

CAT4OM User Guide

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Important Notes

IMPORTANT NOTICE

The developers have made every effort to make sure that CAT4OM is reliable and safe when using PTT.

Safe design requires that PTT is stopped (PTT 'stop' is sent routinely) on every client disconnection from the server or any change of ownership, the PTT mechanism commanded by CAT is "message to start" then "message to stop".

For remote radios, if a network connection drops while transmitting, or the PC is powered off abruptly or the connection between PC and radio is interrupted the radio **MAY REMAIN in TX MODE**. That is **NOT** a CAT4OM issue, the same problem occurs with ANY CAT control, but it is more important when the radio is physically remote from the operator.

Therefore, for remote rigs, it is recommended that a PTT timer TOT (Time out timer) is also be set.

The CAT4OM developers take no responsibility for any issues or damage caused due to PTT not being stopped.

CAT4OM is a **multi-radio station management platform**.

Main Features

- Multiple radios using one CAT4OM server
- Use a dedicated UI for station setup, radio control, diagnostics, and status.
- Multiple operators/applications.
- Connect external applications through TCI or Hamlib/rigctld bridge profiles
- Log4OM integration
- Radio synchronization (Follower mode)
- FlexRadio, TCI, UDP and Serial interfaces
- Transverter operation
- Remote/network control
- Automatic power management
- Extensive diagnostics and logging
- Portable configuration
- Browser status page
- Supports WSJT, JTDX, MSHV, FLDigi and many other external apps.

Core Architecture

- Client/Server architecture.
- Dedicated CAT4OM Server handles all radio communications.
- Separate CAT4OM Client/UI for configuration and testing.
- Server continues running without the Client UI.
- Browser-based status dashboard.
- Supports multiple simultaneous radio connections.
- Supports local and networked operation.

Supported Connection Types

CAT4OM supports several radio-control families.

Serial CAT

Serial CAT is used by many Yaesu, Kenwood, Elecraft, TenTec, Xiegu, QRP Labs, SDRconnect legacy, and similar radios.

Typical configurable settings:

- COM port;
- baud rate;
- data bits, parity, and stop bits;
- timeout;
- command pacing;
- radio-specific defaults from the selected handbook.

Icom CI-V

Icom CI-V support includes:

- CI-V address configuration;
- CI-V echo handling;
- model-specific command maps;
- split and duplex handling;
- selected and unselected VFO support on compatible models;
- power-on support on compatible models.

TCI

TCI support is available for ExpertSDR/SunSDR-style setups and for CAT4OM's TCI bridge profile.

TCI features include:

- frequency and mode control;
- PTT and split;
- mode mapping;
- state updates from the radio or client;
- RX/TX audio support in the bridge profile.

FlexRadio SmartSDR

Native FlexRadio SmartSDR support includes:

- TCP connection to SmartSDR radios;
- slice-to-VFO mapping;
- dynamic slice handling;
- PTT and TX state;
- SmartSDR mode mapping;

- power control;
- slice-pair selection.

making it suitable for anything from a simple single-radio shack to a complex contest or remote station environment.

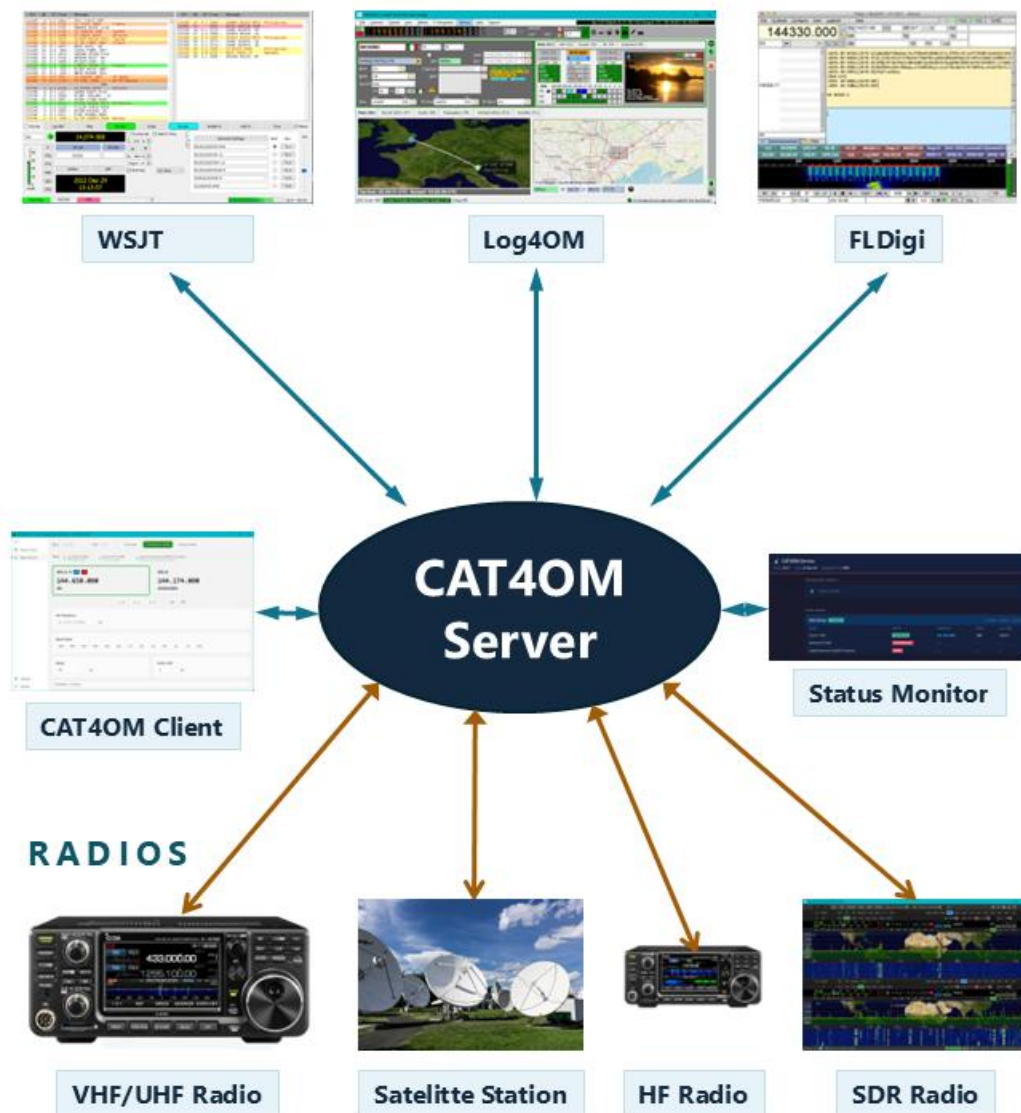
CAT4OM how it works

CAT4OM provides the interface between Log4OM and any other CAT4OM or Hamlib (Net) rigctl enabled programs and the users radio(s), it can support multiple radios, either synchronized or operating independently, giving greater flexibility in operation.

One Server, Every Application and Radio

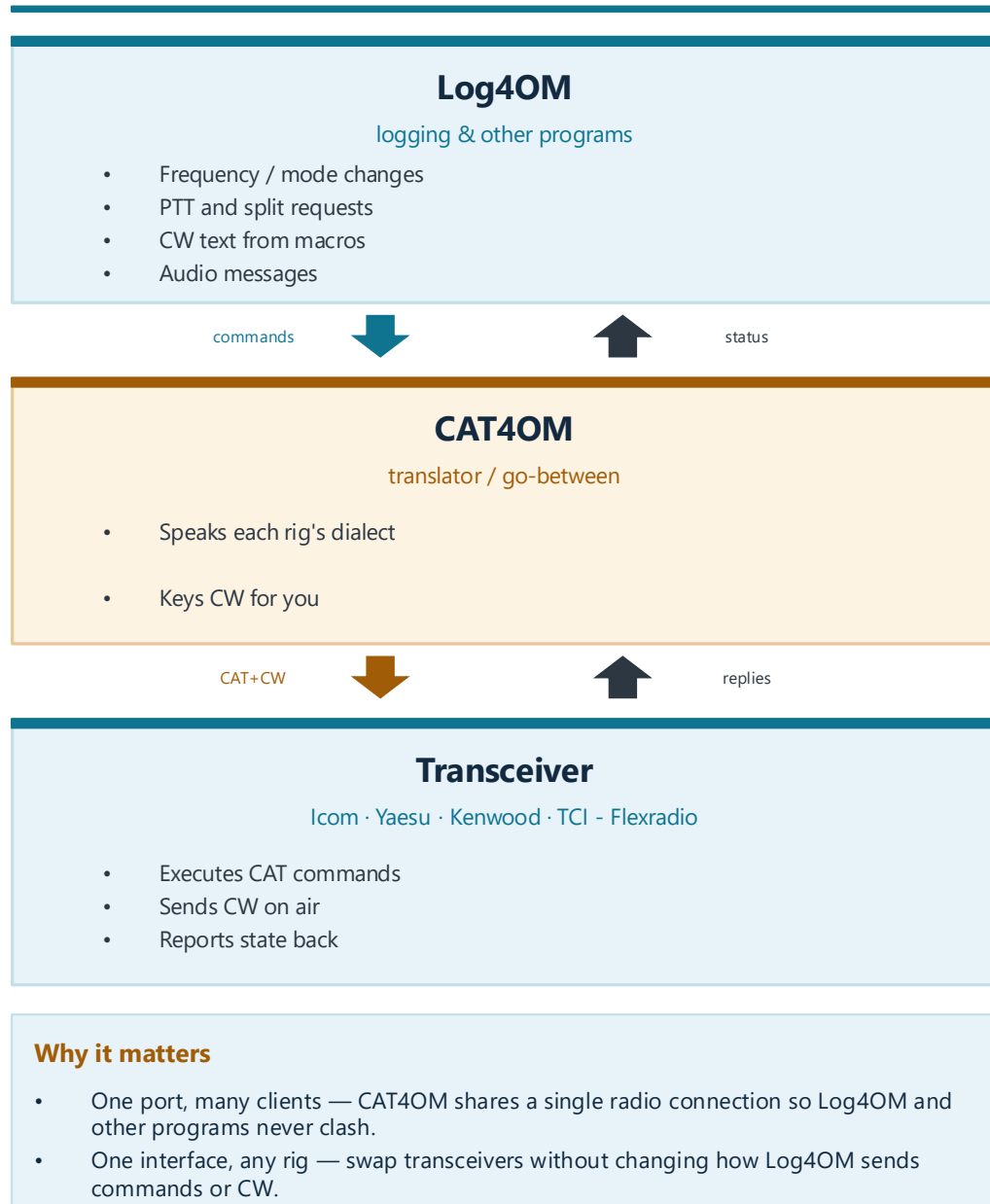
One control service links every application to every radio in the station

CLIENTS



CAT4OM: the translator between Log4OM and your radio

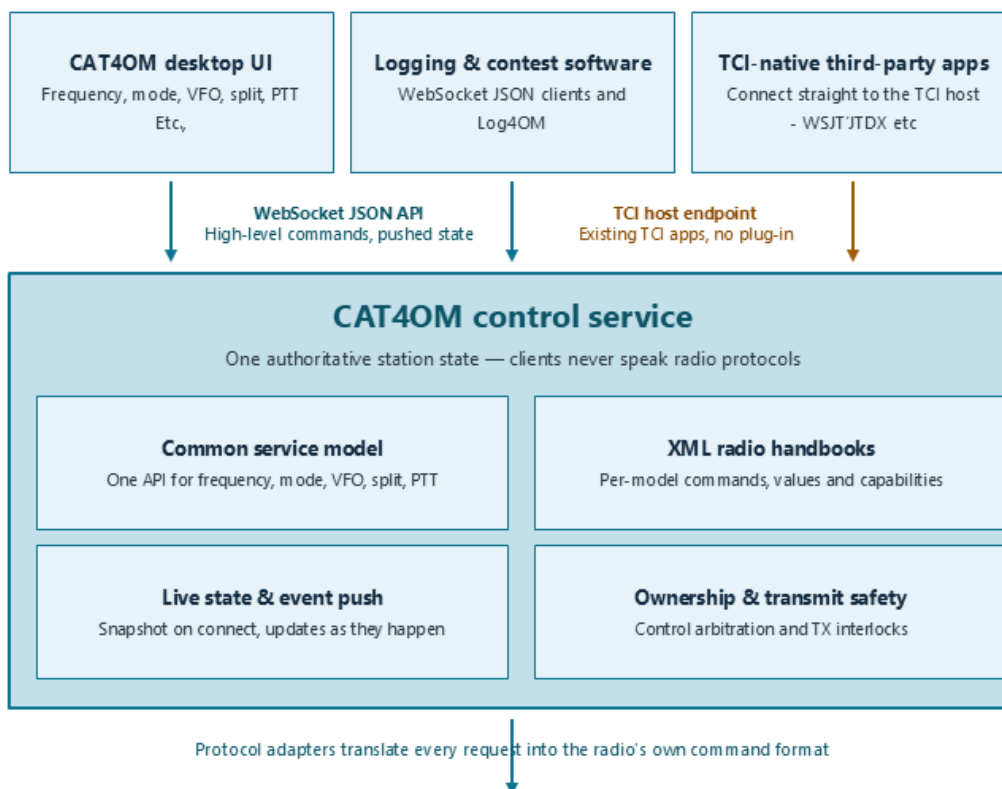
Log4OM speaks one language; every transceiver speaks its own. CAT4OM sits in the middle and converts.



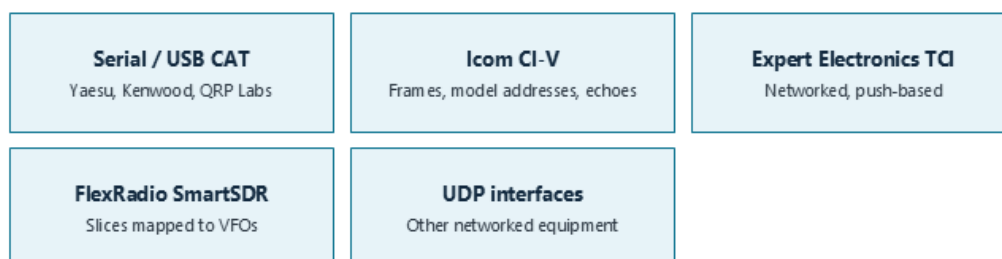
How CAT4OM Integrates Software with Multiple Radios

A single control service sits between your applications and every radio in the station

APPLICATIONS THE OPERATOR USES



RADIOS CONNECTED AT THE SAME TIME



Add, swap or remove a radio and the applications above keep working unchanged.

One Service, Every Connection Type

Each radio family keeps its own protocol and transport — CAT4OM hides the differences

Serial / USB CAT

Yaesu · Kenwood · QRP Labs

Text or binary CAT commands over a serial or USB serial port. CAT4OM handles framing, timing, replies and model-specific value conversion.

Icom CI-V

Icom transceivers and receivers

CI-V frames addressed to each model. The service manages addressing, echoes, acknowledgements and background VFO registers.

Expert Electronics TCI

SunSDR and TCI-capable radios

A push-oriented network protocol. Receiver state, modulation, PTT and telemetry are tracked without exposing device indices.

FlexRadio SmartSDR

FlexRadio 6000 · 8000 series

A configured pair of SmartSDR slices is mapped onto the CAT4OM VFO model, with push status and interlock state translated in.

UDP interfaces

Networked and SDR equipment

The transport layer also carries radio definitions that communicate over UDP, fitting further equipment into the same architecture.

TCI host for third-party applications

CAT4OM doesn't only speak TCI to radios — it also hosts a TCI endpoint of its own. Any application that already supports TCI can connect to CAT4OM as if it were the radio, and drive whatever hardware is attached: a serial Yaesu, a CI-V Icom or a FlexRadio slice. No plug-in, no new API, no per-radio driver work.

One integration effort, every supported radio.

- The definition of each radio is contained in an XML file collectively named 'Handbook's' which are easily edited or developed by the user.
- The radios can be connected to the server by several methods including Serial port, TCI control, UDP etc.
- Radios can be organised by groups for different purposes e.g. Contest, DX-pedition, Home Station, Club etc

Download and installation

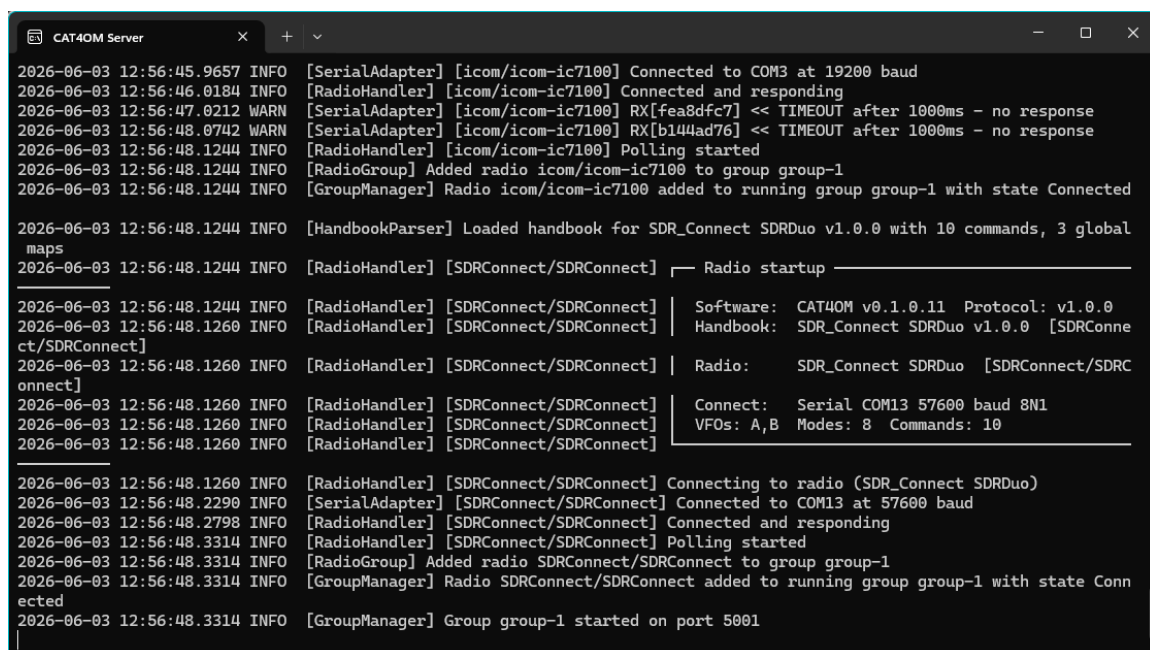
The download zip file contains an installer which installs two applications, the 'Server' and the 'Client' once both are installed the Client is used to select what radios (Handbooks) are to be used and to set their working parameters.

The server runs in the background just the same as Omnirig or Hamlib and once set up does not require the Client to be running.

When the file is unzipped the file installs both Server and Client (During install ensure 'Start server' is also checked). Both programs will then open ready for setting up.

Setting up CAT4OM

- Ensure that no other software is connected to the radios, e.g. WSJT r derivatives, FLDigi, Omnirig, Hamlib, FLRig etc., This could cause CAT4OM to malfunction.
- First start the server followed by the client software if it was not started automatically.

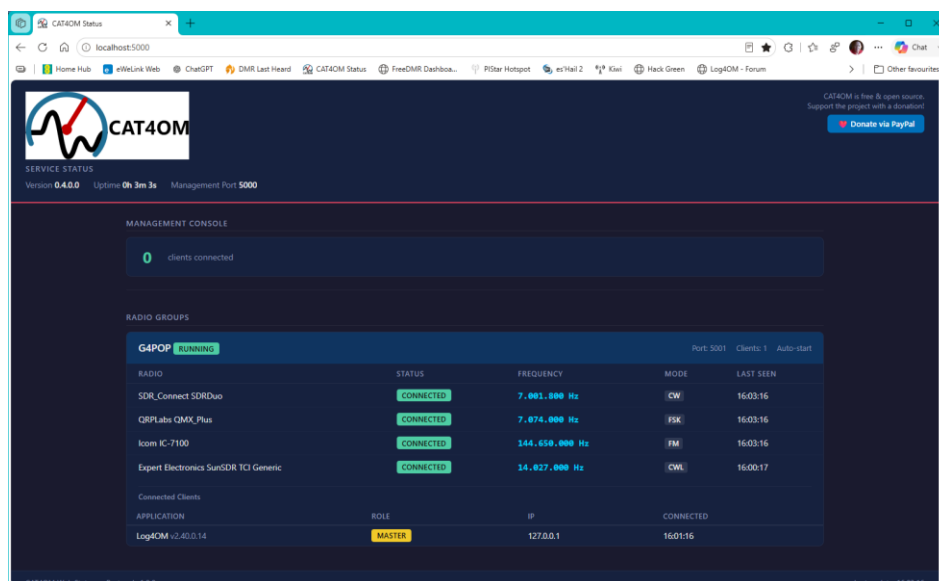


```
CAT4OM Server
2026-06-03 12:56:45.9657 INFO [SerialAdapter] [icom/icom-ic7100] Connected to COM3 at 19200 baud
2026-06-03 12:56:46.0184 INFO [RadioHandler] [icom/icom-ic7100] Connected and responding
2026-06-03 12:56:47.0212 WARN [SerialAdapter] [icom/icom-ic7100] RX[fea8dfc7] << TIMEOUT after 1000ms - no response
2026-06-03 12:56:48.0742 WARN [SerialAdapter] [icom/icom-ic7100] RX[b144ad76] << TIMEOUT after 1000ms - no response
2026-06-03 12:56:48.1244 INFO [RadioHandler] [icom/icom-ic7100] Polling started
2026-06-03 12:56:48.1244 INFO [RadioGroup] Added radio icom/icom-ic7100 to group group-1
2026-06-03 12:56:48.1244 INFO [GroupManager] Radio icom/icom-ic7100 added to running group group-1 with state Connected

2026-06-03 12:56:48.1244 INFO [HandbookParser] Loaded handbook for SDR_Connect SDRDuo v1.0.0 with 10 commands, 3 global maps
2026-06-03 12:56:48.1244 INFO [RadioHandler] [SDRConnect/SDRConnect] Radio startup
2026-06-03 12:56:48.1260 INFO [RadioHandler] [SDRConnect/SDRConnect] Software: CAT4OM v0.1.0.11 Protocol: v1.0.0
2026-06-03 12:56:48.1260 INFO [RadioHandler] [SDRConnect/SDRConnect] Handbook: SDR_Connect SDRDuo v1.0.0 [SDRConnect/SDRConnect]
2026-06-03 12:56:48.1260 INFO [RadioHandler] [SDRConnect/SDRConnect] Radio: SDR_Connect SDRDuo [SDRConnect/SDRConnect]
2026-06-03 12:56:48.1260 INFO [RadioHandler] [SDRConnect/SDRConnect] Connect: Serial COM13 57600 baud 8N1
2026-06-03 12:56:48.1260 INFO [RadioHandler] [SDRConnect/SDRConnect] VFOs: A,B Modes: 8 Commands: 10

2026-06-03 12:56:48.1260 INFO [RadioHandler] [SDRConnect/SDRConnect] Connecting to radio (SDR_Connect SDRDuo)
2026-06-03 12:56:48.2290 INFO [SerialAdapter] [SDRConnect/SDRConnect] Connected to COM13 at 57600 baud
2026-06-03 12:56:48.2798 INFO [RadioHandler] [SDRConnect/SDRConnect] Connected and responding
2026-06-03 12:56:48.3314 INFO [RadioHandler] [SDRConnect/SDRConnect] Polling started
2026-06-03 12:56:48.3314 INFO [RadioGroup] Added radio SDRConnect/SDRConnect to group group-1
2026-06-03 12:56:48.3314 INFO [GroupManager] Radio SDRConnect/SDRConnect added to running group group-1 with state Connected
2026-06-03 12:56:48.3314 INFO [GroupManager] Group group-1 started on port 5001
```

- A browser will open displaying the CAT4OM connections status or in the case of a new installation that no groups or radios are present.



Portable version

The portable version can be run from a cloud drive or a separate hard drive, if installing to run with Log4OM the CAT4OM zip file must be extracted to the Log4OM portable versions root directory e.g. D:\Log4OM Portable\

Groups

During installation if CAT4OM client does not set up a group it is necessary for the user to do so, see creating a group

CAT4OM uses *groups* to organise, isolate, and coordinate radios inside a station.

A group is essentially a *self-contained control environment* with its own radios, its own network endpoint, its own connected clients, and its own lifecycle. Everything that matters in CAT4OM — control ownership, radio coordination, monitoring, and multi-radio behaviour — happens *inside* a group.

What a Group Is in CAT4OM

A group is a logical container that holds one or more radios and exposes a dedicated control port for clients. Each group runs independently, meaning:

- Its radios start/stop together
- Its clients connect to *that* group only
- Its ownership rules apply only inside that group

Think of a group as a “mini-station” inside your larger station.

Why Groups Exist

Groups allow CAT4OM to mirror real-world station layouts:

- A simple shack may have only one group containing one HF radio.

- A more developed home station may have multiple groups
 - CW dedicated group
 - Phone dedicated group
 - WSJT dedicated group for HF
 - WSJT dedicated group for VHF/UHP
 - Satellite group for QO-100
 - Etc.,
- A contest station may have multiple groups:
 - HF Run
 - HF Mult
 - VHF/UHF
 - Remote SDR

This separation prevents conflicts, keeps workflows clean, and allows different applications to operate without conflicting with each other.

Group Control Endpoint

Each group provides a unique TCP/WebSocket control port.

- Clients connect to the group's port.
- They receive live radio state updates for *that* group.
- They issue commands only to radios in *that* group.

This prevents the classic CAT problem where multiple programs fight over the same serial port.

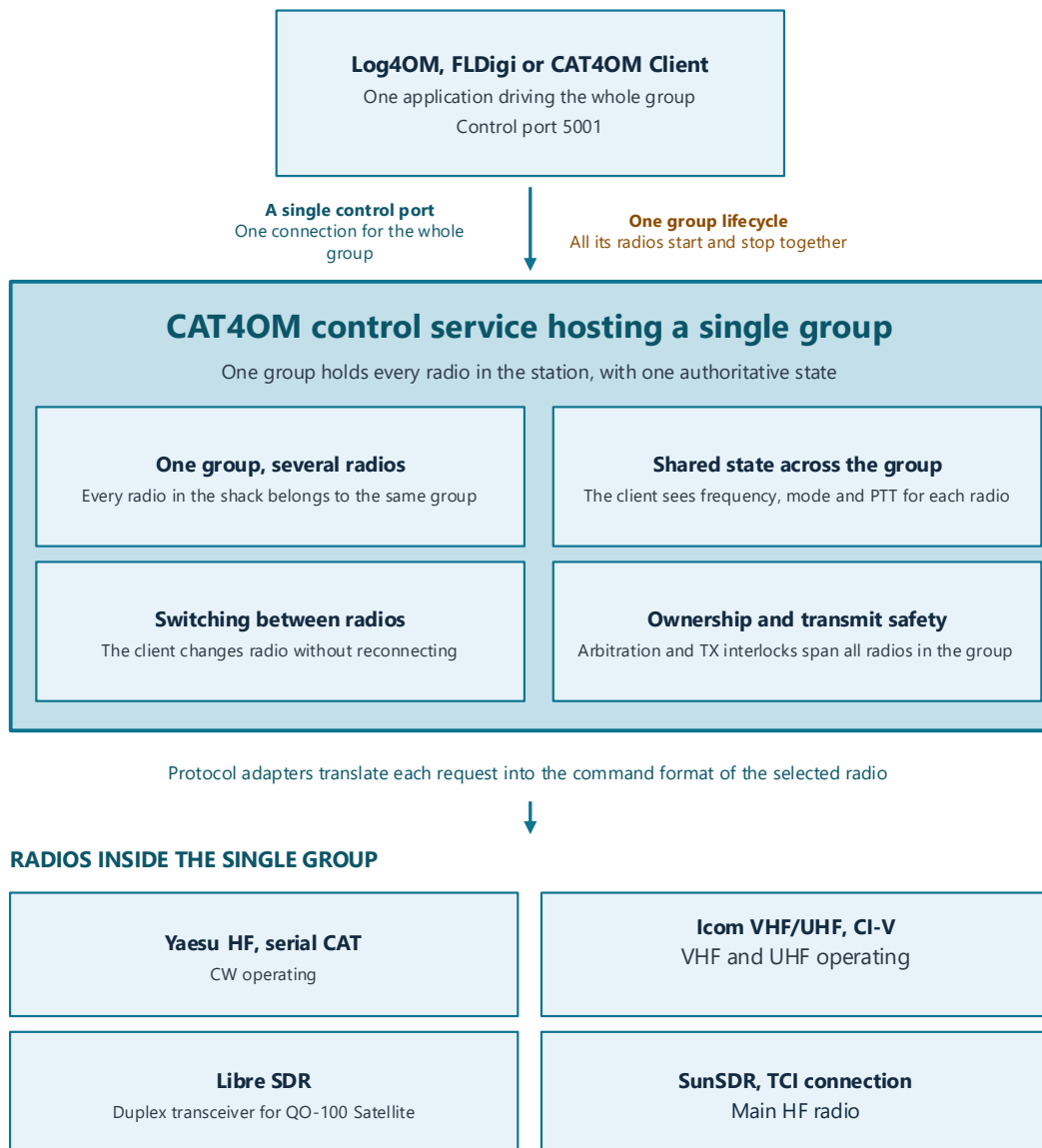
Single Groups

A user may have several radios using different connection methods controlled by one group using a single client.

One Client, One Group, Several Radios

A single application connects to one group and controls every radio inside it

THE ONLY CLIENT CONNECTED



One connection gives the application access to every radio the group contains.

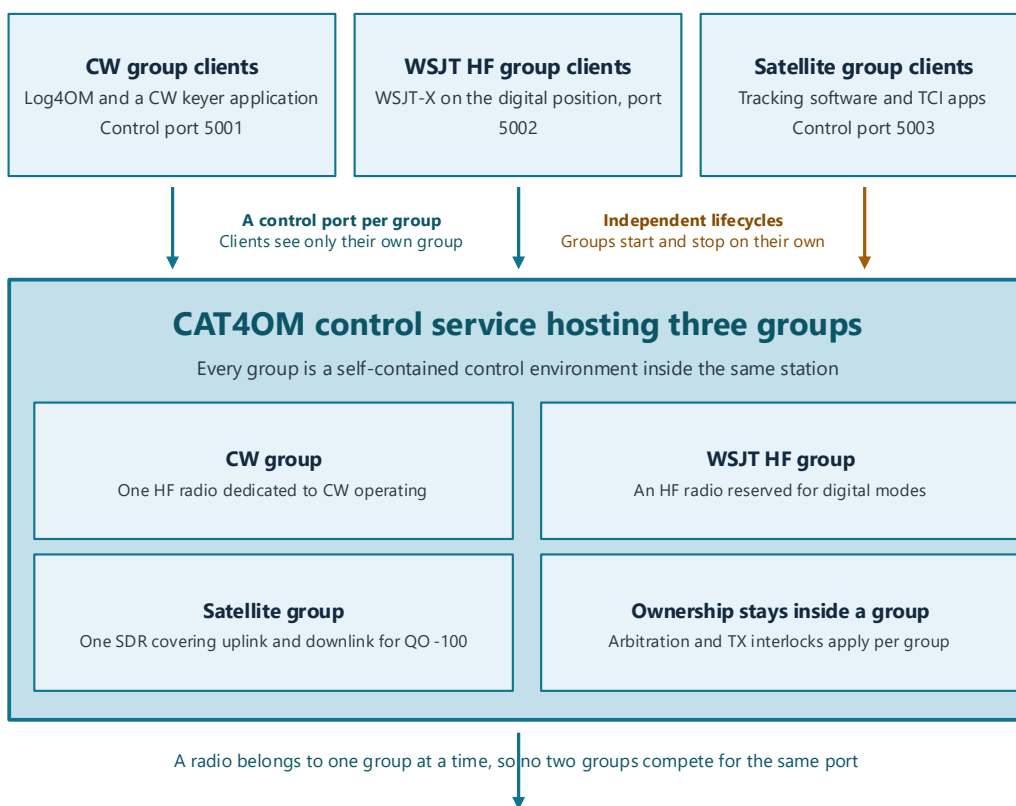
Multiple groups

The program can have multiple groups of radios with an unlimited number of radios in each group – Clearly the more radios the more load on the computers resources which would cause slowdowns and lock ups on a slow PC.

Running Multiple Groups

Several groups sharing one service — each with its own radios, control port and clients

CLIENTS CONNECT TO ONE GROUP



RADIOS ASSIGNED TO EACH GROUP



Add a group for a new mode or operating position and every existing group keeps working unchanged.

Creating a group

- In the client software check the Server is set to 'localhost' and the Port is set to '5000' – click connect.
- Add a Group by clicking the '+ Add Group' button
- The client will now show the group(s) created
- The group name and details can be edited by stopping the group, highlighting the group and clicking the 'Edit Group' button

The screenshot displays the CAT4OM Management web interface. At the top, the 'SERVER CONTROL' section shows the CAT4OM logo, version 0.6.0.0, and uptime of 00:01:05.4183886. The 'Management Endpoint' is set to 'localhost' and '5000', with a 'Connect' button. Below this, the 'Radio Groups' section shows a table with one group: 'group-1' with name 'G4POP', port '5001', auto start checked, status 'running', and 1 client. The 'Radios in Selected Group' section for 'G4POP' shows a table of radios with columns: ID, Name, Handbook, Connection, Status, and Enabled. The radios listed are: expert/sunsdn-tc1 (Expert Electronics SunSDR TCI Gene, expert/sunsdn-tc1, 127.0.0.1:48001, Disconnected, Enabled), icom/icom-ic7100 (Icom IC-7100, icom/icom-ic7100, COM3 @ 19200, Connecting, Enabled), SDRConnect/SDRConne... (SDR_Connect SDRDuo, SDRConnect/SDRConne..., COM15 @ 57600, Disconnected, Enabled), QRP_Labs/QRP_Labs_Q... (QRPLabs QMX_Plus, QRP_Labs/QRP_Labs_Q..., COM6 @ 9600, Running, Enabled), and kenwood/ts-2000 (Kenwood TS-2000, kenwood/ts-2000, COM13 @ 57600, Connecting, Enabled). The bottom status bar indicates 'Loaded 1 group(s), 91 handbook(s)'.

ID	Name	Handbook	Connection	Status	Enabled
expert/sunsdn-tc1	Expert Electronics SunSDR TCI Gene	expert/sunsdn-tc1	127.0.0.1:48001	Disconnected	✓
icom/icom-ic7100	Icom IC-7100	icom/icom-ic7100	COM3 @ 19200	Connecting	✓
SDRConnect/SDRConne...	SDR_Connect SDRDuo	SDRConnect/SDRConne...	COM15 @ 57600	Disconnected	✓
QRP_Labs/QRP_Labs_Q...	QRPLabs QMX_Plus	QRP_Labs/QRP_Labs_Q...	COM6 @ 9600	Running	✓
kenwood/ts-2000	Kenwood TS-2000	kenwood/ts-2000	COM13 @ 57600	Connecting	✓

Adding a radio

- With the group stopped, in 'Radio groups' section of the client software click 'ADD Radio' and select the appropriate 'Handbook' (Radio)
- Set up the connection type, port number and Baud rate (If applicable) plus any other radio specific information like Icom CI-V – Click 'Add'

The screenshot shows the 'Add New Radio' dialog box with the 'RADIO' tab selected. The 'Radio Handbook' section includes a 'Manufacturer' dropdown set to 'QRPLabs', a 'Radio' dropdown set to 'QRPLabs QMX_Plus — QRP_Labs/QRP_Labs_QMX', and a status line 'QRPLabs QMX_Plus — QRP_Labs/QRP_Labs_QMX Status: not specified'. There is a 'View Handbook Details' button. The 'Radio Information' section has a 'Radio ID' field with 'QRP_Labs/QRP_Labs_QMX' and a 'Radio Name' field with 'QRPLabs QMX_Plus'. At the bottom are 'Add' and 'Cancel' buttons.

The screenshot shows the 'Add New Radio' dialog box with the 'CONNECTION' tab selected. The 'Connection Settings' section includes a 'Connection Type' dropdown set to 'Serial — CAT', a 'Serial Port' dropdown set to 'COM6' with a 'Refresh Ports' button, and a 'Baud Rate' dropdown set to '57600'. Below these are three fields: 'Data Bits' set to '8', 'Stop Bits' set to '1', and 'Parity' set to 'None'. There are also checkboxes for 'RTS Enable' and 'DTR Enable', both of which are currently unchecked. At the bottom are 'Add' and 'Cancel' buttons.

Transverters

- Add frequency transverter offsets as required

Add New Radio

◀ RADIO | CONNECTION | **OFFSET** | EXTENDED | FOLLOWER ▶

Frequency Offset / Transverter

☐ Enable frequency offsets

VFO A

☐ Enable offset for this VFO

Label

e.g., 10 GHz transverter

Offset value

0

Unit

Hz ▾

Direction

Add ▾

Min visible frequency

Unit

Hz ▾

Max visible frequency

Unit

Hz ▾

VFO B

☐ Enable offset for this VFO

Label

e.g., 10 GHz transverter

Offset value

Unit

Direction

Add

Cancel

Please scroll to bottom of each form and ensure all fields are correct before clicking 'Add'

WSJT and other software connections

- If the radio is to be controlled by other software that does not natively support CAT4OM, like WSJT, JTDX, MSHV or FLDigi, set Hamlib Rigctl emulation by checking the box
- **Please note that the group that contains the radio being set up must also be selected for Hamlib Rigctl Emulation in the group edit screen.**

Edit Group

GROUPRADIOSSECURITYBRIDGE

Emulation profile

Hamlib — software that connects through rigctld

A group exposes one emulation profile at a time, and one radio through it. To serve two different protocols at once, use two groups.

Listening TCP port

4532

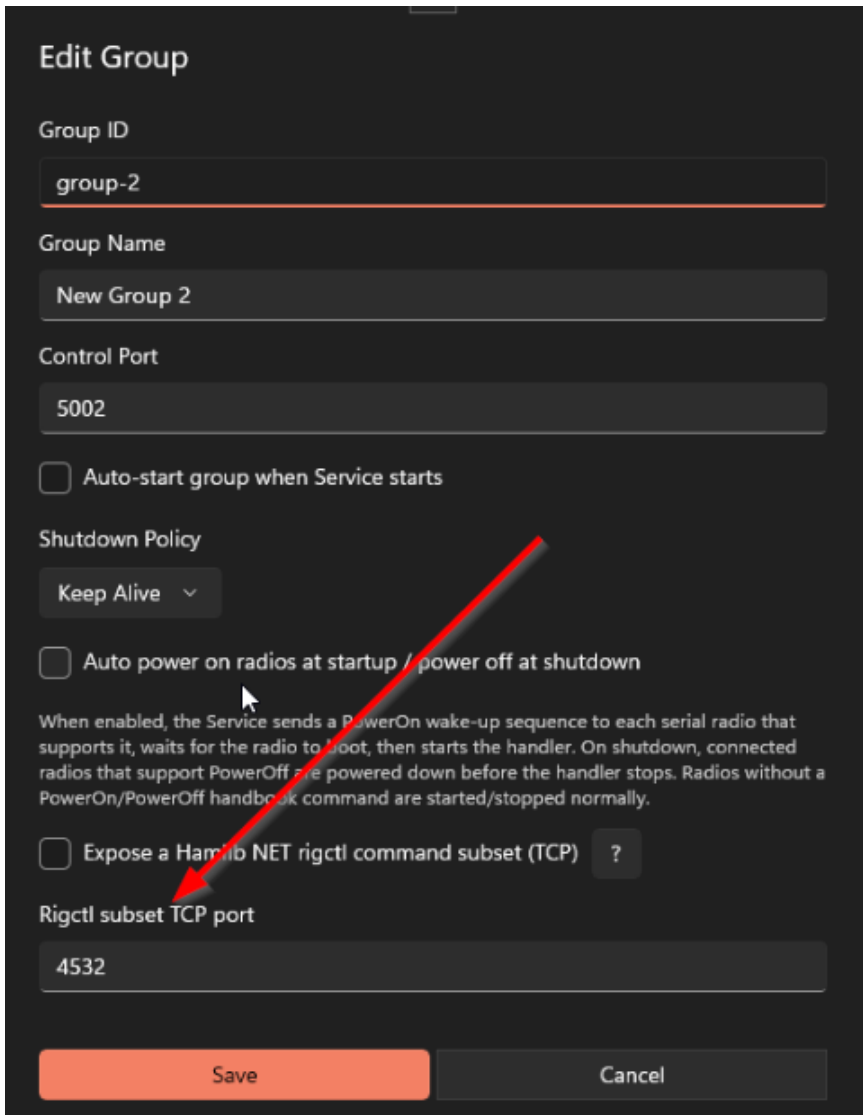
Hamlib clients look for port 4532 by default.

Pick the exposed radio in its Extended options. The port must not clash with the management port, any control port, or another group's port.

SaveCancel

Hamlib rigctl Notes

1. If more than one radio is to be connected to external programs using Hamlib rigctl, e.g. WSJT, JTDX, MSHV, FLDigi etc for CAT control and run simultaneously, then each radio MUST be in a separate group.
2. Each group must have a separate port number so that the external programs can identify which radio to connect to in which group.
3. The port number is edited in the group edit window.



Edit Group

Group ID
group-2

Group Name
New Group 2

Control Port
5002

☐ Auto-start group when Service starts

Shutdown Policy
Keep Alive ▾

☐ Auto power on radios at startup / power off at shutdown

When enabled, the Service sends a PowerOn wake-up sequence to each serial radio that supports it, waits for the radio to boot, then starts the handler. On shutdown, connected radios that support PowerOff are powered down before the handler stops. Radios without a PowerOn/PowerOff handbook command are started/stopped normally.

☐ Expose a Hamlib NET rigctl command subset (TCP) ?

Rigctl subset TCP port
4532

Save Cancel

4. When any program is connected to a radio using Hamlib rigctl, other programs can be connected to the same radio, but they cannot control it.
5. Once the radios have been added, restart both programs and open a browser showing the status of the server connections.

Note: The small blue box to the right of the QRP Labs radio labelled 'E' in the image below denotes that the radio is being controlled by another program e.g. WSJT, JTDX or FLDigi etc. Therefore, it cannot be controlled by another program although another program can connect to the radio to read freq and mode.

The screenshot shows the CAT4OM Status web interface in a browser window. The page has a dark blue theme. At the top, there's a header with the CAT4OM logo and service status: Version 0.4.0.0, Uptime 0h 1m 52s, and Management Port 5000. A 'Donate via PayPal' button is also visible. Below the header, the 'MANAGEMENT CONSOLE' section shows '0 clients connected'. The 'RADIO GROUPS' section features a table with columns for RADIO, STATUS, FREQUENCY, MODE, and LAST SEEN. The table lists four radios: SDR_Connect SDRDuo, QRP Labs QMX_Plus, Icom IC-7100, and Expert Electronics SunSDR TCI Generic, all with a 'CONNECTED' status. The QRP Labs QMX_Plus entry has a small blue box with the letter 'E' next to its last seen time. Below this table, a 'Connected Clients' section shows a table with columns for APPLICATION, ROLE, IP, and CONNECTED, listing Log4OM v2.40.0.14 as the MASTER.

RADIO	STATUS	FREQUENCY	MODE	LAST SEEN
SDR_Connect SDRDuo	CONNECTED	7.001.000 Hz	CW	16:40:41
QRP Labs QMX_Plus	CONNECTED	7.074.000 Hz	FSK	16:40:41 E
Icom IC-7100	CONNECTED	144.650.000 Hz	FM	16:40:41
Expert Electronics SunSDR TCI Generic	CONNECTED	14.027.000 Hz	CWL	16:38:52

APPLICATION	ROLE	IP	CONNECTED
Log4OM v2.40.0.14	MASTER	127.0.0.1	16:39:12

Synchronising two radios

If synchronisation of two radios is required insert the details in the 'Follower' tab

Add New Radio

◀ RADIO | CONNECTION | OFFSET | EXTENDED | **FOLLOWER** ▶

Follower radio

A Follower radio automatically copies the frequency and mode of another radio (the Leading radio) in this group. It is hidden from clients, never transmits, and only runs while its Leading runs.

☒ This radio follows another radio (Follower)

Leading radio (the one to follow)

The follower stays on its own VFO A and copies the Leading's VFO A frequency and mode. It never switches VFO and does not follow the Leading's VFO B.

Which Leading frequency to copy

☐ Dial frequency (IF / real)

Only matters when the Leading uses a transverter or IF offset. Choose 'Dial' for an SDR/panadapter on the Leading's IF output (copies the number on the radio's own screen). Choose 'Displayed' for an independent receiver that physically reaches the on-air frequency (e.g. a 10 GHz receiver). If in doubt and there is no transverter, leave it on 'Dial'.

☒ Two-way: also send the Follower's dial back to the Leading

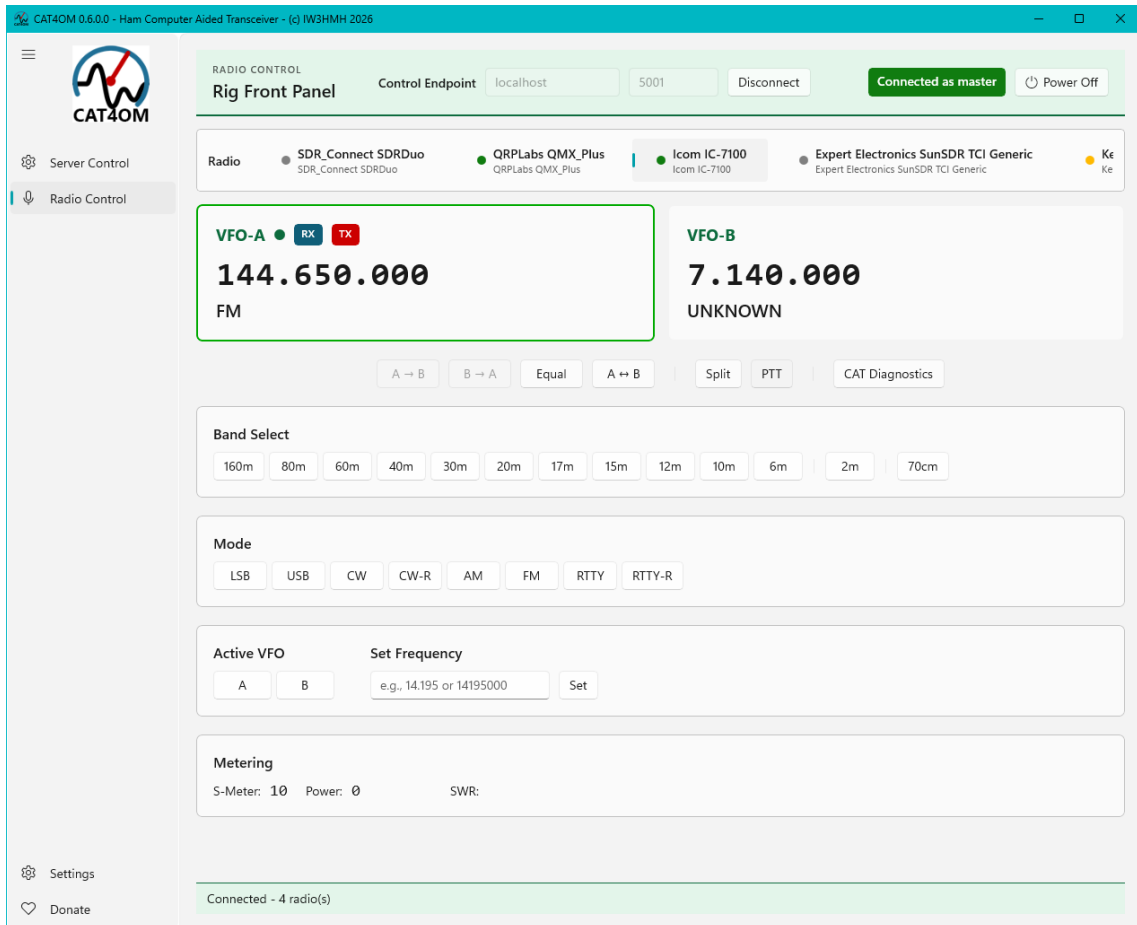
Off (default): the Follower only copies the Leading, one-way. On: if someone turns the Follower's own dial, that frequency is sent back to the Leading too. Only frequency is sent back, never mode. The Leading's own TX safety lock still applies: a reverse write is dropped (and a warning logged) while the Leading is transmitting.

Add

Cancel

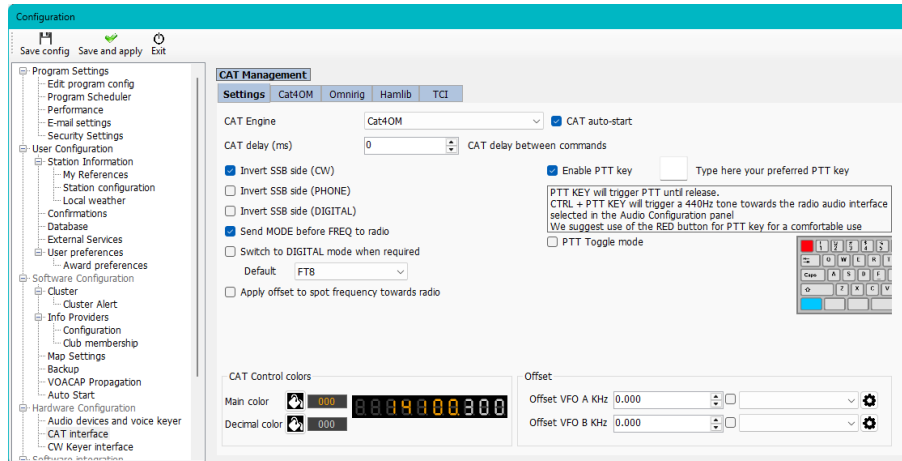
Radio Control

The radio control menu provides control of the available functions of the selected radio. Some radios provide more CAT command controls than others.

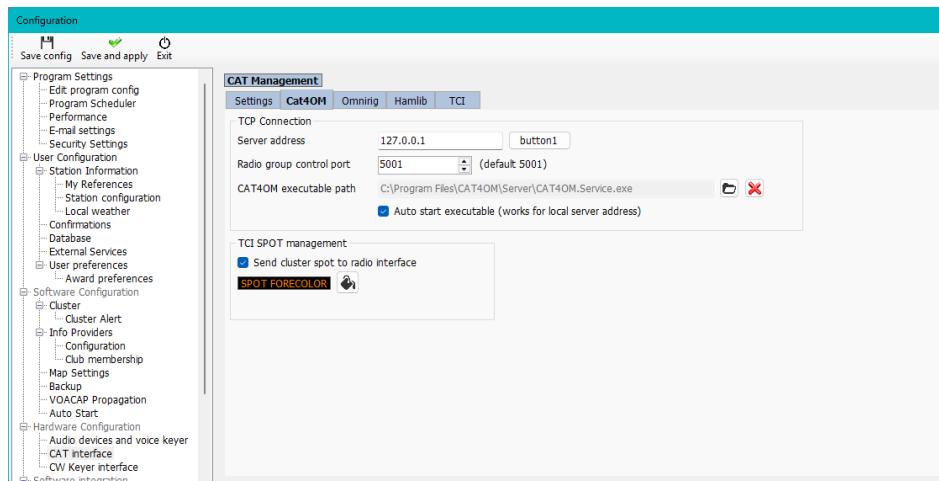


Connecting Log4OM to CAT4OM

- In Log4OM open the settings/program configuration menu and select the 'CAT Interface' dialog
- In the settings tab select Cat Engine 'CAT4OM' and check 'CAT Auto start'

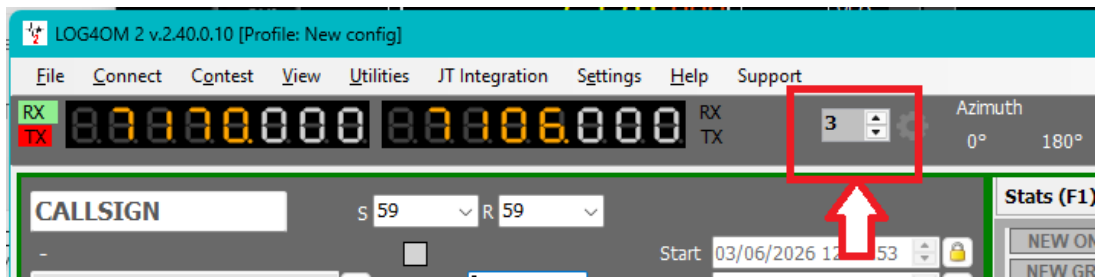


- In the CAT4OM tab ensure the server address is set to 127.0.0.1 and the Radio group control port to '5001'
- Select the path to the CAT4OM executable file and check the auto start box
- If another software is set up to receive spots via TCI from Log3OM/CAT4OM then check the TCI send cluster spots box

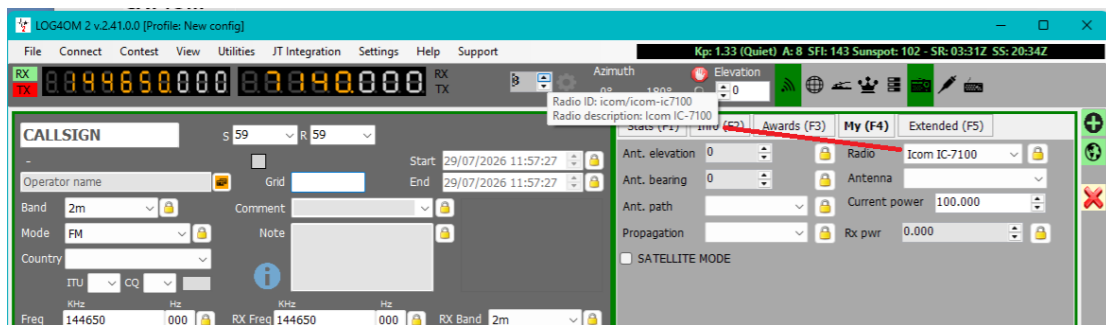


- Click 'Save and Apply'

- In the main Log4OM UI select which radio is required using the selection number menu



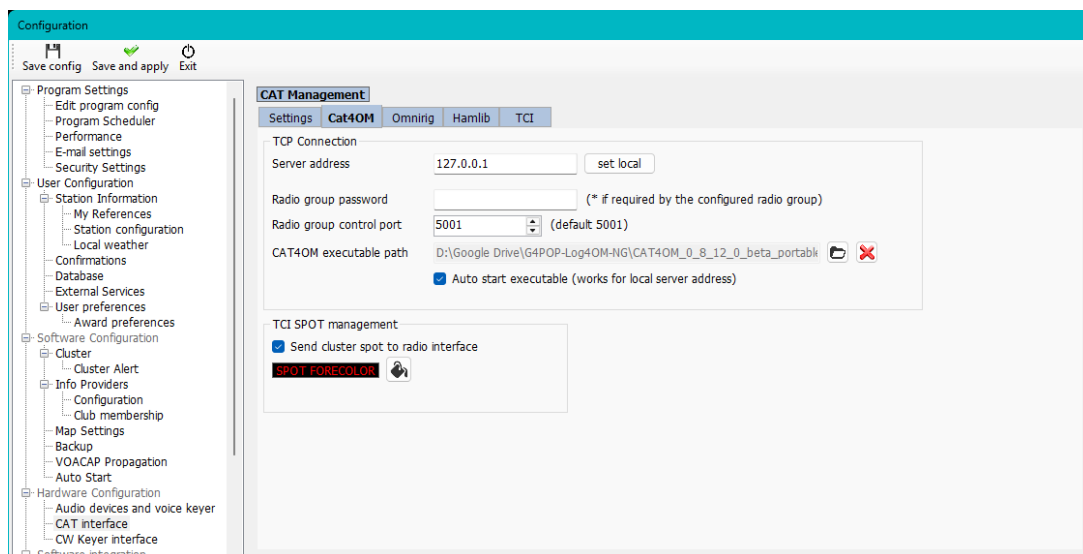
When a radio is selected in the main tool bar as above it is automatically selected in the My (F4) 'Radio' field to ensure the radio in use is the one recorded for the QSO in the logbook.



CAT4OM with Log4OM Portable

The portable version can be run from a cloud drive or a separate hard drive, if installing to run with Log4OM the CAT4OM zip file must be extracted to the Log4OM portable versions root directory e.g. D:\Log4OM Portable\CAT4OM

Once installed ensure the Program config/CAT Interface/CAT4OM menu has the correct path to the server and that 'Auto-Start' is checked



It is wise during installation of CAT4OM to retain a desktop shortcut to the CAT4OM client as this app is required for setting up the groups and radios

CW with CAT4OM and Log4OM (08/08/2026)

CAT4OM is CAT software, it is not a keyer engine, Log4OM supports TCI protocol, and TCI protocol supports CW messages (log4om sends a message string to TCI and the radio will generate the keying).

CAT4OM's built-in TCI engine can receive CW strings from Log4OM and forward them to a TCI radio, just like the direct TCI integration between Log4OM and a TCI-enabled radio or software.

There is also an experimental version that supports Flexradio CW keying, integrated with log4OM CW keyer page, so CAT4OM can also be used also to send CW to Flexradio's.

There is NOT a winkeyer capability or Com port keyer facility in CAT4OM because winkeyer and Com port keying are a physical hardware connection to the radio without requiring CAT.

CW keyer manipulation with other radios that have specific CW CAT commands is being investigated but is not available in the current CAT4OM release.

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