

Radioactive Networks



OziAPRS System Manual

POBox 169
Ingleburn NSW 2565 Australia
Phone: 0412 929 634 – International +61 412 929 634
(Registered Office: 23 Amanda Place, Ingleburn 2565)
www.radio-active.net.au - Darryl@Radio-active.net.au

Table of Contents

Table of Contents.....	2
Introduction	4
Liability and Warranty.....	4
APRS Capability Statement.....	4
Documentation To Do	5
The OziAPRS Screen	6
The positions Table	6
The Status Line	6
Command Line Options	7
Setup.....	8
Languages.....	8
Outgoing Server Options.....	8
Setting Server to Connect to	8
Setting User Login Details	9
Setting the OnConnect string	9
Connecting to the Server.....	9
TNC Options	9
AGWPE – Sound Card Modem.....	9
Serial TNC.....	10
KISS TNC.....	10
USB TNC.....	10
Network Listening Options	10
Acting as a Local Hub.....	10
GPRS Listening	10
NetGPS Listening	11
Graphical User Interface.....	11
Popup Menu	11
Add Station.....	11
Moving a Station.....	12
Geographic Filtering.....	12
Mouse Over Stations.....	13
Station Details	13
Com Port Settings	13
Configuring AWGPE	14
State Functions	14
Log.....	15
Decaying Icons.....	15
Mapping Software Interfaces	16
OziExplorer.....	16
MapPoint	16
Upload Delay.....	16
Database Functions	17
Testing OziAPRS	18

Introduction

OziAPRS is an vehicle tracking system for external mapping programs such as OziExplorer (<http://www.ozexplorer.com>) and Microsoft MapPoint. As such, it is intended to be a general purpose tracking tool, with little knowledge of how to actually display positions. The positions are displayed by an external program.

OziAPRS is an ever expanding piece of software, and there are always features being added. As such this manual should not be considered the be all and end all for learning about the software. Features should be investigated to see how they operate.

Some of the features in OziAPRS may not operate correctly, or may operate in strange ways. In some cases this may be their intended functionality, and in other cases it will be because the software has not been completed.

In many ways OziAPRS has been written to test ideas for our other vehicle tracking software. Many of the features can now be found in the iTrack program which is part of the iServ product line. Other features will be added to other products where appropriate.

Liability and Warranty

Radioactive Networks does not accept any liability for operation or lack of operation of its vehicle tracking software and hardware. It is provided as on an 'As Is' basis only. Where issues are found we may decide to fix the problem, but make no representations on the fitness of any changes.

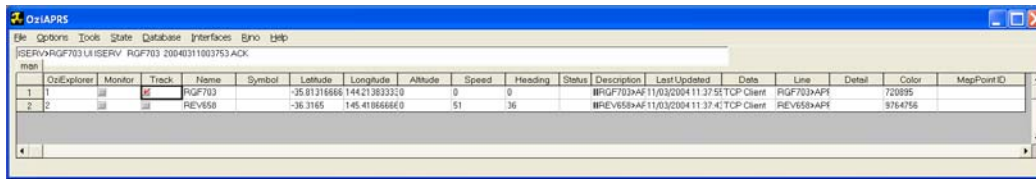
APRS Capability Statement

The OziAPRS software has a number of software features

Documentation To Do

DATABASE*
RINODOWN
NMEA

The OziAPRS Screen



The screenshot shows the OziAPRS application window. At the top, there is a menu bar with options: File, Options, Tools, Status, Database, Interfaces, Help. Below the menu bar, there is a status line displaying the text: "SERVARGF703.LI\SERV RGF703 20040311003753.ACK". The main area of the window contains a table with the following columns: OziExplorer, Monitor, Track, Name, Symbol, Latitude, Longitude, Altitude, Speed, Heading, Status, Description, Last Updated, Data, Line, Detail, Color, and MapPoint ID. The table contains two rows of data:

OziExplorer	Monitor	Track	Name	Symbol	Latitude	Longitude	Altitude	Speed	Heading	Status	Description	Last Updated	Data	Line	Detail	Color	MapPoint ID
1	1		RGF703		-35.81316866	144.213833210	0	0			IRGF703>AF 11/03/2004 11:37:55 TCP Client	RGF703>AF				720895	
2	2		REV658		-36.3165	145.418666810	51	36			IREV658>AF 11/03/2004 11:37:41 TCP Client	REV658>AF				9764765	

The positions Table

The central part of the OziAPRS screen is the table for the positions. This table contains all the data that the software knows about the object being tracked. If the information is not in this table then it will not appear in the mapping software.

Each row contains details on a different station, whilst each column contains different information for the station. Some columns contain information that may appear irrelevant to the user. The reason that these columns exist is that they are used by the mapping software rather than actually for the user.

The Status Line

Directly above the Positions Table is a status line containing information on the live position reports as they come in. The line can be decoded by hand for debugging if required.

Command Line Options

OziAPRS allows a number of command line options to modify the behavior of the product on startup. Each command should be separated by a space.

Commands that are followed with an asterisk (*) may be pre-pended with a 'NO' to explicitly cause the opposite to happen. For example, whilst the DUMP command will send know positions when a station connects, NODUMP will cause no positions to be sent.

Language Based Options		
	ENGLISH	Select English for Menus
	FRENCH	Select French for Menus
Database		
	DATABASE*	Connect to the Database on Startup
Connect		
	AGWPE*	Connect to the AGWPE Software on startup
	CONNECT*	Connect to the TCP/IP Server on Startup
Server		
	HUB*	Start up as a Server on Startup
	DUMP*	Dump latest known positions when connections are made to this server
	GPRS*	Allow GPRS connections on Startup
	NETGPS*	Allow NetGPS connections from Startup
Logging		
	LOG	Log Debug messages to a file
Geographic Filtering		
	GEOFILTER*	Turn on Geographical Filtering
	GEOLOAD	Load Geographical filter locations
TNC		
	TNC*	Connect to the TNC
	KISS*	Select KISS mode on TNC
Icons		
	DECAY*	Decaying Icons
State		
	STATELOAD	Load State from Default Filename
	AUTOSAVE*	Save State Automatically

Interfaces		
	OZIEXPLORER	Connect to OziExplorer on Startup
	MAPPOINT	Connect to MapPoint on Startup
	POSDELAY*	Delay position uploads for to comply with license conditions
RINO		
	RINODOWN	Automatically download positions from a RINO
NMEA		
	NMEA	Download GPS from OziExplorer

Setup

Languages

OziAPRS has been partially translated into languages other than English. English is the default language for the software. The language may be changed only by setting a command line argument selecting the required language.

Additional languages can be included by forwarding Radioactive Networks a translation of any menus that need to be changed.

Outgoing Server Options

Setting Server to Connect to.

In order to connect to an external server, you must enter the destination address and port of the server that you wish to connect to. You must enter the TCP/IP Address and Port under the "Set Server" menu. The format for the server is

SERVER_NAME:PORT_NUMBER

Or

SERVER_IP_ADDR:PORT_NUMBER

Common Servers include

- APRS.NET.AU:10151 - World Wide

- APRS.NET.AU:10153 - Australians Only
- APRS.NET.AU:10154 - New Zealand Only
- APRS.NET:10151 - World Wide

Setting User Login Details

In order to restrict users from polluting the distributed positioning system data streams, Usernames and Passwords are commonly used by servers to restrict the information uploaded or downloaded.

This information can be entered under the “Set User Login” menu item. This will ask for a username and a password. They are entered on the same line separated by a space. These details can be obtained from the owner of the server.

Setting the OnConnect string

Some servers allow for a custom string to go geographical filtering on the server side. The OnConnect string will be sent directly to the server on connection, and it will be interpreted by the server accordingly.

Connecting to the Server

To connect to the server, simply select the Connect to Server menu. This will cause the menu to be selected so that the status can be examined by examining the menu.

If the server dies, the server will attempt to reconnect to maintain the position updates.

TNC Options

There are a number of options for getting data from a radio into the application. These go from using the Sound Card, a standard TNC or KISS TNC.

AGWPE – Sound Card Modem

As described elsewhere, the AGWPE software can be used with OziAPRS to decode packets. The AGWPE Server must be listening on port 8000 on the local machine.

Serial TNC

There are two options for connecting a Serial TNC. The first is to use normal strings. The TNC must operate so that APRS strings are sent out automatically in plain text when they are received.

KISS TNC

A KISS TNC may also be used. To use a KISS TNC, select the KISS TNC option, and then connect to the TNC as normal.

USB TNC

The way that most USB TNC's work is by using a USB to SERIAL converter module. As such, all that is needed is to select the relevant serial port.

Network Listening Options

The software contains many options for listening for connections. They are described in this next section

Acting as a Local Hub

The OziAPRS can operate as a local hub for connections from other tracking devices and network users. By default this functionality is not enabled, but can be quickly enabled allowing one copy of OziAPRS to connect to another server remotely, and also acting as a local distribution center for the position data without placing additional strain on the external communications links or the remote server. The Hub listens on TCP/IP port 8001 by default.

To activate the Hub functionality, simply select Hub Listening from the menu.

GPRS Listening

Although not much use for most users, the OziAPRS software has the ability to accept data from a number of GPRS tracking units. Of particular note is the ability to accept data from the WMCS M110 tracking units. The server listens on port xxx for connections.

NetGPS Listening

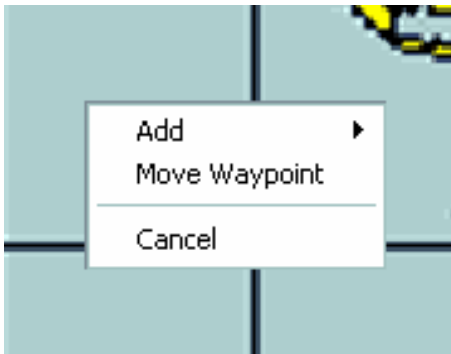
OziAPRS also has the ability to run a WWW server on port 80 allowing PDA's and PC's running the NetGPS software to upload their position reports to the OziAPRS software.

It is important to turn off any WWW servers running on the machine if this capability is to be used.

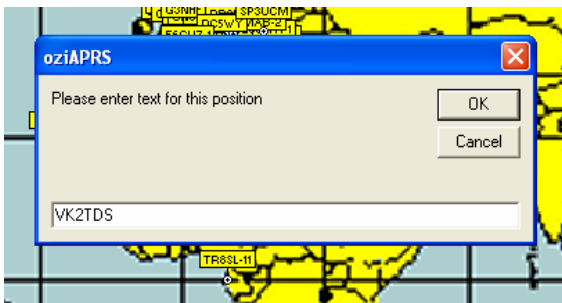
Graphical User Interface

Popup Menu

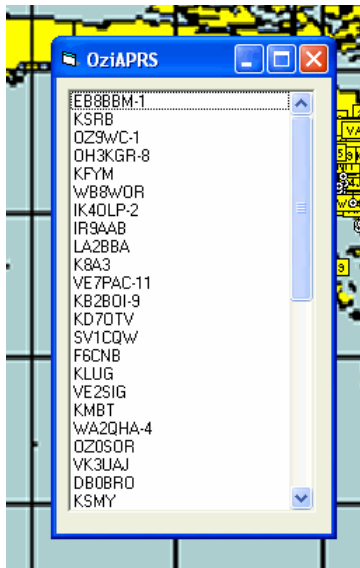
Double Clicking on the OziExplorer Map will bring up a menu allowing you to move a station or add a new station.



Add Station



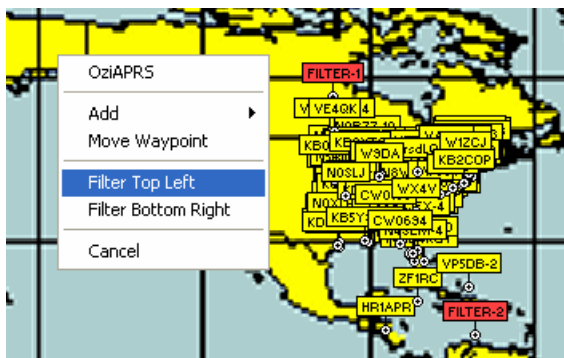
Moving a Station



Geographic Filtering

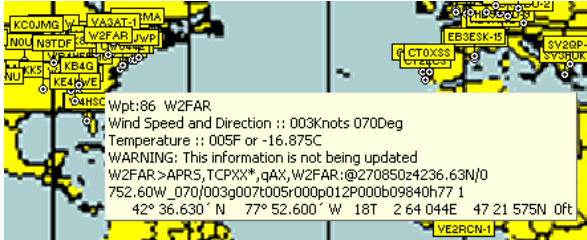
Geographic Filtering allows you to only upload certain positions to OziExplorer. Often you are not interested in stations outside a certain area. With filtering you just tell OziAPRS to ignore them. In order to ignore stations you need to Double Click in OziExplorer on the top left corner of the area you are interested in, and then select the menu item for filtering. Then do the same for the bottom right. The menu option for Geographic Filtering will automatically be enabled.

If OziAPRS cannot make sense of the coordinate, it may change them around so that the top left and bottom right corners are chosen.



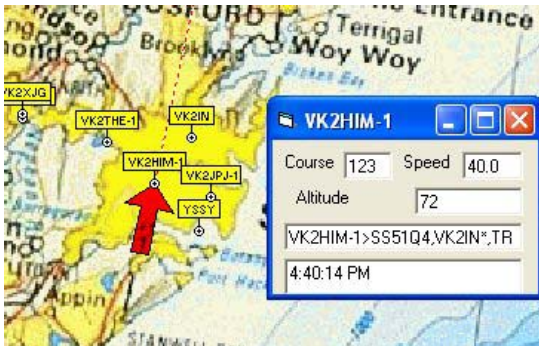
Mouse Over Stations

This is the type of information that is displayed if the mouse is held over a station.

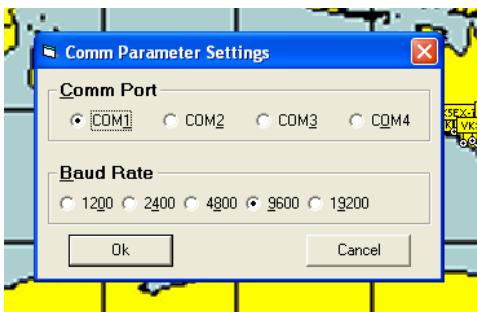


Station Details

This information is displayed as a new form for each station that is selected, and is updated whenever new packets come in. New forms are opened by double clicking on the appropriate line of the table in the form, or by clicking on the object in OziExplorer itself.



Com Port Settings



Configuring AWGPE

AGWPE is an interface to use the sound card inside your PC in association with a scanner as a replacement for a Radio Modem. This allows for a significant cost saving in terms of hardware. You can download a copy of the AGWPE software from [Here](#).

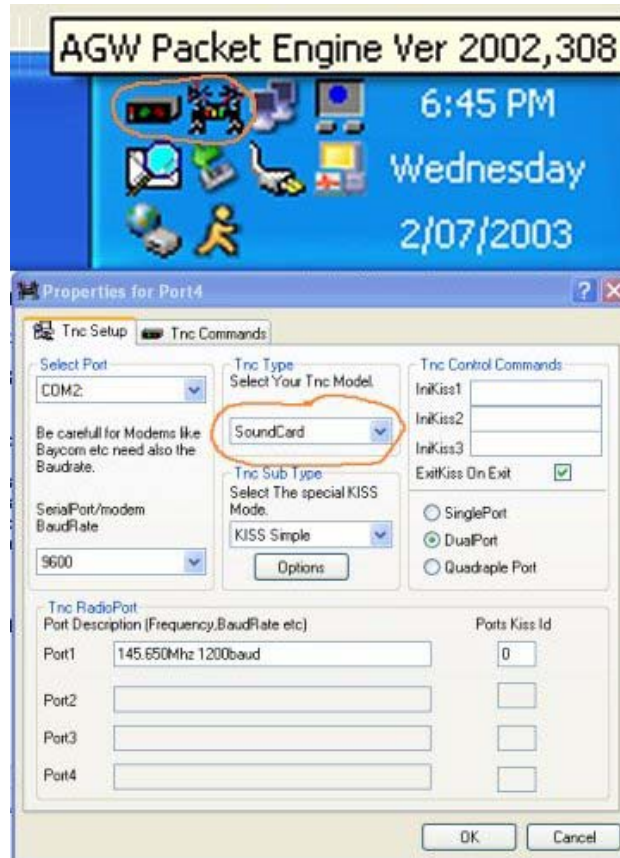
AGW – Setup Interfaces
TCP/IP
Port 8000

AGW – Properties –
Create a New Interface
AGW – Properties

- Edit the settings by
double clicking on one of
the interfaces

Set Soundcard as
Type of TNC

AGW - Sound Card Tuning
Aid - Adjust volumes until
things look right as per the
manual for AGWPE.



If you are adjusting the volume, and testing a tracker, holding the mouse over the left hand side mini-icon will bring up the number of decoded packets. This should increase for every packet you decode correctly. Adjust things until this decodes most packets

State Functions

It is often useful to be able to load and save the information stored in the table for use at a later date. Alternately, often it is useful to have the previously heard positions automatically appear on the map with the software is started.

In order to satisfy these needs, it is possible to load and save the state from a file – either to the OziAPRS default file, or to a specified file. In addition, the state can be automatically staved periodically to

Log

OziAPRS has the ability to record a large amount of internal data for use when debugging the application. The main use for the function is when requested to use it by Radioactive Networks to help debug a programming error.

Decaying Icons

It can be hard to work out how current a position report is for a vehicle without spending a great deal of time looking at the detailed report data. In order to improve the usability, 'Decaying Icons' have been implemented.

With 'Decaying Icons', the background color with the vehicle details becomes paler over time unless it is refreshed with a new position report. Each time a new position report arrives, the coloring is returned to normal.

Mapping Software Interfaces

OziExplorer

The interface to OziExplorer is probably the most complete of all the interfaces, as it was the one that OziAPRS was originally written for.

MapPoint

OziAPRS also interfaces to Microsoft MapPoint.

Upload Delay

Microsoft MapPoint comes with a license that restricts it from being used as a 'Real Time' or 'Near Real Time' Vehicle Tracking System for 50 or more vehicles. For this reason there is the ability to upload positions triggered by a timer rather than the positions being received.

The timer is currently set to every 15 seconds...

Database Functions

NOTE: All times local. All times in database are UTC

From Start Of

To End Of

Track Them All!

Sun	Mon	Tue	Wed	Thu	Fri	Sat
23	24	25	26	27	28	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31	1	2	3	4	5

Sun	Mon	Tue	Wed	Thu	Fri	Sat
29	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	1	2	3
4	5	6	7	8	9	10

Label1

Generate List

Track Calls

	A	B
1		

Testing OziAPRS

The simplest way to test OziAPRS is to connect to an APRS server and ensure that the position reports also appear in the mapping application. The steps to test OziAPRS are

1. Set the Server to Connect To being 'aprs.net:10151'.
2. Connect to the server
3. Ensure that the positions appear in the table in OziAPRS
4. Ensure that the positions also appear on the map in the mapping application (OziExplorer or Microsoft MapPoint).