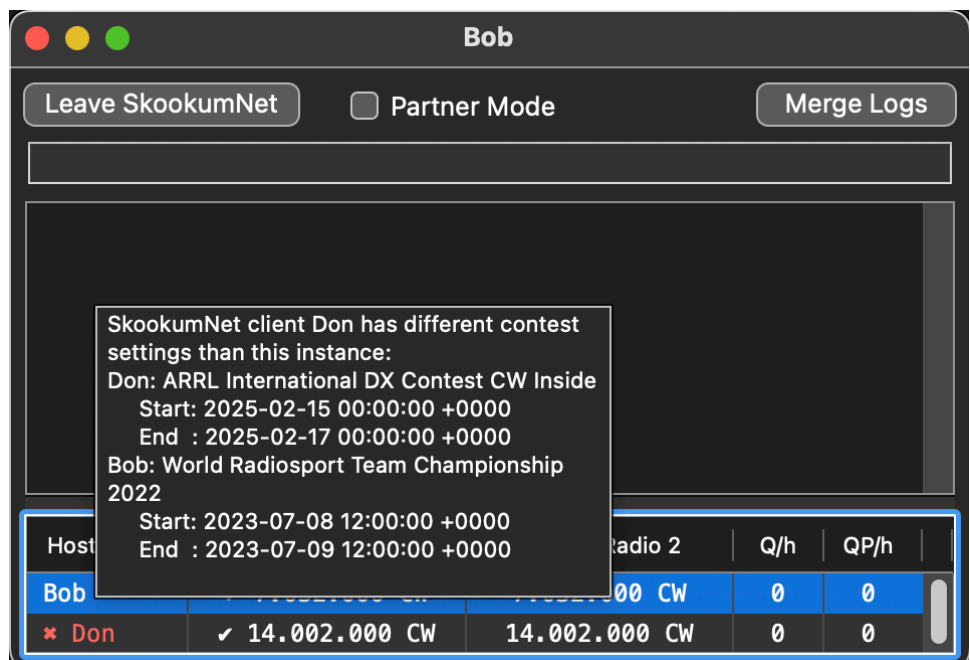
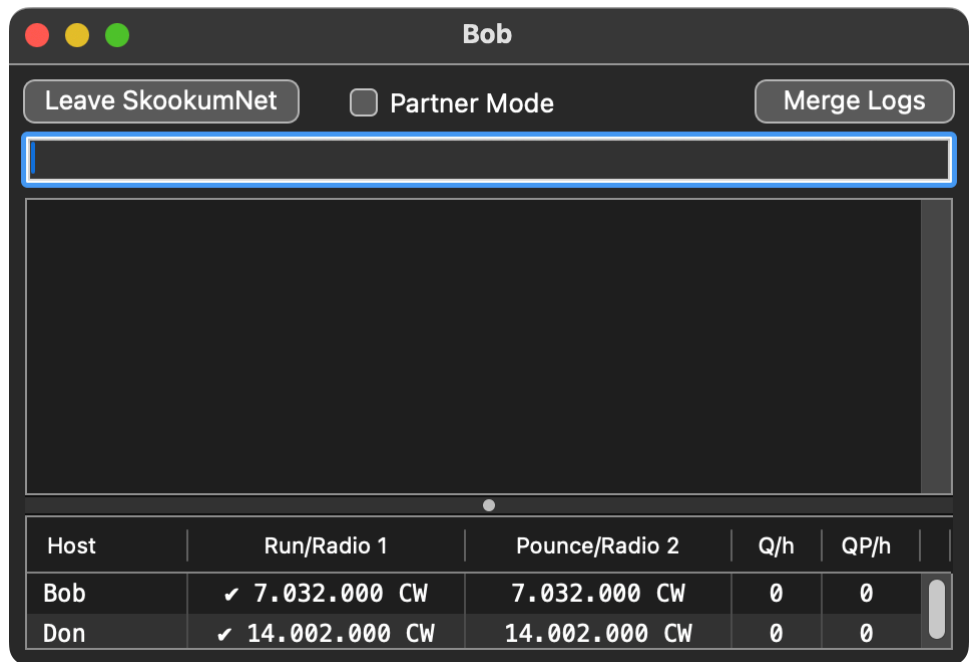
## SkookumNet

SkookumNet is the name of a service that SkookumLogger creates for interconnecting different computers running SkookumLogger on your local network. When a member of SkookumNet logs a QSO, that QSO is added to the logs of all other members. Similarly, when a member of SkookumNet creates an activity, that activity is added to the activity tables of all other members. SkookumNet also handles editing of logged QSOs, and deletion of logged QSOs and of activities. All network members must be running the same version of SkookumLogger.

To participate in the network, Choose **Window > SkookumNet**, then click the Join SkookumNet button. The window title will change to show your Host name, which is defined by **Local hostname** in your System Sharing settings. To stop participating, click the Leave SkookumNet button. To resume participation, click the same button again. You can close and reopen the window without affecting whether or not you are participating.

Members of the network are listed in the table at the bottom of the window. If a member's log is inconsistent with others, its name in the Host column is adorned with a icon and colored. Hover over the name to see a tooltip explaining the issue. There are two cases: different contest rules and different log content.

In the case of different contest rules, The icon is ✖ and the color is red. To resolve the problem, leave the network on the offending host, load the correct contest and, if necessary, adjust settings in Time Tracker. Then rejoin SkookumNet.



In the case of different log content, the icon is ↓↑ and the color is orange, and the tooltip suggests merging the logs as described [below](#). Peers must remain joined during this operation.

Host	Run/Radio 1	Pour
Bob	✓ 7.032.000 CW	7.03
↓↑ Don	✓ 14.002.000 CW	14.0

QSOs do not match. Consider a merge.

## Partner Mode

When you enable Partner Mode, anything that you type into your Run call field appears as prompt text next to the Run call field of all SkookumNet members. Two operators listening to the same frequency can help each other copy call signs without need for intercoms or shouting.

[DL6DH]	[DL6AG]
[DL6CT]	[DL6AA]
[DL6BE]	DL6M
[DL6AZ]	I41A 6A

**Log > Grab Partner Call** copies the prompt text into the call field of the active QSO entry pane.

To set the partner station to the same band and mode as another member, select a QSO in the log table that was made by that member – identified in the Station column – and choose **Log > Set Radio from QSO**. You can skip the select-a-QSO step if you want to “net” to the most recently-logged QSO.

To prevent accidentally logging QSOs on the partner computer, enable *Refuse to log any QSOs* in Logging settings.

## Gab

The single line text field near the top of the SkookumNet window is the Gab input field, while the larger resizable text field below shows gab messages from all network members.

Type into the single-line Gab input pane and tap return to send what you have typed to all SkookumNet members. Use **Log > Toggle Gab** to quickly alternate between the gab entry field and your Log window. Use Gab for alerting others about a pass, or perhaps for posting a limerick. When a gab message is posted, the gab message is highlighted with your Buddies color for 30 seconds.

## Merge

The Merge features synchronizes the logs of all SkookumNet members. To merge, tap the **Merge Logs** button on the computer for the member with the largest number of QSOs.

First, the log of each of the other members is merged into the log that started the merge. When each merge is completed, the outcome is reported in the Status Messages window. When members have been merged, their logs are replaced by the updated primary log. Merging blocks keyboard input while underway to prevent changing the logs while merging. A progress indicator spins next to the Merge Logs buttons while the merge is underway. Merging can be time-consuming; for example, merging two I47P WRTC logs with 4290 QSOs takes about 50 seconds on M1 MacBookPro and M1 MacStudio.



To replace the log on a member without the merge overhead:

- ◆ Clear out the log to be replaced using **Log > Reset Log**.
- ◆ Tap **Merge Log** on the primary host.

Merging a log with no QSOs into the primary log is very fast. Use this approach when you add a new member to the network during a contest and you are certain that no QSOs were made with the new member while it was not connected to the network.

## Member Information

The table at the bottom of the SkookumNet window shows the Run and Pounce transmit frequencies and modes for all members in the network. Resize the window or drag the splitter dot to see more than two members.

Host	Run/Radio 1	Pounce/Radio 2	Q/h	QP/h
Bob	✓ 7.032.000 CW	7.032.000 CW	0	0
Don	✓ 14.002.000 CW	14.002.000 CW	0	0

A checkmark indicates which QSO entry pane has transmit focus. When you send a CW message that includes the [QSY Frequency](#) token, SkookumLogger uses the frequency (in kHz) for the pane with transmit focus in the selected row in the table.

The Q/h and QP/h columns show the QSOs per hour rate and the QSO points per hour rate, respectively, for the last ten QSOs made by each host.

## Technical Details

SkookumNet uses zero-configuration (Bonjour) networking via Multipeer Connectivity. Members of the network are equal peers with reliable (TCP) communications; there is no master computer, and there is no unreliable broadcasting (UDP). Although the default limit to the number of peers is eight, SkookumNet has not been tested with more than four members.

Merging combines unique QSOs from all logs into a master log, then replaces the logs on each network member with the master. Each QSO has a UUID created by the computer that created the QSO. Two QSOs in different logs are the same when their UUIDs are equal.

In addition to the member information above, each peer keeps track of a hash of all of its QSOs. Upon receiving any QSO-changing message (add, change, delete, replaceAll) a peer computes a new hash and sends a peer information message with the updated hash value.

When a peer receives an information message from another peer, it compares its hash with the hash in the message and notes the current time if the hashes differ. If the mismatch persists for more than 10 seconds, the host is colored orange and gets the sync icon and tooltip. The host returns to black (no icon or tooltip) once the peers agree on a hash (e.g., after merging).

The 10 second buffer avoids spurious blips where, for example, a QSO add message has been logged and sent to a peer, but the information message with the hash value that includes that QSO hasn't been received from the peer yet.

## Broadcasts

SkookumLogger has several output-only features for sending information to other apps.

### Distribute Score

WA7BNM has created a Score Distributor web site that forwards information from your log to a collection of sites called online scoreboards that display received information in a web browser. You can learn more about the Score Distributor [here](#).

In SkookumLogger 2.6.4 or newer, to periodically send your log information to the distributor during a contest, enable ***Distribute Score*** in Logging settings. Of course, this feature requires an internet connection.

SkookumLogger sends your class and score to the scoreboards. It does not send QSO or multiplier totals, or any breakdown counts. Some may regard this as a limitation. I regard it as a feature; why give your competitors information they can use to help them beat you?

This is an optional feature that defaults to OFF. However, if you watch an online scoreboard, you should also be a good citizen and share your log information.

See [Score XML Document](#) for an example.

## Audio Recording

SkookumLogger has three kinds of stereo audio recorders:

- ◆ The QSO recorder creates a short audio file each time you log a QSO.
- ◆ The Snippet recorder begins recording when you turn it on and stops when you turn it off.
- ◆ The Event record automatically runs between the start and end dates of a contest.

You can run one or more of these recorders at the same time. When at least one recorder is running, a bullseye recorder icon at the lower right corner of the Log window. You can click this icon to open the Audio Recording window.



The set of recorders is enabled by **Enable audio recording** in Logging settings. The recording icon is hidden when this setting is off. You may need to enable access to "Microphone" for SkookumLogger in System Settings > Privacy and Security.

The audio file type is m4a (Apple Lossless, ALAC), a stereo format native to macOS and usable by any sound player that runs on macOS. A one-hour recording creates approximately a 500 MB file.

**Window > Audio Recording** opens the window for interacting with the recorders.

Audio Source determines which audio input on your Mac is used. In the example, I used Audio MIDI Setup to assign K4 Audio In as the name of my radio's USB Audio Codec.

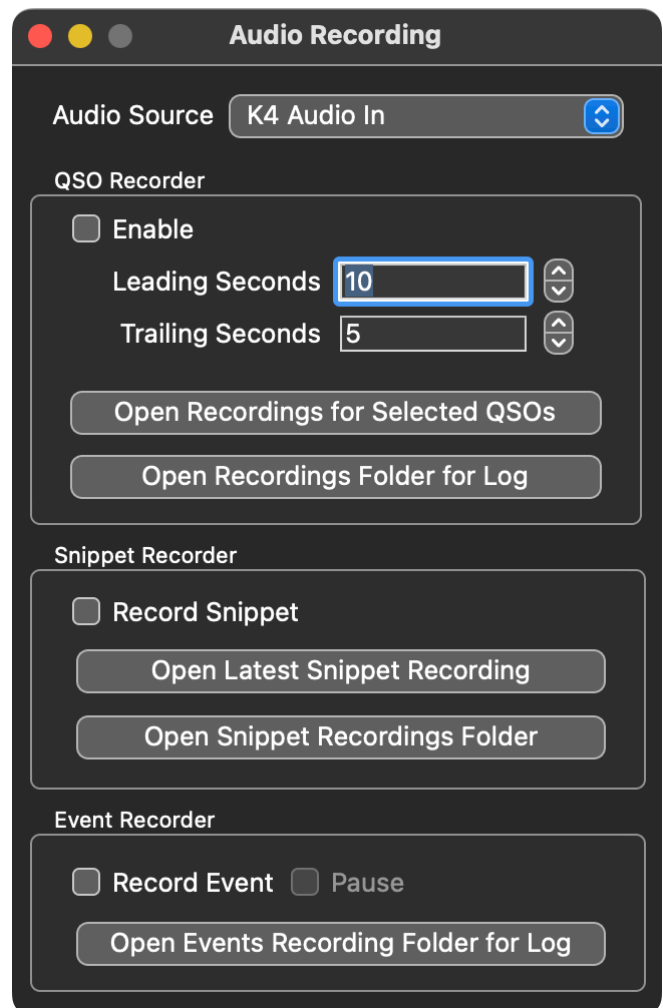
Some of the items in the Recorder boxes are disabled when the **Enable audio recording** setting is off. The Open ... buttons are always available for accessing existing recordings. Opening a folder shows the folder in Finder. Opening a recording opens the audio file in your default audio file, which QuickTime Player unless you have defined a different default.

### QSO Recorder

Choose Enable to make a recordings each time you log a QSO. The recording begins Leading Seconds before to Trailing Seconds after you logged the QSO. You can change these values while Enable is on. The file names for these recordings constructed from the QSO record, like this:

20230818-161442-JE6RPM-K1GQ-20m-CW

The date and time are UTC.



**Note:** This recorder assumes the audio source corresponds to Radio 1.

Open Recordings for Selected QSOs opens recordings for each of the QSOs that are selected in your log table.

### Snippet Recorder

A snippet can be made at any time, starting when you turn on Record Snippet and ending when you turn it off. The file name is constructed from the start time, like this:

**snippet-20230823-152918**

Open Latest Snippet Recording sorts on the names of all of your snippet files and opens the last one in the sort. For a snippet that you want to save, copy the recording to another folder and rename it appropriately. When the contents of the snippets folder becomes unmanageable, delete all the snippet recordings.

### Event Recorder

Record Event enables continuous recording for the duration of a contest, beginning at the start of the contest and ending when the contest ends. If the contest has mandatory off periods, recording is automatically paused and resumed. You can manually pause and resume with the Pause button. Normally there will be one event recording file for contest, named like this:

**20230823-150000-03Z Medium Speed Test**

If you turn Record Event off, then back on during the same contest, an additional event recording file will be created with "-n" appended to the file name, where n is an integer.

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## WRTC 2022, K1GQ

*Note:* This chapter is now a template to be updated when WRTC 2026 rules are published.

How to set up special behavior required by the WRTC 2022 rules. The entrants use two stations connected via SkookumNet.

### Preparation

1. For each computer (Assumes macOS 13 Ventura) prepare system settings:
  - 1.1. In System Settings/Network:
    - 1.1.1. Select Wi-Fi and set to Off.
    - 1.1.2. Select Ethernet, click Details... button:
      - 1.1.2.1. Configure IPv4: Manually
      - 1.1.2.2. IP Address: 192.168.73.1 (radio A) and 192.168.73.2 (radio B)
      - 1.1.2.3. SubNet Mask: 255.255.255.0
  - 1.2. (optional) In System Settings/General/Sharing, click the Edit... button in the Local hostname box to set Station Names for each computer, for example, A and B.
2. Install HamConnect on one computer.
3. For each computer prepare SkookumLogger and SkookumNet:
  - 3.1. Create a new World Radiosport Team Championship 2022 log.
  - 3.2. Choose the operator for this computer from the **Log > Operator >** menu.
  - 3.3. Download the Countries Database, **File > Download Countries Database** (needs internet connection).
  - 3.4. Change the Great Circle Map if necessary.
  - 3.5. Review the Cabrillo Header and Soapbox items in the Log Settings Sheet.
4. Restart SkookumLogger on each computer. The table at the bottom of the SkookumNet window should have an row for each computer. Send a Gab message on each of the computer to confirm the network is functioning.

### Things That Are Preset When the Log Opens

- ◆ DX Cluster is disconnected.
- ◆ SkookumNet is joined (connected).
- ◆ SCP and Exchange database are disabled.
- ◆ IARU Society pre-fill is disabled.
- ◆ Score distribution is enabled.
- ◆ Some Cabrillo Category items are wired:

```
self.category.assisted = @"Non-Assisted";
self.category.band = @"All";
self.category.mode = @"Mixed";
self.category.hostCall = @"I4WRTC";
self.category.operator = @"Multi-Op";
self.category.overlay = @"None";
self.category.power = @"Low";
self.category.station = @"Fixed";
self.category.time = @"Not Applicable";
self.category.transmitter = @"Two";
```

Operator list is set to JH5GHM and WA1Z.

## Things to do in the 15 Minutes Before the Contest Starts

For each computer:

1. **Log > Reset Log** if the log has any QSOs.
2. Change the sent Call to the call provided by the referee, in **Window > Editors > Sent Exchange Editor**.

## Things to do After the Contest

1. If the two logs have different QSO counts or scores, choose the **Merge Logs** button in the SkookumNet window on either computer. Merging will take a minute or so; wait for the indefinite progress indicator to the right of the Merge button to disappear before proceeding.
2. Sort the log on the SQ column and fix any obvious typos, like zone appended to call with empty Info field.
3. Optionally, In **Log > Cabrillo Settings...** change Host Call to the call provided by referee or the referee's call.
4. Optionally, uncheck the **Mark suspect QSOs as X-QSO** option in New Log settings. You may want to do this if a QSO is marked suspect because SkookumLogger thinks the society code is wrong.
5. **File > Export Cabrillo...**, then copy the file to referee-provided USB flash drive.
6. **File > Statistics Report** for yourself.

## Other Notes

If the ethernet switch fails, you can directly connect the two computers with one ethernet cable; a crossover cable is not required.

## Technical Details

### Merging during the contest

When the two logs have different QSO totals, you can opt to do the merge procedure. Normally, as long as SkookumLogger is running on each computer and SkookumNet is working, every QSO added, edited, or deleted appears identically in both logs. The only reason I can think of to merge during the contest is that the logs got so badly out of sync – probably because one computer was

offline while the other made many QSOs – that duplicate checking is seriously degraded. Be sure to shut down SkookumLogger on the referee computer while you do this.

### *Score Broadcasting*

The score is broadcast every 5 minutes between the beginning of the contest and the end of the contest + 5 minutes. The score document is sent to <http://scoredistributor.net> via an http POST.

### *Score XML Document Example*

```
<dynamicresults>
  <contest>WRTC</contest>
  <call>I2WIJ</call>
  <class ops="MULTI-OP" mode="MIXED" power="LOW" bands="ALL" transmitter="TW0"
  assisted="NON-ASSISTED"></class>
  <score>173863</score>
  <timestamp>2023-06-02 18:19:06</timestamp>
  <opcall>WA1Z</opcall>
  <opcall>JH5GHM</opcall>
  <station>Fixed</station>
  <soft>SkookumLogger</soft>
  <version>3.16.10</version>
  <optime>00:00</optime>
  <breakdown>
    <qso band='total' mode='ALL'>431</qso>
    <mult band='total' mode='ALL' type='country'>107</mult>
    <mult band='total' mode='ALL' type='state'>20</mult>
  </breakdown>
</dynamicresults>
```



## Alternative Keyboards, W2RU

For my main contest operating position, I have used various Apple wide aluminum keyboards over the years – first with a 27" iMac and now for the past few months with a base model M1 Mac Mini running Sonoma. As many of you know, these keyboards require only a very gentle touch when typing with them.

During the February 2024 ARRL DX CW weekend, I noticed while Running that I had developed a tendency to let the middle finger of my right hand drop onto my keyboard, especially when I was relaxed. My touch-typing "home position" puts that finger on the "K" key and I found – often after the fact – that callsigns I was entering were containing spurious instances of the letter "K".

In April, while loitering at the Apple display area in a nearby Best Buy store, I spotted an after-market keyboard I had not seen before. It turned out to be a Logitech MX Keys for Mac (aka MX-3), which I had never heard of. After playing with the demonstrator for a few minutes on the display table, I immediately ordered one! In particular, it seemed to require just enough additional pressure on the keys to effectively eliminate my problems with spurious "K"s in entered text.

Unfortunately, the introduction of the MX-3 into my operating position occurred at the same time I was switching from my obsolete iMac that was maxed out on OS upgradeability at Catalina to my new M1 macMini running Sonoma. And later in the conversion process I added Keyboard Maestro to my active utilities. (Never change two – much less three – items of your station configuration at the same time!) Consequently, it took me longer than it should have to decide whether the MX-3 is a winner or not. Spoiler alert: It definitely is!

The "-3" signifies that it can be dynamically switched (by a single F-key press of F13, F14, or F15) to any of three active Macs. I have only one Mac within range at my operating position, so I have not tested this feature.

**Note:** This is a wireless keyboard for entering data even though its internal battery is recharged through a USB-C port on the rear panel. (The inability to use the keyboard as a wired keyboard for data entry is one of only two bones I have to pick with it.) I've left the keyboard powered on (via small slide switch, also on the rear panel) since April, and it's still showing about 40% charge remaining despite never recharging it since it originally arrived here. That's probably evidence of how little I've been on the air these past few months, since the keyboard goes into a very low power consumption mode after a brief interval of inactivity.

The keyboard's communications link with the Mac can be via Bluetooth or USB, the latter by selecting Logitech's proprietary wireless link between the keyboard and a companion dongle that plugs into a USB port on the mac or an associated port expander.

- ◆ Warning #1: The dongle comes with the keyboard but it is tiny – about the size of my pinky fingernail – and if you're not careful you might accidentally throw it out with the packaging! (Although that's not a problem for me because I have never been known to throw out packaging materials – just ask other members of my family!)
- ◆ Warning #2: When using the included dongle, you must also turn on Bluetooth on your Mac for the proprietary Logitech comm link to function. Strange but true.

I did have some initial set-up problems, but thanks to a tip from a SkookumLogger user with superior Logitech keyboard experience I finally got my issue sorted out. (Lack of adequate documentation is the second of my two “nits” with this keyboard.) When running contest logging software, most of us invert the F-key preferences so that the “alternate” F-key assignments we use in our logging programs do not require that the “fn” key be simultaneously held down. I could find no reference on how to toggle the F-key setting in either the documentation provided by Logitech or via the macOS System Settings window for a 3rd-party keyboard. It turns out that the (best) way to do this with the MX-3 is to Hold the “fn” key and Tap the “ESC” key. (If you have an older Logitech keyboard, it may not incorporate this feature and you may need to download, install, and use Logitech Options from that company’s Support page.) In short, I wasted a lot of time and used up some friendship “capital” with others because of Logitech’s “sparse” documentation.

Through no fault of Logitech or the keyboard, my full acceptance of the MX-3 was further hindered by my attempts to set up my own custom keyboard shortcuts in Sonoma for the first time. Between contesting and casual DXing, I make full use of all 19 F-keys on the wide keyboards, as well as other custom combinations using Cmd, Cmd-Option, or Cmd-Shift with various non-alphanumeric keys. It turns out that Sonoma’s system for letting the user set up custom shortcuts either globally or on a per-application basis has some limitations – limitations that in my case led to conflicting and “disappearing” shortcuts under Sonoma even though they hadn’t been a problem under Catalina. Fully wedded to my longstanding choices for my custom keyboard shortcuts for contesting – and reluctant to mess with the muscle memory for these shortcuts that I have developed over time – I opted to add Keyboard Maestro for reasons discussed by K1GQ elsewhere in this Guide.

Throughout May and June 2024 I put the MX-3 and my suite of custom shortcuts through three or four casual contesting efforts, most recently including 700+ CW contacts during ARRL Field Day. I’ve had no disappearing shortcuts since adding Keyboard Maestro, and I think I’ve encountered only one spurious “K” in the entire time I’ve been using the MX-3.

Other “pluses” of the MX-3 for contest logging:

- ◆ Unlike the aluminum Apple keyboards, the plastic caps on the Logitech’s keys are “cupped”, so there’s a happy tendency for your finger to slide toward the center of each key you wish to press, especially if your aim is a bit off and your finger initially comes down onto the key cap off-center.
- ◆ The MX-3 has a fairly deep and flat “shelf” above the F-key row, and it’s ideal for using small Dennison or Avery labels to display names for the commands you are using the F-keys to initiate – labeling I never really mastered with my Apple keyboards. This depth more than makes up for the not-quite-full-size F-key caps which are an eighth-inch shallower (i.e., toward the rear of the keyboard) than those on my aluminum Apple keyboards. (Apple’s F-key caps their older keyboards are not full-size, either, it should be noted.)

Bottom line: I find Logitech’s MX Keys for Mac to be a wonderful replacement for Apple’s wide aluminum keyboard.

## Logitech MX-3 Set-up

Some SL users prefer the Logitech MX Keys for Mac (with 19 F-keys and numeric keypad, aka MX-3) because key activation requires a bit more fingertip pressure than Apple's aluminum keyboards do. This is a wireless keyboard for entering data even though its internal battery is recharged through a USB-C port on the rear panel. (With normal intermittent usage, a single battery charge may last for months.)

Initial set-up of the MX-3 involves the following:

- ◆ Decide whether you want the MX-3 to communicate with your Mac via Bluetooth or USB. The latter employs Logitech's proprietary wireless link between the keyboard and a supplied companion USB-A dongle that plugs into a USB-A port on the Mac or an associated port expander. Note: When using the included dongle, you must also turn on Bluetooth on your Mac for the proprietary Logitech comm link to function.
- ◆ The MX-3 can be dynamically switched between and used with three active Macs. Follow Logitech's instructions for associating it with your logging computer by pressing either F13, F14, or F15 upon initial powering and completion of the comm link handshaking.
- ◆ If you wish to use the Logitech F-keys as standard function keys without needing to simultaneously hold the "fn" key down, following initial pairing with your Mac hold the "fn" key and Tap the "ESC" key. (Alternatively, download, install, and use Logitech Options from that company's Support page.)

As with Apple keyboards, you will need to verify that any custom keyboard shortcuts you create – whether global or SL-specific – do not conflict with other, pre-existing shortcuts by rigorously perusing the full shortcut "tree" available under Keyboards in macOS System Preferences or System Settings. For some key combinations, you may find it necessary to employ a 3rd-party software utility, such as Keyboard Maestro, or choose a different key combination.

## Using 1T1R, K1GQ

Traditionally, operators in a contest are either operating in Run mode (calling CQ on a frequency) or S&P mode (where you “trawl” the band, searching for new stations to work). You would do this by locking transmit focus to keyboard focus using the [1T1R Transmit focus follows keyboard focus](#) option and toggling keyboard focus to choose between Run mode or S&P mode.

An advanced technique is to interleave the two, so that you use gaps whenever calling CQ doesn't return any replies to search for and “pounce” on stations calling CQ elsewhere on the band. To do this, use **Activity > Set Pounce** to prepare the Pounce QSO Entry pane.

I use a K4, with the subreceiver dedicated to diversity reception. My station can change bands in a second or so with one keyboard command or mouse click. So, my operating style treats HF contests as one big band – watching Activity tables and changing bands often.

The **1T1R** choice in **OpMode** settings applies when you are operating with a single radio (one transceiver – 1T) without a subreceiver (one receiver – 1R). The QSO entry boxes are labeled Run and Pounce. You use the Run QSO entry fields when making contacts with stations that answer your CQs. You use the Pounce QSO entry fields when making contacts with stations whose CQs you have answered. Note that SkookumLogger does not *require* that you always log QSOs this way, but it is necessary if you want to use run/pounce context-dependent features described below.

So, it is important to efficiently manage which QSO entry pane handles what you type with your keyboard. This is called keyboard focus. The two QSO entry boxes independently keep track of radio frequency and mode, so it is also important to efficiently manage which entry pane is controlling your radio. This is called transmit focus.

There are several commands (menu items) that manage which QSO entry pane has keyboard focus. I use **Log > Toggle QSO Entry Focus (F12)**. This command transfers keyboard focus from wherever it may be (as long as SkookumLogger is the active application) to the most-recently-focused field in the “other” QSO entry pane.

To manage transmit focus, I turn on the ***Transmit focus follows keyboard focus*** option in the **1T1R** tab of **OpMode** settings.

The QSO entry pane with transmit focus automatically tracks radio frequency and mode. Sometimes I find myself tracking the radio with the “wrong” entry pane. For example, I abandoned my CQ frequency and started tuning to find another one, then trip over a CQ that I want to answer. In this case, I use **Log > Copy Run to Pounce** to copy the radio information from Run to Pounce, then switch focus to Pounce. A second common case is tuning with Pounce focused and finding a frequency where I want to CQ. For this case, I use **Log > Copy Pounce to Run**, then switch focus to Run.

You don't want to be using your mouse to choose these commands via menu items. Instead, learn the keyboard shortcuts, which are displayed in the menu items. Furthermore, you don't want to be using shortcuts that involve multiple keys when using a MacBook or Apple wireless keyboard that don't have page up keys; see [Changing shortcuts](#).

When running, I want to begin a QSO by typing a call and playing the **His Call + Exchange** message. To end the QSO after typing the received exchange, I want to play the **Acknowledge + Log QSO** message. When pouncing, I want to begin a QSO by playing **My Call**, and end the QSO after typing the received exchange by playing **Exchange + Log QSO**. Since I am careful to manage focus properly, I can have SkookumLogger choose which messages to send when beginning and ending Run and Pounce QSOs. In the ***Special Keys*** tab in ***Messages*** settings, I assign semicolon as the key for the **Begin QSO** message, and apostrophe as the key for the **End QSO** message. Then I start either kind of QSO by tapping semicolon, and finish either kind of QSO by tapping apostrophe.

Sometimes I need to resend the other station's call when finishing a QSO. For that purpose, I assign the left square bracket key as the special key for the **Messages 5 + 3 + Log** message. So, while routinely making QSOs, I am either typing information into QSO entry fields or tapping semicolon, apostrophe, or left square bracket.

I interleave Run and Pounce QSOs using Activity tables as follows:

- ◆ Double-click on an activity table row to copy the activity to Pounce and focus Pounce.
- ◆ Tap semicolon to answer the station's CQ.
- ◆ If the station responds, complete the QSO. Otherwise, possibly tap a CQ message function key – SkookumLogger automatically changes transmit focus to Run before playing a message with "CQ" in the label. Tap **Log > Focus Pounce QSO Entry** to return to Pounce to continue calling.

When Pounce has focus and I discover a good frequency for CQing, I use **Messages > Copy Pounce to Run + CQ** to grab the frequency and start a CQ with one keystroke. One other command that I use frequently is **Messages > Beacon CQ**. This command focuses Run if necessary, and starts sending the F1 CQ message.

There are two reasons that I do not use the **1T2R** configuration, even though I have a radio with a subreceiver:

- ◆ I have tried and failed, more than once, to train myself to make QSOs efficiently while listening to more than one audio stream.
- ◆ I enjoy completing difficult contest QSOs, which often involves digging out weak signals with QRM and QSB. Using my subreceiver in diversity mode contributes to success in that endeavor; diversity mode is incompatible with the 1T2R subreceiver frequency management scheme.

## Using 1T2R, W2RU

Much has changed in SkookumLogger since this entertaining story was written in 2015, but the article remains informative.

Ever since Linda and I brought our first carload of possessions to our new Virginia home early last year, my 25-year-old Kenwood TS-950SDX and a 40-y/o Heath SB-220 amplifier have formed the basis of my primary station down here. Later, as the first of two “real” operating desks became reality (thanks to the conceptual and construction talents of Colden and Ryan in my absence) and a 40-foot tower with a Cushcraft A-3 tri-bander was erected, I added some remote manual switching for the TX antennas (160 inverted-L, 80 & 40 dipoles, Cushcraft A-3) and for the 4-way DXEngineering Beverage system so generously donated by Bill. Thanks to shoulder pain caused by my neck problems that were first diagnosed earlier this year, I’ve ended up with a “boat anchor” manual band-switching operating position that has all the important controls directly in front me. When I sit at the desk, I feel like I’m living an ad from the front pages of a 1950s-era QST.

And while Bill has not exactly been overjoyed at having to make SkookumLogger work with such an obsolete beast as the 950SDX, he has been “tolerant” of my having only that rig at my disposal for contesting in VA for the past 18 months. With his perseverance, and thanks to some productive debugging-at-a-distance sessions, we have gotten most of the bugs out of SkookumLogger’s communications with the rig – a pretty amazing feat, considering he has never had an actual TS-950SDX at hand to work with.

In recent weeks I had every intention of getting the W2BC automatic bandswitching station relocated, installed, and working in time for the 2014 CW SS. But at the same time I was bringing the 87A, K3/P3 combo, and all the Ameritron RCS-12/10 antenna switching gear south in my car a week ago, my VA neighbor Tim was driving a 24-foot rental truck filled with some of our “other” stuff from Old Forge to Circle Creek for us. As a result, getting the truck unloaded and most of its contents properly dispersed throughout the house during the first half of this past week left me little time or enthusiasm for setting up the better station by Saturday.

Another reason I couldn’t muster much enthusiasm for SS preparations this year was that I am now (at least temporarily) in the “wire & tri-bander” set for the first time in many decades, and I was not looking forward to the “come-down” in response rate to my CQs that would likely mean. A side bet on a “bottle of fine wine” with WA1Z briefly buoyed my spirits (oh, stop it, Bud) but no sooner had we made the bet than Bob and I both started back-pedaling from any commitment, no matter how small.

Some time Friday morning I began to reconsider my decision to run (or S&P) with my boat anchors and manual band-switching back-up station, and I began assembling the W2BC configuration of K3, P3, 87A, and an Ameritron RCS-12 (or RCS-10, I’m never sure which) automatic antenna bandswitching system. I installed the power transformer in the 87A, unpacked and interconnected the K3 and P3, and began to think about what I needed to do to get the Ameritron bandswitching stuff set up. At that point, I gave up dreams of an automatically bandswitched station, since to do that I would have to disconnect or dismantle many parts of my manual station and irrevocably



switch to the “primary” station with zero spare time for fixing any problems that might crop up and zero ability to go back to the boat anchors.

With that as prologue, I operated for 10 of the first 10-½ hours of the contest, taking a single 35-minute time out in mid-evening. I didn’t go near the rig again until some time late Sunday afternoon. SkookumLogger says I logged a total of 15-½ hours on-air time. I worked about 780 stations in all 83 sections. My last three sections were VI, WVA (!!!), and NT. I used up a bunch of time Sunday evening “trolling” on 10 and 15 meters for VY1EI, only to be called by VE8EV. My sole WVA QSO was with Pete, N4ZR, who had a grand total of 10K points! I feel honored that he found me during his brief S&P sojourn on whatever band I was on at the time.

Although it is one of the few high-end transceivers never tested by Rob Sherwood, the SDX’s Main Receiver is pretty decent. In addition, mine has been enhanced with the addition of an IRCI (?) roofing filter that I installed some years back. In contrast, the rig’s Sub Receiver was sub-par even when it was fairly new, back in 1990! It uses a single-conversion scheme with a 10.7-MHz i.f. and a very sloppy 500-Hz crystal filter at that frequency. It suffers badly from intermod on active bands, such as 40 meters was on Saturday and Sunday evenings. Audio Gain for the Main and Sub receivers is handled with two completely separate front panel pots on the right-hand side of the transceiver front panel, one pot above the other. (i.e., there is no Balance control option.) There may be multiple ways of handling split frequency control on this ancient rig, but the only one I’ve spent any time with – and the only one that Bill has implemented for my SO2V fantasies – puts my Run frequency on VFO A with the “big” knob, and lets me tune the Sub Receiver with the small “Tx VFO / Sub” knob to the right of the Main Tuning knob.

Nonetheless, I have become moderately adept at using SO2V on the Kenwood. I’m probably better at it on the Kenwood than on the K3 at this point – mostly because I haven’t used my K3 in a contest in many, many months! Which only confirms what we all know: When the contest starts, stick with what’s familiar.

Here’s what I do for UNassisted SO2V:

- ◆ Make sure that communication between your transceiver and your logging program (probably an RS-232 protocol) is at the highest speed reliably supported by both devices.
- ◆ Make sure you’re using stereo headphones, and make sure you have a spacial demarcation firmly in mind for Main vs. Sub audio streams. In the case of the 950SDX, the SubRx frequency display is to the right of the Main frequency display on the front panel, and the SubRx control is to the right of the Main Tuning knob, so I make sure that SubRx audio is my `_right_` ear. This required that I modify an old Radio Shack headphone extension cable to swap Left and Right channels so that the headphone cord hangs down off my left ear (since the headphone jack on the Kenwood is on the left edge of the front panel).
- ◆ If you have a modern rig like a K3, decide whether you prefer separated audio or want your main channel audio blended into both ears. I don’t get that choice on the Kenwood, and it’s a disadvantage to not have it. Many times, when trying to copy a “Q” station this weekend I had to turn off my SubRx in order to put main channel audio in both ears for better detection.

- ◆ In SkookumLogger Wizardry (under Preferences), select “Pounce tracks SubRx”. This is key to the entire SO2V experience.
- ◆ Pick a Run frequency off the beaten path so you’re not having to constantly find a new one. I usually go to the high end of the contest activity on any band – even though Hank may express incredulity at the resulting RBN spots.
- ◆ When the Run rate has slowed appropriately, turn on the SubRx. With SkookumLogger, this can be done directly from the front panel of the rig or via the extra F-keys on extended Apple keyboards (or other self-assigned key combinations on smaller keyboards). I use F13 on the wide aluminum Apple keyboard (thank you, Bob!) to turn SubRx off, and F15 to turn it on. (Again maintaining that Left / Right demarcation.)
- ◆ Adjust the SubRx Audio Gain to your preference. (I like to keep it a bit lower than the audio level coming out of the Main Rx channel.)
- ◆ While CQing, tune the SubRx knob through the contest activity, and stop at each loud signal you hear.
- ◆ In the dead air between CQs, find out whom you’re listening to, and whether it’s a needed QSO by pre-typing the station’s call and any copied exchange info into the call field. (In SkookumLogger this will actually be in the Run pane, but a Wizardry option allows automatic transfer of what’s in the Run pane to the Pounce pane at the appropriate time. Also, in SkookumLogger Wizardry it will be necessary to disable the option that says “Typing stops beacon CQ”.)
- ◆ In between CQ transmissions, if you wish to work the station you have tuned in via the SubRx, tap F12 (in SkookumLogger, at least).
- ◆ Do not send your call (F4) until and unless you hear audio switch channels in your headphones!!!!!! (At least, that’s true for the Kenwood. And, since the Kenwood exhibits some ridiculously long “lags” between the time F12 is tapped and the time the VFOs switch, this is an extremely important step with this boat anchor.)
- ◆ As a result of tapping F12, whatever call you have temporarily logged in the Run pane will be duplicated in the Pounce pane, and focus will be automatically transferred to the Pounce pane.
- ◆ Assuming you are successful, finish entering the other station’s information in the Pounce pane fields. When you have confirmation of a “good” contact, tap Enter to log the QSO.
- ◆ Tap F12 again to return to your Run frequency. You should hear audio flip between channels in your headphones, and you should again wait for that flip before doing anything else.
- ◆ Once audio has flipped, tap F11 (in SkookumLogger) to clear the Run pane of any leftover information. (Or select the SkookumLogger Wizardry option that says “Clear Run fields when focusing Run from Pounce”.)
- ◆ Tap F1 to resume CQing on your Main frequency.
- ◆ Resume tuning with the “Tx VFO / Sub” knob until you find another loud signal to analyze in between CQs.



- ♦ If you are UNassisted, you can still populate your Activity Tables in SkookumLogger with your own contacts by selecting the proper options for those Tables. This may help you decide to continue past a loud signal that you hear between your own dots and dashes as you're CQing. You can also fill your Activity Tables with calls you didn't successfully work yet, then go back to them at a later time. (I didn't use this feature this weekend, and I have no idea whether mouse-clicking will work with the Kenwood in SO2V operation.)

The biggest fault I found with SO2V operation of the TS-950SDX this weekend was the extreme variability in the response of the Kenwood to tapping the F12 (S vs. P) key. As Bill has come to believe, the Kenwood computer interface is a bit unpredictable. Interestingly, RIT (or XIT) Up / Down commands execute flawlessly from the keyboard, with only tiny delays when I'm transmitting ... but F12 commands seem to send the 950SDX into a tizzy. When they are responding properly and promptly, however, SO2V on this boat anchor is a joy – and one of the miracles of the modern world.

The Kenwood TS-950SDX has a "Swap" button (not its real name) that allows you to swap certain \_knobs\_ on the rig; in particular, I believe it may be possible to tune the SubRx with the Main Tuning knob. But I didn't dare try it, in fear of upsetting the apple cart.

I've probably left out a detail or two, but I've tried to think the process through as it occurred this weekend. Very seldom did I lose my (carefully chosen) Run frequency – probably because of the relative dearth of low-band activity that has been previously hashed over.

Post Script: Since the bet I had with Bob for a bottle of fine wine went by the boards prior to the start of the contest, when I was in town today getting my annual flu shot I stopped at one of the grocery stores and used the same money I was going to use on Bob's bottle of wine for six bottles of not-so-fine-wine to be consumed in Bob's honor, right here at home in VA! (Not all at once, of course ...).

## 2T2R Keyboard Setup, WA1Z

I am using the large USB Apple Keyboard that provides 19 F-Keys. Being a touch-typist with years of experience with PC-type keyboards, I initially found the Apple keyboard F-keys incredibly difficult to use. The first twelve F-keys are bunched together with no spacing making it very difficult for me to locate the appropriate key without looking down at the keyboard. Most PC-type keyboards space-out F-keys into blocks of four. In contests over the years, I've relied on that spacing to locate F1 and F4 keys (and then by extension, 2, 3, and 5 keys) without having to look. I am slowly re-educating myself to accept the lack of spacing on the Apple keyboard and I'm finding that I am improving in my ability to hit the *right* F-key from F1 through F5 without having to look.

When I started doing SO2R with SkookumLogger, there were additional default F-Key assignments that fell within the "Massive Block of Twelve" that I found difficult to locate in the "heat of the battle." Appropriately, Bill is keeping in mind the lowest common denominator with regard to F-key general availability in the Apple keyboard market. However, because of my own limitations, two very important keys, F9 and F12 (see details about these below), are almost impossible for me to find quickly – even when looking. Below is a write-up of what I did to take advantage of the higher-numbered F-keys beyond F12 (that *do* have some physical spacing) and Mac OS X's "App Shortcuts" facility to reassign the default shortcuts in a way that improved my ability to manipulate SkookumLogger and the YCCC SO2R box during a contest.

There are three fundamentally important SO2R-related control points that are available either by a menu item or combination of menu item and F-Key:

- ◆ **Log > Toggle Transmit Focus** controls which of the two radios should be the "active" Transmit Radio (the radio that will transmit the next message you want to send by whatever means SkookumLogger provides). This once had F9 as the default shortcut.
- ◆ **Log > Toggle QSO Entry Focus** controls focus of the two QSO Entry Fields (labeled Radio 1 and Radio 2) independent of the currently-designated Transmit Radio. This allows for the ability to enter QSO data being received on the non-Transmit Radio. This also has a default shortcut of F12.
- ◆ Three menu items, **2T2R > Listen to Both Radios**, **2T2R > Listen to Radio 1** and **2T2R > Listen to Radio 2** control the audio routing from the two radios. Bill elected to provide no shortcut for these menu items.

The Apple keyboard F13...F15 keys comprise their own bank of three above the fn, Home and Page Up keys, followed by F16...F19 which are positioned nicely above the numeric keypad.

I first set out to reassign "Toggle QSO Entry Focus" and add F-key assignments to the three "Listen to ..." audio menu options. My left hand (as I imagine for most folks) is the predominant manipulator of F1 through F4 keys. These are the keys most used in sending messages. I wanted to move SO2R control as far to the right as possible so I could use the right hand. The four keys F16 through F19 above the numeric keypad proved to be a perfect choice. I reassigned the F-keys as follows:

F16 - "Listen to Radio 1" This is my "left" radio  
F17 - "Listen to Both Radios"  
F18 - "Listen to Radio 2" This is my "right" radio  
F19 - "Toggle QSO Entry Focus"

I chose F19 for "Toggle QSO Entry Focus" because it is on the far-upper-right-hand edge of the keyboard and is quite literally hit several *thousand* times in the course of a full-bore contest effort. I rest my pinky finger on the edge of the keyboard for positioning my hand and hit F19 with my ring finger. When I want to control the audio routing (far less often), it's a minor hand-slide adjustment to line up my pointer, middle and ring fingers over F16, F17 and F18, respectively, to control audio. All subtle, limited and fast movements.

So far, I haven't mentioned "Toggle Transmit Radio." For CW contesting, I've found the four assignments listed above are all you need. You almost never need to actually select "Toggle Transmit Radio" in a CW contest because Bill has gone out of his way to actually automate when "Toggle Transmit Radio" is required. In short, SkookumLogger is intelligent enough to analyze which Radio has QSO Entry Focus and know which radio should transmit when the operator actuates a Message. Bill can do this because SkookumLogger has full control over CW generation (outside of direct CW transmission from an unconnected keyer that SkookumLogger can't "see").

For SSB contesting, there are practical limitations with VOX and PTT footswitch control that SkookumLogger has no ability to monitor making "Toggle Transmit Radio" a function the operator needs to manipulate more often. I have yet to do a SSB contest SO2R with SkookumLogger as of this write-up, but I have decided I am going to try assigning this:

F15 - "Toggle Transmit Radio"

F15 is on the right edge of its own "Bank of Three" with a space between it and F16. I'm theorizing that F15 is separated far enough from F19 that it will require separate two fingers to control them (and not close enough to hit one when I mean to hit the other). We'll see how this works out this weekend in HADX and NAQP SSB contests.

Another alternative assignment bank could be this:

F13 - "Listen to Radio 1" This is my "left" radio  
F14 - "Listen to Both Radios"  
F15 - "Listen to Radio 2" This is my "right" radio

F16 - "Toggle Transmit Radio"  
F19 - "Toggle QSO Entry Focus"

But this involves more wrist movement in my right hand.

## Practice Mode Videos, JH5GHM

Katsuhiro is a major contributor to the design and coding for both the operating modes and the Practice Mode features in SkookumLogger. He typically does practice sessions daily, preparing for guest-operating at stations like JA6GCE as JH6RPM, and at others around the world. He has been a team leader at every WRTC since 2014, using SkookumLogger.

Katsuhiro has posted many videos at [contestworkshop](#). These show his practice sessions, along with illustrating his contest station design and custom equipment. Be sure to use headphones while listening to the SO2R and 2BSIQ videos to understand how Katsuhiro configures audio switching.

## Example Window Layouts, GØDVJ

The following screenshots show a range of simple to complex SkookumLogger window layouts for illustration only. Most were obtained using previous versions of SkookumLogger. They demonstrate how you can customize the layouts according to the contests you are doing, the devices you have connected to SkookumLogger, and the approach to contesting that you take. What you choose to display, and how, will also depend on your monitor's screen size and resolution.

These examples are not designed to be visible in all detail but rather to give an idea of how the various optional windows can be used and arranged. Everyone will have their own personal preferences for layout of course.

## RSGB 80m Club Championship SSB contest

The screenshot shows the SkookumLogger interface for the RSGB 80m Club Championship SSB contest. The main window displays the contest name, time (17:37:05), and call sign (M4J RS(T) 190). It includes a table of logged contacts with columns for UTC, Rx Freq, TxNr, Call, RxRpt, RxNr, D, SQ, and Notes. A Rate Tracker window on the right shows various performance metrics like Minutes Elapsed Since Last QSO, QSOs Per Hour, and QSO Points Per Hour. A Score window at the bottom right shows the current score and QSO counts.

UTC	Rx Freq	TxNr	Call	RxRpt	RxNr	D	SQ	Notes
2020-07-15 20:29:22	3.766.775	189	G6UBM	59	115			
2020-07-15 20:28:48	3.722.175	188	M0NPK	59	190			
2020-07-15 20:28:03	3.752.975	187	M0GAV	59	193			
2020-07-15 20:27:05	3.684.100	186	M0RPK	59	027			
2020-07-15 20:26:47	3.684.100	185	G4IZZ	59	055			
2020-07-15 20:26:29	3.684.100	184	D01ATR	59	010			
2020-07-15 20:25:15	3.684.100	183	G4DRS	59	031			
2020-07-15 20:24:44	3.684.100	182	G3RVM	59	158			

Here we have almost the simplest logging layout for someone perhaps starting out in a contest such as the RSGB CC series which have no multipliers, and so a good score is all about the rate of working any stations.

The Rate window is set alongside the Log window and all the sent info has been hidden from the table of logged contacts. The blue globe icon under the contest name is dimmed and so there is no cluster connection and therefore the user has chosen not to open any activity windows either.

The Score window has been placed tidily in the bottom right corner of the logging window. Of course the only mandatory window needed to log QSOs with SkookumLogger is the Log window; however this example demonstrates that for a contest type where there is no multiplier or bonus scoring, the rate at which you work contests becomes most important in achieving a good score - hence the two additional windows shown.

The radio is connected but there are no other devices being managed by SkookumLogger in this example. This is a very compact layout which would fit easily on the smallest notebook Mac screens at low resolution with room to spare.

The next development from this layout might be to add the 80m Activity window and connect to the DX Cluster to assist with S&P activity.

## RSGB 80m Club Championship with RTTY/PSK63 decode window RSGB Club Calls

The screenshot displays the SkookumLogger application interface. The main window is divided into several sections:

- Status Messages:** Shows system messages and logs.
- Score:** Displays a table of scores for different bands and modes.
- Data Encode/Decode:** The central window for logging and decoding data. It shows a list of calls and their corresponding frequencies and modes. The transmitted text (triggered by Function keys and/or Magic Message) is shown in red, while the decoded received data is in black.
- Rate Tracker:** Monitors the rate of data received and transmitted.
- 80m Activity:** A table showing activity for the 80m band, including call, frequency, age, source, and info.
- RSGB 80m CC Data May22:** A window showing the RSGB 80m Club Championship data for May 2022.
- SkookumLogger Panadapter:** A window showing the frequency spectrum and signal strength.
- Radios:** A window showing the status of the radios and the selected radio.

The RSGB Clubs database is a list of club names and abbreviations, used in RSGB Club Calls contests. The list is constructed by manually parsing the source code for an RSGB web page containing the relevant information and there is no mechanism available for downloading the information. Do not expect frequent updates for this database.

This example shows a layout where the data decode window is central to proceedings for a single band RTTY/PSK63 data session of the RSGB Club Championship. The transmitted text (triggered by Function keys and/or Magic Message) is shown in red in the table, whilst the decoded received data is in black in the same window.

The window showing the sent/received data is positioned just above the main logging window with the relevant band's activity window next to it. The other way to pounce on stations using a K4 in this case, the panadapter window is also close by. On the occasions one uses the mouse to grab either an activity spot (from activity window or panadapter), or a received data exchange item, there is little mouse movement required. Also note that the map has been zoomed to a suitable area that I am likely to work in this particular contest.



## New England QSO Party from UK

The screenshot displays the SkookumLogger application interface. The main window features a map of North America with a red dot indicating the user's location in the UK and a beam antenna pointing towards the Northeastern United States. The interface is divided into several panels:

- Rate Tracker:** Shows QSO statistics for the last 20 minutes, including QSOs per hour and cumulative QSOs per hour.
- NEQP 2019:** A window for the New England QSO Party, showing a list of contacts with columns for UTC, Rx Freq, Band, Mode, Call, Sen., Rover, Sen., RST, Info, R, D, SQ, and Notes.
- 80m Activity:** A window showing a list of needed QSOs for the 80m band, including Call, Freq, Age, Source, Mode, and Info.
- 40m Activity:** A window showing a list of needed QSOs for the 40m band.
- 20m Activity:** A window showing a list of needed QSOs for the 20m band.
- Region Checklist:** A window showing a checklist of regions and states, including Addis Vermont, Androskoggin Maine, Aroostook Maine, Barnstable Massachusetts, Belknap New Hampshire, Bennington Vermont, Berkshire Massachusetts, Bristol Massachusetts, Bristol Rhode Island, Caledonia Vermont, Carroll New Hampshire, Cheshire New Hampshire, Chittenden Vermont, Coos New Hampshire, Cumberland Maine, Dukes Massachusetts, Essex Massachusetts, Essex Vermont, Fairfield Connecticut, Franklin Massachusetts, Franklin Maine, Franklin Vermont, Grafton New Hampshire, Grand Isle Vermont, Hancock Maine, Hartford Connecticut, Hillsborough New Hampshire, Hampden Massachusetts, Hampshire Massachusetts, Kennebec Maine, Kent Rhode Island, Knox Maine, Lamoille Vermont, Lincoln Maine, Litchfield Connecticut, Merrimack New Hampshire, Middlesex Connecticut, Middlesex Massachusetts, Nantucket Massachusetts, Newport Rhode Island, New Haven Connecticut, New London Connecticut, Norfolk Massachusetts, Orange Vermont, Orleans Vermont, Oxford Maine, Penobscot Maine, Piscataquis Maine, Plymouth Massachusetts, Providence Rhode Island, Rockingham New Hampshire, Rutland Vermont, Sagadahoc Maine, Somerset Maine, Strafford New Hampshire, Suffolk Massachusetts, Sullivan New Hampshire, Tolland Connecticut, Waldo Maine, Washington Maine, Washington Rhode Island, Washington Vermont, Windham Connecticut, Windsor Vermont, Windham Vermont, Worcester Massachusetts, and York Maine.

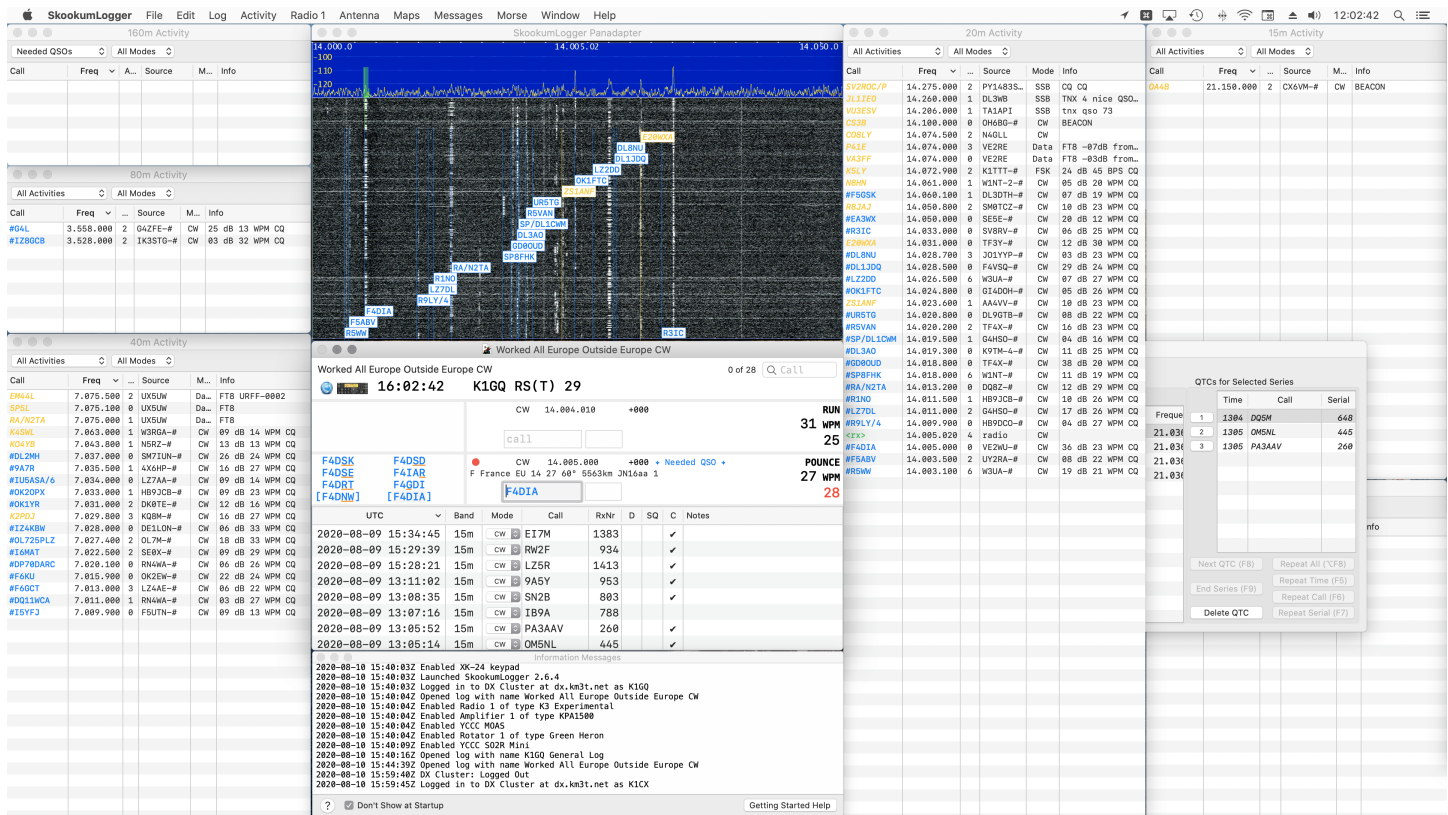
The Log window in these examples from the author of this Guide is generally positioned bottom-left of the screen; this happens to correspond to eye level the way the large external monitor is arranged in his shack. You will want to position things right for your own shack/bench.

The map has been customized for scale and coverage (UK to NA), and shows both the shading of the daylight terminator and the highlight of where the beam antenna is pointed. Having said that, in this NEQP contest the terminator / grayline is more important, since the beam doesn't really need to move as all contacts are with the same part of the Eastern USA!

The three Activity windows opened are the only bands worth looking on at that time of night (0017z) and the checklist is customized to show just those three bands and all the NE county/state names and codes. The main logging window has the Rover column enabled, which is unique to these types of QSO party events.



## WAE DX CW

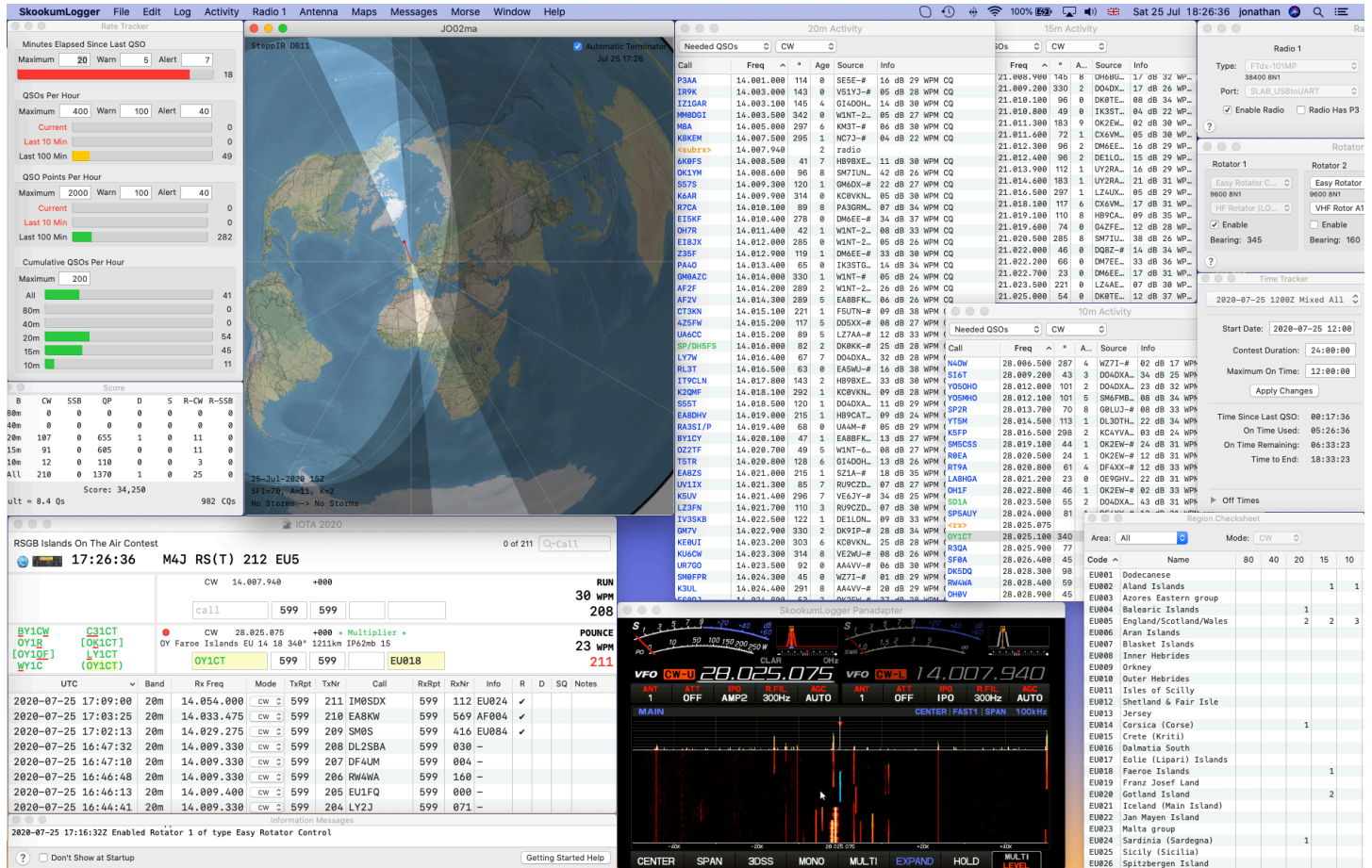


In this example, different color schemes have been chosen for needed QSOs and multipliers etc., plus the Panadapter window has labeled spots with callsigns, again reflecting the chosen colors.

The Log window is front and center and the Status Messages window is larger below it. The Activity windows surround the main windows and are sized and arranged according to those bands which may be most busy/important. The QTC Series window, unique to the WAE contests, is tucked away ready to be brought into focus adjacent to the Log window, should QTCs need to be sent.

Bill prefers to minimize the width of the Log window by choosing not to display the logged sent information and to display just band and mode rather than frequency.

## IOTA contest with FTdx101MP video



This panadapter display shows the radio settings, signal strength meters and band scope from the radio's screen without the operator having to look away from the logging screen. The Radios and Rotators windows are open; the latter showing the bearing which is also highlighted on the map.

The map shows the whole globe since IOTA attracts activity across all continents, often from the middle of oceans on small land masses!

The Time Tracker window is also open since this was a 12 hour effort out of the 24 hours of the contest. Multipliers are key in this contest, and the Region Checksheet, which lists worked Islands in this contest, is displayed to easily and quickly scroll should there be uncertainty about an island reference code received, for example.

## Two Radio CQWW CW Practice Mode

The screenshot displays the SkookumLogger Practice Mode interface. The main window is titled 'Practice' and includes tabs for New Log, Activities, DX Cluster, Logging, Messages, OpMode, and Practice. The 'Practice' tab is active, showing settings for 'Enable Practice Mode' (checked) and 'Allow logging incomplete QSOs when Logging preference to disallow is on' (checked). The 'Transmit Monitor' and 'Receiver Noise' sections show parameters for Radio 1 and Radio 2. The 'Callers' section shows a list of call signs and their status. The 'YCCC SO2R' window on the left shows audio routing settings. The 'PMS2hu' window at the bottom left shows a map of the world. The 'CQ World Wide DX Contest CW' window at the bottom right shows a list of QSOs with columns for UTC, Rx Freq, Tx Freq, Call, Band, Mode, TxRpt, Zone, TxNr, TxExch, RxRpt, Notes, D, SQ, C, and Z.

UTC	Rx Freq	Tx Freq	Call	Band	Mode	TxRpt	Zone	TxNr	TxExch	RxRpt	Notes	D	SQ	C	Z
2020-08-11 11:41:53	7.002.000	7.002.000	JA1BVY	40m	CW	599	25	301	25	599					
2020-08-11 11:41:50	14.002.0...	14.002.0...	KC4PX	20m	CW	599	05	300	25	599					
2020-08-11 11:41:36	7.002.000	7.002.000	PA3GCU	40m	CW	599	14	298	25	599					
2020-08-11 11:41:34	14.002.0...	14.002.0...	WA9SWW	20m	CW	599	04	299	25	599					
2020-08-11 11:41:18	14.002.0...	14.002.0...	UXSIO	20m	CW	599	16	297	25	599					
2020-08-11 11:41:16	7.002.000	7.002.000	K0HX	40m	CW	599	04	296	25	599					
2020-08-11 11:41:06	14.002.0...	14.002.0...	VE6BIR	20m	CW	599	04	295	25	599					
2020-08-11 11:40:54	7.002.000	7.002.000	YO9AYN	40m	CW	599	20	294	25	599					
2020-08-11 11:40:51	14.002.0...	14.002.0...	WX8G	20m	CW	599	04	293	25	599					
2020-08-11 11:40:41	7.002.000	7.002.000	W3OU	40m	CW	599	05	292	25	599					
2020-08-11 11:40:38	14.002.0...	14.002.0...	W5TX	20m	CW	599	04	291	25	599					
2020-08-11 11:40:30	7.002.000	7.002.000	VO1TX	40m	CW	599	05	290	25	599					
2020-08-11 11:40:27	14.002.0...	14.002.0...	DK3XJ	20m	CW	599	14	289	25	599					
2020-08-11 11:40:17	7.002.000	7.002.000	KC2PJH	40m	CW	599	05	288	25	599					
2020-08-11 11:40:15	14.002.0...	14.002.0...	UT7LW	20m	CW	599	16	287	25	599					

The first notable thing about this example is that it uses SkookumLogger in Dark Mode on macOS. Secondly, this is an example of a two radio configuration; note that the QSO Entry panes have been relabelled Radio 1 and Radio 2, instead of Run and Pounce. Thirdly this example shows how Katsuhiro arranges the layout for using SkookumLogger's Practice mode facility.

Practice mode is most easily used with the Practice window open so that the parameters for practice can be tweaked.

Because there are two radios used in this example, the colored gumdrops are shown in each QSO entry pane, to identify when each has transmit/receive focus. At the time of this screenshot, you can see that radio 1 has transmit focus (red gumdrop above the call entry field) while listening to both radios – each QSO Entry pane has a green gumdrop. The YCCC SO2R window on the left side above the map window shows how audio is receive audio is routed in each situation.

The long green bars in the Rate window at top-right demonstrate Katsuhiro's amazing performance running 2BSIQ simulated on 40 and 20m at 45wpm CW! You can see the interleaving of QSOs on

each band by looking at the TX frequency column of the logged QSOs table. And what's more, there are no errors reported in the notes field for this practice session!

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## Files and Databases

The log file created by SkookumLogger is an sqlite database with extension sl-binary. This file contains all logged QSOs, and other information specific to the contest, such as the name of the rules for the contest, and message definitions. You can move, copy and rename log files in Finder without affecting the content.

Cabrillo files are central to contesting. They are created from the log file, and in some circumstances can be used to create a log file.

SkookumLogger uses several databases to display information in the QSO entry pane and to pre-fill QSO received exchange fields. The versions for those databases are shown in the Information Messages window when you start SkookumLogger and when you download new versions.

SkookumLogger includes default databases that are used when you haven't downloaded more recent versions. The default databases for Countries, Super Check Partial, and CWOps Roster are updated with each SkookumLogger release.

### Cabrillo files

Cabrillo is the reporting format expected by contest sponsors. The standard is maintained by the [World Wide Radio Operators Foundation](#). SkookumLogger conforms to version 3 of the standard, and provides a user interface for everything that you need to supply when submitting your Cabrillo file to a contest sponsor. The user interface has two parts. The **Cabrillo** tab in the New Log settings pane initializes settings for new logs. The Cabrillo Setting Sheet (**Log > Cabrillo Settings...**) supports editing the definitions for an existing log.

### *Submitting a Cabrillo File*

When you have set up all the values in the settings sheet appropriately, SkookumLogger can create and send your Cabrillo file directly to the contest sponsor; you will not need to open and edit the exported Cabrillo file outside SkookumLogger.

**File > Submit Log Via Web Browser** – Automates the steps for preparing and uploading your Cabrillo file to the contest sponsor via the sponsor's web site. You should use this option if it is enabled. SkookumLogger exports your log to a Cabrillo file via a standard Save dialog where you can name the file anything you like, and opens your web browser to the appropriate web page where you choose the saved file and supply other information requested by the contest sponsor. This command is disabled when the contest sponsor does not support web uploads.

**File > Submit Log Via Apple Mail** – Automates the steps for preparing your Cabrillo file to be sent to the contest sponsor as an email attachment. SkookumLogger quietly exports your log to a Cabrillo file, then composes an email with the appropriate to and from email addresses and subject, using Apple Mail. The from email address is taken from the Email address that you set in your Cabrillo settings. Activate Mail to send the composed message. This command is disabled when the contest sponsor does not support emailed logs.

**File > Submit Log For SCP** – Performs the same steps as submitting via Apple Mail, but addresses the email to the maintainer of the SCP database.

When you first run SkookumLogger you may be asked to allow SkookumLogger to control Mail. You can toggle permission on and off in the Privacy tab of Security & Privacy system settings for the Automation item.

### Generating a Cabrillo File

Choose **File > Export Cabrillo** to generate a text file in Cabrillo format. You may want to use this command if you want to import the Cabrillo file into another app.

### Log Import

Before importing, confirm that your current log is compatible with the type of contest exchange information in the file you intend to import.

**File > Import Cabrillo...** peeks into a Cabrillo file to confirm that the version is at least 3.0, and that the contest for the file matches the contest for the current log, based on their Cabrillo Names. If so, the log is cleared and the content of the file is used to populate the log's Cabrillo settings and the log's QSOs. The logger that created the Cabrillo file and the claimed score are displayed in the Status Messages window. See Master List of Cabrillo Names.

**File > Merge WSJT-X ADIF...** reads a file of Data mode QSOs in ADIF format created by WSJT-X, and adds those QSOs to the current log.

Some mixed-mode contests accept QSOs on Data modes that require WSJT-X for completing QSOs. WSJT-X and SkookumLogger provides limited support for these contests as follows.

- ◆ For modes that do not require WSJT-X, quit WSJT-X and use SkookumLogger as your logging program.
- ◆ To complete QSOs with WSJT-X, first disable your radio, then start WSJT-X.
- ◆ To return to logging with SkookumLogger, quit WSJT-X and re-enable your radio.
- ◆ After the contest, export the WSJT-X log as ADIF, then merge that file into your SkookumLogger log using **File > Merge WSJT-X ADIF**.

It may not be necessary to quit/start WSJT-X if it provides a convenient way to give up control of the radio. Alternatively, use commands in WSJT-X to set band and frequency while leaving radio CAT (Computer Aided Transceiver) control disabled.

The merge command presently supports contests with grid as the exchange, and ARRL Field Day. The ADIF exported by WSJT-X for Field Day lacks specification of your sent section, so the merge will fill that value with the sent section that you defined in your SkookumLogger log.

**File > Merge RoverLog Cabrillo...** reads a Cabrillo file created by the RoverLog app and adds those QSOs to the current log.

### Log Export

**File > Export ADIF** generates a text file in ADIF format from your log. This facility is used for getting your contest QSOs into other software that can read ADIF files. ADIF has a prodigious number of fields; most have nothing to do with contesting. SkookumLogger exports basic fields describing



each QSO, including some exchange information, but does not attempt to distribute all exchange data into specific ADIF fields. The best way to see which ADIF fields are exported is to look at the resulting file with any text editor.

**File > Export to Numbers** generates a list of your contest QSOs in comma-separated-values format. This format is readable by any spreadsheet application. The first line in the CSV file contains column titles. Checkmarks in the SkookumLogger log table are represented by the number 1; absence of a checkmark is indicated by an empty value. The last column in each record, labeled Index, is a simple record counter starting at 1. Drag the icon for the CSV file onto the Numbers application to open a new spreadsheet and import the CSV file content into a table.

## Log Reports

**File > Create Statistics Report** processes your log to compute rate statistics and other summaries information, then open the report in your web browser. Use the browser to save the report. The processing is time-consuming for large logs and will block the SkookumLogger user interface until it completes.

**File > Rate Breakdown Report** prepares a rate sheet for each operator and displays it in your web browser.

**File > Per-band Log Files** creates separate text files for each band, describing the QSOs in the format popularized by the CT by K1EA logging program. The files are written in the folder containing your log file.

## Application Support Folder

Downloaded databases and other files used by SkookumLogger are located in the standard macOS place for application support files. The path to that folder within your Library folder is:

Containers/com.k1gq.SkookumLogger/Data/Library/Application Support/SkookumLogger

## DXCC Countries Database

The most important database is the one mapping call prefixes to country names, continents, zone numbers and other entity information for the derivation of approximate bearing and distances. SkookumLogger uses the database maintained regularly by Jim AD1C, downloaded from:

[https://www.country-files.com/cty/cty\\_wt\\_mod.dat](https://www.country-files.com/cty/cty_wt_mod.dat)

You can download this database in SkookumLogger by choosing **File > Download Countries Database**. Note that old logs may score differently with a newer database version. SkookumLogger loads this database at startup from your support folder, where it is named Countries.text. If the file doesn't exist or is older than the reference version included with each new version of SkookumLogger, the reference version is copied to the support folder before loading the database.

The Countries database is a rich source of information. For almost any legal amateur radio call sign, the database can be used to establish things like country (ARRL DXCC and WAE), continent, zone (CQ and ITU), geographic coordinates, oblast, and more.

## Super Check Partial (SCP)

The Super Check Partials database is a list of thousands of calls that have appeared in multiple recent Cabrillo files contributed to the database maintainer, Bill Fehring, W9KKN. Use **File > Download SCP Database** to get the latest version. The source URL is <http://www.supercheckpartial.com/MASTER.SCP>. SkookumLogger loads this database at startup from your support folder, where it is named SuperCheckPartials.text. If the file doesn't exist or is older than the reference version included with each new version of SkookumLogger, the reference version is copied to the support folder before loading the database.

If a file named BadSCPCalls.txt exists in the support folder at startup, the calls listed in that file are removed from the database while loading it. Use this to avoid false partials matches when you notice a call that you know to be incorrect. The file is a simple list of call signs, one per line.

SkookumLogger sends a copy of your Cabrillo file to the maintainer when you submit your log to the contest sponsor after a contest. You can disable this feature if you wish, using the [Submit to SCP when submitting to sponsor option](#). You can also contribute your logs manually using **File > Submit Log for SCP**.

Unless **Do not use the SCP database** in Logging settings is on, SkookumLogger constructs a set of known calls at startup by combining calls in the SCP database with exact-match calls in the Countries database. This set is consulted when performing the [Partials Matching](#) function.

## Phone Band-edge File

A phone sub-band table is consulted when **Change radio mode when changing frequency** is enabled in OpMode settings. The table is also consulted when activities created from DX Cluster spots need to infer mode from frequency.

A built-in table is based on the ARRL "US Amateur Radio Bands" chart. You can override the table by exporting the file (use **File > Export Phone Band Edges...**) containing the current table, editing the file, then importing that file using **File > Import Phone Band Edges....** The imported file is stored in your [SkookumLogger support directory](#).

Be careful not to disturb the structure of the file; SkookumLogger does very little sanity testing on the file content. The file extension name must be .txt and the content must follow these simple rules:

- ◆ Lines beginning with # are ignored. Use them for comments.
- ◆ Lines end with DOS (CRLF) or UNIX (LF) line-end symbols.
- ◆ A band-edge specification is a band name and a frequency separated by a colon.
- ◆ Band names are case-sensitive.
- ◆ Frequencies are integers, in Hz.

## Exchange Database

The Exchange database contains a list of calls and information associated with those calls, such as names, states, and other bits of information that may be part of a contest exchange. You construct

your personal Exchange database from your own logs – there is no mechanism for importing information from other sources. Use **File > Update Exchange Database** to add information from the all the QSOs in your current log. When a received exchange field value already exists in the database, the database value is updated; otherwise it is created. There is no editor for changing or removing Exchange database entries, so be sure your log is as clean as you can make it before doing an update.

This database provides the same exchange-guessing facility as call history files, with two signification differences:


- ◆ One file works for all supported contests.
- ◆ You provide the content for the file, rather than crowd-sourced data of unknown quality and sometimes not publicly available.

The exchange database is used to pre-fill QSO entry fields with administrative codes, names, IOTA references, Maidenhead grids, RSGB Club Name, and RSGB Club Status, age, check, precedence, or power and other information, when the database entry for a call contains the requested kind of entry. Note that it is important to log what is heard rather than simply believing the database, but in the case of a match then it can save typing and improve accuracy by avoiding data entry errors.

### *Name prompts*

The Exchange database stores names from received exchanges. Names are shown in the **Log** window information line below the entry fields.

This is a trick for manually adding names to the database:

- ◆ Create a log for the CWOps CW Open Competition contest. The exchange for this contest is serial and name.
- ◆ Enter any serial number and a name, tap  to log the QSO. Do not leave the serial number field empty. Repeat to define other names.
- ◆ Choose **File > Update Exchange Database**. This will add the names to the database, replacing names for calls already in the database that had names.

### *About VHF/UHF locators from the exchange database*

Contests on bands above HF often use six character locator grid squares based on the Maidenhead system in the exchange, which may be used for distance-based scoring and/or multiplier schemes (usually just the first four characters are important for multipliers).

Regular participants in VHF/UHF contests over time accumulate knowledge of where other regularly participating stations are located in relation to their own QTH. Additionally when there is a match in the exchange database, accurate rather than approximate beam heading information is calculated from the pre-filled locator and displayed in the QSO Information allowing the antenna direction to be optimized quickly to receive a better signal and thus copy the rest of the exchange more easily. This accurate alignment of antennas is particularly important for higher band contest operation.



## Settings

SkookumLogger > Settings... opens a window with this title/tool bar:



The content of the window is one of six settings panels named New Log, Activities, [DX Cluster](#), Logging, Messages and OpMode, corresponding the tool bar buttons left to right. A gear icon the the New Log window directly opens the New Log panel. A gear icon in any Activity window opens the Activities panel and a gear icon in the DX Cluster window directly opens the DX Cluster panel. Gear icons in the main window labeled L, M, and O directly open the Logging, Messages, and OpMode settings panels.

## New Log Cabrillo



These items provide initial values for settings in new logs. Changes here do not affect existing logs.

**Cabrillo** | Sent Exchange | CW Messages

My call:

**Cabrillo Header Items**

Name:

Email:

Location:

Address:

City:

State/Province:

Postal code:

Country:

Club name:

**Cabrillo Category Items**

Transmitter:

Power:

Operator:

Assisted:

Station:

Time:

Overlay:

**Cabrillo Soapbox**

about 60ft up; W1FV 9-circle RX array.

These options are applied each time a Cabrillo file is created.

☐ Request mail certificate
 ☒ Submit to SCP when submitting to sponsor
 ☒ Mark suspect QSOs as X-QSO

The Cabrillo tab of the New Log panel establishes default Cabrillo values for new logs.

[Cabrillo](#) is a text file format standard maintained by the World Wide Radio Operators Foundation, used for exporting a contest log to send to the contest sponsor. It can be helpful to review the format to understand the meanings of some of the Header and Category items.

Cabrillo settings provide defaults for all of your Cabrillo items except the Mode and Band items in the Category group, and the Operator List – those items are determined from contest rules and entries in the **Log > Cabrillo Settings...** sheet. Item labels have help tags showing the corresponding Cabrillo tag. Some of the less obvious items are:

**My Call** – Your personal call sign. Your sent exchange call is set separately by the Contest Call item in the Sent Exchange tab. When this field is set to the default call, K1CX, SkookumLogger open the Getting Started help topic at startup.

**Location** – This item is used to indicate the location where the station was operating from. Not all contest sponsors care about this item; presently the standard says:

ARRL/RAC Sections: For USA and Canada stations LOCATION must be the ARRL section abbreviation. For foreign stations LOCATION must be 'DX'. This information is required for IARU-HF and for all ARRL and CQ contests.

IOTA Island Name: This information is required for RSGB-IOTA contest and includes Island Name (not IOTA reference number).

RDA Number: This information is required for RDXC contest.

**Request mail certificate** – When checked, your Cabrillo file will instruct sponsors that recognize the tag to mail you a paper certificate (assuming you have earned one of course). Sponsors who do not recognize the tag may send you a paper certificate whether or not you want one.

**Mark suspect QSOs as X-QSO** – When checked, SkookumLogger reports QSOs that are flagged as SQ as X-QSO records instead of normal QSO records. Log-checking software will ignore those records in processing your log, but may use those records for cross-checking other logs against yours. If you use this feature and the sponsor rejects your Cabrillo file, disable the option, submit your Cabrillo file again, and send the sponsor an email asking them to conform to the Cabrillo standard.

**Submit to SCP when submitting to sponsor** – When checked, SkookumLogger sends a copy of your Cabrillo file to the Super Check Partial database maintainer when you use either **File > Submit Log Via Web Browser** or **File > Submit Log Via Apple Mail** to send your Cabrillo file to the contest sponsor.

## New Log Sent Exchange

Cabrillo

Sent Exchange

CW Messages

These items provide values for your sent exchange. Which items are used depends on the rules for the new log. Use the Sent Exchange Editor to change your sent exchange for an existing log.

Contest Call:

Region: <input type="text" value="NH"/>	Birth date: <input type="text" value="3/10/1941"/> 
County: <input type="text" value="CARNH"/>	First license date: <input type="text" value="3/10/1956"/> 
Section: <input type="text" value="NH"/>	Transmit power: <input type="text" value="K"/>
Grid: <input type="text" value="FN43in98"/>	SS precedence: <input type="text" value="B"/>
IOTA: <input type="text"/>	RSGB club code: <input type="text"/>
Name: <input type="text" value="Bill"/>	RSGB club status: <input type="text"/>

The Sent Exchange tab of the New Log panel has fields used to initialize your sent exchange for new logs. Use the [Sent Exchange Editor](#) to change your sent exchange for an existing log.

These items provide default values for your sent exchange. Which items are used depends on the rules for the new log. Help tags on each text entry field provide details on what is expected for that item.

The **Contest Call** may be the same as or different from **My Call** in the Cabrillo tab.



## New Log CW Messages

**New Log**

These items provide initial values for settings in new logs. Changes here do not affect existing logs.

Cabrillo | Sent Exchange | **CW Messages** | Voice Messages

These preferences provide default labels and values for the CW messages of new logs. Use the Morse Messages Editor to change messages for an existing log. Do not change the roles of messages with Menu Titles that cannot be edited.

~ sent call      \* received call  
 & sent exchange    + received name  
 # sent serial      ! QSY frequency  
 | half-space      {n message-n

**Morse Messages**

Menu Title	Tokenized Message	Menu Title	Tokenized Message
CQ	CQ TEST ~ ~	Short Acknowledge	TU
Exchange	&	Defend	QRL
Acknowledge	TU ~	Unstack QSO	R NW * &
My Call	~	User 1	USR 1
His Call	*	User 2	USR 2
Call?	CL	User 3	USR 3
Again?	?	User 4	USR 4
Number?	NR	User 5	USR 5

**Magic Messages**

	Begin	Continue	End
Run:	{1	{5 {2	{3
Pounce:	{4	{2	

The CW Messages tab of the New Log panel defines titles and content for morse messages in new logs.

In the Morse Messages box, Menu Title defines the menu titles that appear in the Messages menu for each of the 16 basic messages, and Tokenized Message defines the corresponding message content. Some messages have fixed menu titles. You should not alter the roles for these message, because other messages and your Special Keys create combination messages using those messages to create compound messages. You can set different shortcut keys for your messages, but you should think carefully about change the default F1 through F8 assignments.

Menu titles may be anything you like, but SkookumLogger has special processing for messages with "CQ" in their title. First, transmitting the message increments the CQ count shown in the Score

window. Second, depending on your radio configuration options SkookumLogger may change keyboard and/or transmit focus before transmitting the message.

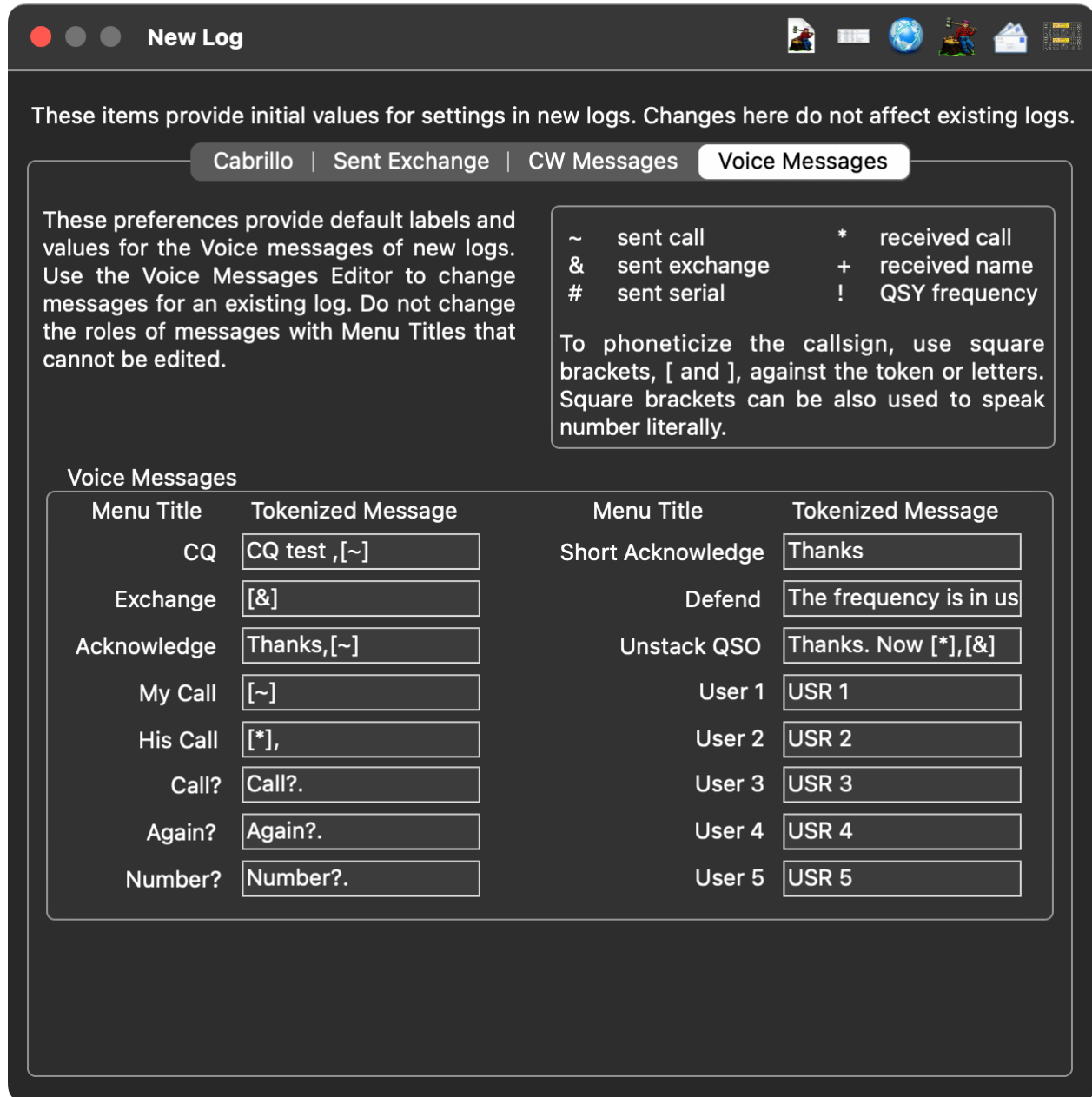
Any message definition may contain one or more message tokens. There are two restrictions on using tokens:

- ◆ The received call token must appear no more than once.
- ◆ Do not create loops, directly or indirectly, with the message-n tokens.

In addition to tokens, a message definition may contain any character in the WinKeyer character set. Alphabetic characters may be lower case. Unrecognized characters are ignored.

The Magic Messages box in the CW tab of your Messages settings defines the message content for the six states of the [Magic Message processor](#). Typically these messages are largely defined by reference to the basic CW messages using tokens.

## New Log Voice Messages



These items provide initial values for settings in new logs. Changes here do not affect existing logs.

Cabrillo | Sent Exchange | CW Messages | **Voice Messages**

These preferences provide default labels and values for the Voice messages of new logs. Use the Voice Messages Editor to change messages for an existing log. Do not change the roles of messages with Menu Titles that cannot be edited.

~ sent call      \* received call  
 & sent exchange      + received name  
 # sent serial      ! QSY frequency

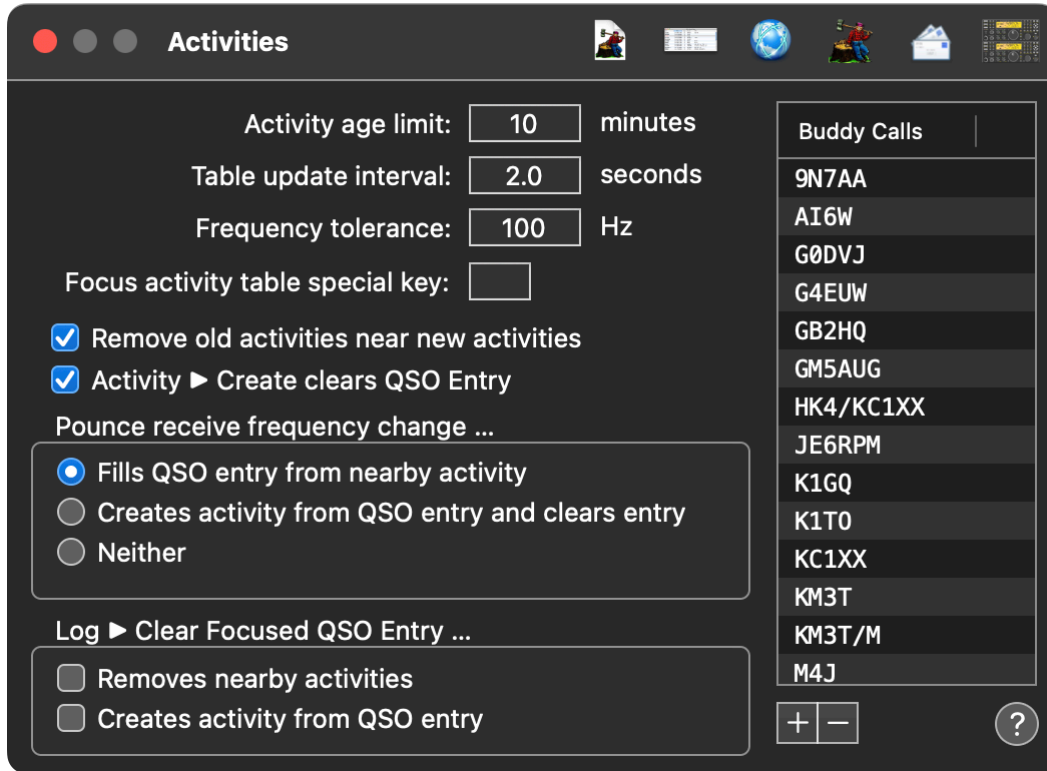
To phoneticize the callsign, use square brackets, [ and ], against the token or letters. Square brackets can be also used to speak number literally.

**Voice Messages**

Menu Title	Tokenized Message	Menu Title	Tokenized Message
CQ	CQ test ,[~]	Short Acknowledge	Thanks
Exchange	[&]	Defend	The frequency is in us
Acknowledge	Thanks,[~]	Unstack QSO	Thanks. Now [*],[&]
My Call	[~]	User 1	USR 1
His Call	[*],	User 2	USR 2
Call?	Call?.	User 3	USR 3
Again?	Again?.	User 4	USR 4
Number?	Number?.	User 5	USR 5

This tab in New Log settings is new in SkookumLogger 4.6. These default Voice Messages apply for the [Voice Keyer](#).

## Activities



The Activities panel sets properties related to all Activity tables.

**Activity age limit** – Activities with ages greater than the limit are discarded. Activities generated by skimmers are separately aged out with a 10 minute limit.

**Table update interval** – Determines how often SkookumLogger updates the activity tables from queues of incoming activities.

**Frequency tolerance** – Determines the matching tolerance when comparing frequencies for removing nearby activities, highlighting nearby activities, and autofilling nearby activities.

**Focus activity table special key** – Assigns a single key as the shortcut for changing keyboard focus from the Log to the Activity table for the log's current band.

**Remove old activities near new activities** – Prevents accumulating many activities near the same frequency.

**Activity > Create clears QSO Entry** – clears the QSO entry pane fields for the pane with keyboard focus after creating an activity from the contents of that pane.

**Pounce receive frequency change Fills QSO entry from nearby activity** – Fills Pounce QSO entry fields from an activity near the pounce receive frequency. If there is no activity within the tolerance, the entry fields are cleared.

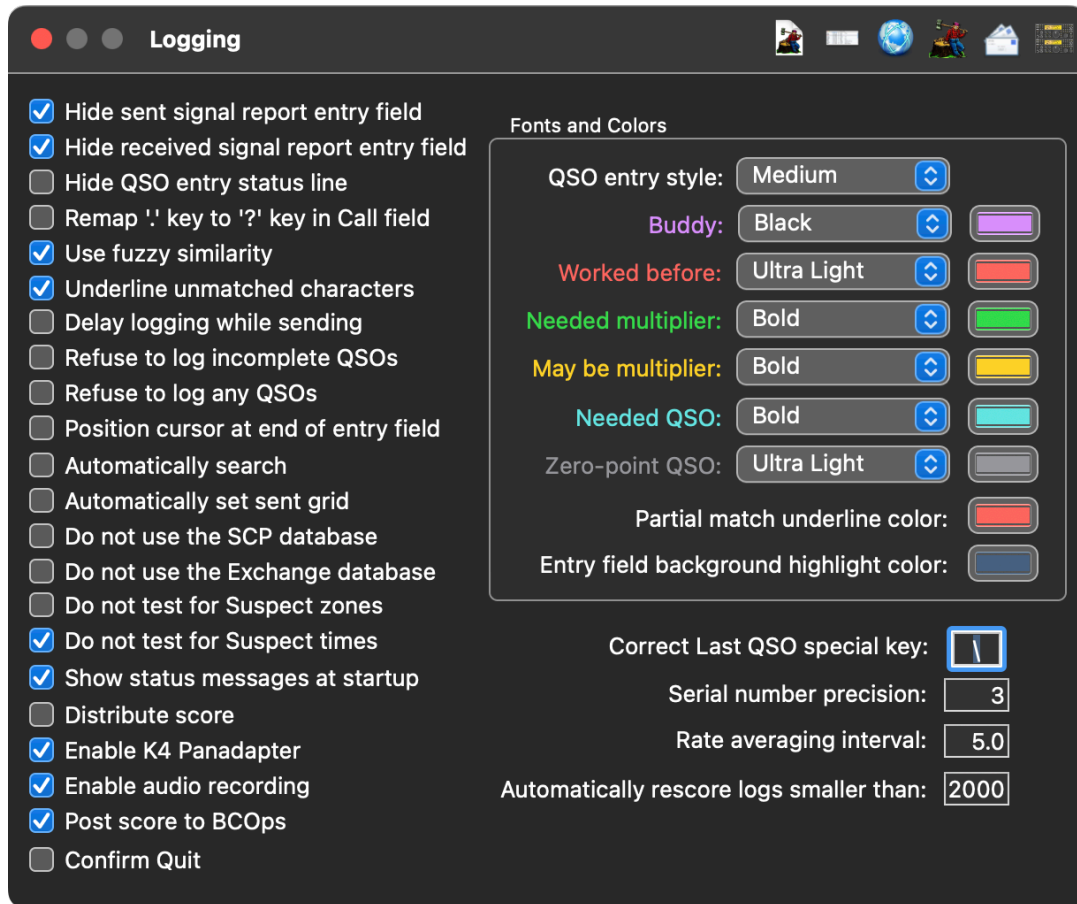
**Pounce receive frequency change Creates activity from QSO entry and clears entry** – Creates an activity when tuning by more than the tolerance after entering a call, using the information in the Pounce QSO entry pane before clearing the entry fields.

**Log > Clear Focused QSO Entry Removes nearby activities** – removes activities near the same frequency as the radio when clearing a QSO entry pane.

**Log > Clear Focused QSO Entry Creates activity from QSO entry** – If the QSO entry call field has a valid call sign, adds a new activity to the Activity table for the current band using the information in the QSO entry fields, then clear the QSO Entry Pane.

The Buddy Calls list has two roles. First, any call in the list is exempted from filters that you may apply to your activity tables. Second, the list may be included in the definition of a DX Cluster spot filter command, so that announcements for your buddies will always pass the filter.

## Logging



The Logging settings panel groups many options related to logging behavior, fonts, and colors. Defaults for the option show in parentheses.

**Hide sent signal report entry field** (NO) – Conceals the sent RST text entry item in QSO entry boxes, to save you the bother of skipping over it when you always send the same report.

**Hide received signal report entry field** (NO) – Similarly conceals the received RST text entry item.

**Hide QSO entry status line** (NO) – Conceals the status information displayed above the QSO entry fields.

**Remap ':' key to '?' key in Call field** (NO) – Enables entering the single-character wildcard symbol, the question mark, without needing to hold the shift key when typing a call.

**Use fuzzy similarity** (NO)– Replace Contains similarity with Fuzzy similarity in [Partial Call Matching](#).

**Underline unmatched characters** (NO) – When using Fuzzy similarity, characters in known calls that appear in the partial call are underlined. This option instead underlines characters that do not appear.

**Refuse to log incomplete QSOs** (NO) – Prevents adding a QSO that is incomplete (has empty exchange fields); instead displaying the Incomplete QSO status string.Flex

**Refuse to log any QSOs (NO)** – Prevents accidentally logging any QSOs, for members of SkookumNet that are not making QSOs.

**Position cursor at end of entry field (NO)** – When a QSO entry field is focused, position the cursor at the end of the content instead of selecting the content. Does not apply to call and report fields.

**Automatically search (NO)** – Typing into a call field filters the log to show only QSOs with calls that contain what you have typed. The search begins when you type the third character.

**Automatically set sent grid (NO)** – When enabled, SkookumLogger uses the macOS Location service to determine your current coordinates and converts them to a Maidenhead locator. That locator is used throughout SkookumLogger (except for great circle maps) as “my location.” When operating in a contest where your sent exchange contains your grid, the sent exchange is updated as needed. The Location service requires WiFi enabled.

**Do not use the SCP database (NO)** – Disables partial matching against calls in the SCP database. Those calls are still available for defining calls in Practice mode. Some contests may prohibit this feature; it is your responsibility to set this option appropriately.

**Do not use the Exchange database (NO)** – Disables use of your exchange database for pre-filling exchanges. Some contest rules may prohibit this feature; it is your responsibility to set this option appropriately.

**Do not test for Suspect zones (YES)** – Disables testing whether or not the zone you entered matches the zone guessed from the call sign.

**Do not test for Suspect times (NO)** – Disables marking QSOs with timestamps outside the contest period as suspect QSOs. Use this option as a convenience for testing without fussing with Time Tracker. The option is automatically turned off when you choose the **Log > Reset Log** command.

**Show Information window at startup (YES)** – Toggles whether or not you always see the launch message when starting SkookumLogger.

**Distribute score (NO)** – Periodically sends your current score during a contest to online scoreboards using an internet service provided by WA7BNM.

**Enable K4 Panadapter ()** – Allows SkookumLogger control of K4 external video properties, including setting the colors to grayscale.

**Enable audio recording (YES)** – Allows SkookumLogger to create audio recordings.

**Post score to BCops (NO)** – Periodically sends your score to a private scoreboard. This setting is hidden unless you are a member of the Black Cloud Operators group.

**Confirm Quit (NO)** – Posts a “Do you really want to do that” dialog when you quit SkookumLogger.

**Correct Last QSO special key (empty)** – Single-key shortcut for the **Log > Correct Last QSO** command, which copies the content of non-empty fields into the latest logged QSO.

**Serial number precision (3)** – Sets the minimum number of digits used to display serial numbers in the sent exchange prompt when sending serials with leading zeros.

***Rate averaging interval*** (5.0) – Sets the period from now into the past (in minutes) used to compute current QSO rate in Rate Tracker.

***Automatically rescore logs smaller than*** (1000) – QSO count threshold for automatically rescoring your log when a logged QSO is changed.

### ***Fonts and Colors***

See [Fonts and Colors](#).



## Messages

Messages settings sets properties related to sending messages and contains three tabs with additional settings related to messages.

### SSB Messages Settings

The SSB tab of the Messages panel defines associations between some SkookumLogger messages and radio DVR messages.

Message Name	DVR Number
CQ	1
Exchange	2
Acknowledge	3
My Call	4
?	5
Short Acknowledge	6
Defend	7
User 1	8

Up SSB messages are associated with these SkookumLogger message titles:

- ◆ CQ, BeaconCQ, AlternatingCQ, MagicRunBegin
- ◆ Exchange, HisCallAndExchange, ExchangeAndLog, EndQSO (Pounce mode), BeginQSO (Run mode), MagicRunContinue, MagicPounceContinue
- ◆ Acknowledge, EndQSO, (Run mode) AcknowledgeAndLog, MagicRunEnd
- ◆ MyCall, BeginQSO (Pounce mode), MagicPounceBegin
- ◆ ? (Again)
- ◆ ShortAcknowledge, ShortAcknowledgeAndLog
- ◆ Defend
- ◆ User1

You should should create DVR messages that correspond to the message names. Set the DVR number to 0 to tell SkookumLogger not to play that message. For example, if your radio has three DVR channels, you might assign the first channel to CQ, the second to Acknowledge, the third to My Call, and assign 0 to the other file messages.

## QTC CW Messages Settings

SSB QTC Special Keys

These items define CW messages sent automatically and by function keys when exchanging a QTC Series in the WAEDC CW Contest. "Repeat Series M/N" refers to the number/count preamble when starting a new series.

**Send**

<div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 5px;"> I Have No QTCs <input style="width: 100px;" type="text" value="NIL"/> </div> <div style="border: 1px solid #ccc; padding: 5px;"> Begin Series <input style="width: 100px;" type="text" value="QTC"/> </div>	<div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 5px;"> Repeat Series M/N (F3) <input style="width: 100px;" type="text"/> </div> <div style="border: 1px solid #ccc; padding: 5px;"> End Series (F9) <input style="width: 100px;" type="text" value="TU"/> </div>
---	---

**Receive**

<div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 5px;"> Do You Have QTCs? <input style="width: 100px;" type="text" value="QTC"/> </div> <div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 5px;"> Ready To Receive <input style="width: 100px;" type="text" value="QRV"/> </div> <div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 5px;"> Acknowledge QTC <input style="width: 100px;" type="text" value="R"/> </div> <div style="border: 1px solid #ccc; padding: 5px;"> Acknowledge Series (F9) <input style="width: 100px;" type="text" value="TU"/> </div>	<div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 5px;"> Repeat Series M/N (F3) <input style="width: 100px;" type="text" value="AGN"/> </div> <div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 5px;"> Repeat QTC (F8) <input style="width: 100px;" type="text" value="AGN"/> </div> <div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 5px;"> Repeat Time (F5) <input style="width: 100px;" type="text" value="TIME"/> </div> <div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 5px;"> Repeat Call (F6) <input style="width: 100px;" type="text" value="CALL"/> </div> <div style="border: 1px solid #ccc; padding: 5px;"> Repeat Serial (F7) <input style="width: 100px;" type="text" value="NR"/> </div>
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The QTC tab of the Message panel defines messages specific to sending and receiving QTCs in the Worked All Europe DX Contest.

Some QTC messages are sent automatically as described in [QTC Series](#). Others that have a function key in their label are sent when you press that key while the QTC Series window is active.

The Begin series message automatically appends the series number and count so you will should include a space at the end the definition for that message.

## QTC SSB Messages

SSB | QTC(CW) | QTC(SSB) | Special Keys

These items define the radio DVR number to play in SSB mode when you choose an item in the Messages menu. Set the number to zero for unused messages. Do not change the roles of the first four messages if you use any compound message that includes any of those four basic messages, such as Magic Message, Begin QSO, and End QSO.

CQ	1	?	5
Exchange	2	Short Acknowledge	6
Acknowledge	3	Defend	7
My Call	4	User 1	8

This tab in Messages settings defines settings for QTC messages used by the [Voice Keyer](#).

## Special Keys Messages Settings

SSB | QTC | **Special Keys**

These special keys are single-key shortcuts for message sending. They are recognized only when a QSO data entry text field has keyboard focus. You can leave the definitions empty for any of the commands that you do not intend to use via this mechanism. To define a special key, type any single character that isn't otherwise used in QSO data entry.

Stop Sending	<input type="text"/>	His Call + Exchange	<input type="text"/>
Magic Message V1	<input type="text"/>	Exchange + Log	<input type="text"/>
CQ	<input type="text"/>	Short Acknowledge + Log	<input type="text"/>
Exchange	<input type="text"/>	Acknowledge + Log	<input type="text"/>
My Call	<input type="text"/>	His Call + Acknowledge + Log	<input type="text"/>
Begin QSO	<input type="text"/>	End QSO	<input type="text"/>

☐ Ignore Special Keys in Immediate Morse Mode

The Special Keys tab of the Messages panel defines single-key shortcuts for messages.

These keystrokes are recognized only when a QSO data entry text field has keyboard focus. You can leave the definitions empty for any of the commands that you do not intend to use via this mechanism. The accepted special characters are ` [ ] \ ; ' : " < > § with the last five being less convenient as they may require holding the shift key.

*Hint:* Begin QSO and End QSO are the most powerful of these items. Assign them to semicolon and apostrophe, respectively.

## Other Messages Settings

Radio 1 CW beacon CQ delay:	<input type="text" value="3.4"/> sec	<input checked="" type="checkbox"/> Correct mode
Radio 1 SSB beacon CQ delay:	<input type="text" value="4.0"/> sec	<input checked="" type="checkbox"/> Typing stops CQ
Radio 2 CW beacon CQ delay:	<input type="text" value="4.0"/> sec	<input checked="" type="checkbox"/> CQ changes focus to Run
Radio 2 SSB beacon CQ delay:	<input type="text" value="4.0"/> sec	<input checked="" type="checkbox"/> Send leading zeros in serial numbers
		<input checked="" type="checkbox"/> Cutify leading zeros in serial numbers
		<input type="checkbox"/> Enable message chaining
Magic Message Protocol:		Off <input type="button" value="v"/>

The Beacon CQ Delay values set the interval between the end of a CQ message and the beginning of the next CQ when Beacon CQ mode is on. The delay for FSK and PSK messages is fixed at 5 seconds.

**Correct mode** sends the received call before logging if it was changed after it was sent.

**Typing stops CQ** aborts the primary CQ message and pauses Beacon CQ mode when you type into a QSO entry field for the entry pane with transmit focus.

**CQ changes focus to Run** automatically switch transmit to Run before sending the CQ message. This option does not apply for 2T2R. When Pounce has transmit focus and switching to Run causes a band change, SkookumLogger waits 1 second before beginning to send the CQ message.

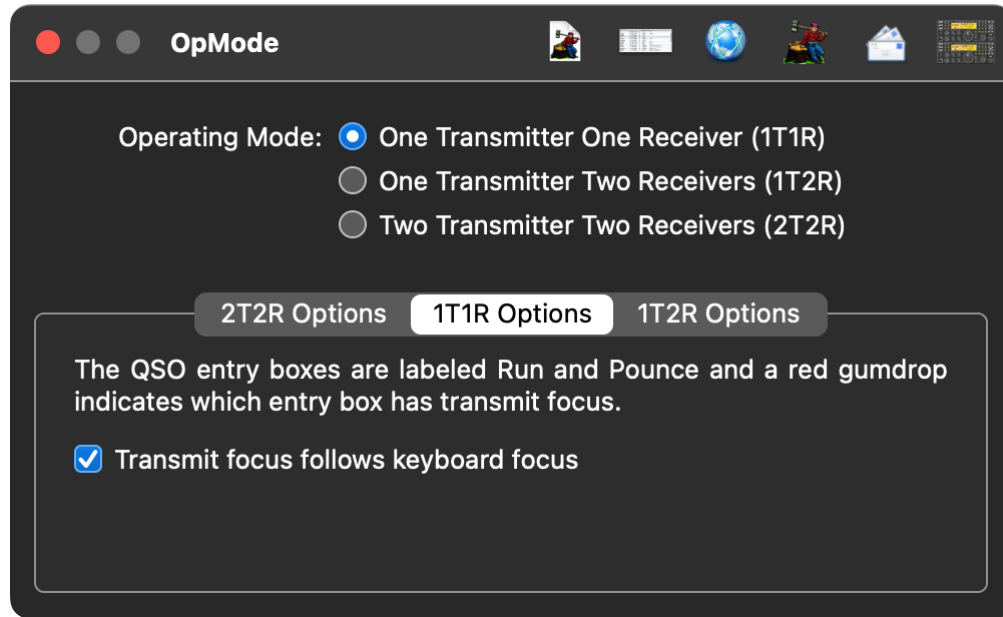
**Send leading zeros in serial numbers** prepends zeros as needed to sent serial numbers smaller than 100. This is a convention in European DX contests.

**Cutify leading zeros in serial numbers** sends T instead of a zero for prepended digits.

**Enable message chaining** queues a message when you tap a send key while a message is already sending. Turn this off to ignore sent key presses while a message is sending, which can be important in keyboard-intensive operating scenarios like 2BSIQ.

**Magic Message Protocol Version** chooses which of two [protocols](#) is active.

## Operating Mode Settings



The OpMode panel chooses your operating mode and sets related properties.

**Operating Mode** – Selects one of three operating modes. The tab panes below the radio buttons contains settings for the selected mode when you change the mode. You can change the tab without affecting the selected mode.

### 1T1R Options

**Transmit focus follows keyboard focus** – Changing keyboard focus also changes transmit focus so that both are always associated with the same QSO entry pane.

### 1T2R Options

**Transmit focus follows keyboard focus** – Changing keyboard focus also changes transmit focus so that both are always associated with the same QSO entry pane.

### 2T2R Options

**Grab Spots to transmit/not transmit radio** – Normally, double-click on an activity copies the activity to the Radio 1 pane and shift-double-click copies to the Radio 2 pane. This option changes the target QSO entry boxes to the pane with transmit focus and the pane without transmit focus respectively.

## Contest Rules

When you create a new log, you choose a contest name, thereby defining the rules that SkookumLogger applies as you log QSOs. The rules determine whether or not a QSO is valid, whether or not a QSO is a multiplier, and the point value for a QSO. The results of applying the rules to a QSO are indicated by checkmarks in columns in the table of QSOs in the Log window:

- ◆ D indicates a duplicate QSO
- ◆ SQ indicates a suspect QSO
- ◆ C indicates a country multiplier
- ◆ G indicates a grid multiplier
- ◆ O indicates an other multiplier
- ◆ P indicates a prefix multiplier
- ◆ R indicates a region multiplier
- ◆ Z indicates a zone multiplier

Columns for multipliers that do not apply for the current contest are automatically hidden. The set of available multipliers of each kind is usually determined by tables built into SkookumLogger. Many tables are contest-specific; for example, there is a table listing all of the Dutch provinces for the PACC contest. The Other multiplier type is used in two cases: when the multiplier doesn't fit into one of the other five type (e.g., unique callsigns), or when an event has two multiplier tables of the same type.

The suspect flag indicate that something in the QSO confuses SkookumLogger. You can find out why SkookumLogger is confused by selecting the QSO in the table and choosing **Log > Explain Suspect QSOs**.

Every contest sponsor publishes information describing the format of their event. Use **Help > Contest Rules Summary** to view the relevant WA7BNM web page. That page contains a link to the relevant sponsor's web page.

All contests involve exchange of specified information in order to complete a valid QSO. Each QSO involves a sent exchange and a received exchange; they may have different components. Both exchanges always contain a *Call* component. In SkookumLogger, the remaining components of an exchange can be any combination of zero or more of these types:

- ◆ *Serial* is a non-negative number
- ◆ *Precedence* is a single letter, unique to the ARRL Sweepstakes event
- ◆ *Check* is a two-digit number representing either year-first-licensed or age
- ◆ *Name* is what you would expect
- ◆ *Grid* is a Maidenhead locator, 6 or 4 characters
- ◆ *Info* is a contest-specific bit of information, typically a region code such as state or district

- ◆ *Power* is unique to the ARRL DX event
- ◆ *Club name* is unique to the RSGB Club Calls event
- ◆ *Club status* is also unique to the RSGB Club Calls event
- ◆ *Zone* is either CQ or ITU zone number

In addition to these exchange components, each QSO may have sent and received signal *Report* fields.

SkookumLogger has different input text fields for each kind of component, presenting only those fields relevant to the selected contest type. Input fields do some testing of key presses, usually converting alphabetic characters to uppercase and quietly ignoring characters that make no sense for the type of field; for example alphabetic characters typed into a serial number field.

Some contests specify different exchange content depending on the locations of the QSO participants. For example, the LZ DX Contest expects ITU zone or LZ district. SkookumLogger uses the info field type in these cases, usually along with intricate code to deduce the meaning of the entered value in order to track multipliers.

### Incomplete Rules

SkookumLogger doesn't support some of the more esoteric scoring schemes invented by contest sponsors, including:

- ◆ QSOs with /mm stations
- ◆ Fractional point multipliers
- ◆ Cabrillo categories not specified in the Cabrillo standard
- ◆ DX-to-DX QSOs in the ARRL 160 Meter Contest
- ◆ Satellite QSOs
- ◆ ARRL Field Day bonuses
- ◆ Multi-band over multiple days format (RSGB Xmas Cumulatives)
- ◆ District code multipliers which can be worked more than once for multiplier credit (RSGB 144 & 432 Low Power)
- ◆ Mandatory off period of 1 hour between band sessions (RSGB 80/40m QRP)

Most QSO party names include either "In" or "Outside" indicating their location-dependent support.

Other cases include cases where nobody has asked and I do not or cannot enter myself:

- ◆ ES-Open HF Championship does not support entrants in ES
- ◆ Hungarian DX Contest does not support entrants in HA
- ◆ His Majesty The King of Spain Contest does not support entrants in EA
- ◆ LZ DX Contest does not support entrants in LZ



- ◆ North American QSO Party may not support entrants outside North America
- ◆ OK-OM DX Contest does not support entrants in OK or in OM
- ◆ Dutch PACC Contest does not support entrants in PA
- ◆ RDA Contest does not support entrants in UA
- ◆ French HF Championship does not support entrants in F or in French territories
- ◆ Russian DX Contest does not support entrants in UA
- ◆ UBA DX Contest does not support entrants in ON
- ◆ UBA Spring Contest does not support entrants in ON
- ◆ Ukrainian DX Contest does not support entrants in UR
- ◆ YO DX HF Contest does not support entrants in YO

Ask if you would like support added for one of these cases.

### Generic Rules

In cases where SkookumLogger doesn't support a particular contest, you may be able to use one of the following generic rules sets. These support logging QSOs, checking for dupes, and generating a Cabrillo file. They also track certain kinds of multipliers, but of course do not compute a proper score.

#### *Generic Serial Number Contest*

This contest type provides limited support for logging in contest involving serial numbers.

- ◆ The sent and received exchange fields are Call, Report, Serial, and Info.
- ◆ The Info field may be used to capture another exchange element; it is not checked by SkookumLogger and is pre-filled with two hyphens.
- ◆ QSOs count per-band and per-mode. Multipliers count per-band and per-mode.
- ◆ Multipliers are DXCC countries.

#### *Generic Info Contest*

This contest type provides limited support for logging in contest with one arbitrary exchange field.

- ◆ The sent and received exchange fields are Call, Report, and Info.
- ◆ The Info field may be used to for any text and is not checked by SkookumLogger.
- ◆ QSOs count per-band and per-mode.
- ◆ There are no multipliers.

#### *Generic Grid Square Contest*

This contest type provides limited support for logging in contest involving grid squares (Maidenhead locators).

- ◆ The sent and received exchange fields are Call, Report, Grid, and Info.
- ◆ The Grid field expects six characters.
- ◆ The Info field may be used to capture another exchange element; it is not checked by SkookumLogger and is pre-filled with two hyphens.
- ◆ QSOs count per-band and not per-mode.
- ◆ Multipliers count per-band and not per-mode.
- ◆ Multipliers are the grid square (the first four characters of the Grid field).

### Generic QSO Party

This contest type provides limited support for logging in QSO Parties.

- ◆ The sent and received exchange fields are Call, Report, and Info.
- ◆ The Info field is expected to contain county, US state or Canadian province codes, or "DX".
- ◆ QSOs count per-band, per-mode, per-received-county, and per-sent-county.
- ◆ Multipliers are Counties (O column in the log table, Other checksheet), US States and Canadian Provinces (R column, Region checksheet), and DXCC countries (C column, Countries checksheet). K, KH6, KL, and VE do not count as country multipliers.
- ◆ When the received call is a US station, the received Info value is analyzed to determine state and county using these rules (otherwise the multiplier is determined from the call):
  - ❖ If Info has two characters, it is a state abbreviation
  - ❖ Otherwise if Info has at least three characters:
    - ❖ If the first two characters are a valid state code, they identify US State
    - ❖ Otherwise if the last two characters are a valid state code, they identify US State
    - ❖ Otherwise the QSO is marked SQ (unknown state)
  - ❖ County and county-state abbreviations are not validated.

*Note:* The complexity of these rules is needed to detect both state and county multipliers for the same QSO. It has a problem with Info like 'CARNH' – it determines that I am in CA instead of NH. If you care, you can work around that by flipping the received info to the canonical order: NHCAR, but that is likely to disturb the contest sponsor when you submit your log.

### Nontests

SkookumLogger has a set of rules in the Nontest group. These provide support for events that either have no scoring or have no adjudication. These rules support events of possible interest to testers, but which are not really contests. Yes, I know ARRL Field Day should be in this group.

### General Logging

You may find this module useful if you want to use SkookumLogger for casual operation outside contests.

- ◆ The sent exchange includes Report, Info and Power fields.
- ◆ The received exchange includes Report, Info, Name, Precedence and Notes fields.
- ◆ All SkookumLogger bands are accepted.
- ◆ QSOs are per-band and per-mode.
- ◆ Multipliers are per-band and per-mode from the CQ country list.

This module is in no way meant to substitute for an awards-tracking logger.

### *Special Event Station*

Use this module for expedition-style logging.

- ◆ The sent exchange is signal report.
- ◆ The received exchange fields are Report and Notes.
- ◆ All SkookumLogger bands are accepted.
- ◆ QSOs are per-band and per-mode.
- ◆ Multipliers are per-band and per-mode from the CQ country list.

### Changing a Log's Rules

This is an advanced feature intended for two specific situations.

- ◆ You open an old log and SkookumLogger reports that it does not recognize the log's contest name.  
In order to proceed, SkookumLogger sets the contest name to General Logging to preserve all of the other information in the log file. To assign new rules to this log, use **File > Change Log's Contest Rules** to show a window for choosing a replacement contest name with rules compatible with the old log.
- ◆ You operate in two or more QSO parties with overlapping time periods, using one log. Of course, you log what you hear, even though you know some of the QSOs won't count for some of the events.  
After the contests are over, you can use **File > Change Log's Contest Rules** to see the Score breakdown for each contest. For example, I use NEQP Inside during the weekend when DEQP, INQP and 7QP are also active. To score the log for the other three contests, I change rules to DEQP Outside, INQP Outside, and 7QP Outside respectively. You can do this in any order and any number of times. Submit the same log to the contest sponsors; they will ignore QSOs that do not apply for their contest.

Results are undefined if you choose an incompatible rules set. Incompatible means the exchanges are different for the existing log and the changed-to log. This is reported with a message in the Status Messages window.

## Entry Formatting Rules

Each kind of entry field has a list of acceptable characters; when you type a character not on the list it is removed from the entry field and tested to see if it is a special key. Note that accepted characters cannot be special keys.

The Grid and Report fields have lists that depend on the position of each character, which can cause unexpected behavior when you edit an entry. For example, if you try to change a report from 599 to 499 by moving the cursor to the right of the 5 and pressing delete, the 5 is not deleted. The reason is that deleting the 5 would change the entry to 99, and the first character in a report must be between 1 and 5. In this example, the 5 is selected when you try to delete it, so just type a 4 to complete the edit. Similarly, you cannot delete any character in the Grid field except the last character; but the character that you are attempting to replace will be selected instead of deleted so that you can overwrite it to complete the edit in the same number of keystrokes.

Formatters for all entry fields convert characters that you define as special keys into commands, discarding the typed character. If Keyboard Mode is enabled, all characters are diverted to the keyer. Many formatters apply rules for converting characters to other characters, such as changing lowercase letters to uppercase letters.

### Call

- ◆ Converts to uppercase
- ◆ Accepts 0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ\*,./?°:

### Check

- ◆ Converts to uppercase
- ◆ Accepts 0123456789ABCDEF
- ◆ Also used for age, ARRL FD entry class

### Club Code

- ◆ Converts to uppercase
- ◆ Accepts ABCDEFGHIJKLMNOPQRSTUVWXYZ-

### Club Status

- ◆ Converts to uppercase
- ◆ Accepts HQ CM NC

### Grid

- ◆ Converts to uppercase
- ◆ For characters 1, 2 accepts ABCDEFGHIJKLMNOPQR
- ◆ For characters 3, 4 accepts 0123456789
- ◆ For characters 5, 6 accepts ABCDEFGHIJKLMNOPQRSTUVWXYZ

## Info

- ◆ Converts to uppercase
- ◆ When the content might be a serial, converts A to 1, E to 5, N to 9, O and T to 0
- ◆ Accepts 0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ/-

## Name

- ◆ Converts to capitalized string
- ◆ Accepts ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz\_

## Notes

- ◆ Performs no conversions
- ◆ Accepts all alphanumeric, punctuation, symbol characters and the space character
- ◆ Special Key definitions are not recognized

## Power

- ◆ Converts to uppercase, A to 1, E to 5, N to 9, O and T to 0

## Precedence

- ◆ Converts to uppercase
- ◆ Accepts ABMSQU

## Report

- ◆ Converts to uppercase, E to 5, N to 9
- ◆ For character 1 accepts 12345
- ◆ For characters 2, 3 accepts 123456789

## Serial

- ◆ Converts to uppercase, A to 1, E to 5, N to 9, O and T to 0
- ◆ Accepts 0123456789

## Zone

- ◆ Converts to uppercase, A to 1, E to 5, N to 9, O and T to 0
- ◆ Accepts 01234567890

## Focus QSO Entry Service

SkookumLogger creates an item named Focus QSO Entry that shows up in the General category of your Services menu when SkookumLogger is running. Choosing the item makes SkookumLogger the active application and sets keyboard focus in the most-recently-focused QSO data entry field. You can define a keyboard shortcut for the service in System Settings > Keyboard > Keyboard Shortcuts... > Services. Sometimes the keyboard shortcut is not recognized after starting SkookumLogger until after you choose the service at least once from the Services menu.

## Focus Ring Animation

In macOS the text entry field with keyboard focus has a thick blue (or gray) border. When keyboard focus changes to another text entry field, the border briefly pulsates, presumably to help you find the newly-focused item. If you find this animation annoying you can shut it off by typing this command in Terminal:

defaults write -globalDomain NSUseAnimatedFocusRing -bool NO

You will need to restart SkookumLogger after changing the default. Type the same command with NO replaced by YES to turn animation back on.

## Shortcut Key Symbols

Menu items may show a keyboard shortcut, using symbols for special keys.

⌫ escape key

⇧ tab key

↵ return/enter key

⌘ command key

⌥ option key

⌞ control key

⇧ shift key

⌫ delete key

← left arrow key

→ right arrow key

↑ up arrow key

↓ down arrow key

⌞ home key (fn ←)

⌞ end key (fn →)

⌞ page up key (fn ↑)

⌞ page down key (fn ↓)

The Apple wireless and laptop keyboards do not have dedicated keys for the last four items; instead those four items are accomplished by holding the fn key in combination with an arrow key as indicated in parentheses.



## Default Menu Item Shortcuts

SkookumLogger > Settings... ⌘,  
 SkookumLogger > Hide SkookumLogger ⌘H  
 SkookumLogger > Hide Others ⌘⌘H  
 SkookumLogger > Quit SkookumLogger ⌘Q

File > New Log... ⌘N  
 File > New Log From Existing... ⌘N  
 File > Open Log... ⌘O  
 File > Toggle Recent Log ⌘R  
 File > Save Log ⌘S  
 File > Save Log As... ⌘S  
 File > Close Window ⌘W

Edit > Undo ⌘Z  
 Edit > Redo ⌘Z  
 Edit > Cut ⌘X  
 Edit > Copy ⌘C  
 Edit > Paste ⌘V  
 Edit > Complete ⌘⌘  
 Edit > Select All ⌘A

Log > Log QSO ↵  
 Log > Correct Last QSO ⌘\  
 Log > Delete Last QSO ⌘⌘  
 Log > Explain Selected Suspect QSOs ⌘/  
 Log > Focus Log Search Field ⌘F10  
 Log > Focus Log Table ⌘F11  
 Log > Focus Run QSO Entry ↑  
 Log > Focus Pounce QSO Entry ↓  
 Log > Toggle QSO Entry Focus F12  
 Log > Focus Transmit Run ↵  
 Log > Focus Transmit Pounce ↵  
 Log > Toggle Transmit Focus ⌘F12  
 Log > Clear Focused QSO Entry F11  
 Log > Clear Unfocused QSO Entry ⌘F11  
 Log > Copy Run to Pounce ⌘F9  
 Log > Copy Pounce to Run ⌘F9  
 Log > Copy Focused to Unfocused ⌘⌘F9  
 Log > Grab Partner Call F9

Log > Toggle Gab ⌘G

Log > Begin QTC Series ⌘L

Log > His Call + Begin QTC Series ⌘L

Activity > Announce ⌘=

Activity > Create ⌘=

Activity > Grab to Pounce (click) ⌘↵

Activity > Set Pounce (⇧-click) ⇧↵

Activity > Set SubRX (⌘-click) ⌘↵

Activity > Delete (⌘-click) ⌘⌫

Activity > Add to Reject List (⇧⌘-click) ⇧⌫

Radio 1 > Band > Radio 1 160m ⌘1

Radio 1 > Band > Radio 1 80m ⌘2

Radio 1 > Band > Radio 1 40m ⌘3

Radio 1 > Band > Radio 1 20m ⌘4

Radio 1 > Band > Radio 1 15m ⌘5

Radio 1 > Band > Radio 1 10m ⌘6

Radio 1 > Band > Radio 1 6m ⌘7

Radio 1 > Band > Radio 1 4m ⌘8

Radio 1 > Band > Radio 1 2m ⌘9

Radio 1 > RIT/XIT > Clear ⌘↵

Radio 1 > RIT/XIT > Reverse ⌘↵

Radio 1 > RIT/XIT > Offset Up ⌘↑

Radio 1 > RIT/XIT > Offset Down ⌘↓

Radio 1 > RIT/XIT > Toggle RIT On/Off ⌘↵

Radio 1 > RIT/XIT > Toggle XIT On/Off ⌘⇧↵

Radio 1 > VFOs > Copy A to B ⌘=

Radio 1 > VFOs > Copy B to A ⌘⇧=

Radio 1 > VFOs > Toggle Split ⌘F9

Radio 1 > VFOs > Exchange VFOs ⌘=

Radio 1 > VFOs > A Up ⇧⌘↑

Radio 1 > VFOs > B Up ⌘⇧↑

Radio 1 > VFOs > A Down ⇧⌘↓

Radio 1 > VFOs > B Down ⌘⇧↓

Radio 1 > Increase Bandwidth ⌘↑

Radio 1 > Decrease Bandwidth ⌘↓

Radio 1 > Increase Attenuation ^⇧↑

Radio 1 > Decrease Attenuation ^⇧↓

Radio 1 > Increase RF Gain ^↑

Radio 1 > Decrease RF Gain ^↓

Rotators > Stop All Rotators ⌘⌵

Messages > Abort ⌵

Messages > CQ F1

Messages > Beacon CQ ⌘F1

Messages > Alternating CQ ⌵⌘F1

Messages > Copy Pounce to Run + CQ ⌵F1

Messages > Exchange F2

Messages > Repeat Serial Number ⌘F2

Messages > Repeat Exchange ⌵F2

Messages > Acknowledge F3

Messages > My Call F4

Messages > His Call F5

Messages > Call? F6

Messages > ? F7

Messages > Again F8

Messages > Focus Pounce + My Call ⌵F4

Messages > Morse > Keyboard Mode ⌘K

Messages > Morse > Step Speed Up ⌘↑

Messages > Morse > Step Speed Down ⌘↓

Messages > Record Voice Message > Message 1 ^⌵⌘F1

Messages > Record Voice Message > Message 2 ^⌵⌘F2

Messages > Record Voice Message > Message 3 ^⌵⌘F3

Messages > Record Voice Message > Message 4 ^⌵⌘F4

Messages > Record Voice Message > Message 5 ^⌵⌘F5

Messages > Record Voice Message > Message 6 ^⌵⌘F6

Messages > Record Voice Message > Message 7 ^⌵⌘F7

Messages > Record Voice Message > Message 8 ^⌵⌘F8

Messages > Save Recording ^⌵⌘F11

Messages > Cancel Recording ^⌵⌘F12

Window > Activity Tables > Current Band ⌵⌘-

Window > Activity Tables > 160m ⌵⌘1

Window > Activity Tables > 80m ⌵⌘2

Window > Activity Tables > 40m ⌵⌘3

Window > Activity Tables > 20m ⌵⌘4

Window > Activity Tables > 15m ⌵⌘5

Window > Activity Tables > 10m ⌵⌘6

Window > Activity Tables > 6m ⌵⌘7

Window > Activity Tables > 4m ⌵⌘8

Window > Activity Tables > 2m ⌵⌘9

Window > Editors > Sent Exchange Editor ⌘E

Window > Editors > Morse Messages Editor ⌘M

Window > Editors > Data Messages Editor ⌘M

Window > Editors > Morse Speed Editor ⌘V

Window > Editors > Radio Frequency Editor ⌘C

Window > External Devices > Port Device Name Editor ⌘F

Window > Tools > Rate Tracker ⌘R

Window > Tools > Time Tracker ⌘T

Window > Tools > Score Breakdown ⌘S

Window > Tools > Grid Information ⌘G

Window > Tools > Pass Information ⌘P

Window > Tools > Status Messages ⌘I

Window > Maps > Zoom Great Circle Map In ⇧⌘=

Window > Maps > Zoom Great Circle Map Out ⌘-

Window > QTC Series ⌘L

## Changing Shortcuts

You can change the keyboard shortcut for any SkookumLogger command (menu item), or add a shortcut for a command that doesn't have one.

### Using macOS

*Note:* When you use this approach, the changes are lost when you move to another computer. If you use Keyboard Maestro instead, you can save your macros to a file and load that file into Keyboard Maestro on another computer.

To add a shortcut:

- ◆ Open System Settings > Keyboard > Keyboard Shortcuts... > App Shortcuts
- ◆ If SkookumLogger is present in the righthand list, select it.
- ◆ Click the + button
- ◆ Ensure that SkookumLogger is selected in the Application popup menu
- ◆ Enter the command name in the Menu Title box, spelled exactly as shown in the SkookumLogger menu. Case and special symbols matter.
- ◆ Type the keyboard shortcut
- ◆ Click Add

To change a shortcut, edit the command name or shortcut.

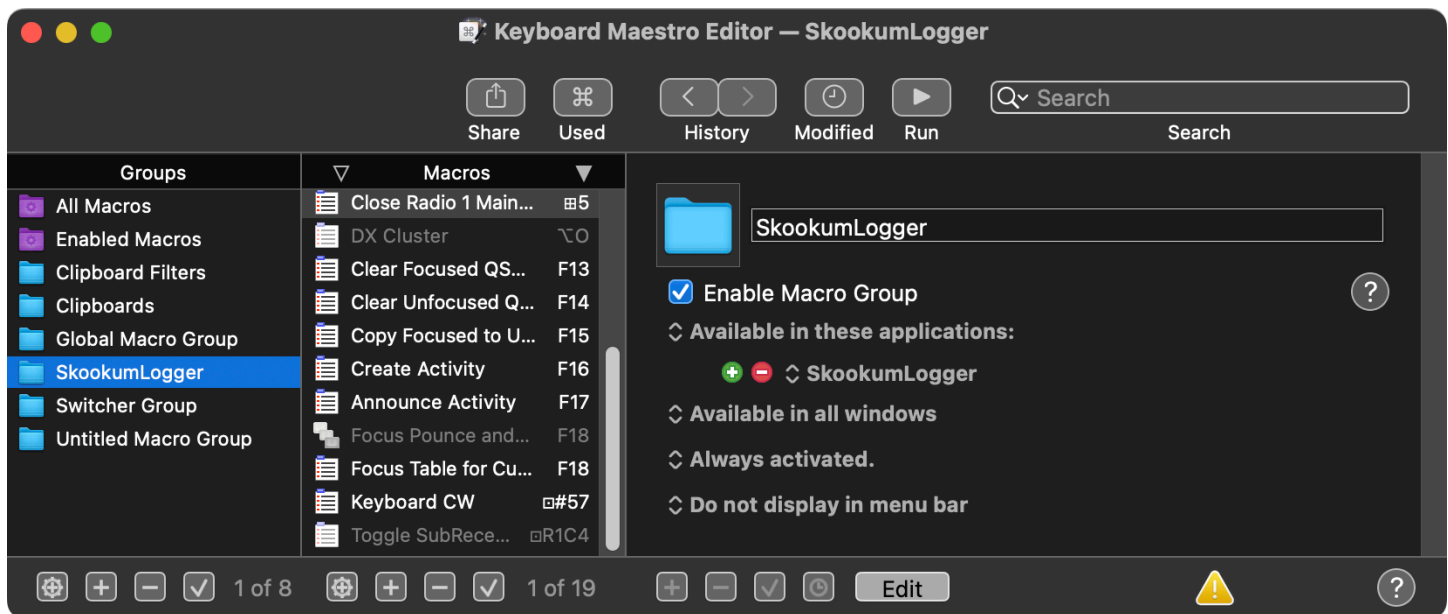
The shortcuts shown in the SkookumLogger menus will update to match your custom definitions.

*Note:* MacOS Sonoma (10.14) mysteriously corrupts user-defined shortcuts. In addition, this approach requires that all menu items in an application have unique titles, which is no longer the case for Panadapter items in SkookumLogger 4.7.

## Using Keyboard Maestro

Keyboard Maestro is a macOS application that, among other things, creates keyboard shortcuts that you can activate at any time. It is significantly more powerful than defining shortcuts for menu items in macOS Keyboard settings, in particular because it allows using keys aren't otherwise available, such as keys on extended keyboards and the caps lock key. And you can create macros that use a single key to perform several commands.

### Introductory Tutorial



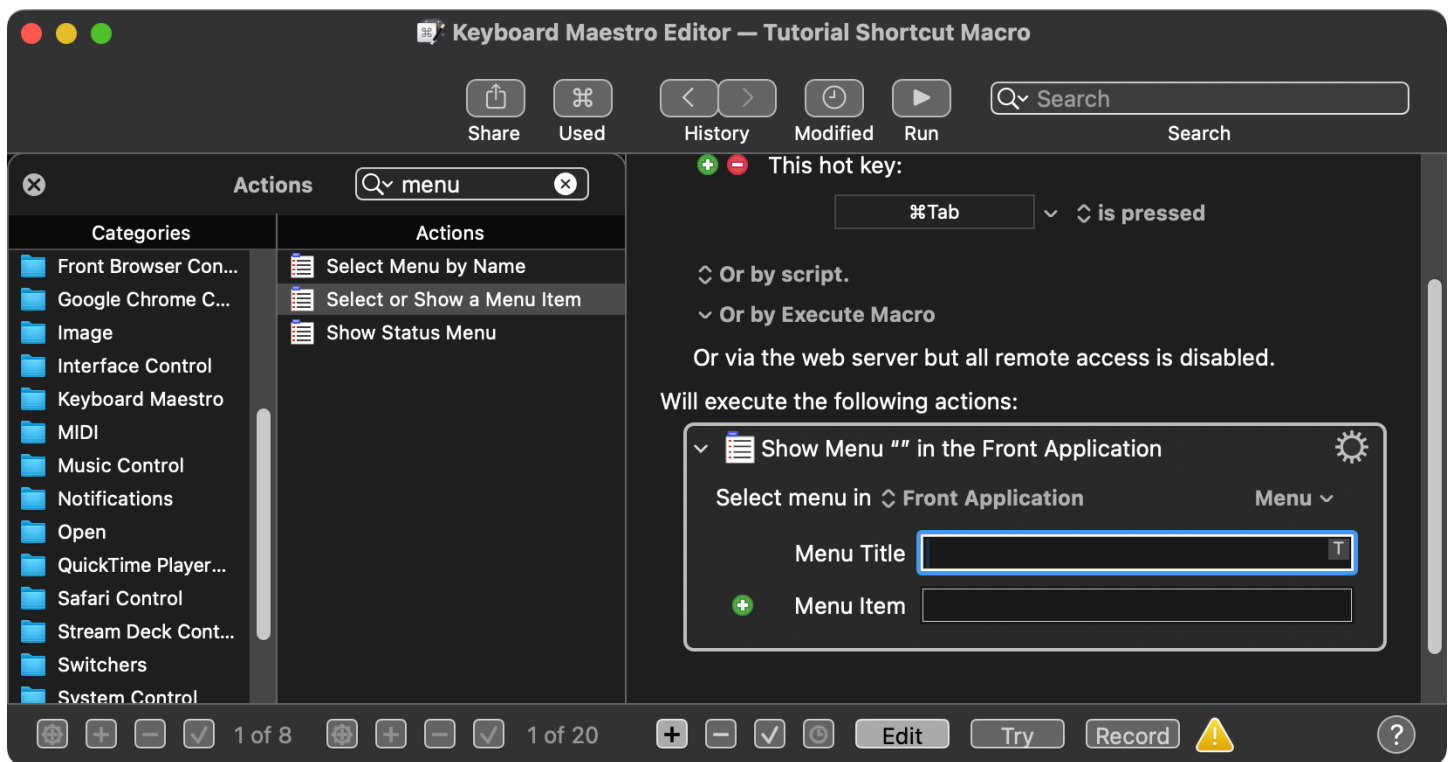
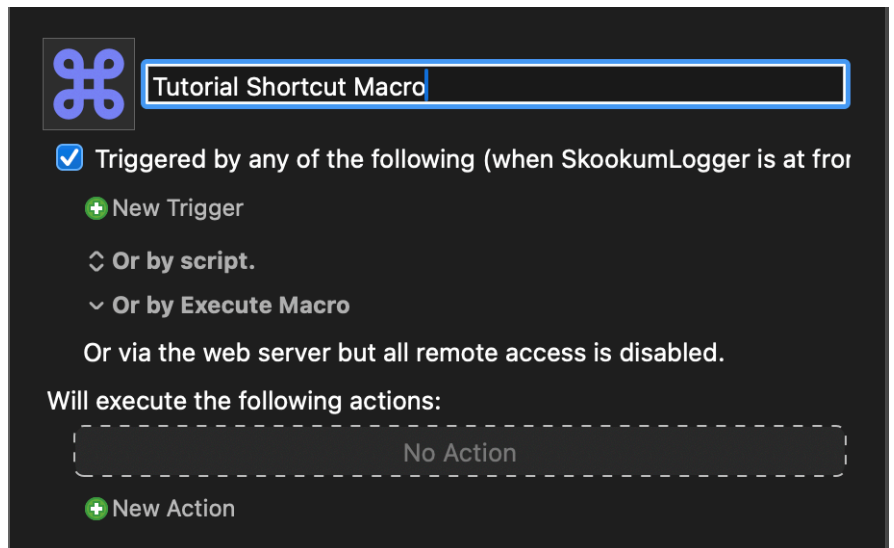
The first step is to add an item in the Groups list that will contain your shortcut macros for SkookumLogger:

- ✦ Click the + button at the bottom of the Groups list.
- ✦ Name the new group in the editor pane to the right of Groups and Macros lists.
- ✦ Click the green + button in the editor and choose SkookumLogger in the popup list of Applications.

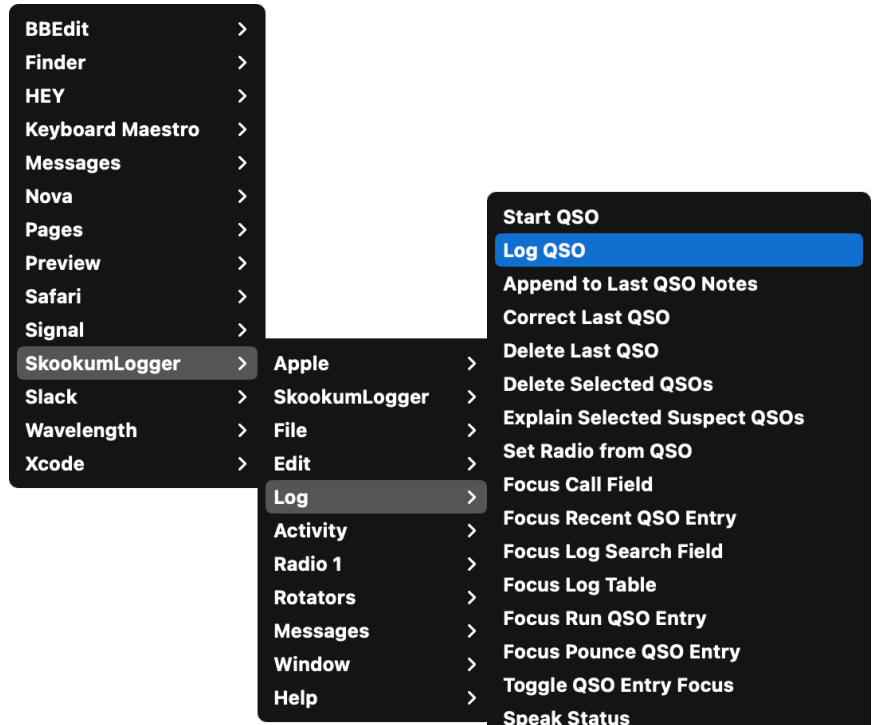
Shortcut macros that you add to this group will only apply to SkookumLogger, and only when SkookumLogger is the active application.

To create a shortcut macro:

- Click the + button at the bottom of the Macros list.
- Enter a name for the new macro.
- Click the green + button labeled “New Trigger” and choose “Hot Key Trigger” in the popup list.
- Enter a key combination in the “Type” field.
- Click the green + button labeled “New Action. The Groups and Macros lists are covered an Actions pane. Type menu into the search field at the top of the pane, then double click the “Select or Show a Menu Item” action.



- ◆ In the “Will execute the following actions:” box, choose SkookumLogger in the list following the “Select menu in” label. SkookumLogger must be running in order to appear in this list.
- ◆ Now click the Menu popdown list and navigate to the menu item in SkookumLogger that will be triggered by the hot key and click that leaf item. The Select menu in popup list will change to “SkookumLogger”. The Menu Title field will contain Log, corresponding to the Log menu in SkookumLogger. The Menu Item field will contain Log QSO, the selected leaf item in the Log menu. If there are submenus between the leaf menu item and the SkookumLogger main menu bar, Keyboard Maestro will include them in the action definition.



**Note:** To return close the Actions pane, click the x at the top left corner of the pane.

## Begin QSO Example Macro

Begin QSO sends a message that depends on whether transmit focus is Run or Pounce. Typically it is triggered by a “Special Key” in SkookumLogger. This macro uses the same trigger without needing the special key definition. I use a similar macro for End QSO.

Trigger:

Hot Key ; is pressed.

Action:

Messages > Begin QSO

## Focus Pounce and Send My Call Example Macro

This macro includes a Pause action between changing transmit focus and starting to transmit, to accommodate radios that don’t change frequencies or bands rapidly.

Trigger:

Hot Key F18 is pressed.

Actions:

Log > Focus Transmit Pounce



Pause for 0.01 seconds

Messages > My Call

### *Steal Frequency Example Macro*

Sometimes when doing S&P you find a good frequency to begin CQing. You want to copy the pounce frequency to the run frequency and change both keyboard focus and transmit focus to run. But there is no menu command for doing that.

Trigger:

Hot Key ⌘F19 is pressed.

Actions:

Log > Copy Pounce to Run

Log > Focus Run QSO Entry

I use the “Transmit focus follows keyboard focus” option to cause the transmit focus change.

### *Keyboard CW Example Macro*

Quickly toggling into and out of keyboard CW mode is important for those of us who prefer not to use a paddle (or would embarrass themselves trying to). The caps lock key is an ideal trigger for this action because it is otherwise unused in SkookumLogger, and because some keyboards have a indicator light on the key. In this case, instead of a Hot Key Trigger, use a “USB device key”.

Trigger:

The Magic Keyboard with Numeric Keypad Caps Lock key is pressed.

Actions:

Messages > Morse > Keyboard Mode

### *Focus QSO Entry Example Macro*

This macro makes SkookumLogger the active application and sets keyboard focus to the most recently focused QSO entry field. SkookumLogger installs an item in the Services menu that does the same thing, but a bug in macOS doesn’t recognize the shortcut for that item until after you choose it once in the Services menu – for each application, and for every time you start SkookumLogger. Add this macro to the Global Macro Group so that it works regardless of which application is active.

Trigger:

Hot Key F19 is pressed.

Actions:

Activate SkookumLogger.

Log > Focus Recent QSO Entry

I use F19 because it is at the top right corner of my keyboard where I can tap it without looking.



## Using Function Keys

macOS interferes with direct access to function keys, which you want to use for starting message transmission by tapping a single key. To avoid holding the fn key along with a function key:

- ◆ Open System Settings > Keyboard
- ◆ Tap the Keyboard Shortcuts... button
- ◆ Choose Function Keys in the sidebar
- ◆ Turn on the "Use F1, F2, etc, keys as standard function keys" option

To prevent system applications from intercepting function keys:

- ◆ Navigate to the sidebar as above
- ◆ Select Mission Control and uncheck the items that use F11 and F12
- ◆ Select Services and uncheck any items that use function keys

## Using a Mouse

SkookumLogger is designed to use your keyboard for nearly everything you do while contesting. However, there are tasks where it is more direct to grab your mouse (or position the cursor with your trackpad) and click on something. There are four important cases of these direct actions in SkookumLogger:

- ✦ Clicking on a QSO entry field makes that field the item with keyboard focus.
- ✦ Clicking on a row in an Activity table applies a command to that activity, with the command depending on which modifier keys are depressed when you click.
- ✦ Clicking anywhere inside a Great Circle Map applies a command using the click point coordinates, with the command depending on which modifier keys are depressed when you click.
- ✦ Clicking on a row in the Log table selects the row. Then click on cell in that row to select the content for editing.

## Uninstalling or Moving SkookumLogger

To completely uninstall SkookumLogger or to move it to another computer or user account, you need to know where SkookumLogger stores its settings and support files. Because SkookumLogger is “sandboxed”, the easiest approach is to erase or copy this folder and all of its contents:

~/Library/Containers/com.k1gq.SkookumLogger

The settings file path is:

~/Library/Containers/com.k1gq.SkookumLogger/Data/Library/Preferences/  
com.k1gq.SkookumLogger.plist

and the support files folder path is:

~/Library/Containers/com.k1gq.SkookumLogger/Data/Library/Application Support/  
SkookumLogger

Scripts recognized by the XK-24 Keyboard are located in:


~/Library/Application Scripts/com.k1gq.SkookumLogger/

## Ten Features to Improve Contest Operating

1. Use Practice Mode and use Magic Message in CW contests.
2. Tailor your own database files for auto-completion of exchange information.
3. Get slick with using S&P while running a frequency via Activity info and F12.
4. Use the rate information during the contest to remind you when to adapt strategy.
5. Use the Numbers export to analyse performance post-contest for next time.
6. Use appropriate filters on the DX Cluster and RBN facilities to target spots needed.
7. Keep an eye on the terminator line on the great circle map in appropriate contests.
8. When applicable, use checklists and activity windows to find obvious missing multipliers and search them out.
9. Use SCP information to narrow down likely call options on a busy/noisy band.
10. Use the pass information window to identify key stations to try moving to other bands for multipliers.

## Ten Keyboard Shortcuts to Remember

Note that shortcuts may be [redefined](#).

1.  – Messages > Abort
2.  $\mathcal{F}_{10}$  – Log > Focus Recent QSO Entry
3.  $\mathcal{F}_{11}$  – Log > Clear Focused QSO Entry
4.  $\mathcal{F}_{12}$  – Log > Toggle QSO Entry Focus
5.  $\mathbb{H}\backslash$  – Log > Correct Last QSO
6.  $\mathbb{H}-$  – Maps > Zoom Great Circle Map Out
7.  $\uparrow \mathbb{H} =$  – Maps > Zoom Great Circle Map In
8.  $\mathbb{H}\hookrightarrow$  – Activity > Grab to Pounce
9.  $\backslash \mathcal{F}_9$  – Log > Copy Pounce to Run (sets your run frequency to the pounce frequency) This can be useful if during tuning for S&P you find a clear run frequency, or if you want to quickly QSY to an apparent gap near someone you've clicked in the activity table to call QRL? and then CQ if clear. Alternatively, Log > Steal Frequency replaces Run frequency, mode, received exchange with Pounce frequency, mode, received exchange; clears pounce received exchange; transfers keyboard and transmit focus to Run; and positions cursor at end of call field content.
10.  $\uparrow \mathcal{F}_9$  – Log > Copy Run to Pounce

## Ten Useful Mouse Click Gestures

Ok so during a contest we don't want to resort to the mouse or trackpad very often, but there are cases where it is the best user interface. Here is a list of ten ways to use it if needed.

1. Hover the pointer over a label, text entry field, menu item, map, etc., to see a tooltip.
2. Click an entry in an Activity window:  
Loads activity to pounce and changes transmit focus to pounce.
3. Shift-click an entry in an Activity window:  
Loads activity to pounce but does not change transmit focus.
4. ⌘-click an entry in an Activity window:  
Deletes the activity from the table.
5. ⌘-click an entry in an Activity window:  
Sets the radio subreceiver (if supported) frequency to the activity's frequency.
6. Double-click in the notes field in a row of the main log table to enter note text for the QSO.
7. Click in any QSO Entry pane text field to transfer keyboard focus into that QSO Entry pane.
8. Click in any row of the QTC Series window table to focus that row for editing.
9. ⌘-click the great circle map to turn rotator 1 to the bearing of the clicked. Also hold the shift key to turn to the long path bearing.
10. Hold the shift key while dragging either GCM or Grid map to move it within the window.



## Useful Web URLs

This section provides some web references relevant to the material in this guide:

SkookumLogger: <http://www.k1gq.net/SkookumLogger/index.html>

Maps downloads: <https://www.k1gq.net/Maps/index.html>

SCP Database: <http://www.supercheckpartial.com>

Country Database: <http://www.country-files.com>

Spot Filtering: <http://www.nc7j.com/arcluster/arusermanual-6/AR-Cluster%20DX.html>

## FAQ: Problems

### Reporting a Crash

#### *First choice*

Use Console to find and send me the crash report:

- ◆ Open the Console app, from Applications > Utilities.
- ◆ Select Crash Reports in the sidebar.
- ◆ Select a crash report for SkookumLogger in the Process Name list.
- ◆ Click the Share button in the toolbar and choose the Mail option.
- ◆ Address the email to k1gq@hey.com.
- ◆ Set the subject to [SkookumLogger Crash] <contest name>.
- ◆ Add any details you can about what you were doing when the crash occurred and how to reproduce the crash.
- ◆ Send the email.

#### *Second choice*

If you can't find a crash report, send me an email with details about what you were doing when the crash occurred and how to reproduce the crash. List your macOS and SkookumLogger versions, which contest you were operating, and describe your hardware configuration including your computer model.

### Messages Don't Play

Sometimes message transmission gets stalled waiting for notification that something has been sent. A clue for this condition is that the color of the mode text is red, orange, or blue. The solution is to tap escape to clear out the message queue.

### Frequency is Zero

The frequency displays are zero when SkookumLogger is unable to communicate with a radio. In this case you can use text commands with the Phantom radio type to provide frequency and mode for logging QSOs.

### Radio 2 Doesn't Work

When you enable Radio 2, you won't see the radio frequency and mode or be able to control the radio unless you turn on 2T2R operating mode.

### Score is Zero

SkookumLogger ignores QSOs in your log that are marked as suspect when checking for duplicates and filling the Score table. See [Suspect QSOs](#) for more information about suspects.

A common cause of a suspect is logging a QSO at a time which is outside the contest period. Sometimes SkookumLogger guesses wrong for the start date or start time. You can use [Time Tracker](#) to edit these items if necessary. Or, use the **Do not test for Suspect times** option in [Logging settings](#).

## Window Layout is Forgotten

If you use multiple monitors with SkookumLogger and want to preserve window positions on all screens, turn off the Displays have separate Spaces option in System Settings > Desktop & Dock. Otherwise, macOS gathers all open SkookumLogger windows onto the same screen as the main window; that is a macOS feature. You may need to log out or reboot for the change in this preference to take effect.

## Missing Log Column

First, confirm that the name of the missing column is checked in the visibility popup menu (right-click on the table headings row). Then, make the window wider to reveal columns that may be outside the right edge of the window.

## Intermittent Hangs

If the spinning beachball cursor appears intermittently, try these steps to isolate the cause:

- ◆ Disconnect all serial devices.
- ◆ If the hangs stop happening, reconnect devices one at a time until you know which is causing the problem.
- ◆ Confirm that you have selected the correct port for the problem device.
- ◆ Confirm that the device serial comm parameters, especially the speed, are set to the values that SkookumLogger expects for the type of device you have selected.

Some functions normally can take long to complete that the beachball will appear, including:

- ◆ Rescoring a large log
- ◆ Creating a statistics report
- ◆ Merging large logs with SkookumNet

## Missing Serial Ports

If the popup menus do not list some (or any) of your serial ports, you will need to reboot your computer. Sometimes unplugging a USB-serial cable while the device is in use causes the driver to fail, affecting all devices that use that driver.

## Log Doesn't Reopen

If the most recent log does not open when you start SkookumLogger, and if that is not the behavior that you want, uncheck the Close windows when quitting an app option in the Desktop & Dock panel of System Settings.

### Radio Stuck in Transmit

Some radios can be configured to use the DTR or RTS lines in the serial connection to switch into transmit mode. SkookumLogger does not use these lines, but their default state might cause the radio to become stuck in transmit. You will need to find the appropriate setting in your radio and disable it. For example, the USB SEND setting in an IC-7610 needs to be OFF. Thanks NØEHX.

### Dupe Checking Doesn't Work

This can happen when one or more QSOs are marked SQ in the log table. See [Score is zero](#).

### Sent Serial Numbers are Messed Up

If you delete a logged QSO containing a sent serial number, that serial number will not appear in the Cabrillo file. Ignore contest rules that demand serial numbers must increment by 1.

SkookumLogger reserves the sent serial number as soon as you send it, instead of waiting until you log the QSO. This is necessary to log what you sent when interleaving QSOs, with the consequence that serial numbers may not increase chronologically in the Cabrillo file. Ignore contest rules that demand otherwise.

Serial numbers are generated separately for each station in SkookumNet. Some contests require that multi-station logs contain one serial number sequence for all stations; SkookumLogger does not support that rule.

Sent serial numbers do not affect your score breakdown in any way. Trust SkookumLogger to log what you sent, using the sent exchange message on CW and the sent exchange prompt on phone.

## FAQ: Terminology

### Assisted versus unassisted

Contest sponsors group entrants into numerous categories, based on various things such as transmit power level. One common category is based on whether or not the entrant makes use of information from internet spotting networks; those that do are “assisted” while those that do not are “unassisted.” In SkookumLogger, if you use the DX Cluster preference pane to connect to either a DX Spider Node (DX Cluster) or the Reverse Beacon Network (RBN), or if you utilize other sources of information (as defined by each individual contest’s sponsor) originating beyond your own station, you are in the assisted category.

### Pounce frequency

Contest operating involves two modes. In the Run mode, you CQ and exchange information with stations who answer your CQs. In the Search-and-Pounce mode, you find others who are CQ-ing and exchange information with them. Pounce frequency refers to the transmit frequency of a station that you have found in the Search-and-Pounce mode.

### Focus

“Focus” is a term used in computing that identifies which user interface element in an application handles keyboard entries. So “focus log” means “I want to type into the log (QSO Entry pane fields)”. “Focus activity table” means “I want keystrokes to be handled by the Activity table for the current band.” In the latter case, keystrokes affect the selected row in the table.

### Pass information?

In multi-band contests, a common strategy is to ask high-point-value stations that you are working to QSY to another band where they are needed by you (usually as a previously unworked band-multiplier). That strategy is called “passing”. The Pass Information window shows you the bands where you need the station being worked, so you know whether or not to ask for a QSY and where to go.

### Menu item shortcut key symbols

The symbols on the menu items are Apple-defined standards. A quick way to discover the association between the symbols and the keys on your particular keyboard is to open the Keyboard Viewer. That tool is available in the Keyboard menu near the right end of your menu bar at the top of the screen. If “Show Keyboard Viewer” doesn’t appear in that menu, then visit the Keyboard pane in Keyboard System Settings and check the Show Keyboard & Character Viewer box.

## FAQ: Users Coming From Another Logger

We all get used to the things that we are familiar with. Sometimes this is fine, while other times it restricts thinking as to whether we could improve or do something differently. This section tries to answer frequent questions that arise from users new to SkookumLogger but familiar with other contest loggers. In answering such questions, some of the philosophy of the author and contributors to SkookumLogger becomes apparent.

### Enter Sends Message

When designing SkookumLogger, it wasn't simply a case of copying over features from other contest loggers without consideration of whether they are necessary or could be improved. ESM is either loathed or loved and has to be switched on or off to please each type of user since it changes the behavior of the Enter key for everyone when switched on. GØDVJ designed [Magic Message](#) to improve upon this by providing a similar capability but which can exist alongside normal operation and used or ignored by users as they see fit. Magic Message can, optionally, use the return key for triggering sending of context-dependent messages.

### Call history files

The prime authors of SkookumLogger hold a view that apart from the de-facto standard country and SCP databases, pre-fills from databases should be used by the people that created them through their own effort, rather than effectively relying on crowdsourcing to save the operator any effort at all. The Exchange Archive feature in SkookumLogger effectively allows each user to build up his or her own database over time and various contests to pre-fill exchange information, without simply loading possibly unreliable lists of data passed around by others.

### Band maps

SkookumLogger's Activity windows are the equivalent of band maps, providing similar functionality. However, they allow additional sources of data to populate them compared to those of band maps, and the entries can be sorted in many ways (e.g., bearing). If you are used to graphical rather than textual formats of band maps, Activity windows do not provide this.

### Why not use the Radio's CW keyer?

Call type-ahead allows you to start sending your response to a caller when CQing without needing to enter the full call before you start the message. All you need to do is type the next character in the call before it is about to be sent. If you listen to expert CW operators, you will notice there is no delay between when a caller finishes sending their call and when the expert begins sending it in response. This is important not only because delays waste time, but because delays often stimulate callers – including other callers – to start sending their calls again, wasting more time.

To implement type-ahead, SkookumLogger needs cooperation from the keyer:

- ❖ The computer sends a character to the computer and returns to other tasks like handling call typing input.

- ❖ The keyer notifies the computer when it is beginning to “send” the space following the character.
- ❖ The computer determines the next character and sends it to the keyer before the space ends.

Radio keyers (CW encoders) don't provide this feedback.

### My IC-7610 isn't working with SkookumLogger

NØEHX did a lot of testing of the various setting in the CIV menu:

CI-V Baud Rate – Auto (Any setting works, but Auto works as well. This setting has nothing to do with CI-V over USB anyway.)

CI-V Address – 98h

CI-V Transceive – Either ON or OFF works with SkookumLogger

CI-V USB/LAN -> REMOTE Transceive Address – 00h (I honestly don't know what this one is for.)

CI-V Output (for ANT) – OFF

CI-V USB Port – Unlink from [REMOTE]

CI-V USB Baud Rate – Auto (This is important for SkookumLogger. Applications that use the pan adapter send feature must set CI-V USB Baud Rate to 115,200 but that setting will not work with SkookumLogger.)

CI-V USB Echo Bak – ON (This is needed for other apps and SkookumLogger works with it ON as well.)

### Can I use my MicroHAM device?

Most of the radios supported by SkookumLogger – if attached to a microHAM USB radio interface – should function the same as if directly connected to a serial/USB port. Other types of microHAM devices are not supported.

## Version History

Version	Date	SkookumLogger Version
0.1	18 Jan 2011	Initial draft for SkookumLogger version 0.11.4
0.2	21 Jan 2011	For SL v 0.11.6 after initial review by Bill K1GQ
0.3	27 Jan 2011	For SL v.0.11.8 & after review by G4FTP
0.4	1 Feb 2011	For SL v1.0.0 & after review by JH5GHM/1
0.5	7 Feb 2011	For SL v1.0.1
0.6	16 Feb 2011	For SL v1.0.2
1.1	10 Apr 2011	For SL v1.1.0 (version number harmonised with SL)
1.2	29 July 2011	For SL v1.2.0 (added WAEDC support etc)
1.2.3	7 Aug 2011	For SL v1.2.3 (added Mode/IOTA databases, FAQs, etc)
1.3	20 Sep 2011	For SL v1.3 (UI changes, guess-file update, serial refs)
1.4	15 Apr 2012	For SL v1.4 (Exchange db, partial support table, switch)
2.3	Jan 2019	For SL v.2.3 (complete rewrite to update to latest SL)
2.6	August 2020	For SL v.2.6 (external devices UI, fuzzy SCP, etc)
3.0	October 2020	For SL v3.0 (remove obsolete QTC, spot grab offset, and time search text comm discussions, update terminology and figures.)
3.5	June 2022	For SL v.3.5
4.0	August 2023	Merge content of Help Book and hint pages into the Guide to make it the single authoritative document.
4.1	2023-09-01	<p>Remove mention of WRTC 2022 QSO broadcasting and update Logging settings image.</p> <p>Clarify discussion of SQ and X-QSO.</p> <p>Replace Audio Recording chapter content to describe new feature.</p> <p>Improve the discussion of WinKeyers and emulations.</p> <p>Update the Log Window Components discussion in the Log Window chapter of the Advanced Operating section.</p> <p>Add list of all default menu item shortcuts.</p>



Version	Date	SkookumLogger Version
4.2		<p>Repair typos, fix missing links, clarify prose; pages 25 - 30.</p> <p>As above, pages 36 - 43.</p> <p>Revise Magic Message discussion for version 1, version 2 logic and use of return as trigger key.</p> <p>Add Problem FAQs for Radio 2 and Serial Numbers.</p> <p>Note that a Voice Over hotspot can be set for the QSO Status Information text items.</p>
4.3	2023-11-14	<p>Update Magic Message and Audio Recording topics</p> <p>Add note for MacOS 14.1 issue when showing Statistic and Rate Breakdown documents.</p> <p>Update Special Keys topic.</p> <p>Additional repairs for typos, missing links and clarity, pages 64 - 78.</p>
4.4	2024-01-10	<p>Repair typos, fix missing links, clarify prose; pages 87 - 99. AI6W</p> <p>Repair typos, fix missing links, clarify prose; Advanced Operating section. AI6W</p> <p>Add description of Repeat Exchange message.</p> <p>Delete the Unstack QSO Messages menu item.</p>
4.5	2024-03-13	<p>Revise discussion of CW encoders in Text Encode/Decode.</p> <p>NEQP exchange format changed from county-state to state-county.</p>
4.6	2024-04-26	<p>Fix link on page 2 to shortcut key symbols.</p> <p>Add documentation for Voice Keyer.</p> <p>Clarify K4 Mini-Pans discussion. Cover both mini-pan streams.</p>

Version	Date	SkookumLogger Version
4.7	2024-06-12	<p>Document voice synthesis for digits.</p> <p>Elaborate on 2T2R behavior and examples.</p> <p>Describe loading behavior for Countries and SuperCheckPartials databases.</p> <p>Document BadSCPCalls.txt in SuperCheckPartials topic.</p> <p>Elaborate on the {n message token in the Messages Editor topic.</p> <p>Clarify query messages (F6, F7 and F8) in Basic Messages topic, adopting changed default titles and content.</p> <p>Update graphics for Messages settings and editors.</p> <p>Revise all of the Panadapter chapter.</p> <p>Remove the Panadapters chapter in Advanced Operating section.</p>
4.8	2024-07-08	<p>Revise Advanced Operating &gt; Panadapters.</p> <p>Revise Advanced Operating &gt; Activities.</p> <p>Describe KPA1500 virtual antenna support in External Devices and Networking &gt; Antenna Switching.</p> <p>Add User Articles section for contributions by users.</p> <p>Describe behavior of tuning near an activity in Pounce mode when <i>Fills QSO entry from nearby activity</i> is on.</p>
4.9	2024-08-06	<p>Update the Hint in Matching a Caller's CW Speed. Thanks CT1DRB.</p> <p>Update Logging settings image and discussion of database options.</p> <p>Replace description of Magic Message Version 2 (ESM).</p>
5.0	2024-10-30	<p>Remove contact information for K1JSM.</p> <p>Add Default Antenna Configuration in Antenna Switching chapter.</p> <p>Add note about italic face for worked-before and zero-point call adornment.</p> <p>Document new <i>Enable message chaining</i> Messages setting.</p> <p>Revamp Practice Mode chapter to reflect new Practice 2 implementation.</p> <p>Improve discussion of KPA1500 antenna tuner setting feature.</p>

Version	Date	SkookumLogger Version
5.1	2024-12-27	<p>Clarify discussion of SO2R behavior. W6FB.</p> <p>Update list of Pan window Grab cursor behaviors.</p> <p>Document new UI for Radios.</p> <p>Update Voice Keyer documentation.</p>
5.2	2025-02-17	<p><a href="#">Note</a> change to default start date and duration for new logs with unknown calendar data. Add list of contests with unknown calendar data.</p> <p>Remove the "send to Apple" choice in the FAQ about reporting crashes.</p> <p>Update the <a href="#">SkookumNet</a> chapter to discuss finding and dealing with inconsistencies between net members.</p> <p>Document the new practice behavior setting PracticeClosestPouncerAlwaysReplies.</p> <p>Update the <a href="#">Using Keyboard Maestro</a> chapter.</p> <p>Update the Practice window image.</p> <p>Update the list of contests supported by Practice mode.</p>

### Guide ToDos

Scrub the Example Window Layouts chapter.

List supported radios and supported contests in Reference.

Improve use of links to bookmarks to reduce repetitive and possibly inconsistent content.

Watch for wrong font, spelling, punctuation errors.

Test links.

Scan each chapter for image layout issues; chapters always start on a new page so layout issues do not propagate beyond the end of a chapter.