

Car Configuration File (CCF)

Freelander 2 has been designed by sharing technology, components and systems with other manufacturers within the Premier Automotive Group (PAG). This makes economical business sense and increases the reliability and the innovation of the systems used in the long term. Because of this concept, some of the components etc may be referred to as a European Common Design (EUCD).

The CCF file is designated 1KB of memory space. 196 bytes of this memory is used for the Land Rover CCF file. A further 252 bytes of memory is used for the EUCD CCF file. Although not all of this CCF memory space is used, the remaining space is used for other data and for future expansion.

The car configuration file (CCF) may be thought of as the electrical make up (or electrical DNA) of the vehicle.

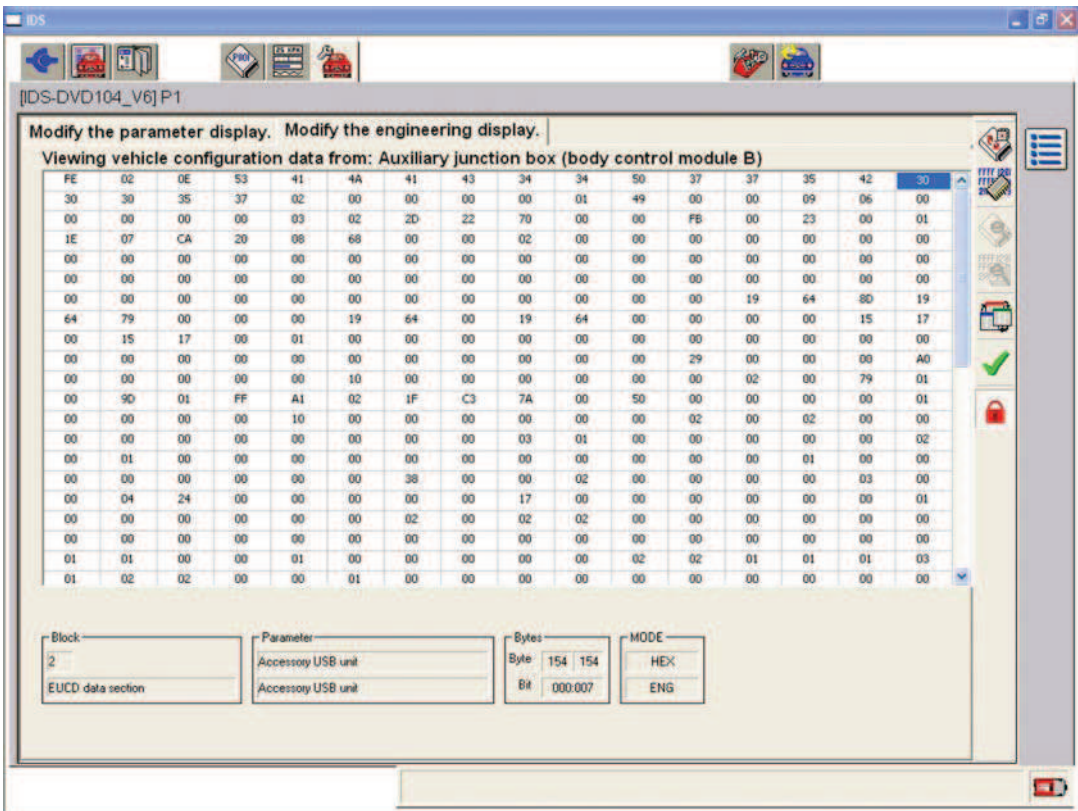
Example: Within the CCF will be codes relating to all aspects of the vehicle. The vehicle model, whether the vehicle is left or right hand drive, the wheel size, engine size and type of transmission, and which electrical modules and features are installed to name but a few.

The CCF consists of two parts: Vehicle Module Codes and Vehicle Parameters. Module codes are the data used in Manufacturing to specify the vehicle and are stored to be used in service. Vehicle Parameters are derived from the vehicle specification and relate to which features are fitted to the vehicle and their market settings.

Module codes are currently used to determine the correct software file to be downloaded to the relevant module during module software updates. However, in the future, module codes may not be used.

The CCF file itself contains 16 columns of data and a varying number of rows, depending upon the size of the CCF file. Data is held in a hexadecimal format. This is basically a numbering system which uses a base of 16. To represent sixteen digits, the hexadecimal system uses the following digits: 0 1 2 3 4 5 6 7 8 9 A B C D E F.

CCF File Shown in Hexadecimal Format



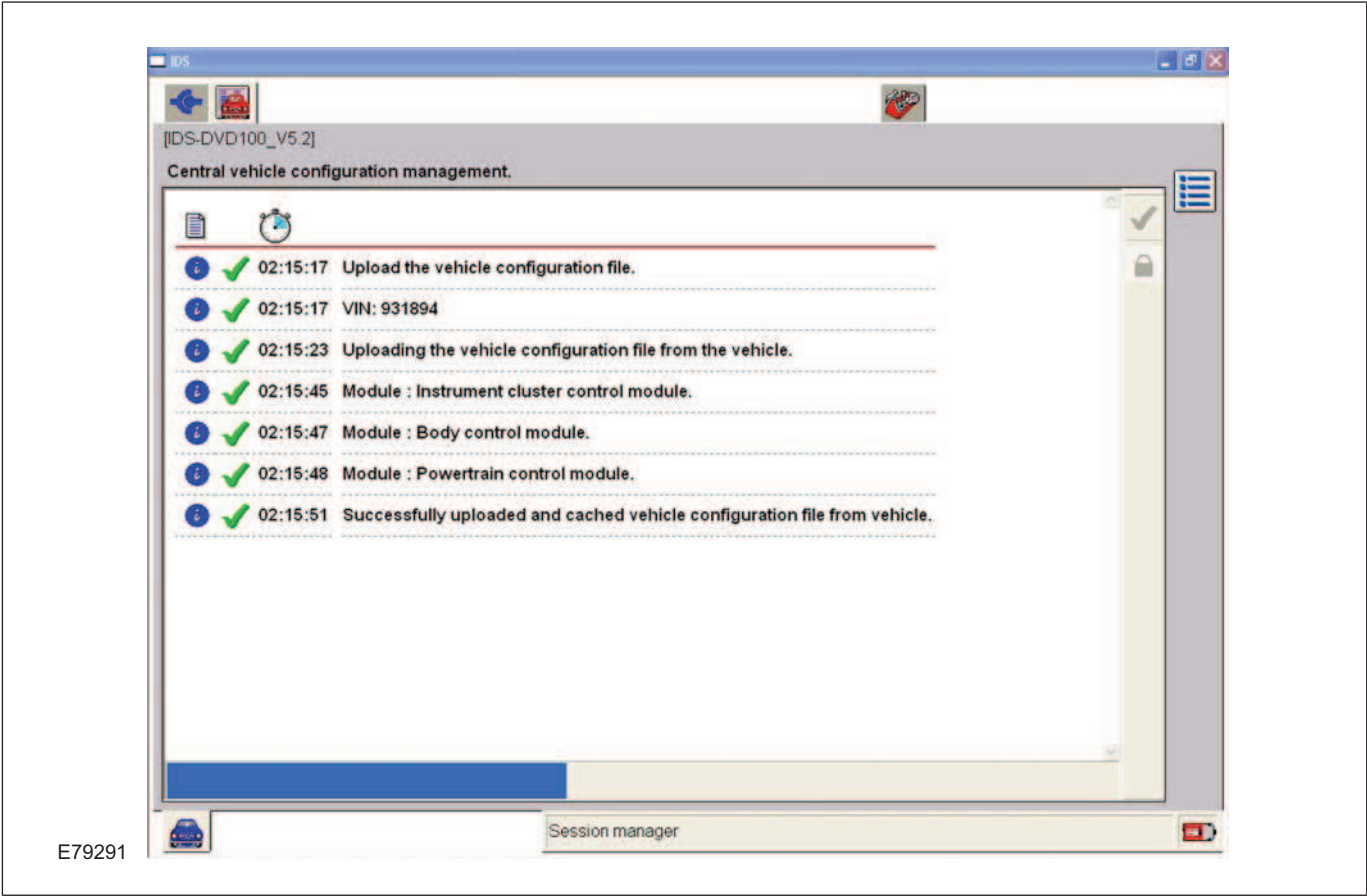
NOTE: The CCF file will not normally be shown in the above format on IDS. This is shown for illustration purposes only.

The CCF files are stored in several modules, one of which will be the master module. The other modules store copies of the CCF data which may be used when programming new modules.

When IDS is connected to the vehicle, the CCF data will automatically be uploaded from the vehicle to IDS.

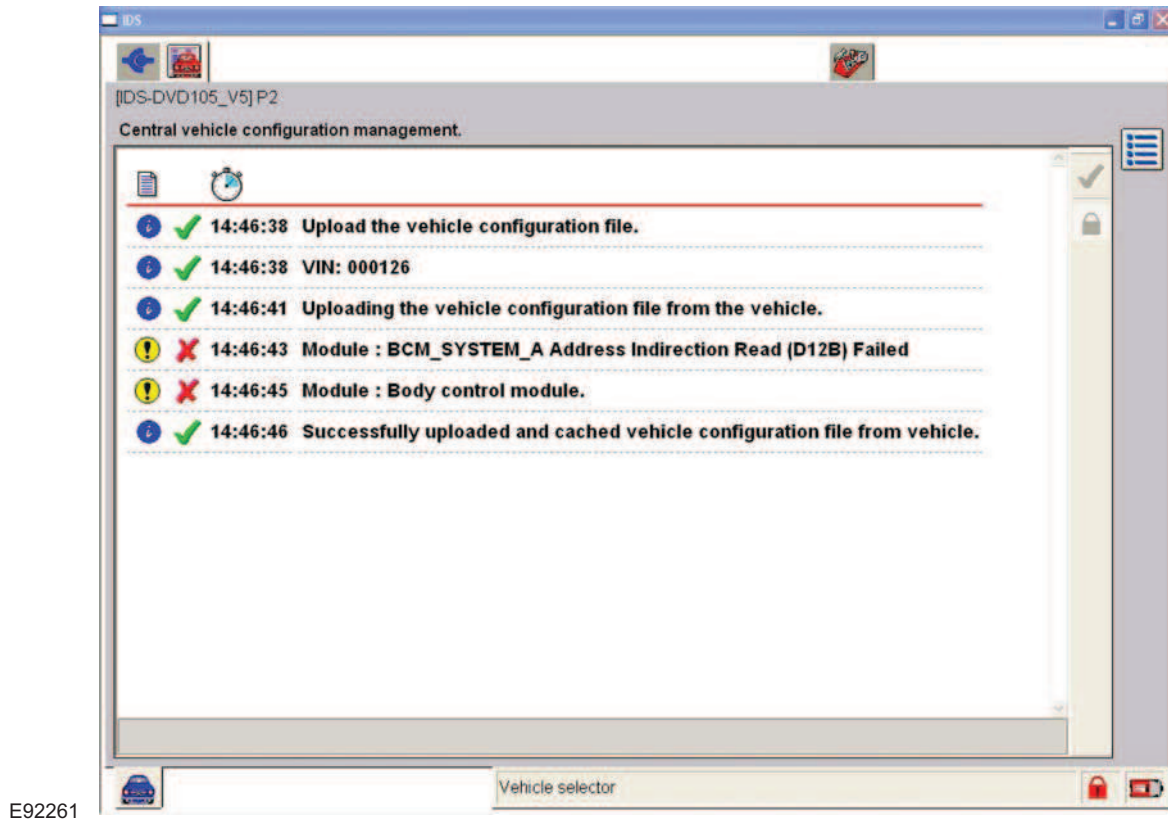
The modules from which the CCF data have been uploaded, together with the current VIN, will be displayed.

Uploaded CCF



If IDS cannot communicate with one of the modules which holds the CCF data, a cross will be displayed adjacent to the module during the upload procedure.

CCF Upload - Error communicating with CJB (BCM)

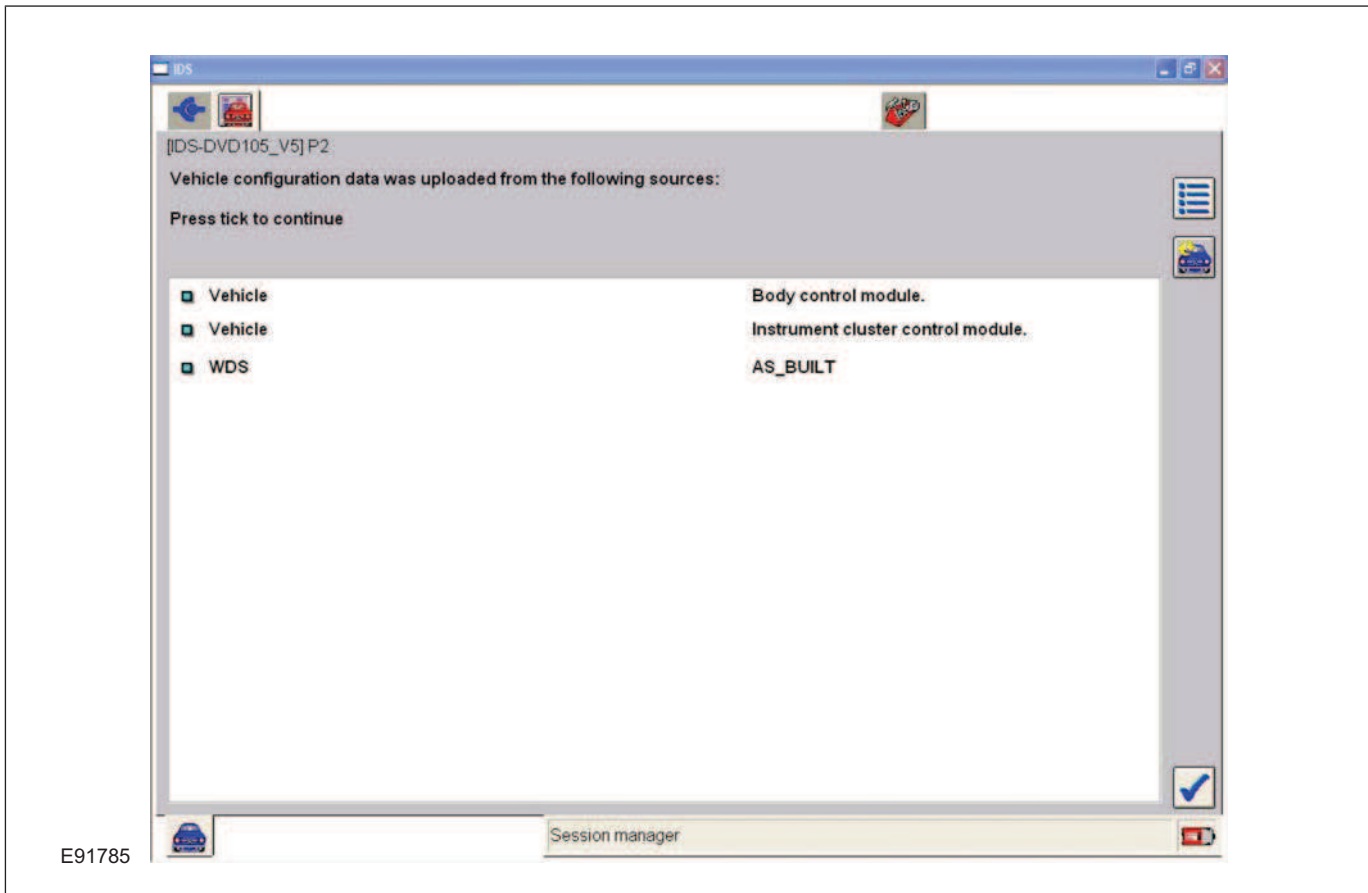


Selecting the confirmation 'tick' will proceed to the next screen which will display the CCF detail. This will be from the master CCF module.

The CCF file is held in three locations on the vehicle: The Central Junction Box (CJB), Instrument Cluster and the Engine Control Module.

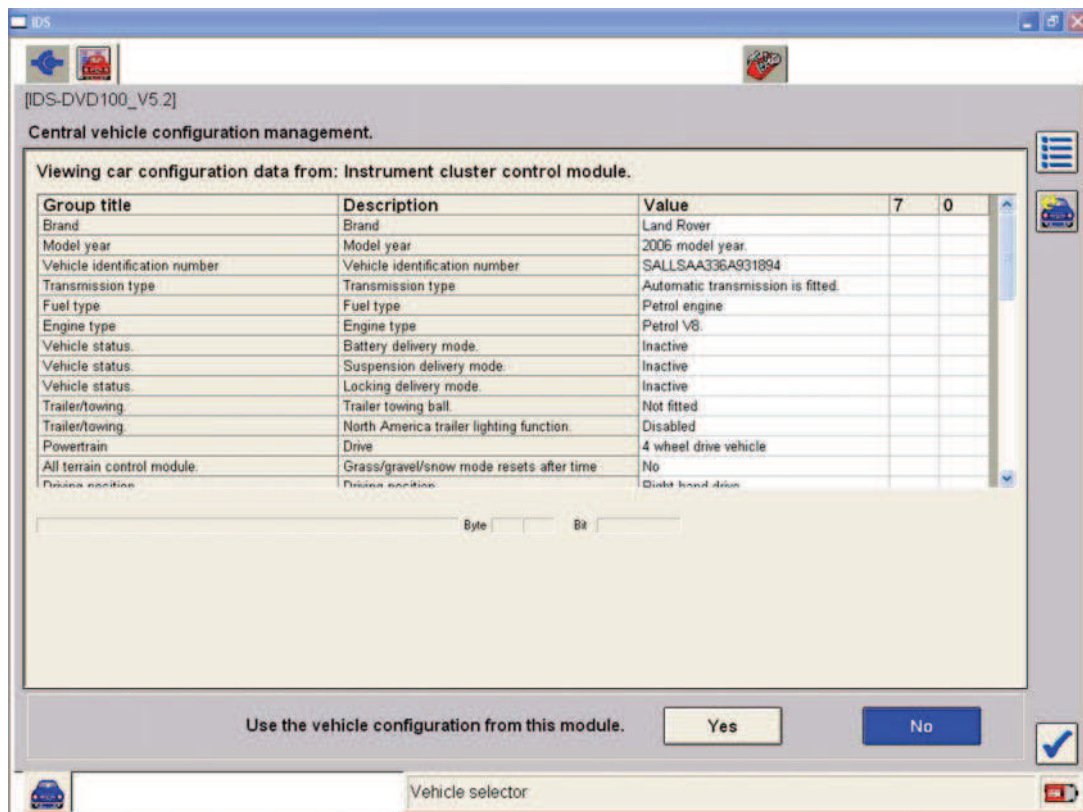
IDS always displays the source from which the CCF data is available.

CCF Data Sources



Proceeding to the next screen will display the CCF data. The CCF data will be displayed from the master module unless the operator selected an alternative source from the previous IDS screen.

CCF Data (change this to a display data from the CJB)



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The module from which CCF data is displayed is shown at the top of the screen.

NOTE: The EUCD part of the CCF file is not displayed when viewing the CCF data using IDS. Only the Land Rover part of the CCF file will be displayed.

The CJB holds the Master copy of the CCF file and the other two modules hold backup copies.

The CJB transmits the Vehicle Parameters part of the CCF file on the HS and MS-CAN bus. Whenever the CAN networks are active, this data is broadcast onto these networks at regular intervals. The ECM and the instrument cluster, which hold backup copies of this data, do not broadcast onto the network.

The Master Module, in this case the CJB, will monitor the integrity of the memory where CCF information is stored. If a fault is detected a DTC will be set.

Within the make up of the Vehicle Parameters code is an area used for the vehicle VIN. This VIN data is implanted in every module on the vehicle that is capable of accepting it, and this data is locked in to each new module when programmed. This has service implications as it is also a vehicle security feature and will prevent the substitution of existing programmed modules from vehicle to vehicle. When replacing a module on a vehicle IDS must be used to perform this process

An example of the details which are held in the CCF section of the Vehicle Parameters code, is shown below:

Vehicle Parameters Code

- Vehicle Type
- Brand
- Model Year
- VIN

- Tire Dynamic Rolling Radius
- Brake System Type
- Brake Rotor size
- Final Drive Ratio
- Transmission Type
- Hand of Drive
- MOST configuration

Some fall into the category of Personalization Mode. These parameters may be changed by the dealer using IDS.

IDS must be used to configure new and existing modules. To change personalization settings, there is CCF editing tool built into IDS.

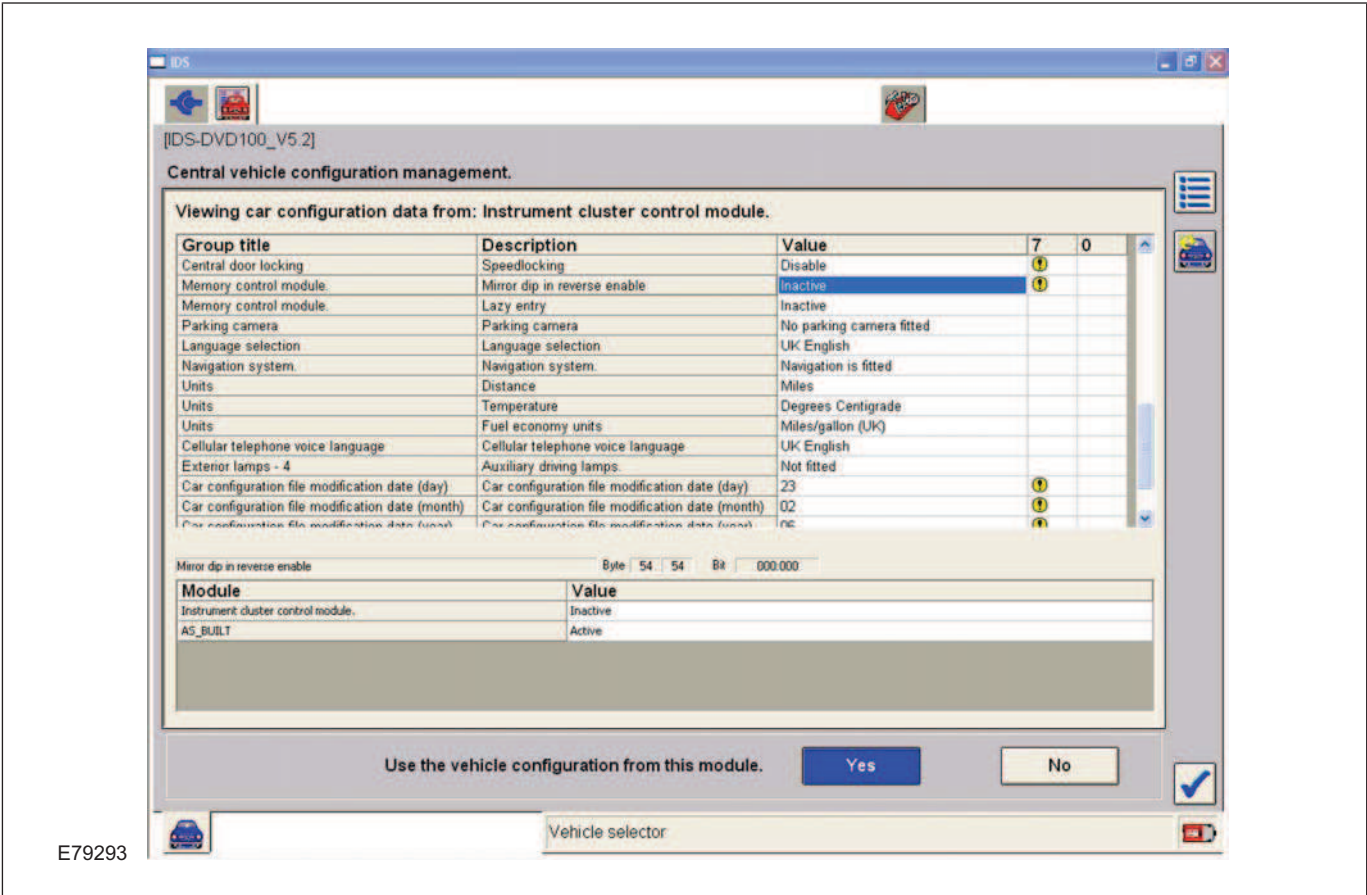
CCF Data

IDS will also store 'As Built Data'. This data will be stored on the IDS disc and can be used to restore the vehicle back to its original condition. Any personalization settings will have to be restored to the vehicle also.

The vehicle module codes held in the master and back up modules will be read by IDS when requested by the diagnostic program. These vehicle module codes are not transmitted cyclically on the CAN bus and are only read by diagnostic communication to IDS.

CCF Editing Options

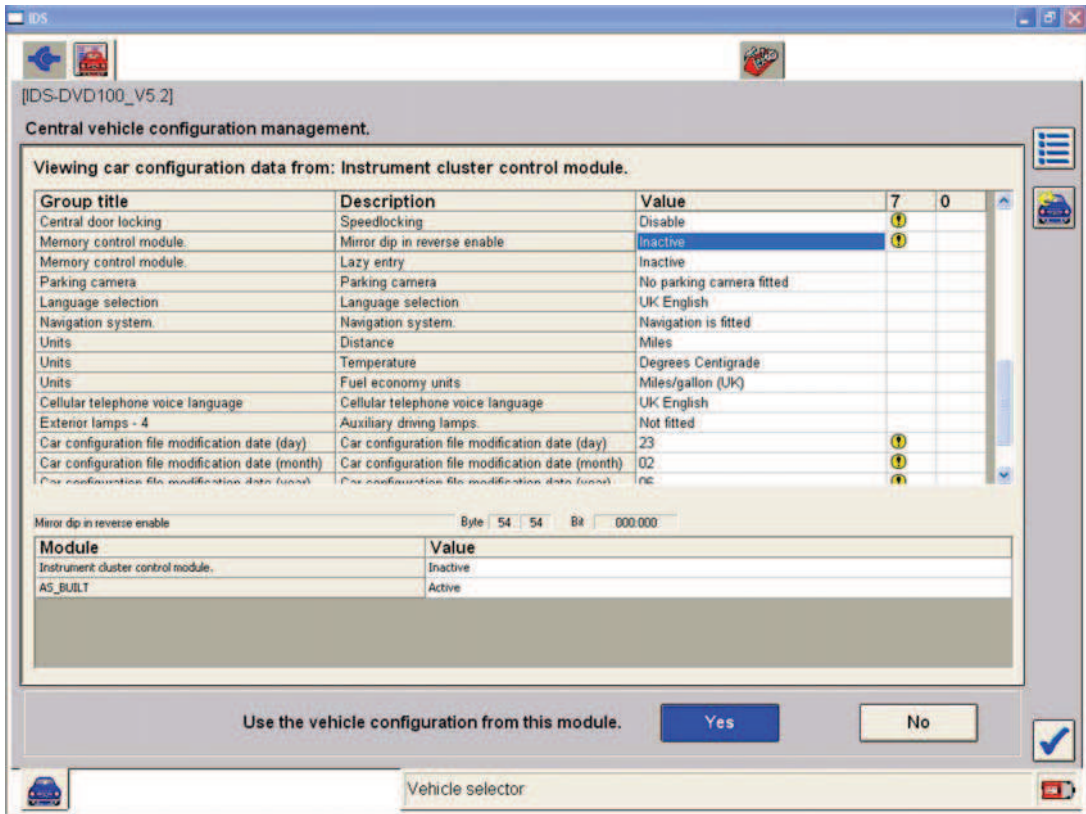
Once the CCF data has been uploaded from the vehicle, it will be displayed as shown below.



A question is displayed at the bottom of the screen, asking the user to confirm whether the data should be used from the currently displayed module or whether to use the CCF data from another source.

The number at the top of the fourth column displays how many conflicts are present when comparing the displayed CCF data to the As Built CCF Data. Scrolling down the displayed page will reveal more of the CCF data.

CCF Data with Errors



The exclamation error symbol;

Error Symbol



denotes in which parameter a CCF data conflict exists.

Highlighting the error value, will display additional information at the bottom area of the screen.

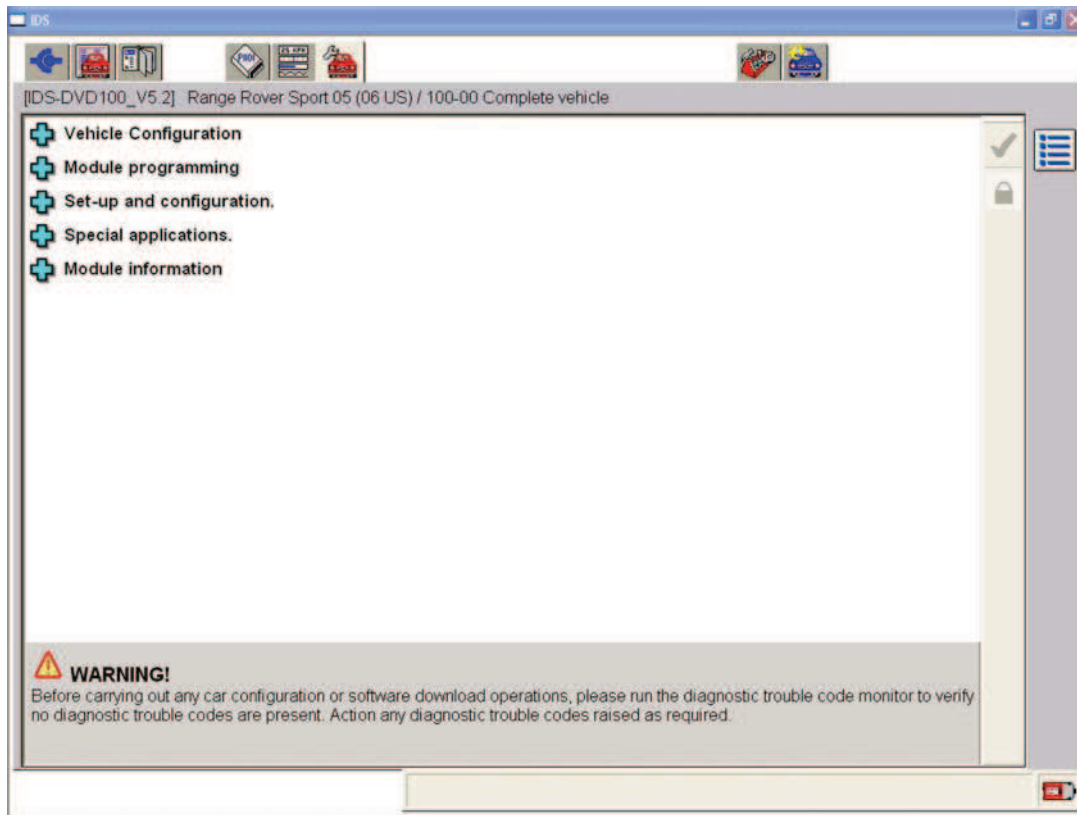
From the illustration it may be seen that the data relating to the **mirror dip in reverse enable** value is **Inactive** in the instrument cluster. However, the **mirror dip in reverse enable** value is set to **Active** in the as built data.

This shows why the error symbol is displayed.

In this example, the **mirror dip in reverse enable** value has been changed using the customer personalization settings.

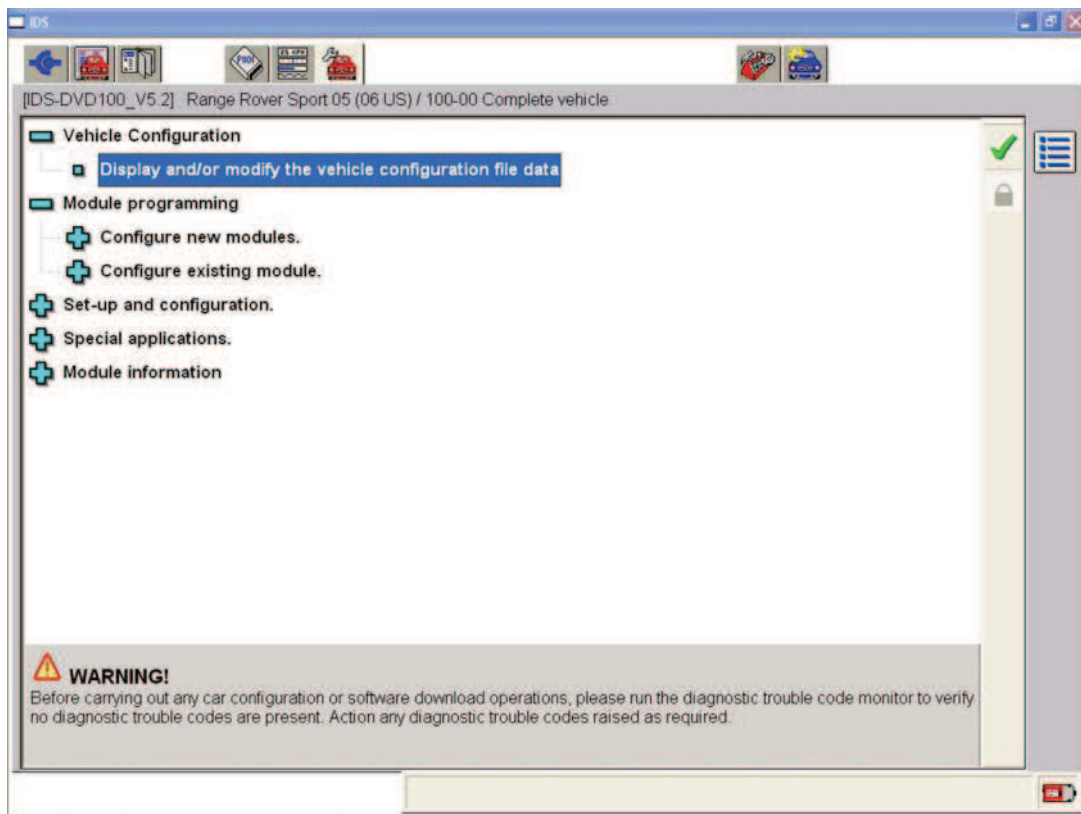
A CCF editing tool is available which allows certain parameters of the CCF data to be changed using IDS. This is available from the vehicle configuration tab.

Configuration Menu



Expanding the vehicle configuration menu will reveal the options available.

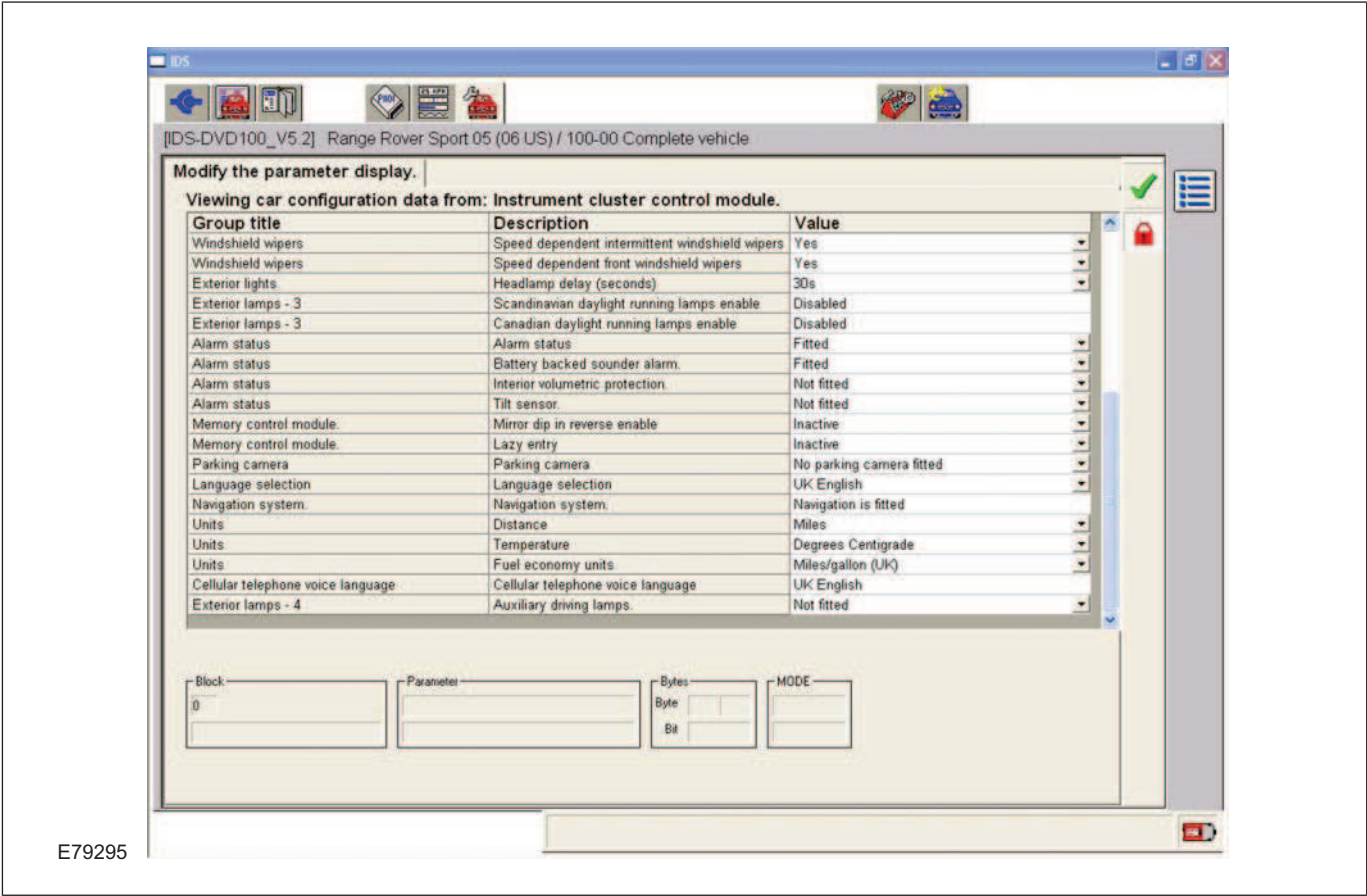
Vehicle Configuration Menu



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Confirming the selected option will display the CCF data editing screen.

CCF Data Editing Screen



Selecting the drop down arrow will reveal which changes may be made.

Editing Option Menu



Modules may be programmed using the CCF data from any of the available sources.

NOTE: If using the as built data to program modules, all customer personalization settings will be lost and will need to be reset.

NOTE: The As Built Data is copied onto the IDS software discs when it becomes available. Therefore, a situation may occur when the As Built Data is not available for a particular VIN number until the next IDS software release.

As built CCF data will only normally have to be used to program modules if the vehicle CCF data has become corrupt due to poor programming procedures carried out by the technician, or in during the unlikely event that all modules containing CCF data is renewed at the same time.

Module Configuration

There are two modes of module configuration. The first mode is required so that the module can interact with the vehicle correctly. Replacement modules will require configuration using IDS.

There are two module configuration options available when using IDS

Modules which require configuration on replacement are:

- Configure New Module
- Configure Existing Module

When the 'configure new module' menu is used, the boot loader and the calibration files are downloaded to the module.

When the 'configure existing module' menu is used, only the calibration files are downloaded to the module.

NOTE: To prevent Technicians from downloading calibration files to modules which do not require them, the option will not be available unless the VIN of the vehicle is within the range where a software calibration file has been released in order to rectify a concern.

Customer Preferences

The second type of configuration data is customer preference driven. These are items that the customer may or may not want to have enabled. Typically, customer preference items can be toggled on or off by the using IDS.

Configuration is performed using IDS. Refer to the Dealer Options Index for modules on the vehicle that have customer preference items. Configure the items as needed.