Gtk-G-Rays-2

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1. Introduction

Knowing how things work is the basis for appreciation, and is thus a source of civilized delight.
William Safire

gtk-g-rays2 is an application to configure and manage the Wintec WBT 201 Bluetooth GPS.

The Wintec WBT 201 is an impressive, Bluetooth and USB, logging GPS. It can be used with gpsbabel [http://www.gpsbabel.org/] versions later than 1.33, including 1.34 pre-release CVS versions.

In order to access the WBT 201 configuration settings, the manufacturer provides a closed source application, only available on Microsoft operating systems. gtk-g-rays2 attempts to rectify this situation by providing a portable, open source configuration tool that can work on multiple operating systems. gtk-g-rays2 provides as much of the functionality of the close source application as is possible from the available information on the WBT-201 protocol.

2. Installation

gtk-g-rays2 is provided as a source code archive. It requires the GTK2+ toolkit with the cairo graphics library. If you have a typical open source development environment installed, than installation should be as simple as:

```
$ ./configure [--prefix=/usr]
$ make
$ sudo make install
```

On first launch, gtk-g-rays2 will create a default configuration file, `$HOME/.config/g-rays2/g-rays2rc`, which is populated with default values that may be edited from the Preferences menu option.

3. Usage

How should I know if it works? That's what beta testers are for. I only coded it.
Linus Torvalds

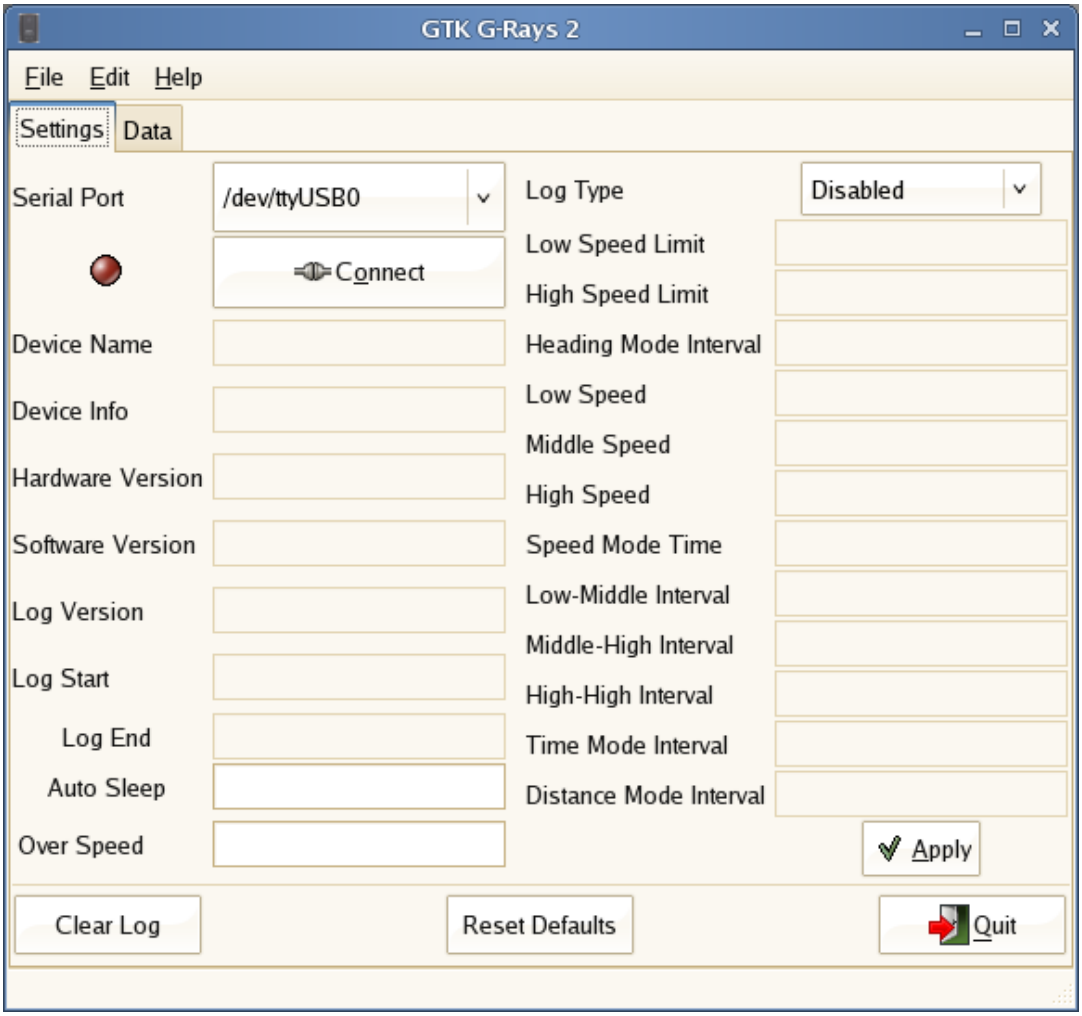
The application is launched as

```
$ gtk-g-rays2
```

It may be run from a terminal, or from a menu or other graphical user interface launcher. A suitable icon for a graphical launcher may be found in `$prefix/share/gtk-g-rays2/` ($prefix is /usr/local unless changed at build time).

3.1. Settings Tab

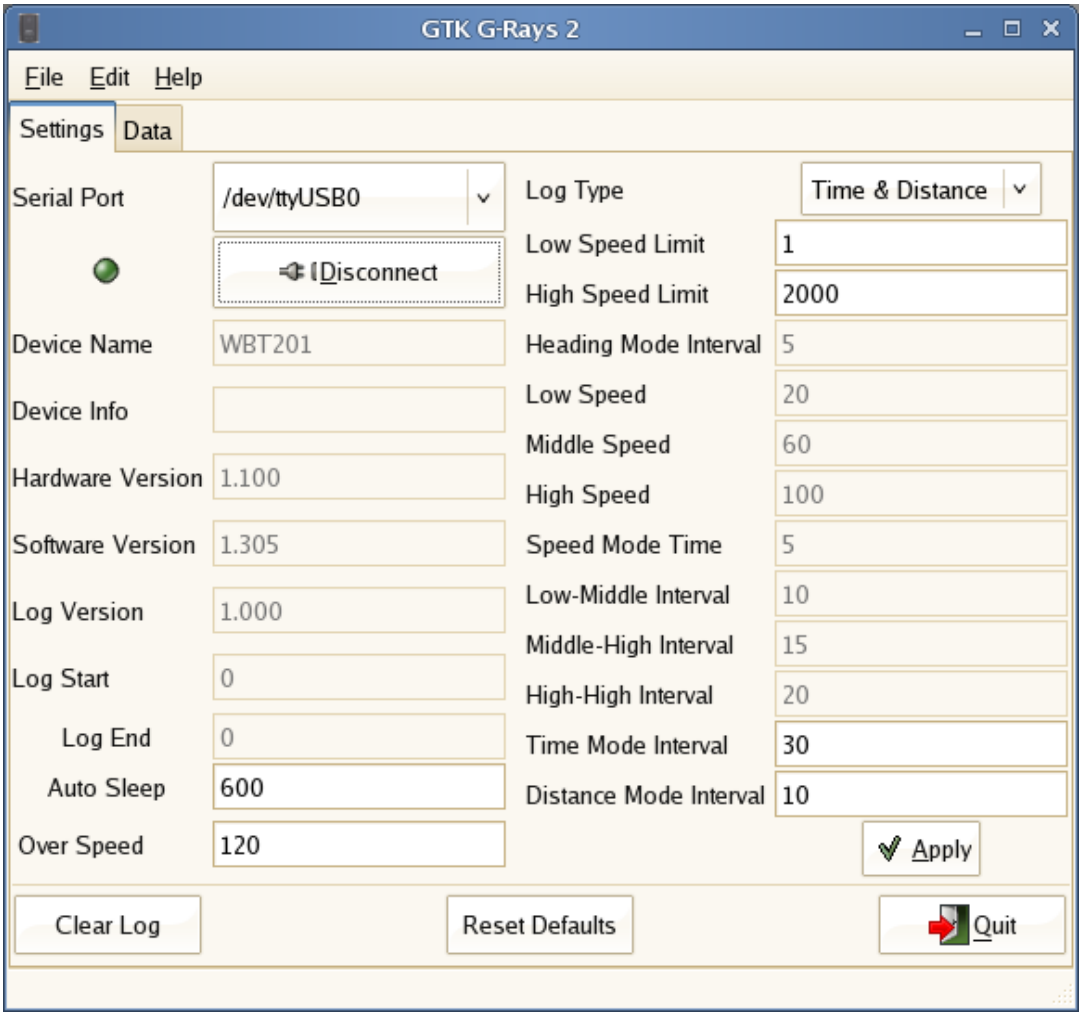
On start up, the main window is displayed, showing the settings tab:



At this stage, the useful controls are the Serial Port and Connect items. The Serial Port control lists the serial devices available, by default `/dev/ttyUSB0` and `/dev/rfcomm0` (USB and bluetooth); however this may be changed from the Edit # Preferences menu item.

Once a suitable device is selected from the Serial Port combo-box, and the user clicks on the Connect button, gtk-g-rays2 will attempt to connect to the device and read the settings.

If the connection is successful, the connection indicator will show as green (instead of red), and the settings will be read from the device and displayed.



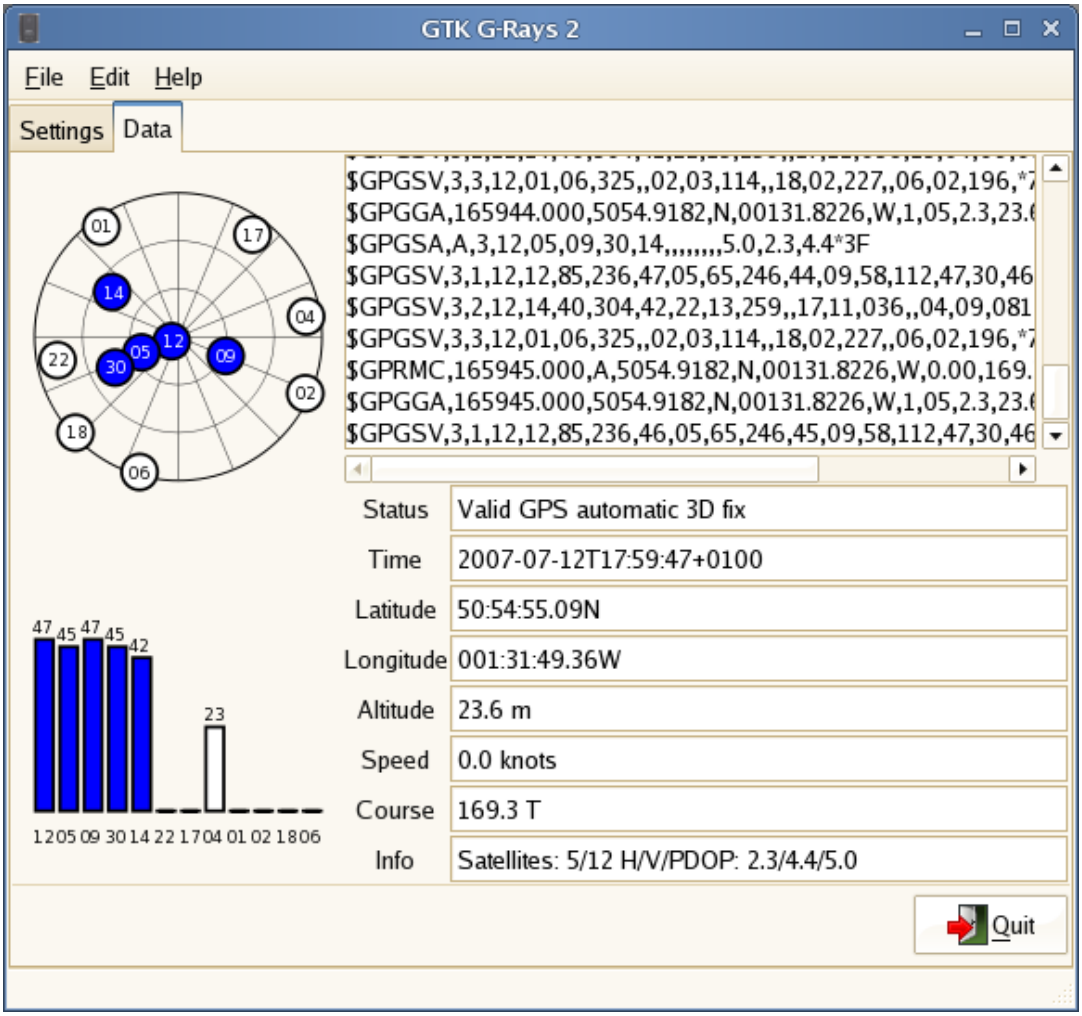
Items that are "greyed out" may not be changed; on the right hand side, the valid items will depend on the Log Type selected. The different log types and the parameters pertinent to each one are described in the documentation of the proprietary Wintec application. Please see this document for an explanation of the fields.

The buttons on this tab perform the following functions:

Apply	Clicking Apply will apply the settings to the device;
Clear Log	Clear Log will clear any logged (stored) track and way-point data from the device;
Reset Defaults	Reset Defaults will restore the factory defaults (or at least the initial settings obtained from the author's device);
Quit	Quit closes the application, and saves the current preferences.

3.2. Data Tab

The data tab switches the device from settings into normal usage mode and displays GPS data and satellite information. Although the fields cannot be edited, they are "activated", so data may be copied with the mouse.



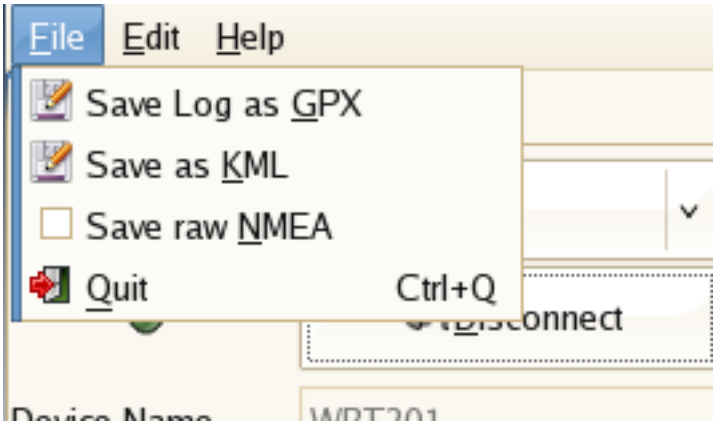
As with the Setting tab, Quit closes the application, and saves the current preferences.

4. Menus

Almost anything derogatory you could say
about today's software design would be accurate.
K.E. Iverson

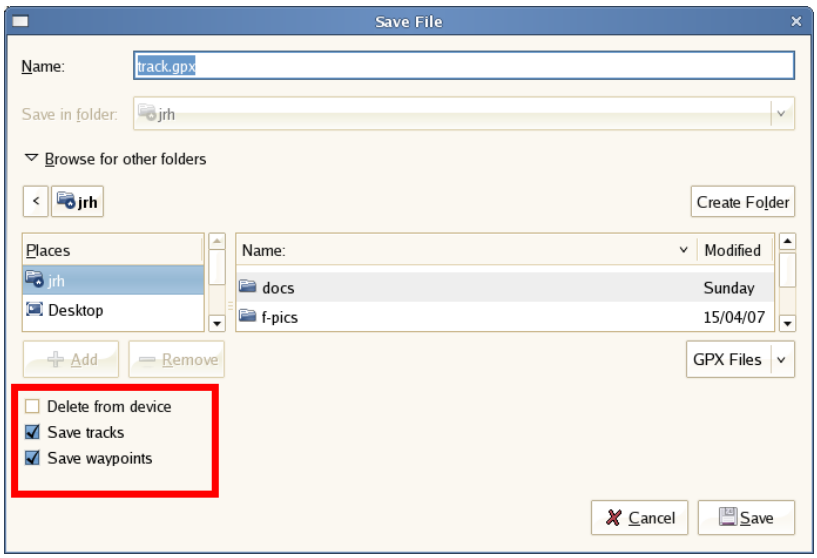
4.1. File Menu

The File Menu offers the following options:



Save Log as GPX

Saves the current device log files as a GPX file. GPSbabel is required for this, v1.34 or later (including preleases of 2007-07-03 and later). The standard GTK2+ file dialogue is displayed for the user to enter a file name, with the extra options.



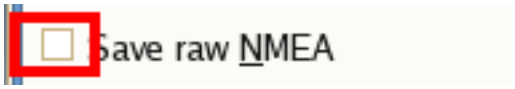
- Delete from Device. If checked, after saving, the log file is deleted from the device.
- Save Tracks. Track points are saved in the GPX. This is the default.
- Save Waypoints. Waypoints (i.e. from pressing the right button on the device) are saved. This is the default.

Save Log as KML

Saves the current device log files as a KML file. GPSbabel is required for this, v1.34 or later (including preleases of 2007-07-03 and later). The standard GTK2+ file dialogue is displayed for the user to enter a file name, with the same options as for GPX.

Save raw NMEA

If this option is selected, raw NMEA (GPS data), when the Data Tab is shown, will be saved to a file. Data continues to be logged until the check box on the menu item is cleared again.



Quit

Quit closes the application, and saves the current preferences

4.2. Edit Menu

The Preferences option launches the preferences dialogue.

The dialogue allows the user to:

1. Update the device names offered in the Serial Port chooser. You can add, change or remove the items in this list;

2. Remember last device. If this box is checked, the last opened device will be saved when Quit is selected (it is not saved if the window is destroyed);

3. Save TrackPoints in KML. KML always saves the track as a line; if you want each individual point to have a KML icon, check this box.

4.3. Help Menu

The About option displays author, version and copyright information.

5. Automatic Bluetooth instantiation

The central enemy of reliability is complexity.
Geer et al.

From version 1.06, it is possible to call a helper script to setup the serial bindings. This would typically be used to configure a Bluetooth connection. In order to provide maximum flexibility, the script is named after the interface; on Linux where the Bluetooth RFCOMM device is used and devices are /dev/rfcommX (X is a number), the script is called g-rays2-rfcomm.sh and must be on the path. The default install creates such a script in $prefix/bin, and the Ubuntu packages install the script as /usr/bin/g-rays2-rfcomm.sh.

On Linux (including the Maemo platform), it is necessary for the rfcomm application to be installed, and for user to be able to run the **rfcomm** application with **gksudo** or **sudo** (Maemo). On the Maemo platform, it is also necessary for the user to be able to run **hciconfig** to enable the Bluetooth device (this would also be required on any other platform where BT is not enabled by either plugging in a dongle, or with an "rf-kill" switch. These actions will request an admin password, unless you modify `/etc/sudoers` to allow the user to run rfcomm (and hciconfig on Maemo) without a password.