

# How to set up your radio and SARCTRAC with gpredict

Note: This is the minimum configuration only. Please explore all gpredict settings and features.

1. Select File | New Module
2. Enter Module Name: “MySats”
3. Select Ground station: Add

Dialog box titled "Edit ground station data" with the following fields and values:

- Name: Home
- Description: Home
- Location: Melbourne, Australia (with a "Select" button)
- Latitude (°): 37.6667 (with "-" and "+" buttons) and South (dropdown)
- Longitude (°): 144.8333 (with "-" and "+" buttons) and East (dropdown)
- Locator: QF22JH
- Altitude: 141 (with "-" and "+" buttons) m ASL
- Weather St: YMML (with a "Select" button)

Buttons at the bottom: Clear, Cancel, OK

4. Enter ground station Name and Description and select your Location
5. Select OK
6. Select Ground station: Home for the MySats module
7. Select Satellites (use categories and search to find them)

Dialog box titled "Create new module" with the following fields and values:

- Module name: MySats
- Ground station: Home (with an "Add" button)

**Satellites**

Search: [Q] [x]

Category: Amateur Radio

Double click on a satellite to move it to the other box.

Available Satellites	Catnum
2015-049G	40905
AAUSAT 4	41460
ALMASAT-1	38078
ALSAT 1N	41789
AO-27	22825
AO-71	37854
AO-73	39444
AO-85	40967
BEESAT	35933

Buttons: --> <--

Selected Satellites	Catnum
AO-7	7530
AO-91	43017
FO-29	24278
IO-117	53106
ISS	25544
JO-97	43803
LILACSAT 2	40908
NO-44	26931
PO-101	43678

Buttons: Properties, Cancel, OK

8. Select OK
9. Select Edit | Update TLE data from network. Select Close.

10. Select Edit | Preferences | Interfaces

11. Select Radio, Add New and Edit. Change the parameters as follows for your radio:

✂ Edit radio configuration ✕

Name

Host

Port  - +

Radio type

PTT status

VFO Up/Down

LO Down  - + MHz

LO Up  - + MHz

Signalling  AOS  LOS

12. Select OK

13. Select Rotator, Add New and Edit. Change the parameters as follows for SARCTRAC:

✂ Edit rotator configuration ✕

Name

Host

Port  - +

Az type

Min Az  - + Max Az  - +

Min El  - + Max El  - +

Azimuth end stop position  - +

14. Select OK

15. Select Module options / shortcuts (The small down-arrow on top right of the module)
16. Select Radio Control
17. Select a Target satellite and press Track
18. Select your radio and press engage

The screenshot shows the 'Gpredict Radio Control: MySats' window. It is divided into several sections:

- Downlink:** A numeric keypad showing the frequency  $435.310000 \text{ Hz}$ . Below it, 'Doppler: 2359 Hz' and 'LO: 0 MHz'. The final 'Radio' frequency is  $435.312.365 \text{ Hz}$ .
- Uplink:** A numeric keypad showing the frequency  $145.890000 \text{ Hz}$ . Below it, 'Doppler: -791 Hz' and 'LO: 0 MHz'. The final 'Radio' frequency is  $145.889.207 \text{ Hz}$ .
- Target:** A dropdown menu set to 'IO-117' with a 'Track' button. Below it, 'Mode U TLM 4k8 GMSK' with 'T' and 'L' buttons. Satellite data: Az:  $15.51^\circ$ , Range: 6599 km, El:  $50.55^\circ$ , Rate:  $-1.625 \text{ km/s}$ .
- Settings:** '1. Device: IC9700' with an 'Engage' button. '2. Device: None'. 'Cycle: 1000' msec with minus and plus buttons.
- Bottom Bar:** A large grey bar with the text 'LOS in 49:10'.

19. Select Module options / shortcuts (The small down arrow on top right of the module)
20. Select Antenna Control
21. Select a Target satellite and press Track
22. Select your rotator and press Engage. (For SARCTRAC set tolerance to minimum).

The screenshot shows the 'Gpredict Rotator Control: MySats' window. It includes a compass rose and several control panels:

- Compass:** A circular compass with 'Home' at the top, 'N' (North), 'S' (South), 'E' (East), and 'W' (West) markers. A red dot is positioned at  $10.56^\circ$  from North. Other time markers are  $11:11$ ,  $11:26$ ,  $11:41$ , and  $11:56$ .
- Azimuth:** A numeric keypad showing  $18.04^\circ$ . Below it, 'Read:  $0.00^\circ$ '.
- Elevation:** A numeric keypad showing  $53.47^\circ$ . Below it, 'Read:  $0.00^\circ$ '.
- Target:** A dropdown menu set to 'IO-117' with a 'Track' button. Satellite data: Az:  $18.03^\circ$ , El:  $53.47^\circ$ ,  $\Delta T$ : 47:58.
- Settings:** 'Device: SARCTRAC' with an 'Engage' button. A 'Monitor' checkbox is present. 'Cycle: 1000' msec with minus and plus buttons. 'Tolerance: 0.01' deg with minus and plus buttons.