Ham Radio Deluxe

Rotator User Guide

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November 13, 2008

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Introduction

Why?

This program was written to provide better rotator support in Ham Radio Deluxe and the associated satellite tracking software.

By breaking the current rotator support out of the Ham Radio Deluxe executable it is easier to add support for more protocols and at the same time provide a better user interface.

Main Features

The main features are:

- Support for NOVA and Orbitron DDE.
- Connect to an unlimited number of rotators simultaneously.
- Many rotator protocols supports, for example:
  - AlfaSPID,
  - EA4TX,
  - GS-232A,
  - Idiom Press,
  - Prosistel.
- World maps – double-click to move the rotator.
- Full diagnostics in the logfile.

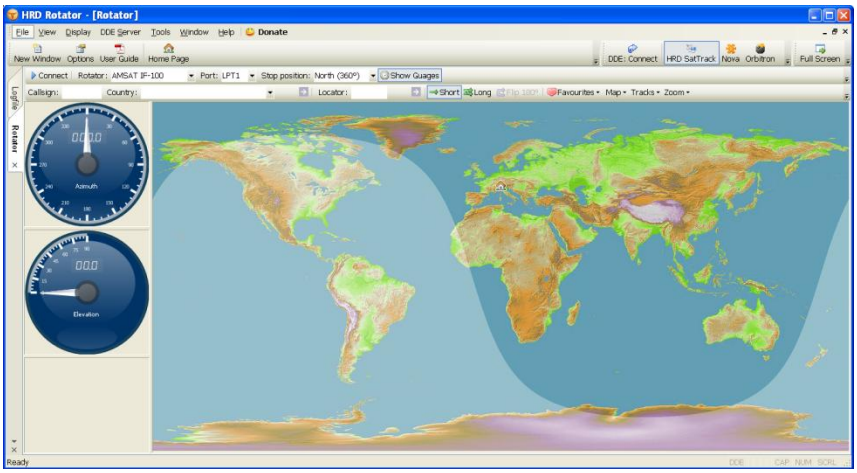
Your Locator

Select ***Options*** from the ***Tools*** menu and enter your locator in the ***Your Information*** pane.

Rotator Display

Sample

The same display is used for all rotators:



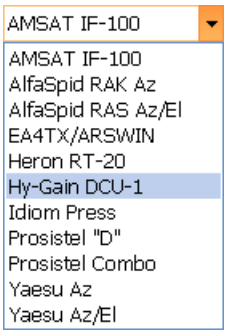
In the example above you see the software connected to an AMSAT IF-100 rotator which supports both azimuth and elevation (it's designed for tracking satellites). The world map uses the WXtrack image (made available by David Taylor).

Connecting

To connect the program to your rotator:

1. Make sure all cables are correctly inserted,
2. Start your computer,
3. Start this program

Select the correct rotator type from the ***Rotator*** dropdown:



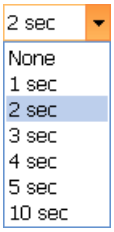
If the rotator supports more than one protocol then a ***Protocol*** dropdown is displayed, if so select the correct protocol to be used. If in doubt consult the rotator handbook.

If a serial or parallel port is used to connect to the rotator then select the correct port from the ***Port*** dropdown.

The EA4TX/ARSWIN option communicates with EA4TX's ARSWIN software using the DDE protocol – ARSWIN must be already be started.

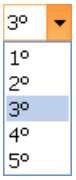
Finally press ***Connect***. If you experience problems look in the ***Logfile*** window.

Refresh Rate



Select the ***Refresh rate*** – how often the rotator controller is polled for the current status. Some controllers such as the IF-100 cannot provide this information, in which case the ***Refresh rate*** dropdown is not shown.

Step Size



The rotator position is changed if the difference between the current and new bearing is at least as big as the step size.

Stop Position

Rotators usually travel from 0 to 360 degrees (North stop), if your rotator travels from 180 through 360 to 180 degrees then select ***South***.

Selecting a Bearing

Select a bearing by either:

1. Entering a callsign – the HRD countries file is used to locate the latitude and longitude for the country.
2. Selecting a country from the ***Country*** dropdown.
3. Entering a 4- or 6-character Maidenhead locator.
4. Just double-clicking anywhere on the map.

Switch between short and long path bearings by pressing either ***Short*** or ***Long***.

Favourites

The Favourites menu is a simple way to generate a menu of pre-defined positions for your antennas.

To start the manager, click the ***Favourites*** dropdown on the ***Rotator*** toolbar and select the last entry, ***Manager***.

Use the toolbar options to define the entries in the menu. Elevation values are ignored for azimuth-only rotators.

Formats

Two map formats are currently supported:

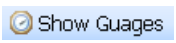
1. ***Mercator*** – a fixed aspect ratio of 2:1, and
2. ***Great Circle*** – created from the Mercator image.

You can zoom the image from 100% to 2,000%.

The Great Circle map can be rotated in steps of 30 degrees. This is often desired by users in the southern hemisphere.

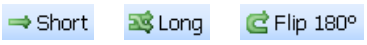
Gauges

To toggle the gauge visibility press ***Show Gauges***.



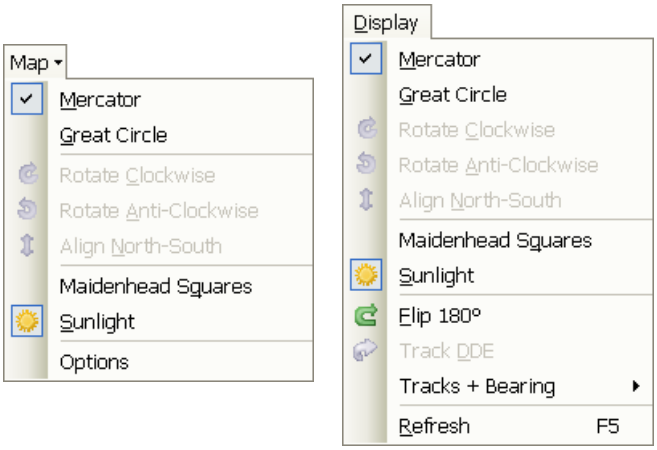
Short and Long Path

Use the ***Short*** and ***Long*** options to toggle between short-path and long path. ***Flip 180°*** to switch between short and long path.

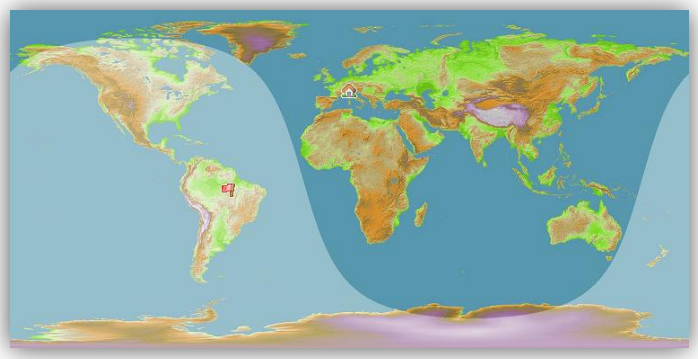


Sunshine

Also known as the greyline – select ***Sunshine*** from the ***Map*** or ***Display*** dropdown.

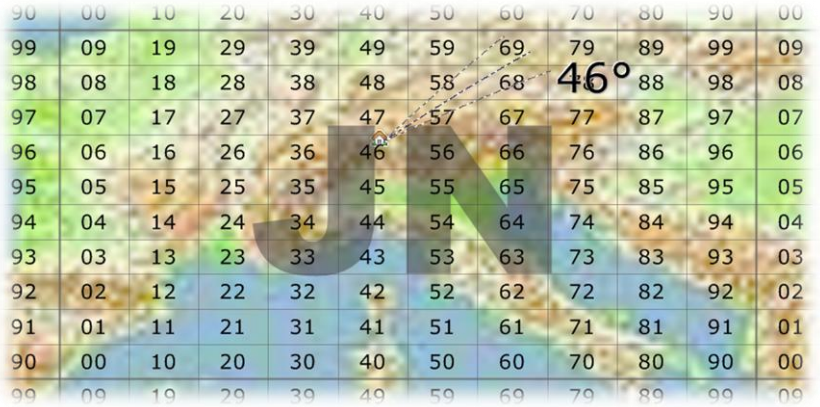


The display is updated every minute.



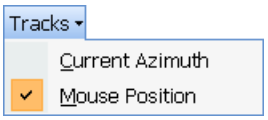
Maidenhead Squares

Select ***Maidenhead Squares*** from the ***Map*** or ***Display*** dropdown. For more information about Maidenhead squares see http://en.wikipedia.org/wiki/Maidenhead_Locator_System .

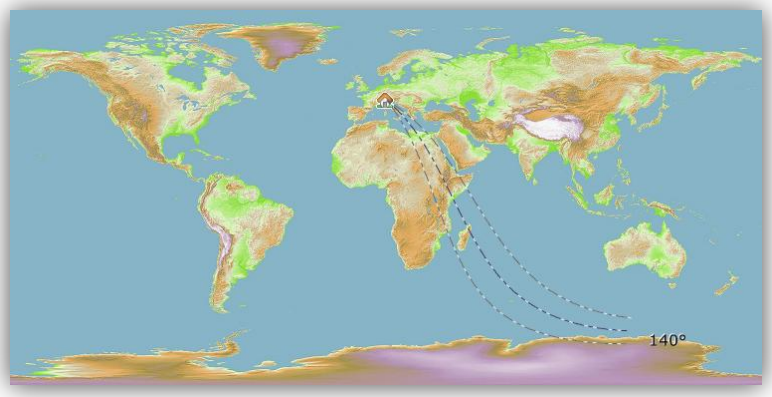


Tracks

Mouse Position

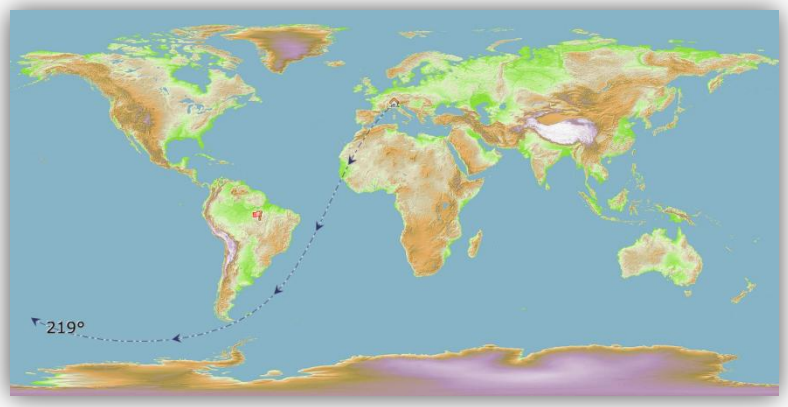


In the Mercator map you can display the signal track and bearing at the current cursor position by selecting ***Mouse Position*** from the ***Tracks*** dropdown from the Rotator toolbar.



Current Azimuth

To display the current bearing (azimuth) select ***Current Azimuth*** from the above menu.



DDE Support

Tracking Other Programs

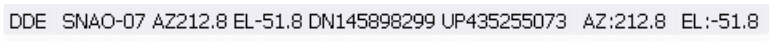
The program contains a DDE client which accepts DDE data in the Nova, Orbitron and HRD SatTrack formats from external programs such as *HRD Satellite Tracking*. If using *HRD Satellite Tracking* it is strongly recommended that you use the *HRD SatTrack* format.

Note – the HRD SatTrack data is always created by the HRD satellite tracking software.

Before enabling DDE support:

1. Select either ***Nova, Orbitron, or HRD SatTrack*** in the DDE toolbar or from the *DDE Server* menu.
2. Make sure the software creating this data is started.
3. Press ***Enable***.

The DDE data is shown in the status bar.



You can now use the DDE data to drive the rotator – press ***Track DDE*** in the Rotator window. Select the update rate using the **DDE update every** dropdown.

Sending DDE Commands

This program runs a DDE server when it is started. This DDE server accepts commands from other programs to set the azimuth and/or elevation.

DDE Server:

- Service `HRDRotator`
- Topic `Position`
- Item `PositionData`

Commands accepted (using XTYP_POKE):

- Azimuth `SET-AZ:<value>`
- Elevation `SET-EL:<value>`

For example `SET-AZ:321.5`

The DLL *HRDRotatorDDEClient.dll* (shipped with this program) can be used to send new values using the interface calls:

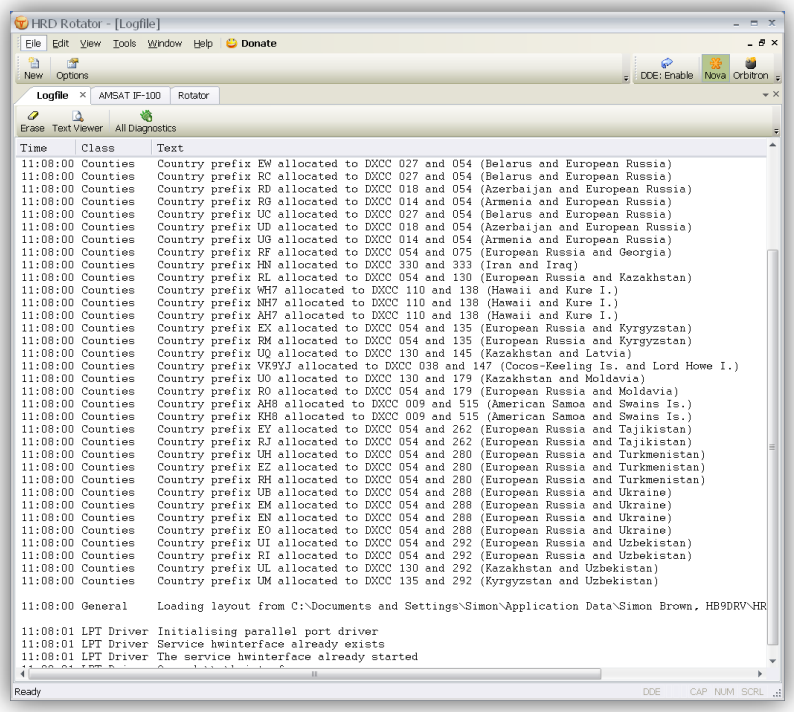
```
const BOOL HRDRotatorSetAzimuth(const double dAzimuth);
const BOOL HRDRotatorSetElevation(const double dElevation);
const BOOL HRDRotatorSetAzimElev(const double dAzimuth,
                                 const double dElevation);
```

The DLL source (in C++) is available on request.

Logfile

Using

The logfile contains all diagnostic information. For full diagnostics make sure the ***Full Diagnostics*** option is selected.



Use the ***Text Viewer*** option to display the logfile in your default text program (usually this is Notepad) from where you can save the logfile as a file on your hard disk.

Options

Appearance

Select ***Appearance*** from the ***Tools*** menu.

Skin

As you have already seen in other Ham Radio Deluxe programs you can select a skin and display theme. Select ***Appearance*** from the ***Tools*** menu to display the ***Skin*** and ***Theme*** windows.

Image

Several images are included as resources in the executable file:

- NASA's blue marble,
- Cooperative Association for Internet Data Analysis (CAIDA) - see http://www.caida.org ,
- Globe Relief from NOAA's National Geophysical Data Center (NGDC), and
- David Taylor's WXtrack.

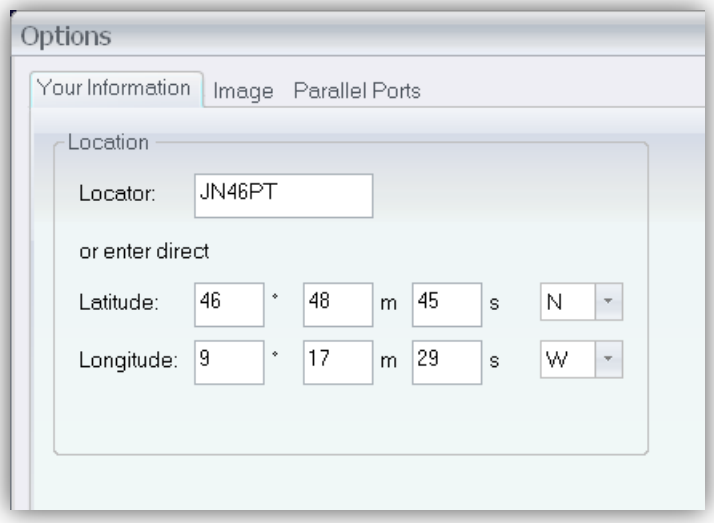
You can select an image from a file on your computer; a good site for maps is http://flatplanet.sourceforge.net/maps/ with many great options.

General

Select ***Options*** from the ***Tools*** menu or press the ***Options*** button in the main toolbar.

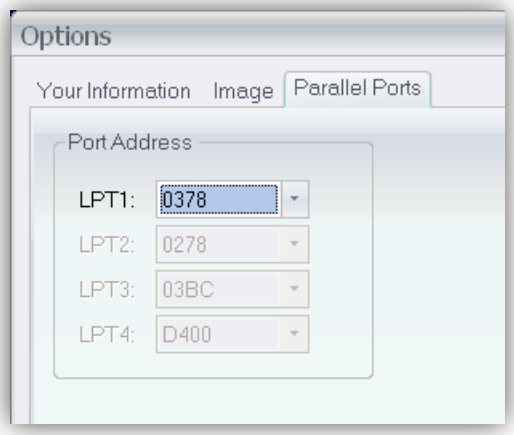
Your Information

You ***must*** enter your locator in this window so that the program can correctly compute bearings.



Parallel Ports

Use this window to configure your parallel ports if you are using and older rotator controller with a parallel port connection.



Configuration

Select ***Options*** from the ***Tools*** menu or press the ***Options*** button in the main toolbar, then select the ***Configuration*** page.

Use the toolbar options to define the list of entries. The title is mandatory, the stop range optional. Read the help text!

Optional Configuration
Use this window to define:

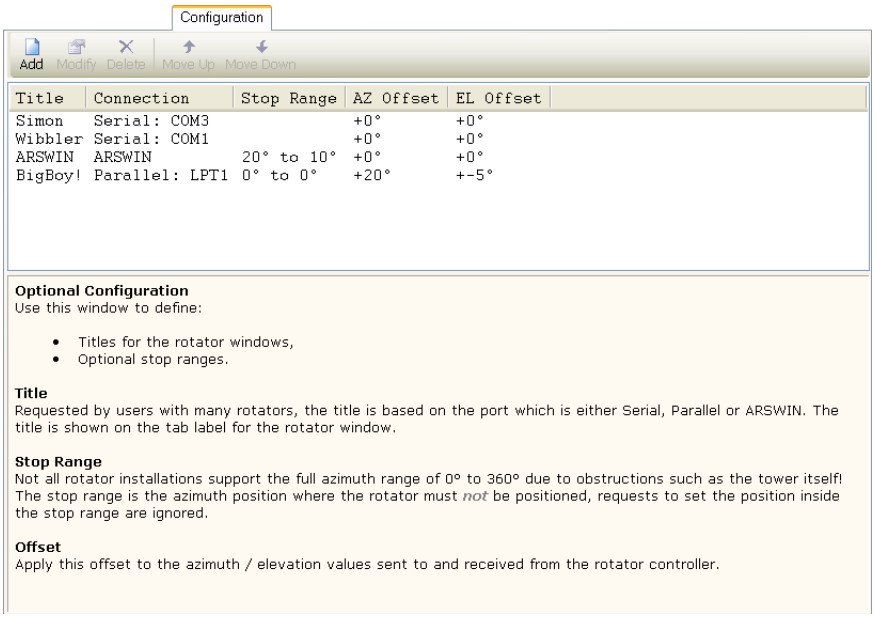
- *Titles for the rotator windows,*
- *Optional stop ranges.*
- *Optional offsets.*

Title
Requested by users with many rotators, the title is based on the port which

is either Serial, Parallel or ARSWIN. The title is shown on the tab label for the rotator window.

Stop Range
Not all rotator installations support the full azimuth range of 0° to 360° due to obstructions such as the tower itself! The stop range is the azimuth position where the rotator must not be positioned; requests to set the position inside the stop range are ignored.

Offset
Apply this offset to the azimuth / elevation values sent to and received from the rotator controller.



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