

**MULTIBRAND DIAGNOSIS
FOR INDUSTRIAL VEHICLES**

USER MANUAL

Multi-Diag
Trucks



A 20-year partner to automotive manufacturers

Founded just over 20 years ago, ACTIA has since risen to international leader status in the automotive electronic diagnostics market. As a partner to major automotive manufacturers, ACTIA designs and produces electronic systems aimed at busses and coaches, trucks and special vehicles like construction and farming machinery. ACTIA's solutions involve every aspect of automotive electronic architecture from instrumentation, multiplexing, power management, fleet management systems, tachographs and remote processing to comfort and safety systems, multimedia and video surveillance. These solutions testify to ACTIA's know-how in these rugged, extremely demanding environments.



Inventing diagnostics



Harnessing its extensive expertise in electronic automotive architecture, ACTIA invented automotive diagnostics in 1985 and has been supporting the after-sales network and production factory equipment strategies of major manufacturers ever since. This leadership took on a whole new dimension with the 2003 launch of the Multi-Diag® range of multimake tools already adopted by many maintenance and repair professionals in Europe. The 2003 takeover of the brand MULLER BEM – a reference in garage and MOT equipment – has since enabled the ACTIA group to offer workshops a global garage equipment solution including wheel testing, antipollution, test bench, automotive lifts, electronic maintenance and diagnostics for both light and heavy vehicles. With Multi-Diag® Trucks, ACTIA continues to provide ongoing support to the repair industry.

A worldwide group in your neighbourhood

Because it is a concentrate of ACTIA's onboard systems, electronics diagnostics and garage equipment expertise, Multi-Diag® Trucks expresses all the power of an international group that has always maintained its pioneering spirit. Supported by an R&D investment of over 15% annual turnover, innovation is more than corporate culture, it is the daily driving force of every ACTIA group employee. Today, ACTIA is established on all five continents thanks to its subsidiaries and network of expert dealers. This worldwide deployment affords each of our customers a level of service quality to match the quality of our products, all manufactured in the group's industrial facilities. A certified quality environment, total control over the design and manufacturing process and state of the art production technology make our factories landmarks in the fields of PCB production and assembly of complex systems for the automotive, heavy vehicle and aeronautics sectors.

***Innovation, quality and service:
Commitments that are delivered with every ACTIA product***



DIAGNOSIS KIT



CONTENT

| | | |
|----------|------------------------------------------------|-----------|
| 1 | GENERAL DESCRIPTION | 5 |
| 1.1 | Introduction | 5 |
| 1.2 | General characteristics | 5 |
| 1.2.1 | Communication indicators lights | 6 |
| 1.2.2 | Link device power supply | 6 |
| 2 | INSTALLATION | 6 |
| 2.1 | Software installation | 6 |
| 2.2 | Program deleting process..... | 10 |
| 2.3 | Files download. | 11 |
| 2.4 | Installation finalization | 11 |
| 2.5 | Update process end..... | 11 |
| 2.6 | Bluetooth configuration | 13 |
| 2.7 | Mac address..... | 17 |
| 3 | UTILISATION..... | 21 |
| 3.1 | “Graphical Interface” general Description..... | 21 |
| 3.1.1 | Selection path..... | 21 |
| 3.1.2 | Vehicle brand selection screen..... | 22 |
| 3.1.3 | System selection | 22 |
| 3.1.4 | Connection types | 23 |
| 3.1.5 | Explorer bar | 24 |
| 3.2 | Password | 26 |
| 3.3 | Connection..... | 28 |
| 3.3.1 | Diagnosis functionalities description..... | 28 |
| 4 | IMPORTANT NOTICE | 29 |
| 4.1 | Storage | 29 |
| 4.2 | Communication Interface..... | 30 |
| 4.3 | Environment | 30 |
| 4.4 | Handling | 30 |
| 4.5 | Maintenance if the tablet is damaged..... | 31 |
| 4.6 | Cleaning | 31 |
| 4.7 | Batteries | 31 |



1 GENERAL DESCRIPTION

1.1 Introduction

Multi-Diag Trucks is a multibrand diagnosis device appropriated to be used to check electronically controlled systems in industrial vehicles.

Multi-Diag Trucks is an universal device and can be configured in any language.

Multi-Diag Trucks can be updated in any time and in any moment, in an easy way through internet.

1.2 General characteristics

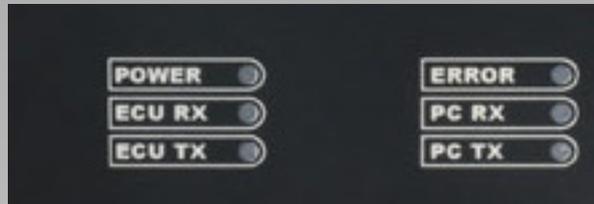


Multi-Diag Trucks communication interface

- Double integrated Microprocessor that supports all the device functions.
- Complete interface set the support all the existed communication data busses ISO, RS, CAN, SAE...
- Bluetooth interface for wireless functions.
- Connection to PC through USB / Bluetooth port.

1.2.1 Communication indicators lights

The communication interface has some indicator lights in one side; below is description of all the functions:



- Power: It is turned on when the device received external power supply.
- ECU Rx / ECU Tx: Reception/Transmission ECU data.
- Error: It is turned on when the device is not working properly.
- PC Rx / PC Tx: Reception/Transmission PC data.

1.2.2 Link device power supply.

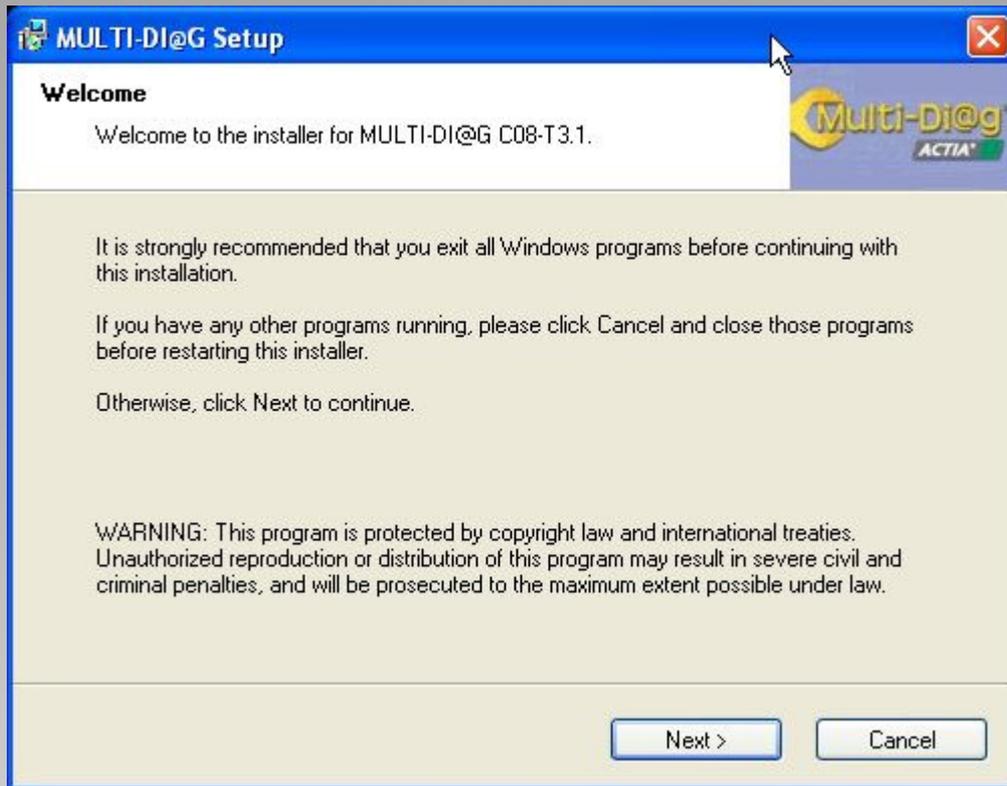
To connect with any vehicle electronic device, Multi-Diag Trucks must have power supply. The device power supply is made through the diagnosis connection cable used in each case. If the Multi-Diag Trucks does not receive the appropriate power supply, be sure the connection is correctly made and check the power supply lines. In case to use multipins, do not forget to give power supply to the Multi-Diag Trucks through the lighter.

2 INSTALLATION

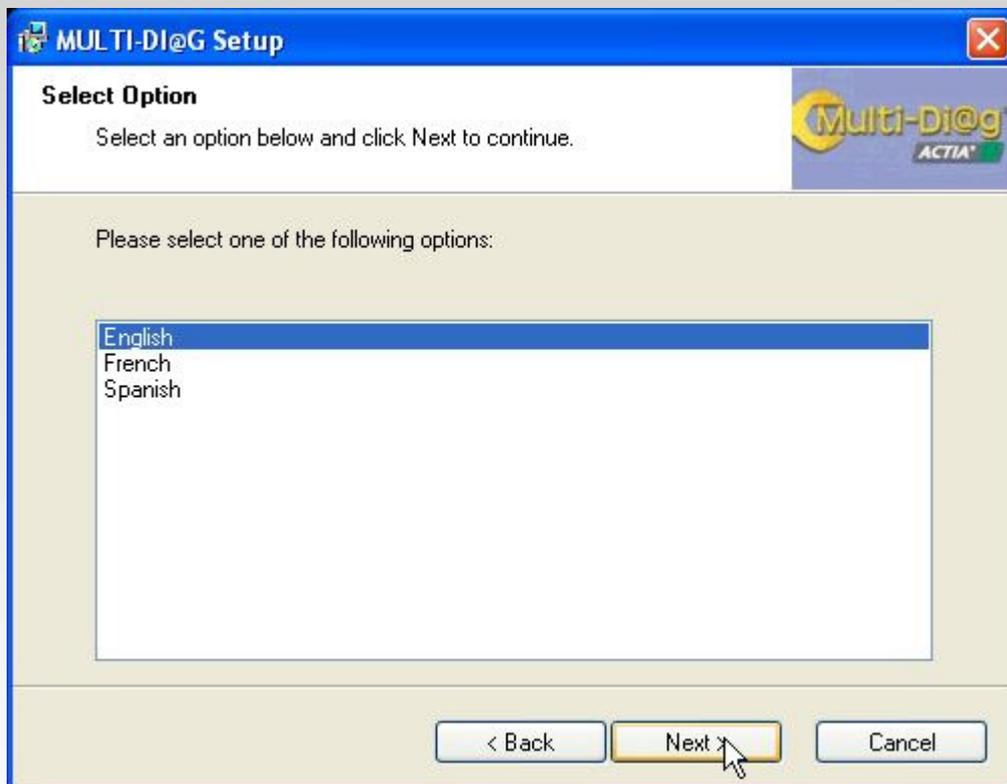
2.1 Software installation

Before starting the installation process, all the programs must be closed. Then insert installation CD-ROM provided with your tool.

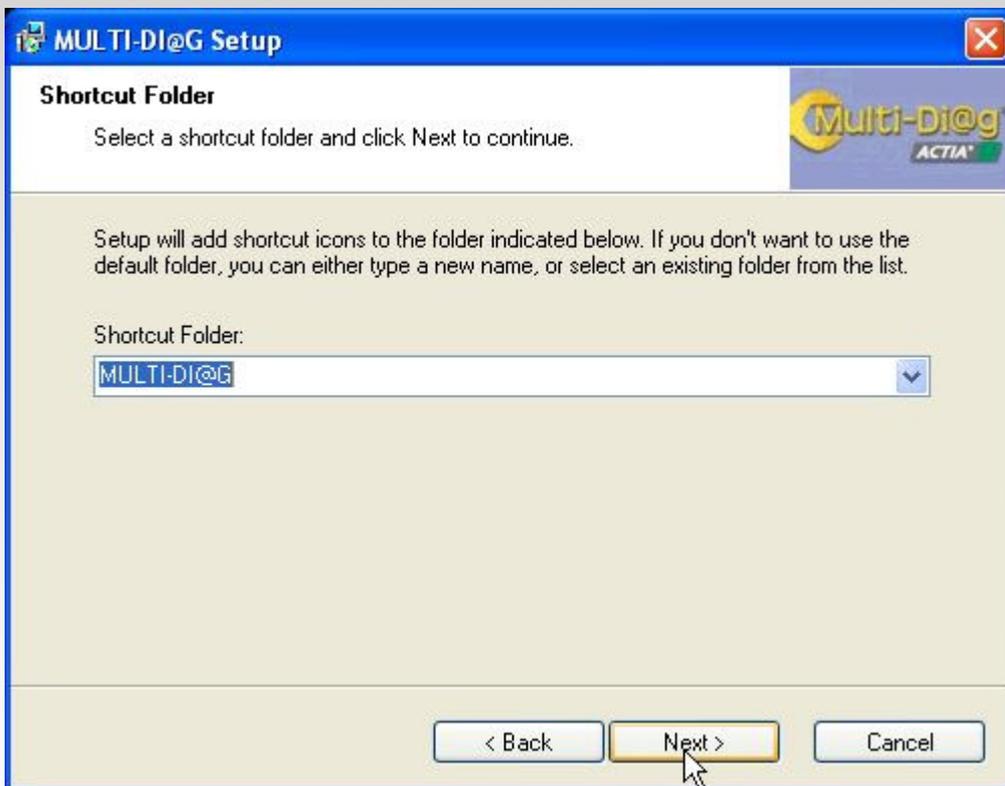
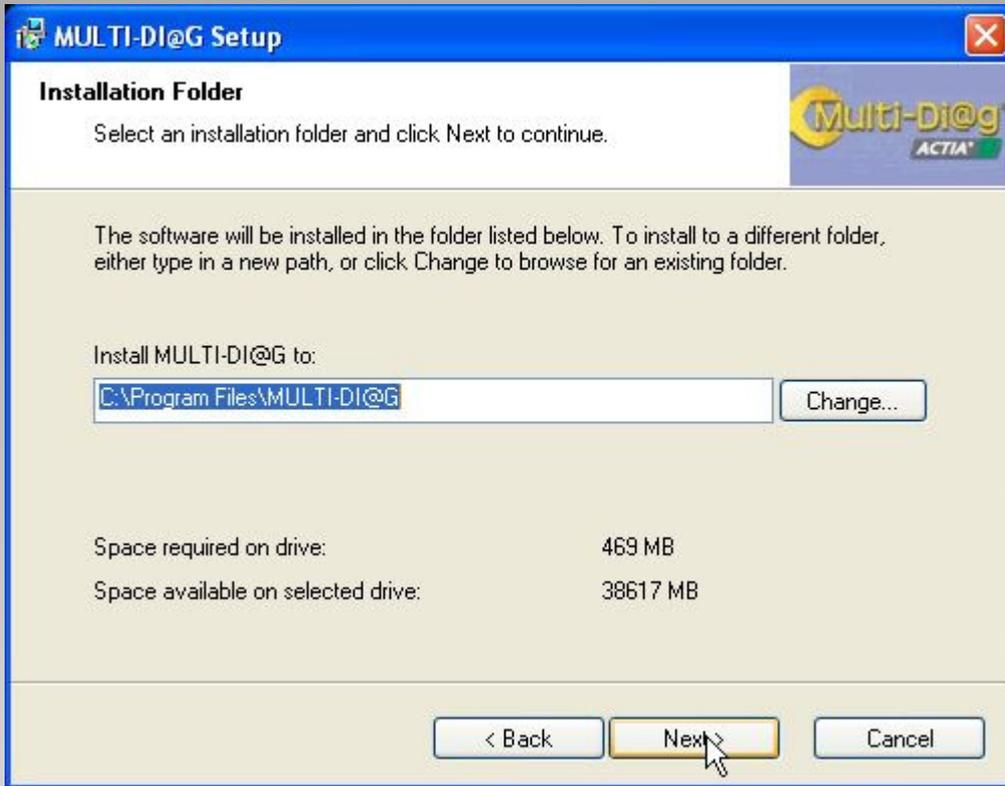




1. Select the language.



2. Select the installation folder where the Multi-Diag Trucks program will be installed. Click on next in order to continue with the installation process.



3. The Multi-Diag Trucks program starts in this step and is done automatically. If it is the first time that this application is running, a window will appear where the license must be activated. Press the button “Get Device”

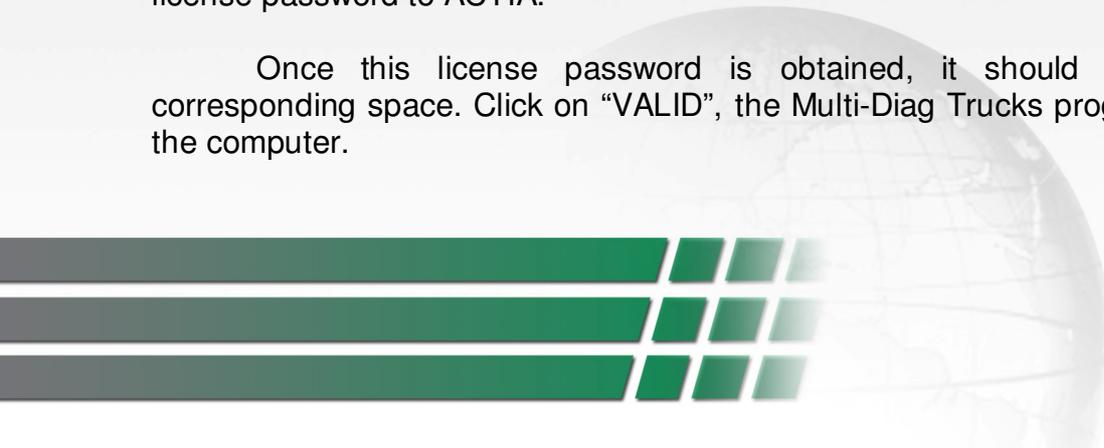


Next, clicks on ACCEPT and then on “GENERATE PASSWORD”. In the window “Manager Licenses” a password will be produced. This password must be indicated to ACTIA in order to obtain the license password.

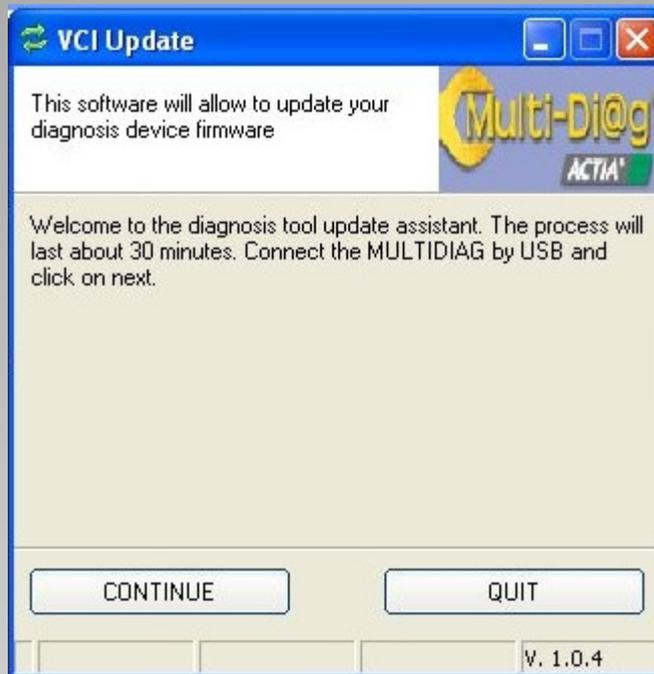


Be careful, during the time who you are waiting the license password from ACTIA, You mustn't turn off the computer! If you don't respect this procedure when you will turn on the computer, the password will change and you will be obligated to ask a new license password to ACTIA.

Once this license password is obtained, it should be introduced in the corresponding space. Click on “VALID”, the Multi-Diag Trucks program will be installed in the computer.



Once the Multi-Diag Trucks application is updated, a screen will appear. This window allows update the Communication interface device. Please read careful the instructions showed in the assistance.



The way to update any Multi-Diag Trucks package is very easy if the steps showed in the manager are followed. Next, the communication interface device update process is described. This is an automatic process.

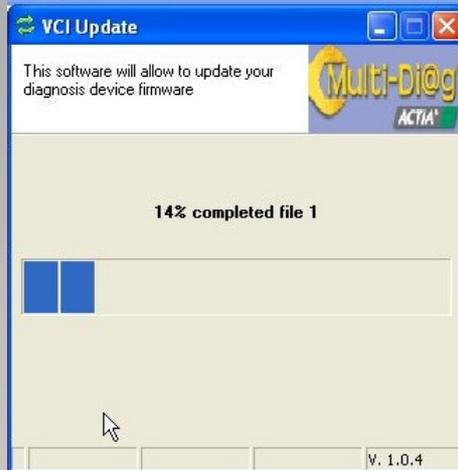
2.2 Program deleting process

First of all, the current program memory is deleted. This supposes the update process interruption and the functionality lost of the device. This means that the update process must be completed once it starts. In case of an interruption, please restart again the process through the program “Manager Update”.



2.3 Files download.

Three program files are uploaded automatically. Down it is shown the file 1 update process. The process last some minutes and the process is visualized through a blue bar.



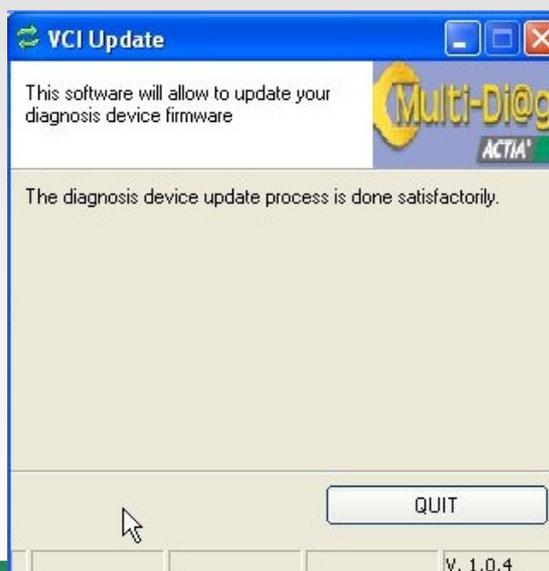
2.4 Installation finalization

When the 3 files have been updated, the following window appears.



2.5 Update process end.

When the update process has finished, the "Manager Update" notice if the process has been satisfactory. Click on QUIT in order to finish complete the update process.



5. To execute the Multi-Diag Trucks program, the following window will appear:



2.6 BLUETOOTH CONFIGURATION

In order to use the Bluetooth wireless connection with the Multi-Diag Trucks, it is necessary to make a registration of the Communication interface configured in your operating system. To do that you have to follow the next steps:

Step 1: Have a Bluetooth device.

Your personal computer should have a Bluetooth wireless device. If you don't have it, you have to use an external device connected in the USB port. When you insert the external Bluetooth device in the USB port of the PC, this will be recognized automatically by the operating system.

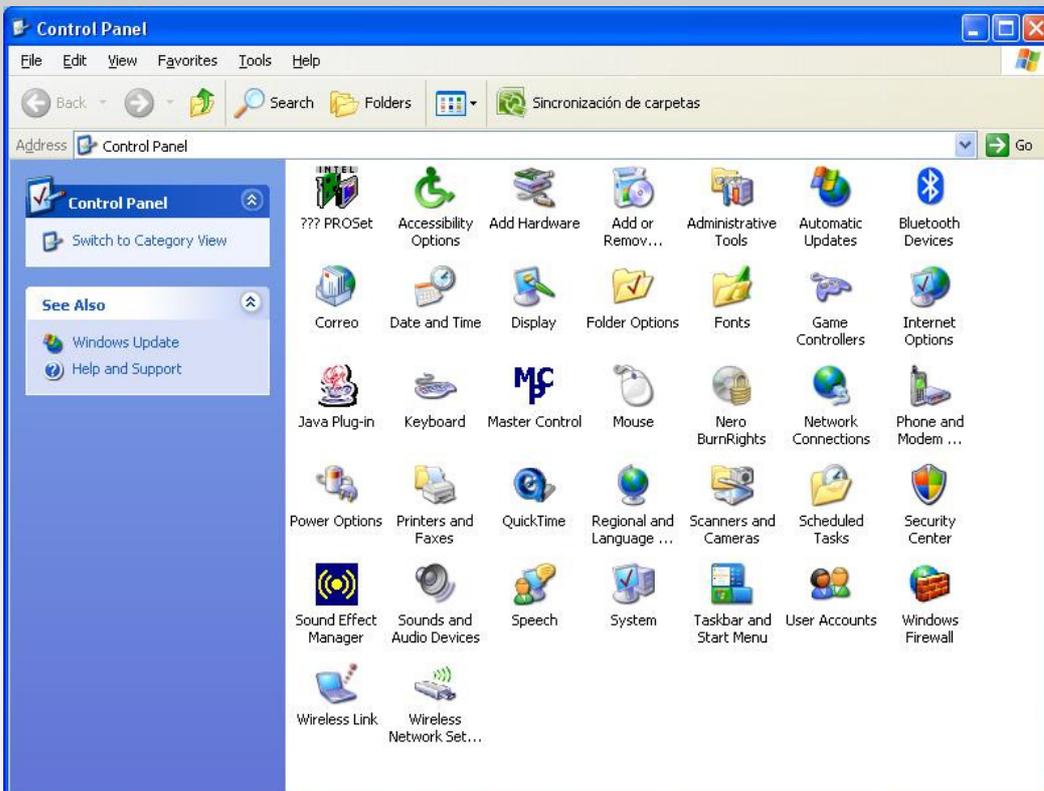
Step 2: Connect the communication interface

Use the USB cable provided with the kit

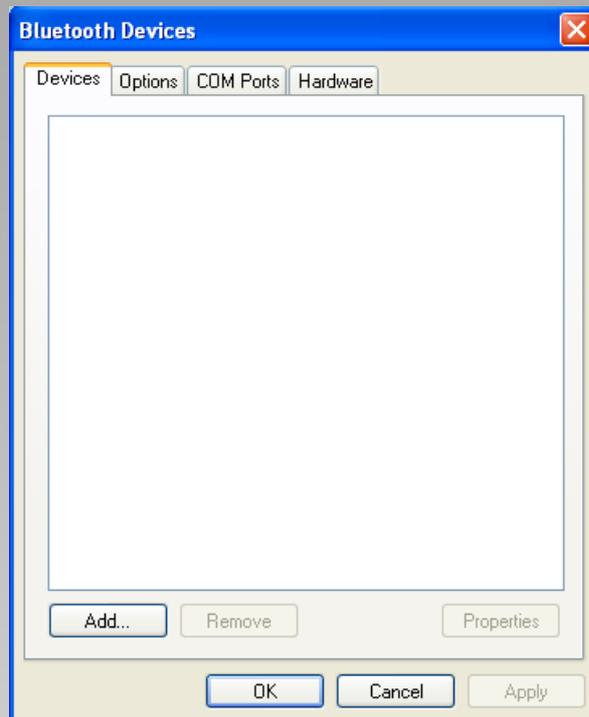
Step 3: Make a registration of the external device.

Once the Bluetooth device has been recognized by the operating system of the PC, you can add the external device "JalTest", necessary to execute the diagnosis software. To do this:

- ❖ **Step 2.1: Searching the external device.**
 - Go to 'Control Panel' in the *start menu* and select '**Bluetooth devices**'.



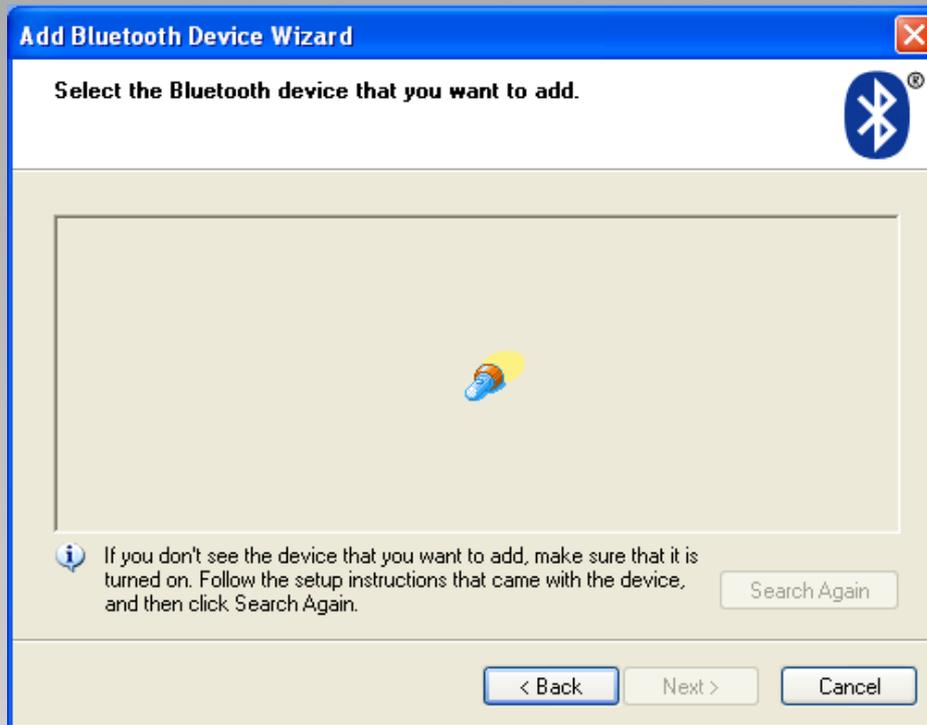
- Click the *Add* button to start with the addition of the external device required.



- The screen 'Assistance to add Bluetooth devices' will appear. Choose the option **'my device is set up and ready to be found'** and then click the **'next'** button.



- The program starts to search Bluetooth devices.



Once you have finished the search, a list of the external devices found will appear.

❖ Step 2.2: Registration of the external device.

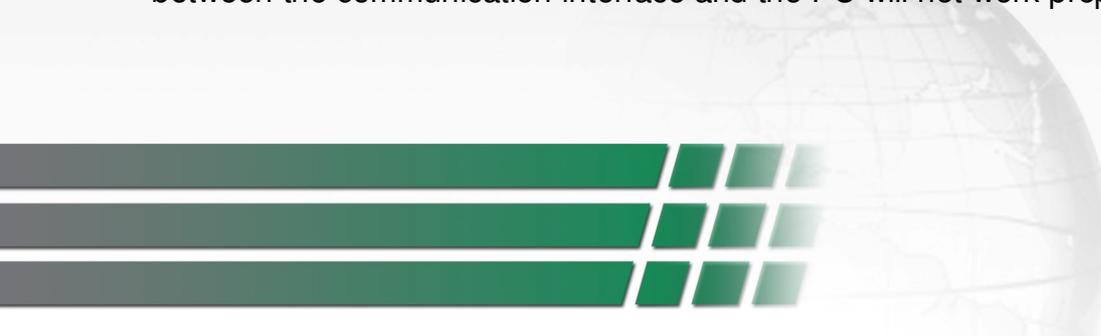
- Select from the list the device called “JalTest” and then click the **‘Next’** button.
- You should write the access password that will be integrated with the external device “JalTest”. This step is necessary for the device’s registration in the operating system. To do that, select the option **‘let me choose my own passkey’** and write **‘1234’**. Click the ‘Next’ button and the system will start with the installation of the device selected.



- Click on 'Finish' and the device will be ready to use.



NOTE: It is strictly forbidden to have software of Bluetooth communication protocols installed in your PC, like: BlueSoleil, WidComm, etc. Otherwise the communication between the communication interface and the PC will not work properly.



2.7 MAC ADDRESS

First time Multi-Diag Trucks program runs, be sure the MAC address is configured on your Bluetooth device. To do it, click the “**Configuration**” button in the “VCI diagnostic device” of the top menu.



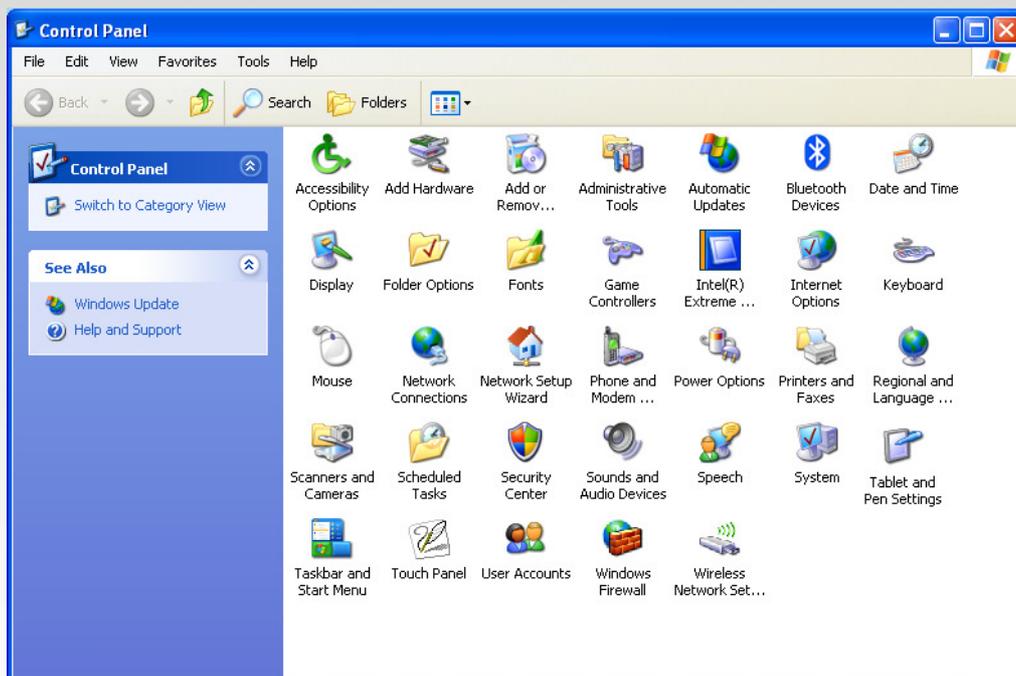
A new screen will appear where you can see the configuration of your Multi-Diag Trucks. Be sure that the MAC address is not 00-00-00-00-00.

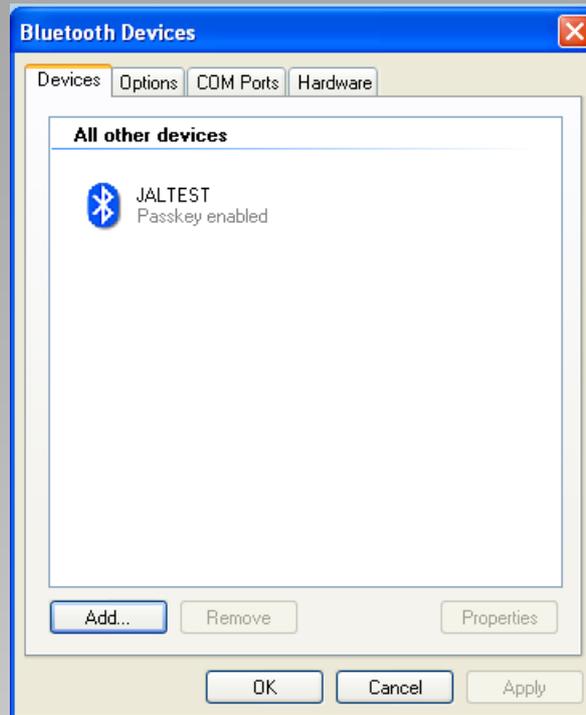




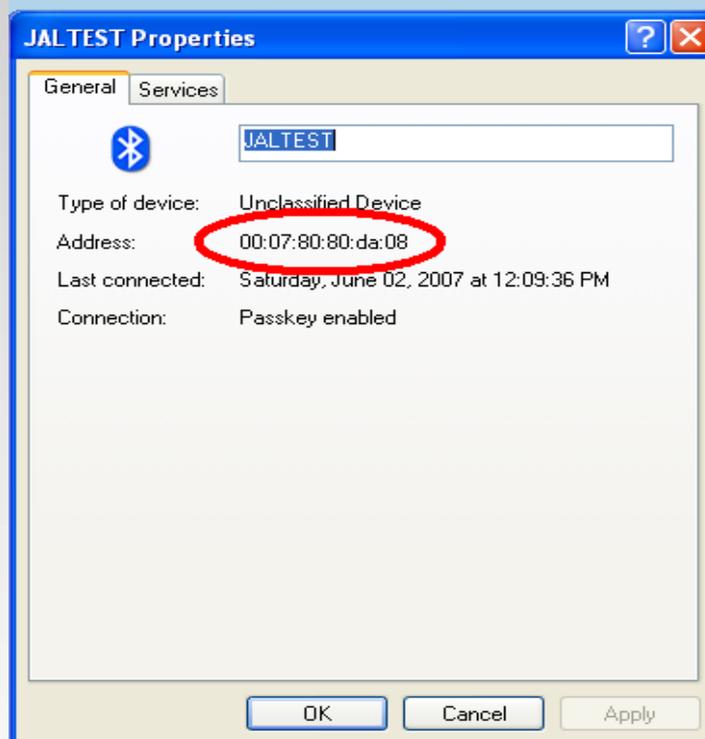
If your MAC address is 00-00-00-00-00-00, you must follow the next instructions:

- In the Control Panel, select “Bluetooth devices”.

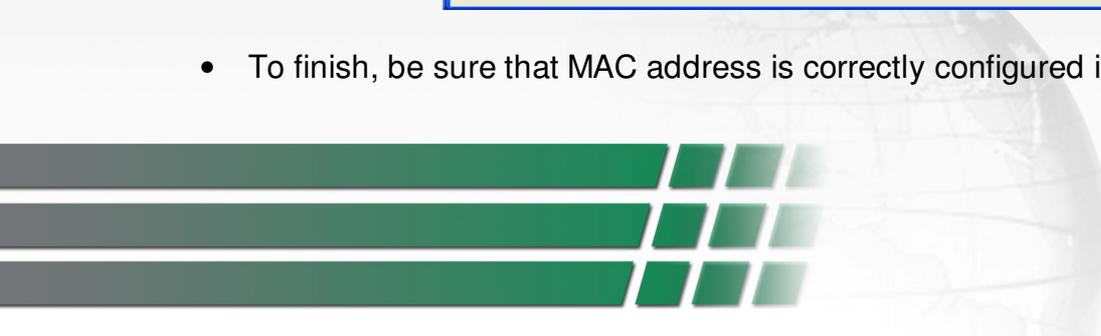




- Select the JalTest hardware and go to 'properties' as it is shown in the following picture. The MAC address should be entered in the "Configuration" menu at the Multi-Diag Trucks software.



- To finish, be sure that MAC address is correctly configured in the Multi-Diag Trucks.





Before make a connection to a vehicle, select the option “PC Diagnosis” in the main menu of the Multi-Diag Trucks tool.



3 UTILISATION

3.1 “Graphical Interface” general Description

Multi-Diag Trucks has a developed graphical Interface to carry out, in a guided and easy way, every function available for commercial vehicle.



3.1.1 Selection path

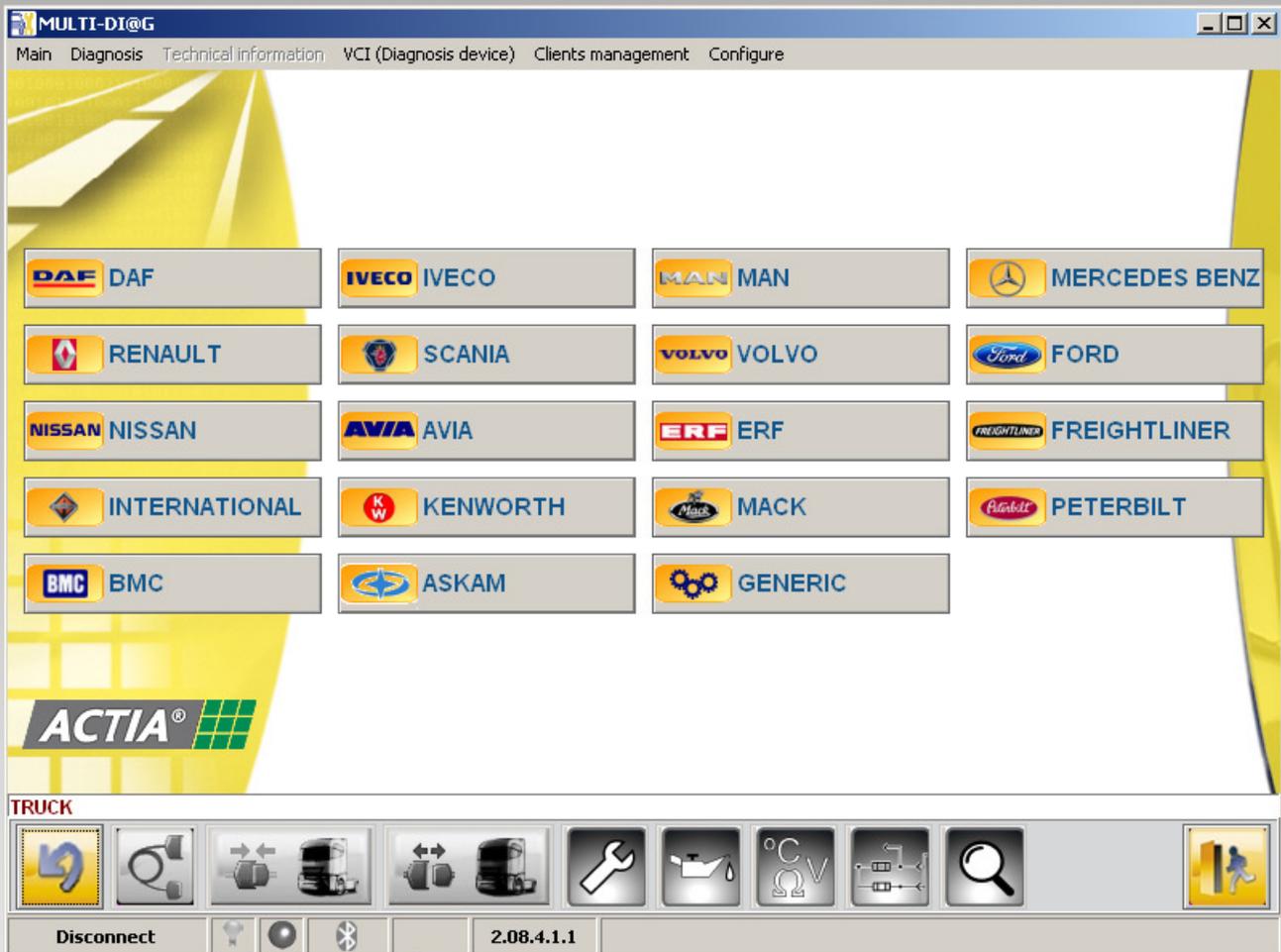
This bar shows the connection that we have selected on Multi-Diag Trucks .

- Type of vehicle
- Model
- Type of system
- Manufacturer *
- System *

TRUCK >> MERCEDES BENZ >> Actros II (WDB930.0 - 934.3) >> FR, Engine-vehicle regulation

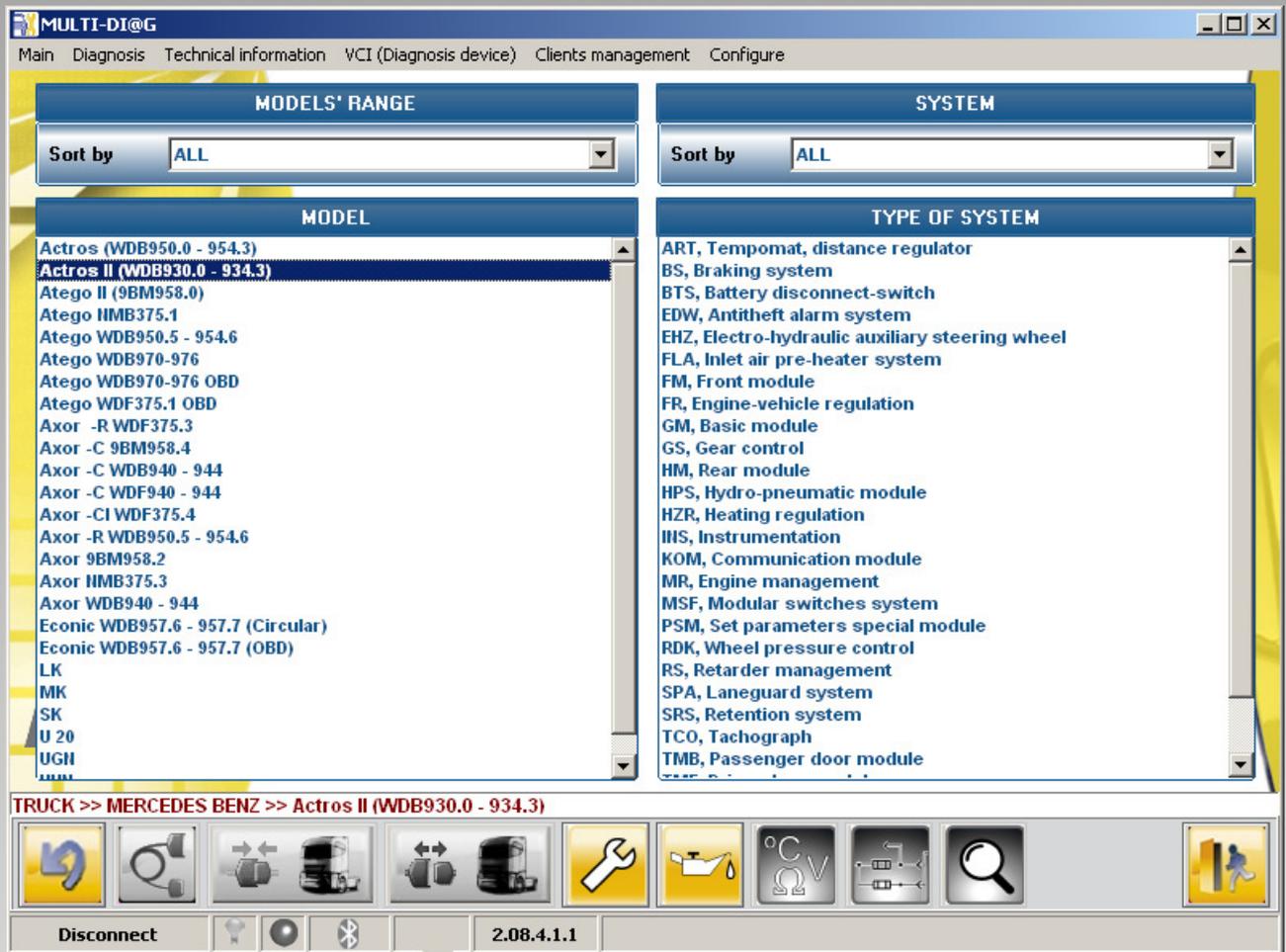
3.1.2 Vehicle brand selection screen

Once the kind of vehicle is selected a brand selection screen appears. Here the grand must be selected. In case to choose “TRUCK” the following screen will appear.



3.1.3 System selection

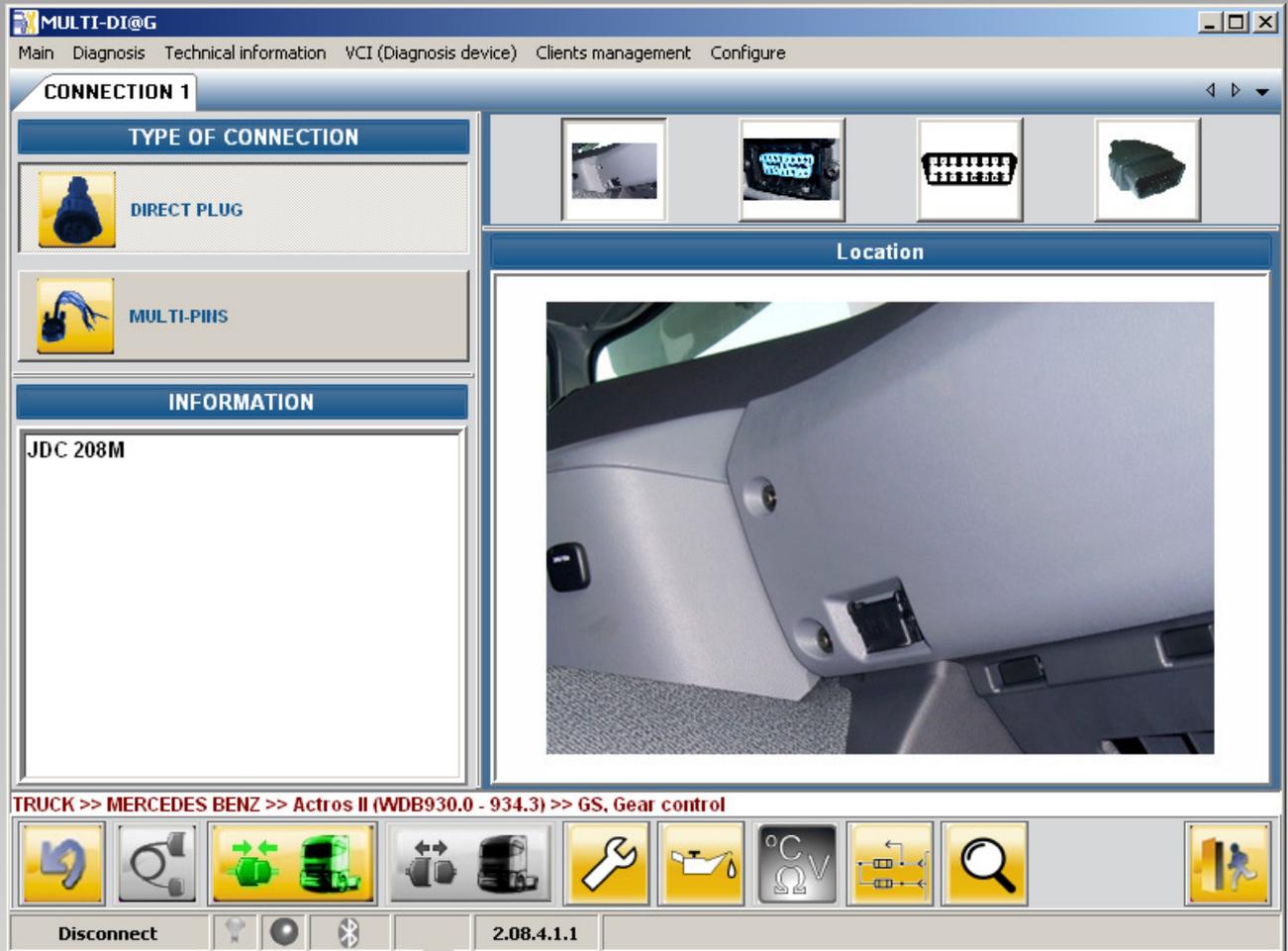
After select the vehicle brand some screen will appear until the right system is selected. First of all the brand family type is selected. Once the family is chosen the model should be chosen. Then appear the vehicles with electronic control which whom Multi-Diag Trucks can establish communication. Before a selection by system type can be done



3.1.4 Connection types

Multi-Diag Trucks program will give the instructions, location of diagnosis connector and a list of cables which must be used to connect when it is selected the direct plug, multipins or multiplexer in the type of connection. The connection information (connector reference, connection instructions) appears in the bottom left side. Also, picture about the connection and location, details and pins configuration appears in this screen.

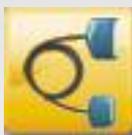




3.1.5 Explorer bar



Back: Go to previous screen.



Connection: Shows information about the connection.



Connect: Establish the connection with the selected system.



Disconnect: Finalize the current connection.



Valid: Accept the selection you made in the current screen and open a new one.



Technical documentation: Engine Technical data



Technical documentation: service intervals data



Technical documentation: ECU data



Technical documentation: electrical schematics



Technical documentation: systems components

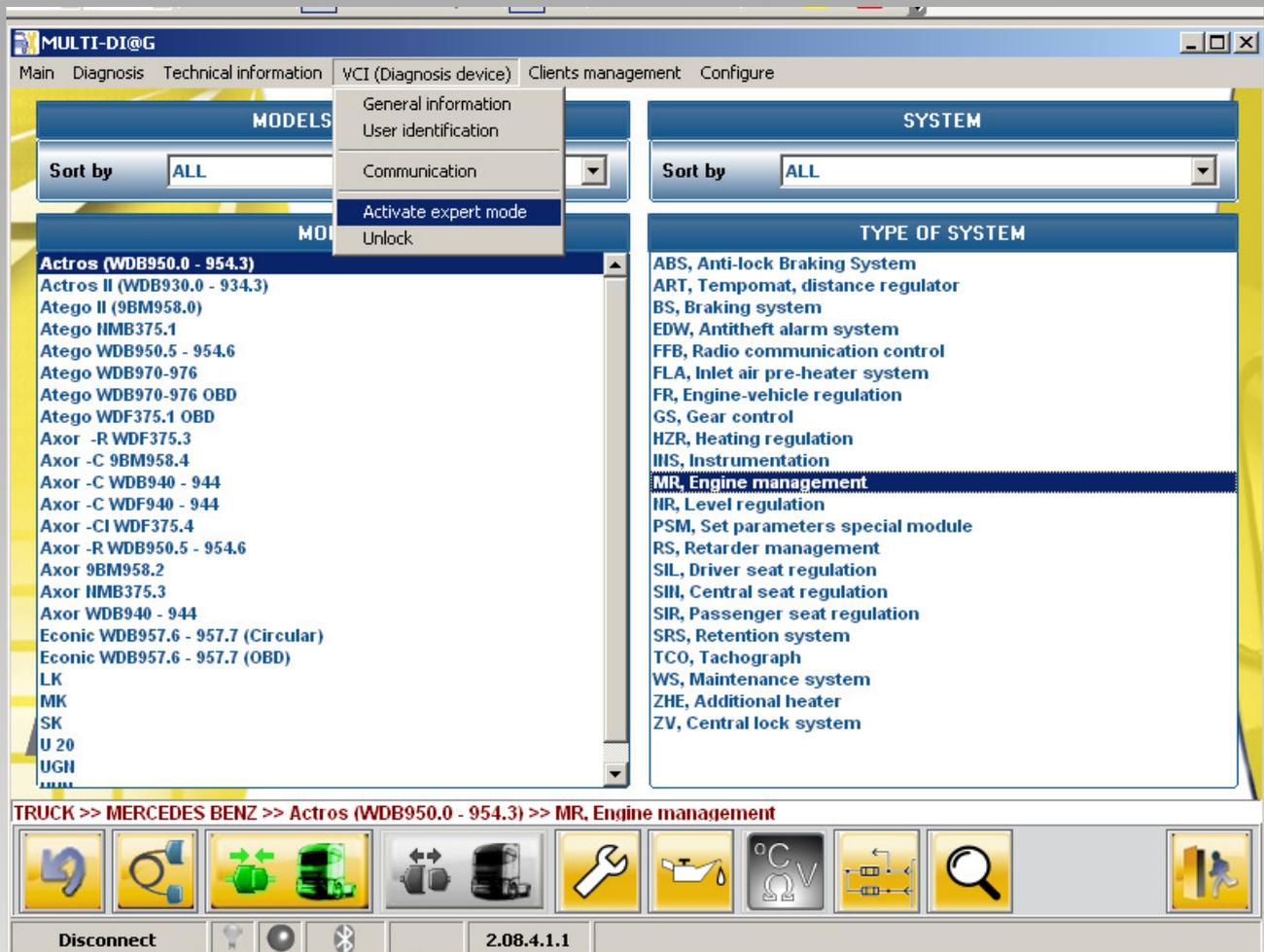


Exit: Close the program.



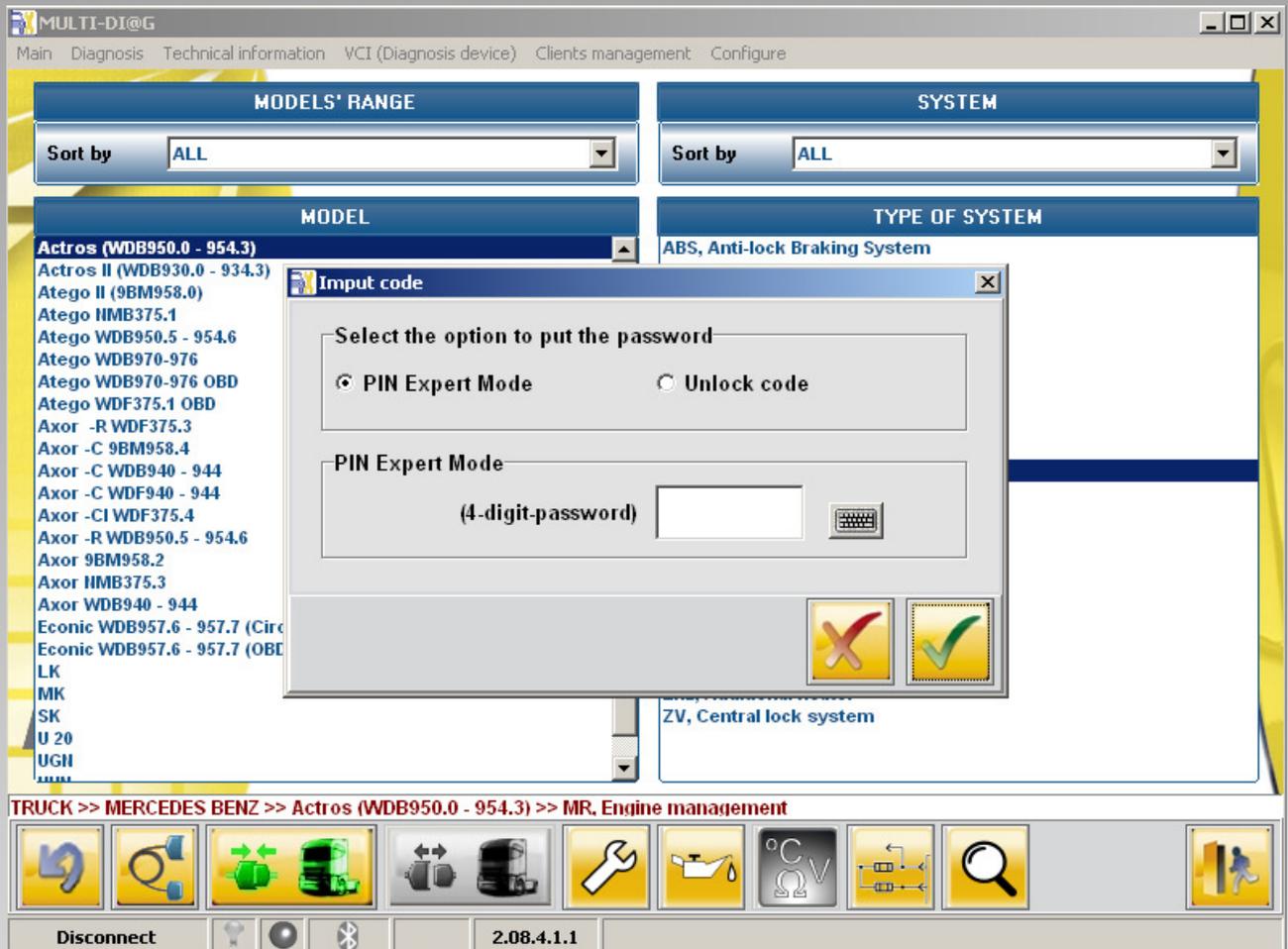
3.2 Password

Multi-Diag Trucks can be operated inputting a password in the following window.



PIN Expert mode: When the Multi-Diag Trucks is working with the expert mode PIN, its functions and specific system menus functionalities increase. This functions is usually used when copy and pasta parameters is needed, in example, in the trailer EBS system. Also a clutch pedal programming can be done when is an hydrodynamic gearbox (HPS) and to change the fan clutch type.

Unlock code: when the PIN number is not valid the system tell to the user the number of tries left, that normally start is 3. The number of tries left is stored in a non-volatile memory, which is why to turn off the device does not restart the counter. When the counter is in 0, this is after try 3 times without success, the Multi-Diag Trucks s locked and this turn to a special mode which appear every time the user wants to enter on the program. This behaviour holds until the unlock code is inputted.



In order to obtain more information about the Multi-Diag Trucks behaviour with these codes, please contact with a Multi-Diag Trucks distributor. All these pins will be provided by ACTIA.



3.3 Connection

Once you click on 'Connect' button, there will appear a screen with the Communication interface information (Part number, serial number and software version). Wait a few second and click valid.

| CONNECTED INTERFACE DATA | |
|-------------------------------------------------------------------------------------|-------------|
| P/N: | MA:006964 |
| S/N : P: | P001656-425 |
| F/W: | C08-T3.1 |
|  | |

3.3.1 Diagnosis functionalities description

| | |
|-----------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;">DIAGNOSIS</div> | <p>This option allows make a diagnosis of the system selected, allows read and erased the errors on the memory of the ECU. Once you click on 'DIAGNOSIS' the program shows the errors stored in memory and its condition: PRESENT or NOT PRESENT.</p> <div style="border: 2px solid blue; padding: 10px; margin-top: 10px;">  <p>ECU has no error stored in memory</p> </div> |
| <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;">MEASURE VALUES</div> | <p>This option shows all kind of values that it can read, like pressures, temperatures, wearing, signals, speeds, configurations, distances, voltages, current, etc.</p> |
| <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;">ECU DATA</div> | <p>Shows the data of the Electronic Control Unit who is under analysis.</p> |
| <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;">COMPONENT ACTUATION</div> | <p>This menu allows actuate some components inside the selected system and check that its functionality y correct</p> |

| | |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| BINARY STATES | Screen where you can see the binary states. |
| PARAMETERS | Management of the process of read, copy, change and paste parameters between the unit control and the Multi-Diag Trucks diagnosis tool. |
| CALIBRATION | In this option you can see the calibration data from the high sensors, as well as make a new calibration in the vehicle. |
| SERVICE | Management of the maintenance available in the system selected. |
| MANUFACTURER DATA | Shows the manufacturer data, model, chassis number, etc. |
| SYSTEM CHECK | In this option we can make different kind of test in order to check the state of the system. |
| INITIAL VALUES RESET | Shows the initial values of cylinder, clutch, gamma, etc. |

4 IMPORTANT NOTICE

Read carefully the instructions in this page to use the Multi-Diag Trucks. Do not allow unskilled users to work with your unit.

4.1 Storage

For the correct use of the Multi-Diag Trucks, follow the recommendations:

- Always store the Multi-Diag Trucks unit in the Diagnosis Kit suitcase.
- Keep the diagnosis kit in a dry place away from heat sources and sun rays.
- Keep the Multi-Diag Trucks device away from water and any other liquid. The direct contact with them can produce irreversible damage to the equipment.
- Prevent blows and bumps to the Multi-Diag Trucks unit

4.2 Communication Interface

If there are 24 V DC (Direct current) in the communication lines, the internal electronic of Multi-Diag Trucks can be affected.

Do not connect Multi-Diag Trucks with the vehicle turned on. In case that it is necessary to make a test with the vehicle on, connect Multi-Diag Trucks before and then turn on the vehicle. Do not connect or disconnect the communication interface with the vehicle on.

In the case that the instructions are not followed, it is possible that this causes a break in the internal protection circuit of the communication interface, and the tool will not work properly.

4.3 Environment

- Use the tablet at an ambient temperature of between 0°C and 45°C.
- Protect the tablet from prolonged exposure to sunlight
- Do not place the tablet near sources of inflammable liquids to prevent any risk of explosion and fire
- Do not use the tablet in the rain or on damp surfaces to prevent any risk of electrocution and of damaging the tablet
- Do not splash the tablet with liquids (water, acids, oil, cleaning fluids...)
- Do not leave the material near heat sources or hot materials.

4.4 Handling

- Do not drop the tablet
- Do not use peripherals other than ones recommended by Actia
- Avoid using the tablet for very long periods (several hours) since some parts of the tablet may become very hot (I/O connectors).
- Handle the tablet by plastic parts to avoid burns.
- Do not allow the cables to run over the corners of tables, workbenches or shelves.
- The supplied stylus only must be used to prevent damages on the touch-sensitive screen.
- Do not force the CD-ROM drive open (class 1 laser product), this could physically damage it.
- Do not pull on the main cable when unplugging the tablet from the power supply. Grip the connector when performing this operation
- On road tests, secure the tablet using the vehicle seat belts. The road tests shall not be performed by the driver. Only the passenger can carry out the tests.
- Do not place the tablet on an airbag stowage location. The airbag may be triggered.

4.5 Maintenance if the tablet is damaged

- Do not use the tablet.
- Contact your retailer's after sales service
- If the screen's glass is broken, do not inhale, touch or ingest liquid crystals.
- Warning to glass splinters.

4.6 Cleaning

- For external cleaning of the tablet, use a soft cloth impregnated with a suitable cleaning agent (cleaning agents for computers screens).

4.7 Batteries

- Do not remove or change the battery by yourself.
- Call maintenance center.

