
User Guide

for

YCAT

(Yaesu Computer-Aided Transceiver)

A Windows™ Control and Monitoring
Application for the Yaesu
FT-710
FT-891
FT-991a
FT-dx10
Transceivers

Version 1.1.9

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Overview

The Yaesu radio family includes a Computer Aided Transceiver (CAT) interface allowing operation of their radios via a USB serial cable or RS-232 serial cable interface connected between the radio and a personal computer.

This application, Yaesu Computer Aided Transceiver (YCAT), was created to simplify operating the current popular Yaesu HF radios to simplify many of the nested menus. It was organized to perform various functions grouped together, incrementally in audio to RF control and monitoring.

YCAT version 1.1.8.x is a software application for controlling and monitoring Yaesu radios that conform to the CAT interface utilized by the Yaesu FT-891, FT-991/FT-991a, FT-710 and FT-dx10 radio transceivers. Other radio models may partially work but are not guaranteed as some CAT commands are unique to the specific radio model.

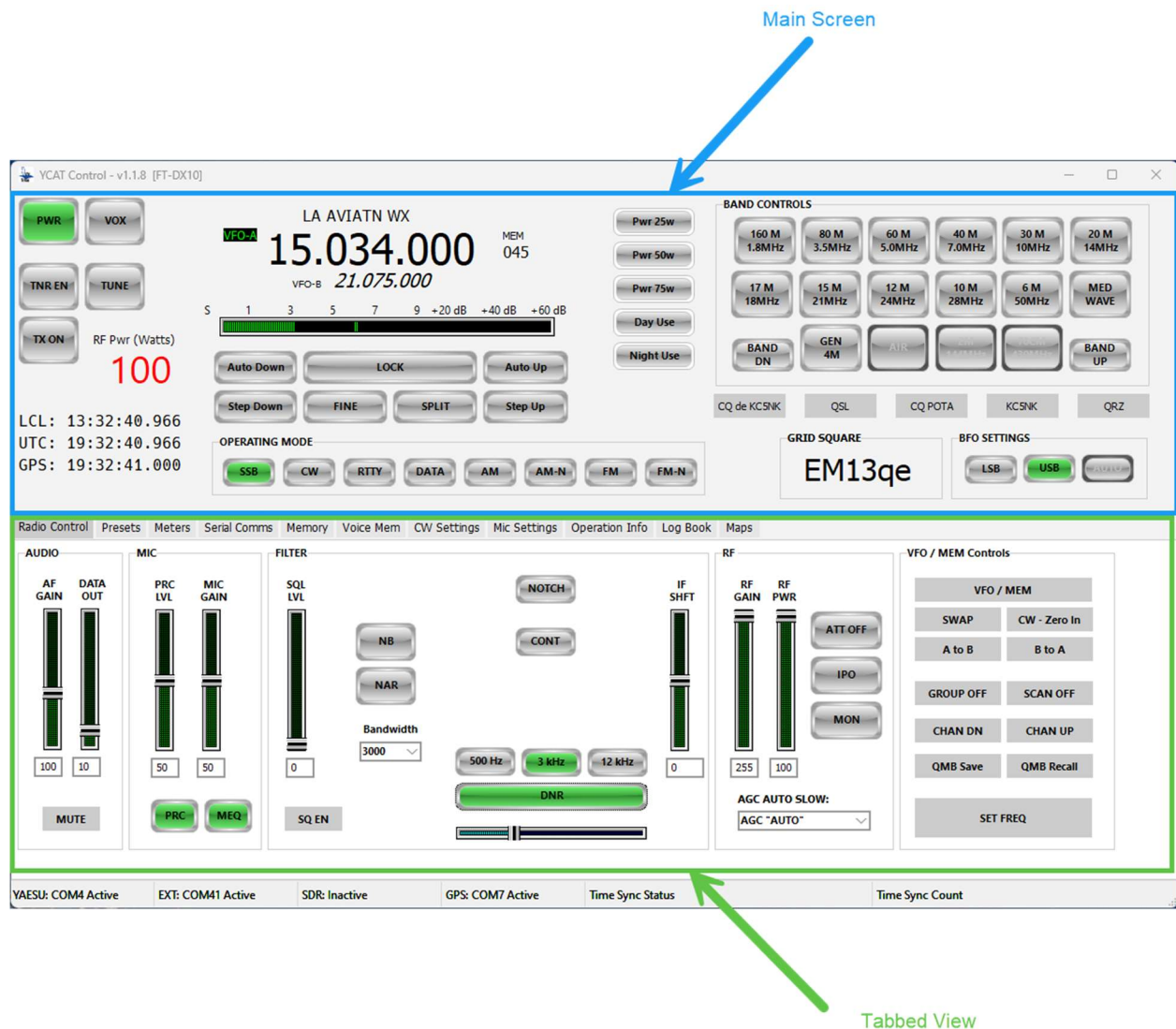
YCAT is designed for operating on Windows 10/11 computers. Control is performed using mouse and keyboard. YCAT also works with touchscreen monitors providing a more natural means of interacting with your radio. You will notice the buttons are large enough to select with a finger or stylus for touchscreen operation. YCAT will also work with a mouse for interactive control if a touchscreen is not used.

YCAT Application Overview

When starting the YCAT application it is presented with two (2) sections, the main screen and the tabbed screen. The default tabbed screen is the “Operation Info” view.

The lower section of YCAT is for viewing different functionalities. Choosing a specific view for a specific purpose. The default view is the Operation Info view. This page should be reviewed before operating to make sure the Grid Square, State, etc. are correct before switching views.

Main Screen

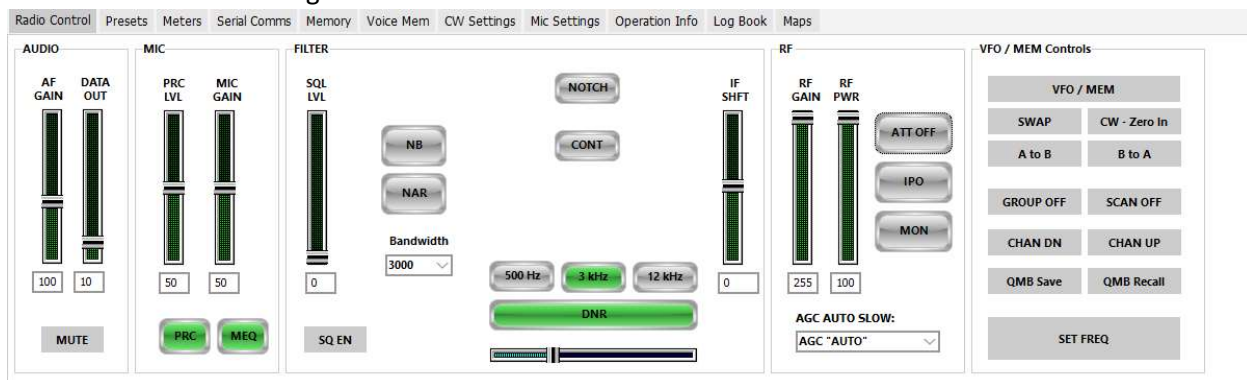


The top section is the persistent view of the radio, the bottom section is the User selectable views for setup and control / monitoring.

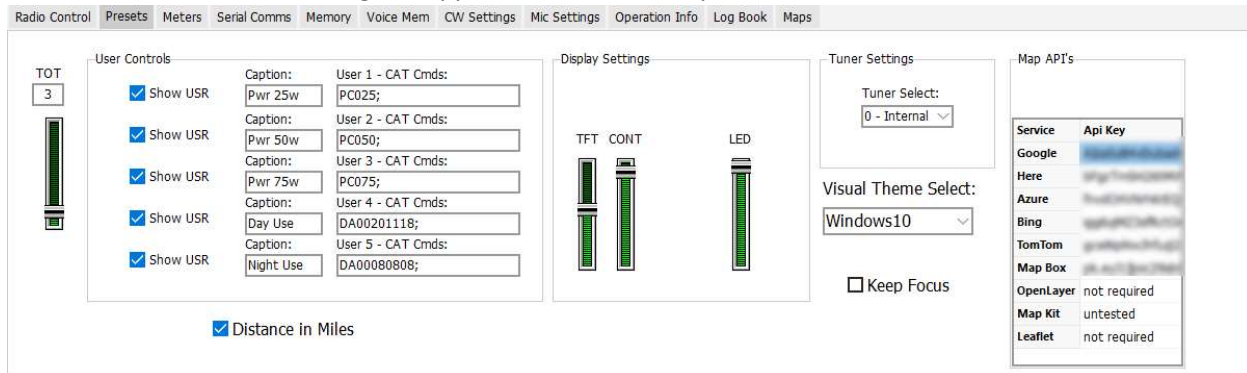
Tabbed Views

The user may choose from the following tabbed views:

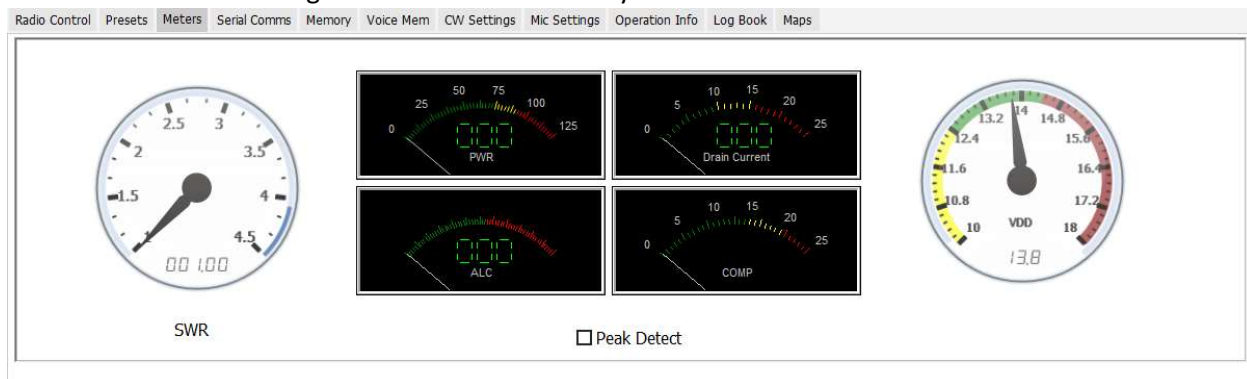
- Radio Control – Used for general radio control



- Presets – Used for customizing the application and radio operation.



- Meters – Used for viewing all meters simultaneously



- Serial Comms – Settings for serial interfacing for Yaesu Radio, WSJT-x, SDR, GPS, and WSJT-x UDP logging data.

Radio Control Presets Meters Serial Comms Memory Voice Mem CW Settings Mic Settings Operation Info Log Book Maps

Yaesu CAT Port:

Serial Port: COM4 RESET

Baud: br38400

☐ Flow Control

EXT CAT Port:

Serial Port: COM41 RESET

Baud: br115200

SDR CAT Port:

Serial Port: <sel po> RESET

Baud: br4800

GPS Sync Port:

Serial Port: COM7 RESET

Baud: br115200

Sync Intvl: 3600

☐ Sync PC to GPS Time

LAT: 33.201160

LOn: -96.65367

Grid: EM13qe

Debug

☐ Yaesu Serial

☐ GPS Serial

☐ EXT Serial

☐ SDR Serial

WSJT-x UDP

☒ Enable WSJT-x UDP

224 . 0 . 0 . 1

Port: 13626

YCAT Communications Log

```

20231122_19:27:13.600 Z YCAT -- SYS | YCAT Control Application
20231122_19:27:13.604 Z YCAT -- SYS | APP VERSION: 1.1.8726.24215
20231122_19:27:13.604 Z YCAT -- SYS | PROD VERSION: 1.1.8
-----
20231122_19:27:13.604 Z YCAT -- SYS | Yaesu: COM4 opened.
20231122_19:27:15.102 Z YCAT -- SYS | GPS: COM7 opened.
20231122_19:27:15.113 Z YCAT -- SYS | EXT: COM41 opened.
20231122_19:27:16.124 Z YCAT ** SYS | asMenu: 03| asSubMenu: 01| asMenu: 01| asSubMenu: 01| asMenu: 01| asSubMenu: 01| asMenu: 01| asSubMenu: 01|
20231122_19:27:16.176 Z YCAT ** SYS | asMenu: 01| asSubMenu: 02| asMenu: 01| asSubMenu: 02| asMenu: 01| asSubMenu: 02| asMenu: 01| asSubMenu: 02|
20231122_19:27:16.185 Z YCAT ** SYS | asMenu: 01| asSubMenu: 04| asMenu: 01| asSubMenu: 04| asMenu: 01| asSubMenu: 04| asMenu: 01| asSubMenu: 04|
20231122_19:27:16.196 Z YCAT ** SYS | asMenu: 01| asSubMenu: 04| asMenu: 01| asSubMenu: 04| asMenu: 01| asSubMenu: 04| asMenu: 01| asSubMenu: 04|
20231122_19:27:16.196 Z YCAT ** SYS | asMenu: 01| asSubMenu: 04| asMenu: 01| asSubMenu: 04| asMenu: 01| asSubMenu: 04| asMenu: 01| asSubMenu: 04|
20231122_19:27:16.204 Z YCAT ** SYS | asMenu: 02| asSubMenu: 02| asMenu: 02| asSubMenu: 02| asMenu: 02| asSubMenu: 02| asMenu: 02| asSubMenu: 02|

```

Free Form Edit:

PS: Send CLR Log

- Memory – Simple tool for reading/writing memory from local files and/or radio

Radio Control Presets Meters Serial Comms Memory Voice Mem CW Settings Mic Settings Operation Info Log Book Maps

CH	VFO A	CLAR	RX EN	TX EN	Mode	MEM	CTCSS	OFFSET	TAG
001	007230000	+0000	0	0	1	1	0	0	WINGNUTS
002	052525000	+0000	0	0	4	1	0	0	50M CALL FQ
003	014300000	+0000	0	0	2	1	0	0	MAR MOB NET
004	007264000	+0000	0	0	1	1	0	0	RV 7PM CST
005	014290000	+0000	0	0	2	1	0	0	BUCKEYE NET

Memory Controls

VFO / MEM

CHAN DN CHAN UP

Fetch Radio Memory

Load From File Save To File

Write All To Radio

Memory Channel Editor

MEM CH:

VFO A (Hz):

Clarifier: 0000 ☐ Minus Shift

☐ RX Clar EN ☐ TX Clar EN

MODE: 1 - LSB

CTCSS: 0 - CTCSS "OFF"

Rptr Offset: 0 - Simplex

User TAG:

Write MEM Channel

- Voice Mem – Settings for Voice Memory

Radio Control Presets Meters Serial Comms Memory Voice Mem CW Settings Mic Settings Operation Info Log Book Maps

Voice Memory Operation

☐ Record

☒ Verify

☐ Send

Message 1

Message 1 Caption: CQ de KC5NK

Message 2

Message 2 Caption: QSL

Message 3

Message 3 Caption: CQ POTA

Message 4

Message 4 Caption: KC5NK

Message 5

Message 5 Caption: QRZ

- **CW Settings – Settings for Keyer, Keyer Memory, and simple CW operation**

Radio Control Presets Meters Serial Comms Memory Voice Mem **CW Settings** Mic Settings Operation Info Log Book Maps

☐ CW Beacon

KEYER TYPE: Bandwidth:

KYR OFF
KYR NORM
BK-IN OFF
CW - Zero In
CW - Spotting
MONITOR

MON LVL KYR PITCH KYR SPD

670 29

Keyer Memory:

Memory (50 chars max)

Memory (50 chars max)	Save	PLAY
DE KC5NK K}	Save	PLAY
VVV VVV KC5NK EM13QE DE KC5NK/B 5W AR}	Save	PLAY
DE EM13 EM13 KC5NK KC5NK K}	Save	PLAY
R 5NN K}	Save	PLAY

- **Mic Settings – Used for setting Microphone Equalizer settings for both PRC enabled/disabled states.**

Radio Control Presets Meters Serial Comms Memory Voice Mem **CW Settings** **Mic Settings** Operation Info Log Book Maps

Microphone Equalizer Settings

AMC REL TIME:

Parametric Equalizer Settings (PRC Disabled)

FREQ:	LEVEL:	BWTH:
EQ1: 200 Hz	-10	08
EQ2: 1000 Hz	+05	08
EQ3: 2500 Hz	+08	05

P Parametric Equalizer Settings (PRC Enabled)

FREQ:	LEVEL:	BWTH:
EQ1: OFF	-15	02
EQ2: 900 Hz	+06	05
EQ3: OFF	+08	05

Transmit Bandwidth

TX Bandwidth

SSB: 0 - 50 - 3050

AM: 0 - 50 - 3050

DATA/PSK: 3 - 300 - 2700

- **Operation Info (Default) - Initial screen for setting up User and site information.**

Radio Control Presets Meters Serial Comms Memory Voice Mem **CW Settings** **Mic Settings** **Operation Info** Log Book Maps

My Information:

Station Call:

Operator Call:

Rig:

Antenna:

My Grid:

State:

County:

POTA

☐ Activating POTA

Park Number:

Park Name:

WSJT-x Search

☐ Enable Search

Search Term:

- Log Book – for logging UDP ADIF contacts and manual entry QSO's

Radio Control
Presets
Meters
Serial Comms
Memory
Voice Mem
CW Settings
Mic Settings
Operation Info
Log Book
Maps

STATION:

SENT:

RCVD:

GRID:

COMMENTS:

CLR

59

59

Auto Log

SET FREQ

☐ Keep comment

Date	Time	DX Call	DX Grid	Mode	S-Mode	Band	Frequency	RST Sent	RST Rcvd	My Call	My Grid	TX	
20231122	180242	AC9HP	EM69T5	FT8		15m	21.074470	-14	-03	KCSNK	EM13QE	25W	FT8
20231122	180315	KB1YKJ	FN31	FT8		15m	21.074470	-03	-09	KCSNK	EM13QE	25W	FT8

UPD LOG

Call Lookup:
HamDB

Export ADIF

- Maps – General tool for QSO contacts, manual plotting, and Grid Calculations via mouse

Radio Control
Meters
Serial Comms
Memory
Voice Mem
CW Settings
Mic Settings
Operation Info
Log Book
Maps

Plot to DX
DX Grid:
Mouse:
LAT:
Marker:
Num QSO's:
Clear Plots

LON:
Map Service:

Microsoft Bing
© 2023 TomTom, © 2023 Microsoft Corporation

FOOTER

The footer shows serial port connection status.

YAESU: COM4 Active	EXT: COM41 Active	SDR: Inactive	GPS: COM7 Active	Time Sync Status	Time Sync Count
--------------------	-------------------	---------------	------------------	------------------	-----------------

Yaesu – Shows COM port and status to Yaesu HF transceiver.

EXT – Shows WSJT-x COM port and status.

SDR – Shows SDR COM port status.

GPS – Shows GPS COM port and status.

Time Sync Status – If GPS is enabled.

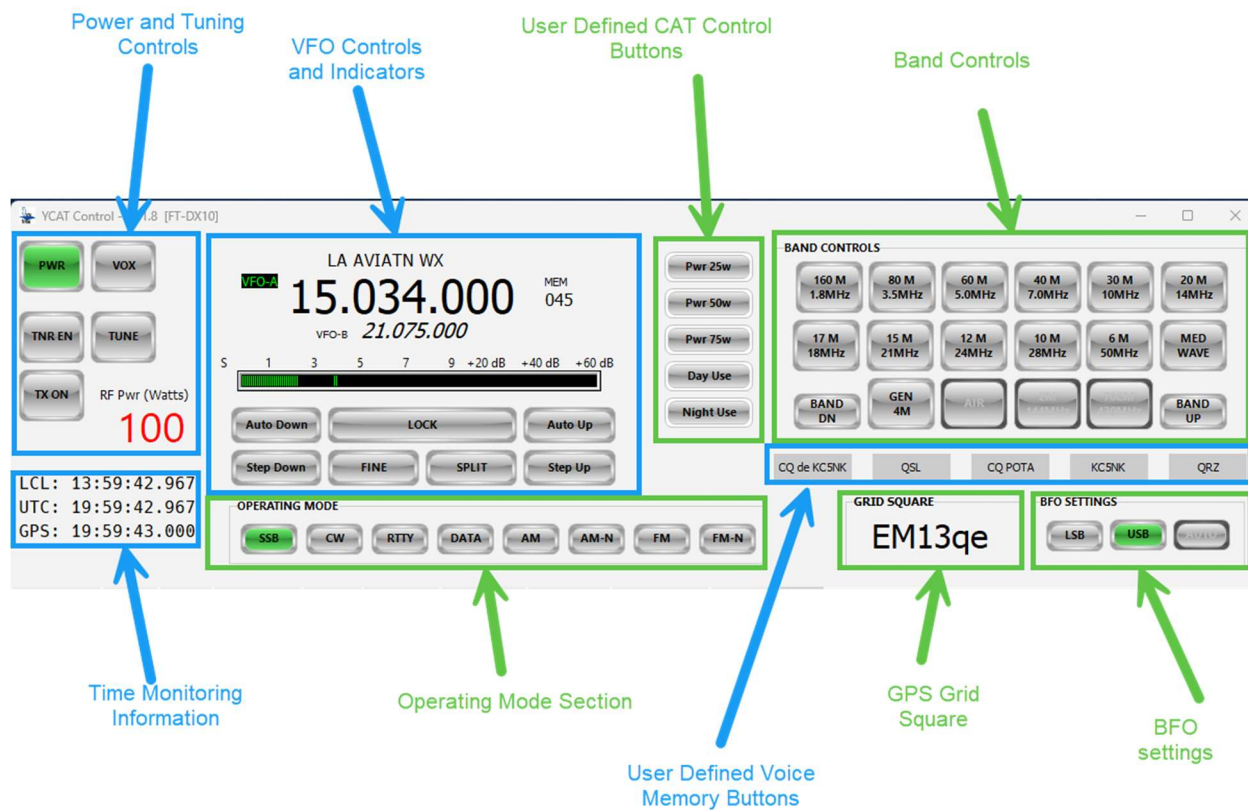
- NOTE: YCAT cannot synchronize the PC clock unless the application has Administrator Rights. If it tries to sync and doesn't have privileges the above message showing "NEED ADMIN PRIV" is displayed.

Time Sync Count – If GPS is enabled.

Detailed Descriptions

Main Screen

The main screen has several sections for quick control and viewing of radio status. Details are defined in the following sections for this screen.



Power and Tuning

This group of controls turning your radio on/off (PWR), enabling/disabling VOX, enable/disable Antenna Tuner (TNR EN), initiate TUNE function and manually keying/unkeying the radio (TX ON), and displaying the RF Output power setting (RF Pwr (Watts)).



The **PWR** button is used to turn the radio ON and OFF.

The **VOX** button enables or disables the Voice Operated Transmit feature of the radio. Requires the radio to be in a voice mode (SSB, FM, AM, etc.)

The **TNR EN** button will enable / disable the internal or external tuner of the radio.

The **TUNE** button will initiate the radio to tune the antenna. If the tuner selected is the ATAS antenna, this feature is not available over the CAT interface.

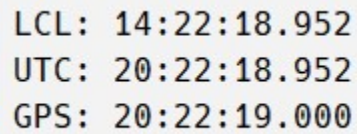
The **TX ON** button can be used to key the transmitter in the radio. It also serves as a TX indicator. Red if keyed by radio, fuchsia if enabled via CAT.

RF Pwr (Watts) shows the RF power settings in the radio.

NOTE: *If external Tuner selected is ATAS, then TNR EN and TUNE controls will not be visible. Antenna tuning is controlled strictly on the front panel of the radio.*

Time Monitoring

This portion of the screen displays, Local Time and UTC time of the Windows™ Operating System and GPS time.



A screenshot of a software interface showing three lines of time data. The first line is 'LCL: 14:22:18.952', the second is 'UTC: 20:22:18.952', and the third is 'GPS: 20:22:19.000'. The text is black on a light gray background.

LCL:	14:22:18.952
UTC:	20:22:18.952
GPS:	20:22:19.000

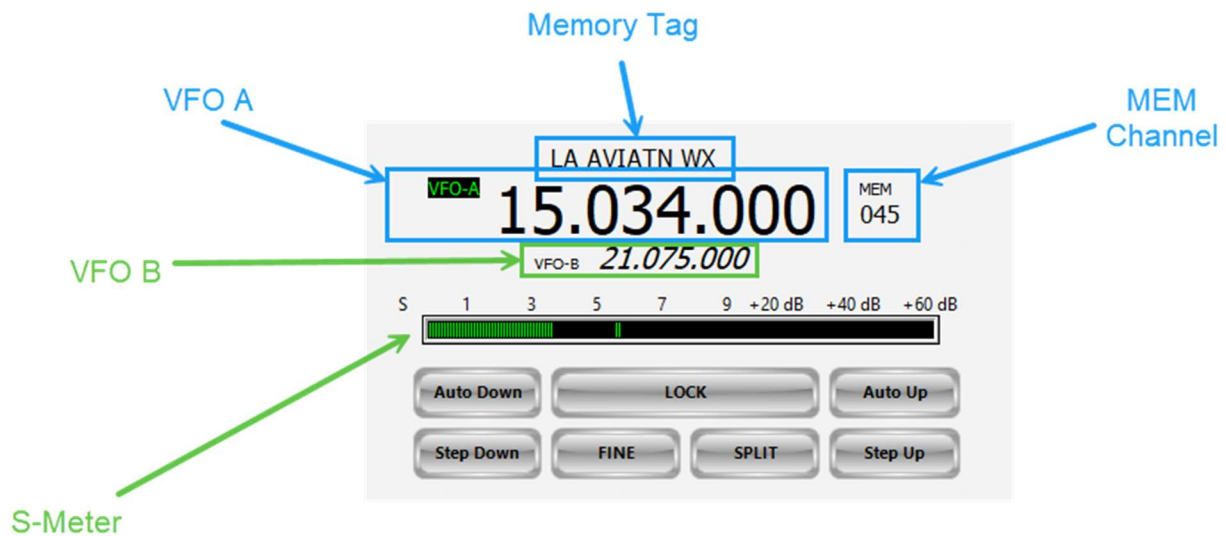
The time will be displayed in local time (LCL), universal coordinated time (UTC), and if the GPS is configured, that time will be displayed (GPS) as well. This is helpful in determining how far the PC clock is from UTC time. In the above example, the PC clock is off by 48 milliseconds.

NOTE: If GPS time display is desired, a GPS receiver is required and YCAT needs setup to decode GPS NMEA sentences.

NOTE: Syncing the operating system time to GPS time requires YCAT to start in “run as administrator” mode. Time sync when connected to the internet does not require the GPS to sync time. This is a helpful tool if out in the field and there is no internet connection.

VFO Control

This section provides simple VFO control of the radio. For more detailed operational control of the VFO control, reference [Radio Control Tab View – VFO / MEM controls](#).



There are two frequency displays, **VFO-A** and **VFO-B**, as shown above

Memory bank selector – will show if the VFO is configured for VFO, MEM, PMS, MEM-TN, etc. This is located above the Memory Channel.

In the above example the VFO is in Memory (MEM) mode on channel 45. There is a Memory Tag (label) associated with memory location 45, "LA AVIATN WX" which is a user defined field that helps identify the frequency stored in memory.

The frequency of the VFO can be changed. It may be changed by the VFO knob on the radio or using the buttons in the VFO controls section: **Auto Down**, **Auto Up**, **Step Down**, and **Step Up**.

When in memory channel mode (Memory channels 1 – 99), the MEM indicator will change to MEM-TN to notify that the radio is in a MEM channel, however the VFO has been tuned away from the frequency.

Auto Down and **Auto Up** buttons will decrement or increment the VFO frequency while the button is pressed. The rate is defined by the button labeled **FAST** or **FINE** (depends on radio connected to YCAT).

The **Step Down** and **Step Up** buttons will only adjust the VFO down or up one step at a time.

The **LOCK** button prevents the VFO from being changed via the YCAT controls.

The **SPLIT** button will enable or disable the ability to run both VFO's in receive and transmit. Use caution because some radios will transmit and receive on different bands.

The **S-Meter** is not a VFO control, but it is handy to have the receiver S-Meter next to the radio VFO frequency readout during operation.

Operating Modes

This control allows the user to control and monitor the radio's different operational modes.



The FT-991(a) radios support C4FM operating mode. When YCAT determines the radio type, it will enable or disable operating modes based on radio capabilities.

Band Controls

The **BAND CONTROLS** offer a quick method for changing bands. YCAT does support BAND stacking.



These buttons match the radio's bands. The **GEN/4M** button is a general coverage band for USA operations but in the European version, it operates as a 4-meter band.

For the FT-991/991a, they support an **AIR** band, 2-meter (**2 M**), and 70-centimeter (**70 CM**) bands. These buttons are greyed out for other radios.

The **BAND DN** and **BAND UP** buttons will decrement or increment the band setting in the radio.

User Programmable Buttons

There are five (5) programmable buttons a user can define to provide limited customization.



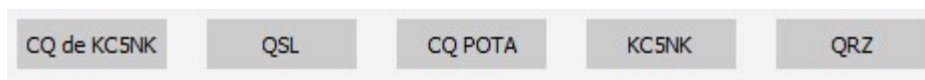
The buttons captions are user definable as well as the ability to send a user defined command or group of commands. Details for configuring and displaying buttons are defined in **PRESETS** view.

In the above example the buttons are defined for changing power levels for 25w, 50w, and 75w. The remaining two buttons are for adjusting the display brightness settings on the radio for day use (bright) and night use (dim).

Setting these buttons will require using the radio specific CAT command document from Yaesu for your radio model.

Voice Memory Buttons

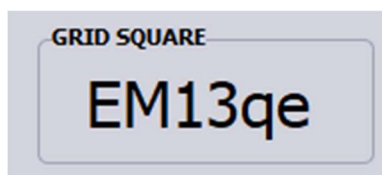
There are five (5) buttons for sending pre-recorded voice messages from the radio.



Setting the captions and instructions for recording, verifying, and sending voice messages are described in the Voice Mem View Tab section in this document. Creating, verifying, and using voice memory are performed there. Once enabled, the buttons on the main screen will reflect the text captions defined there. Pressing a button here (or there) will transmit your recorded message over the air.

Grid Square (GPS required)

If a GPS dongle is attached and configured in YCAT, the 6-digit grid square is computed and displayed to the user/operator. If the GPS interface is not defined in [Serial Comms](#) then this field will not be shown.



BFO Settings

There are three (3) BFO buttons available but not all radios support them. If the AUTO setting is not supported in the radio, it will be greyed out as shown. The other settings are LSB and USB. Refer to the Yaesu documentation for how this feature is implemented.



Operation Info Tab

This is the first screen (Default) when starting the application.

My Information Section

When starting the application, you should review this information before proceeding, especially if you are using YCAT in a mobile or field configuration.

My Information:

Station Call:	KC5NK
Operator Call:	
Rig:	FT-dx10
Antenna:	80m EFHW
My Grid:	EM13qe
State:	TX
County:	

Station Call is where you enter your call sign, this field is required for file naming on saved logs.

Operator Call is for the operator call sign and is optional.

Antenna field is for manually entering your antenna.

My Grid is automatically populated if a GPS is connected to YCAT. If you do not have a GPS or did not configure a GPS, then you must manually enter your current grid in 4 or 6 digits. This is required for plotting on the map and determining bearing/distance to the dx station.

State should be filled out if needed for POTA. If populated, it will be included in the ADIF export.

County is for the current county you are in. If you do not know, clear this field.

POTA section

This is an optional section for use when doing POTA Activations. If the Park Number is correctly entered, it will correctly name the file for importing to the POTA.app website.

The screenshot shows a window titled "POTA". Inside the window, there is a checkbox labeled "Activating POTA". Below the checkbox, there are two text input fields. The first field is labeled "Park Number:" and the second field is labeled "Park Name:". Both fields are currently empty.

Activating POTA checkbox enables tools to remind you of what **Park Number** and **Park Name** you are working from.

Park Number is required for POTA activations. This field requires the operator/user to enter a valid park number. Examples of a valid park numbers:

K-3000

K-10380

HA-0005

VE-5559

The dash number (-) is very important and required when importing to POTA.APP website.

Park Name is not mandatory, however, it is helpful when on the **Log Book** tab. It helps remind you of your park number and park name during your activation.

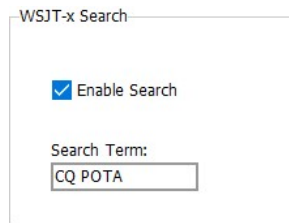
When **Activating POTA** checkbox is enabled, your **Station Call**, **Park Number** fields and UTC date are used to create a suggested filename when exporting ADIF files for POTA.

If **Activating POTA** is not checked, just the Station Call and current UTC date/time are used to create the filename.

WSJT-x Search

If the WSJT-x UDP configuration is enabled, YCAT can monitor UDP broadcasts and search for text strings that are user definable. If enabled an audible chirp is generated on the PC speakers if the search term is found in the UDP broadcast messages.

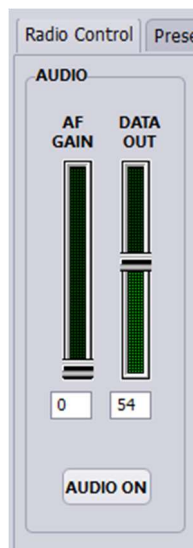
The default is to search for “CQ POTA” in the decode strings. It can be enabled by checking the “Enable Search” checkbox.



Radio Control View

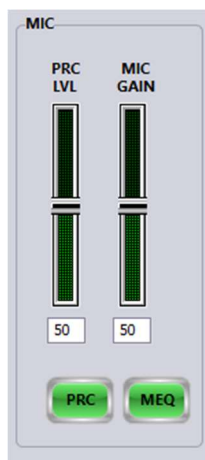
Audio

The Audio section provides controls for speaker volume (**AF GAIN**), **Data Out** and a Speaker Audio Mute button.



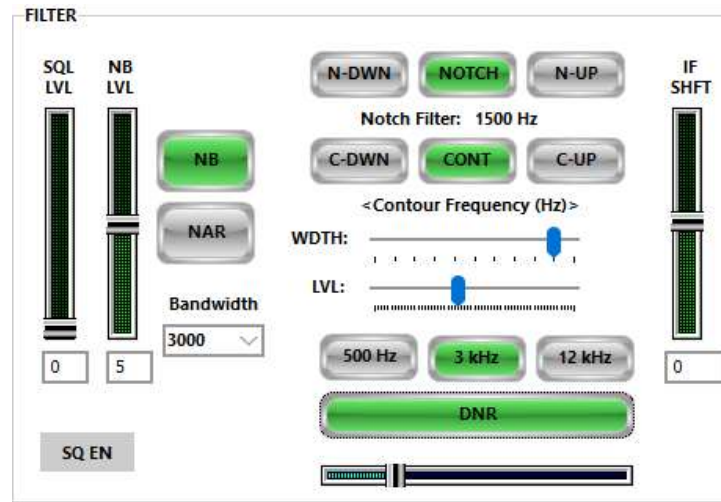
Mic

The Mic section is used for setting Speech Processor (**PRC LVL**) and **MIC GAIN** levels. Includes buttons for enabling and disabling the Speech Processor (**PRC**) and the Mic Equalizer (**MEQ**).



Filter

The Filter section manages audio and IF filters and processing.



SQL LVL works mainly in AM or FM modes but is helpful in SSB modes if IPO is enabled and scanning feature is utilized. Normally this is disabled or in the 0 position.

NB LVL sets the noise blanker level. This control is hidden unless the NB button is active.

NAR control, when active, puts the radio in narrow bandwidth mode. The bandwidth is selected via the **Bandwidth** dropdown control.

Bandwidth dropdown control is used to adjust the radio audio bandwidth for both narrow and standard filter modes.

NOTCH button enables and disables the radio's notch filter. When enabled the notch frequency is changed via the **N-DWN** and **N-UP** buttons. The **Notch Filter** field will show what frequency the notch filter is adjusted for.

CONT button enables and disables the radio's contour filter. When enabled the contour frequency is changed via the **C-DWN** and **C-UP** buttons. The Contour Filter field will show what frequency the contour filter is adjusted for. Additional contour controls are provided to adjust the contour filter width (**WIDTH**) and contour filter level (**LVL**).

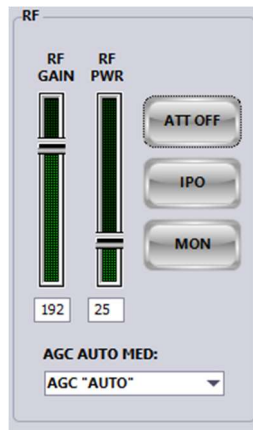
IF SHIFT control will adjust the if frequency up or down. This is helpful when trying to remove interference from a close by station. Very helpful to use with bandwidth to narrow the audio bandwidth, but then adjust the IF frequency up or down.

DNR button enables and disables the Digital Noise Reduction feature. When enabled a slider bar is displayed to adjust the DNR level to the best level between low noise and optimal audio sound.

For the FT-dx10 radio, there are three (3) additional buttons to select Roofing Filters. These will not be displayed on other radio models. Their values are **500 Hz**, **3 KHz**, and **12 KHz**.

RF

The RF section is used for controlling the receive and transmit RF levels in the radio.



RF GAIN slide bar adjusts the RF gain in the radio.

RF PWR slide bar adjusts the RF power levels in the radio from 5 to 100 watts.

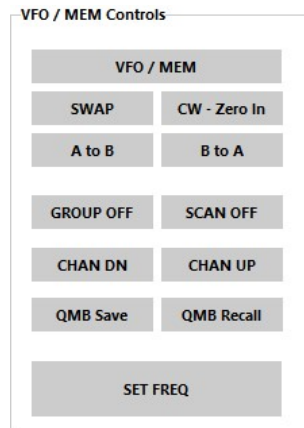
ATT OFF button is used to control the receiver attenuator capabilities in the radio. The attenuator level is based on the features in the specific radio model. Refer to your specific radio's user manual for these settings.

IPO button is a multi-feature button to reflect the IPO/pre-amplifiers in the radio. Refer to your specific radio's user manual for these settings.

MON button is used to turn the transmit monitor feature on and off.

VFO / MEM Controls

The VFO section allows the operator / user to control VFO functions in a common location.



The **VFO/MEM** button is used to switch the VFO from Memory mode to VFO and vice versa. If in Memory mode and the VFO is changed (via VFO knob, etc.) then radio changes to either PMS mode or MEM-TN mode. When the VFO/MEM button is pressed, it will return the VFO to MEM mode. An additional press will place the radio in VFO mode.

SWAP will exchange VFO A and VFO B settings.

A to B will copy VFO A to VFO B leaving VFO A unchanged.

B to A will copy VFO B to VFO A leaving VFO B unchanged.

GROUP OFF / GROUP ON is a toggle feature. When **GROUP ON** is enabled, VFO memory channels will be constrained to the current group of 20 memory channels. Memory groups are from 1 to 19, 20 to 39, 40 to 59, 60 to 79, and 80 to 99.

Example:

VFO/MEM set to MEM, memory channel selected is channel 23.

If **GROUP ON** is selected, then incrementing or decrementing the channel via **CHAN UP** or **CHAN DN** the VFO will only change channels for programmed memory channels between 20 and 39.

If **GROUP OFF** is selected then changing memory locations, the VFO will tune to any programmed memory from channel 1 through 99, the Programmable Memory pairs (P1L/P1U to P9L/P9U) and the 60-meter preprogrammed memory.

SCAN OFF / SCAN ON button is a toggle feature. Selecting **SCAN ON** puts the radio in SCAN mode. In VFO mode, the radio will scan up until **SCAN OFF** is selected. In MEM Mode the radio will scan memory channels and roll over. If **GROUP ON** is enabled, then only the programmed channels in that 20 memory group are scanned.

CHAN DN / CHAN UP buttons are used to change the radio's memory channels down and up respectively.

QMB Save / QMB Recall buttons allow the user to save and recall VFO frequencies in the Quick Memory Button locations.

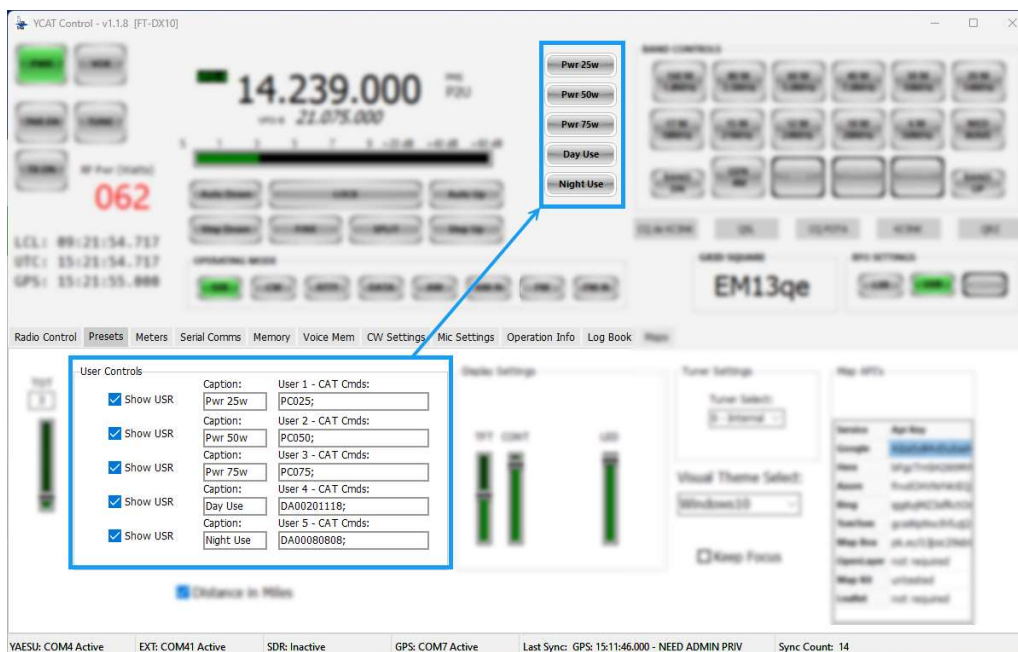
SET FREQ button brings up a numeric keypad to enter a frequency in MHz for direct tuning to a specific frequency.

CW – Zero IN button causes the radio to automatically tune the VFO to a close by CW signal.

Presets View

User Controls

The **User Controls** section is for managing the user-defined buttons. There are five (5) user defined buttons on the main screen. They can be enabled or disabled. The captions can be edited to reflect what the button does when pressed. Each button can be programmed to send a customized CAT command to the radio when pressed. The button can send concatenated CAT commands if necessary. Please refer to your radio's CAT documentation for valid commands and message structure for concatenation (if used).



To enable a button to show on the main screen, check the corresponding “**Show USR**” checkbox.

Change the button caption, edit the corresponding “**Caption**” field.

CAT commands may be edited by entering a valid CAT command for your radio. Reference the CAT manual for your specific radio for valid CAT commands to enter here. If needed, multiple commands may be entered. Below are some examples of multiple or concatenated commands for the CAT Cmds:

Example – Set radio to 10 watts, mode to CW, and key the transmitter.

PC010;MD03;TX1;

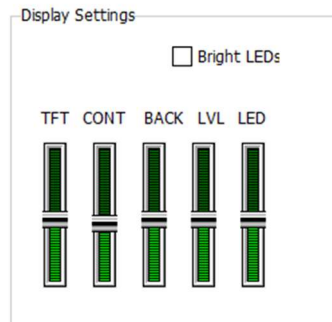
Example – Set radio to 100 watts, mode to SSB, and unkey the transmitter.

TX0;PC100;IF;IF;MD02;

NOTE: The double “IF;” commands request status, only include as a delay so the mode change works.

Display Settings

Each radio supports some control over the display. Not all functions for display control are available for all radios. Reference your radio Operators Manual or CAT Manual for valid display controls for your radio model.



If a feature is not available for your radio model it will not be shown in the Display Settings group shown above. Below are descriptions of the controls but are only applicable for radios that support these features.

Bright LED's allows selecting between dim and bright LED's.

TFT – Adjusts brightness of TFT display.

CONT – Adjusts contrast on display.

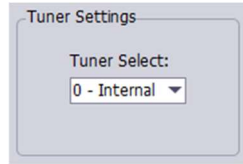
BACK – Adjusts backlighting of buttons. This is great for FT-891 when operating at night.

LVL – Adjusts LCD display level.

LED – Adjusts LED brightness level.

Tuner Settings

The **Tuner Settings** group allows choosing antenna tuner options. Refer to your specific radio operator's manual for available options.



Typical options are: Internal, External, ATAS, Lamp. Not all radios support all tuner types.

NOTE: Yaesu radios do not support the ATAS antenna over the CAT interface. When using this antenna, tuning the radio is performed from the front panel of the radio. The corresponding buttons will be removed from YCAT for this configuration.

Visual Themes

The **Visual Theme** Select combo box allows you to customize the visual theme for the YCAT application.

Visual Theme Select:

Windows10

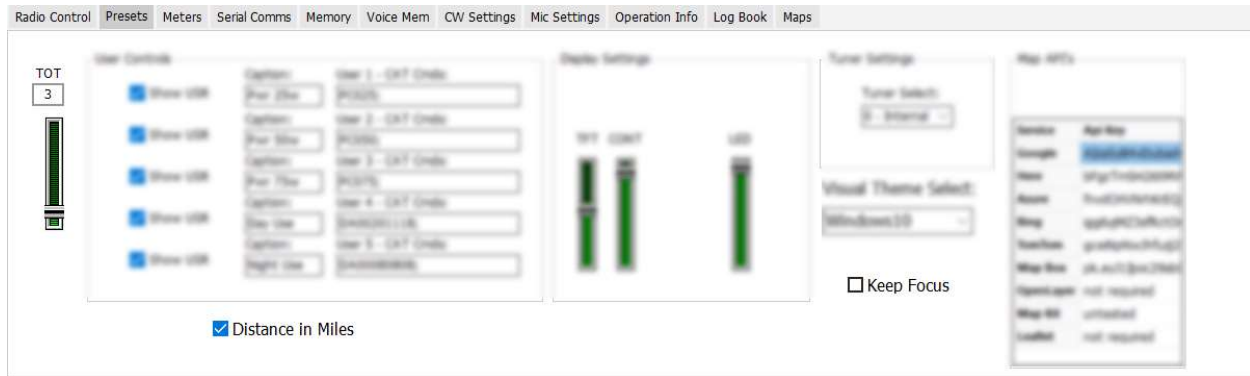
The available themes are:

Windows
Amakrits
Aqua Light Slate
Cyan Dusk
Emerald Light Slate
Windows 10 Green
Windows 10 Blue
Turquoise Gray
Amethyst Kamri
Cobalt XEMedia
Onyx Blue
Aqua Graphite
Carbon
Sky
Windows 10
Windows 10 Dark
Golden Graphite
Iceberg Classico
Windows 10 Purple
Lavendar Classico
Smokey Quartz Kamri
Slate Classico
Windows 10 Slate Gray
Cyan Night
Sapphire Kamri

Scroll through the options to find a visual theme that best matches your setup.

Miscellaneous Controls

The presets page includes additional miscellaneous controls.



TOT

The radio has a transmission Time Out Timer (TOT). It is recommended to set this timer to a value to prevent your radio from constantly transmit by accidental key down condition or failure with external radio control (i.e. – WSJT-x during radio transmitting).

Recommended setting is 3 minutes however you may choose a setting more convenient for your radio operating style.

Distance Miles

The **Distance in Miles** checkbox allows the user to view distance measurements in kilometers if unchecked and miles if checked.

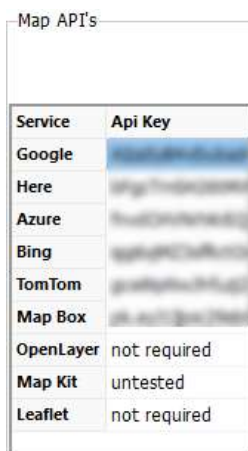
Keep Focus

The **Keep Focus** checkbox is used to keep the YCAT application always on top of other applications.

Map API's

The **Map API's** group allows the user to save their mapping service API Key's. After getting an API Key, it can be pasted in the appropriate cell in the grid.

OpenLayer mapping service does not require an API key. It is the default mapping service when YCAT starts.



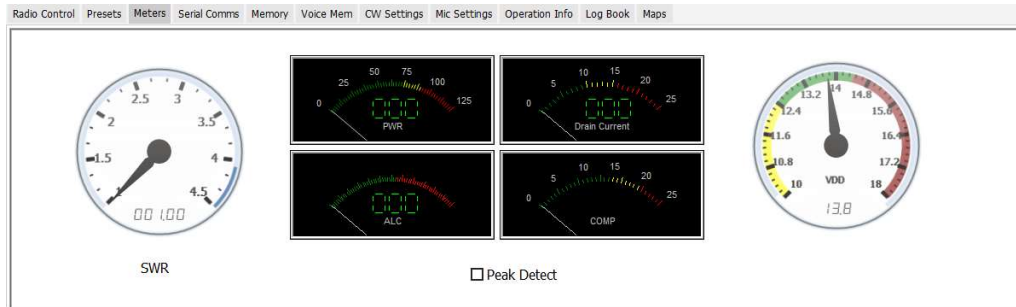
Service	Api Key
Google	
Here	
Azure	
Bing	
TomTom	
Map Box	
OpenLayer	not required
Map Kit	untested
Leaflet	not required

NOTE: *OpenLayer and Leaflet do not require API Keys. They work with YCAT without requiring configuration.*

NOTE: *Map Kit is an Apple mapping service. It has not been tested with YCAT on a Windows operating system.*

Meters View

The **Meters** view tab allows you to view all available meters instead of choosing a specific meter to view. Also, this panel may be undocked and placed anywhere on your computer screen and across different monitors.



SWR

The **SWR** meter shows analog and digital view of SWR which is viewable when transmitting.

PWR

The **PWR** meter shows analog and digital readout of actual RF power measured when transmitting.

Drain Current

The **Drain Current** meter measures Idd of the finals during RF transmission.

ALC

The **ALC** meter shows ALC level during voice and data transmissions. Refer to your specific radio manual for instructions on how to adjust ALC levels.

COMP

The **COMP** meter shows the MIC compression levels when transmitting.

VDD

The **VDD** meter is not visible on the FT-891. For all other supported radios, this meter will display the voltage applied to the radio. This works on receive as well as transmit.

Peak Detect

The **Peak Detect** check box may be beneficial in voice mode where instantaneous peaks are too hard to read. Selecting **Peak Detect** will place the meters in a peak detect mode where the readings are smoothed out.

NOTE: The values converted are not exact and vary from radio model to radio model as well as one radio to the next. For exact values refer to calibrated test equipment to measure specific values.

Serial Comms View

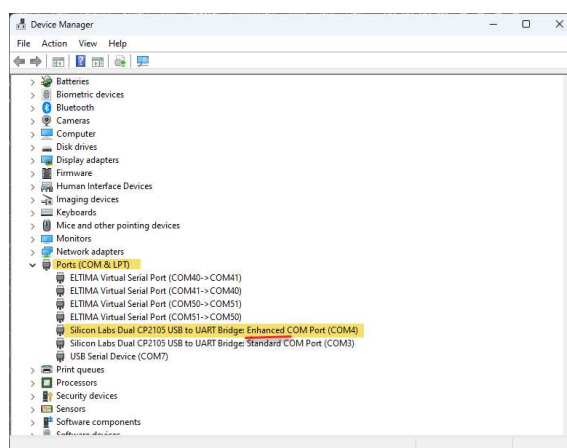
Yaesu CAT Port

The Yaesu CAT Port section is used to configure the PC serial port to match the Yaesu radio serial configuration. It is important to download and install the Yaesu serial drivers before trying to configure the YCAT application to the radio.

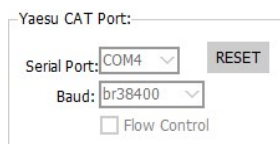
On your Yaesu radio check the menu items relating to **Baud Rate** and **RTS**. YCAT settings must match baud rate with the radio and if **RTS** is enabled in the radio, **Flow Control** should be checked.

The serial port driver installs two (2) different COM ports for the radio. Windows™ has a device utility called Device Manager. Using it will help identify which serial port that YCAT requires for communication. It is labeled as “Silicon Labs Dual CP2105 USB to UART Enhanced COM Port (COMxx)”.

In the example below, it is COM4 although it may be a different port number on your computer.



In the **Serial Port** combo box, choose the enhanced COM port identified in Device Manager.



When YCAT makes a successful connection to the radio via the enhanced COM port the radio will power up (if turned off) and YCAT will populate main screen functionality including the VFO displays.

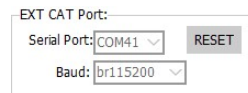
To change baud rate or flow control, press the **RESET** button to release the COM port, make the changes and then reselect the enhanced COM port.

NOTE: if you unplug your USB cable from the PC and reinsert it into a different USB port on the PC, it is likely that Windows operating system will reassign different COM ports to your Yaesu radio. If you are experiencing communication issues, recheck in Device Manager.

EXT CAT Port

The **EXT CAT Port** section is the interface used for connecting to WSJT-x via a virtual serial cable.

In the example below, the ELTIMA virtual serial port cable for COM40 and COM41 is used. **Serial Port** is set for COM41 on YCAT with **Baud** set to 115200. You may choose a variety of baud rates between 110 and 115200. There are other options, 128000 and 256000 but these are a “use at your own risk”. Match what WSJT-x is set for.



EXT CAT Port:

Serial Port: COM41

Baud: 115200

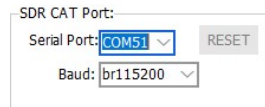
To close the COM port, press the **RESET** button.

This port filters CAT commands to/from WSJT-x that are not compatible or may cause issues with WSJT-x operation.

SDR CAT Port

The **SDR CAT Port** section is the interface to SDRplay/SDRuno and a corresponding RSPdx, RSP1a, etc.

Interfacing to the SDR radio will require a virtual cable. When configuring the virtual cable per vendor directions, make sure you remember both COM ports assigned to the cable. In the Device Manager slot, the cable for WSJT-x (EXT) is COM40/COM41. For the SDR interface, COM50/COM51 was chosen. You may be constrained by your vendor.



Set the **Baud** rate and choose the **Serial Port** (COM51).

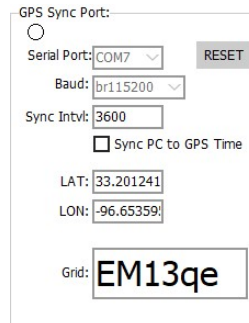
In SDRuno/SDRplay, follow instructions for CAT control and choose COM50 for the serial port. Use the COM port designators you chose when creating the virtual cable. In this example, SDRuno will use the CAT interface using COM50 and 115200 baud rate.

When configured properly, changing modes, frequency, etc. on the SDR radio or the Yaesu radio (via YCAT or the front panel) will be synchronized between YCAT and SDRplay.

If you want to disable the COM port, press the **RESET** button and the COM port will be released for use by other applications.

GPS Sync Port

The GPS Sync Port section is for configuring a GPS dongle via serial port. The GPS is used for computing a 6-digit Maidenhead Grid Square. Also, if the application is run as an Administrator, the GPS can be used to synchronize the PC clock to GPS time.



The screenshot shows a configuration window titled "GPS Sync Port:". It contains several fields and a button:

- A radio button is selected at the top.
- "Serial Port:" is a dropdown menu showing "COM7".
- "Baud:" is a dropdown menu showing "br115200".
- "Sync Intvl:" is a text box containing "3600".
- A checkbox labeled "Sync PC to GPS Time" is unchecked.
- "LAT:" is a text box containing "33.201241".
- "LON:" is a text box containing "-96.65359".
- "Grid:" is a text box containing "EM13qe".
- A "RESET" button is located to the right of the Serial Port dropdown.

Configuring the GPS serial port is done through the **Baud** rate selection and then choosing the COM port via the **Serial Port** combination box.

Closing the COM port is performed using the **RESET** button.

Sync Intvl field sets the amount of time, in seconds, that YCAT will synchronize the PC clock. This requires a working GPS receiver and YCAT running in Administrator mode.

The **LAT** and **LON** fields provide the current GPS latitude and longitude in decimal degrees.

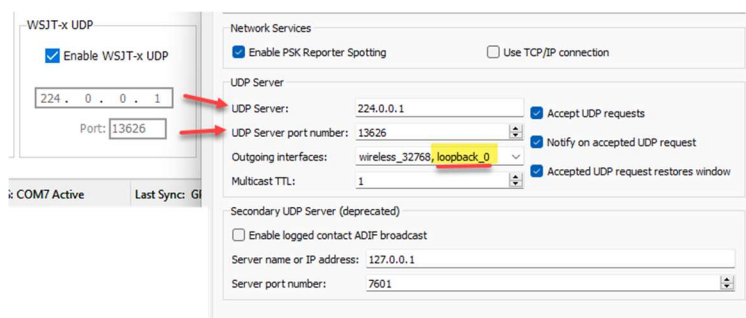
Grid field shows the computed 6-digit Maidenhead Grid Square when the GPS has established a 3D GPS position fix.

NOTE: When a GPS is first powered up and achieving a LOCK condition, the timestamps may be off a few seconds. Before synchronizing the PC to the GPS time allow about 5 minutes for the GPS time to stabilize.

WSJT-x UDP

YCAT can receive UDP broadcast messages from WSJT-x. This section configures YCAT for this capability and it must match settings in WSJT-x. Choose an IP address (unicast or multicast) and an available UDP port.

YCAT and WSJT-x settings:

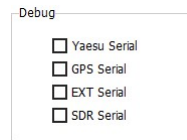


Also, ensure that you have a loopback interface selected for “Outgoing interfaces”. Both YCAT and WSJT-x run on the same computer so the loopback interface is required. Your loopback name may be different.

Miscellaneous Controls

Debug

The Debug section is used for troubleshooting serial communications. This is normally not used and should only be used when diagnosing issues.



Selecting **Yaesu Serial** will let you view all CAT commands to and from the Yaesu radio.

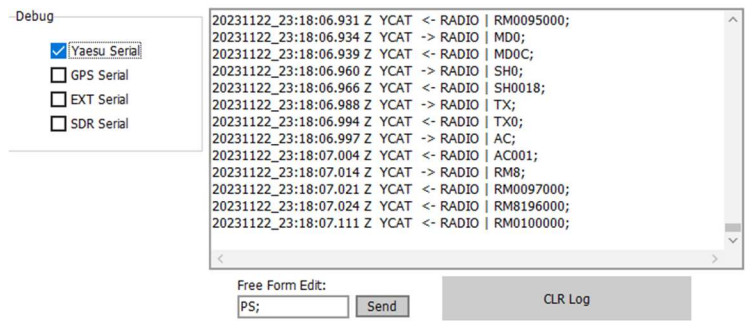
Selecting **GPS Serial** will let you view all GPS data.

Selecting **EXT Serial** will let you view only the EXT or WSJT-x serial data (CAT).

Selecting **SDR Serial** will let you view all commands to and from the SDRuno/SDRplay SDR receiver software.

Serial Debug Log

The serial debug log is where you view CAT commands depending on which debug interface is enabled.



In the above example, the Yaesu radio interface is enabled. Each line starts with a UTC date and timestamp, followed by the interface (YCAT), direction (“->” or “<-”) and device (RADIO).

Here you can see commands sent to the radio and responses received.

This is helpful in troubleshooting communications issues between YCAT and other devices.

Free Form Edit

Used to enter CAT commands, single or multiple, for sending to the radio.

Send Button

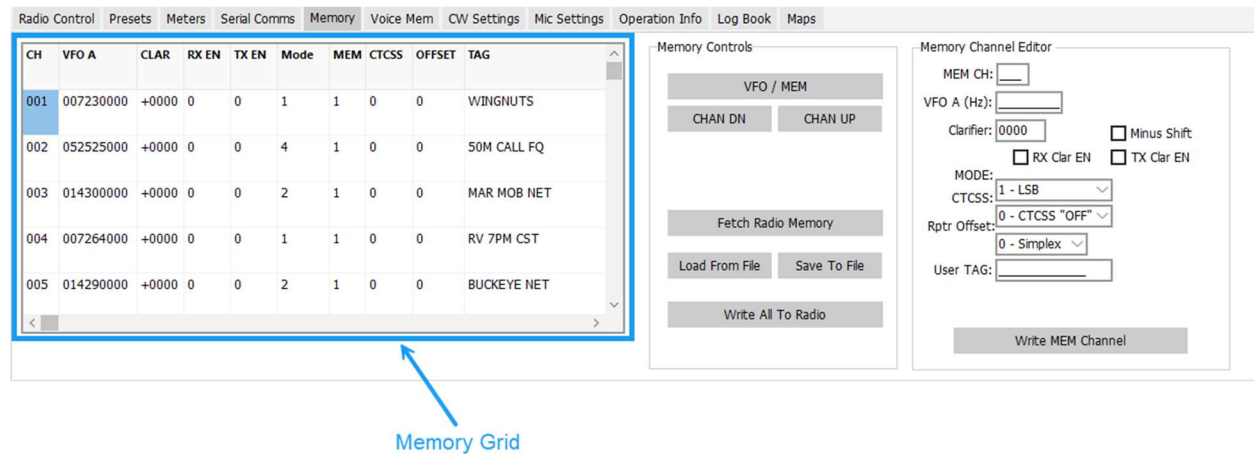
This button sends the commands in the **Free Form Edit** field to the radio.

CLR Log Button

Clears the debug log contents.

Memory View

The Memory view allows the user to read or write memory channels in the radio.



YCAT supports channels 1 through 99 and P1L/P1U through P9L/P9U. It also provides basic control of VFO frequency, mode, Clarifier, CTCSS, offset and a user-defined “tag” to identify the channel.

Memory Grid (read only)

The Memory Grid is an aid to view multiple channels simultaneously. Clicking on a cell will populate that row in the Memory edit panel.

Memory Controls

This section allows the user to manage memory channel / VFO mode, reading/writing memory channels to and from files or the radio.

The **VFO/MEM** button is used for changing the radio from VFO mode to MEM mode. If the radio is in MEM-TN (memory tune) or MEM-PMS modes, pressing the **VFO/MEM** button will return to MEM mode.

CHAN UP and **CHAN DN** buttons are used for changing memory channels when in the MEM mode.

The **Fetch Radio Memory** button is used to read all of the memory channels in the radio and populate the Memory Grid.

The **Write All To Radio** button is used to write all defined memory channels in the Memory Grid to the radio.

The **Save To File** button is used to save the Memory Grid to a file. The file may also be read into YCAT with the **Load From File** button.

Memory Panel

When clicking on the Memory Grid, the information in the row is populated into the Memory Panel to allow defining basic parameters for that memory channel.

MEM CH – indicates the memory channel displayed or edited.

VFO A (Hz) – field is for entering the VFO frequency in Hertz. Leading zeroes (0) are required.

Clarifier – Sets the clarifier frequency.

Minus Shift – sets the clarifier shift to be negative, unchecked is positive.

MODE – drop down box selects the operating mode (LSB, USB, CW, etc.)

CTCSS – Selects the CTCSS mode

Rptr Offset – to choose Simplex or Plus/Minus shift

User TAG – a 12 character text message to associate with the Memory location.

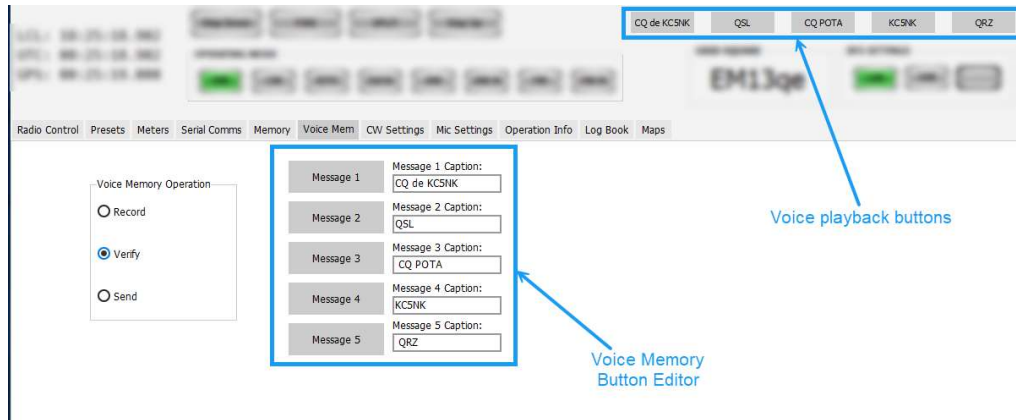
Write MEM Channel – This button will write the settings into the radio.

NOTE: *There are no CAT commands that erase a memory slot. To erase memory, reset the radio.*

Voice Mem View

The Voice Mem View allows the user to record, verify, and enable sending pre-recorded messages. There is also the ability to add custom labels to the buttons.

When programming voice memory, different radios start and stop recording messages differently. Notes or hints are provided, however detailed instructions are available in the applicable User Manual for your radio.



Voice Memory Operation

This section is used for selecting the mode for voice memory. By default, the mode is set to **Verify**.

Record – Selecting this option allows you to record voice messages.

Verify – Selecting this allows you to test pre-recorded messages when a Message button is pressed (main screen or Voice Memory tab).

Send – Selecting this option when a **Message** button is pressed (main screen or Voice Memory tab) the voice message will be transmitted over the air. The radio must be in a voice mode (AM, FM, SSB, etc.) to send pre-recorded messages.

Message Buttons

There are five (5) Message buttons reflecting the voice memory locations in the radio. They are required to record, verify and send voice messages.

To **Record** a voice message, select the Record option and then select the **Message** button to store the message. Press the PTT on the microphone and start recording. For the FT-710 and the FT-dx10, recording stops when the PTT is released.

The FT-891 and FT-991(a) radios the PTT is used to start recording but can be released immediately. To stop recording, press the **Message** button used to start recording.

To verify a recording, select **Verify** option, then press the **Message** button that you want to verify. The radio will respond with your recording over the internal speaker.

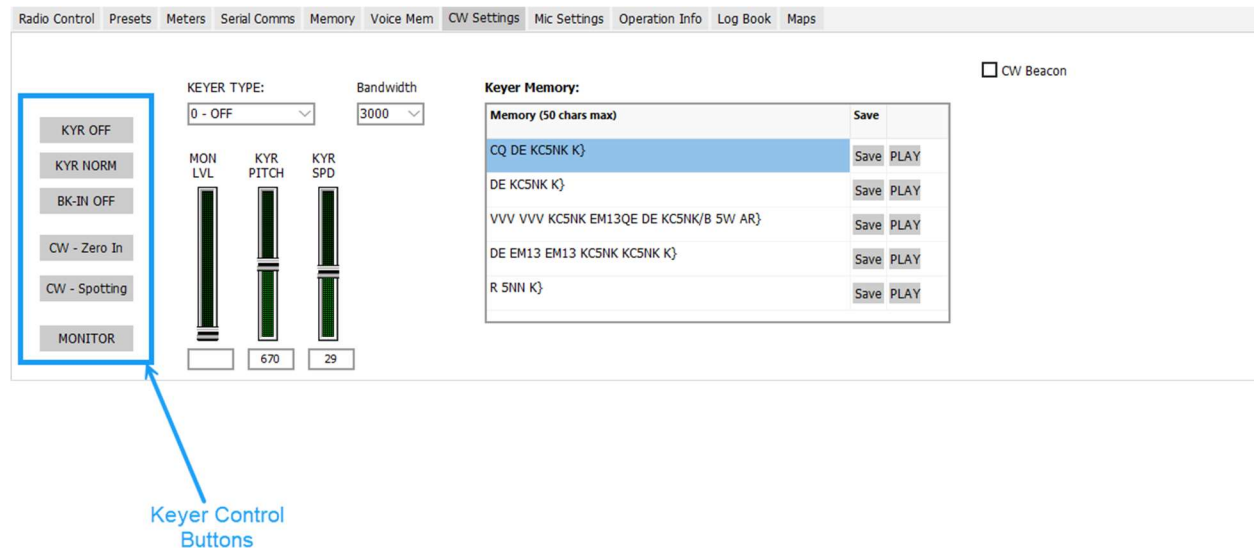
To send a recording, select **Send** option. Ensure the radio is in voice mode (LSB, USB, AM, FM, etc.). Press the **Message** button corresponding to the message you want to transmit. The radio will transmit the voice message over the air.

Caption Edit Fields

There are five (5) Message Caption fields. These fields will accept text messages that are helpful on the YCAT main screen. This allows you to enable Send in the Voice Mem tab view then switch views to the Log Book or other view. Pressing the voice message button will then send pre-recorded messages over the air.

CW Settings View

This view is used for defining CW Keyer Memory, CW operation, and control.



Keyer Control Buttons

The **KYR ON/OFF** button toggles between the keyer being enable or disabled.

The **KYR NORM** button switches the keyer between NORM and REV. This switches the Keyer “dots” and “dashes” for left handed operators.

The **BK-IN OFF/ON** button enables and disables the break-in function. BK-IN ON will enable the TX capability.

CW – Zero In button will allow the radio to attempt to tune the VFO to center of the CW signal.

CW – Spotting button when pressed allows the operator to tune the VFO until the CW signal matches the frequency of the CW spotting tone.

Keyer Slider Controls

MON LVL – allows the operator to adjust the monitor level on the internal speaker.

KYR PITCH – allows adjusting the CW tone or pitch.

KYR SPD – adjusts the keyer speed from 4 to 60 words per minute.

Keyer Memory Grid

The Keyer Memory Grid contains the CW text for each slot and buttons for saving the changes to the radio or playing them from the radio. Yaesu recommends a space and K at the end of each message

Save button saves the CW message in the radio memory slot.

PLAY button plays the stored CW message. If **BK-IN OFF** then audio is routed to the speaker. If **BK-IN ON** is enabled then the CW is routed to the transmitter.

Miscellaneous Keyer Controls

Keyer Type Selector

The operator can choose the Keyer type with this control, default is ELEKEY-B.

CW Beacon

It is possible to allow YCAT to perform a CW beacon. If the CW Beacon control is checked the CW Beacon group is shown.

To perform beaconing set the **MEM** control to the memory message to beacon. Set the **INTVL** slider to the number of seconds (10 to 300) to repeat the message. Hit **PLAY** button to initiate beaconing.

Mic Settings View

All of the Yaesu radios support microphone equalizer adjustments with the same values.

They are organized in two groups, Parametric Equalizer Settings (active when PRC is disabled) and P Parametric Equalizer Settings (active when PRC is enabled).

This allows different settings when the microphone equalizer (MEQ) is enabled. Choosing between the two (2) matrices is done with the PRC setting.

Parametric Equalizer Settings

These settings match the radio. The above settings were configured for a Heil Fin microphone. You will need to adjust these settings for your voice and your microphone.

P-Parametric Equalizer Settings

These settings also match the radio. The settings shown include settings for the Heil Fin microphone. You adjust these for your voice and microphone.

The strategy is to set the radio microphone setting for say, rag chewing and the other for contesting. Changing between “rag chewing” and “contesting” would be done by turning PRC (Speech Processor) on or off.

AMC REL TIME selector

The AMC REL TIME selector is only available on the FT-710 and the FT-dx10. It allows selecting the AMC release time between FAST, MID, and SLOW

Log Book View

A simple logbook is provided for mobile or portable use.

This logbook is not intended to be a master of all logs but rather a temporary logbook for when you are away from your main location. The logs can be saved and imported into your “master” logbook. The master can be QRZ, LoTW or POTA.app or whatever you choose if it can import ADIF log format.

Optional
POTA data
fields

Radio Control Presets Meters Serial Comms Memory Voice Mem CW Settings Mic Settings Operation Info **Log Book** Maps

PARK: K-0000 PARK NAME: Ghost Wildlife Management Area Logged: 3

STATION: CLR SENT: 59 RCVD: 59 GRID: COMMENTS:

☐ Keep comment

Date	Time	DX Call	DX Grid	Mode	S-Mode	Band	Frequency	RST Sent	RST Rcvd	My Call	My Grid	TX
20231122	180242	AC9HP	EM69TS	FT8		15m	21.074470	-14	-03	KCSNK	EM13QE	25W FT8
20231122	180315	KB1YKJ	FN31	FT8		15m	21.074470	-03	-09	KCSNK	EM13QE	25W FT8
20231122	235515	LU1DA	GF05UG	FT8		15m	21.076598	-05	-04	KCSNK	EM13QE	25W FT8

UPD LOG Call Lookup: None Export ADIF

NOTE: if POTA is enabled these additional fields will be presented on this page based on the settings in the Operation Info view.

QSO Controls

These controls allow quick entry of a QSO. You start with the **STATION** edit field and can hit TAB and Shift TAB to move forward and backward through the controls.



CLR Button

This button clears the QSO controls to default (shown above).

STATION Edit

This field is where you put the dx station call sign as you want it to appear in your logs.

NOTE: If Call Lookup is enabled (HamDB or QRZ) a call sign look up will happen when you leave the STATION edit field.

SENT Edit

The **SENT** field is defaulted to 59 but may be edited to the desired value.

RCVD Edit

The **RCVD** field is also defaulted to 59 and may be edited to desired value.

GRID Edit

This field is optional, but you could put in a 4- or 6-digit Maidenhead Grid Square value. Doing so, will allow plotting a line from your location to their approximate location in the map view.

COMMENTS Edit

This is a user defined field to enter short comments to save in the log.

Keep Comment Control

You may keep the comment for successive QSO's if this check box is enabled.

Logged Edit

This control shows how many QSO's have been logged in the logbook.

Auto Log Button

The **Auto Log** button is what you press to log the QSO. This button is disabled until the call sign is entered. When this button is pressed, the date, time, mode, band, frequency, and TX power are retrieved from the radio and added to user entered data to be logged in the QSO Log Grid.

SET FREQ Button

This button is helpful if you are POTA hunting. If you want to jump to a specific frequency, click the SET FREQ button and a dialog box pops up. Using the keypad in the dialog box, enter the frequency in MHz then hit ENTER button. BKSP will backspace and CLR will clear your entry. Cancel will cancel the operation. This is especially handy with a touch screen laptop.



QSO Log Grid

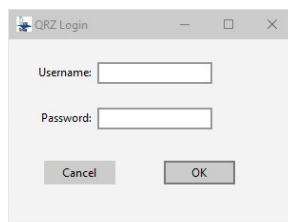
This grid or spreadsheet shows the logged contacts. You can resize the YCAT application to see more log entries. There is also a scroll bar on the right side for scrolling up and down through the list.

UPD LOG Button

If you need to edit a logged QSO, scroll to the line and click on the field you want to change. Type in your change, then click the UPD LOG button. The log is now saved with the new change.

Call Lookup Dropdown

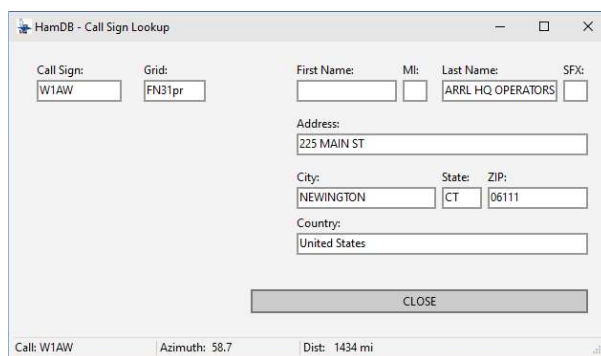
YCAT will do a callsign lookup if this dropdown is changed from None to HamDB or QRZ. If choosing QRZ, a login screen will be displayed. Enter your QRZ username (your callsign) and password. Clicking on OK button will log into QRZ to get a session key. If the username or password is wrong an error message will be displayed and the Call Lookup dropdown will return to None.



A small dialog box titled "QRZ Login". It contains two text input fields: "Username:" and "Password:". Below the fields are two buttons: "Cancel" and "OK".

HamDB Call Sign Lookup

The following dialog box appears when doing a HamDB Call Sign Lookup. If successful, it will include details about the call sign holder. The footer of the dialog box will include the bearing or azimuth from your location and the distance in miles or kilometers.

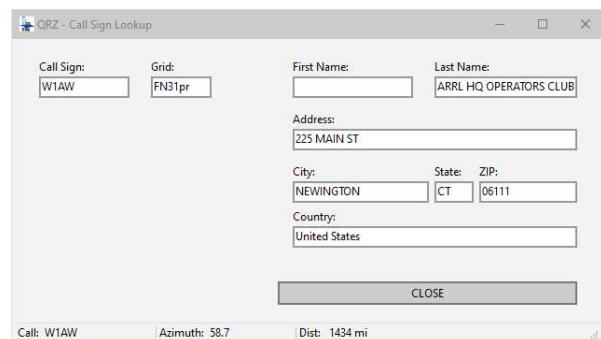


A dialog box titled "HamDB - Call Sign Lookup". It contains several input fields: "Call Sign:" (W1AW), "Grid:" (FN31pr), "First Name:" (empty), "MI:" (empty), "Last Name:" (ARRL HQ OPERATORS), and "SFX:" (empty). Below these is an "Address:" field (225 MAIN ST), "City:" (NEWINGTON), "State:" (CT), "ZIP:" (06111), and "Country:" (United States). A "CLOSE" button is at the bottom. The footer shows "Call: W1AW", "Azimuth: 58.7", and "Dist: 1434 mi".

NOTE: *HamDB is typically successful on USA and Canadian call signs.*

QRZ Call Sign Lookup

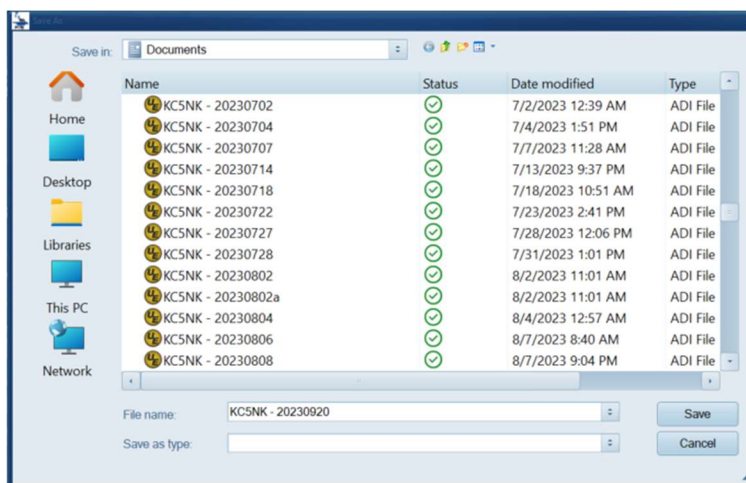
The following dialog box appears when doing a QRZ Call Sign Lookup. Similar results as the HamDB but works better for global callsigns.



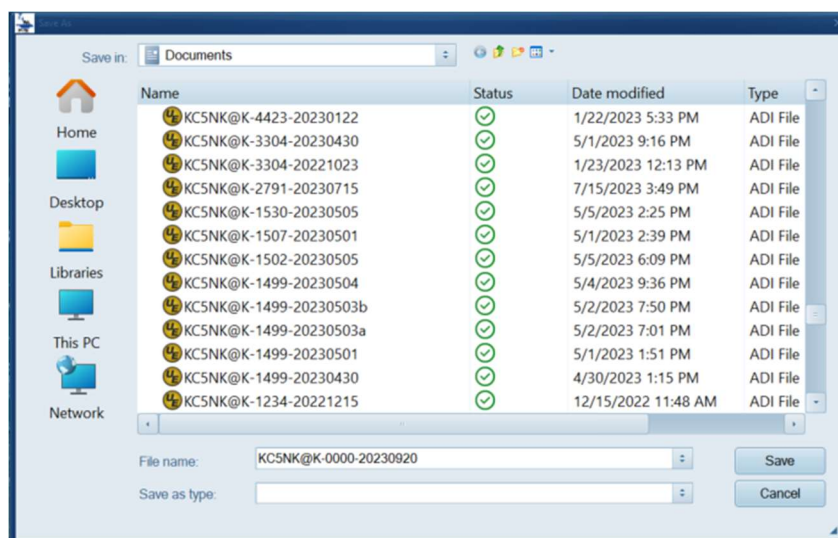
A dialog box titled "QRZ - Call Sign Lookup". It contains several input fields: "Call Sign:" (W1AW), "Grid:" (FN31pr), "First Name:" (empty), "Last Name:" (ARRL HQ OPERATORS CLUB), and "SFX:" (empty). Below these is an "Address:" field (225 MAIN ST), "City:" (NEWINGTON), "State:" (CT), "ZIP:" (06111), and "Country:" (United States). A "CLOSE" button is at the bottom. The footer shows "Call: W1AW", "Azimuth: 58.7", and "Dist: 1434 mi".

Export ADIF Button

When you are ready to export your logbook, click the Export ADIF button. This will bring up a dialog box with a preferred filename and location. You may edit the filename if you wish.



If you are activating a park, then the suggested filename will reflect what POTA.app recommends:



NOTE: Whenever a QSO is logged, it is written to a file and the file is closed. When a new QSO needs to be logged, the file is opened, the QSO is added and then the file is closed again. This reduces the risk of losing log data.

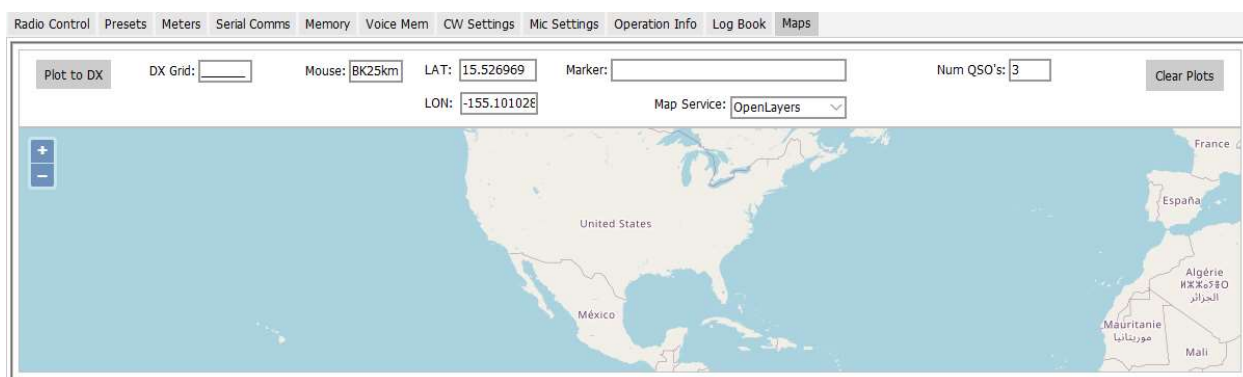
NOTE: Always save your log (Export ADIF) when changing locations. The export process relies on Operation Info data to supplement the QSO Log Grid to create the ADIF records. All records will be used with the Operation Info fields at Export time.

Maps View

The maps included in YCAT are Open Street maps and do not require an API key. Maps are not available without an internet connection.

This view is helpful when integrating with WSJT-x. It can be used to plot lines between your QTH based on GPS or by entering your grid square that may be determined by changing the zoom level on the map and moving the mouse. The grid square is computed and displayed in the Mouse Grid field at the top of the map.

The map can be undocked, placed anywhere on desktop or monitor, and resized. Just click mouse on edge and drag where you want it.



DX Grid field

You may enter a value here if you know it or you can double click on the map and this field will populate with the 6-digit grid square. This field must be populated if you want to use the **Plot to DX** button.

Plot to DX Button

Used to plot a line from your QTH (from Operation Info view – My Grid field).

Mouse Grid field

Moving the mouse on the map automatically computes the 6-digit grid square where the mouse is at.

LAT field

As the mouse is moving, the Latitude on the map will be displayed in this field.

LON field

As the mouse is moving, the Longitude on the map will be displayed in this field.

Marker field

This field will display a call sign (if known), the Azimuth (bearing to DX station) and distance. The units may be in miles or kilometers. To set this, go to the Presets tab view and check **Distance in Miles** if you want miles, or uncheck for kilometers.

Num QSO's field

This field shows the number of QSO's in the logbook.

Map Services dropdown

This field allows the user to choose different mapping services. Most mapping services require an API Key to display. Each user should go to the mapping service provider to apply for an account to get an API Key. API keys are stored in the Presets view.

Clear Plots Button

Click this button to clear all plots on the map.

Examples

Virtual Cables

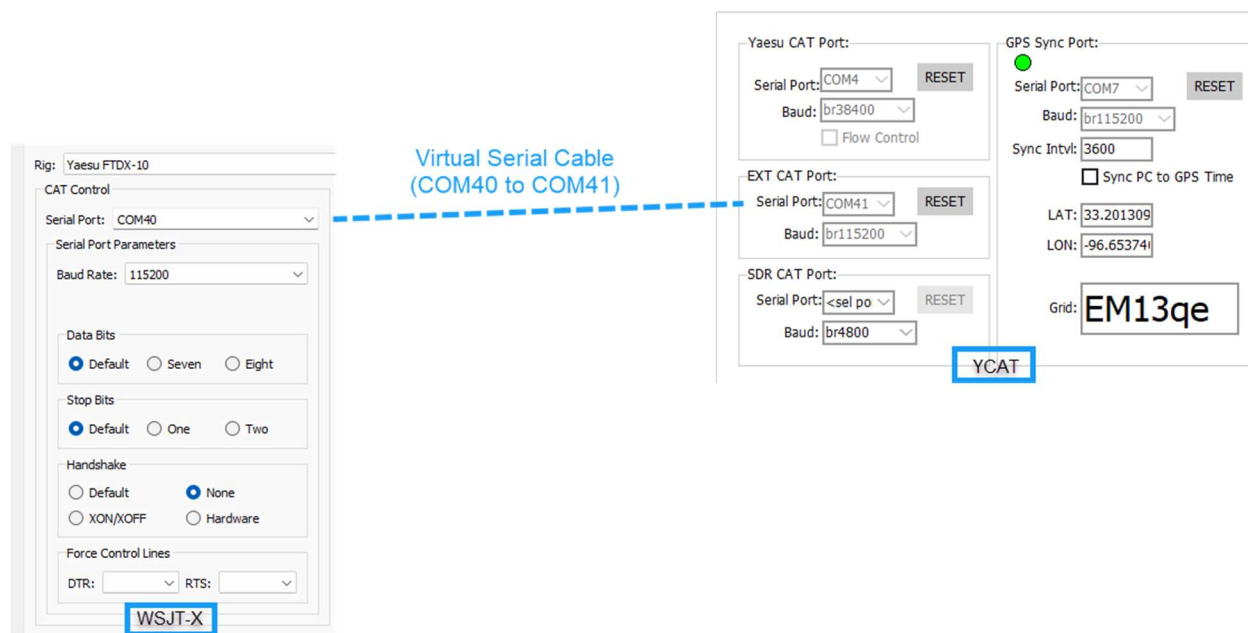
Virtual Cables are helpful in connecting dedicated serial port applications with each other. SDRplay, WSJT-x, YCAT, etc. require a physical connection to the radio. YCAT that acts as a proxy or arbitrator to Yaesu radios. It depends on virtual cables instead of physical cables for the internal serial communications.

The following are vendors that work well with YCAT:

- HHD Software – [HHD Software: Hex Editor, Serial/USB/Network Sniffer, Virtual Serial Port Tools](#)
- Virtual Serial Ports Emulator – [Eterlogic - Virtual Serial Ports Emulator \(VSPE\): tool for serial/COM ports emulation](#)
- VSP Manager - [VSP Manager - DDUtilV3 \(k5fr.com\)](#)

YCAT to WSJT-x – Using Virtual Cable

YCAT can connect to your Yaesu radio and be a proxy to share the radio's COM port without data corruption. This technique requires a virtual serial cable to work properly.



YCAT to WSJT-x – Direct Connection (FT-991a/FT-dx10 only)

Yaesu Radios FT-991a and FT-dx10 have USB and RS-232 ports capable of CAT control simultaneously. The RS-232 port does not support auto-information (“AI1;”). WSJT-x also does not support auto-information as well.

Prerequisites:

- USB to RS-232 adapter approved for Windows 10 and Windows 11
- 9-pin D-Sub female to 9-pin D-Sub female cable (1:1)
- YCAT application installed on PC
- WSJT-x application installed on PC

General Setup:

- Yaesu FT-991a or FT-dx10 radio:
 - Connect 1:1 serial cable to RS-232 connector on rear panel
 - Connect the other end of the serial cable to the RS-232 connector of the USB-RS232 adapter.
 - Connect the USB adapter to the PC's USB port
 - Verify Windows recognizes the COM port, this is required for WSJT-x
 - In the radio menu, locate RS-232 settings, configure for 38,400 bps and CAT RTS to off.
 - If the radio requires configuring the serial port (RS232, GPS1, GPS2) then change to RS232
- WSJT-X
 - Select File – Settings – Radio : Configure Baud rate to 38,400, data Bits to Default, Stop Bits to Default and Handshake to None.
 - Verify PTT method is CAT, Mode is Data/Pkt, and Split Operation is Rig.
 - Select the COM port for the USB-RS232 adapter and press the Test CAT button.
 - Verify the button changes to Green color to confirm connection.
- YCAT
 - On the Serial Comms tab configure the Yaesu CAT Port settings
 - Baud rate to 38,400, flow control off (match radio RTS setting) and choose the COM port for the enhanced virtual serial port in Windows.
 - Verify in Device Manager

Results:

- You should be able to run WSJT-x as usual.
- You also should be able to run YCAT as usual
 - Meter monitoring, RF power control, etc.
- Any changes you make on the radio will reflect on YCAT and possibly negatively affect WSJT-x

Memory Groups – WWV

Memory groups in the Yaesu radios can be very helpful for storing frequently used channels. When first looking at memory in HF radios, it did not seem very helpful. However, after experimenting, there are many uses for Memory. After mastering memory channels, organizing them in groups can provide additional value.

Memory groups are broken down into approximately 20 channels per group. The first group is memory channels 1 through 19; Second group are channels 20 through 29; Third group are channels 30 through 39; and on through channels 80 through 99. The final group are the programming pairs, P1L / P1U through P9L / P9U.

One value is to load all of the WWV stations in one group. They are partially helpful for time, but also helpful in knowing what bands are open from your location. WWV transmits an AM broadcast on 2.5, 5, 10, 15, 20, and 25 MHz frequencies. Placing these in one group is helpful.

We will program these frequencies in the radio in memory locations 20 through 25.

Navigate to the “Memory” tab in YCAT. Scroll down to CH 020 in the Memory Grid. Click on any cell in that row. The Memory Channel Editor will populate with default (or previous settings).

Enter the following information into the Memory Channel Editor. Then click the “Write to MEM Channel” button. The frequency must be 9-digits in length and include leading zeroes (0).

For 2.5 MHz, this value would be 002500000

Memory Channel Editor

MEM CH: 020

VFO A (Hz): 002500000

Clarifier: 0000 ☐ Minus Shift

☐ RX Clar EN ☐ TX Clar EN

MODE: S - AM

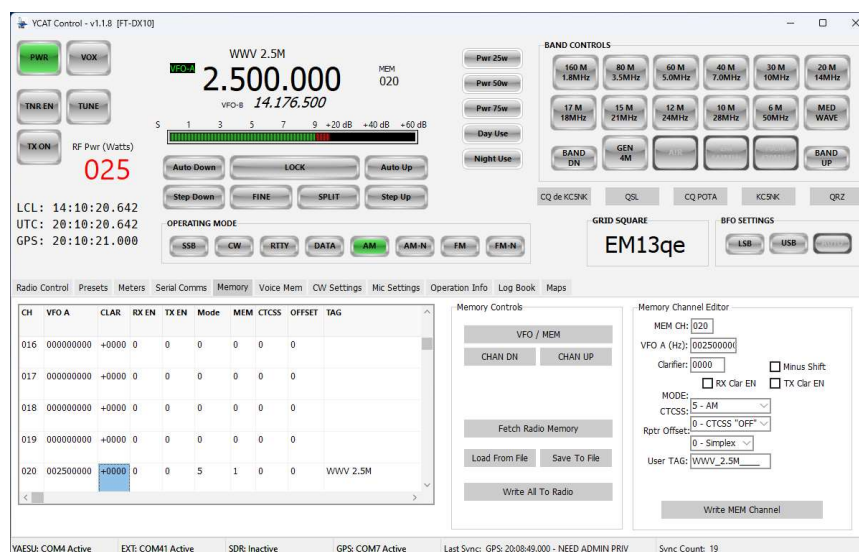
CTCSS: 0 - CTCSS "OFF"

Rptr Offset: 0 - Simplex

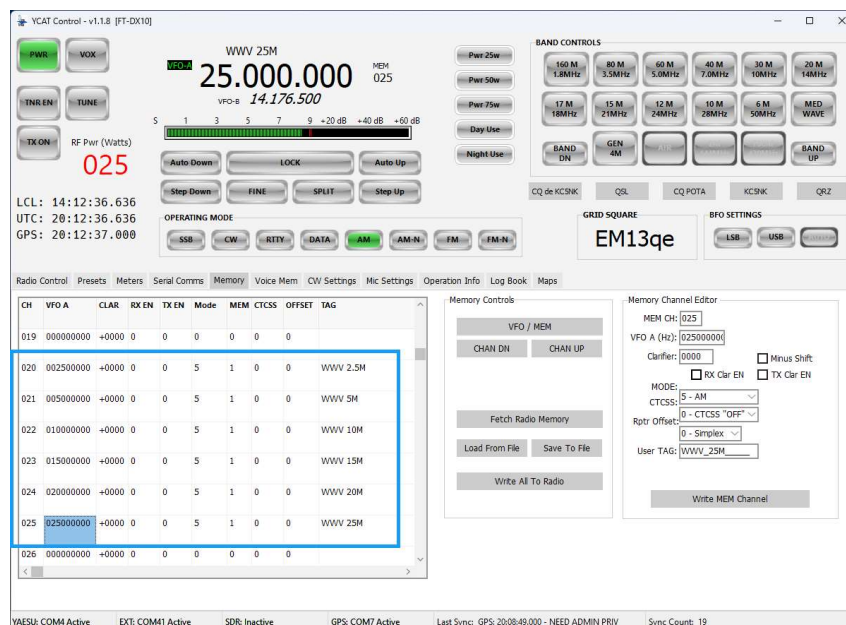
User TAG: WWV_2.5M

Write MEM Channel

After writing memory to channel 20, the radio changes to Memory mode and goes to the new channel just programmed.



Repeat the previous steps for WWV frequencies 5, 10, 15, 20, and 25 MHz. The memory grid should show channels 020 through 025 programmed.



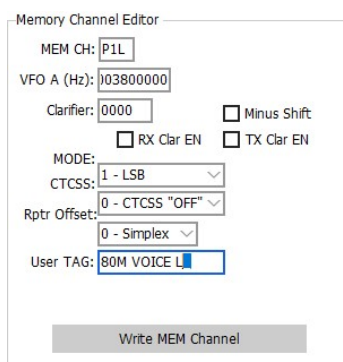
Navigate to the “Radio Control” tab and click the “GROUP OFF” button, it should change to “GROUP ON”. Now when changing memory channels the radio will be constrained to just the WWV channels we just programmed. CHAN UP or CHAN DN buttons will change the radio memories between memory channels 20 through 25.

Preferred Memory Storage using P1L through P9U

Another advantage of the Yaesu radios is the ability to program frequency limits. Programming pairs will set lower and upper limits. This helps us to stay within our defined frequency limits that we set in the radio. Below are simple settings for a USA General class for popular bands.

Pair	BAND	Mode	Lower Freq (MHz) L	Upper Freq (MHz) U
P1	80M	SSB	3.800	4.000
P2	40M	SSB	7.175	7.300
P3	20M	SSB	14.225	14.350
P4	17M	SSB	18.100	18.168
P5	15M	SSB	21.275	21.450
P6	12M	SSB	24.930	24.990
P7	10M	SSB	28.300	29.700
P8	40M	CW	7.025	7.125
P9	20M	CW	14.025	14.150

To program the first pair we need to identify P1L is the first row lower frequency. We would locate P1L in the Memory Grid, click on a cell in the row. Edit this channel for the following:



Memory Channel Editor

MEM CH: P1L

VFO A (Hz): 003800000

Clarifier: 0000 ☐ Minus Shift

☐ RX Clar EN ☐ TX Clar EN

MODE: 1 - LSB

CTCSS: 0 - CTCSS "OFF"

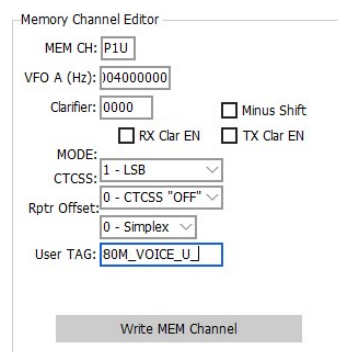
Rptr Offset: 0 - Simplex

User TAG: 80M VOICE L

Write MEM Channel

Write this to memory (press "Write MEM Channel" button).

Program the P1U frequency using P1U channel in the Memory Grid, enter the following information and write to memory:



Memory Channel Editor

MEM CH: P1U

VFO A (Hz): 004000000

Clarifier: 0000 ☐ Minus Shift

☐ RX Clar EN ☐ TX Clar EN

MODE: 1 - LSB

CTCSS: 0 - CTCSS "OFF"

Rptr Offset: 0 - Simplex

User TAG: 80M_VOICE_U

Write MEM Channel

Repeat the above steps for P2L / P2U through P9L / P9U.

Now when in the field, you can change from VFO mode to MEM mode. Select any PxL or PxU channel, put the radio in Group mode (GROUP ON). Change the channels using CHAN DN / CHAN UP the memory channels will be contained within the defined memory in the P1L through P9U channels.

When you tune away from stored memory channel the radio memory mode changes from MEM mode to PMS mode for the Px memory channels. The following example shows P2U for the memory channel, the frequency is 14.315.000 MHz and it is in Preferred Memory Storage (PMS) mode.



Capturing FT4/FT8 QSO's from WSJT-x over UDP

YCAT can capture QSO's from WSJT-x through broadcasts over UDP. Both applications require matching network settings. When communicating from one application to another on the same machine a local host address and port are required.

Local Host IP address can be 127.0.0.1 or multicast 224.0.0.1. You may choose any port number from 1 to 65535 but use caution because some ports are reserved for other applications. Using the default port of 2237 is acceptable.

The following example shows using multicast address with port 13626.

The image displays two side-by-side screenshots of software configuration windows. The left window, titled 'WSJT-x - Reporting', shows the 'Network Services' tab with 'Enable PSK Reporter Spotting' checked and 'Use TCP/IP connection' unchecked. Under the 'UDP Server' section, 'UDP Server' is set to '224.0.0.1', 'UDP Server port number' is '13626', 'Outgoing interfaces' is 'wireless_32768, loopback_0', and 'Multicast TTL' is '1'. Three checkboxes are checked: 'Accept UDP requests', 'Notify on accepted UDP request', and 'Accepted UDP request restores window'. A note at the bottom indicates 'Secondary UDP Server (deprecated)'. The right window, titled 'YCAT - Serial Comms', shows 'Enable WSJT-x UDP' checked. Below this, the IP address '224.0.0.1' is entered in a text field, and the port '13626' is entered in another text field.

In WSJT-x, go to Settings / Reporting, setup UDP server using 224.0.0.1 and set UDP Server port number to 13626.

Go to YCAT – Serial Comms / WSJT-x UDP section and repeat the IP address and port. Check the Enable WSJT-x UDP checkbox to enable receiving UDP QSO data.

Configuring SDR Interface – SDRplay/SDRuno (RSPdx, RSPduo, RSP1a)

An SDR may be helpful when operating certain radios such as the FT-891 or FT-991a with limited waterfall displays. For some modes, the SDR waterfall may offer additional capabilities or viewing in more advanced radios (FT-710 / FT-dx10).

YCAT provides an interface allowing some bidirectional control between the radio, YCAT and your Yaesu radio.

There are caveats with this interface.

- The SDRuno software emulates a Kenwood TS-480 HF radio.
- SDRuno has a different set of modes that the Yaesu radios may not support (DSB, SAM, etc.)
- Yaesu radios may have modes that SDRuno does not support (i.e. – C4FM)
- BAND changes MUST be made using SDRuno. Band changes at YCAT or the radio do not propagate to the SDR interface.

WARNING: *You should configure your SDR and Yaesu HF radio to use the same antenna through an SDR RF Switch box to prevent damage to the SDR front end when transmitting from the HF radio.*

WARNING: *When using an SDR switch box, do not use the RF sense method, use the PTT method. Consult the manufacturer documentation for your radio model and the documentation for your SDR RF Switch box for proper interconnects.*

YCAT setup:

- On the “Serial Comms” tab use the “SDR CAT Port:” group for configuring the SDR interface
- Set the “Baud:” to “br115200”
- Set “Serial Port:” to one side of a virtual com cable.
For example: If the virtual cable is COM50 – COM51 then choose COM51 [here](#).

SDRuno Setup:

- SDRuno “RX CONTROL” window, click the “SETT.” Button
- In the dialog box that pops up (RX Settings 0 0) scroll the tabs to the right to find the CAT tab
- Set the “BAUD RATE” to 115200
- Select the dropdown box “COM DEVICE” and select the other end of the virtual cable

In the example above, we would choose COM50

- Click the “ENABLE & CONNECT” check box (make sure it is checked)
- Click the “RX MODE CTRL” check box to make sure it is checked
- Verify the “STATUS:” shows “CONNECTED”
- Close the “RX Settings 0 0” dialog box
- On the SDRuno “Main” window, click the “PLAY!” button to start SDRuno / RSP SDR module
- On the SDRuno “RX CONTROL” choose a “BAND” you want to listen to.
 - Both the radio and the SDR should change frequency but also match.

Plot to mouse pointer in map view

YCAT mapping page has some helpful tools.

When in map view, you can zoom in or out to any level. Moving the mouse pointer inside of the map will display the Latitude and Longitude as it moves. It also displays a 6-digit grid for any location on the map. That is displayed in the Mouse field.

If you double click the mouse inside of the map, the DX Grid field will populate with a 6-digit grid. Pressing the “Plot to DX” button will plot a line from your location to the DX Grid location. The “Marker” field will show the 6-digit grid, Azimuth (bearing) from you to the DX station and the distance between them.

To clear all plots, click the “Clear Plots” button.

Logging QSO's with call sign lookup

Go to the “Log Book” tab of YCAT

Select the Callsign lookup service (HamDB or QRZ)

The screenshot shows the YCAT Log Book interface. At the top right, there is a 'Logged:' label followed by a small box containing the number '4'. Below this, the main form has several fields: 'STATION:' with a blue border, 'SENT:' with the value '59', 'RCVD:' with the value '59', 'GRID:' which is empty, and 'COMMENTS:' which is a large text area. To the left of the 'STATION:' field is a 'CLR' button. To the right of the 'COMMENTS:' field are two buttons: 'Auto Log' and 'SET FREQ'. Below the 'COMMENTS:' field is a checkbox labeled 'Keep comment'.

Method 1 – Quick Entry:

- Enter Callsign in “Station” field then hit ENTER key.
- Callsign Lookup box will pop up if the callsign is recognized.
 - Press ENTER key to close.
 - GRID field will be updated for this callsign from lookup service.
 - Auto Log button is focused.
- Hit ENTER key to log call with default SENT/RCVD as 59.
- OR hit the CLR clear to cancel logging the QSO.

Method 2 – Standard Entry:

- Enter Callsign in “Station” field then hit TAB key.
- Callsign Lookup box will pop up if the callsign is recognized.
 - Press ENTER key to close.
 - GRID field will be updated for this callsign from lookup service.
 - SENT field is focused.
- Enter the signal report sent to DX station then hit TAB key.
- The RCVD field is focused, enter the signal report received from the DX station, then hit the TAB key.
- The GRID field is focused, it should be populated from call lookup service. Hit the TAB key to progress to the Comments field.
- Optionally enter a text comment then hit the TAB key.
- The Auto Log button will be focused.
- Hit the ENTER key to log the QSO.
- OR hit the CLR clear to cancel logging the QSO.

NOTE: *You may jump to any step by using a mouse or touchscreen to navigate to any button in the process.*

Logging QSO's without call sign lookup

Go to the “Log Book” tab of YCAT

Set the Callsign lookup service to “None”.

The screenshot shows the YCAT Log Book interface. At the top right, there is a 'Logged:' label followed by a small box containing the number '4'. Below this, the main form consists of several fields: 'STATION:' (with a blue border and a small 'CLR' button to its left), 'SENT:' (with a box containing '59'), 'RCVD:' (with a box containing '59'), 'GRID:' (with an empty box), and 'COMMENTS:' (with a larger empty box). Below the 'COMMENTS:' field is a checkbox labeled 'Keep comment'. To the right of the form are two buttons: 'Auto Log' and 'SET FREQ'.

Method 1 – Quick Entry:

- Enter Callsign in “Station” field then hit ENTER key.
 - Auto Log button is focused.
- Hit ENTER key to log call with default SENT/RCVD as 59.
- OR hit the CLR clear to cancel logging the QSO.

Method 2 – Standard Entry:

- Enter Callsign in “Station” field then hit TAB key.
 - SENT field is focused.
- Enter the signal report sent to DX station then hit TAB key.
- The RCVD field is focused, enter the signal report received from the DX station, then hit the TAB key.
- The GRID field is focused, if you know the DX grid square enter it, if not leave it blank.
- Hit the TAB key to progress to the Comments field.
- Optionally enter a text comment then hit the TAB key.
- The Auto Log button will be focused.
- Hit the ENTER key to log the QSO.
- OR hit the CLR clear to cancel logging the QSO.

NOTE: You may jump to any step by using a mouse or touchscreen to navigate to any button in the process.

Plotting from Logbook

If you clear all of the plots on the map you have the ability to re-plot between your location and the DX location if the grid squares were logged.

It is helpful if the Maps view is undocked from the YCAT application. This way you can view the Logbook and the maps at the same time.

Using the mouse or touchpad, on the Log Book view, scroll the logbook to the QSO of interest.

If the DX Grid is populated, clicking the cell will automatically plot on the map. The Marker field will show the call sign, the Azimuth, and the Distance between your location and the DX station.

Clicking on the map marker will show the same information.

YCAT Logbook and Map Panel interface.

Logbook Table:

Date	Time	DX Call	DX Grid	Mode	S-Mode	Band	Frequency	RST Sent	RST Rcvd	My Call	My Grid	TX
20231122	180315	KB1YKJ	FN31	FT8		15m	21.074470	-03	-09	KCSHK	EH13QE	25W FT8
20231122	235515	LU1DA	GF05UG	FT8		15m	21.076598	-05	-04	KCSNK	EH13QE	25W FT8
20231123	154430	W9RWB	EN22	FT8		20m	14.074239	-05	+12	KCSNK	EH13QE	25W FT8

Map Panel:

Plot to DX: DX Grid: DN70ka Mouse: ERROR LAT: 40.855994 LON: -212.764461 Marker: LU1DA - Az: 148 Dist: 5315 mi Num QSO's: 4 Clear Plots

Map Service: OpenLayers

Callsign lookups from Logbook

Go to the “Log Book” tab of YCAT

Select the Callsign lookup service (HamDB or QRZ)

Using the keyboard arrow keys, mouse or touchpad, on the Logbook view, scroll the logbook to the QSO of interest.

Clicking the DX Call cell will automatically initiate a call sign lookup using the selected Callsign service.

STATION: SENT: 59 RCVD: 59 GRID: COMMENTS: Logged: 4

Auto Log SET FREQ

☐ Keep comment

Date	Time	DX Call	DX Grid	Mode	S-Mode	Band	Frequency	RST Sent	RST Rcvd	My Call	My Grid	TX Pwr	Comments	Date
20231123	172515	W1AW	FN31PR	CW		20M	14.186060	59	59	KCSNK	EM13qe	25W		202311
20231123	172532	W1AW/5	DM65PD	CW		20M	14.186060	59	59	KCSNK	EM13qe	25W		202311
20231123	172637	NBEP	EM13QF	CW		20M	14.186060	59	59	KCSNK	EM13qe	25W		202311

UPD LOG Call Lookup: QRZ Export ADIF

If the DX callsign is found, a dialog box with the DX operator information will be displayed.

Click the CLOSE button to close the dialog box.

QRZ - Call Sign Lookup

Call Sign: W1AW Grid: FN31pr

First Name: Last Name: ARRL HQ OPERATORS CLUB

Address: 225 MAIN ST

City: NEWINGTON State: CT ZIP: 06111

Country: United States

CLOSE

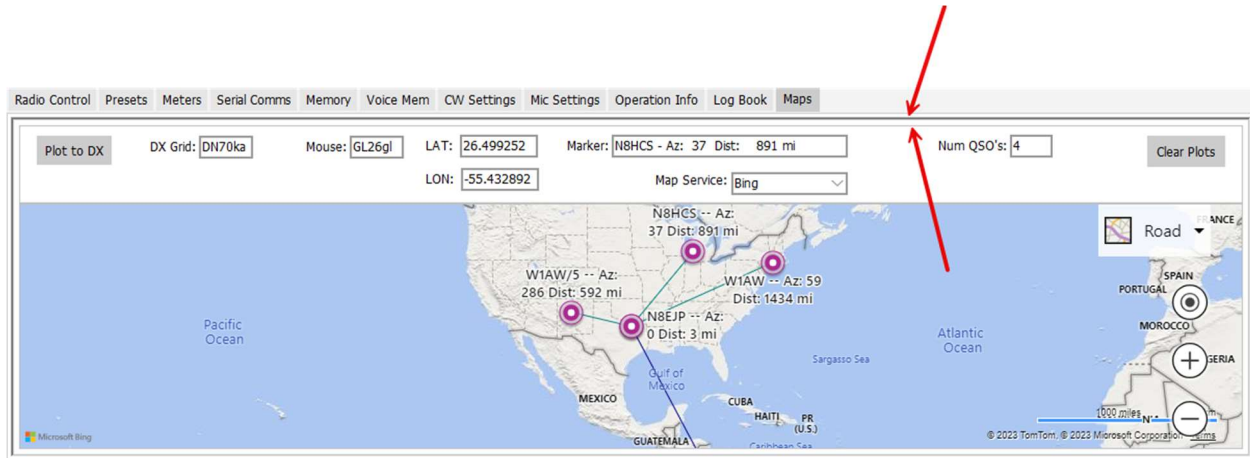
Call: W1AW Azimuth: 58.7 Dist: 1434 mi

Undocking / Docking the Map View

When using YCAT it is helpful to move the map to a different location on the PC display. This will work if you have multiple displays as well. The map can be resized and placed where convenient. Mapping controls will stay with the map.

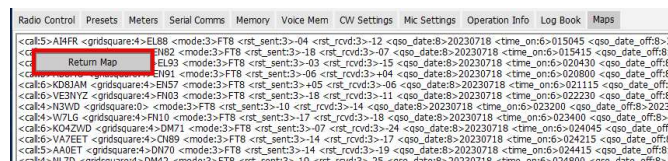
To UNDOCK the map, navigate to the “Maps” tab in YCAT.

There is a border around the map that if you click and hold, you can drag the map away from YCAT.



Once pulled away, you can relocate to any monitor, resize it, and use it separately from YCAT.

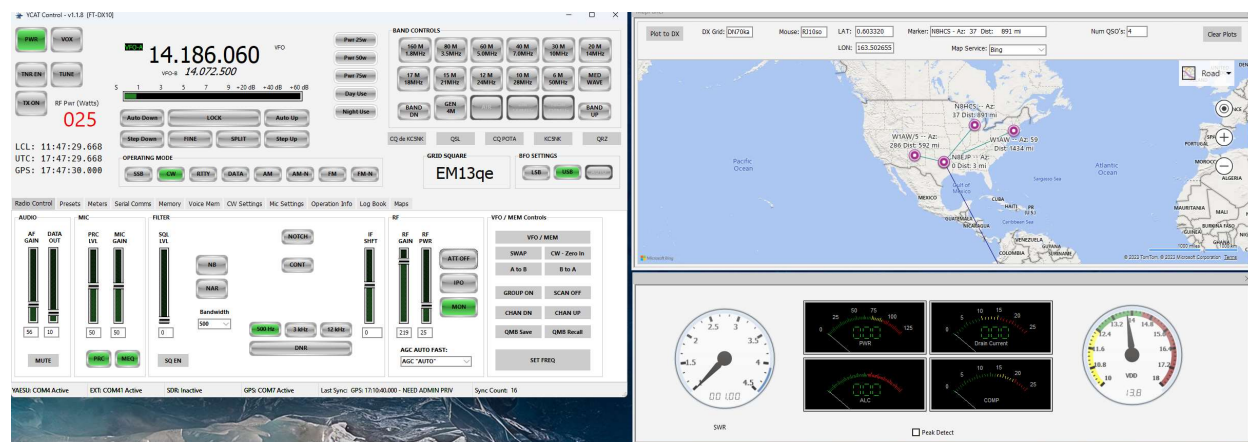
To DOCK the map back into YCAT, navigate to the Maps tab and click the “Return Map” button.



NOTE: You may see text where the map was. These are all ADIF records from WSJT-x that YCAT has captured. This will likely disappear in a future YCAT release.

Undocking / Docking the Meters View

When operating your radio, it is very helpful to view all of the radio meters while doing other tasks. You may be working in the logbook while transmitting and want to keep track of what is happening. Or adjusting controls from the main page.



The Meters page may be undocked from YCAT and positioned in any location on any attached monitor to your PC.

Navigate to the Meters page, click, and hold on any blank area on this page and drag away from YCAT.

To DOCK the Meters page, navigate to the Meters tab and click the “Return Meters” button.

