

# **ZZALOG**

3.6.7

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# Chapter 1

## User Guide

ZZALOG is a logging application that provides the following functionality:

- Records QSOs in a logging database.
- Allows the database to be searched.
- Allows real-time and off-line entry of QSO records.
- Allows the user to monitor "worked-before" status in real-time.
- Exchanges data with QSL web-sites: eQSL.cc, Logbook of the World, QRZ.com and Clublog.
- Tracks the status of electronic and paper QSL cards and displaying images of received cards.
- Includes: a shack clock; weather report and band plan view.
- Interfaces with a number of modem applications: WSJT-X and FIDigi.

This document can be opened at any time from the menu or the toolbar:

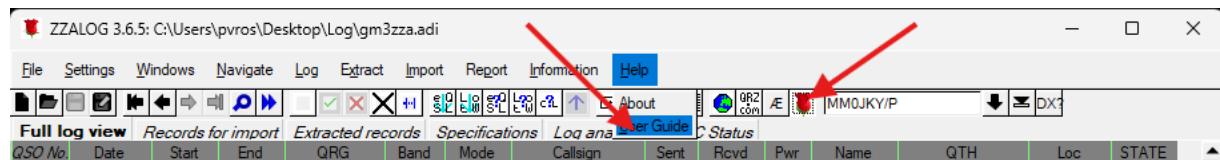


Figure 1.1 Opening Userguide

### 1.1 Contents

- Installation
- Quick-start Guide
- "How to" guide
- Application Details
- Reference Data
- Logbook data format

For help on any specific window or panel, click on it and press F1.

## 1.2 Acknowledgments.

ZZALOG uses the following third-party libraries:

- FLTK (<https://www.fltk.org/doc-1.4/index.html>): Graphical user interface library.
- Hamlib (<https://github.com/Hamlib/Hamlib/wiki/Hamlib>): CAT Interface library.
- Libcurl (<https://curl.se/libcurl/c/libcurl.html>): HTTP support library.
- JSON (<https://json.nlohmann.me/nlohmann/json>): JSON support library.

ZZALOG uses reference data from the following third-parties

- Clublog.org (<https://clublog.org>): Country data.
- Country-files.com (<https://www.country-files.com>): Country data.
- DxAtlas (<http://dxatlas.com>): Prefix data.

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## 1.3 Installation

### 1.3.1 Windows Installation

A file zzalog-3.6.7.msi is available from <https://sourceforge.net/projects/zzalog/>. Please follow instructions to install this. ZZALOG will be installed in "C:\Program Files\GM3ZZA\ZZALOG". Data used by ZZALOG will be installed in "C:\ProgramData\GM3ZZA\ZZALOG".

#### 1.3.1.1 Compiling from source

The source may be cloned from <https://github.com/pvrose/zzatools>. This includes an MSVC solution containing the project. However this has dependencies on the following libraries: FLTK, HAMLIB, LIBCURL and NLOHMANN/JSON and the flow to install these libraries has not yet been tested on a clean machine. The documentation also requires the use of Doxygen and again the flow has not yet been tested on a clean machine.

### 1.3.2 Linux Installation

ZZALOG is available in source form. It may be cloned from <https://github.com/pvrose/zzatools>. It has dependencies on the external libraries: fltk, hamlib, libcurl and nlohmann/json.

To compile:

```
cd [install directory]
make
```

To generate user guide:

```
make documents
```

To install:

```
make install
```

### 1.3.2.1 Reinstalling after a library change

To recompile and reinstall ZZALOG after a change to one of the external libraries:

```
cd [install directory]
make clean
make install
```

### 1.3.3 First-time Run

The first time ZZALOG is run, a dialog opens asking for station details. The selection can be either for a club station or an individual station. Select one or the other, then fill in the form.

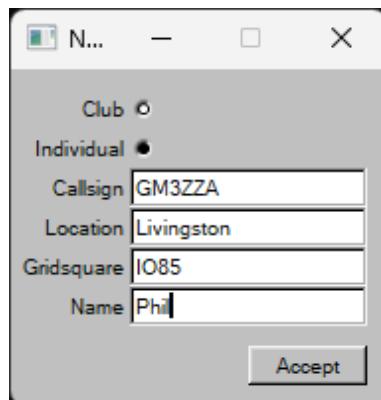


Figure 1.2 New installation

- **Callsign** the default station callsign to be used.
- **Location** an identifier to know the main station address by.
- **Gridsquare** the Maidenhead gridsquare locator - used for initially locating the station.
- **Name** the name of the usual operator.

Select "Accept" to proceed.

Dialogs then open to select:

- a directory to store QSL card images.
- a file to store the logbook. The name of the file will default to the station callsign.

### 1.3.3.1 Club Initialisation.

If the installation is for a club station, a dialog opens up to allow the user to enter the following:

- Club Name.
- Club callsign.
- Club location identifier.

This dialog also acts a login dialog when using ZZALOG. This allows the operator to enter

- Their nickname.
- Their name.
- Their callsign - this is required for logging.

The image below shows the completed dialog

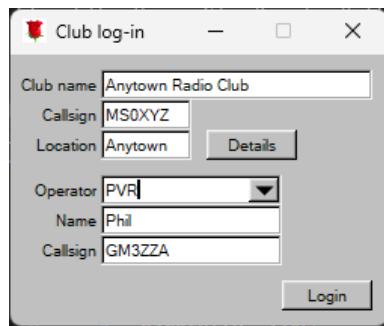


Figure 1.3 Club operator log-in dialog

The image above shows the completed dialog.

## 1.4 Quick-start Guide

### 1.4.1 Starting ZZALOG

On Windows, ZZALOG may be started by double clicking on the icon. It may also be started from a terminal by advanced users. On Linux, ZZALOG may be started by typing "zzalog" on a terminal.

On starting, a banner window is displayed:

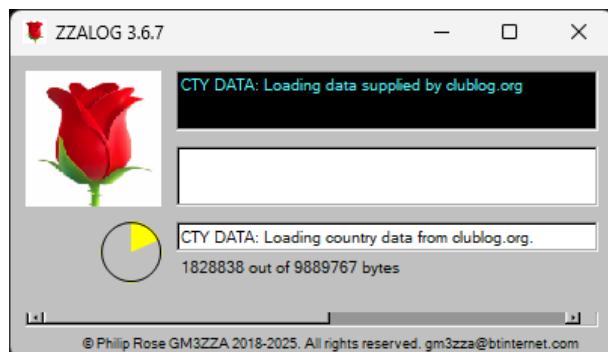
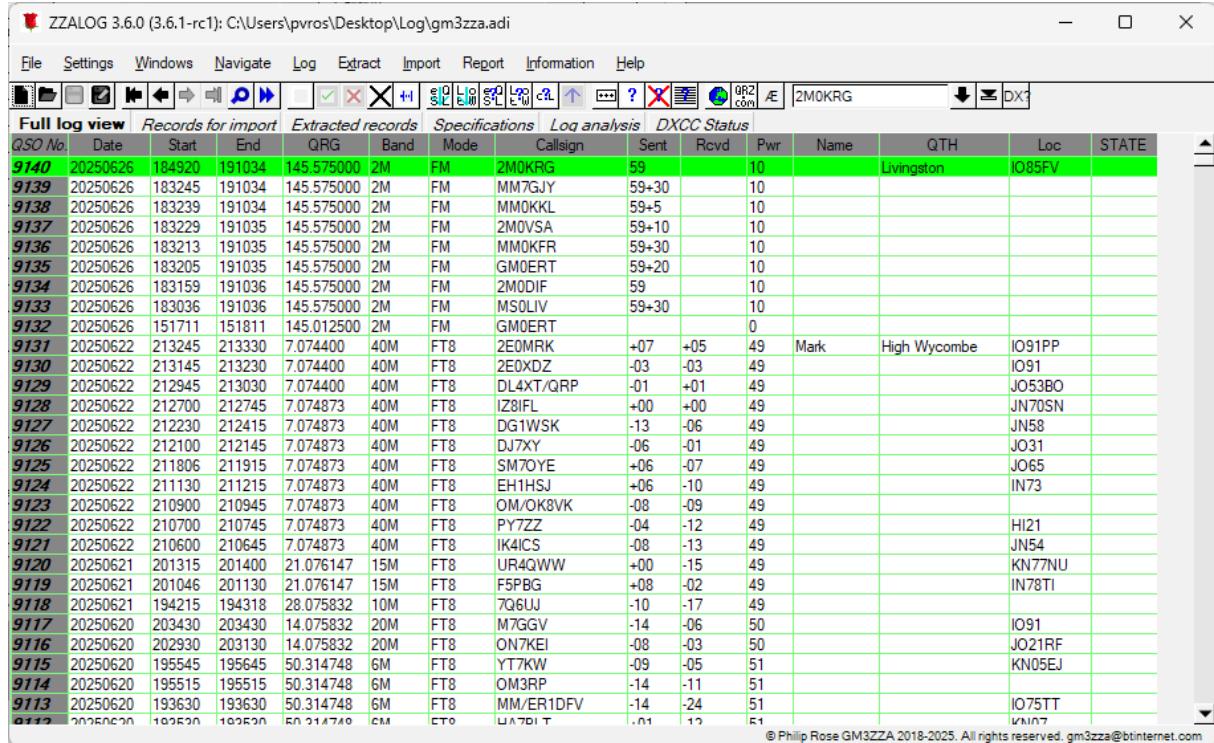


Figure 1.4 Program banner

The above image shows the progress of the application as it is loading all the data needed to run. This window shows the latest message output, the latest error message output and the progress of each stage. In the above image, the application is reading in the latest callsign parsing information file and the banner shows the progress in numerical form and in a clock dial form. See [Application Status Banner](#) Banner for more details.

Once ZZALOG has loaded then two or three more windows are displayed.

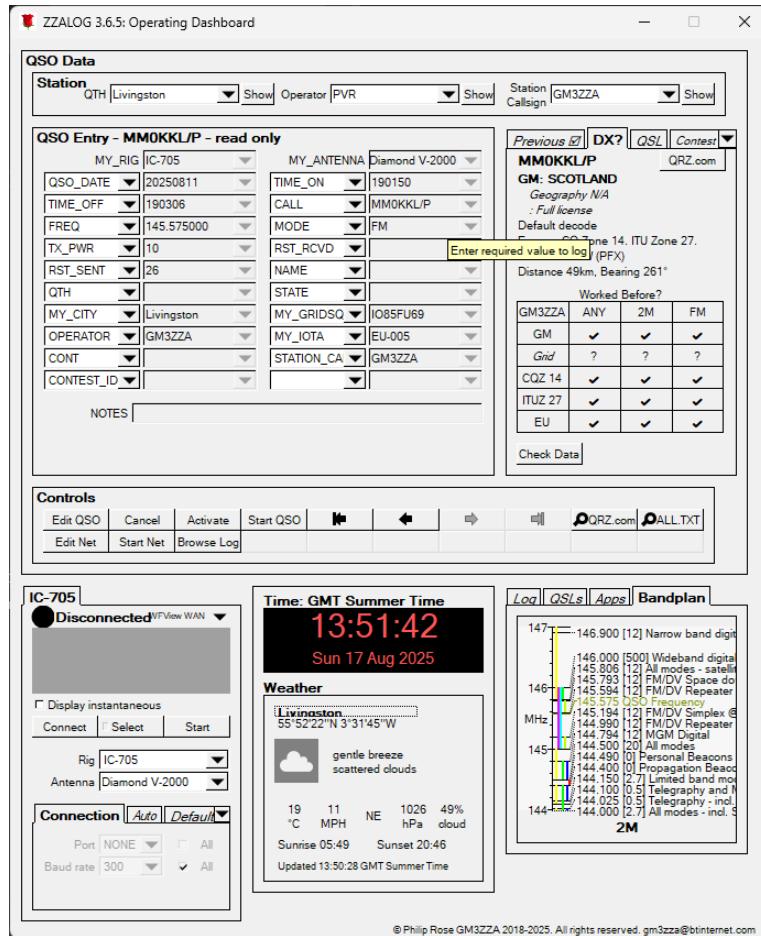


The screenshot shows the ZZALOG 3.6.0 logbook view window. The title bar reads "ZZALOG 3.6.0 (3.6.1-rc1): C:\Users\pvros\Desktop\Log\gm3zza.adl". The menu bar includes File, Settings, Windows, Navigate, Log, Extract, Import, Report, Information, and Help. Below the menu is a toolbar with various icons. The main area is a table titled "Full log view" with columns: QSO No., Date, Start, End, QRG, Band, Mode, Callsign, Sent, Rcvd, Pwr, Name, QTH, Loc, and STATE. The table contains numerous entries, mostly starting with "913" followed by a four-digit number. The last entry visible is "9113". The footer of the window displays the copyright notice: "© Philip Rose GM3ZZA 2018-2025. All rights reserved. gm3zza@btinternet.com".

QSO No.	Date	Start	End	QRG	Band	Mode	Callsign	Sent	Rcvd	Pwr	Name	QTH	Loc	STATE
9140	20250626	184920	191034	145.575000	2M	FM	2M0KRG	59	10		Livingston	IO85FV		
9139	20250626	183245	191034	145.575000	2M	FM	MM7GJY	59+30	10					
9138	20250626	183239	191034	145.575000	2M	FM	MM0KKL	59+5	10					
9137	20250626	183229	191035	145.575000	2M	FM	2M0VSA	59+10	10					
9136	20250626	183213	191035	145.575000	2M	FM	MM0KFR	59+30	10					
9135	20250626	183205	191035	145.575000	2M	FM	GM0ERT	59+20	10					
9134	20250626	183159	191036	145.575000	2M	FM	2M0DIF	59	10					
9133	20250626	183036	191036	145.575000	2M	FM	MS0LIV	59+30	10					
9132	20250626	151711	151811	145.012500	2M	FM	GM0ERT		0					
9131	20250622	213245	213330	7.074400	40M	FT8	2E0MRK	+07	+05	49	Mark	High Wycombe	IO91PP	
9130	20250622	213145	213230	7.074400	40M	FT8	2E0XZD	-03	-03	49			IO91	
9129	20250622	212945	213030	7.074400	40M	FT8	DL4XT/QRP	-01	+01	49			J053BO	
9128	20250622	212700	212745	7.074873	40M	FT8	I2B1FL	+00	+00	49			JN70SN	
9127	20250622	212230	212415	7.074873	40M	FT8	DG1WSK	-13	-06	49			JN58	
9126	20250622	212100	212145	7.074873	40M	FT8	DJ7XY	-06	-01	49			JO31	
9125	20250622	211806	211915	7.074873	40M	FT8	SM7OYE	+06	-07	49			JO65	
9124	20250622	211130	211215	7.074873	40M	FT8	EH1HSJ	+06	-10	49			IN73	
9123	20250622	210900	210945	7.074873	40M	FT8	OM/OK8VK	-08	-09	49				
9122	20250622	210700	210745	7.074873	40M	FT8	PY7ZZ	-04	-12	49			HI21	
9121	20250622	210600	210645	7.074873	40M	FT8	IK4ICS	-08	-13	49			JN54	
9120	20250621	201315	201400	21.076147	15M	FT8	UR4QWW	+00	-15	49			KN77NU	
9119	20250621	201046	201130	21.076147	15M	FT8	F5PBG	+08	-02	49			IN78TI	
9118	20250621	194215	194318	28.075832	10M	FT8	7Q6UJ	-10	-17	49				
9117	20250620	203430	203430	14.075832	20M	FT8	M7GGV	-14	-06	50			IO91	
9116	20250620	202930	203130	14.075832	20M	FT8	ON7KEI	-08	-03	50			JO21RF	
9115	20250620	195545	195645	50.314748	6M	FT8	YT7KW	-09	-05	51			KN05EJ	
9114	20250620	195515	195515	50.314748	6M	FT8	OM3RP	-14	-11	51				
9113	20250620	193630	193630	50.314748	6M	FT8	MM/ER1DFV	-14	-24	51			IO75TT	
9112	20250620	192520	192520	EO 21.1740	6M	FT8	UA7DIT	-01	-13	51			VM107	

Figure 1.5 Logbook view

Firstly, there is a log-book style view of the log data. In the above image a page of the log-book showing the most recent entries is displayed. In this view the data that is presented can be configured by selecting different fields to be displayed. The data can be displayed either in chronological order or in reverse chronological order. More information about this window is provided in [Main Window](#) below.



**Figure 1.6 Operating dashboard**

Secondly, a dashboard view is available: in the image below ZZALOG provides the user with the ability to enter new QSOs, edit existing QSOs, browse the log and manage all the data exchange functionality. Briefly, the various panes in this window show:

- **Station** Location, operator and callsign of current operation. See [Station Operation](#).
- **QSO Entry** Viewing and editing pane for QSO records. See [QSO editor and viewer](#) In come operations this is replaced by a "QSO Query" view.
- **Previous** Displays any previous QSOs with the entered callsign. See [Previous Contacts](#).
- **DX?** Shows the "worked-before" status of the DXCC entity etc. See [DXCC Status](#).
- **QSL** Displays the QSL status for this QSO – including displaying any card image. See [QSL Status](#).
- **Contest** Is used for contest operating. See [Contests](#).
- **Controls** Displays all the operations available in the current state. See [Control buttons for Dashboard](#).
- **Rigs** Displays the status of any connected rigs. See [Rig Control](#).
- **Time** Displays the time in UTC (i.e GMT or Zulu) and local time. See [Station clock and weather](#).
- **Weather** Displays the local weather obtained from openweather.org. See [Weather Report](#).
- **Log** Displays the current status of the file. See [Log Status](#).
- **QSLs** Allows the control of data exchange with on-line QSL services. See [Interfacing QSL Websites](#).

- **Apps** Provides control of other applications such as digital modems. See [Handling 3rd-party applications](#).
- **Bandplan** Displays the local bandplan information. See [Bandplan viewer](#).

More details for each pane is provided in the links above.

For further information about using ZZALOG see ["How to" guide](#).

## 1.5 "How to" guide

This set of pages runs the user through the basic operation of ZZALOG. For a full description of features see [Application Details](#).

- [Basic operating - analogue modes](#)
- [Basic operating - digital modes](#)
- [Adding QSOs](#)
- [Searching the log](#)
- [Analysing the log](#)
- [Configuring the rig interface](#)
- [Configuring applications](#)
- [Handling QSLs](#)

### 1.5.1 Basic operating - analogue modes

This page describes the basic use of ZZALOG to start operating and logging QSOs as the user makes the contacts.

The use of a rig connection is not obligatory, but it does allow the automatic logging of items that can be obtained from the rig: frequency, mode and transmit power.

#### 1.5.1.1 Connecting a rig

This page assumes that ZZALOG has already has the rig connection defined and the means of launching any CAT control application (the script) specified. See [Configuring the rig interface](#).

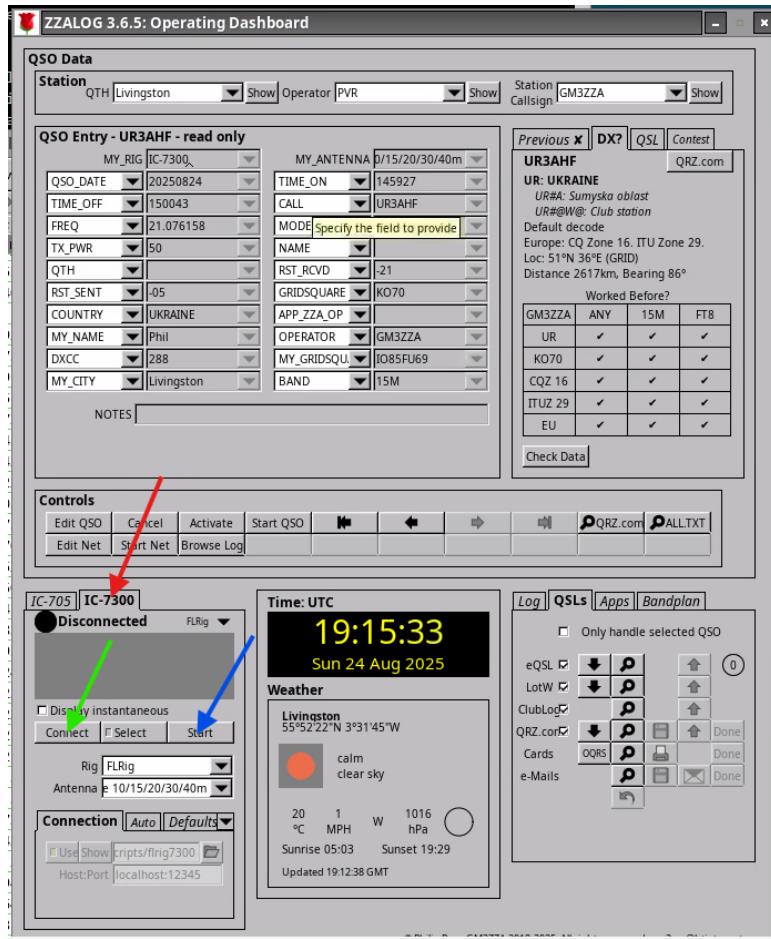


Figure 1.7 Rig control pane

ZZALOG will usually start with the previous rig selected, and if active will connect to it. Select the tab for the rig you want to use, as shown by the red arrow. If the rig connection is made through an external app then launch it using the script by clicking the "Start" button (blue arrow).

Depending on how the rig connection has been configured ZZALOG may automatically connect to the external app after a period of time. If it doesn't, then clicking the "Connect" button (green arrow), will cause the rig to be connected. ZZALOG will then display information received from the rig.

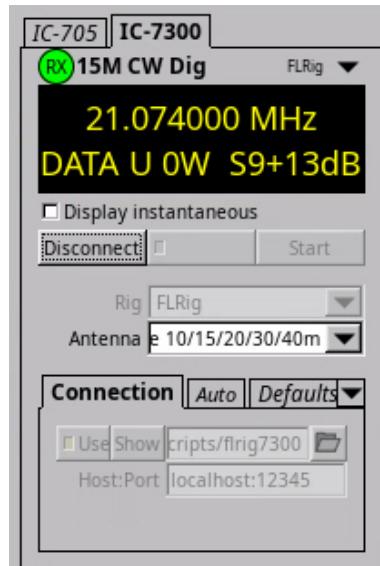


Figure 1.8 Rig connected

### 1.5.1.2 Before the QSO

ZZALOG will usually start by viewing the last QSO made. To prepare ZZALOG to log a new QSO, the entry pane must be activated, by clicking the "Activate" button.

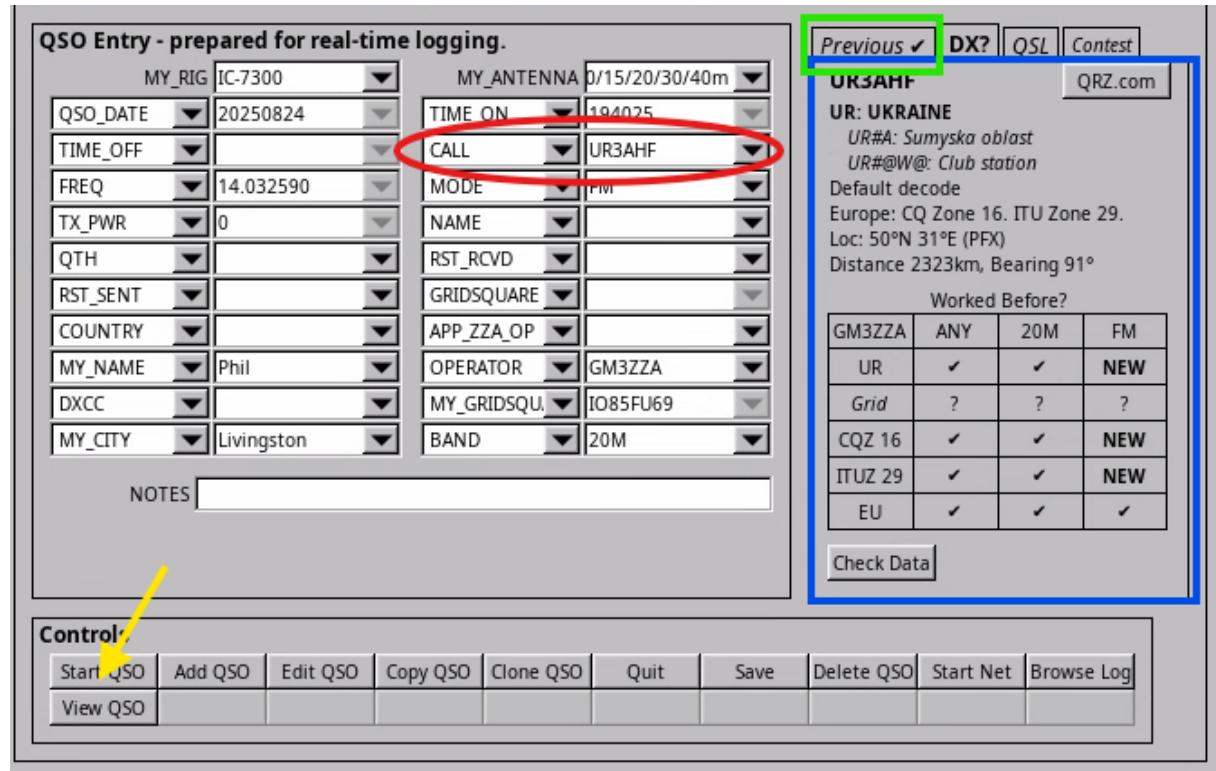


Figure 1.9 Showing 'worked-before' status

This then allows any callsigns to be reviewed before logging them. Type the call in the box beside that marked "CALL" (circled in red) and the DXCC entity for the call (blue) and whether it has been worked before (green) is now shown. In this case the call UR3AHF is shown to be a Ukrainian call and has been worked before, although not on this band or mode.

To start logging a QSO with this station click the "Start QSO" (indicated by the yellow arrow).

### 1.5.1.2.1 Decoding callsigns

ZZALOG makes use of publicly available databases to decode callsigns - see [Reference Data](#). ZZALOG follows the following algorithm:

- Is the call registered as an exception? The database include a list of callsigns that do not follow the "rules". Examples are:
  - In the UK and Crown Dependencies, Special Event Stations are given callsigns starting GB. This would normally decode as **G: England**, but can be exceptionally decoded in another DXCC entity such as **GM: Scotland**.
  - In the US and US administered territories, licensees do not need to obtain a new callsign when moving to a new call area or administered territory. Thus a station originally from New York, say WZ2XYZ which would normally decode as **K: United States of America**, can use the same callsign operating from **KP4: Puerto Rico**.
- Does the callsign contain one or more forward slash '/' characters?
  - If the callsign ends /**MM**, the station is treated as "Maritime Mobile" and classed as not being within a DXCC entity.
  - If the callsign ends /**AM**, the station is treated as "Aeronautical Mobile" and will be classed as being within the DXCC indicated by the body of the call.
  - If the callsign ends /*n*, where *n* is a single-digit number, the station is treated as being in a different call area within the same DXCC.
  - If the callsign ends /*a*, where *a* is a single letter and typically used to indicate a special operation, the first part of the callsign will be decoded to provide the DXCC entity, but the final letter will be taken into consideration to decode a call area where the licensing authority has required it.
  - If the callsign has one forward slash, then the shorter of the two parts is used first when decoding the DXCC entity. If this fails then the other is used. Examples are:
    - \* GM9ABC/VP8 will be decoded using /**VP8** as **VP8: Falkland Islands**.
    - \* MM/FF5ABC will be decoded using **MM** as **GM: Scotland**.
    - \* G1ABC/QRP will be decoded as **G: England** as /**QRP** will not decode into a DXCC entity.
  - If two forward slashes are present, say MM/FF5ABC/M, then the first part **MM/** will be used to decode the DXCC entity **GM: Scotland**.

### 1.5.1.3 Logging the QSO

Figure 1.10 Logging a QSO

When the QSO is started the QSO date and time fields are frozen (yellow) and the frequency, mode and transmit power (red) are read from the rig. Note, that these latter are continually updated from the rig. It is then up to the user to add details from the QSO. In this case the name, QTH and reports that were sent and received (blue).

When the QSO is ended then one of the "Save..." buttons (green) should be clicked.

- **Save** will save the data entered so far, but not end the QSO.
- **Save & View** will save the data and enter the end time. The QSO will remain in view mode.
- **Save & New** will save the data and start a new QSO.
- **Save & Edit** will save the data and enter the end time. The QSO can still be edited.
- **Quit QSO** will abandon entering the QSO.

You can then continue making more QSOs in the same way.

### 1.5.2 Basic operating - digital modes

Operating digital modes require the use of modem applications. A modem application will encode the message into audio tones for transmission and decode received audio tones on reception. As such, the application needs to be configured to access the audio ports on the radio as well as having access to the CAT control port. It will have to share the CAT port with ZZALOG. ZZALOG can launch the application configured for audio and CAT in a way compatible with ZZALOG. This requires the use of scripts. To configure the modem application and generate the script, see [Configuring applications](#).

ZZALOG can act as a log server for two such modem applications: WSJT-X and FIDigi. For FIDigi, ZZALOG can act as an emulation of the FIDigi application and provide details of previous contacts as well as saving the QSO record to the log. For WSJT-X, ZZALOG interprets data received from WSJT-X while the QSO is in progress and saves the QSO record to the log on completion of the QSO.

### 1.5.2.1 Launching and Connecting FIDigi

FIDigi is a modem application for modes such as RTTY, CW and PSK.

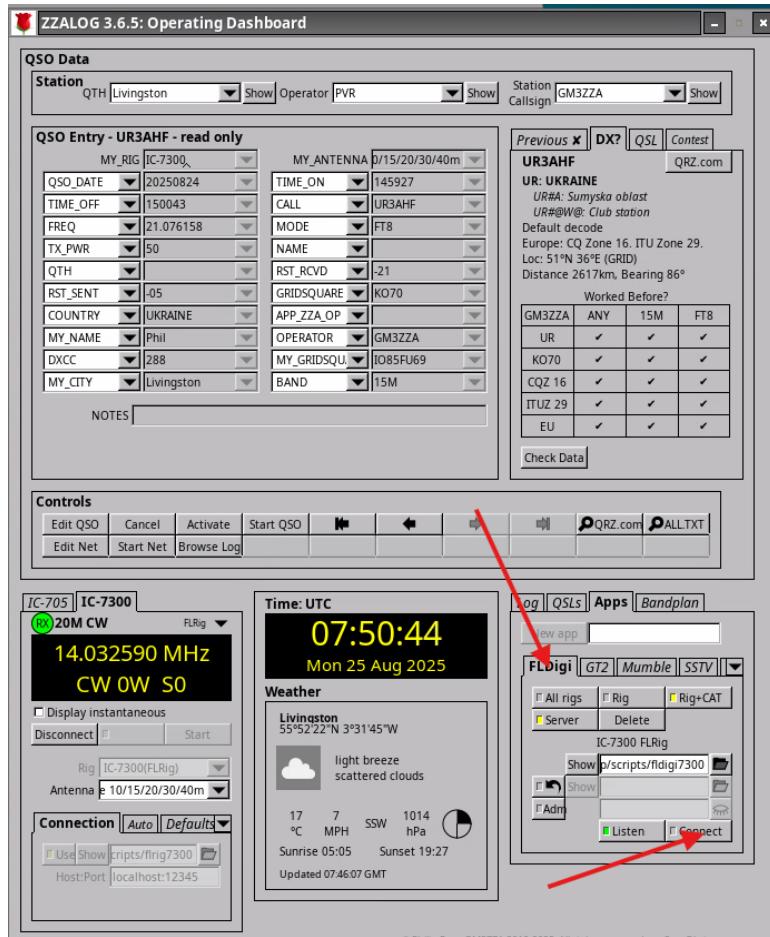


Figure 1.11 FIDigi control pane

To launch the application, select the FIDigi tab and click the "Connect" button. FIDigi should have been configured for the specific transceiver type, and its CAT and audio port connections. Once FLDIGI has been launched it needs to be told to use ZZALOG as its log server.

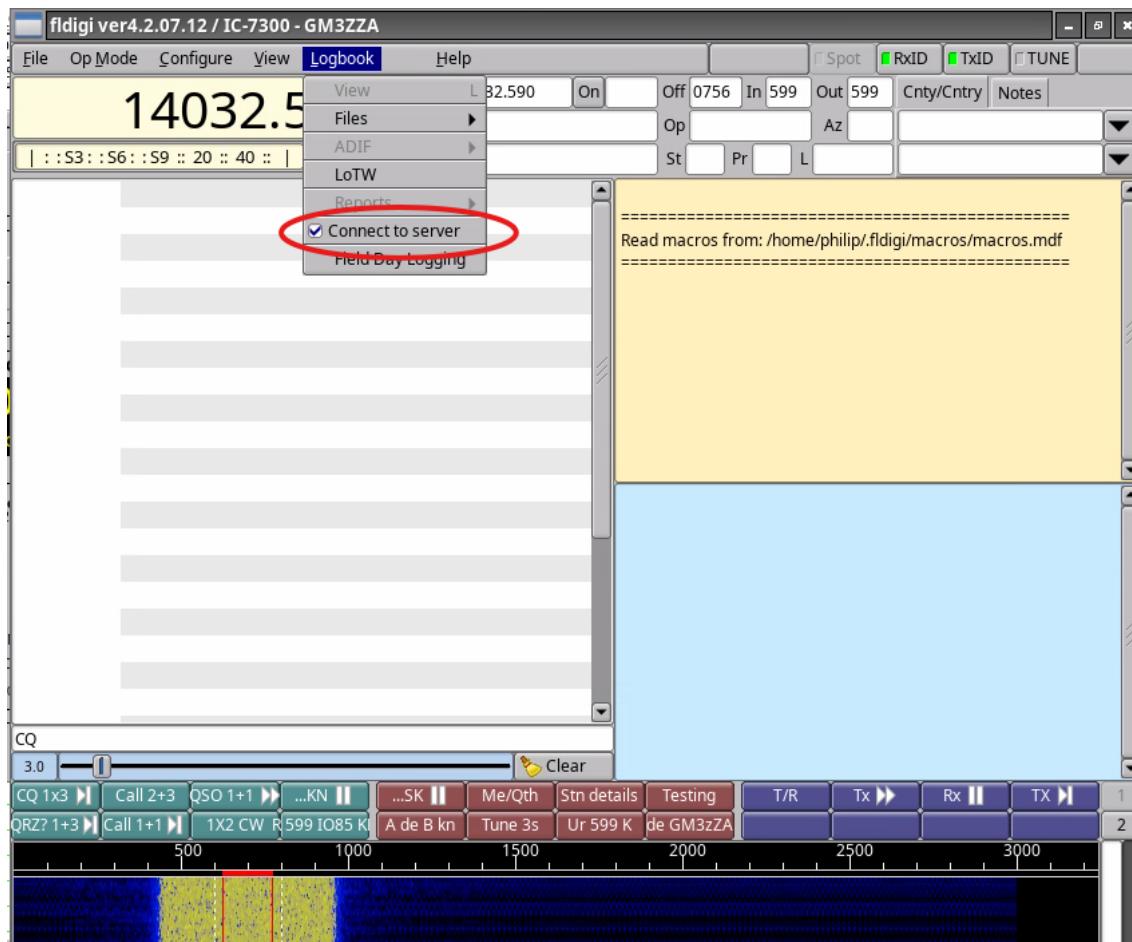


Figure 1.12 Telling FIDigi to connect to ZZALOG

From the FIDigi menu, select the "Logbook" drop-down menu and ensure "Connect to Server" is checked, as above. Once this is done, FIDigi will access ZZALOG to query the worked-before status of a call and tell ZZALOG to save the QSO record on completion of the QSO.

### 1.5.2.2 Launching and Connecting WSJT-X

WSJT-X is a modem application for modes such as JT9 and FT8.

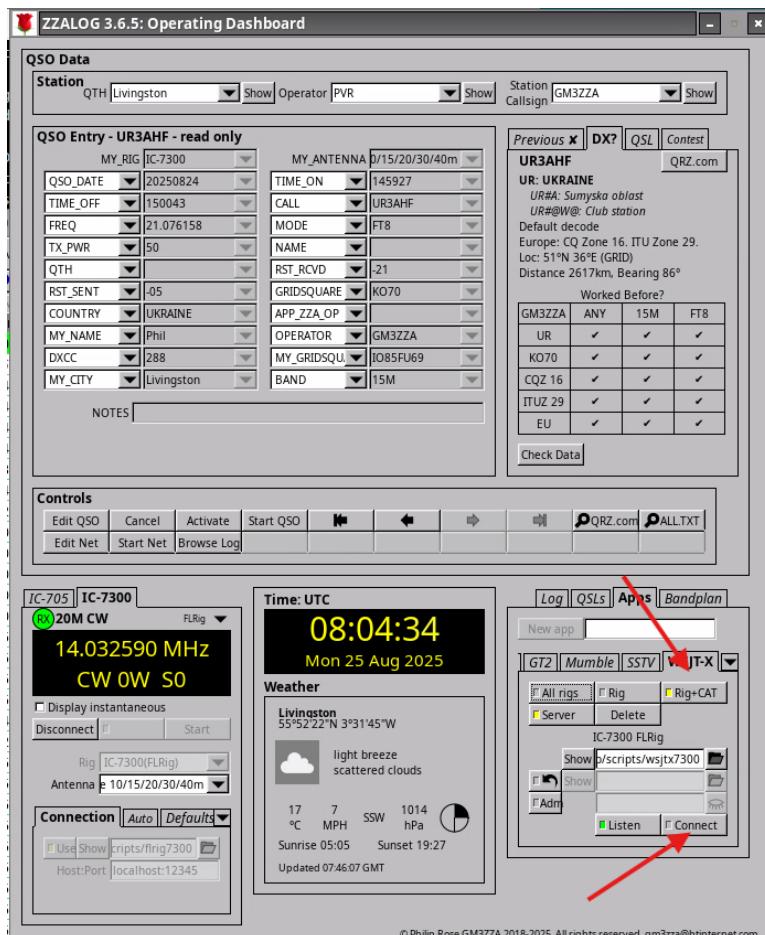


Figure 1.13 WSJT-X control pane

To launch the application, select the WSJT tab and click the "Connect" button. WSJT-X should have been configured for the specific transceiver type, and its CAT and audio port connections. The button marked "Listen" is lit as ZZALOG now is now listening for data packets from WSJT-X. As a QSO progresses, WSJT-X sends information about the contact and ZZALOG updates the QSO entry form. On completion of the QSO, WSJT-X sends a command to log the contact.

### 1.5.2.3 Other Applications

It is possible to configure ZZALOG to launch other applications. For example, in the author's setup, we have ↪ : Gridtracker2 for displaying QSOs made with WSJT-X on a map; Mumble for transferring audio between the radio and a remote PC connection; and QSSTV an SSTV modem application for Linux. See [Configuring applications](#).

### 1.5.2.4 If things go wrong?

If things go wrong, and the modem application completes a QSO and ZZALOG is not ready to receive logging commands, the QSO will not be logged in ZZALOG. In this case it is possible to copy any record the modem application has stored locally and paste into ZZALOG. See [Adding QSOs](#).

### 1.5.3 Adding QSOs

Sometimes it is not possible to use computer logging. For case like this, ZZALOG provides a number of ways to manually add QSO records.

### 1.5.3.1 Adding QSOs manually

The screenshot shows the ZZALOG application in view mode. On the left, there is a large form titled "QSO Entry - MM0KKL/P - read only" containing various dropdown menus for fields like MY\_RIG (IC-705), MY\_ANTENNA (Diamond V-2000), TIME\_ON (190150), CALL (MM0KKL/P), MODE (FM), etc. Below this is a "NOTES" text area. On the right, there is a summary section for "MM0KKL/P" with fields for Geography (N/A), GM (SCOTLAND), and Worked Before? (GM3ZZA, ANY, 2M, FM). At the bottom, there is a "Controls" bar with buttons for Edit QSO, Cancel, Activate, Start QSO, and other network-related buttons.

Figure 1.14 ZZALOG in view mode

When ZZALOG starts it is in view mode. Click either "Cancel" to go to inactive mode or "Activate" to go to active mode.

The screenshot shows the ZZALOG application in inactive mode. The interface is identical to Figure 1.14, but the "Controls" bar at the bottom has been modified. The "Edit QSO", "Cancel", and "Activate" buttons have been removed, and new buttons for "Add QSO", "Edit QSO", "Copy QSO", "Clone QSO", "Delete QSO", "Start Net", "Edit Net", and "Browse Log" have been added. A red arrow points to the "Add QSO" button.

Figure 1.15 Inactive mode

The image above shows the inactive mode. Click "Add QSO" to go to manual entry mode.

**QSO Entry - - logging old contact**

MY_RIG	IC-705
QSO_DATE	20250811
TIME_OFF	
FREQ	145.575000
TX_PWR	10
RST_SENT	
QTH	
MY_CITY	Livingston
OPERATOR	GM3ZZA
CONT	
CONTEST_ID	
NOTES	

**Controls**

Save & New | Save & Exit | Save & Edit | U/d Station | Quit QSO

Figure 1.16 Starting to manually add a QSO

In manual entry mode, the entry form is prepopulated with data from the selected QSO record. This makes it easier to enter a sequence of QSOs, but new data can be entered. Data may now be entered into the form as required. When complete the user can then save the record with one of the save buttons:

- **Save & New** - Save the current record and start a new record.
- **Save & Exit** - Save the current record and quit adding records.
- **Save & Edit** - Save the current record, but continue editing it.

### 1.5.3.2 Adding data from a file

It is possible to import data from another file. To do this select the menu option "Import->File" on the menu in the Main Window. This will open a file selection dialog, and the records in the selected file will be copied into the current logbook.

Note that there are two other file-related commands in this menu drop-down list:

- **File (Update QSOs)** - this option merges data between the other file and the current logbook and will query any discrepancy found.
- **File (QRZ.com)** - this option merges data received from QRZ.com and manipulates the data specifically for QRZ.com use.

### 1.5.3.3 Adding data from the clipboard

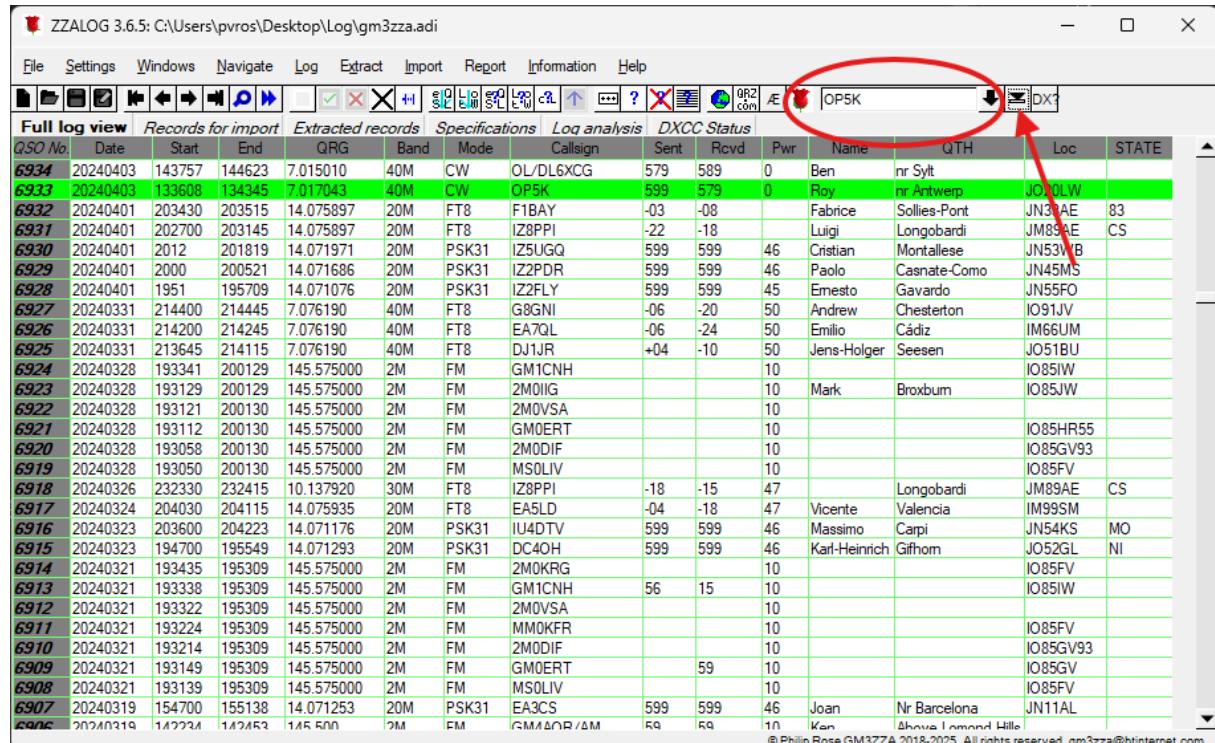
It is possible to select one or more ADIF records from a text editor and import into the current logbook. Simply copy the records from the text editor using its copy procedure. Then in the logbook view in the Main Window click the book and enter CTRL and V from the keyboard. Alternately, there is a menu item "Import->Clipboard".

## 1.5.4 Searching the log

It is possible to search through the log. When entering a QSO the common searches are performed automatically, see [Before the QSO](#). However there are still reasons for stand-alone searches.

### 1.5.4.1 Searching for a call.

In the Main Window it is possible to search for a callsign.



The screenshot shows the ZZALOG 3.6.5 application window. The toolbar at the top has several icons, including a magnifying glass for search, which is circled in red. An arrow points from this circled icon down to the 'DX' button in the toolbar. Below the toolbar is a menu bar with File, Settings, Windows, Navigate, Log, Extract, Import, Report, Information, and Help. The main area is a table titled 'Full log view' showing QSO records. The columns include QSO No., Date, Start, End, QRG, Band, Mode, Callsign, Sent, Rcvd, Pwr, Name, QTH, Loc, and STATE. The 'Callsign' column header is highlighted with a red box. The table contains numerous entries, such as QSO 6924 (Date 20240403, Start 143757, End 144623, QRG 7.015010, Band 40M, Mode CW, Callsign OL/DL6XCG, Sent 579, Rcvd 589, Pwr 0, Name Ben, QTH nr Syt, Loc JN10LW), and QSO 6933 (Date 20240403, Start 133608, End 134345, QRG 7.017043, Band 40M, Mode CW, Callsign OP5K, Sent 599, Rcvd 579, Pwr 0, Name Roy, QTH nr Antwerp, Loc JN10LW).

Figure 1.17 Using the toolbar to search for a call

Enter the callsign in the circled box, and click the indicated button. All the QSOs with this callsign are now displayed in the "Extracted Records" tab.

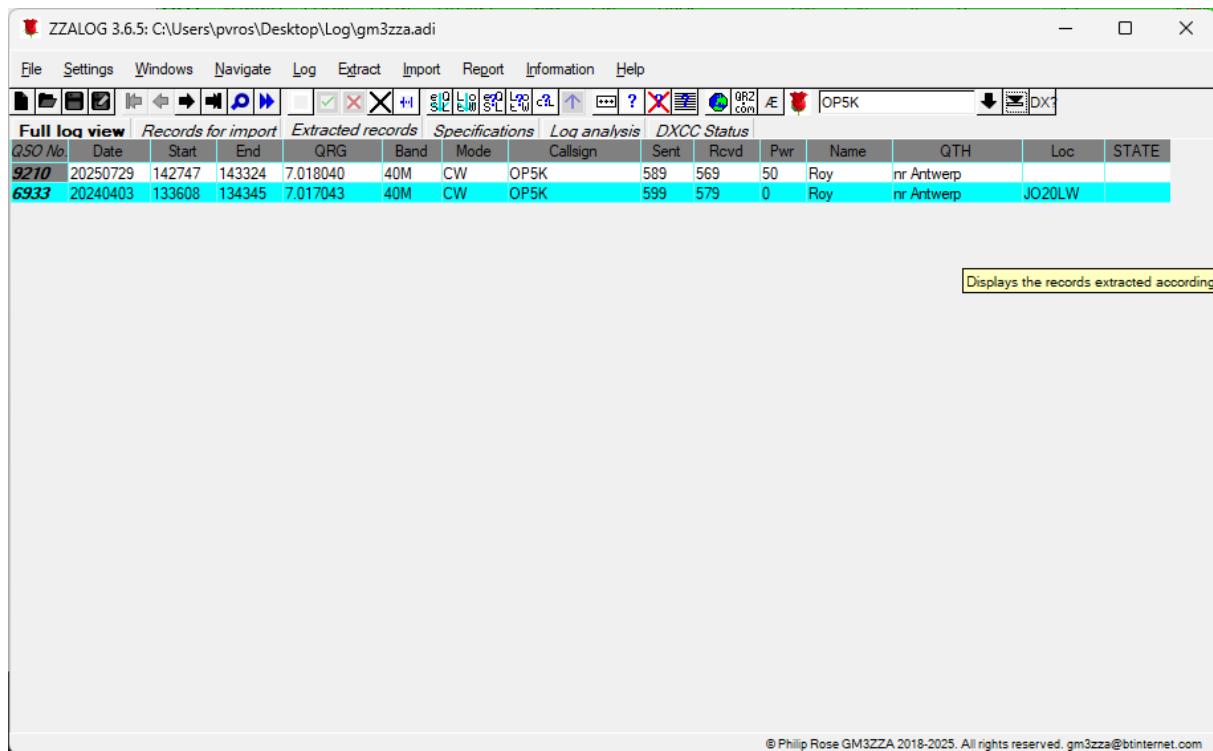


Figure 1.18 Data extracted from a search

#### 1.5.4.2 Searching for a specific QSO

Sometimes it is necessary to search the log for a specific QSO.

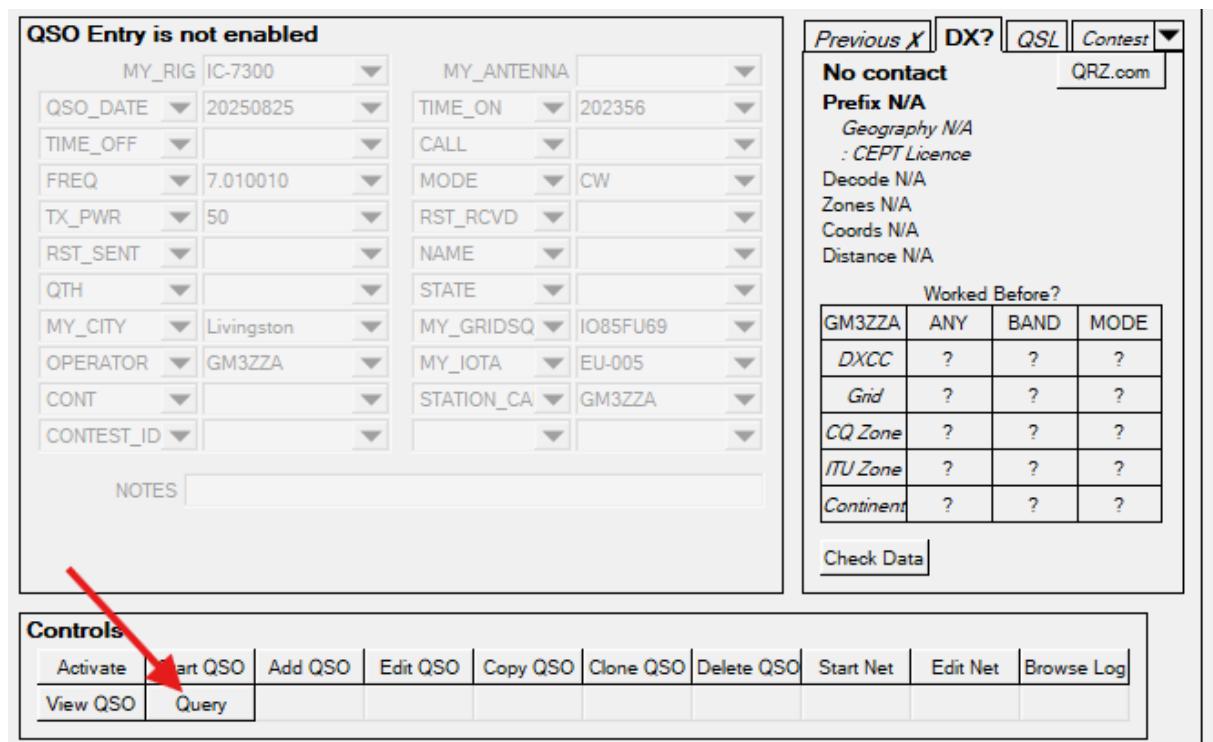


Figure 1.19 Opening QSO search in the dashboard

For example, when checking physical QSL cards. In this case at the inactive mode, click the "Query" button.

**QSO Query - Enter QSO details for search**

MY_RIG	IC-705	MY_ANTENNA	Diamond V-2000
QSO_DATE	20240403	TIME_ON	
TIME_OFF		CALL	OP5K
FREQ		MODE	CW
TX_PWR		RST_RCVD	
RST_SENT		NAME	
QTH		STATE	
MY_CITY	Livingston	MY_GRIDSQ	IO85FU69
OPERATOR	GM3ZZA	MY_IOTA	EU-005
CONT		STATION_CA	GM3ZZA
CONTEST_ID			

NOTES:

**Controls**

**Check** | Test Import | Cancel | ALL.TXT

**No contact**  
Prefix N/A  
Geography N/A  
ON4: HF station  
Decode N/A  
Zones N/A  
Coords N/A  
Distance N/A

**Worked Before?**

GM3ZZA	ANY		
DXCC	?	?	?
Grid	?	?	?
CQ Zone	?	?	?
ITU Zone	?	?	?
Continent	?	?	?

**Check Data**

Figure 1.20 Search details entered into the dashboard

On the query form enter the details of the QSO, in this case date, call and mode are sufficient. Then click "Check".

**QSO Entry - OP5K - editing existing contact**

MY_RIG	IC-7300	MY_ANTENNA	10/15/20/30/40m
QSO_DATE	20240403	TIME_ON	133608
TIME_OFF	134345	CALL	OP5K
FREQ	7.017043	MODE	CW
TX_PWR	0	RST_RCVD	579
RST_SENT	599	NAME	Roy
QTH	nr Antwerp	STATE	
MY_CITY	Livingston	MY_GRIDSQ	IO85FU69
OPERATOR	GM3ZZA	MY_IOTA	EU-005
CONT	EU	STATION_CA	GM3ZZA
CONTEST_ID			

NOTES:

**Controls**

**Save** | **Save & Exit** | **Save & View** | **Cancel Edit** | **Edit Net** | | | | | **Update CAT**

**Replace CAT** | **U/d Station** | | **Parse QSO**

**OP5K**  
**ON: BELGIUM**  
Geography N/A  
ON4: HF station  
Default decode  
Europe: CQ Zone 14. ITU Zone 27.  
Loc: 51°N 5°E (GRID)  
Distance 785km, Bearing 131°

**Worked Before?**

GM3ZZA	ANY	40M	CW
ON	✓	✓	✓
JO20	✓	✓	✓
CQZ 14	✓	✓	✓
ITUZ 27	✓	✓	✓
EU	✓	✓	✓

**Check Data**

Figure 1.21 QSO search results displayed

The sought-for QSO then appears in edit view.

### 1.5.4.3 General queries

It is possible to create general queries using the search dialog.

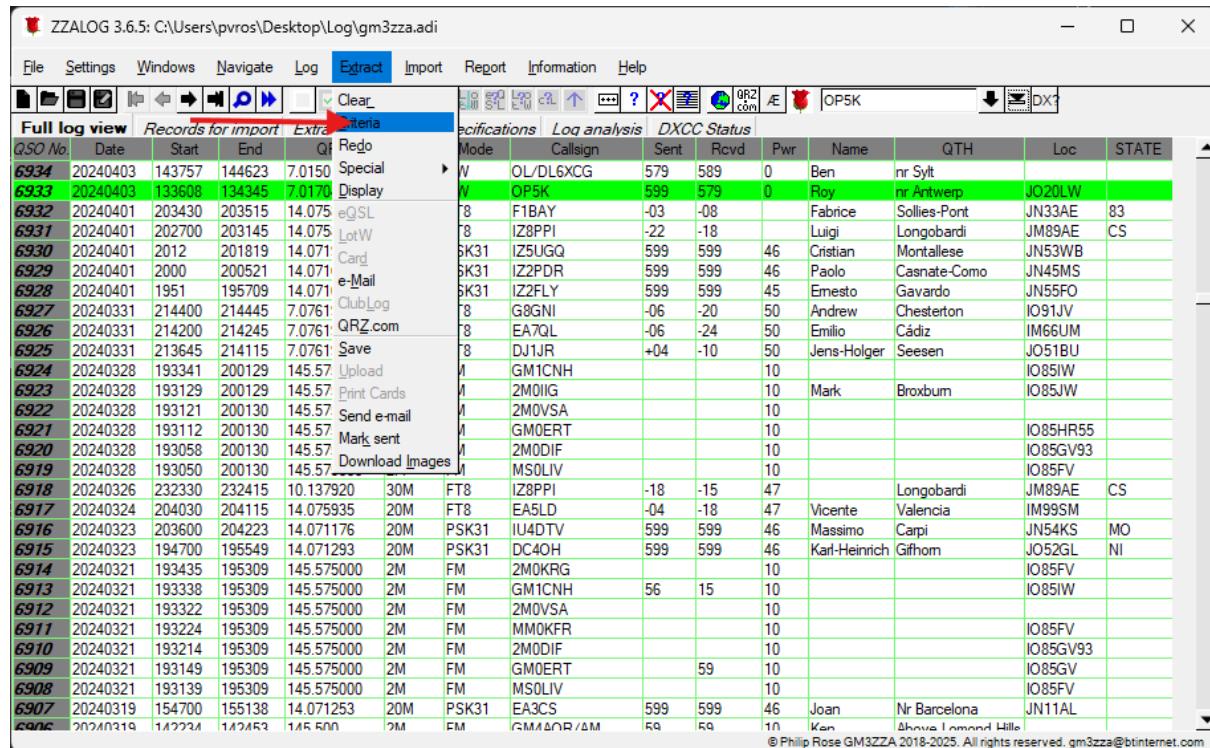


Figure 1.22 Opening general search facility

It can be opened using the menu "Extract->Criteria".

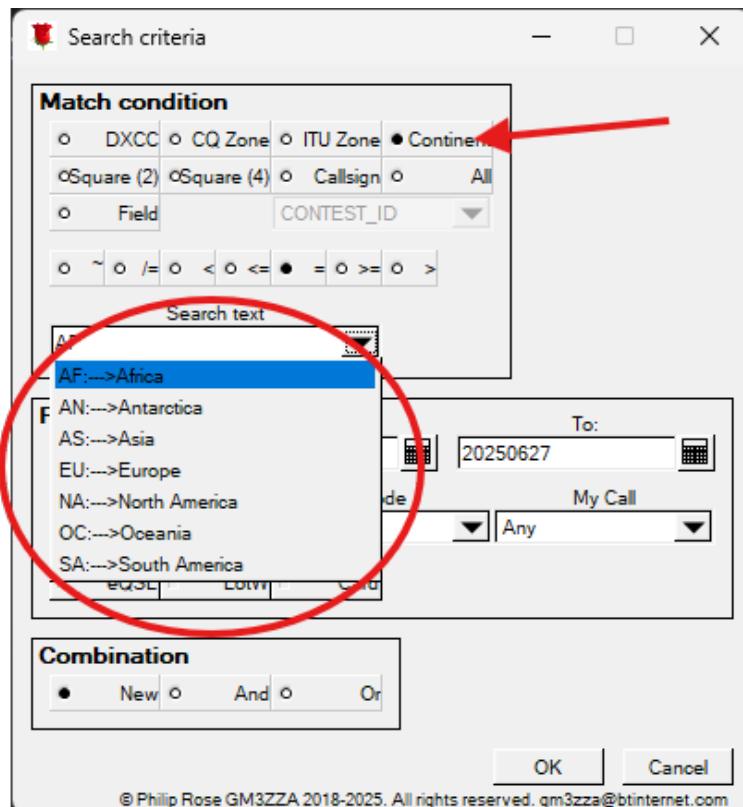


Figure 1.23 Dialog to enter search criteria

The dialog above is looking for all contacts with Africa.

QSO No.	Date	Start	End	QRG	Band	Mode	Callsign	Sent	Rcvd	Pwr	Name	QTH	Loc	STATE
9119	20250621	194215	194318	28.075832	10M	FT8	7Q6UJ	-10	-17	49		KH67RU		
9013	20250517	214604	214735	7.074726	40M	FT8	5A1AL	-10	-14	50		JM62		
8930	20250508	222500	222545	7.075558	40M	FT8	CT3IQ	+03	+05	48		IM12		
8751	20250408	224600	224645	7.076253	40M	FT8	CT3IQ	-06	-02	48		IM12OR		
8726	20250403	221935	222033	7.076162	40M	FT8	CN8HV	-06	-12	49		IM64QG		
8639	20250319	225655	225749	7.076495	40M	FT8	ZD7CTO	-12	-14	48		IH74DB		
8578	20250307	222919	223015	7.076257	40M	FT8	D4AHV	-13	-16	48		HK86MS		
8536	20250302	220330	220403	7.076093	40M	FT8	EA8B	+09	-01	50		IL38CW		
8261	20250105	232731	232836	7.074824	40M	FT8	EA8W	-01	-06	47	Ricardo	Yaiza	IL38DV	
8119	20241126	154652	154745	28.024110	10M	CW	7X4AN	559	449	50		IM94GU		
8074	20241120	161830	162036	28.074787	10M	FT8	EA9TF	-11	-16	0	Antonio	Ceuta	IM75IV	
7991	20241031	224030	224203	7.076011	40M	FT8	CT3MD	+07	-01	47	José	Porto Santo	IM13	MD
7971	20241029	225248	225317	7.074660	40M	FT8	EA8AR	-02	-17	48		IL18SI		
7315	20240815	150845	21.075566	15M	FT8	EA9ADC	+08	-17	46	Gines	Melilla	IM85		
7051	20240602	203030	203205	28.075375	10M	FT8	EA8DS	-10	-08	41	Felix	Santa Maria de Guia	IL28	
6995	20240429	145218	145318	14.075859	20M	FT8	A075IC	-12	-07	45		IL18CQ		
6326	20231017	224216	224326	10.137808	30M	FT8	CT3MD	+17	-09	40	José	Porto Santo	IM13TB	MD
6167	20231006	143807	143839	28.180865	10M	FT4	CT3HF	+10	+06	41		IM12OP		
6146	20231005	150730	150915	21.075029	15M	FT8	EA8AT	+10	-08	42	Oscar	El Pinar	IL17AQ	TF
6032	20230926	221931	222202	10.137647	30M	FT8	EA8AJX	-06	-16	42	Lorenzo	Candelaria	IL18TI	
6016	20230925	214330	214504	7.074862	40M	FT8	EA8JT	-03	-03	42	Alberto	Arico	IL18SC	TF
5934	20230904	153342	153416	21.075902	15M	FT8	CT3MD	+22	-11	41	José	Porto Santo	IM13TB	
5707	20230806	202819	202845	14.076233	20M	FT8	EA8CZ	-04	-15	41	Jacinto	Guia	IL28EC	GC
5612	20230722	203001	203030	14.075193	20M	FT8	CT3CK	-08	-10	50		IM12		
5571	20230717	134801	135100	21.075931	15M	FT8	CT3MD	+08	-12	50	José	Porto Santo	IM13TB	
5508	20230711	140417	140545	21.076177	15M	FT8	EA8DEG	-12	-19	50		IL18		
5470	20230707	213245	213508	7.075922	40M	FT8	ZS6OB	-18	-16	50		KG44DE		
5445	20230630	205216	205245	7.074973	40M	FT8	CT3HU	+00	-17	50	Manuel	Porto Santo	IM13TA	MD
5222	20220526	220003	220130	10.127173	20M	FT8	7D7MV	-05	-01	20		IL17TA		

Figure 1.24 General search results displayed

This displays all QSOs with stations in the DXCC continent Africa.

#### 1.5.4.4 Custom queries

There are a number of pre-coded queries available in the Main Window menu.

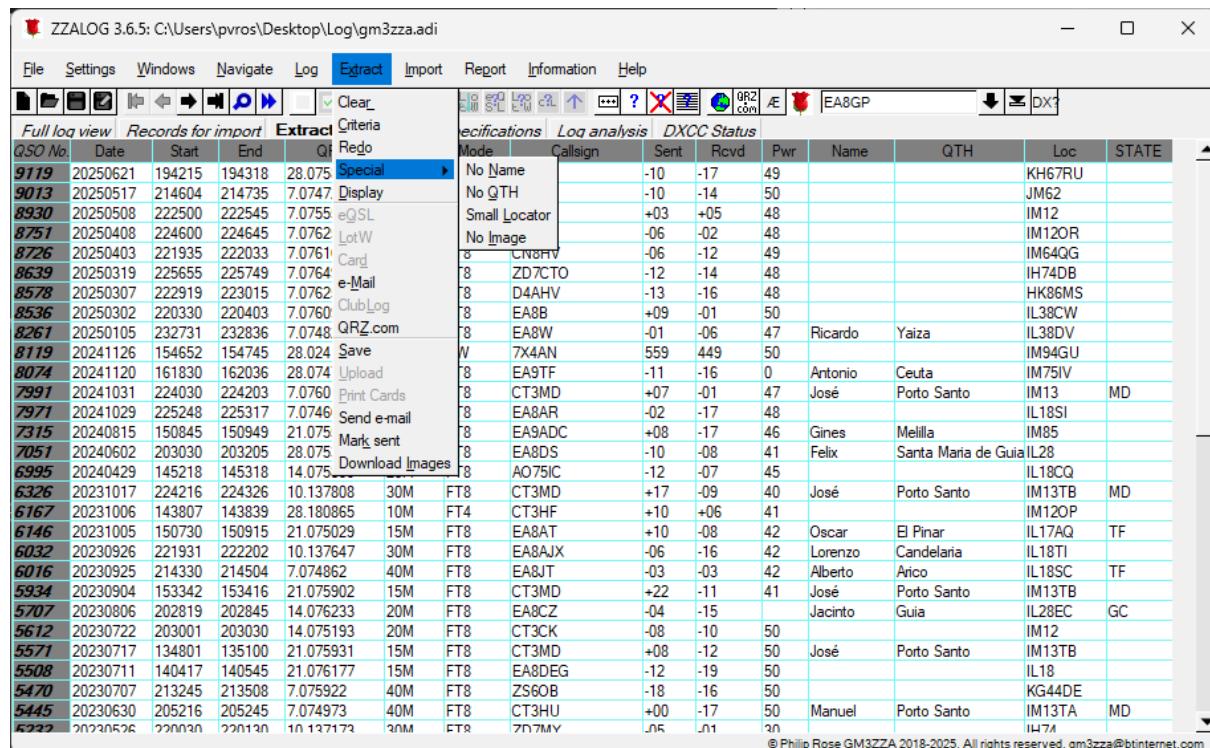


Figure 1.25 Selecting pre-coded search criteria

- **No Name** - extracts all records without a NAME field.
- **No QTH** - extracts all records without a QTH field.
- **Small Locator** - extracts all records with no GRIDSQUARE field, or where the value has 4 or fewer characters.
- **No Image** - extracts all records with eQSL received data but no QSO image. **NB** This search takes a long time.

#### 1.5.5 Analysing the log

There are two features provided in ZZALOG to help analyse the log for numbers of DXCC entities worked.

##### 1.5.5.1 Using Log Analysis

The Log Analysis tab provides a breakdown of stations worked. It is controlled from the Menu "Report" drop-down list. See [Menu Bar](#) for more information.

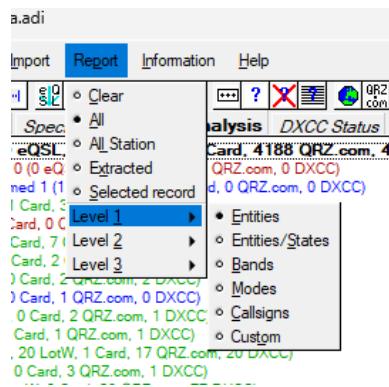


Figure 1.26 Selecting report data

In this example, the report is ordered

- DXCC entities
- Bands
- Modes

This produces the listing as such:

Figure 1.27 Detailed analysis report

Clicking on any line will open that QSO record in the view pane in the Dashboard.

### 1.5.5.2 Using DXCC Status

The DXCC Status tab provides a tabular view. See [An analysis of DXCCs worked](#) for details of the controls used to filter the view.

Entity	CW	FM	SSB	Total
: Invalid entity	3			3
1: CANADA	34			34
5: ALAND IS.	3			3
6: ALASKA	2			2
7: ALBANIA	7			7
14: ARMENIA	1			1
15: ASIATIC RUSSIA	20			20
21: BALEARIC IS.	10			10
27: BELARUS	14			14
29: CANARY IS.	14			14
32: CEUTA & MELILLA	1			1
40: CRETE	2			2
45: DODECANESE	2			2
52: ESTONIA	11			11
54: EUROPEAN RUSSIA	2	301	2	305
65: BRITISH VIRGIN IS.	1			1
66: BELIZE	2			2
69: CAYMAN IS.	2			2
70: CUBA	2			2
71: GALAPAGOS IS.	1			1
72: DOMINICAN REPUBLIC	2			2
75: GEORGIA	1			1
84: MARTINIQUE	2			2
97: ST. LUCIA	1			1
100: ARGENTINA	1			1
106: GUERNSEY	3			3
108: BRAZIL	15			15
112: CHILE	1			1

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Figure 1.28 Displaying DXCC table

This view is listing mode classes (as used in DXCC awards) worked for each entity and verified either on Logbook of the World or by physical card.

### 1.5.6 Configuring the rig interface

ZZALOG uses hamlib to access the CAT control port of any rig. Hamlib is a library that provides a common API to allow software to access most rigs. It is available for both Windows and Linux Operating systems. Using hamlib, ZZALOG is able to directly connect to the CAT port of the rig. However, in most cases, connecting ZZALOG to the CAT port precludes any other application from connecting to that port. There are a number of third party applications that can connect to a rig's CAT control port and then provide an interface that more than one other application, including ZZALOG, can then connect to. These applications include FIRig, WFView and Omnidrig. Hamlib can connect to these applications so the interface to ZZALOG appears the same: they are treated as another "rig" type.

**NB** With one exception ([Changing rig frequency](#)), ZZALOG cannot control the rig, it can only read its status.

#### 1.5.6.1 Specifying a new rig

ZZALOG maintains a list of rigs about which the current instance of the application knows. To add a new rig, the user must enter the rig in the QSO edit pane. Navigate to an active view and select the pull-down menu next to the MY\_RIG entry.

Figure 1.29 Adding a new rig

If the rig the user wants is not present in the list, then type it into the input box. A new rig pane will be created to allow the user to modify the parameters used.

ZZALOG can remember the configurations required to access the same rig using a number of different applications as well as directly. There is a pull-down menu that allows the user to select a particular access method at run time (circled in the image below).

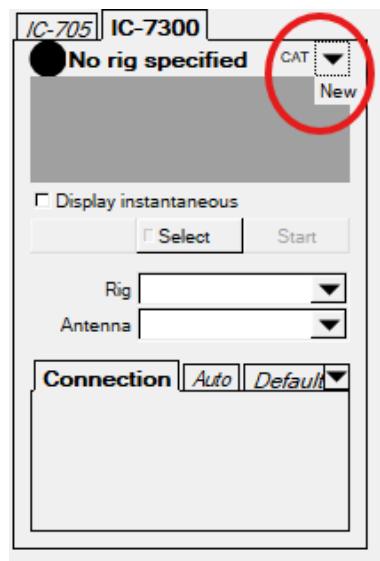


Figure 1.30 Selecting rig access method

Click the "New" entry. The user will be prompted for a name for the access method. It is recommended to use "Hamlib", "Direct" or the name of the CAT access application.

### 1.5.6.2 Connecting directly to a rig

We assume in the previous step we named the access method "Hamlib" or "Direct" or similar. Now the user needs to select the rig from the list of supported rigs. Select the pull-down menu list shown below.

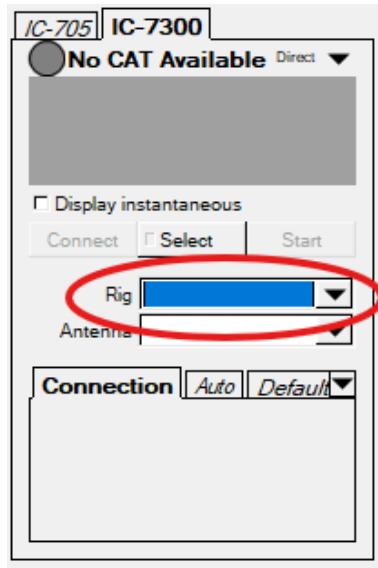


Figure 1.31 Specifying a new rig

This list is a large one, as the rigs are grouped by manufacturer and then rig. Select the rig that you are creating the configuration for. Then click "Select", this will enable the "Connection" tab. It also changes the name of the button to "Use". Then open the drop down menu labeled "Port", this will open a list of available serial ports.

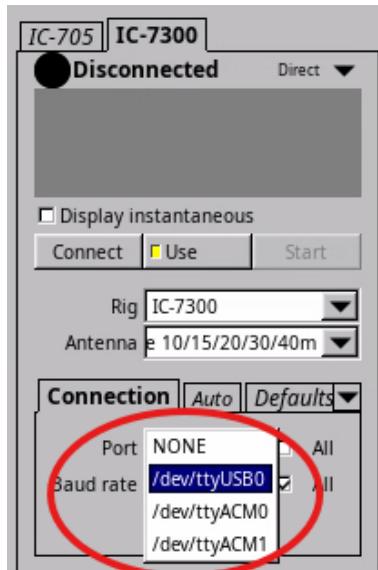


Figure 1.32 Specifying rig access port

This example is taken from a linux installation: ports on Windows installations will be labeled COM $n$ . In a similar manner select the baud-rate. **NB** the baud-rate must match that of the rig. See the rig's manual for more information. Then click "Use" and ZZALOG will attempt to connect to the rig.

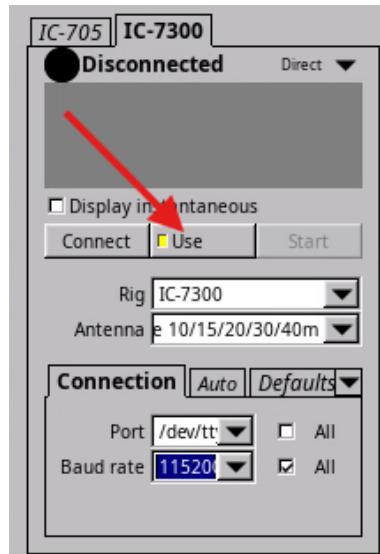


Figure 1.33 Using this configuration

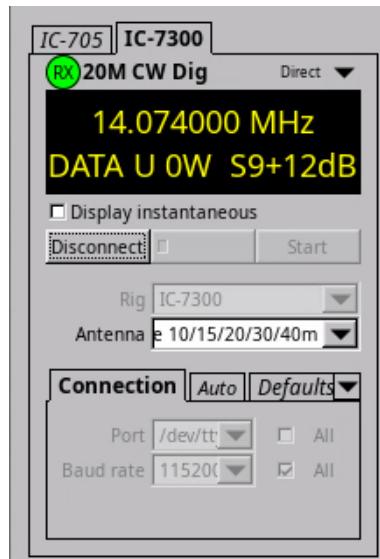


Figure 1.34 Rig connected!

**NB** ZZALOG by itself does not attempt to power-on the rig. Ensure that the rig is powered on before connecting. Some apps that ZZALOG can connect to do allow the automatic powering-on of rigs.

### 1.5.6.3 Connecting using an application

In the following case we are using the application FIRig to access the rig. We have created a new connection called FIRig. We can select FIRig as a pseudo-rig. FIRig provides an interface known as XMLRPC (Remote Procedure Call using XML) and is accessed using HTTP. In the "Connection" tab there are now fields for a script (red below) and a host port address (blue below). Let us ignore scripts for now, but to use them see [Automating application launch](#) below.

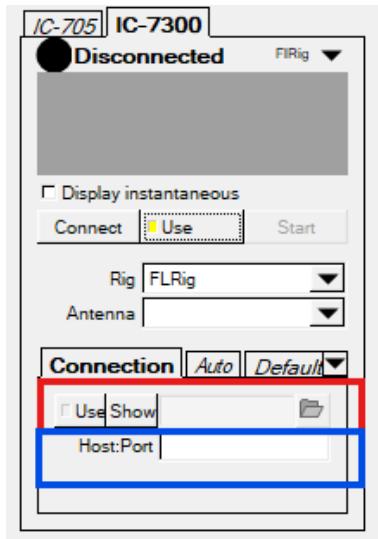


Figure 1.35 Specifying network connection

In this example, we are actually connecting to a rig on another machine. An instance of FIRig is running on machine "chinook" connected to an IC-7300. It is presenting its XMLRPC interface on port 12345. If we type in "chinook:12345" and click "Use" we connect to the IC-7300 transceiver connected to machine "chinook" from the machine.

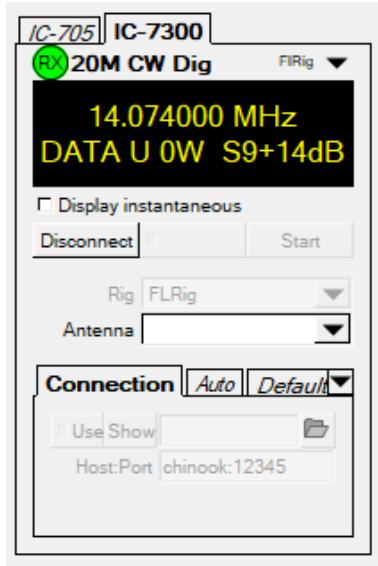


Figure 1.36 Rig connected over network

It is possible to have an instance of FIRig on the local machine and configure it to connect to the instance of FIRig on the remote machine. In that case the host name is "localhost" or its IP address is "127.0.0.1".

#### 1.5.6.4 Automating application launch

So far, we have looked at connecting to an existing running instance of the access application. When using multiple rigs, each instance of the access application must be configured differently. Typically the application relies on command-line parameters to supply its configuration. ZZALOG provides the facility to run a script which contains a call to the application with its command-line parameters. The "Connection" tab allows this script to be defined. In the case below the script has already been entered. Click "Show" button and a simple file editor window opens displaying the script.

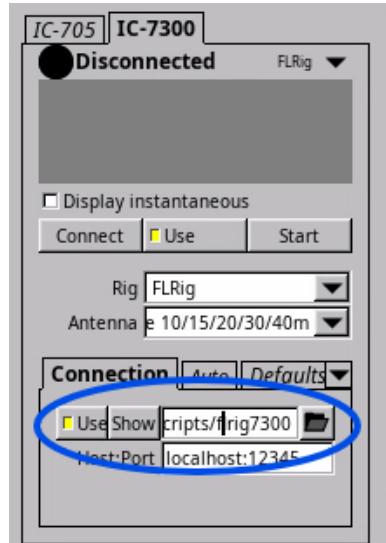


Figure 1.37 Specifying a script

```
/home/philip/scripts/flrig7300
1 Flrig --config-dir ~/.ic7300 &
2
```

Figure 1.38 Contents of a script

Here the script is invoking FIRig with the parameter indicating where to find its configuration for the specific IC-7300. This will contain details similar to that we used for a direct connection above: port-name and baud-rate.

For information about how to configure the applications refer to that applications's user manual.

To launch the application, click the "Start" button. The application will take an indeterminate period of time to start and connect itself to the rig. Some applications will automatically power-on the rig as part of its initialisation routine. Once the application has connected to the rig, click on the "Connect" button to get ZZALOG to connect to the application.

ZZALOG can, however, be configured to apply these steps automatically. In the "Auto" tab, it is possible to configure ZZALOG to automatically launch the access application when it starts. It is also possible to configure ZZALOG to try to connect to the application after a defined period has elapsed. This period is configurable from immediately (0 s) to a delay of 10 s in steps of 0.5 s. In the example below, ZZALOG waits a period of 10 seconds before attempting to connect to FIRig and starting reading values from the rig.

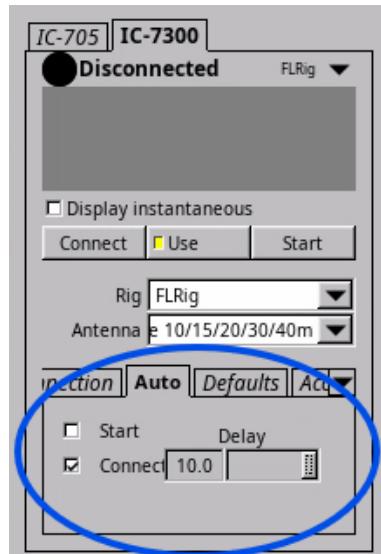


Figure 1.39 Setting connection delay

### 1.5.6.5 Additional equipment

#### 1.5.6.5.1 Specifying default antenna

In some of the above images, the entry field "Antenna" can be seen. This is a drop-down list. Selecting a value will automatically add the value to the MY\_ANTENNA field of the QSO record. This can be overridden by entering a specific antenna value in the entry view of the QSO record.

#### 1.5.6.5.2 Specifying accessories

If the rig has accessories, such as an external power amplifier or transverter, then the values such as frequency and TX power read from the rig are usually those of the rig itself. ZZALOG provides the means to configure this such that the value read from the rig is modified before entering in the QSO record.

The "Accessories" tab allows the gain of the amplifier (in blue) or the frequency shift and TX power of a transverter (in red) to be specified.

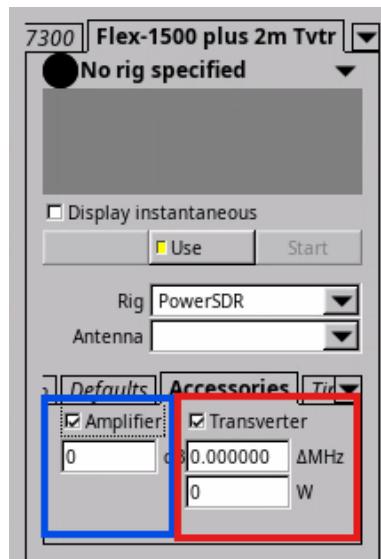


Figure 1.40 Specifying accessories

### 1.5.6.6 Updating hamlib

Hamlib is under continual development as new rigs come onto the market and new features are added to hamlib itself.

On Windows, a fixed version of hamlib is supplied with the ZZALOG installation package. This contains a DLL file containing the hamlib binary. It is located in "C:\Program Files\GM3ZZA\ZZALOG\libhamlib-4.dll". It is intended that when a new official release of hamlib is made, then ZZALOG will be re-released. It is possible to overwrite this file with the latest unreleased version of hamlib.

On Linux, hamlib is available for compiling from source. Download the latest and follow the instructions for building the hamlib library. Then recompile ZZALOG according to [Reinstalling after a library change](#).

### 1.5.7 Configuring applications

ZZALOG provides the capability of launching other applications. Applications can either be a client of ZZALOG or not.

- **Client applications.** These are typically modem applications that use ZZALOG as a logbook server and access ZZALOG to check for any previous QSO with a potential contact and to log QSOs made by that application. Client applications require specific code within ZZALOG to handle its logging requirements. Currently, such code only exists for FIDigi and WSJT-X.

In addition applications have distinct needs for configuring how they need to access a rig.

- **CAT & Audio applications.** These are applications that require access to the rig's audio and CAT ports, and so need to be configured for both audio and CAT. An example would be a modem application like FIDigi.
- **Audio applications.** These are applications that do not require access to the rig's CAT port, but do require access to its audio ports, so need to be configured for audio. An example would be a helper application for routing audio to a remote computer, such as Mumble.
- **Independent applications.** These do not access the rig directly and so do not necessarily need configuration. An example would be GridTracker that displays information from other applications.

#### 1.5.7.1 Example 1 - WSJT-X

The following image shows the configuration for WSJT-X. This is a client application, so the "Server" button is lit. It also requires configuration for both audio and CAT, so the "Aud./CAT" button is lit.

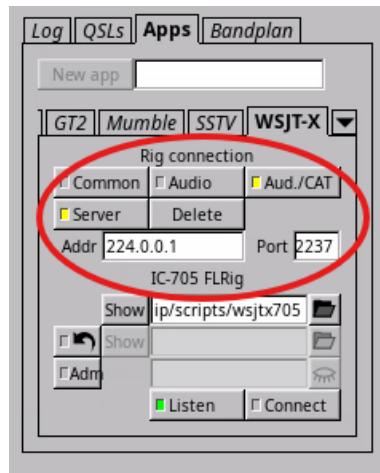
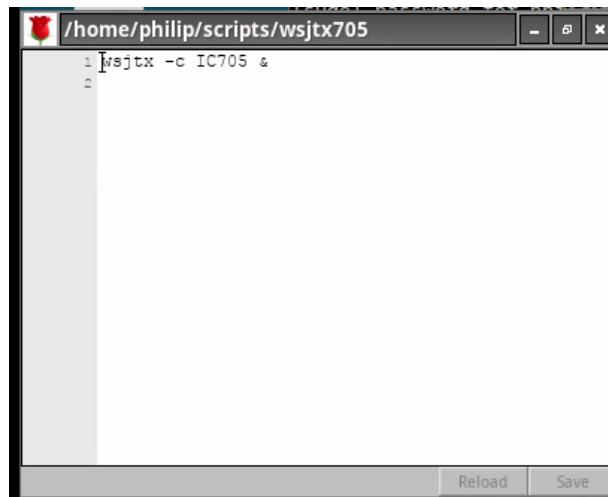


Figure 1.41 Configuring for wSJT-X

You will see that this choice is reflected in the label below this: "IC-705 FIRig". In the box below, a script is named. To view or edit the script click the "Show" button.



```
/home/philip/scripts/wsjtx705
1 Wsjtx -c IC705 &
2
```

Figure 1.42 Script to launch WSJT-X

As ZZALOG is acting as a server for WSJT-X, ZZALOG needs to be initialised with the port that WSJT-X will use to access it. In this case, ZZALOG will listen on port 224.0.0.1:2237. ZZALOG is not the only server that WSJT-X uses, so the address supplied here is a Multicast address so that both ZZALOG and the other server will receive the packets. Otherwise it would be "first come, only serve". **NB** the Windows version of ZZALOG does not yet support Multicast addresses.

The script simply calls WSJT-X and tells it to use the configuration IC705, which the user has set up within WSJT-X. For information on this refer to the application's manual.

### 1.5.7.2 Example 2 - GridTracker

The second example shows the configuration for GridTracker2. This application has no interaction with the rigs. It listens for data packets sent out by WSJT-X.



Figure 1.43 Configuring for GridTracker

In this case, and this is particular to the Linux version of ZZALOG, the script is actually the terminal command.

## 1.5.8 Handling QSLs

Currently QSLs are managed in a number of ways. Amateur Radio is transitioning away from the exchange of physical QSL cards to electronic cards. ZZALOG supports both these.



Figure 1.44 QSL management pane

### 1.5.8.1 Internet QSL agents

There are a number of websites that support the exchange of QSL information, ZZALOG currently supports the following:

- **eQSL.cc** This accepts data in ADIF .adi format for the contacts the user uploads. The user can download data in .adi format for contacts that others have claimed with the user.
- **Logbook of the World** This is run by ARRL and matches logbooks uploaded by users world-wide. A user will only receive data that has been matched in ARRL's database.
- **Clublog.org** This is another site that matches users' logbooks but does not supply any data back to the user. It will instead correlate the data and display the user's status with respect to various awards.
- **QRZ.com** Users upload their logs to this website, and can receive data for records that match.

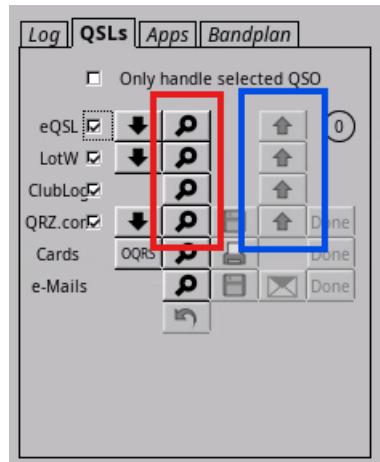
ZZALOG has custom code to handle the interface with all the above websites. In all cases ZZALOG attempts to match data received with its own logbook. For sites which only send data that has already been matched, this usually results in the ZZALOG logbook being updated with flags indicating the match and sometimes location data is updated. For example, a more accurate Maidenhead location is sometimes provided.

For eQSL.cc, ZZALOG sometimes detects a record that it cannot find a match for, see [Matching QSLs from eQSL.cc](#).

#### 1.5.8.1.1 Uploading QSLs

ZZALOG can be configured to upload QSLs to each of the above websites immediately after logging a QSO. This is the recommended method.

Sometimes, it would be more convenient to upload in batches at the end of a session.

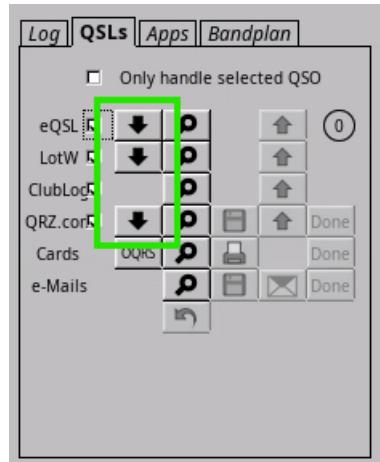


**Figure 1.45 Controls for extracting and uploading QSLs**

In the above image, to extract all the records that have yet to be uploaded to a website, click the appropriate button boxed in red. Once the data has been extracted, the buttons boxed in blue will be enabled and click the appropriate button to upload the data to the website.

#### 1.5.8.1.2 Downloading QSLs

There is no automatic download feature from these websites. To download from a specific website, click a button boxed in green in the image below.



**Figure 1.46 Controls for downloading QSLs**

Once downloaded, the data will be compared with the existing logbook, and any records that do not match, usually from eQSL.cc, are presented to the user for action.

#### 1.5.8.1.3 Matching QSLs from eQSL.cc

When downloading data from eQSL.cc, ZZALOG will refer a record to the user if it cannot find a match.

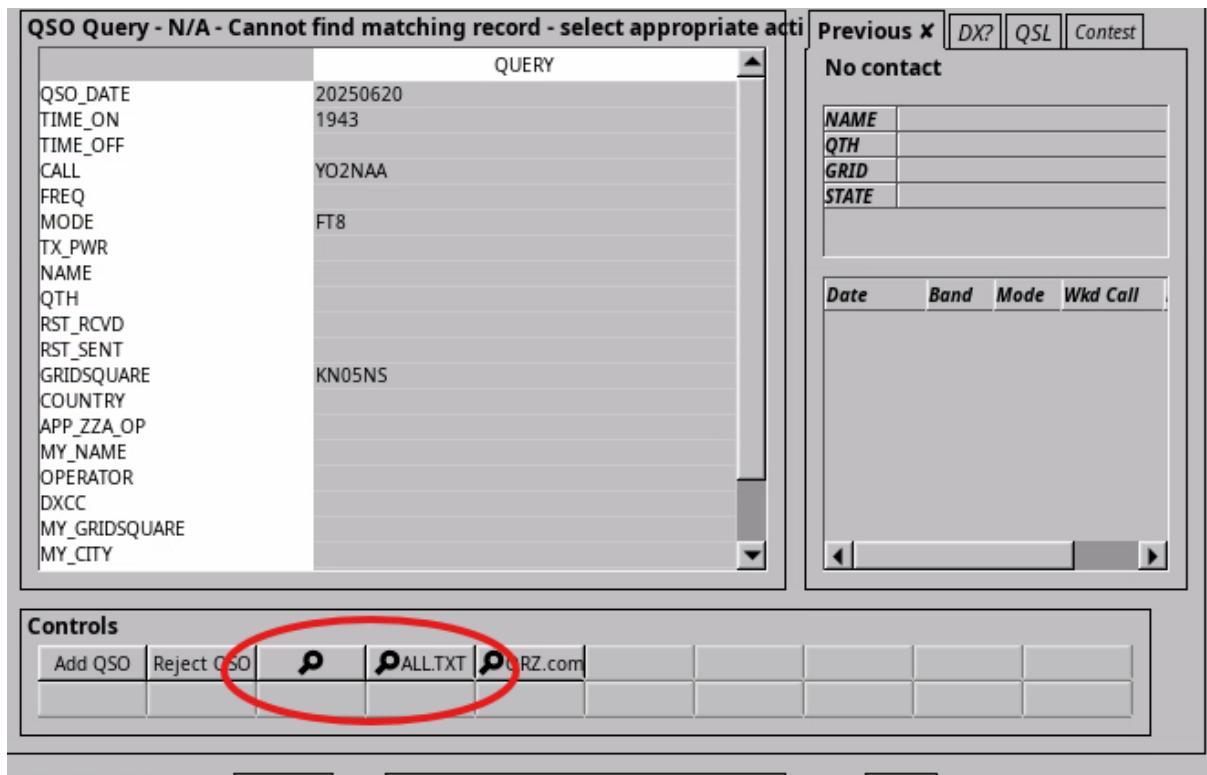


Figure 1.47 Example of a download from eQSL.cc, not found in this log

In this example, the two search buttons are highlighted. The button with just a search icon, will allow the user to step backwards and forwards through the log around the time of the reported QSO. The image below shows the result of clicking this button. It shows a comparison with the reported QSO and the logged one immediately after the time of that QSO.

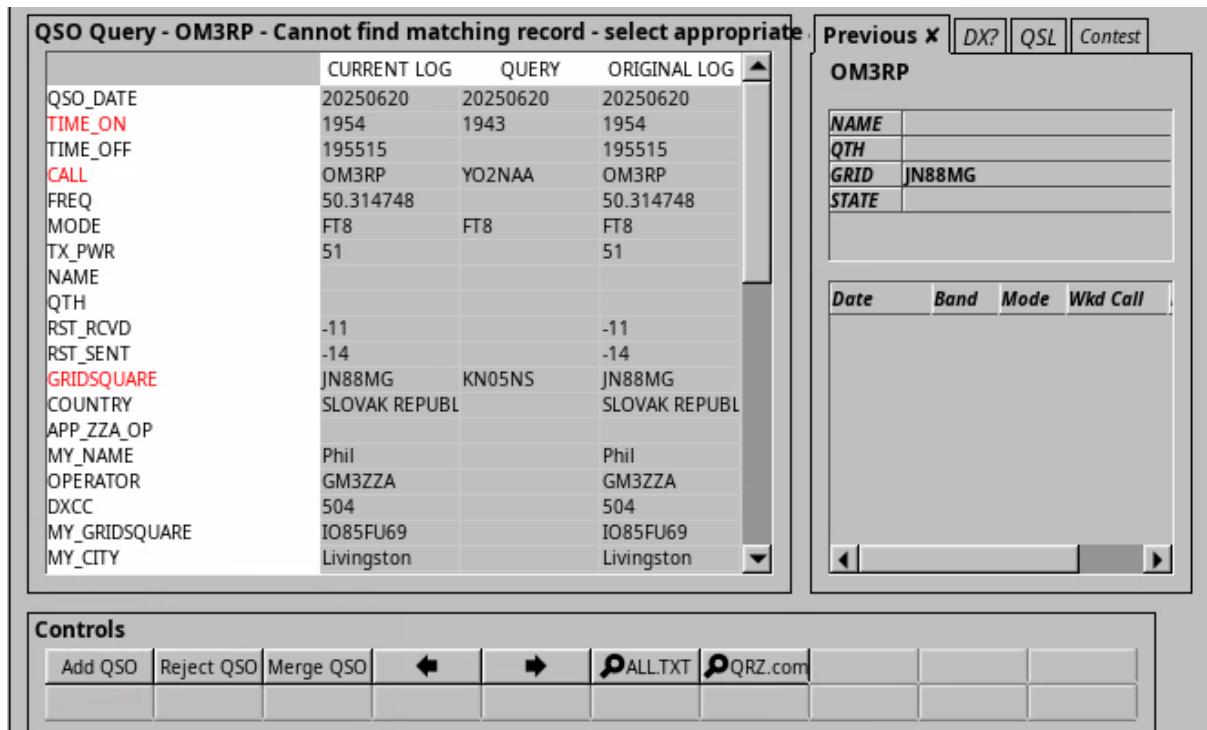


Figure 1.48 Searching for a possible match

The button also labeled "ALL.TXT" will look at the file produced by WSJT-X logging activity. This image shows that the callsign of the reported QSO was not found in the WSJT-X log around the time of the reported QSO.

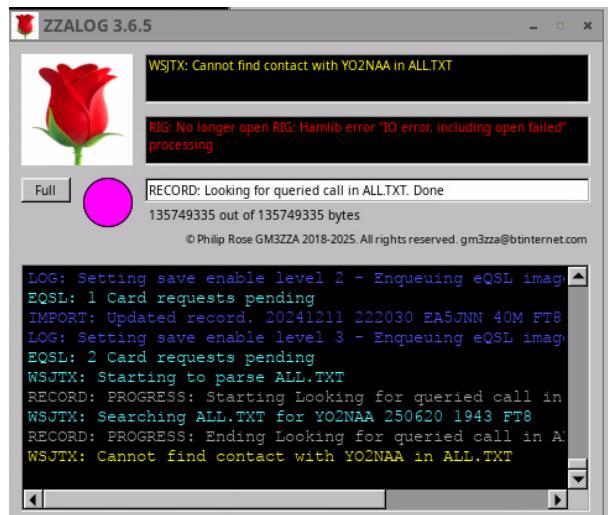


Figure 1.49 Search result from WSJT-X ALL.TXT file

For all QSLs that match, ZZALOG then sends a request to eSQL.cc for the image that goes with the record. The image received will be stored in filestore if this has been set up. The image below shows the filestore structure used by ZZALOG in storing QSL images received from eSQL.cc. To view these images, refer to [QSL Status](#).

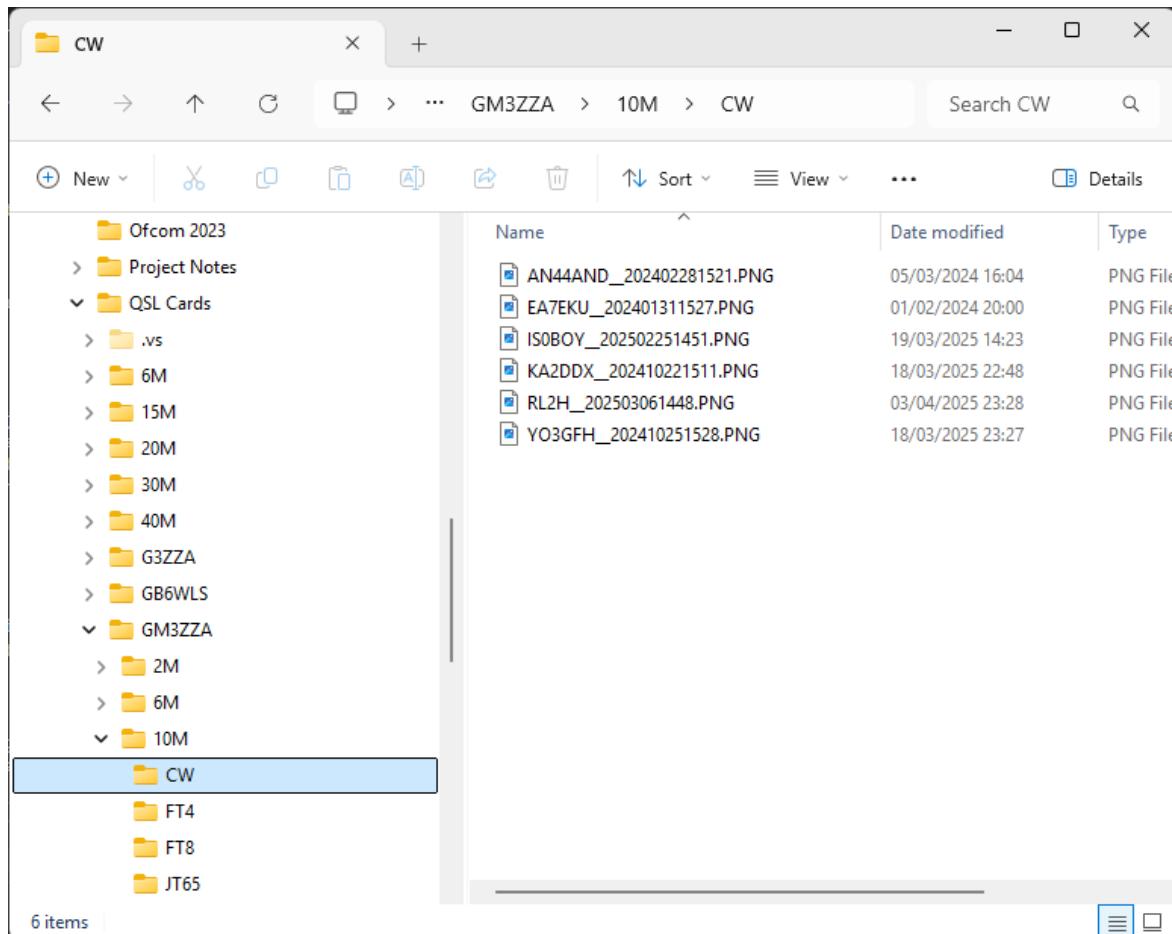


Figure 1.50 Filestore organisation for QSL card images

```
.../[Station Callsign]/[band] / [mode] / [call]__[timestamp].png
.../GM3ZZA/10M/CW/AN44AND__202402281521.PNG
```

### 1.5.8.2 Receiving QSLs

Other QSLs can be received as e-mail images or as physical cards, either direct or through the bureau. In all cases the reported QSO may be checked in the logbook. To find the QSO in the logbook follow the procedure in [Searching for a specific QSO](#). The image below shows the result of searching for a QSO on a particular date with a particular callsign.

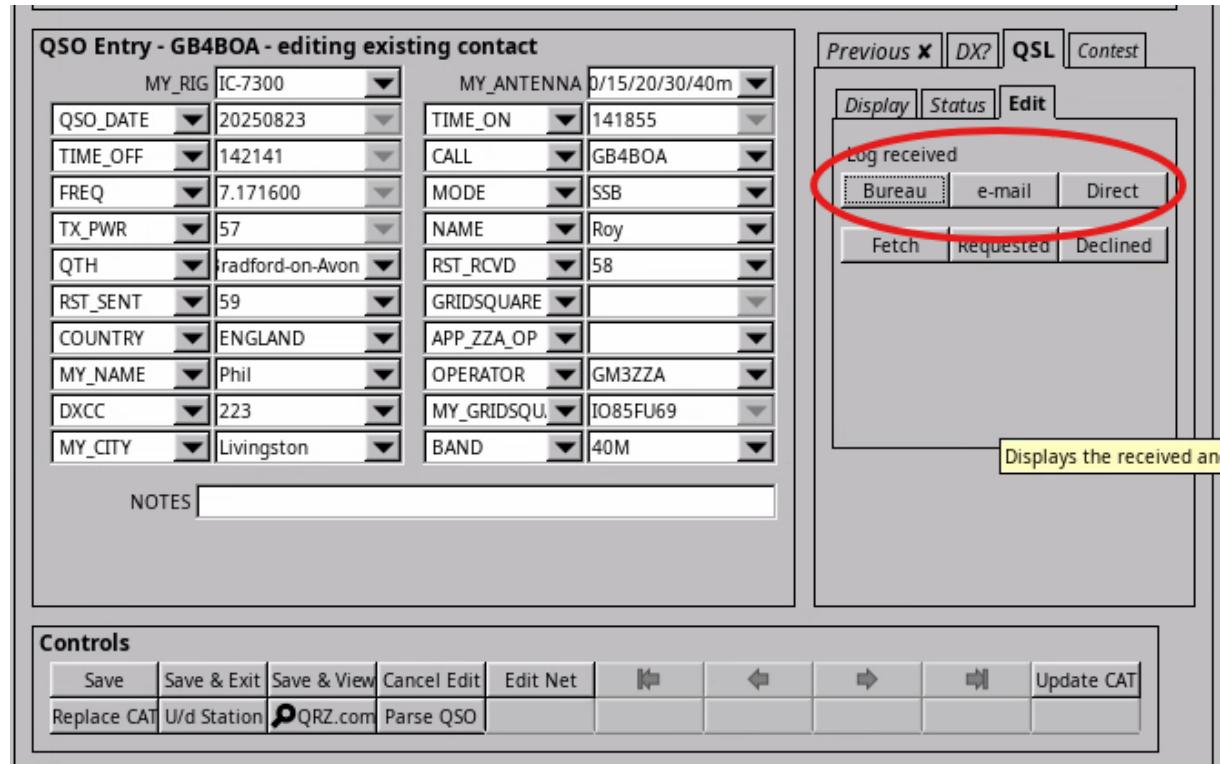


Figure 1.51 Search results matching a received QSL

In the "QSL/Edit" tab on the right of the image, there are buttons marked "Bureau", "e-mail" and "Direct". Click the button that is appropriate for how the card was received, and the QSO record will be updated accordingly. In the "QSL/Display" tab it will be possible to view the image provided that it has been saved with the correct name. For eQSL.cc images, the image is automatically saved to the location described above.

For e-mail images save the image to:

```
.../[Station Callsign]/email/[call]__[qso_date]
.../GM3ZZA/email/DL8MBF__20250630.jpg
```

For physical cards, you can scan the front and back of the card and save the images as:

```
.../[Station Callsign]/scans/[QSL rcvd date]/[call]__[qso_date]
.../[Station Callsign]/scans/[QSL rcvd date]/[call]++[qso_date]
.../GM3ZZA/scans/20161202/dg5mla__20150625.png
.../GM3ZZA/scans/20161202/dg5mla++20150615.png
```

**NB** Replace forward slash characters '/' with and underscore '\_' to avoid the slash being interpreted as a level of file hierarchy.

### 1.5.8.3 Sending QSLs

#### 1.5.8.3.1 Sending QSLs by e-mail



Figure 1.52 Controls for sending e-mail QSLs

ZZALOG provides the capability to create a design for an e-mail QSL card. See [Editing QSL cards for labels and e-mails](#). It is possible to process more than one card. Clicking the "Search" button will extract all records, for which an e-mail card has been received and not replied to. Alternatively an individual e-mail can be sent by clicking the check button "Only handle selected QSO".

To send the e-mail or e-mails follow the steps using the buttons from left to right:

- **file icon** this generates a PNG image files with the completed e-mails.
- **letter icon** this sends the e-mails.
- **Done** Once the e-mails have been sent this updates the QSO records. Only do this when you are sure the e-mail has been sent.

#### 1.5.8.3.2 Sending physical QSLs

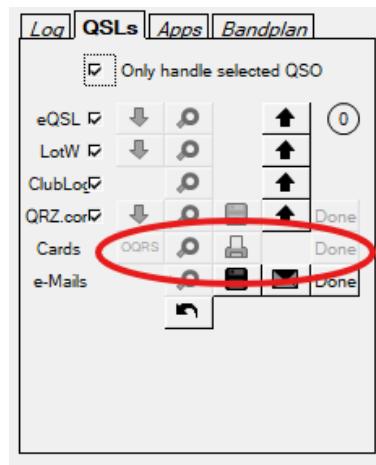


Figure 1.53 Controls for printing labels for QSL cards

ZZALOG provides the capability to create a design for a print label. See [Editing QSL cards for labels and e-mails](#). It is expected to process a batch of cards at one time, to optimise the use of printer label sheets.

The "Search" button will extract all QSOs that have the ADIF field QSL\_SENT set to "Q" (for queued) or "R" (for requested) or if not set and the QSL\_RCVD field is set to "Y".

The "Print" button will then print labels for all the extracted records. If enabled in the label image design more than one record for the same recipient can be printed on one label. Alternatively, the user can use the extracted list to hand-write QSL cards.

When the QSL cards have been sent, click the "Done" button while the extracted data is still present to update these QSO records.

#### 1.5.8.3.3 OQRS

OQRS, or the *On-line Qsl Request Service* is run as part of the clublog.org website. It is a facility that allows other operators to request a physical QSL card. Clicking the "OQRS" button will fetch a list of these requests. The records corresponding to this list will then be updated with QSL\_SENT to "R" (for requested).

## 1.6 Application Details

The application provides a number of windows:

- [Main Window](#)
- [Operating Dashboard](#)
- [Application Status Banner](#)
- [Virtual keyboard for non-ASCII characters](#)
- [Configuration](#)
- [Defining search criteria](#)
- [Bulk editing of records](#)

There is also a command-line interface:

- [Command-line interface](#)

The code documentation is available at:

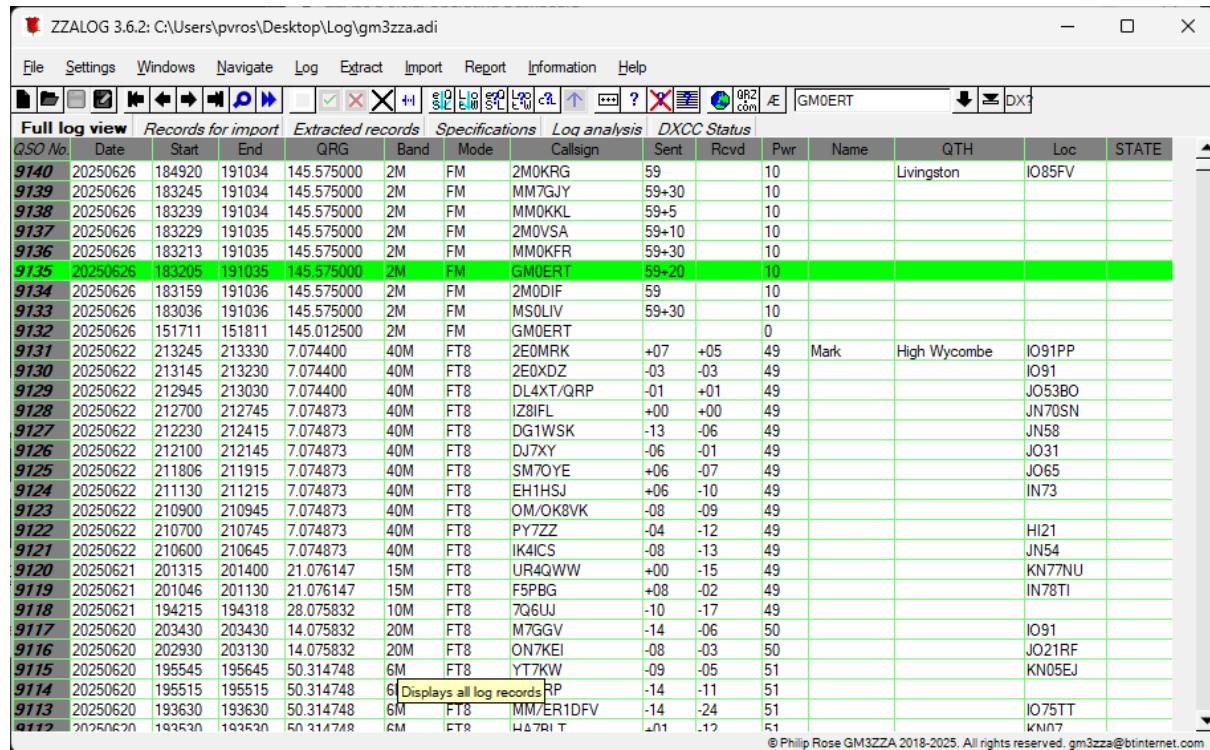
- [Code documentation.](#)

## 1.6.1 Main Window

### 1.6.1.1 Description

This contains the main menu, a toolbar and a set of views. These views offer:

- **Full Log View** A tabular view of the entire logbook. This may be ordered in chronological or reverse chronological order and the list of fields that are shown can be configured.
- **Records for Import** A tabular view of any records that are waiting to be imported into the logbook.
- **Extracted Records** A tabular view of all records that match the last query ran.
- **Specification** A tree view of the ADIF Specification. It provides details of the use of each field.
- **Log Analysis** A tree view of the analysis per DXCC entity, band or mode of stations worked in the logbook. The tree arrangement is configurable.
- **DXCC Status** A tabular view of the number of stations worked per DXCC, band and mode. The view is configurable.



The screenshot shows the ZZALOG 3.6.2 application window. The title bar reads "ZZALOG 3.6.2: C:\Users\pvros\Desktop\Log\gm3zza.adif". The menu bar includes File, Settings, Windows, Navigate, Log, Extract, Import, Report, Information, and Help. Below the menu is a toolbar with various icons for file operations like Open, Save, Print, and Log analysis. The main area is a table titled "Full log view" with columns for QSO No., Date, Start, End, QRG, Band, Mode, Callsign, Sent, Rcvd, Pwr, Name, QTH, Loc, and STATE. The table lists numerous entries, such as QSO 9140 on 20250626 at 184920, and QSO 9135 on 20250626 at 183205. The table has a green highlight over the header row and the row for QSO 9135. The bottom right of the table displays the copyright notice: "© Philip Rose GM3ZZA 2018-2025. All rights reserved. gm3zza@btinternet.com".

Figure 1.54 ZZALOG - main window

- Menu Bar
- Tool Bar (Action Icons)
- Individual views
  - Log Book Viewer
  - ADIF Information
  - Log analysis
  - An analysis of DXCCs worked

### 1.6.1.2 Menu Bar

#### 1.6.1.2.1 Description

Provides access to general application functions. The menu bar is situated at the top of the Main Window.

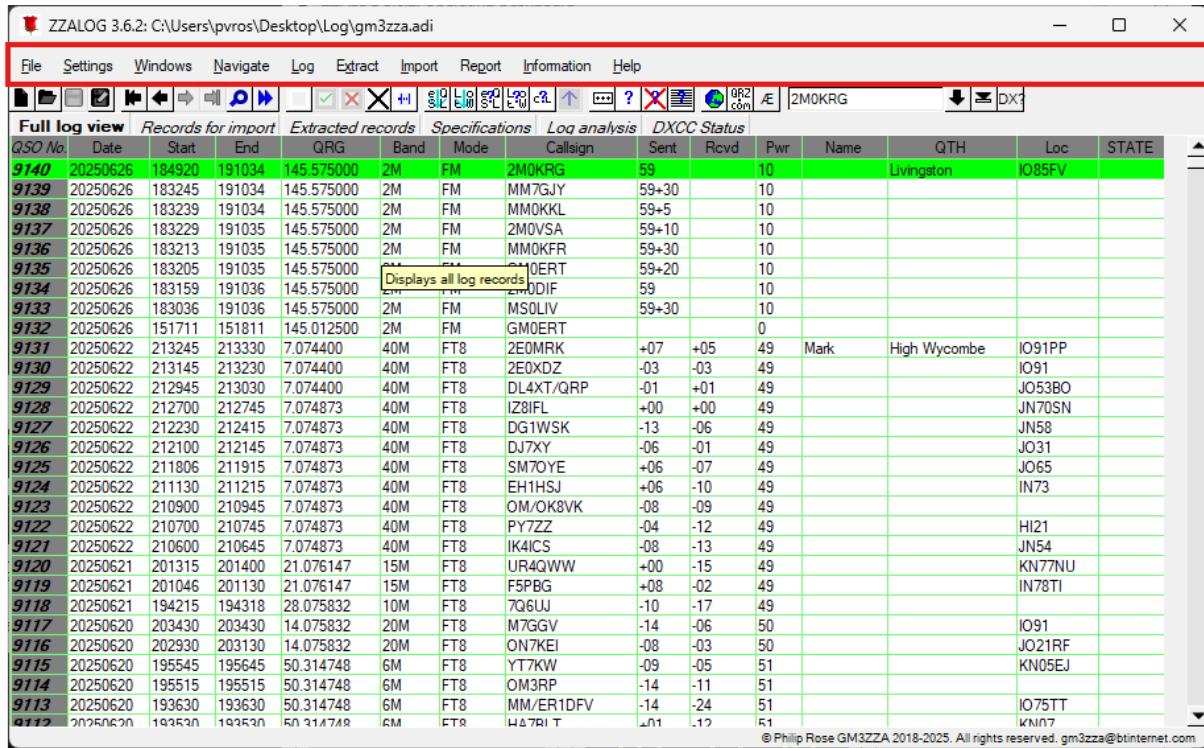


Figure 1.55 Position of menu bar within main window

#### 1.6.1.2.2 Features

##### 1.6.1.2.2.1 Items

- **File** - File-related actions.
  - **New** - Create a new book.
  - **Open** - Open an existing book.
  - **Read** - Open an existing file as read-only.
  - **Save** - Save the book and continue.
  - **Save As** - Save the book with a new name.
  - **Close** - Close the application.
  - **Print Log** - Print the log as it looks.
  - **Recent** - Opens a list of recent files that have opened.
  - **Backup** - Save a copy of the current log in a known place.
  - **Restore** - Open the saved backup.
- **Settings** - Access to configuration settings.
  - **Files** - Locations of pertinent files.
  - **Web sites** - Access to internet-connected features.

- **Fields** - Specification of which fields are used in the various features.
- **Station** - Define the various station locations, operators and callsigns used in the log.
- **User Config** - Allows limited user configuration of look and feel.
- **QSL Design** - Allows definition of QSL designs for card labels, and e-mails.
- **Contests** - Allows definition of contest algorithms.
- **All** - Displays all configuration data in a tree format.
- **Windows** - Control of visibility of windows.
  - **Show All** - Make all active windows visible.
  - **Hide All** - Minimise all windows.
  - **Main** - Toggle visibility of Main window.
  - **Dashboard** - Toggle visibility of Operating Dashboard.
  - **International Chars** - Toggle visibility of the non-ASCII character virtual keyboard.
- **Navigate** - Navigate through the log-book.
  - **First** - Select and display the first entry in the log.
  - **Previous** - Select and display the entry immediately before the current selection.
  - **Next** - Select and display the entry immediately after the current selection.
  - **Last** - Select and display the most recent entry in the log.
  - **Date** - Select and display the first entry on or after the date entered in the pop-up dialog.
  - **Record No** - Select and display the record numbered as entered in the pop-up dialog.
  - **Find**
    - \* **New** - Select and display the first record matching entered callsign.
    - \* **Next** - Select and display the next record matching the above callsign.
- **Log** - Activities affecting the log.
  - **New Record** - Create a new QSO - deprecated use [Operating Dashboard](#).
  - **Save Record** - Save the QSO to the log - deprecated use [Operating Dashboard](#).
  - **Retime Record** - Update QSO\_DATE\_OFF and TIME\_OFF to the current time.
  - **Cancel** - Cancel the current QSO entry - deprecated use [Operating Dashboard](#).
  - **Delete Record** - Remove the selected record from the log - deprecated use [Operating Dashboard](#).
  - **Parse Record** - Decode the call in the selected record and add relevant data to record.
  - **Unparse Record** - Remove fields added by parsing.
  - **Reparse Record** - Combination of Unparse and Parse Record.
  - **Validate Record** - Check all fields of the selected record are ADIF-compliant.
  - **Parse Log** - Do "Parse Record" on all records in displayed log.
  - **Validate Log** - Do "Validate Record" on all records in displayed log.
  - **Suspend Save** - Toggle whether the log is automatically saved after each QSO.
  - **Bulk Changes** - Opens a dialog to perform the same edit operation on each record in the displayed log.
  - **Check Duplicates** - Scans the displayed log for any records that may be duplicates.
  - **Edit Header** - Opens a dialog to edit the ADIF header record.
  - **Session** - set the current operating session - highlighted as...
    - \* **Today** - include all QSOs with the current date.
    - \* **Start Session** - start the session from the selected record.
    - \* **Stop Session** - exclude all current QSOs from the session and start a new one.
- **Extract** - Extract records from the log, display them and undergo actions on them.

- **Clear** - clear extracted data.
  - **Criteria** - Opens dialog to define selection criteria, and extract records accordingly.
  - **Redo** - Repeat the previous extraction selection.
  - **Special** - Special extraction criteria.
    - \* **No Name** - Extract records with no name.
    - \* **No QTH** - Extract records with no QTH.
    - \* **Small Locator** - Extract records with 0, 2 or 4-character gridsquare locators.
    - \* **No Image** - Extract records with no card image downloaded from eQSL.cc - **NB** takes a long time.
  - **Display** - Displays a tooltip showing current extraction criteria.
  - **eQSL** - Extract records that need uploading to eQSL.cc.
  - **LotW** - Extract records that need uploading to Logbook of the World.
  - **Card** - Extract records that need labels printing for QSL cards.
  - **e-Mail** - Extract records that need response e-mailed QSLs.
  - **Clublog** - Extract records that need uploading to Clublog.org.
  - **QRZ.com** - Extract records that need uploading to QRZ.com.
  - **Save** - Save the extracted records as a separate ADIF file.
  - **Upload** - Upload records extracted for that purpose - target site set by previous extract.
  - **Print Cards** - Print labels for records extracted for that purpose.
  - **Send e-Mail** - send e-mails for records extracted for that purpose.
  - **Mark Sent** - Mark records extracted for "Print Cards" and "Send e-Mail" as being done.
  - **Download Images** - Download images from eQSL.cc for extracted records.
- **Import** - Import records from divers sources.
    - **File** - Read new records from a file in preparation for import.
    - **File (Update QSOs)** - Read data records in preparation for merging with existing records.
    - **File (QRZ.com)** - Read data from QRZ.com for existing records.
    - **Download eQSL** - Download an update file from eQSL.cc.
    - **Download LotW** - Download an update file from Logbook of the World.
    - **Download QRZ.com** - Download an update file from QRZ.com.
    - **Clipboard** - Import records pasted to the clipboard (as ADIF text).
    - **WSJT-X UDP** - Start importing records sent from WSJT-X.
    - **Merge (New QSOs)** - Merge imported records into current log - add new records.
    - **Merge (Update QSOs)** - Merge imported records into current log - merge with existing records.
    - **Cancel** - Remove separate import data.
  - **Report** - Configure the report view.
    - **Clear** - Remove data from analysis report.
    - **All** - Add all data from the log to the analysis report.
    - **All Station** - Add all data using the specified station callsign to the report.
    - **Extracted** - Add the extracted data to the analysis report.
    - **Selected Record** - Add only the selected record to the analysis report.
    - **Level N** - Nth level of the analysis tree (For N=1, 2 and 3).
      - \* **Entities** - DXCC Entities.
      - \* **Entities/States** - DXCC Entities with primary administrative subdivisions. The subdivisions form an extra branch to the tree.
      - \* **Bands** - Bands.
      - \* **Modes** - Modes used.

- \* **Callsigns** - Group records with the same callsign.
- \* **Custom** - Allow a custom selection.
- **Information** - Miscellaneous information sources.
  - **QRZ.com** - Open the QRZ.com page for the callsign in the selected record.
  - **Google Maps** - Open Google maps at the location indicated by the QTH or Gridsquare in the selected record.
  - **QSO Web-site** - Open the web-page specified in the selected record.
- **Help**
  - **About** - Opens a dialog displaying the version information of ZZALOG and component libraries.
  - **User Guide** - Opens the User Guide.

### 1.6.1.3 Tool Bar (Action Icons)

#### 1.6.1.3.1 Description

Displays a set of iconised buttons linked to main menu action. There are also a limited number of search features.

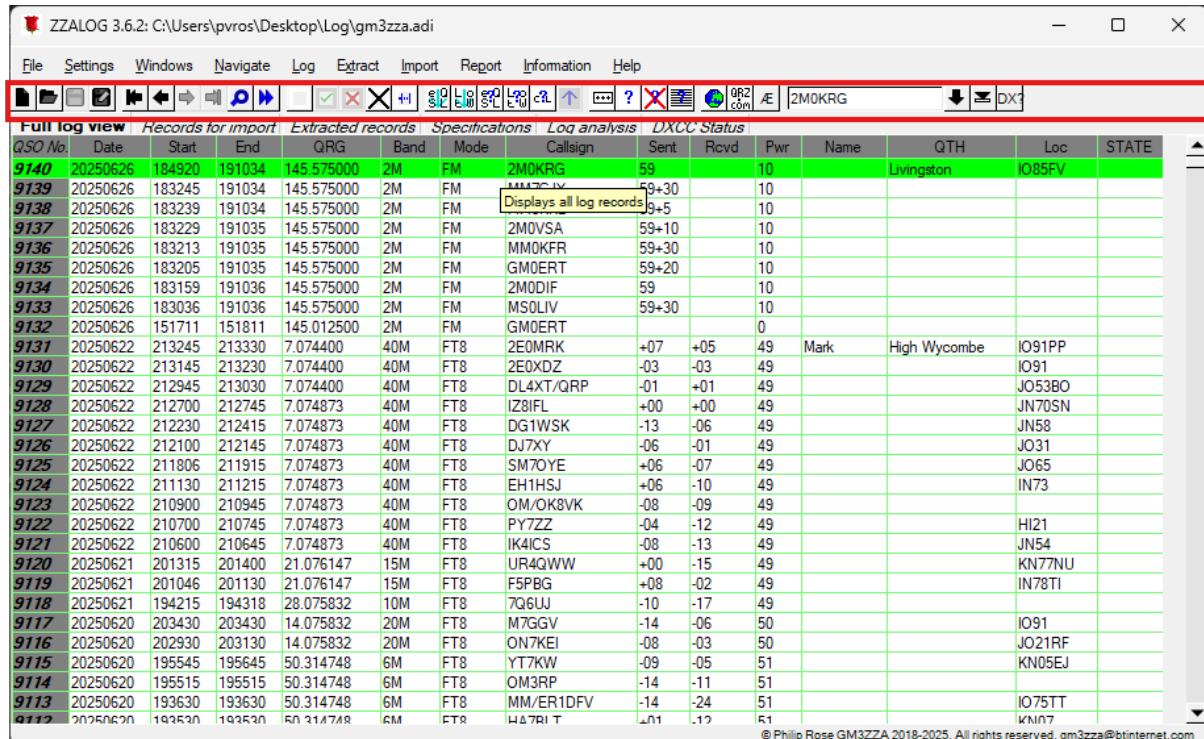


Figure 1.56 Location of toolbar within main window

#### 1.6.1.3.2 Features

##### 1.6.1.3.2.1 Iconised Menu Actions

The majority of buttons contain links to the Menu bar.



Figure 1.57 File access controls

- **Closed file icon** - File->New.
- **Open file icon** - File->Open.
- **Floppy disc icon** - File->Save.
- **Floppy disc with pen icon** - File->Save As.



Figure 1.58 Navigation controls

- **Left arrow with bar** - Navigate->First.
- **Left arrow** - Navigate->Previous.
- **Right arrow** - Navigate->Next.
- **Right arrow with bar** - Navigate->Last.
- **Blue Magnifying glass** - Navigate->Find->New.
- **Blue double chevron** - Navigate->Find->Next.



Figure 1.59 Logging controls

- **White open square** - Log->New Record.
- **White square with tick** - Log->Save Record.
- **White square with red cross** - Log->Cancel.
- **Large white square with black cross** - Log->Delete Record.
- **White square containing blue image** - Log->Retime Record.



Figure 1.60 Extract and import controls

- **Cyan downward arrow over "eQSL"** - Import->Download eQSL.
- **Cyan downward arrow over "LotW"** - Import->Download LotW.
- **Blue "?" over "eQSL"** - Extract->eQSL.
- **Blue "?" over "LotW"** - Extract->LotW.
- **Blue "?" over "CL"** - Extract->ClubLog.
- **Upward arrow** - Extract->Upload.

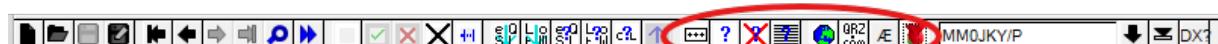


Figure 1.61 Miscellaneous controls

- **Box with three dots** - Connect/Disconnect Rig.
- **Blue "?"** - Extract->Criteria.
- **Blue "?" with red cross** - Extract->Clear.
- **Blue "?" superimposed with horizontal lines** - Extract->Display.
- **Image of world** - Information->Google Maps.
- **"QRZ.com"** - Information->QRZ.com.
- **"Æ"** - Windows->International Chars.
- **Rose icon** - Help->User Guide.



Figure 1.62 Search controls

- **Text input** - Enter callsign for search features.
- **Bold downward arrow** - Find next occurrence of callsign.
- **Downward chevron and bar** - Extract all occurrences of callsign.
- **"DX?"** - Display parsing of the callsign.

#### 1.6.1.4 Log Book Viewer

Full log view   Records for import   Extracted records   Specifications   Log analysis   DXCC Status														
QSO No.	Date	Start	End	QRG	Band	Mode	Callsign	Sent	Rcvd	Pwr	Name	QTH	Loc	STATE
1	20050925	145100	145200	14.0	20M	CW	OK1DIL	599	599	10	A	Nr Praha	JN69VU	
2	20051226	1228	1235	14	20M	CW	IK2RMZ	599	599	10			JN45HT	
3	20060402	145300	145310	14	20M	CW	SP9EML	599	599	10			JN99MT	
4	20060416	1610	161010	14	20M	CW	YU1EA	599		10			KN04ER	
5	20060416	161000	161010	14	20M	CW	YU1CA/QRP	599	599	10			KN04DK	
6	20060618	142700	142710	21	15M	CW	DQ2006L	599	599	10			JO40IC	
7	20060618	145800	145810	14	20M	CW	DR2006D	599	599	10			JO62QM	
8	20150614	140600	142555	14.072108	20M	PSK31	IN3GNV	599	599	3	Giovanni	Bolzano	JN62KS	
9	20150614	143400	143734	14.071225	20M	PSK31	IV3JER	599	...	3	Frank	Flabiano	JN66LB	IT
10	20150614	221600	222035	14.070626	20M	PSK31	SP8QC	599	599	3	Andy	Nisko	KO10BM	
11	20150614	222900	223554	14.070922	20M	PSK31	CT4RC	599	...	3	Tony	Faro	IM67AA	
12	20150614	223600	224226	14.070745	20M	PSK31	I20UIJ	599	599	3	Roberto	Antrodoco	JN62MK	RI
13	20150616	140500	140850	14.071585	20M	PSK31	OM3DM	599	599	3	Dusan	Detva	JN98QN	
14	20150616	141100	141620	14.072173	20M	PSK31	EW8CG	599	599	3	Vasiliy	Gomel	KO52KL	HO
15	20150617	144200	144559	14.072768	20M	PSK31	9A/DL6AWJ/P	599	599	3	Mali Ninj	JN74FM		
16	20150617	144800	145136	14.071321	20M	PSK31	TF2MSN	599	599	3	Odin	Akranes	HP84XH	
17	20150617	145200	145758	14.070539	20M	PSK31	DK0NFL	599	599	3	Klaus	Forst	JO71HR	
18	20150617	184800	185127	14.071361	20M	PSK31	R1TJ	599	599	3	Ivan	Yablonovo	KO57QU	NV
19	20150617	185300	185701	14.070562	20M	PSK31	ON1AEY	599	599	3	Peter	Deurle	JO11TA	
20	20150617	190400	191033	14.070702	20M	PSK31	IU8ALH	599	599	3	Antonino	Sapir	JN70TB	SA
21	20150617	191500	192104	14.070487	20M	PSK31	UT3GP	599	...	3	Sergey	Kherson	KN59RB	HE
22	20150618	210300	210842	10.141803	30M	PSK31	DK6AR	599	599	3	Werner	Goslar	JO51FV	
23	20150618	212000	212432	14.072500	20M	PSK31	UA4WGS	599	599	3	Valeriy	Izhevsk	LO66BX	UD
24	20150618	212800	213345	14.071188	20M	PSK31	EA1JF	599	599	3	Valentin	Nigran	IN52OD	PO
25	20150618	215300	215818	14.071716	20M	PSK31	AM510HRE	599	599	3	Jose Manuel	Cartageoci The Soul	IM97LP	
26	20150618	220100	220502	14.071007	20M	PSK31	OE5EGN	599	599	3	Karl	Gmunden	JN67VW	
27	20150619	135400	140054	14.071344	20M	PSK31	PD0IBA	489	599	3	Henk	Papendrecht, 20 Km	JO21IU	
28	20150619	182600	182933	14.071767	20M	PSK31	RV3DGL	599	599	3	Alex	Elektros	KO95FT	MO
29	20150619	183200	183454	14.070575	20M	PSK31	2M0WFW	599	599	2	Carsten	Wihlheim	IN52RNI	

Figure 1.63 Position of logbook view within main window

##### 1.6.1.4.1 Description

This pane displays the log-book view of the data.

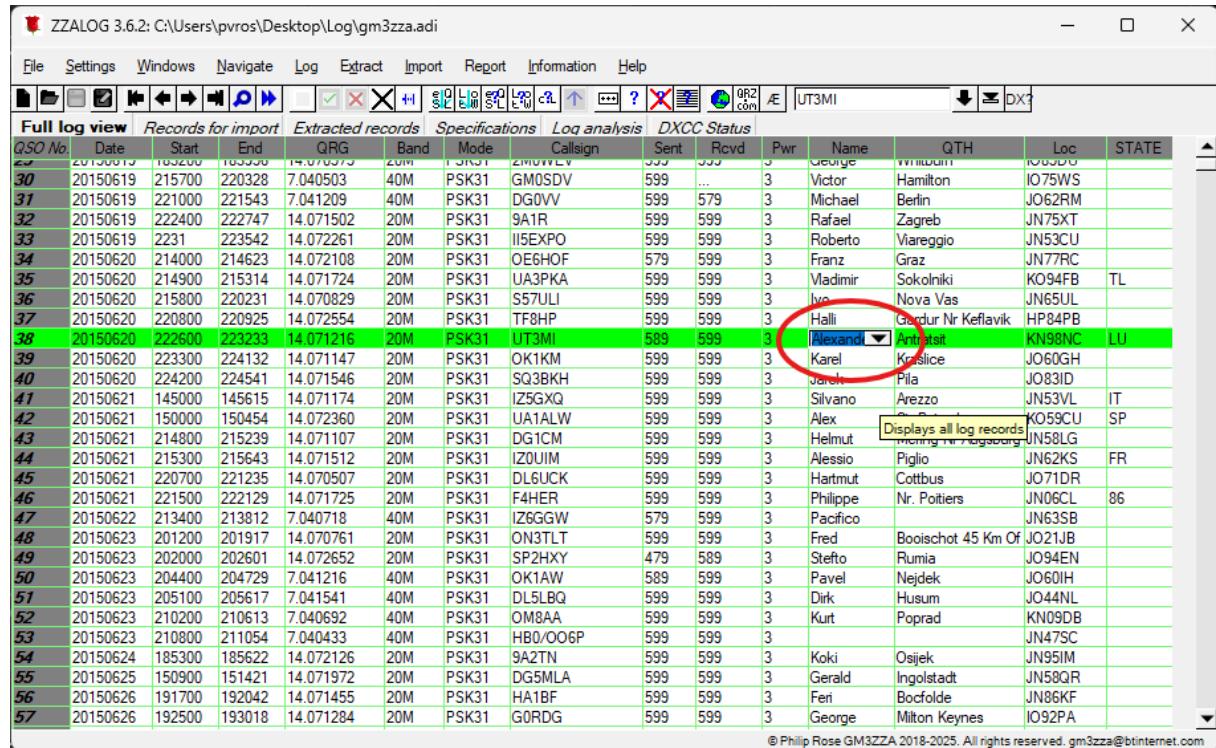
### 1.6.1.4.2 Features

#### 1.6.1.4.2.1 Selecting a record

Clicking on a line will select the record displayed in the line. This will make this record the current record being worked on in all views.

#### 1.6.1.4.2.2 Editing an entry

Double-clicking on an entry will open an edit box that allows for the data within the field of the record to be edited.

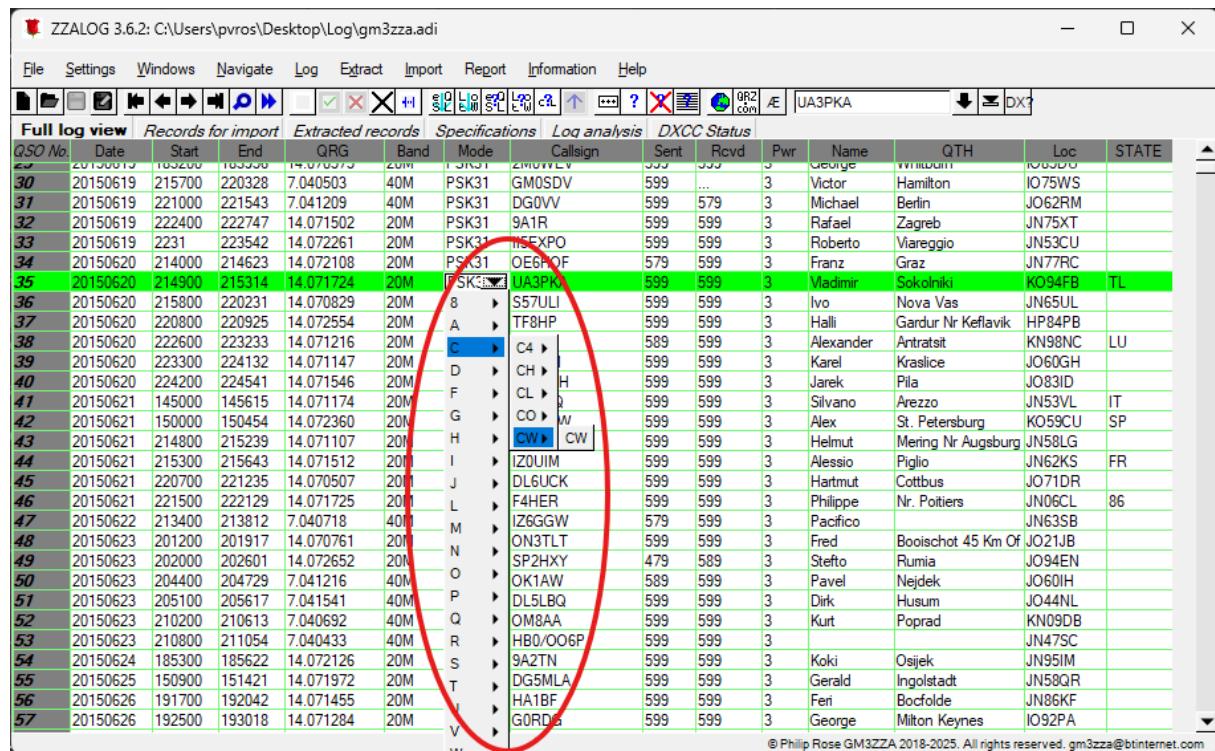


The screenshot shows the ZZALOG 3.6.2 application window. The title bar reads "ZZALOG 3.6.2: C:\Users\pvros\Desktop\Log\gm3zza.adl". The menu bar includes File, Settings, Windows, Navigate, Log, Extract, Import, Report, Information, and Help. Below the menu is a toolbar with various icons. The main area displays a table of QSO records. A specific row (QSO #38) is highlighted in green. In the "Name" column for this row, there is an edit box containing "Alexander". A red circle highlights the dropdown arrow of this edit box. A tooltip "Displays all log records" is visible near the bottom right of the edit box. The table columns are: QSO No., Date, Start, End, QRG, Band, PSK31, Callsign, Sent, Rcvd, Pwr, Name, QTH, Loc, and STATE. The "Name" column for QSO #38 contains a dropdown menu with options: Alexander, Hartmut, Karel, Jack, Silvano, Alex, Helmut, Alessio, Hartmut, Philippe, Fred, Steffo, Pavel, Dirk, Kurt, Poprad, and Displays all log records.

QSO No.	Date	Start	End	QRG	Band	PSK31	Callsign	Sent	Rcvd	Pwr	Name	QTH	Loc	STATE
29	20150619	183200	183330	14.071375	20M	PSK31	ZMUVLV	599	599	3	George	Winnibigum	JN53DU	
30	20150619	215700	220328	7.040503	40M	PSK31	GM0SDV	599	...	3	Victor	Hamilton	IO75WS	
31	20150619	221000	221543	7.041209	40M	PSK31	DG0VV	599	579	3	Michael	Berlin	JO62RM	
32	20150619	222400	222747	14.071502	20M	PSK31	9A1R	599	599	3	Rafael	Zagreb	JN75XT	
33	20150619	2231	223542	14.072261	20M	PSK31	I15EXPO	599	599	3	Roberto	Viareggio	JN53CU	
34	20150620	214000	214623	14.072108	20M	PSK31	OE6HOF	579	599	3	Franz	Graz	JN77RC	
35	20150620	214900	215314	14.071724	20M	PSK31	UA3PKA	599	599	3	Vladimir	Sokolniki	KO94FB	TL
36	20150620	215800	220231	14.070829	20M	PSK31	S57ULI	599	599	3	Ivo	Nova Vas	JN65UL	
37	20150620	220800	220925	14.072554	20M	PSK31	TF8HP	599	599	3	Halli	Gerdur Nr Keflavik	HP84PB	
38	20150620	222600	223233	14.071216	20M	PSK31	UT3MI	599	599	3	Alexander	Antritbit	KN98NC	LU
39	20150620	223300	224132	14.071147	20M	PSK31	OK1KM	599	599	3	Karel	Kralice	JO60GH	
40	20150620	224200	224541	14.071546	20M	PSK31	SQ3BKH	599	599	3	Jack	Pila	JO83ID	
41	20150621	145000	145615	14.071174	20M	PSK31	IZ5GXQ	599	599	3	Silvano	Arezzo	JN53VL	IT
42	20150621	150000	150454	14.072360	20M	PSK31	UA1ALW	599	599	3	Alex	...	KO95CU	SP
43	20150621	214800	215239	14.071107	20M	PSK31	DG1CM	599	599	3	Helmut	Moring Nr Hagenburg	JN58LG	
44	20150621	215300	215643	14.071512	20M	PSK31	IZ0UIM	599	599	3	Alessio	Piglio	JN62KS	FR
45	20150621	220700	221235	14.070507	20M	PSK31	DL6UCK	599	599	3	Hartmut	Cottbus	J071DR	
46	20150621	221500	222129	14.071725	20M	PSK31	F4HER	599	599	3	Philippe	Nr. Poitiers	JN06CL	86
47	20150622	213400	213812	7.040718	40M	PSK31	IZ6GGW	579	599	3	Pacifico		JN63SB	
48	20150623	201200	201917	14.070761	20M	PSK31	ON3TLT	599	599	3	Fred	Booischot 45 Km Of	J021JB	
49	20150623	202000	202601	14.072652	20M	PSK31	SP2HXY	479	589	3	Steffo	Rumia	J094EN	
50	20150623	204400	204729	7.041216	40M	PSK31	OK1AW	589	599	3	Pavel	Nejdek	J060IH	
51	20150623	205100	205617	7.041541	40M	PSK31	DL5LBQ	599	599	3	Dirk	Husum	J044NL	
52	20150623	210200	210613	7.040692	40M	PSK31	OM8AA	599	599	3	Kurt	Poprad	KN09DB	
53	20150623	210800	211054	7.040433	40M	PSK31	HB0/OO6P	599	599	3			JN47SC	
54	20150624	185300	185622	14.072126	20M	PSK31	9A2TN	599	599	3	Koki	Osijsk	JN95IM	
55	20150625	150900	151421	14.071972	20M	PSK31	DG5MLA	599	599	3	Gerald	Ingolstadt	JN58QR	
56	20150626	191700	192042	14.071455	20M	PSK31	HA1BF	599	599	3	Feri	Bocfode	JN86KF	
57	20150626	192500	193018	14.071284	20M	PSK31	G0RDG	599	599	3	George	Milton Keynes	IO92PA	

Figure 1.64 Editing a field in the logbook view

Clicking the drop-down arrow while the edit box is active will show the allowable data to be entered.



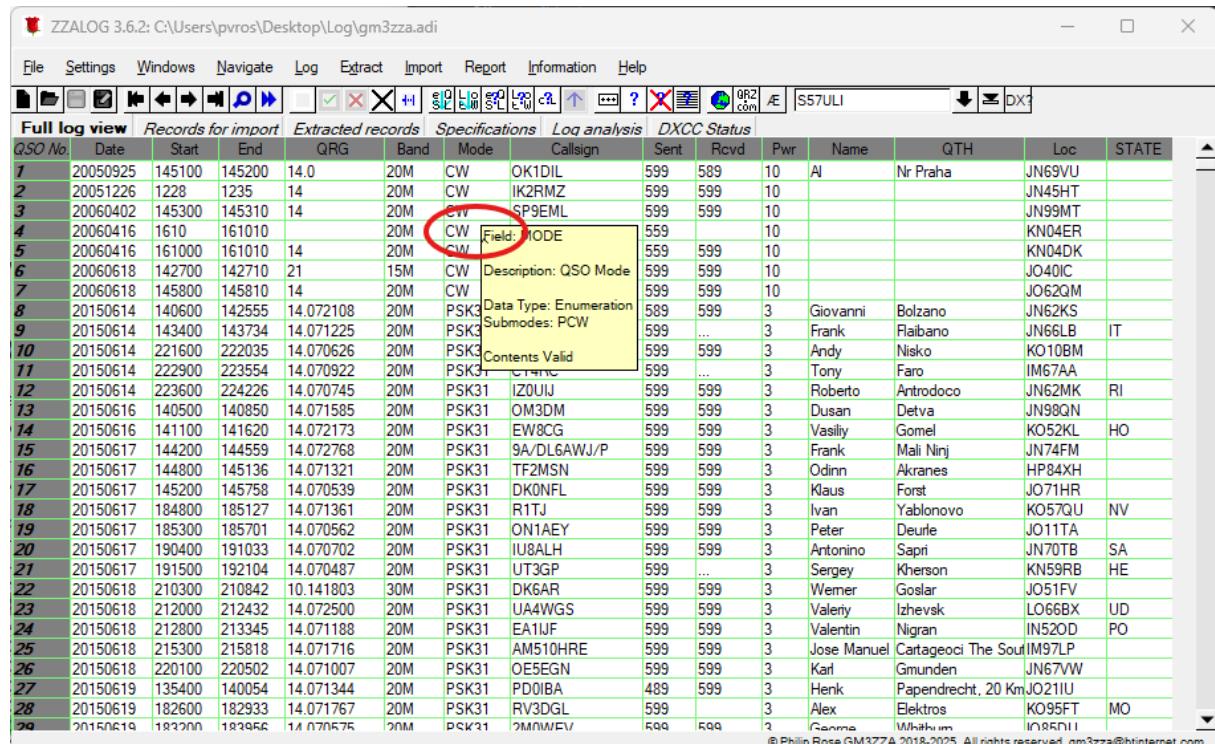
The screenshot shows a table of QSO logs. A red circle highlights a tooltip for the 'Mode' column of the 4th row. The tooltip contains the text 'Field: MODE' and 'Description: QSO Mode'. The table has columns for QSO No., Date, Start, End, QRG, Band, Mode, Callsign, Sent, Rcvd, Pwr, Name, QTH, Loc, and STATE.

QSO No.	Date	Start	End	QRG	Band	Mode	Callsign	Sent	Rcvd	Pwr	Name	QTH	Loc	STATE
1	20150619	185200	185535	14.070375	20M	PSK31	ZM0UVL	599	599	3	George	Winnipeg	JO35JU	
30	20150619	215700	220328	7.040503	40M	PSK31	GM0SDV	599	...	3	Victor	Hamilton	IO75WS	
31	20150619	221000	221543	7.041209	40M	PSK31	DG0VV	599	599	3	Michael	Berlin	JO62RM	
32	20150619	222400	222747	14.071502	20M	PSK31	9A1R	599	599	3	Rafael	Zagreb	JN75XT	
33	20150619	2231	223542	14.072261	20M	PSK31	II5EXPO	599	599	3	Roberto	Viareggio	JN53CU	
34	20150620	214000	214623	14.072108	20M	PSK31	OE6HOF	599	599	3	Franz	Graz	JN77RC	
35	20150620	214900	215314	14.071724	20M	PSK31	UA3PKA	599	599	3	Madimir	Sokolniki	KO94FB	TL
36	20150620	215800	220231	14.070829	20M	8	S57ULI	599	599	3	Ivo	Nova Vas	JN65UL	
37	20150620	220800	220925	14.072554	20M	A	TF8HP	599	599	3	Halli	Gardur Nr Keflavik	HP84PB	
38	20150620	222600	223233	14.071216	20M	C	C4	599	599	3	Alexander	Antratit	KN98NC	LU
39	20150620	223300	224132	14.071147	20M	D	CH	599	599	3	Karel	Kraslice	JO60GH	
40	20150620	224200	224541	14.071546	20M	F	CL	599	599	3	Jarek	Pila	JO83ID	
41	20150621	145000	145615	14.071174	20M	G	CO	599	599	3	Silvano	Arezzo	JN53VL	IT
42	20150621	150000	150454	14.072360	20M	H	CW	599	599	3	Alex	St. Petersburg	KO59CU	SP
43	20150621	214800	215239	14.071107	20M	I	I2OUIM	599	599	3	Helmut	Mening Nr Augsburg	JN58LG	
44	20150621	215300	215643	14.071512	20M	J	DL6UCK	599	599	3	Alessio	Piglio	JN62KS	FR
45	20150621	220700	221235	14.070507	20M	L	F4HER	599	599	3	Hartmut	Cottbus	J071DR	
46	20150621	221500	222129	14.071725	20M	M	IZ6GGW	599	599	3	Philippe	Nr. Poitiers	JN06CL	86
47	20150622	213400	213812	7.040718	40M	N	ON3TLT	599	599	3	Pacifico		JN63SB	
48	20150623	201200	201917	14.070761	20M	O	SP2HXY	479	589	3	Fred	Booischot 45 Km Of	J021JB	
49	20150623	202000	202601	14.072652	20M	P	OK1AW	589	599	3	Stefto	Rumia	J094EN	
50	20150623	204400	204729	7.041216	40M	Q	DL5LBQ	599	599	3	Pavel	Nejdek	JO60IH	
51	20150623	205100	205617	7.041541	40M	R	OM8AA	599	599	3	Dirk	Husum	JO44NL	
52	20150623	210200	210613	7.040692	40M	S	HB0/OO6P	599	599	3	Kurt	Poprad	KN09DB	
53	20150623	210800	211054	7.040433	40M	T	9A2TN	599	599	3	Koki	Osijek	JN95IM	
54	20150624	185300	185622	14.072126	20M	U	DG5MLA	599	599	3	Gerald	Ingolstadt	JN58QR	
55	20150625	150900	151421	14.071972	20M	V	HA1BF	599	599	3	Feri	Bocofde	JN86KF	
56	20150626	191700	192042	14.071455	20M	W	G0RDA	599	599	3	George	Milton Keynes	IO92PA	
57	20150626	192500	193018	14.071284	20M	X								

Figure 1.65 Entering pre-defined values

#### 1.6.1.4.2.3 Displaying details

Right-clicking on a field within a record will display a tooltip explaining what the field is for, and whether the current data within is valid.



The screenshot shows a table of QSO logs. A red circle highlights a tooltip for the 'Mode' column of the 4th row. The tooltip contains the text 'Field: MODE' and 'Description: QSO Mode'. The table has columns for QSO No., Date, Start, End, QRG, Band, Mode, Callsign, Sent, Rcvd, Pwr, Name, QTH, Loc, and STATE.

QSO No.	Date	Start	End	QRG	Band	Mode	Callsign	Sent	Rcvd	Pwr	Name	QTH	Loc	STATE
1	20050925	145100	145200	14.0	20M	CW	OK1DIL	599	589	10	AI	Nr Praha	JN69VU	
2	20051226	1228	1235	14	20M	CW	IK2RMZ	599	599	10			JN45HT	
3	20060402	145300	145310	14	20M	CW	SP9EML	599	599	10			JN99MT	
4	20060416	1610	161010	20M	CW	Field: MODE		599	10				KN04ER	
5	20060416	161000	161010	14	20M	CW	Description: QSO Mode	599	599	10			KN04DK	
6	20060618	142700	142710	21	15M	CW	Data Type: Enumeration	599	599	10			JO40IC	
7	20060618	145800	145810	14	20M	CW	Submodes: PCW	599	599	10			JO62QM	
8	20150614	140600	142555	14.072108	20M	PSK31	PSK31	589	599	3	Giovanni	Bolzano	JN62KS	
9	20150614	143400	143734	14.071225	20M	PSK31	PSK31	599	...	3	Frank	Rlaibano	JN66LB	IT
10	20150614	221600	222035	14.070626	20M	PSK31	PSK31	599	599	3	Andy	Nisko	KO10BM	
11	20150614	222900	223554	14.070922	20M	PSK31	PSK31	599	...	3	Tony	Faro	IM67AA	
12	20150614	223600	224226	14.070745	20M	PSK31	I2OUIJ	599	599	3	Roberto	Antrodoco	JN62MK	RI
13	20150616	140500	140850	14.071585	20M	PSK31	OM3DM	599	599	3	Dusan	Detva	JN98QN	
14	20150616	141100	141620	14.072173	20M	PSK31	EW8CG	599	599	3	Vasiliy	Gomel	KO52KL	HO
15	20150617	144200	144559	14.072768	20M	PSK31	9A/DL6AWJU/P	599	599	3	Frank	Mali Nirj	JN74FM	
16	20150617	144800	145136	14.071321	20M	PSK31	TF2MSN	599	599	3	Odinn	Akranes	HP84XH	
17	20150617	145200	145758	14.070539	20M	PSK31	DK0NFL	599	599	3	Klaus	Forst	J071HR	
18	20150617	184800	185127	14.071361	20M	PSK31	R1TJ	599	599	3	Ivan	Yablonovo	KO57QU	NV
19	20150617	185300	185701	14.070562	20M	PSK31	ON1AEY	599	599	3	Peter	Deurle	J011TA	
20	20150617	190400	191033	14.070702	20M	PSK31	IU8ALH	599	599	3	Antonino	Sapi	JN70TB	SA
21	20150617	191500	192104	14.070487	20M	PSK31	UT3GP	599	...	3	Sergey	Kherson	KN59RB	HE
22	20150618	210300	210842	10.141803	30M	PSK31	DK6AR	599	599	3	Werner	Goslar	J051FV	
23	20150618	212000	212432	14.072500	20M	PSK31	UA4WGS	599	599	3	Valerie	Izhevsk	LO66BX	UD
24	20150618	212800	213345	14.071188	20M	PSK31	EA1JF	599	599	3	Valentin	Nigran	IN52OD	PO
25	20150618	215300	215818	14.071716	20M	PSK31	AM510HRE	599	599	3	Jose Manuel	Cartageoci The Soul	IM57LP	
26	20150618	220100	220502	14.071007	20M	PSK31	OE5EGN	599	599	3	Karl	Gmunden	JN67VW	
27	20150619	135400	140054	14.071344	20M	PSK31	PD0IBA	489	599	3	Henk	Papendrecht, 20 Km J021IU		
28	20150619	182600	182933	14.071767	20M	PSK31	RV3DGL	599	599	3	Alex	Elektros	KO95FT	MO
29	20150619	182900	183956	14.070575	20M	PSK31	PSK31	599	599	3	Carina	Wahlheim	In9AFNII	

Figure 1.66 Displaying information about a field

#### 1.6.1.4.2.4 Adjusting column widths

Clicking and dragging the right-hand edge of the header of an individual column will vary the width of a column.

#### 1.6.1.4.2.5 Sorting data

Double clicking on the header of a column containing QSO\_DATE, TIME\_ON, QSO\_DATE\_OFF or TIME\_OFF will switch from chronological order to reverse-chronological order or vice-versa. Double clicking on the header of other columns is only enabled in the "Extracted Records" tab. In that case the data will be displayed in alphabetical order of the entries in that column. Double-clicking it again will display in reverse alphabetical order.

#### 1.6.1.4.2.6 Records for import

The second instance of the Log-book view is to present the contents of a file or data being imported. The image below shows the import of a log produced from WSJT-X.

QSO No.	Date	Start	End	QRG	Band	Mode	Callsign	Sent	Rcvd	Pwr	Name	QTH	Loc	STATE
1	20180321	150615	150730	10.136393	30M	FT8	DK7UY	+04	-12	5		JN49		
2	20180321	152015	152130	10.136508	30M	FT8	SP5UFE	-04	-13			KO02		
3	20180326	203800	203915	7.074943	40M	FT8	EA1EI	-03	-12	12		IN63		
4	20180326	204245	204345	7.074906	40M	FT8	IK4LFI	-15	-22	15		JN54		
5	20180326	204545	204700	7.074311	40M	FT8	SP3JHZ	-05	-07	50		J071		
6	20180326	204730	204830	7.074311	40M	FT8	R2FAQ	+05	-18	50		KO04		
7	20180326	205130	205245	7.074604	40M	FT8	OE3UKW	-15	-22	50		JN88		
8	20180326	205530	205545	7.074604	40M	FT8	DK2KV	-08	-14	50		JN49		
9	20180326	210645	210815	7.075153	40M	FT8	EA2AVM	-03	+02	50		IN82		
10	20180326	211145	211230	7.074280	40M	FT8	NJ3Z	-14	-16	50				
11	20180326	211530	211630	7.074280	40M	FT8	I240RH	+04	-09	50		JN54		
12	20180326	212000	212100	7.075327	40M	FT8	2M0RDK	-05	+03	50		IO85		
13	20180328	144045	144145	14.075223	20M	FT8	ER3RE	+04	-14	25		KN37		
14	20180330	143730	143830	14.074448	20M	FT8	EV1R	+02	-04	25		KO33		
15	20180330	145345	145747	14.075138	20M	FT8	WB2WMF	-05	-11	25		FN12		
16	20180330	194645	194800	14.074412	20M	FT8	CT1FBK	+00	-05	50		IM58		
17	20180330	194915	195106	14.074412	20M	FT8	N1GJ	-14	-15	50		FN41		
18	20180330	201500	201545	10.136826	30M	FT8	F4AYM	+01	-14	50		JN23		
19	20180330	202400	202500	10.136535	30M	FT8	IK8TLZ	+02	-23	50		JN70		
20	20180330	202845	203100	10.137011	30M	FT8	VA3HP	-17	-16	50		EN92		
21	20180331	140830	140930	18.101279	17M	FT8	UA4FEN	-08	-24	25		LO23		
22	20180331	143400	143515	10.136833	30M	FT8	DL1DEU	-08	-03	25		JN59		
23	20180331	143545	143645	10.136833	30M	FT8	DL3NEY	-05	-05	25		JN59		
24	20180331	143730	143815	10.136833	30M	FT8	SP2EWQ	+00	-08	25				
25	20180331	143930	144045	10.136833	30M	FT8	HB9EBV	-03	-04	25		JN37		
26	20180331	144300	144415	10.136833	30M	FT8	F5RRS	+00	-01	25		JN36		
27	20180331	144530	144645	10.136833	30M	FT8	DM2DK	-02	+03	25		J051		
28	20180331	144715	144815	10.136833	30M	FT8	DL6TS	-11	-06	25		JN58		
29	20180331	144945	145045	10.136833	30M	FT8	NI5AFAI	.07	.12	25		IN61		

Figure 1.67 Display of records awaiting import

#### 1.6.1.4.2.7 Extracted records

The third instance of the Log-book view shows a list of extracted records. The image below shows an extraction of all records with stations in Denmark.

QSO No.	Date	Start	End	QRG	Band	Mode	Callsign	Sent	Rcvd	Pwr	Name	QTH	Loc	STATE
72	20150629	215600	215900	10.140829	30M	PSK31	OZ30EU	599	599	3	Svend	Bornholm Island	J075IC	
139	20150716	184200	184707	14.070607	20M	PSK31	OZ9HMN/QRP/P	579	579	5	Heine	Tranum Campsite	J047RD	
177	20150726	212900	213237	7.041253	40M	PSK31	OZ7TM	599	599	3	Ela	Loekken	J047UH	
304	20150910	220900	221253	7.041948	40M	PSK31	OZ1QX	599	599	5	Ervind	Roeovre	J065FQ	
406	20151024	220100	220706	3.581207	80M	PSK31	OZ7ABM	599	599	5	Finn	Holstebro	J046HJ	
564	20160510	212100	212609	7.040792	40M	PSK31	OZ0BO	599	599	5	Dirk/dl7dsw	Bornholm I.	J075IC	
571	20160513	223300	223956	3.581512	80M	PSK31	OZ1RDP	599	599	5	Roland/dg1g Roemoe		J045GD	
742	20160825	1344	1346	18.102000	17M	JT65	5P1KZX	-06	-01	5	Michael	Frederikshavn	J057GK	
871	20170412	2127	2127	3.577537	80M	JT65	OZ1DAE	-07	-14	5	Max	Ronne	J065AG	
951	20170515	1936	1936	10.140791	30M	JT9	5P2A	-03	-04	5	Henning	Harlev	J056AD	
979	20170521	2227	2227	3.576704	80M	JT65	OZ1FHU	-01	-02	5	Preben	Holbæk	J055UQ	
1114	20170919	150300	150412	7.045009	40M	RTTY	OZ/PA0VHA	599	599	5			J057GF	
1123	20170929	133845	134000	10.136914	30M	FT8	5Q9T	-08	-05	5			J065EF	DK
1169	20171229	221715	221845	10.137204	30M	FT8	5Q2J	-03	-18	5			J055	
1183	20180125	223930	224030	3.575106	80M	FT8	OZ8ACE	+01	-13	5	Jesper	Herlev	J065FR	
1201	20180213	210545	210645	3.573547	80M	FT8	OZ1LXL	-04	-14	5			J055	
1282	20180405	214500	214600	7.075211	40M	FT8	OV2TK	-07	-06	50			J065	
1305	20180408	222830	222930	3.573441	80M	FT8	OZ2ABI	+04	-02	50			J046WD	
1321	20180411	222645	222745	3.574491	80M	FT8	OZ1FHU	+00	-14	50	Preben	Holbæk	J055	
1469	20180508	214930	215030	3.574515	80M	FT8	OV1T	+16	-08	50	Jørgen	Terndrup	J056AT	
1485	20180509	213600	213715	3.574848	80M	FT8	OZ7JZ	+12	-11	50	Jan	Skovby, Galten	J046XD	
1548	20180518	210745	210845	10.136920	30M	FT8	OZ2KM	-21	-17	50			J055	
1578	20180601	223045	223245	10.138010	30M	FT8	OZ2ABI	+03	-01	25			J046WD	
1635	20180619	213615	213700	7.076101	40M	FT8	OZ6HQ	+13	+01	50	Per		J045VL	
1673	20180626	132045	132200	18.101318	17M	FT8	OZ1ZD	-01	-09	30			J046HI	
1675	20180626	133100	133200	18.100540	17M	FT8	OZ7GO	-11	+01	30			J046	
1693	20180629	215930	220030	7.076393	40M	FT8	OZ1CDQ	+10	-06	36			J047	
1740	20180705	214745	214845	3.573903	80M	FT8	OZ1EM	-12	-05	35			J045	DK
1741	20180705	215000	215115	2.572902	RRM	FT8	OZ5PST	-02	-02	25			I057	

Figure 1.68 Display of extracted records

### 1.6.1.5 ADIF Information

#### 1.6.1.5.1 Description

This view displays aspects of the ADIF Specification for reference. It shows all the data types used in the specification. It shows all the enumeration values used. It lists all the fields available in an ADIF record.

- ADIF Specification version 3.1.5
  - ARRL\_Section
  - Ant\_Path
  - Award
  - Award\_Sponsor
  - Band
  - Combined
  - Contest\_ID
  - Continent
  - Credit
  - DXCC\_Entity\_Code
  - Data Types
  - Dynamic MY\_ANTENNA
  - Dynamic MY\_RIG
  - Dynamic STATION\_CALLSIGN
  - Fields
  - Mode
  - Morse\_Key\_Type
  - Original Fields
  - Primary\_Administrative\_Subdivision
  - Propagation\_Mode
  - QSL\_Medium
  - QSL\_Rcvd
  - QSL\_Sent
  - QSL\_Via
  - QSO\_Complete
  - QSO\_Download\_Status
  - QSO\_Upload\_Status
  - Region
  - Secondary\_Administrative\_Subdivision
  - Submode

Figure 1.69 ADIF Specification in tree-view

### 1.6.1.5.2 Features

Clicking on a "+" opens up one level of the hierarchy beneath that entry.

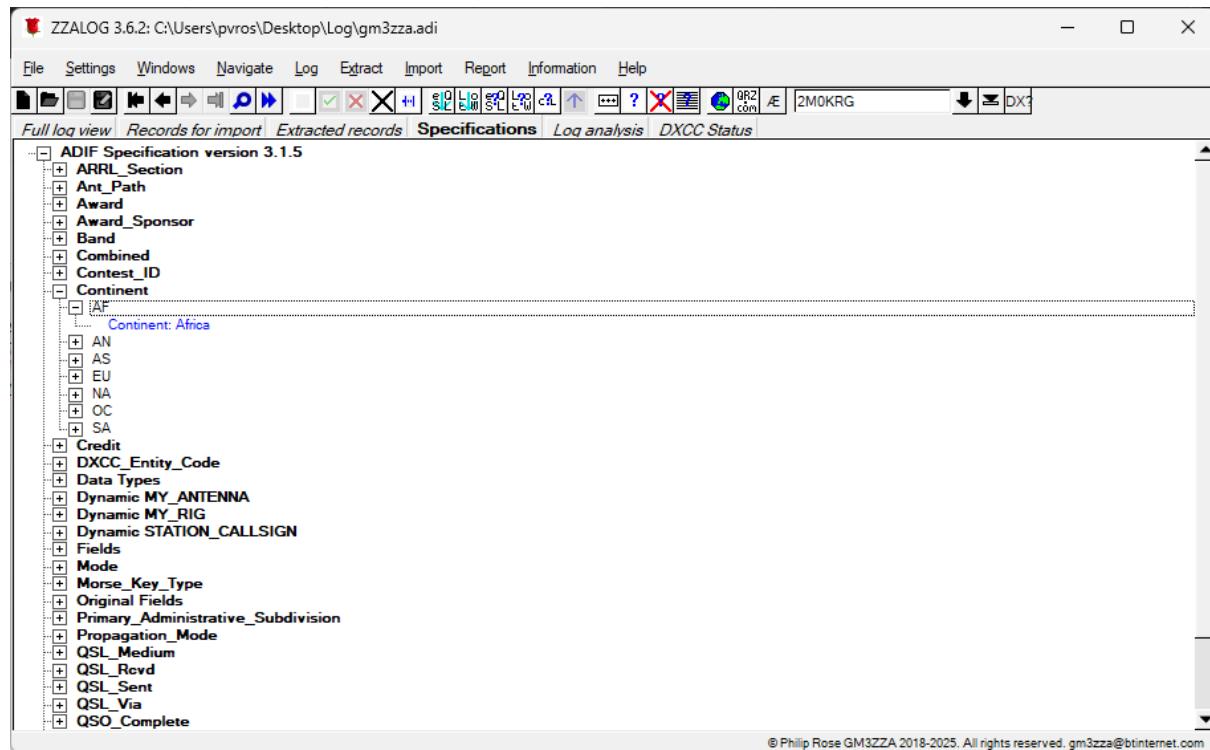


Figure 1.70 Diving into a featured item

Clicking on the text of an entry fully opens up the hierarchy beneath that entry.

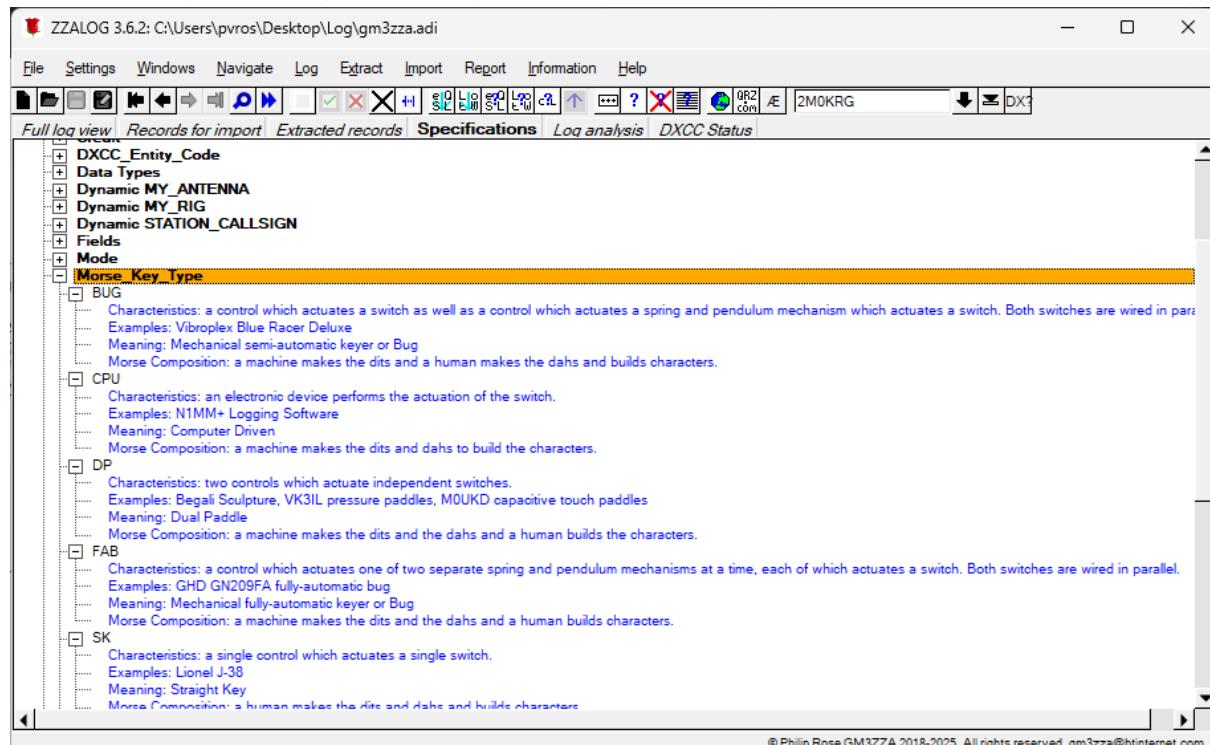


Figure 1.71 Deep dive on a specification item

### 1.6.1.6 Log analysis

#### 1.6.1.6.1 Description

This view shows an analysis of the log broken down into a hierarchy based on DXCC entities bands and modes worked. The format is controlled by the "Report/" set of items in the main menu.

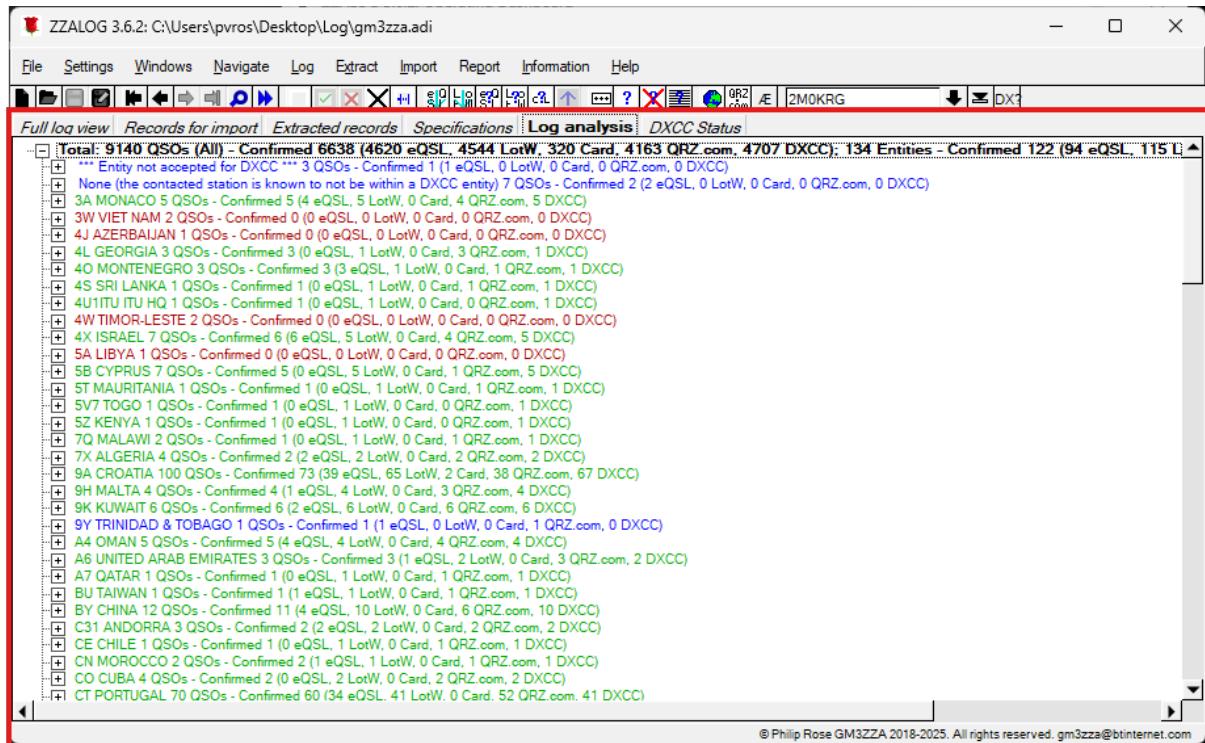


Figure 1.72 Log analysis within main window

#### 1.6.1.6.2 Features

The report may select the following:

- All records in the log.
- All records using the current station callsign.
- All extracted records.
- The selected record.

The tree may be ordered by DXCC, band and mode in any order.

Clicking on a "+" opens up one level of the hierarchy beneath that entry.

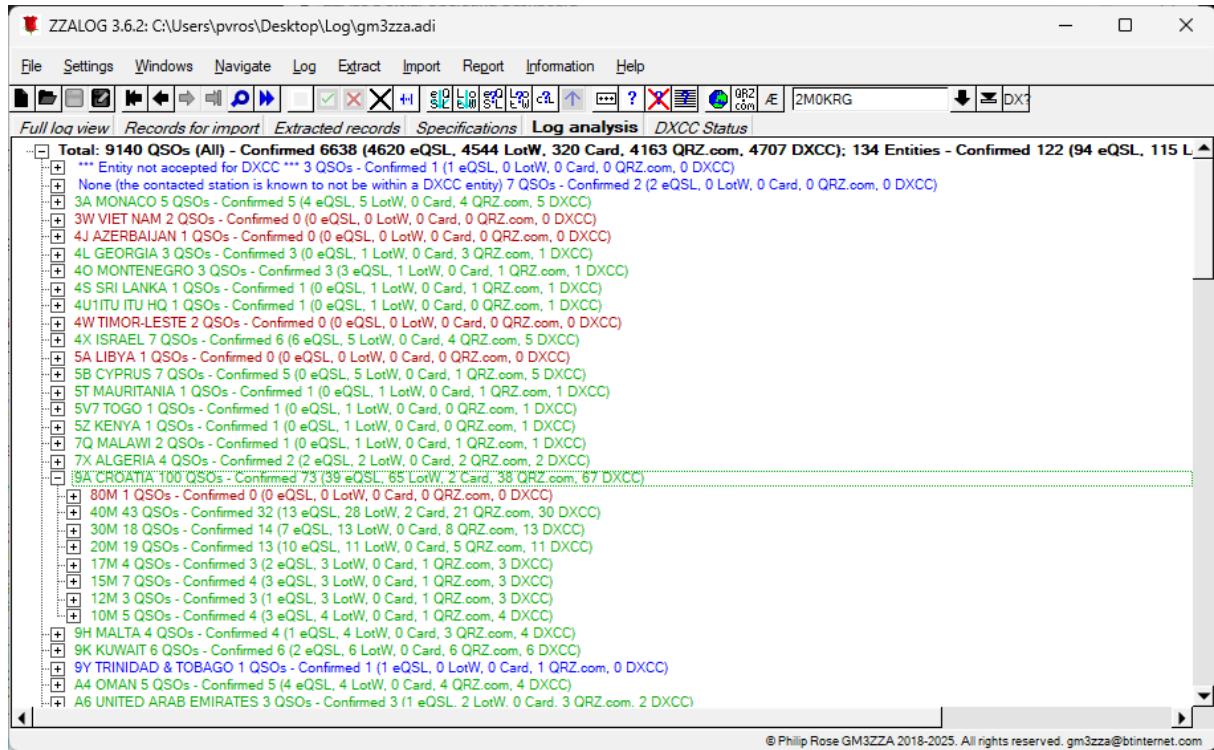


Figure 1.73 Diving into the analysis report

Clicking on the text of an entry fully opens up the hierarchy beneath that entry.

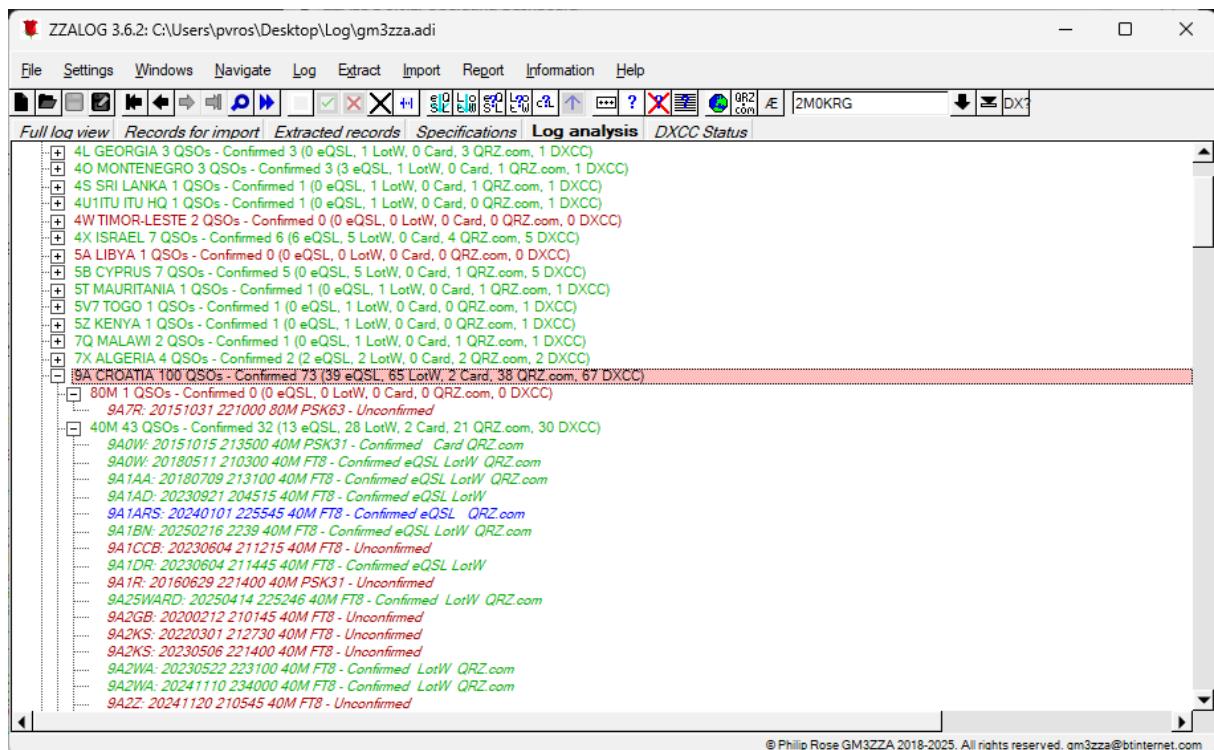


Figure 1.74 Deep diving into the analysis report

The entries are colour-coded.

- **Green** indicates that at least one QSO has been verified with Logbook of the World.
- **Blue** indicates that at least one QSO has been verified with eQSL.cc.
- **Red** indicates no QSOs have been verified on LotW or eQSL.cc.

### 1.6.1.7 An analysis of DXCCs worked

#### 1.6.1.7.1 Description

This view provides a tabular look at the state of DXCC entities worked.

	80M	60M	40M	30M	20M	17M	15M	12M	10M	6M	2M	Total
: Invalid entity	1		5		2				1			9
0: None (the contacted station is known)			4	1	1				1			7
1: CANADA		7	4	14	10	5	6	3				49
5: ALAND IS.			2		2			1				5
6: ALASKA	4		2		5				2			13
7: ALBANIA		2	2			1	1	1	1			8
12: ANGUILLA			1									1
14: ARMENIA			2									2
15: ASIATIC RUSSIA	2	41	6	17	2	4						72
18: AZERBAIJAN			1									1
21: BALEARIC IS.		8	1	4	1	1	1		2			17
27: BELARUS	1	13	5	12	1	2	1	1				36
29: CANARY IS.	4	5	2	4	1	3	1	1				21
32: CEUTA & MELILLA		1		1			1					4
40: CRETE		1	1	1								4
45: DODECANESE		1	2									4
50: MEXICO									1			1
52: ESTONIA	1	4	7	7	1	1	1	1				23
54: EUROPEAN RUSSIA	25	239	72	152	48	25	15	42				618
65: BRITISH VIRGIN IS.				1								1
66: BELIZE						1			1			2
69: CAYMAN IS.						1			1			2
70: CUBA		1	1	1		1						4
71: GALAPAGOS IS.						1						1
72: DOMINICAN REPUBLIC			1					1				2
75: GEORGIA		8		2			1					11
84: MARTINIQUE							2				2	

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Figure 1.75 DXCC summary within main window

#### 1.6.1.7.2 Features

At the bottom of the view are some control check buttons. The first four select the information viewed and only 1 may be selected.

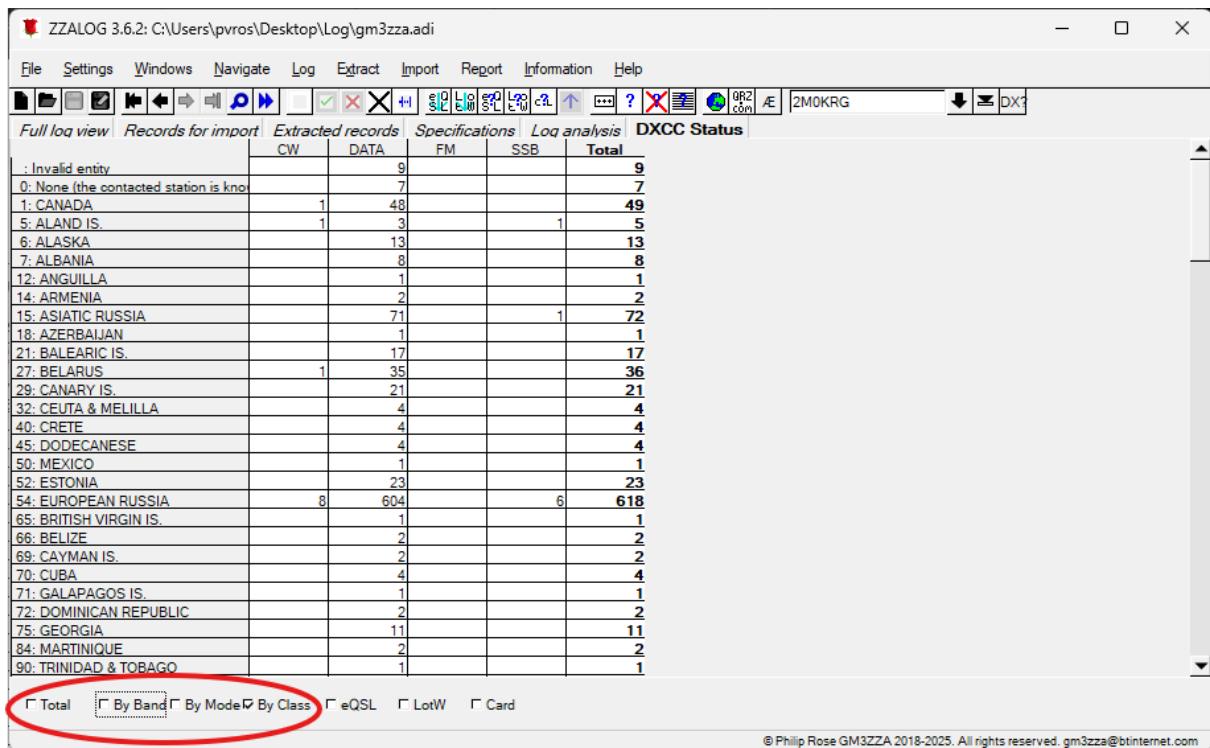


Figure 1.76 Organisation by band or mode

- **Total** This summarises the total number of QSOs with each entity.
- **By Band** This lists the number of QSOs with each entity on each band.
- **By Mode** This lists the number of QSOs with each entity on each mode (as identified by ADIF).
- **By Class** This lists the number of QSOs with each entity per DXCC award mode class (CW, DATA, FM and SSB).

The next three check buttons filter the counts according to how the QSO has been verified. Any combination of these buttons may be checked and the result an the accumulation: that is the QSOs have been verified by any of the means.

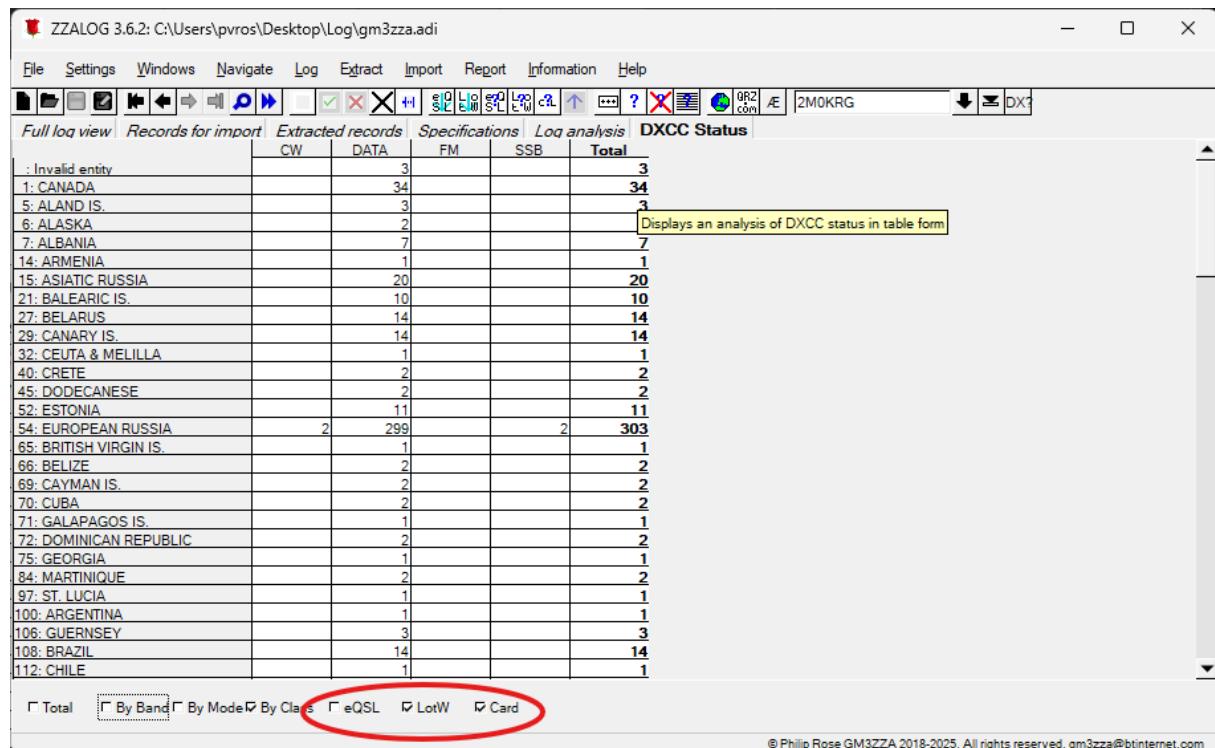


Figure 1.77 Filtering by QSL status

- **eQSL** The QSOs have been verified using eQSL.cc.
- **LotW** The QSOs have been verified using Logbook of the World.
- **Card** The QSOs have been verified by receiving a physical card.

## 1.6.2 Operating Dashboard

### 1.6.2.1 Description

This provides all the interaction necessary for running QSOs and managing the data within the log-book.

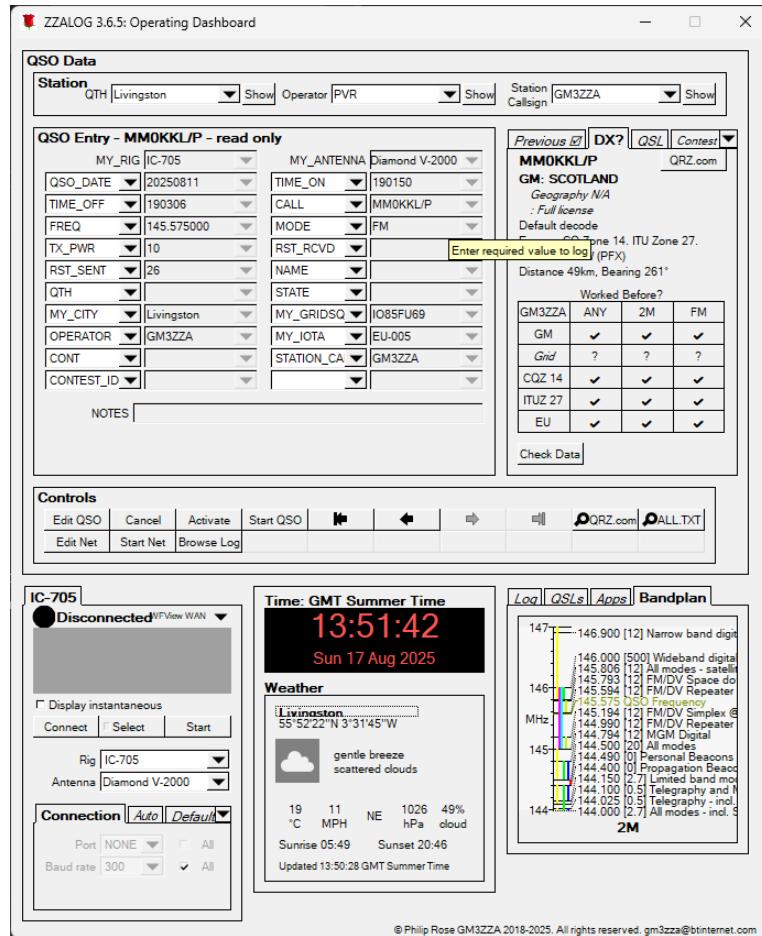


Figure 1.78 Operating dashboard window

- Station Operation
- QSO fields
  - QSO editor and viewer
  - Querying QSOs
  - Entry of Concurrent QSOs (Net)
- QSO status
  - Previous Contacts
  - DXCC Status
  - QSL Status
  - Contests
- Control buttons for Dashboard
- Rig Control
- Time & Weather
  - Station clock and weather
  - Weather Report
- Miscellaneous
  - Log Status
  - Interfacing QSL Websites
  - Handling 3rd-party applications
  - Bandplan viewer

## 1.6.2.2 Station Operation

### 1.6.2.2.1 Description

This provides the information for the location of the operation, the operator and the callsign being used.

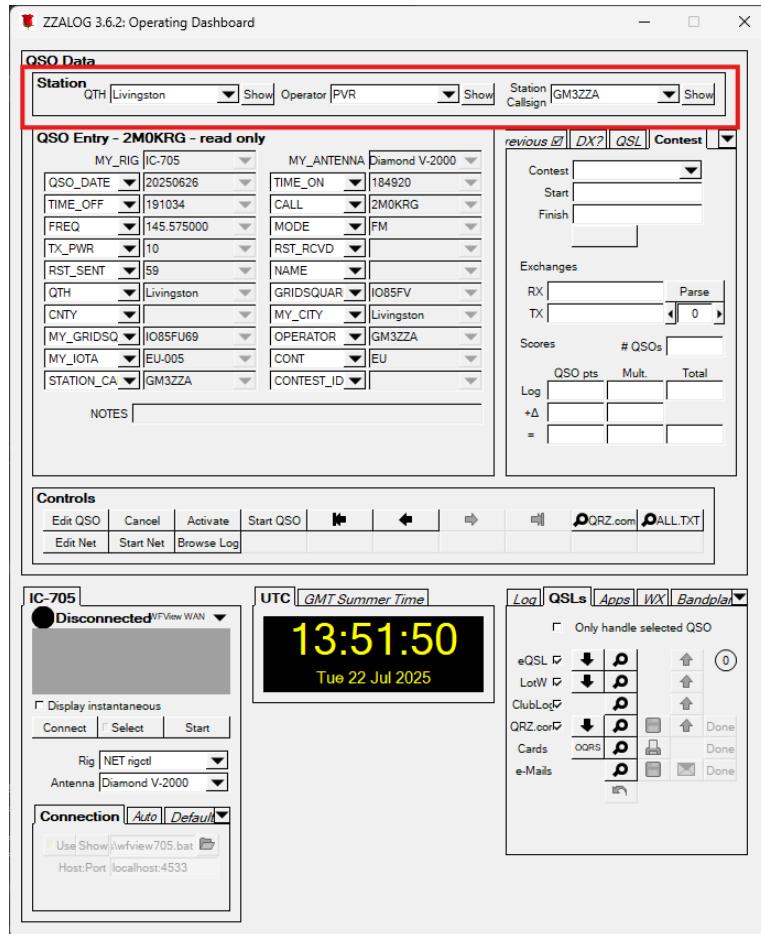


Figure 1.79 Position of station details within dashboard window

### 1.6.2.2.2 Features

The same features are used for the three attributes. Firstly, there is a text input with a drop-down menu. This menu provides a list of existing values that can be used. If a new value is required then it can be typed into the text input. Typing this in will open up the Configuration window to allow details to be edited. The button marked "Show" will also open up the Configuration window to display the details currently entered.

#### 1.6.2.2.2.1 QTH

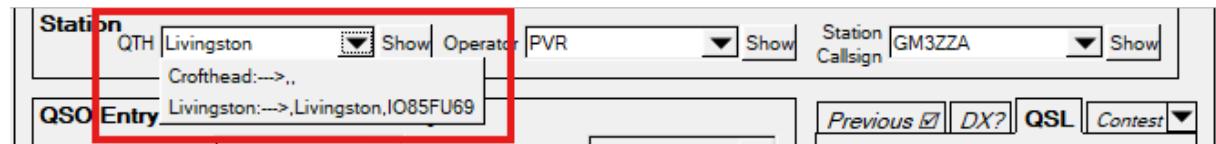


Figure 1.80 Selection of current location

The QTH (or location) attribute provides a quick way of adding location information such as MY\_CITY, MY\_GRIDZONE etc to the record.

### 1.6.2.2.2.2 Operator

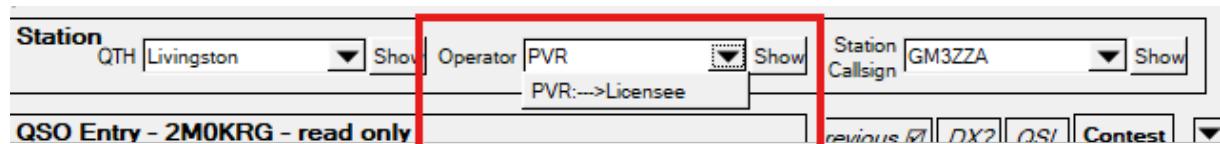


Figure 1.81 Selection of current operator

The operator attribute allows the addition of MY\_NAME and OPERATOR fields to the record.

### 1.6.2.2.2.3 Station Callsign

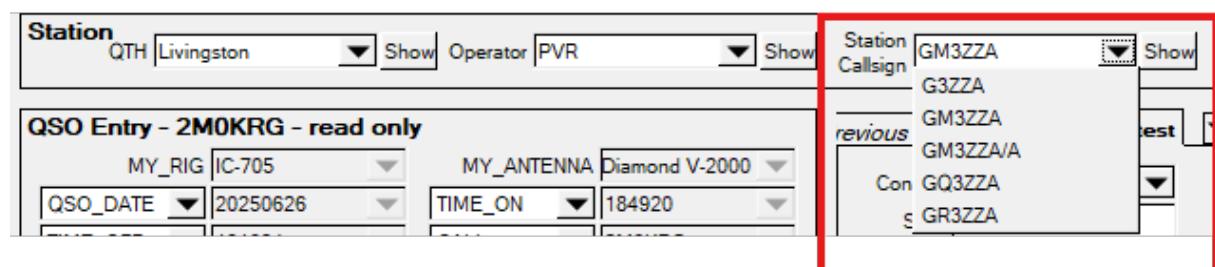


Figure 1.82 Selection of station callsign

This allows the STATION\_CALLSIGN field to be specified if the logbook is being used for operations using different callsigns - eg different RSIs within the UK or /P operation.

### 1.6.2.3 QSO editor and viewer

#### 1.6.2.3.1 Description

This pane allows the editing (or viewing) of the QSO fields. It comprises a number of pull-down choices and an associated text input widget. In viewing mode (i.e. read-only) the text input widgets are inactive - and shown greyed out.

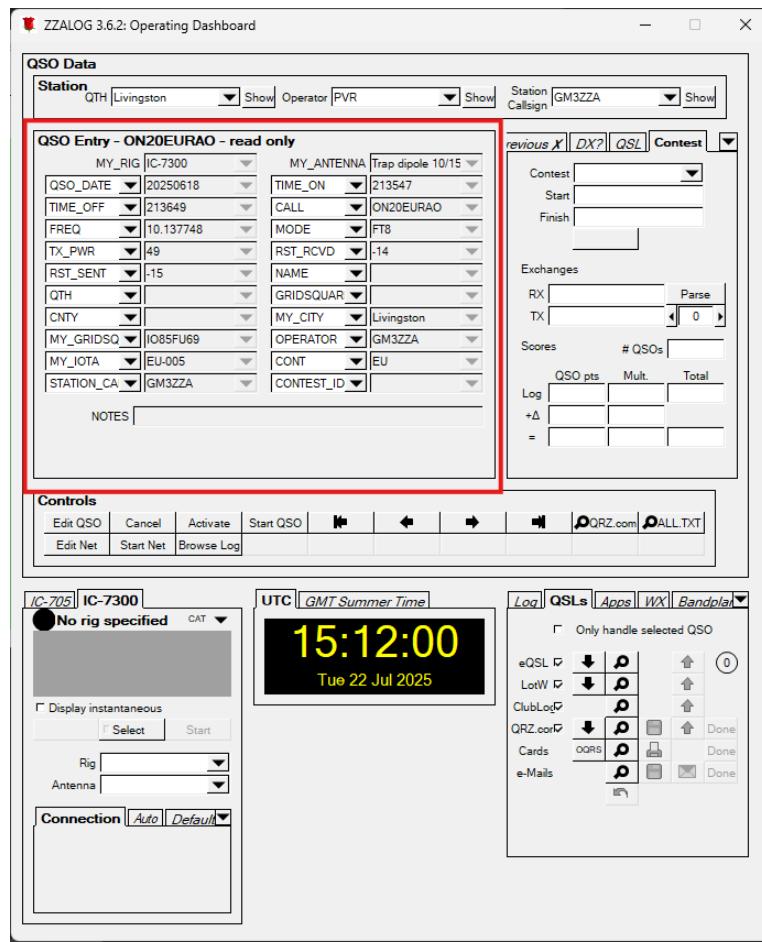


Figure 1.83 Position of entry pane within dashboard window

" @section features\_12 Features @subsection fields Changing Fields It is possible to change the fields that are being displayed by clicking the pull-down arrow next to the field name display. @image html qso\_entry\_2.png "Selecting a field to add to the editing pane" @image latex qso\_entry\_2.png "Selecting a field to add to the editing pane" @subsection data Entering Data Data may be typed into the text input box. @image html qso\_entry\_3.png "Entering text into a QSO field" @image latex qso\_entry\_3.png "Entering text into a QSO field" Certain fields have a limited choice of data that may be entered. In these cases there is a drop-down arrow next to the text input, which offers the values available. @image html qso\_entry\_4.png "Selecting pre-specified values into a QSO field" @image latex qso\_entry\_4.png "Selecting pre-specified values into a QSO field" Fields that contain strings may also have a drop-down arrow next to the text input. This allows limited case correction: all upper-case, all lower-case or each word with their initial letter capitalised (mixed-case). @image html qso\_entry\_5.png "Changing the case of an entry" @image latex qso\_entry\_5.png "Changing the case of an entry"

#### 1.6.2.4 Querying QSOs

##### 1.6.2.4.1 Description

The QSO Query pane provides a means for checking imported records against a record in the log.

##### 1.6.2.4.2 Examples

The first example is from the duplicate record check. Two records have been added to the query view. They might be duplicates. in this case they probably are as the two records only differ in the one callsign is the /P version of the

other and most other fields agree. The control buttons offer the choice for keeping one, the other, both or a merger of the two records.

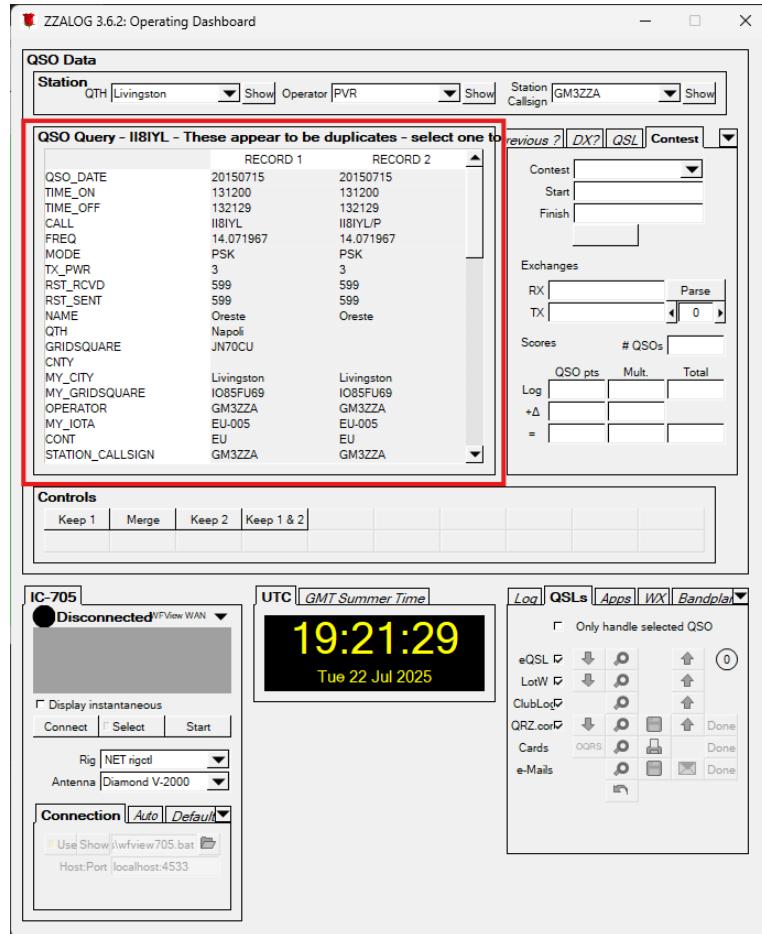


Figure 1.84 Position of the query pane within the dashboard window

The second example is from a putative import of records from an on-line QSL site. The imported record appears not to match a record in the log. In this case, no potential match was found, so only the imported records is added to the query. The control buttons have changed to offer a choice of accepting or rejecting the QSO as well as a number of search functions.

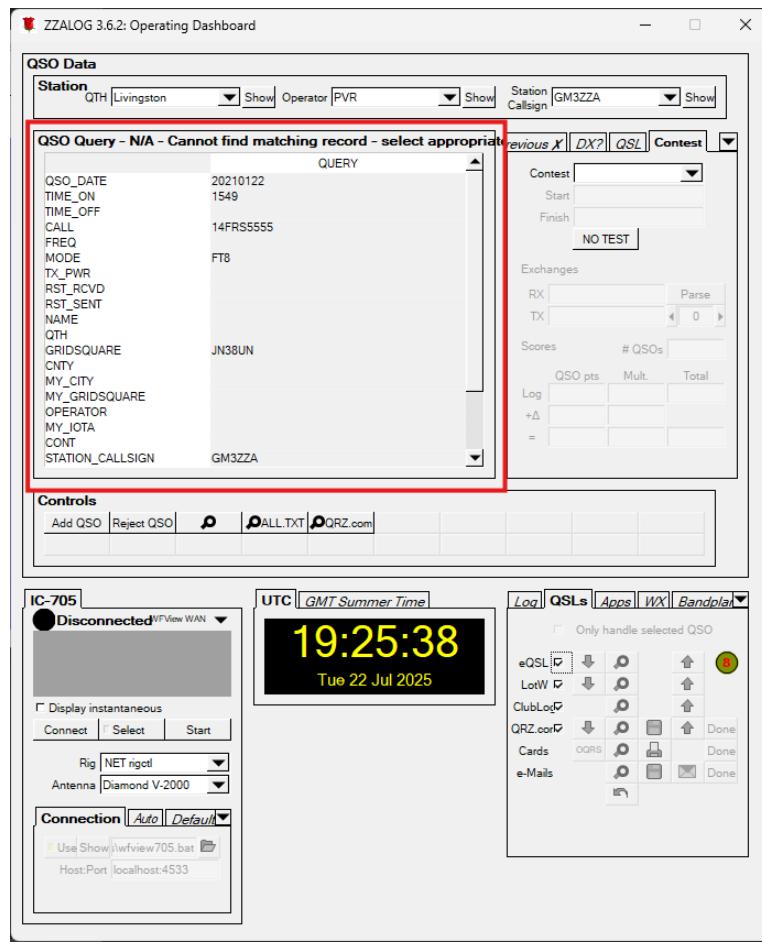


Figure 1.85 Display of an unmatched query

The third example is the result of clicking the "search log" button. Now it has found a record that differs in a few fields (but a critical one - CALL, the other station's callsign). Now three records have been added to the query. In the first column, the potential match found in the log. In the second column, the import record. The third column contains a copy of the record from the log.

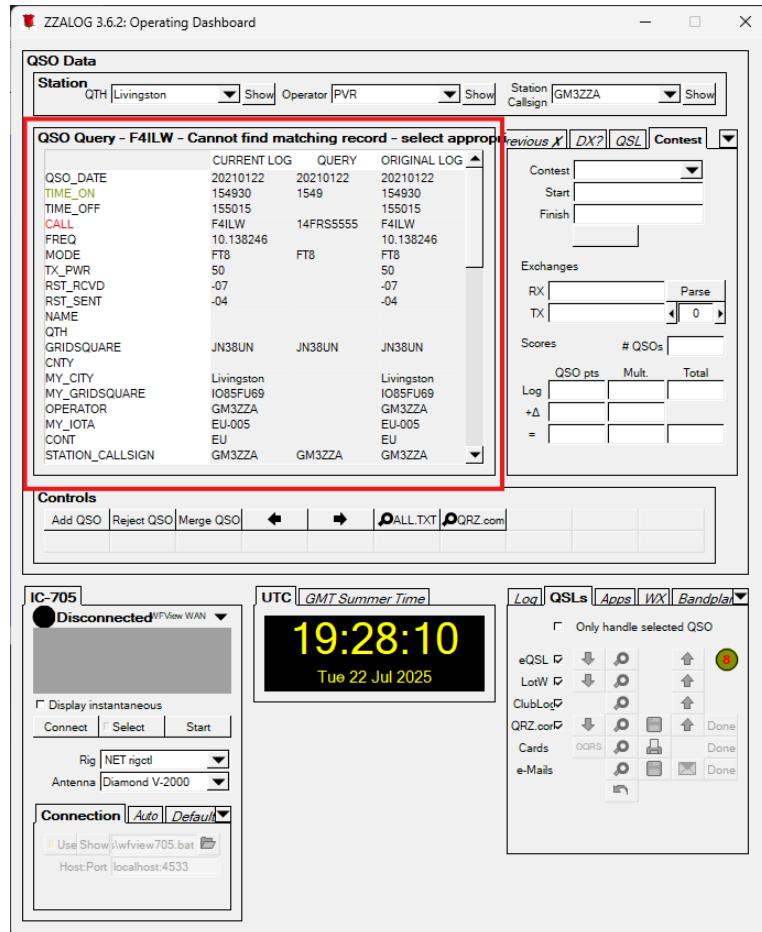
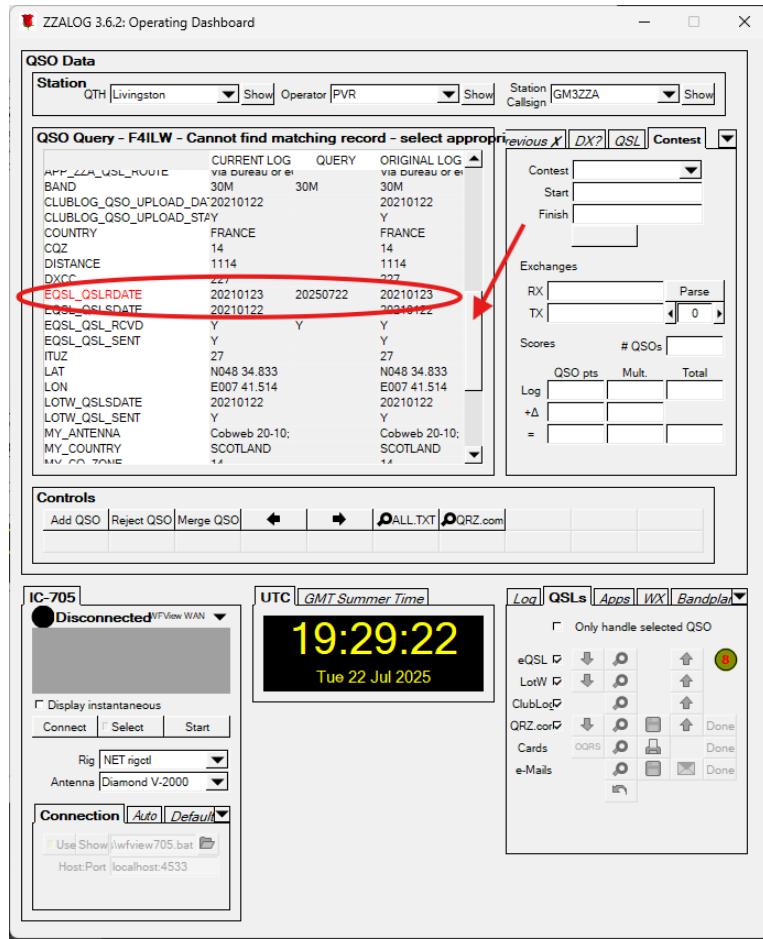


Figure 1.86 Display of a possible match

On the right hand of the pane is a scroll bar. This enables the user to look at all the fields in the records. As well as the CALL fields differing another is seen to do so. Highlighted below is the field EQSL\_QSL\_RDATE - a housekeeping field for QSL checking.



**Figure 1.87 Use of the scroll-bar to show other fields**

A feature of this use of the QSO Query pane is the ability to move data from one record to another. In this case, double-clicking on the field value in the import record has copied the value to the log record.

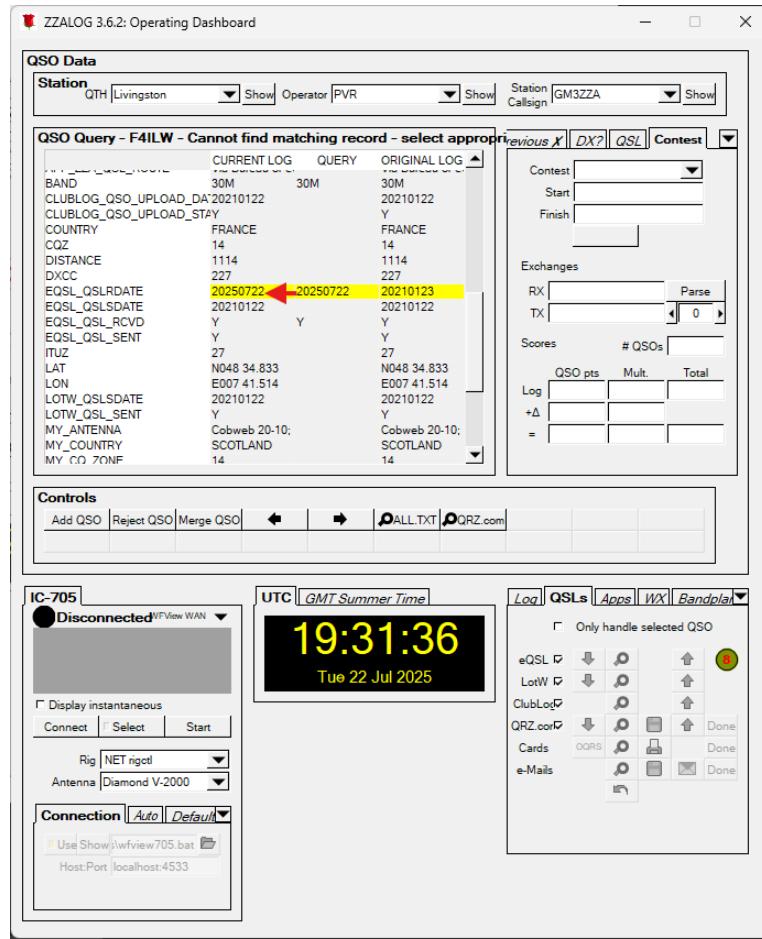


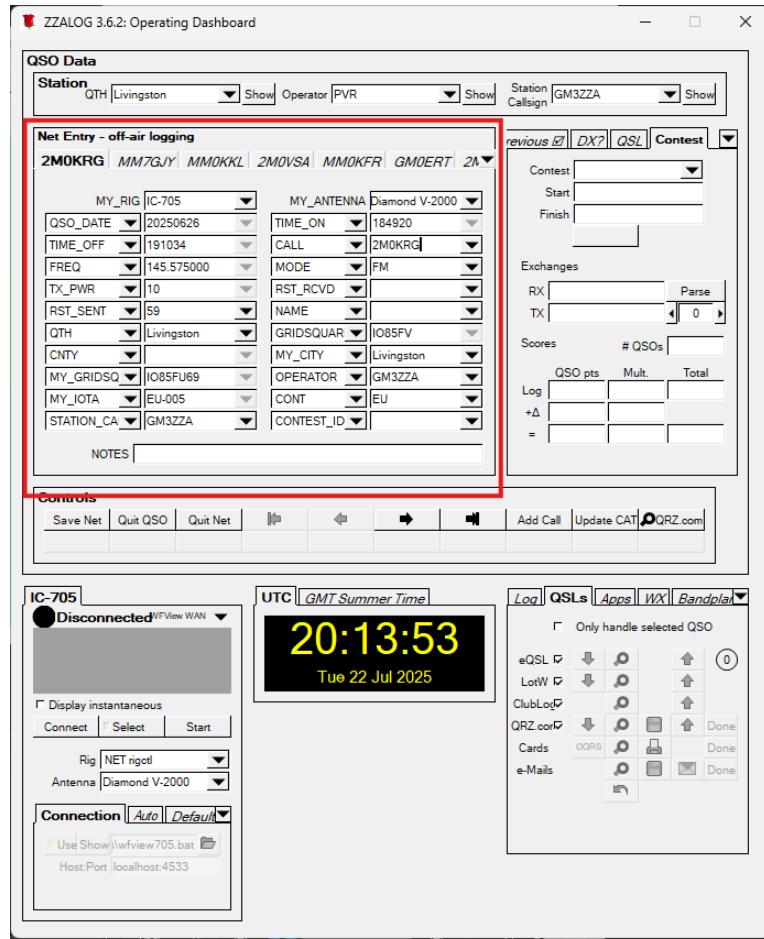
Figure 1.88 Double-click results in a field being updated

Note that it will be possible to restore the original log entry value for this field by double-clicking on the entry in the third column.

### 1.6.2.5 Entry of Concurrent QSOs (Net)

#### 1.6.2.5.1 Description

This pane enables the entry of concurrent QSOs. For individual record editing see [QSO editor and viewer](#).



**Figure 1.89 Multiple entry panes**

### **1.6.2.6 Previous Contacts**

This pane shows previous contacts with the callsign of the selected record.

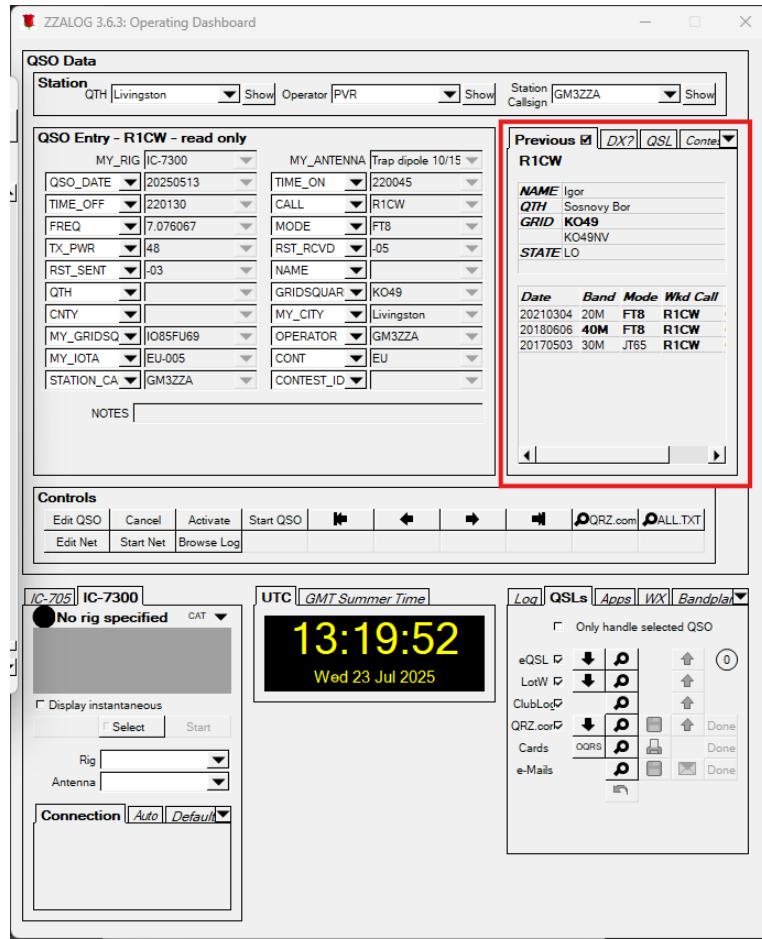


Figure 1.90 Previous QSOs pane within dashboard window

The label of the pane, circled red in the image below, indicates whether there has been any previous contact. A cross indicates there has been no previous contact. A bare tick indicates that a contact has been previously made, but on a different band or mode. An enclosed tick, as shown below, indicates that a contact has been made on the same band and mode.

The data circled in blue indicates information gleaned from previous contacts or from QSL information. Information in **bold text** is from the current record.

The data circled in green shows the previous contacts with this call. Information in **bold text** shows the same band and mode as the current record. Information in *italic text* (not shown here) indicates that either the callsign of the contacted station or the callsign used by the logging station differs in a slight way. This is likely to be use of /P or /A or a different RSI (for UK Stations).

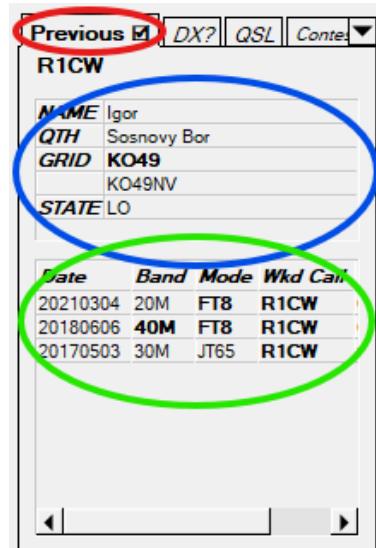


Figure 1.91 Details of previous QSOs pane

### 1.6.2.7 DXCC Status

This pane shows the DXCC status for the callsign in the selected record.

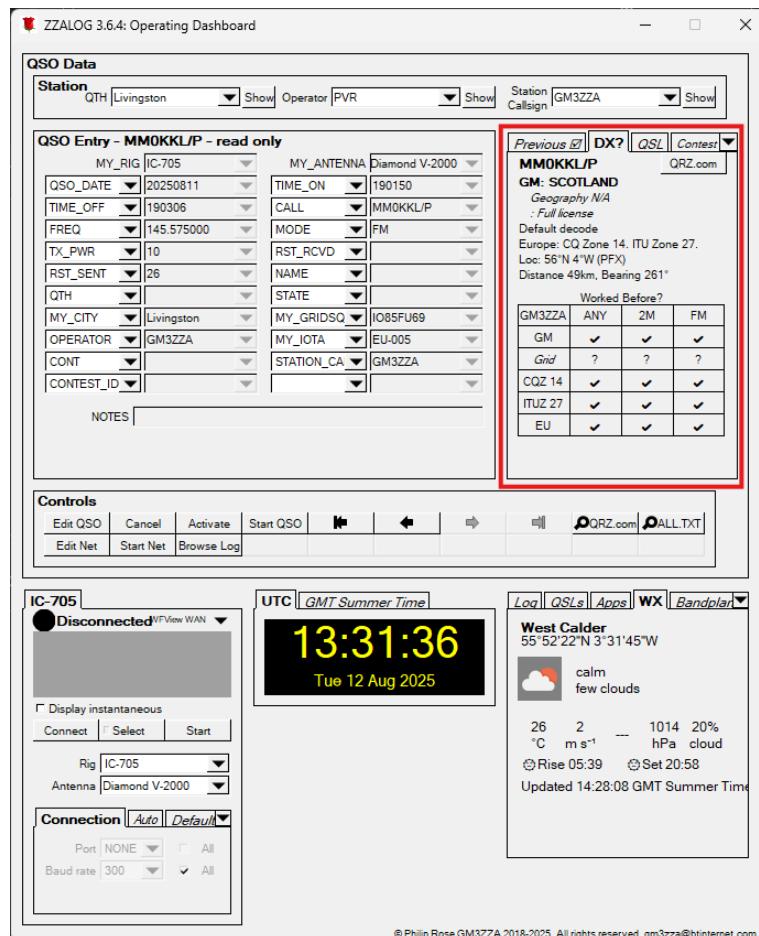


Figure 1.92 Position of DXCC status pane within dashboard window

In the image below the information encased in red is based on the decode on the callsign. In this case it has decoded the callsign IK4LZH as belonging to Italy, whose usual prefix is I. In addition it has further decoded the callsign. It is in call area I4 (Emilia-Romagna) and is a special event callsign. The DXCC has been directly decoded from the callsign. The next line provides some geographic information: continent, CQ zone and longitude and latitude. The third line shows approximate distance and bearing.

The information shows the worked-before status of that DXCC entity for the current station callsign. It shows that Italy, CQ zone 15, ITU zone 28 and Europe have all been worked before, but not on the current band (2m).

Worked Before?			
GM3ZZA	ANY	2M	FM
I	✓	<b>NEW</b>	✓
Grid	?	?	?
CQZ 15	✓	<b>NEW</b>	✓
ITUZ 28	✓	<b>NEW</b>	✓
EU	✓	✓	✓

Figure 1.93 Details of the DXCC status pane

There are a few cases where it is not possible to decode the DXCC entity from the callsign. One such example is the use of the GB prefix. By default this decodes to "G: England", but it is possible to temporarily override this by use of an exception applied in one of the on-line directories as shown in [Reference Data](#).

Worked Before?			
GM3ZZA	ANY	2M	FM
G1	✓	<b>NEW</b>	<b>NEW</b>
Grid	?	?	?
CQZ 14	✓	✓	✓
EU	✓	✓	✓

Figure 1.94 Example of a callsign exception

### 1.6.2.8 QSL Status

This pane shows the QSL status for the selected QSO record. It has three sub-panes. This image shows the image received from eQSL.cc for that QSO.

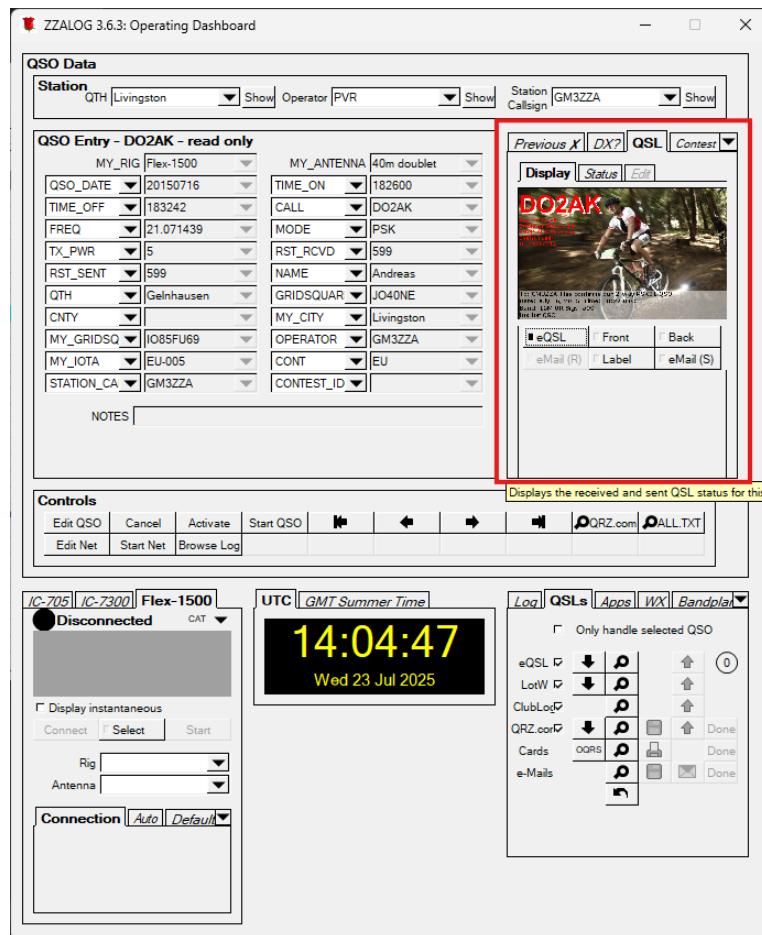


Figure 1.95 Position of QSL viewer pane within dashboard window

This sub-pane "Display" shows images of received QSLs or images to be sent. The six buttons select:

- **eQSL** the image received from eQSL.cc for that QSO.
- **Front** the image on the front of a physical card received for that QSO.
- **Back** the image on the back of a physical card received for that QSO.
- **eMail(R)** the image received in an e-mail QSL.
- **Label** the image to be printed on a label to be applied to an outgoing physical card.
- **eMail(S)** the image that could be sent as an e-mail QSL.

In the image below the "Label" button has been clicked and that image is now displayed. This image will be used when printing labels to apply to physical QSL cards.

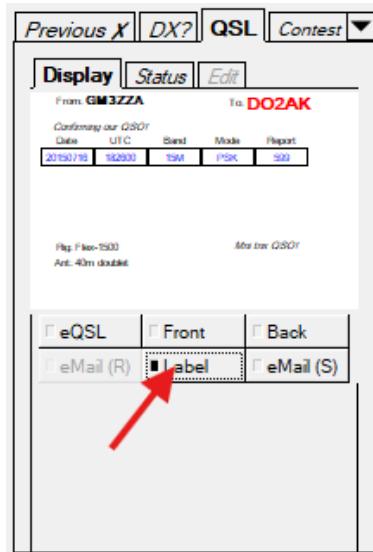


Figure 1.96 Details of QSL viewer showing display of a print label

The second sub-pane "Status" shows the QSL status. It shows whether QSLs have been received (column " $\leftarrow$  R") or sent (column "S") through the various QSL mechanisms: the four internet QSL servers (eQSL.cc, Logbook of the World, QRZ.com and Clublog.org), and by physical card (Bureau or direct) or e-mail. The last cases are distinguished by the letter 'B' or 'E' next to the check boxes.

	R	S
eQSL.cc	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
LotW	<input type="checkbox"/>	<input checked="" type="checkbox"/>
QRZ.com	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Clublog.org		<input type="checkbox"/>
Card or e-mail	<input checked="" type="checkbox"/> B	<input checked="" type="checkbox"/>

Figure 1.97 Details of QSL status

The third sub-pane "Edit" is only active if the main QSO entry pane is in edit-mode. It allows the record to be updated when a QSL status changes. The top three buttons, encased in red, allow the fact that a QSL card has been received via the Bureau, e-mail or direct to be recorded. The bottom three buttons, encased in blue, have the following actions:

- **Fetch** Fetch an image from eQSL.cc for the QSO. This is normally automatic, but this feature is provided if a glitch has prevented the automatic download.
- **Requested** The operator of the other station has requested a physical QSL card.

- **Declined** The operator of the other station has specifically declined a physical QSL card. Typically this may be a special event station that sends cards out but does not want one in return.

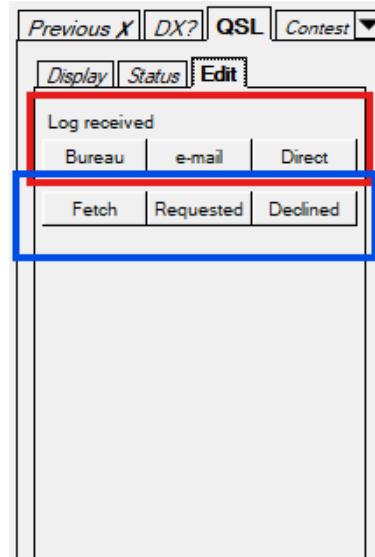


Figure 1.98 Details of update QSL status

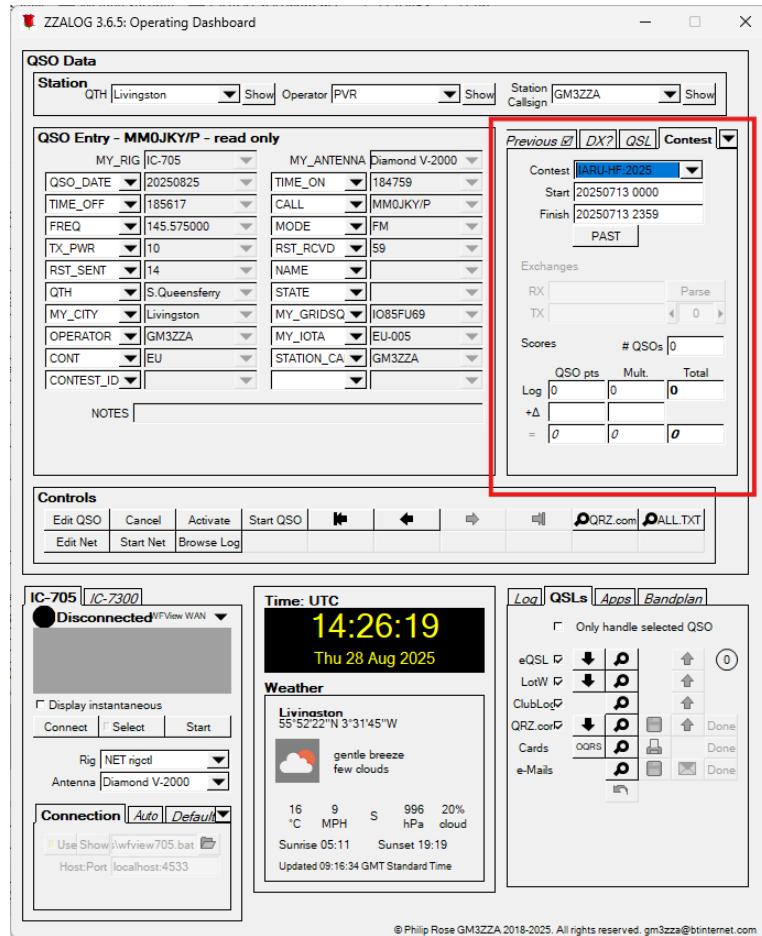
To see a full size version of an image, simply click on the image. A separate window will open containing that image.



Figure 1.99 View of full-size image and thumbnail image

### 1.6.2.9 Contests

This pane provides details of the current or most recent contest. It is currently under development, awaiting "road" testing.



**Figure 1.100 Position of contest monitor pane within dashboard window**

The pane comprises three sections. The top section, encased in red, allows the choice of the contest. The dropdown list will indicate the specific contest and its occasion. It also lists the start and finish times of the contest and the current state of activity in the contest.

The middle section, encased in blue, allows the contestant to enter the received exchange and generate the exchange to send. The button "Parse" will decompose the received exchange and update the record accordingly. The current serial number is displayed in the box pointed to. If used in the contest this will automatically increment on each QSO, but the left and right chevrons allow manual adjustment of the serial number.

The bottom section, encased in green, provides the current score card for the contest. In columns, it shows QSO-points, multiplier and total. In rows it shows the score accumulated so far; the delta that the current QSO will add; and the total as a result of that.

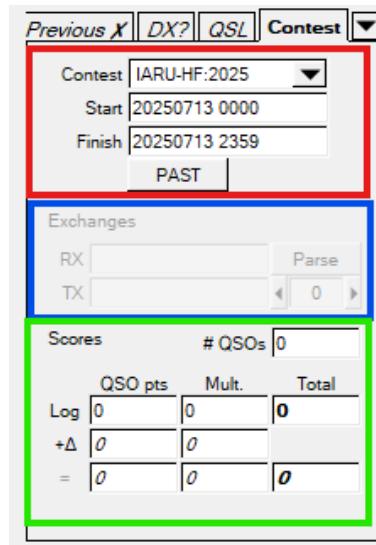


Figure 1.101 Details of contest monitor

Support for individual contests needs to be coded separately. This code needs to implement an algorithm for parsing and generating exchanges. It also needs to implement an algorithm for scoring.

### 1.6.2.10 Control buttons for Dashboard

#### 1.6.2.10.1 Description

This pane is a highly configured pane that provides the control buttons that are relevant to the current state of the Dashboard.

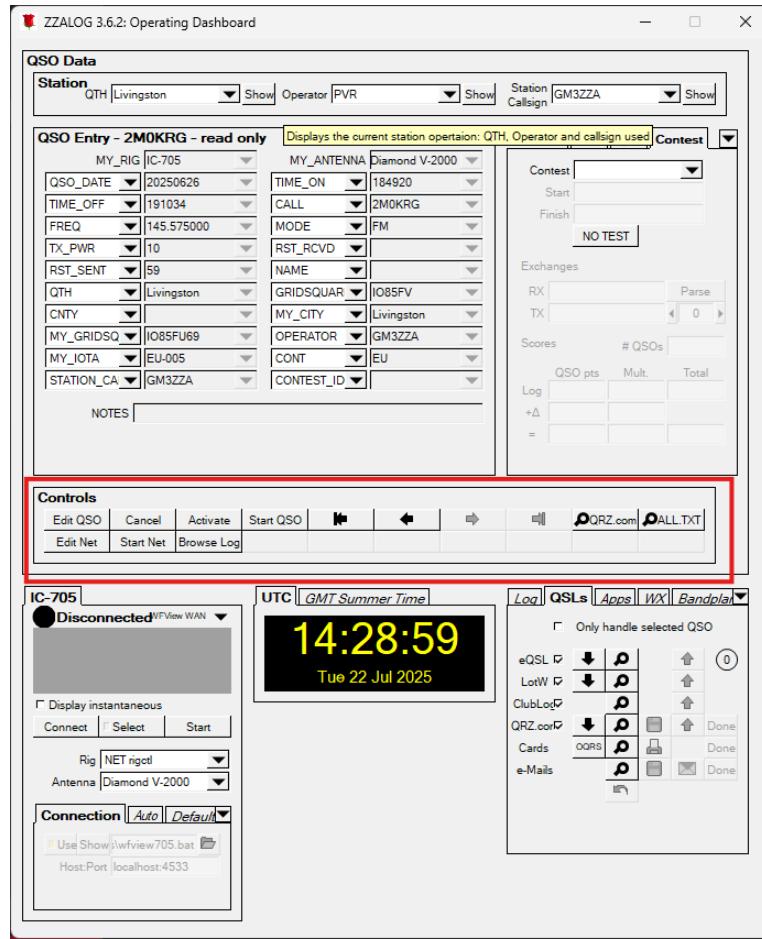


Figure 1.102 Position of control buttons within dashboard window

Only those buttons that are effective in the current state of the Dashboard are shown and some may be inactive for other reasons.

### 1.6.2.10.2 Features

The complete list of buttons:

- **Activate** Make the dashboard ready to start logging QSOs.
- **Add Call** Add a new QSO record to the net in the editor view.
- **Add QSO (Editor mode)** Create a new QSO record without initialising time and rig data.
- **Add QSO (Query mode)** Add the queried QSO record to the log.
- **Browse Log** Open the QSO browser (rather than editor) displaying the current QSO. The browser allows all fields to be displayed rather than the limited selection in the editor.
- **B4?** Extract all QSOs with the callsign in the selected QSO.
- **Cancel (Query mode)** cancel the query.
- **Cancel (Read-only edit mode)** Cancel the current read-only viewing of the QSO record.
- **Cancel Edit** Cancel the current edit without saving the changes to the QSO record.

- **Check** Start the search for the above data.
- **Clone QSO** Create a new QSO record copying rig data.
- **Copy QSO** Create a new QSO record copying call and rig data.
- **Delete QSO** Remove the selected QSO from the log.
- **Done** Keep the result of any merge action.
- **DX?** Display the parsing of the callsign in the selected QSO record.
- **Edit Net** Open all records that could form a net (same frequency, close time) in the editor.
- **Edit QSO** Opens the QSO record in edit mode.
- **Keep 1 (*Dupe check*)** Keep the left hand record.
- **Keep 1 & 2 (*Dupe check*)** keep both records. They are not duplicates.
- **Keep 2 (*Dupe check*)** Keep the right hand record.
- **Merge (*Dupe check*)** Merge data between the two records.
- **Merge QSO (*Query Mode*)** Merge data between the queried record and the target record.
- **Parse QSO** Add DXCC etc details to the current record.
- **Query** Open an editor view to allow details for a search to be entered.
- **Quit** Quit the QSO entry mode.
- **Quit Browse** Cancel the current browser view.
- **Quit Net** Cancel editing all records in the editor view.
- **Quit QSO** Cancel the QSO being entered.
- **Reject QSO (*Query Mode*)** Do not add the queried QSO record to the log.
- **Replace CAT** Replace the rig data in the selected record with data freshly read from the rig.
- **Restart** Cancel the current QSO entry and start a new one.
- **Save** Save the QSO being entered or edited. If the QSO hadn't been started, start it first. If the QSO is being entered, then set the end time.
- **Save & Edit** Save the QSO (as above), but continue with the QSO record open in edit mode.
- **Save & New** Save the QSO (as above) and start a new QSO.
- **Save & View** Save the QSO (as above), but continue with the QSO record in read-only mode.
- **Save Net** Save all records in the editor view.
- **Start Net** Start a QSO, expecting it to be the first of a (say club) net.
- **Start QSO** Start a real-time (on-air) QSO. This fixes the QSO start date and time, as well as data read from the rig.
- **Test Import (*Query mode*)** Start a search to match import record in log.
- **Update CAT** Copy data from the rig if none exist in the selected record.
- **U/d Station** Update the record using the current Location, Operator and Station Callsign.
- **View QSO** Opens the QSO record in read-only mode.
- **[Left arrow]** Select the previous record.
- **[Left arrow and bar]** Select the first record - either in the current log extract or in a net edit.

- [Reading glass] Search for a possible match for the query record.
- [Reading glass] ALL.TXT Search the WSJT-X ALL.TXT for evidence of a QSO with the query record.
- [Reading glass] QRZ.com Open the QRZ.com page for the callsign in the selected record.
- [Right arrow] Select the next record.
- [Right arrow and bar] Select the last record.

### 1.6.2.11 Rig Control

#### 1.6.2.11.1 Description

This pane allows the user to specify how to connect a rig to ZZALOG.

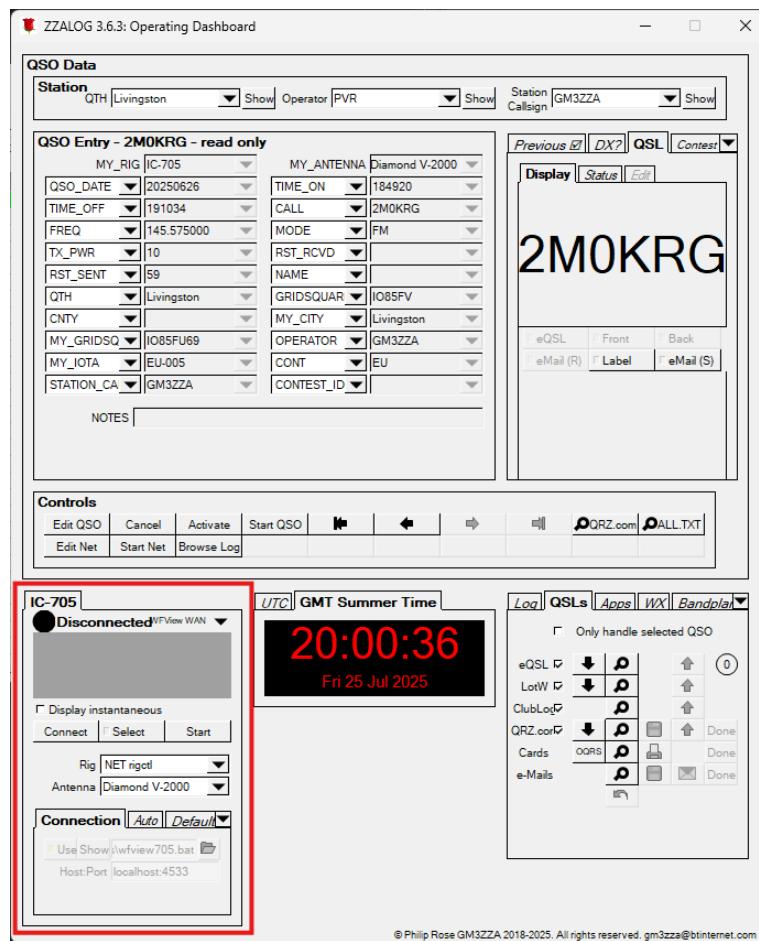


Figure 1.103 Position of rig control pane within dashboard window

#### 1.6.2.11.2 Features

##### 1.6.2.11.2.1 Selecting the Rig

Most modern rigs have computer control (CAT *Computer Aided Transceiver*). Each major manufacturer has its proprietary protocols and each rig has a unique set of features that require additional decodes within those protocols. Like many other applications, ZZALOG uses a standard library **hamlib**. This library provides a standard

programming interface (API) to access the features for all but the most recent rigs. Rigs are grouped according to their manufacturer with a couple of miscellaneous interfaces. There are number of other applications that provide rig access - some of these can also be connected using hamlib.

Click the "Select" button. This will put the rig control into a 'select' mode which allows the user to select the rig directly or one of the other applications. Click the button next to the rig input to open a drop-down menu. As can be seen the menu is grouped by manufacturer. In the image below, the Icom IC-705 transceiver has been selected.

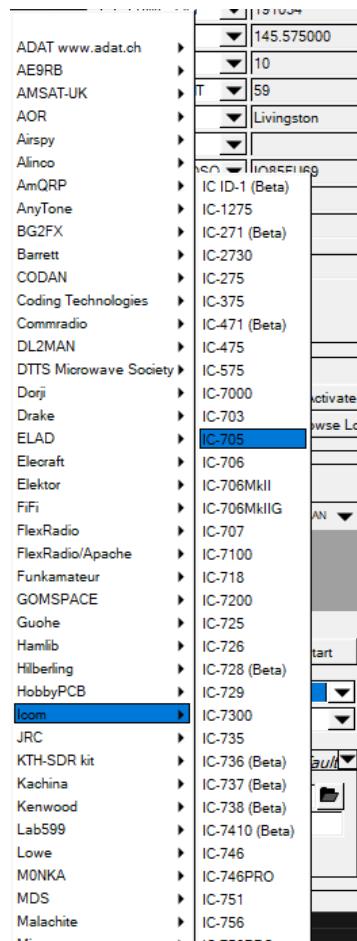


Figure 1.104 Selecting one rig among many

#### 1.6.2.11.2.2 Defining connection

Note that the "Connection" tab below the rig selection is now enabled. This allows the path to the rig to be selected. Commonly, as the case here, the rig connection uses a serial interface or an emulation of such over USB. In this case the port and connection speed (baud rate) need to be specified. This can be done using drop-down menus which are opened up by the buttons next to the inputs. In the images below the port and baud-rate menus have been opened.

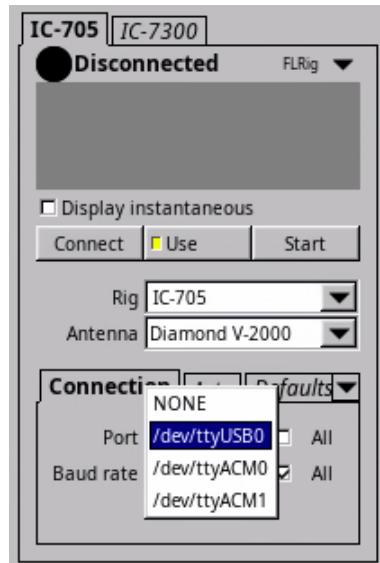


Figure 1.105 Selecting a serial port

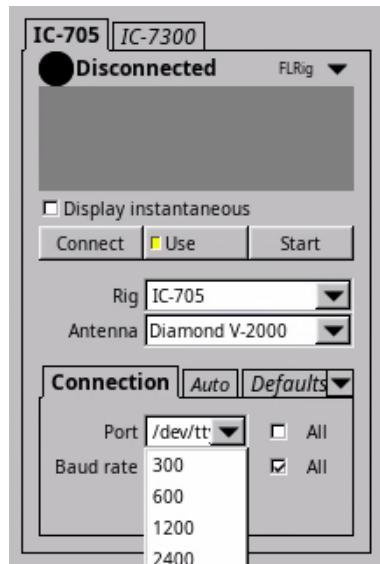


Figure 1.106 Selecting baud-rate

An example using the application F1Rig is shown below. In this case communication between ZZALOG and F1Rig uses a protocol known as XML-RPC (Remote procedure call using XML) over an HTTP link. In the case below, this HTTP link is within the same computer (localhost - green pointer) but it can be over a network. ZZALOG can start the other application using scripts (blue pointer), but the other application can have been started by invoking its command or clicking its icon. In the case below a script is available as indicated by the indicated "Use" button (red pointer).

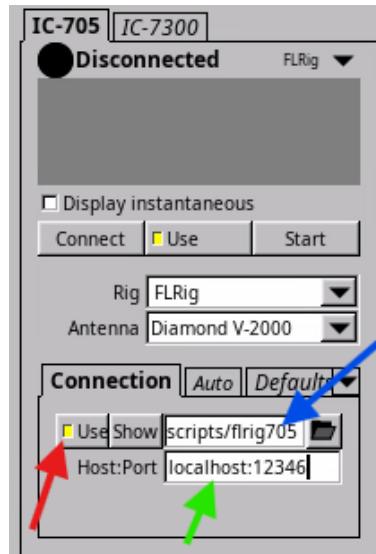


Figure 1.107 Selecting a network connection

#### 1.6.2.11.2.3 Starting and connecting automatically

The "Auto" pane allows the control of automatically starting the other application and then connecting to the rig. In the image below, because the button is unchecked the application is not started automatically when ZZALOG starts, but ZZALOG will then attempt to connect after a delay of 2.5 seconds after the application has been started. The value for this delay is obtained through a process of "trial and error" to see when the application will accept the first command after being started.

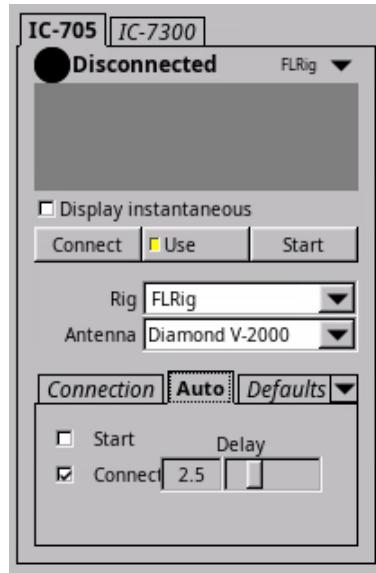


Figure 1.108 Specifying connect delay

#### 1.6.2.11.2.4 No CAT? Specify power and frequency

The "Defaults" pane allows defining default power and frequency when these values cannot be read using CAT. In the image below, the user has decided to override the default CAT mechanism of reading power, by clicking the "O/R" check box and opening the drop-down menu that has been enabled.

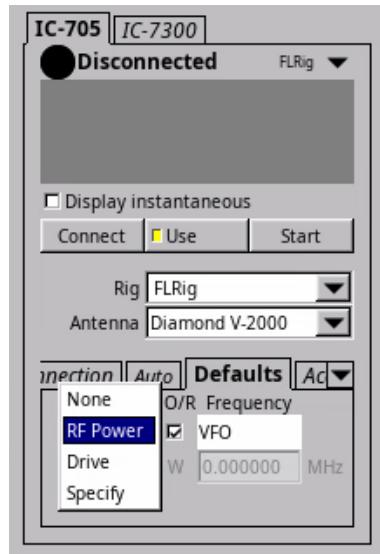


Figure 1.109 Specifying fixed power

#### 1.6.2.11.2.5 Specify amplifier or transceiver

The "Accessories" pane allows accessories such as a linear amplifier or transverter to be added to the rig. The power and frequency that the rig reports must be changed before being logged. In the image below left, the two check boxes for "Amplifier" and "Transverter" have been clicked, this enabling the inputs below. For an amplifier its gain should be specified in dB. For a transverter its frequency shift should be specified in MHz and its power output in W.

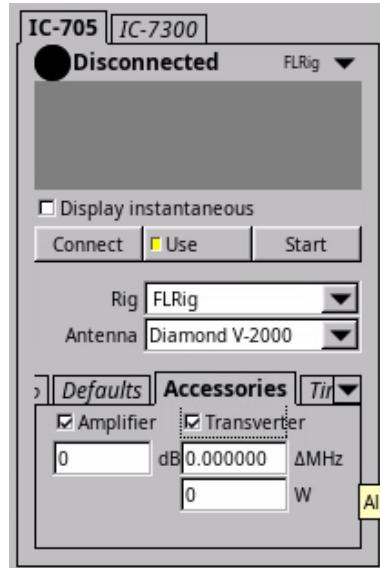


Figure 1.110 Specifying a transverter and amplifier

#### 1.6.2.11.2.6 Miscellaneous features

The "Timeout etc" pane allows the user to specify miscellaneous features.

- **Timeout** This specifies the time in seconds that ZZALOG waits before deciding that the rig will not honour a request that has been made.

- **S-meter stack** When ZZALOG displays the S-meter value, it displays the maximum value in its stack of readings. This input allows the depth of the stack to be configured.
- **TO Count** This specifies the number of timeouts allowed before ZZALOG decides that the rig does not support the function.

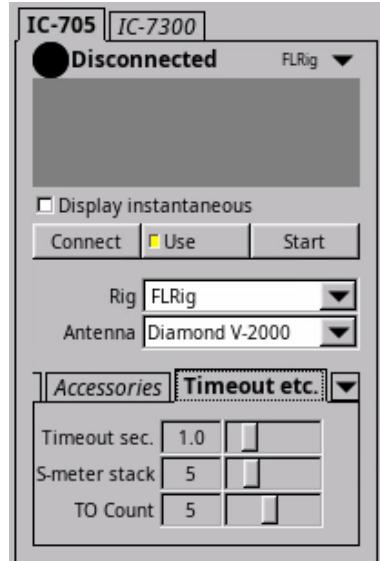


Figure 1.111 Specifying miscellaneous features

#### 1.6.2.11.2.7 Connected

The image below shows the connected rig. At the top, encased in red, indicates the rig state - here in receive indicated the green circle. For transmit the circle would be red. This is followed by a brief description of the band and band-plan allocation. In this case the frequency lies in the FM and Digital Voice section of the 2m band.

Enclosed in blue is the rig display. It shows frequency (in MHz), mode, power (in W) and S-meter reading. The power reading is the highest read in the previous transmit period. The S-meter reading is the highest read over the last few readings in the previous receive period.

Arrowed in green is a check box "Display instantaneous". If checked, the power and S-meter readings will be the instantaneous values, rather than the smoothed values described above.

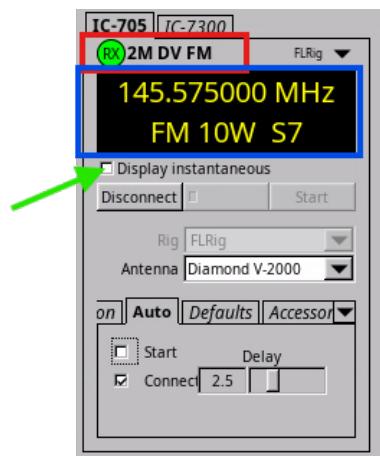


Figure 1.112 Detail with connected rig

### 1.6.2.12 Station clock and weather

This pane provides the station clock and local weather display. It displays the time either in UTC (otherwise known as GMT or Zulu) and in local time as defined by the operating system. To select the timezone click on the time display.

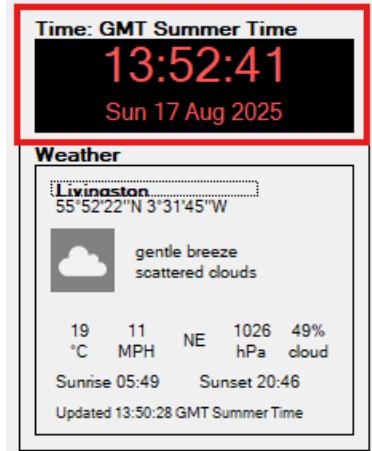


Figure 1.113 Display of time and weather

How local time is named is dependent on the operating system.

#### Note

Time is ALWAYS logged in UTC regardless of the timezone displayed here.

### 1.6.2.13 Weather Report

This pane displays the latest weather report from openweathermap.org. The report is read when ZZALOG is launched and every 30 minutes thereafter.

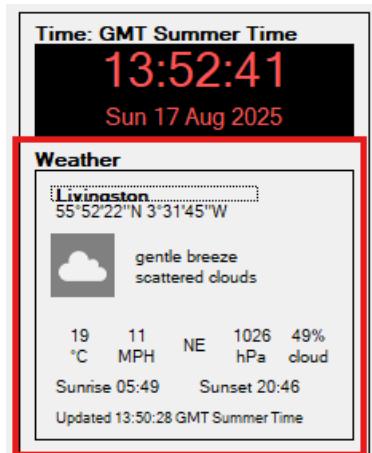


Figure 1.114 Weather display

The above image shows from top to bottom:

- **Location** Place and latitude and longitude provided by the report server.
- **Summary** Iconic and textual summaries of the current weather condition.
- **Statistics:**
  - **Temperature** clicking on the value toggles between °C and °F.
  - **Wind speed** clicking cycles between miles per hour, metres per second, kilometres per hour and knots.
  - **Wind direction** clicking cycles between an arrow indicating direction, compass point and compass degrees.
  - **Atmospheric pressure** clicking cycles between hectopascals, millimetres of mercury, inches of mercury and millibars.
  - **Cloud coverage** clicking cycles between a chart symbol, percentage cloud cover and okta values.
- **Sun rise and sun set** Times in the timezone selected in the clock display.
- **Last update** Time in the timezone selected in the clock display.

### 1.6.2.14 Log Status

#### 1.6.2.14.1 Description

This pane allows the use to monitor the status of the log.

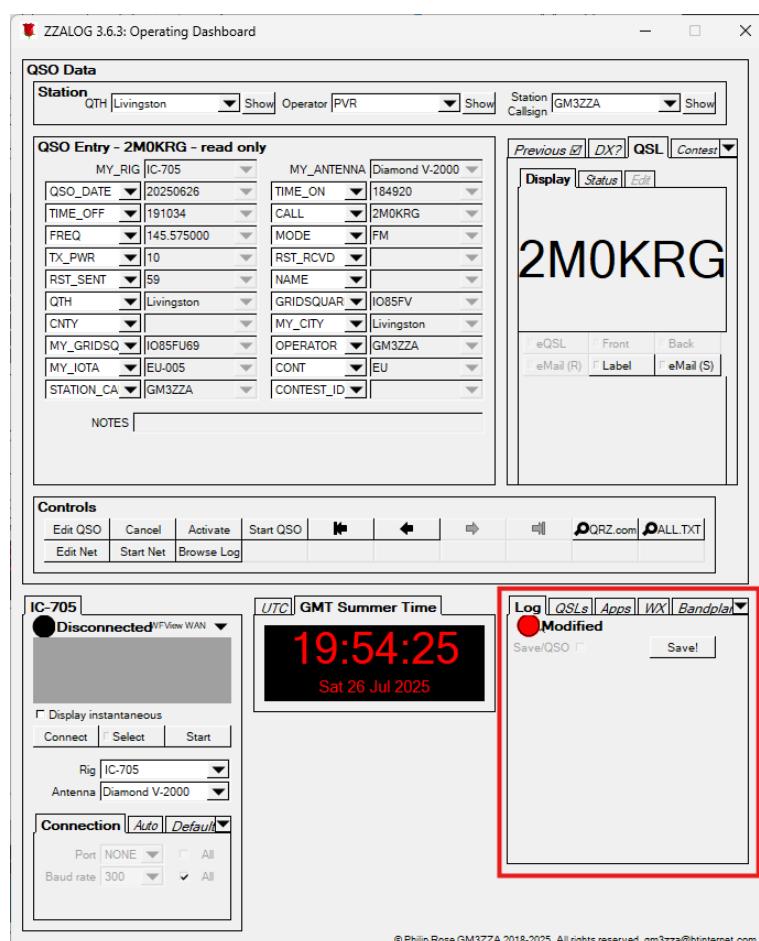


Figure 1.115 Position of log status within dashboard window

The top line, enclosed in red below, indicates the status of the log. The circle indicates the status of the log-book in local memory, and is accompanied by the equivalent text:

- **No Data** Grey There is no data.
- **Loading** Light green Loading data.
- **Unmodified** Green Data has not been modified, or has been written back.
- **Modified** Red Data has been modified.
- **Storing** Orange Writing data.

The check-box, labeled "Save/QSO" when checked indicates that the log will be written back after the completion of every QSO, or at other times when a record has been changed. Clicking this check-box off will disable writing back of the log. At certain states of the application, the application will suspend writing back to reduce the number of unnecessary updates. When this happens, the check-box will be unchecked.

The button, "Save", when clicked will write back the log.

### 1.6.2.15 Interfacing QSL Websites

#### 1.6.2.15.1 Description

This pane allows interaction with the online QSL servers: eQSL.cc, Logbook of the World, Clublog.org and QRZ.com. In addition it allows processing of e-mail and paper QSLs.

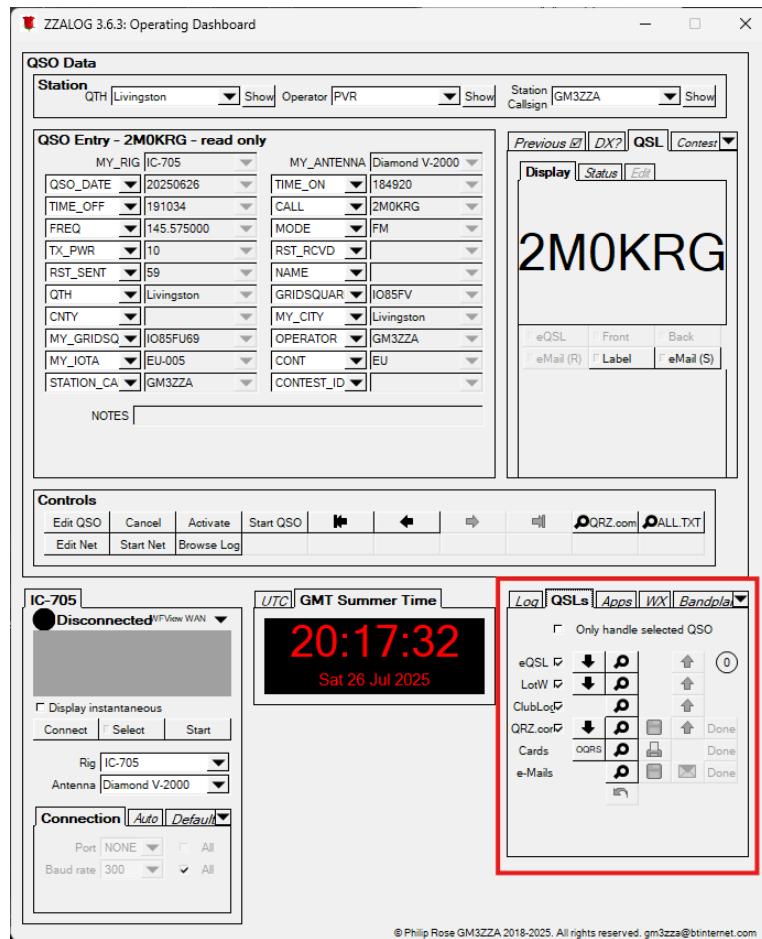


Figure 1.116 Position of QSL controls within dashboard window

The top check box, labeled "Only handle selected QSO", allows the processing of the selected QSO record. Only buttons triggering actions relevant to an individual QSO record will be activated.

The first column, enclosed in red below, identifies the various QSL sources. The check boxes besides the online servers indicate, when checked, that QSOs are uploaded automatically after each QSO is complete. This upload is run in the background, so should not interfere with normal logging activity.

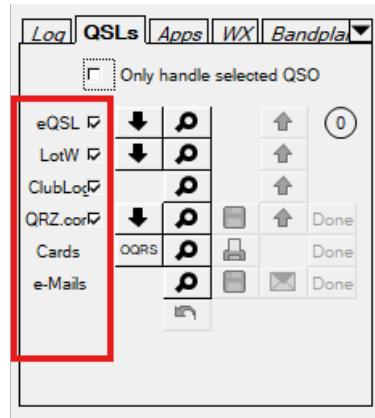


Figure 1.117 Detail indicating supported QSL sites

#### 1.6.2.15.1.1 Downloading data

The second column, shown below, contains buttons that start QSL data downloads. In the case of the three online servers that support it, clicking the button starts a download of records received by the server of putative QSOs with this station. These are labeled with a downward arrow. The fourth button, labeled "OQRS", downloads requests for paper QSLs from the "Online QSL Request Service" managed by Clublog.org.

For all downloads, processing of the data is started automatically. When necessary, requests for confirmation are handled by [Querying QSOs](#). The appropriate fields are added to the QSO records indicating either the QSL status with respect to the server, or that a QSL request has been received for OQRS.



Figure 1.118 Detail showing download controls

#### 1.6.2.15.1.2 Extracting QSL data

The third column, shown below, contains buttons that extract data for sending to the online servers or other processing. The bottom button, labeled with a backward looping arrow, removes the extract.

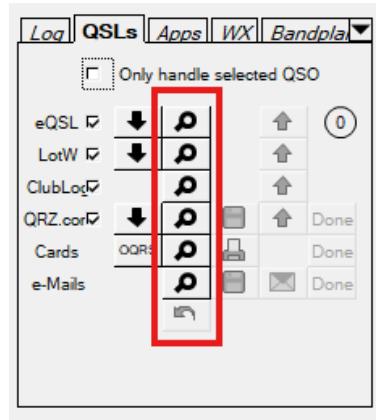


Figure 1.119 Detail showing extract controls

#### 1.6.2.15.1.3 Processing QSL data

The fourth column, shown below, contains buttons that process data.

For QRZ.com, the extracted data is written to a file for manual upload to QRZ.com as this server does not support direct bulk upload from an application.

For Cards, a label os printed for each of the records in the extracted data.

Foe e-Mails, an QSL image is generated for each of the records in the extracted data.

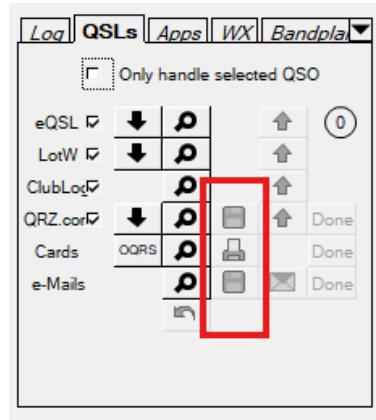


Figure 1.120 Detail showing processing controls

#### 1.6.2.15.1.4 Uploading QSL data

The fifth column, shown below, contains buttons that upload data.

For the three online servers that support bulk data upload (eQSL.cc, Logbook of the World and Clublog.org) the extracted data is uploaded to the server. For QRZ.com, bulk upload is implemented by multiple single uploads.

For all four online servers individual QSOs can be uploaded.

For e-Mails, the button will send e-mails with the previously generated images for each record in the extracted data.

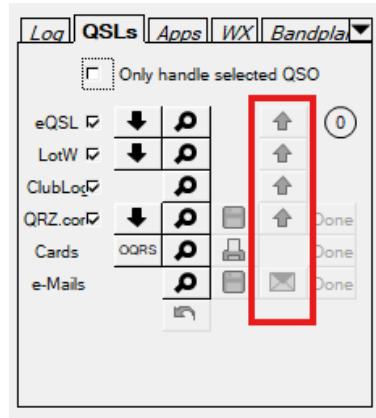


Figure 1.121 Detail showing upload controls

#### 1.6.2.15.1.5 Updating records with "Done"

The last column, shown below, contains buttons, labeled "Done". For those activities that require manual intervention: uploading data; posting cards and sending e-mails, clicking "Done" will update the records that the activity is complete.

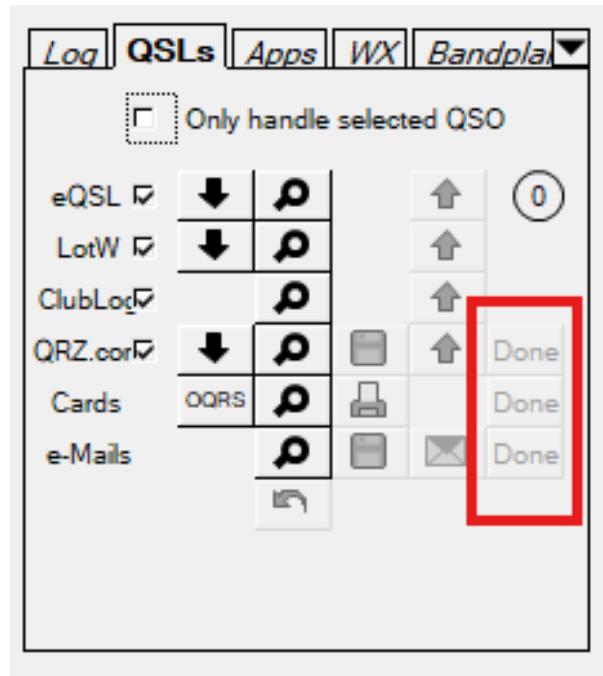


Figure 1.122 Detail showing controls to make a process is complete

#### 1.6.2.16 Handling 3rd-party applications

This pane enables the user to set up other applications. ZZALOG currently supports interactions with WSTJT-X and FIDigi. For these ZZALOG acts as a log-book server. ZZALOG can be configured to launch and configure other applications.

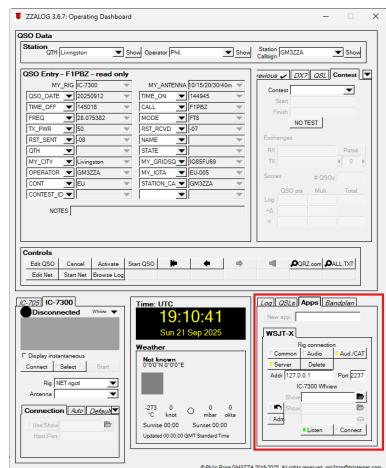


Figure 1.123 Position of application control within dashboard window

#### 1.6.2.16.1 Selecting an application

Enclosed in red below, the "New App" button allows an application to be declared to ZZALOG. The data to entered here shall be a "label" for the application: in the example here GT2 is used as a label for GridTracker v2.



Figure 1.124 Detail showing specification of a new application

ZZALOG requires scripts to launch these applications. Applications may require different configuration depending on the rig and how the rig is connected to ZZALOG. The buttons circled below are used to control this.

- **Common** the application has the same configuration for all rigs.
- **Audio** the application needs a different configuration to connect audio to the rig.
- **Aud./CAT** the application needs a different configuration for audio CAT for each rig.

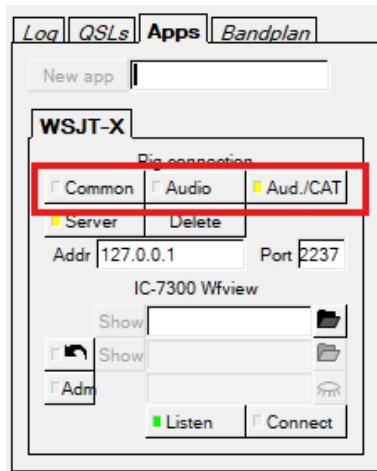


Figure 1.125 Detail showing required rig configuration

ZZALOG can act as a log server for WSJT-X and FIDigi. To enable this feature click the button labeled "Server". This button will light to indicate it is enabled. Enter the address and port that ZZALOG should listen on for requests. The button labeled "Listen" when lit indicates that traffic has been received from the application.

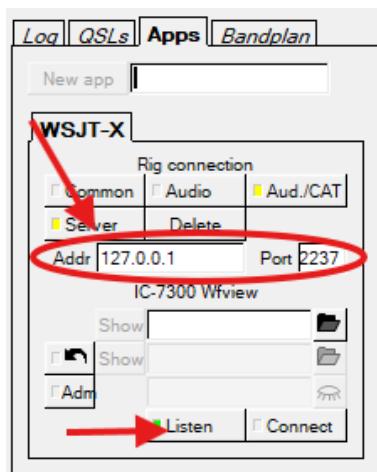


Figure 1.126 Detail showing server configuration

ZZALOG listens to requests from WSJT-X. The address and port entered here should match that set in WSJT-X (see below). Note that other applications also make use of this feature. In this case rather than using the localhost address (127.0.0.1), a multicast address (such as 224.0.0.1) should be used. This allows more than one application to receive a data packet sent out on this port. WSJT-X sends completed QSO records to ZZALOG for automatic logging.

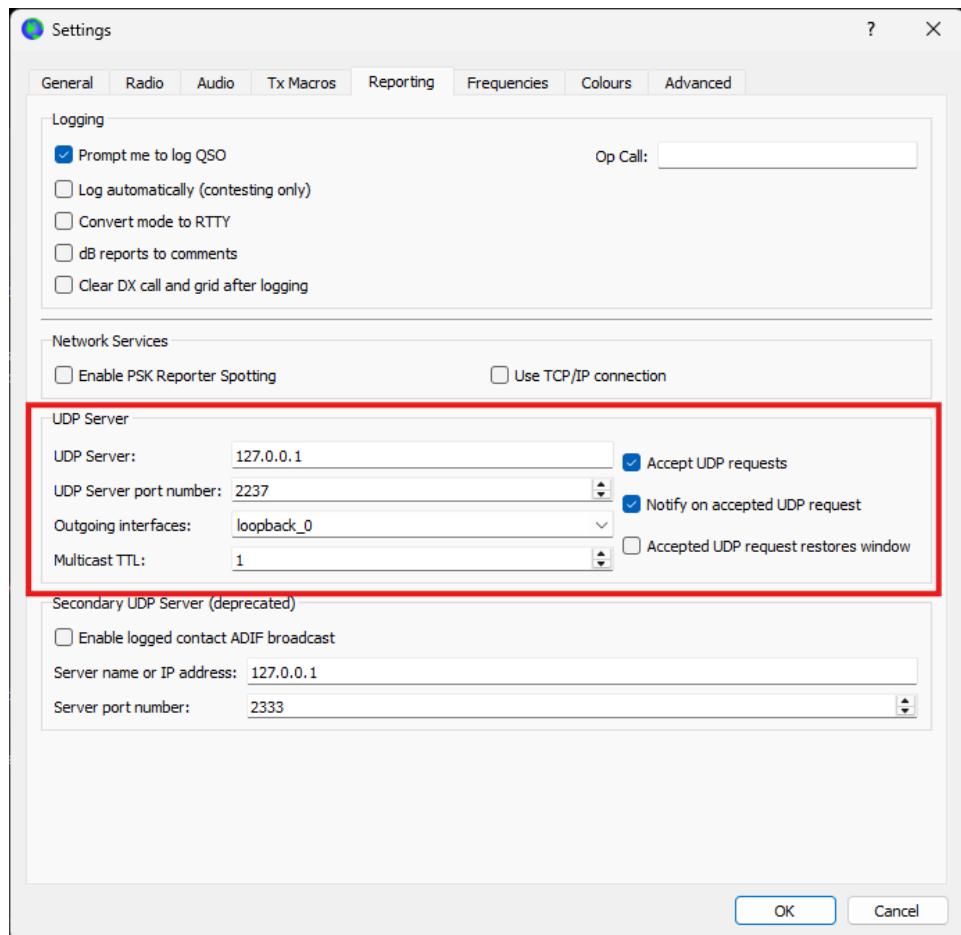


Figure 1.127 Screenshot of WSJT-X

ZZALOG can emulate the application FIDig. This is an application which is part of the FIDigi suite of programs and is used by FIDigi to check worked-before status and log completed QSOs. The address and port that FIDigi uses appears to be hardwired as 127.0.0.1:8421. To enable FIDigi to use this, FIDigi must be told to use a log server - see below.

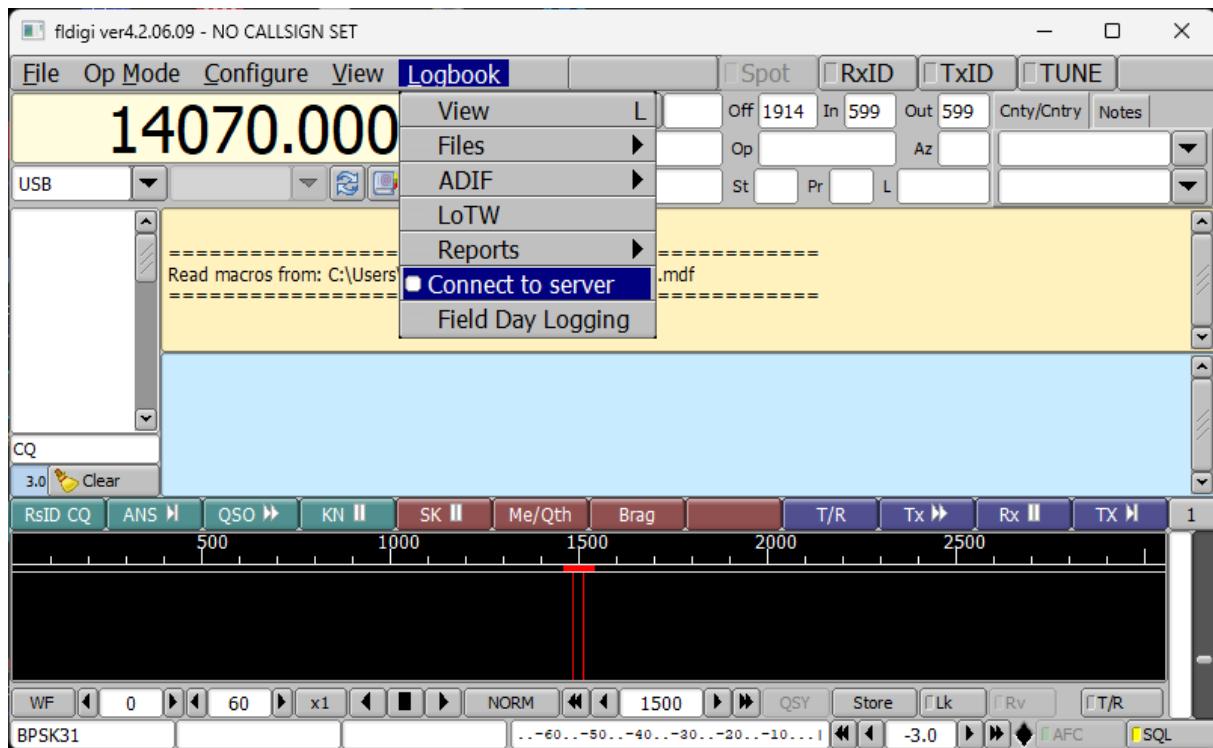


Figure 1.128 Screenshot of Fldigi

The text below the button summarises how the application is configured.

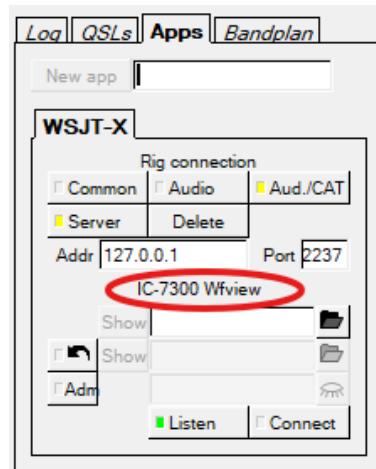


Figure 1.129 Detail showing chosen configuration

#### 1.6.2.16.2 Using scripts

The script is specified as below. The input field has an associated file browse button. The script name can either be typed in or navigated using a file browser opened by that button. The "Show" button will open up a text editor allowing the script to be viewed or edited.



Figure 1.130 Detail showing definition of a script

In some cases a script may be required to undo the action of the above script. In the next image, the button labeled with a backward looping arrow can be used to enable this feature. When enabled this button will be lit and the other buttons and input enabled.



Figure 1.131 Detail showing undo script controls

Some scripts may require to be run in administrator or superuser mode. In the image below, the button labeled "Adm" enables this. Enter the password into the input field. Clicking the button labeled with a closed eye will show the password in clear.

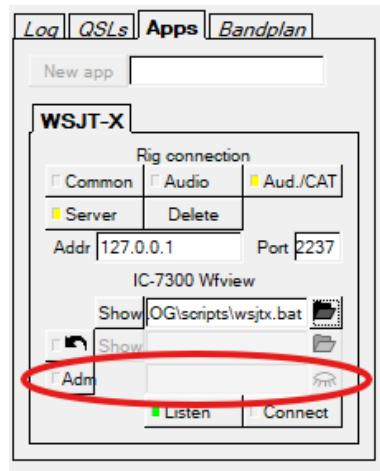


Figure 1.132 Detail showing controls for administrator level controls

To configure a new or existing application see [Configuring applications](#).

#### 1.6.2.17 Bandplan viewer

This pane displays a summary of the band-plan for the current band. This is either the rig's transmit frequency of, when no rig is connected, the frequency of the selected QSO record.

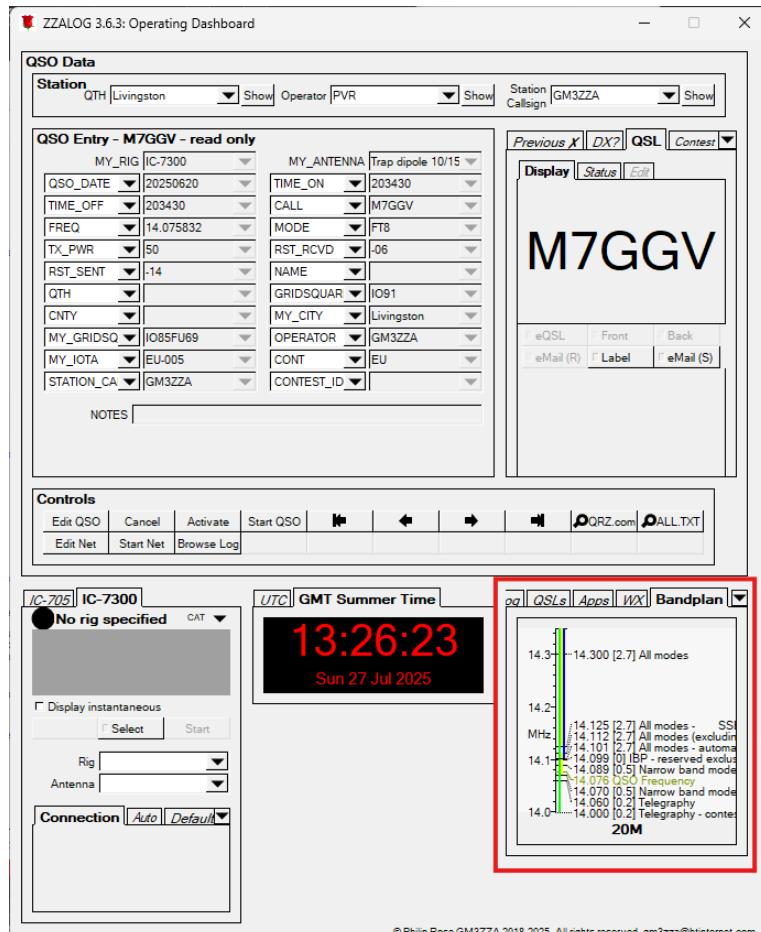


Figure 1.133 Position of band-plan viewer in dashboard window

This pane shows only the band segments as allocated in the band-plan, with text in black showing the lower frequency of the segment, the recommended maximum bandwidth and use. The text in red shows the rig's TX frequency: the text in green shows the selected QSO frequency.

Note that no indication is given about the availability of any frequency according to the level of license of the operator or station. Some frequencies may also only be available under special conditions from the licensing authority.

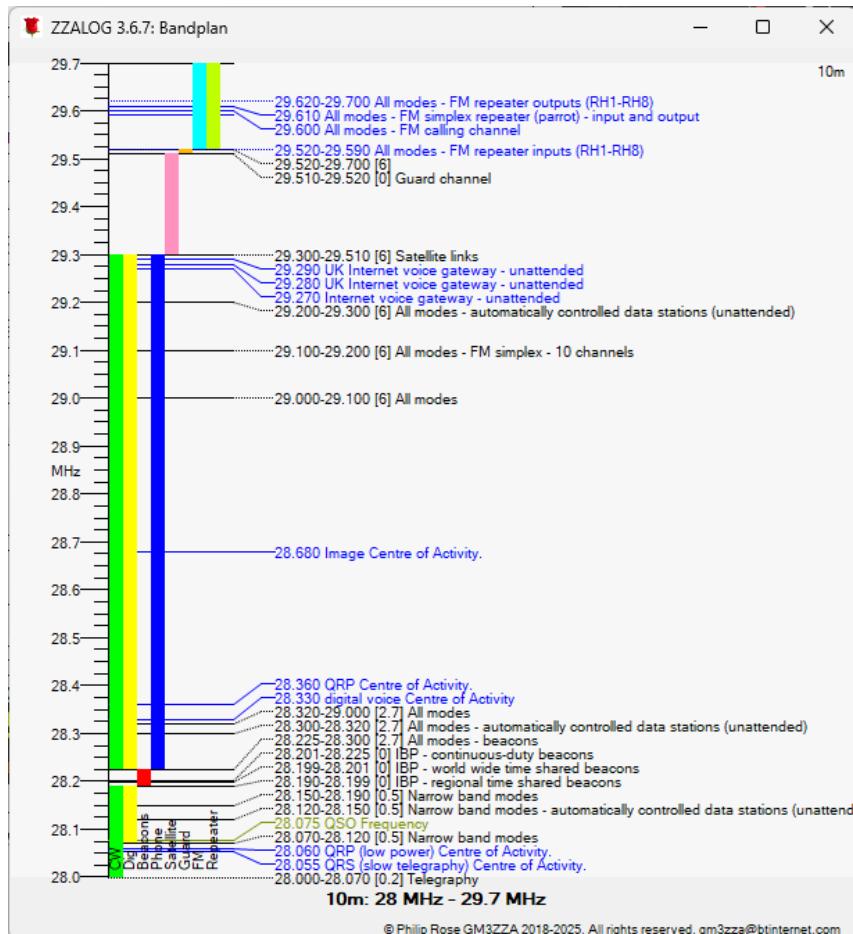


Figure 1.134 Detailed band-plan view

A more detailed image can be seen by clicking the image on this plane. This now provides more detail for each band segment. It now includes selected spot frequencies for recommended centres of activity and similar. More visible on this larger image are the coloured bars indicating the frequencies recommended for various modes.

This window is fully resizable. If it becomes too small, then information is removed as necessary to fit the window.

#### 1.6.2.17.1 Changing rig frequency

Clicking on the frequency scale will cause the rig to move to that frequency. Clicking on any of the text markers will cause the rig to move to the frequency at which the marker is pointing.

## 1.6.3 Application Status Banner

### 1.6.3.1 Description

Displays any status messages and progress reports output by ZZALOG.

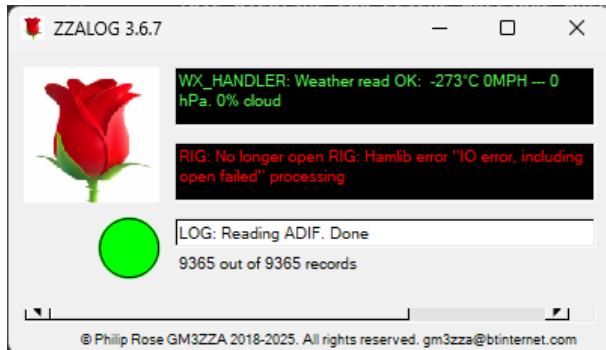


Figure 1.135 Status banner window

### 1.6.3.2 Features

This window comprises from top to bottom.

This displays the status messages output by ZZALOG that are at most of warning severity. Only the last message output is displayed here.

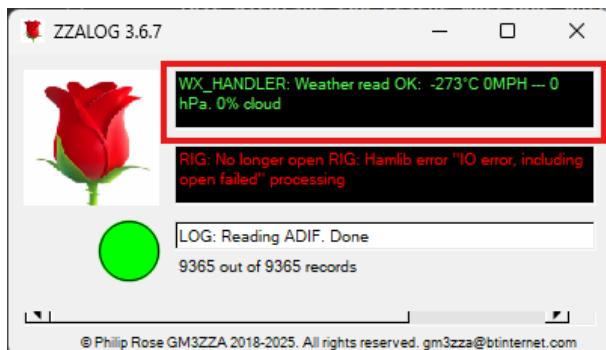


Figure 1.136 Showing minor messages

The second displays status messages that are of error severity or higher. Again only the last such message is output here.

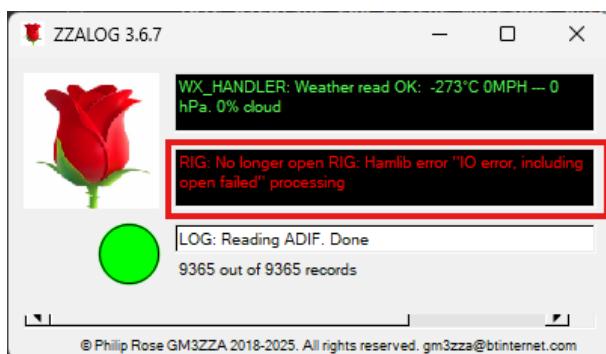
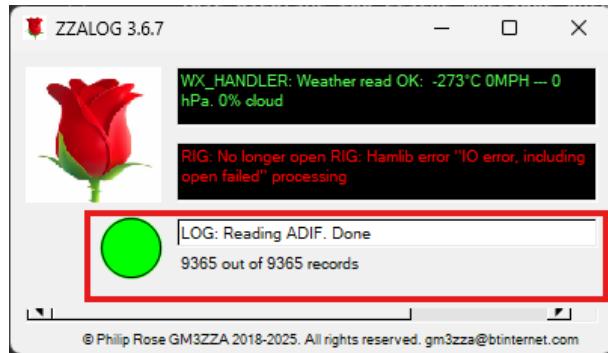


Figure 1.137 Showing major messages

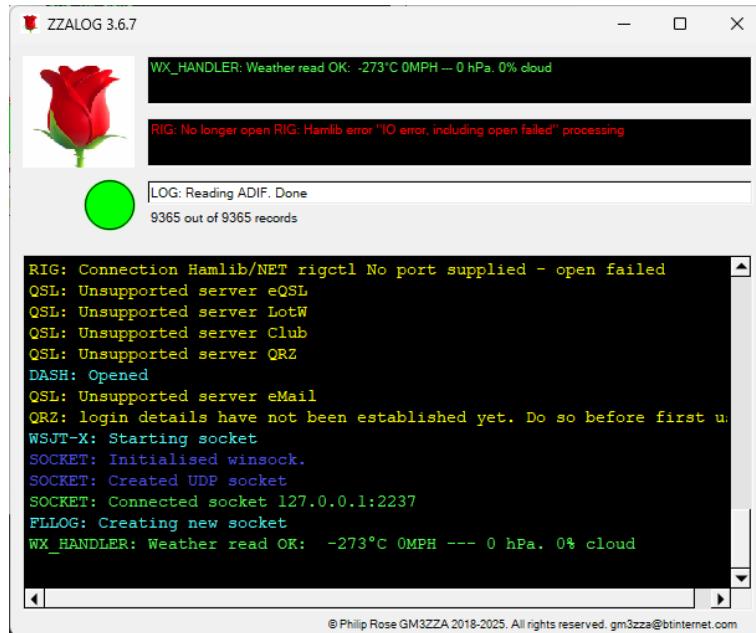
The third comprises three items. Firstly a text output showing a progress message output by ZZALOG. Below this is a numeric representation of progress On the left is a graphical representation in the form of a clock dial, showing proportion complete. The clock-dial is colour-coded indicating the activity being progressed.



**Figure 1.138 Showing progress**

#### 1.6.3.2.1 Displaying the whole report.

More of the message log can be displayed by enlarging the window. Drag and drop on of the corners of the window to do so.



**Figure 1.139 With message log shown**

Messages are colour-coded according to severity.

- **Blue** Lowest severity.
- **Light blue** Messages to be logged for information.
- **Light magenta** Messages added for debug purposes.
- **Light cyan** Message logged as notes.
- **Grey** Messages logged for progress.

- **Light green** Messages logged indicating completion of an activity.
- **Yellow** Messages logged as a warning.
- **Red on black** Messages logged as an error - processing can continue.
- **Red on white** Messages logged as a severe error - processing is stopped.
- **Black on red** Messages logged as a fatal error - processing is stopped.

## 1.6.4 Virtual keyboard for non-ASCII characters

### 1.6.4.1 Description

This dialog provides a virtual keyboard for a selection on Latin-based non-ASCII characters.

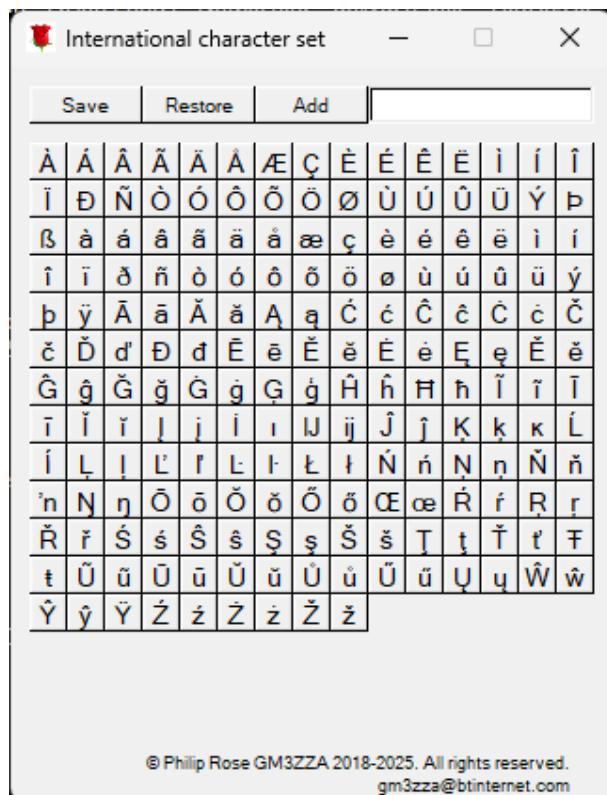


Figure 1.140 Virtual keyboard window

### 1.6.4.2 Features

#### 1.6.4.2.1 Entering a character

Clicking on any button labelled with a character will paste that character into the input widget that is currently selected.

#### 1.6.4.2.2 Adding more characters

Copy any characters you want to add into the text input field at the top right. Then click "Add". To save the change, click "Save".

## 1.6.5 Configuration

This window enables the user to configure aspects of the application. It has the following tabs:

- [On-line services and functions](#)
- [Configuring used fields](#)
- [Setting this station details](#)
- [Defining Fonts etc.](#)
- [Editing QSL cards for labels and e-mails](#)
- [Specifying a contest](#)
- [Summarising settings](#)

### 1.6.5.1 On-line services and functions

This dialog allows the user to configure all necessary on-line services and functions.

#### 1.6.5.1.1 eQSL.cc

This tab allows the user to configure their use of eQSL.cc. Clicking the "En" check box enables using eQSL.cc. The user can enter the eQSL user and password in these fields. The button with the closed eye icon will make text in the password input field visible.

If the user wants to update the QSO record to eQSL after each QSL, then tick the "Update each QSO" check box. This feature is also available in [Interfacing QSL Websites](#). If the user wants all QSL requests from eQSL.cc to be downloaded leave the "Download Confirmed" unchecked. If this is checked only QSL requests that already match uploaded QSO records will be downloaded.

eQSL.cc manages each callsign that the user operates as separate log-books. This dialog has been populated with all the callsigns the user has used. Each callsign has associated with it a flag saying that that callsign has an eQSL log-book ("Used") and the last time a download request was made ("Last Downloaded"). ZZALOG remembers the last download date: this feature allows the user to override this.

The ability to use the QSO\_MSG field is provided. Different messages may be added for SWL and QSO QSL records.

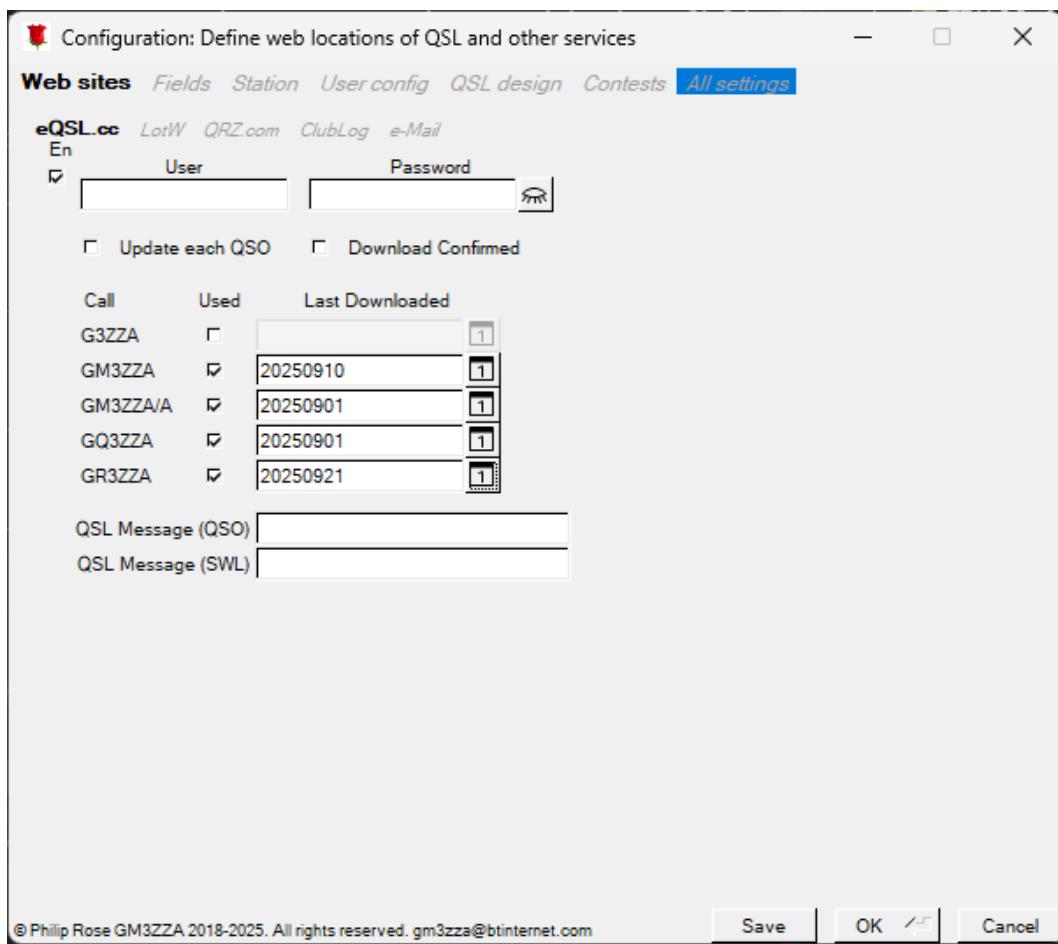


Figure 1.141 Tab to enter eQSL.cc credentials

#### 1.6.5.1.2 Logbook of the World

This tab allows the user to configure their use of ARRL's Logbook of the World (LotW). Clicking the "En" check-box enables the use of LotW. The user can enter the LotW user and password in these fields. The button with the closed eye icon will make text in the password input field visible.

If the user wants to update the QSO record to LotW after each QSL, then tick the "Update each QSO" check box. This feature is also available in [Interfacing QSL Websites](#). ZZALOG remembers the last download date: the field "Last accessed" allows the user to override this.

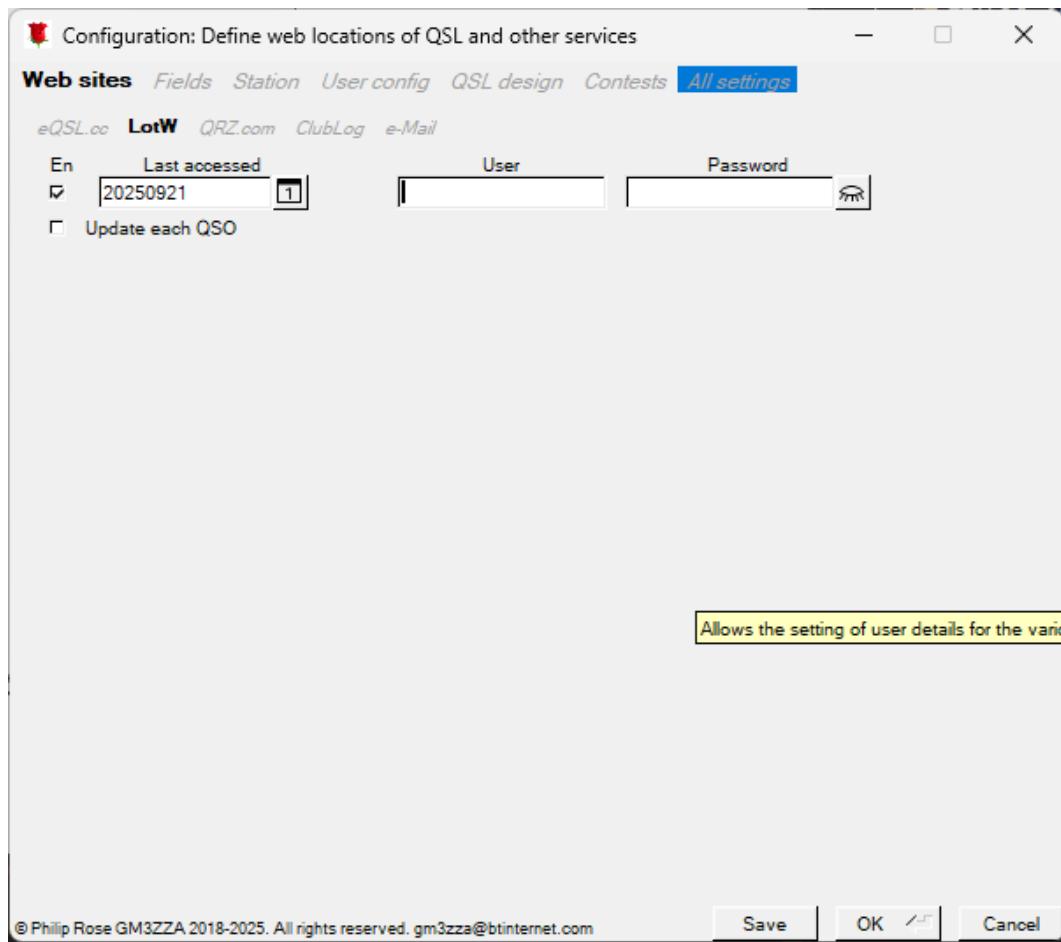


Figure 1.142 Tab to enter Logbook of the World credentials

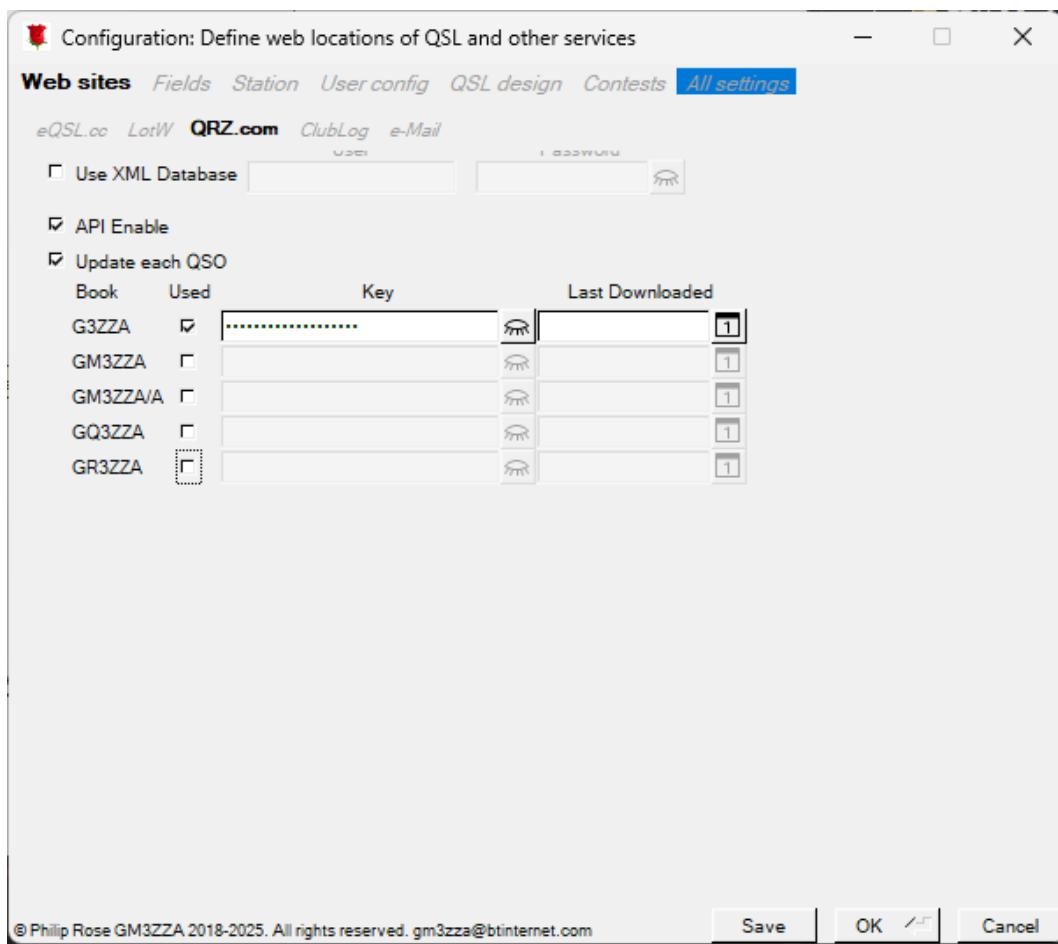
#### 1.6.5.1.3 QRZ.com

This tab allows the user to configure their use of QRZ.com.

QRZ.com offers XML subscribers access to its database. This allows the user to download data about a contacted station. To use this feature the user clicks the check-box "Use XML Database" and enters their user and password in the field. The button with the closed eye icon will make text in the password input field visible.

QRZ.com offers a programming interface. ZZALOG uses this to upload a QSO record after each QSO is complete and for bulk download of data. To use, the user clicks the check-box "API Enable". If the user wants to update the QSO record to QRZ.com after each QSL, then tick the "Update each QSO" check box. This feature is also available in [Interfacing QSL Websites](#).

QRZ.com maintains separate log-books for each callsign used. It requires a separate key for each log-book. This key is typed into the "Key" field. ZZALOG remembers the last download date: the "Last Downloaded" field allows the user to override this.



**Figure 1.143 Tab to enter QRZ.com credentials**

#### 1.6.5.1.4 Clublog.com

This tab allows the user to configure their use of Clublog.com.

Clicking the "En" check-box enables the use of Clublog. The user can enter their e-mail address and password in these fields. The button with the closed eye icon will make text in the password input field visible.

If the user wants to update the QSO record to Clublog after each QSL, then tick the "Update each QSO" check box. This feature is also available in [Interfacing QSL Websites](#).

Clublog also provide the database of callsigns that ZZALOG uses.

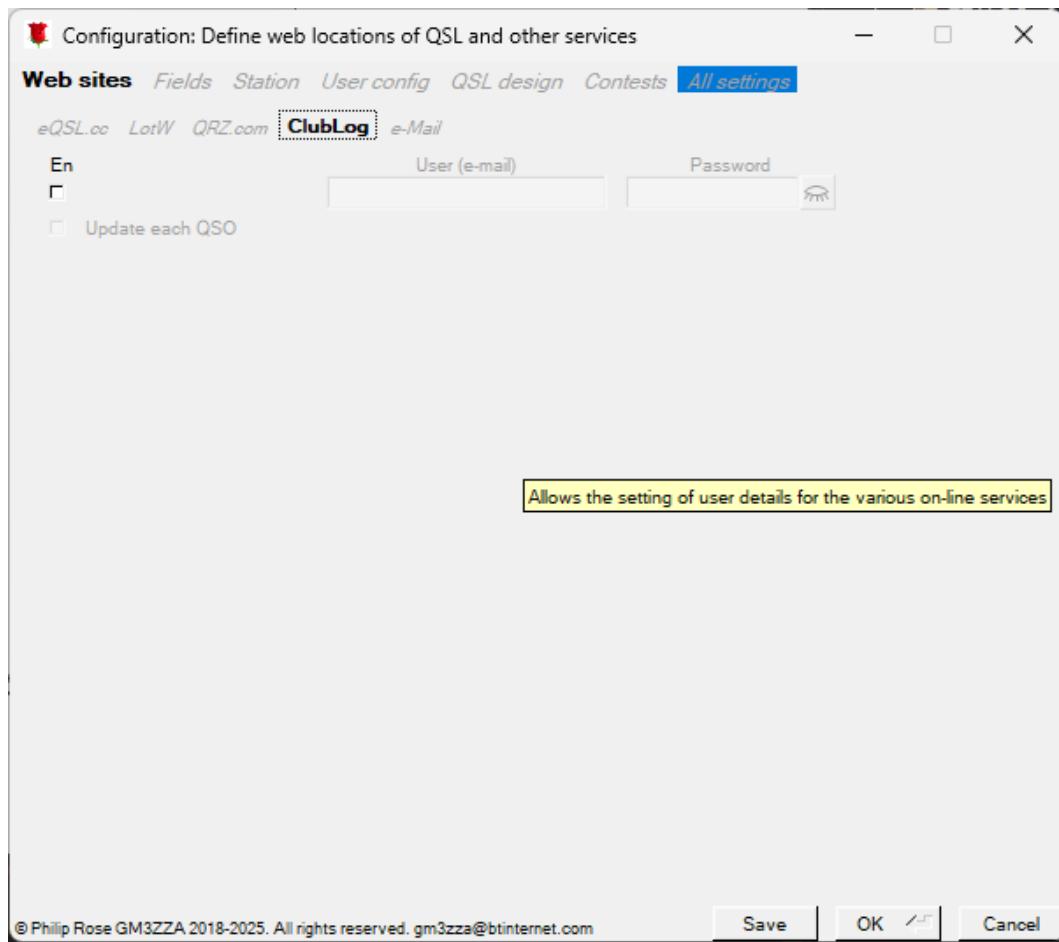


Figure 1.144 Tab to enter Clublog.org credentials

#### 1.6.5.1.5 E-Mail server

ZZALOG can send QSLs by e-mail. This tab allows the user to enter their e-mail server details. The user should enter the server address (eg mail.btinternet.com) and the user and password they use. An additional e-mail address can be specified to receive the e-mail as a CC recipient.

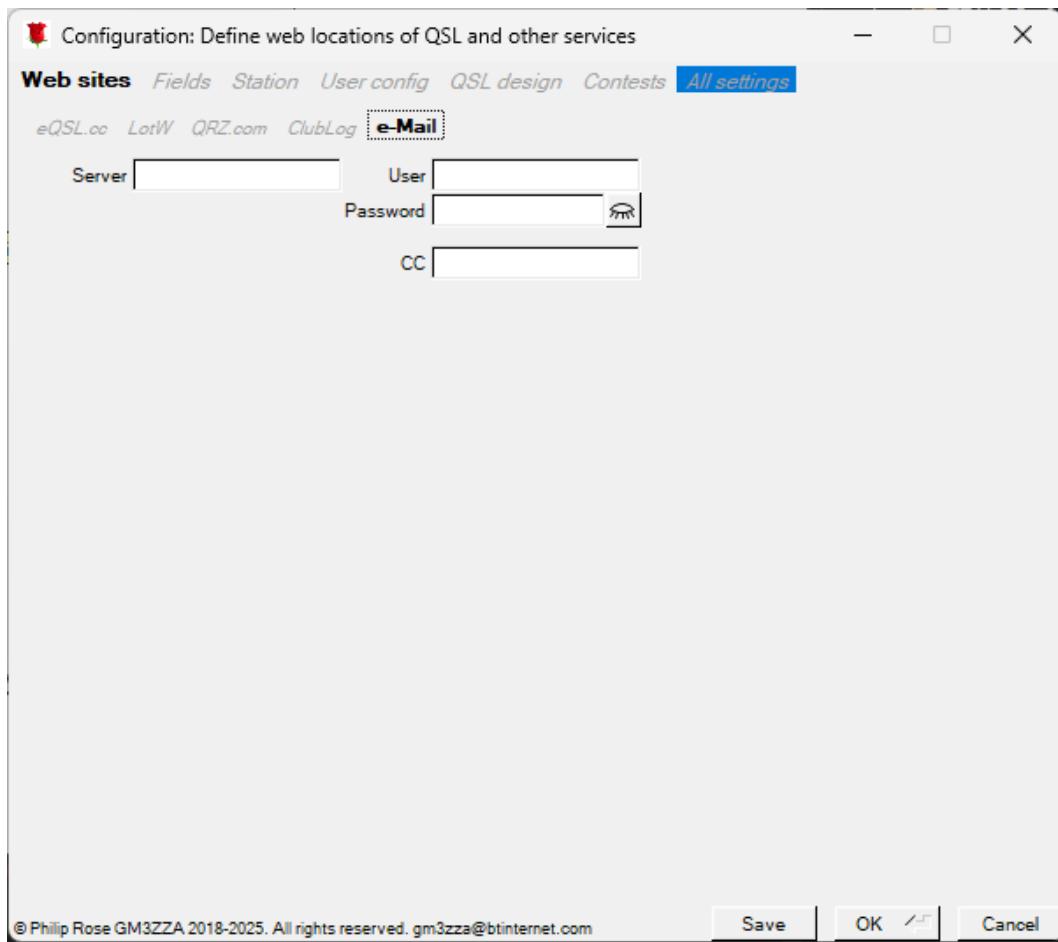


Figure 1.145 Tab to enter e-Mail credentials

#### 1.6.5.2 Configuring used fields

This pane allows the user to configure which fields are displayed in the instances of [Log Book Viewer](#) log table. It also includes the fields used in the various [Contests](#) contest algorithms and the [QSO editor and viewer](#) QSO entry view.

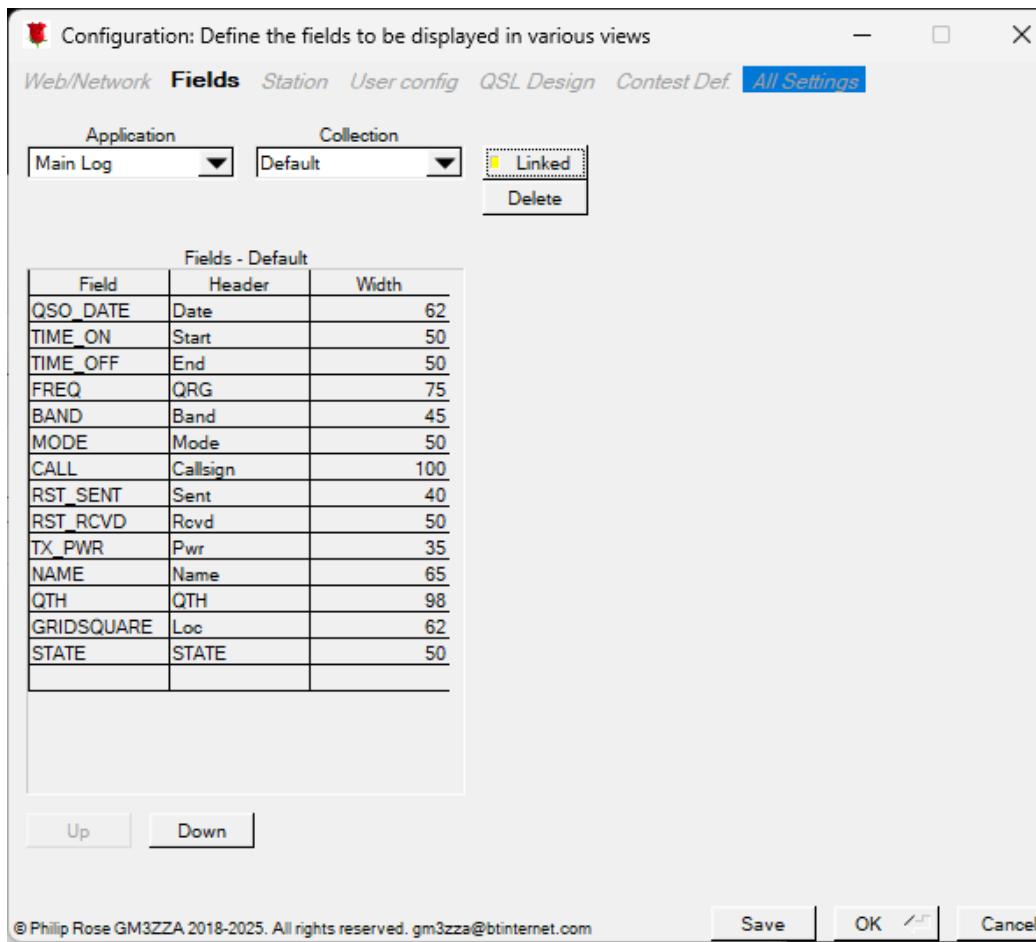


Figure 1.146 Tab showing field configuration

#### 1.6.5.2.1 Modifying an existing set of fields

A set of fields is known as a collection. This pane allows the collection to be specified. Double-clicking on a field name in the table opens up a drop-down menu to choose a new field name to replace the one clicked. Double-clicking on the blank field name allows a field to be added.

The value in the "Header" cell is used as the text in the column header in the [Log Book Viewer](#) log table instance. The value in the "Width" cell is the width of the column in pixels in that log table instance.

To change the position of a field use the buttons labeled "Up" and "Down".

#### 1.6.5.2.2 Specifying a new set of fields

The user should select the application first. This enables then to type in the name of the collection. Once typed in, entering the value creates a new collection with that name. The user can then edit the contents of the collection as described above.

Clicking the button labeled "Linked" will then associate the collection with the selected application.

#### 1.6.5.3 Setting this station details

This dialog allows the user to set various parameters about the current station. It has three tabs: QTH, Operator and Station callsign.

### 1.6.5.3.1 Specifying QTH details

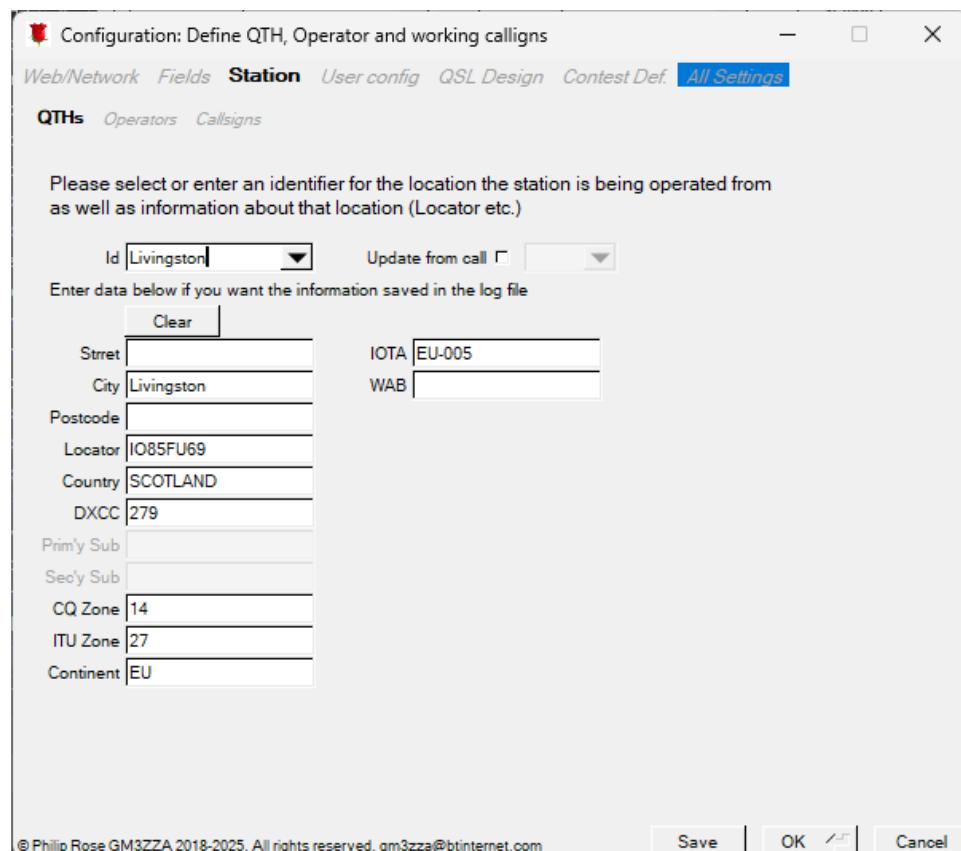
The first tab, QTH provides the user with the ability to define a number of QSO record fields under a single identifier.

The station location, or QTH, should be identified by one or two words. A new location can be typed into the control labeled "Id", or an existing location can be selected from the drop-down list.

The user can then enter as much or as little information about the location in the fields in the dialog:

- **Street** The street name as part of the postal address of the station (QSO field MY\_STREET).
- **City** The town or city name as part of the postal address (QSO field MY\_CITY).
- **Postcode** The postal code (QSO field MY\_POSTAL\_CODE),
- **Locator** The Maidenhead locator or grid square: this can be to any desired accuracy (QSO field MY\_← GRIDSQUARE).
- **Country** The name of the DXCC entity (QSO field MY\_COUNTRY).
- **DXCC** The equivalent numeric index of the DXCC entity (QSO field MY\_DXCC).
- **Prim'y Sub** The primary administrative subdivision of the DXCC entity (e.g. US State or Canadian province - QSO field MY\_STATE) - disabled if not relevant to the DXCC entity.
- **Sec'y Sub** The secondary administrative subdivision of the DXCC entity (e.g. US county or Russian RDA - QSO field MY\_CNTY) - disabled if not relevant to the DXCC entity.
- **CQ Zone** The zone number for CQ Magazine awards and contests (QSO field MY\_CQ\_ZONE).
- **ITU Zone** The zone number alloacted by ITU and used for IARU awards and contests (QSO fiels MY\_ITU← \_ZONE).
- **Continent** The abbtreviation of the continent (QSO field APP\_ZZA\_MY\_CONT).
- **IOTA** The designation of the island group for Islands on the Air awards (QSO field MY\_IOTA).
- **WAB** The Ordnance Survey location for Worked all Britain awards (QSO field APP\_ZZA\_MY\_WAB).

It is possible to populate some of the fields by decoding the station callsign being used at this location. If the user clicks the check box "Update from call" a drop-down menu of callsigns current used in the log is presented. If the user selects a callsign then the following fields: Country, DXCC, CQ Zone and Continent are entered automatically.



**Figure 1.147 Tab showing specification of QTH details**

#### 1.6.5.3.2 Specifying an Operator

The second tab, Operators, allows the user to add operators entitled to use the station.

The user or operator may enter their initials into the control labeled "Id", or select them from the drop-down list.

The user can then enter as much or as little information about the location in the fields in the dialog:

- **Name** The name of the operator as can be exchanged in the QSO (QSO field MY\_NAME).
- **Callsign** The callsign of the operator (QSO field OPERATOR).

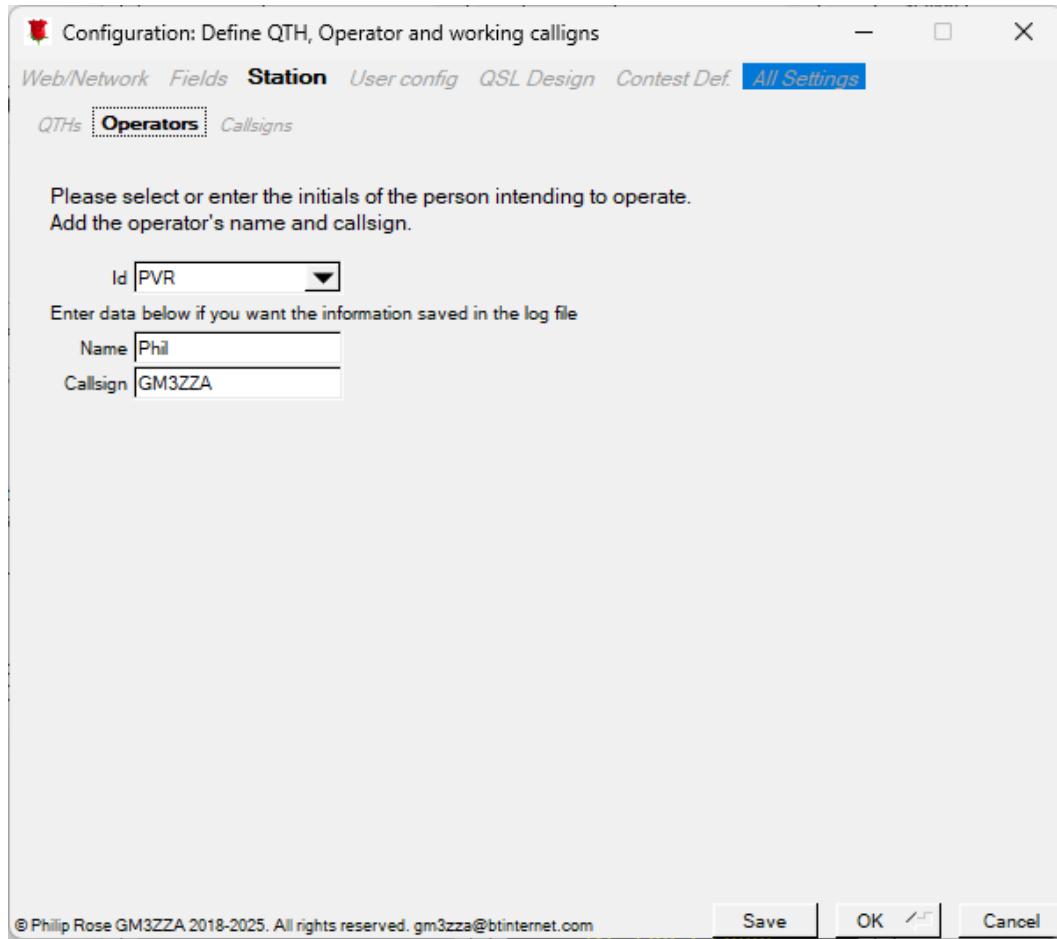


Figure 1.148 Tab showing specification of operator details

#### 1.6.5.3.3 Specifying the station callsign

The third tab, Callsigns, allows the user to add any callsigns being used by the station and which share the log-book.

The user can enter a callsign into the control labeled "Call", or select a call from the drop-down list.

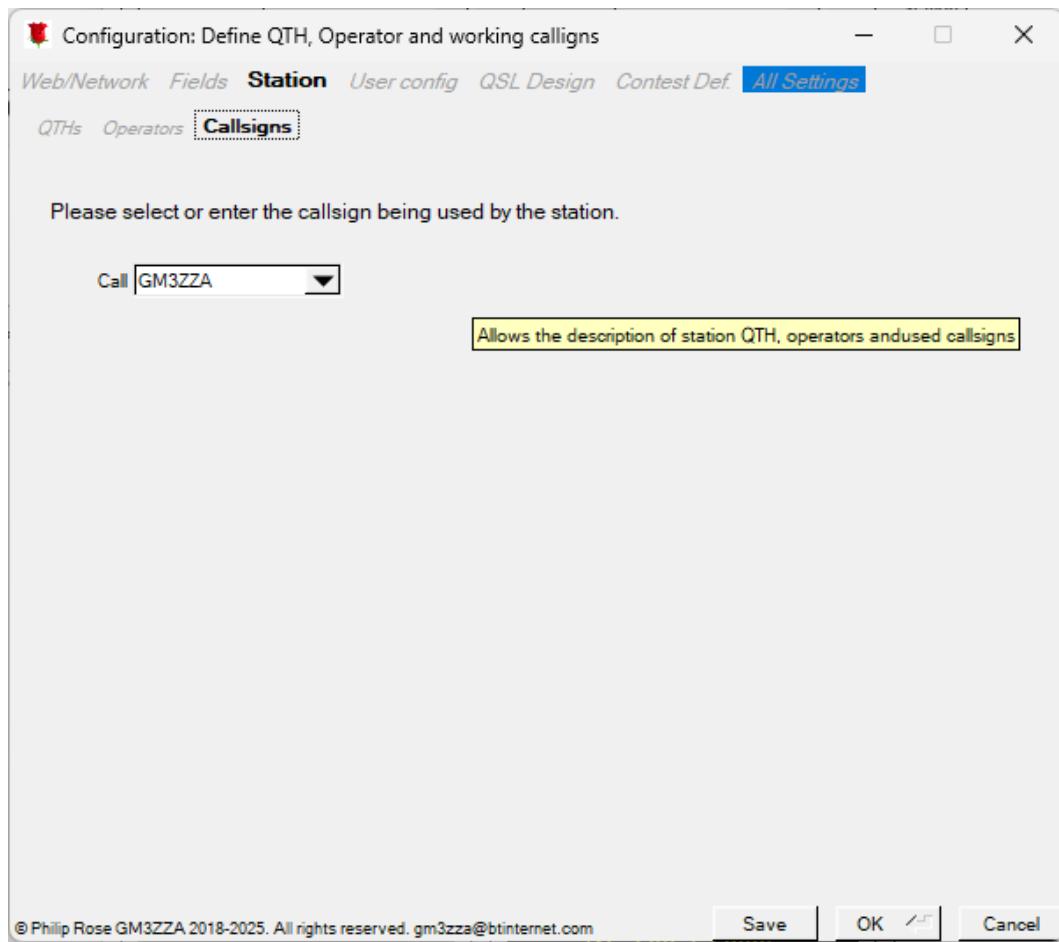
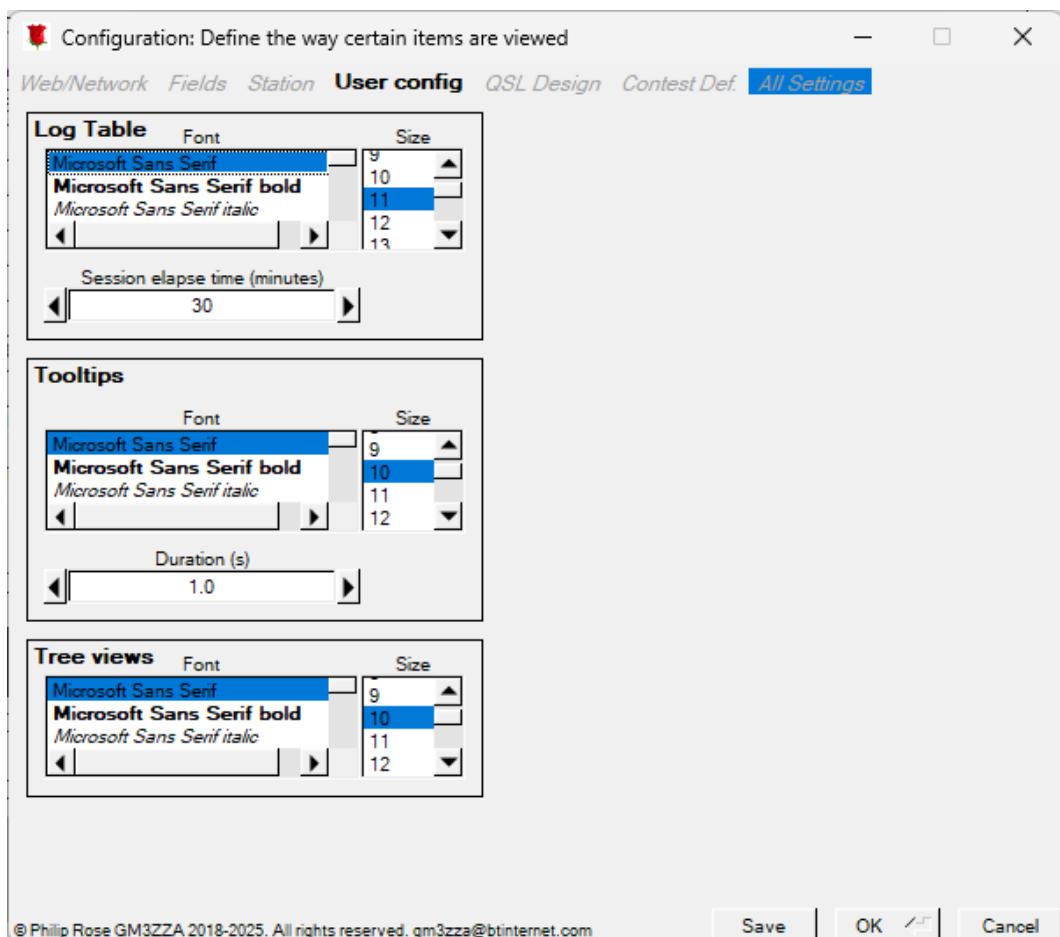


Figure 1.149 Tab allowing the choice of a differnt station callsign

#### 1.6.5.4 Defining Fonts etc.

This pane allows the user to configure fonts on a number of windows and panes.



**Figure 1.150 Tab allowing configuration of the display fonts**

#### 1.6.5.4.1 Configuring log-book view.

The user can change the font used to display the log-book views.

In the log-book view, QSO records within the current session are highlighted with a grey background. This dialog allows the user how long a gap in operating is needed to define a new session. The slider control labeled "Session elapse time" allows them to do this.

#### 1.6.5.4.2 Configuring tool-tips.

Tool-tips are windows that appear when the user hovers the mouse over a control. The user can change the font used in tool-tips.

The user can also specify the length of time for which a tool-tip appears.

#### 1.6.5.4.3 Configuring tree views

The two views labeled "Specifications" and "Log Analysis" are tree views. The user can change the font used to display these tree views.

### 1.6.5.5 Editing QSL cards for labels and e-mails

This dialog enables the user to produce QSL designs.

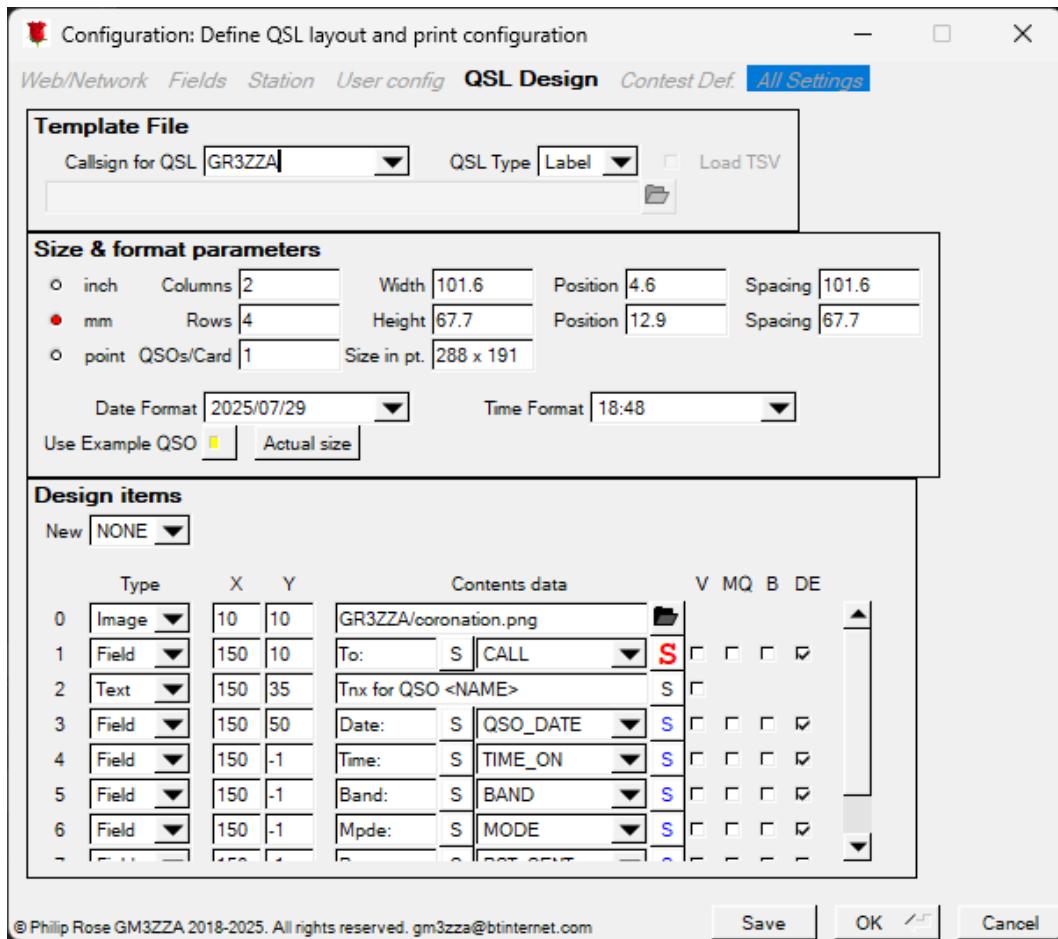


Figure 1.151 QSL editor

This specifies the design of the print label shown below.



Figure 1.152 Print label design

The dialog has three parts highlighted below.

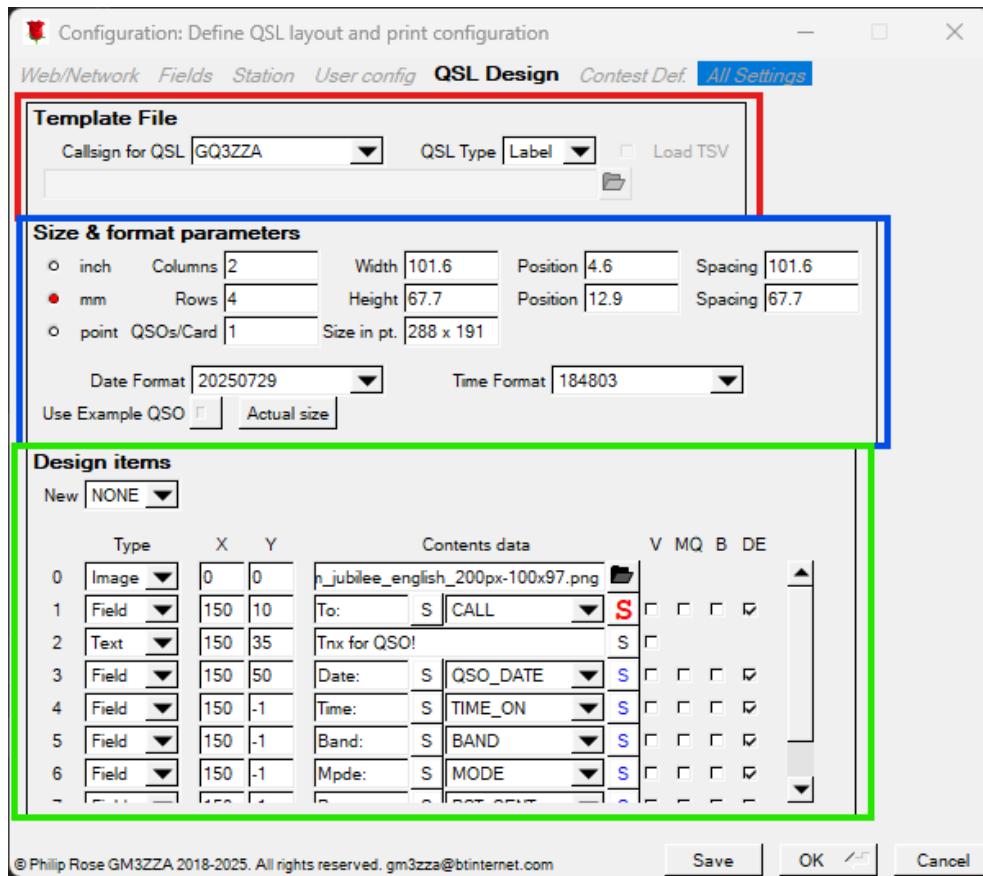


Figure 1.153 Three sections to the editor tab

#### 1.6.5.5.1 Specifying target call and usage.

The top section **Template File**, enclosed in red, allows the user to specify the callsign with which a QSO is made and the use of the design. The uses of the design are:

- **Label** A design that can be printed onto labels: typically a number of labels can be printed on a single, A4 say, sheet of paper.
- **File** A design that can be exported as a PNG file, say as an attachment to an e-mail.

#### 1.6.5.5.2 Specifying image dimensions and print layout.

The middle section **Size & format parameters**, enclosed in blue, allows the user to specify the dimensions of the image, layout of labels on the sheet and a few sundry items.

There are three radio buttons, that is only one can be selected at once:

- **inch** Dimensions are given in inches: 1 inch = 25.4 mm.
- **mm** Dimensions are given in millimetres.

- **point** Dimensions are given in points: 72 points = 1 inch.

The inputs to the right of these allow the user to input, from left to right on subsequent rows:

- **Columns** The number of columns of labels in a printed sheet.
- **Width** The width of each column.
- **Position** The position of the left edge of the left-most column.
- **Spacing** The spacing between columns.
- **Rows** The number of rows of labels in a printed sheet.
- **Height** The height of each row.
- **Position** The position of the top-edge of the top-most row.
- **Spacing** The spacing between rows.
- **QSOs/Card** The number of QSOs that can be printed on a single label.
- **Size in pt** The size of the image in points (*read-only*).

The next controls are:

- **Date Format** A drop-down menu of available date formats: the current date is used as an example.
- **Time Format** A drop-down menu of available time formats: the current time is used as an example.
- **Use Example QSO** When checked the displayed image uses the selected QSO record if the station callsign matches.
- **Actual size** The image display window can be resized: clicking this button will restore the window to the specified size.

#### 1.6.5.5.3 Specifying the design

The bottom section **Design items**, encased in green above, allows the user to specify the objects to be placed on the QSL design. Below are three such objects in the specification. the design.

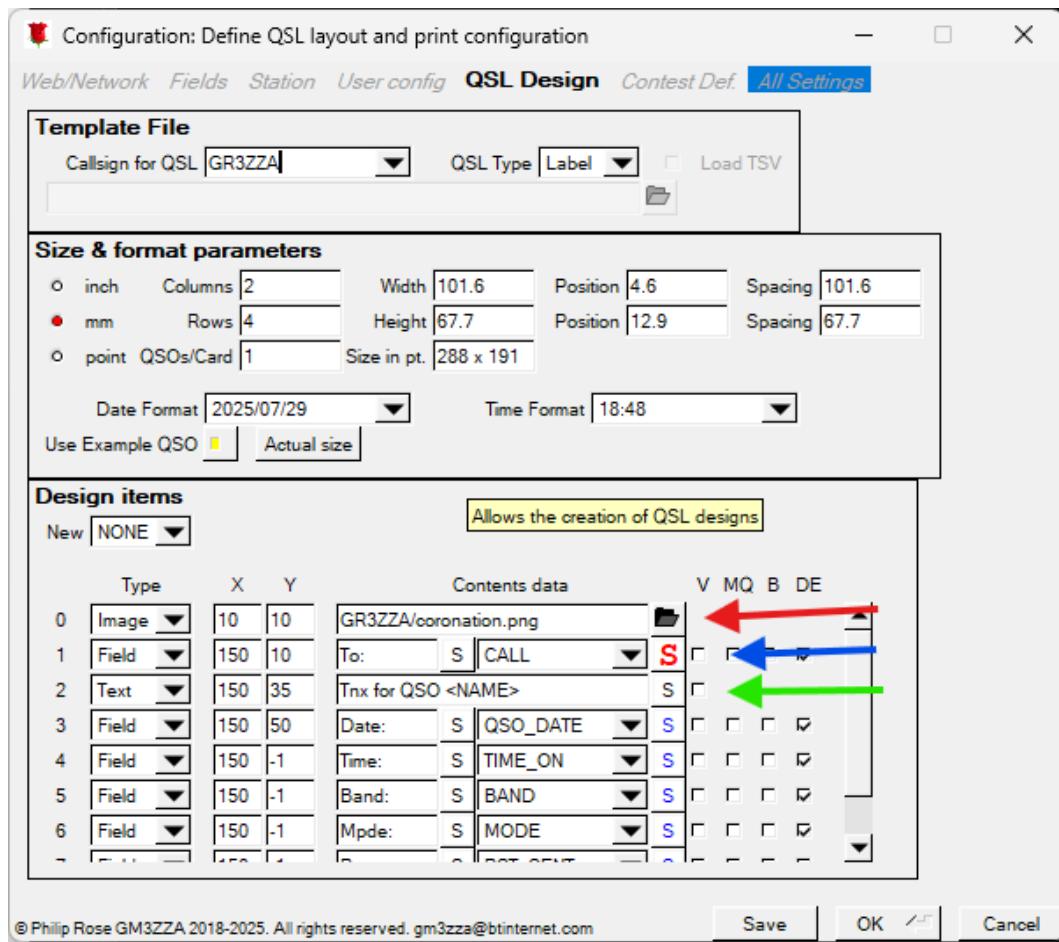


Figure 1.154 Three items in the editor

This is how they appear in the design.



Figure 1.155 The same three items in the design

There are three types of object that can be placed in the design. Each as a number of parameters whose labels are across the top.

- **Field** The field from the QSO record is placed in the design together with a label.
  - **X** The horizontal position of the top-left of the field.
  - **Y** The vertical position of the top-left of the field.
  - **Contents data** This has 4 controls.
    - \* input for label text.
    - \* button that opens a dialog that allows the user to specify the font and size of the label.
    - \* a drop-down list of fields.
    - \* button that opens a dialog that allows the user to specify the font and size of the field's value.
  - **V** When checked, the label is placed above the field value, otherwise to the left of it.
  - **MQ** When more than one QSO is printed on the card, values for this field are printed together, in the alignment defined by 'V' above.
  - **B** When checked, a box is displayed outside the field.
  - **DE** When checked, the field with its label is displayed even if the value is an empty string.
- **Text** The entered text is displayed in the image: the text may contain field names, indicated by angle brackets, which are replaced by the field value.
  - **X** The horizontal position of the top-left of the field.
  - **Y** The vertical position of the top-left of the field.

- **Contents data** The text to be printed.
- **V** When checked, the label is placed above the field value, otherwise to the left of it.
- **Image** an image contained in a file is copied into the design: the supported file formats are PNG, JPG and BMP.
  - **X** The horizontal position of the top-left of the field.
  - **Y** The vertical position of the top-left of the field.
  - **Contents data** An input containing a filename: there is a button which will open up a file browser.

To add a new item, click the drop-down menu labeled "New".

#### 1.6.5.6 Specifying a contest

This dialog allows the user to specify basic information about a contest.

The user can select the name of the contest from the drop-down list. This list has been imported from all the contests available in the ADIF specification. It does not, necessarily, mean that the contest is currently supported by ZZALOG. When specifying a contest, the user needs to identify which instance of the contest the remaining data is for. For instance, specify the year for a contest which recurs every year.

The user can then specify an algorithm by which to generate exchanges and score the contest. Each algorithm is hard-coded into ZZALOG. The following algorithms are defined:

- **Basic** Exchange RS(T) plus serial, scoring 1 point per QSO outwith operator's own DXCC multiplied by the number of DXCC entities worked on each band.
- **IARU-HF** A custom algorithm developed for the IARU HF World Championship.

The user should then specify the start and finish of the contest.

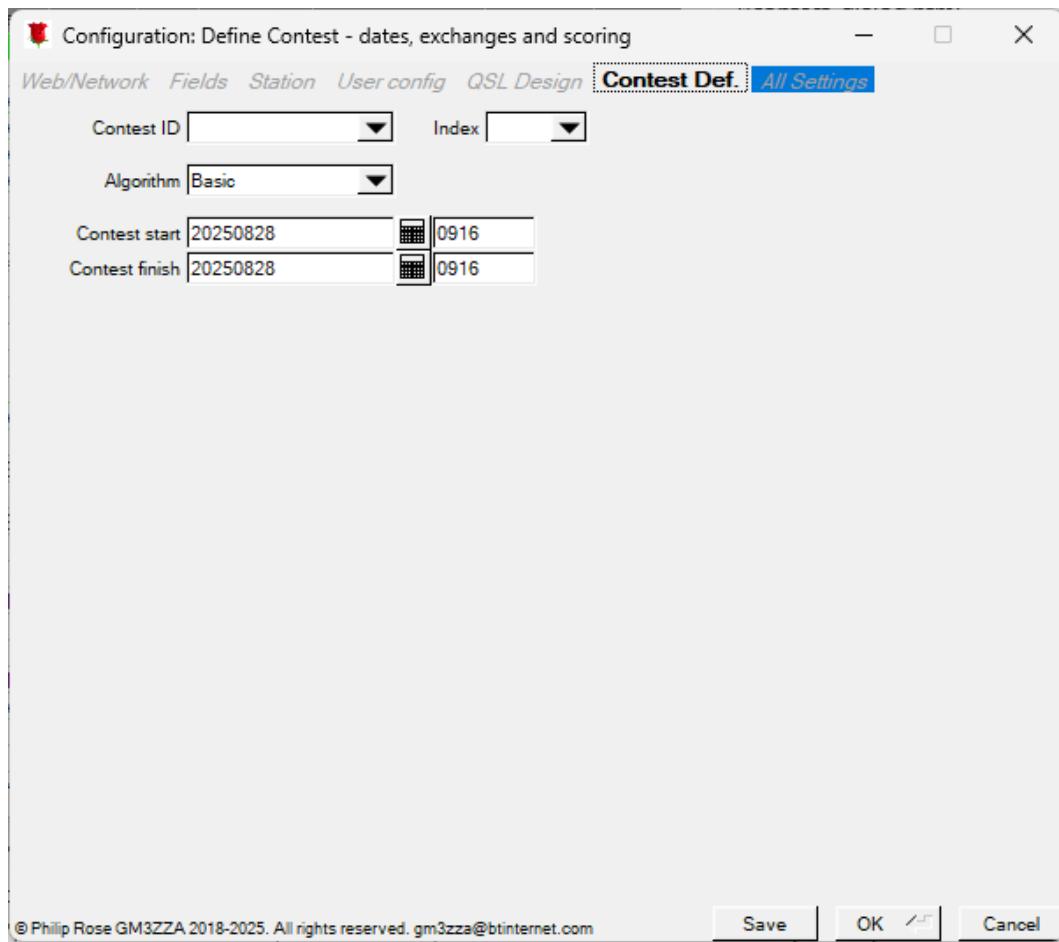


Figure 1.156 Tab showing contest definition

#### 1.6.5.7 Summarising settings

This pane displays all the current settings in a tree view. This is for information only.

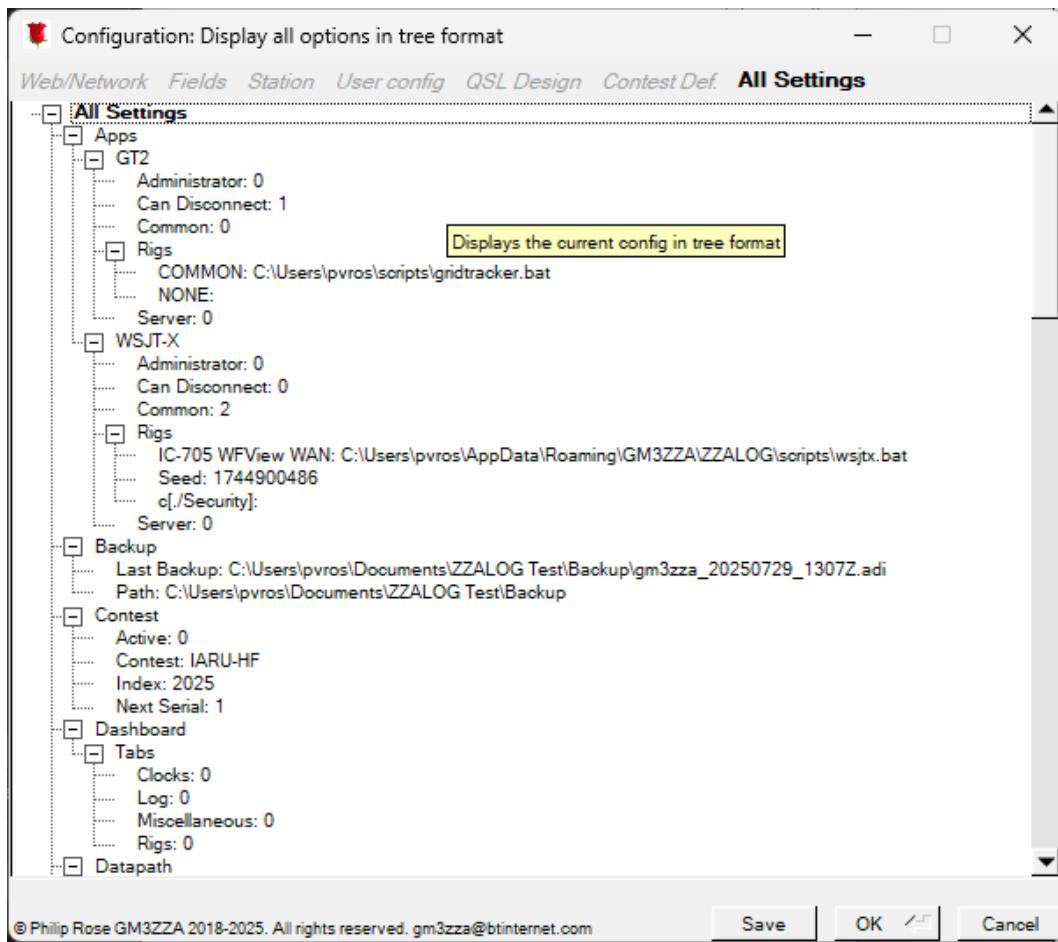


Figure 1.157 Tree view of all settings in ZZALOG.prefs

## 1.6.6 Defining search criteria

This window allows the specification of the criteria by which to extract data.

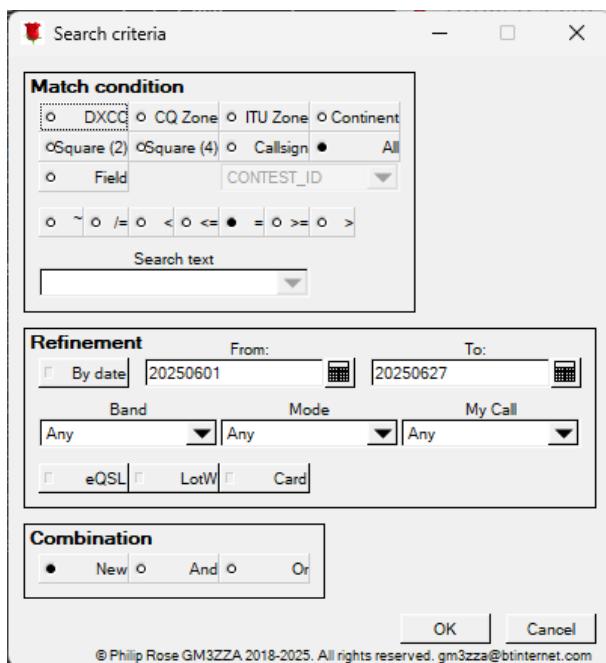


Figure 1.158 Search criteria window

#### 1.6.6.1 Specifying match condition

The top section, highlighted below, allows the main match condition to be specified. There are a number of "radio" buttons that allow custom criteria to be set in conjunction with the operators and search text. This selection may be refined - see [Refining the search](#) below.

The criteria are:

- **DXCC** Matches against the DXCC entered in the search text input. This may either be an integer representing the ARRL numeric identifier for the DXCC entity or its usual prefix.
- **CQ Zone** Matches against the "CQZ" field in the ADIF record: a numeric value identifying the zone.
- **ITU Zone** Matches against the "ITUZ" field of the ADIF record: a numeric value identifying the zone.
- **Continent** Matches against the "CONT" field of the ADIF record: a two-letter abbreviation of the continent.
- **Square (2)** Matches against the first two characters of the record's GRIDSQUARE field.
- **Square (4)** Matches against the first four characters of the record's GRIDSQUARE field.
- **Callsign** Matches against the callsign.
- **All** Extracts all records. This is useful for then sorting records other than in chronological order.
- **Field** Matches against the field selected in the adjacent drop-down list.

The next row of buttons selects the condition used:

- ~ Regular expression matching - see <https://cplusplus.com/ECMAScript> for details.
- /= Matches if the field selected does not equal the value specified.
- < Matches if the field selected is less than the value specified.

- $\leq$  Matches if the field selected is less than or equal to the value specified.
- $=$  Matches if the field selected is equal to the value specified.
- $\geq$  Matches if the field selected is greater than or equal to the value specified.
- $>$  Matches if the field selected is greater than the value specified.

Except when "CQ Zone" or "ITU Zone" are selected, comparisons are based on string comparisons - i.e. "11" is greater than "100".

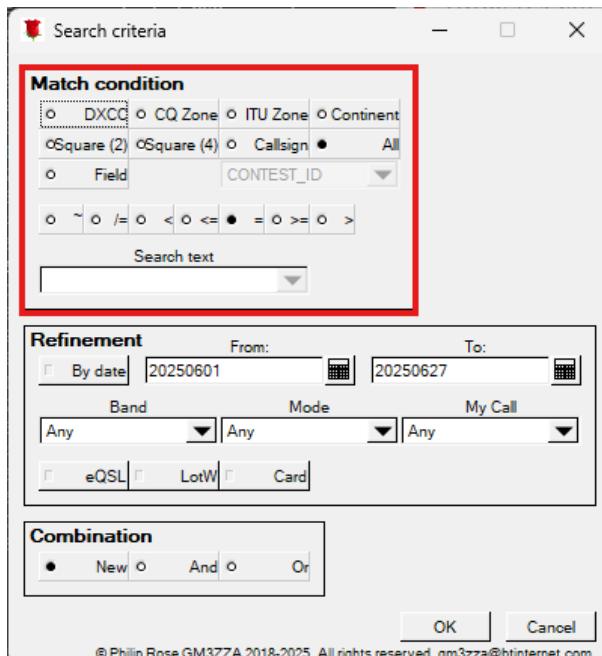


Figure 1.159 Detail showing match condition

### 1.6.6.2 Refining the search

The search may be refined by specifying a date range. Click the button labeled "By Date". If this button is lit then the search will be limited by the dates specified, including these dates. Clicking the button with the icon next to the date will open up a calendar allowing the selection of a date.

The search may be refined by specifying band, mode or "My Call". These are drop-down menus listing all the options available. "My Call" is the callsign used by the user's station when making the QSO.

The search may be refined by QSO confirmation. Clicking on any of the buttons labeled "eQSL", "LotW" or "Card" will then only select QSOs confirmed by eQSL.cc, Logbook of the World or paper cards.

Note that all the refinements are accumulative.

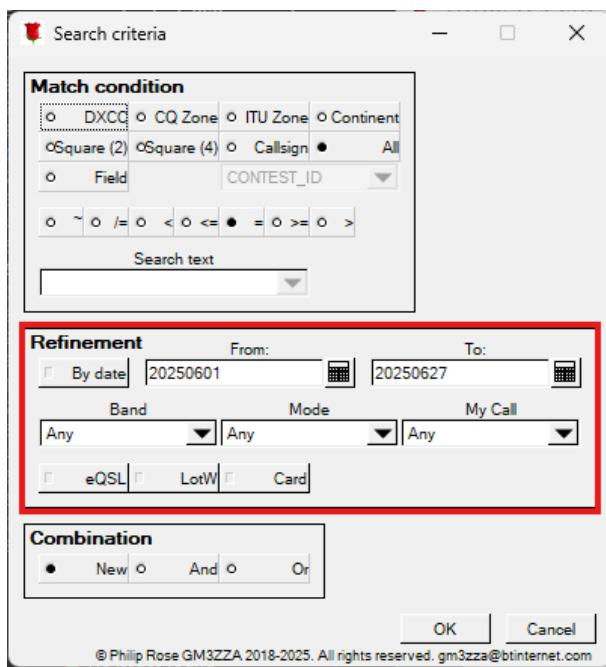


Figure 1.160 Detail showing match refinement

### 1.6.6.3 Combining searches

It is possible to specify multiple criteria. Clicking one of the buttons highlighted below will:

- **New** A new search is started: any previous search results are removed.
- **And** The existing search results are further matched against the new condition resulting in a reduced number of extracted records.
- **Or** A new search is started and the results are combined with the existing search results.

### 1.6.7 Bulk editing of records

It is possible to undertake a bulk edit of the records. This will operate on a single field within each record. If a set of extracted records exists then this function will act only on the records that have been extracted. Otherwise it will act on all records in the log-book.

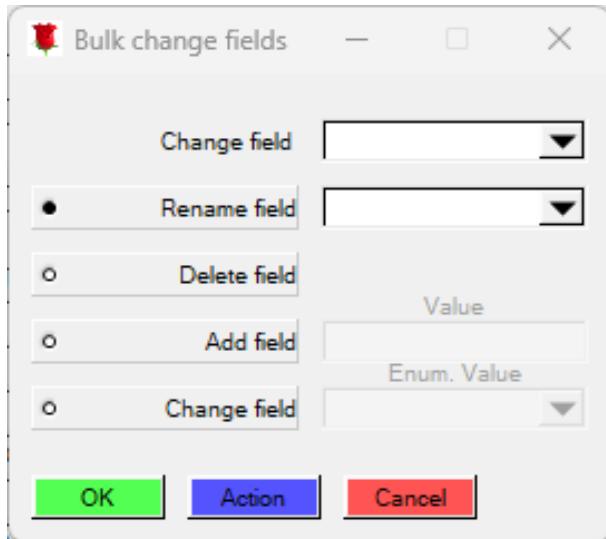


Figure 1.161 Bulk change window

The various elements of this dialog are:

- **Change field** This specifies which field is to be operated on.
- **Rename field** Selecting a field and clicking "OK" or "Action" will result in this field being renamed in all the extracted records.
- **Delete field** Clicking "OK" or "Action" will result in this field being removed from all extracted records.
- **Add field** Selecting this will enable either the "Value" or "Enum. Value" inputs: clicking "OK" or "Action" will add the value entered to be added to all extracted records that currently do not have a value in this field.
- **Change field** Selecting this will enable either the "Value" or "Enum. Value" inputs: clicking "OK" or "Action" will add the value entered to be added to all extracted records whether they have an existing value or not.

The buttons at the bottom:

- **OK** Do the operation and close the dialog.
- **Action** Do the operation, but leave the dialog open.
- **Cancel** Close the dialog without doing the operation.

### 1.6.8 Command-line interface

The user may start ZZALOG with switches typed in on the command-line. This is more typically used on Linux, but it is possible to do so with Windows. They are used mostly for diagnostic analysis, but some may be used to define default behaviour and are remembered from one call of ZZALOG to the next (called 'sticky' switches and noted below).

```

philip@chinook:~/run
File Edit Tabs Help
-w|--wait_save Do not automatically save each change (sticky)

philip@chinook:~/run$ zzalog -h
ZZALOG: Opened settings /home/philip/.config/GM3ZZA/ZZALOG.prefs
ZZALOG: Settings saved as /home/philip/.config/GM3ZZA/ZZALOG.prefs1
zzalog [switches] [filename]

switches:
-a|--auto_save Do automatically save each change (sticky)
-c|--curl_mode Asks for operator on start-up (sticky)
-d|--debug [mode...]
    c|curl increase verbosity from libcurl
    noc|nocurl
    e|errors provide more details on errors
    noe|noerrors
    h=N|hamlib=N Set hamlib debug level (default ERRORS)
    p|pretty Display formated status message (Needs terminal
support)
    nop|nopretty
    q|quick Shorten long timeout and polling intervals
    r|rig Print rig diagnostics
    t|threads Provide debug tracing on thread use
        not|nothreads
-e|--new Create new file
-h|--help Print this
-i|--individual Individual mode (sticky)
-k|--dark Dark mode (sticky)
-l|--light Light mode (sticky)
-m|--resume Resume the previous session
-n|--noisy Do publish QSOs to online sites (sticky)
-p|--private Do not update recent files list
-q|--quiet Do not publish QSOs to online sites (sticky)
-r|--read_only Open file in read only mode
-s|--new-settings Use new settings file
-t|--test Test mode: infers -q -w
-u|--usual Normal mode: infers -a -n
-w|--wait_save Do not automatically save each change (sticky)

philip@chinook:~/run$ 

```

- **-a|--auto\_save** With this switch the log is automatically saved after each change to the log, although some changes are aggregated by ZZALOG to prevent unnecessary updates (sticky).
- **-d|--debug [mode...]** Applies a debug feature to be invoked for the run. Mode has the values:
  - **c|curl** Increases verbosity from the libcurl library used for network access.
  - **noc|nocurl** Restores normal verbosity from libcurl.
  - **d|decode** Show callsign decoding
  - **e|errors** Provides more details on errors.
  - **noe|noerrors** Restores normal error reporting.
  - **h=N|hamlib=N**  
Sets the hamlib debug level (default ERRORS). *N* values as below:
    - \* **0** No debug reporting
    - \* **1** Report serious bugs
    - \* **2** Report errors
    - \* **3** Report warnings
    - \* **4** Verbose
    - \* **5** Tracing
    - \* **6** Report cache behaviour
  - **p|pretty**  
Sets the terminal to display formated status message (Needs terminal support).
  - **nop|nopretty** Sets the terminal to display unformatted status messages.
  - **q|quick**  
Shortens long timeout and polling intervals.

- **r|rig**  
Prints rig diagnostics
- **t|threads**  
Provides debug tracing on thread use.
- **not|nothreads** Removes debug tracing on threads.
- **-e|-new** Creates a new file
- **-h|-help** Displays the help message.
- **-i|-individual** Starts the app in Individual mode (sticky).
- **-k|-dark** Runs the app in dark mode with dark background and light text and icons (sticky).
- **-l|-light** Runs the app in light mode with light background and dark text and icons (sticky).
- **-m|-resume** Starts ZZALOG and resumes the previous session.
- **-n|-noisy** Uploads QSO records to the on-line QSL servers.
- **-p|-private** Does not update the recent files list.
- **-q|-quiet** Does not update QSO records to the on-line QSO servers (sticky).
- **-r|-read\_only** Opens the file in read only mode.
- **-s|-new-settings** Opens the application with empty configuration file.
- **-t|-test** Opens the application in test mode: infers -q -w.
- **-u|-usual** Opens the application in normal mode (ie not test mode): infers -a -n.
- **-w|-wait\_save** Does not automatically save each change (sticky).

## 1.7 Reference Data

ZZALOG uses reference data from a number of sources.

### 1.7.1 Country Data

Country Data is used to interpret (or parse) the callsign of the station of interest. See [DXCC Status](#). This is got from three sources as they each provide a subset of the overall data. For download instructions see [Downloading Country Data](#).

#### 1.7.1.1 Clublog.org

The organisation Clublog (<https://clublog.org>) provides data that is regularly updated. It is provided in XML format and provides:

- DXCC Entity.
- CQ Zone.
- Information about illegal use of callsigns and operations.
- Exceptions from the standard callsign parsing (eg use of special prefixes).
- Contains a complete history of such usage.

### 1.7.1.2 country-files.com

The web-site <https://www.country-files.com/big-cty/> provides similar data and is also regularly updated. It differs from Clublog:

- Includes:
  - ITU Zone.
- Excludes:
  - History, it contains only a snapshot of the callsign exceptions.

### 1.7.1.3 dxatlas.com

The website <https://dxatlas.com> provides a more detailed breakdown (<https://dxatlas.com/DxAtlas/Files/DxAtlasTables.zip>) and includes:

- Geographic subdivisions.
- Special callsigns and license categories.

It is not often updated.

## 1.7.2 ADIF Specification

The ADIF specification is provided in JSON format. This is updated occasionally. It contains the detailed description of the ADIF fields and types - see [ADIF Information](#). It is provided for reference, though some use is made of the data to validate that data has been input in the correct format.

## 1.7.3 Band-plan data

The IARU Region 1 band plan is included and is used to provide a graphic representation of the data - see [Bandplan viewer](#).

## 1.7.4 International Character sets

This file contains all the characters that are available in the virtual keyboard ([Virtual keyboard for non-ASCII characters](#)).

## 1.7.5 Downloading Country Data

Where possible ZZALOG can automatically download files for the Country Data reference. This dialog helps to manage the process.

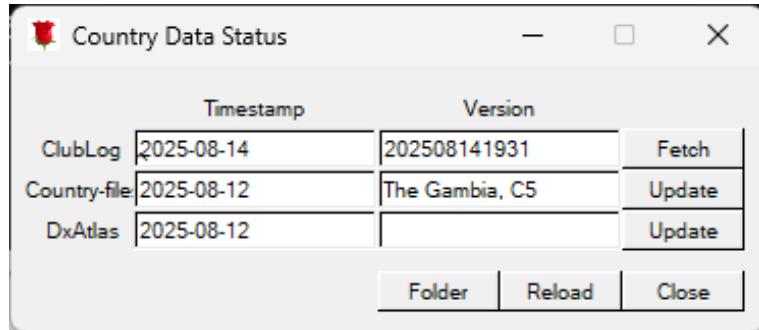


Figure 1.162 Country Data update wizard

This dialog shows the current timestamp of each file and the version advertised by the file.

### 1.7.5.1 Updating clublog.org

Downloading data from Clublog.org is managed within ZZALOG. ZZALOG uses a private API key to access the data on behalf of the user. To download the latest data from clublog.org click the "Fetch" button.

### 1.7.5.2 Updating country-files.com

The user must download the data from [www.country-files.com](http://www.country-files.com) themselves. Open a browser at [Country-files.com](http://www.country-files.com).

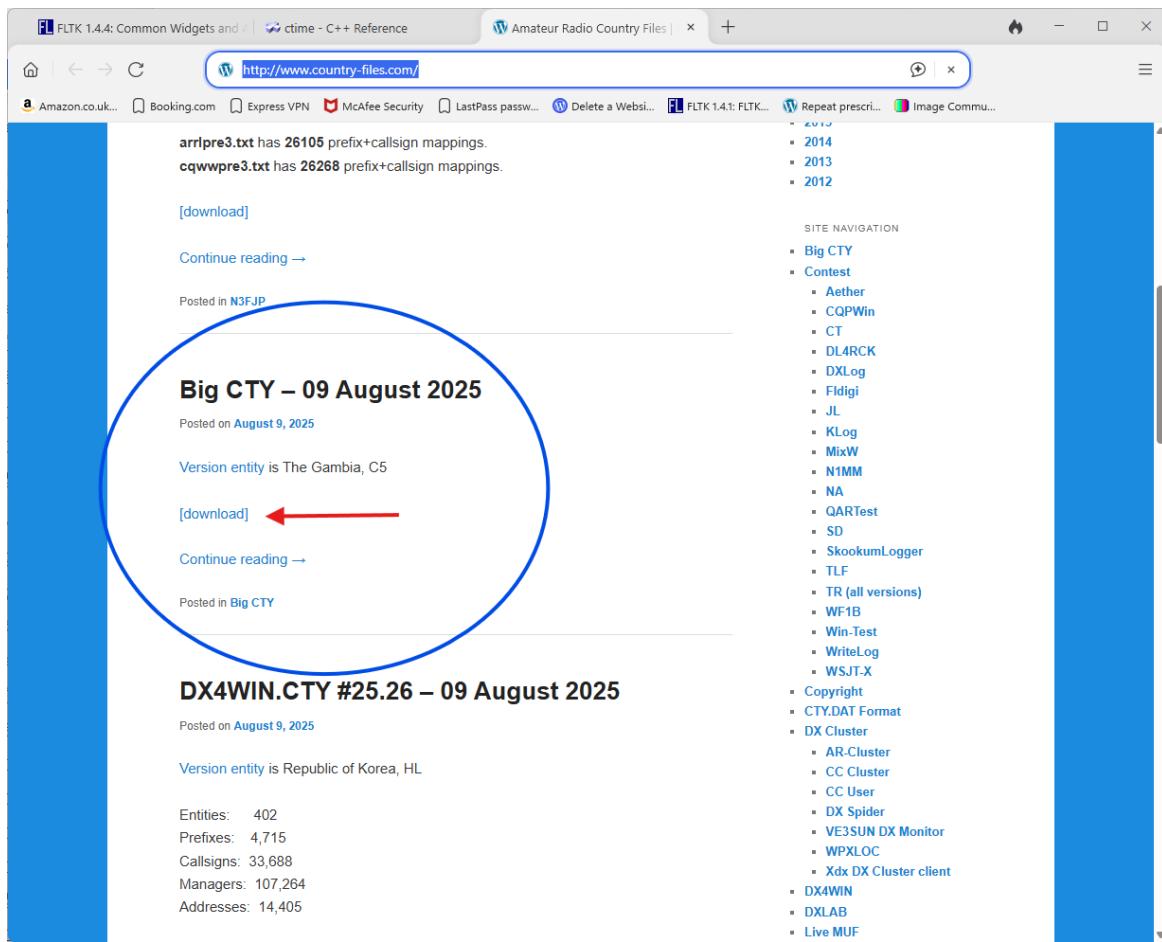


Figure 1.163 Country-files.com website for Big CTY download

Click on the "[download]" link (as indicated), this will initiate a download of a data package. Once the package is downloaded, open it and select the file "cty.xml" - indicated.

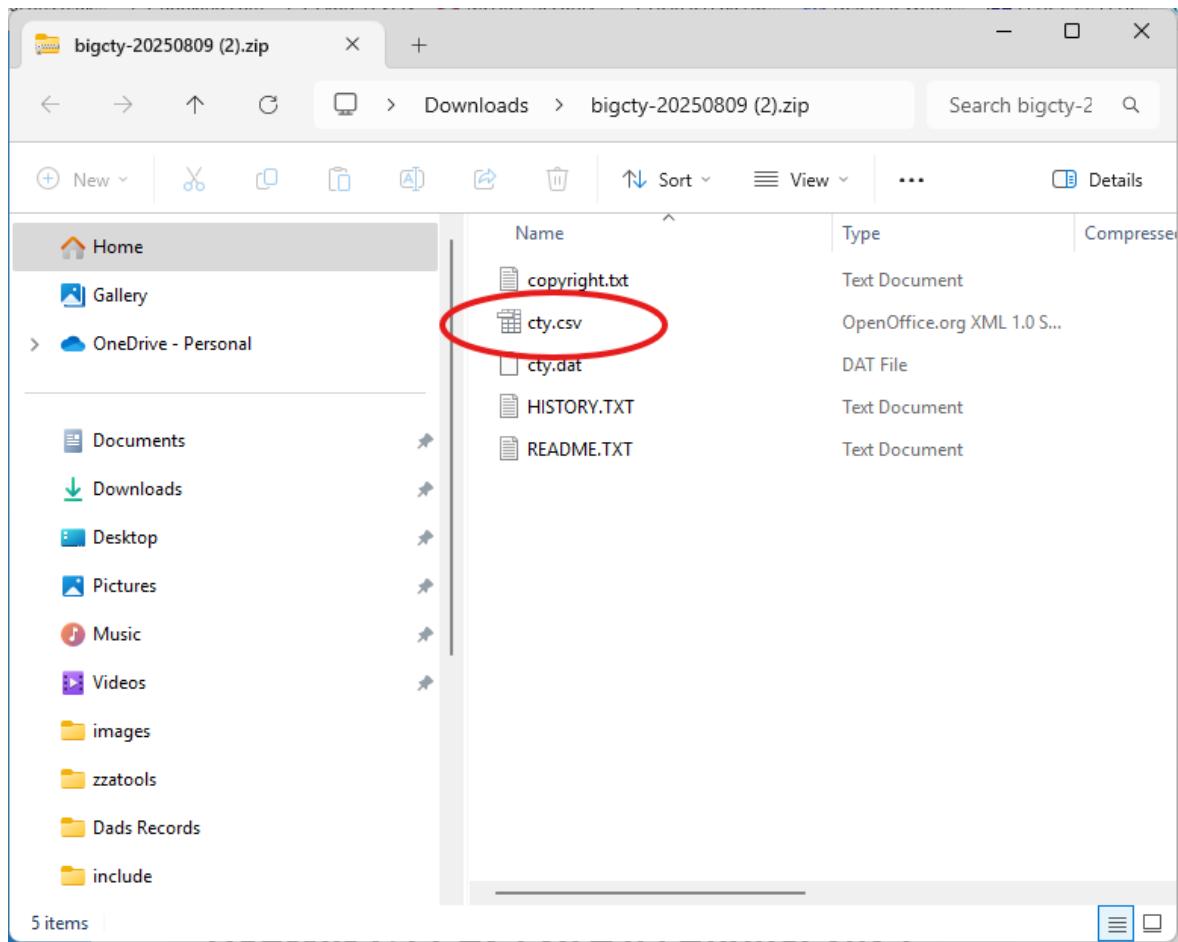


Figure 1.164 File browser showing downloaded data

Copy and paste this file into the application data directory. Click on the "Open Data" button to open a directory viewer at the correct location.

#### 1.7.5.3 Updating DxAtlas

This data file is not updated frequently and requires some editing to enable it to be used with ZZALOG. As such, updates will be included in each update of ZZALOG.

## 1.8 Logbook data format

The logbook is kept as a text file, basically in ADIF 3.1.6 .adi format (see [ADIF specification](#)). Although ADIF specifically only allows the use of ASCII printable characters (codes 32 to 254 inclusive) and, with restrictions, codes 10 (LF) and 13 (CR), ZZALOG will store non-ASCII characters as UTF-8. The count of characters in the ADIF specification is implemented as a byte count. So, for example, the name **Jürgen** will be stored as:

```
<NAME:7>Jürgen
```

### 1.8.1 Exporting data

When data is exported, it may contain non-ASCII characters. When this is the case, an error is presented to the user. Most use cases are unlikely to contain such data.

### 1.8.2 Editing data

The user may edit the text file with care and understanding of the ADIF specification. ZZALOG may not be tolerant to errors introduced by manual edits. Typically, this will result in loss of data.

### 1.8.3 Data Backups

Every time ZZALOG is started the current log-file is backed up into a backup directory. The location of this directory is set up the first time ZZALOG is run.

In addition the last 8 copies of the log-file are saved in the log directory.



# **Chapter 2**

## **Revision History**

### **2.1 Revision 3.6.7**

- Save a copy of the latest data before each save. Up to 8 copies are saved.
- Add further acknowledgments of third-party data and libraries.
- Refinements to callsign parsing algorithm.
- Add Doxygen comments to all header files. This identified a number of redundancies in the code that have been removed.
- Move eQSL image download progress display to main progress dial.
- Migrate configuration files and WX download from XML to JSON.
- Include ADIF 3.1.6.
- Include hamlib v4.6.5 in Windows build.
- Cosmetic changes.
- Bug fixes:
  - Errors in callsign parsing algorithm.
  - Starting to log QSO in WSJT-X state RX.TX1 results in confusion (revoking previous mod).
  - Code check uncovered bug in base contest algorithm code.
  - Displayed clock can be a noticeable fraction of a second out.
  - If there are no QSLs to upload an empty extract is displayed which cannot be cleared from qso\_qsl.
  - Occasionally not all records marked clean after eQSL download completes and writes data back to filestore.
  - Exception adding an image to a QSL design.
  - Timezone label on clock doesn't redraw properly.
  - Removed "using namespace " per modern coding guidelines.
  - Address performance issues in sorting extracted data.

## 2.2 Revision 3.6.6

- Combine WX tab with Clock tab.
- Change Clock tab to a single tab, switchable between UTC and local time.
- Add "CLOSING" across progress banner.
- Cosmetic changes.
- Bug fixes:
  - Exception when pasting data.
  - Uploads to eQSL.cc cannot be enabled.
  - Some input widgets not getting keyboard focus.
  - Wrong call presented in queries.

## 2.3 Revision 3.6.5

- First documented release.