

VEHICLE EXPLORER

Vehicle Explorer Help

CAUTION:

Failure to fully and properly read this Document prior to configuring and operating a Blackbox Solutions Vehicle Server based diagnostic system is very likely to result in damage to either the equipment or a vehicle, or both. It will almost certainly result in confusion, misunderstandings, and a loss of ownership benefit and create a disproportionately large amount of aggravation and wasted time / effort.

A lot of effort went in to providing this document as a direct resource of just about everything you might ever need to know about our Diagnostic systems, please make full use of it.

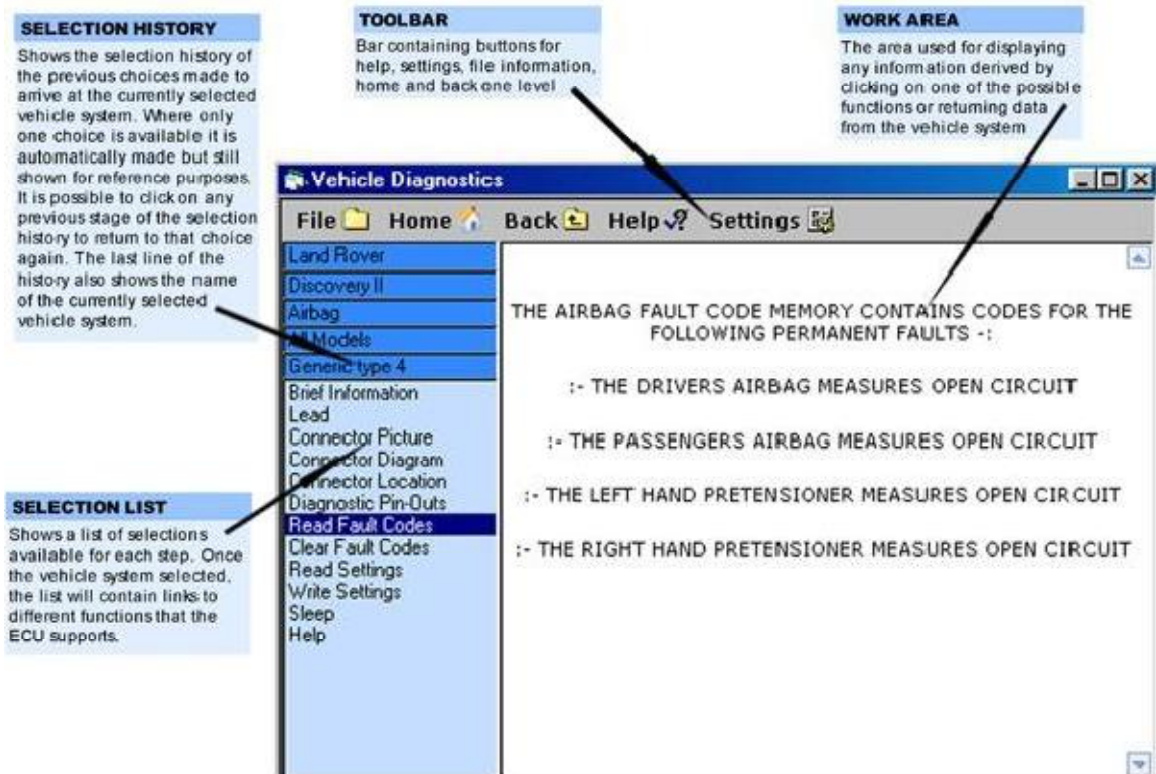


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Part 1 Introduction

1.1 Welcome

Welcome to the built in Help system

In these pages you will find general information to not only help you get your system working and to learn how to use it and get the most out of it, but also information specific to each vehicle system covered. From the main index, you will first find a section for each category of vehicle system. In each section category, there is a page which is dedicated to each version of the vehicle system. So under the main index you will have a category of ABS, under this you will have a page for each ABS system covered. You will also find sections for general help on the hardware and the software elements of this system itself and of course this introduction.

1.2 Safety

- Working on a vehicle can sometimes be very dangerous. It is important to know the potential risks in order to avoid accidents.
- **Mains:** Electric shocks can be fatal. Never touch, with bare hands any electrocuted person, unless you have first ensured that you have properly switched off the mains. Make sure that any electric operated equipment is correctly earthed.
- **Ignition:** HT voltage can be especially dangerous for people with heart problems, or pacemakers. Do not work on the ignition or next to it while the engine is running or the ignition switched on.
- **Battery:** Do not allow a spark or a naked flame next to the battery, as the hydrogen gas given by the battery is very explosive. Connect and disconnect battery jump leads with care. The batteries contain sulphuric acid, so take proper care while transporting the battery.
- **Fire:** Never forget that fuel is extremely flammable and fuel vapour is explosive. Always keep a fire extinguisher handy, suitable for fire produced by fuel or by electricity. Do not smoke or have any naked flame next to a vehicle being worked on. Beware of sparks! Overloading or short circuits can cause fire. Be careful when working on the vehicle wiring.
- **Toxic substances:** Do not work on the fueling system while the vehicle is on the inspection pit, because the fuel vapour is heavier than air and poisonous. Never work in a place with any ventilation. Paint, thinner, solvents, fuel vapours are poisonous. Exhaust gas is dangerous. Open the garage doors while the engine running. Avoid skin contact with battery acid, fuel, antifreeze, brake hydraulic fluid or other fluids and lubricants. Contact a doctor if such a substance was swallowed or got into your eyes.
- **Cancer danger:** Asbestos dust can cause danger if inhaled. Used engine oil can cause skin cancer. Wear gloves and change clothes if oily. If the engine is hot, do not remove the radiator cap and beware that the engine oil, automatic transmission fluid, power steering fluid may be very hot. Exhaust, engine, brake disks and drums can be extremely hot. If you need to work under the car, supplement the jack with axle stands, or use a ramp.
- **Airbag:** If you plan to work on your airbag system, exercise extreme caution. The airbag deploys with a speed of 200km/h, and can be dangerous if it goes off accidentally. The airbag system is live all of the time – it is not switched on and off by the key. There are also backup power supplies. The

systems built between 1989 and 1991 will discharge in about 20 minutes after the battery is disconnected. The service manual says that it must be disconnected to safely work on the vehicle. The systems built after 1992 will discharge in about one minute after disconnecting the battery.

- Never attach a self-powered test light to any part of an airbag system. If you want to work on the system, acquire and review a manual that covers servicing of the system. Always fully read and adhere to the manufacturer's safety instructions for working on such systems in their workshop manuals or other literature.
- **Injectors:** Diesel injectors are pumping the fuel at very high pressures. Keep well away while the injectors are firing, as the fuel can penetrate the skin.
- Keep long hair and cloths well away from moving parts.
- While working on electrical systems, remove rings wristwatch, etc.
- This system is designed to be used only by persons competent to do so and is designed to be used only in conjunction with the vehicle manufacturers' proper instruction manuals. These manuals always contain specific safety instructions to avoid damage or injury. It is the users' responsibility to obtain and read these manuals and to comply with the safety instructions contained therein.

1.3 Licence

The software and or hardware are licensed to you by Blackbox Solutions Ltd. You will own the media on which the above software files is recorded, but the author, Blackbox Solutions retains ownership, copyright, title, and exclusively reserves all rights to the software. The software is not in the public domain. The software and or hardware are subject to this License. You are not granted any rights to patents, trade names, copyrights, trademarks, franchises, or licenses whether registered or unregistered in respect of the software/hardware.

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THE SOFTWARE/HARDWARE IS NOT INTENDED TO BE USED AS A DEFEAT DEVICE OF ANY DIAGNOSTIC SYSTEM OR CONTROL SYSTEM. IT IS USER RESPONSIBILITY TO OBTAIN ANY CERTIFICATION, RE-CERTIFICATION OR NEW CLASSIFICATIONS PERTAINING TO USE.

User Competence

Blackbox Solutions Ltd provides computerized diagnostic equipment. By definition it requires some degree of competence with computers and a good degree of understanding of diagnostic equipment and the vehicle systems on which it will be used. Blackbox Solutions Ltd cannot be held responsible for any result caused from usage of the equipment by persons not possessing the required degree of competence or confidence to use it correctly and in accordance with the help and instruction provided both by Blackbox Solutions and the Vehicle Manufacturer.

Electronic Monitoring

Blackbox Solutions Ltd Reserve's the right to employ any means at their disposal to ensure that the terms of this license are not breached or detect any such breach. This may include monitoring, logging or other electronic license supervision.

Single Vehicle Licenses

Blackbox solutions reserve the right to use any means at its disposal to ensure that It's Single Vehicle Licenses are usable on one single vehicle entity only. This may be by utilization of electronic Identification and verification procedures which may not allow access following ECU replacement or limit functionality of the diagnostic capabilities of the system in respect of ECU reprogramming / replacement.

Limited Warranty

The software obtained in a CD ROM and or physical chip ROM medium, is warranted to be free of defects for 365 days from original purchase. The hardware has a warranty of 365 days from original purchase. In the event of failure, your exclusive remedy will be to receive a replacement, repair or refund at Blackbox Solutions' option. Shipping costs for return to Blackbox Solutions will be the responsibility of the purchaser in all circumstances.

Disclaimer of Liability

You expressly acknowledge and agree that use of the hardware and/or software is at your sole risk. Blackbox Solutions does not warrant that the functions contained in the hardware/software will meet your requirements or any requirements, advertised or otherwise, or that the hardware/software will be error free, or that such defects will be corrected. Blackbox Solutions does not warrant or make any representations regarding the use or the results of the use of the hardware/software or related documentation in terms of their correctness, spelling accuracy, reliability, or precision.

The hardware is not warranted against: any physical damage howsoever caused, shock in excess of 50 Gs or operation above or below maximum operating voltage or temperature as specified on label attached to the hardware. Usage in conjunction with any spare or accessory not supplied by Blackbox Solutions Ltd, any repairs, except those authorized by Blackbox Solutions, damage or failure caused by or attributable to abuse, accident, misuse, improper or abnormal usage, failure to follow instructions, improper installation or maintenance, electrostatic discharge, alteration, lightning, water, humidity, corrosive environments, immersion in liquids, or acts of God.

Limitation of Liability

IN NO EVENT WILL BLACKBOX SOLUTIONS BE LIABLE FOR ANY COMPUTER DAMAGE, VEHICLE DAMAGE, CONTROL UNIT DAMAGE, PERSONAL INJURY, DEATH, FINES, LAW SUITS, PROSECUTION, LOST PROFITS, LOST DATA, INCORRECT DATA, ENVIRONMENTAL DAMAGE, GOVERNMENT, LAW AND REGULATORY VIOLATIONS OR ANY OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES THAT RESULT FROM USE OR INABILITY TO USE THE SOFTWARE AND OR HARDWARE.

Some jurisdictions do not allow the limitation of incidental or consequential damages; in all cases Blackbox Solutions Ltd's total liability to you for all damages will not exceed £1.00 Sterling.

Returns Policy

All returns must be accompanied by an RMA number which can be obtained through contact with our technical support staff on our technical support forums.

Goods returned without a clearly marked RMA number will be subject to an additional administration and handling charge.

Blackbox Solutions Ltd accepts no responsibility for the goods returned under RMA while in transit to us. Blackbox Solutions Ltd reserves the right to refuse to repair any goods not under warranty, where spares are no longer available, or if it believes failure or damage was caused by any attempt to copy or otherwise reverse engineer the hardware or software.

Termination

You may terminate the License at any time by returning the hardware. Blackbox Solutions reserve the right to terminate the License at any time and to use whatever mechanism it requires to procure proper usage and payment for such.

If for any reason a court of competent jurisdiction finds any provision, or portion therefore, to be unenforceable, the remainder of this License shall continue in full force and effect.

Agreement

You acknowledge that you have read this agreement, understand it, and agree to be bound by its terms and conditions. Neither party shall be bound by any statement or representation not contained in this agreement. No change in this agreement is effective unless written and signed by authorized representatives of each party. By connecting and or operating any part of the hardware/software you agree to accept the terms of this agreement.

Part II Installation and Configuration

2.1 Online owner's area account

All support is performed strictly through the online forums.

To access the forums you need to activate your **Owners Area Account**

To activate your account, you will need the following information at hand:

A. Your order reference number. If you have purchased your system directly from Blackbox Solutions Ltd, this reference number was supplied to you when you placed your order with us. If you have purchased your system elsewhere, it is not necessary to provide this information. This number is typically between 3 and 10 digits long and does not contain any letters.

B. A name or nickname that you will use to be identified by on the site. This is your own personal choice but please bear in mind that if you try to use your first name for example there is a possibility that another user already has that name and therefore yours will require an additional amendment.

C. A password that you will use for accessing the owner's area in the future. This is also your own personal choice and should be something you will easily remember. You should write this down with your user name and keep it safe. The system will not accept special characters or characters typed in any other language other than English.

D. Your e-mail address.

With this information you are able to activate your online owner account, allowing you to enter the owner's area of our web site, which gives you access to the forums and online help.

The procedure to activate your owner's area account is as follows:

A. Make sure that you are connected to the internet.

B. Open your web browser (Internet Explorer, Firefox etc) and navigate to <http://www.blackbox-solutions.com/support/registration/>

This can be done by typing the full address as shown here in the address bar at the top of your browser, or simply click on the text to link you there.

You can also reach this page by opening the website of your product and click on "**Support**" and then "**Registration**"

C. Once the web page has opened, fill in the form and click on submit. Please note these are the only methods we accept. Use of any other will unfortunately result in your owner's account not being created.

Personal Information	
Name: <input type="text"/>	Post/ZIP Code: <input type="text"/>
Company: <input type="text"/>	Country: <input type="text" value="Select Country"/>
Address: <input type="text"/>	Email: <input type="text"/>
City: <input type="text"/>	Website: <input type="text"/>
Region/State: <input type="text"/>	Tel. Number : <input type="text"/>

Product Details	
Please confirm that your order is complete and that all items are in good condition: <input type="text" value="Yes"/>	
Please select your product type	<input type="text" value="Select Product Type"/>
Please select your supplier. If not listed please enter their name.	<input type="text" value="Blackbox Solutions Ltd."/>
Server ID Number: <input type="text"/>	This number is found attached to the Vehicle Eerver
Module ID Number: <input type="text"/>	This is the number found on detachable ID modules and so applies only to FAULTMATE MV and MSV 1 systems onl. For all other units please enter 00000.
Order Reference Number: <input type="text"/>	Required if the product was purchased from Blackbox Solutions.
Preferred User Name: <input type="text"/>	This is the name that will appear for you on the forums.
Preferred Password: <input type="text"/>	Your password that will be used to allow you to access the forums etc.

D. Follow the instruction on the top of the screen very carefully. You will need to type in the activation form the information described above.

E. Once you have completed the form, click on "SUBMIT" button which is to be found on the bottom of the page. You will not be able to log in to the forums until the forums account part of the activation procedure

has been processed. We typically process forum account activations from **Monday to Thursday between 7:30 AM and 3:00 PM GMT and Friday 07:30 AM and 14:45 PM GMT**

How to access the Owner's Area

- A.** Make sure that you are connected to the internet.
- B.** Navigate to your website product and click on support. If the PC that you are using has Vehicle Explorer installed, Open Vehicle Explorer and click on Help/Online Support. This will take you directly to the Owner's Area.
- C.** In the "Sign In" area type the new user name (nickname) and the new password and click Sign in.

NOTE. You can access the downloads and TUP request codes ONLY after activating the forum account

2.2 Connecting Hardware for Installation.

The Vehicle Explorer software is not locked to any PC, and it can therefore be installed on multiple PC's. However as part of the installation process, it is a requirement for the installer to communicate with the vehicle server and gather system and license information in order to install the correct files. Therefore in order to install the Vehicle Explorer on any PC, the Vehicle server will have to be connected to it and powered up. There are a number of differing ways to connect the Vehicle Server to the PC depending upon if you have a PC without a true serial port, and therefore need to use a USB to serial adaptor, or you are communicating wirelessly with a Vehicle server which supports wireless communications. These are all detailed in the first step (Step A) of the sub sections for each system under the section in these help pages entitled "Connecting the Hardware".

To Power up the Vehicle Server there are also a number of ways. The first and easiest is if you also purchased a mains type power supply with your system, in which case this can simply be inserted in the DC jack socket of the Vehicle Server.

The second is if you have a cigar lighter type lead that can be used between your vehicles cigar socket and the Vehicle servers DC socket.

The third and most common way, which must only be performed after extensively reading, observing the caution warnings and following the B and C steps of the sub sections for each system under the section in these help pages entitled Connecting the Hardware, is to power the system by actually connecting it to the Vehicles Diagnostic socket on vehicles that have a powered socket such as the OBDII.

If your vehicles Diagnostic socket does not supply power and it should then it will need its supply repairing, If your vehicle does not have a diagnostic socket (Classic, early Discovery and some Rover cars) then you should also have purchased addition power supply leads to connect to the cigar socket or battery.

Once powered a Vehicle server will need to be left for a minute or so to boot before attempting any communications with it.

You may also have to reference the sections entitled [Common PC connections](#) and [Setting the COM port](#) Sometimes for reasons beyond our control, other software hogging ports, computers bios settings, faulty hardware or software, a computer may not readily establish a connection to the Vehicle Server. At such an early stage this can be frustrating, just to get the main Vehicle Explorer software installed. However if a computer cannot establish a connection to allow the upgrade, neither will it connect from Vehicle explorer software anyway. So one must appreciate that any effort to establish the connection to install will mean that after install, vehicle explorer will have no trouble knowing where the vehicle server is or connecting to it.

2.3 Vehicle Explorer Installation

Our software runs on all versions of the Windows operating system from Win95 onwards. The only requirement is that your Windows distribution has an Internet Explorer version of 6.0 or above.

Internet Explorer is an internet web browser which is installed by default with Windows operating systems and is upgradeable independently to the operating systems themselves.

If you have previously installed a full version from a CD that you have obtained from us, then you can rest assured that our installer has already updated your Internet Explorer if it was necessary.

If you have not previously installed a full version from CD, then you will need to confirm that your Internet Explorer has a high enough version before attempting to install a downloadable Full Version.

To check your Internet Explorer version number, click **Start -> Programs -> Internet Explorer**. Once Internet Explorer has loaded, using the program's menu along the top left, click **Help -> About Internet Explorer** and note the version number which appears.

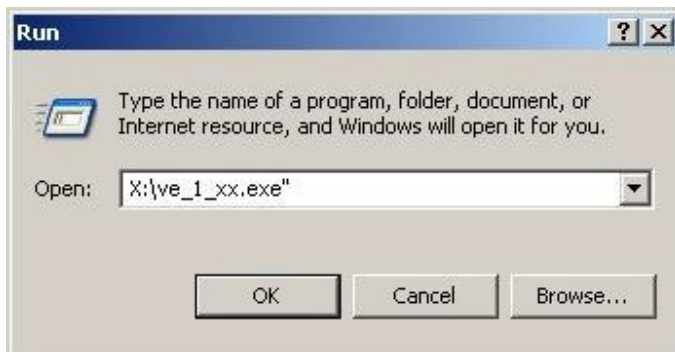
Provided that your version of Internet Explorer is greater than 6.0 you may install a Full Version knowing that your Internet Explorer is compatible with our software. Please note that although you may not use Internet Explorer as your main browser for the Internet, Vehicle Explorer interfaces with it regardless.

There are two scenarios where you may be installing a Full Version of our software. The first scenario is from a CD and the second is from an installer downloaded from Blackbox-Solutions support area.

To Install Vehicle Explorer from a CD

If you have auto run enabled on your system, the Vehicle Explorer setup window will open.

If the window doesn't open, auto run is disabled on your computer. In this case, click on **Start -> Run... -> Browse** and locate the file called **ve_1.xx.exe** on the CD.

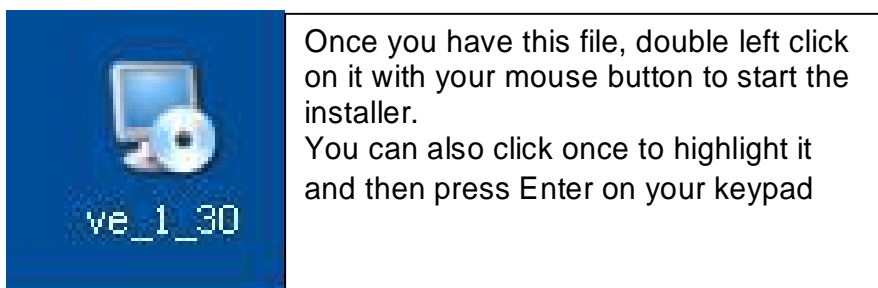


*replace X with the letter driver of your CD-ROM and xx with the version of software you are installing.

As an example if your CD ROM drive letter is D: and you are installing version 1.30 you would type D:\VE_1_30.EXE

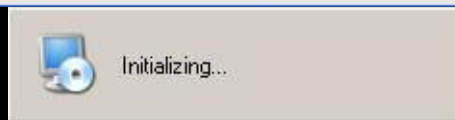
To install the latest Vehicle Explorer from an installer downloaded from our website support page (This page can only be accessed by registered members)

- Download the latest Full Version file from the support area or forums by clicking on its filename.
- Save the file to your desktop for easy access.
- Minimize or close any other windows which you may have opened.
- Once back at the desktop, double click the file that you have downloaded.





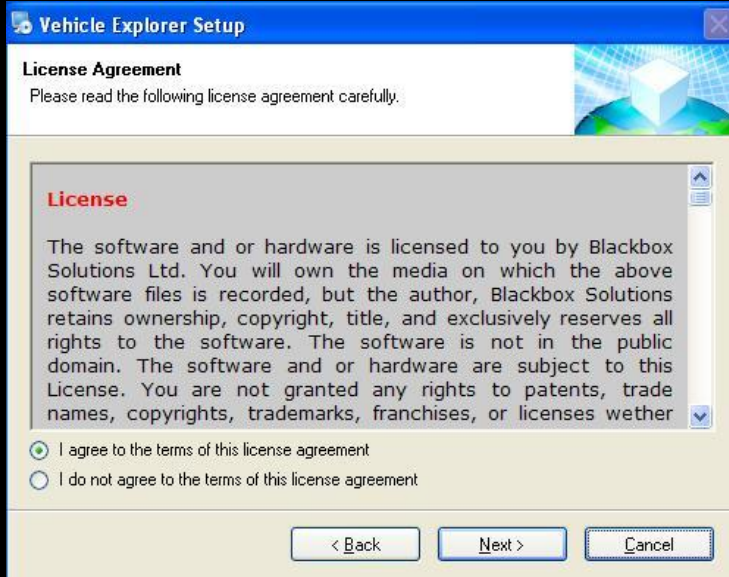
Depending on your version of Windows you may receive this security warning screen when you first click on the Vehicle Explorer executable. Just click Run



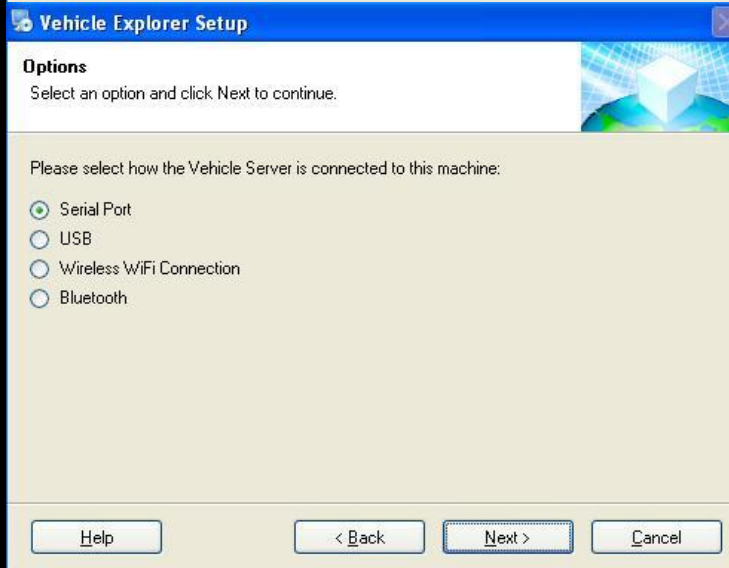
The Initializing... dialog will momentarily appear in the middle of the screen whilst the installer is initializing, followed by the welcome screen where you can confirm which version of Vehicle Explorer you are about to install.



Single left click on the Next button here to continue, or single click on the Help button to open the embedded help.

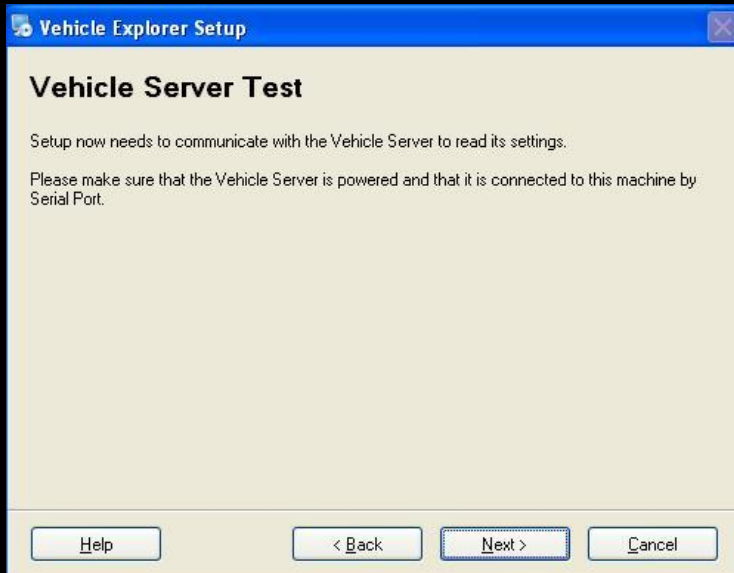


After reading our License Agreement carefully, left click once on the I agree to the terms of this license agreement radio option, the left click once on the Next button below.



This next dialog is asking a very important question. It is asking you to indicate how your Vehicle Server is currently connected to the computer. Failure to choose a valid option here may produce undesired results past this screen.

If you are unsure about what to choose from this list, please read the section in the help entitled [Connecting Hardware for Installation](#) Click on the radio option which corresponds with your connection method, and then click the Next button.



Regardless of which connection method you chose, you will have now reached this screen. As the instructions say, Please make sure that the Vehicle Server is powered and that it is connected to this machine by x. where x is the connection method that you have chosen.

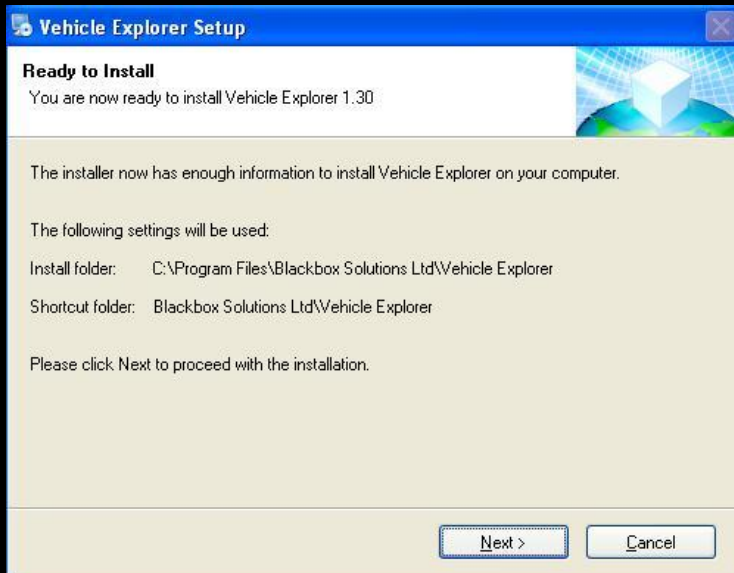
Note that it is very important that you do not have another Vehicle Explorer (an older version for example) running in the background at the same time. This would cause interference with the installation procedure which is why the very first screen recommends closing all other running programs before continuing with the installer.



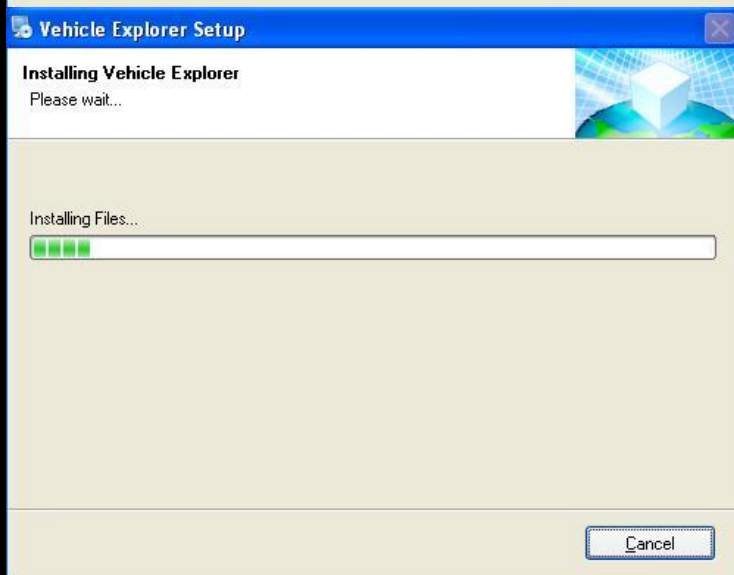
At the rate of one port per second the installer will now "scan" your system for the presence of a Vehicle Server. In the event a vehicle server is not found on any port, the error message will be Setup was unable to communicate with the Vehicle Server. Please make sure that the Vehicle Server is powered and properly connected to this machine and try again. From this message one can only re check the connections, hardware connections and the port configurations. If however, a Vehicle Server is found during the scan, it will then be interrogated by the installer.

The detection and subsequent interrogation of a connected vehicle server might seem academic to the installation of software to a PC, however it needs to be performed for a number of reasons of which the most important ones are:

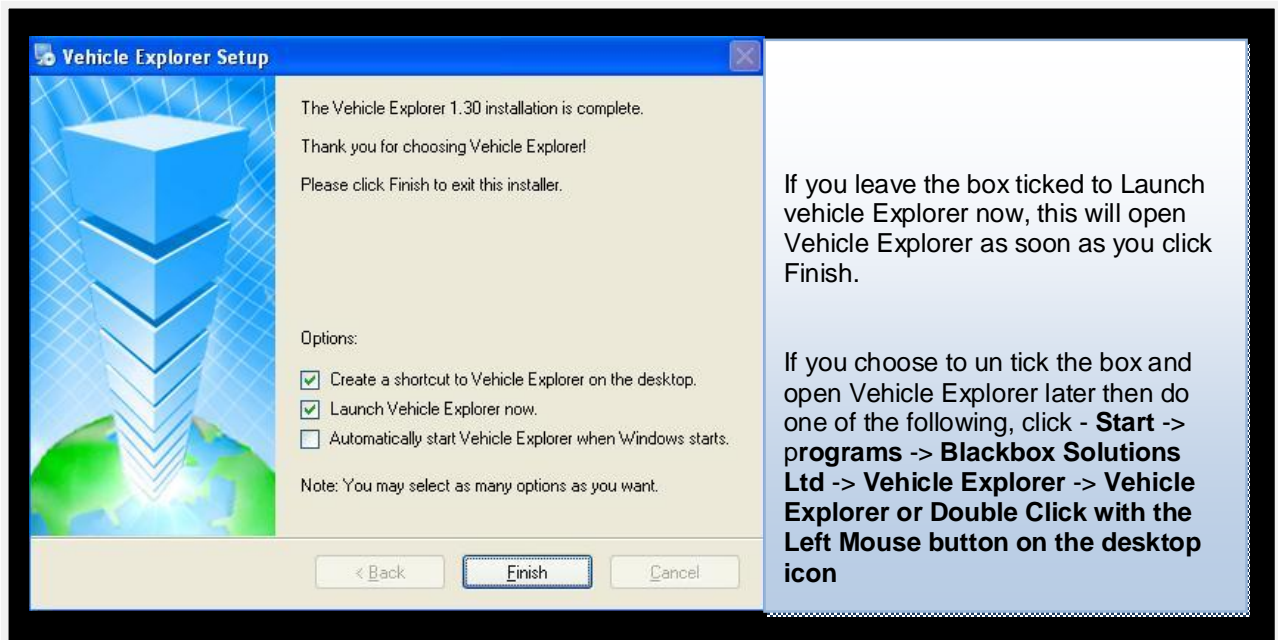
- To determine if there are any hardware issues with the Vehicle Server may hinder its communication and connection performance.
- To determine the Vehicle servers current firmware version so that the installer can decide, if it needs to upgrade it's firmware to a newer version.
- To see whether or not the Vehicle server is compatible with the Vehicle Explorer that we are trying to install.
- To identify the system type and configuration so that the correct files applicable to the systems are extracted and installed.



Vehicle Explorer is now ready to install using your connection method chosen in the last screen. Click Next to install.



Vehicle explorer will now install. This may take few minutes to complete. Click on Cancel if you wish to stop the process.



NOTE. If you already have Vehicle Explorer installed but are experiencing issues and wish to remove the original version and re-install then please follow these steps:

- Close all open windows until you are at your Windows desktop.
- Click **Start -> Programs -> Vehicle Explorer -> Uninstall Vehicle Explorer**
- Click 'Yes' to confirm that you wish to do this, then 'Close' once the uninstaller is finished.
- Double click 'My Computer'
- Double click on the hard disk which Vehicle Explorer was installed on.
- Double click the 'Program Files' folder.
- Locate the folder into which Vehicle Explorer was installed to, right click on it and select 'Delete'. (If you cannot find this folder, then skip to the next steps)
- Click 'Yes' if you are prompted for confirmation.

If you wish to keep your old version to revert back to in case of issues with the installer then please do the following:

- Double click on My Computer or use Windows Explorer to locate the installed location which should be C:\Program Files\Blackbox Solutions Ltd\Vehicle Explorer.
- Rename the FOLDER by clicking once with the Right mouse button and select Rename from the pop up menu. Rename to folder to something like Vehicle Explorer old or by the version number EG Vehicle Explorer V1.29
- When you now the installer it will create a new folder called Blackbox Solutions Ltd in Program files with freshly installed files inside.
- **IMPORTANT:** For problems/comments/suggestions related to this procedure, please post in the topic of the specific full version that you have installed. This will help us to pinpoint any problems between full version releases.

2.4 Activating Software Module Licences

Although all vehicle servers come pre loaded with all available software modules pre installed, or they can be copied to a Vehicle Server at any time from the CD, before you can use any software module to communicate with any given vehicle system, you have to first purchase the license to use that software module and obtain its license activation code.

This software module license activation procedure needs to be done only once and after the license for any given module has been activated in the server it is valid for all past and future revisions of that software module. You can use the "Software module license status" function under the settings tab to check which modules are licensed at any time.

If the relevant software modules license has not been yet been activated and you try to communicate with the vehicle system, you will simply get an error message saying that you have no license for the module you are trying to use. As shown below



How to obtain the license codes purchased.

Step 1) Obtain your vehicle servers current TUP request code.

Connect and power up the Vehicle Server by either connecting it to a vehicle or by using a mains power supply unit, then click on the "**Settings**" button on the top bar, and select "**Server Settings/Information**" from the drop down list that appears. This will send a command to the Vehicle Server requesting a page of information from it.

After this server settings page has been received and has opened, you can read the serial number of the Vehicle Server, the version numbers of both the hardware and firmware, and more importantly, the TUP request code, standing for Totally Unique Prefix. This request code is designed for our internal reference purposes only and must be supplied to us whenever ordering any additional software module license activation codes (TUP codes) from us. The only exception to this is when purchasing TUP Codes at the same time as purchasing the vehicle server, in which case we will have already looked up the TUP request code before shipping.

Step 2) Obtain your "Software Module Licence Activation Codes" (TUP Codes) page.

Activation codes for any purchased software module licenses are made available in the form of a page of codes known as the "Software Module Licence Activation Codes" or TUP Codes page. Please note that although you may have purchased such licenses for software modules at the same time that you purchased your vehicle server, for security reasons, "Software Module Licence Activation Codes" (TUP Codes) pages are never shipped with any hardware so you will still need to obtain your codes after delivery of your vehicle server, and for single vehicle type codes we may well need you to perform a vehicle scan and return the results to us in order for us to know what to license.

If you purchase only one module then you will have only one code on your page but if you have purchased more than one license at the same time or have purchased a single vehicle license then you may well have several codes for all of the ones you have purchased on the same page. Please note that there is not always one code for each software module license being activated because it is possible to have one code for several modules.

Even in this case the code still only gets entered once. This page is available on the internet in the specially provided owner's only area that was created for system owners to also obtain any technical

support they may require and download the latest software releases. It can also be given by E-Mail, Fax or phone if required but only under very special pre arranged circumstances.

Once you have your "Software Module Licence Activation Codes" page you will see that the Licence activation codes (TUP Codes) on it are in a table of lines of information, one line for each code. The first part of each line is actually the TUP request code which relates to the lines TUP code. This code should not be confused with the actual TUP code itself. Then you will see the date the code was produced and a small description of what the code will activate on the vehicle server. Finally, you will see the actual TUP code itself which is in the form of 4 groups of 5 numbers separated by hyphens (minus signs). This TUP code is the only part of each line you will need to enter. If you are purchasing additional module licenses at a later stage you will also see any old codes on the page separated by a gap before your newest codes. You can also denote the newest codes by looking at the generation dates of each code.

Step 3) Enter the TUP Code(s)

Open the server settings page as before when obtaining the current Tup Request code.

Observe the current Tup request code shown on the settings page and find the Line on your "Software Module License Activation Codes" or Tup Codes page which has the matching Tup Request code. Then type into the box labeled TUP CODE the Tup code from that same line.

The only code that you should ever try to type in is the TUP code that is found on the same line as the matching TUP request code. No other code will work, even one that has already worked. The code has to be typed in exactly as it is shown, including the dashes!.

After typing in the TUP code, then click on the "Write Settings" button . Your computer will then communicate with the server and it will transmit the code you entered. If the code is wrong, an error message will pop up.

Click "Continue" and retype the code. If the code is correct, you will get a message that the code has been accepted then click "Continue"

The vehicle Explorer software will then re read and re fresh the settings page and you will see that the TUP request code has incremented by one which is also an indication of valid code acceptance.

This will then allow you to enter the code found on the next line in the "Software Module Licence Activation Codes" page and so on until they are all entered.

At any stage you can also click on the [Software Licence Status](#) button to see that ticks have indeed appeared next to the relevant software module. In the unlikely event that a tick has not appeared next to the relevant module, do not try to re enter any code a second time. This will not be possible due to the fact that the TUP request code has incremented. Instead continue entering all the codes you have in sequence and note any further errors. Then report them to us on the owner's forums to get help or new codes as applicable.

Please note the following points carefully:

- 1) The codes must be typed in exactly as they are shown on the page (including the dashes).**
- 2) The codes must be typed in only in the correct order, the position of which can be checked with the TUP request code.**
- 3) The codes only gets entered once regardless of how many modules are listed for it.**
- 4) For obvious security reasons, if incorrect, out of sequence or mistyped codes are entered 10 times in a row, the vehicle server will lock against entry of any further codes, including correct ones and will have to be sent back to the factory to be unlocked.**
- 5) TUP Codes for one vehicle server will obviously have a different TUP request code to another and therefore the codes are different and cannot be exchanged between Vehicle Servers.**
- 6) Presentation of a licensed server is your only proof of current ownership of any licenses. Look after it and Do not lose it. Loss of a server constitutes loss of the licenses it contained.**
- 7) When licensed, this only means that the Vehicle server is now configured in a way that allows particular Vehicle system software modules to operate on it. The Vehicle server may additionally be configured to instruct the module to operate in different ways.**
 - **Unconditionally (Multi Vehicle Licensing)**
 - **Check the vehicles identity against stored identity information (Single vehicle licensing)**
 - **Limit functionality of the module so that the software module can Read and Clear Fault Codes only (RCFCO Licensing) (No longer available for purchase)**

8) Licensing your Vehicle server to operate a software module does not mean that the software module is actually installed on the Vehicle server. You need to check using the supplied utility. [Vehicle Server Software Module Manager](#)

9) If you get any errors during entering codes that you are sure are correctly typed, contact us before continuing any further. (Without a valid code being entered correctly it is obviously impossible to get the TUP request code to increment for the next code in the sequence).

This is a picture showing you the license activation section of the settings / information page and the "Software Module Licence Activation Codes" page. On it you can see that the TUP request code "6010-00000" matches in the two places as shown by the Blue trace. The TUP Code itself "08050-36070-98970-98976-03873" Has to be read from the "Software Module Licence Activation Codes" page and typed into the box shown by the Red trace.

Licence Activation part of the Server Settings page opened with Vehicle Explorer

LICENCE ACTIVATION	
TUP REQUEST CODE	6010-00000
TUP CODE	08050-36070-98976-03873

Write Settings

Activation codes available on our web site under your account, or that can be sent on your request by e-mail or fax.

Software Module Licence Activation Codes

Tup Request Code	Date	Function	Code
6010-00000	09/1/03	SM1 GEMS	08050-36070-98970-98976-03873
6010-00001	09/1/03	SM2 MEMS	24589-85642-25498-58946-03873
6010-00002	09/1/03	SM5 ATC	56987-23698-4698-65894-03873
6010-00003	09/1/03	SM6 14 CLUX	23684-98623-56971-36548-03873
6010-00004	09/1/03	SM7 FDC	02688-30187-12679-26402-03873

After entering the relevant Codes, be sure that the relevant you can then communicate with the relevant vehicle systems for which you had activated the license. If you want to license other modules and obtain their activation codes, this can be done by visiting our website and choosing the module you are interested in or contact us by telephone. Bear in mind that you may also need other diagnostic leads for some modules also.

2.5 Software Licence Status

We provide a function where you can obtain a page showing which server Software Modules you have already activated and which ones are not activated.

To see this first connect and power the server and then Click on **Settings -> Software Licence Status** on the top bar. This will send a request to the Vehicle Server which will respond with the page as shown below

System Name	Software Module ID	Status
Lucas GEMS	SM001	✓
Lucas MEMS 1.6/1.9	SM002	✓
Lucas MEMS 3	SM003	✓
JATCO Transmission	SM004	✓
Nipon Denso ATC	SM005	✓
Lucas Hotwire 14CUX	SM006	✓

The ticked systems are the ones which have been purchased and would be licensed on your server.

2.6 Vehicle Server Software Module Manager

The Vehicle Server comes complete with all of the latest software modules pre installed, and after activating the licenses for the modules you have paid for, you can start communicating with the vehicle. However, if you later need to reinstall a module, or replace one with any newly updated versions, this is possible with Vehicle Server Software Module Manager.

To open the Module Manager window, click on **Settings -> Server Software Manager** on the top bar in the Vehicle Explorer.

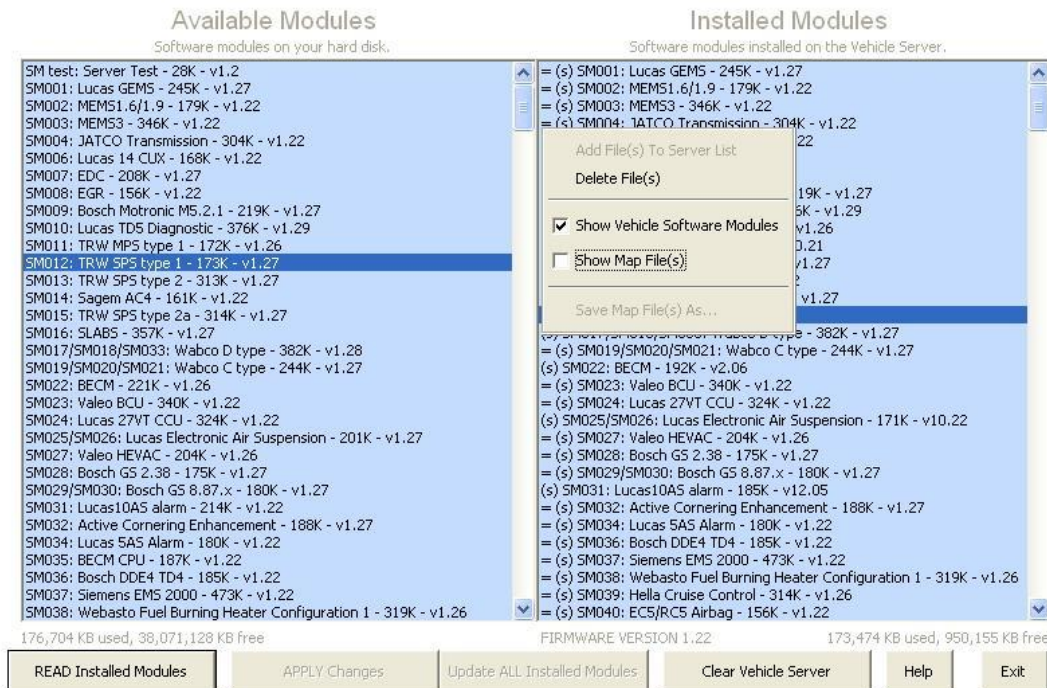
The Vehicle Server Software Module Manager window is split in two columns. In the left column you have all the software modules and maps available on your computer, and in the right column, the software modules installed on the Vehicle Server.

The screenshot displays the Vehicle Server Software Module Manager interface. It is divided into two main sections: 'Available Modules' (Software modules on your hard disk) and 'Installed Modules' (Software modules installed on the Vehicle Server). Both sections list various software modules with their IDs and versions. The 'Installed Modules' section includes a list of modules with a status indicator '(s)' next to them, indicating they are installed. At the bottom of the window, there are several buttons: 'READ Installed Modules', 'APPLY Changes', 'Update ALL Installed Modules', 'Clear Vehicle Server', 'Help', and 'Exit'. The status bar at the bottom shows '176,704 KB used, 38,071,232 KB free' for available modules and '173,474 KB used, 950,155 KB free' for installed modules. The firmware version is 'FIRMWARE VERSION 1.22'.

Available Modules	Installed Modules
SM001: Lucas GEMS - 245K - v1.27	= (s) SM001: Lucas GEMS - 245K - v1.27
SM002: MEMS1.6/1.9 - 179K - v1.22	= (s) SM002: MEMS1.6/1.9 - 179K - v1.22
SM003: MEMS3 - 346K - v1.22	= (s) SM003: MEMS3 - 346K - v1.22
SM004: JATCO Transmission - 304K - v1.22	= (s) SM004: JATCO Transmission - 304K - v1.22
SM006: Lucas 14 CUX - 168K - v1.22	= (s) SM006: Lucas 14 CUX - 168K - v1.22
SM007: EDC - 208K - v1.27	(s) SM007: EDC - 178K - v10.19
SM008: EGR - 156K - v1.22	= (s) SM008: EGR - 156K - v1.22
SM009: Bosch Motronic M5.2.1 - 219K - v1.27	= (s) SM009: Bosch Motronic M5.2.1 - 219K - v1.27
SM010: Lucas TD5 Diagnostic - 376K - v1.29	= (s) SM010: Lucas TD5 Diagnostic - 376K - v1.29
SM011: TRW MPS type 1 - 172K - v1.26	= (s) SM011: TRW MPS type 1 - 172K - v1.26
SM012: TRW SPS type 1 - 173K - v1.27	(s) SM012: TRW SPS type 1 - 142K - v10.21
SM013: TRW SPS type 2 - 313K - v1.27	= (s) SM013: TRW SPS type 2 - 313K - v1.27
SM014: Sagem AC4 - 161K - v1.22	= (s) SM014: Sagem AC4 - 161K - v1.22
SM015: TRW SPS type 2a - 314K - v1.27	= (s) SM015: TRW SPS type 2a - 314K - v1.27
SM016: SLABS - 357K - v1.27	= (s) SM016: SLABS - 357K - v1.27
SM017/SM018/SM033: Wabco D type - 382K - v1.28	(s) SM017/SM018/SM033: Wabco D type - 382K - v1.27
SM019/SM020/SM021: Wabco C type - 244K - v1.27	= (s) SM019/SM020/SM021: Wabco C type - 244K - v1.27
SM022: BECM - 221K - v1.26	(s) SM022: BECM - 192K - v2.06
SM023: Valeo BCU - 340K - v1.22	= (s) SM023: Valeo BCU - 340K - v1.22
SM024: Lucas 27VT CCU - 324K - v1.22	= (s) SM024: Lucas 27VT CCU - 324K - v1.22
SM025/SM026: Lucas Electronic Air Suspension - 201K - v1.27	(s) SM025/SM026: Lucas Electronic Air Suspension - 171K - v10.22
SM027: Valeo HEVAC - 204K - v1.26	= (s) SM027: Valeo HEVAC - 204K - v1.26
SM028: Bosch GS 2.38 - 175K - v1.27	= (s) SM028: Bosch GS 2.38 - 175K - v1.27
SM029/SM030: Bosch GS 8.87.x - 180K - v1.27	= (s) SM029/SM030: Bosch GS 8.87.x - 180K - v1.27
SM031: Lucas10A5 alarm - 214K - v1.22	(s) SM031: Lucas10A5 alarm - 185K - v12.05
SM032: Active Cornering Enhancement - 188K - v1.27	= (s) SM032: Active Cornering Enhancement - 188K - v1.27
SM034: Lucas SAS Alarm - 180K - v1.22	= (s) SM034: Lucas SAS Alarm - 180K - v1.22
SM035: BECM CPU - 187K - v1.22	= (s) SM035: Bosch DDE4 TD4 - 185K - v1.22
SM036: Bosch DDE4 TD4 - 185K - v1.22	= (s) SM036: Bosch DDE4 TD4 - 185K - v1.22
SM037: Siemens EMS 2000 - 473K - v1.22	= (s) SM037: Siemens EMS 2000 - 473K - v1.22
SM038: Webasto Fuel Burning Heater Configuration 1 - 319K - v1.26	= (s) SM038: Webasto Fuel Burning Heater Configuration 1 - 319K - v1.26
SM039: Hella Cruise Control - 314K - v1.26	= (s) SM039: Hella Cruise Control - 314K - v1.26
	= (s) SM040: EC5/RC5 Airbag - 156K - v1.22

Deleting a module from the Installed modules (Server side)

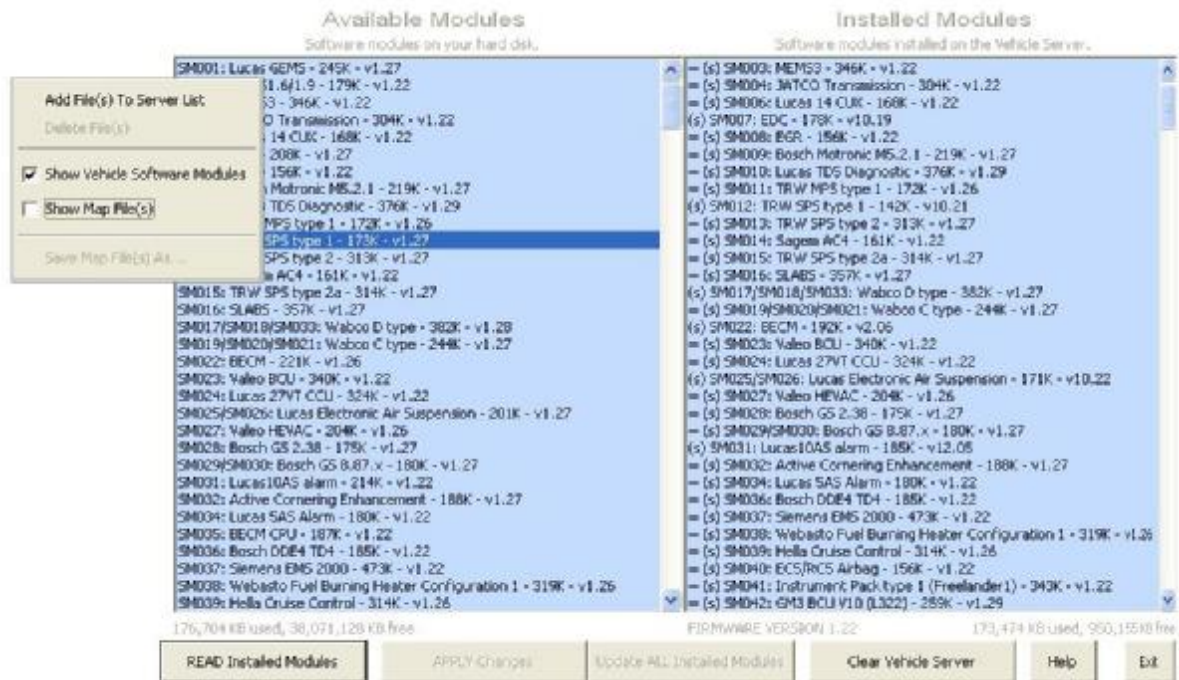
If you wish to delete a module from the server that may not currently be used, double click on the name of the software module in the "Installed Modules" column (on the right) that you wish to delete. Click in the context menu on "Delete File(s)". The name will disappear from the list, but no changes will take place on the server unless you click on the "APPLY Changes" button at the bottom. You can of course always reinstall any previously deleted modules. At the end of the process, the software module manager will display the new list of the modules installed. The modules that you have deleted obviously should not be in this list.



If you double clicked on the wrong software module, selected Delete File and it disappeared from the list but you do not wish to delete it, click on "READ Installed Modules". The Vehicle Server will reread the modules installed and display the list of the modules on the Vehicle Server. This must be done before you click Apply Changes otherwise you will need to Add the module back.

Installing a new software module on the Vehicle Server or reinstalling a previously deleted module.

After any upgrade has been installed it is wise to check the Vehicle Server Software Module Manager to see if there are new software modules that the upgrade might have added that you may wish to upload onto your Vehicle Server, or you may want to read a software module that you previously deleted off the Vehicle Server for some reason. To do this, double click on the name of the module in the "Available Modules" column (on the left). Click in the context menu on "Add File(s) To Server List". The name will appear in the right column, but no changes will take place on the Vehicle Server unless you click on "APPLY Changes". You will also notice that there is no letter "s" at the beginning of the line which indicates it is not actually on the Vehicle Server yet.



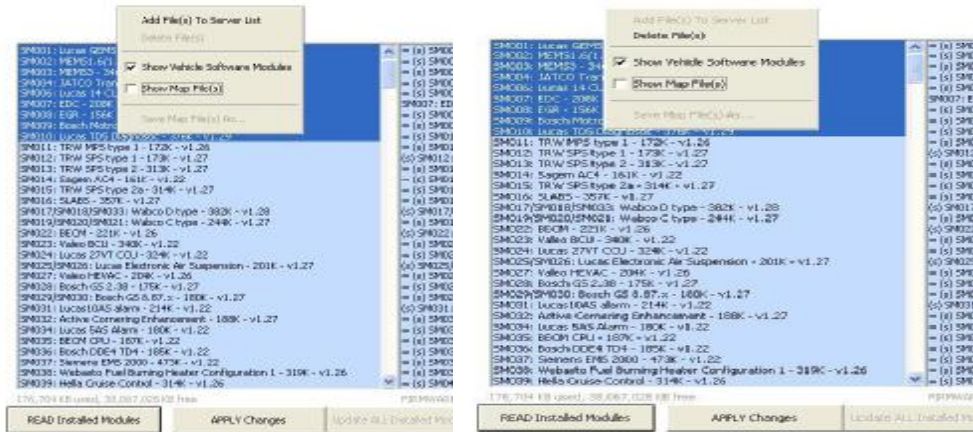
At the end of the transfer, the Vehicle Server will provide a new list of the modules installed. Make sure that the size and version of the installed software module is the same with the one on the left side (with the exception of any Server Firmware Upgrade module. See "Updating the Vehicle Server Firmware").

· **Selecting multiple software modules using the keyboard and the mouse.**

It is possible to select more than one software module to transfer or to delete.

To select a block of software modules, click on the first software module in your list, click and hold the **shift** button on the keyboard while you click on the last module in the list. You can see how the entire list between the first software module that you have clicked and the last software module that you have clicked are selected. With the mouse over any of the software module selected, right click and select Add file to server list or Delete file.

To select software modules at random, click on a software module, press and hold the **ctrl** button on the keyboard while you click on the other software modules that you want to select. With the mouse over any of the software modules selected, right click and select Add file to server list or Delete file.



Why transfer the modules?

In order to understand why it is necessary to transfer the Vehicle Server software modules from your PC to the Vehicle Server, you need to understand what the roles of the PC and Vehicle Server are. Your PC actually does nothing special or vehicle communication related at all. It merely acts as a display screen for received pages and a menu selector input device which sends out requests for new pages from the Vehicle Server according to what selections you have clicked on the existing page.

The Vehicle Server itself handles absolutely all of the timing critical communications to the vehicle systems and the processing of the raw data into the pages that you see. Once the request is issued from the Vehicle Explorer software running on your PC it is sent to the Vehicle Server. The Vehicle Server then runs the relevant software module applicable to the vehicle system selected and uses it to obtain the required page of information. By making this software modular it is possible to update and improve these server software modules and add any number of new ones to cope with any systems that we may wish to add to coverage in the future. You may notice from the list that some modules cover more than one vehicle system.

Note: Even if you physically have a software module installed on the Vehicle Server, if the licence to use it, or a vehicle system contained within it, has not been purchased, and the licence activation code not typed in, then the Vehicle Server will not run this module or any version of it (see Activating Software Module Licence section). If communications are attempted using an unlicensed module then an error indicating that the module is not licensed will be displayed.

2.7 Setting the COM port

In order to communicate with the Vehicle Server, you will need to confirm that the proper COM port number and type of port is stored in the Vehicle Explorer software.

For the wired version, connect the Vehicle Server to your PC as described in connecting the hardware and power up the Vehicle Server,

For the wireless version, you will need only to power up the Vehicle Server.

Click on the top bar in the Vehicle Explorer on **Settings -> Com Port Settings**. This will open a page where you can set the COM port and the type of port.

COM PORT SETTINGS

Select the com port to which the Vehicle Server is connected and click on Write Settings to store the COM port number.

COM PORT NUMBER	<input checked="" type="radio"/> 1	<input type="radio"/> 5	<input type="radio"/> 9	<input type="radio"/> 13
	<input type="radio"/> 2	<input type="radio"/> 6	<input type="radio"/> 10	<input type="radio"/> 14
	<input type="radio"/> 3	<input type="radio"/> 7	<input type="radio"/> 11	<input type="radio"/> 15
	<input type="radio"/> 4	<input type="radio"/> 8	<input type="radio"/> 12	<input type="radio"/> 16

Select the type of port to which the Vehicle Server is connected and click on Write Settings to store the type of the port.

TYPE OF PORT	<input checked="" type="radio"/> Serial Port	IP address 199 . 204 . 1 . 0
	<input type="radio"/> USB	
	<input type="radio"/> Wireless Connection	

Click on Write Settings to store the changes. Click on Auto Detect Port to search for the Vehicle Server.

Select the type of port you are using. This will alter the way the Vehicle Explorer communicates with the Vehicle Server. If the wrong type of port is selected, the vehicle explorer will not communicate with the vehicle server.

Wired connection:

- If the vehicle server is connected to the serial port of the PC, select "serial port".
- If the vehicle server is connected via an USB to serial adaptor, select "USB".
- If the server communicates wireless with your PC, (ROVACOM PRO ONLY) select wireless connection.
- If the vehicle server is connected using Bluetooth then select "serial port".

After selecting the type of port, you must then set the COM port.

By default, the COM port is set to com 1 / serial port. If you are using a different COM port, select the COM port where you connected the Vehicle Server and the type of the port. You need to store the COM port value for future reference by the system. This is done by simply clicking on the **'Write Settings'** button which is on the bottom of this page.

To test that the COM port selected is the right one, click on **'Test Port'**. If the Type of port is incorrect, the function will not detect the port.

If you don't know what COM port is used, you can simply let the Vehicle Server to scan the COM ports by clicking on **'Auto Detect Port'**. When you click on this button, the Vehicle Explorer software starts scanning all of the COM ports available on your system. When it finds the Vehicle Server, it will display the COM port that it found. You will have then to select the COM port that have been found and click on the **'Write Settings'** button to save it.

If the Type of port is incorrect, the function will not detect the port.

Failure to configure the COM port correctly and use a port that is not in any way shared by any other hardware or software application will prevent the Vehicle Explorer from communicating with the Vehicle Server properly and reliably.

The COM port settings are saved by the Vehicle Explorer on your PC. You will have to set the COM port every time when you install a full version of the software or change the COM port.

The type of port will determine the type of communication.

For a wired connection, select serial port if you are connected directly to the serial port or Bluetooth or if you use a USB to serial adaptor then select USB.

Select wireless connection if you are using a Rovacom pro and make sure that the IP address is the correct address of your server only if you communicate wirelessly with your server. This will enable the wireless connection monitor that you can see on the right side of the tool bar.

NOTE. When Bluetooth is installed on your PC/Laptop it installs many ports to use and sometimes these can exceed the 16 available in Vehicle Explorer. It is therefore essential that you make sure your port being allocated by the Laptop/PC is within this range.

For details see the chapter [About](#) in the Wireless Configuration.

Failure to set the communication type will prevent the vehicle explorer from communicating with the vehicle server.

Part III Connecting the Hardware



CONNECTING THE ROVACOM LITE STEP A

A - The first step is to connect the Vehicle Server to your PC.

For this you need to locate the serial port on your Computer. If you are not sure which serial port your computer is using, see the [Common PC connections](#) page.

You may not find this connection however because many of the newest computers no longer provide a serial / Com port and instead are only fitted with USB ports.

In this case you will need to use a USB to serial adaptor. These often also have a driver disk which must be installed correctly. These are not expensive and commonly available and we have them in our shop.

ATTENTION: Failure to install the USB to serial adaptor correctly can result in not being able to communicate with the Vehicle Server. Then Next step is to locate the serial communications port on your Vehicle Server and connect it to your PC's serial port using the respective Null Modem Lead..

There are different designs of Vehicle Server but all have a serial communications port which is either a 9 pin D type or a 3.5mm Jack socket, the ROVACOM LITE uses a 9 pin D type.

Example of a Vehicle Servers 9 Way D type serial Communication port



Connect the null modem lead between the serial port of your PC and the serial port of the Vehicle Server. If your PC does not have a serial port, use a USB to serial adaptor.



If you are not sure which the serial port of your computer is, see the [Common PC connections](#) page.

STEP B

The second step is to connect the appropriate **Vehicle Communications Interface** module to the Vehicle Server.

These intelligent microprocessor based units translate the Vehicle Servers standard communication data stream into differing protocols, voltages, logic levels and then route the communications to and from the correct destination pins for each vehicle system type.

ATTENTION:

Failure to have one of the two **Vehicle Communications Interfaces** between the vehicle and the Vehicle server will result in raw energy signals and power being applied directly to the sensitive computerized components of the vehicle server. This will almost certainly render it liable to damage which may not immediately be apparent until later.

There are 2 types of **Vehicle Communications Interface** commonly shortened to VCI 1 and VCI 2, the one you require will depend upon the vehicle you are wishing to connect to.

Use VCI 1 for;

All Morgans

All Rover or MG vehicles

All Classic Range Rovers

All Discovery series I and II

All Freelander 1

Defenders before 2007 Model year

All P38A Range Rovers (1994 to 2002)

L322 Range Rovers 2002 up to mid 2005 when the audio equipment was revised.

The VCI 1 for the Rovacom Lite is an external in line design.



Vehicle Communication Interface 1 (VCI 1)

Use VCI 2 for;

All Discovery 3 / LR3

All Discovery 4/LR4

All Range Rover Sport (all years)

L322 Range Rovers from mid 2005 when the audio equipment was revised.

All Freelander 2

Defender from 2007



Vehicle Communication Interface 2 (VCI 2)

ATTENTION: Vehicle Communication Interface 1 is not required whenever Vehicle Communication Interface 2 is used and should not be used in conjunction with the Vehicle Communication Interface 2.

On some systems a slide lock is fitted to the Vehicle Server which can be slid sideways to secure the connection to VCI 1 or VCI 2

STEP C

The third step is to connect the relevant coloured vehicle connector between the vehicle communications interface and the vehicle's diagnostic connector. This is only applicable to vehicles such as some Discovery 1, Classic Range Rovers and Defenders. Also early Rover vehicles.



Use the connector diagram, picture, location and lead information found within each vehicle systems page to help you if required.

Ensure that the Vehicle Server has power (observe red power LED) by one of the following methods:

- If the OBDII lead is used this should provide power to the vehicle server regardless of the ignition switch position.
 - If the Blue lead is used this will provide power only while the ignition switch is on.
 - Connect power to the Vehicle Servers DC socket from either the vehicle's cigar / cigarette lighter socket or directly from the battery itself using a suitable power lead.
- It should be noted that some cigar / cigarette lighter sockets only provide power with the ignition switched on.

It should also be noted that due to the software nature of the Server that it requires approximately 6 seconds after powering on before the server is ready to communicate with the PC. This should be borne in mind when reconnecting it, as clicking on a link before the server is ready will most likely result in the server not responding. If the power is removed during a test and the link clicked again it is easy to see how quickly it is possible to be frustrated by not understanding that the server needs a few seconds to get ready.

With the Vehicle Server connected to your PC and powered up, you can establish the communication between the Vehicle Explorer installed on your PC and the Vehicle Server. For details see [Using the System](#) chapter.

3.2.1 Wireless Configuration ROVACOM PRO

3.2.1.1 About

When the *TYPE OF PORT* of the *COM PORT SETTINGS* page is set to *Wireless Connection*, you will notice that a little utility appears to help you quickly see the status of your PC's connection with the wireless Vehicle Server. It can be found to the right of the Print button on the toolbar and looks like this:



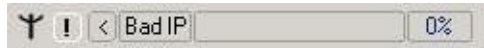
The three possible states which this utility can report are:

- Bad IP
- Offline
- Online

The states are indicated using these two areas of the utility which are highlighted in green:



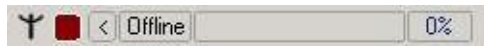
Bad IP



The *Bad IP* status indicates that the IP address which is actually assigned to the driver which communicates with the Vehicle Server differs from the IP which is currently set in the *COM PORT SETTINGS* page. The IP address which is assigned to the driver must be set to the IP address which is written on the bottom of your Vehicle Server.

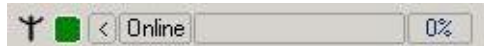
Likewise, the same IP address must be entered on the *COM PORT SETTINGS* page in order for the monitor to work correctly. Instructions on how to confirm/modify the driver's IP address can be found under the Wireless Configuration menu of the help.

Offline



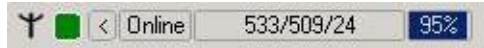
The *Offline* status indicates that the driver and Vehicle Explorer are properly configured for the same IP address; however there is no communication with the Vehicle Server. This could be caused if the Vehicle Server is not powered or if it has been moved out of wireless range.

Online



The *Online* status indicates that the driver and Vehicle Explorer are properly configured for the same IP address and that there is communication with the Vehicle Server. The Vehicle Server is powered and within wireless range.

Unfortunately, the *Online* status does not provide much information regarding the signal strength or the health in general of the established connection. For this reason, we have added a "packet monitor" aimed towards giving a clearer picture of the quality of the wireless connection.



The monitor "polls" the Vehicle Server once per second. On this "poll", the first figure (533) is incremented. This gives us the total times that we have looked for the Vehicle Server. The second number (509) indicates the number of times the Vehicle Server has responded to our request (therefore being available). The third number (24) indicates the number of times the Vehicle Server did not respond to our request (possibly due to a power cycle or it has been moved out of range). The percentage at the end (95%) indicates the overall Online time of the current session only.

For the above screenshot, we had to recycle the power to the Vehicle Server to force some "Offline" figures for demonstration purposes. Ideally, there should be very few lost packets during normal operation. This utility can be used to find the optimum location within your premises from where the system can be best used.

3.2.1.2 Switching from wireless to wired communication

How to set the Vehicle Explorer to communicate wired with the Rovacom Pro Vehicle Server

1. Connect the 3.5mm jack plug lead between your Vehicle Server and the serial port of your PC. If the PC doesn't have a serial port, use a USB to RS232 adaptor
2. Open the COM port settings page. Set the type of port to serial or USB. Click on **Auto Detect Port** to find the COM port number. The Vehicle Explorer starts scanning all of the COM ports available on your system. When it finds the Vehicle Server, it will display the COM port that it was found on. You will then have to select the COM port that has been found and click on the '**Write Settings**' button to save it. If the type of port is incorrect, the function will not detect the port.
3. Now the Vehicle Server will communicate with the PC via the 3.5mm jack plug lead.

How to set the Vehicle Explorer to communicate wirelessly with the Rovacom Pro Vehicle Server

1. Disconnect the 3.5mm jack plug lead from the Vehicle Server and unplug the lead (USB adaptor) from your PC.
2. Open the COM port settings page. Set the type of port to wireless and the comport number to the com port number used by the wireless connection (typically 1). If you are not sure about the number, click on **Auto Detect Port**. The Vehicle software starts scanning all of the COM ports available on your system. When it finds the Vehicle Server, it will display the COM port that it found. You will have then to select the COM port that have been found and click on the '**Write Settings**' button to save it. If the type of port is incorrect, the function will not detect the port.
3. Disconnect any device from the USB port (serial adaptor, card reader, etc.).
4. Disconnect the serial lead from the server.
5. Check that the Vehicle Explorer reports the Vehicle Server is online. Now the Vehicle Explorer communicates with the Vehicle Server wireless.

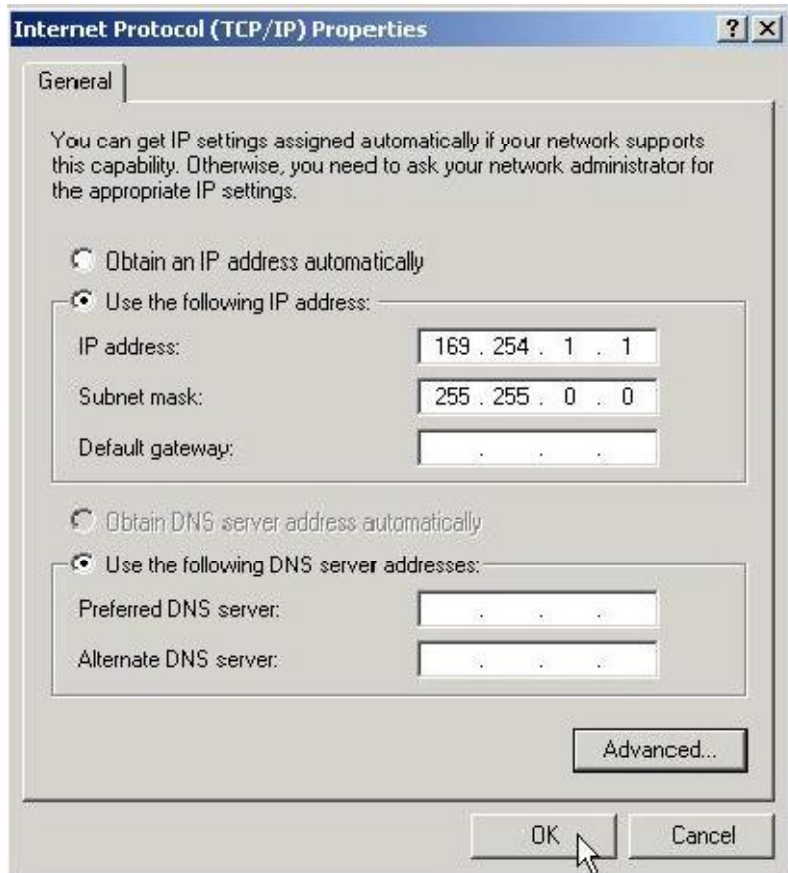
3.2.1.3 Wireless Adapter Configuration

In order to communicate wirelessly with your Rovacom Pro Vehicle Server, the PC must be correctly configured. An invalid configuration would prevent it from connecting to the Vehicle Server. To confirm the correct settings or to reprogram them, please follow the guide here.

Windows 2K/XP

1. Click **Start**.
2. Place your mouse over **Settings** then click **Network Connections**.
3. Right click on your wireless connection, and then click **Properties**.

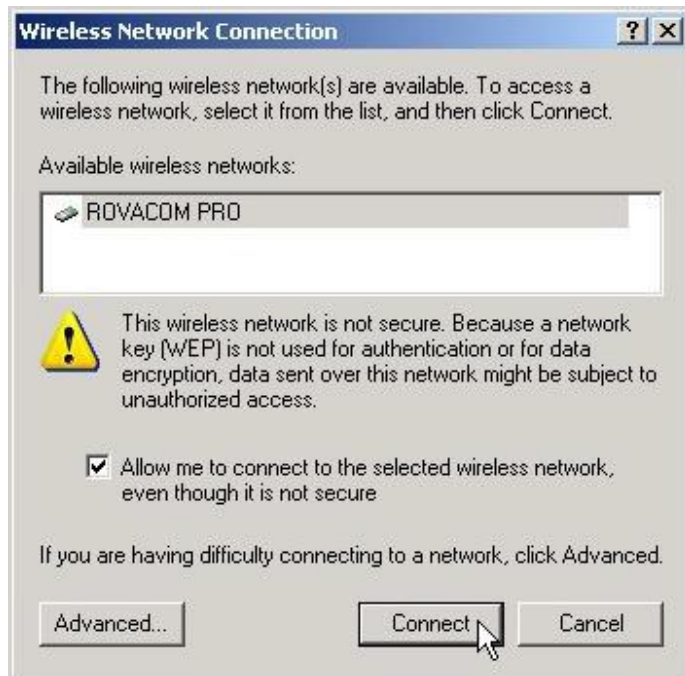
4. Under *This connection uses the following items:*, select *Internet Protocol (TCP/IP)* then click the **Properties** button.
5. Confirm that the settings are **exactly as shown here**.



6. Click OK on all of the open dialogs to apply the settings.

Connecting to the Vehicle Server's network

For as long as your wireless network is enabled, you will have an icon for it in your system tray (lower right corner of screen). It is typically indicated by two computer monitors that flash during activity. Next, we need to confirm that we are connected to the same wireless network that the Vehicle Server is connected to. To do this, Right click on the wireless network icon and click **View Available Wireless Networks**. The following dialog appears:



Make sure that the *Allow me to connect to the selected wireless network, even though it is not secure* option is ticked, then click Connect.

3.2.1.4 Real Port Driver Removal

Often, driver installations can become corrupt and cause much frustration. We are providing the outline of the removal of the driver should it be required for you to make a "clean" install of the driver.

Windows 2K/XP

1. Click **Start**.
2. Place your mouse over **Settings** then click **Control Panel**.
3. If you are in classic view, double click **System**. Otherwise click **Performance and Maintenance**, and then double click **System**.
4. In the System Properties dialog, click on the **Hardware** tab along the top, then click the **Device Manager** Button.
5. In the Device Manager, double click **Multi-port serial adapters** to expand the list, right click on **Digi Connect ME** and select **Uninstall** from the popup dialog.
6. On the Confirm Device Removal dialog, click **OK**.

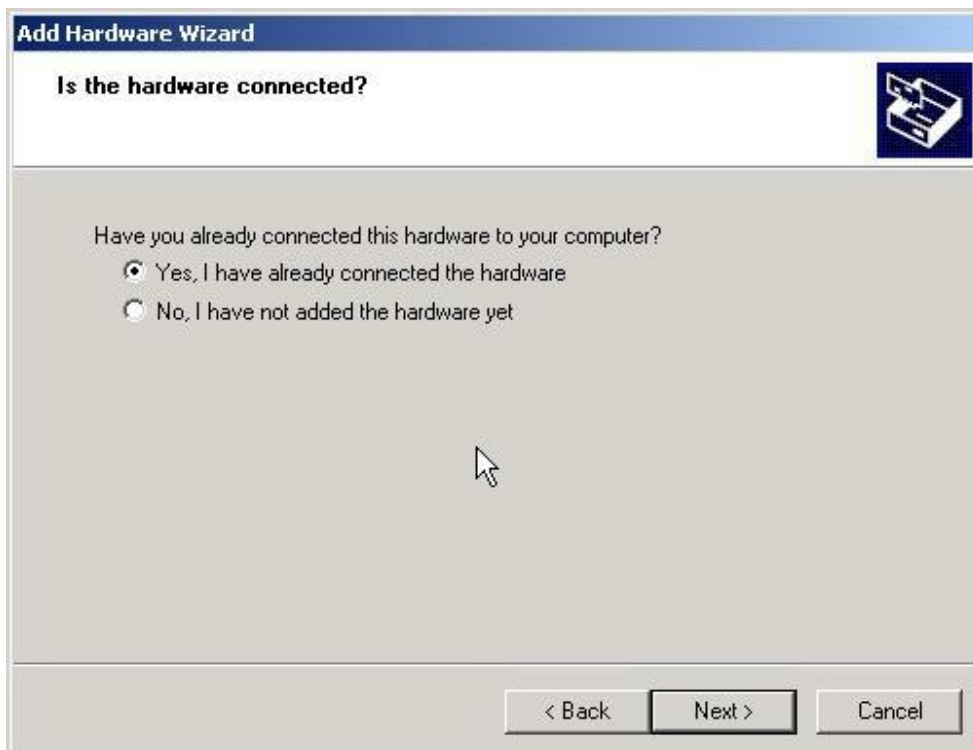
3.2.1.5 Real Port Driver Installation

You must be logged in as an Administrator to perform this operation.

1. Click **Start**.
2. Place your mouse over **Settings** then click **Control Panel**.
3. If you are in classic view, double click **Add Hardware**. Otherwise click **Printers and Other Hardware**, and then click **Add Hardware** which is under the See Also section. This will launch the *Add Hardware Wizard*.



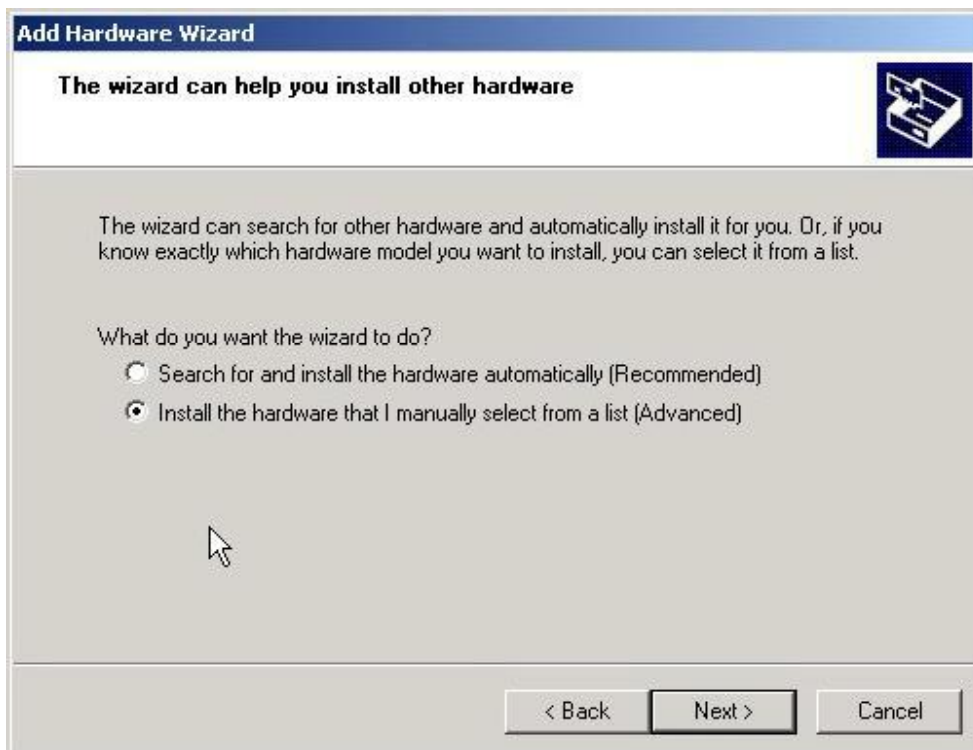
Click **Next** to continue.



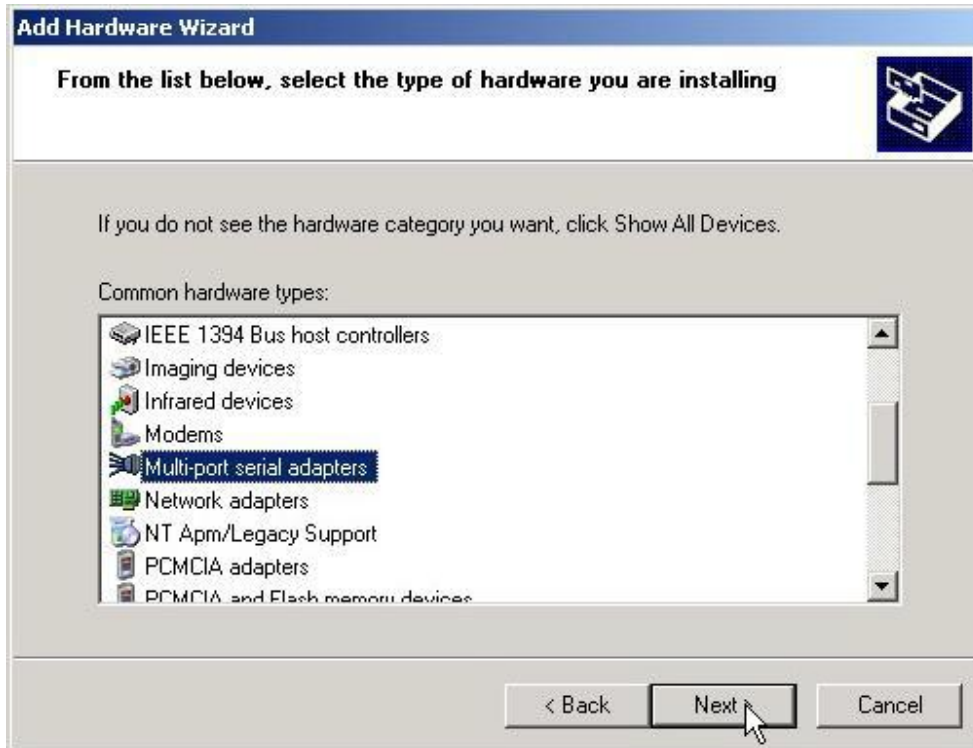
When the wizard has finished searching for Plug and Play devices, the above dialog will appear. Select **Yes**, and then click **Next** to continue.



Scroll to the bottom of the list and select **Add a new hardware device** then click **Next**.



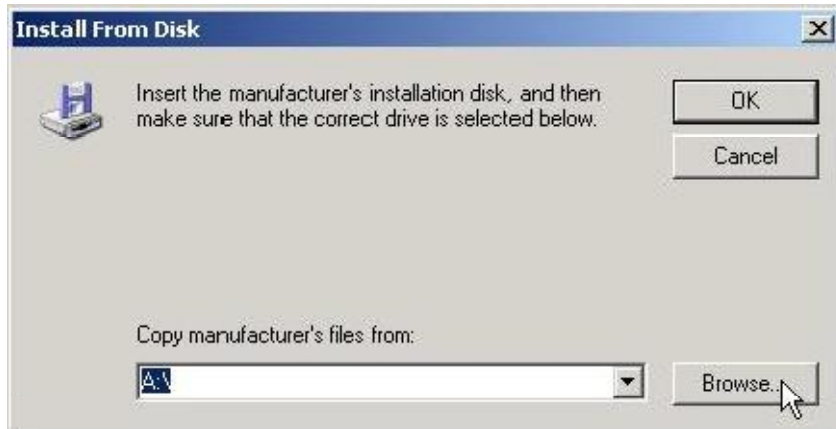
Select the option to **Install the hardware that I manually select from a list (Advanced)**, and then click **Next**.



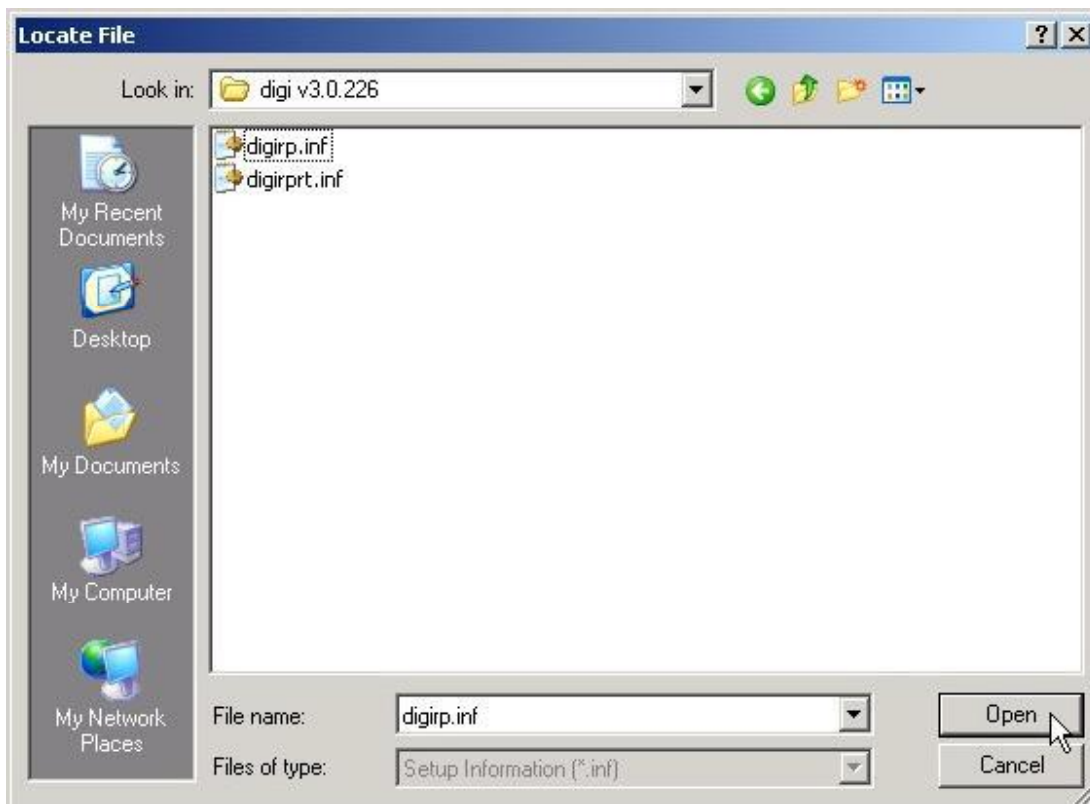
Scroll down the list and select **Multi-port serial adapters**, then click **Next**.



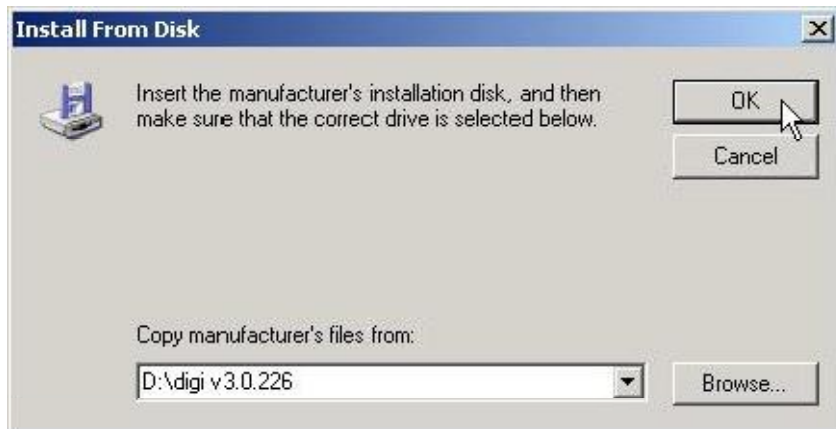
Click the **Have Disk...** button regardless if the wizard has found any drivers for the device.



Click the **Browse...** button.



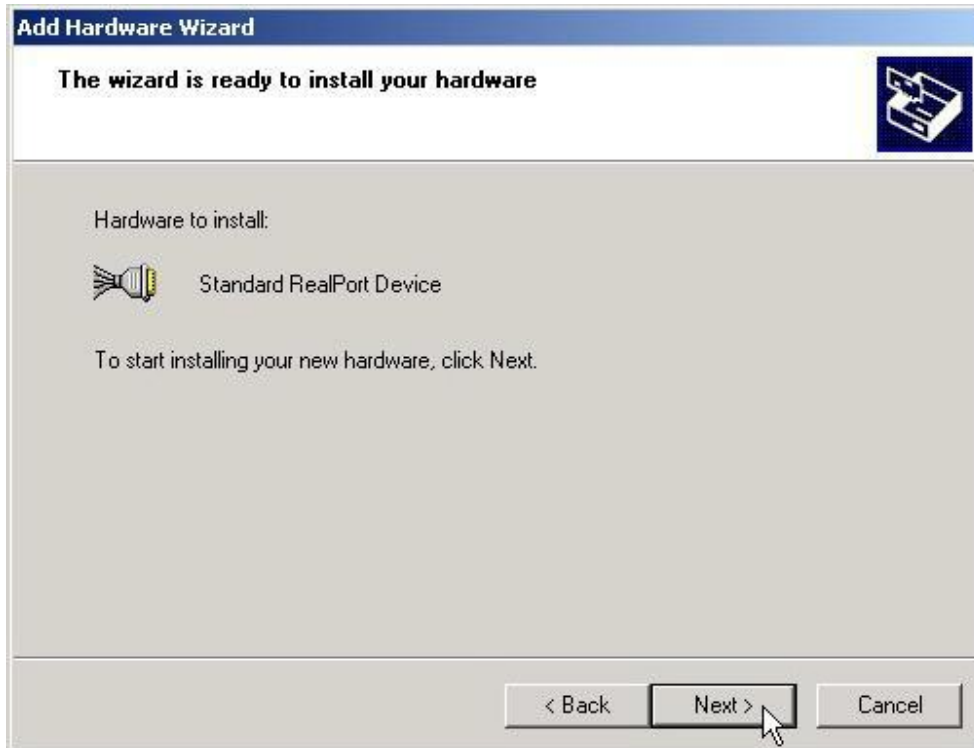
Browse to the location on your computer where the driver files are located. This can be either on the CD which we have supplied to you or (if there is a newer driver available) as a download from our website. Click the **Open** button to continue.



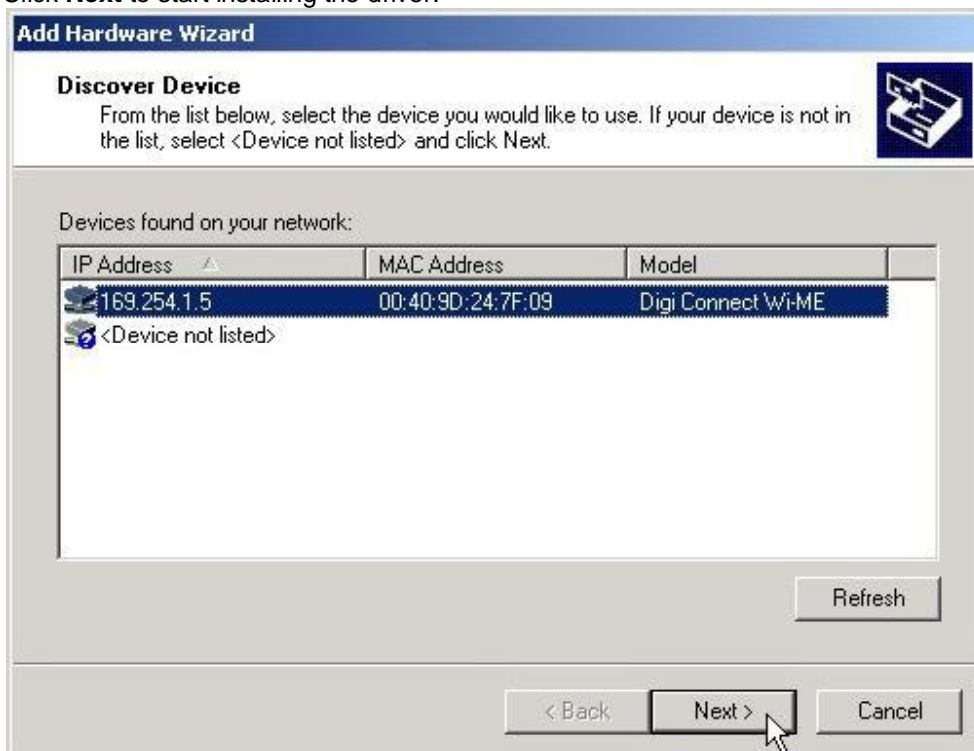
This brings you back to the above dialog where this time we click **OK**.



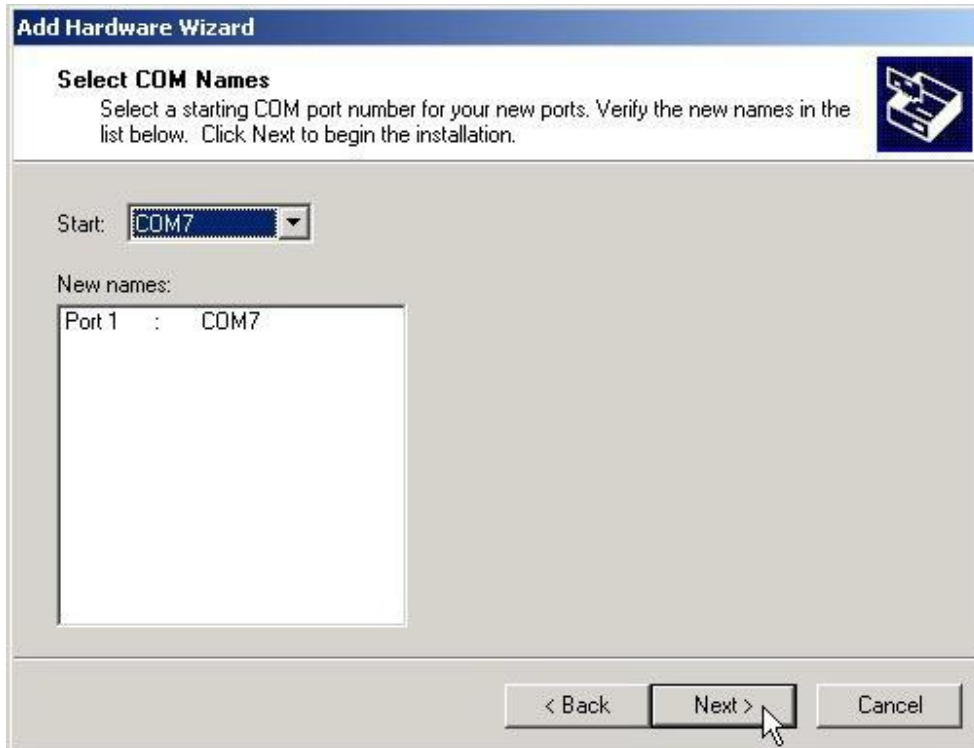
At this dialog, click **Next**.



Click **Next** to start installing the driver.



Select your wireless server's IP Address from the list and click **Next**. **IMPORTANT:** If your wireless server does not appear in this list, it could be due to a number of reasons. Please review the Checklist page to make sure that your wireless network is configured correctly.



Select the COM port number which you wish to associate with the wireless server. Note that the COM ports made available to you here are the ones which are free and therefore it is not possible for your selection to conflict with other COM ports or the applications which use them. It would be wise to take note of the port number that you choose as this also needs to be configured into the Vehicle Explorer. Click **Next** to continue the installation.



Click **Finish** to complete **3.2.1.6 RealPort Driver Upgrade** the installation.

3.2.1.6 RealPort Driver Upgrade.

Occasionally, a new RealPort Driver may become available. It is recommended that the latest tested version always be used. At the time of writing, the latest tested version of the RealPort Driver is **3.1.243**. If this version of the RealPort Driver is not available in the *driver's* folder of your Vehicle Explorer CD, please log in to the member's area to download the updated driver from there.

Most of the systems that we have distributed to date will not have this version, but an older one.

The purpose of this page is to explain:

- The various methods that can be used to upgrade the driver.
- How to confirm that the driver has been upgraded.
- How to modify custom driver settings to improve performance.

RealPort Driver Upgrade method 1

NOTE: This method requires that the Vehicle Server is powered and NOT wired to a PC. This is the recommended upgrade method.

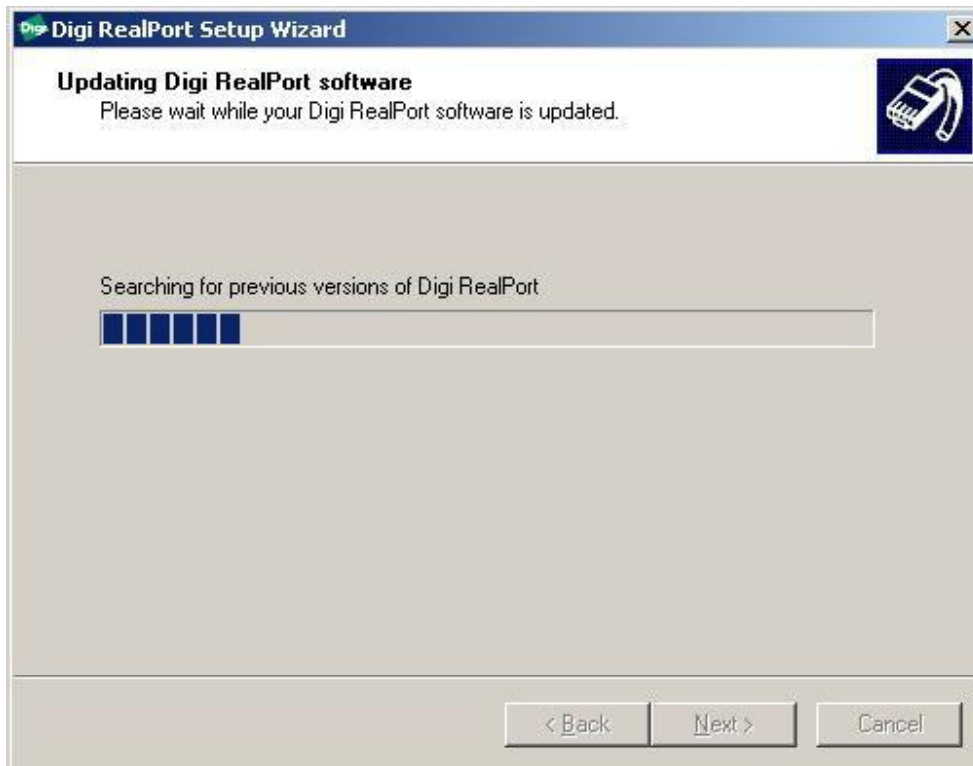
1. Uninstall the older version of the driver by following instructions from *RealPort Driver Removal*
2. Install the latest driver by following instructions from *RealPort Driver Installation*

RealPort Driver Upgrade method 2

NOTE: This method does not require the Vehicle Server to be powered. This is NOT the recommended method. Double click on the file *Setup.exe* of the latest driver. The following dialog will appear.



Click on *Update Digi RealPort Software* to select it as above, and then click the *Next* button to continue.



The updater will first Search for previous versions of Digi RealPort



And when found, the update program will update the Digi RealPort software



Finally, the setup wizard will inform us that the Digi RealPort software has been updated. Click the Finish button.

To confirm that the driver has been upgraded

1. Click **Start -> Run**
2. Type **devmgmt.msc** and hit Enter
3. When *Device Manager* loads, expand *Multi-port serial adapters*
4. Double click on the device which appears beneath.
5. When its dialog page loads, switch to the *Driver* tab and read the *Driver Version* information. It should match the version that you have upgraded to. Otherwise, the upgrade was not performed successfully.

How to modify custom driver settings to improve performance

1. Perform step 1 to 4 from the above set of instructions.
2. When its dialog page loads, switch to the *Advanced* tab, then click on the *Properties* button in the lower right.
3. The Advanced Properties dialog will load.
4. In the left column, left click once on the port which appears there i.e. Port 1 (COM2)
5. In the right part of the screen, switch from the *Properties* tab to the *Advanced* tab.
6. Make the checkboxes as follows:

- Send Keep Alive Packets - UNCHECKED
 - Always Grant Port Open Requests - CHECKED
 - Complete Write Requests Immediately – CHECKED
- Click on the *Custom* button and make the checkbox as follows:
- Use Serial API to Alert Application if Device Goes Offline - CHECKED
- Click on OK three times to save all changes.

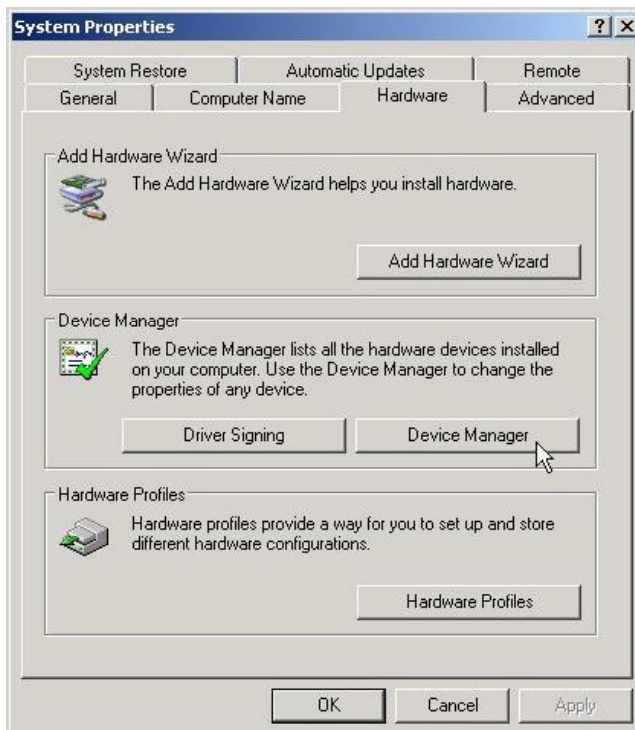
3.2.1.7 COM Port Assignment

To change the COM port number assignment on your PC

Click on Start -> Settings -> Control Panel -> System

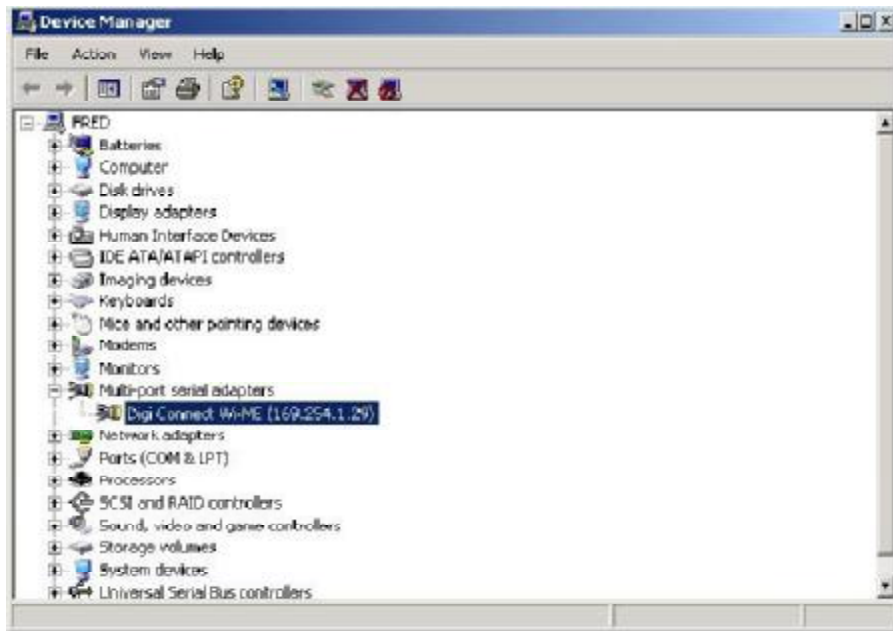


Click on **Hardware**



In the hardware screen, click on **Device Manager**

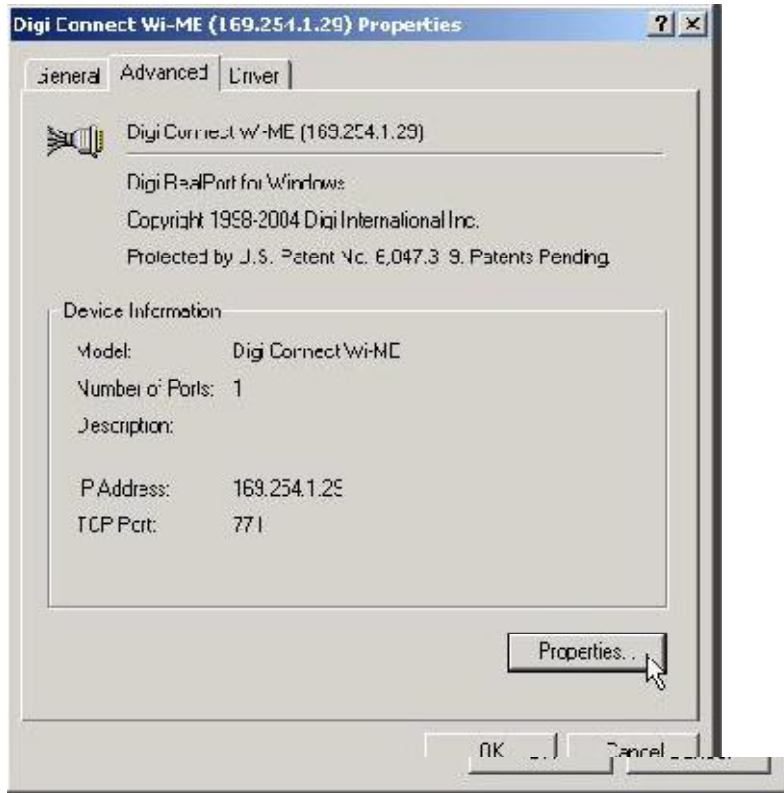
This will open a window with a list of all devices that can be found on your PC.



Click on **Multi-port serial adapters** and double click on **Digi Connect Wi-ME**.

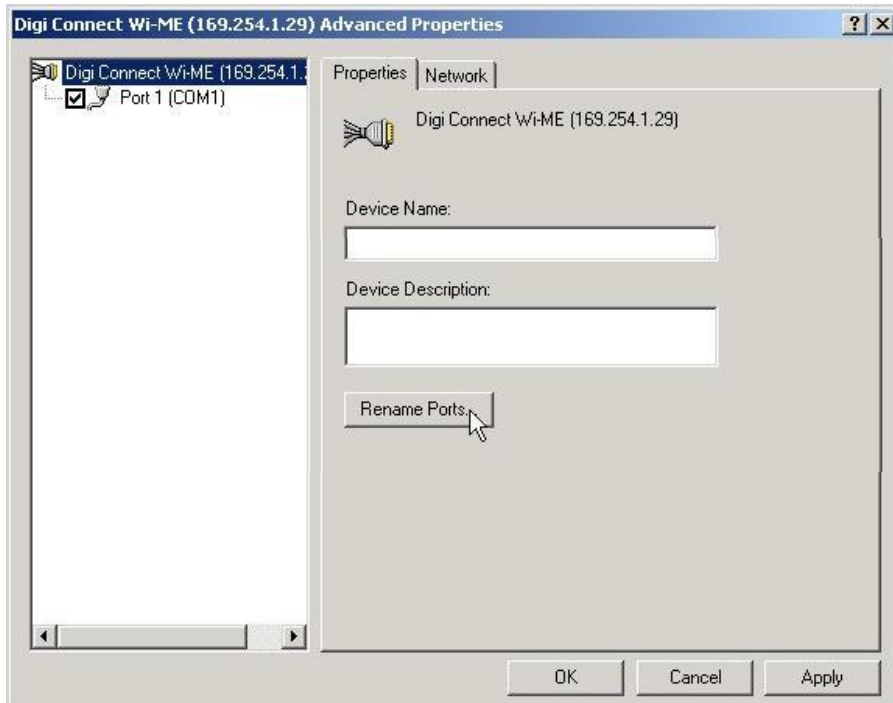


Click on **Advanced**

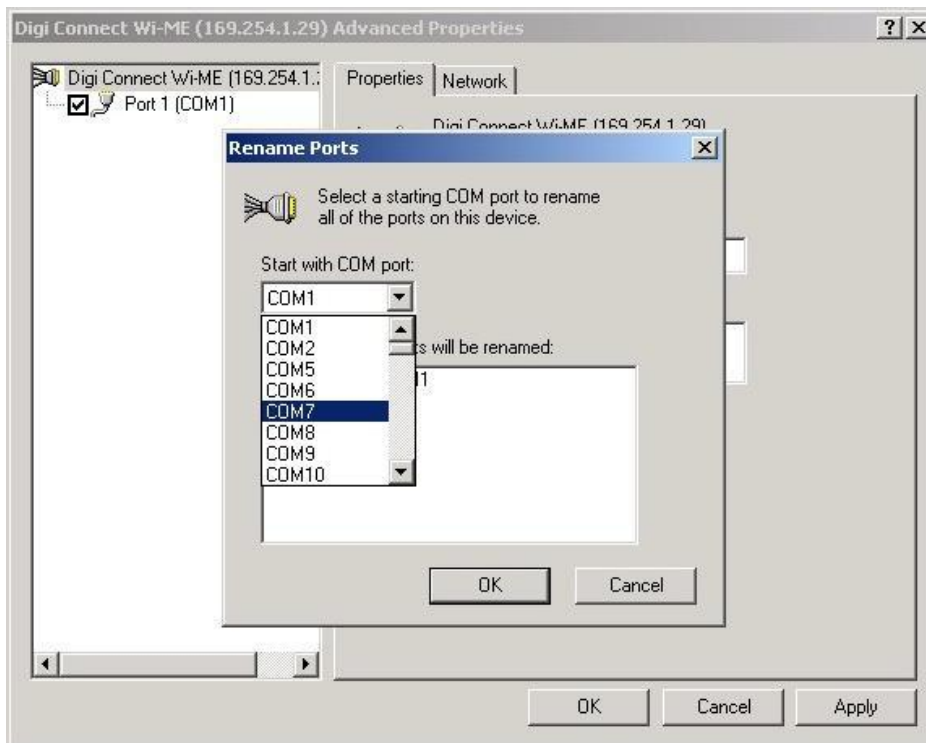


In the Advanced page click on **Properties**

Digi Connect advance properties will display the COM port number assigned to the wireless connection (COM1 in this screenshot).



Click on **Rename Ports**



Select the COM port number which you wish to associate with the wireless server. Note that the COM ports made available to you here are the ones which are free and therefore it is not possible for your selection to conflict with other COM ports or the applications which use them. It would be wise to make a note of the port number that you choose as this also needs to be configured into the Vehicle Explorer. Click OK. Close all windows by clicking OK.

3.2.1.8 Check list

Here is a list of various points which should be checked for smooth operation of your wireless connection to a wireless server.

1. Is the Vehicle Server powered and its LED lit?
2. Is the Vehicle Server in wireless mode? Make sure that the 3.5mm lead is NOT inserted into the jack. This lead, when inserted, disables the wireless module which is built in to your Vehicle Server.
3. Is the antenna firmly screwed onto the antenna socket on the side of the Vehicle Server?
4. Is the wireless adapter of your PC enabled? Various laptops and tablet PC's (including the ones we sell) have two ways of enabling and disabling a wireless adapter. These two ways are (a). by hardware and (b). by software.

Those customers using equipment which does not have a hardware method need only to worry about the wireless adapter being disabled by software. Those who have the hardware method need to be very careful that both are enabled otherwise it will not work.

On the tablet PC's that were sold with the Rovacom Pro, the hardware enable/disable button is the middle one of the three which are located on the top of the unit, immediately to the right of the power on/off switch. Down along the left side of the screen, there are four LEDs. The *bottom* one of these is the one which indicates whether or not the wireless adapter is enabled or disabled at the hardware level.

To make sure that your wireless adapter is enabled on the software level, browse to **Start -> Settings -> Control Panel -> Network Connections**

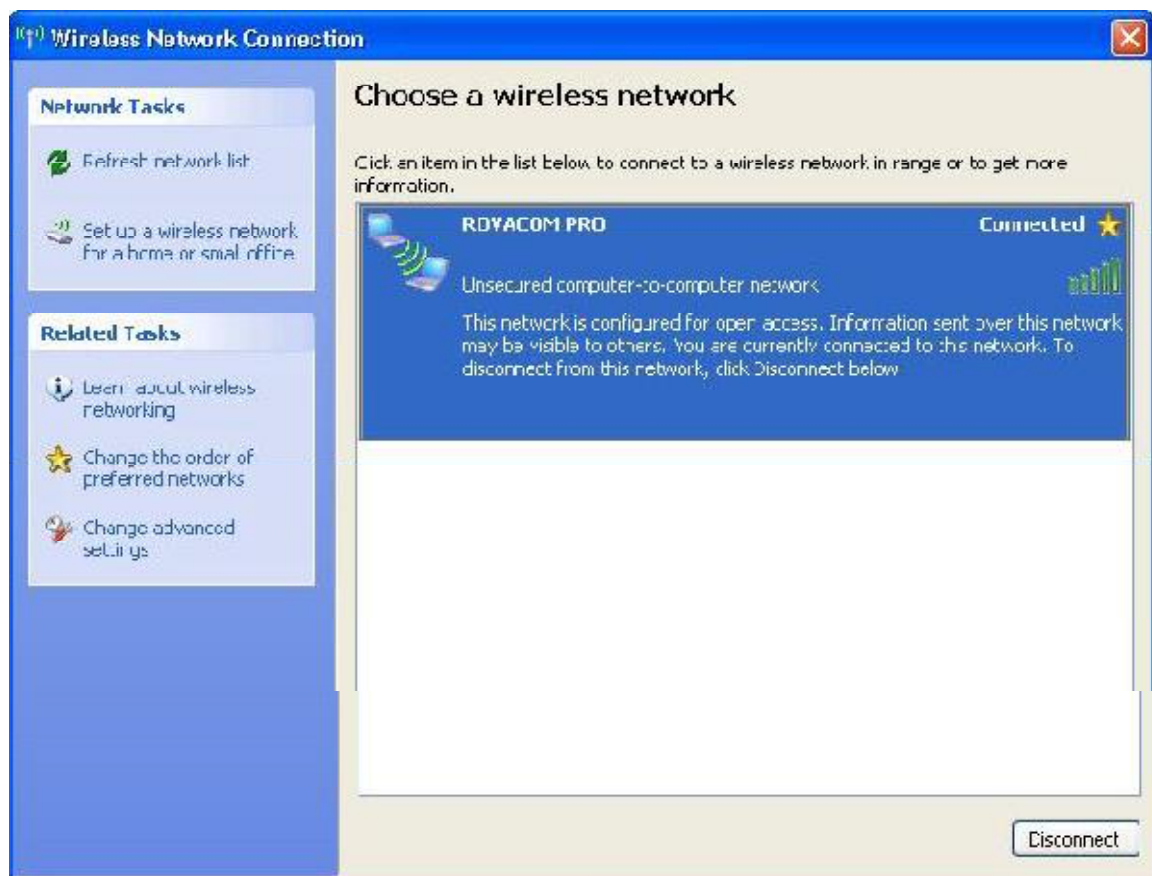
Right click once on your Wireless Connection and look at the topmost option which appears in the context dialog. If it reads *Disable*, it means that it is currently enabled and this is correct so simply press *Esc* to prevent making any unwanted changes. If however it reads *Enable*, it means that it is currently disabled and this is NOT correct so click once on *Enable* to enable it.

5. Are the correct settings assigned to the TCP/IP settings of your wireless adapter as per the instructions under *Wireless Adapter Configuration*?

Specifically, be careful NOT to assign the same IP address which is assigned to your Vehicle Server to the wireless adapter. i.e. If your Vehicle Server has an IP address of 169.254.1.29 then you must not under any circumstances assign that address to your Wireless adapter. Under the above example, the IP address of the wireless adapter can be any address in the range of 169.254.1.1 and 169.254.1.254 but NOT 169.254.1.29

Also make sure that the *Subnet mask* is set to 255.255.0.0 and that the remainder 3 options are left blank.

6. Are you connected to the **ROVACOM PRO** wireless network? Unless we actually tell Windows to connect wirelessly to the Vehicle Server, it won't. Communication with the Vehicle Server is not possible before we are connected to this network. The screenshot below indicates that we are connected.



Obviously, to disconnect from a wireless network, click the *Disconnect* button in the lower right corner. Upon disconnection, the button's text changes from *Disconnect* to *Connect*. This does not need to be performed on every boot of the computer. Leaving it connected to the ROVACOM PRO network will make it reconnect to this network automatically the next time it is switched on.

Whilst on the topic, we guide you through some of the advanced settings which should NOT be ventured into unless absolutely necessary.

Click *Change advanced settings* which are in the left column of the above screenshot. The *Wireless Network Connection Properties* dialog will appear and by default you are on the *General* tab. Switch to the *Wireless Networks* tab by left clicking on it once. Make sure that the very first option on this tab *Use Windows to configure my wireless network settings* is checked. Next, select *ROVACOM PRO (Automatic)* from the list of preferred networks and click the *Properties* button.

You are now on the *Association* tab of the *ROVACOM PRO properties* dialog. Here we must have two options enabled and everything else should be greyed out. *Network Authentication* should be set to *Open* and *Data encryption* should be set to *Disabled*. Now switch to the *Connection* tab by left clicking on it once. Here, the only option *Connect when this network is in range* must be checked.

Click OK twice to save the changes

3.2.2 Fan Replacement

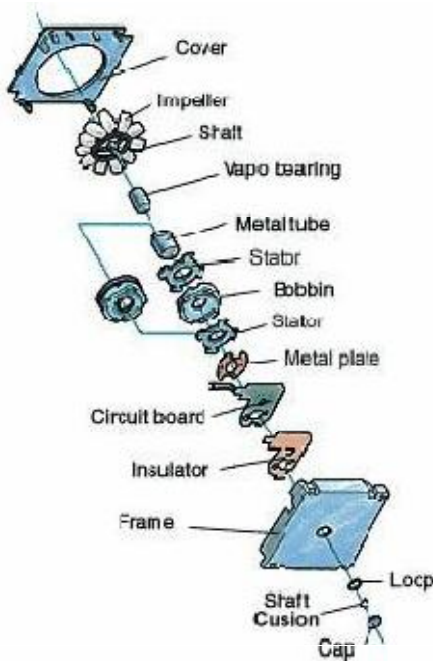
As an owner / user of a ROVACOM PRO server you will appreciate that there is a fan fitted inside it for cooling. Traditionally we do not like to use active cooling, preferring passive cooling due to our desire to keep everything solid state (no moving parts) if possible. Without any moving parts there is nothing to wear out and so the unit will be maintenance free for life. A fan however, traditionally requires servicing

periodically with its bearings needing re oiling as well as its blades need cleaning, it also produces dust and debris build up inside the server. The Fan we have chosen is however quite special in that it utilizes a brand new and quite cutting edge technology called Maglev which as you can see by the write up below is quite an advantage over standard although it does not rule out servicing requirements altogether.



Exceptionally quiet, the NEW KDE Fan Series features Sunon's patented Magnetic System design and Vapo-bearing design.

Magnetic System design stops the impeller from wobbling when rotating at any angle while the Vapo-bearing design provides a better path for out-gassing of unwanted by-products, leading to longer bearing life. In traditional fan Designs the shaft bears the entire weight of the hub/blades assembly. Over time, the frictional wear and tear will result in higher mechanical noise and shortened bearing life. This is particularly detrimental in vertically mounted fans, where wobbling becomes more severe due to gravity. To solve this problem, Sunon developed the Magnetic system (MS) that eliminates wobbling and as a result, the fan runs quieter and longer than traditional fans.



In the Magnetic System (MS) fans, the permanent magnet in the fan hub provides a 360-degree magnetic field to the specially designed metal plate on the PCB. This field keeps the fan blades assembly in near perfect circular orbits about its axis of rotation, thus eliminating wobble and supporting the weight of the blades. The end result is reduction in vibration noise and bearing wear while extending the fan's life. This design also eliminates the impeller's locked washer, oil ring and space washers, which are susceptible to mechanical degradation over time. Fan life is further improved by integrating Sunon's Vapo-bearing system. This bearing design eliminates contaminant deposits, which decrease fan performance and shorten fan life, while retaining the impact resistance, shock resistance, and low noise level advantages of the traditional sleeve bearing. The fans are currently be used in PC's, but will also be sized for industrial equipment and mainframe computers.

Do some house keeping every now and again staying on top of any issues

To eliminate general dust build up, which alone will provide the Fan with a very long life we recommend the periodic blowing through with compressed air. Apply air at a medium (not too vicious) pressure at one side of the intake vent (the gap around the edge of the raised badge plate on the top of the server). Block off the other side with a cloth to force the air through the fan blades.

A Spring Clean once a year is good policy to keep it sweet

This requires the badge plate to be removed. On later servers there are black plastic dome headed rivets which can be pulled up using fingernails or a knife. This then allows the plate to be removed to gain access to the Fan. On a small number of early servers, the plates were riveted on using standard aluminum pop rivets 3.2 x 8mm. These will need to be drilled out very carefully using a 3 or 3.5mm drill. Be extremely careful not to push to hard especially at the last stages so that you do not pierce the server itself and hit the sensitive electronics with the drill. You will also need to be very sure that you have shaken absolutely all of the metal debris out of the servers fan hole. If you think there are bits left in you need to progress further into the section entitled giving it a real treat. You will also need to save the small metal spacers and get replacement rivets for refitting or you can ask us to send you some of the plastic ones which will make subsequent removal much easier. Preparation and having the correct items together first so that you can adequately re cover the Fan afterwards is a must. This is because the fan spins at a far higher speed with much more power than normal and having an open fan into which anything may drop will be disastrous and destructive leaving you with an inoperable server at best and kebab fingers at worst. Once you have fully revealed the fan you can properly clean out any dust and debris using compressed air.



Give it a real treat with a bit of screwing, being gentle when tight and applying some lube

This requires the fan to be removed by unscrewing the four self tappers at each corner which will allow the Fan to move about inside the case. Using pointed pliers or similar slide the Fan towards the end with the antennae pull up a loop of the red and black wire and then lift the side of the fan nearest the LED so it comes up and out through its own hole which has been specially designed to allow this. The fit is tight and it may require a little patience and gentle prying here and there to persuade it to slide out, especially against the sharp edges of the hole, but it will come.



Once out, turn the fan over and peel back the sticker over the middle of the fan to reveal the centre of the spindle and the retaining circlip. Using a very pointed nozzle and trying not to get any on the surrounding plastic which will stop the sticker from adhering back apply a few drops of a light to medium oil. Do not use a penetrating or spray oil. Do not forget to re adhere the sticker which will retain the little reservoir of oil you have just applied.



Replace it with a sexy new Fan when it won't move or always groans

Although you could also replace the wires by reaching into the hole to de solder and re attach, or cut and splice, the best way to remove the fan is to de solder the wires from the board of the fan itself and solder them back onto the new fan.



Do a check that the new fan spins ok by applying power to the server for no more than 10 seconds or so.

Obviously you will need to first get a new fan either from us or you or elsewhere as it is an industry standard CPU size although you need a fan which moves more than 9 Cubic feet of air per minute.

3.3 Faultmate MSV-2 Nano



CONNECTING THE FAULTMATE MSV-2 NANO

STEP A

The first step is to connect the Vehicle Server to your PC.

For this you need to locate the serial port on your Computer.

If you are not sure which the serial port of your computer is, see the [Common PC connections](#) page.

You may not find this connection however because many of the newest computers no longer provide a serial / Com port and instead are only fitted with USB ports.

In this case you will need to use a USB to serial adaptor. These often also have a driver disk which must be installed correctly.

These are not expensive and commonly available and we have them in our shop.

ATTENTION: Failure to install the USB to serial adaptor correctly can result in not being able to communicate with the Vehicle Server.

Then Next step is to locate the serial communications port on your Vehicle Server and connect it to your PC's serial port using the respective Null Modem Lead..

There are different designs of Vehicle Server but all have a serial communications port which is either a 9 pin D type or a 3.5mm Jack socket

The FAULTMATE MSV-2 NANO uses a 9 pin D type

Vehicle Server fitted with a 9 Way D type Serial Communications Port

Example of a Vehicle Servers 9 Way D type serial Communication port



Connect the null modem lead between the serial port of your PC and the serial port of the Vehicle Server. If your PC does not have a serial port, use a USB to serial adaptor.



If you are not sure which the serial port of your computer is, see the [Common PC connections](#) page.

STEP B

The MSV-2 already may Pre installed inside of it, which would mean you do not need to connect one externally. This **Vehicle Communications Interface** is an intelligent microprocessor based interface units, which are required translate the Vehicle Servers standard communication data stream into differing protocols, voltages, logic levels and then route the communications to and from the correct destination pins for each vehicle system type.

As mentioned, there are 2 types of Vehicle Communications Interface commonly shortened to VCI 1 and VCI 2 the one you require to ensure is present, internally or externally will depend upon the vehicle you are wishing to connect to.

Use VCI 1 for;

All P38A Range Rovers (1994 to 2002)

L322 Range Rovers 2002 up to mid 2005 when the audio equipment was revised.

All Discovery series I and II

All Freelander 1

All Rover or MG vehicles

All Classic Range Rovers

Defenders before 2007 Model year

All Morgans

For all our previous Vehicle Server based systems the VCI 1 was a small black external box designed to plug in line between the vehicle server and the appropriate diagnostic lead, however the Faultmate MSV-2 system has a purchase option that means it can already have an VCI 1 built inside the vehicle server itself.

Please Note: If you do have a vehicle server that does not have a built in VCI 1, and if you need to use one for any of the vehicles listed above not doing so can be very harmful to the Vehicle Server as the VCI 1 also protects the Vehicle Servers delicate computerized circuitry from the raw power that is available on the data line. Drive electronics may be damaged in such a way that the damage is not immediately apparent and may simply make communications seem troublesome and intermittent

It is therefore quite important to determine beyond doubt if the vehicle server you are using has a built in VCI 1 or not.

Fortunately this is very easy to do with a simple visual check on either the new style MSV-2 or the older models, because the new vehicle server now has a small silver label that states With VCI1 or No VCI1 or on the older system because if the vehicle server does not have a built in VCI 1 it is fitted with a slide lock mount to more firmly secure either an external in line type VCI 1 or a VCI 2. If however the Vehicle server

does have an internal VCI 1, it will have jack posts into which the leads can be screwed for more secure attachment. See picture below to aid you.



ATTENTION:

You must never attempt to connect an External VCI 1 to a Vehicle server that already has a VCI 1 Built in as you may permanently damage the Internal VCI 1, The External VCI 1 and the Vehicle Server or even all three. **You must also always be sure to have a vehicle server connected**

Use VCI 2 for;

All Discovery 3 / LR3

All Discovery 4/LR4

All Range Rover Sport (all years)

L322 Range Rovers from mid 2005 when the audio equipment was revised.

All Freelander 2

Defender from 2007



Vehicle Communication Interface 2 (VCI 2)

VCI 2 is plugged directly to the Vehicle Server regardless of if the Vehicle server has a VCI 1 Built in or not.

STEP C

The third step is to connect the relevant vehicle connector between the vehicle server and the vehicle's diagnostic connector. In the case of the Vehicle Communication Interface 2, you will probably note that it is actually built into the head of an OBDII plug, so no other lead is required. However for VCI 1, either internal or external, you will need to select one of a number of diagnostic socket connection leads. This will vary depending upon the model of vehicle or vehicle system type you are wishing to access.

Only vehicles such as the Classic, early Discovery 1, some Defenders and some Rover cars will require the coloured leads to connect. All other models will require either the standard OBD lead or VCI2



Use the connector diagram, picture, location and lead information found within each vehicle systems page to help you if required.

Ensure that the Vehicle Server has power (observe Blue LED's on Server) by one of the following methods:

- If the OBDII lead is used this should provide power to the vehicle server regardless of the ignition switch position.
- If the Blue lead is used this will provide power only while the ignition switch is on.
- Connect power to the Vehicle Servers DC socket from either the vehicle's cigar / cigarette lighter socket, directly from the battery itself using a suitable power lead or via a mains adaptor in the DC socket on the server.

It should be noted that some cigar / cigarette lighter sockets only provide power with the ignition switched on.

It should also be noted that due to the software nature of the Server that it requires approximately 6 seconds after powering on before the server is ready to communicate with the PC. This should be borne in mind when reconnecting it, as clicking on a link before the server is ready will most likely result in the server not responding. If the power is removed during a test and the link clicked again it is easy to see how quickly it is possible to be frustrated by not understanding that the server needs a few seconds to get ready.

With the Vehicle Server connected to your PC and powered up, you can establish the communication between the Vehicle Explorer installed on your PC and the Vehicle Server. For details see [Using the System](#) chapter.

Communication Confirm LEDS

On the upper surface of the FAULTMATE MSV-2 NANO vehicle server there is a name plate which is covered with a transparent plastic. This plastic is illuminated by a Blue LED at each end when powered.



The LED at the End of the Vehicle server that connects to the PC is labeled PC and the LED at the end connected to the Vehicle is labeled "Car"

Normally these LED's are lit all of the time when the server is powered. This is partly for cosmetics as it illuminates the product name plate, but they do also serve to indicate that the unit is actually powered.

These LED's however, each also perform another most useful function, because whenever data is received by the Vehicle Server from the PC, the LED labeled "PC" visibly flickers to indicate this fact, and whenever Data is sent to a vehicle system, the LED labeled "CAR" flickers also. In this way correct operation can be visually confirmed and data flow in and out of the Vehicle server monitored

3.4 Faultmate MSV-2 Extreme



CONNECTING THE FAULTMATE MSV-2 EXTREME

The FAULTMATE EXTREME is unique from any other system in that on one side it has a large Liquid Crystal Display capable of showing four lines of 40 characters each and a basic keyboard with some navigation specific and some function specific buttons.

This allows the unit to act not only act as a Vehicle server connected to a PC, (Vehicle Server Mode) but also to perform some degree of diagnostic functionality *reading and clearing fault codes) on its own with no PC attached (Stand Alone Mode).

If you intend to operate a FAULTMATE MSV-2 EXTREME in stand alone mode, please disregard step A below that instructs on how to connect the Vehicle server to a PC and begin at step B.

STEP A

The first step is to connect the Vehicle Server to your PC. For this you need to locate the serial port on your Computer. If you are not sure which the serial port of your computer is, see the [Common PC connections](#) page.

You may not find this connection however because many of the newest computers no longer provide a serial / Com port and instead are only fitted with USB ports. In this case you will be need to use a USB to serial adaptor. These often also have a driver disk which must be installed correctly.

These are not expensive and commonly available and we have them in our shop.

ATTENTION: Failure to install the USB to serial adaptor correctly can result in not being able to communicate with the Vehicle Server.

Then Next step is to locate the serial communications port on your Vehicle Server and connect it to your PC's serial port using the respective Null Modem Lead..

There are different designs of Vehicle Server but all have a serial communications port which is either a 9 pin D type or a 3.5mm Jack socket. The FAULTMATE MSV-2 EXTREME uses a 9 pin D type

Vehicle Server fitted with a 9 Way D type Serial Communications Port

Example of a Vehicle Servers 9 Way D type serial Communication port



Connect the null modem lead between the serial port of your PC and the serial port of the Vehicle Server. If your PC does not have a serial port, use a USB to serial adaptor.



If you are not sure which the serial port of your computer is, see the [Common PC connections](#) page.

STEP B

The second step is to decide if you need to connect one of the two possible types of external **Vehicle Communications Interface (VCI)** modules to the Vehicle Server, or if your Vehicle server has the type you need to have connected already pre-installed inside of it, which would mean you do not need to connect one externally.

This **Vehicle Communications Interface** is an intelligent microprocessor based interface units, which are required to translate the Vehicle Servers standard communication data stream into differing protocols, voltages, logic levels and then route the communications to and from the correct destination pins for each vehicle system type.

As mentioned, there are 2 types of Vehicle Communications Interface commonly shortened to VCI 1 and VCI 2, the one you require to ensure is present, internally or externally will depend upon the vehicle you are wishing to connect to.

Use VCI 1 for;

All P38A Range Rovers (1994 to 2002)

L322 Range Rovers 2002 up to mid 2005 when the audio equipment was revised.

All Discovery series I and II

All Freelander 1

All Rover or MG vehicles

All Classic Range Rovers

Defenders before 2007 Model year

All Morgans

For all our previous Vehicle Server based systems the VCI 1 was an small black external box designed to plug in line between the vehicle server and the appropriate diagnostic lead, however the Faultmate MSV-2 system has a purchase option that means it can already have an VCI 1 built inside the vehicle server itself.

Please Note: If you do have a vehicle server that does not have a built in VCI 1, and if you need to use one, not doing so can be very harmful to the Vehicle Server as the VCI 1 also protects the Vehicle Servers delicate computerized circuitry from the raw power that is available on the data line. Drive electronics may be damaged in such a way that the damage is not immediately apparent and may simply make communications seem troublesome and intermittent

It is therefore quite important to determine beyond doubt if the vehicle server you are using has a built in VCI 1 or not.

Fortunately this is very easy to do with a simple visual check, because if the vehicle server does not have a built in VCI 1 and was produced before May 2011 it will be fitted with a slide lock mount to more firmly secure either an external in line type VCI 1 or a VCI 2. From May 2011 onwards these were removed and standard posts fitted but have a silver label which is marked No VCI1.

If however the Vehicle server does have an internal VCI 1, it will have jack posts into which the leads can be screwed for more secure attachment and a silver label on the end plate marked With VCI1
See picture below to aid you.



If you do not have a Vehicle server with a Built in VCI 1, then to communicate with the listed vehicles you will have to add an external VCI 1.



Vehicle Communication Interface 1 (VCI 1) External In line type

ATTENTION:

You must never attempt to connect an External VCI 1 to a Vehicle server that already has a VCI 1 Built in as you may permanently damage the Internal VCI 1, The External VCI 1 and the Vehicle server or even all three. **You must also always be sure to have a vehicle server connected.**

Use VCI 2 for;

All Discovery 3 / LR3

All Discovery 4/LR4

All Range Rover Sport (all years)

L322 Range Rovers from mid 2005 when the audio equipment was revised.

All Freelander 2

Defender from 2007



Vehicle Communication Interface 2 (VCI 2)

VCI 2 is plugged directly to the Vehicle Server regardless of if the Vehicle server has a VCI 1 Built in or not.

STEP C

The third step is to connect the relevant vehicle connector between the vehicle server and the vehicle's diagnostic connector. In the case of the Vehicle Communication Interface 2, you will probably note that it is actually built into the head of an OBDII plug, so no other lead is required. However for VCI 1, either internal or external, you will need to select one of a number of diagnostic socket connection leads. This will vary depending upon the model of vehicle or vehicle system type you are wishing to access.

Only vehicles such as the Classic, early Discovery 1, some Defenders and some Rover cars will require the coloured leads to connect. All other models will require either the standard OBD lead or VCI2



Use the connector diagram, picture, location and lead information found within each vehicle systems page to help you if required.

Ensure that the Vehicle Server has power (observe Blue LED's on Server) by one of the following methods:

- If the OBDII lead is used this should provide power to the vehicle server regardless of the ignition switch position.
- If the Blue lead is used this will provide power only while the ignition switch is on.
- Connect power to the Vehicle Servers DC socket from either the vehicle's cigar / cigarette lighter socket, directly from the battery itself using a suitable power lead or via a mains adaptor in the DC socket on the server.

It should be noted that some cigar / cigarette lighter sockets only provide power with the ignition switched on.

It should also be noted that due to the software nature of the Server that it requires approximately 6 seconds after powering on before the server is ready to communicate with the PC. This should be borne in mind when reconnecting it, as clicking on a link before the server is ready will most likely result in the server not responding. If the power is removed during a test and the link clicked again it is easy to see how quickly it is possible to be frustrated by not understanding that the server needs a few seconds to get ready.

With the Vehicle Server connected to your PC and powered up, you can establish the communication between the Vehicle Explorer installed on your PC and the Vehicle Server. For details see [Using the System](#) chapter.

3.4.1 Communication Confirm LEDS

On the upper surface of the FAULTMATE MSV-2 EXTREME vehicle server there is a name plates covered with a transparent plastic. This plastic is illuminated by a Blue LED at each end.



The LED at the End of the Vehicle server that connects to the PC is labeled PC and the LED at the end connected to the Vehicle is labeled "Car"

Normally these LED's are lit all of the time when the server is powered. This is partly for cosmetics as it illuminates the product name plate, but they do also serve to indicate that the unit is actually powered.

These LED's however, each also perform another most useful function, because whenever data is received by the Vehicle Server from the PC, the LED labeled "PC" visibly flickers to indicate this fact, and whenever Data is sent to a vehicle system, the LED labeled "CAR" flickers also. In this way correct operation can be visually confirmed and data flow in and out of the Vehicle server monitored.

3.5 Common PC connections

This section will help you identify the correct port on your PC to connect to the Vehicle Server.

The Serial / COM port (This is the one you need to use)



The serial port is also commonly referred to as the COM port and most Desktop PC's usually have more than one serial port. To identify the difference between each port the COM ports are assigned numbers, COM1, COM2, and COM3 and so on.

In some cases a mouse may be plugged into the serial port.

Although most Laptops only have one serial port this is still often designated as COM1.

The PS2 Port



The USB port



The PCMCIA slots



The Parallel Port



USB to serial adaptors



Many new style laptops now do not have a serial / Com port and instead are only fitted with USB ports. In this case it will be required to use a USB to serial adaptor. These often also have a driver disk which must be installed correctly.

Part IV Using the System

SYSTEM OVERVIEW

To get the most out of your system it is best to understand how it all works. To do this it is best to understand the function of each component and how it all flows together.

The PC running the **Vehicle Explorer** software (supplied on the CD) as a browser, is used to send a small request (clicking on a link) to the vehicle server. This may be a request for a page of fault codes, stored settings, or live real time sensor data from any one of the vehicle's on board computers.

The **Vehicle Server** receives the request and without hardly any delay talks to the vehicles on board computer (ECU) through the **vehicle communications interface** and the connection to the vehicle's diagnostic socket and gets the requested information from it. It then puts it in a page and sends it back to the browser on your PC to be displayed.

The software on your PC does nothing special or timing critical itself, it simply issues requests for pages to the server and shows the returning page.

To do this communicating, the vehicle server contains special software which is in modular form. There is one module for each vehicle system. These modules can be managed using the Server Software Module Manager utility, accessed from within the vehicle explorer. This shows you the modules on the server and the master copies on the PC. This utility allows you to delete them and copy them over which needs to be done with any newer versions after any installing upgrades which may have updated the versions stored on your PC.

Requirements for different stages in communication

Vehicle Explorer with no hardware connected:

You can browse Vehicle Explorer, select vehicles, models and systems fitted, read the information provided for each system (help, diagnostic lead, connector location, connector picture, etc).

You can [customize](#) the vehicle explorer by setting the colour theme, font size, and bookmark locations.

Vehicle Explorer with Vehicle Server connected:

The Vehicle Server, has to be powered in order establish any communication with either the Vehicle Explorer or any system on a vehicle (see the sticker on the bottom of the server (next to the key pad on the MSV-2 Extreme) for power supply specifications).

During the installation, the COM port used is detected and it is stored in the Vehicle Explorer to be used every time when you attempt to communicate with the Vehicle Server. If you are using another COM port than the one used during the installation, before attempting to communicate with the Vehicle Server, the vehicle explorer has to [learn the COM port](#) used by the PC to communicate with the vehicle server. Once the COM port is set, the information is stored in the vehicle explorer will use now the new COM port set. You can read the information about your server, serial number, firmware number, TUP request code by reading [Vehicle Server Settings / Information](#).

You can [licence the software modules](#) in order to communicate with a system on a vehicle.

You can read the [software licence status](#). This will give you the list of all the software modules and show which modules are licenced and which are not.

You can [transfer software modules](#) from your PC on the server.

You can [update the vehicle server's firmware](#) when required.

4.1 Vehicle Explorer

The installer will add Vehicle Explorer in the Program list. To open Vehicle Explorer click on **Start > Programs > Vehicle Explorer > Vehicle Explorer**. This will open Vehicle Explorer window.

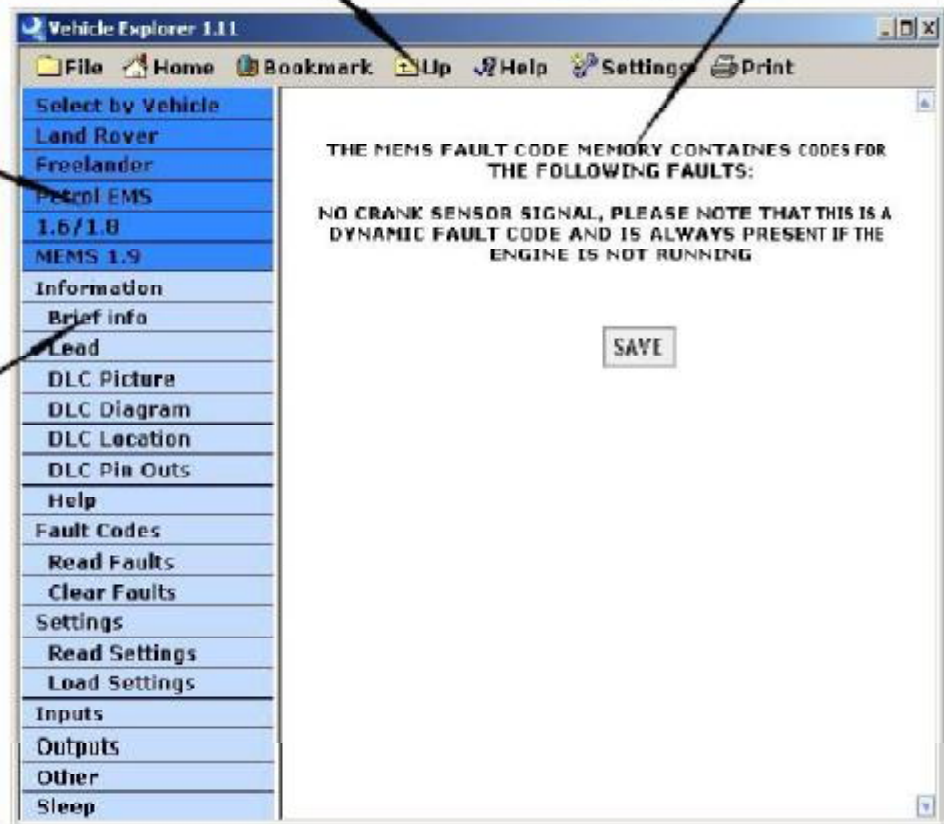
This is an example of page the vehicle explorer showing a page containing fault codes stored in an ECU's memory.

SELECTION HISTORY
Shows the selection history of the previous choices made to arrive at the currently selected vehicle system. Where only one choice is available it is automatically made but still shown for reference purposes. It is possible to click on any previous stage of the selection history to return to that choice again. The last line of the history also shows the name of the currently selected vehicle system.

TOOLBAR
Bar containing buttons for help, settings, file information, home and back one level.

WORK AREA
The area used for displaying any information derived by clicking on one of the possible functions or returning data from the vehicle system.

SELECTION LIST
Shows a list of selections available for each step. Once the vehicle system selected, the list will contain links to different functions that the ECU supports.



Toolbar:

File: This drop down menu gives options for exiting and closing the diagnostic system or updating it via the internet.

Home: Clicking on this button takes you directly to the starting screen.

Bookmark: Clicking on this button takes you to the latest bookmarked location.

Up: Clicking on this button takes you back one level of your current vehicle choice.

Help: Gives options for accessing the help facilities available via the internet or browsing the built in help pages.

Settings: This drop menu gives you a number of options related to checking and setting various system Configuration details.

Print: Clicking this button, will send to the printer the right side of the browser, the working area.

Selection History: On a dark background there will be displayed all the selection made in order to arrive to the currently selection. On this example (see the screenshot above) we have selected the MEMS 1.9 petrol engine management fitted on Freelander. Clicking on the list in the history, for example on Freelander, it will display on the light background all the systems fitted on this model while clicking on Land Rover it will display the models of Land Rover for which we have diagnostic capabilities.

Selection list: On a light background there are listed all the choices available for the last selection made (displayed on the last position in the history list). When Land Rover is selected in the history list, you will have on the light background: Defender, Discovery, Discovery II, Discovery3, Discovery 4, Freelander,

Freelander 2, Range Rover Classic, Range Rover (P38) and Range Rover (L322) and R Rover Sport (L320). Selecting one of the models, the selection list will change and now contains the systems fitted on this model. Select any of the system, and this will take you either to variant (engine size, year, or other), or to the final stage, the diagnostic zone.

Why variant - there are situations when there are different systems used for the same model. Over the years systems have changed, improved, so depending on the manufacturing year, you can determine the system fitted. The size of the engine can determine sometimes the engine management used. There are other times when regardless of the year and engine size, there are several systems used for a model. We also give, where it is possible the way of reading the fault codes by reading a sequence of flashes (Flash Codes), while the link to communicate with the ECU using the server (read codes, settings, inputs, etc.), it is "Vehicle Server".

Fault Codes: By clicking on this, the menu extends displaying the possible choices related to the fault codes:

Read Codes and Clear Codes.

Read faults: Reads the fault code memory / explains the procedure for reading the fault code memory in the electronic control unit of the of the selected vehicle system.

Clear faults: Clears the fault code memory / explains the procedure for clearing the fault code memory in the electronic control unit of the of the selected vehicle system.

Inputs: Shows a real time live display of the information the electronic control unit of the selected vehicle system is currently deriving from its input sensors. When the inputs are selected, the inputs menu extends, giving the possibility to save the page in three different formats: HTML page, AVI video clip and in CSV format. For more details see [Saving Pages](#) chapter. During inputs reading, the other functions are disabled. Closing inputs enables all function.

Outputs: Gives a selection of outputs which the selected vehicle system can be forced to operate regardless of normal input criteria. Usually that means to turn lamps, fans, locks, buzzer on or off. Test can be done only if the device is fitted on the vehicle, or it is enabled. If the device is disabled in the ECU, upon the request send by the vehicle server to test the output, the ECU will not respond.

Other: Gives a selection of other unusual functions which may be possible for each selected vehicle system, for example self calibration initialization.

Settings: By clicking on this, the menu expands displaying the possible choices related to settings: read one of the settings page, write settings to the vehicle's ECU, and load a saved settings page, save the settings page.

Read Settings: Reads and displays all of the stored settings in the electronic control unit of the selected vehicle system and then allows them to be changed and written back. The read only settings are grayed out.

Write Settings: Writes the settings in the electronic control unit of the selected vehicle system. The read only values cannot be changed.

Store Settings: Stores the settings page in HTML format.

Load Settings: Loads a settings page previous saved. The Vehicle Explorer can determine if the settings page is a valid one for the system you want to load it.

Sleep: Allows the selected vehicle system to be put back to sleep after having been woken up and placed in a state of constant diagnostic communication by the operation of any other diagnostic function. This is also automatically performed if the selected vehicle system is deselected.

Information: By clicking on this, the menu expands displaying the possible choices of information related to the system selected.

Brief info: Gives a basic overview of the selected vehicle system. This page is automatically shown when a vehicle system is first selected.

Lead: Shows a picture of the diagnostic lead used to connect to the diagnostic information data bus connector for the selected vehicle system.

DLC picture: Shows a picture of the diagnostic information data bus connector for the selected vehicle system.

DLC diagram: Shows a drawing of the diagnostic information data bus connector for the selected vehicle system.

Help: Directly opens the dedicated help page for the selected vehicle system. This gives information about the system itself, what makes and models of vehicles use it and what functions it has.

NOTE. These options may vary depending on the vehicle where some ECU's may be fitted to a particular model and not to another.

4.2 Vehicle Server Settings / Information

Using this function enables you to check such system information as serial number and also firmware and hardware version numbers.

You will also find the current TUP request code and a blank area where you can type in any licence activation codes that you may have been given, ie.TUP code.

To see the "Server Settings/Information" page, first connect and power the vehicle server and then click on **Settings -> Server Settings/Information** on the top bar. After a short delay with a communicating message you should see the following page.

SERVER SETTINGS / INFORMATION	
SYSTEM SERIAL NUMBER	12050 <small>To change the system serial number select one available from the drop down menu and click Write Settings</small>
SYSTEM CONFIGURATION	FaultMate SV
SERVER FIRMWARE VERSION NUMBER	1.22
SERVER HARDWARE VERSION NUMBER	3.3
VEHICLE COMMUNICATION INTERFACE 2 INFORMATION	
VCI 2 SERIAL NUMBER	NOT AVAILABLE
VCI 2 FIRMWARE VERSION NUMBER	NOT AVAILABLE
VCI 2 HARDWARE VERSION NUMBER	NOT AVAILABLE
VEHICLE COMMUNICATION INTERFACE 1 INFORMATION	
INTERNAL VCI1 NOT DETECTED	
LICENSE	
REMAINING DAYS	UNLIMITED
EXPIRING DATE (dd-mm-yyyy)	NOT SET
<small>To activate the software modules, type the TUP code found on the Licence Activation Codes page that is related to the TUP request code that is displayed below.</small>	
TUP REQUEST CODE	12050-00000
TUP CODE	
<small>Click on Write Settings to send the code to the server to activate the software module.</small>	
<input type="button" value="Write Settings"/>	
Licenced software modules	
<input type="button" value="Save Settings"/>	

If you do not see this page then it is most likely that the server is not properly connected and powered on or that the COM port is not properly set to that which the vehicle server is connected to.

Using this function enables you to check some information about the system such as:

System Serial Number - In systems based on vehicle servers without a removable license / ID module, the systems serial number is taken from the vehicle server itself and in systems based on vehicle servers

with a removable license / ID module the system serial number is based on the serial number of the currently inserted license / ID module.

For multiple identity systems such as the Faultmate MSV and Faultmate MSV2 which has a license / ID module containing 3 separate system identities, this shows the currently selected identity and allows the identity to be switched. To change the ID, select an ID from the drop down menu and click on Write Settings.

Firmware Version Number - Gives the current revision of the vehicle server's firmware.

Server Hardware Version Number - Gives the revision of the vehicle server's hardware.

Vehicle Communication Interface 2 Firmware Version Number - If connected, this will show the current firmware version of the VCI2.

Vehicle Communication Interface 2 Hardware Version Number - If connected, this will show the current hardware version of the VCI2.

Update VCI2 - If Vehicle Communication Interface 2 requires updating, there will be an extra field in the settings page. Tick the box and click on write settings to upgrade the Vehicle Communication Interface 2.

Vehicle Communication Interface1 Information - If Vehicle Server has internal Vehicle Communication Interface 1, this will show the current firmware version of the VCI1. It will not detect the internal VCI1 if VCI2 is connected. You will also find the current **TUP request code** and a **TUP Code** box that you can use to type in any license activation codes that you may have been given.

TUP request code - The code necessary to be supplied to us for reference in order that we can give you the correct codes to licence any software modules on your server. The code is received from the server and should not be modified (see the [Activating software module license](#) section).

TUP code - This is the code or more accurately the space where you type in any codes that we give you to activate software module licenses on the vehicle server. (See the [Activating software module license](#) section).

4.3 Updating the Vehicle Server Firmware

Firmware is processor code stored in flash memory or reprogrammable ROM (PROM) memory. This firmware can be updated on the vehicle server using a downloadable Firmware upgrade module. A firmware upgrade can add new functionality to your vehicle server, fix bugs and also make improvements. Once the firmware is installed it should not be re installed unless advised by Blackbox Solutions staff. During the installation of the software, the Vehicle Server's firmware is updated to version 1.22. At the end of the installation procedure, it will read the firmware version stored in the Vehicle Server and will pass this information to the Vehicle Explorer. This information is used by the Vehicle Explorer to determine if the Vehicle Server was updated to the latest firmware version available. This information reflects the server that was connected during the installation.

If for any reason the firmware needs updating, click on **Settings** and select **Server Firmware Update**. Vehicle Explorer will read the firmware installed on the Vehicle Server and, if it is possible to update the firmware, it will start transferring and applying the firmware.



The newer firmware can be installed only if firmware 1.07 is detected on the Vehicle Server. If the firmware read is below V1.07 you will be prompted to run the installer again.

ATTENTION: The firmware module transferred is in compressed format. Once the firmware is transferred on to the Vehicle Server it will decompress. In order to achieve a successful upgrade of the firmware, you need approximately 1000K free space on the Vehicle Server.

You can determine if the update was successful by reading the firmware version in the **Settings->Server Settings/Information** page. If the page does not show the new version, the firmware did not update. A possible reason could be lack of space on your Vehicle Server. Delete software modules or maps in order to make enough space on your Vehicle Server to allow the firmware to upgrade.

ATTENTION: Do not disconnect the Vehicle Server during the firmware update! The firmware update is a delicate procedure and a loss of connection can leave the Vehicle Server un-programmed. In this case, the Vehicle Server will have to be returned to the factory to be reprogrammed.

4.4 Vehicle Explorer Settings

Set the preferences for the appearance of the vehicle explorer.

To see this page, click on **Settings > Vehicle Explorer Settings** on the top bar. This does not require the Vehicle Server to be connected.

Preset Colour Themes

PRESET COLOUR THEMES		
GREEN	ORANGE	BLUE
<input type="radio"/> Small Font Size <input type="radio"/> Large Font Size	<input type="radio"/> Small Font Size <input type="radio"/> Large Font Size	<input checked="" type="radio"/> Small Font Size <input type="radio"/> Large Font Size
MENU COLUMN SETTINGS		

Set the colour theme in the working area. This sets the two colours used in the working area of the vehicle explorer. Select one of the 3 preset colours. Each colour selection has two choices for the font, small and large. By selecting one of the 6 choices, you can see the changes instantly. Select one of the preset colour theme and the font size that you want to use. By clicking on write settings, the colours and font size will change in the column menu to correlate the one selected in the working area.

Menu Column can be customized separately.

After setting the colour theme, you can change the colours, column width and font. Click on write settings to store this setting. Note: when you select a colour theme, this loads default settings for both, the working area and the menu column.

MENU COLUMN SETTINGS					
FONT NAME	FONT SIZE	FONT COLOUR	BOLD	UNDERLINE	ITALIC
Verdana	9	0	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Yes <input checked="" type="radio"/> No	<input type="radio"/> Yes <input checked="" type="radio"/> No
CELL PADDING	COLUMN WIDTH	BACKGROUND COLOUR	HISTORY COLOUR	COLUMN POSITION	
40	2100	C4DDFF	3388FF	<input checked="" type="radio"/> Left <input type="radio"/> Right	

FONT NAME - The name of the font used in the menu column.

FONT SIZE – This is the size of the font in the menu column.

FONT COLOUR – This is the RGB colour code of the font in the menu column.

FONT STYLE - Bold, Underline, Italic. Select **Yes** to add the style to the font.
CELL PADDING - This spaces the lines in the menu column. The value is in twips.
COLUMN WIDTH - This is the width of the column in twips.
BACKGROUND COLOUR - This is the colour code in RGB for the bottom part of the menu column.
HISTORY COLOUR - This is the colour code in RGB for the top part of the menu column. The colour code displayed in the field
COLUMN POSITION - The menu can be set either to the left side or to the right side of the screen.
 Twips are screen-independent units to ensure that the proportion of screen elements is the same on all display systems.
 1 twip = 1/567 centimeter or 567 twips = 1 centimeter
 1 twip = 1/1440 inch or 1440 twips = 1 inch

Navigation References - set of options related to the navigation menu.

NAVIGATION PREFERENCES	
START LOCATION	<input type="radio"/> Home <input checked="" type="radio"/> Bookmark <input type="radio"/> Last Location
SET BOOKMARK	<input checked="" type="radio"/> Yes <input type="radio"/> No
CURRENT LOCATION	\Select by Vehicle\Rover\100
BOOKMARKED LOCATION	\SELECT BY ECU\ECU\ \ANTI THEFT\ \LUCAS 10AS
HISTORY	<input checked="" type="radio"/> Show <input type="radio"/> Hide

PROGRAM PREFERENCES	
---------------------	--

Using this feature enables you to set the start page and make bookmarks. As a default, the start page is the home page. From there you can navigate to the system that you need by clicking on the selections available in the left column.

This page gives you the possibility to set your start page at a location other than the default. You can also set a bookmark and, either set the start location as the bookmarked location or, get to that location by clicking on the bookmark button on the top bar.

START LOCATION - Choice of 3 locations where vehicle explorer can start when it first opens. You can choose between start at home (default), start at the bookmarked location or start at the last location visited.

SET BOOKMARK - Possibility to bookmark the current location. Click on yes if you want to bookmark this location, then click on write settings to save this settings. You will notice that the bookmark location will change to the one in the current location.

CURRENT LOCATION – This is the address of the currently opened page. This should be the same with the history displayed in the left column.

BOOKMARKED LOCATION - This is the address of the location bookmarked.

HISTORY - You can choose to show or hide the history in the menu column.

Program Preferences - when this option is set to yes, Vehicle Explorer will automatically start with windows.

HISTORY	<input checked="" type="radio"/> Show <input type="radio"/> Hide
---------	--

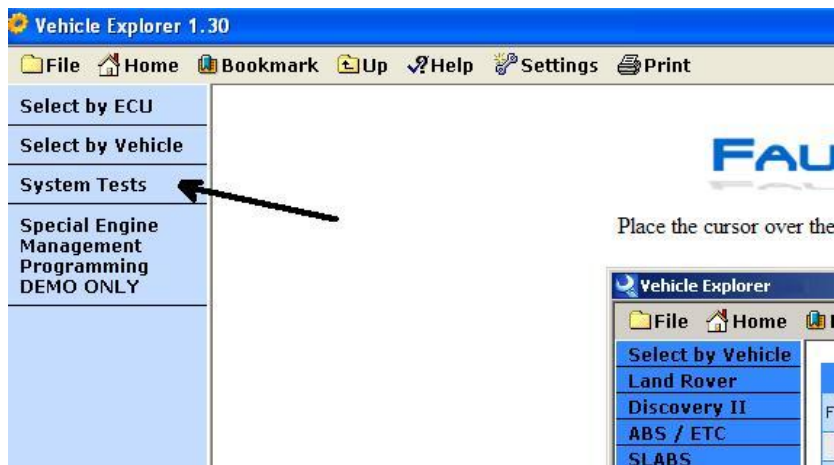
PROGRAM PREFERENCES	
LAUNCH VEHICLE EXPLORER WHEN WINDOWS STARTS	<input type="radio"/> Yes <input checked="" type="radio"/> No

These changes will not take place until you click Write Settings.

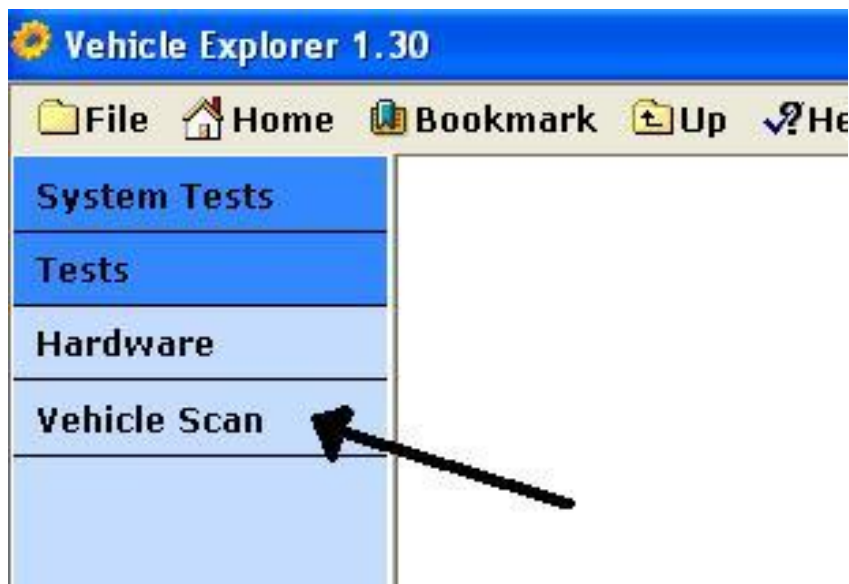
4.5 How to do a Vehicle Scan

This feature is possible only for vehicles fitted with a 16 pin OBDII connector and can help determine what systems are fitted on a vehicle.

1. Connect all hardware between your PC and your vehicle as shown in the vehicle explorer help pages under the connecting hardware section, and turn on the vehicle's ignition.
2. Open Vehicle Explorer and select from the side column **System Tests**.



3. Select Vehicle Scan and then settings.



4. This will open a page with different models of vehicles. Select on this page the applicable model of vehicle.



NOTE. If you are using Windows 2000 you may have issues when running the scan. When the scan completes it generates an error and closes before you save the page. If this happens then please inform the support staff via the forum and they can send a program to run which will give you the old style screen shown below and allows the scan to be saved.

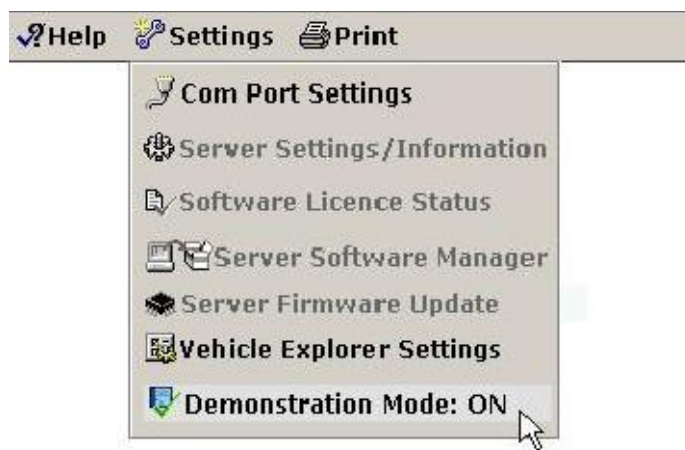


By clicking on the picture icon relating to your vehicle or the button on the list, the Faultmate Vehicle Server will start communicating with the vehicle in an attempt to communicate with each of the different systems that are possibly fitted on the vehicle it is connected to. Most of the ECUs will reply only with the ignition on so it is important to do this.

6. The scan will take a few minutes. At the end of the scan you should get a page similar to this (Obviously with different data on it):



To switch back to diagnostic mode, click on the last button in the Setting's drop down menu. You will notice that the status of the demonstration mode will change from ON to OFF.



4.7 Saving Pages

Printing

In Vehicle Explorer on the top bar there is a print button. By clicking on it, you will send to the printer the right side of the screen, the 'working area'. This button is active at any point in time and it can be used to print settings pages, inputs pages, etc.

Saving the Fault Codes List

After you click on Read Faults and the system completes reading the fault codes, at the bottom of the list you will find a save button. By clicking on it, you can save the list in a html format for further purposes.

Saving the Settings page

After reading the settings, you can save the page by clicking on 'Save Settings' link in the left side column. The page it will be saved in HTML format and it can be loaded later by the Vehicle Explorer. The software will intelligently determine if the page that you want to load is a valid page for the system you have selected.

Saving the Inputs page

The inputs page can be saved in 3 different formats: HTML, AVI and CSV. Under the inputs, on the left hand side, you can see four selections.

Fault Codes
Inputs
Close
Capture Data
Record AVI
Save HTML
Sleep
Information

CLOSE: sends an instruction to the Vehicle Server to stop requesting data from the ECU.

SAVE HTML: This allows you to save the inputs page in HTML format as it is at that moment.

RECORD AVI: This will open a utility capable to record the inputs page. Clicking on RECORD AVI, you will notice that the window's corners are selected, and it opens an extra tool bar.



The utility will record the working area of the Vehicle Explorer. Attention, it will record any information that appears on that area (windows that are set to stay on top as print, etc.) Placing our mouse over the buttons you can see the action related to them.

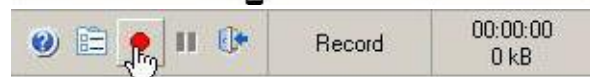
To exit the utility, click on close button



To start recording, click on record button

The tool bar buttons change, making

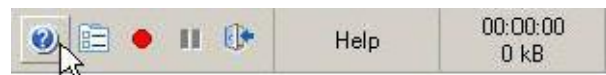
Available stop and pause. Click on stop to end recording.



You can also pause and resume recording.



An extended help is also provided within the utility.



CAPTURE DATA: captures the data and saves the information in a CSV format that can be opened by spread sheet programs such as Microsoft's Excel. This allows the data to be studied, edited, saved in other formats and converted into a variety of different graph type display formats.

4.8 Map Database

The ECU maps database which is not to be confused with the Flash File Loader program introduced for the CAN BUS vehicles from 2005 onwards is an information providing utility embedded within in the Vehicle Explorer that allows you to view information about all current assembly numbers, ECU part numbers, Vehicle variant and fuel tune map files, emission homologation numbers, validity dates and superseding to numbers. It provides a very easy way to search through all of the unique assembly numbers and see the referenced information including information about the map files themselves. This makes it much easier to understand how they are organized, and to decide which map to use in any given application.

The database supports the assembly numbers and maps for all flash programmable ECU's that are supported by the system however only those maps relative to the vehicle system that you had selected

when you entered the database will be shown due to the large amount of map files. To narrow the search further you can apply one of the 6 filters that are provided.

- **Nothing** - This shows the entire list of Assembly numbers and their associated information.
 - **Assembly Number** - Selects a specific Assembly number and shows its associated information. The Database utility also shows any Assembly numbers that preceded the selected one above it and traces the back history to introduction level. It also shows any Assembly numbers that superseded selected one below it and traces the supersession to the latest known assembly number. This is very useful for quickly seeing if there are any later updated maps for any given Assembly number. Also if the map database utility was entered from a programming history page, the Map database opens with the active Assembly number already automatically selected (this also shows preceding and superseding assembly numbers)
 - **ECU Part Number** - View only the Assembly numbers and their associated information for a specific ECU part number.
 - **Vehicle Variant Map Filename** - View only the Assembly numbers and their associated information for a specific vehicle variant map.
 - **Fuel Tune Filename** - View the Assembly numbers and their associated information for a specific fuel tune map.
 - **ECU Name** - View all the map files for an ECU. This is already pre set to the vehicle system you had selected if you enter the map database from within the pages of that system.
- In brackets, next to each filter name, you can see the number of choices for that filter (65 different assembly numbers, 5 different ECU part numbers, etc.)

The screenshot shows a software interface with a 'Filter By' section at the top. It has five radio buttons: 'Nothing' (selected), 'Assembly Number (65)', 'ECU Part Number (5)', 'Vehicle Variant Map Filename (16)', and 'Fuel Tune Filename (55)'. Below the filters is a table with columns A through I. The table contains several rows of data, with the row for assembly number NNW003200 highlighted in dark blue. Below the table are two sections: 'DETAILS' and 'NOTES'. The 'DETAILS' section shows fields for ASSEMBLY NUMBER, ECU PART NUMBER, VEHICLE VARIANT MAP FILENAME, FUEL TUNE FILENAME, EMISSIONS HOMOLOGATION, START DATE, END DATE, ECU NAME, and SUPERSEDING ASSEMBLY NUMBER. The 'NOTES' section contains text explaining the assembly number configuration.

A	B	C	D	E	F	G	H	I
NNW002380	NNN000120	V000690.MAP	F002200.MAP	4201	10042001	13082001	TD5	NNW004040
NNW003140	NNN000120	V000690.MAP	F002200.MAP	4189	10042001	13082001	TD5	NNW003980
NNW003150	NNN000120	V000690.MAP	F002200.MAP	4195	10042001	13082001	TD5	NNW003990
NNW003200	NNN000120	V000960.MAP	F002980.MAP	4191	25052001	13082001	TD5	NNW004050
NNW003210	NNN000130	V000970.MAP	F002990.MAP	4190	25052001	13082001	TD5	NNW004060

DETAILS		NOTES	
Field	Value	Column	Notes
ASSEMBLY NUMBER	NNW003200	A	This assembly number represents a vehicle configuration of: 1) 2.5 L diesel 5 cylinder engine (TD5); 2) Discovery body type; 3) Fuelling tune specification is for the European market.
ECU PART NUMBER	NNN000120	B	
VEHICLE VARIANT MAP FILENAME	V000960.MAP	C	
FUEL TUNE FILENAME	F002980.MAP	D	
EMISSIONS HOMOLOGATION	4191	E	
START DATE	25052001	F	
END DATE	13082001	G	
ECU NAME	TD5	H	
SUPERSEDING ASSEMBLY NUMBER	NNW004050	I	

Based on the filter used, the database utility selects and displays a list of assembly numbers and all associated information map files in lettered columns in the middle area with the currently selected assembly number line highlighted in Dark Blue.

The columns are Lettered A to I with the data for the current selection being shown with its meaning in the details section. Available information relative to each columns current selection appears in the Notes section on the bottom right.

· **A - Assembly Number.** This is a currently selected Assembly number which identifies the combination of ECU Part Number, Vehicle Variant Map and Fuel Tune map. Different Assembly numbers must therefore by definition have at least one of these three components that are different. The combination of the three components represents a unique ECU configuration that suits a specific vehicle type variation and market configuration in respect of any factors that would affect the fuelling, e.g. vehicle weight, CC,

Automatic / Manual transmission, Exhaust Gas recirculation fitted engine driven ancillary systems such as Air Conditioning or ACE. The Assembly number is typically stored in a special programming record area of an ECU's memory incrementally so that a diagnostic tool can use it to easily identify the programmed contents of an ECU. Note: There is no check made that the Vehicle Variant Map or Fuel Tune Map contents of an ECU actually match with what the Assembly number in the last programmed history record indicates.

- **B - ECU Part Number.** This is the ECU part number component of the three components which make up the currently selected Assembly number.

- **C - Vehicle Variant Map.** This is the name of the Vehicle Variant Map component of the three components which make up the currently selected Assembly number. This Map is often also referred to as the ECU software Map as it contains operational code which controls how an ECU operates and even what diagnostic services are provided. There is a small red or green colored square to the left of the description in the details section which indicates if the file is present in the Maps Folder. Although we endeavor to provide every single Map ever used by the ECU's the system supports, ultimately some maps were valid for very short periods of time only (as little as 1 day) and some were only ever available as pre loaded contents of new ECU's which would quickly have been over written. We have however through much resourcefulness and effort managed to obtain most of them, especially the latest ones. If you have an ECU which indicates by its Assembly number that it is programmed with Maps that we have not provided, please read and save them to your PC and then E-Mail them to us.

- **D - Fuel Tune Map.** This is the name of the Fuel Tune Map component of the three components which make up the currently selected Assembly number. This Map is the one which governs the Engine ECU's fuelling under varying conditions. There is a small red or green colored square to the left of the description in the details section which indicates if the file is present in the Maps Folder. Although we endeavor to provide every single Map ever used by the ECU's the system supports, ultimately some maps were valid for very short periods of time only (as little as 1 day) and some were only ever available as pre loaded contents of new ECU's which would quickly have been over written. We have however through much resourcefulness and effort managed to obtain most of them, especially the latest ones. If you have an ECU which indicates by its Assembly number that it is programmed with Maps that we have not provided, please read and save them to your PC and then E-Mail them to us.

- **E - Emissions Homologation Number.** This is the number issued to the vehicle specification that includes the currently selected assembly number which indicates that it has passed emissions Homologation tests for its country. The number is also stored in the Programmed history records.

- **F - Start Date.** This is the date when the currently selected Assembly number was introduced. Where an assembly number is being created to supersede a previous version, the date will usually, but not always be the same or one day later than the end date of the previous Assembly number.

- **G - End Date.** This is the date when the currently selected Assembly number was superseded or discontinued. If it is empty / blank then the selected Assembly number is the current / last known one.

- **H - ECU NAME.** This is the name of the ECU that uses this Map. Maps for one ECU name cannot be used for any other. This is already pre set to the vehicle system you had selected if you enter the map database from within the pages of that system.

- **I - Superseding Assembly number.** This is the Assembly number that replaced the currently selected assembly number. If it is empty/ blank then the currently selected assembly number has no known super sessions and is the current one.

For each of the column Items from A to I, there are detailed notes available in the notes section on the lower right under selectable tabs which gives an informational text description of what is known about each item of the currently Selected Assembly Number. We have gone to great lengths to validate the accuracy of the information provided, however If you find an ECU with an Assembly number that has descriptions in the notes not exactly matching the Vehicle configuration, or with missing information, please feel free to send all of the details to us so we can investigate and rectify any mistakes and thereby improve the database for everyone's benefit.

Once you have selected a new assembly number you will need to note down the names of the Vehicle Variant and fuel Tune Map files and transfer them to the Vehicle Server. The transfer of the map files is identical to the transfer of the software modules. For details see [Vehicle Server Software Module Manager](#) section.

Before writing any map files into an ECU, it is strongly recommended to read and save the maps that are already in the ECU in the event that the new ones cause the ECU to function improperly, you can always program them back.

When a Map is read it is only saved on the Vehicle server, to transfer the map file from the vehicle server to your PC, use the [Vehicle Server Software Module Manager](#).

Some ECU's such as the TD5 require to be erased before they can accept new map data.

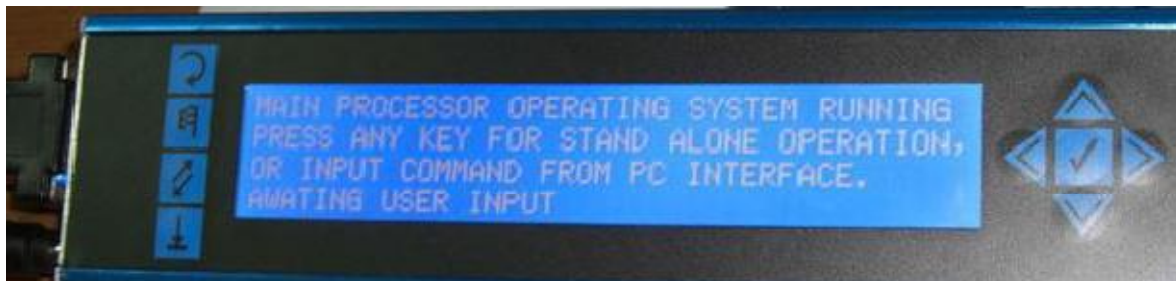
Some ECU's also need to have their ignition cycled after programming before they can communicate diagnostically due to the uploading of a new operating system.

Reading and writing Map files can take several minutes during which it is important to not interrupt the process and that the vehicles power supply / battery is not likely to go flat. If the process was interrupted or otherwise not successful, the ECU will need erasing and both maps re programmed again.

4.9 Stand Alone Diagnostics

The FAULTMATE EXTREME is unique from any other system in that on one side it has a large Liquid Crystal Display capable of showing four lines of 40 characters each and a basic keyboard with some navigation specific and some function specific buttons.

This allows the unit to act not only act as a Vehicle server connected to a PC, (Vehicle Server Mode) but also to perform some degree of diagnostic functionality (Read and Clear Fault codes) on its own with no PC attached (Stand Alone Mode). Please note that not all ECU's/Vehicles are covered.



To the left of the main display area there are four quick function buttons vertically set in a stack. These have pictures on them which generally links then to specific functionality which is (from top to bottom) Go Back, Start / Restart, change, and Shift.

To the Right there is a cluster of four directional control buttons with a centre mounted button which is used for indicating acceptance of high lighted items. The applicability and usage of all buttons is dictated directly within the control software.

The Vehicle server cannot be used in Vehicle Server Mode and Stand Alone Mode at the same time. The decision as to which mode is selected is automatically taken by the Vehicle server after it has started by it watching and waiting for input from the user which takes the form of either a press on any Key for more than a second to signal entry into stand alone mode, or by any data or communication coming in from vehicle explorer running on a connected PC.

The screen shot above which appears after the unit has finished displaying self test results, indicates that the Vehicle server has not detected an input yet.

Vehicle Server Mode

Having entered into Vehicle Server mode, the Vehicle server will not respond to any key press. However it will use the LCD display to provide real time information about what the Vehicle server is doing, and echo messages that it is sending to the Vehicle explorer software running on the PC.

Stand Alone Mode

Having entered into Stand Alone Mode, the Vehicle server will not respond to any attempts to communicate with it from a PC. Instead it will provide a short list of Vehicle Brands to select from, followed by a Model List, Vehicle system list and then a function to perform list.

Read fault codes are typically provided as a summary screen, with a fault number and any sub type information if available, and fault meaning displayed when faults are selected.

Selections will all have a highlight square on the end of the line of the currently selected item. This highlight can be moved up and down using the up and down direction buttons. Having reached the upper or lower limit of the visible screen, further presses will cause the screen to scroll line by line until the desired selection is reached. In all selections, the Go Back button returns you to the previous selection list.

Part V Troubleshooting

5.1 General


Problems that may occur while running the program

Symptom	Possible sources of problem	What to do
Unable to communicate with Vehicle Server.	Port number not set, baud rate stored incorrect.	Click on Settings-> Find Vehicle Server. If there are problems in getting the data from Vehicle Server, you will be prompted with an error message. Click on "Continue" until you are displayed with a final message. If Vehicle Explorer found the Vehicle Server, it will display the COM port number and baud rate. These settings will be stored in order to synchronize the communication between them.
Unable to communicate with Vehicle Server.	Port number not set to the port being used.	Click on Settings->COM Port Settings. Click on "Auto detect" to find the COM port. Click on "Test COM Port" to test that the Vehicle Server is connected to COM port selected. Click on 'Write Settings' button to store the information.
Unable to communicate with	Vehicle server not connected to	Connect null modem lead

Vehicle Server.	serial port of PC	between PC & vehicle server.
Unable to communicate with Vehicle Server	Vehicle Server does not have power (LED not on)	Check power supply
Unable to communicate with Vehicle Server	The power supply does not match the requirements printed on the back of the Vehicle Server	Check power supply
Communication lost message appears.	The server has lost connection with the vehicle system ECU.	Check connection between vehicle server and diagnostic socket and retry.
Output does not function as expected.	The output you are trying to test is not fitted on the vehicle	
Output does not function as expected.	The output you are trying to test it is disabled in the ECU settings	Run settings and enable the output if the field is not greyed out
Unable to establish communications to a vehicle system ECU.	Vehicle System may not be fitted in your vehicle	Check the specification of the vehicle and visually check for the presence of the ECU. Some of the ECU's have a similar appearance that might produce confusion.
Vehicle system ECU stops responding after something unexpected happened	Sometimes the vehicle ECU can become confused and will not respond to any communications.	Reset the ignition switch, or in extreme cases disconnect the vehicles battery for a few minutes.
Vehicle system ECU stops responding after some time	The vehicles battery may be discharging due to the ignition being on for extended periods and the battery having poor long term load capabilities.	Check the voltage at the battery and re charge if required
Vehicle system communications only works sometimes.	Some vehicles can have ECU's with unreliable diagnostic communications	Try other vehicles with the same system and swap the ECU between them to identify if the problem is in the wiring
Vehicle system communication works with intermittence.	There might be a problem with the reset feature on your server.	Test the reset. If reset not responding, contact us through forums for details.
Error in communication between the vehicle server and the vehicle communication interface	The vehicle communication interface is missing (Rovacom Lite/Pro and early MSV systems with external VCI units)	Plug the vehicle communication interface between the Vehicle Server and diagnostic lead or 15 way extension lead and the diagnostic lead.
Intermittent error in communication of the vehicle communication interface	The vehicle communication software is unable to reset.	Disconnect the vehicle communication interface on both ends and leave it unpowered for few seconds before reconnecting.
The vehicle server has not had the licence activated for this vehicle system.	You try to communicate diagnostically with a system that is not licensed on your server.	Contact us if you wish to licence that software module.
During write settings the vehicle server reports in an	The Software module is testing the values entered in the settings	Write a value that the ECU w tolerate.

error message that a value is invalid.	page that you wish to be stored in the ECU. When the value has an incorrect length, format or is out of range, the error message will specify the exact field that is incorrect.	
During communication with the ECU, the vehicle server reports that it received invalid data.	The vehicle system ECU is awake, received the request of data from vehicle server, but the answer is not in an expected format.	Try again the same function. If the ECU does not respond as expected, it is possible that the ECU is confused. Switch the ignition off for few minutes and try again.
Vehicle explorer reports module missing.	The software module that is necessary to communicate with the system that you have selected is missing from your vehicle server.	Open the software module manager and transfer the required module on your server.
Vehicle explorer reports module component missing.	One of the components of the software module that is necessary to communicate with the system that you have selected is missing from your vehicle server.	Open the software module manager, delete the software module from your server and transfer the one from your PC on the vehicle server.
Vehicle Explorer responds very slow	The PC is running too many programs at the same time.	Close as many programs as possible to free the processor.
Vehicle Explorer responds very slow	Norton Anti Virus enabled.	Disable auto protect while running Vehicle Explorer.

Problems related to the wireless communication

Symptom	Possible sources of problem	What to do
The vehicle server is powered up, but the vehicle explorer displays Offline	Your PC closed the communication wireless. This is probably a result of the hibernation feature of your PC.	<p>Press once on the network (middle) button on the top of the tablet PC.</p>  <p>This will close the wireless communication. After few seconds, click on the same button again. The wireless communication will restart.</p>
The vehicle server is powered up, but there is no communication between the vehicle explorer and the vehicle server	The PC cannot find the vehicle server, possibly the actual comport was not configured correctly.	Open comport settings window and make sure that you have set comport correctly. See Setting the COM port for details.

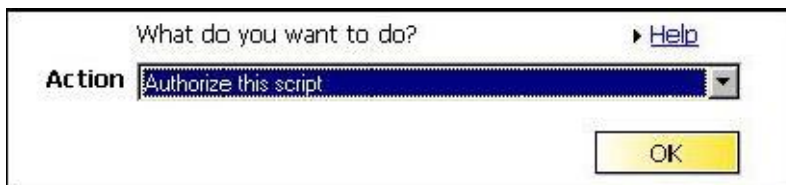
The vehicle server is powered up and the Vehicle Explorer shows the server as being online but I cannot communicate with the server.	A USB device is plugged in the PC's USB ports.	Disconnect any USB device from your PC.
The vehicle server is powered up and the Vehicle Explorer shows the server as being online but I cannot communicate with the server.	The 3.5 mm lead is plugged into the server.	Unplug the 3.5 mm lead from the server.

5.2 Norton Anti Virus Software

If you have Norton Anti Virus installed on your system, upon clicking on the "Transfer Module" button, the following window may pop up. This is due to Norton Anti Virus being sensitive and thinking some of the Vehicle Explorer files may be infected. None of the Vehicle Explorer files carry viruses.



Select from the drop down menu "Authorize this script" and click OK.



From now on, you should have no problems running the software.

For better result it is recommended to disable auto protect while running Vehicle Explorer as Norton antivirus checks every page slowing down the software.

5.3 Useful Information

Even with the best diagnostic system in the world, it will still not actually fix faults for you. It can only help you obtain information to help identify the area of trouble which you must then investigate yourself. Sometimes you can read certain faults from an ECU, and they will specifically tell you exactly what component has failed, giving an easy check and repair. But sometimes the fault report tells you that a sensor is faulty but the problem is actually in the wiring of the sensor. Sometimes faults pop up regularly and are not really faults, just the result of normal usage. Other times one problem may induce several faults to be stored. And it is easily possible to have a problem that means a system does not function as expected but the ECU can not detect anything wrong and so store a fault. Even for somebody with vast experience it can take a while to find where the problem can be.

It is important to realise that Diagnostic equipment actually does no self intelligent diagnosing at all. It is nothing more than a tool to give you access into the diagnostic capabilities of the vehicle system ECU's themselves. Think of it as a small window cut into a wall separating you from seeing and understanding what is going on inside the technology of your vehicle. Through this window you can see the contents of the fault code memory and the meaning of any codes that an ECU has stored according to the ECU manufacturers specifications. Sometimes the meaning may be vague on purpose, such as Coolant temperature circuit fault, which means that the ECU has detected that the coolant temperature sensor is not reading as it should, but the reason for this may be one of many things, such as faulty sensor, sensor connector unplugged, bad connection, broken wire, it could even be the input circuitry of the ECU that the sensor is connected to. But the diagnostic equipment has no control over which faults are stored or why or how much detail each fault gives. That is all within the design of the ECU itself.

Of course the window of information that the diagnostic equipment gives you also allows you to see the values that the ECU is getting from its inputs in real time, which can also be used to help you determine what is wrong or make external adjustments and monitor how this is affecting.

To understand what is going on fully and help you to trace and understand what is going wrong you will really need to understand how the system works and the wiring of it. The first and best place for this is the manufacturers own workshop manuals and Circuit diagrams. There is however other valuable sources of information which can be used.

On the owners forums you may be able to find other people with similar problems, or you can at least post your problem and ask for any help or value comparison information, and it is very possible that somebody will know the answer. Also, there are many websites with lots of helpful information that you can use to not only help you find the part but to find alternative low cost spares suppliers.

Here is a list of websites with interesting information:

Information about Freelander's - <http://www.myfreelander.com/>

To find or repair Engine management Diesel power & injections inc. - <http://www.dpii.com/>

Range Rover fixing and other useful tips - <http://www.landywiki.co.uk/>

Specialists in Land Rover and diesel tuning and performance - <http://www.bell-auto-services.co.uk/>

Information about Range Rovers, good sources of info where to find spare parts, at good prices and what non land rover parts can be fitted to your Range Rover. Also, links to many web pages and how to do different repairs and replacement of parts - <http://www.rangerovers.net>

BBA reman is a specialist automotive re manufacturer. -

http://www.bba-reman.com/about_bba.htm

Airbagsforsale.com - suppliers of automotive airbags and related components -

<http://www.airbagsforsale.com/about.htm>

5.4 Reset

This function is created to test the reset feature of the Vehicle Server. In special conditions, the Vehicle Server needs to reset. If this feature is not functioning properly, it might cause problems in communication.

On the Vehicle Explorer home page click on System Tests / inputs. This will send a command to the Vehicle Server every 15-20 seconds to reset. In the Vehicle Explorer you have a counter that will display the number of successful resets.

SERVER RESTART TEST	00:00:19.09
Successful Restarts	
2	
If the Vehicle Server reset feature functions properly, you will see the number increasing. The time between the changes should be between 15 and 20 seconds.	

The counter will increment with each successful reset.