



CHECKmate
by

GEOTAB

Fleet recording, reporting and analysis solution

GEOTAB GEOPORT RF GUIDE

TABLE OF CONTENTS

INTRODUCTION	3
GEOPORT RF Server Overview	3
GEOPORT RF Base Station Overview	3
INSTALLATION AND CONFIGURATION	4
Minimum requirements for the PC:	4
GEOPORT RF Server Installation	4
GEOPORT RF Driver Installation	6
Configuring the GEOPORT RF Server	7
GEOPORT RF Service Status	10
VEHICLE SETUP	11
Adding Vehicles to Checkmate	11
Are My Vehicle Units RF-Enabled?	11
Configuring your Vehicles for RF	11
USING GEOPORT RF	13
When Will My Vehicles Download to RF?	13
Opening the Console	13
The Console Graph	14
Vehicle Programming via GEOPORT RF	14
TROUBLESHOOTING	16
Best Practices	16
Log Files	16
FAQ's	17

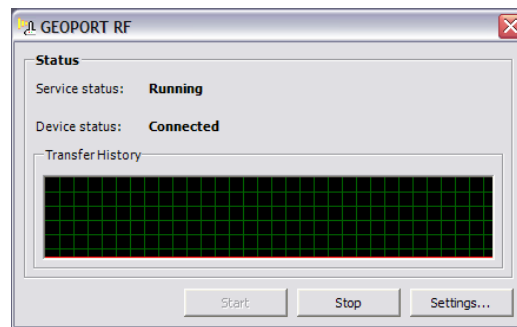
INTRODUCTION

GEOPORT RF Server Overview

GEOTAB GEOPORT RF (Radio Frequency) Server is a software program that manages the GEOPORT RF Base Station (see below). This software utilizes the Microsoft .Net framework (version 1.1 or higher) and has 2 components to it: GEOPORT RF service; and GEOPORT RF Console.

The GEOPORT RF service is a PC-based service and is the core communication component to the base station. This service runs in the background and is machine controlled so that it is not necessary for a user to be logged on for the service to function. Because of this architecture, GEOPORT RF Server is only supported on Windows NT, Windows 2000, Windows XP, Windows 2003 or higher.

The GEOPORT RF Console is a software component that provides a user interface to allow a user to change settings specific to the GEOPORT RF Server configuration.



GEOPORT RF Base Station Overview

The GEOPORT RF Base Station (base station) is a hardware device comprising of an RF antenna, a control box and a USB cable. This device communicates directly with RF-enabled GEOTAB GO units that are in range.

The base station attaches to a GEOPORT RF Server-based PC via a USB port.



INSTALLATION AND CONFIGURATION

Before you install the GEOPORT RF Server software, please take the time to read through this section to ensure that you have met all the necessary requirements and take note of the recommendations and suggestions.

Minimum requirements for the PC:

- Microsoft .Net Framework 1.1 (included on CD)
- Windows NT (with Service Pack 6 or higher), Windows 2000, Windows XP, Windows 2003 or higher
- Internet Explorer 5.1 or higher
- Approximately 50 MB of free space for data files
- 1 free USB port
- You must be a member of the local Administrators group on the PC.

GEOPORT RF Server Installation

GEOPORT RF requires the Microsoft .Net framework version 1.1 to be installed. The .NET framework is included in the installation and will automatically install if the target machine does not have the .NET framework installed.

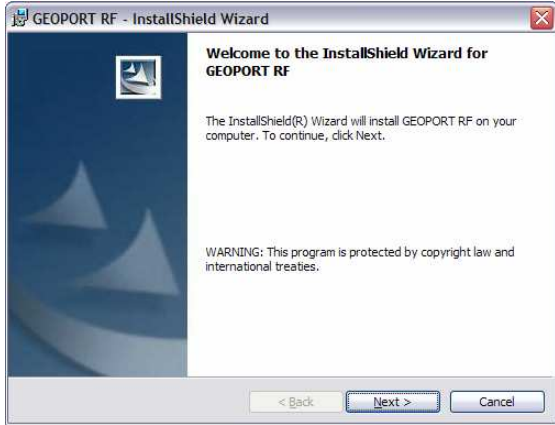


The main form gives you options to install, view help, license information and contact details. Click **CHECKMATE** to install the GEOPORT RF software.



In the Install Products section, you have the option of installing Checkmate or GEOPORT RF. There is also direct links to the Setup Guides which will assist you in preparing and setting up your environment. Click **Install GEOPORT RF** to start the GEOPORT RF installation process.

GEOTAB GEOPORT RF GUIDE



Click **Next** on the Welcome screen



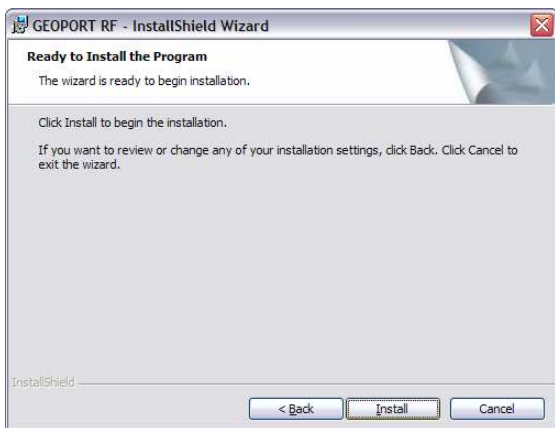
Carefully read through the License Agreement to ensure that you are using the software in accordance to it. You have to accept the license before you can continue. Click **Next**.



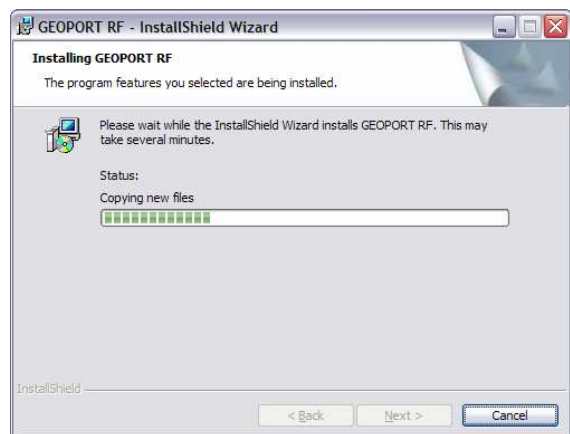
Enter your User Name and Organization; and choose whether you want to have the software available to all users or only for you. Click **Next** when you have entered the necessary information.



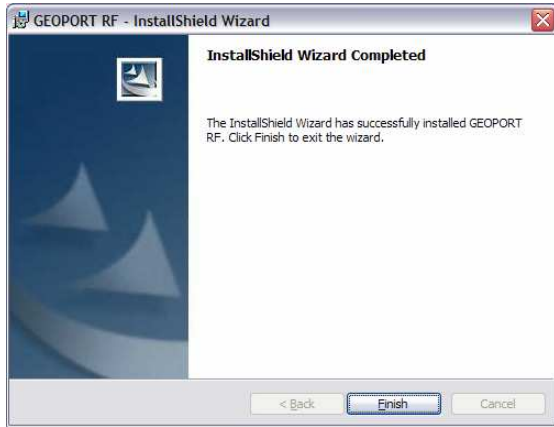
Choose **Complete** or **Custom** (no difference in this install set). Click **Next**.



That's it! You are now ready to begin installing. Click **Install** to start the installation process. It shouldn't take more than a few minutes to install.



During install, you will see a progress bar. You can cancel the install at any stage by clicking the **Cancel** button.

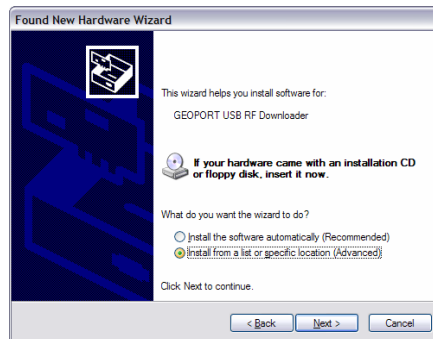


When the software has been successfully installed, you can click the **Finish** button. The installation will create a shortcut of CHECKMATE onto your desktop. If you are prompted to reboot, **DO NOT IGNORE THIS!**

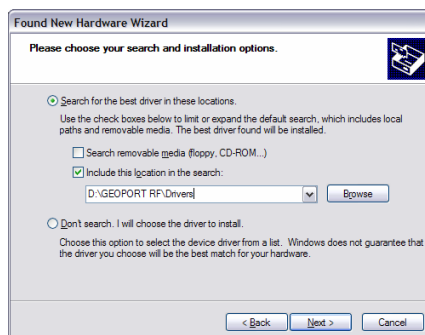
The installation process will copy all the required files to the target PC and register the GEOPORT RF service. Once successfully installed, your desktop will have a new GEOPORT RF Console shortcut on it.

GEOPORT RF Driver Installation

Once you have successfully installed the GEOPORT RF Server software, you can attach the GEOPORT RF Base Station to an active, available USB port. The Operating System should detect the presence of a new device and prompt you to install the device drivers.



Choose the option to install from a list or specific location and click **Next**.



When prompted, browse for the GEOPORT RF Drivers on the CD and click **Next**. You may get prompted to accept the software even though it has not passed Windows Logo testing. Choose the **Continue Anyway** option.



When prompted, click **Finish**. The GEOPORT RF Base Station drivers have now been installed.

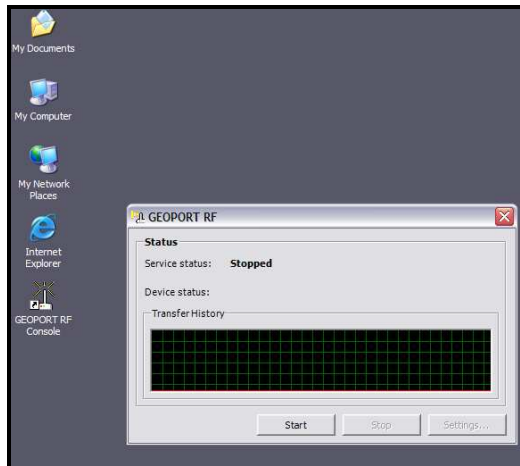
Note: Each base station has a unique number so you will have to install drivers once each time you connect a new base station.

Configuring the GEOPORT RF Server

Starting the GEOPORT RF Service

Once you have installed the necessary software and device drivers, you then need to configure the GEOPORT RF Server to suite your existing GEOTAB Checkmate setup.

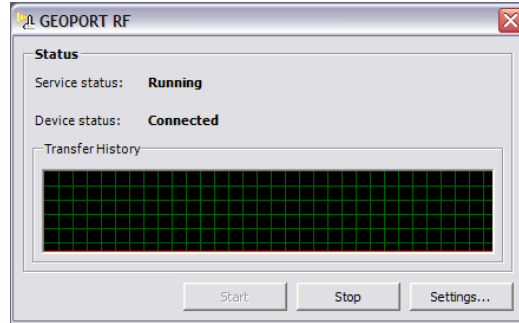
First, locate the GEOPORT RF Console shortcut located on your desktop and double-click it. This will launch the console application.



By default, the Service Status should read **“Stopped”**.

To start the service, click the Start button located at the bottom of the console. The service status should change to **“Running”** and the device status should read **“Connected”**.

GEOTAB GEOPORT RF GUIDE

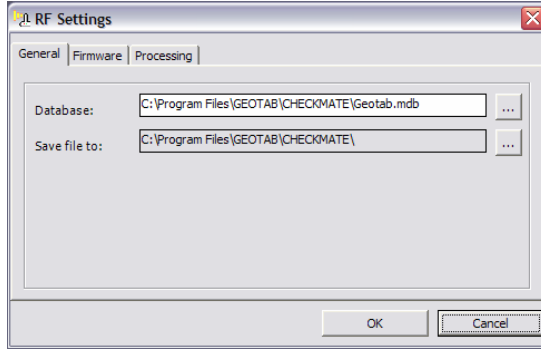


Very Important: At this point, confirm that the ON LED on the base station is green. If the ON LED is not on at all, it is likely that your USB port is not supplying sufficient power to the base station. Remove all other USB devices and check. If the green LED is still not on, you may have to use a powered USB hub. Do not continue with the configuration until you have confirmed the green ON LED on the base station!

Click the **Settings** button to bring up the configuration settings for your server.

General Tab

The first tab is the **General** settings tab.



Database is the path to your primary Checkmate database. By default this should be the path to a Microsoft Access database file (Geotab.mdb). If you are using Microsoft SQL Server 2000 as the database system, this field must contain the SQL Server name. Refer to the Checkmate user guides for more information.

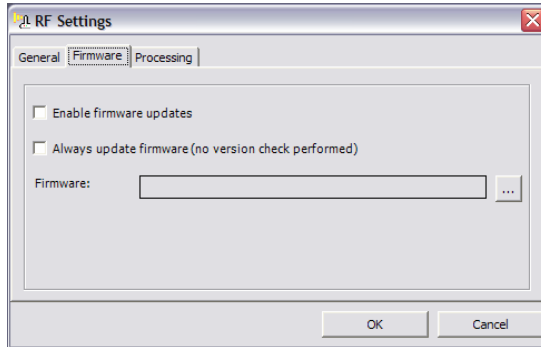
Save file to is the path to where you want the trip data files to be stored once downloaded via RF, until they are imported into the

database. This can be a local path, a network drive path or a UNC path.

If you have installed the GEOPORT RF Server on the same machine as your Checkmate system, it is recommended that you point to the same path as is configured in your Checkmate system (refer to the Checkmate Setup Guide for more information).

Firmware Tab

The second tab (**Firmware**) is used to update RF GO units with updated firmware via RF, if required.

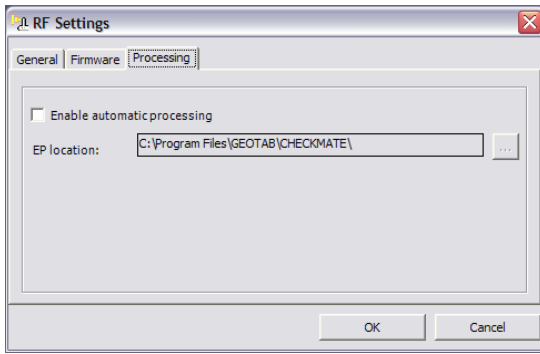


Enable Firmware Updates is the setting that determines whether the server must check the current RF GO vehicle's firmware version, and if it doesn't match will download the new firmware to the vehicle unit. This should not be enabled unless you have a valid firmware update from GEOTAB, and wish to update your RF GO units when they communicate with the base station.

Once the correct firmware version has been applied to the vehicle unit, the server will not download the firmware again, unless you enable the **Always update firmware** option. This will apply the firmware update to any RF Go unit that attaches to the base station, regardless of the existing version.

The **Firmware** field is the path to the valid firmware (DL) file that is usually supplied by GEOTAB.

Processing Tab



The last tab is the **Processing** tab, which allows you to enable auto-processing.

Check the **Enable automatic processing** option if you want the system to automatically run the update process within Checkmate, which takes any downloaded trip data files and imports them directly into the database.

Point the **EP location** to the Checkmate ExceptionProcessor.exe file (located under the Checkmate folder, if installed).

Once you have made all the necessary changes to the RF Settings, click the OK button. The GEOPORT RF service will be restarted automatically with the new settings.

GEOPORT RF Service Status

As mentioned before, the GEOPORT RF Server is a service-based module, which means that the software is running in the background, regardless of whether a user is logged on or not. There are several ways to check to see if the service is running, including running the console shortcut on your desktop and confirming the **Service status**:

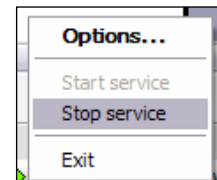


or checking the **Service status** under Services (component of Computer Management under your operation system tools).

Once you have run the Console for the first time, the GEOPORT RF icon appears in the system tray, which can also give you an indication of the current state of the RF system.

	GEOPORT RF base station is connected and service is up and running
	GEOPORT RF service is stopped
	GEOPORT RF base station is not connected
	GEOPORT RF base station is busy communicating with a vehicle

You can stop (or start) the service by right-mouse clicking on the GEOPORT icon in the system tray.



VEHICLE SETUP

GEOPORT RF will **ONLY** download trip data from RF-enabled GO vehicles (GO RF) that have been configured in Checkmate. Use Checkmate to add the GO RF vehicle units to the system. Any GO RF vehicle that has not been added to the Checkmate system will be ignored and no trip data will be downloaded.

Adding Vehicles to Checkmate

To add your vehicles to Checkmate, please refer to the GEOTAB Checkmate Setup Guide.

Are My Vehicle Units RF-Enabled?

The standard GO unit is by default not RF-enabled. It is possible to field-upgrade an existing GO unit to RF by installing a supported and configured RF board into the GO unit; attaching an approved RF antenna, and upgrading the standard firmware to a valid RF-enabled firmware version.

GEOTAB recommends that a certified GEOTAB partner do the upgrade, to ensure your warranty remains in tact.

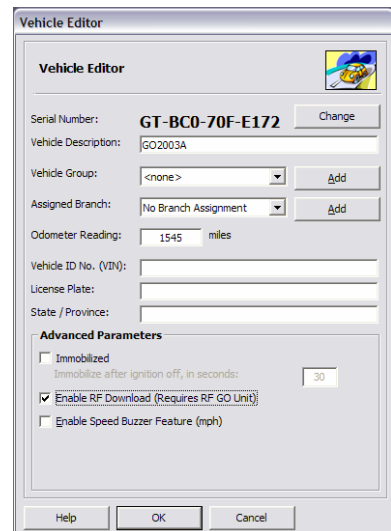
If you still have to purchase GO units and wish to use RF, you can purchase the GO RF kits, which already has the necessary hardware and firmware installed.

If you are unsure of what you currently have or should you need additional information, please contact your GEOTAB partner.

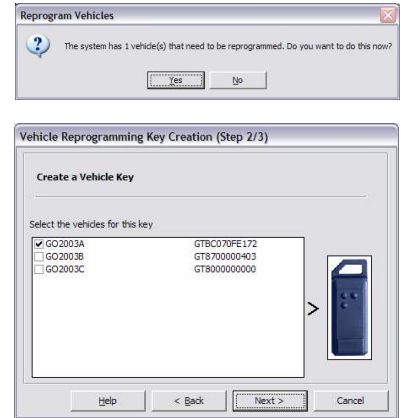
Configuring your Vehicles for RF

Once you have added in your vehicles into Checkmate, you need to tell the system which vehicles will be RF-enabled. The first step is to change the RF parameter for each vehicle in Checkmate. To do this, do the following steps:

1. Launch Checkmate
2. Go to **Tools | Options | System** tab and enable **Advanced Mode**. Click **OK** twice.
3. Choose the **Setup** button on the main toolbar and then choose **Vehicles | Vehicle Details**
4. Choose a vehicle you wish to edit and then click **Edit**.
5. Check the **Enable RF Download** option and then click **OK**.
6. Repeat Steps 3 and 4 for all vehicles you wish to have RF enabled.



7. When you have edited all necessary vehicle entries, click the **Close** button on the **Vehicle List** form.
8. You will be notified that one or more vehicles need to be programmed, choose **Yes**.
9. Follow the **Vehicle Programming Key Wizard** steps, making sure that you include all vehicles that have been modified. Also ensure that when prompted you insert a blank key and that you have a GEOPORT Key Reader attached to the PC. A vehicle programming key will be created with the necessary parameter changes on it, for the vehicles you have specified.



Note: Refer to the GEOTAB Checkmate Setup Guide and Advanced Settings Guide for additional information on how to program a vehicle.

Once you have created a valid Vehicle Programming Key, you must go and reprogram all necessary vehicles by inserting the programming key into the touch-key housing in the vehicle when the unit is in download mode (LED flashing).

USING GEOPORT RF

As mentioned in the sections above, the console provides the interface to make changes to your RF system. Because the GEOPORT RF Server is a service-based application, you do not need to have the console application (or the icon) open for the server to function. Closing the console will close the form but leave the GEOPORT RF icon in the system tray. You can also close the icon by right-mouse clicking on the icon and choosing the **Exit** menu item.

When Will My Vehicles Download to RF?

Whenever a valid GO RF vehicle enters within range of the RF server and the ignition is turned off, the GEOPORT RF Server will communicate with the vehicle and download any current trip information to the PC.

At the same time and only if configured, the system will check the vehicle firmware version and upload a new one. This is normally not necessary and should only be enabled if requested by GEOTAB.

The standard range of the 900 MHz Spread-Spectrum RF board is approximately 1000 ft (300 meters) provided that you have positioned the GEOPORT RF Base Station antenna in a suitable position to have good viewing access to the location of your vehicles.

The GEOPORT RF Console provides a graph-based view on the data that is being transferred to and from the GEOPORT RF Server.

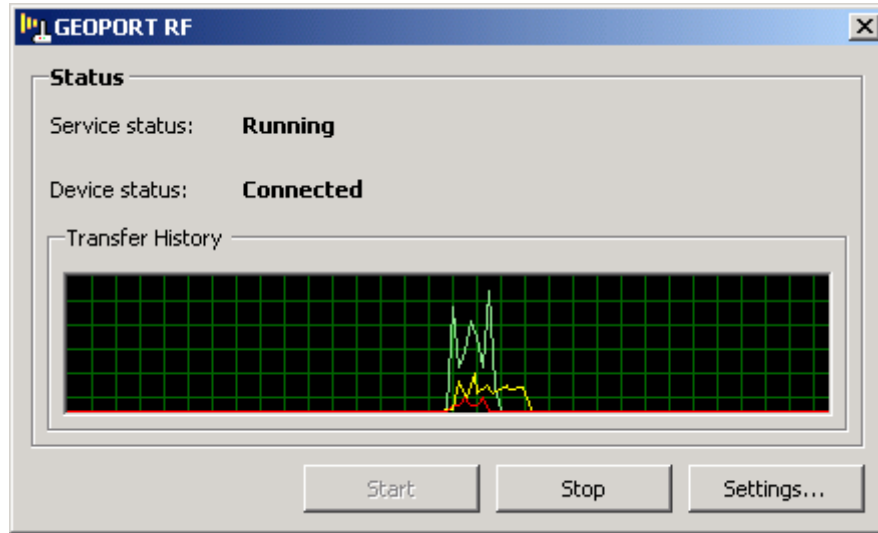
Opening the Console

There are several ways of opening the console:

- Double-click the GEOPORT RF Console shortcut on your desktop
- Double-click the GEOPORT RF icon in the system tray
- Right-click the GEOPORT RF icon in the system tray and choose **Options**

If the GEOPORT RF Console shortcut is not on your desktop and you cannot see the GEOPORT RF icon in the system tray, you can open the console by navigating to Program Files\GEOTAB\GEOPORT RF (or the folder you installed the program in) and double-clicking the ServiceClient.exe file.

The Console Graph

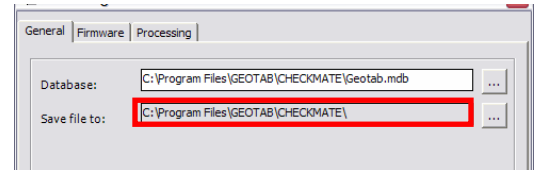


There are several components to the GEOPORT RF graph:

- **Green** line is data read from a vehicle to the GEOPORT RF Server, which is usually trip data
- **Yellow** line is data written to vehicle from the GEOPORT RF Server, such as parameter information or firmware upgrades
- **Red** line is error data (bad communications)

In addition to the graph, the **Device status** field will indicate which vehicle it is busy communicating with.

When a vehicles' trip data has been uploaded to the GEOPORT RF Server, the data is compiled and stored in an encrypted dump file in the location specified in the console settings.



If you have Auto-processing enabled (see configuration section above), the GEOPORT RF service will launch the processing function which will import that trip data into the Checkmate database automatically.

If you do not have Auto-processing enabled, you can import the data by running the Update function in Checkmate (see the Checkmate Setup Guide for more information on importing your data).

Vehicle Programming via GEOPORT RF

GEOPORT RF also allows you to program vehicles with different parameters automatically. This alleviates the need to create a vehicle programming key and having to program each vehicle manually, when you made parameter changes.

GEOTAB GEOPORT RF GUIDE

Whenever the GEOPORT RF service communicates with a vehicle, it will check the database and see if there have been parameter changes for that vehicle, and if so send those new parameters down to the vehicle.

An example of this is if you decide to enable the Speeding buzzer for a particular vehicle. You would change the parameter for that vehicle in the **Vehicle Editor** form in Checkmate (as per the Advanced Setting Guide) and then close down the Setup forms (making sure you say **No** when prompted to create a **Vehicle Programming Key**). That's it. Because you made a parameter change, a flag for that vehicle is set to tell the GEOPORT RF service that there are parameter changes. The next time that vehicle downloads to GEOPORT RF, the new settings will be applied automatically.

This function also applies to any advanced parameter you may wish to change for a vehicle.

The screenshot shows the 'Vehicle Editor' window. The 'Serial Number' is 'GT-BC0-70F-E172' and the 'Vehicle Description' is 'GO2003A'. The 'Vehicle Group' is set to '<none>' and the 'Assigned Branch' is 'No Branch Assignment'. The 'Odometer Reading' is '1545 miles'. The 'Advanced Parameters' section includes: 'Immobilized' (unchecked), 'Immobilize after ignition off, in seconds' (30), 'Enable RF Download (Requires RF GO Unit)' (checked), 'Enable Speed Buzzer Feature (mph)' (checked), 'Start Buzzing' (81), and 'Stop Buzzing' (80). Buttons for 'Help', 'OK', and 'Cancel' are at the bottom.

Caution: Unchecking (disabling) the Enable RF Download option will cause the vehicle to stop using RF and the only way to get it back into RF mode would be by creating a programming key and manually programming the vehicle again.

TROUBLESHOOTING

When dealing with a technology like Radio Frequency data transfer, it can become difficult to troubleshoot communication issues. This section covers common issues and suggests some best practices that will ensure that your GEOPORT RF system is set up as best as possible.

Best Practices

It is highly recommended that you follow the following guidelines, to ensure a stable environment for your GEOPORT RF system:

1. The RF Antenna in the vehicle must have a clear, unobstructed view of the outside
2. The GEOPORT RF Antenna at the PC must have a clear, unobstructed view of the yard where your vehicles will be stopping
3. Disable any power management on the GEOPORT RF Server PC to avoid the operating system from shutting down the services or hard drives
4. Keep the GEOPORT RF Server PC on clean, uninterrupted power if possible
5. Ensure that your GEOPORT RF Server PC has sufficient disk space on a regular basis
6. When using Auto-processing to a remote database, ensure that the GEOPORT RF service has a good, stable network connection to the database
7. Check to see that the green ON LED light is on, on the GEOPORT RF base station, on a regular basis

Log Files

The GEOPORT RF Server generates a daily log file which records all the activity for the day. These log files exist in the same folder you installed the GEOPORT RF software and have a **.LOG** extension. The file name reflects the date of the log file.

These log files are useful when troubleshooting GEOPORT RF issues as they record trip downloads per vehicle, service starting and stopping and Auto-processing commands.

It is a good idea to go into the folder and clear out all old log files, on a regular basis.

```

28 May 2004.log - Notepad
File Edit Format View Help
-B1 -P"SERVER"
09:33:15:95127 EP process ended
10:31:03:82783 Data thread timeout expired. Starting new wait cycle...
11:31:03:83439 Data thread timeout expired. Starting new wait cycle...
12:31:04:26155 Data thread timeout expired. Starting new wait cycle...
01:21:48:50896 Vehicle Hello From: 118481266 Firmware: 1.1.21 Parameter: 3
01:21:48:55903 Sending Hello from station...
01:21:48:56905 Vehicle A 1.1.21
01:21:48:81941 Retry 5
01:21:49:06977 Retry 4
01:21:49:32013 Retry 3
01:21:49:57049 Retry 2
01:21:49:82085 Retry 1
01:21:50:07121 Retry count exceeded. Disconnecting...
01:22:16:48919 Vehicle Hello From: 118481266 Firmware: 1.1.21 Parameter: 3
01:22:16:49921 Sending Hello from station...
01:22:16:49921 Vehicle A 1.1.21
01:22:16:52925 Driver ID message received. Driver changed to 51909166
01:22:16:77961 Retry 5
01:22:16:99993 Multi log message received with 12 log records. Message counter: 0
01:22:17:12010 Multi log message received with 12 log records. Message counter: 1
01:22:17:20022 Multi log message received with 6 log records. Message counter: 2
01:22:17:22025 Multi log message received with 0 log records. Message counter: 3
01:22:17:22025 Download complete. Ending connection.
01:22:17:29035 Starting EP with arguments: -I"C:\Program Files\GEOTAB\CHECKMATE\*.txt" -Q2
-B1 -P"SERVER"
01:22:48:72555 EP process ended
02:22:17:54726 Data thread timeout expired. Starting new wait cycle...
    
```


FAQ's

- Q** The green ON LED on the base station is not on, even though I have connected it to my PC
- A** *Your PC is not supplying sufficient power to the USB port in order for the base station to function. Try and remove other USB devices or use a powered USB hub*
- Q** I cannot find the GEOPORT RF icon in the system tray
- A** *The icon does not need to be visible for the system to function. To make the icon visible, run the Console application*
- Q** My console graph shows a number of green dots but no data is being transferred for my vehicle
- A** *This indicates that either the GEOPORT RF Server has found an RF-based vehicle unit outside but it does not exist in the database; or the GEOPORT RF settings point to the wrong database. Follow the configuration section to add in your vehicle / database settings*
- Q** I see plenty of activity on the console graph but I only see the red line component
- A** *This indicates that the vehicle is out of range, check the antenna positions of both the vehicle and GEOPORT RF PC, and bring the vehicle closer to the GEOPORT RF antenna, to ensure better range*
- Q** I hear a sound from the PC every time it does a download
- A** *The system is designed to audibly indicate when it communicates with a vehicle*
- Q** The **Settings** button on the Console is disabled
- A** *Before you can modify any settings, you need to start the service. Click the **Start** button on the Console*
- Q** Trip data was downloaded to the GEOPORT RF Server for my vehicle but I do not see anything in Checkmate
- A** *The trip data was downloaded into a dump file but you haven't run the **Update** function in Checkmate to import the data into the database. You could also enable the Auto-processing option in GEOPORT RF*
- Q** I have run the Update function in Checkmate but I still don't see any trip data appearing
- A** *Your GEOPORT RF saves the trip dump file to the path you specified in the Console. Checkmate looks for trip dump files as specified in Checkmate. If the two paths are not the same, Checkmate does not know about the GEOPORT RF downloaded trip dump files. Move the files over to the Checkmate-specified folder for **Imports** and rerun the **Update** process*
- Q** What is Firmware and what version should I have?
- A** *Firmware is software that resides on and controls a hardware device. To find out which version of firmware your vehicle should be running, contact your GEOTAB Partner*