Ross-Tech

VCDS

®

User's Manual

Diagnostic Software for
VW/Audi/SEAT/Skoda

2015 Edition

VCDS *Table of Contents*

Please refer to our website for the VCDS FAQ, Problems/Issues, and Function pages:

http://www.ross-tech.com/vag-com/vag-com-faq.html

http://www.ross-tech.com/vag-com/issues.html

http://www.ross-tech.com/vag-com/vag-functions.html

Thank you for purchasing VCDS, which allows you to turn a Windows PC into a powerful diagnostic tool for VW/Audi/SEAT/Skoda vehicles from 1990 through the latest models.

STOP

Read This First!

Before plugging anything in, you must first install VCDS software on your PC.

STOP

Step #1

Go to our website and click on Download at the top of the screen to download and install the latest version of VCDS: 🌐 **www.Ross-Tech.com**

Run the installation file that you have downloaded and follow the onscreen instructions and allow VCDS to install in its default directory. You will also be given a screen with several choices for installation options including drivers, it is recommended to leave these in their default settings unless instructed otherwise by Ross-Tech. Make sure to allow the USB drivers to install after the main program installation has finished. ►

VCDS — Setup

Welcome to the VCDS Setup Wizard

This wizard will guide you through the installation of VCDS

Please make sure your interface is UNPLUGGED from the PC so that the USB drivers can be installed an/or updated.

Click Next to continue.

Ross-Tech,LLC

Next >   Cancel
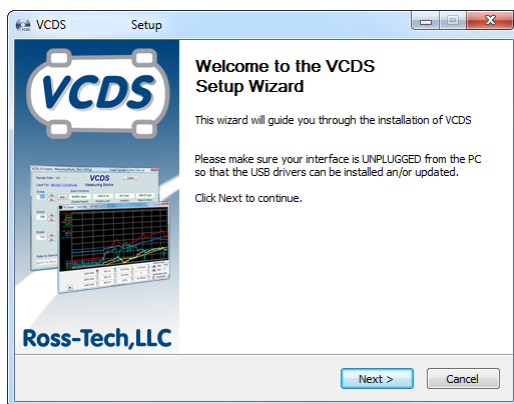
The VCDS Pro-Kit comes with a USB stick containing our software as well. If possible it is always a good idea to download the latest version from our website.

USB   Serial

-OR-
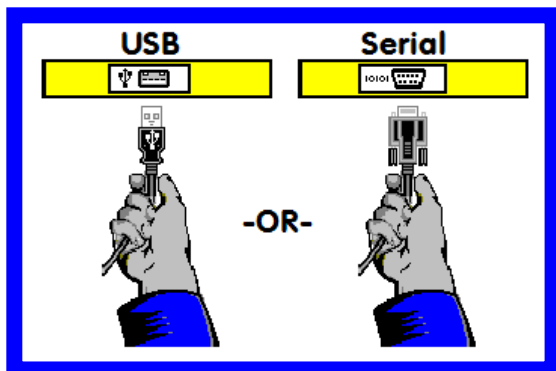
◄Step #2

Connect the USB end of your USB Interface or the Serial end of your Serial Interface to the correct port on your PC. If your PC is further from the vehicle's diagnostic port than 6 feet, connect an approved Extension Cable between the PC and the Interface. The appropriate extension is included in the Pro-Kit and additional ones are available from our web store.

Step #3 (USB Only) ▶

If you are using a Serial Interface then then you can proceed to step #4. If you are using a USB Interface, a message like this should pop up: ▶

If you are using a USB Interface, a message like this should pop up: ▶

> ⓘ **Found New Hardware** ✕
> Ross-Tech Direct USB Interface
>
> 4:01 PM

The drivers may install automatically in Windows Vista, 7, or 8. If you are using XP, click on the Found New Hardware message and the Found New Hardware Wizard should start up. If you are prompted with the choice, pick "No, Not This Time" when asked if you want to connect to the Internet to search for drivers. Select "Install the software automatically (Recommended)" then click **[Next >]**
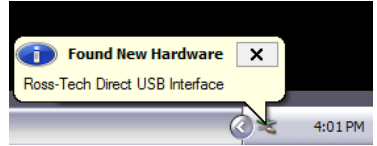
The process should be automated but you may need to click "Continue Anyway" part way through the process.

If, for some reason, you installed the USB Interface without following the above instructions, and VCDS does not work correctly, go into your PC's Device Manager while the USB Interface is connected.

You can find the Device Manager by right-clicking on My Computer in XP or on Computer in Vista, 7, or 8. Select Manage to bring up Computer Management. On the left side of the screen under System Tools, select Device Manager.

Find the "Ross-Tech Direct USB Interface" or similar and delete it. It may be under "Other Devices" or under "Universal Serial Bus Controllers". Next, unplug the USB Interface from your PC, wait 5 seconds and plug it back in. Proceed with the installation starting on Step 2.

Step #4 ▶

Connect the car end of your Interface to your vehicle's Diagnostic Port. ▶
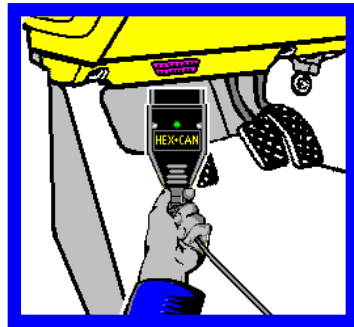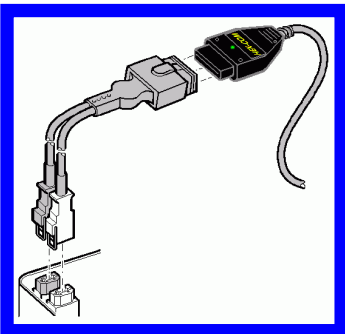
◄ If your vehicle has a 2x2 port (some pre-1996 vehicles), then use the optional 2x2 Adapter between the Interface and the ports in the car. This is included in the Pro-Kit or can be purchased from our web store.

Turn the vehicle's ignition switch to the ON position. Make sure the key is turned far enough that the dash lights are fully illuminated. The engine may either be running or stopped.

Step #5 ▶

Start the VCDS program on your PC through either the Start Menu or the VCDS icon on your Desktop.
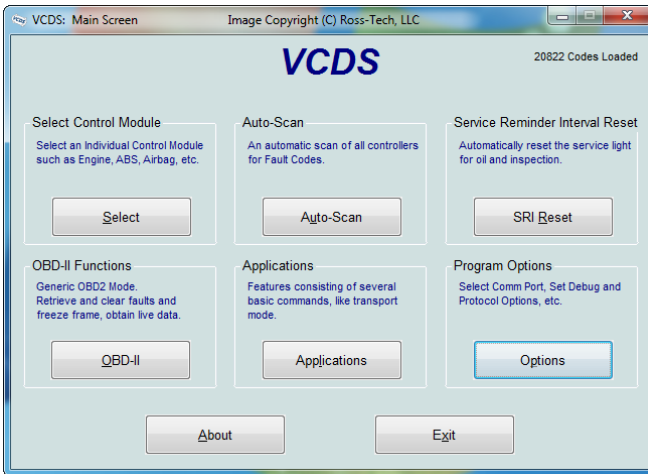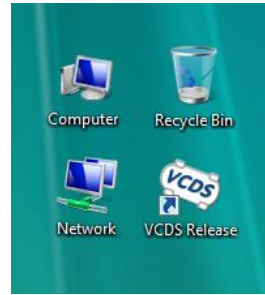
◀ Step #6

From the Main Screen in VCDS click the **[Options]** button to go into the Options screen.

Step #7▶

Once you are in the Options Screen, Select the correct port for your PC's USB Port (USB) or Serial Port (typically COM1 or COM2) and click the **[Test]** button. Ensure that VCDS finds your interface.
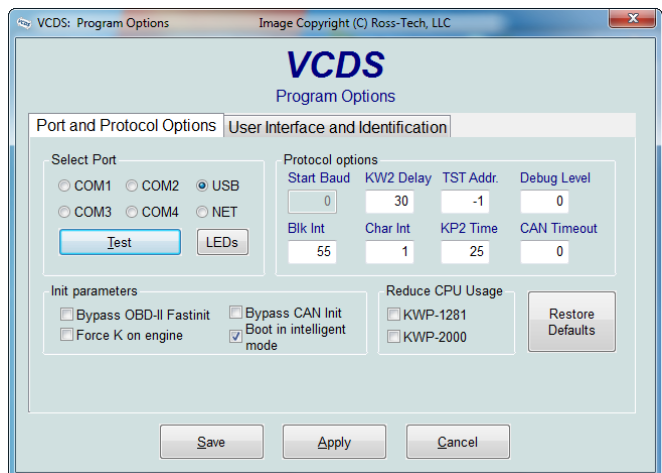
Step #8 ▶

You should see a message like this:

- If the Interface Status is "Not Found!" then check the connections at the car and PC. Make sure both are plugged in securely. Serial Interfaces get their power from the vehicle so they will not be recognized at all if not plugged into a car.

VCDS: Port Test

Port Status: OK
  USB Library Version: 03.02.07
  USB Driver Version: 02.10.00
Interface: Found!
  Type: Ross-Tech HEX-USB+CAN
  Version: 1.94
  Copyright (c) 2014 by Hex Microsystems Pty & Ross-Tech, LLC.
  Status: Ready
   K1: OK
   K2: OK
   CAN: OK

OK

- Adapter Type should always be "Ross-Tech" followed by the name of the Interface such as "HEX-USB+CAN".
- Version indicates the firmware version of your Interface. It may be updated by new versions of VCDS, if so follow the prompts on the screen.
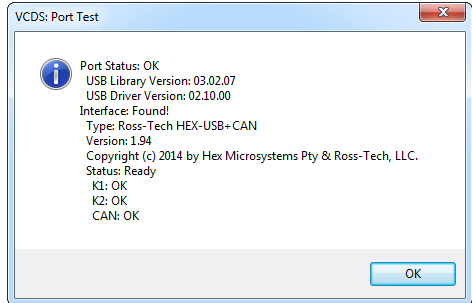
Interface Name:	Expected Test Result:
HEX-USB+CAN, HEX-COM+CAN	K1: OK K2: OK CAN: OK (when tested on a car with CAN) CAN: Not Ready (on cars w/o CAN)
KII-USB, KEY-USB, KEY-COM,HEX-USB, HEX-COM	K1: OK K2: OK CAN: Not Supported
Micro-CAN	K1: Not Supported K2: Not Supported CAN: OK (when tested on a Mk5 based car with CAN)

If K1 or K2 status are "Short to Ground" or "Short to +12V" then you may have a short or an open circuit in the car's diagnostic port, often caused by the Aftermarket Radio Problem, See this page on our website for more info:

🌐 **http://www.ross-tech.com/vag-com/aftermarket-radio.html**

Once you have tested successfully, click **[OK]** then click **[Save]** to apply this configuration, you will be returned to the Main Screen. Click on **[Select]** to view the Select Control Module Screen. Select one of your car's Control Modules such as 01-Engine.

Note: Your car will not have all the Control Modules listed in VCDS, only the functional ones that were installed in your vehicle. See the Applications Page for your car on our Website for more info: 🌐 **www.Ross-Tech.com/vag-com/cars/applications/**

After VCDS has connected, click on **[Fault Codes-02]** to check for Fault Codes (DTCs). Repeat the process for each of your car's Control Modules. If you encounter problems, see the FAQ on our website first: 🌐 **http://www.ross-tech.com/vag-com/vag-com-faq.html**

If you still have problems, feel free to contact us with full details about your PC and vehicle, preferably while you are in front of both:

Ross-Tech, LLC   support@ross-tech.com   Tel: +1 267-638-2300

VCDS - Main Screen - Section 2-A
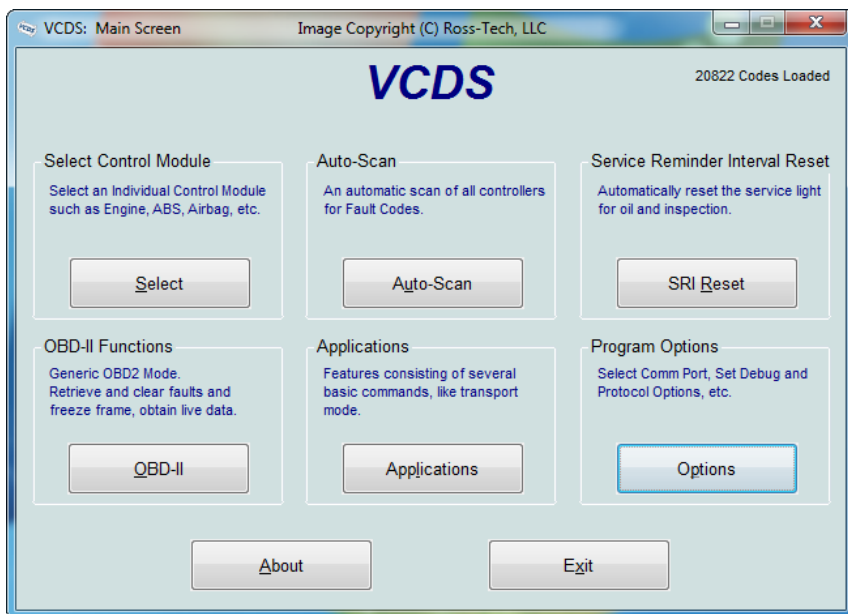
This screen appears when you start VCDS by clicking the shortcut on your Desktop or by selecting VCDS from the Start Menu. These screen-shots were taken using Microsoft Windows 7 with the "Aero" style. If you are not using 7 Aero, expect the screens to look different but the functions will be the same.

On this screen, you have 8 buttons that you can click:

[Select]   (see Section 4 of this manual)

[Auto-Scan]   (see Section 3 of this manual)

[SRI Reset]   (see Section 22 of this manual)

[OBD-II]   (see Section 23 of this manual)

[Applications]   (see Section 24 of this manual)

[Options]   (see Section 30 of this manual)

[About]   (see Section 31 of this manual)

Each of the above buttons is described in its own section in this manual.

[Exit]   (This closes the VCDS program)

VCDS – Auto Scan - Section 3-A
(VAG 1551/1552 function 00)

This function scans each controller in the vehicle to retrieve controller information - VAG Part Numbers, Component number, Soft. Coding, WSC, and fault codes.
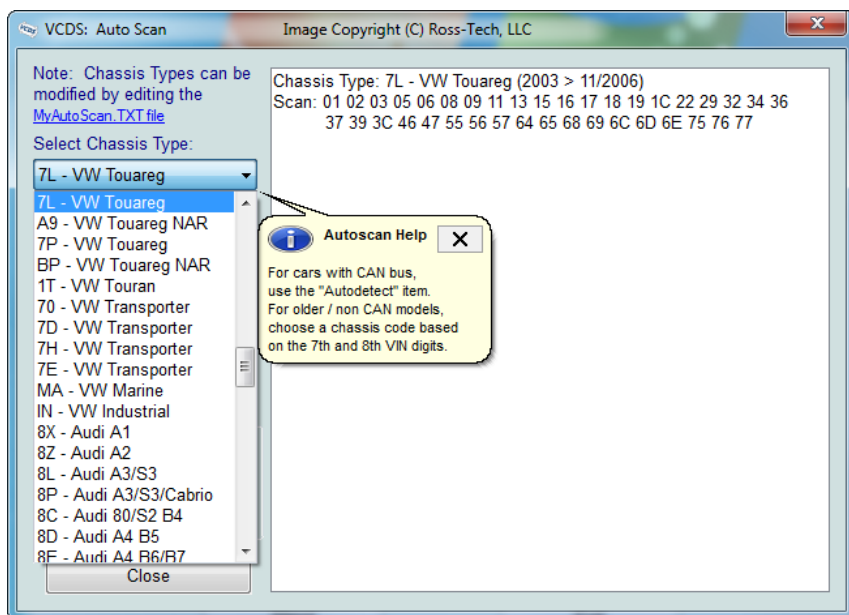
Important! AutoScan is probably the single most important function in VCDS. We recommend that you run and SAVE a complete AutoScan on every single vehicle that you work on. This will give you a history of the vehicle that can be invaluable in the future, for example if an ABS module fails and needs to be replaced. Referring back to earlier Coding is often MUCH simpler than trying to figure out such values from scratch.

First, you must **Select Chassis Type:**
There are dozens of different control modules that exist across the entire range of VW/Audi vehicles. No one car has all Modules! Newer cars have more, older cars have fewer. Because of this, you must select a Chassis Type that contains only those modules that are plausible for a given chassis. There are some exceptions but in general, the Chassis Type is the 7th and 8th digits of the VIN number. For example WAUZZZ4F36N111022 has 7th and 8th digits of 4F and is a "4F,Audi A6 C6". For additional help determining chassis type see this page on our Website: **www.Ross-Tech.com/vag-com/cars/applications/**

If you select **Auto Detect (CAN Only)** as the **Chassis Type** on newer cars which have a fully CAN-based diagnostic system, VCDS can automatically determine which modules are installed in a particular car and perform an Auto-Scan of exactly those modules. This can make the Auto-Scan considerably faster.
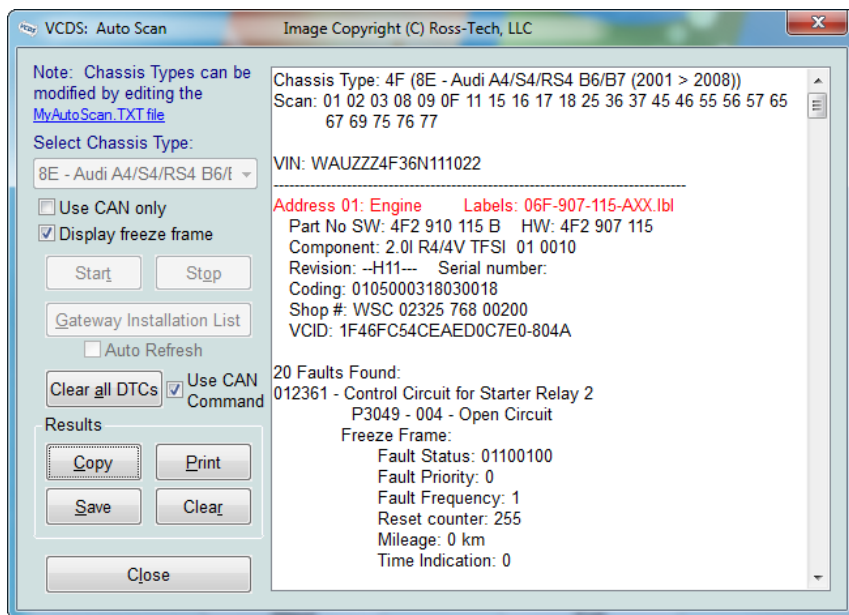
There is a file in the VCDS directory called MyAutoScan.txt, where you can create a custom profile for your vehicle. It can be edited by simply clicking on the hyperlink above the Chassis Type selection. This will open the file in your default Text editor (like Notepad) to create a custom profile for your vehicle. To help you figure out which controllers are in your car, you can run the Control Module Finder in section 28 of this manual.

The **Display Freeze Frame Data** checkbox adds Freeze Frame data for Fault Codes on control modules using the KWP-2000 or newer protocols. Not all control modules support this freeze-frame data. As a rule of thumb, cars which were re-designed after 2003 will likely have some control modules which support it, and older designs will not.   There's no harm in leaving this enabled in any case.   However, un-checking it can make the results less cluttered in a scan which contains many fault codes.

[Start]
This begins the Auto Scan. Be aware; this process can take several minutes. While the scan is running, VCDS will cycle through the Open Controller and Fault Code screens for each controller before returning to the Auto Scan screen. On newer control modules which have different Hardware and Software part numbers, Auto-Scan includes the Hardware Part Number ("HW:") as shown in the screenshots. Once the scan completes, Double-clicking on any of the Control Module names in **RED** will open the Fault Codes screen for that controller and allow you to clear the codes.

[Stop]
This stops the Auto-Scan. It may be a little tricky to time it just right so you may need to click this several times.

The **Auto-Refresh** box can be handy because it can show when a fault code appears in a particular system.

Auto-Scan cont. - Section 3-C

[Gateway Installation List]

Only available on Gateways in cars using a direct CAN connection for diagnostics, this function is also accessible from the Applications Screen. This *very fast* function takes about 3 seconds to query the car's Gateway to find out what modules are installed in the car and what their status is. Any modules having fault codes should show a "Malfunction" and will be highlighted in **RED**. Double-clicking on any of the Control Module names in **RED** will open the Fault Codes screen for that controller and allow you to clear the codes. Modules are directly accessible from this screen by double clicking on the appropriate line. Changes to the Gateway Installation List can be made using the Gateway Coding function. The following screen-shot is from a Mk5 Golf gateway on a test stand:
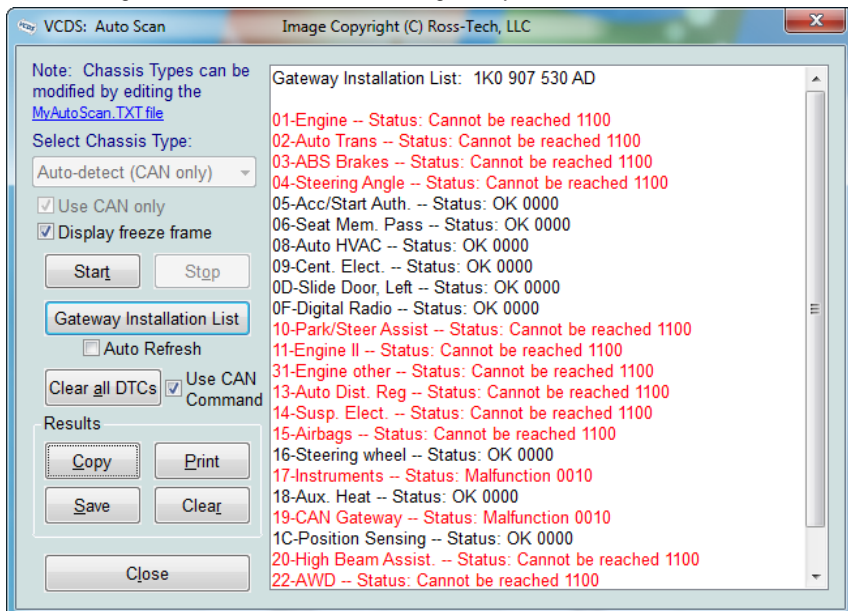
[Clear All DTCs]

This function is only available with our HEX Interfaces and is implemented in two ways. On pre-CAN-Bus vehicles, VCDS will access each control module and clear DTCs from each one individually. On vehicles using CAN-Bus for diagnostics, VCDS performs this function without accessing all the control modules individually (the **Use CAN Command** checkbox will go into each module). If you are not using a HEX Interface then you'll need to go into each module that has faults to clear them individually. This function is also accessible from the Applications Screen. The following warning should pop up:

Auto-Scan cont. - Section 3-D

The VIN should be retrieved automatically from all cars which "know" their VIN. Also in control modules that provide it, engine codes and Jxxx component identifiers are shown as well.

Results:

If you close the Auto-Scan dialog, any data in its output box will be lost. If you would like to keep a record, click the **[Copy]** button first, then you can paste the results into the application of your choice, such as MS Word or Notepad.

[Print]
This function sends the results to your printer.

[Save]
This function saves the results to a text file in the Logs directory, typically in C:\Ross-Tech\VCDS\Logs\

[Clear]
This erases your results. This does NOT erase the fault codes from any of the controllers. You'll need to go into each controller to Clear Codes or use the Clear All DTC's function for that.

To return to the Main Screen, click **[Close]**

VCDS- Select Control Module- Section 4-A
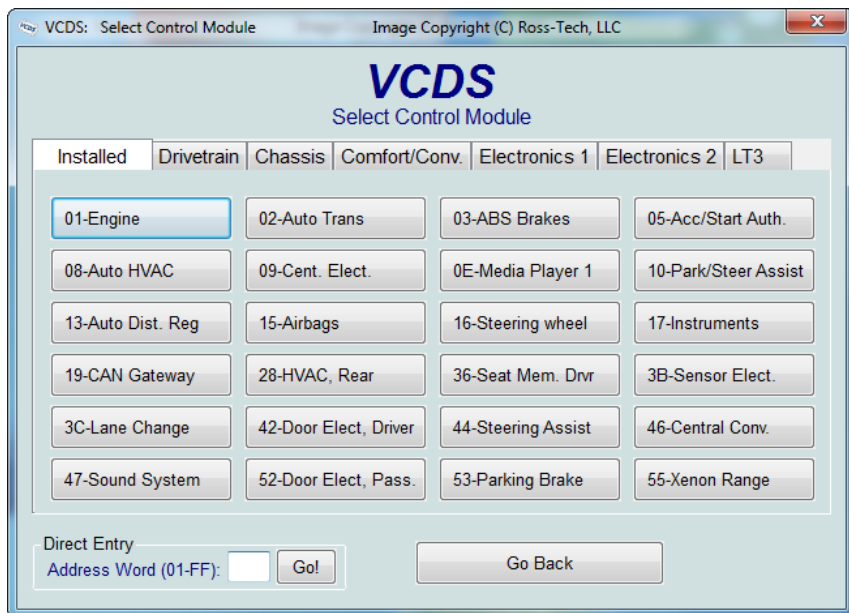
The various computers in the car are called "Control Modules" or "Controllers". On this screen, you select which Control Module you want to "talk" to. To establish communications with a particular Control Module, simply click on the appropriate button. For example, click on the **[01 – Engine]** button to connect to the engine controller.

Module Tabs: Each tab on the top of this screen contains a number of different controllers grouped by category. In CAN based cars that have a proper Gateway supporting an Installation List, VCDS will automatically populate one or more **Installed** tabs containing buttons for only those control modules that are actually installed in the car. It does take about 1.5 seconds to get the list from the Gateway, so a bit of a delay when clicking **[Select]** is normal / expected. When used on a car which does not have a Gateway that supports an Installation List, the old-style **Common** tab will still be shown. For customers who use VCDS primarily on older cars which do not have an Installation List available, this feature can be disabled on the User Interface and Identification tab of the Options screen. The other tabs are**: Drivetrain, Chassis, Comfort/Conv., Electronics 1, Electronics 2,** and **LT3.** Each possible controller is listed as a number and a description, i.e., **[01-Engine]**. The number corresponds to the controller number that you'd find in your Factory Repair Manual in the instructions for using a VAG-1551 or other factory diagnostic tool. VCDS has buttons for all control module addresses currently supported by the factory diagnostic tools.

Direct Entry: Addresses can be accessed manually - just type the number and click **[Go!]**

To return to the Main Screen, click **[Go Back]**

Note: Your car will not have all the Control Modules listed in VCDS, only the functioning ones that were installed in your vehicle. See the Applications Page for your car on our Website for more info: **www.Ross-Tech.com/vag-com/cars/applications/**

VCDS - Open Controller- Section 5-A

This screen will appear when VCDS is establishing communications with any of the Control Modules shown on the Select Control Module screen.

Comm Status Shows the status of the current communications session. Once communications have been established:

- **IC=** Shows the number of times the session has been initialized. If IC increases beyond 1, communications are less than 100% reliable.

- **TE=** is a counter of transmitter errors within individual packets. TE greater than 0 can indicate unreliable communication.

- **RE=** is a counter of receive errors within individual packets. RE greater than 0 can indicate unreliable communication.

- **Protocol** indicates whether the controller speaks **KWP-1281** , **KWP-2000** , **CAN,** or **UDS**. Different functions and behavior can be expected depending on which protocol is used by each controller. VCDS communicates fine with all four of these protocols.

- A rotating cursor shows that communication is active.

Open Controller cont. - Section 5-B

Controller Info
Once the communications session has been established, all of the Control Module's
"Identification" data is presented here.

- **VAG Number** is the VW/Audi part number for this controller. All of the digits, both
  numbers and letters, make up the part number. In some cases this number may
  be different from the number on the sticker on the module itself, specifically if the
  module has been reflashed by a dealer per a service campaign.

- **Component** contains more identification information about the controller and
  may contain a version number for the controller's internal firmware. The firmware
  level is also known as the software version for the controller. In the above
  example, the software version is 0010 since these are the digits shown at far
  right in the Component field.

- **Soft. Coding** is the Software Coding that determines various options for the
  controller. Note: Some older Control Modules are not "codeable" and you may
  see a Bosch part number or other information in this field. In modules that use
  Long Coding you will need to click on the **[Coding - 07]** button to see the current
  Coding value.

- **Shop #** identifies the WorkShopCode (WSC) stored in the scan-tool that
  performed the last Coding or Adaptation procedure in this Control Module.

- The **Extra** fields can show VIN and Immobilizer information or slave controller
  part numbers in some vehicles.

Basic Functions
This grouping of "Safe" functions is used to read various data from the Control Module
without making any changes.

Advanced Functions
These functions are capable of making various changes to the Control Module. You should
refer to the Factory Repair Manual for your particular car (or to other
documented procedures) before "playing" with these functions. It is completely possible to
render your vehicle inoperable or damage components if you make changes in this section
without the correct information and training.

It is normal for some buttons to be grayed out on some control modules.   This is an
indication that the control module in question doesn't support those functions. Each of the
function buttons is detailed on the following pages.

Use **[Close Controller, Go Back - 06]** to properly close the communications session and
return to the Select Control Module screen.

VCDS - Fault Codes - Section 6-A
(VAG 1551/1552 functions 02 and 05)
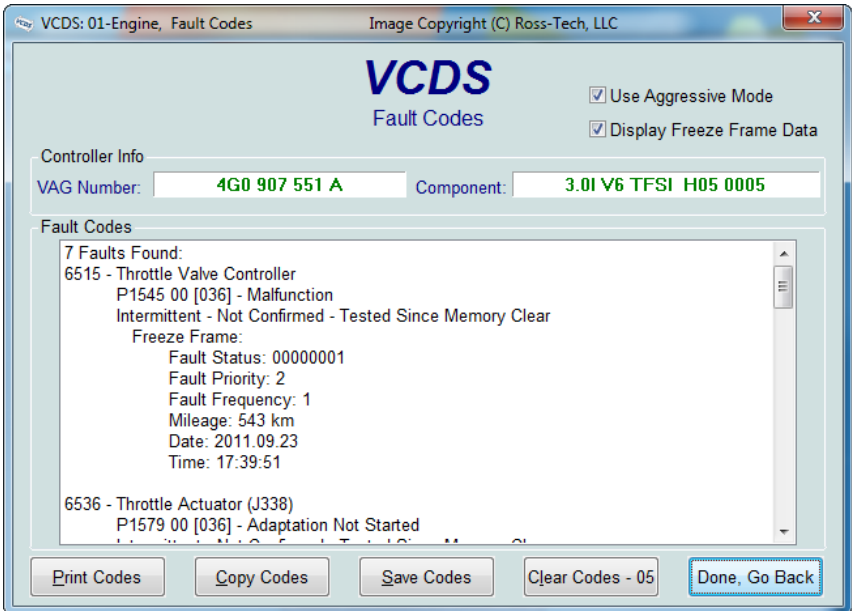
On this screen, VCDS shows you any DTCs ("Diagnostic Trouble Codes" or Fault Codes) present in the control module in which a communications session is currently active. VCDS shows the DTC numbers and also decodes each DTC into meaningful text.

At the top of the screen is shown the VAG Number and Component number as found on the Open Controller screen.

VCDS tells you how many fault codes have been found and displays each of them. The 4, 5,6, or 7-digit number is a standardized VAG fault code, which can be searched in the Factory Repair Manuals. The text is a description of the part and failure mode. The letter and number combination in parentheses is the Component Identifier. This is followed by elaborators describing the condition of the fault such as "004" meaning "No Signal/Communication". The second line contains the P-code, or generic OBD-II code (if it exists, there are thousands of VAG codes without generic OBD-II equivalents).

The **Use Aggressive Mode** checkbox applies only to UDS/ODX modules and is checked by default. When checked, VCDS will retrieve more faults than even the factory VAS tools in some cases. Uncheck this if you wish to correlate VCDS results with results from a VAS used in manual (non-guided functions) mode. The AutoScan function always uses Aggressive Mode.

Fault Codes cont. - Section 6-B

The **Display Freeze Frame Data** checkbox adds Freeze Frame data for Fault Codes on control modules using the KWP-2000 / CAN / UDS protocols. Keep in mind that many control modules are not aware of the actual date and time, so they may display bogus dates, just as they do with the factory scan tools. Note: Not all control modules fully support this. As a rule of thumb, cars which were re-designed after 2003 will likely have some control modules that support it, and older designs will not. There's no harm in leaving this enabled in any case. However, un-checking it can make the results less cluttered in a scan which contains many fault codes. In vehicles that do not support Freeze Frame, that checkbox will not be present.

One component of Freeze Frame data is the Fault Priority number as described below:

Number	Meaning
0	Undefined by the manufacturer.
1	The fault has a strong influence on drivability, immediate stop is required.
2	The fault requires an immediate service appointment.
3	The fault doesn't require an immediate service appointment, but it should be corrected with the next service appointment.
4	The fault recommends an action to be taken, otherwise drivability might be affected.
5	The fault has no influence on drivability.
6	The fault has a long term influence on drivability.
7	The fault has an influence on the comfort functions, but doesn't influence the car's drivability.
8	General Note

Fault Frequency shows how many times the conditions that caused the fault have recurred, during all driving cycles. So, if you have a fault with a Frequency of 11, then conditions sufficient to trigger the fault have happened 11 times since the fault was stored. The counter can have values from 0 to 254. It is incremented with each occurrence of the fault (during all driving cycles).

The **Reset counter** is a number that has been pre-assigned to each fault, with the number of problem-free driving cycles before the fault presumably clears itself. Each time a driving cycle occurs, and the conditions sufficient to trigger the fault do NOT occur, then the reset counter should go down by one. So if you have a fault with a Reset Counter of 40, if the controller goes through a problem-free driving cycle then that number should go down to 39.

Fault Codes cont. - Section 6-C

[Print Codes] will print a Fault Code Report. If your PC is not connected to a printer when this button is pressed, be sure to use Windows to set the printer to "Work Off-Line" first! Later, when you connect the PC to a printer, un-check "Work Off-Line" to print the report.

[Copy Codes] will copy your fault codes to Windows Clipboard. Once you have pressed the Copy Codes button, you may paste the results into the application of your choice, such as MS Word or Notepad.

[Save Codes] will save a plain-text Fault Code Report to the Logs directory of your PC, typically: C:\ross-tech\vcds\Logs\

[Clear Codes - 05] will send a message to the controller asking it to erase the DTCs from its memory. Some faults cannot be cleared (such as internal processor faults) and the control module may explicitly refuse or may just still display the fault after a clearing attempt. Be aware, clicking on Clear Codes does not fix the problem that caused the fault! DTCs should only be erased after correcting the condition(s) that caused them in the first place. Note: There is no way to erase individual DTCs while leaving others alone. This is not a limitation in VCDS. It's just the way the VAG protocols work. Note: In some cases, the ignition must be cycled after clearing codes but before performing certain functions such as Basic Settings.

[Done, Go Back] takes you back to the Controller Information Screen where you can select other functions.

VCDS - Measuring Blocks - Section 7-A
(VAG 1551/1552 function 08)

On this screen, you can read all sorts of data from the Control Module in real-time.

Use **[Up]** and **[Dn]** to scroll through the available groups (000 - 255 on most Control Modules) and you can view up to three groups at the same time. Don't become discouraged when you find some that say "ERROR: Group xxx Not Available" or if you find some groups where the fields are all blank. Most 1996 and newer ECU's have Groups in the 200 range, but there are often "gaps" in the numbers.

You can also type a Group number into any or all of the Group boxes and click **[Go!]**

Dual ECU's: For vehicles with dual ECU's (like the Audi R8), data from both ECUs can be viewed simultaneously by accessing **[31-Engine Other]** as shown here:

Measuring Blocks cont. - Section 7-B

You can **[Log]** the data from the measuring blocks. For more information see Data Logging (Section 8 of this manual).

[Switch to Basic Settings] can be used to go to Basic Settings for the Group that is currently being displayed.   This should be done only under guidance from the Service Manual or when following some other documented procedure. For more information, see the Basic Settings function (Section 17 of this manual).

Note: Multiple Groups are not permitted in Basic Settings.   The **[Switch To Basic Settings]** button is intentionally disabled if you have groups "running" in the second and third rows. The button is also disabled on controllers using KWP-2000/CAN/UDS. On those, you need to go directly to the Basic Settings screen. To stop a running group, click on the box that displays the group number (as though you wanted to enter a new number).

The data presented in each **Measuring Block** Group varies greatly from Control Module to Control Module and between different models and years.   Some groups are documented in the Factory Repair Manuals, but many are not. Feel free to explore the Control Modules in your car by scrolling through all the Groups.   You can't hurt anything with the Measuring Blocks function!

VCDS will attempt to "scale" the raw data coming from the Control Module into real-world units like degrees C, km/h, etc. At the present time, all scaling conversions are to metric (SI) units.

Note: Group 000 and any other group that displays 10 fields instead of 4 is an exception. No scaling is possible because the Control Module provides no "Data Type" information for these. Groups of this type can only be displayed in the top row of the screen.

VCDS also tries to elaborate as much as possible what the data means. Unfortunately, the "Data Type" information coming from the Control Module is not that precise.   For example: VCDS can tell that a particular field contains a Temperature, but the data from the Controller doesn't tell us whether this is the Coolant Temperature or the Intake Air Temperature.

To reduce the confusion, VCDS supports Label Files and will display the name of the Label File on the top left corner of the screen. If you click on the name of the Label File, the file will open in Notepad or whatever program you have set to handle *.LBL files. The newer encrypted *.CLB files cannot be opened in the same manner. When a Label file for the Control Module you are looking at does not exist, VCDS will come up with an "educated guess" for what a particular Data Type means. The dealers' VAG-1551 and 1552 scan-tools do not provide any elaboration; they only show what's in the display fields!

Group 000 supports special Labels. Due to space constraints on the screen, these labels are displayed in a "balloon" when the user hovers over a field:

Label Files also allow a third label field to be defined for each of the normal measuring block fields. This label is displayed in a balloon when the user hovers over the field. The idea is to put "specified values" in this field:
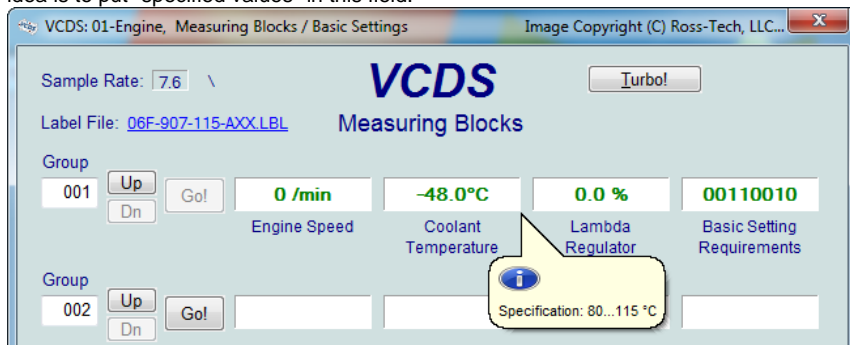
Sample Rate: Some ECUs may not be willing to produce more than about 3.5 samples per second when running a single group, even with the most aggressive protocol-timing settings. Other ECUs may be much faster.   Except on the slowest most ancient PCs, this is a limitation inherent in the firmware in the ECU, not a limitation in the VCDS software or the PC.   Naturally, if two groups are being displayed simultaneously, the sample rate drops about half what it was running a single group, and 3 groups simultaneously runs at around 1/3. Sample Rate will vary from controller to controller. Some controllers (particularly AG4 transmissions and Digifant-III ECU's) use a "hybrid" data-type that requires reading a long header when changing group numbers. Viewing multiple groups still works with these data types, but the sample rate becomes extremely slow. If you see "Reading Header" all the time under the Sample Rate display, you'll know you've got one of these.

In Engine controllers using KWP-2000, CAN, or UDS, there is a **[Turbo]** button in the top right of the Measuring Blocks screen when using a HEX Interface. Pressing this button can significantly speed up sampling, for example over 30 samples per second when logging a single group in the engine controller in an early Touareg. Once you have pressed **[Turbo]** you will remain in this High-Speed mode until you exit the Measuring Blocks screen:
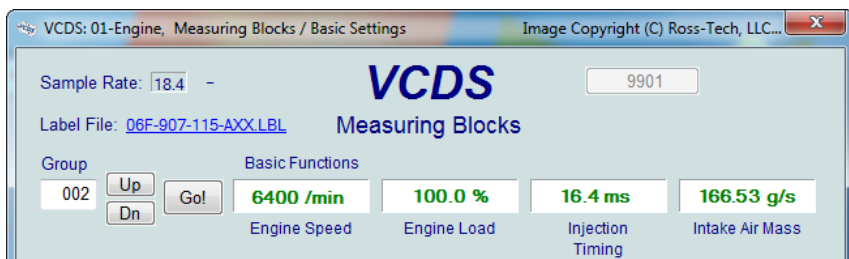
The **[Graph]** button is used to open up VC-Scope, a plug-in for VCDS that allows you to graph Measuring Group Information. See Section 32 for information on VC-Scope.

Use **[Done, Go Back]** to return to the Open Controller screen.

Measuring Blocks cont. - Section 7-D

If you'd like to record just a snapshot in time of the current readings in each group, click on **[Add to Log].** This will save the results to your PC, typically in your VCDS\Logs directory

Acceleration Measurement

When you have one or more measuring group with speed (km/h) in it, clicking on **[Acceleration]** will bring up the Acceleration Measurement window, which allows you to enter start and stop speeds and distances. This is described in the Acceleration Measurement (Section 14 of this manual).

Advanced Measuring Values

You may also want to try the Advanced Measuring Values function (see section 13), which frees you from the grouping format of the Measuring Blocks function. For controllers using the UDS/ODX/ASAM protocol, the Measuring Blocks function is not available and you MUST use Advanced Measuring Values instead.

Warning! If you wish to observe real-time data while driving the car, please use a second person!   Let one drive while the other observes the data, making sure the person holding the PC is not in front of an active airbag!

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VCDS - Data Logging - Section 8-A

You can log the data from the Measuring Blocks screen to a comma-separated *.CSV file. These files can be opened and analyzed with Excel or other spreadsheet applications or played back using VC-Scope (see Section 32 of this manual).

Export RPM only when checked will record only RPM from the first field and will not record other fields. Also, this will only record RPM values that are non-zero. This feature can be useful if you are logging to output the file to a spreadsheet or other third party software

While the Log Dialog is open, **[Start]**, **[Stop]**, and **[Resume]** can all be done with the same button. **[Start]** begins saving the data to a log file.

[Stop] discontinues the saving of data to a log file

[Resume] continues the saving of data to a log file.

[Done, Close] closes the log file and exist out of the Log function.

Data Logging cont. - Section 8-B

Dual ECU's: For vehicles with dual ECU's (like the Audi R8), data from both ECU's can be logged simultaneously by accessing **[31 – Engine Other]** as shown here:
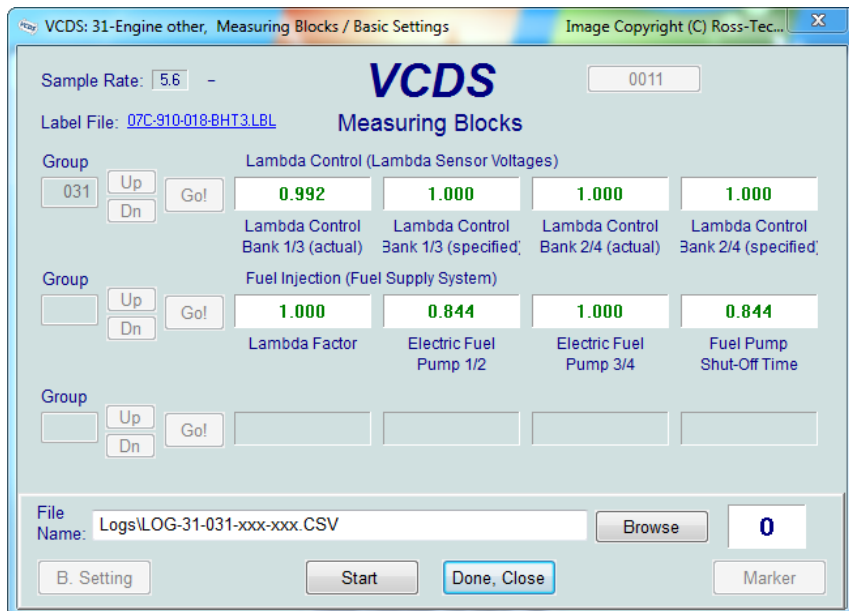
The **[Marker]** button places a sequential number in the file when you click it. This can be helpful for data analysis.

The **[Browse]** button allows you to specify the location for your logs. By default, Log Files will be placed in the Logs sub-folder in your PC, typically: C:\ross-tech\vcds\Logs\

By default, the name of the log file will be the controller number followed by each group number that you are logging. The name can be changed to anything you'd like. If you re-use an existing filename, your new data will be appended to that file.

Switch to Basic Settings is not currently available while logging (but may be added later). However, you can start a log while you're in Basic Settings.

If VCDS keeps insisting that it can't open a Log file, you're probably missing the LOGS folder and should re-install VCDS.

Data Logging cont. - Section 8-C

Example using Microsoft Excel:

1. Choose the group or groups that you want to view.
2. Click the **[Log]** button
3. Use default file name if desired. It will append the old file if you use a particular name more than once.
4. Click **[Start]**
5. Drive the car through the tests that you want to perform
6. Click **[Stop]**
7. Click **[Done, Close]** when you're finished logging data.
8. Open Microsoft Excel
9. Click File->Open (change filetype to all *.*)
10. Locate the *.csv file that you created, typically in C:\ross-tech\vcds\Logs\
11. With mouse select the columns you want to graph.
12. Click the Chart Wizard button.
13. Select XY (Scatter) and click one of the formats that has lines.
14. The chart wizard will prompt you to name axes if you want.
15. Pick, for example, RPM values for the x-axis and IAT for the y-axis

You can also use the **[Graph]** button to open the VC-Scope plug-in for VCDS that allows you to replay LOG files. See Section 32 for information on VC-Scope.

Warning!
If you're going to use VCDS while you're driving, please use a second person!   Let one drive while the other observes the data, making sure the person holding the PC is not in front of an active airbag! Obviously, do not break any laws, speeding or otherwise while using VCDS!

VCDS - Single Reading- Section 9-A
(VAG 1551/1552 function 09)
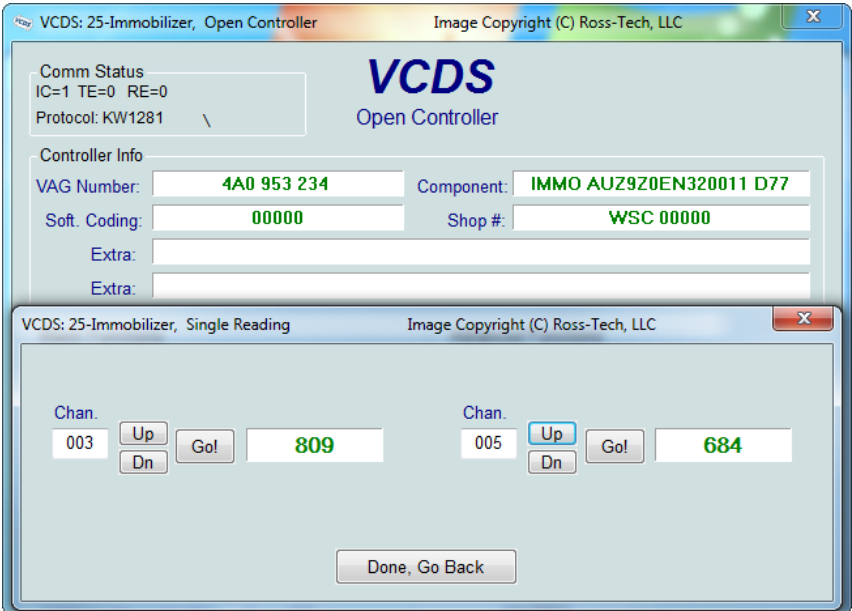
This function allows you to look at real-time data from control modules that support it. However, the data stream coming from the control module gives NO CLUE what the data means or how to scale it into real-world values.

The only way to know what the values mean is to find a reference to this function in the Factory Repair Manual for your car.

This function is rare, but it is used, for example, with some OBD-I 2.8L 12V V6 engines.

The very name of this function annoyed us, so we added a twist. You can look at two channels of "Single Readings" at once!

Use **[Up]** and **[Dn]** to scroll through the available groups (000 - 255 on some Control Modules). Don't become discouraged when you find some where the fields are all blank. You can also type a Channel number into the Channel box and click **[Go!]**

Use **[Done, Go Back]** to return to the Open Controller screen.

Note: On the Open Controller screen, the Supported Codes button will appear in place of the Single Reading function in modules that support it, since the two functions are mutually exclusive.

VCDS – Supported Codes- Section 10-A
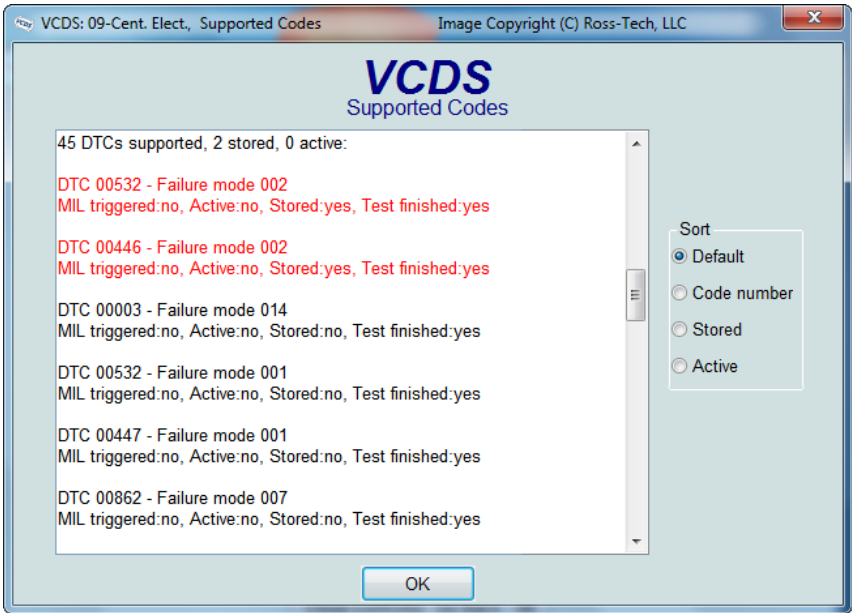
Supported Codes function: Only some KWP2000/CAN/UDS control modules support this function and there is no way to tell which have this capability without trying the function. VCDS can show all DTC and Failure Mode combinations which a control module is capable of detecting, including the current status of each.

You can sort the results by selecting the radio buttons on the right side of the screen.

Use **[OK]** to return to the Controller Info / Select Function screen.

Note: On the Open Controller screen, the Supported Codes button will appear in place of the Single Reading function in modules that support it, since the two functions are mutually exclusive.

VCDS - View Readiness - Section 11-A
(VAG 1551/1552 function 15)
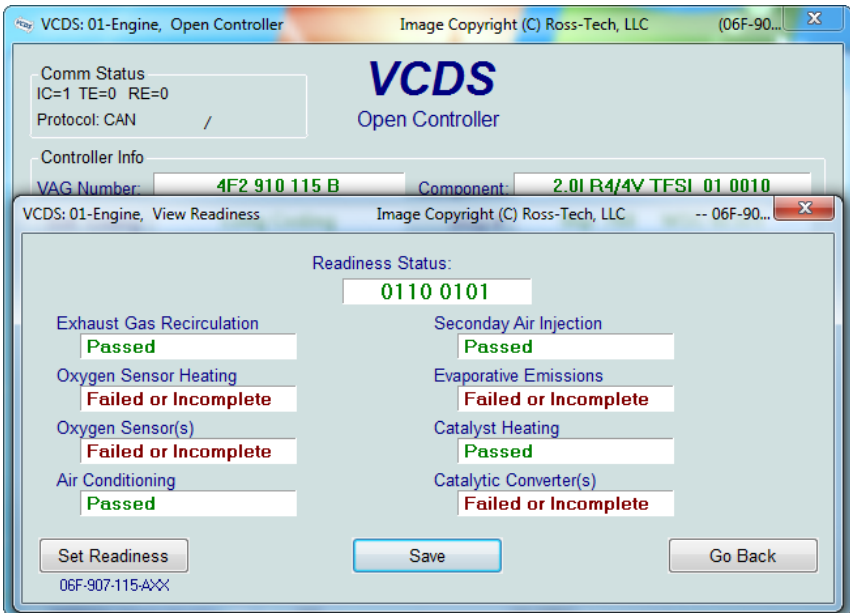
The Readiness Code is a set of 8 bits, each of which corresponds to one monitored emissions "system" in an OBD-II car. When all readiness bits show "Passed", it means that all systems have been checked and have passed the on-board tests.

Whenever you clear DTCs, all readiness bits that are testable will be set to "Fail" or "Failed or Incomplete". Most cars do not have all 8 systems, so the ECU should recognize the bits corresponding to systems that are not actually in the car. These will come up "Passed" automatically without going through any tests.

It takes a variety of specific driving conditions to "test" all the systems. In practice, driving a properly-functioning car for 2-3 days including at least one short highway trip, should be sufficient to test each of the Readiness Bits to set all of the testable ones to "Passed". It can be done in a short time using a very specific and complicated procedure found in the On Board Diagnostic section of the Factory Repair Manual for your engine or you can use the Guided Readiness Script function in VCDS as described later in this section.

View Readiness cont. - Section 11-B

VCDS also decodes Readiness bits into meaningful data on modern TDI engines including US-market Common-Rail TDI-140 engines. Diesel Readiness is a VCDS exclusive, not even the VAS-5051/5052 does this:
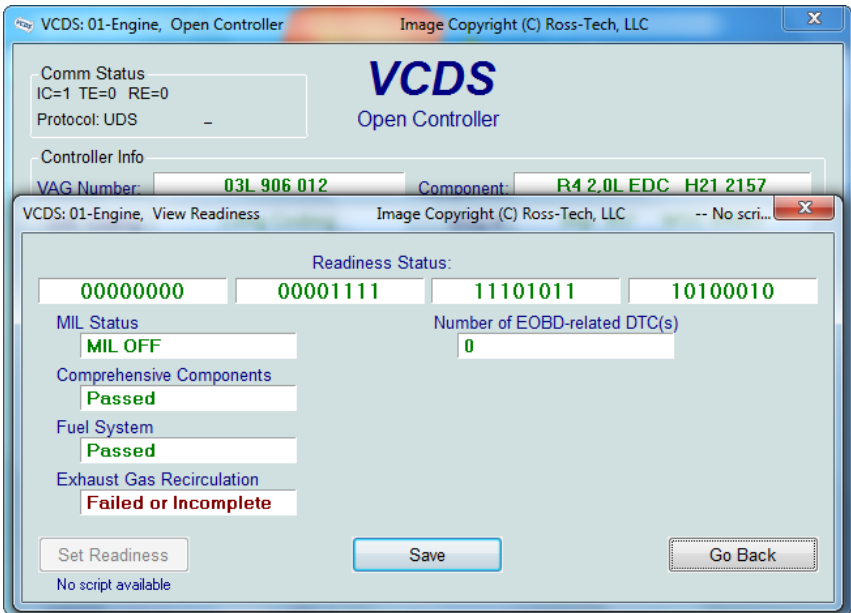
Click on **[Save]** to store the results to your PC, typically in this directory on your PC:

 C:\Ross-Tech\VCDS\Logs

Use **[Go Back]** to return to the Open Controller screen.

Notes:

The Readiness function is only available on Engine Controllers that are OBD-II compliant (all 1996 and newer US-Model) or EOBD compliant (all 2001 and newer European-market models).

Non-US models and older TDIs may not support the Readiness function even though they are otherwise OBD-II compliant. OBD-I did not require any "monitors".

12V 2.8L V6 engines may have readiness bits stored in or near Measuring Block Group 029.

View Readiness cont. - Section 11-C

The **Guided Readiness Scripts** function will guide the user through the process of setting Readiness on those engines which support it by clicking on the **[Set Readiness]** button. The button will be grayed out if Readiness bits are already set (you can clear fault codes to un-set them) or if appropriate documentation does not exist in VCDS for that specific ECU:
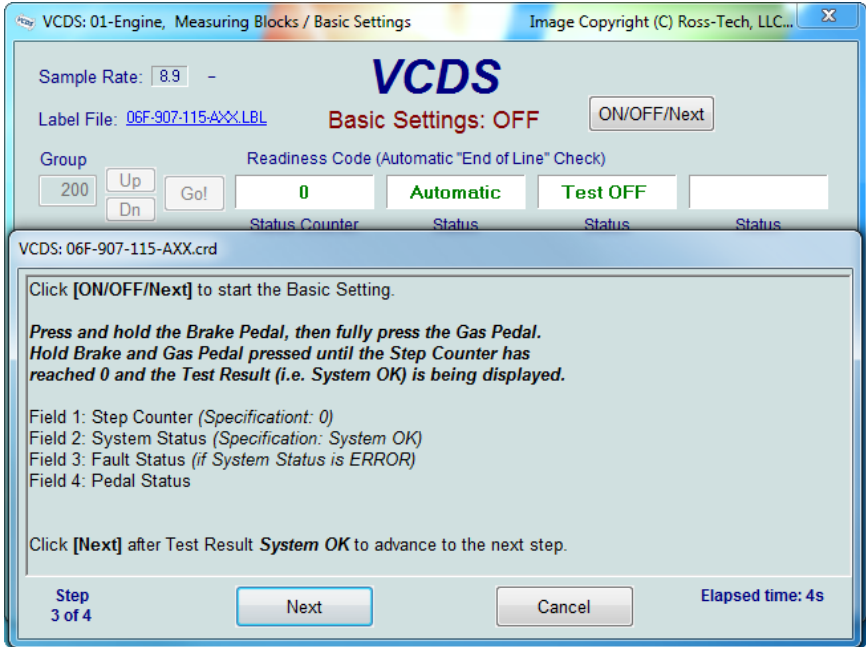
Guided Readiness Scripts require supporting data in Label files.   Not every possible engine is currently documented but we hope to have most US-model engines covered in the future.   If you have a specific engine you would like to see covered and have a written procedure for it, please contact us at support@Ross-Tech.com preferably by emailing an AutoScan.

Use **[Next]** to advance through the on-screen prompts or **[Cancel]** to exit out of Guided Readiness.

VCDS - Advanced Identification - Section 12-A
(VAS 5051/5052 "Identification Services")
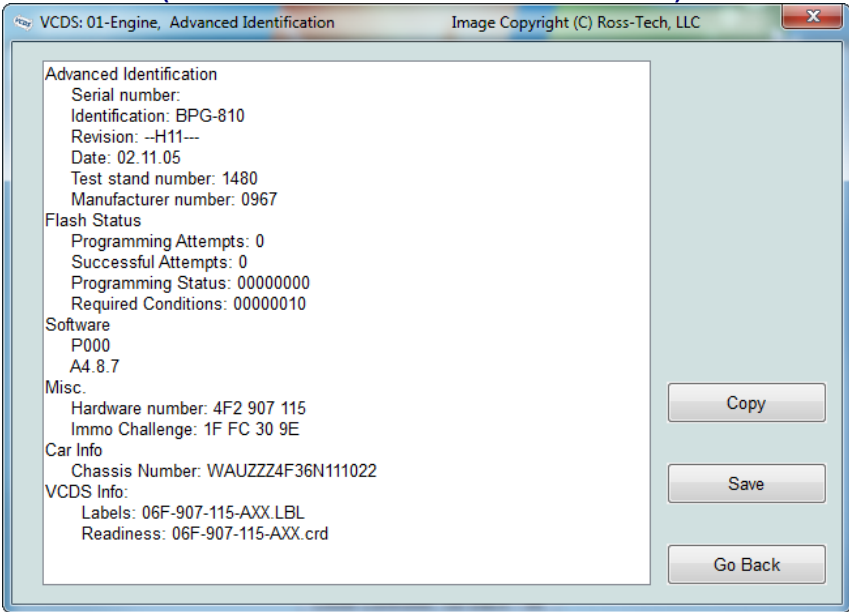
Corresponds to VAS-5051/5051 "Identification Services"

This function displays additional (and sometimes quite arcane) identifying data from the control module which does not fit on the Open Controller screen.

Notes:

- The Advanced ID function is not available on control modules using the old KW-1281 protocol.

- The amount of data appearing on this screen will vary based on what the control module supports.

[Copy] will copy the information shown on this screen to the Windows Clipboard. Once you have pressed the Copy Codes button, you may paste the results into the application of your choice, such as MS Word or Notepad.

[Save] will save a plain-text report to your PC, typically in this directory: C:\Ross-Tech\VCDS\Logs

Use **[Go Back]** to return to the Open Controller screen.

# VCDS - Advanced Measuring Values - Section 13-A

VCDS: 17-Instruments, Advanced Measuring Values   Image Copyright (C) Ross-Tech, LLC...

Sample Rate: 6.4
☑ Group UDS requests

VCDS
Advanced Measuring Values

Loc.	Description	Actual
154	Fuel Level Sensor 1	510 Ohm
200	Operating ranges of fuel supply	0.000 l

[Graph]   [Log]   [Save]   [Done, Go Back]
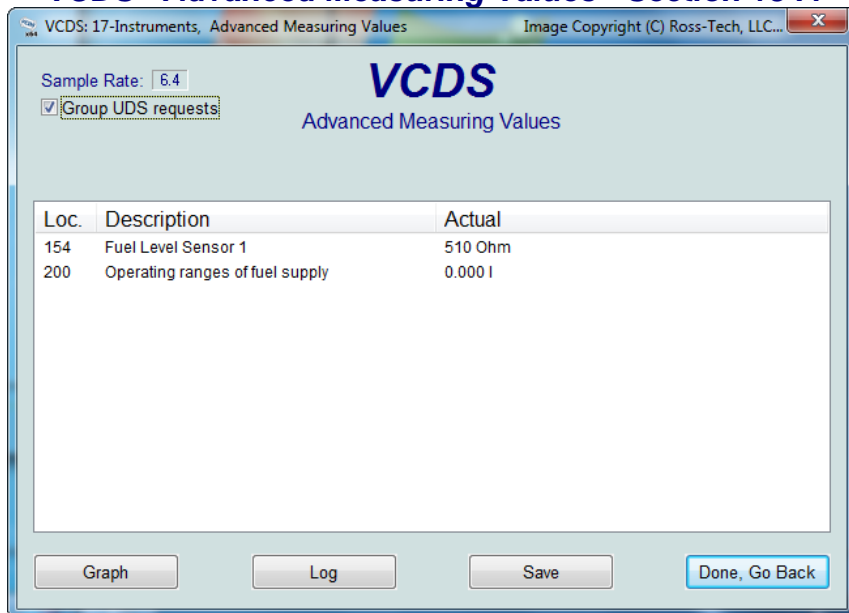
This function expands on the Measuring Blocks function and lets you select up to 12 measuring values from as many as 12 different groups from a selection dialog that shows the contents of the measuring values. This function is available only when a label file exists for the control module being accessed. For controllers using the UDS/ODX/ASAM protocol, the Measuring Blocks function is not available and you MUST use Advanced Measuring Blocks instead. For UDS controllers, the "Group UDS requests" checkbox can speed up sample rates.

Warning!
If you wish to observe real-time data while driving the car, please use a second person! Let one drive while the other observes the data, making sure the person holding the PC is not in front of an active airbag!

Note: You may also want to try the Measuring Blocks function, which accesses the same data but in a different format. (see Section 7 of this manual).

The Advanced Measuring Values function has two screens, the main one shown above and the Item Selection Window shown to the right. Check each value you would like to show and uncheck each that you would like to remove. Use the data entry box on top to filter only the items containing the word you enter such as "fuel" shown here. Use the **[Clear]** button to remove the filter. ►

<- Click for Selection Save/Load

fuel   [Clear]

Description	Loc.
☐ Fuel level	149
☐ Fuel level from sensor 1	150
☐ Fuel level from sensor 2	151
☐ Fuel level gasoline	152
☐ Fuel Level Sensor	153
☑ Fuel Level Sensor 1	154
☐ Fuel level sensor 1 including soiling r...	155
☐ Fuel level sensor 1 soiling resistance	156
☐ Fuel Level Sensor 2	157
☐ Fuel level sensor 2 including soiling r...	158
☐ Fuel level sensor 2 soiling resistance	159
☑ Operating ranges of fuel supply	200
☐ Operating ranges of fuel supply; CNG ...	201
☐ Operating ranges of fuel supply; LPG ...	202
☐ Refuel detection-Nachtankerkennung ...	213
☐ Refuel detection-Refuel detection gas	214
☐ Status of input signals 9-Low fuel indi...	311
☐ Status of input signals 9-Low fuel indi...	312
☐ Status of text/acoustics 1-Engine: Fue...	366

Advanced Measuring Values cont. - Section 13-B

VCDS lets you save a list of Advanced Measuring Values, to be easily accessed later on. For instance, if you often log Vehicle Speed, Engine Speed, Intake Air Mass, and Ignition timing, then you can create a file to quickly load those selections again. To save a set of items, click on the VCDS logo found on the top left corner of the item selection window, and then select "Save selection to file":
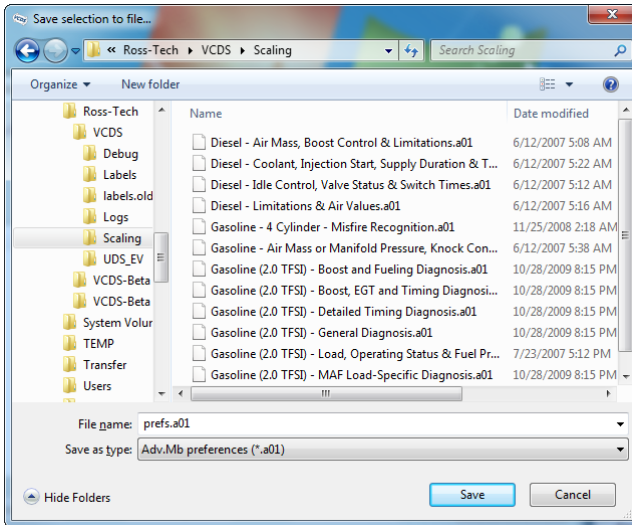
Give the file a name and specify the directory if desired. To load a set of previously saved items, click on the VCDS logo found on the top left corner of the item selection window, then select "Load selection from file". Locate the previously saved file and click **[Open]**.

Sample Rate: The amount of data acquired in a given amount of time is determined by the controller in the vehicle. Selecting a greater number of different Groups will result in slower sampling so momentary "spikes" or "dips" will be harder to capture. In Engine controllers using KWP-2000/CAN/UDS, there is a **[Turbo]** button to significantly speed up sampling, for example over 30 samples per second when logging a single group in our Touareg. The controller will remain in this High-Speed mode until you exit the Advanced Measuring Blocks screen. This function is only available when using a HEX Interface.

[Graph] will open up VC-Scope a plug-in for VCDS that allows you to graph Measuring Group Information and display customizable virtual gauges. For more information, see the VC-Scope section of this manual (section 32).

You can **[Log]** the data from the Advanced Measuring Blocks screen. For more information see the Data Logging section of this manual (section 8).

If you'd like to record just a snapshot in time of the current readings in each group, click on **[Save].** This will save the results to your PC, typically in your VCDS\Logs directory

When you have one or more measuring group with speed (km/h) in it, clicking on **[Acceleration]** will bring up the Acceleration Measurement window, which allows you to enter start and stop speeds and distances. This is described in the Acceleration Measurement section of this manual (section 14).

Use **[Done, Go Back]** to return to the Open Controller screen.

VCDS – Acceleration Measurement - Section 14-A

When you have one or more Measuring Blocks or Advanced Measuring Values with speed (km/h) in it, clicking on **[Acceleration]** will bring up the Acceleration Measurement window, which allows you to enter start and stop speeds and distances. After entering the values you want to measure, click **[Start].** Next, do your acceleration runs in a safe and legal location. The "clock" will start counting when the car starts to accelerate. When complete, click on **[Save]** to save a copy of your results to your C:\Ross-Tech\VCDS\Logs directory.

Use **[Done, Go Back]** to return to the Measuring Blocks or Advanced Measuring Values screen.

Note: The +/- tolerance shown is based on the sample rate of the data selected. Use a single measuring group and check the Options screen for tips on obtaining the fastest possible sample rate. Our testing at a dragstrip yielded results within the tolerance. Obviously, changes like overall tire diameter can greatly affect the results.

Warning!
If you wish to observe real-time data while driving the car, please use a second person! Let one drive while the other observes the data, making sure the person holding the PC is not in front of an active airbag!

VCDS - Login - Section 15-A
(VAG 1551/1552 function 11)
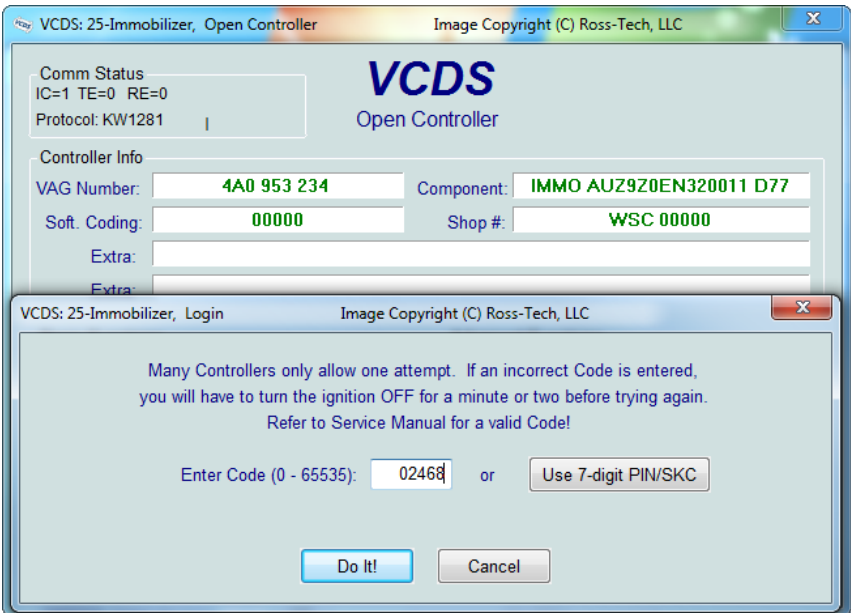
The Login Function must be used on some (but not all) Control Modules before you can Recode or change Adaptation values. On others, it "enables" certain features like cruise control. Valid Login codes can be found in the Factory Repair Manual for your car.

If you are working on an Immobilizer, select **[Use 7-digit PIN/SKC]** to enter a 7-digit Secret Key Code. This function is described in Section 16.

Balloons: VCDS can show Login "charts" when appropriate information is available in a Label File for the control module in question. The balloon will appear after a few seconds if the Label File contains the appropriate information.

This warning *appears in the* upper right corner of the screen if a session is disconnected after you have done a Login. ►

The most common cause of this is the use of an incorrect login code or a 7-digit PIN/SKC based on an incorrect Immobilizer ID or incorrect data entered in the 7-digit dialog. You will need to exit the Controller and do another Login. In some cases the module may "timeout" for exponentially increasing durations with each invalid Login attempt.

Use the **[Do It!]** button to save the Login and return to the Select Function Screen.

Use the **[Cancel]** button to cancel the Login and return to the Select Function Screen.

VCDS - 7-digit PIN/SKC - Section 16-A
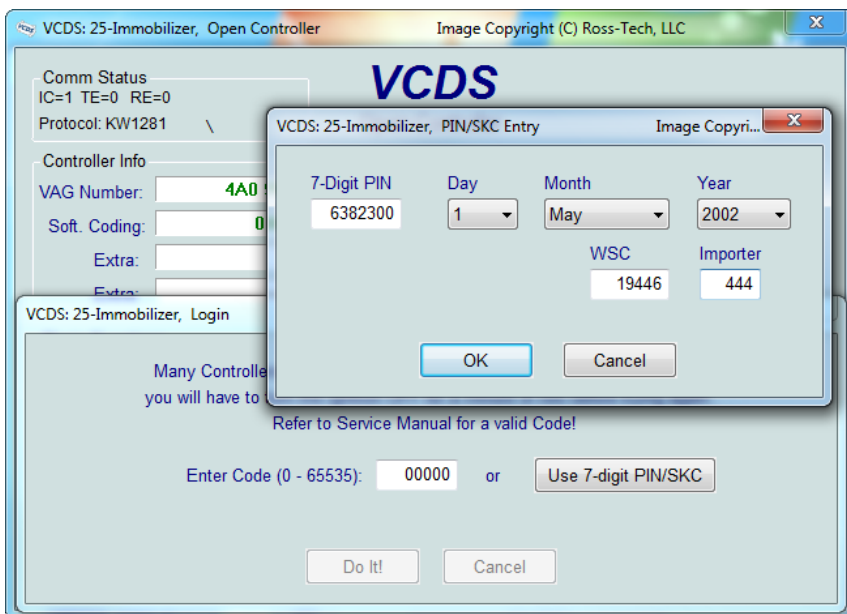
The 7-digit PIN/SKC (Secret Key Code) dialog is used for Key Matching and Immobilizer Adaptation. This function is still in VCDS but is pretty much obsolete since VW/Audi stopped giving out 7-digit SKC's in 2005. Just in case you obtained your 7-digit SKC before then (along with the necessary WSC, Importer and date the code was generated), instructions on using this function can be found on our website:

🌐 **http://ross-tech.com/vcds-lite/manual/pinskc.html**

Important: Unless you ALREADY have the SKC information for your vehicle and components then you will NOT be able to do any of the Immobilizer functions. Please see the FAQ number 4.15 for information on SKC availability.

VCDS - Basic Settings - Section 17-A
(VAG 1551/1552 function 04)
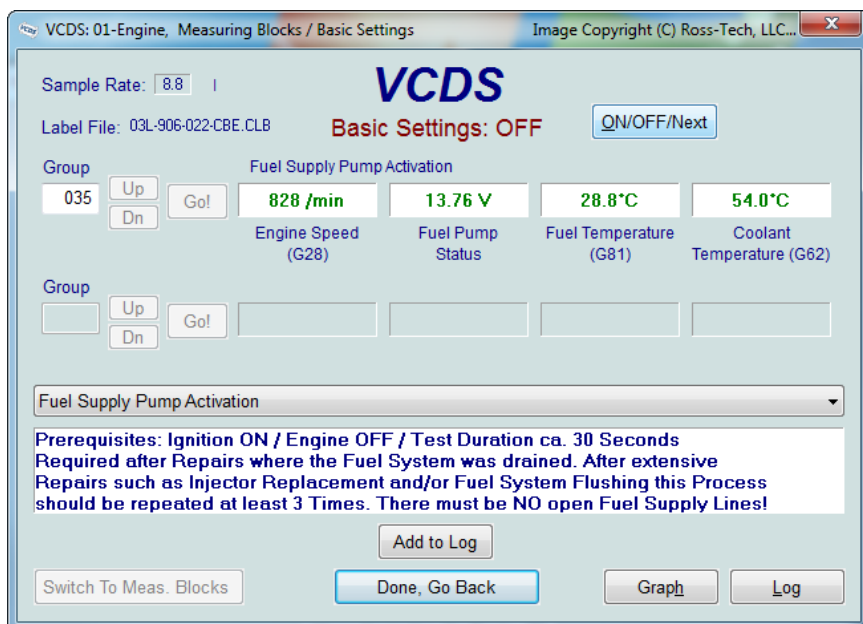
Basic Settings mode is very similar to Measuring Blocks and the contents of each display group is the same. The difference between the functions is that the Control Module may try to perform various calibrations while in Basic Settings mode.

The most common use for the Basic Settings function is to recalibrate the Throttle Body. Another common use for Basic Settings is to bleed the ABS Hydraulic Unit on some cars. Please refer to a Factory Repair Manual for your car before attempting to do these procedures!

In controllers using KW-1281, the Basic Settings function "does its thing" as soon as you have entered a group number and clicked **[Go!]** or as soon as you have entered Basic Settings through the Measuring Blocks function. In Controllers using KWP-2000/CAN/UDS, there may be an **[ON/OFF/Next]** button that allows you to initiate and exit Basic Settings while still being able to see the values in the measuring groups. This does not appear every time and its appearance and function are up to each controller in the car.

If you'd like to record just a snapshot in time of the current readings in each group, click on **[Add to Log].** This will save the results to your PC, typically in your VCDS\Logs directory

[Switch to Meas. Blocks] will switch back to the passive (and "safe") Measuring Blocks mode (only in controllers using KW-1281).

[Graph] will open up VC-Scope, a plug-in for VCDS that allows you to graph Basic Settings Information and display customizable virtual gauges. For more information, see the VC-Scope section of this manual (section 32).

You can begin and end a Data **[Log]** while in Basic Settings. See section 8 of this manual for information on Data Logging.

For control modules that have a Label File with Basic Settings information, a drop-down menu is available which allows you to select from the supported Basic Settings functions. Below that menu is an area to display additional info for Basic Settings. The data to be displayed in this area comes from the Label files and it may take some time before tips are included for most Basic Settings groups.

As is the case for other functions under UDS, there are no longer any channel or group numbers. Instead, the Basic Setting to be performed must be selected from a drop-down list:
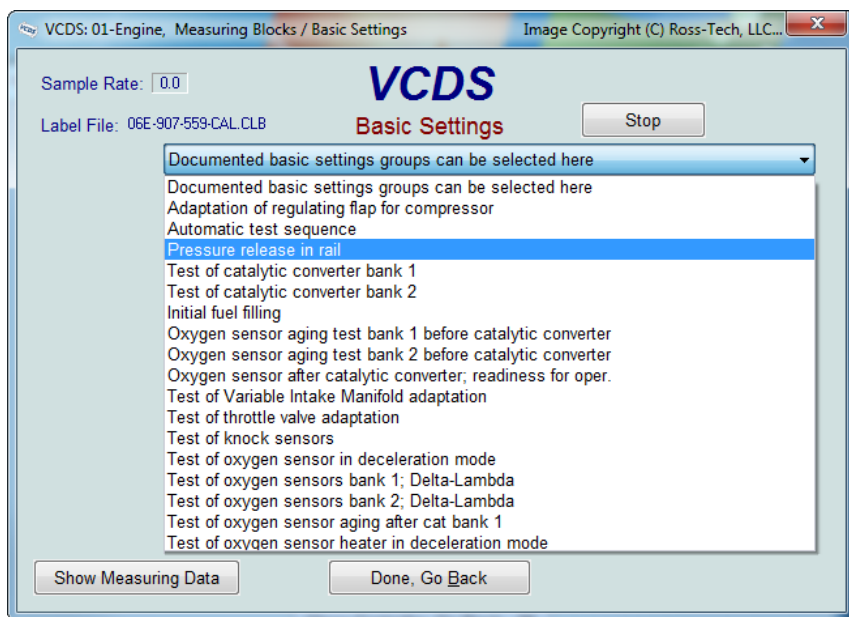
Dual ECU's: For vehicles with dual ECU's (like the Audi R8), the Basic Settings mode for both ECU's can be accessed simultaneously by addressing **[31 – Engine Other]**

Warnings:

- You should refer to the Factory Repair Manual for your particular car (or some other documented procedure) before "playing" with the Basic Settings function. Failure to follow the proper procedures can result in serious damage to the vehicle.

- Although you can use the **[Up]** and **[Dn]** buttons to scroll through the available groups just like on the Measuring Blocks screen, this is NOT a good idea since you may put the Controller into Basic Settings for a Group that you did not intend.

On **UDS** control modules that offer "Instructions", VCDS will automatically display them. In addition, UDS Measuring Values can be displayed simultaneously by clicking on the **[Show Measuring Data]** button:

Basic Settings cont. - Section 17-D

Notes:

- Multiple Groups are not permitted in Basic Settings. The data presented in each **Basic Settings** Group varies greatly from Control Module to Control Module and between different models and years. Some groups are documented in the Factory Repair Manuals, but many are not.

- VCDS tries to elaborate on the meaning of the data as much as possible but the "Data Type" information coming from the Control Module is not very precise. For example: VCDS can tell that a particular field contains a Temperature, but the data from the Controller doesn't tell us whether this is the Coolant Temperature or the Intake Air Temperature.

- To reduce the confusion, VCDS supports Label Files and will display the name of the Label File. The Label File name is displayed on the top left when you are in Measuring Blocks or Basic Settings. If you click on the name of the Label File, the file will open in Notepad or whatever program you have set to handle *LBL files. The newer encrypted *.CLB files cannot be opened in the same manner. When a Label file for the Control Module you are looking at does not exist, VCDS will come up with an "educated guess" for what a particular Data Type means. The dealers' VAG-1551 and 1552 scan-tools do not provide any elaboration; they only show what's in the display fields! Basic Setting will display a popup balloon when the mouse if hovered over each value, if the Label File contains information for that field in that controller. See section 7 for more information on the Measuring Blocks function.

Use **[Done, Go Back]** to return to the Open Controller screen.

VCDS - Output Tests - Section 18-A
(VAG 1551/1552 function 03)
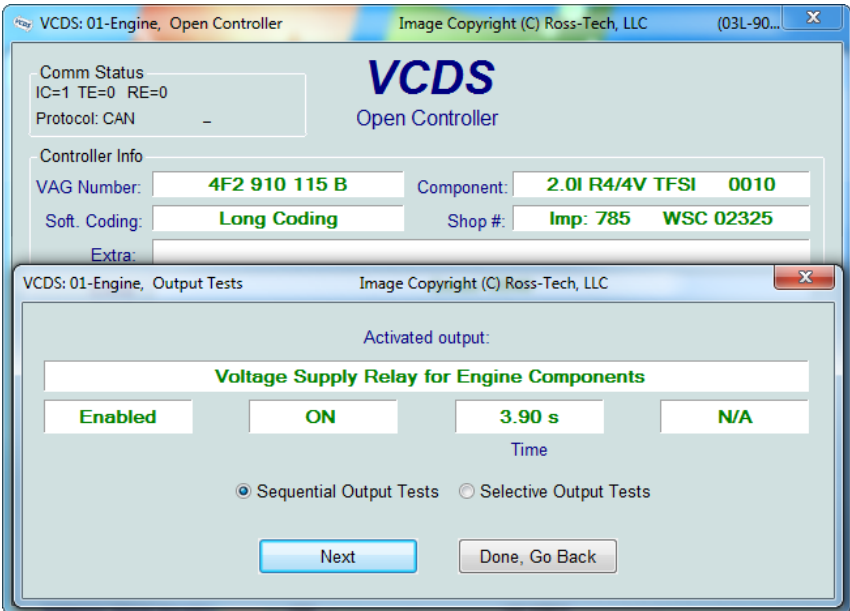
The Output Tests function is used to test a Control Module's Electrical Outputs (and the wiring that connects it to the various devices). Output Tests under KWP-2000/CAN/UDS includes simultaneous measuring data when available from the control module in question, in UDS by clicking on the **[Measuring Values]** button.

To begin sequential Output Tests, and to progress through each step, click **[Start/Next]**. In some cases an **[Activate]** button will appear, depending on the specifics of the control module.

Notes:
The Outputs that can be tested and the sequence in which they become active are controlled strictly by the Control Module; this is not a function of the Diagnostic Tester.   To find out which Outputs can be tested and the sequence in which they will become active, please refer to the Factory Repair Manual for your car.

Once the Test Sequence has been started, clicking **[Done, Go Back]** will take you back to the Open Controller Function Screen. **THE TEST SEQUENCE WILL STILL BE ACTIVE!**

Most Control Modules will permit the Output Test Sequence to be run only one time per session.   If you run the Test Sequence to completion, VCDS will allow you to return to the previous screen without closing the session, but you may not be able to run the Output Test Sequence again. If you need to run the Sequence again, manually Close the Controller and re-start the session. On some cars, you must cycle the key OFF and ON or even start the engine (to clear the cylinders of fuel).

Some Output Tests require additional action before they become active. Fuel Injectors are a common example. To activate a Fuel Injector, you must press (and in some cases release) the gas pedal.   Exact details can be found in your Factory Repair Manual.

Output Tests cont. - Section 18-B

On most systems, the Output Tests function is only available when the Engine is not running.

It is perfectly normal to see a "short to ground" message in the process of running Output Tests. The ECU identifies which output it is currently testing by sending a fault-code number. On many ECUs the full text for this fault code includes "short to ground". Why? Because one side of the actuator in question has power supplied all the time and the ECU completes the circuit (and turns the actuator on) by pulling the other side to ground.

Warning:

Do not use the Output Tests function on any system while the car is in motion!   Running Output Tests on the ABS brake system can temporarily disable the brakes entirely and cause individual wheels to lock and unlock.

We strongly suggest you refer to the Factory Repair Manual for your specific car before running Output Tests on any Control Module so you will know what to expect!

If you try to perform Output Tests on an Airbag controller, the following warning will pop up:
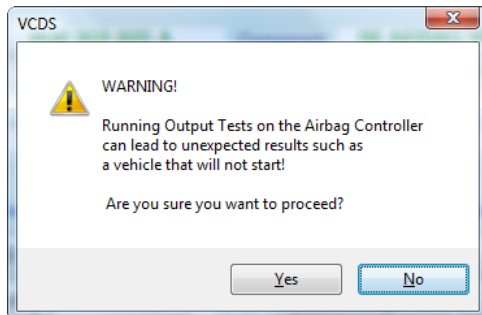
For example, in the VW Touareg, a specific procedure must be performed to be able to start the vehicle if Output Tests on the Airbag Controller have been performed.

Output Tests cont. - Section 18-C

Selective Output Tests. On those modules that support it, this is a more sophisticated version of the traditional (sequential) Output Test function. It allows the user to select a particular output and activate it directly without going through a pre-defined sequence to get there. Some modules have outputs which can only be tested this way. Selective Output Tests *requires* supporting data in a label file (or ROD file for UDS modules). There is no way to efficiently query a control module to find out which outputs are supported.
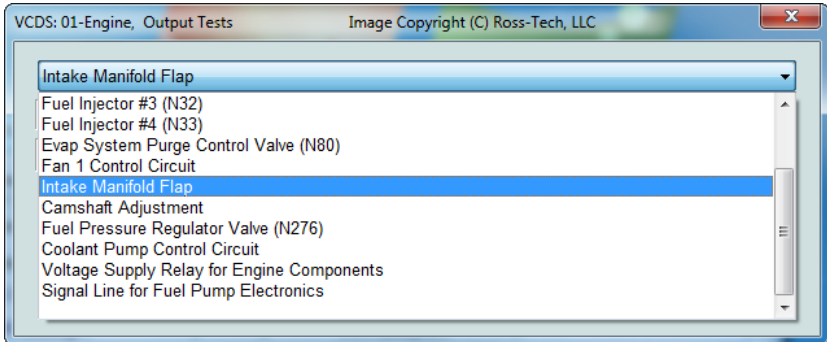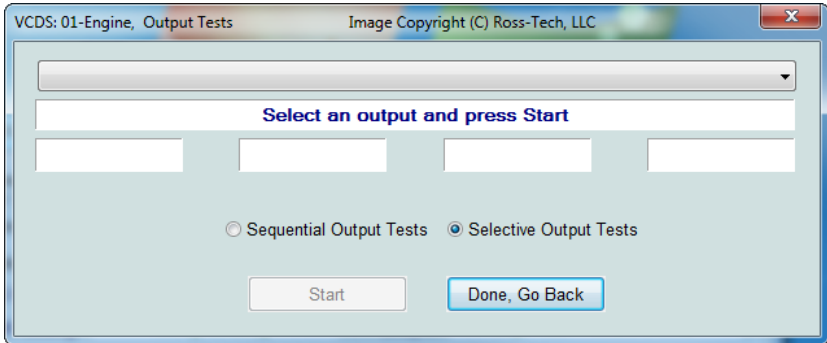
Output Tests cont. - Section 18-D

Measuring Values can be displayed during Output Tests in UDS/ODX modules. This can be handy to verify that certain outputs are functioning as intended by clicking on the **[Measuring Values]** button:

Use **[Done, Go Back]** to return to the Open Controller screen.

VCDS - Recode or Long Coding - Section 19-A
(VAG 1551/1552 function 07)

VCDS: 25-Immobilizer, Open Controller   Image Copyright (C) Ross-Tech, LLC

VCDS
Open Controller

Comm Status
IC=1 TE=0 RE=0
Protocol: KW1281   /

Controller Info
VAG Number: 4A0 953 234   Component: IMMO AUZ9Z0EN320011 D77

VCDS: 25-Immobilizer, Recode Module   Image Copyright (C) Ross-Tech, LLC

Please write down the original values before attempting to change anything.
Incorrect Coding can make a Control Module non-functional!

0 -- 4A0 953 234 -- IMMO AUZ9Z0EN320011 D77

Software Coding (0 - 00127):   04000

WorkShop Code (0 - 99999):   00000

Importer Number (0 - 999):   ---

[Do It!]   [Cancel]

Recode is used to set various options in a Control Module. Note: Some Modules require a valid Login before you can re-code them.

Warning! You should refer to the Factory Repair Manual for your particular car (or some other documented procedure) before attempting to Recode a Control Module. At the very least, write down the original values, saving an AutoScan is a great way to do that. There is no other way to "undo" the values if what you're trying to do doesn't work out.

VCDS can show coding "charts" when appropriate information is available in a Label File for the control module in question. This data is shown in a balloon on the coding screen. ►

VCDS: 01-Engine, Open Controller   Image Copyright (C) Ross-T...

VCDS
Open Controller

Comm Status
IC=1 TE=0 RE=0
Protocol: KW1281   _

Controller Info
VAG Number: 06A 906 019   Component: 1.6l F...

VCDS: 01-Engine, Recode Module   Image Copyright (C) Ross-Tec...

ⓘ Engine Control Unit Coding   ✕

AEH/AKL (< MY 1999)
04000 - Manual Transmission
04030 - Automatic Transmission

AEH/AKL (MY 2000 >)
000?x - CAN-Databus
0 - without data bus
1 - ABS with data bus
2 - Airbag with data bus
3 - ABS and Airbag with data bus

000x? - Transmission
1 - 5-Speed Manual Transmission
3 - Automatic Transmission

...alues before attempting to ...
...ake a Control Module non-fu...

...4/2V SIMOS HS2272

2767):   04000

9999):   00000

- 999):   ---

[Do It!]   [Cancel]

A feature unique to VCDS: You can leave the WorkShop Code unchanged, or enter any workshop code you desire. Certain other programs always leave a tell-tale WSC when you re-code a module. The Importer Number is only relevant for recoding controllers that use KWP-2000. By default, this will remain unchanged unless you have set up an Importer Number in the Options screen.

Airbag Coding:

When coding new Airbag Modules in many VW models, VCDS can "Suggest" an appropriate Coding value based on the Index number of the airbag controller. This feature is available only when VCDS is used with one of our Professional Grade (HEX) interfaces. Disclaimer: We cannot guarantee that the coding suggested by VCDS will be correct, but there should be no harm in trying it. If it's not correct, the control module should refuse to accept it and the coding will remain at 00000. To access this function, click on the **[Coding Helper]** button:
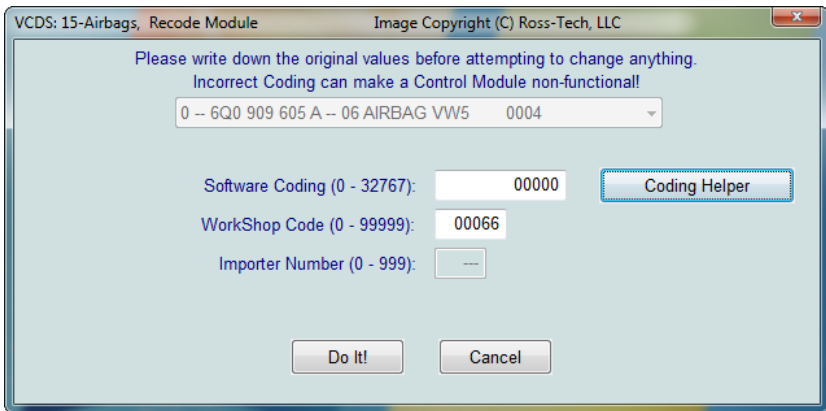
Follow the instructions on the screen to locate the index number for the airbag controller:
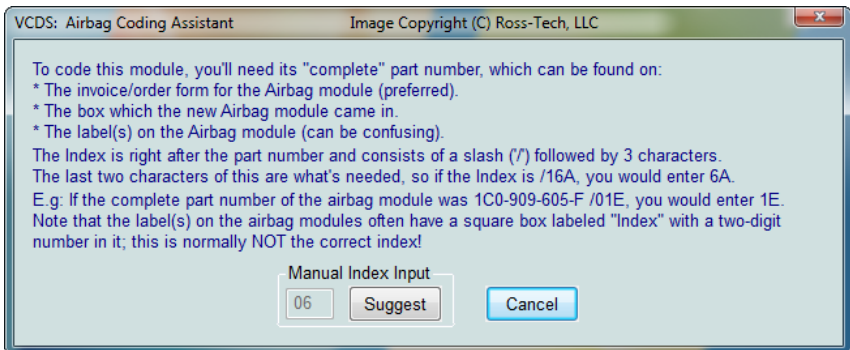
As long as the Index entered is valid and documentation exists in the appropriate label file, the new Coding (either short coding or Long Coding) should be entered into the Software Coding field:
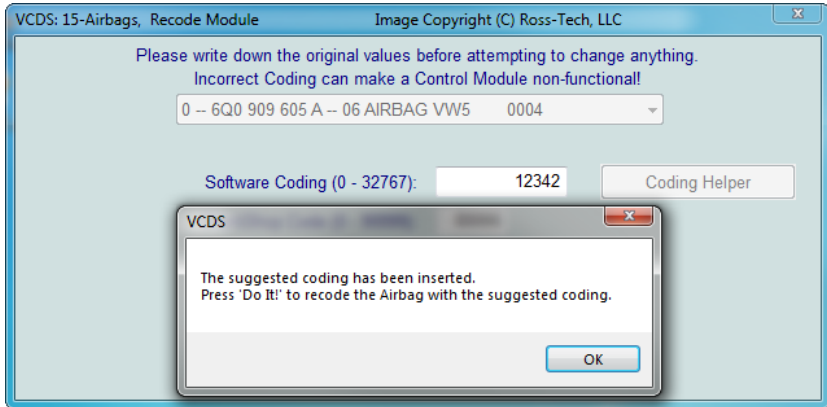
See the Airbag Coding Page on our Website for more info:

🌐 **www.Ross-Tech.com/vag-com/cars/airbag-coding.html**

Coding of Slave Modules. On the latest cars, many "slave" modules are codeable. The coding screens (both regular and "long") will present a drop-list of available modules which can be selected for coding:

Recode cont. - Section 19-D

Long Coding. This function is needed to Code some control modules in cars that use CAN for diagnostics.   Due to the complexity of Long Coding strings (up to 255 bytes of hexadecimal data) we've accommodated (and urge) the use of Copy & Paste in this function and usage of the Long Coding Helper. Check the **Soft reset** box (UDS only) if it is mentioned in repair instructions.

Long Coding Helper is used with applications such as Niels Ezerman's excellent LCode.exe (included with the latest distribution of VCDS). Click on each of the Byte numbers in row **3**) and you'll see the selectable options in row 4). They can be individual checkboxes as shown below. Check or Un-check the boxes for the desired results. Example: "Adaptive Cruise Control (ACC) installed".

Recode cont. - Section 19-E

Some coding configurations require multiple bits to be changed. In these cases, you can select from a drop-down menu that represents the appropriate bits:
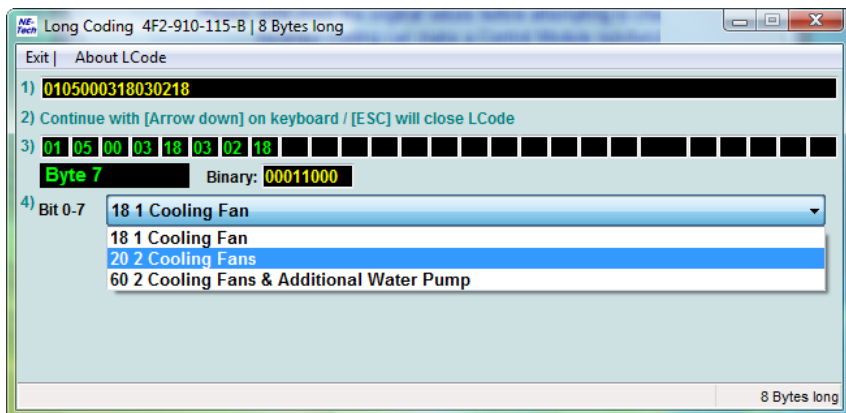
After making the desired changes in the Long Coding helper, closing that application (by using the [ESC] key on your keyboard or by clicking the Windows X box on the top right of the screen or clicking the Exit button on the top left of the screen) will send your new Coding value back to the Coding screen where you can click **[Do It!]**.

The **Battery Coding Assistant** is used for cars that require a replacement battery to be coded in the 61-Battery Regulation module: Note that the 10 digit serial number may be preceded by the battery vendor code, for instance VAO for Varta. If the code is VAO25402160104 then drop the VAO and just enter 25402160104:
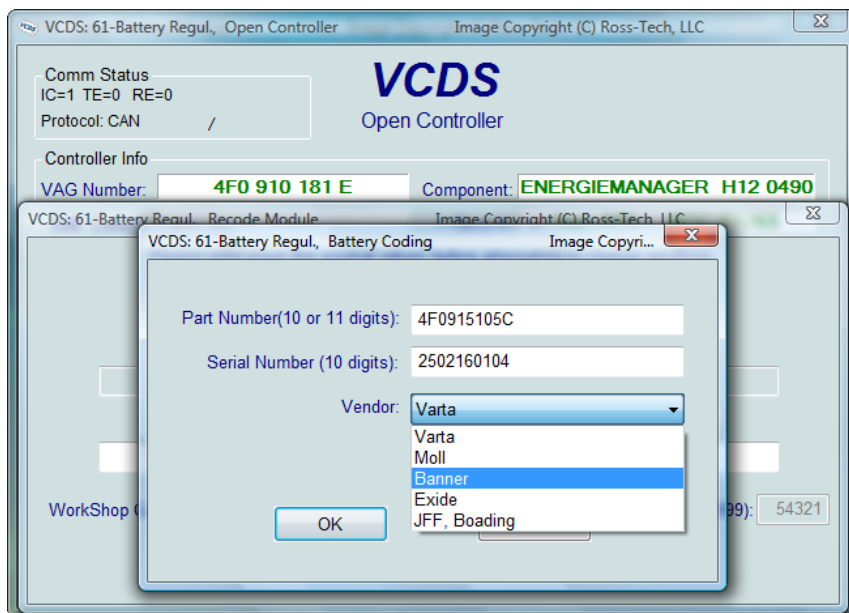
Recode cont. - Section 19-F

On some newer vehicles like the 8T0 (Audi B8 platform), the Gateway Installation is not accessible via Long Coding. In such cases, use the **[Installation List** button in the Open Controller screen for 19 - CAN Gateway to access this screen. This function is available in all Gateways that support an Installation list:
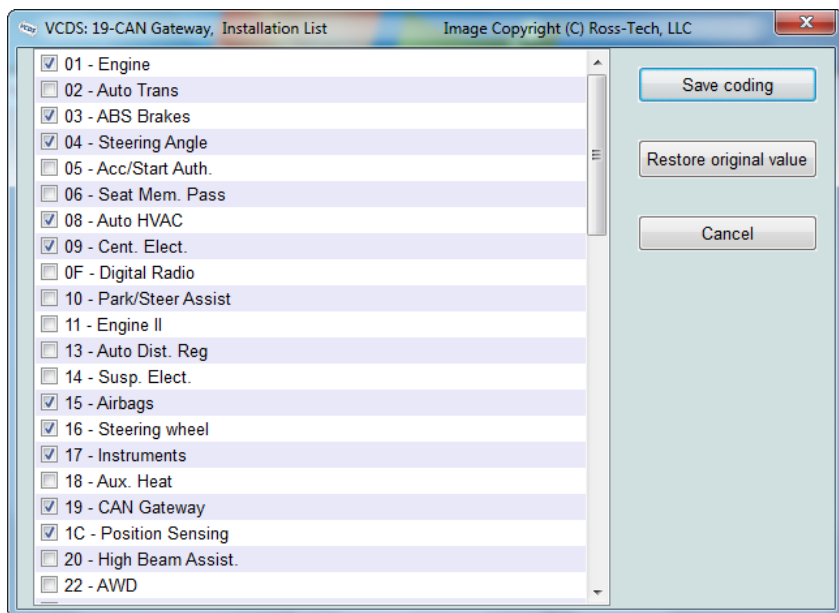
If an uninitialized control module warning appears, this means that one or more of the WorkShop Code, Importer, or Equipment numbers are all zeros. Since some modules will not allow you to Save Coding values unless non-zero numbers are in any or all of those fields, VCDS shows you this error when it thinks this might be the case. ►
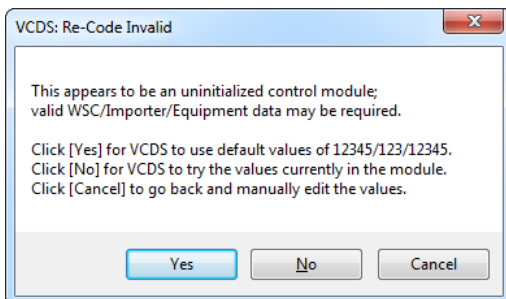
In most cases you should click **[Yes]** to allow VCDS to enter 12345/123/12345 in those fields. If you click **[No]** then VCDS will try using the values currently stored in the module even if they are all zeros. If you click **[Cancel]** then VCDS will allow you to manually type in values for each of those fields.

Use the **[Do It!]** button to save the new Soft Coding to the controller and return to the Open Controller screen.

Use the **[Cancel]** button to return to the Open Controller screen without making changes.

VCDS – Adaptation / Long Adaptation - Section 20-A
(VAG 1551/1552 function 10)
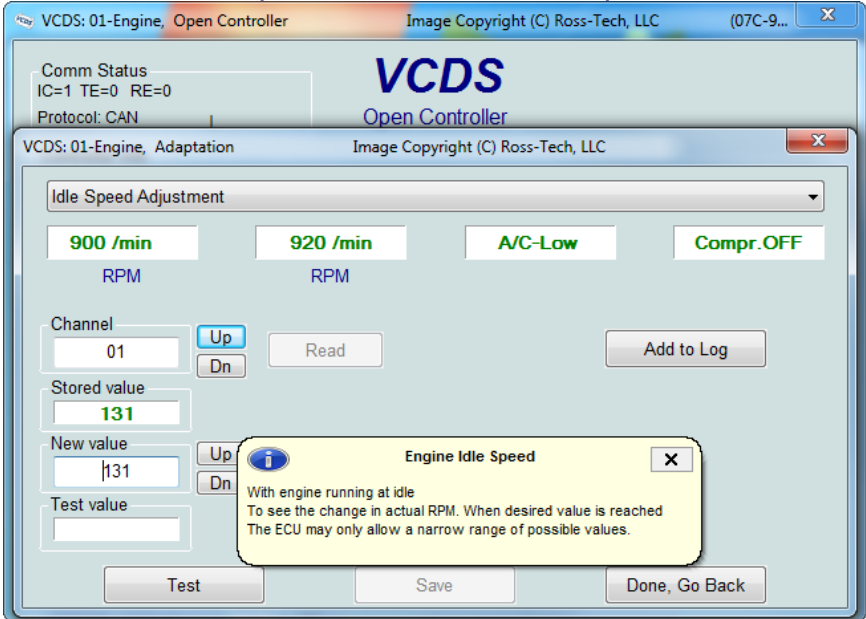
The Adaptation function allows you to alter certain values and/or settings in control modules that support it.

Warning!
You should refer to the Factory Repair Manual for your particular car (or some other documented procedure) before "playing" with the Adaptation function. However, many available Adaptation Channels are totally undocumented! You can use the **[Up]** and **[Dn]** buttons next to *Channel* to scroll through all 255 possible channels, or you can manually enter a channel number and click **[Read]**. If a channel exists, VCDS will show you the *Stored Value*. If a channel does not exist, the Stored Value will show as "N/A". Other data the controller may or may not send will be decoded and shown in the four display fields at the top of the screen.

If an uninitialized control module warning appears, this means that one or more of the WorkShop Code, Importer, or Equipment numbers are all zeros. Since some modules will not allow you to save Adaptation values unless non-zero numbers are in any or all of those fields, VCDS shows you this error when it thinks this might be the case. ►
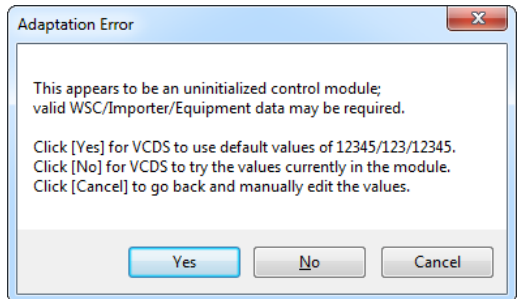
In most cases you should click **[Yes]** to allow VCDS to enter 12345/123/12345 in those fields. If you click **[No]** then VCDS will try using the values currently stored in the module even if they are all zeros. If you click **[Cancel]** then VCDS will allow you to manually type in values for each of those fields.

Adaptation / Long Adaptation cont. - Section 20-B

Label Files can support values and descriptions for Adaptation channels. A help chart may be displayed in a balloon. For control modules that have a Label File with Adaptation information (or for UDS modules with a ROD file), a drop-down menu will be shown, which allows you to select from the supported functions:
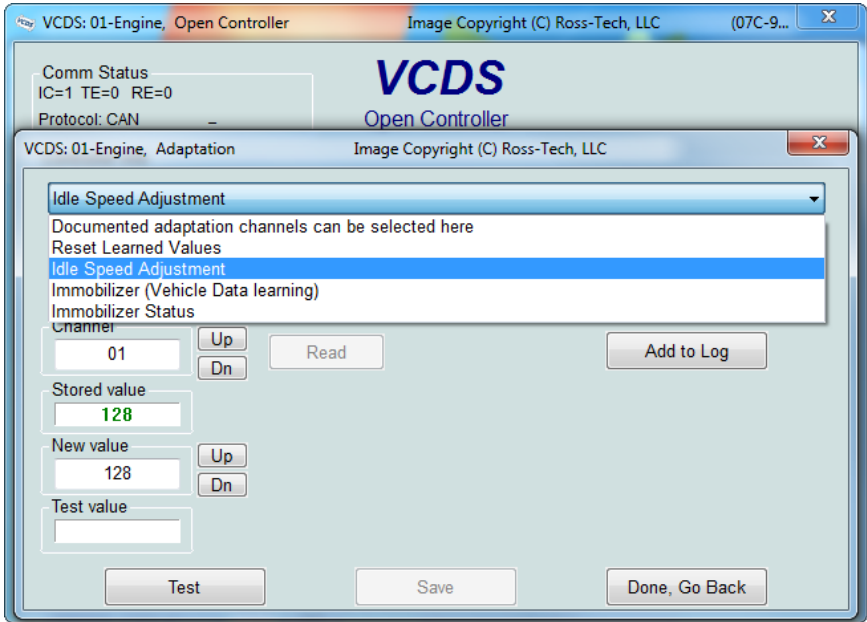
Once you have reached a channel of interest, you can use the **[Up]** and **[Dn]** buttons next to *New Value* to incrementally change the value. Or you can directly enter a *New Value* and click **[Test]**. This will tell the controller to temporarily use the new value so you can evaluate its effects.

When you are satisfied with the effect of a *New Value*, you can store it in the Controller permanently by clicking **[Save]**.

If you'd like to record just a snapshot in time of the current readings in each group, click on **[Add to Log].** This will save the results to your PC, typically to your C:\Ross-Tech\VCDS\Logs directory.

Notes:
Channel 00 is a special case. Performing a **[Save]** to Channel 00 resets all adaptation values to their original factory defaults. This only works in controllers that support this function, see your Factory Repair Manual to find out if this procedure applies to each controller in your vehicle.

Some Engine and Immobilizer controllers will require a valid Login before permitting you to **[Test]** or **[Save]** Adaptation values.
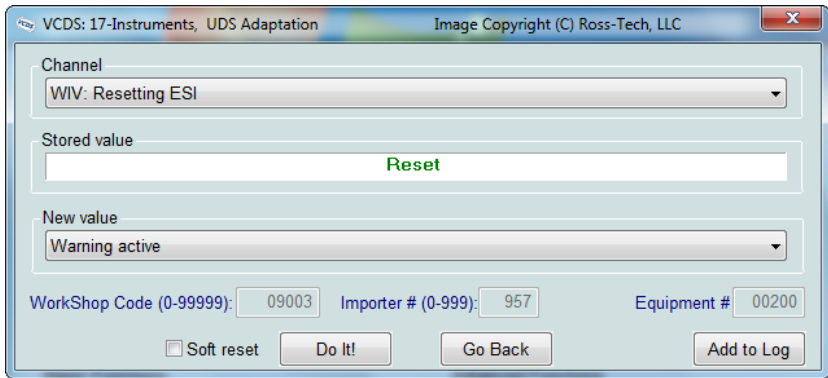
Values put in with **[Test]** but not Saved will persist until controller is powered-down.

Adaptation / Long Adaptation cont. - Section 20-C

UDS: For controllers using the UDS/ODX/ASAM protocol, the drop-down menu MUST be used, since traditional Adaptation Channels do not apply. VCDS supports Adaptation for all control modules in the VW Crafter / LT3 as explained on this page on our website:

🌐 **http://ross-tech.com/vcds/tour/LT3.html**
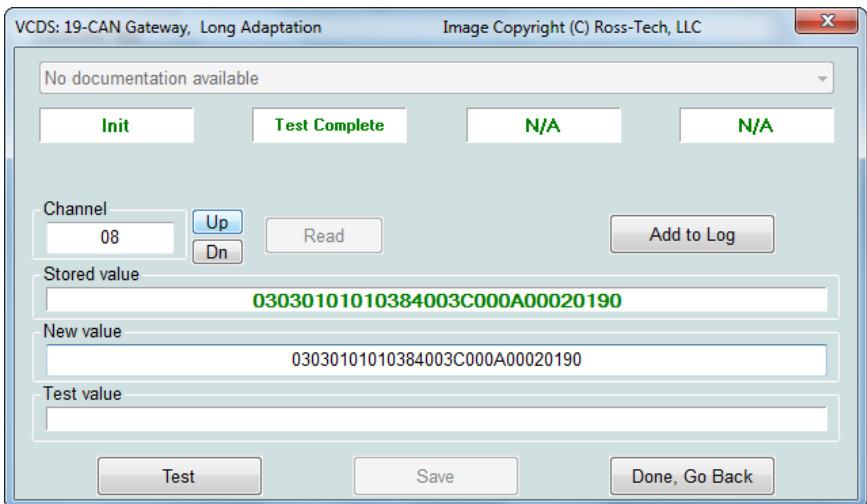
In Adaptation for UDS controllers, WSC, Importer, and Equipment numbers can be entered if needed by the controller:

Check the **Soft reset** box if it is mentioned in repair instructions.

Long Adaptation is a subset of the Adaptation function and is used/needed (for example) to balance the fuel injectors on Common-Rail TDI engines (such as the BKN). It is also used for the CAN Gateway of new vehicles like the Audi A5 as shown here:

Click **[Done, Go Back]** to return to the Open Controller Screen.

VCDS: 01-Engine, Open Controller	Image Copyright (C) Ross-Tech, LLC	(07C-9...

Comm Status
IC=1 TE=0 RE=0
Protocol: CAN   \

VCDS
Open Controller

Controller Info

VAG Number:	4E0 910 018 B	Component:	6.0L W12/4V *A ᵃ0030
Soft. Coding:	0007773	Shop #:	Imp: 666 WSC 06744
Extra:			
Extra:	Geraet 36023		

VCDS: 01-Engine, Security Access	Image Copyright (C) Ross-Tech, LLC

Most Controllers only allow one access attempt. If an incorrect access key
is entered, you will have to leave the ignition ON for at least ten minutes before
trying again. Refer to Service Manual for a valid access key.

Enter security access key (0 - 99999):   [12345]   or   [Use 7-digit PIN/SKC]

[Do it!]   [Cancel]   Option: [ ]

The Security Access Function must be used on some (but not all) KWP-2000/CAN/UDS
Control Modules before you can Recode or change Adaptation values. On others, it
"enables" certain features like cruise control. Valid Security Access codes can be found in
the Factory Repair Manual for your car.

Balloons: VCDS can show Security Access "charts" when appropriate information is
available in a Label File for the control module in question. The balloon will appear when
the mouse cursor is hovered over the Enter security access key field.

The Security Access Function supports 7-Digit SKCs. This type is largely obsolete since
VW no longer give out PIN/SKC's but has been left in place for those who obtained their
SKC, Importer, WSC, and date prior to 2005.

For more information, see section 16 in this manual for the 7-digit PIN/SKC function.

The Option field is only to be used if you are given specific instructions from Ross-Tech.

Use the **[Do It!]** button to save the Login and return to the Open Controller screen.

Use the **[Cancel]** button to cancel the Login and return to the Open Controller screen

VCDS – SRI Reset- Section 22-A

The **[SRI Reset]** function is used to reset the Service Reminder in vehicles so equipped. The function will automatically access the Instrument Cluster and will retrieve SRI instructions from the Label File as well as current values stored in the Cluster. New values can be entered by hand, or the user can select the drop-down list to choose from a number of functions which will load standard value sets.

	VCDS: SRI Reset	Image Copyright (C) Ross-Tech, LLC			

Operation

Please select an operation

Channel	Description	Unit	Current val.	New val.
02	Service Reminder Status		0	---
40	Mileage since Service	miles x100	11	---
41	Time since Service	Days	257	---
42	Min Mileage to Service	miles x100	100	---
43	Max Mileage to Service	miles x100	100	---
44	Max Time to Service	Days	365	---
45	Oil Quality		1	---
47	Soot Quantity	km x100	0	---
48	Thermal Load	km x100	76	---
49	Min Time to Service	Days	365	---

Save to logfile	Perform SRI	Done, Go Back

Models using flexible service intervals may show "---" as values for the time/distance to the next service in the instrument cluster. This is not an error. The system requires a certain time/distance to calibrate itself to show meaningful values, usually this takes about 300 miles or 500 km.

In many newer Audi models (2008 onward), the default "Simple Service Reset" or "Basic Service Reset" choice cannot be used. Instead, you must pick the appropriate choice for your region, for example "#2 Mileage based Service Reset (USA)".

On the latest cars using UDS/ODX diagnostic protocols for the Instrument Cluster, the SRI Reset function does not apply. Instead, SRI must be reset by saving the appropriate Adaptation values directly in the Instrument Cluster. Please check the Ross-Tech Wiki for instructions and contact Ross-Tech via email if you need assistance with this function.

This page contains an example of SRI Reset in a UDS Cluster (in a Mk6 Golf)
 http://wiki.ross-tech.com/wiki/index.php/VW_Golf/Golf_Plus_(5K/52)_Instrument_Cluster
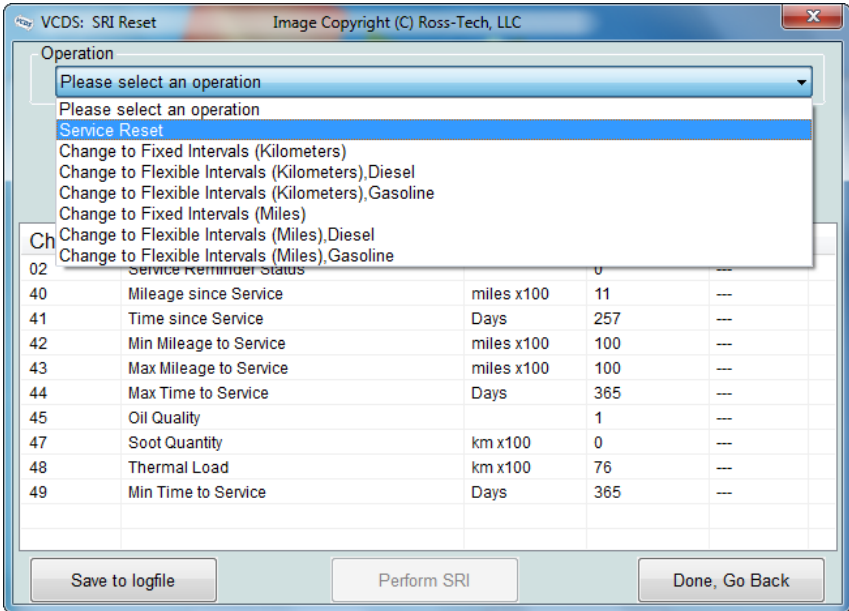
The **[Save to logfile]** button can be useful when there are questions about or difficulties with the SRI function as it's an easy way to send us a snapshot of what's going on.   Data is saved to the Session Log , typically in your C:\Ross-Tech\VCDS\Logs directory.

Upon clicking **[Perform SRI]** the new values will be stored in the (often less than intuitive) sequence required. After cycling the ignition, the cluster should no longer indicate that service is due.
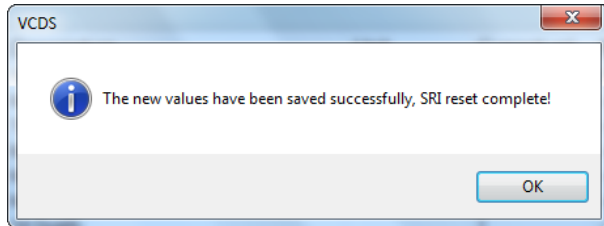
Note: The Service Reminder Function requires supporting data in Label files. VCDS ships with a fairly comprehensive set, but we doubt we've managed to cover every possible car. If you encounter a car that has Service Reminders (not all cars have this) for which the SRI Reset function is not accessible, please send us a Controller Channels Map of the Adaptation channels from the Instrument Cluster in that car.

This page contains more information about how to create Maps to help make VCDS more complete:

🌐 **http://wiki.ross-tech.com/index.php/Control_Module_Maps**

Use **[Done, Go Back]** to return to the Main screen.

VCDS: Generic OBD2   Image Copyright (C) Ross-Tech, LLC

Protocol: ISO14230

Running...|

Mode 9 : Calibration Identification

Type 02 - VIN : WAUDK78T18A XXXXXX (Address E8)
Type 04 - Calibration ID : 8T0907559B Q0001 (Address E8)
Type 06 - Calibration Verification Number : BFAD8FFF (Address E8)
Type 08 - In-use performance tracking :
    OBD Monitoring Conditions Encountered count : 38
    Ignition cycle count : 272
    Conditions completion count / Specificied conditions encountered count
     Catalyst monitor bank 1 : 7 / 37
     Catalyst monitor bank 2 : 8 / 38
     O2 Sensor monitor bank 1 : 17 / 38
     O2 Sensor monitor bank 2 : 14 / 38
     EGR-VVT monitor : 56 / 38
     AIR monitor : 0 / 0
     EVAP monitor : 8 / 5

Mode 1 Read Data	Mode 1-01 Readiness	Mode 2 Freeze Frame	Mode 3 Current DTCs	Mode 4 Clear DTCs
Mode 5 O2 Sensors	Mode 6 Non cont. tests	Mode 7 Pending DTCs	Mode 9 Vehicle Info	Mode 10 Perm. DTCs
Copy	Save			Done, Go Back

Generic OBD-II functionality. Because many of VW's recent factory repair manuals no longer have traditional 01-Engine "On Board Diagnostic" information and have replaced it with "Generic Scan Tool" data, this has become much more important than it was in the past. Click each of the Mode buttons to access each OBD-II function.

Generic OBD-II functionality is "Supported" only on VW, Audi, Seat, and Skoda cars. It will likely work on many other brands of cars. We'd be happy to receive feedback as to what other brands and models of cars it does and does not work on, however, we do not feel obligated to make it work on other manufacturer's cars.

Generic OBD-II functionality is limited to cars using ISO 9141-2 ("CARB"), ISO 14230 ("KWP-2000") and ISO-15765 ("CAN") protocols. None of our interfaces support the SAE J1850-VPW and J1850-PWM protocols used by most US-market pre-2008 GM and Ford products, so VCDS cannot work at all on those cars. Most early (1996-2000) OBD-II compatible Chrysler cars used the compatible ISO-9141-2 while many 2001-2007 Chrysler cars use the incompatible SAE-J1850 standard. Most European and Asian cars use ISO or CAN and should be compatible when used with an interface that supports those protocols. Generic OBD-II compatibility was required as of model year 1996 in the USA, model year 1998 in Canada, and 2001 (gasoline) or 2004 (diesel) for in the European Market. All 2008 and newer vehicles sold in the US are required to use CAN-Bus diagnostics for Generic OBD-II so it shouldn't hurt to try this function on any brand.

Generic OBD2 cont. - Section 23-B

Interfaces: Our HEX+CAN and HEX-NET interfaces support ISO 9141-2 ("CARB"), ISO 14230 ("KWP-2000") and ISO-15765 ("CAN") protocols.   Our non-CAN HEX-, KEY-, and KII- series interfaces support ISO 9141-2 ("CARB"), ISO 14230 ("KWP-2000"), but do *not* support ISO-15765 ("CAN").   Our Micro-CAN interface supports ISO-15765 ("CAN"), but do *not* support ISO 9141-2 ("CARB") or ISO 14230 ("KWP-2000") for generic OBD-II. The ISO-15765 ("CAN") protocol was introduced in a few cars in model year 2004 and became universally required in all cars sold in the US market for model year 2008.

Each Generic OBD-II mode is defined by SAE J1979 - the specification paper is available from: 🌐 **www.sae.org**

 Below is a brief overview of what each Mode does, refer to a Factory Repair Manual for specific information and testing steps.

Mode	Meaning
1	**Read Data** allows you to view real-time emissions-related sensor and status data reported by the ECU. The sample rate can be sped up considerably by using the **[Turbo]** button and by checking **No wait for 2nd controller**. Since Generic OBD-2 can request the same information from both the Engine and Auto Trans, it may cause unnecessary delay for Engine readings if you aren't concerned about data from the Auto Trans.
1-01	**Readiness** shows the status of each of the emissions systems monitored by the ECU.
2	**Freeze Frame** shows the conditions present when an emissions-related fault last occurred.
3	**Current DTCs** shows the present emissions-related fault(s). VCDS gives you a checkbox to convert the code description into VW/Audi-specific ones.
4	**Clear DTCs** erases the Current and Pending DTCs. It does not repair the condition that caused them. It will reset Readiness as well, meaning the ECU will have to test monitored systems again before the corresponding bits read "Pass".
5	**O2 Sensors** shows the data associated with each O2 sensor, chosen from a drop-down menu.
6	**Non cont. tests** will run a pre-defined set of tests for various emissions-related components, for example O2 sensor aging tests.
7	**Pending DTCs** are fault codes that have been identified by the ECU but are deemed not yet critical enough to trigger the MIL.
9	**Vehicle Info** can store information including the VIN, calibration versions, and tracking information. The quantity of info varies wildly between cars.
10	**Permanent DTCs** are faults so severe that they cannot be erased with a scan tool, only by the ECU itself when it has tested and confirmed that the problem has been repaired.

VC-Scope is able to graph generic OBD-2 Mode 1 data. See the VC-Scope section in Section 32 for more information.

What's the difference between VCDS and an OBD-II Scan-Tool?
Please see FAQ question 1.10 on our website:

🌐 **http://www.ross-tech.com/vag-com/vag-com-faq.html**

To return to the Main Screen, click **[Done, Go Back]**

VCDS - Applications- Section 24-A
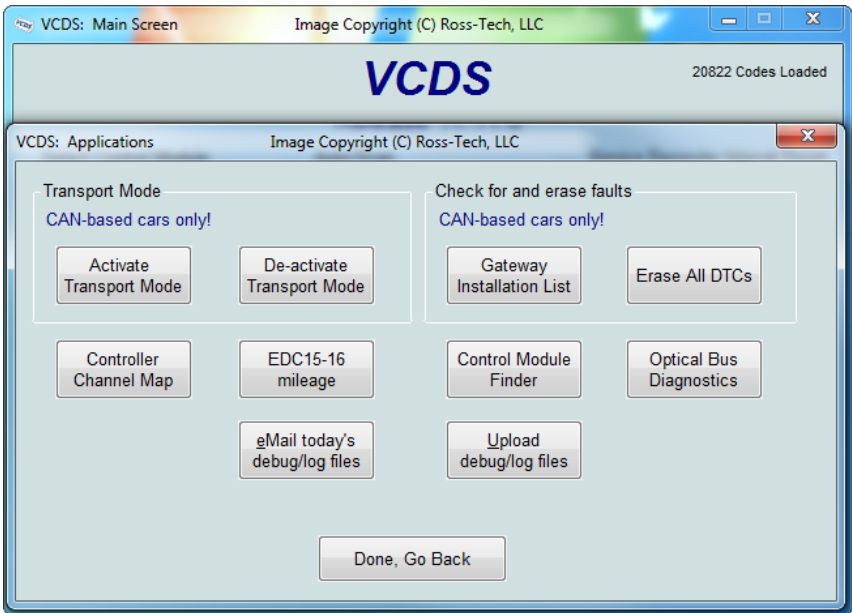
The Applications screen contains many handy functions, most of which are described in individual sections on the following pages.

Check for and erase faults

[Gateway Installation List]
Only available only on Gateways in cars using a direct CAN connection for diagnostics. This *very fast* function takes about 3 seconds to query the car's Gateway to find out what modules are installed in the car and what their status is.   Any modules having fault codes should show a "Malfunction" and will be highlighted in **RED**. Double-clicking on any of the Control Module names will open the Fault Codes screen for that controller. This function is explained in the AutoScan portion of this manual in Section 3.

[Clear All DTCs]

On vehicles using CAN-Bus for diagnostics, when using a HEX interface, VCDS clears all of the fault codes in all control modules in the car without accessing all the control modules individually. This function is explained in the AutoScan portion of this manual in Section 3.

The **[eMail today's debug/log files]** button will open up your default email client, and will compose a message to support@Ross-Tech.com with all of the log files and debug files with the current date.

The **[Upload debug/log files]** button will open up your default browser to a special page that allows you upload one file at a time and email it to support@Ross-Tech.com even if you do not have an email client installed.

Use **[Done, Go Back]** to return to the Main screen.

VCDS – Transport Mode - Section 25-A

Transport Mode
On some vehicles using CAN for diagnostics, there is a special Transport Mode that is used by the factory to put the cars into a "sleep" mode to conserve battery charge during long periods of inactivity.

[Activate Transport Mode]
Clicking this button (when using a HEX interface) will put applicable vehicles into Transport Mode, shutting down most systems.

[De-activate Transport Mode]
Clicking this button (when using a HEX interface) will "wake up" applicable vehicles from Transport Mode, powering up most systems.

On some early CAN-based cars, Transport Mode cannot be re-enabled once the car has more than 150km on the odometer.

In the B7 Audi A4, Transport Mode works a little differently since this car doesn't have a CAN Gateway. To take the car out of transport mode, go into

> **[Select]**
> **[17 - Instruments]**
> **[Adaptation - 10]**
> Enter channel 99
> Put in a new value of 0
> **[Test]**
> **[Save]**

In cars with CAN Gateways using UDS, there may be an Adaptation selection for "Transport Mode" in 19-CAN Gateway. See the Ross-Tech Wiki for vehicle-specific instructions:

http://wiki.ross-tech.com/index.php/Diagnostic_Procedures

VCDS – Controller Channels Map - Section 26-A
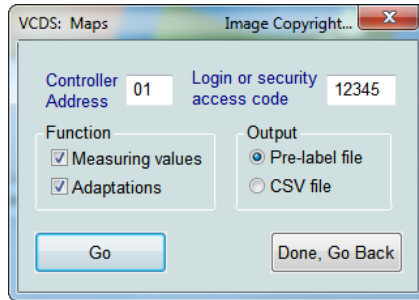
[Controller Channels Map]

Rapidly scans through all 255 possible Measuring Block groups or Adaptation Channels on any controller and writes a "map" file.

Choose the Controller Address (such as 01 for Engine), then any Login or security access code (not needed in most cases, contact Ross-Tech for assistance), then select either Measuring Blocks or Adaptations or both. Output is your choice of .CSV or .PLB / .PLA ("Prototype Label, Blocks" or "Prototype Label, Adaptation"), which is useful for creating new label files or taking a "snapshot" of all available data from an ECU.

Click **[Go]** to begin the process, the results will automatically be saved to your C:\Ross-Tech\VCDS\Logs directory.

This page contains more information about how to create Maps to help make VCDS more complete:

🌐 **http://wiki.ross-tech.com/index.php/Control_Module_Maps**

Use **[Done, Go Back]** to return to the Applications screen.

VCDS – EDC-15-16 Mileage Checker - Section 27-A

VCDS: 01-Engine, Open Controller   Image Copyright (C) Ross-Tech, LLC   (03G-9...

VCDS: 01-Engine, ECU Mileage   Image Copyright (C) Ross-Tech, LL...

Comm
IC=1 T
Protoco

Control

VAG N

Soft.

163262 km
101446 miles

Note

The above mileage was independently computed in the ECU by integrating
vehicle speed. Some level of discrepancy with the odometer (5%) can be
expected. If the mileages differ noticeably, there can be several causes:
-The ECU was replaced in the past
-The odometer was replaced in the past
-The odometer was rolled back!

Basic

Fa

Mea

Sing

Read   Done, Go Back   Option

[EDC-15-16 Mileage] is found in the Applications Screen and is used to show an
independent "odometer" reading stored in the ECU. EDC-15 is found in older TDI engines
like the North American market VE 1.9L Golf/Jetta/etc. EDC-16 is used in 2.0L TDI's
including all North American PD engines, but not in the newest CR engines. This function
also works with some EDC-15 V6 TDI ECUs. This function can be useful as a means of
cross-checking the mileage on a used car before making a purchase, particularly in Europe
where odometer fraud is rampant.

The Option field is only to be used if you are given specific instructions from Ross-Tech.

Use **[Done, Go Back]** to return to the Applications screen.

VCDS - Control Module Finder - Section 28-A
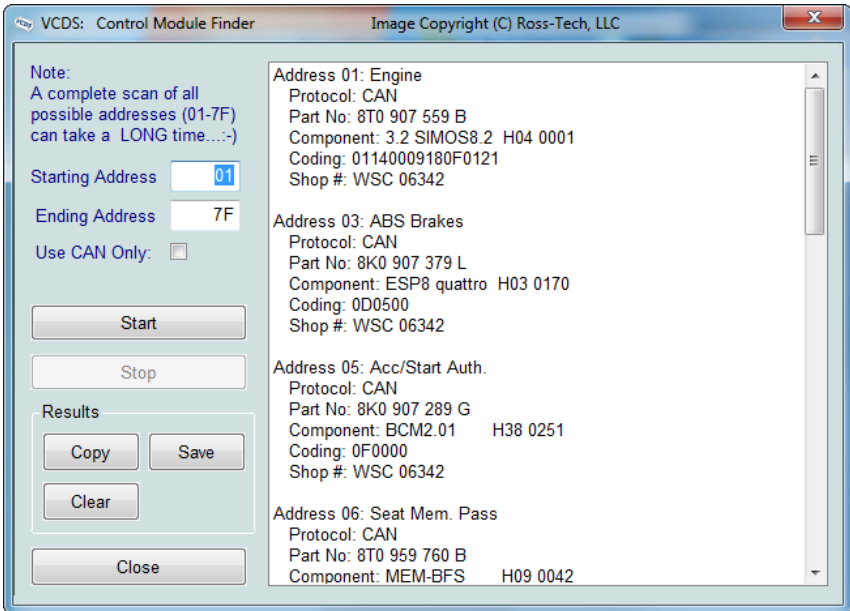
This function found in the Applications Screen cycles through each possible address in the vehicle, finding each controller and reporting its Address number, Name, Protocol, Part Number, Component Number, Coding, and WorkShop Code.

Note: No one car has all Modules! Newer cars have more, older cars have fewer.

You can scan selected address ranges or use the default starting and ending addresses. If you check **Use CAN Only** then the Module Finder will not check for any modules on the K-line.

[Start] begins the finder. Beware; a "full" scan can take 45 minutes or more.

[Stop] stops the finder.

Results:
If you close the Control Module Finder dialog, any data in its output box will be lost. If you would like to keep a record, click the **[Copy]** button first, then you can then paste the results into the application of your choice, such as MS Word or Notepad.

 [Save] This function saves the results to a text file in your Logs directory, typically in C:\ross-tech\vcds\Logs\

 [Clear] This erases your results.

To return to the Applications Screen, click **[Close]**

VCDS – Optical Bus Diagnostics - Section 29-A

Controller	Electrical	Optical
19-CAN Gateway	OK	OK
07-Control Head(High/D3)	OK	OK
0E-Media Player 1	OK	OK
77-Telephone	OK	OK
47-Sound System	OK	ERROR
67-Voice Control	OK	ERROR
56-Radio	OK	OK
37-Navigation	OK	OK
0F-Digital Radio(SAT)	OK	OK

Diagnostic Type
- Standard
- 3dB Attenuation

[Start] [Copy] [Save] [Done, Go Back]
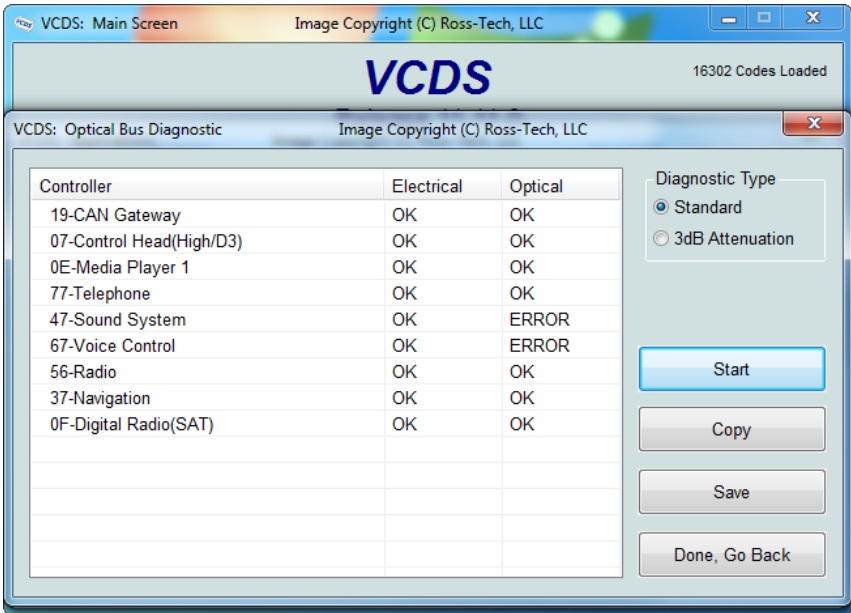
The **[Optical Bus Diagnostics]** function found in the Applications Screen is used on models with a MOST bus to narrow down the location of a break in the network. Many control modules will be completely inaccessible via conventional diagnostics if there's a break in the MOST bus.

The above example shows a 4F Audi A6 with a break in the MOST bus. In this case, it's clear that the modules are all electrically OK, but the Optical bus is broken between the Sound System module and the Voice Control module.

You may change the Diagnostic Type from "Standard" to "3dB Attenuation" if your results are not conclusive. The attenuation means all modules are sending with less output (initiated by the MOST master), but the individual MOST participating control modules can attenuate individually to check if individual modules are responsible for problems.

VW/Audi sells a handy loop of fiber (part number 4E0 973 802) that can be used in place of each of the components in the system. This can be used to check whether a component is responsible for breaking the loop.

Click on **[Start]** to begin checking the controllers on the bus.

[Copy] will copy the results to Windows Clipboard. Once you have pressed the Copy Codes button, you may paste the results into the application of your choice, such as MS Word or Notepad.

[Save] will save a plain-text report to your PC, typically in this directory: C:\Ross-Tech\VCDS\Logs

Use **[Done, Go Back]** to return to the Applications screen.

VCDS – Options Screen – Section 30-A

VCDS: Program Options   Image Copyright (C) Ross-Tech, LLC

VCDS
Program Options

Port and Protocol Options | User Interface and Identification

Select Port
- ○ COM1 ○ COM2 ● USB
- ○ COM3 ○ COM4 ○ NET

[Test] [LEDs]

Protocol options

Start Baud	KW2 Delay	TST Addr.	Debug Level
0	30	-1	0

Blk Int	Char Int	KP2 Time	CAN Timeout
55	1	25	0

Init parameters
- ☐ Bypass OBD-II Fastinit
- ☐ Force K on engine
- ☐ Bypass CAN Init
- ☑ Boot in intelligent mode

Reduce CPU Usage
- ☐ KWP-1281
- ☐ KWP-2000

[Restore Defaults]

[Save] [Apply] [Cancel]

On this screen you can set a number of Options organized by tabbed sections that must be used the first time you run VCDS on a PC.

VCDS: Program Options   Image Copyright (C) Ross-Tech, LLC

VCDS
Program Options

Port and Protocol Options | **User Interface and Identification**

Workshop Identification

Shop Name
Ross-Tech LLC.

Code(WSC)	VZ/Importer	Equipment number
03743	444	00001

Check for free updates
Releases and Betas ▼

[Check for updates now]

User Interface

Left Printing Margin: 4

Window size: 10

- ☐ Disable Sounds
- ☑ Prevent screen power savings while communicating
- ☑ Build list of CAN controllers prior to selection dialog

[Save] [Apply] [Cancel]
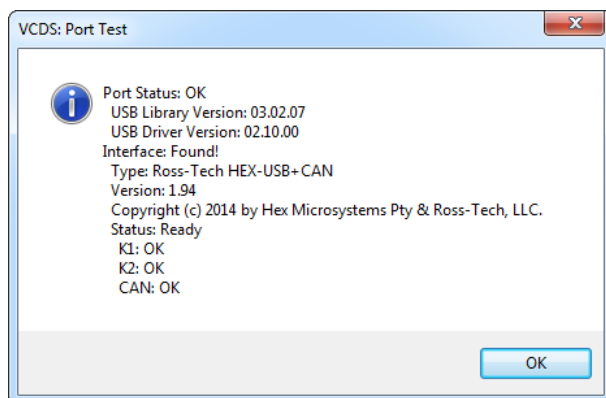
Options Screen cont. – Section 30-B

Port and Protocol Options tab:

Select Port

Select the radio button for the COM Port to which you have connected the Interface. Serial Ports should be assigned to COM1 through COM4 (most often COM1 by default) while USB has only its eponymous choice. The NET setting is used by the HEX-NET interface when it is operating in WiFi mode, see this page for more infornation:

http://www.ross-tech.com/hex-net/

Make sure the ignition is turned on and the interface plugged into the vehicle, then click **[Test]** to see if VCDS can find the interface. See Getting Started (section 1 in this manual) for more information. ►

VCDS: Port Test

Port Status: OK
USB Library Version: 03.02.07
USB Driver Version: 02.10.00
Interface: Found!
Type: Ross-Tech HEX-USB+CAN
Version: 1.94
Copyright (c) 2014 by Hex Microsystems Pty & Ross-Tech, LLC.
Status: Ready
K1: OK
K2: OK
CAN: OK

OK

The **[LEDs]** button causes the LED on the Interface to blink and may be useful for testing a port's outputs for troubleshooting certain connection issues. This button turns into **[Config]** when NET is selected for configuring a HEX-NET connected via USB.

Protocol Options

- **Start Baud** is the first baud rate that VCDS will try when connecting to a controller. The current default value is 0. This means VCDS will determine the correct start baud on its own. With our current Interfaces, this field is unavailable.

- **KW2 Delay** has to do with the amount of time used during the initialization of a session between the PC and the car. The current default value is 30. Do not change this value from the default unless you are having difficulties communicating with a particular controller. Contact us for advice if you are.

- **TST Addr.** has to do with the packet addresses used by KWP-2000. The current default value is -1. Do not change this value from the default unless you are having difficulties communicating with a particular controller. Contact us for advice if you are.

- **Debug Level** controls how much debugging information VCDS records. A zero in this field (the default) means NO debug output will be generated whatsoever. This should decrease VCDS's susceptibility to interference by things like virus scanners (except when logging data). There should be no reason to set Debug to anything other than zero unless you are instructed to do so by Ross-Tech.

Protocol Options cont.

- **Blk Int** affects the protocol timing. The current default value is 55. To get the highest sample rate possible in the Measuring Blocks screen, set this to 25. Note, however, that this may cause unreliable communications with some controllers.

- **Char Int** also affects the protocol timing. The current default value is 1. To get the highest sample rate possible in the Measuring Blocks screen, set this to 0. Note, however, that this may cause unreliable communications with some controllers.

- **KP2 Time** only applies to controllers using the KWP-2000 protocol. The current default value is 25. Decreasing it increases the sample rate in Measuring Blocks on control modules that use the KWP-2000 protocols. The default value should work for all applications, but if it does not, you can always increase it again (to a maximum of 99).

- **CAN Timeout** defines how much longer than normal VCDS is going to wait for the module to respond to a given message. Do not change this value from the default value of zero unless you are having difficulties communicating with a particular controller. Contact us for advice if you are.

Init Parameters

- **Bypass OBD-II Fastinit** should only be checked if you are experiencing difficulty connecting to a vehicle using generic OBD-II.

- **Bypass CAN Init** should only be checked if you do not want VCDS to try connecting to vehicles using the CAN-Bus.

- **Force K on Engine** is used on Engine controllers that have a choice of using CAN-Bus or k-line for diagnostics, such as the Mk5 Jetta 2.5L. This feature can be useful since the K-line often delivers faster sample rates while datalogging than does the CAN-Bus on modules that support both. Since some modules talk only via CAN, this box is unchecked by default.

- **Boot in intelligent mode** is checked by default. It allows VCDS to quickly determine baud rates when using a HEX interface. If you wish to try using your Ross-Tech dongle interface with 3rd party software (which is not supported by Ross-Tech), you may want to run a **Test**, then uncheck **Boot in intelligent mode** then run another **Test**. This will cause the interface to behave like an older style "dumb" interface and will not be compatible with most 6J Ibizas. When unchecked, it will be noticeable slower building the list of installed modules on the Select Control Module screen.

Reduce CPU Usage checkboxes will greatly increase responsiveness of other apps running at the same time as VCDS. The disadvantage is a somewhat reduced sample rate.

- **KWP-1281:** The default state for this box is unchecked. This reduces CPU usage when connected to controllers using KWP-1281. Using this feature *may* make the session with some control modules unreliable.

- **KWP-2000:** The default state for this box is unchecked. This reduces CPU usage when connected to controllers using KWP-2000.

[Restore Defaults] will reset all Protocol Options (except WorkShop Code and VZ/Importer number) to their "as-delivered" settings.

If you right-click on the VCDS icon on the top left of the VCDS Main Screen, you can select "Delete config file and close". This can be very handy, especially if you have made the window size too large.

User Interface and Identification tab:

Workshop Identification

Some control modules do not allow themselves to be Coded with the zero values for WSC, Shop, and Importer. VCDS should prompt you with a message to input non-zero values in such cases. You should NOT make such changes in the Options screen itself.

- **Shop Name** is displayed on reports, such as the Fault Code Report.

- The WorkShop **Code** (known as the WSC) is found on the Admin screen of a dealer's VAS-5051, as well as on the dealer's stamp. For example, using the stamp shown at the right, the dealer's number is 401/742. To derive the WorkShop Code, drop the first digit and use the remaining digits in order. In this example, Evergreen Terrace Volkswagen has a WSC of 01742. This only applies to US VW dealers. Canadian dealerships use a 4-digit number on their stamp. To find the WSC, place a 9 before their number. The default value is 00000. ►

401/742
Evergreen Terrace
Volkswagen, Inc.
Springfield, USA

Note: If you are an individual user or independent mechanic, just leave the WorkShop Code and VZ/Importer number set to "00000" and "000" respectively. This allows VCDS to operate in "stealth" mode, keeping whatever WSC and VZ that was already in the controller. If you are using VCDS at a Dealership, enter your Dealer's Workshop Code and VZ. The Work Shop Code and VZ are not easily changed once set on this screen. Contact us for advice if you need to do so.

- The **VZ/Importer** number is essentially a "region code" extension to the Work Shop Code (should be 444 for US, 999 for Canada). The default value is 000.

- The **Equipment Number** field is used most often when coding new control modules. The default value is 00000.

User Interface

- **Left Margin Printing** This is the number of spaces that printed pages are shifted to the right.

- **Window Size** This function allows you to change the apparent size of the VCDS window on your screen. Adjust this in small increments since it is possible to make VCDS so large that it is much bigger than your screen! To see the resizing take effect, click **[Save]**, then **[Exit]** to close VCDS. When you restart VCDS, the new window size should be shown.

User Interface and Identification cont.

- **Disable Sounds** Unchecked by default, checking this box will prevent VCDS from making sounds when an operation is complete, for example at the end of an AutoScan or at the end of Acceleration Measurements. This will not prevent Windows sounds when an error message pops up.

- **Prevent screen power savings while communicating** Checked by default, this seeks to avoid communication disruptions caused by Windows deciding to put things to sleep to save battery life or otherwise reduce power consumption. FAQ 2.4 and 2.5 have other tweaks to address issues like this.

- **Build list of CAN controllers prior to selection dialog** This box is checked by default. In CAN based cars that have a proper Gateway supporting an Installation List, VCDS will automatically populate one or more **Installed** tabs containing buttons for only those control modules that are actually installed in the car. It does take about 1.5 seconds to get the list from the Gateway, so a bit of a delay when clicking **[Select]** is normal/expected. Customers who use VCDS primarily on older cars which do not have an Installation List available may want to uncheck this box.

Check for Free updates

If an internet connection is available, VCDS will notify the user when updates are available and will ask permission to download and install updates. Because we do not want to burden customers' PCs with a resource hogging update scheduler, VCDS will only check for updates when it is started and when the PC is rebooted. We've tried to make this as unobtrusive as possible -- VCDS will not complain if there's no internet connection available -- you just won't get updates.

Select from the drop-down menu to determine if, and when VCDS should automatically check for updates when the program starts. You can also click the **[Check for updates now]** button to manually initiate a check.

Note: Some 3rd-party firewall software may complain that VCDS is trying to access the internet -- if this happens you should either tell the firewall to allow it, or turn off Automatic Updates.

[Save] causes the current options to be stored. Note that until you have Saved your preferences, all buttons on the VCDS Main Screen will be grayed-out except Options.

[Apply] lets you use and test the options without storing them. The next time you restart VCDS, the options previously stored will be used.

[Cancel] takes you back to the Main Screen without any effect.

VCDS - About Screen – Section 31-A
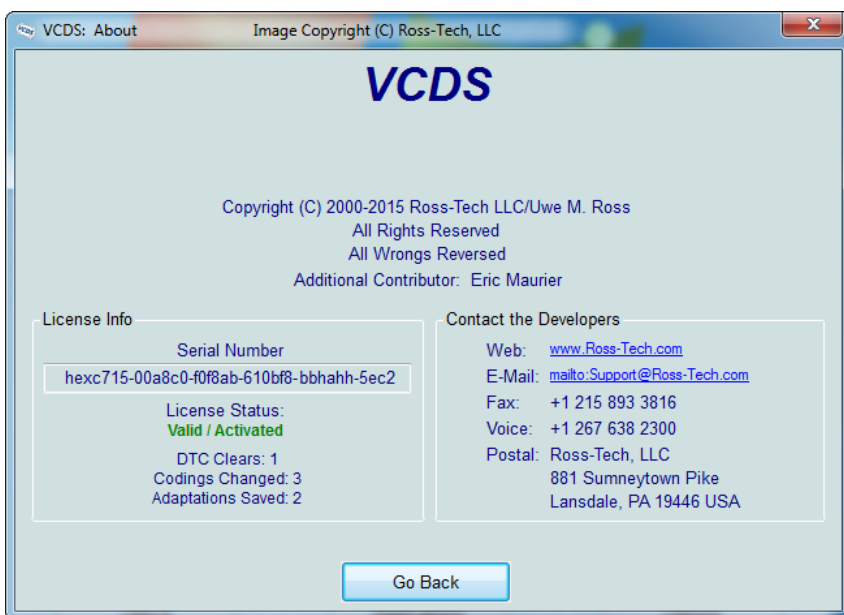

License Info

- The **Serial Number** will initially be "Please test on car to see serial number" until you have connected to a car and checked fault codes in a controller. After you have done this, you will have a Serial Number composed of letters, numbers and hyphens.

- **License Status** should always be Valid / Activated, with all of our Current Interfaces since they store their own activation. If it says Not Tested, then you will need to connect to a controller (like 01-Engine) and for example check Fault Codes. Afterward, the Serial Number should be visible.

On this screen, you will also find a Copyright Notice, License info, and Contact Information.   The Web and E-Mail "links" open up your default browser or default email program, respectively and can be used if your PC is connected to the Internet.

To return to the Main Screen, click **[Go Back]**.

VC-Scope Graphing 'Plug-In' for VCDS- Section 32-A

VC-Scope is automatically installed when you install VCDS.
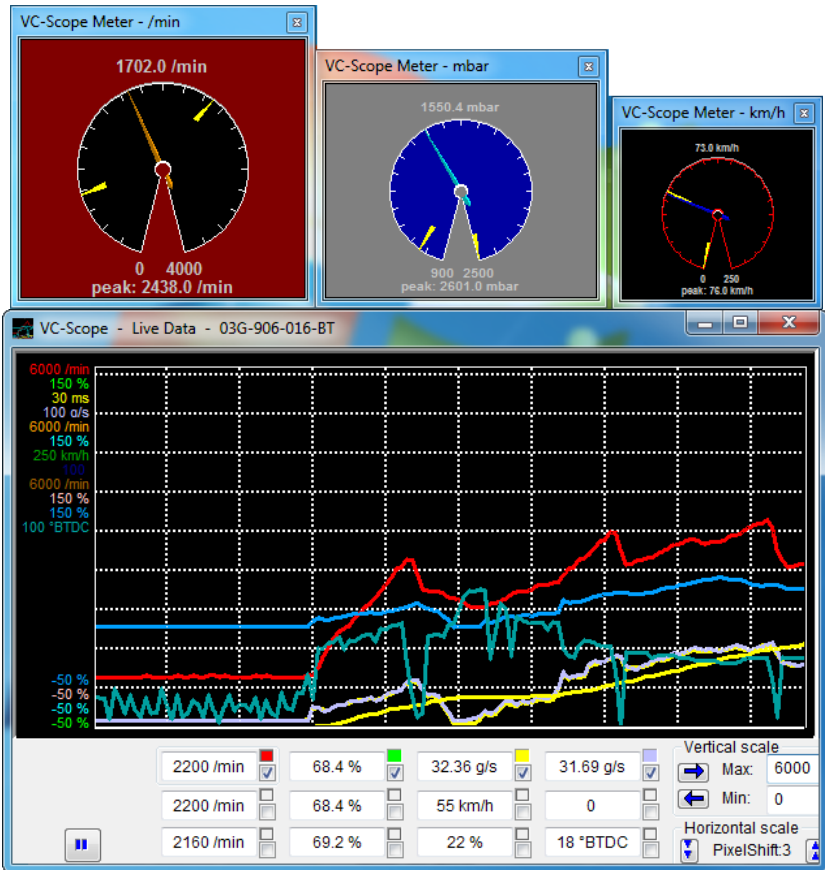
Quick Instructions:

- You can use VC-Scope in one of two ways:

  - View live data while connected to a car by launching VAG-Scope. Click the [Graph] button on VCDS's Measuring Blocks screen,

  - View data previously logged with VCDS by manually starting VC-Scope in stand-alone and opening a VCDS Log file

  You cannot do both at the same time. If VC-Scope is running in Stand-alone mode, VCDS will not start. If you manually start VC-Scope while VCDS is running, it will probably complain.

- Use the checkboxes next to each display field to select which items are graphed.

VC-Scope cont. - Section 32-B

Quick Instructions cont:

- Click on a field to select it for vertical scaling. Then change the Max and Min values in the Vertical scale boxes. Click back on a field showing data to see changes. VC-Scope will remember all scaling values for a particular control module by part number.

- Click the VC-Scope icon on the top left of the main VC-Scope screen for a menu item to access a Preferences Dialog:

Preferences:

- Here you can set colors for the graph lines, the graph background and the grid.

- You can also set default scaling values (based on the units that VCDS sends)
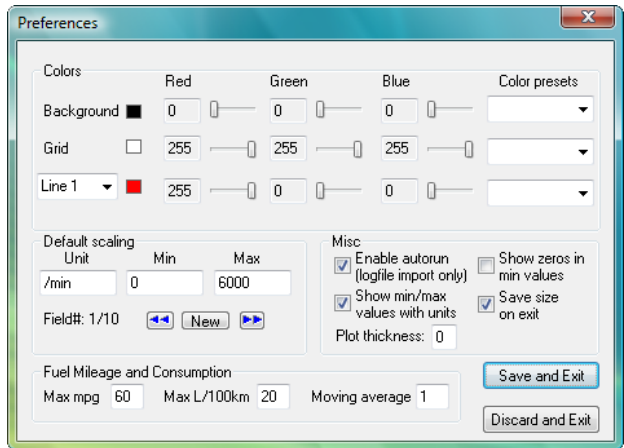
Gauges:
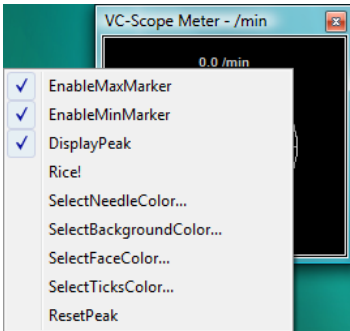
To display a gauge, **right-click** in the small color square next to the data you want to see on the gauge:. ►

You can have as many gauges as there are lines on the graph.

Each gauge can be independently re-sized and repositioned.

◄ Right-clicking on the gauge itself will give you several options:

NOTE:
VC-Scope can be used to play back Log files but only if they have not been saved or modified by any other program.
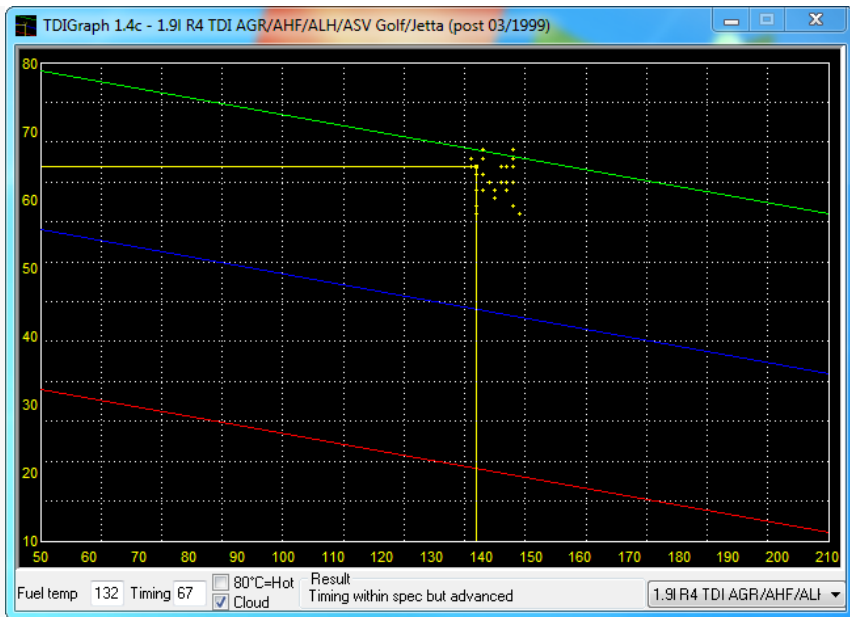
VC-Scope is included in the all VCDS releases available on our Download Page, but you may find a newer version of VC-Scope on the VC-Scope Download Page.
A FAQ for VC-Scope can be found here:

🌐 **http://www.ross-tech.com/vag-scope/FAQ.html**

TDI Timing Checker 'Plug-In' for VCDS - Section 33-A

The **TDI Timing Checker** is automatically installed when you install VCDS.

Note: This ONLY applies to VE Engines and DOES NOT apply to PD (unit injectors) or CR (common rail) engines

This plug-in allows you to check the injection timing setting on a VE TDI engine (NOT PD or CR varieties). This needs to be done after you change the timing belt and should be done every once in a while to keep tabs on belt stretch and pump/pulley alignment. The standard procedure for this is to have the engine idling at operating temperature (coolant temp >85*C), go to measuring block 000 for the engine, switch to basic settings and report fields #2 (injection timing) and #9 (fuel temperature) on a special graph.

This plug-in reports the timing on the graph in real-time, so you don't need to have your manual sitting on your lap at the same time. The application also gives you a comment in the "result" field, that will tell you if all the conditions are fulfilled to check the timing (some people don't realize you need to have the engine running, for instance...) and if your timing is within spec or not.

The history of the last 100 samples is displayed as a "cloud" of points. From the size and shape of this "cloud" you can see how much "jumping around" your engine is doing, and your average timing is probably right in the middle of the cloud.

TDI Timing Checker cont. - Section 33-B

Step by step:

- Start your engine and make sure the coolant is up to normal running temp

- Start **VCDS**

- Click **[Select]**

- Click **[01-Engine]**

- Click **[Meas. Blocks-08]**

- Go to group 000

- Click **[Switch to basic settings]**

- Click **[TDI Timing]**

It is normal for the glowplug light to flash and for the engine sound to change slightly while using this function. This thread may be helpful as well:

http://forums.tdiclub.com/showthread.php?t=163435

The TDI Timing Checker works only as a "plug-in". You must start it using the **[TDI Timing]** button in VCDS. Starting it any other way will result in error messages and it won't work.

Note to PD (pumpe duese aka unit injectors) and CR (common rail) owners: The timing in PD and CR engines is determined electronically by the ECU. There is neither a need nor an ability to check timing on the PD or CR engines using VCDS. There are no graphs published for the simple reason that the timing is set using a dedicated VAG locking tool when changing the timing belt :-)

Version history and source code for the TDI Timing Checker can be found on our website:

http://www.ross-tech.com/vag-scope/TDIGraph.html

VCDS - What's New - Section 34-A

Main Screen: New number of Codes loaded

AutoScan: MyAutoScan.TXT is used to customize vehicle/controller list. Added OS and VM identification to results.

Fault Codes: Updated CODES.DAT file now with almost 21,000 codes. Fixed incorrect Freeze-Frame in 2011+ Touareg EPB.

Advanced Measuring Values: New data entry box for filtering items.

Basic Settings: New area to display additional info

Output Tests: Added an additional "Custom" Output Test for 2011+ Touareg 7P EPB to allow "grinding in" process and to open/close EPB for servicing.

Coding: Added choice for uninitialized control module error message, now Yes/No/Cancel. Added a Soft reset checkbox for UDS controllers.

Adaptation Dramatically improved loading speed for modules with thousands of channels. Added choice for uninitialized control module error message, now Yes/No/Cancel. Added a Soft reset checkbox for UDS controllers.

Options screen: New NET and Config buttons, also Prevent screen power savings while communicating.

About screen: New dates

Revised and expanded Label Files. Thanks to Sebastian!

Support for new UDS addresses for modules like DC/DC Converter and Rear Axle Steering. New version 1.94 firmware for HEX+CAN interfaces.

New UDS dataset including compatibility with latest cars and control modules, as well as some fixes for certain older ones.

VCDS 2015 Version User Manual

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