User Manual

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Trademark Acknowledgements

Ford is a registered trademark of Ford Motor Company.

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INTRODUCTION

APPLICATION OVERVIEW

Integrated Diagnostic System (**IDS**) uses Ford proprietary software to run on a Windows based **PC** (Laptop, Mini Laptop, Desktop, Netbooks, etc.) with the Vehicle Communication Module (**VCM**), and the Vehicle Measurement Module (**VMM**).

NOTE: Throughout this manual the term "**VCM**" refers to both the **VCM** and **VCM II** unless specific reference is made to a particular interface device. For additional information, see the **VCM** or **VCM II** Hardware Manual.

A comprehensive, in-depth tutorial, **IDS** training course is available on-line (see web links below). The **IDS** training course covers **IDS** installation, setup, updates, as well as basic tool functions using the **VCM** and **VMM** in diagnosing vehicles and much more.

- ***Ford Dealers (IDS Training Course)***
  http://www.fordtechservice.dealerconnection.com/vdirs/protech/global/default.asp
- ***All Others (IDS Training Course)***
  http://www.motorcraftservice.com/vdirs/training/cdatabase/training_mc_cdatabase.asp?CourseID=30G11W1&mode=course

DIAGNOSTIC LINK CONNECTOR (DLC) CABLE

The **VCM** 16-pin **DLC** cable is used to connect the **VCM** to the vehicle **DLC**.

PC USB INTERFACE CABLES

The **VCM** and **VMM** connect to the **PC** using the custom Ethernet-**USB** Adapter Cable (H406/H416). The **VCM II** connects to the **PC** using a commercially available **USB** 2.0 cable.

VEHICLE INTERFACE DEVICES

The vehicle interface devices that are used with this application are:

- Vehicle Communication Module (**VCM**) – This device provides all link based functionality including: Datalogger, Selftest, Service Functions, Module Configuration and Programming, etc.
- Vehicle Measurement Module (**VMM**) – This device provides the following functionality: Oscilloscope, Digital Multi-Meter, Ignition System Test, Fuel System Test, and SGM.

NOTE: The software application will detect the interface device that is connected to the **PC**. Indicator icons will appear at the bottom right-hand corner of the **IDS** screen when the **VCM** and/or **VMM** are connected.

DOWNLOADING AND INSTALLING **IDS** SOFTWARE ON A **PC**

NOTE: Installing and configuring IDS requires Windows Administrative privileges

To run your computer with Windows Administrative privileges go to Windows Start, then select Help and Support and type "Change a user's group or account type" in the Search box.

- ***Ford Dealers***
  http://www.fordtechservice.dealerconnection.com/vdirs/wds/diagnosticsites/vcmdvd/idssoftware.asp
  and download the latest IDS software
- ***All Others***
  http://www.motorcraftservice.com/vdirs/wds/diagnosticsites/vcmdvd/mcs/idssoftware.asp
  and download the latest IDS software-

See http://www.fordtechservice.dealerconnection.com/vdirs/wds/idsmanual/IDS_Webdownload.PDF for additional help with **IDS** Software Download & Installation.

See http://www.fordtechservice.dealerconnection.com/vdirs/wds/idsmanual/IDSInstructions_US_ENG.pdf for additional help with **IDS** Calibration & Software Update Process.

IDS SOFTWARE LICENSE

IDS Software License is subscription based.

Main points about the **IDS** Software Licensing subscription:

- The license subscription is for a fixed time period. When it expires, it will disable use of vehicle communications functionality within **IDS**.
- The license is activated on a computer using **IDS** and is independent from the **VCM** [i.e., any **VCM** may be used]
- Each computer requires a license to use **IDS** for vehicle communication
- A license can only be used on one computer at a time
- A unique license Activation Code is provided with each software subscription. The license activation code is entered in **IDS** to activate the software shown in **Figure 1.**
- A license may be activated using an online or offline process.
- A license can be returned online and then activated on a different computer online or offline. This allows the license to be transferred from one computer to another.
- An active license automatically validates when connected to the Internet. The validation is effective for 30 days whether online or offline.

The IDS Software License activation process consists of two steps as outlined in the IDS popup screen in **Figure 1**.

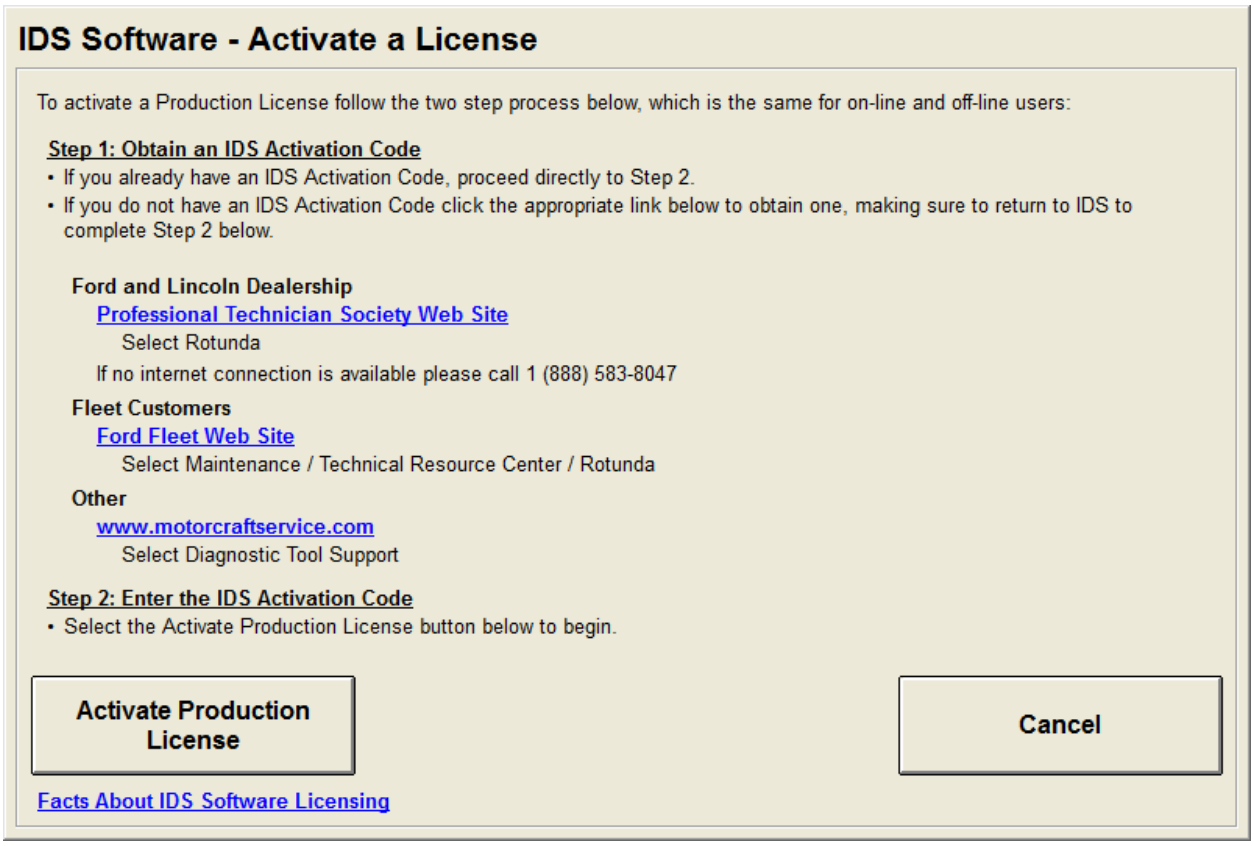


FIGURE 1: ACTIVATE LICENSE POP-UP WINDOW

Obtain an activation code and click the **Activate Production License** button, then enter the activation code in the popup screen as shown in **Figure 2**.

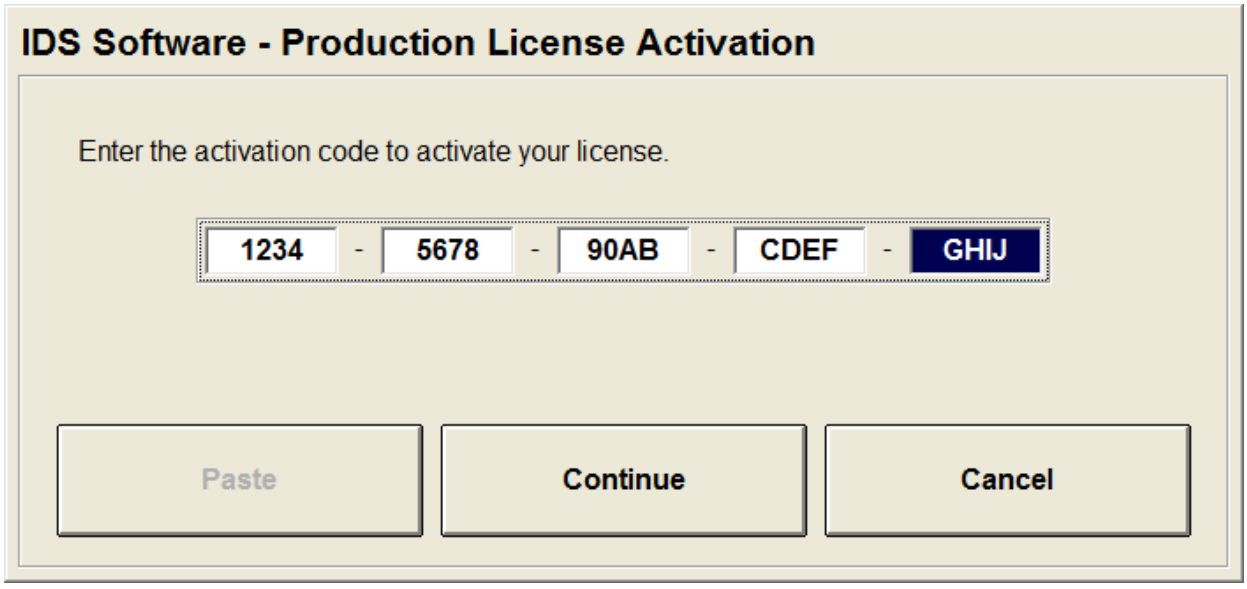


FIGURE 2: PRODUCTION LICENSE ACTIVATION POP-UP WINDOW

Additional information about **IDS** Software Licensing is available through the following web links:

- ***Ford Dealers***
  http://www.fordtechservice.dealerconnection.com/vdirs/wds/diagnosticsites/isl/usen/facts.asp

- ***All Others***
  http://www.motorcraftservice.com/vdirs/wds/diagnosticsites/isl/mcs/default.asp

UPDATING **IDS** AND **VCM II** SOFTWARE

Before **IDS** can use a **VCM II**, the **IDS** software version and **VCM II** software version must be compatible. If they are not compatible, one of the following two cases will apply.

CASE I: **VCM II** SOFTWARE VERSION IS OLDER THAN THAT REQUIRED BY **IDS**

IDS will notify you if the **VCM II** software version is out of date. In this case, **IDS** will prompt you to update the **VCM II** software with the pop-up window shown in Figure 3. The pop-up window may contain additional information if there are applications, such as the Customer Flight Recorder, installed on the **VCM II**.

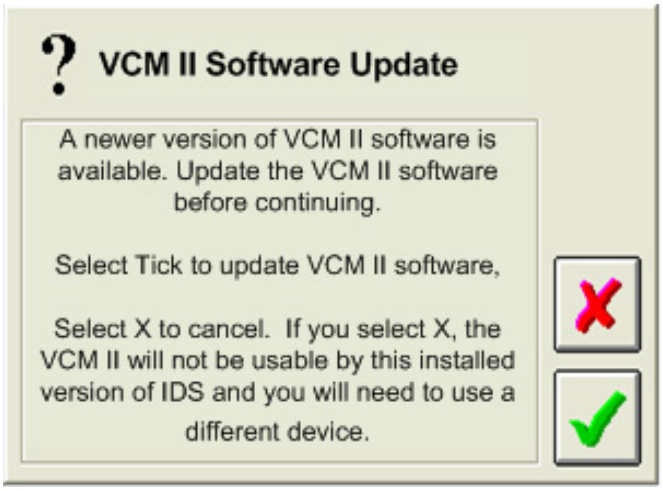


FIGURE 3: VCM II SOFTWARE UPDATE POP-UP WINDOW

- Select the ***Tick*** button and follow the on-screen instructions to update the ***VCM II*** software.
- If the ***Cancel*** button is selected, the ***VCM II*** will not be usable by the installed version of ***IDS***.

NOTE: It is not necessary to connect the **VCM II** to the vehicle **DLC** to perform a **VCM II** update.

CASE II: **VCM II** SOFTWARE VERSION IS NEWER THAN THAT REQUIRED BY **IDS**

IDS will notify with the pop-up window shown in Figure 4 if the **VCM II** software version is newer than that required by **IDS**.

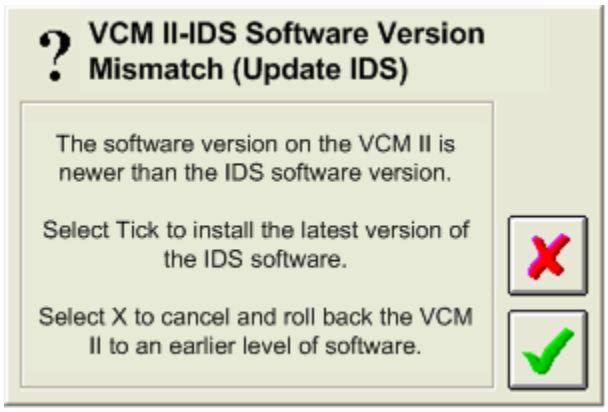


FIGURE 4: VCM II - IDS SOFTWARE MISMATCH POP-UP WINDOW

- Select the ***Tick*** button and follow the on-screen instructions to update the **IDS** software (Recommended).
- Select the ***Cancel*** button and follow on-screen instructions to roll-back ***VCM II*** software.

If the ***Cancel*** button was selected, the pop-up window shown in Figure 5 will prompt you to proceed with the roll-back.

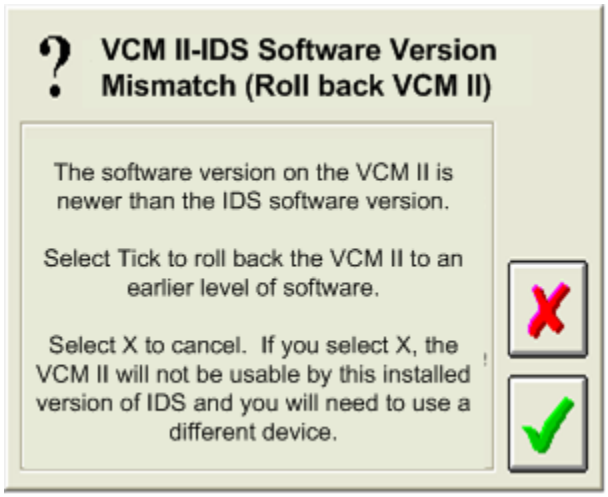


FIGURE 5: VCM II ROLL-BACK POP-UP WINDOW

- Select the ***Tick*** button and follow the on-screen instructions to roll-back the ***VCM II*** software.
- If the ***Cancel*** button is selected, the ***VCM II*** will not be usable by the installed version of ***IDS***.

Part of the rollback process involves a manual reset of the **VCM II**. **IDS** will notify you when to perform the reset. This requires pressing the **VCM II** recovery mode switch shown in Figure 6. To access the recovery mode switch, remove the rubber boot at the end of the **VCM II** where the USB cable is connected.

NOTE: Do not press the **VCM II** recovery mode switch until **IDS** directs you to do so.

FIGURE 6: END VIEW OF VCM II SHOWING THE RECOVERY MODE SWITCH

HOW TO FACTORY RESET YOUR VCM II

A factory reset may fix your **VCM II** if it becomes inoperable (e.g., **VCM II** will not boot-up properly, **VCM II** LED's not functioning properly, etc.).

Instructions:

1. Shut down the **IDS** application if it is running.
2. Disconnect the **VCM II DLC** cable from the vehicle.
3. Disconnect the **VCM II USB** cable from the **VCM II** and **PC**.
4. Remove the rubber boot on the **VCM II** that is opposite the **DLC** connector to expose the Recovery Mode Switch (the plastic tab shown in Figure 6).
5. Start the **IDS** application.
6. Press and hold the plastic tab. **Do not release the tab until Step 9**.
7. Connect the **VCM II** to the **PC** using the **USB** cable.
8. Wait for the **VCM II**'s Power LED to remain on and for the unit to beep.
9. Release the plastic tab - the **VCM II** will be in Recovery Mode.
10. The **IDS** pop-up window shown in Figure 3 will appear notifying the user that a new version of **VCM II** software is available. Select the ***Tick*** button to update the **VCM II** software.
11. Follow the **IDS** on-screen instructions to complete the software installation.

SYSTEM NAVIGATION

When the **IDS** application is first started, up to four top tabs will be available in the upper left corner of the screen. Three tabs will always appear, while the fourth is optional and will only appear if the vehicle being tested supports Guided Diagnostics. These tabs are:

	***System Page***
	**Vehicle Identification**
	***Toolbox***
	***Guided Diagnostic***

At the upper right corner of the screen a **Device Selection** tab is available to configure and manage connections to the **VCM**.

	**Device Selection** ***(appears after the IDS application has used a VCM II at least once)***

Use a mouse, touch pad, or touch screen to navigate through the **IDS** tool.

Hotspots are throughout this application. They are acronyms that are highlighted in blue text. A single left mouse click on a hotspot will provide a definition at the bottom of the screen.

SYSTEM SET UP AND INFORMATION

The ***System Page*** is located at the top of the screen. When selected, three sub-tabs appear at the bottom of the screen. These sub-tabs are:

	***User Preferences*** Create and manage unique users
	**System Information** View basic information regarding the hardware and software being used
	***System Utilities*** View Help guides and set dealer information

USER PREFERENCES

The ***User Preferences*** screen (Figure 7) is activated by selecting the ***User Preferences*** sub-tab on the ***System Page***. This screen allows for the creation of one or more system users. Each user can select the display units for various parameters (temperature, pressure, etc.).

Initially the list of users only includes "default user". Other users are added to the list when they have been defined. Selecting the user from the list and selecting the "Set Current User" button on the right side of the screen will activate the current user's preferences.

SYSTEM INFORMATION

Information related to the hardware and software in use can be viewed (Figure 8) by selecting the System Information sub-tab on the System Page. Information provided includes: system time and date, dealer information and software version.

SYSTEM UTILITIES

The System Utilities screen (Figure 9) is activated by selecting the ***System Utilities*** sub-tab on the ***System Page***. This screen allows the user to:

- Set dealer information to be included with each transaction
- View the User Guide
- View the Release Note that is issued with each software release

- Access other utilities

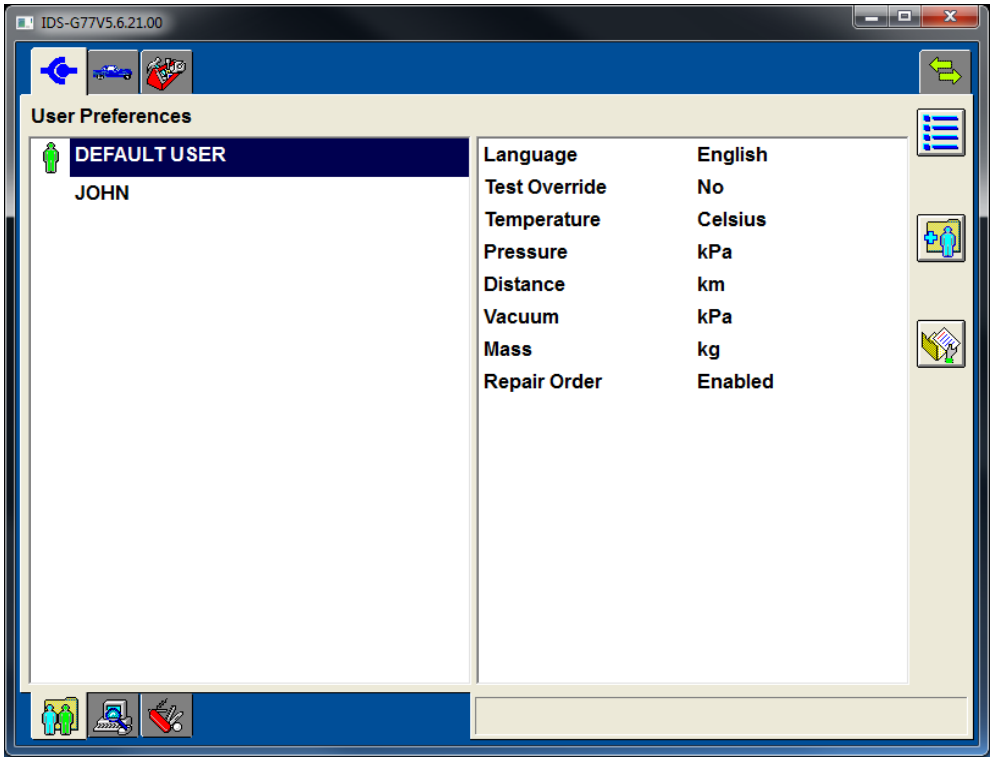


FIGURE 7: USER PREFERENCES SCREEN

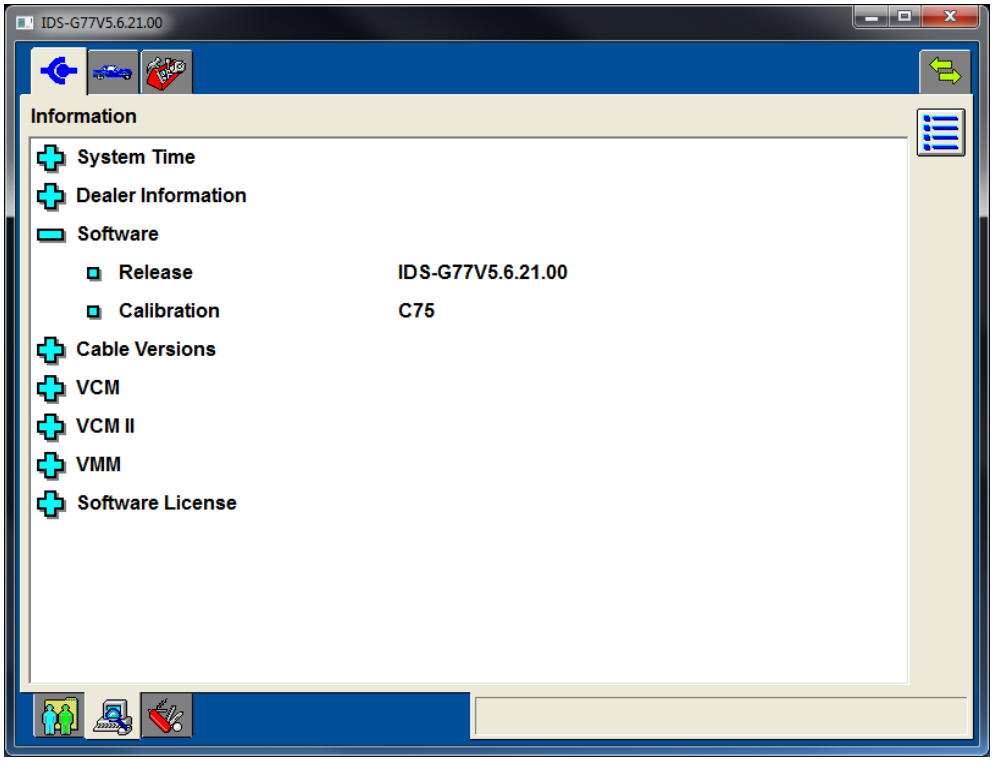


FIGURE 8: INFORMATION SCREEN

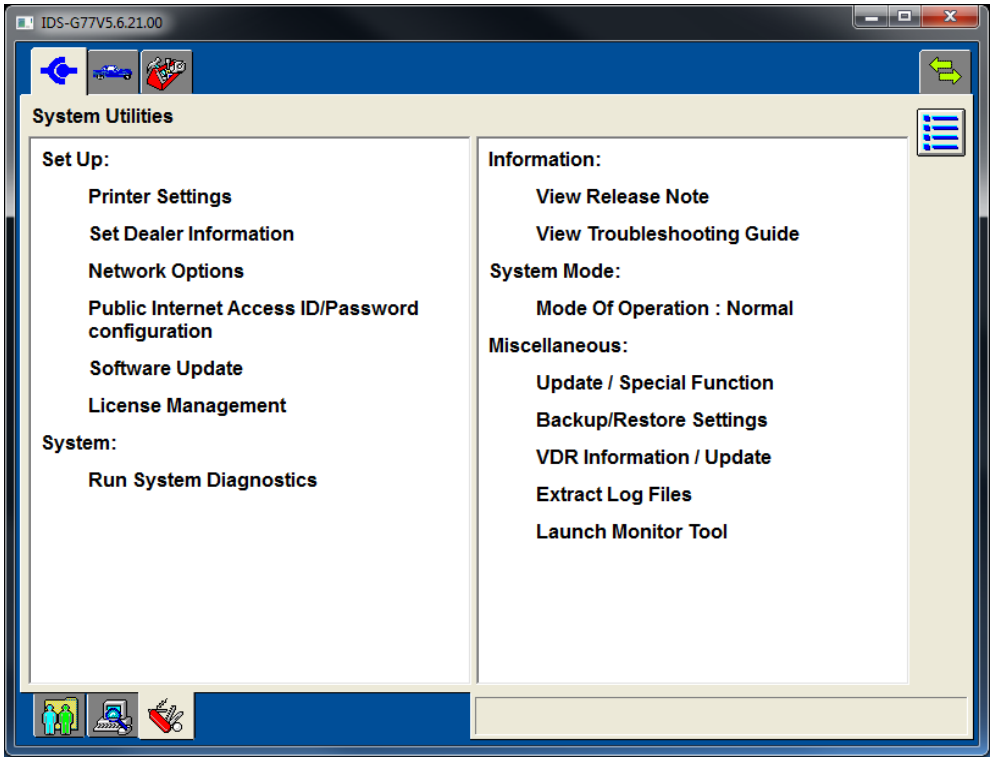


FIGURE 9: SYSTEM UTILITIES SCREEN

VEHICLE ID AND SESSION MANAGEMENT

To activate applicable diagnostic tools, identify the vehicle by selecting the **Vehicle Identification** tab at the top of the screen.

START NEW SESSION

To automatically identify the vehicle, select the appropriate Data Link Connection sub-menu under the "Start New Session" menu and click the **Tick** button (Figure 10).

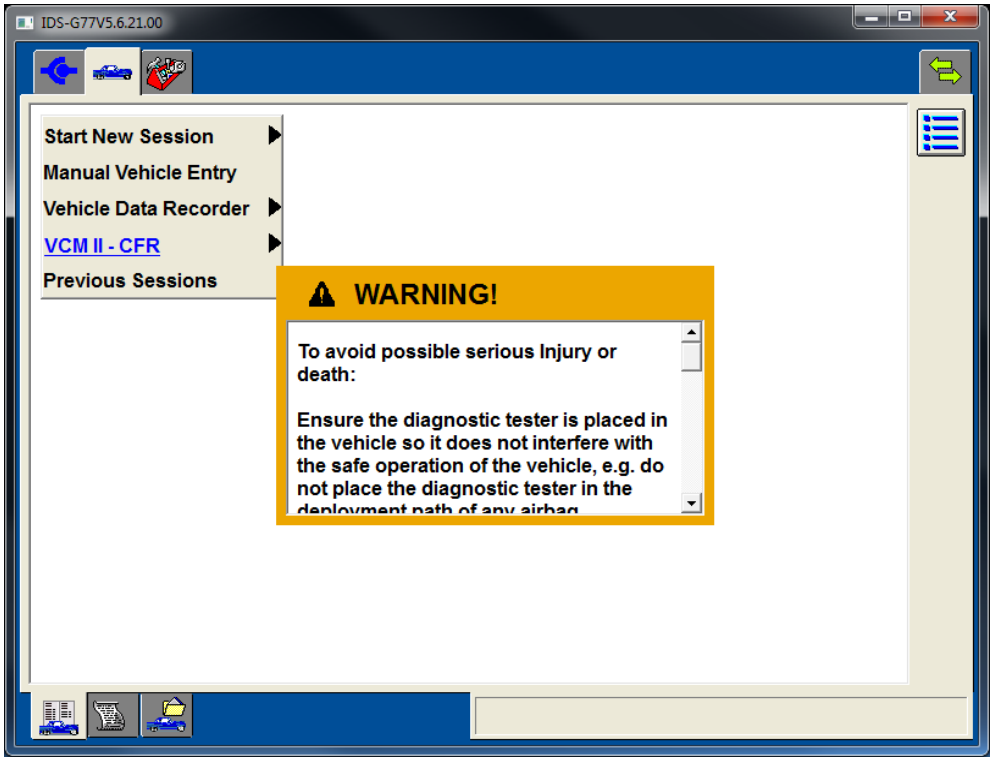


FIGURE 10: START NEW SESSION MENU

MANUAL VEHICLE ENTRY

Manual Vehicle Entry is also available if the vehicle cannot be identified through the automatic Vehicle identification process. To manually identify the vehicle, select the "Manual Vehicle Entry" sub-menu under the "Start New Session" menu and follow the on screen instructions (Figure 11) and pick a vehicle model from the options shown in Figure 12. The vehicle's Powertrain Control Module (**PCM**) must then be identified as shown in Figure 13 using any one of the following identifiers:

- Part Number
- Calibration Number
- Tear tag Number

Once the **PCM** is identified, the **Toolbox** will be populated with applicable diagnostic tools and service functions.

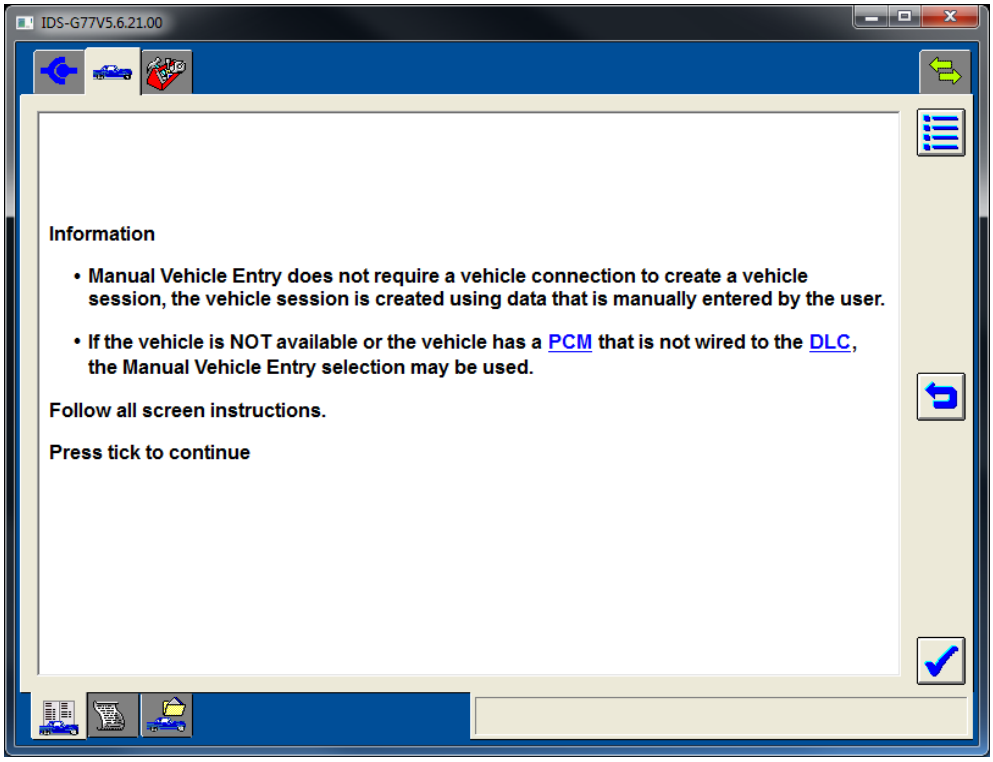


FIGURE 11: MANUAL VEHICLE ENTRY SCREEN

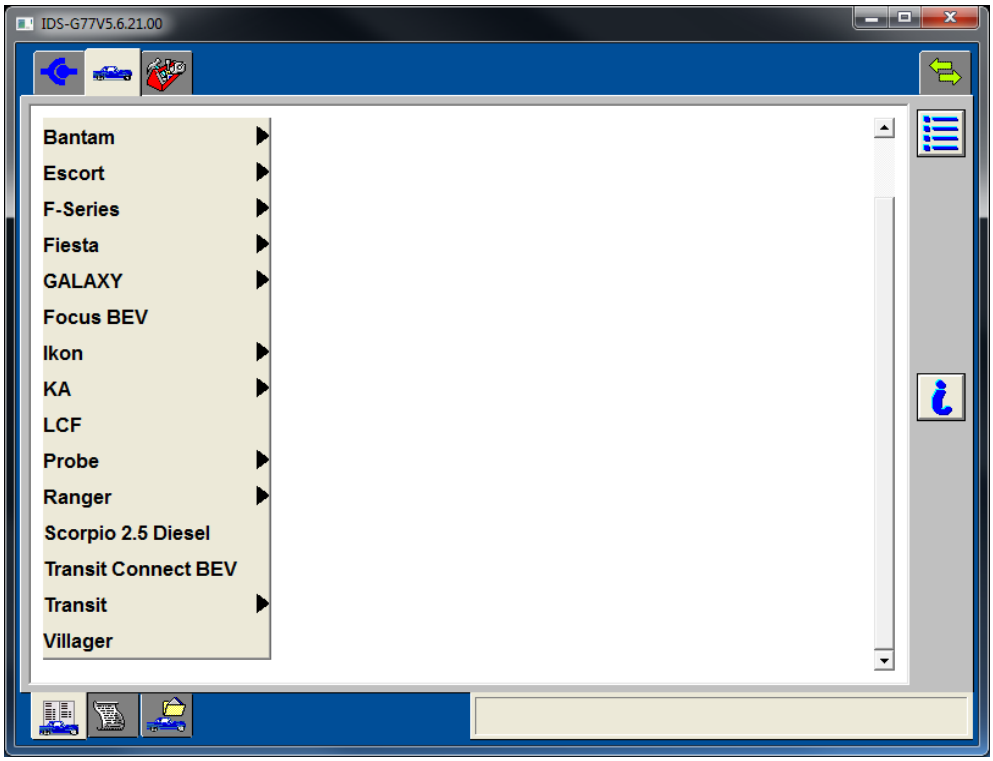


FIGURE 12: MANUAL VEHICLE LIST

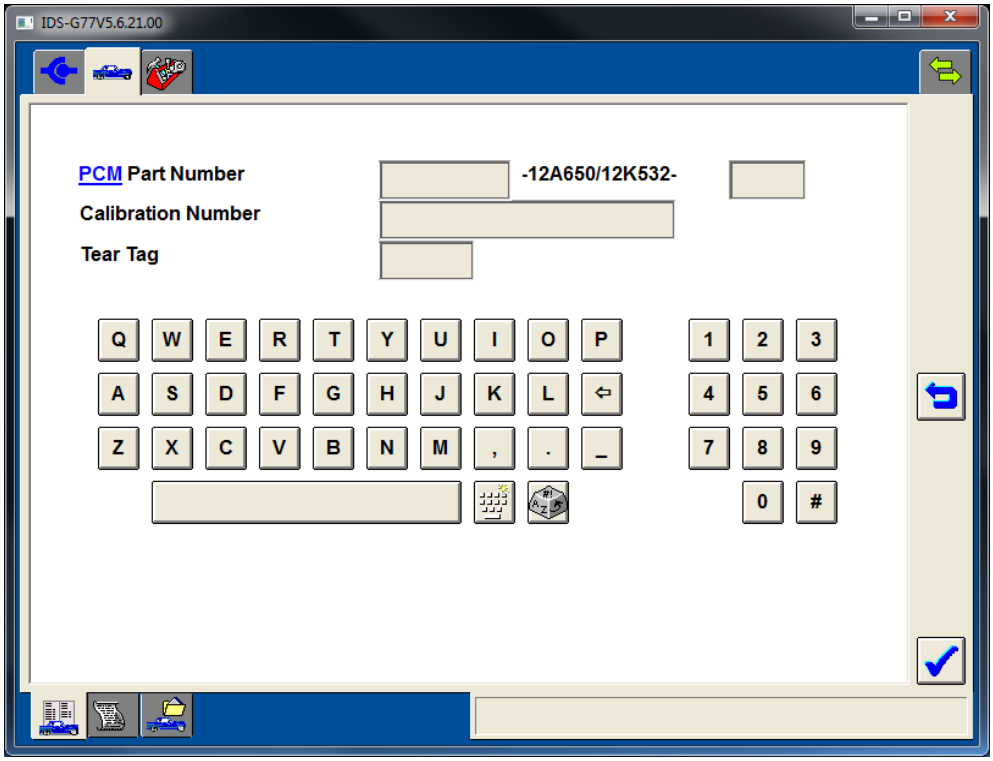


FIGURE 13: VEHICLE IDENTIFICATION SCREEN

VEHICLE SPECIFICATION

To view the vehicle's attributes and specifications, select the **Vehicle Specification** sub-tab on the **Vehicle Identification** tab (Figure 14).

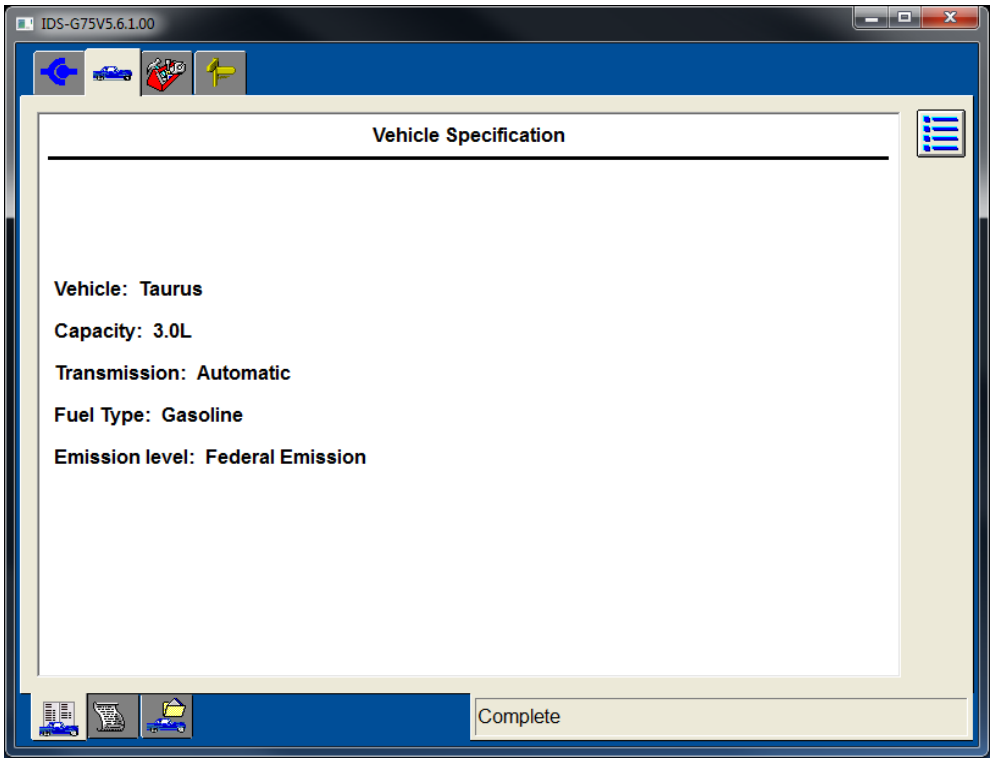


FIGURE 14: VEHICLE SPECIFICATION

LOG VIEWER

Select the **Log Viewer** sub-tab to view logged session information. Session information includes vehicle information, tool use, test data and test results as shown in Figure 15.

The following actions are provided for viewing logged information:

	***Menu*** Context Menu: Print Screen, Print Items, Print Filtered Items
	***Select Item Types*** Select the types of information to view in the Log Viewer.

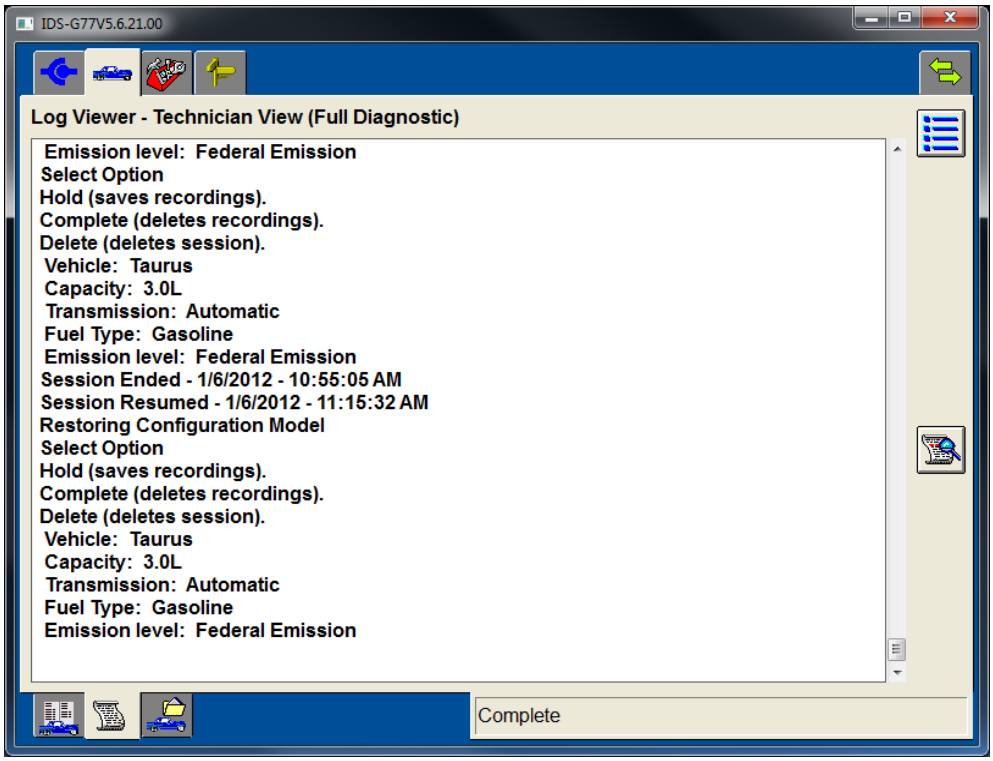


FIGURE 15: LOG VIEWER SUB-TAB

CLOSE SESSION

To end a diagnostic session, select the **Close Session** sub-tab on the **Vehicle Identification** tab. Three options are available as shown in (Figure 16):

- *"Hold (saves recordings)"* – Saves the current session for future use. Up to twenty sessions can be placed on hold indefinitely.
- *"Complete (deletes recordings)"* – Saves a minimal amount of the vehicle information
- *"Delete (deletes session)"* – Deletes the session completely from the **PC**. Deleted sessions cannot be restored.

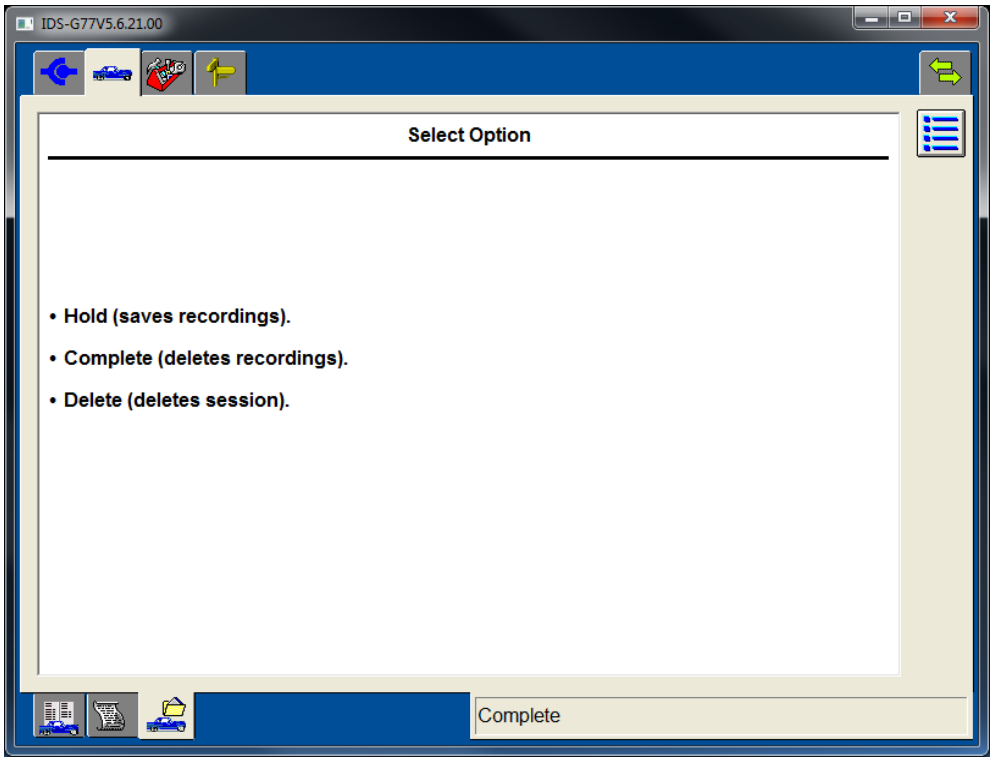


FIGURE 16: CLOSE SESSION SUB-TAB

RESTORING A VEHICLE SESSION

To restore a vehicle session marked as *"Hold"* or *"Complete"*, select the **Vehicle Identification** tab, select the Previous Sessions Menu Item and then select a session from the available list (Figure 17 and Figure 18). Sessions listed under *"Held Sessions"* will include saved data recordings. Sessions listed under *"Completed Sessions"* will include vehicle information, but not recordings (Figure 18).

The following actions are provided for managing saved sessions:

	***Menu*** Context Menu: Print Screen, Select a Printer and Print
	***Select Multiple Sessions*** Selects multiple sessions
	***Delete*** Deletes the selected session(s)
	***Archive Session*** Saves the selected session to permanent storage

	***Restore Session*** Restore a saved vehicle session
	***Upload Session*** Copies a saved session to an external storage location
	***Sort Session List*** Sorts the sessions by VIN, Vehicle Model, Repair Order number and/or date.
	***Back*** Step back to previous screen or menu
	**Recover** Recover a previously deleted session
	***Tick*** Re-activated a selected session

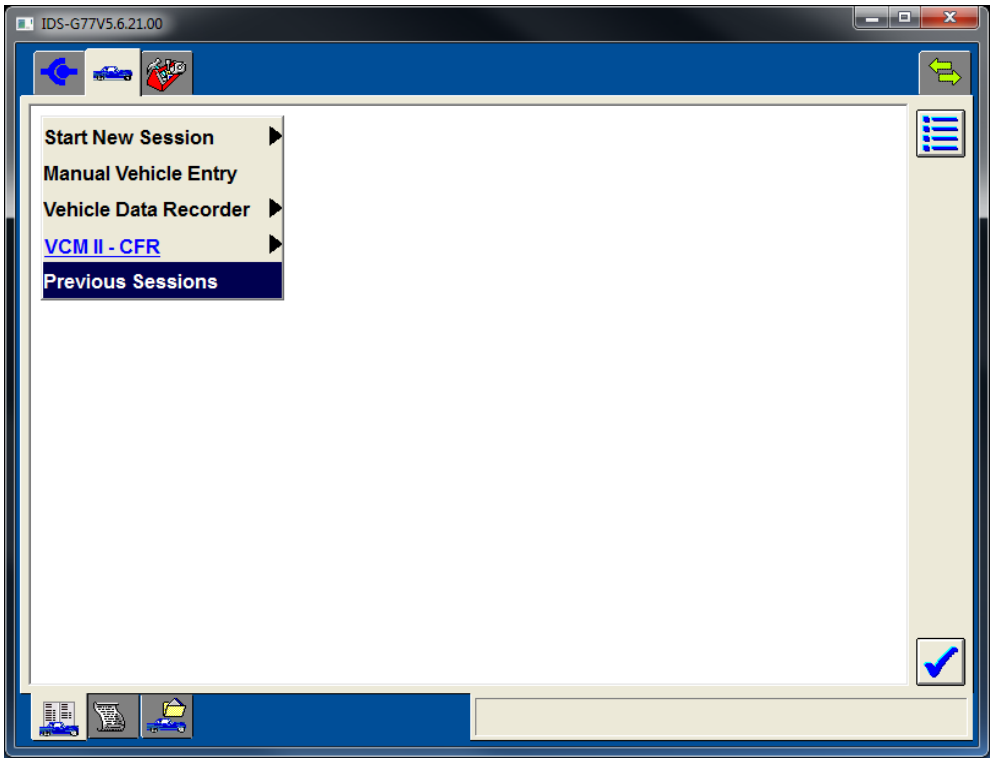


FIGURE 17: ACCESSING PREVIOUS SESSIONS

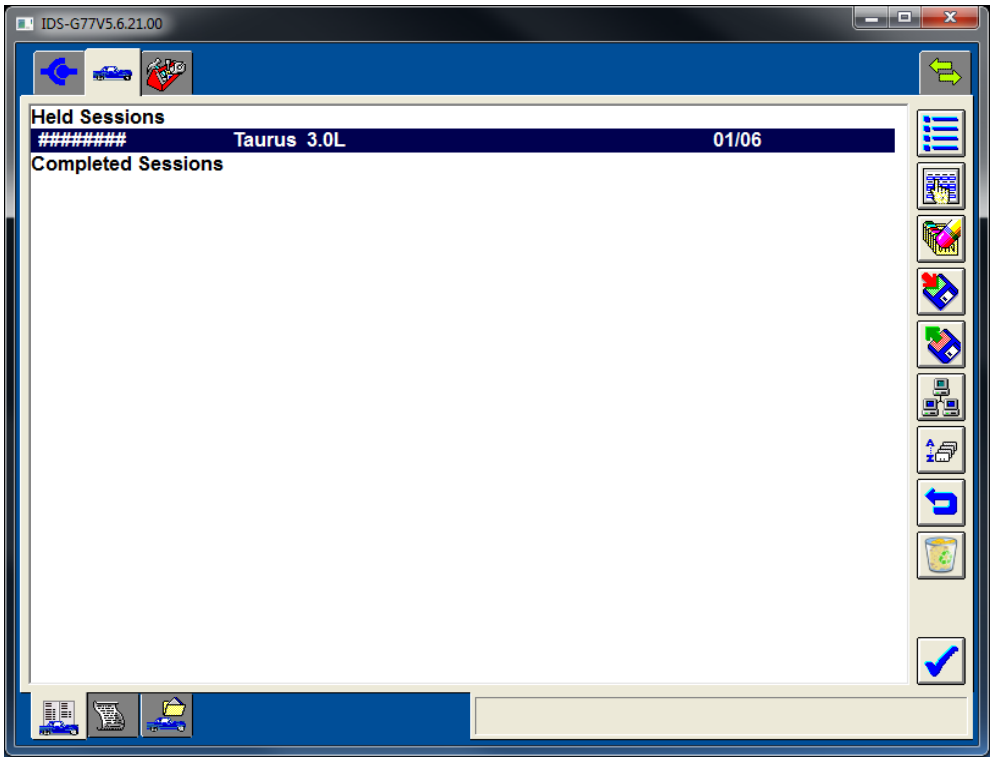


FIGURE 18: SELECTING A PREVIOUS SESSION

TOOLBOX

The **Toolbox** tab provides access to a number of diagnostic tools and service functions as shown in Figure 19. Tools displayed under this tab will only be shown if they are applicable to the identified Vehicle. For specific tool information please refer to technical Training web courses (see the training resources listed in the **Application Overview** section, found on page **1**.

The following is a comprehensive list of sub-menus, diagnostic tools and service functions as organized in the **Toolbox** menu as of **IDS** version R77 (this list continues to grow and evolve to support new vehicle technologies):

Digital Multi-Meter
Oscilloscope Tools
• **Oscilloscope**
• **Oscilloscope with Hookups**
• **COP Stress Test**
• **Alternator Ripple Test**
• **Variable Cam Timing (6 Cylinder)**
• • **Intake Only (IPS#2 or VCT)**

• • • (VRS) (CMP) Sensors (2 wire)
• • • Hall Effect CMP Sensors (3 wire)
• Variable Cam Timing (8 Cylinder)
• • Dual Equal DEPS
• PCM Driver Test
• • Escape PCM Driver Test for TSB 09-02-06
• • PCM Ignition Coil Driver Test
• • PCM Injector Driver Test
• Diesel Cam Timing
• Driver on Coil Ignition Test
Self-Test
Vehicle Statement Of Health
DataLogger
Module Programming
Network Test
Module Serial Number
Module Identification
VDR
• Setup
• Upload/Playback
VCM II - CFR
• Setup
• Upload/Playback
SGM
Body
• Security
• • Interior Scan Test
• • Keyless
• • PATS Functions
• • Factory Keyless Entry Code
• • Keyfob Training
• • Remote Keyless Entry
• • Keyless Entry Keypad Code Reset
• • Remote Start
• • Learn Keys
• • TBM SIM RAV_ID
• • Reset TBM Password
• • Reset security ID
• • ABS Configuration
• • Reset Expansion ID
• • Immobilizer PATS

- Restraints
  - Delete Crash Recorder
  - Power Seat Calibration
  - Passenger System Reset
  - Passenger Zero Seat Weight Test
  - Passenger Seat Weight Sensor ReZero
  - Passenger Airbag Deactivation Switch
  - Airbag Resistance Check
  - Beltminder Enable/Disable
- EATC Operation Check
- Service Functions
  - TBM Transit Mode
  - CCMii Sensor Alignment
  - PROXI Alignment
  - CEI Lock Configuration
  - Driver's Door Module
    - Driver Window Motor Test
  - Passenger's Door Module
    - Passenger Window Motor Test
  - Rear Gate/Trunk Module
    - Clear Self-learning Data
  - Camera Alignment
  - Track Key Configuration
  - Front Wiper Alignment
- TPMS Functions
  - Sensor Learn Routine
  - Workshop test
- Body Control Module Service Functions
- BMS Reset
- RVC Configuration
- GEM
  - Replacement of GEM
  - Remote Keyless Entry
  - Maintenance Information
- Power Seats
  - Driver's Seat Module
- VSM Service Functions
- Burglar Service Functions
- Special Ignition ON
- Reset maintenance lamp
- Maintenance revision status

- RCM Calibration
- BCM/GEM
  - Programmable Parameters
- Special Ignition ON
- Convergence Telematics Module
  - PROXI Alignment
- EATC
  - Motor's end of travel learning.
- DEPS
  - PROXI Alignment
  - Calibrate Steering Angle Sensor
- SWS Calibration

Chassis

- Braking
  - ABS Service Bleed
  - ABS Depressurizing/Brake Bleed
  - ABS
    - TPMS reset.
    - TPMS reset after ABS module replacement
  - PBM
    - Assembly Check
    - Inclination Sensor Calibration
    - Maintenance mode
    - Static Apply
    - Clear stored clutch engagement point
    - Module Configuration
  - Component Checks
  - Datalogger
  - ABS reset and configuration.
  - EPB calibration.
    - Calibrate the emergency release.
    - Calibrate the EPB function test.
    - Calibrate a new EPB module.
    - Calibrate the longitudinal acceleration sensor.
  - BleedMASTER
  - ESP sensor calibration
    - Configure All Three Sensors Together.
    - Configure the lateral acceleration sensor.
    - Configure the longitudinal acceleration sensor.
    - Configure the pressure sensor.
    - Configure Both the Yaw Rate Sensor and the Lateral Acceleration Sensors.

•	•	•	Configure the yaw rate sensor.
•	•	•	Variant and VIN Data Learning Procedure
•	•	•	Pressure Sensor Calibration
•	•	•	Configure the steering angle sensor.
•	•	•	Reset Pressure Sensor Offset
•	•	•	Calibrate Longitudinal Acceleration Sensor
•	•	•	Enable/Disable hill launch assist .
•	•	•	Calibrate Longitudinal Acceleration Sensor
•	•	•	Inhibit longitudinal accelerometer monitoring
•	•	•	Module Initialization
•	•	G Sensor Calibration	
•	•	IVD Initialization Sequence	
•	•	Read the ECU serial number.	
•	•	Read the sensor cluster serial number.	
•	•	Service Routine	
•	•	Steering angle sensor calibration	
•	•	Calibrate Steering Angle Sensor	
•	•	Auxiliary vehicle ID reset	
•	•	Learn the vehicle variant and VIN data.	
•	•	Wheel speed sensor test	
•	•	•	Left Front Wheel Speed Sensor Test
•	•	•	Right Rear Wheel Speed Sensor Test
•	•	•	Left Rear Wheel Speed Sensor Test
•	•	•	Right Front Wheel Speed Sensor Test
•	•	Zero Speed Test	
•	•	ABS	
•	•	PROXI Alignment	
•	•	Calibrate Longitudinal Acceleration Sensor	
•	•	Valve Calibration	
•	Suspension		
•	•	Ride Height Calibration	
•	•	Pneumatic Test	
•	•	Accurate Trim Test	
•	•	Wiggle Test	
•	•	Component Checks	
•	EPS		
•	•	Neutral Position Setting	
•	•	Calibrate Steering Angle Sensor	
•	•	PDC Reset	
•	ABS/DSC		
•	•	Sensor Initialization	

• • TPMS DTC Reset
• Readout/Programming of Chassis Parameters
• Steering
• • EPS
• • • Calibrate Steering Angle Sensor
• • • Configure the steering column assembly.
• • • Configure the intermediate shaft.
• • • Pull Drift Compensation
• • • Straight Ahead Adaption Angle Reset
• • • Steering Rack Limiter Configuration
• • PDC Enable/Disable
• EPS Steering Angle Calibration
• Replacement ABS
• Steering Wheel Position Sensor Calibration
• 4WD/ AWD
• • Coupling Calibration Data Writing
Electrical
• Parking Aid Switch Test
• Charging System Test
• Courtesy Lamp Relay
• Delayed Accessory Relay
• Radar Sensor Calibration
• Audio
• • ACM
• • AM Antenna Reception Sensitivity Test
• • audio configuration
• • Infotainment Display Test
• • Microphone Test
• • Monotones Test
• • Rear Tones Test
• • ACM Security Bypass Test
• • Audio Speaker Walk around Test
• • Tones Test
• • Touchscreen
• Exterior Lighting
• • Component Checks
• • Headlamp Alignment
• • • AFS
• • • HID headlamps
• • Headlamp
• • • Auto Leveling Sensor Re-zero Procedure

•	•	•	Headlight Zero-set
•	•	•	Auto Leveling Sensor
•	Service Functions		
•	•	Car Mode	
•	•	Disable GDM VIN	
•	•	Show GEM configuration	
•	•	Module Configuration	
•	•	•	IMRCM
•	•	•	PAD Switch
•	•	•	EPB
•	•	Navigation	
•	•	Parameter reset/configuration	
•	•	•	IMRCM
•	•	•	EPB
•	•	•	BCMii
•	•	•	Clear crash data memory.
•	•	Parking Aid	
•	•	•	Trailer Module
•	•	FCDIM Keycode Reset	
•	•	WMM Calibration	
•	Rmode		
•	•	Rebalance	
•	•	Reactivation	
•	Washer / Wiper		
•	•	Component Checks	
•	•	Windshield Wiper Test	
•	•	Rear Window Wiper Test	
•	CAN Bus Fault Test		
•	Instrument Cluster		
•	•	Gauge Test	
•	•	Button Test	
•	•	Illumination Test	
•	•	Multifunction Output Test	
•	•	Input and Data Test	
•	•	Cluster Function Test	
•	•	Tachometer	
•	•	PROXI Alignment	
•	•	Message Center Default Language	
•	•	Odometer Programming	
•	•	Passenger Airbag Enable/Disable	
•	Supplemental Heater		

- FFH
  - FFH Unlock Utility
  - FFH SelfTest and Prefill Utility
  - FFH Start Heater Utility
  - Prime the fuel system.
- FFPH
  - FFPH Conditions For Start-up
  - FFPH Heater Operation
  - FFPH Further Information
- EAH
  - EAH Further Information
- FFH Operation Check
- FFH Fuel Priming

- Rain Sensor Reset
- IC Service Functions
- LPSDM and RPSDM Service Function
- ICCM Aiming Adjustment
- BSM Radar Test
- RVM Aiming
- Cruise Control
  - CCM#1 Calibration
- RKE
  - Touch Sensor Status Monitor
- PAM
  - PROXI Alignment
- RCM
  - PROXI Alignment
- SOD-L
  - Module Reset
- SOD-R
  - Module Reset
- FSC Aiming

Powertrain

- Air Management
  - EGR System Test
  - Turbocharger Test
    - TURBO_FLUSH
    - Turbo Boost Test
    - VVT Test
- Fuel
  - EVAP Test

- Fuel Economy Test
- Fuel System Test
  - Low Pressure Test
  - High Pressure Test
- Ignition Tools
  - Ignition Test
  - COP Stress Test
  - Spark Duration PIDs
  - Driver on Coil Ignition Test
- Misfire Test
- Power Balance
- Relative Compression
- Engine Checks
- Transmission
- OBD Test Modes
  - OBD Drive Cycle
  - Mode 1 Powertrain Data
  - Mode 6 On-Board Test Results
  - Mode 8 – On-Board device control
  - Mode 9 – Vehicle Information
- Reset KAM
  - PCM
  - TCM
- ASM Service Functions
- Rear Driveshaft Balance
- ATC#1 Barcode Entry
- Front Driveshaft Balance
- Automatic 4 wheel drive
- A/F (Fuel Ratio)
- Injector ID code
- A/C Test
- Engine Start Frequency
- MAF Correction
- DPD
- Replacement of the PCM
- Clear Learning Value
- FFH
  - Lockout Mode Reset
- DPF
- ETB/EGR Initialization
- Data Reset

- Driveshaft Balance
- PCM Calibration ID Number
- Misfire Check
- Electronic Throttle Control
- Readout/Correction of PCM Parameters
- Service Functions
  - TCM
  - PCM
    - Reset the Powertrain Control Module Learned Values
  - DPF Manual Regeneration
  - DPF Reset
  - Clear EGR Adaptive Tables
  - Clear Fuel Injector & HP Pump Adaptive Tables
  - Reset / Clear Specified Function
  - Misfire Monitor Neutral Profile Correction
  - SCR System
    - SCR System Emptying
    - SCR System Refill Activation
    - SCR Parameter Reset
    - SCR Visual Leak Check
    - SCR Dosing Measurement Test
  - Diesel Particulate Regeneration System
    - DPF Parameter Reset
    - DPF Filter Reset
    - DPF Regeneration Suspension
    - DPF Manual Regeneration
  - GPCM Calibration Synchronization
  - Oxidation Catalyst Reset
  - IQA
  - WIF Reset
  - Relearn Vehicle Data
  - Cooling System Degas
- PCM Service Functions
- Reset Supply Pump Learned Values
- Resetting adaptive values
- Transmission
  - Neutral Position Learning
  - Clearing of Learning Value
  - Transmission Learning
  - CVT Slope Sensor Calibration
  - CVT Learning Value Setting

• • TCM Adaptive Learning
• • Clutch System Test
• • Speed Sensor Test
• • Transmission Solenoid Body IDN
• • Clear Transmission Adaptive Tables
• • Reset Transmission Tables
• • Stop Use of Transmission Adaptive
• • Halt Transmission Adaptive Learning
• • Resume Transmission Adaptive Learning
• • TR Sensor Test
• • Live Data Display TCM
• • TCM Basic Setting
• • Stall Line Pressure Test
• • Transmission Speed Sensor Test
• • Transmission Hydraulic Line Pressure Test
• • Transmission Fluid Level Test
• • Automatic Transmission PRNDL Display Test
• • BSI Solenoid Test
• • Automatic Transmission Park Switch Test
• • Transmission Characterization / Solenoid IDN
• Collect Diagnostic Information
• i-stop
• Data Reset
• SCR System
• • Urea Hose Leak Test
• • Aborted urea injector test.
• • Aborted urea pump test.
• Cam Timing Learning
• Writing Presumptive Frequency of Starter Motor Activations
Mazda Vehicle Check-up
Blank Module Programming
• Install new module
• • Anti-Lock Brake / Traction Control Module
• • Body Control Module
• • Convergence Telematics Module
• • Electronic Air Temperature Controller
• • Electronic-Controlled Power Steering
• • Instrument Panel Control Module
• • Parking Aid Module
• • Powertrain Control Module
• Reprogram module

• •	**Anti-Lock Brake / Traction Control Module**
• •	**Body Control Module**
• •	**Convergence Telematics Module**
• •	**Electronic-Controlled Power Steering**
• •	**Instrument Panel Control Module**
• •	**Parking Aid Module**
• •	**Powertrain Control Module**
Operational Record	
•	**Meter Warning System**
•	**Door Lock System**
•	**Burglar Alarm System**
•	**TPMS**

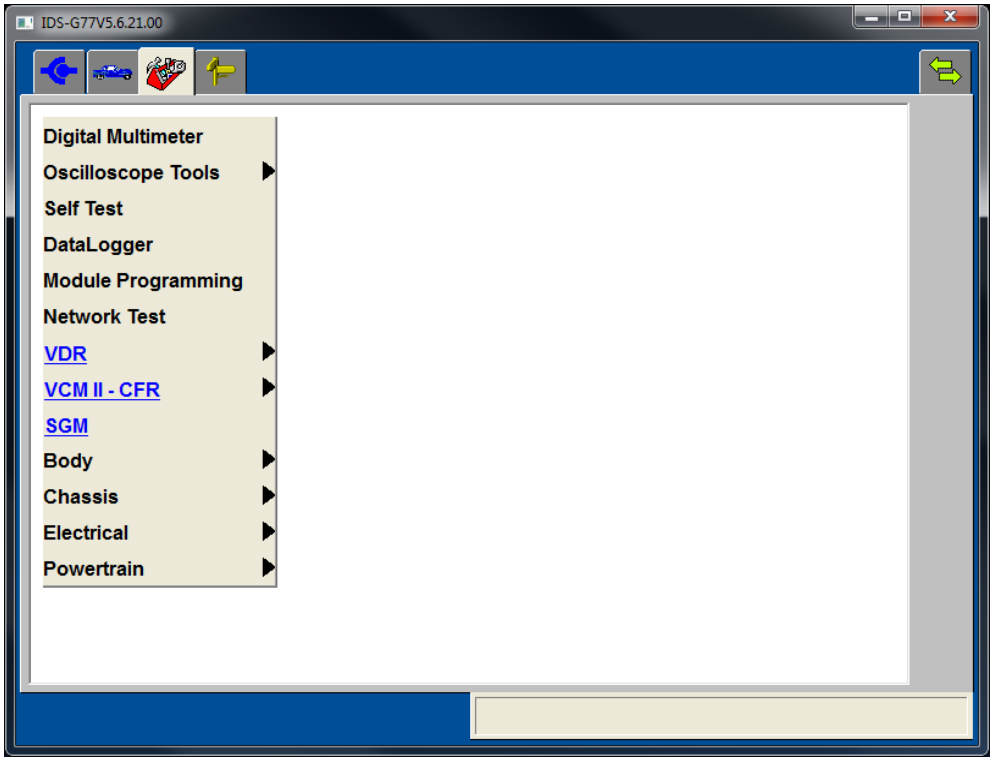


FIGURE 19: TOOLBOX MENU

When a tool or service function is selected, a navigation tab is assigned at the top of the **IDS** screen. Each tool and service function may require the use of the **VCM**, **VMM**, both or, the **VDR**. On-screen instructions are provided for connecting these devices when required. The following table lists some of the most commonly used tools along with their assigned navigation icon and which devices they require.

	**Alternator Ripple Test** Uses the oscilloscope tool to analyze alternator ripple. A useful tool for diagnosing problems with the charging system.			
	**DataLogger** Monitors selectable Electronic Control Unit (**ECU**) parameters (PIDs) through the vehicle communication network.			
	**Digital Multi-Meter** Provides various multi-meter functions, such as measurements of AC voltage, Vehicle Battery voltage, DC voltage, Resistance, Frequency, Period, Duty Cycle, and Pressure (Requires the **VMM).**			
	**Fuel Economy Test** Analyzes and tests the fuel economy of the vehicle.			
	**Fuel System Test** Tests the fuel system including the operation of injectors and pumps.			
	**Ignition Test** Analyzes the condition of the secondary ignition system by monitoring spark activity using capacitive pickups.			
	**Oscilloscope** A four channel oscilloscope for analyzing electrical signals.			
	**Mode 6 On-Board Test Results** Access the results of **OBD**II monitors.			
	**Module Programming** Reprograms and configures **ECU**s.			
	**Network Test** Analyzes and performs tests of the vehicle's communications network by searching for all available **ECU**s.			
	**PATS Functions** Performs various tests and service functions related to the Passive Anti-Theft System.			
	**Power Balance** Analyzes and displays the relative power contributed by each cylinder.			

	**Relative Compression** Analyzes and displays the relative compression achieved by each cylinder.			
	**Reset KAM** Clears learned values that an **ECU** has stored for adaptive systems.			
	**Self-Test** Performs on-board vehicle diagnostic routines and retrieves and clears Diagnostic Trouble Codes (). (i.e. All CMDTC's, KOEO, KOER, etc).			
	**SGM** Generates and simulates **ECU** input signals to override sensors and verify **ECU** input signal acquisition.			
	**VCM II CFR Setup** Configures the **CFR** to monitor selected parameters and record the data during customer triggered events.			
	**VCM II CFR Upload/Playback** Uploads customer recorded event data from a configured **CFR** to **IDS** for viewing and analyses.			
	**VDR Setup** Configures the **VDR** to monitor selected parameters and record the data during customer triggered events.			
	**VDR Upload/Playback** Uploads customer recorded event data from a configured **VDR** to **IDS** for viewing and analyses.			

DEVICE SELECTION

The **Device Selection** tab (Figure 20) is available after the **IDS** application has used a **VCM II** at least once. The Device Selection tab will show a list of available **VCM** devices. The top two rows in the device list will always be present and represent wired versions of the **VCM** and the **VCM II**. Wireless **VCM II** devices will be shown in the list below the top two rows if the **VCM II** wireless adapter is inserted into the **IDS** laptop.

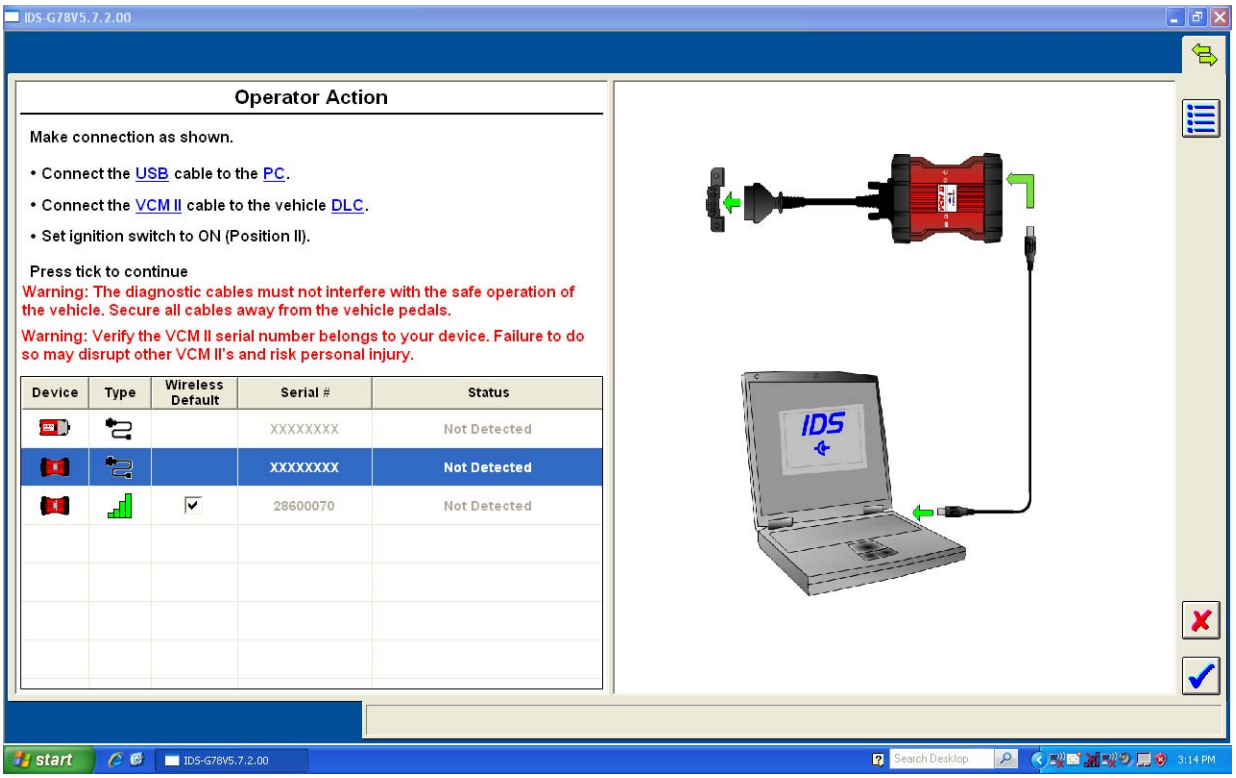


FIGURE 20: DEVICE SELECTION TAB

ESTABLISHING A CONNECTION TO A WIRED **VCM**

To establish a connection to a wired **VCM**, simply attach the **VCM** to your **IDS PC** using a USB cable.

Once a connection has been made to the **VCM**, the status of the device will display the word "Connected", as shown in Figure 21.

NOTE: It may take 10 to 20 seconds for a wired connection to be established between your **IDS PC** and a **VCM** device.

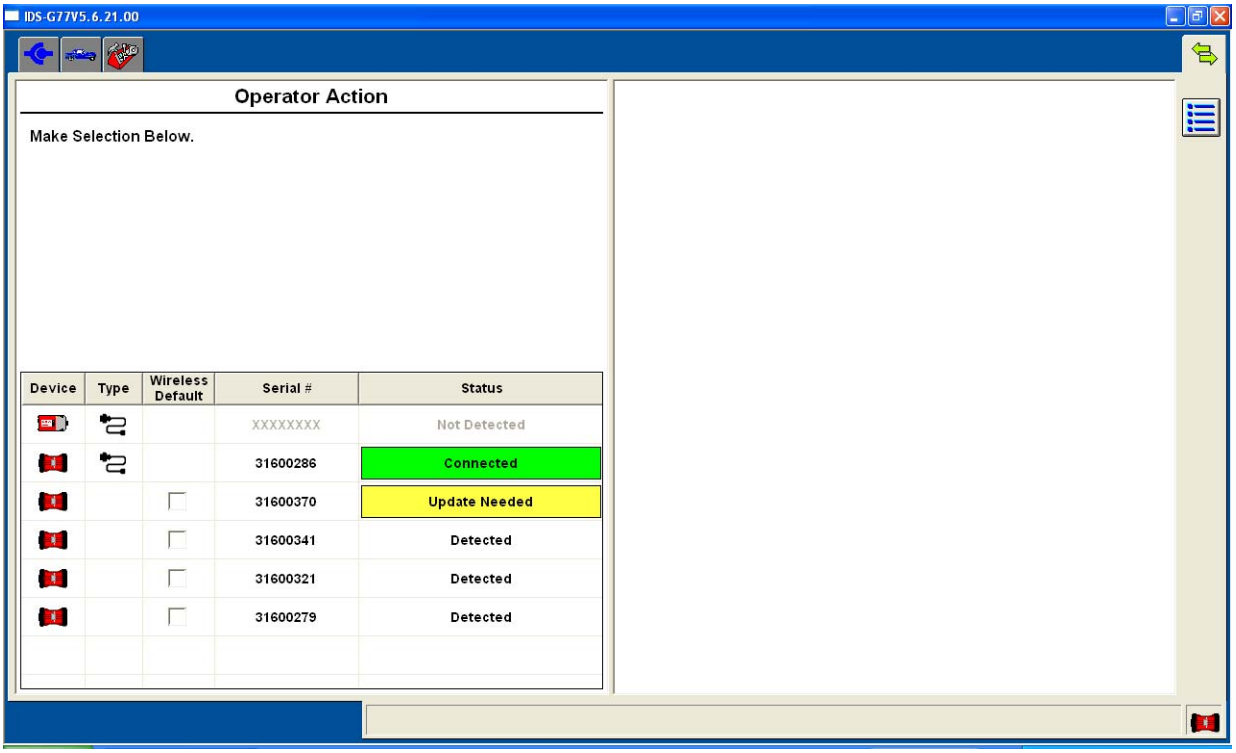


FIGURE 21: WIRED VEHICLE COMMUNICATIONS MODULE CONNECTION

ESTABLISHING A CONNECTION TO A WIRELESS VCM II

To establish a connection to a wireless **VCM II**, follow the steps below.

1. Insert a D-Link wireless adapter into your **IDS** laptop.
2. Start **IDS**.

   NOTE: It may take some time for **IDS** to configure the D-Link adapter when the adapter is being used for the first time.

3. Select the **IDS** Device Selection tab
4. Select a wireless **VCM II** whose status is "Detected", as shown in Figure 22.

WARNING: Verify the VCM II serial number belongs to your device. Failure to do so may disrupt other VCM II's and risk personal injury.

   NOTE: If you select a **VCM II** whose software does not match **IDS** you will be prompted with instructions to update your software.

5. Click the "Wireless Default" check box to have **IDS** automatically connect to the selected **VCM II** each time.
6. Select the blue tick.

Once a connection has been made to the wireless **VCM II**, the status of the device will display the word "Connected", as shown in Figure 23.

NOTE: It may take 30 seconds to one minute for a connection to be established to a wireless **VCM II**.

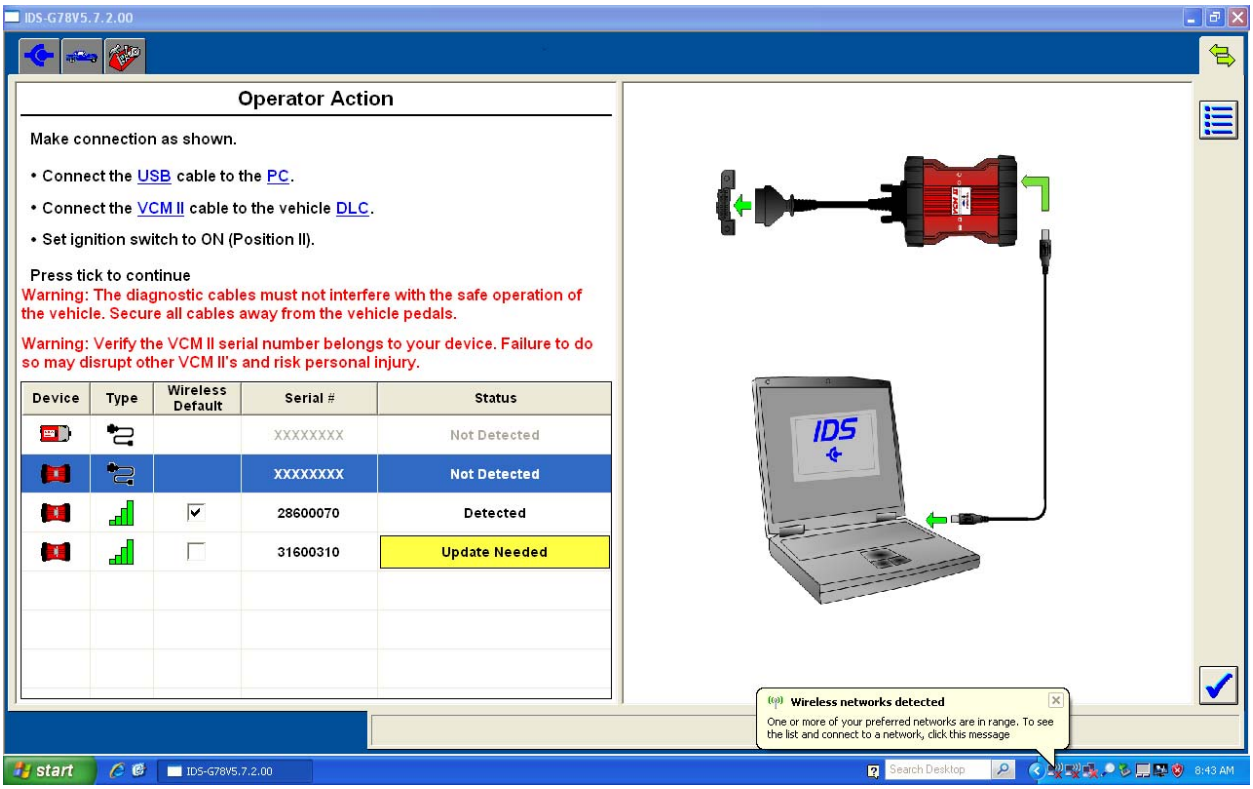


FIGURE 22: WIRELESS VEHICLE COMMUNICATIONS MODULE SELECTION

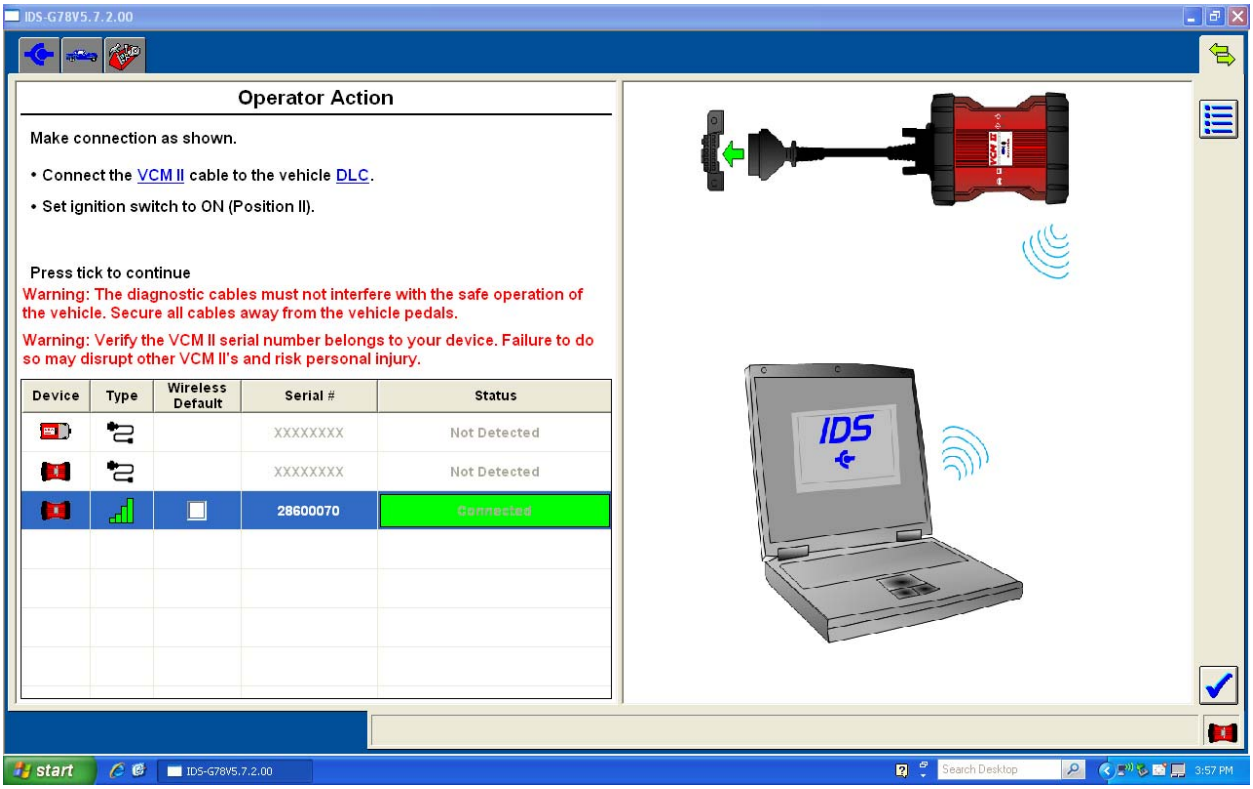


FIGURE 23: A WIRELESSLY-CONNECTED VEHICLE COMMUNICATIONS MODULE

ACRONYMS

ABS	Anti-Lock Brake / Traction Control Module
A/C	Air conditioning
ACM	Audio Control Module
AFS	Adaptive Front Lighting System
ASM	Auto Shift Manual
ATC#1	Active Torque Coupling
AWD	All-Wheel Drive
BCM	Battery Control Module
BCMii	Body Control Module
BMS	Battery Monitoring System
BSI	Brake Shift Interlock
BSM	Blind Spot Monitoring
CAN	Controller Area Network
CCM#1	Cruise Control Module
CCMii	Cruise Control Module
CEI	Configurable Engine Immobilizer
CFR	Customer Flight Recorder
CMP	Camshaft Position Sensor
COP	Coil On Plug
CTM	Convergence Telematics Module
DEPS	Dual Equal Phase Shifting
DLC	Data Link Connector
DPD	Diesel Particulate Defuser

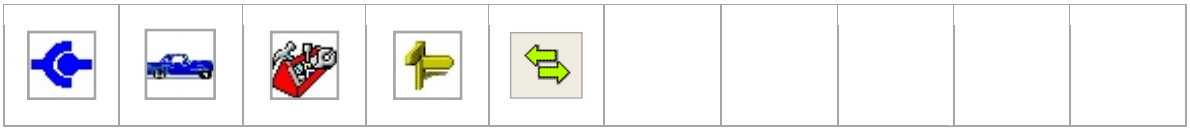
DPF	Diesel Particulate Filter
DSC	Dynamic Stability Control
DTC	Diagnostic Trouble Code
EAH	Electrical Auxiliary Heater
EATC	Electronic Air Temperature Controller
EGR	Exhaust Gas Recirculation
EPB	Electric Parking Brake
EPS	Electronic-Controlled Power Steering
ECU	Electronic Control Unit
ESP	Electronic Stability Program
ETB	Electronic Throttle Body
EVAP	Evaporative Emission System
FCDIM	Front Control/Display Interface Module
FFH	Fuel Fired Coolant Heating Module
FFPH	Fuel Fired Coolant Parking Heating Module
FSC	Forward Sensing Camera
GDM	Generic Display Module
GEM	Generic Electronic Module
GPCM	Glow Plug Control Module
HID	High Intensity Discharge
IC	Instrument Cluster
ICCM	Intelligent Cruise Control Module
IDN	Identification

IPC	Instrument Panel Control Module
IPS	Input Shaft Speed
IPS#2	Intake Phase Shifting
IQA	Injector Quantity Adjustment
IDS	Integrated Diagnostic System
IMRCM	Intake Manifold Runner Control Monitor
ISM	Interior Scanning Module
IVD	Interactive Vehicle Dynamics
KAM	Keep Alive Memory
LPSDM	Left Power Sliding Door Module
MAF	Mass Air Flow
OBD	On-Board Diagnostics
PAD	Passenger Airbag Deactivation Warning
PAM	Parking Aid Module
PATS	Passive Anti-Theft System
PBM	Park Brake Control Module
PC	Personal Computer
PCM	Powertrain Control Module
PDC	Pull Drift Compensation
PRNDL	Selector lever position (PRND321)
RCM	Restraint Control Module
RKE	Remote Keyless Entry
RPSDM	Right Power Sliding Door Module

RVC	Rear Video Camera
RVM	Rear Vehicle Monitoring
SCR	Selective Catalytic Reduction
SGM	Signal Generator Monitor
SOD-L	Side Obstacle Detection Control Module – Left
SOD-R	Side Obstacle Detection Control Module – Right
SWS	Seat Weight Sensor
TBM	Tracking and Blocking Module
TCM	Transmission Control Module
TPMS	Tire Pressure Monitoring System
TR	Transmission range
TSB	Technical Service Bulletin
USB	Universal Serial Bus
VCM	Vehicle Communication Module
VCT	Variable Camshaft Timing
VDR	Vehicle Data Recorder
VIN	Vehicle Identification Number
VMM	Vehicle Measurement Module
VSM	Vehicle Security Module
VVT	Variable Vane Turbo
WIF	Water In Fuel
WMM	Wiper Motor Module
4WD	Four Wheel Drive

SYMBOLS (FUNCTIONAL GROUPS)

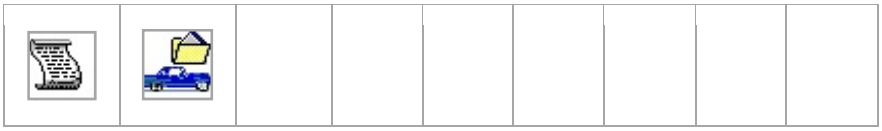
Navigation Tabs



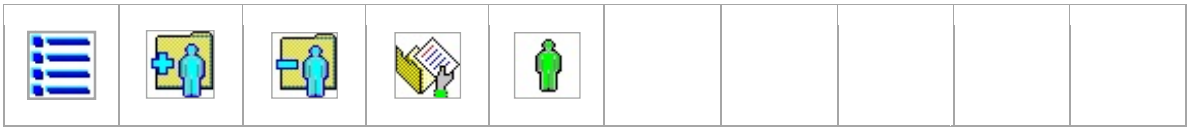
Status Icons

System Page Sub-tabs

Vehicle Identification Sub-tabs

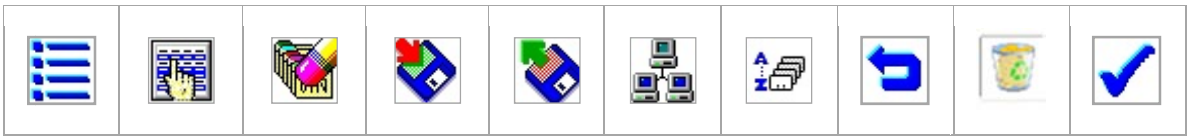


User Preferences Buttons

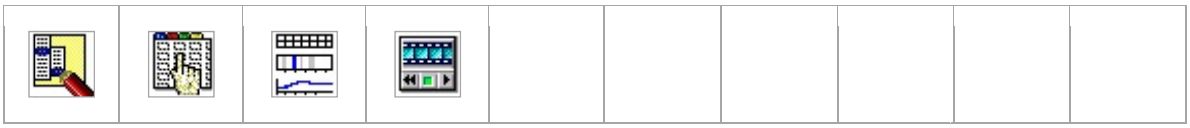


Log Viewer Buttons

Previous Sessions Buttons

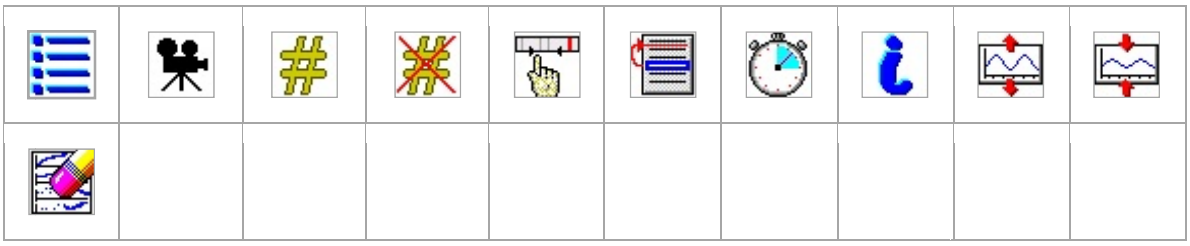


Tool Sub-tabs (Actual Tabs shown are tool-dependant)



Parameter Selection Buttons (Actual Buttons shown are tool-dependant)

Live Display Buttons (Actual Buttons shown are tool-dependant)



Playback Display Buttons (Actual Buttons shown are tool-dependant)

GLOSSARY OF SYMBOLS (ALPHABETICAL)

	**Add User** Add a new user	**button**
	**Archive Session** Saves a session to permanent storage	**button**
	**Back** Step back to previous screen or menu	**button**
	**Cancel** Cancel or close a statement or screen	**button**
	**Change User Preferences** Change user preferences	**button**
	**Clear** Clears selected electronic control module parameters, display settings, captured data etc...	**button**
	**Close Session** Close vehicle session	**sub-tab**
	**Data Capture** Starts capturing data, which can be saved and viewed in ***Playback Display***.	**button**
	**DataLogger** A diagnostic application that allows the user to select and monitor parameters (PIDs) through the vehicle communication network from the DLC.	**tab**
	**Delete** Deletes the selected session(s)	**sub-tab**
	**Delete User** Deletes a user	**button**
	**Device Selection** Select a Vehicle Communications Module	**tab**

	**Diagnostic Test** **tab** Represents a general diagnostic tool or service function.
	**Digital Multi-meter** **tab** Provides various multi-meter functions, such as measurements of AC voltage, Vehicle Battery voltage, DC voltage, Resistance, Frequency, Period, Duty Cycle, and Pressure (Requires the **VMM**).
	**Expand Signal View** **button** Expands the display size of a selected electronic control module parameter.
	**Fuel Economy Test** **tab** Analyzes and tests the fuel economy of the vehicle.
	**Fuel System Test** **tab** Tests the fuel system including the operation of injectors and pumps.
	**Guided Diagnostic** **tab** Lists recommended diagnostic tools
	**Information** **button** Display information related to the current screen
	**Live Display** **sub-tab** Display live data for selected electronic control module input and output parameters.
	**Load Parameters and Settings** **button** Load saved selection of electronic control module parameters and display settings.
	**Lock** **status icon** The operation being performed cannot be interrupted
	**Log Viewer** **sub-tab** View logged session information
	**Menu** **button** Context sensitive pop-up menu for general printing, navigating, logging data, configuring etc.
	**Module Programming** **tab** Reprograms and configures ECUs.
	**Move** **button** Moves the display order of selected electronic control module input and output parameters.

	**Network Test** **tab** Analyzes and performs tests of the vehicle's communications network by searching for all available **ECU**s.
	**OSC Disable** **button** Disable output state control. Controllable parameters are denoted by "#" next to their name.
	**OSC Enable** **button** Enable output state control. Controllable parameters are denoted by "#" next to their name.
	**Oscilloscope** **tab** Provides a four-channel oscilloscope tool that can be utilized by the users to monitor electrical signals, to assist in diagnosis or analysis (Requires the **VMM**).
	**Parameter Selection** **sub-tab** Select electronic control module input and output parameters for monitoring and testing.
	**Playback Display** **sub-tab** View or replay a saved data recording.
	**Plot Format Limits and Range** **button** Displays a pop-up window for changing the graphical display properties of a selected parameter. Parameters can be displayed as text or plotted over time in linear graphs, histograms or bar graphs. It also allows the configuration of triggers, limits, display ranges and capture buffer sizes.
	**Recording Time** **button** Configure the capture buffer duration, pre-trigger time and post-trigger time.
	**Recover** **button** Recover a previously deleted session
	**Reduce Signal View** **button** Reduces the display size of a selected electronic control module parameter.
	**Restore Session** **button** Restore a saved vehicle session
	**Save Parameters and Settings** **button** Save selected electronic control module parameters and display settings.
	**Select Item Types** **button** Select the types of information to view in the Log Viewer.

	**Select Multiple Sessions** Selects multiple sessions	**button**
	**Self Test** Provides a list of module Self Test routines available to retrieve and clear Diagnostic Trouble Codes for the vehicle, (i.e. All CMDTC's, KOEO, KOER, etc).	**tab**
	**Set Current User** Set the current user	**button**
	**SGM** Signal Generator Monitor (Requires the Vehicle Measurement Module).	**tab**
	**Sort Session List** Sorts the sessions by VIN, Vehicle Model, Repair Order number and/or date.	**button**
	**System Information** Display system information.	**sub-tab**
	**System Page** Set up the system and view information related to the system.	**tab**
	**System Select** Select a vehicle system or module for testing.	**sub-tab**
	**System Utilities** Set up the system and display user information	**sub-tab**
	**Tick** Accept a statement or screen	**button**
	**Toolbox** Lists available diagnostic tools	**tab**
	**Training Mode** The current mode of operation is "Training Mode"	**status icon**
	**Upload Session** Copies a saved session to an external storage location	**button**
	**User Preferences** Add and remove users and set preferences	**sub-tab**

	**VCM** **status icon** Vehicle Communications Module is Connected
	**VCM II** **status icon** Vehicle Communications Module II is Connected
	**VCM II CFR Setup** **tab** Configures the **VCM II *CFR*** to monitor selected parameters and record the data during customer triggered events..
	**VCM II CFR Upload/Playback** **tab** Uploads customer recorded event data from a configured ***CFR*** to **IDS** for viewing and analyses.
	**VDR** Vehicle Data Recorder
	**VDR Setup** **tab** Configures the **VDR** to monitor selected parameters and record the data during customer triggered events.
	**VDR Upload/Playback** **tab** Uploads customer recorded event data from a configured **VDR** to **IDS** for viewing and analyses.
	**Vehicle Specification** **sub-tab** List vehicle attributes and specifications.
	**Vehicle Identification** **tab** Identify a vehicle
	**VMM** **status icon** Vehicle Measurement Module