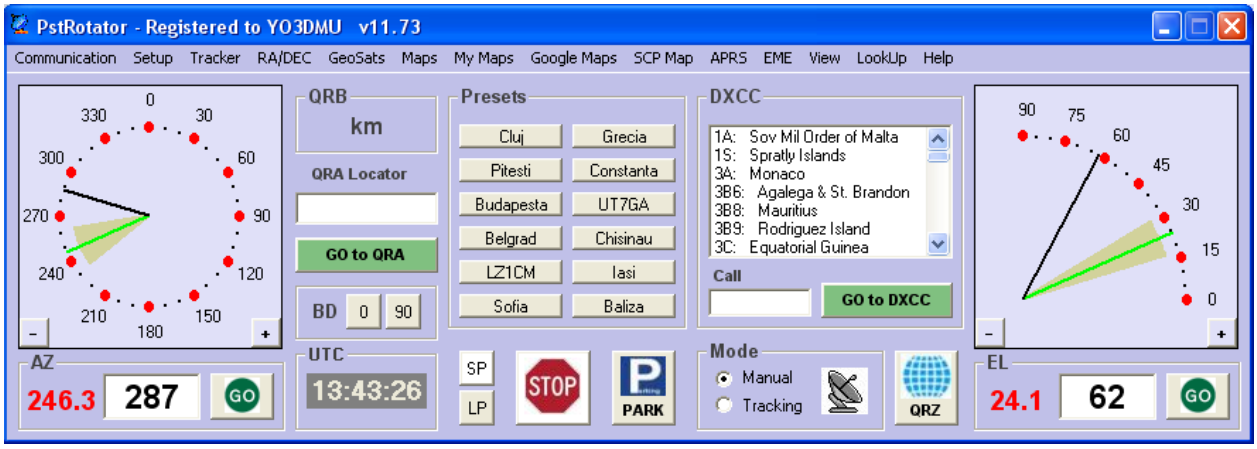
PstRotator

Software for Antenna Rotators



User's Manual

Rev.7.5

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http://www.qsl.net/yo3dmu/index_Page346.htm

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Introduction

PstRotator handles just almost every controllable rotator in common use:

Controller	Protocol	Speed	Web site
Prosistel D	Prosistel	9800	http://www.prosistel.net
Prosistel C	Prosistel	9800	
ERC	DCU-1	4800	http://www.schmidt-alba.de
ERC3D	GS-232A/B	9600	
Green Heron RT21	DCU-1	4800	
Green Heron RT20	DCU-1	4800	
MDS RC-1	DCU-1	4800	
Hy Gain	DCU-1	4800	
Idiom Press Rotor-EZ	DCU-1	4800	
Yaesu GS-232A/B Az	GS-232A/B	9600	
Yaesu GS-232A/B Az/El	GS-232A/B	9600	
AlfaSpid RAK Az	AlfaSpid	1200	www.rfhamdesign.com
AlfaSpid RAS Az/El	AlfaSpid (1 deg accuracy)	600	
AlfaSpid RAS Az/El	AlfaSpid (0.5 deg accuracy)	600	
AlfaSpid BIG-RAS/HR	AlfaSpid (0.1 deg accuracy)	460800	
M2 RC2800	M2	9600	
M2 RC2800P-A	M2	9600	
Easycomm	Easycomm1	9600	
Fox Delta ST3	GS-232A/B	19200	
AutoTracker - Endeavour	Endeavour Electronics	9600	
ZL1BPU	ZL1BPU	9600	
EGIS	EGIS (CTS disabled)	9600	
Create RAC825	Create	9600	
VK5DJ	VK5DJ	9600	VK5DJ
EA4TX ARSWIN	ARSWIN	Program	http://www.ea4tx.com
DL7AOT	Easycomm1	19200	
LVB Tracker	GS-232A / Easycomm1	9600	
PrimeSat	PrimeSat	9600	
SARtek	SARtek	1200	
SAT688	Easycomm1	9600	
CX6DD	GS-232A/B	4800	
WinRotor FUNKBOX	WinRotor	Program	http://www.funkbox.de
SAEBRTrack	SAEBRTrack	9600	Saebrtrack
Heathkit HD 1780	Heathkit	9600	
F1TE SPID	GS-232A/B	9600	
Channel Master	USB-UIRT interface	USB	
FT950, FT2000, FTDX5000, FTDX9000	FT/DX CAT (RTS disabled)	38400	
OE5JFL	OE5JFL (target Az1/El1)	115200	
UltraBeam UB-ONE	DCU-1	4800	http://www.ultrabeam.it
TrueNORTH VK3LL/VK3KQ	GS-232A via USB Interface	9600	http://www.emdrc.com.au/
Radant AZ-1	Radant AZ-1	9600	povorotka.ru/
Radant AZ-3	Radant AZ-3	115200	

PstRotator (azimuth & elevation control)

PstRotator supports separate antenna rotator controllers for Azimuth and Elevation control.
It can control two separate rotor interfaces:

- one for azimuth and the second for elevation, or
- an azimuth & elevation rotor interface

The EA4TX and WinRotor Interfaces are controlled communicating DDE with their own programs.

Connect the rotator interfaces to PC using RS232 cables (or USB to serial convertors) and select communication ports from the available COM Ports, in the COM1 to COM32 range.

Automatic tracking

PstRotator includes automatic tracking for satellite or EME communications, and almost all well-known loggers are supported.

- **Moon tracking:** EME System, WSJT, GJTracker, MoonSked, Trak_SM, Z-Track
- **Satellites tracking:** GPredict, HalloSat, HRD Satellite Tracker, Nova for Windows, Orbitron, Sat_Explorer, SatPC32, WinOrbit, Wxtrack, SDR-Radio
- **Logging / Other programs:** AirScout, CommCat, BBLogger, DM780, DX4WIN, DXView, EasyLog 5, GenLog, HamScope, HRD Logbook, IntDX, KLog, Loki5ace, Log4OM, Logic8, Logger32, LOG-X, MicroLog, MixW, N1MM, N3FJP's loggers, nGenLog, QARTest, RCKLog, Swisslog, TACLog, TRX-Manager, UcxLog, VHF LOG, VHFCtest4WIN, VHF LOG, VQLog, Winlog32, Win-Test, WinREF-HF, WinREF-THF, Wlog2000, WriteLog, XMLog
- **DX Cluster clients:** CC User, DX Monitor, KST2Me, GPcluster
- **Radio Astronomy**: Radio-Eyes, ASTRONOM, Cartes du Ciel

Moon and **Sun** can be tracked also using internal algorithms.
Sidereal tracking of the celestial bodies uses an internal algorithm too.

Antenna pointing

The user interface offers quite a selection of methods for antenna pointing:

- mouse click on the Azimuth or Elevation graphic area (compass roses)
- left/right/up/down arrows
- setting the azimuth / elevation
- setting the QTH locator (4, 6 or 8 digits)
- mouse clicks on a map
- selecting the DXCC
- writing the country prefix, or the full callsign
- numeric keypad

  The numeric keypad can be used also when the PstRotator is NOT the active window.
  So you will don't need to switch in contests the focus between logger and PstRotator, you can keep the focus on logger.

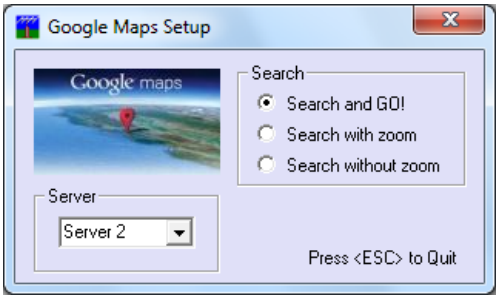
  Ctrl + Up Arrow (8) Move to 0 deg
  Ctrl + Page Up (9) Move to 45 deg
  Ctrl + Right Arrow (6) Move to 90 deg
  Ctrl + Page Down (3) Move to 135 deg
  Ctrl + Down Arrow (2) Move to 180 deg
  Ctrl + End (1) Move to 225 deg

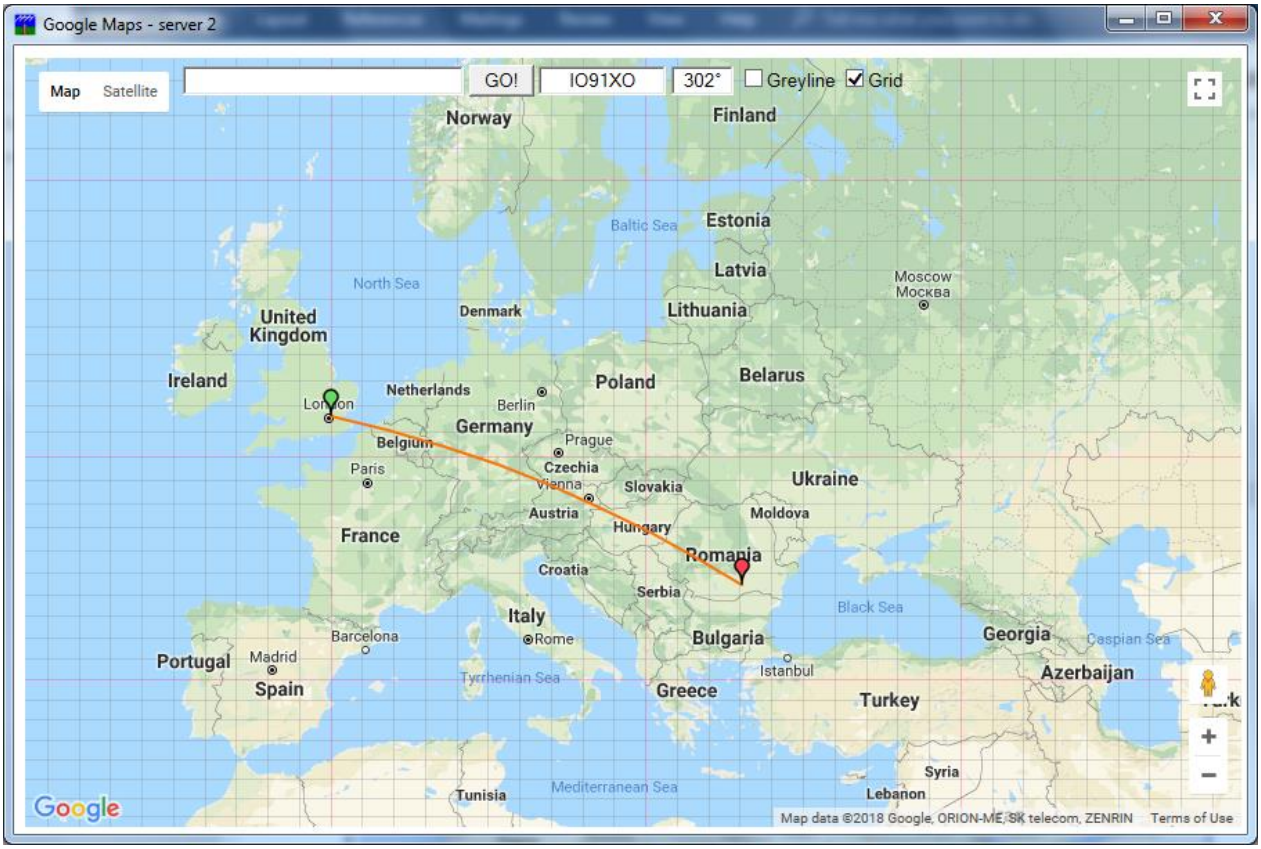
Ctrl + Left Arrow (4) Move to 270 deg
Ctrl + Home (7) Move to 315 deg

The rotator can be stopped at any moment before to finish the moving. Of course, only if the rotor's interface has implemented the STOP command.

Maps

With Internet connection, just click over a map from **Google Maps** and your antenna will be pointed on the DX direction!!!
You can resize the map, and some settings are available (Setup -> Google Maps Setup…)





It is possible to display the greyline and the grid on map. And you can rotate antenna using the "Search and GO!" feature.

You can also use some default maps, or you can add your maps.

APRS maps (like for UI-View application) can be used. Thousands of maps in this format can be found on Internet. Try on Google: UI-View maps. Or try this: http://sharon.esrac.ele.tue.nl/pub/aprs/maps
Put both *.jpg (or *.gif or *.bmp) and *.inf files in the \Maps1 folder, and this is all what you have to do. Click on "My Maps" and start to use them.

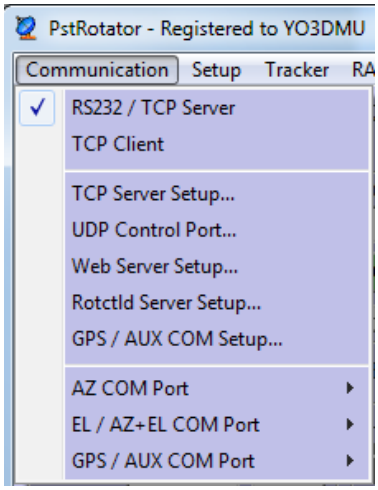
Or you can just create from program a map (based on Google Maps) and automatically save it. This tool can be found in "**Help > Maps generator"**.

You can add how many maps you want. For the first ten maps you can also use keyboard shortcuts to open them (CTRL+F1 – CTRL+F10).

Communication

RS232 communication

Select RS232 / TCP Server if the rotor controller is connected via RS232 (or a USB to RS232 convertor) to the PC where the PstRotator program is installed.



Select the COM ports used to connect the rotator controllers to PC in the COM1 – COM32 range.

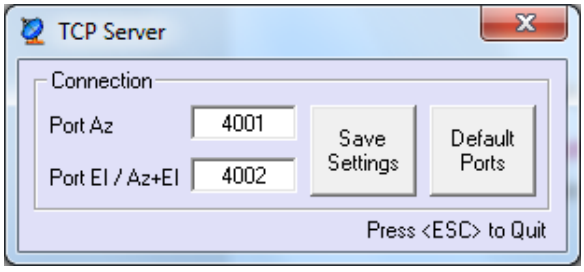
Global Beam Display

PstRotator can pass the position information received from rotor to a Global Beam Display, using for this a second COM Port (Communication > GPS / AUX COM Port). So, you will have all the features of the PstRotator program, but also a nice electronic display on your wall.

Select the COM port used to connect the Global Beam Display to PC in the COM1 – COM32 range.

TCP/IP communication

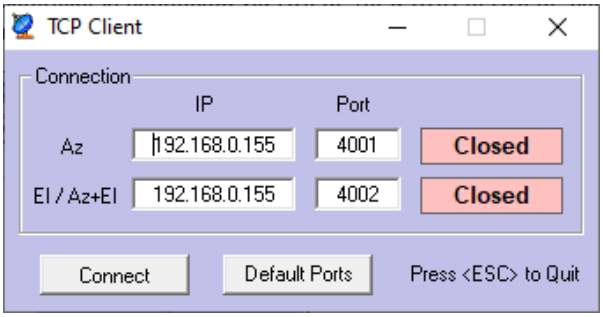
For the TCP server, "**RS232 / TCP Server**" must be checked.



Open the "**TCP Server Setup**" and set the IP ports for the server (the PC where the rotator controller is RS232 connected).

The default values are 4001 for azimuth and 4002 for elevation.

For the TCP client, check the "**TCP Client**" and the following window will be opened:



- Set the IP address (is the network address for the PC where the server runs).
- Set the IP ports (must be the same as for server)
- Press the "**Connect**" button to connect the client to server and remote operation.

The default values are 4001 for azimuth and 4002 for elevation.

In order to not have so much traffic over the network and antenna position to be displayed faster on the client PC, you can set Refresh Rate = None on the client PC. But be careful to have Refresh rate > 0 on the server PC.

If the server is a serial server one (serial to Ethernet convertor) and not a PC running the PstRotator software, you mast to set Refresh Rate > 0 on the client PC.

UDP Control (PstRotator control from other programs)

PstRotator can receive commands from other programs via UDP messages. For this:

- Go to "Communication/UDP Control Port..." and set the UDP port number where the program listens. The default value is 12000.
- Enable UDP Control in Setup

PstRotator can receive commands like these:

<PST><PARK>1</PARK></PST>
- stop rotor, switch to manual mode, park antenna

<PST><TRACK>1</TRACK></PST>
- switch to tracking mode

<PST><TRACK>0</TRACK></PST>
- switch to manual mode

<PST><STOP>1</STOP></PST>
- stop rotor, switch to manual mode

<PST><AZIMUTH>85</AZIMUTH></PST>
- set azimuth to 85 degrees

<PST><ELEVATION>23</ELEVATION></PST>
- set elevation to 23 degrees

<PST><ACQ>1</ACQ></PST>
- like click the ACQ button
The program will answer to the UDP Port + 1: OK:ACQ:1<CR>

<PST><HOME>1</HOME></PST>
- like click the HOME button
The program will answer to the UDP Port + 1: OK:HOME:1<CR>

<PST><UP+DN>1</UP+DN></PST>
- UP+DN button pressed
The program will answer to the UDP Port + 1: OK:UP+DN:1<CR>

<PST><UP+DN>0</UP+DN></PST>
- UP+DN button depressed
The program will answer to the UDP Port + 1: OK:UP+DN:0<CR>

<PST><UP>1</UP></PST>
- UP button pressed
The program will answer to the UDP Port + 1: OK:UP:1<CR>

<PST><UP>0</UP></PST>
- UP button depressed
The program will answer to the UDP Port + 1: OK:UP:0<CR>

<PST><FAVREFRESH>1</FAVREFRESH></PST>
- Refresh the Favorites list
The program will answer to the UDP Port + 1: OK:FAVREFRESH:1<CR>

<PST>< SATSELECT>satellite_name</ SATSELECT></PST>

- Select a satellite from Favorites. The satellite name must be identical with the name which appears in the Favorites list.
The program will answer to the UDP Port + 1: OK:SATSELECT:satellite_name<CR>

<PST><TLEUPDATE>1</ TLEUPDATE ></PST>
- Update the TLE files
The program will answer to the UDP Port + 1: OK: TLEUPDATE:1<CR>

<PST><LLH>44.434,25.064,10000</LLH></PST>
- track in azimuth and elevation an object positioned to 44.434 degrees latitude, 25.064 degrees longitude and 10000 m altitude

<PST><GLL>typical GLL GPS message </GLL></PST>
- track in azimuth an object based on a typical GLL GPS message

<PST>AZ?</PST>
- in answer to this command the program will report the rotor azimuth to UDP Port + 1

<PST>EL?</PST>
- in answer to this command the program will report the rotor elevation to UDP Port + 1

The rotor position is reported like:
AZ:xxx.x<CR>
EL:yy.y<CR>

<PST>MODE?</PST>
- It is about the Tracking mode. The answer will be MODE:1<CR> if the mode is Tracking, and MODE:0<CR> for the Manual mode

<PST>FAVLIST?</PST>
- The answer will contain all the satellites from the Favorites list:
FAVLIST:<FOX-1D (AO-92)><ISS (ZARYA)><OSCAR 7 (AO-7)>

<PST>NEXTPASSINFO?</PST>
- The answer for the selected satellite will look like this:
NEXTPASSINFO:GREENCUBE;- 06:06:11;FLIP:OFF<CR>

Any message must start with <PST> and end with </PST>
You can send many commands in one message:
<PST><STOP>1</STOP><TRACK>0</TRACK><AZIMUTH>85</AZIMUTH></PST>

GPS Control (PstRotator control via a serial COM port)

PstRotator can receive commands from other programs via GPS format messages on a serial COM port. For this:

- Go to **"Communication > GPS / AUX COM Port"** and set the COM port number where the program listens for GPS messages. The baudrate can be set in Communication > GPS / AUX COM Setup.

The messages can be provided by a hardware device (a GPS unit or another device connected to the serial COM port, able to retransmit GPS messages), or by a software application like SondeMonitor http://www.coaa.co.uk/sondemonitor.htm ,using a virtual serial COM port.

- Enable GPS Control in Setup

PstRotator can receive $GPGGA commands (NMEA format) like this:

$GPGGA,194633.656,4410.000000,N,02600.000000,E,1,0,0,8000,M,0,M,,*70

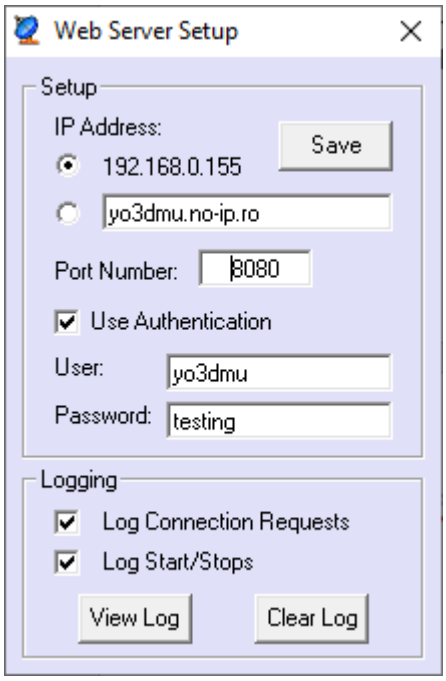
Web Server Setup

PstRotator has an embedded Web server, and this can be used to control the rotor from any Web browser running on a computer or a smartphone.

To use this feature:

- In Communication > Web Server Setup... set the IP address and the port number.
  If you intend to access the Web server using a computer from the same local network, or you don't use a router, select the first option to use the IP address of the PC.
  But if you intend to access the Web server from internet and you use a router, select the second option and enter the router IP address. You can set it as xxx.xxx.xxx.xxx or put there a "friendly name".
  You can keep the default port 80 or use any other port.
- In Setup enable the **Web Server** option
- Restart the program
- Set your router to forward the port set in the Web Server Setup.

If the "Use Authentication" option is enabled, when you access the web server from a web page, you will be asked for user and password.


Web Server Setup
Setup
IP Address:
Save
192.168.0.155
yo3dmu.no-ip.ro
Port Number:
8080
Use Authentication
User:
yo3dmu
Password:
testing
Logging
Log Connection Requests
Log Start/Stops
View Log
Clear Log

Setup

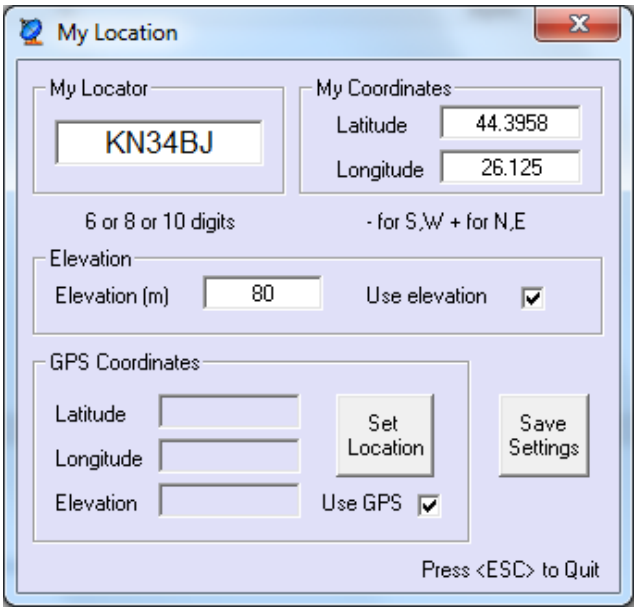
Select the rotator controllers from the list.

It is possible to select two separate controllers: one for azimuth and one for elevation.

Or can be used a single azimuth + elevation rotor interface.

My Location

Open the "**My Location**" window (**Setup > My Location…**).



Set your QTH locator using for this 6, 8 or 10 digits, or set the latitude and longitude for your location.

Presets

12 position presets are available. Open the "**Presets**" window (**Setup > Presets**) and set the preset name, the azimuth and the elevation.

Some other ways to set the Presets: In the main window, a right click over a Preset button will set it with the callsign from Prefix box and the azimuth/elevation information from Az and El boxes.

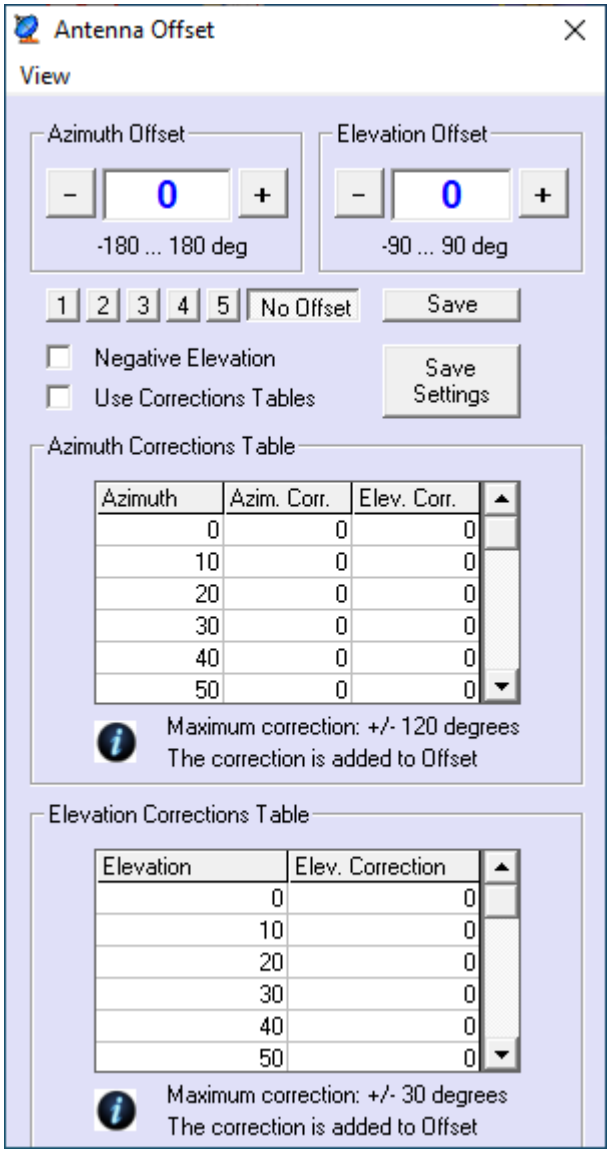
Ctrl+1….Ctrl+6 – set Preset 1…Preset 6

Alt+1….Alt+6 – set Preset 7…Preset 12

Antenna Offset

Open the "**Antenna Offset**" window (**Setup > Antenna Offset**) and set the azimuth or elevation antenna offset if your antenna is not exactly adjusted on direction.

The range is -180 to +180 deg for azimuth and -90 to +90 deg for elevation.
The default values are 0 deg for both azimuth and elevation offset.

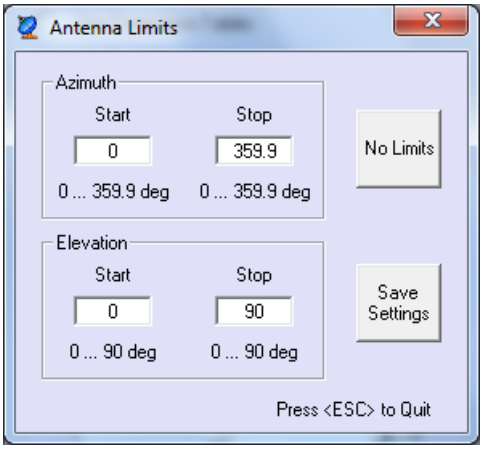


It is possible also to use correction tables. The values from these tables are added to the azimuth and elevation offsets.

When a correction table is used, all the values at every 10 degrees must be filled. The program make an interpolation between these values.

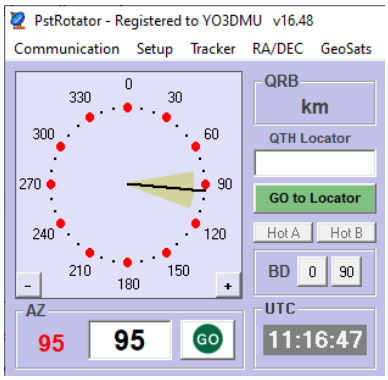
Antenna Limits

End-point limits can be set for both Azimuth and Elevation.



3dB Beam Width

Set the 3dB Beam width of your antenna in order to be displayed on the Compass Rose.



Rotor Refresh Rate

The time interval between position requests sent to controller can be adjusted from 0.5 sec to 5 sec.
Open the "**Rotor Refresh Rate**" window (**Setup > Rotor Refresh Rate**) and select the time interval value.

The default value is 1 sec.

Tracker Refresh Rate

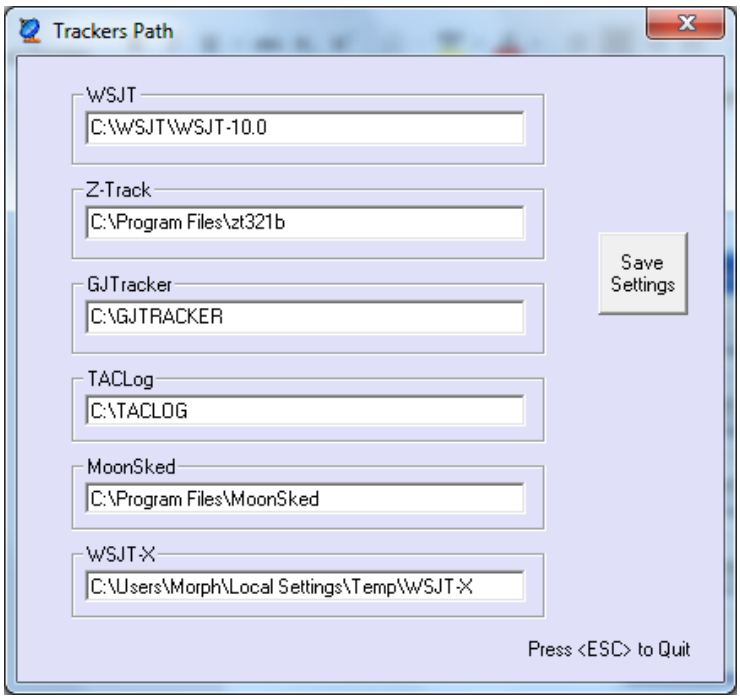
The time interval between the received positions from tracking programs can be adjusted from 0.5 sec to 30 sec.
Open the "**Tracker Refresh Rate**" window (**Setup > Tracker Refresh Rate**) and select the time interval value.
The default value is 0.5 sec.

Trackers setup

Some trackers need special settings. **Don't forget to set "Tracking" to Mode in the main window!**

Trackers path

These settings are for programs which write the azimuth and elevation data into a file. The PstRotator program has to know the path for these programs. You need to know where these programs are installed and modify if it is necessary the default paths.



Distance Units

You can select **Kilometers** or **Miles**.

Map Marker Size

The size of markers on map can be adjusted from x 0.5 to x 5.
Open the "**Map Marker Size**" window (**View > Map Marker Size**) and select the size.

Label

Use **Setup / Label…** to put different labels.

Parking Setup

Set the position where the antenna will be parked when the "Park" button is pressed.

Close by Ext. Program

PstRotator can be automatically closed when another program from computer is closed.

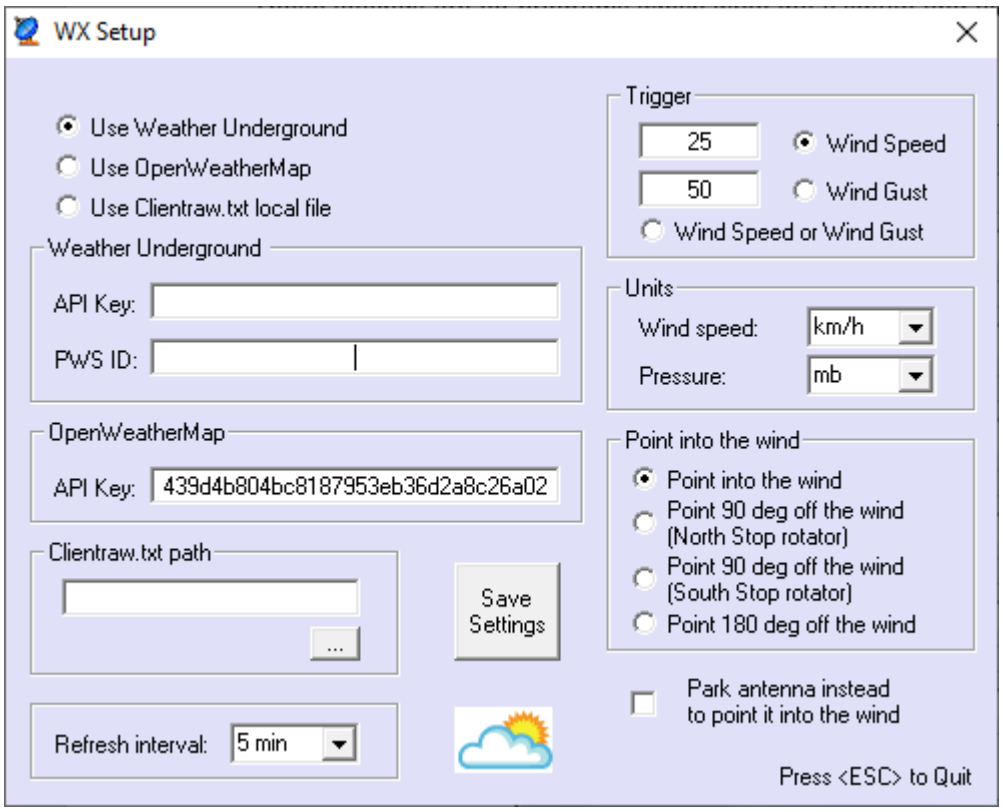
Use a significant part of the external program name, exactly like it appears on the title bar (caps sensitive).

WX Setup

PstRotator can display information about the wind speed, wind direction and temperature in your location, and also can automatically point the antenna into the wind if the wind speed is over the limit.

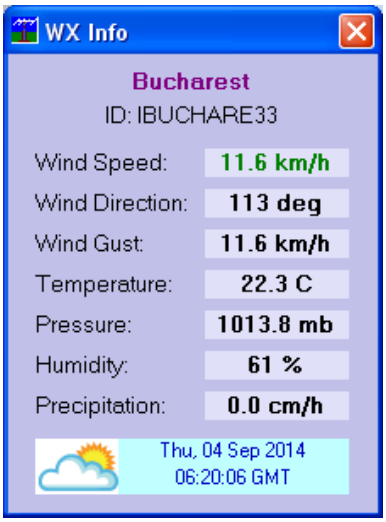
In this window can be set if the program will use a specific weather station connected to www.wunderground.com or will use only the information provided by this site based on your location.

Also, it can be set the wind speed trigger value for automatic pointing antenna into the wind.



WX Info

Open the Wind Info window. The information in this window is refreshed at every 5 minutes.



Point into the Wind

Automatically point the antenna into the wind if the wind speed is over the limit. Click on this button to enable or disable this function.

Start as TCP Client

If "**Start as TCP Client**" is checked, the PstRotator program will start as a TCP Client.
The TCP Client window will be minimized, and the program will automatically connect to the TCP Server

Start in Manual Mode

With this option selected the program will start in Manual Mode, else the program will start in the last mode used before to close the program.

Confirm Imported Data

With this option checked, the callsign, locator or azimuth information is passed in the Tracking mode from logger to PstRotator, but you will need to press the "GO" button to rotate the antenna.

Double Click on Map

Use this option to select between click or double click on map to rotate the antenna.
This feature is available for the embedded maps (Maps), My Maps and the Google Maps.

Use FCC Database

The program checks when a callsign is write in "Call" textbox in:
- cty.dat
- VHF_USA.mdb (or the FCC.mdb when the **"Use FCC Database"** option is selected)
- VHF_EU.mdb
- Call3.txt

The FCC database contains over **750,000 US and Canadian active callsigns**.

This database is created using the latest EN.dat and HD.dat files from l_amat.zip archive downloaded from the official FCC web page, and the us_zip_codes.mdb file, a database containing the coordinates for almost all US zip codes. A similar technique is used for the Canadian callsigns.

The FCC.mdb database contains callsign, locator, name and state.

If a callsign is found in more than one database, the information is taken from the last database. For example, if a callsign exists in both VHF_EU.mdb and call3.txt, the program will use the information found in call3.txt.

UDP Control

Select this option to enable the UDP communication with an external program. The external program can stay on the same PC with PstRotator, or on another computer from the local network.

Stay On Top

If "**View > Stay On Top**" is checked, the PstRotator main window will remain on the display when another program is opened.

Bidirectionality

The PstRotator program can control a Yagi and a bi-directional rotary dipole on the same rotator, with the dipole in line with the Yagi's boom (90° offset from Yagi heading). This mode is BD-90.

A second bidirectional mode (BD-0) supports the SteppIR antennas.

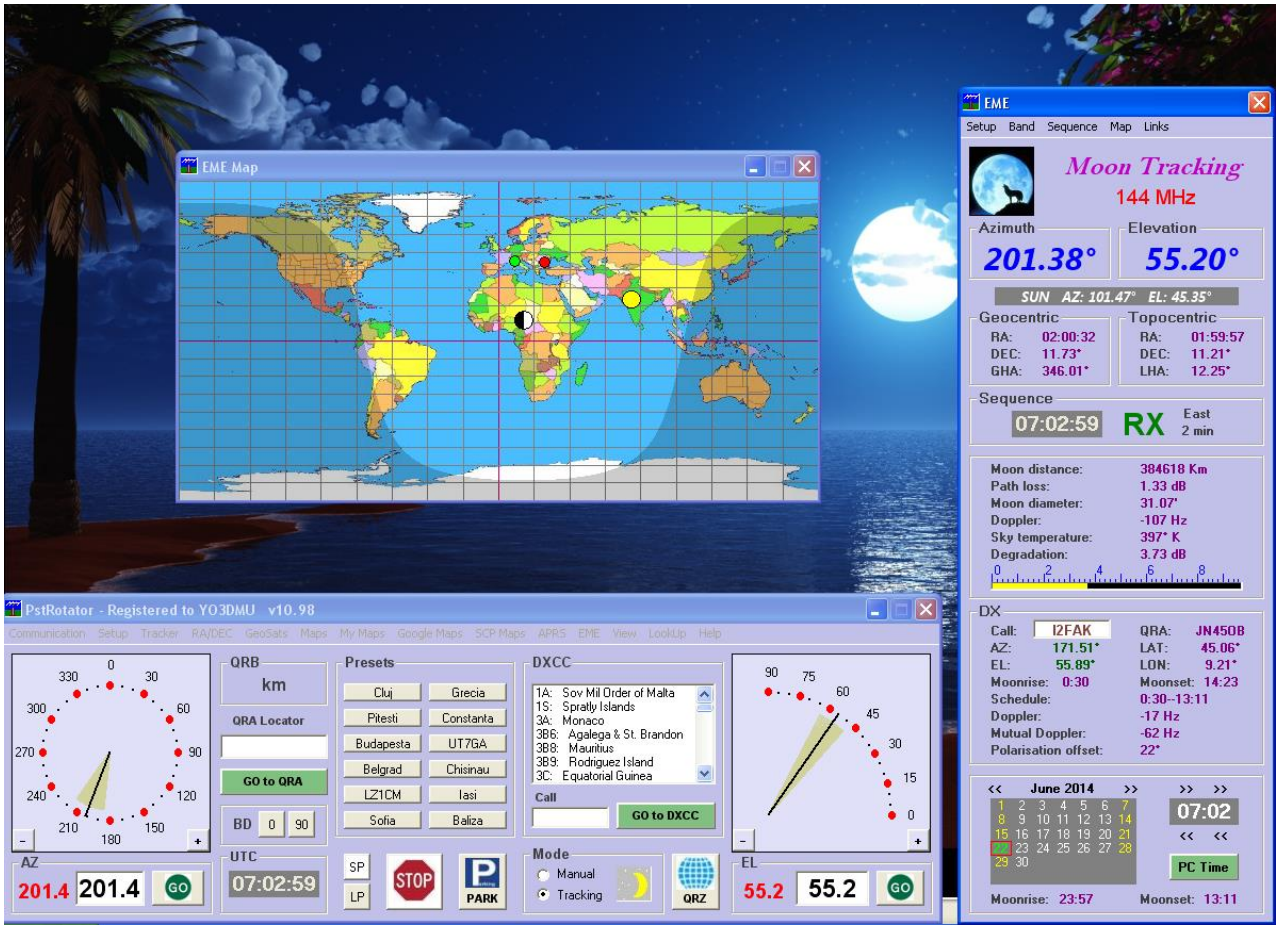
With **"Start in Bidirectional-0 Mode"** or **"Start in Bidirectional-90 Mode"** checked the PstRotator program will start in one of these two bidirectional modes.

Tracker

Moon and Sun tracking

In PstRotator select **Moon** or **Sun** as Tracker and set **Tracking** mode in the main window.
PstRotator tracks the Moon or the Sun without any external tracking programs. The azimuth and elevation of the Moon or the Sun are internal calculated.

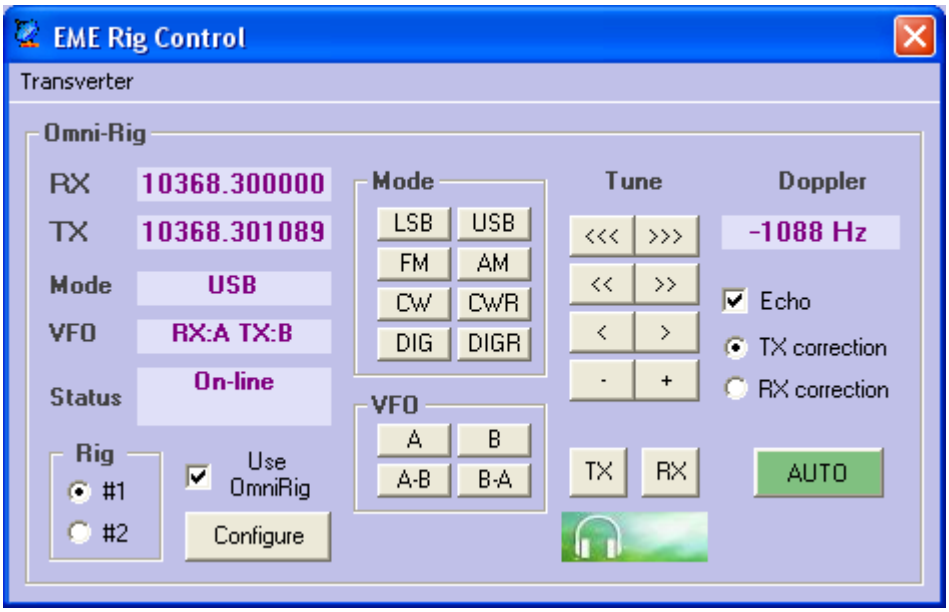
A separate **EME** window is available and it provides a lot of useful information for moonbounce.



Radio Control

It is possible to control the radio for:
a) EME skeds (RX frequency = TX frequency + mutual doppler)
- set the transverter offset value, if you use a transverter
- enter the DX callsign in the EME window. The mutual Doppler will be displayed.
- check the **"Use OmniRig"** option
- check the **"RX correction"** option
- set your radio on the sked frequency (the TX frequency will remain on the sked frequency)
- press the **AUTO** button to keep the RX frequency = TX frequency + mutual doppler

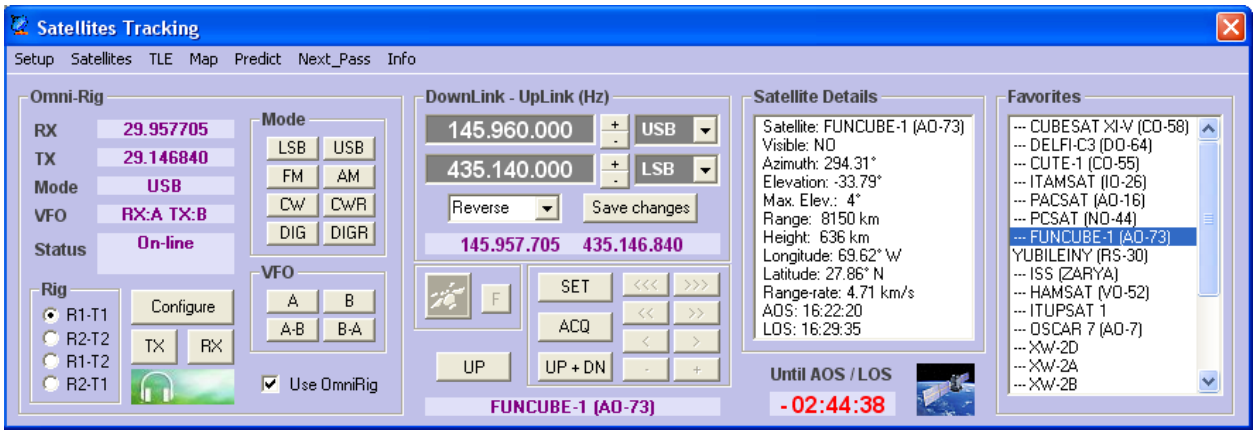
a) EME random QSO (TX frequency = RX frequency - mutual doppler)
- set the transverter offset value, if you use a transverter
- enter the DX callsign in the EME window. The mutual Doppler will be displayed.
- check the **"Use OmniRig"** option
- check the **"TX correction"** option
- tune your radio on the frequency where you hear the DX station
- press the **AUTO** button to correct with the mutual Doppler the TX frequency



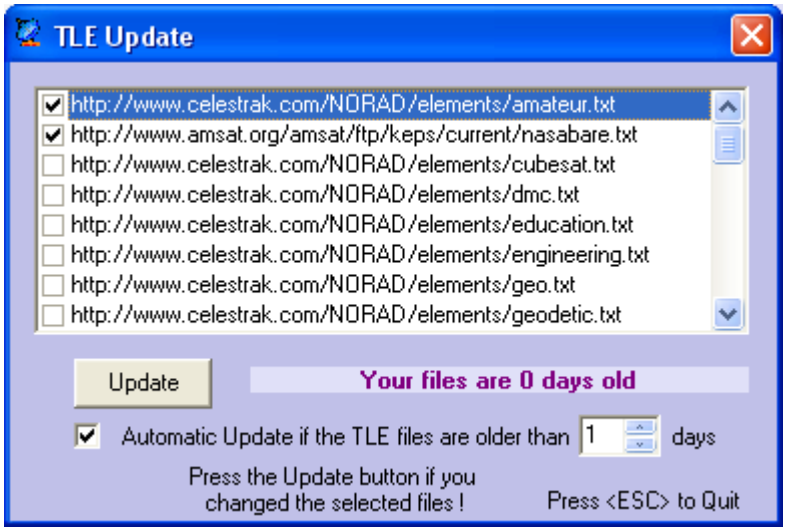
Satellites tracking

To use the embedded satellites tracker module:

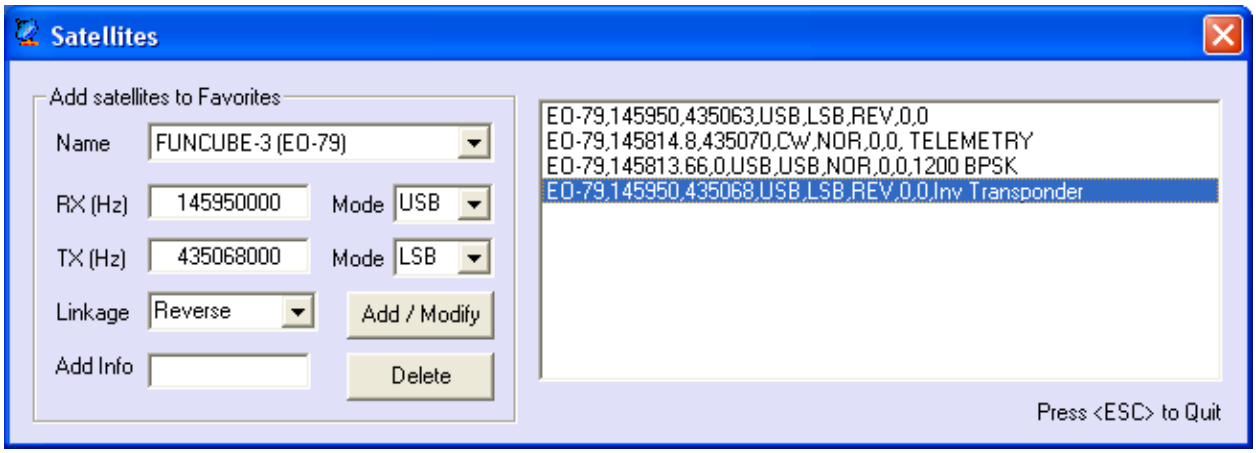
- Select **"Satellites"** as Tracker.
- Select **"Tracking"** as Mode
- Select **Satellites Tracking** in Setup. This will open the "Satellites Tracking" window.



From the **"TLE"** menu you can download / update / delete the TLE files in the PstRotator folder. The program will put all the satellites found in all the TLE files in a list.



You can see this list in **Setup > Satellites**. From there you can select your favorite satellites and edit their UpLink / DownLink frequencies and modes.



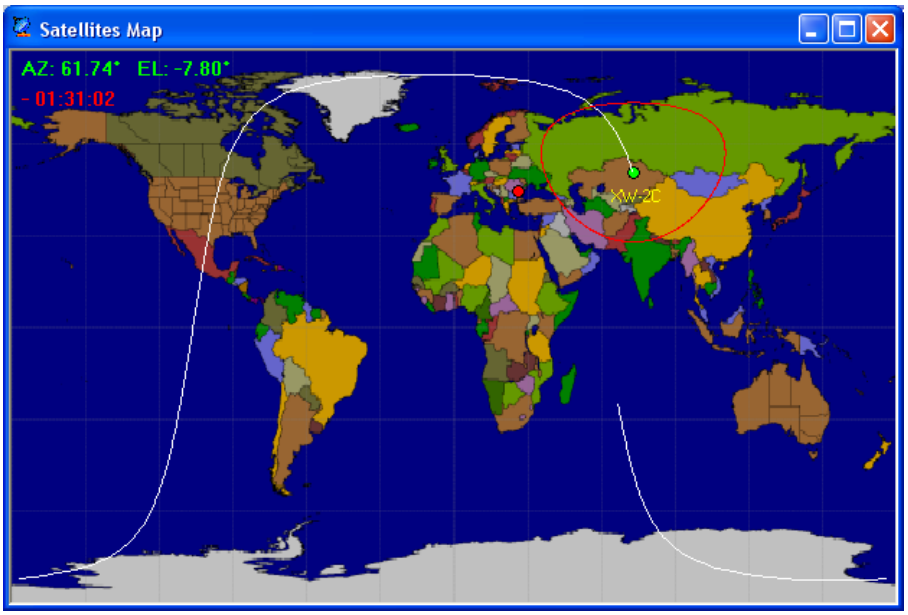
The favorite satellites will be displayed in the **"Favorites"** list from Satellites Tracking window.
Select a satellite from this list to track it.

Flip Mode

The program checks for the actual satellite pass if the satellite is visible (or for the next pass if the satellite is not visible yet), whether the satellite crosses the end points of your azimuth rotor in that pass. If so, it runs the pass in Flip mode, which means it turns the azimuth antenna in the opposite direction and the elevation antenna to 180° - elevation. The color of the label with the satellite name will be changed to yellow.
You must select your rotor type (North Stop / South Stop) in Satellite Tracking Setup > Rotor Stop.
The Flip Mode is available only when you have selected in the main window "Setup > 180 deg Elevation".

Maps

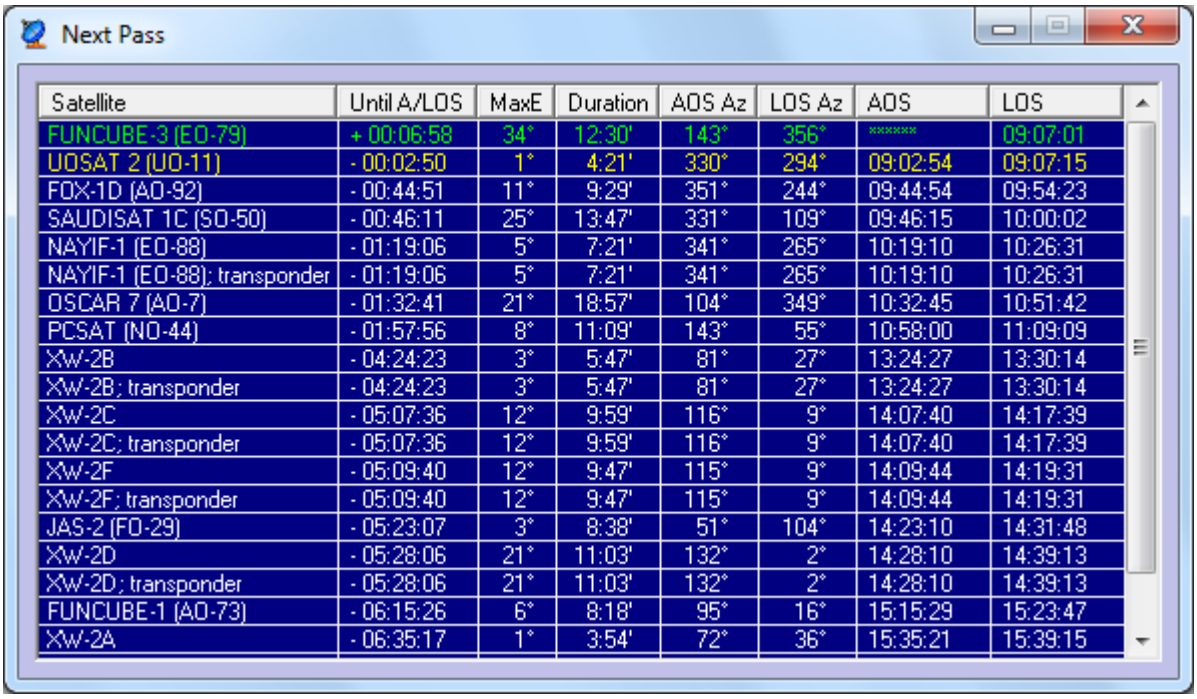
You can select which map to be used from Satellite Tracking Setup > Map.
Press **"Map"** to see the selected satellite on the world map.



Next Pass

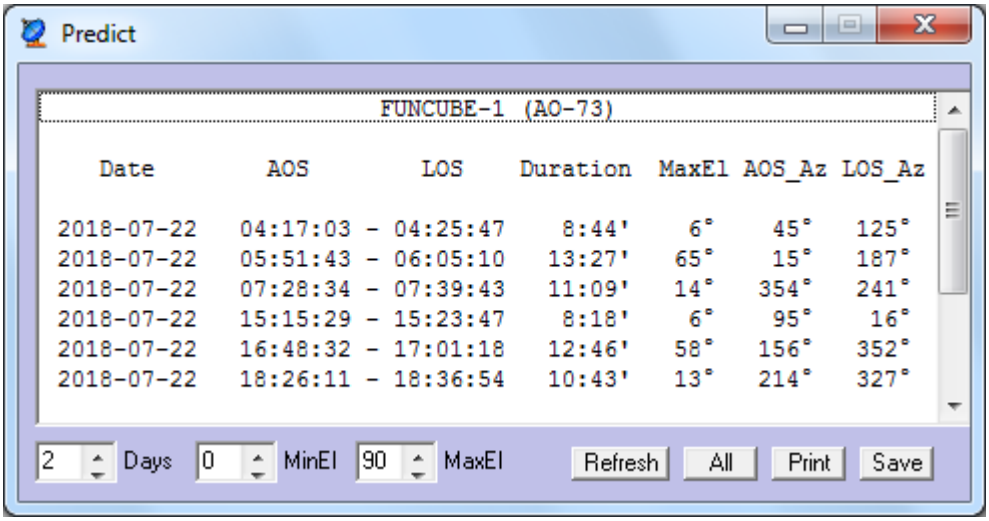
Use the Next_Pass menu to have the all satellites from Favorites in chronological order. You can select a satellite from the Next Pass window instead from the Favorites list.

The satellites in range will be displayed in green, and the satellites with AOS < 5 minutes will be displayed in yellow.



Satellite Pass Prediction

Select a satellite from list and press Satellite Tracking Setup > Predict to see the passes of the selected satellite.



Rig Control

Two different options for Doppler correction can be chosen:

- **UP+DN (Uplink and Downlink frequency correction)**

With the **UP+DN** button pressed, the frequencies at the satellite remain constant. If two stations use this setting, they basically can hear each other during an entire satellite pass without frequency adjustment, despite the fact that frequency drift due to Dopplershift is different for each of them.
The stations arrive with the same frequency at the satellite despite different Dopplershift values and all stations hear the same frequency transmitted by the satellite.

- **UP (Uplink frequency correction only)**

That method is widely used for QSO's with stations without automatic frequency correction. They only need to adjust the Uplink frequency but not both. In principle, no manual adjustments are needed if both QSO partners use automatic frequency correction, provided that Doppler shift drift is similar for both stations. This is the case if they are not too far away from each other.

You can use the knob for the radio tuning in both UP+DN and UP modes!

Using PstRotator / Omnirig with TS-2000 for satellites tracking

PstRotator is able to control the TS-2000 radio in both SAT and VFO modes. Depending by the selected satellite (uplink and downlink in different bands or in the same band), the mode is automatically selected. The SAT mode offers a full duplex communication, so you can listen your own signal.

Using PstRotator / Omnirig with TS-790 for satellites tracking

PstRotator uses a customised omnirig ini file (TS-790.ini) to control a TS-790 radio in the SAT mode (full dupplex communication). This file can be found in the **OmniRigIni.zip** archive from the PstRotator folder.

Using PstRotator / Omnirig with the IC-820 / IC-821 / IC-910 / IC-9100 / IC-9700 for satellites tracking

PstRotator has been optimized to work with the Icom IC-821 and IC-910 transceivers for **Mode V/U** and **U/V** satellites by utilizing the main and sub bands.
In addition, Omnirig ini files (IC-820PST.ini, IC-821PST.ini, IC-910PST.ini, IC-9100PST.ini and IC-9700PST.ini) have been written specifically for this application and can be found in the PstRotator folder as an archive (**OmniRigIni.zip**). These files are also available for download on the PstRotator Yahoo Group (the Files section).
We recommend these .ini file should not be used with any other application as it may produce undesirable results. (IC-821.ini or IC-910.ini should be used instead).
Likewise, re-naming it will stop it from working with PstRotator.
IC-820PST.ini, IC-821PST.ini, IC-910PST.ini, IC-9100PST.ini and IC-9700PST.ini use **VFOA** commands to control the sub band for **receive** and **VFOB** commands to control the main band for **transmit**.
Due to the limitations of the IC-820 / IC-821 / IC-910 / IC-9100 / IC-9700 CI-v command set, some functions of PstRotator will not be available however we are constantly working on this to make your satellite experience as slick as possible.

The rig must be set to VFO mode before you start, not memo-tune.

1. Start up PstRotator.
2. Select "satellites" in the tracker menu.
3. Select the satellite you want to use from the satellites tracking window and Select tracking in the main window. This will populate the RX and TX frequency boxes, and your Rotators will start tracking the bird.
4. 4.Tick "use Omnirig" and configure to use Rig= IC-820PST, Rig= IC-821PST or Rig = IC-910PST
5. For SSB transponders-Select UP mode in PstRotator,
   Check that the displayed RX frequency in the Omnirig window of PstRotator is in the desired downlink band, if not, click [VFO A-B] to swap main and sub bands and cycle UP button off then on.
   Note-The Omnirig TX frequency will display 000000000, this is normal.
6. Check that the rig switches to the center of the uplink and downlink passbands.
7. You can now tune the downlink (sub band/rx) frequency and the TX frequency will track the Rig's rx frequency.
8. When you want to transmit, turn off manual mode, to prevent frequency updates from disrupting the transmission, and set rig to main band.
9. As with most tracking programs, you may have to adjust the initial uplink frequency in the Add Sat menu so you can hear your downlink. However, you should only have to do this once for each satellite you use.
   The easy way to do this is to set to UP+DN during a pass, then set linkage to "not linked", this lets you tweak the downlink only, using >>>/>>/>/+ /-/</<</<<< buttons, until you hear your uplink, then set linkage back on.
   You can then tune across the passband using >>> etc and the offset will be kept.
   You can then update the uplink frequency in "add satellite" menu to reflect your offset for next time.
10. For FM birds - use UP+DN mode, this will correct uplink AND downlink for Doppler. When you want to transmit, turn off UP+DN mode.
11. Note that when you are in Auto mode the RX frequency display in the Orbitron panel will show the TX frequency; this is normal and is caused by a limitation in the CI-V command set.

Using PstRotator / Omnirig with the FT-847 for satellites tracking

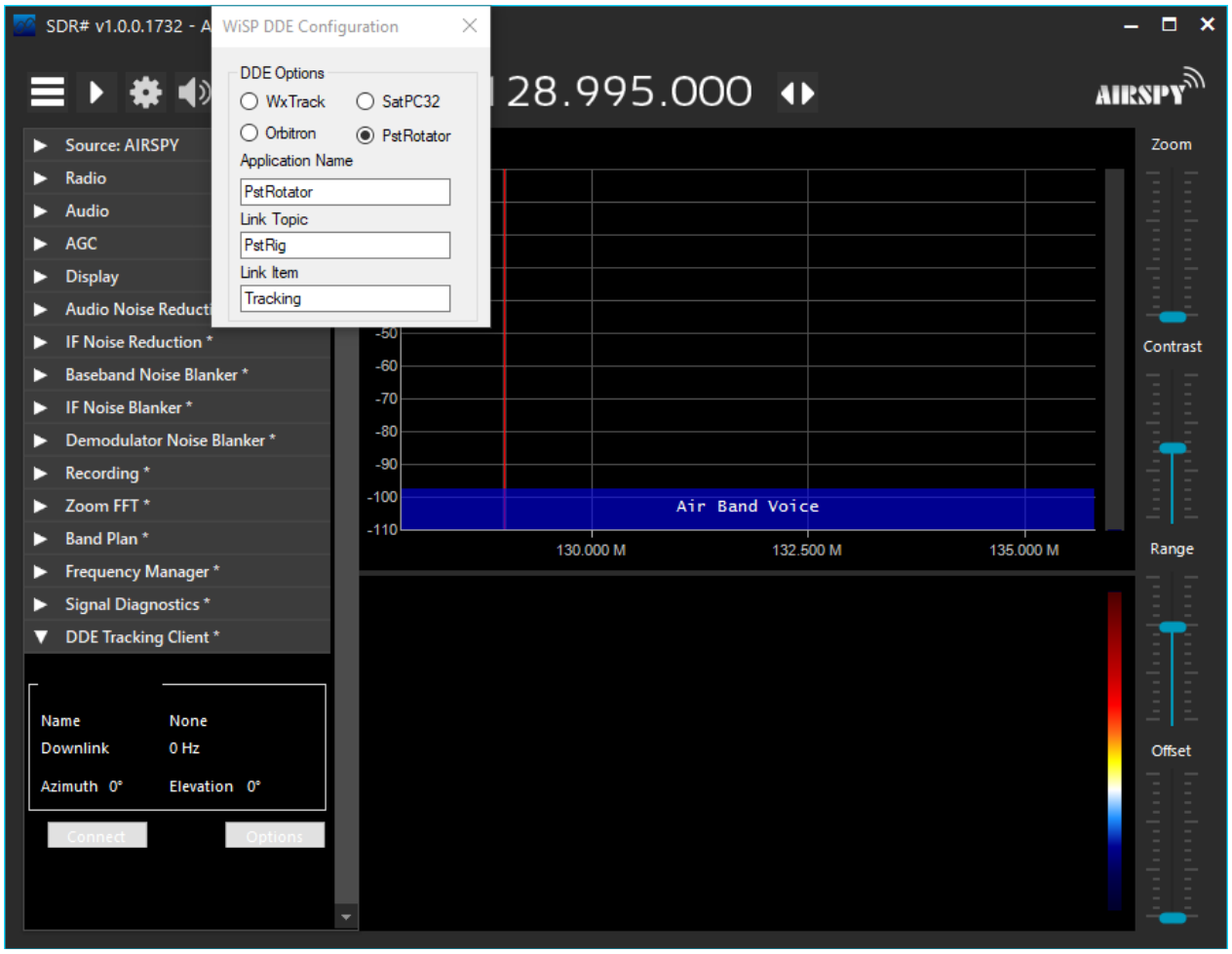
The FT-847PST.ini file has been written specifically for this application and can be found in the PstRotator folder as an archive (**OmniRigIni.zip**). This file is also available for download on the PstRotator Yahoo Group (the Files section).
Include this file in the Omnirig > Rigs folder.
In OmniRig you must select FT-847PST as rig.
When you press the **UP+DN** buton, the program will switch the radio in **Sat mode**, will set the modes and frequencies according to the selected satellite, and will automatically control both uplink and downlink frequencies based on the calculated Doppler.

Using SDR#

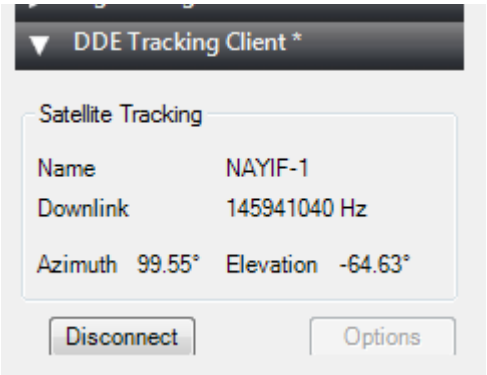
In the PstRotator folder you can find DDETrackerV8Binaries.zip. Unzip this file in the SDRSharp folder.

Edit the Plugins.xml file from the SDRSharp folder and add this line:
<add value="SDRSharp.DDETracker.DdeTrackingPlugin,SDRSharp.DDETracker" key="DDE Tracker"/>

In the SDR# program, DDE Tracking Client, Options, select PstRotator.
Modify:
Application Name: PstRotator
Link Topic: PstRig
Link Item: Tracking



Press the Connect button in DDE Tracking Client.



Calibration

PstRotator uses the Doppler.sqf file, the same file which is used by the SATPC32 program.
This file provides useful information about satellites for automatically Doppler correction, in a format like below:

AO-73,145960.0,435140.0,USB,LSB,REV,0,0,Transponder

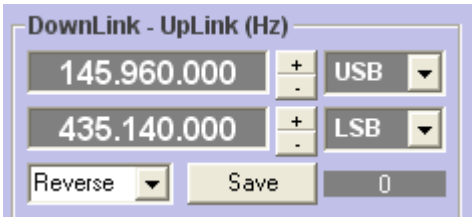
The program uses the first six fields:

Satellite Name:	Name matching the name in the Keplerian Elements file
Downlink Frequency:	True frequency in KHz on which the satellite is transmitting
Uplink Frequency:	True frequency in KHz on which the satellite is receiving
Downlink Mode:	emission used for this satellite on this downlink frequency
Uplink Mode:	emission used for this satellite on this uplink frequency
Tracking Mode:	whether the uplink and downlink frequencies track in normal or reverse mode

When you add a satellite in "Favorites", the same information is saved in the Satellites.txt file, like this:

[FUNCUBE-1 (AO-73)]
DownLink=145960000
UpLink=435140000
RxMode=USB
TxMode=LSB
Linkage=Reverse

When a satellite is selected in "Favorites" or in the "Next Pass" window, all this information is displayed in program:



Sometime the frequencies need to be corrected for some satellites. The reason could be the drift with temperature, some changes in time from the initial frequencies, or just an inaccurate information in the Doppler.sqf file.

This correction (named here "Calibration") is easy to be done if you use two radios (one for TX and one for RX), or if you use a radio which allow a full duplex communication:

- Select a satellite
- Press the UP+DN button (or the UP button)
- Transmit a signal
- Use the +- buttons from uplink or downlink until you can hear your signal
- Press the Save button

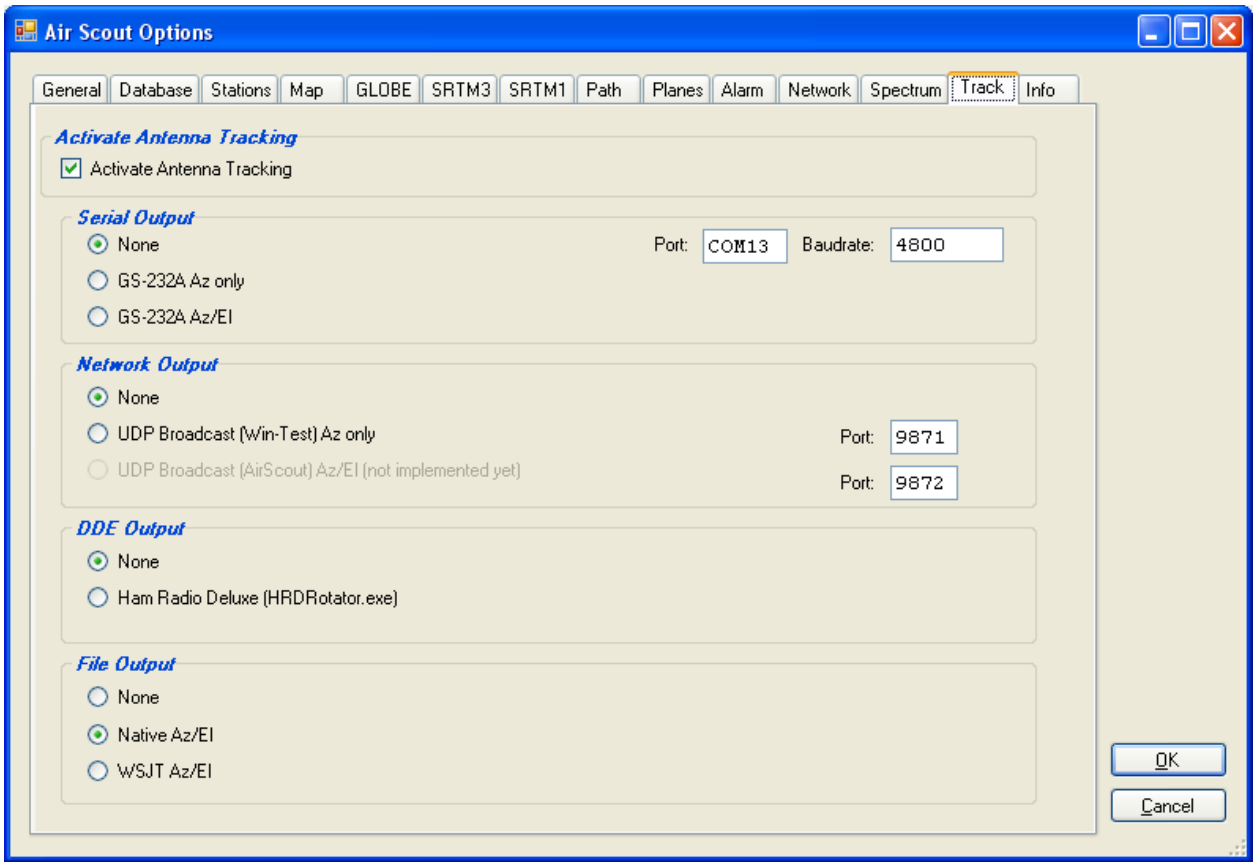
The changes are saved in the Satellites.txt file and will be used by program in the future.

AC Log

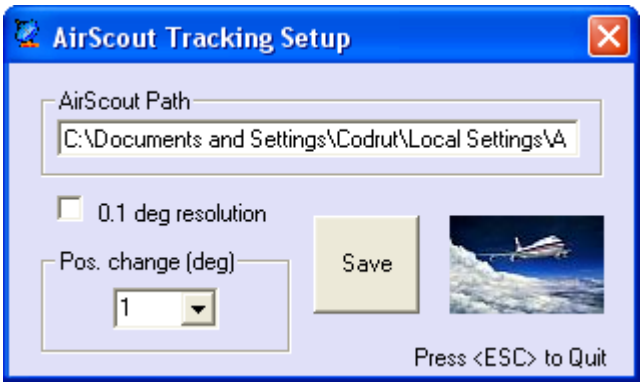
There is nothing to be configured in AC Log program.
In the PstRotator program select **AC Log** as Tracker and set mode to "**Tracking**" in the main window.
Write a callsign in the AC Log and the PstRotator will compute the azimuth and turn antenna.

AirScout

In **AirScout Options > Track menu**, enable "**Activate Antenna Tracking**" and select "**Native Az/El**" as File Output.



In PstRotator:
- select **AirScout as Tracker**, and select the **Tracking** mode in the main window
- in **Setup > Trackers Setup > AirScout Setup** put there the path of the AirScout temporary folder (in my case it is "C:\Documents and Settings\<user>\Local Settings\Application Data\DL2ALF\AirScout\Tmp").
You can use copy-paste from **AirScout Options > Database > Open Tmp Directory**.

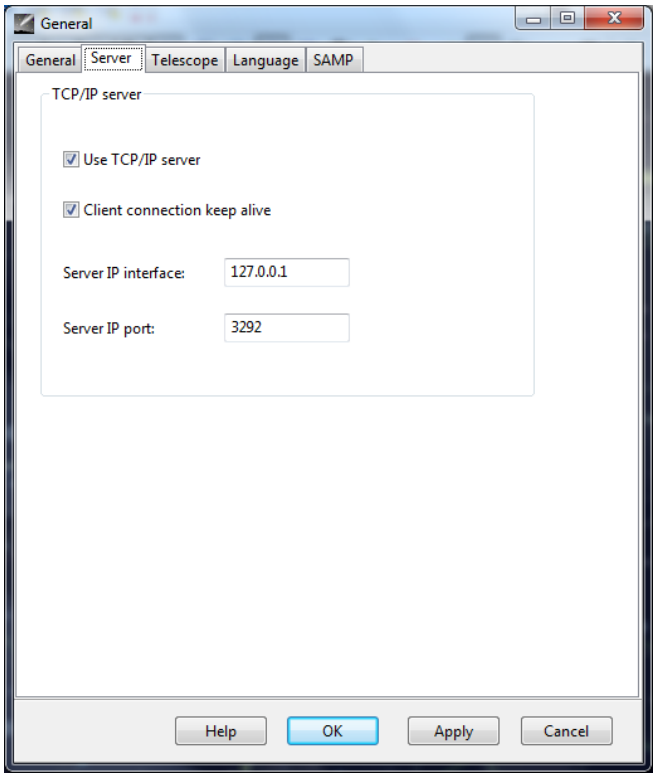


BBLogger

There is nothing to be configured in BBLoger program.
In the PstRotator program select **BBLogger** as Tracker and set mode to "**Tracking**" in the main window.
The "**AZIMUTH – Short**" information from the **QSO data** window will be sent to PstRotator, and PstRotator will turn the antenna.

Cartes du Ciel

Select "Cartes du Ciel" in the Tracker -> ASTRO menu, and select the Tracking mode in the main program window.
PstRotator will automatically connect to the TCP/IP server of Cartes du Ciel (IP=127.0.0.1, port=3292).
A click over a celestial object on map will pass the RA & DEC coordinates to PstRotator, which will start to track the object in sidereal mode.



CC User

CC User is a DX Cluster client program.
There is nothing to be configured in CC User program.
In the PstRotator program select "**CC User**" from the **Tracker** menu and change the **Mode** to Tracking.
An Alt+Click over a callsign in CC User will automatically rotate your antenna.

DX Monitor

DX Monitor is a standalone Windows program which monitors the DX announcements available on the internet at DX Summit.

PstRotator is DX Monitor aware. Simply clicking on a callsign or a beam heading in the DX Monitor window will transfer the information to the PstRotator control program, ready to turn the rotator with a single click on GO.

To use PstRotator with DX Monitor, simply select **DX Monitor** from the **Tracker** menu and change the **Mode** to Tracking.

DXLab Suite

- The first way to interface PstRotator with DXLab suite:
  - There is nothing to be configured in DXView program.
  - In the PstRotator program select **DXView** as Tracker and set mode to "**Tracking**" in the main window.
  The data from the "short" text box is sent to PstRotator. You can write some in that box or write a callsign and press "Go".

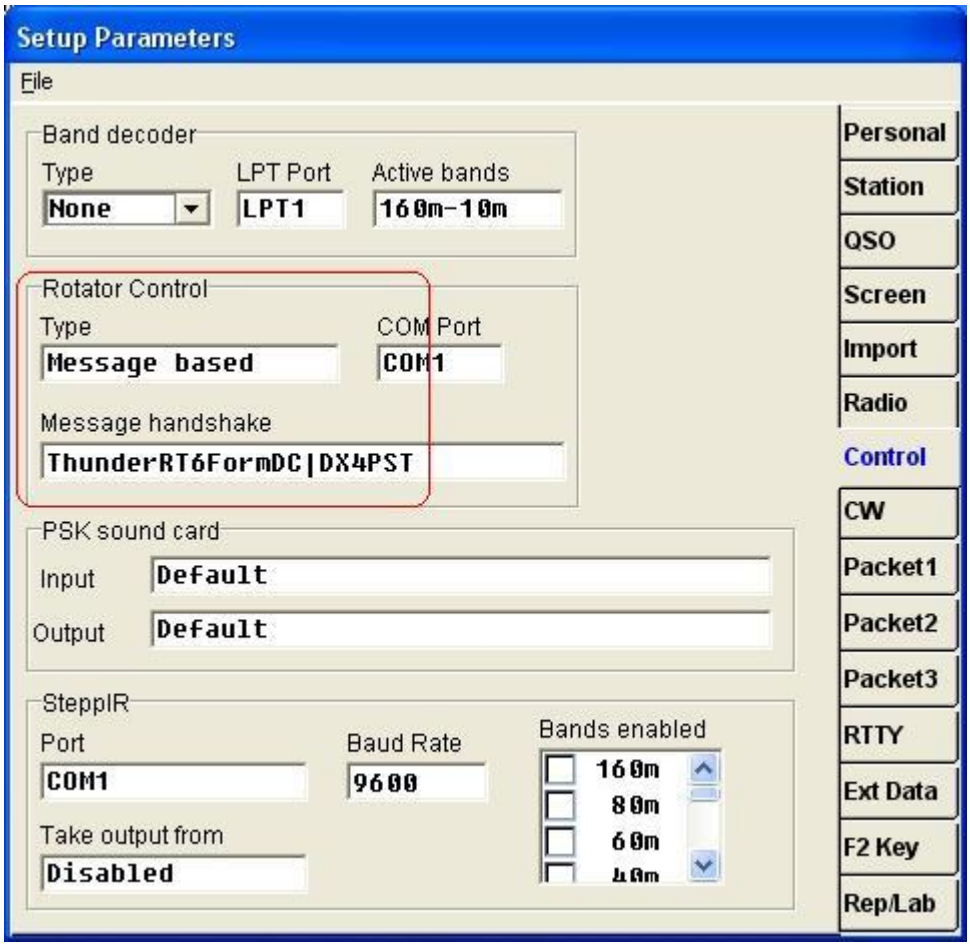
- A second way to interface PstRotator with DXLab Suite:
  - setting the **N1MM** as tracker in the PstRotator and as rotator in **DXView/Config/Rotator Control**.
  With these settings can be used the SP/LP buttons from DXView, or "rotate to ... heading for ..." context menu items from SpotCollector.

DX4WIN

In **DX4WIN** set **File/Preferences/Control/Rotator Control**

- Type = Message Based
- Message Handshake = ThunderRT6FormDC|DX4PST

Start the **PstRotator** program, select **DX4WIN** as tracker and set mode to "**Tracking**" in the PstRotator main window before to start the **DX4WIN** program.



Gpredict

- In GPredict go to "edit" then "interfaces" then "rotators" and make here a new rotator interface, you can use the standard port 4533. Best you give it the name, PstRotator.
- In PstRotator go to "tracker"and mark Gpredict.
- Also, in PstRotator mark the tracking option.
- In Gpredict select "antenna control", in this box here select "PstRotator" (remember you have made that interface at begining) and push Engage
- In the same box select in Target your satellite and push Track.

GJTracker

In PstRotator select **GJTracker** as Tracker and set **Tracking** to Mode in the main window.
Be sure that you have correct configured in **Setup > Trackers Setup > Trackers Path** the path for the GJTracker folder.
There is nothing to be configured in GJTracker to be interfaced with PstRotator.

HalloSat

In PstRotator select **HalloSat** as Tracker and set **Tracking** to Mode in the main window.
There is nothing to be configured in HalloSat to be interfaced with PstRotator.
PstRotator uses the AZ / EL information found in Rotorcontrol window for tracking.

HamScope

Start the HamScope program before to start PstRotator.
There is nothing to be configured in HamScope program.
In the PstRotator select **HamScope** as tracker and set mode to "**Tracking**" in the main window.
Write a callsign in HamScope, and it will be sent to PstRotator (in the Prefix field). PstRotator will compute the azimuth and turn antenna on that direction.

HamRadioDeluxe

This interface between PstRotator and Ham Radio Deluxe v5 uses the DDE communication between programs. PstRotator will replace in this case the HRD Rotator.

In PstRotator, in addition to selecting **HamRadioDeluxe** as the **Tracker**, you also need to select the **Tracking** box in **Mode**.

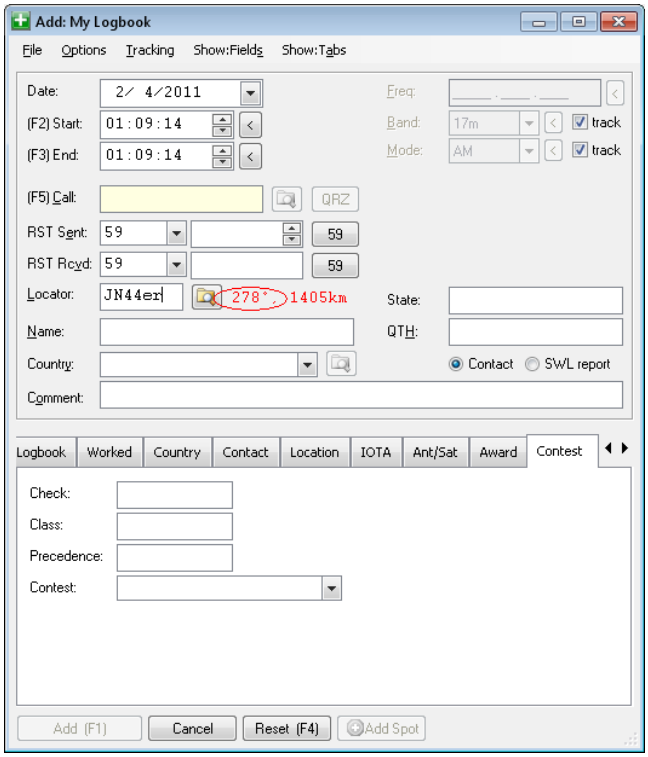
In Hrd Logbook go to **Rotator** (right & up corner), and press **Connect**.

- Don't open the HRD Rotator program! -

You can control the rotator direction from by:

1. Double clicking on the Rotator Dial in the desired direction.

2. Clicking on the bearing in ALE.
First, the callsign you enter in ALE must have a grid square (and your grid square also needs to be set in HRD), otherwise the bearing and distance will not show.



3. Double clicking on the Greyline Map in the desired direction.

HRD Logbook

This second interface with HamRadioDeluxe makes things easier.
There is nothing to be configured in HRD Logbook.
In PstRotator select **HRD Logbook** as **Tracker** and set the **Tracking** box in **Mode**.
Write a callsign in HRD Logbook and PstRotator will capture this callsign and rotate antenna automatically.

HRD Satellite Tracking

- Start **HRD Satellite Tracking**
- Go to **Tools > DDE Server** and select **Nova**
- Select a satellite
- Check the **RX** checkbox
- Start **PstRotator**
- Select **HRD Satellite** as **Tracker**
- Set **Tracking** to **Mode**

JT65-HF

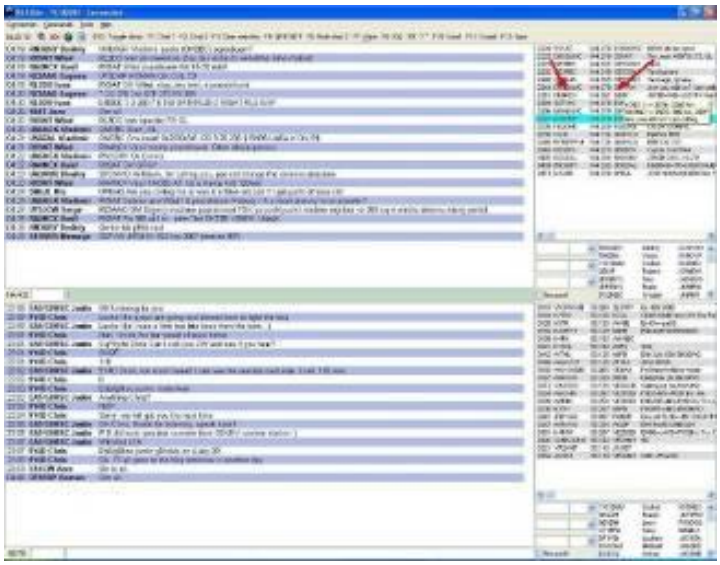
There is nothing to be configured in JT65-HF to be interfaced with PstRotator.
In the PstRotator program select **JT65-HF** as Tracker and set mode to "**Tracking**" in the main window.
Write a callsign in the JT65-HF ("TX to Call Sign" text box), and the PstRotator will rotate the antenna.

KLog

There is nothing to be configured in KLog to be interfaced with PstRotator.
In the PstRotator program select **KLog** as Tracker and set mode to "**Tracking**" in the main window.
Write a callsign in the KLog, and the PstRotator will rotate the antenna.

KST2Me

KST2Me is a telnet-based client for Windows that is tailored to the ON4KST Chats.
There is nothing to be configured in the KST2Me.
In the PstRotator, select **KST2Me** as Tracker and set **Tracking** to mode in the main window.
With a mouse click over DX or Submitter, the azimuth information computed by KST2Me is sent to PstRotator, and this will rotate the antenna on that direction.

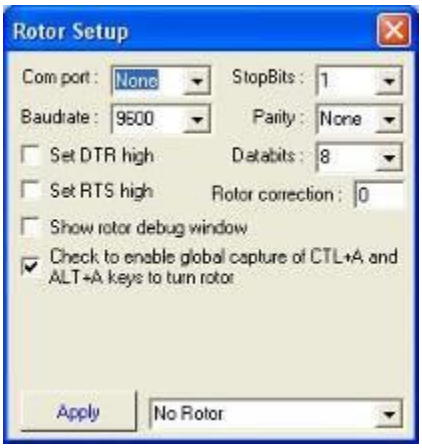


Logger32

Open both programs PstRotator and Logger32.
In the PstRotator program select **Logger32** as **Tracker** and set **Tracking** to mode in the main window. Under "**Setup / Trackers Setup"** it can be find "**Logger32 Setup…"**. This provides filtering by bands, giving the possibility to manage more than one rotor. Take a look at "PstRotator managing more than one rotator (multiple instances)" chapter. You can select the band (or the bands) in which PstRotator program will control the antenna.

In the Logger32 program:

- check to enable global capture of **CTL+A** and **ALT+A** keys to turn rotor



- enter a callsign
- use **Ctrl A** to send the azimuth information from Logger32 to PstRotator program

LOGic9

Start the LOGic9 program before to start PstRotator.
In the PstRotator select **Logic9** as tracker and set mode to "**Tracking**" in the main window.
Write a callsign in Logic9 LOG--MAIN window, press TAB, and it will be sent to PstRotator (in the **Call** field). PstRotator will compute the azimuth and turn antenna on that direction.

How to register the logicserver.exe. This is necessary to have PstRotator communicating with LOGic 9.

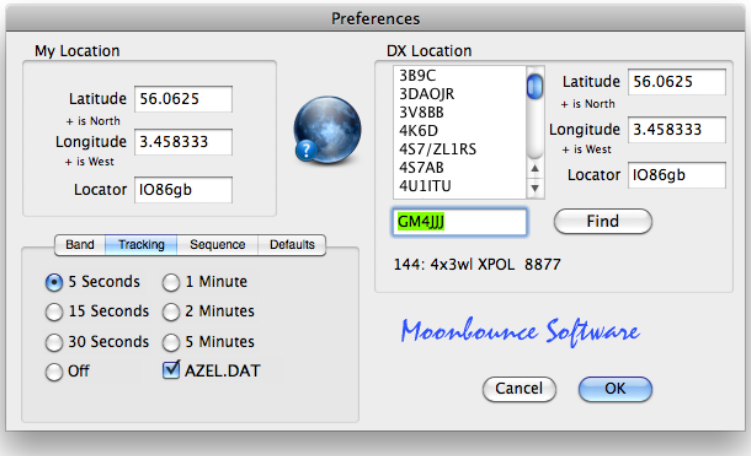
- Put a copy of logicserver.exe in the LOGic install folder. C:\program files (x86)\LOGic for example.
- Run the DOS command prompt. Type CMD in the Windows search box.
- CD into the LOGIC install folder (C:\program files (x86)\LOGic for instance):
- C:
- CD \program files (x86)\LOGic forexample.

If that does't work, try

- C:
- CD \program files\LOGic
- Now, type LOGICSERVER /REGSERVER

MoonSked

In Preferences Tracking there is a new checkbox AZEL.DAT. This determines whether the AZEL.DAT file is produced. Check it in order to use MoonSked with PstRotator.

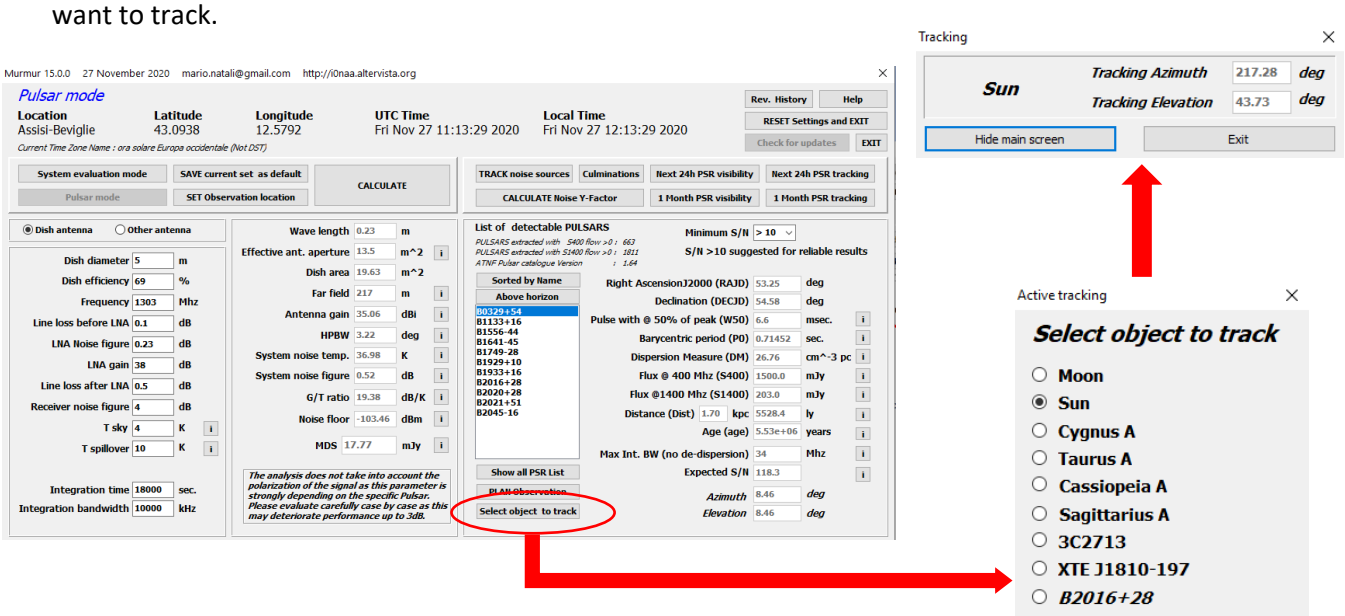


Note that azel.dat is only produced when the Moon Track or the Noise Source Track windows are running. The Noise Source takes priority, so if you have Sun selected there the tracking data sent to azel.dat will be for the Sun, even if Moon Track is also open.
In PstRotator select **MoonSked** as Tracker and set **Tracking** to mode.

Murmur

Select **Murmur** in the Tracker -> ASTRO menu, and select the Tracking mode in the main program window.

In the **Murmur** main screen click on "Select object to track" and set on the pop-up screen the object you want to track.



N1MM+

The PstRotator program uses the UDP broadcasts of the N1MM logger. The UDP port used to send messages from N1MM Logger is always 12040.
PstRotator and N1MM can stay on the same PC or on different PCs in the same local network.

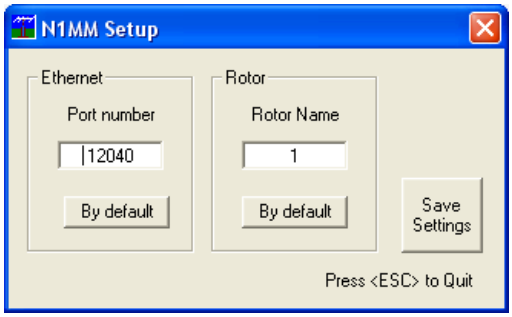
Rotor control

Rotators can be controlled from N1MM logger in several different ways:

- **Entry window:**
  - by entering a beam heading in the callsign field and press Alt+J. The rotor will turn to the entered beam heading
    - Example:**234 Alt+J** will turn the rotor to 234 degrees
    - The number must be numeric, >= 0 and <= 360
  - using the menu items in the Tools menu
    - **Turn Rotor Alt+J** - Turn rotor to bearing for the callsign in the Entry window
    - **Stop Rotor Ctrl+Alt+J** - Stop turning the rotor when turning and no bearing in callsign field in Entry window
  - using the short cut keys below:
    - **Alt+J** - Turn rotor to bearing for the callsign in the Entry window or to the callsign in the callframe (when callsign field is empty)
    - **Alt+L** - Turn rotor to long path bearing for the callsign in the Entry window
    - **Ctrl+Alt+J** - Stop turning the rotor when turning and no bearing in callsign field in Entry window
- Bandmap window: by right clicking on a spot and select: 'Turn Rotor'
- Available Mult's and Q's window: by right clicking on a spot and select: 'Turn Rotor'

Rotor Port, Rotor Name

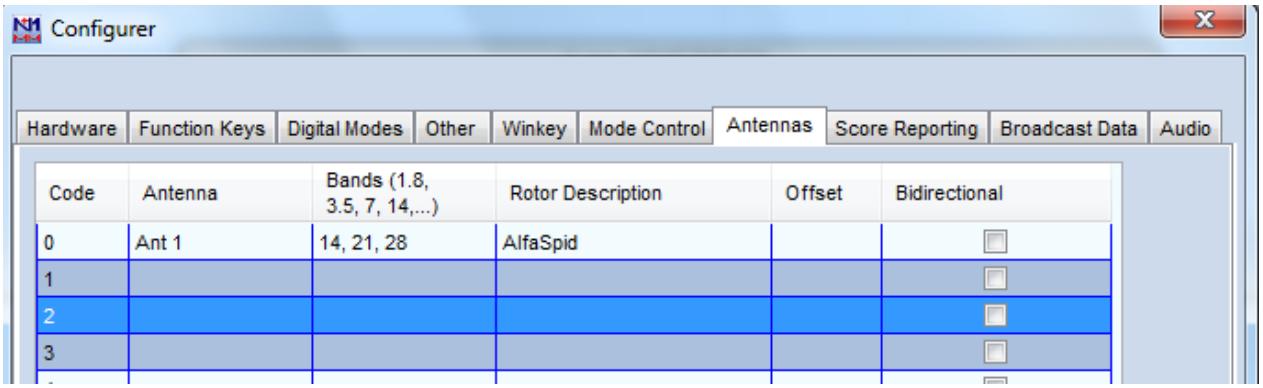
Set the same **Ethernet port number** for both programs. Default value is **12040**.



N1MM Setup window in the PstRotator program

The Rotor Description in the N1MM Antennas tab can either be a number, or an alphanumeric name for the rotator. If a number or alphanumeric name in entered in the Rotor Port Antenna tab, then the same number or alphanumeric name must be entered in the PstRotator Rotor Setup form.

Setting "**Bands**" and "**Rotor Port**" can be obtained filters for antenna groups. For example, if you have an antenna for 14,21 and 28 and want to turn it only when you work in these bands, use the same Rotor Description / Name for both programs (N1MM and PstRotator) and 14,21,28 to Bands in N1MM.



N1MM Configurer window

nGenLog

There is nothing to be configured in LOGic8 program.
In the PstRotator program select **nGenLog** as Tracker and set mode to "**Tracking**" in the main window.
Write a callsign in the nGenLog - QSO Editor and the PstRotator will compute the azimuth and will turn antenna on that direction.

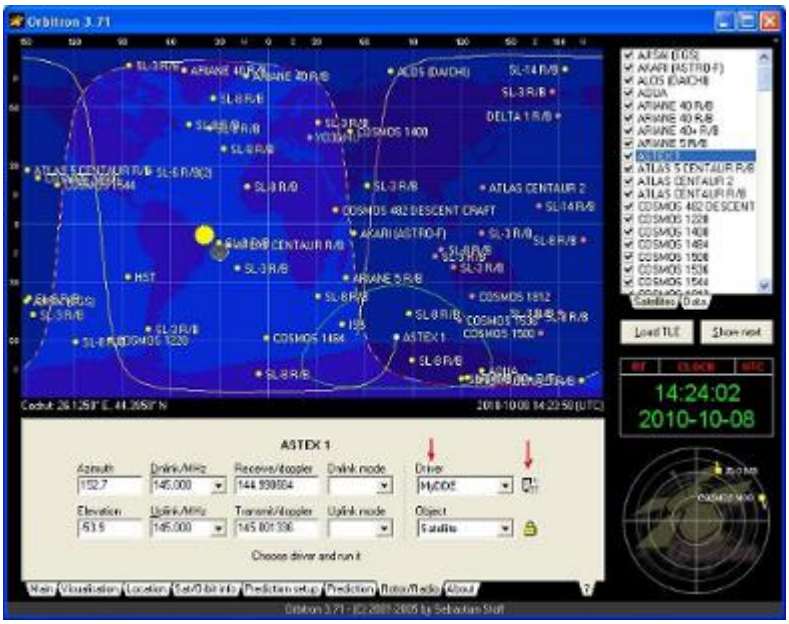
Nova for Windows

- In Nova for Windows you must set DDE Only as Antenna Rotator (Setup/Antenna Rotator).
- In PstRotator select Nova as Tracker, and set Tracking mode.

If your OS is Windows7, you must run the programs as Administrator (you can find how to set this at the end of this document).

Orbitron

- In the PstRotator program select **Orbitron** as Tracker and set mode to "**Tracking**" in the main window
- In the Orbitron program go to **Rotor/Radio**, select **MyDDE** as Driver and press the button from the right part of the Driver box.



If you don't have any MyDDE driver selected before, the Orbitron program will ask you for the program which will be used as tracker. You have to select PstRotator from its folder. Usual this is C:\Program Files\PstRotator.

If you already used another program as MyDDE driver, you must to erase it from the Orbiton configuration file:

C:\Program Files\Orbitron\Config\Setup.cfg

Or you can manually add/modify in Setup.cfg:

[Drivers]

MyDDE=C:\Program Files\PstRotator\PstRotator.exe

The next times when you will use Orbiton, this will automatically open the PstRotator program. You need only to set Tracking to Mode in the main window to start the tracking.

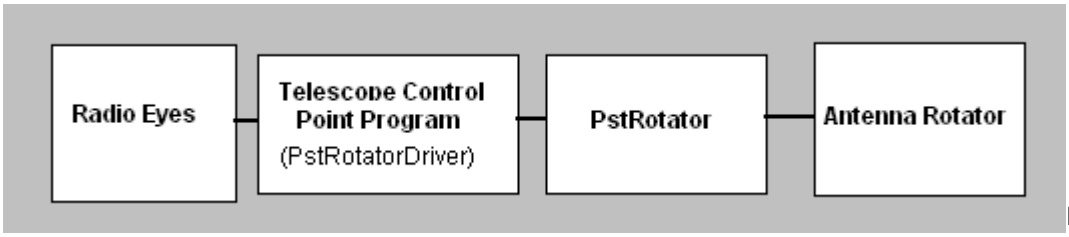
Radio-Eyes 1

There is nothing to be configured in Radio-Eyes 1 to be interfaced with PstRotator.
In PstRotator select **Radio-Eyes 1** as Tracker and set mode to "**Tracking**" in the main window.
PST just follows whatever is in the desired ALT-AZ text boxes on the main RE window.

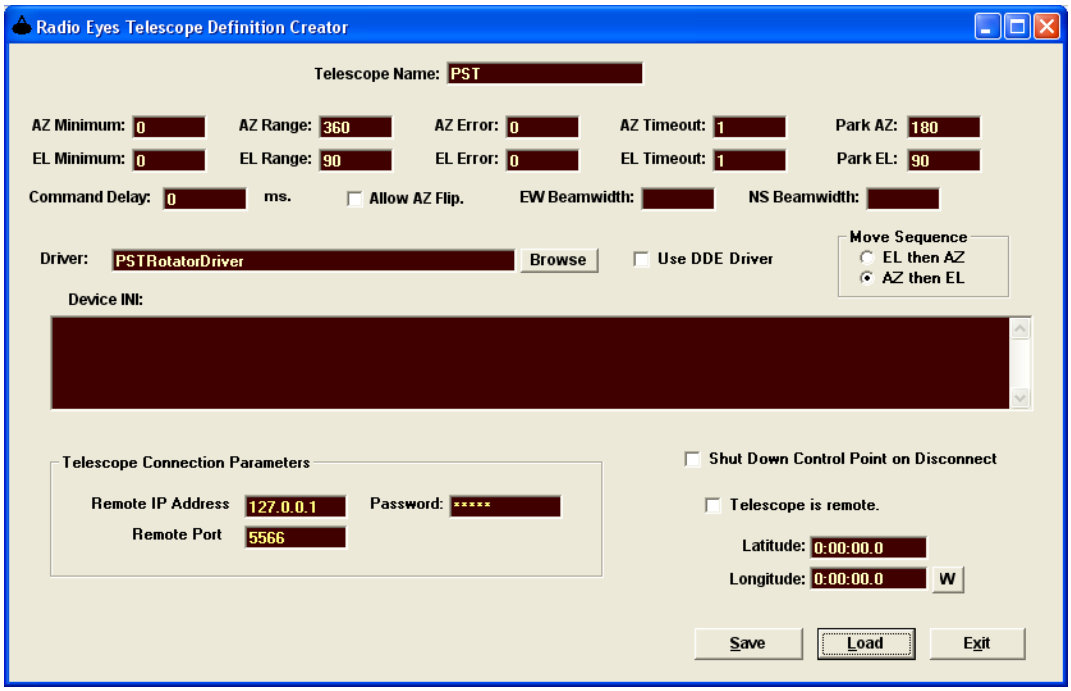
Radio-Eyes CP

To use PstRotator with the TCPP you must select **Radio Eyes CP** under the Tracker menu item in PstRotator.

You may download the driver from http://radiosky.com/radioeyes/drivers/PstRotatorDriver.exe
Place this file in your Radio Eyes 1\TelescopeDrivers directory.

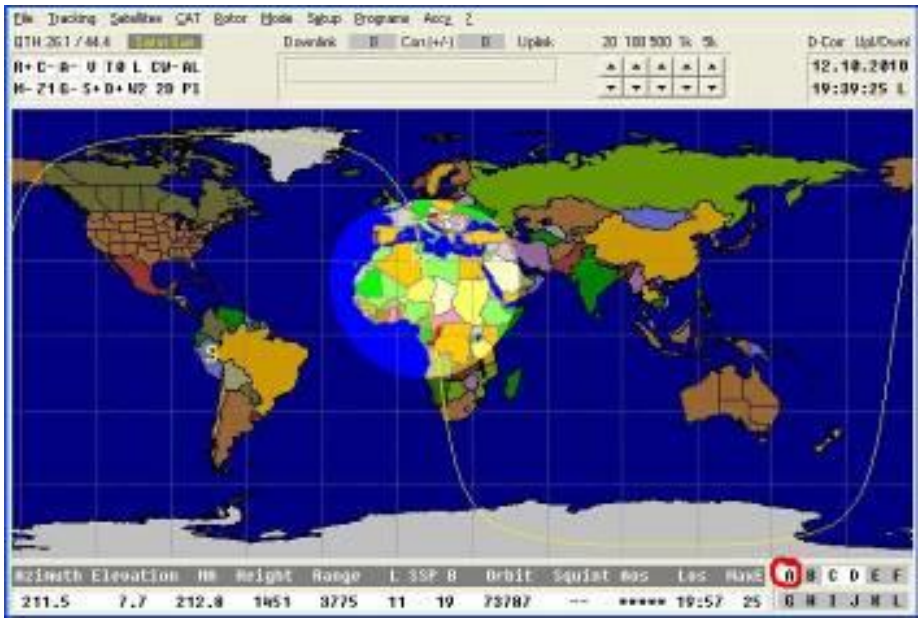


In the telescope definition file (TDF) you should specify PstRotatorDriver.exe as your driver. The telescope definition creator/editor might appear as shown below.



SatPC32

In PstRotator select **SatPC32** as Tracker and set **Tracking** to Mode in the main window.
In SatPC32 press one of the **A-L** letters corresponding to a satellite which has the elevation > 0 (white coloured).



Sidereal

Sidereal tracking of the antenna

The antenna stays pointed on a celestial target that has been manually pointed on, so that the rotation of the earth is eliminated. The functionality could be like described below:

- You point the antenna manually to the desired celestial target, getting the Azimuth and Elevation from a suitable planetarium program.
- You select "**Sidereal**" in the **Tracker** list of PstRotator and press the **Tracking** button in the **Mode** field of the PstRotator window.
- The program now converts the AZ / EL coordinates to RA / DEC coordinates, using the observer's position and the actual time and stores these values internally.
- Each 1 sec. the program takes the stored initial RA / DEC coordinates and converts them back to AZ / EL, using the new actual time. The new AZ / EL values are used to command the antenna rotor controller to correct the antenna position if needed.

The antenna will stay pointed at a constant RA / DEC coordinate, and will track any stationary astronomical object perfectly. Slow moving objects like planets will in practice also be tracked for a very long period before the error exceeds one degree.

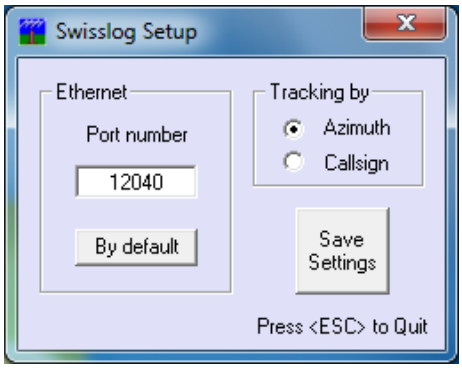
All this without any external tracking programs!

Swisslog

PstRotator settings:

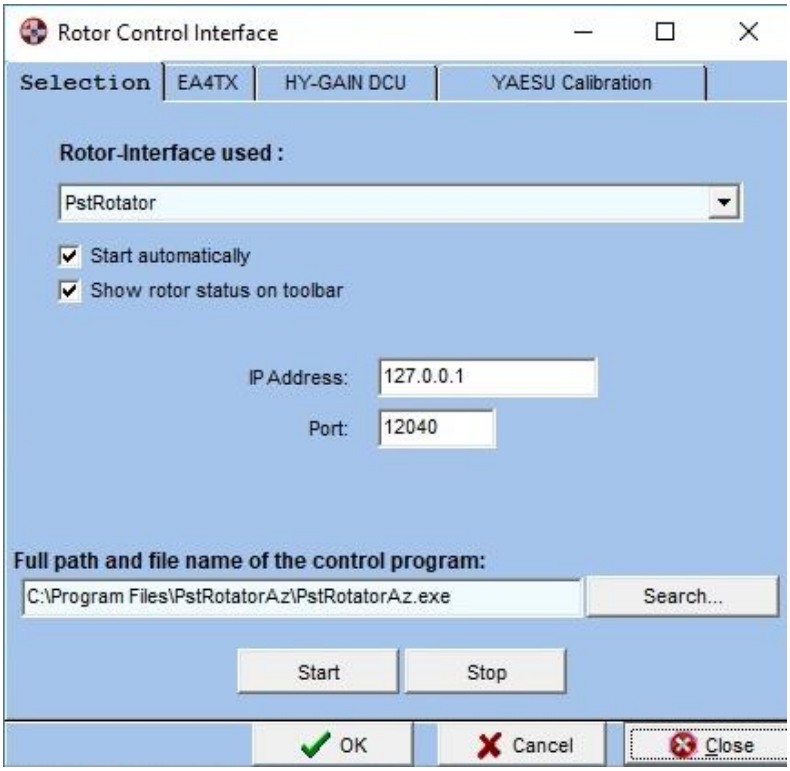
- Select **Swisslog** as Tracker
- Set mode to "**Tracking**" in the main window
- It is possible to select to track by Azimuth or by Callsign, or to change the default TCP/IP port

from Setup -> Trackers Setup -> Swisslog Setup



Swisslog settings:

Go to **Swisslog > Options > Rotor-Interface** and select PstRotator as rotor interface.

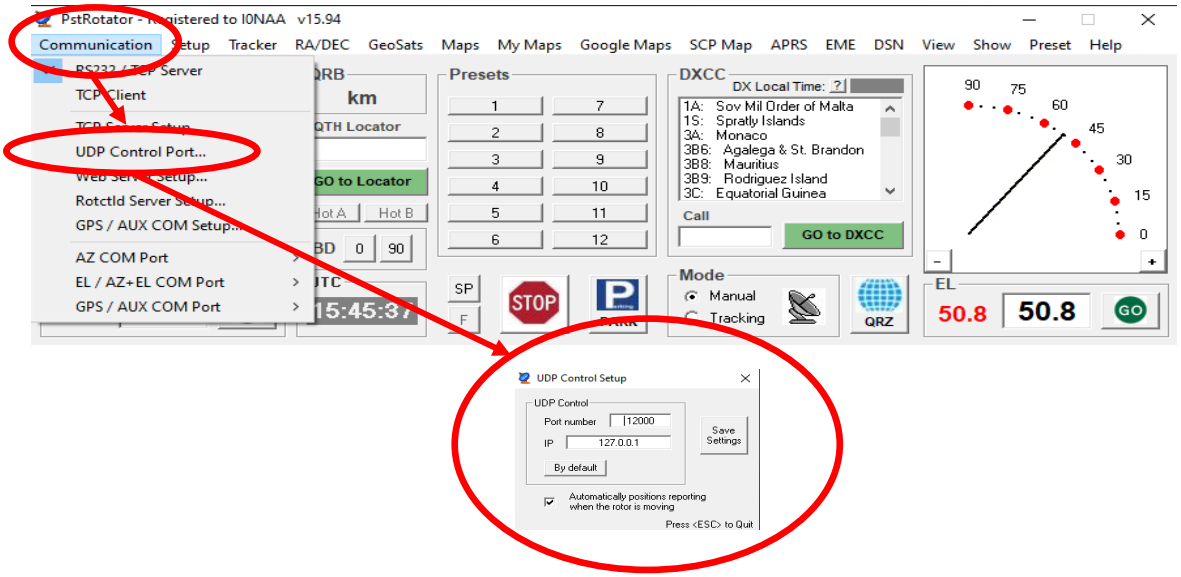


TACLog

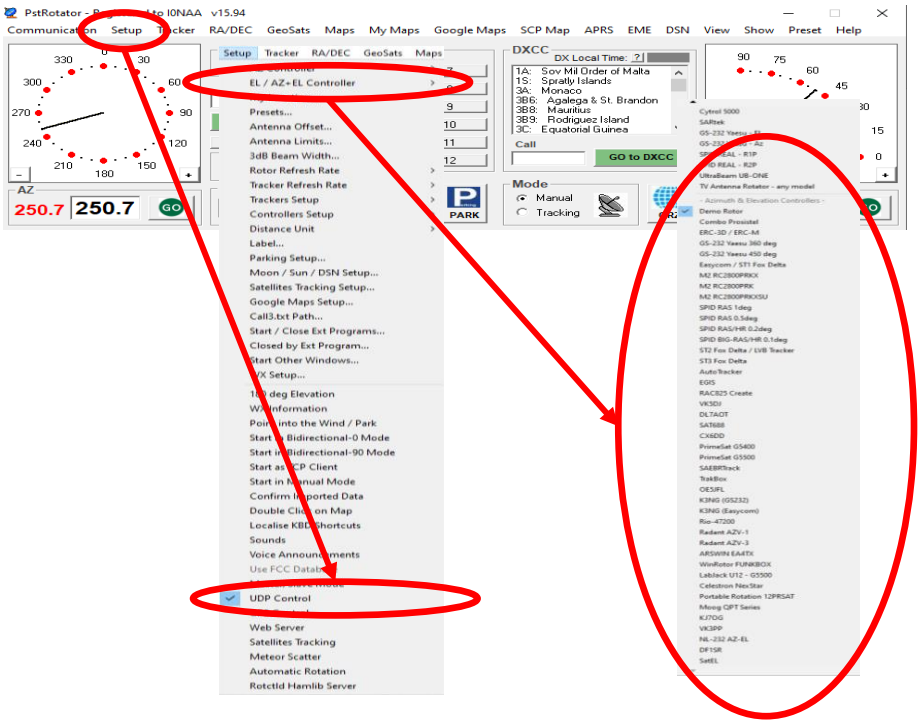
Upgrade the TACLog program to V2.01. It appears that V1.991 did not include the rotator control feature.
Open the TACLog program, start a contest and press **Alt+A**.
Open the PstRotator program, select **TACLog** as Tracker and set **Tracking** to Mode.
Use **Alt+A** to send the azimuth information from TACLog to PstRotator.

TotalPower

1. Set UDP control port parameters:
   a. Communication -> UDP Control Port
   b. Set Port number 12000 (default)
   c. Mark "Automatically Positioning reporting …"
   d. Save Settings



2. Set UDP mode active: Setup UDP Control
3. Set EL / AZ Controller: EL / AZ +EL Controller -> mark your own controller



TRX-Manager

In TRX-Manager:

- Select **PstRotator** to rotor model. (**Parameters > Setup > Rotator 1 > PstRotator**).
- Set **Path** for **PstRotator.**

In PstRotator select **TRX-Manager** as Tracker and set **Tracking** to mode.

VHFCtest4WIN

There is nothing to be configured in VHFCtest4WIN to be interfaced with PstRotator.
In PstRotator select **VHFCtest4WIN** as Tracker and set mode to "**Tracking**" in the main window.
PstRotator captures the information from the locator box of the VHFCtest4WIN, and if a valid value is found, PstRotator calculates the antenna azimuth and rotates it automatically.

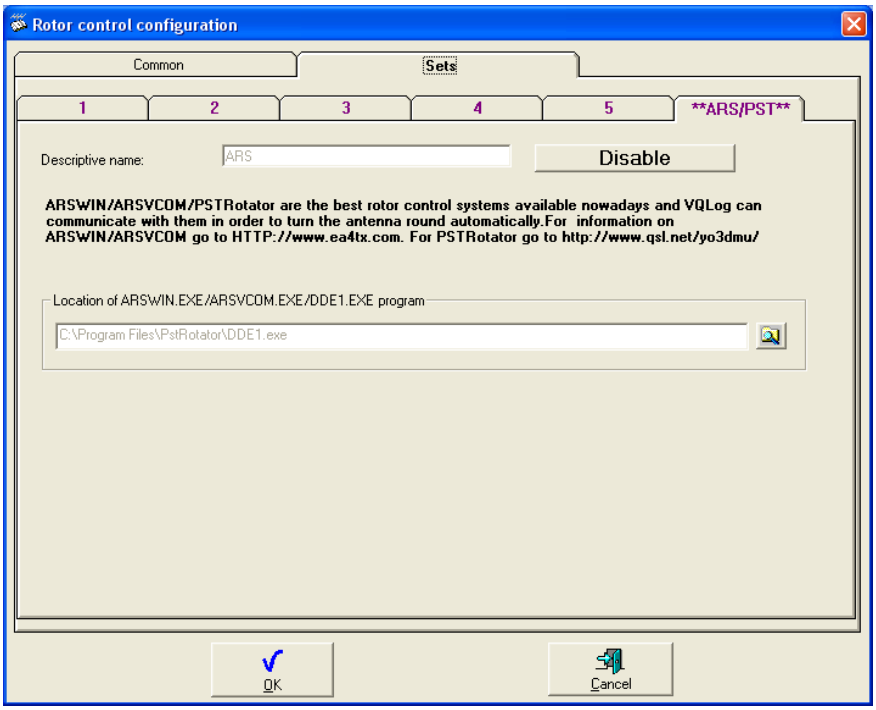
VHFLog

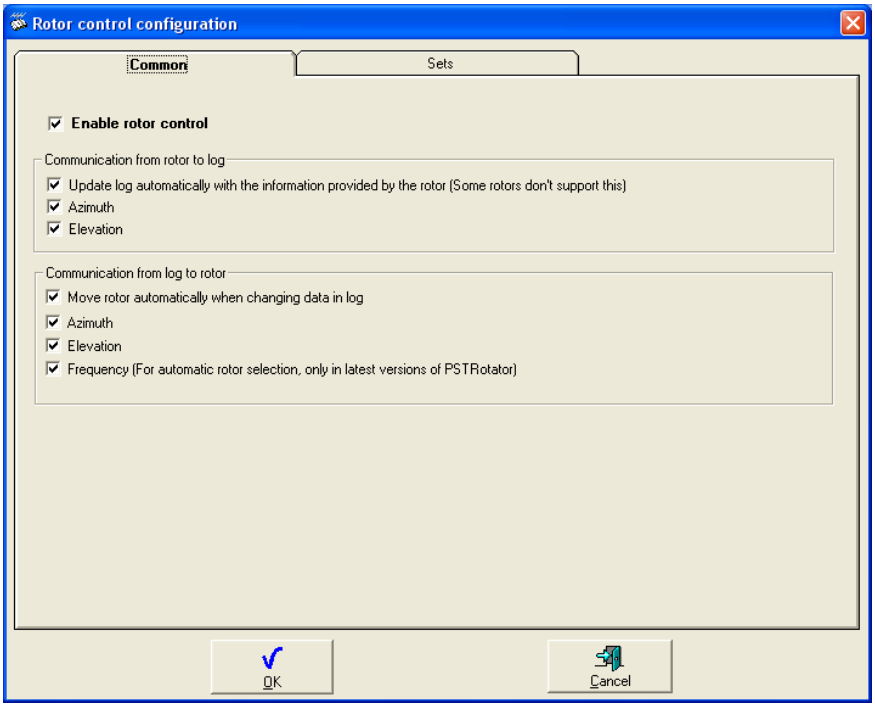
There is nothing to be configured in VHFLog to be interfaced with PstRotator.
In PstRotator select **VHFLog** as Tracker and set mode to "**Tracking**" in the main window.
PstRotator captures the information from the locator box of the VHFLog, and if a valid value is found, PstRotator calculates the antenna azimuth and rotates it automatically.

VQLog

VQLog settings:

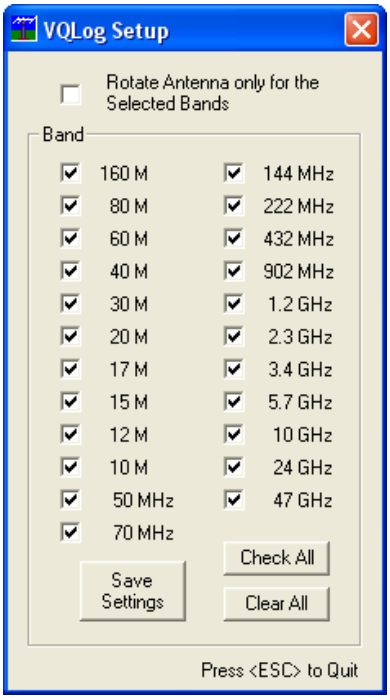
- in **Configuration / Rotor Control / Sets** set the location of the **DDE1.exe** file from the PstRotator folder, and press the **Enable** button
- Check all the checkboxes in the **Common** window





PstRotator settings:

- **Select VQLog** as Tracker, and **Tracking** to Mode.
- If you don't need to rotate antenna for all the bands, or you use many PstRotator instances to control more than one antenna rotator, check **Rotate Antenna only for the Selected Bands** checkbox and select the bands where your antenna works.



WinREF-THF

There is nothing to be configured in WinREF-HF to be interfaced with PstRotator.
In PstRotator select **WinREF-THF** as Tracker and set mode to "**Tracking**" in the main window.
PstRotator captures the information from the locator box of the WinREF-HF, and if a valid value is found, PstRotator calculates the antenna azimuth and rotates it automatically.

WinREF-HF

There is nothing to be configured in WinREF-HF to be interfaced with PstRotator.
In the PstRotator program select **WinREF-HF** as Tracker and set mode to "**Tracking**" in the main window.
Write a callsign in the WinREF-HF, and the PstRotator will rotate the antenna.

Win-Test

Type a prefix in Win-Test, press **CTRL+F12** (or **ALT+F12**), and the PstRotator will turn the antenna.

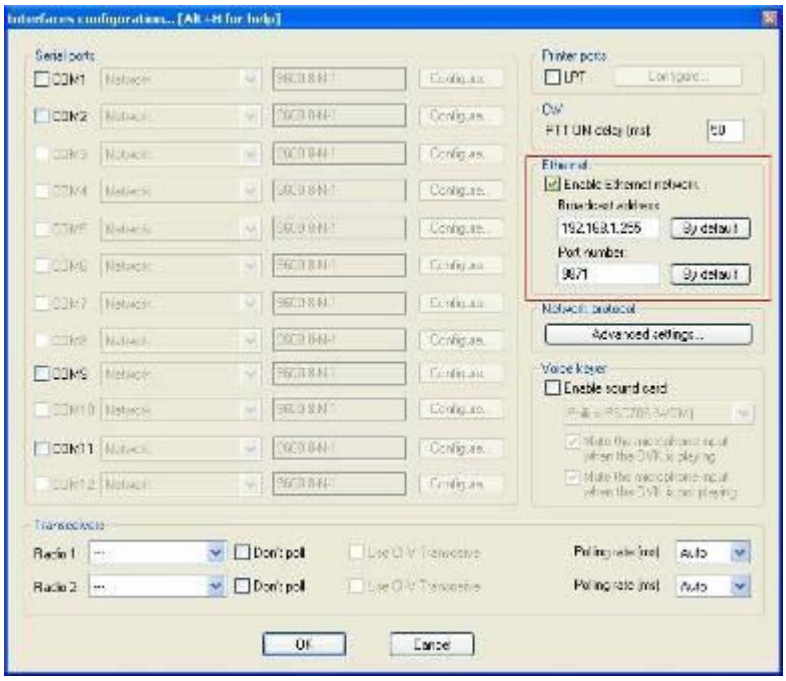
You don't need to have wtRotators on your PC. Win-Test sends broadcast the azimuth information via UDP and the PstRotator will receive it.

So, you can have the PstRotator on the same PC with Win-Test or on another PC on network.

Or you can have WinTest on a PC and many other PCs with PstRotator installed and every PstRotator will control an antenna (all antennas will be on the same direction).

Win-Test and PstRotator configuration:

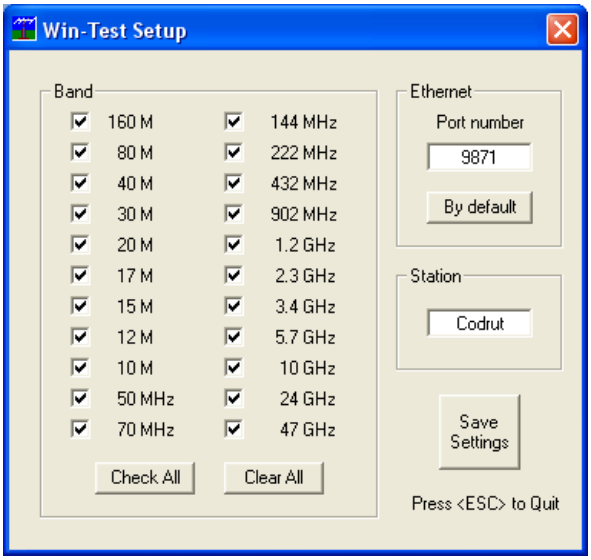
In Win-Test go to "**Options>Configure interfaces**", pres "**By default**" buttons for both "**Broadcast address**" and "**Port number**", and check "**Enable Ethernet network**". And press the "**OK**" button.



To send azimuth information from Win-Test to PstRotator, press **Alt+F12** for Long Path, or **Ctrl+F12** for Short Path.

In PstRotator, you must to select **Win-Test** as Tracker and set "**Tracking**" to mode.

PstRotator allows to set the UDP communication port (default value is 9871) and to select the bands as a filter for the position information received from the Win-Test program.



Set the station name "STN1" or "STN2" etc. in the **"Station"** field. This is useful when you are in a multi station contest environment and other win-test stations send UDP packets over the network with frequency or azimuth information.

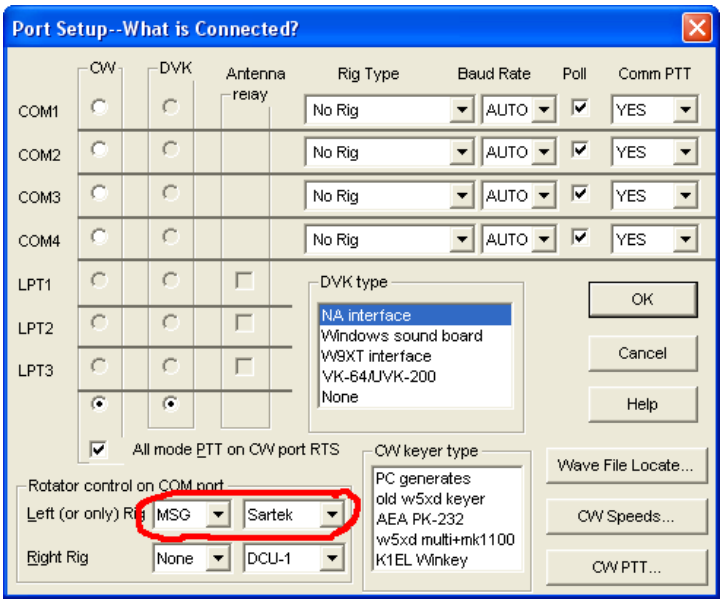
To communicate both programs must to have the same Station name. So, don't forget to set this!

Wlog2000

There is nothing to be configured in Wlog2000.
In the PstRotator program select **Wlog2000** as Tracker and set mode to "**Tracking**" in the main window.
Write a callsign in the Wlog2000 and the PstRotator will compute the azimuth based on the cty.dat file and will turn antenna on the right direction.

WriteLog

In WriteLog go to **Port Setup** and set **Rotator Control** to **MSG** and **Sartek**
In PstRotator select **WriteLog** as Tracker and set mode to "**Tracking**" in the main window.



Start PstRotator before to start WriteLog. To turn antenna, go to Radio / Antena to … Azimuth

WSJT

In PstRotator select **WSJT > Moon, WSJT > Sun** or **WSJT > Source** as Tracker and set **Tracking** to Mode in the main window.
Be sure that you have correct configured in **Setup > Trackers Setup > Trackers Path** the path for the WSJT folder.
There is nothing to be configured in WSJT to be interfaced with PstRotator.

WSJT-X

There is nothing to be configured in WSJT-X.
In PstRotator, Setup > Trackers Setup > WSJT-X Setup... you must set the path of the folder which contains the "wsjtx_status.txt" file.
Starting with the WSJT-X v1.4 version, the "wsjtx_status.txt" file is no more placed in the WSJT-X folder. You can find it in a Temp folder, and only when the WSJT-X program is running. The path could be: C:\Users\<user>\AppData\Local\Temp\WSJT-X. If you have problem to find and set the correct path to this file, the easiest way is:
- open PstRotator
- go to Setup -> Trackers Setup -> WSJT-X Setup...
- delete any path from there and press the Save Settings button.

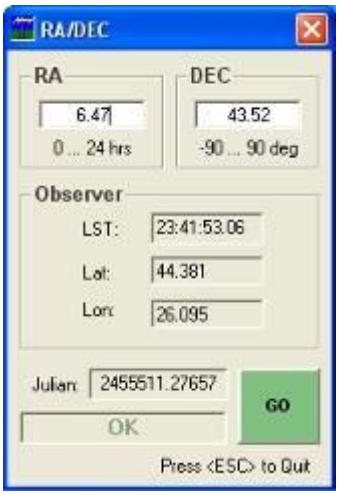
- close PstRotator
- restart PstRotator
Doing all these the program will try to automatically set the correct path to that file.

Z-Track

In PstRotator select **Z-Track** as Tracker and set **Tracking** to Mode in the main window.
Be sure that you have correct configured in **Setup > Trackers Setup > Trackers Path** the path for the Z-Track folder.
There is nothing to be configured in Z-Track to be interfaced with PstRotator.

RA/DEC

Enter a RA/DEC coordinate pair from the keyboard and point the antenna in the corresponding AZ/EL direction.



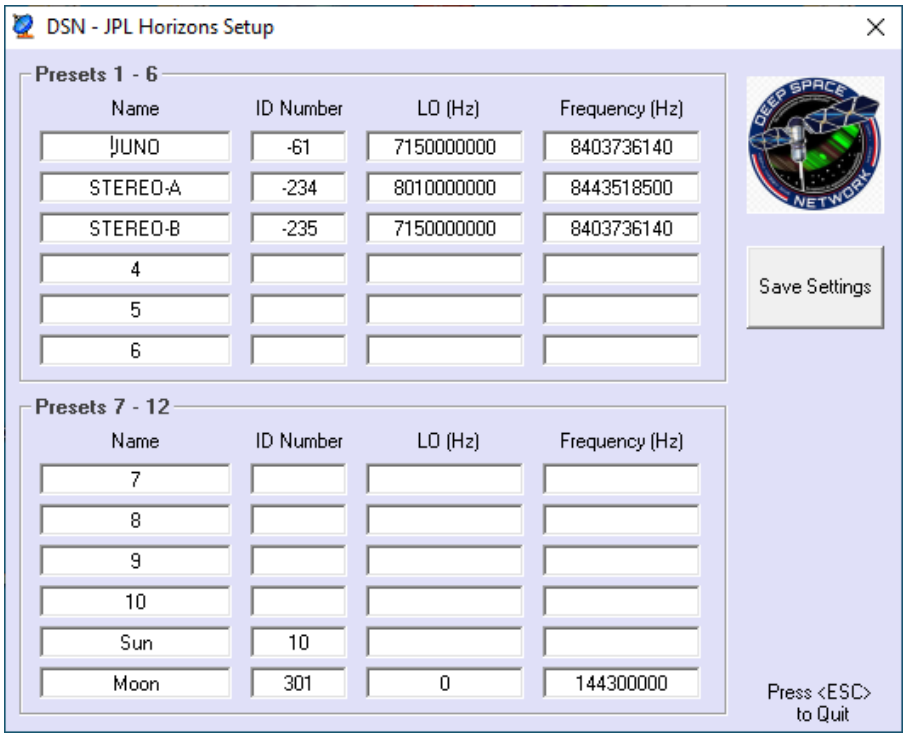
This would enable to enter a celestial radio source position from a radio star catalog and point the antenna automatically towards it.

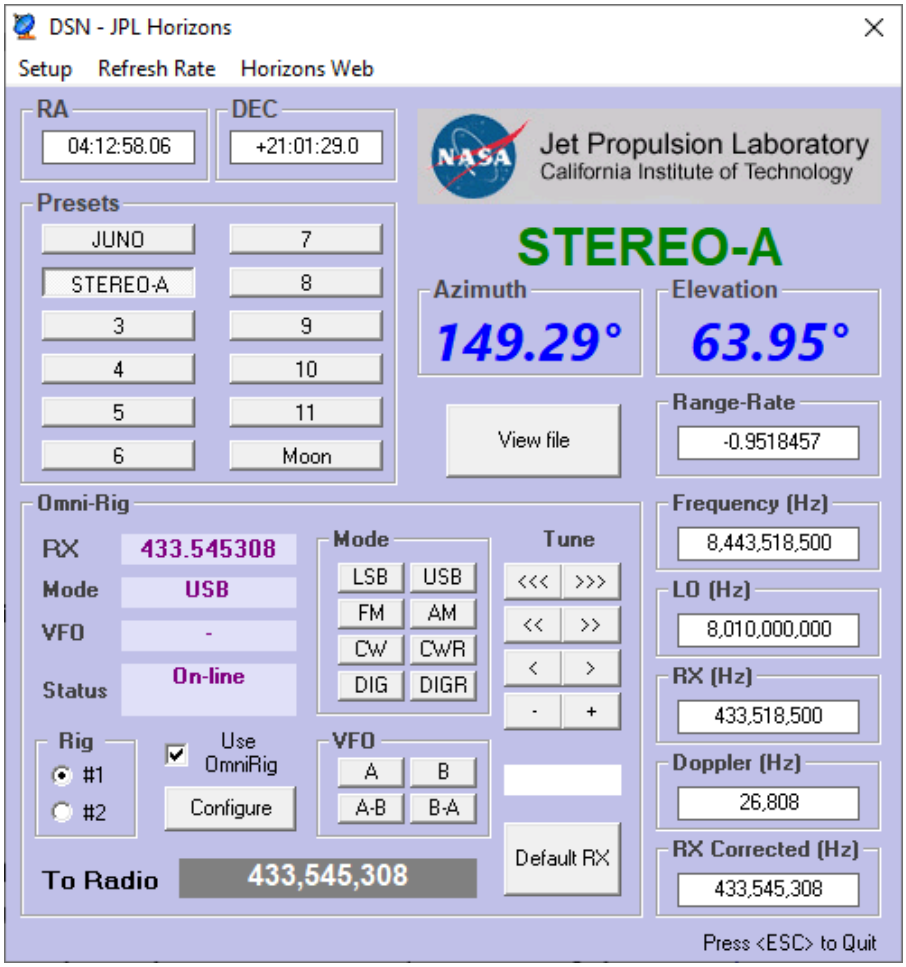
A click on RA/DEC will open a new window containing two text boxes (RA and DEC) and a GO button. Write the RA and DEC values, and press the GO button. This will put the azimuth and elevation values in AZ and EL boxes from the main window and will start the moving if the target is over the horizon.
And of course, afterwards can be used the existing SIDEREAL track.

DSN (Deep Space Network)

This feature uses the JPL HORIZONS *on-line* solar system data and ephemeris computation service which provides access to key solar system data and flexible production of highly accurate ephemerides for solar system objects (1069476 asteroids, 3719 comets, 209 planetary satellites, 8 planets, the Sun, L1, L2, select spacecraft, and system barycenters). HORIZONS is provided by the Solar System Dynamics Group of the Jet Propulsion Laboratory.

Open the **DSN – JPL Horizons** window clicking on the DSN menu. Open the Setup window, and set the Name of the object which be tracked, its ID Number as it appears in the Horizon System - https://ssd.jpl.nasa.gov/?horizons ,and the Frequency for Doppler correction.
Set LO if a transverter is used. The program uses OmniRig program for


DSN - JPL Horizons Setup
Presets 1 - 6
Name
ID Number
LO (Hz)
Frequency (Hz)
JUNO
-61
7150000000
8403736140
STEREO-A
-234
8010000000
8443518500
STEREO-B
-235
7150000000
8403736140
4
5
6
Presets 7 - 12
Name
ID Number
LO (Hz)
Frequency (Hz)
7
8
9
10
Sun
10
Moon
301
0
144300000
Save Settings
Press <ESC> to Quit


DSN - JPL Horizons
Setup
Refresh Rate
Horizons Web
RA
04:12:58.06
DEC
+21:01:29.0
Jet Propulsion Laboratory
California Institute of Technology
Presets
JUNO
STEREO-A
3
4
5
6
7
8
9
10
11
Moon
STEREO-A
Azimuth
149.29°
Elevation
63.95°
View file
Range-Rate
-0.9518457
Omni-Rig
RX
433.545308
Mode
USB
VFO
-
Status
On-line
Mode
LSB
USB
FM
AM
CW
CWR
DIG
DIGR
Tune
<<<
>>>
<<
>>
<
>
-
+
Frequency (Hz)
8,443,518,500
LO (Hz)
8,010,000,000
RX (Hz)
433,518,500
Doppler (Hz)
26,808
RX Corrected (Hz)
433,545,308
Rig
#1
#2
Use OmniRig
Configure
VFO
A
B
A-B
B-A
Default RX
To Radio
433,545,308
Press <ESC> to Quit

TV Antenna Rotators

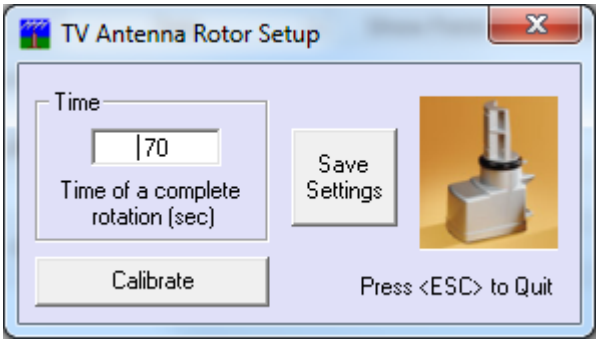
In PstRotator was implemented a solution based on a very cheap two relays board which works for any TV antenna rotator. Take a look here: https://www.youtube.com/watch?v=l3_xtzSSigU&fbclid=IwAR3ksoMxqGxtFeNY1Xxw9HWImw-0QvG0Z43wS_odFc1NoV-v-amRioLTMnk .

Look here also for all kind of notes and pictures https://app.box.com/s/8t4f9ky4wqujgr3i209rubc99168s8an , inclusive for the AR-500 rotator.

The supported relays board is this: https://www.ebay.com/itm/RS232-DB9-Serial-Control-Relay-5V-2-Channel-Switch-Board-SCM-PC-Relays/172952542534?hash=item2844c65d46:g:G~YAAOSwhqhaO5Tl .

The relays board has two relays. One relay will have the contacts in parallel with the CCW button, and the second with the CW button. There is not a connector on controller, the wires must be connected inside the IR controller.

In the PstRotator program you need to select "TV Antenna Rotators – any model" as Controller, and make some settings in Setup -> Controllers Setup -> TV Antenna Rotor Setup:



If you cannot find the two relays board, you can make your own interface. It is easy, the CW and CCW are available on the RTS and DTR lines of the serial COM port. Few electronics components to control two relays…

Anyway, don't expect too much from a rotator which don't have a sensor to read the position, and a solution based on the rotation time. You will need time to time to recalibrate moving the rotor CCW to 0 position.

QRZ.com Callsign database

Write a callsign in the **Prefix** text box and press the **QRZ** button in order to search online the QRZ.com callsign database.
When the callsign is found (the color of the callsign in Prefix text box changes from red to green), the program will receive the coordinates (latitude and longitude), and antenna is turned on that direction.

A second click will save the callsign and QTH locator information into the **call3.txt** file.

SP, LP and BD buttons

- SP and LP go to the short and long-path headings respectively.
- BD-90 goes to a 90deg offset from the heading specified - intended for a bidirectional dipole mounted parallel with the booms of yagis on the same mast.
- BD-0 is intended for the SteppIR antennas.

Remote Control

PstRotator also provides support for remote over IP operation.

- You have to install the same PstRotator in both remote and base station locations.
- Set Communication/TCP Client to the base station.
- Configure the IP address for the Client, and the Ports for both Server and Client.

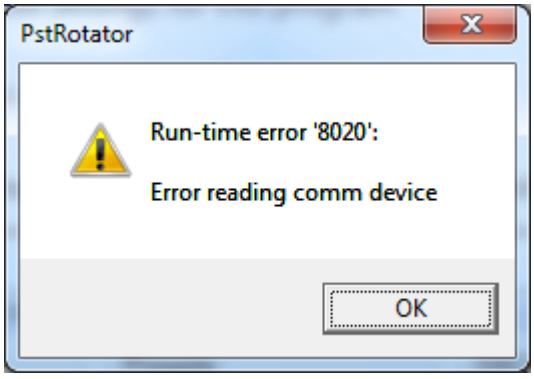
When you work from home set in the Remote site the Pooling Rate to 0 and for the home site Pooling Rate to 1000.

When you work remote from home, you don't need programs from both sides to send status requests to controller. Only from home, is better because keeps the timing between commands and status requests.

In the remote site could be not only a PC running PstRotator as server, but also a serial server (Ethernet to RS232 converter).

Run-time error '8020'

If when you run the PstRotator software get the following error message:



Uninstall the old drivers and install the latest drivers for your USB to RS232 adapter.
If your adapter uses an FTDI chip, you can download the last driver version from:
http://www.ftdichip.com/Drivers/VCP.htm
For an adapter which uses a Prolific chip, the driver can be downloaded from:
http://www.prolific.com.tw/US/ShowProduct.aspx?p_id=225&pcid=41

SUPPORT

Your questions regarding the PstRotator software will be answered fast by codrut.buda@rdslink.ro .

The forum can be found at https://groups.io/g/PstRotator

Become a member of this group and you will automatically be informed about improvements and news regarding PstRotator program.

The PstRotator web page is http://www.qsl.net/yo3dmu/index_Page346.htm .