A·B·R·I·T·E·S
automotive solutions

ABRITAES DIAGNOSTICS FOR CHRYSLER, DODGE, JEEP



User manual
version 3.0

Important notes

The Abrites software and hardware products are developed, designed and manufactured by Abrites Ltd. During the production process we comply to all safety and quality regulations and standards, aiming at highest production quality. The Abrites hardware and software products are designed to build a coherent ecosystem, which effectively solves a wide range of vehicle-related tasks, such as:

Diagnostic scanning;
Key programming;
Module replacement,
ECU programming;
Configuration and coding.

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Safety information

The Abrites products are to be used by trained and experienced users in diagnostics and reprogramming of vehicles and equipment. The user is assumed to have a good understanding of vehicle electronic systems, as well as potential hazards while working around vehicles. There are numerous safety situations that cannot be foreseen, thus we recommend that the user read and follow all safety messages in the available manual, on all equipment they use, including vehicle manuals, as well as internal shop documents and operating procedures.

Some important points:
Block all wheels of the vehicle when testing. Be cautious when working around electricity.
Do not ignore the risk of shock from vehicle and building-level voltages.
Do not smoke, or allow sparks/flame near any part of the vehicle fuel system or batteries.
Always work in an adequately ventilated area, vehicle exhaust fumes should be directed towards the exit of the shop.
Do not use this product where fuel, fuel vapours, or other combustibles could ignite.

In case any technical difficulties occur, please contact the
Abrites Support Team by email at support@abrites.com.

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List of revisions

Date	Chapter	Description	Revision
27.10.2010		First version of the document	1.0
06.06.2013		Update	2.0
10.11.2014		Update	2.1
01.10.2015		Update	2.2
15.08.2022	ALL	Update	3.0

1. Introduction

ABRITES Diagnostics for Chrysler, Dodge and Jeep is a professional diagnostic software.

In order to operate the software requires you to have an AVDI interface, a Windows based PC with Windows 7 or later version of the Windows OS. For optimal operation, it is always recomended to have the latest software version installed, active AMS, and a stable Internet connection.

The tool's purpose is to allow you to perform standard and advanced vehicle diagnostics, starting with module identification, reading and clearing of diagnostic trouble codes (DTCs) and live data monitoring, actuator testing, as well as advanced operations such as service functionality and more.

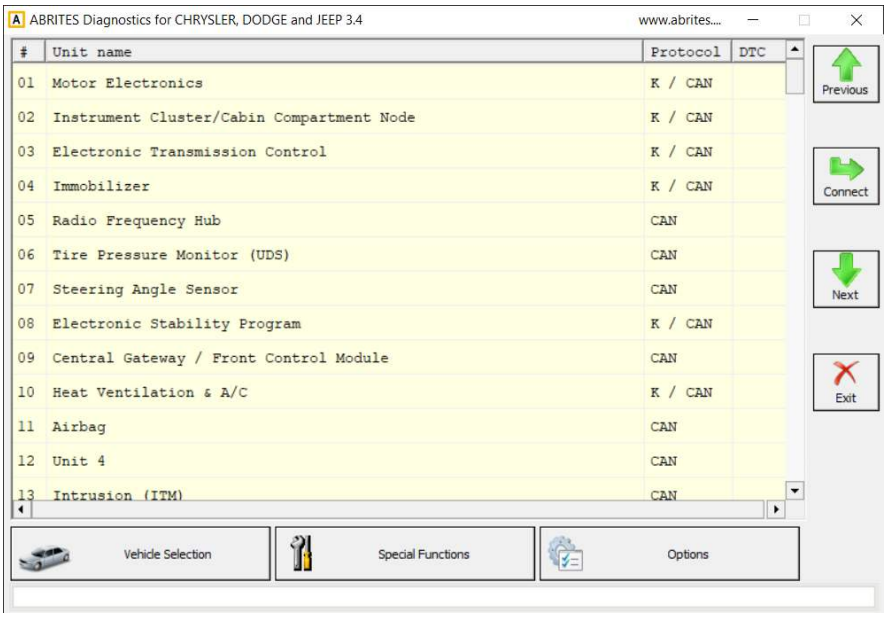
ABRITES Diagnostics for Chrysler, Dodge and Jeep currently supports K-Line, CAN-BUS and J1850 interface. Diagnostics is performed via the OBD-II connector.

2. Abrites diagnostics for Chrysler, Dodge, Jeep

The ABRITES Diagnostics for Chrysler, Dodge and Jeep consists of two parts:

Standard diagnostic functions like reading/clearing diagnostic trouble codes (DTC), scanning available devices in the vehicle, displaying actual values (measured parameters), performing actuator tests etc. Special functions like Key Learning, Mileage Recalibration, Engine Control Unit reading/writing and Dump Tool.

All devices, which are present in the car are listed in the main screen of the ABRITES Diagnostics for Chrysler, Dodge and Jeep. If you want to connect to a specific device, please double click on it or select it ant press the "Connect" button. The "ABRITES Diagnostics for Chrysler, Dodge and Jeep will try to connect to the device. From this screen you have the option to selec the vehicle in order to complete full vehicle scan, select the specil function menu, or set some options and language.



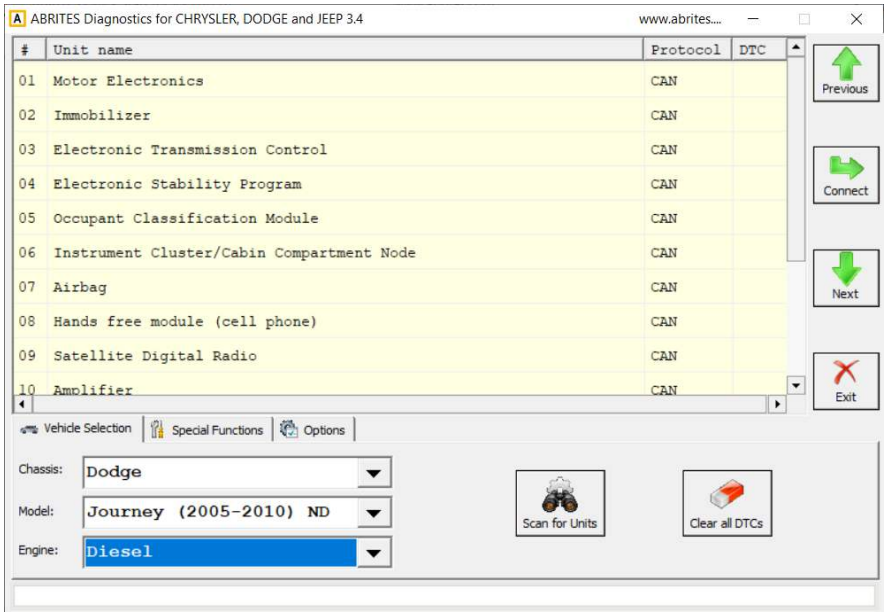
2.1 Standard diagnostic functionalities

In order to perfom vehicle diagnostic scan you need to go into the “Vehicle Selection” tab, and choose the Brand, Model, and Engine type.

“Scan for Units” button would perform vehicle diagnostic, find all available modules and provide the DTCs.

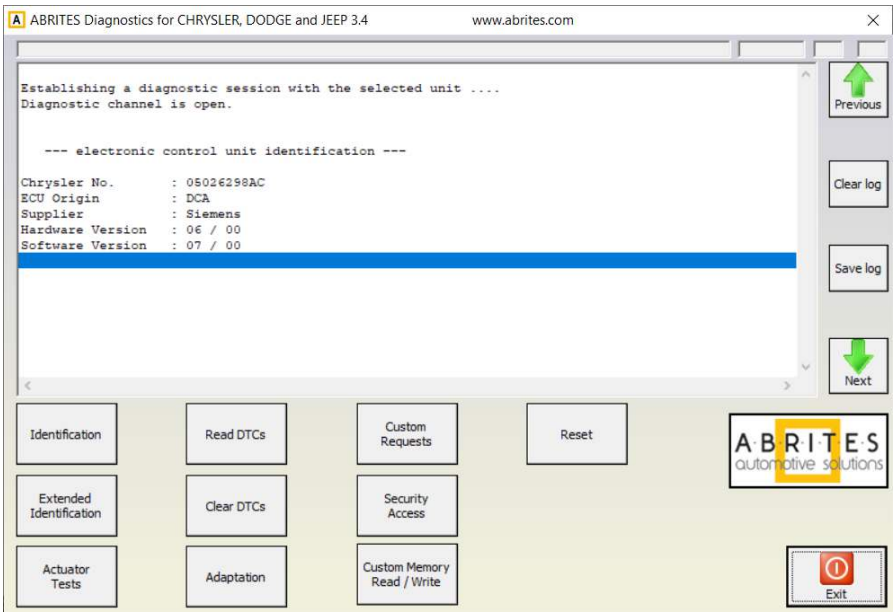
“Clear DTCs” button would remove any temporary DTCs stored in the units, and the vehicle would remain with either no DTCs, or only with the DTCs that you need to take care of.

You also have the option to read/clear the DTCs of a singe unit be choosing the unit from the list and double-clicking it, or pressing the “Connect” button. Once you open a unit, you will see a new window with the basic diagnostic options.



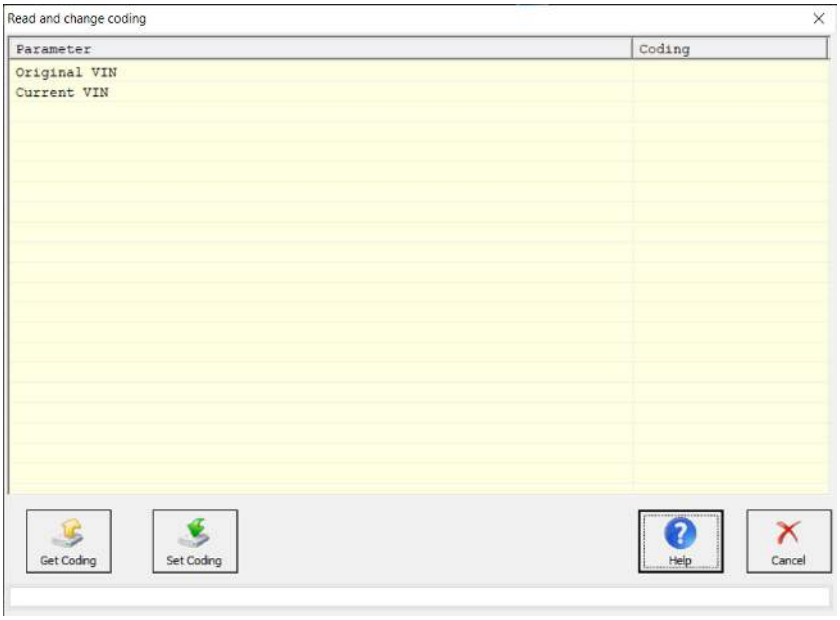
This is the main screen you see when you enter into a module, and provides the basic diagnostic functionalities. This is what you can do:

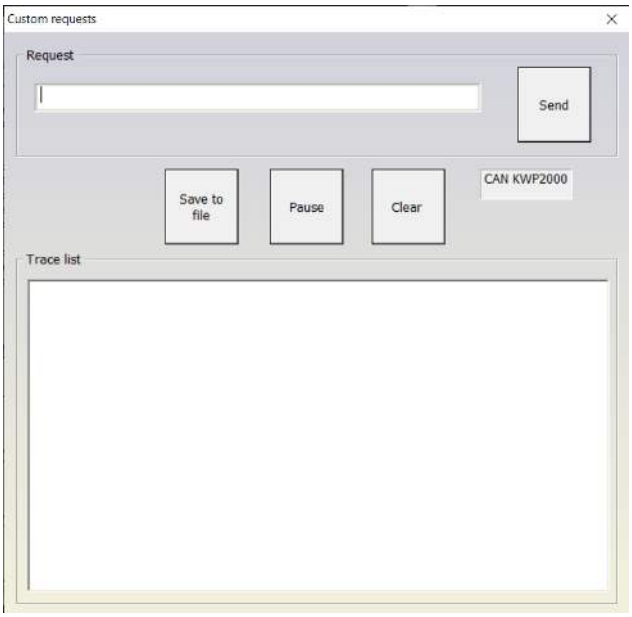
Identification - gives the identification data of the module you have accessed
Read DTCs - reads and displays the diagnostic trouble codes currently stored in the unit
Custom Requests - functionality for development purposes
Reset - would close any ongoing tasks
Extended identificaction - provides more detailed identifiation data of the unit.
Clear DTCs - clears the temporarily diagnostic trouble codes in the unit
Security Access - performs security access of the unit
Actuator Tests - lets you perform actuator tests
Adaptation - lets you read/update the VIN of the unit by reading or updating its coding
Custom Memory Read/Write - lets you read/update the memory data of a unit, save it to a file or upload a file in order to update.



Below you can see screenshots from the "Adaptatons" menu, where you can read and update the VIN of a unit by reading or updating its coding.

The second screenshot displays the menu of the "Custom Requests" where you can send custom requests to the unit, making modifications, and you can save this as a file later. This is a functionality for advanced users



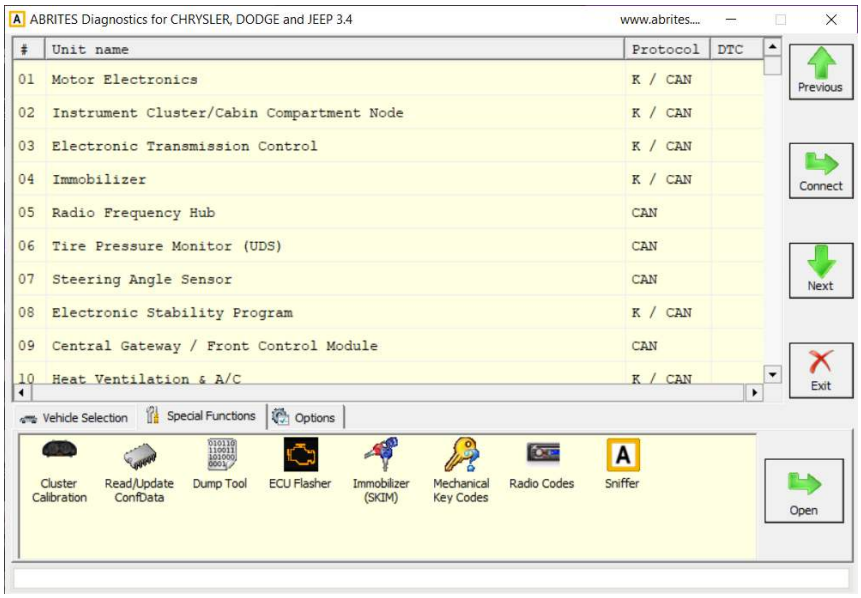


2.2. Special Functions

This option from the main screen opens the special function menu of the ABRITES Diagnostics for Chrysler, Dodge and Jeep. The required special function is opened by selecting it from the menu box and double-clicking on it.

The available special functions in ABRITES Diagnostics for Chrysler, Dodge and Jeep software are:

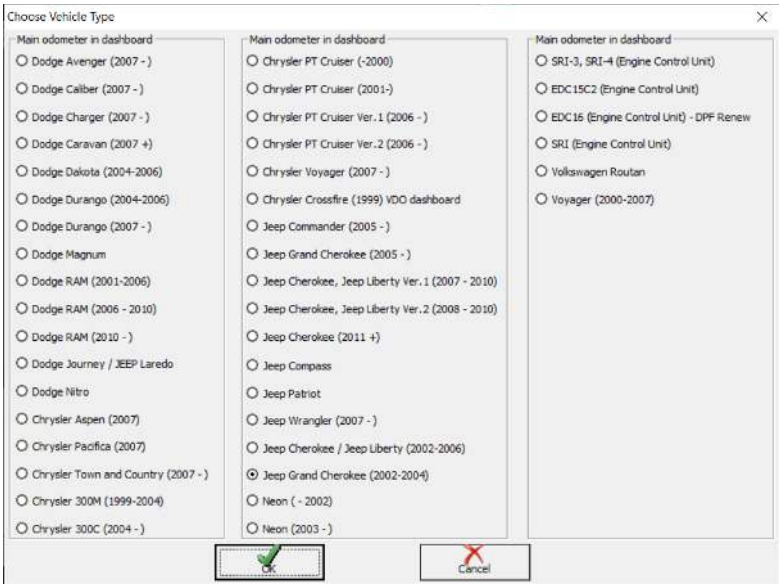
- Cluster Calibration,
- Read/Update ConfData,
- Dump Tool,
- ECU Flasher,
- Immobiliser (SKIM),
- Mechanical Key Codes,
- Radio Codes
- Sniffer (if available) is only dedicated to development purposes

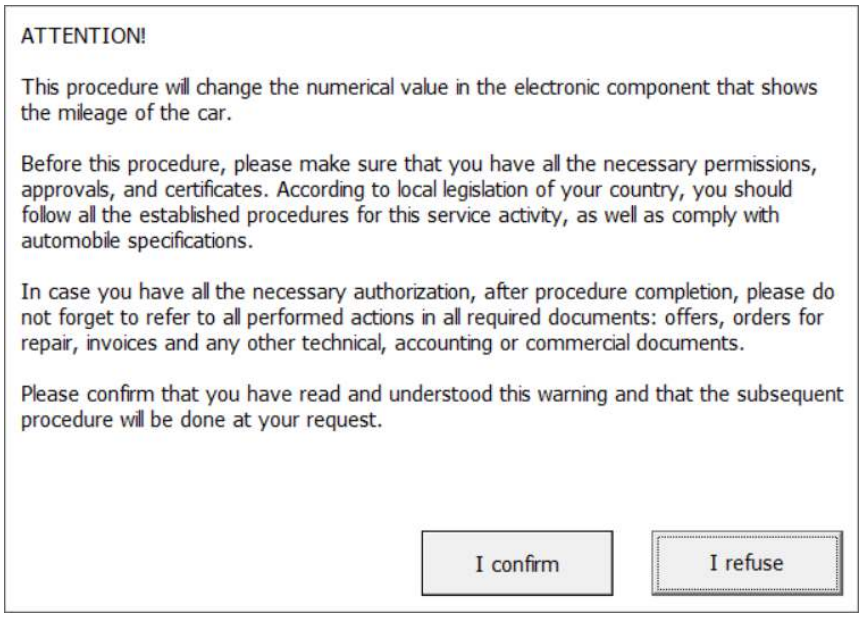


3. Cluster Calibration

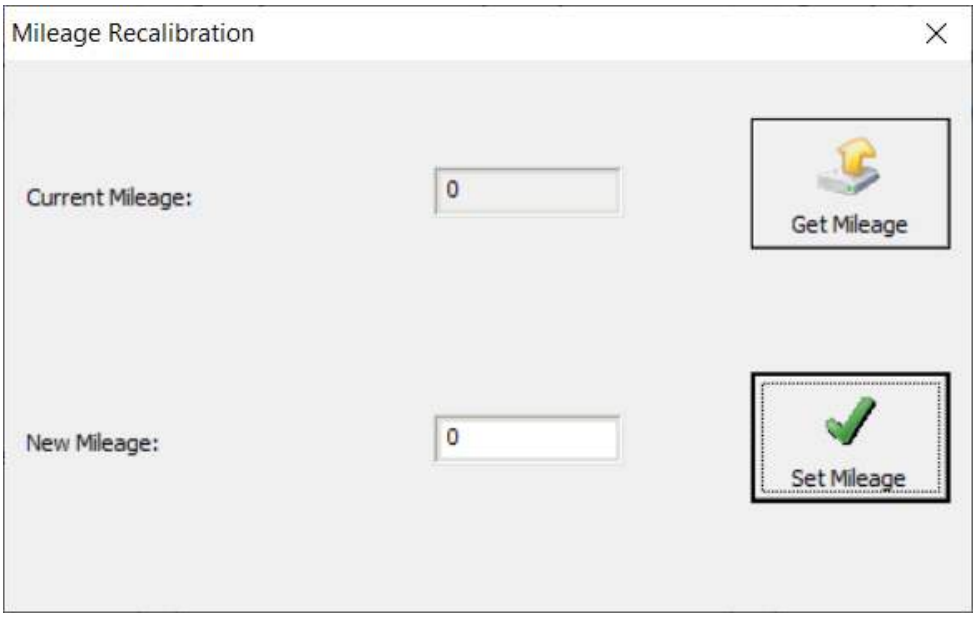
Cluster Calibration procedure works for Dodge, Chrysler, and Jeep models by OBDII, the list is available in the software menu. Once you open the Cluster Calibration sepcial function, you will see the list of supported models for this functionality sorted by brands. You need to choose the model you wish to work on, and click the green "OK" button in order to continue.

The software would bring a pop up message about the risks of this procedure.



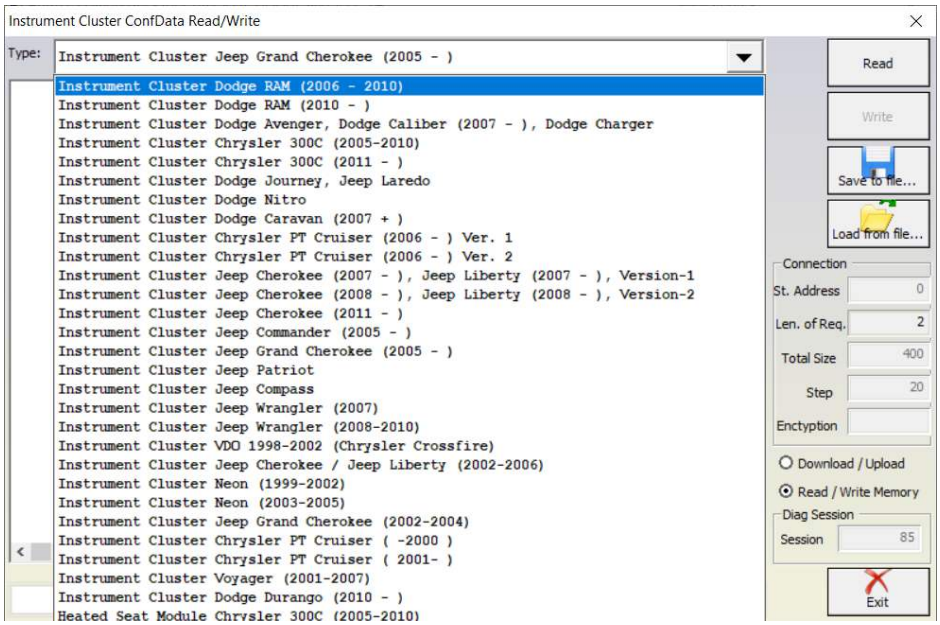


This is the mileage recalibration screen, which opens up after the vehicle is selected, and lets you read the current mileage by clicking the “Get Mileage“ button, and write a new value. Once you write in the new value in the corresponding window you need to press the “Set Mileage“ button, so that the new value can be stored.



4. Read/Update ConfData

This special function works via OBDII and lets you read the ConfData of the modules that are listed in a dropdown menu. EEPROM data can be saved to a file, you could also upload a file and write it to a unit.

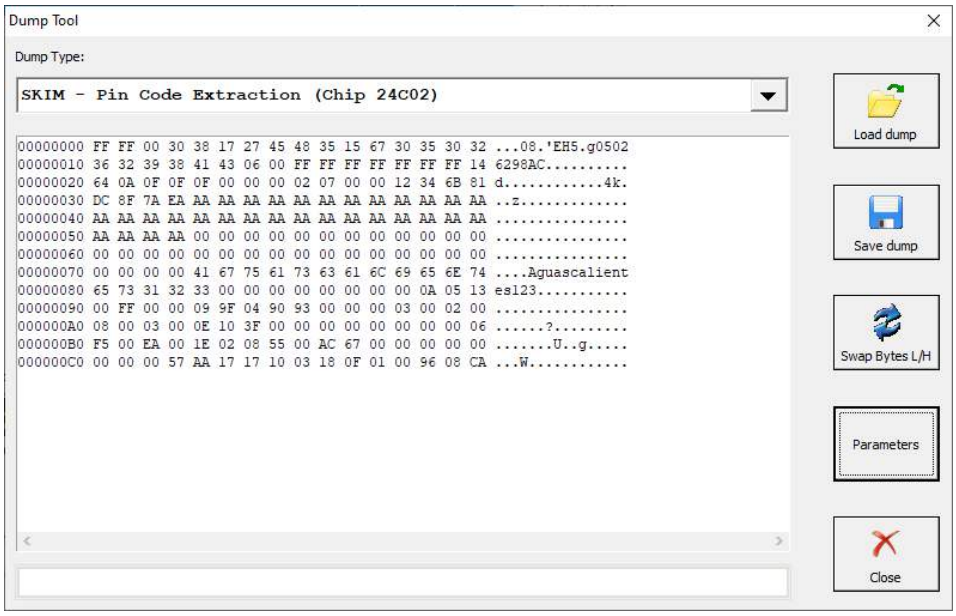


5. Dump Tool

The dump tool has the capabilities to

- extract pin code from skim module,
- make immo off to skim module,
- perform cluster calibration
- renew ECU

This application lets you work with modules listed on the next page, and also visible in a dropdown menu. The software can read and update the dump file of the listed modules. You can save the data into a file, and load a file to write into the unit. If data is read/written with a programmer the user must make sure that the proper byte order is used. (two different programmers can produce different dumps) For that purpose a button "Swap bytes" is provided. This buttons changes alternatively the byte order into the dump. So, if after loading the dump file into the dump tool data cannot be extracted or modified, please try to swap the bytes to get a correct result.

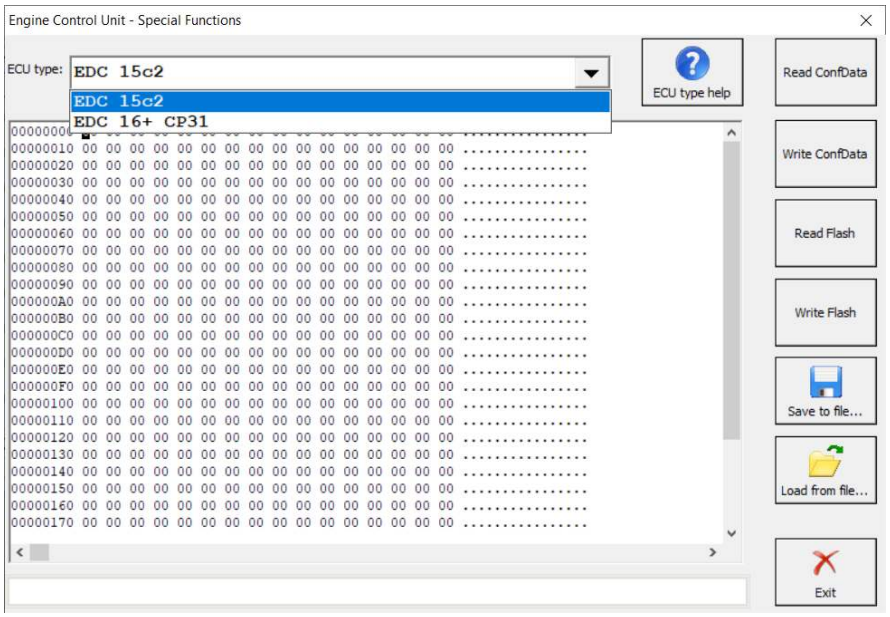


Supported models are shown in the dump tool drop down menu, and can be seen in the software while using it. Here is the list:

SKIM - Pin Code Extraction (Chip HC908AZ32)
SKIM - Pin Code Extraction (Chip 24C02)
SKIM - Pin Code Extraction (Chip 95080)
SKIM - Pin Code Extraction (Motorola L72A)
SKIM - Immo Off (Chip 24C02)
Cluster Calibration - Dodge Journey (2010)
Cluster Calibration - Chrysler 300 (2005-), Dodge Avenger (2007-)
Cluster Calibration - Chrysler Town And Country (2008-2011)
Cluster Calibration - Jeep Wrangler (2008) , Chip 93C76
Cluster Calibration - Neon (- 2002)
Cluster Calibration - Neon (2003-)
Cluster Calibration - Jeep Cherokee (2003-)
Cluster Calibration - Jeep Grand Cherokee (1997-1999)
Radio Code (Chip 24C16)
ECU Renew - Bosch XXX XXX 437 (Chip 24C02)
ECU Renew - DT 2.5 Bosch X XXX XXX. 333
ECU Renew - Voyager 2.5 ID Bosch X XXX xxx 708

6. ECU Flasher Special Function

ECU Flasher special function lets you read the ConfData and Flash files of EDC15C2 and EDC16+ CP31 units and save them to a file. A file can also be uploaded and you can write it to the unit. This functin can be used for ECU cloning.



7. Key Learning - Immobilizer (SKIM)

SKIM is an abbreviation, which stands for Sentry Key Immobilizer System.

In the Chrysler/Dodge/Jeep vehicles, it prevents unauthorized operation of the vehicle by disabling the engine. The system will shut the engine down after 2 seconds of running if an invalid key is used to start the vehicle. This system utilizes ignition keys which have an electronic chip (transponder) embedded into them. Only keys that have been programmed to the vehicle can be used to start and operate the vehicle for more than the two second validation time period.

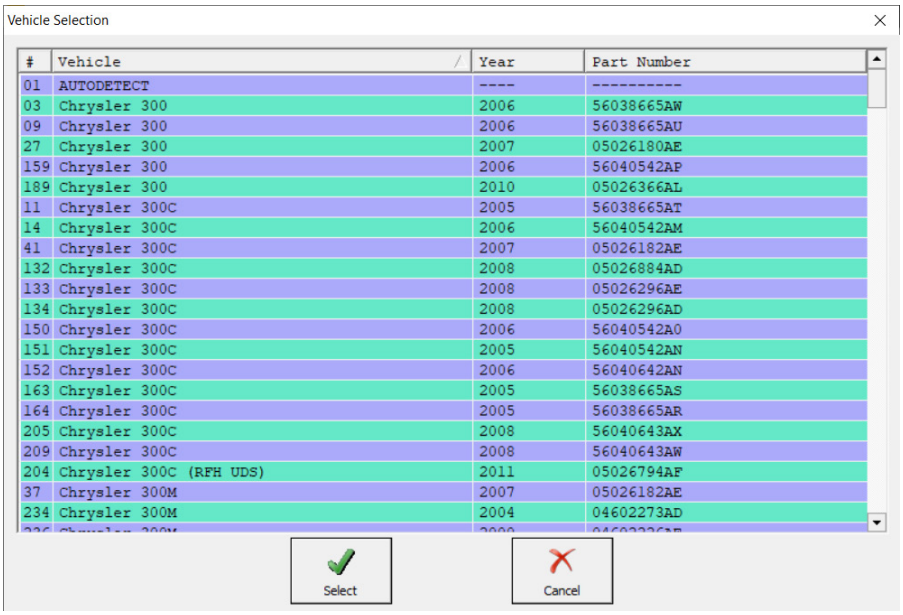
During normal operation, the Sentry Key Indicator light, located on the instrument panel upper cover, will come on for 3 seconds immediately after the ignition is turned on for a bulb check. Afterwards, if the bulb remains ON solid, this indicates a problem with the electronics. If the bulb begins to flash after the bulb check, it indicates that an invalid key has been used to start the vehicle or there is a communication failure between the transponder and the Sentry Key Immobilizer Module. Both of these lamp conditions will result in the engine being shut down after 2 seconds of running. Keep in mind that a key which has not been programmed is also considered an invalid key even if it is cut to fit the ignition for that vehicle.

If the Sentry Key Immobilizer System indicator light comes on during normal vehicle operation (it has been running for longer than 10 seconds) a fault has been detected in the electronics and the vehicle should be serviced as soon as possible.

The Theft Alarm Light, located on top of the instrument panel, will illuminate for about 3 seconds when the ignition switch is first turned to the ON position. If the vehicle electronics do not receive a valid signal from the ignition key, the theft alarm light will flash continuously to signal that the vehicle has been immobilized. If the Theft Alarm Light remains ON during vehicle operation, it indicates a fault in the system electronics.

A four digit PIN is needed to service the Sentry Key Immobilizer System. This number can be found on your customer invoice that you were given upon purchase of your vehicle. However, if you have lost your PIN Code, the **Abrites Diagnostics for Chrysler/Dodge/Jeep can read it from the SKIM module**

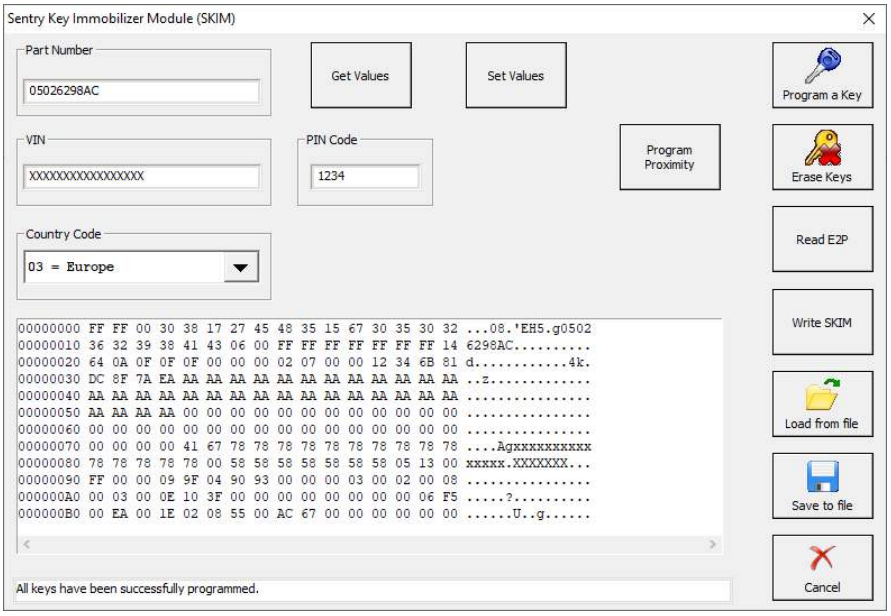
When you select Immobiliser “SKIM” special function a screen that you can see below will appear. At this moment you must select the appropriate vehicle. If you do not know which vehicle to choose you may check the Part Number of the SKIM module and select the vehicle whose Part Number matches. You may also select “AUTODETECT” and the software will try to detect which is the best match.



After you are ready with the selection you must press the button 'Select'.

From this menu you have many options to continue, but this is the menu for the key programming. Here you have the option to program or erase a key, to read the PIN Code of the vehicle, to save the data to a file and write it.

Important: if you know the PIN Code of the vehicle you can enter it in the field "PIN Code:". After this you can click the buttons "Program a Key" and "Erase Keys". However, if you don't know the PIN Code – you must press the button "Get Values". The software will read the PIN Code from the SKIM module and will display it.



7.1. Programming Keys

Below is the procedure, which you must follow in order to program new keys. We give an example for programming 2 keys:

1. Press the button "Program Keys".
2. Insert the first valid key into the ignition and turn the ignition ON for at least 3 seconds - but no longer than 15 seconds.
Turn the ignition OFF and remove the first key.
3. Insert the second valid key and switch the ignition ON within 15 seconds. After ten seconds a chime will sound and the Theft Alarm Light will begin to flash.
Turn the ignition OFF and remove the second key.
3. Insert a blank Sentry Key into the ignition and switch the ignition ON within 60 seconds. After 10 seconds a single chime will sound. The Theft Alarm Light will stop flashing, and turn ON for 3 seconds; then turn OFF.

The new Sentry Key has been programmed. The Remote Keyless Entry (RKE) transmitter will also be programmed during this procedure.

You can repeat this process to program up to a total of 8 keys.

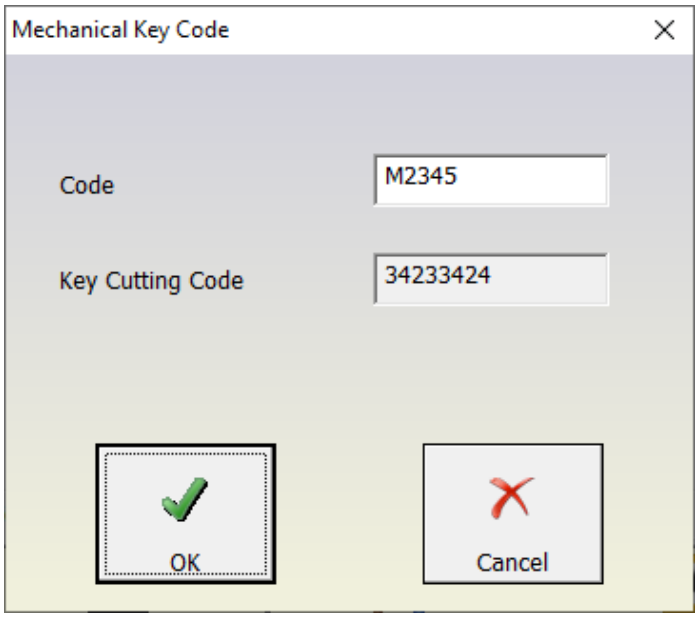
7.2 Erasing Keys

If a programmed key is lost, you need to erase the available keys from the systems memory. This will prevent the lost key from starting the vehicle.

All of the remaining keys must then be reprogrammed.

8. Mechanical Key Code Speical Function

Mechanical key Code Special Function provides the locksmith with the Cutting code of the key automatically by entering the Code. Mechanical key code can be obtained from the dealer if not known. The Key Cutting code can be directly used for the cutting locksmith machines to prepare the blade of the key.

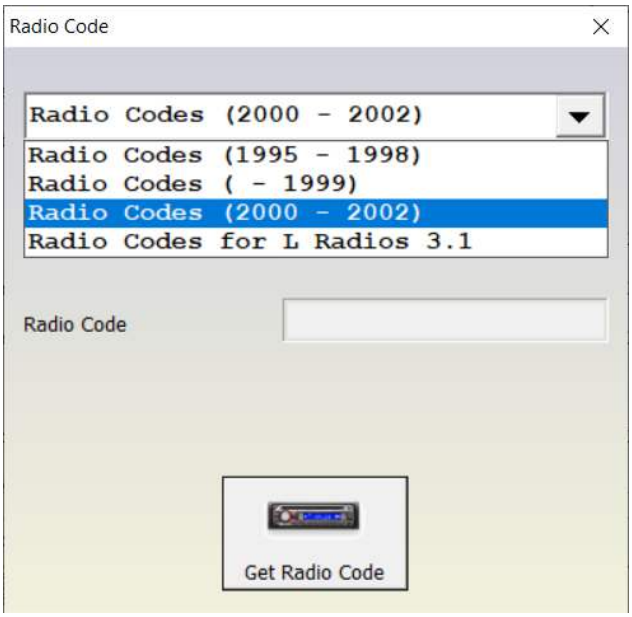


9. Radio Code Special Function

Radio Code special function provides the option for you to get the radio code for a vehicle by entering the serial number of the unit. From the drop-down menu you can select the generation of the vehicle you are working with, and pres the "Get Radio Code" button in order to obtain the required information. Here are the supported generations:

Radio Codes (1995 - 2002)
Radio Codes (- 1999)
Radio Codes (2000 - 2002)
Radio Codes for L Radios 3.1

See screenshots below:



10. Appendix

10.1 Supported models for Calibration:

Calibration in Engine Control Unit:

- SRI-3
- SRI-4
- SRI-5 (2006-2011)
- SRI all versions (2011+)
- PCM - EDC15C2 (2000-2005)

Supported Models:

Chrysler: 300C 2004+, 300C (2011+), 300M - Requires J1850 Adapter, Aspen (2007), Crossfire (1999 with VDO dash), Pacifica (2007), PT Cruiser (2002-2006) - Requires J1850 Adapter, PT Cruiser (2006 +), Voyager (-2007) - Requires J1850 Adapter, Voyager 2007+, Town and Country (2007-2010).

Dodge: Avenger 2007+, Avenger (2011+), Caravan 2007+, Caliber 2007+, Charger 2007+, Dakota (2004-2006), Durango (2004-2006), Durango 2007+, Durango (2011+), Grand Caravan (2011+), Magnum Neon (1998-2005) - Requires J1850 Adapter, RAM (2001 - 2006)- Requires J1850 Adapter, RAM (2006 – 2012), Nitro, Journey, Journey (2011+).

Jeep: Commander 2005+, Grand Cherokee (2002-2004) - Requires J1850 Adapter, Grand Cherokee 2005+, Cherokee (2002-2006) - Requires J1850 Adapter, Cherokee (2007-2011), Cherokee (2011+), Liberty (2007-2010), Patriot (2007-2012), Compass (2007-2009), Wrangler (2007-2012), Laredo (2007-2011).

Volkswagen: Routan (2009-2012)

Full description of this diagnostic software, and lists of supported models available at: https://abrites.com/page/abrites-diagnostics-for-chrysler-dodge-jeep