TIS2Web User Guide
Introduction

TIS2Web is the internet-based subscription service for Techline Information System (TIS) - the source for GM vehicle calibrations, Global Diagnostic System software and Tech2 diagnostic software updates. The TIS2Web User Guide provides a comprehensive overview of TIS2Web software.

Using This Manual: To increase effectiveness with the TIS2Web software, users should familiarize themselves with the format and information contained in this guide. Everything contained in this manual is based on the latest product information available at the time of publication.

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Customer Support Overview

To obtain assistance with your TIS software, contact the ACDelco Aftermarket Support Center.

Before Calling

Before making a call for ACDelco Aftermarket support, be sure to have the following information ready:

• Business name, address, ACDelco TDS Login ID, and the technician’s Telephone number

• Tell when the problem occurred

• List any error messages

• Give vehicle entry information

Making the Call

The ACDelco Aftermarket Support Center telephone lines operate from 8:00 AM to 8:00 PM (Eastern Standard Time) Monday through Friday.

In the United States and Canada to contact Customer Support, dial:

1-888-212-8959
Important PC Hardware Guidelines

ACDelco provides IT guidelines to help users have a seamless experience when using TIS2Web software applications. To avoid unnecessary compliance issues with TIS2Web, please review and adhere to the stated infrastructure guidelines at the following link: http://www.gmdesolutions.com/services/standards.php

These guidelines for GM Dealers also apply to independent users, Professional Service Centers and Key Fleets using ACDelco Aftermarket subscriptions. For questions on these guidelines, contact 888-212-8959, prompt #2.
TIS2Web Application

TIS has six major applications:

- Software Download (SWDL)
- Service Programming System (SPS)
- Calibration Information (SPS Info)
- Security Access (Security)
- Snapshot (Snap)
- Global Diagnostic System (GDS)

Depending on what access user profile you have and what region you are from, additional icons may appear.
Using TIS2Web For The First Time

Java software must be installed (one time only) in order to use TIS2Web.

When Java is not installed and a user logs in for the first time, the user is prompted by the application for the missing Java plugin and the user must click on the link to download.

Installing Java

Go to “Help” then “FAQ” and follow instructions to download Java. The correct Java Runtime version must be installed to use TIS2Web.

If Java is not installed complete the following steps:

• From the TIS2Web main screen select “Help (? icon)”.
• From the “Help” menu select “General” then “Frequently Asked Questions (FAQ’s)”.
• Select “What is Java 2 Runtime Environment (JRE) and Why Do I Need It?”
• Follow the installation steps provided.

TIS2Web Navigation

The Main Toolbar allows the user to move within the TIS2Web software system.

Note: Do NOT use the arrow keys from your computer’s browser. The TIS2Web software application does not support the use of your computer’s browser forward and back selections. Errors will occur if you use those selections. In many cases, you will be exited from the TIS2Web program and will have to log back in.

The main toolbar consists of the following tabs:

<table>
<thead>
<tr>
<th>Main Toolbar</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Home</strong></td>
</tr>
<tr>
<td><strong>SWDL</strong></td>
</tr>
<tr>
<td><strong>SPS</strong></td>
</tr>
<tr>
<td>Main Toolbar</td>
</tr>
<tr>
<td>---------------------------</td>
</tr>
<tr>
<td><strong>SPS Info</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Security</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Snap</strong></td>
</tr>
<tr>
<td><strong>GDS2</strong></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
### Central Toolbar

<table>
<thead>
<tr>
<th>![Icon]</th>
<th>The TIS2Web Diagnostic Client is used to create and send Log-Archive, save log archive, delete lease, and show system information. Information can be sent to the help desk for support.</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Icon]</td>
<td>This page groups important settings which can be changed according to the PC-environment and user preferences. Document/display area height set, encoding for text download, enable plug-in, and show all messages are all settings that can be changed by using this option.</td>
</tr>
<tr>
<td>![Icon]</td>
<td>Accesses the newsletters within TIS2Web.</td>
</tr>
<tr>
<td>![Icon]</td>
<td>Displays the TIS2Web help system. You can learn more about the operation and function of the individual screen items here.</td>
</tr>
<tr>
<td>![Icon]</td>
<td>This selection can be used to provide email feedback concerning your experiences and opinions regarding the TIS2Web application. Specific TIS2Web surveys are present under this selection also. You can also enter optional user information to hear directly back from TIS2Web.</td>
</tr>
<tr>
<td>![Icon]</td>
<td>If you want to quit TIS2Web, only use this selection. You will be requested to confirm logging out of TIS2Web, this selection closes the Internet browser.</td>
</tr>
</tbody>
</table>
Software Download

The Software Download function of TIS2Web is used to update the Tech2 scan tool software to the latest version. Like all computers, the Tech2 scan tool stores software that determines how it runs and what it can do. This software allows the scan tool to perform diagnostic routines on the following vehicle applications: Powertrain, Body, Chassis, and Service Programming.

Scan tool software is regularly updated to reflect changes in vehicle engineering or diagnostics. Refer to TIS2Web Newsletter for new scan tool updates.

Caution: The PCMCIA card is sensitive to magnetism and static electricity. Use care when handling.

**Note:** The PCMCIA card is accessed through a door on top of the Tech 2, and should only be removed if instructed by the ACDelco Aftermarket Support Center. The card is ejected by pushing the arrow button next to the card to be removed. Cards are notched to allow insertion only one way. When reinserting the card make sure that it fully seats into the Tech 2. The PCMCIA card fits into Slot 1, which is closest to the screen. The second slot is identified as Slot 2.

Tech2 PCMCIA Card

The Tech2 software is stored on a PCMCIA card. All of the applications share a single database on the PCMCIA card.

Card Ejection

(1) Empty Lower PCMCIA Slot
(2) Up Arrow Eject Button
Card Keying

(1) Bottom Side of Tech2
(2) Tech2 PCMCIA Card
(3) Tech2 Door

Card Insertion

(1) Tech2 PCMCIA Card

The card can store at least two snapshots and one Capture Info data file. This allows analysis of intermittent conditions on a vehicle being serviced. A write-protect slide mechanism is on the top edge of the card — usually under a white plastic CPA-type device on new cards. If the write-protect slide mechanism is in the locked position, you will not be
able to store snapshots or captured information, and service programming will not work. The correct position is at the middle of the card (unlocked).

Background

When the Tech2 was introduced in 1996, it was equipped with a 10-MB (10-megabyte) PCMCIA card, which had 10 times the capacity of the original mass storage cartridge of the Tech 1. The 10-MB card was installed in Slot 1, closest to the screen, with Slot 2 reserved for future use.

Vehicle on-board computer capabilities multiply with each new model year, and the Tech2 has had to keep pace. The capacity of the 10-MB card reached its limits, and it was time to expand again.

Why a larger memory card was needed

The memory card contains diagnostic and reprogramming applications, and space for vehicle calibrations. As the functions of the Tech2 expand, more space is needed for new diagnostic applications.

For convenience, coverage of the 1997 to current vehicles is being retained, and capacity is being added to accommodate upcoming model years. Some newer model vehicles will require use of the MDI.

Acquiring additional memory cards

Call Bosch Diagnostics at 1-855-267-2483 to order replacement cards for additional units, or to obtain further information about this product.

Caution: Use only GM Service and Parts Operations supplied PCMCIA cards. The PCMCIA slots are designed to interface with 5-volt cards. Permanent damage to Tech2 could occur if a 3.3-volt card is inserted into the Tech2 PCMCIA connector.

Note: The Tech2 supports a 32-MB card called a linear flash card.
Tech2 Standard Update Procedure

Standard Tech2 Update

1. Connect the scan tool to the PC using the RS-232 cable.

   - RS – 232 Port
   - Power Supply Connected to TECH 2 DLC Adapter

2. Power up the scan tool using the AC power supply that came with the tool.
3. At the PC, launch TIS2Web.
4. From the TIS2Web main screen select “Software Download” (SWDL).
5. A new screen will appear where the user must click on, “Start Software Download” (SWDL).
6. At the SWDL screen, select “Tech2” and “Standard” to install the newest software on the scan tool.

**Note:** Clicking “Download” at the “Confirm Software Change” screen will initiate the download. Be sure the correct file has been selected before clicking “Download”.

7. The PC will display a “Confirm Software Change” screen showing what the Tech2 currently contains and what it will contain after the download. After confirming the selection, click “Download” to continue.
8. A “Performing the Software Download” screen appears to track the download status.

9. When the download is complete, a “Download Finished” screen appears.

**Note:** If the Tech2 Title Screen is not displayed when the power is turned on, perform the following checks.
- Is a correct PCMIA card inserted in the Tech2 slot? If not, insert it properly.

- Are 2 PCMIA cards (one of 2 cards is a correct PCMIA card) inserted in the Tech2 slot? If so, press the SHIFT key and then right select key (>) and check that the Title Screen appears on the Tech2. After this operation, press the SHIFT key and release the SHIFT function. If the Title Screen does not appear on Tech2, turn off the power once and restart.
Custom Tech2 Update

A custom update can be performed to backdate the scan tool or install different language software.

1. Connect the scan tool to the PC using the RS-232 cable.

2. Power up the scan tool using the AC power supply that came with the tool.

3. At the PC, launch TIS2Web.

4. From the TIS2Web main screen, select “Software Download”, then select “Start Software Download” (SWDL).

5. At the “Select Diagnostic Tool for Download” screen, select “Tech2” and “Custom” to allow backdating or installing of non-NAO software on the scan tool. Select “Next”. A message will appear indicating the PC is reading the contents of the diagnostic tool.

6. A Select the Applications screen appears. See the left side of the screen that lists software release numbers and select a file to see the list of languages for each release.
7. Select the desired software version and language either by double-clicking on it or highlight the desired language file, then click “Select” in the middle of the screen. The selected software will appear in the right side of the screen.

**Note:** If you have selected the same software version and language that is currently downloaded on the scan tool, the “Select” option in the middle of the screen may not highlight for selection.

8. A “Performing the Software Download” screen appears to track the download status. A “Download Mode RS-232 Connection” message will appear on the Tech2 screen during the download.
9. When the download is completed, a “Download Finished” screen appears Click “Close” to close the application.
Snapshot Functions

Snapshot Upload / Display

The Snapshot Upload/Display function of TIS2Web provides a means for viewing scan tool snapshot data, as well as freeze frame and capture info data on the PC. This data can be analyzed in a variety of ways to determine when and where a fault may have occurred.

Using the Snapshot display feature involves three steps:

1. Capture snapshot(s) with the scan tool.
2. Upload the snapshot(s) to the terminal.
3. View the snapshot(s) using the TIS2Web Snapshot Upload/Display function.

Capturing a Snapshot of the Vehicle Data Stream

The following procedures describe how to capture, upload and view a snapshot using TIS2Web software.

1. Connect the Tech2 to the vehicle Data Link Connector.
2. Power up the Tech2 and press the “ENTER” key at the title screen.
3. From the Main Menu select “F0: Diagnostics”.
4. Enter all vehicle information as requested by the scan tool (powertrain, body, chassis).
5. From the application menu, select “F3: Snapshot”.
   • Select the desired system to snapshot (e.g. Engine, Transmission, ATC).
   • Select the desired data list (e.g. Engine Data 1, Engine Data 2, EGR Data).
   • Select trigger type and trigger point, see “Capturing a Snapshot” below. Choices may be dependent upon the application.
6. Press the Record Snapshot soft key. The Tech2 screen will display the flashing message “standby”.
   • When the fault occurs, press the Trigger soft key.
   • The Tech2 will display the message “triggered”.
   • Allow the scan tool to record a sufficient amount of data, then press “Exit” to store the snapshot data.
   • Press the Continue soft key when the snapshot trigger type screen is displayed.
7. Exit to the Main Menu, then power down and disconnect the Tech2 from the vehicle.
Capturing a Snapshot

Trigger Type

F0 – F2 function keys determines how the snapshot is triggered:

- **F0**: Manual Trigger will trigger a snapshot when you press the Trigger soft key.
- **F1**: Any Code will trigger a snapshot whenever any current trouble code is stored. This event occurs when the first code is stored in the vehicle controller memory.
- **F2**: Single Code will trigger a snapshot when a user specified trouble code is stored.

Trigger Point

F4 – F6 function keys is the exact point at which the trouble code (fault) or manual trigger occurs within the snapshot period. It helps to know the trigger point when you are looking for changes in data parameters. Trigger point may be set for:

- **F4**: Beginning causes the Tech2 to start recording information from the trigger point until snapshot storage is full. This choice is useful if the fault is predictable in nature.
- **F5**: Center is the most commonly used trigger point because it stores information leading up to and following the trigger point. This function allows comparison of events before, during, and after a fault.
- **F6**: End sets the trigger point at the end of the snapshot recording and therefore shows only information leading up to and including the fault.

Uploading the Snapshot to the PC

After a snapshot has been successfully captured with the scan tool, perform the following steps to upload it from the scan tool to the computer.

1. Launch TIS2Web.
2. Select “Snapshot (SNAP)” from the TIS2Web main screen. Select “Start Snapshot”.
3. Select the “Upload from Handheld” in the center of the screen or select the “Upload from Handheld” icon on the Snapshot toolbar. Snapshot must be in the same language as TIS2Web.
4. Select the “Tech2 scan tool” on the “Upload from a Handheld Device” window, verify that the Tech2 is connected to the terminal, verify that the Tech2 is at the main screen, and then select “OK”.
5. Select the snapshot to be uploaded, then select “OK”. Upload the snapshot from handheld screen.

6. After the snapshot uploads, a list of data parameters will display on the monitor. For instructions on viewing a snapshot after it has been uploaded, refer to the section Viewing the Snapshot.
Viewing the Snapshot

After a snapshot has been uploaded, either from disk or the scan tool, it can be viewed and analyzed in a variety of ways.

Identifies the different display icons and replay selections.

Replaying the Snapshot

To replay a snapshot, use the display icons in the lower portion of the screen, the selections and their functions are as follows:

First Frame - Displays the first frame of the snapshot, regardless of which frame was displayed prior to selection.

Reverse One Frame - Displays the frame immediately preceding the one currently displayed.

Play in Reverse - Causes the snapshot to continuously play in reverse until the first frame is displayed.

Trigger Frame - Causes the display to move to the exact frame when the snapshot was triggered, regardless of which frame was displayed before the item was selected.

Play Forward - Causes the snapshot to continuously play forward until the last frame is reached.

Forward One Frame - Moves the snapshot forward to the next frame.
Last Frame - Displays the last frame in the snapshot.

Stop Play - Stops a continuous play snapshot at the frame displayed at the time of selection.

Snapshot Settings Dialog - Displays communicating port and band rate.

**Single-Column vs. Two-Column Display**

The two-column and single-column icons in the toolbar change the appearance of data parameters.

**Two-Column Mode**

Displays a double list. When using the two-column mode, the maximum number of characters of any one line is 80.

**Single-Column Mode**

List data parameters in a single column using larger type, which makes the data easier to read at a distance.

A default single- or two-column mode can be set by selecting “Options” from the menu bar.
Displaying Diagnostic Trouble Codes

The View Diagnostic Trouble Code Information mode displays all relevant trouble code information for each individual frame. Note that when replaying a snapshot, every frame of the snapshot may not have a stored DTC.

To use the DTC display feature:

1. Select the “View DTC Information” icon on the Snapshot toolbar. A box will appear near the top of the screen listing DTC information, the following information is provided:
   - The first line indicates how many codes are in the frame – e.g. “1 of 2,” “2 of 2,” etc. This is not the total number of DTCs stored in the entire snapshot, just in the individual frame being displayed.
   - Below the first line is the number and name of the DTC.
   - Diagnostic test status tells whether the test ran and whether it passed or failed.
   - DTC status lists the DTC information. This is the status of the tests that were run and the related DTC messages that can be viewed by the technician. This information is based only on the DTC information listed, since some DTC information will not be available on all applications.

2. If more than one DTC is set for a frame, scroll bars will appear at the right side of the DTC window. To view other DTCs, click-and-drag the scroll box or use the scroll arrows.
3. To determine exactly when a DTC sets during a snapshot, use the “Play Forward” and “Play in Reverse” selections to play the snapshot with the DTC window still in view. DTC information will continue to display for all the frames during which the DTC was set.

This information can be useful for diagnosing DTCs by displaying related data parameters at the in time when the code was set.

4. When a frame is reached for which a diagnostic trouble code does not exist, the DTC window will display a blank.

**Note:** The “View DTC Information” icon will be highlighted if a code was set during a snapshot. Select the “View DTC Information” icon. This will show any and all DTCs set during the snapshot, since DTCs that set are stored for the duration of the snapshot.

**Note:** In most snapshots, DTCs set near the trigger frame. To quickly locate the frame where a DTC occurred, click on the “Trigger Frame” selection. Then use the “Forward One Frame” or “Reverse One Frame” selections to view the frames just before and after the trigger frame. Chances are the DTC will appear within these frames. If not, continue viewing the snapshot using the “Play Forward” or “Play in Reverse” selections.

### Diagnostic Trouble Code Change Mode

This feature allows the user to move from trouble code to trouble code within the snapshot. If you select the “View DTC Information” icon when in a snapshot, the Snapshot application will display a split screen. This screen will consist of the DTC information on the upper half of the screen and the parameter data display on the lower half of the screen.
If the DTC was not set in the selected frame of the snapshot, the DTC information will not display until the snapshot is advanced to the first frame in which the DTC was set. Select the “Diagnostic Trouble Code Change” icon to advance to the first frame of the DTC. In DTC change mode, selecting the forward or reverse arrows will move the application to only the frames in which a DTC was set. Displaying Graphs

Displaying Graphs

Graph display modes give you the ability to view snapshot parameters in graph form. This allows you to see how a parameter functions over time. It also allows easy visual comparison of up to six parameters at a single time. The two graph display modes are three-graph and six-graph.

Three-Graph Display

To access the Three-graph display mode:

1. Click the Display Graph (three) icon.
2. Click on the “first graph” icon at the top of the Graph Parameters window, then select a parameter from the list in the lower portion of the box. The parameter name will appear next to the first graph icon.

3. Repeat this procedure for the second and third graphs.

4. When one to three desired parameters have been selected, click “OK”.

5. The screen changes to display the chosen parameters in graph form.
- Using the navigation icons, move through the parameters.
- Click and drag on the arrow along the bottom of each graph to move through the graph. This arrow represents the current frame being viewed. It is useful for pinpointing precisely when a parameter change indicates a fault.
- A data value corresponding to the frame the arrow is pointing to will be displayed in the upper left corner of each graph.

6. To select a different parameter to be graphed, simply click and hold on the parameter name in the data list, then drag the cursor over one of the existing graphs and release the mouse button. The new parameter will be graphed in place of the old one.

7. To view a graph at full-screens size, move the cursor over the graph. When the cursor changes to a magnifying glass, click on the graph. The graph will appear at full-screen size. Click on the full-size graph to return to the three-graph display.

**Note:** When selecting parameters to be graphed, it is important to consider the values used to measure the parameter, and to correctly plot these on the graphs. This is done in the “Min Y Axis Value” and “Max Y Axis Value” fields. These may need to be adjusted to reflect the normal range of values for the parameter for example, 0 to 5 volts for MAP sensor.

**Six-Graph Display**
Up to six parameters can be displayed on a single graph. Parameters are selected in the same manner as described for three-graph display. Each parameter is color-coded, and you can change the background color to improve visibility.

**Lock / Unlock Parameters**

The Lock/Unlock Parameters function is used to isolate specific parameters so they can be viewed and compared more easily than if they were part of the larger parameters list. To use this function:

1. Select (highlight) the desired parameter, then click the "Lock/Unlock Parameters" icon. The selected parameter will appear at the top of the data list, above a lock line.

2. To add other parameters, follow the same procedure. The “locked” parameters can then be viewed together to compare their data values. Parameters can also be locked by double-clicking on them in the data list.

3. To remove an item from the locked list, select it, then click the “Lock/Unlock Parameters” icon. The item will be removed from the list.

**Note:** Display modes can be used in various combinations to provide the most useful diagnostic capability. It is even possible to view DTC information, locked parameters, and graphed parameters simultaneously. In multi-display mode, replay selections can be used, as previously described, to move through the snapshot.
Viewing Capture Info Data

**Note:** A single code may be counted as two different codes in a Capture Info file if it exists both in freeze frame and failure records.

To view DTCs, freeze frame or failure record data through TIS2Web software:

1. Use the Tech2 Capture Info function to retrieve data from a vehicle’s control module.

2. Connect the Tech2 to the computer and go to the Tech2 start-up screen.

3. Lunch TIS

4. Select the “Snapshot Upload/Display” application.
5. Click the “Upload from Handheld” icon on the toolbar.
   - Select Tech 2, then click “OK”.
   - Select Capture Data from upload selection menu, then click “OK”.

6. The data will display on screen. The top of the screen lists DTCs that were stored in the control module. The lower portion of the screen lists captured freeze frame or failure record data for the selected DTC.

   Notice that the navigation selections at the bottom of the screen are gray (cannot be selected) because the data record consists of only one frame.

7. If more than one DTC is present, selecting a DTC in the list changes the data list to match that DTC.

8. Capture Info can be stored and printed by the PC.
9. The user may toggle on/off the DTC(s) at the top of the screen in order to view only the freeze frame or fail record data by selecting the “Show/Hide Failure Record Information” icon on the toolbar. This icon is only active for the Capture Info Data function.

Snapshots can be emailed from TIS2Web if necessary

Follow these steps:

1. From the TIS2Web main screen select the “Snapshot” icon then select “Start Snapshot”.

2. From the “Snapshot Upload/Replay” screen select either “Upload” from handheld or “Open from an Existing File” if the Snapshot is saved on the hard drive.

Note: The Snapshot file will be saved in C:\Documents and settings\logon\snapshot\data.
Once the Snapshot is loaded, select the “email” icon from the tool bar. A send email box will appear. Input the email address to which you wish to send the Snapshot, (To:) as well as sender information (From:). A description can be added as well. When complete, click “send”. The format can be *.sur or *.txt. Only *.sur files can be read by TIS2Web. The email recipient will see the sender’s name. When the email is opened it will include the attachment and message typed in Description. If the recipient wished to respond to the email they should respond to the email address in the ‘From’ field and not the email subject.
Service Programming System (SPS)

The Service Programming System (SPS) updates the flash calibration files that are stored in a vehicle onboard controller (e.g. PCM, ABS, VTD). The calibration file custom-tailors a module to a certain vehicle. The calibration file contains data such as spark curves and fuel control. When troubleshooting a drivability condition, diagnosis may call for reprogramming the controller with newer calibration information to correct a customer concern.

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Programming Tool Interface

The SPS application is part of the TIS2Web system. To program an ECU, the SPS application must communicate with the vehicle control modules using the proper J2534 programming interface tool. A Programming Interface tool is your connection between your computer and the vehicle's J1962 DLC connector for pass-thru programming of the vehicle's ECUs.

The following are the supported interface tools:

- Tech2
- MDI
- J2534 Programming Interface Tool

The following are four generally used types of serial communications used with an ECM/PCM controller:

- UART (Universal Asynchronous Receive and Transmit)
- Class 2
- Keyword
- GM LAN

Note: If your J2534 device has wireless capability, it is recommended to use the hardwired interface of the programming tool while programming an ECU.

Selecting the Correct Calibration

When reprogramming a vehicle, selecting the correct calibration is critical. You will only see calibrations that are valid for the VIN entered. Be sure to check the history of each calibration. The history lists an explanation of the calibration file, telling what the calibration is for and whether it supersedes any other calibrations. It is helpful to read the latest
bulletins to stay up to date on why certain calibrations have been released. Related bulletin numbers are sometimes listed along with the calibration files.

Based on the calibration history and bulletins, select the appropriate calibration file. For many vehicles, you will also need to complete the multiple tab selections. Each tab is for a distinct calibration file. An unchecked box on a system tab indicates that a necessary selection has not been made.

If you need a VCI number, contact your Customer Support Center. Once you have the VCI number, it must be entered in the entry screen when requested by the SPS.

The general three-part process for SPS programming is as follows, regardless of the vehicle involved:

1. Check the vehicle’s control module to determine which, if any, calibration file is currently stored.
2. Determine if an update is required.
3. Transfer the selected data to the vehicle’s control module.

**Caution:** Prior to performing SPS, it is important to heed the following precautions:

- Using an outdated version could damage vehicle modules. The J2534 interface tool and the terminal must have the latest software.
- Make sure the vehicle battery is fully charged. Battery voltage for SPS should be between 12 and 14 volts. Due to the time requirements of programming a controller, connect a fully charged 12V jumper or booster pack disconnected from the AC voltage supply. DO NOT connect a regular battery charger.
- Stable battery voltage is critical during programming. Any fluctuation, spiking, over voltage or loss of voltage will interrupt programming.
- Make sure the cable connections are secure. A disconnected cable MAY cause controller failure.
- In using a laptop computer/other display device (PDA etc.) for pass-thru programming, ensure that the power supply is properly connected. If powered by AC and the power cord becomes disconnected, it could interrupt programming and cause damage to the control module. If the laptop is operating from its internal power source (batteries), then make sure it is adequately charged to complete the SPS process.

**Note:** ECU to be programmed must be installed in the vehicle before beginning this process.
Performing Pass-Thru Programming

Pass-thru programming requires that the Scan Tool remain connected to the terminal and to the vehicle throughout the programming process. The vehicle must be in close proximity to the terminal while using pass-thru programming.

**Note:** TIS2Web only supports Pass-Thru Programming with the J2534 interface tool / Tech2.

**Pass-Thru Programming Procedure**

1. Connect a fully charged 12V jumper or booster pack disconnected from the AC voltage supply. **DO NOT** connect a regular battery charger.

2. Launch TIS2Web.

3. From the TIS2Web main screen, select the Service Programming System icon.
   - Power ON the scan tool.
   - Key on, battery fully charged.
   - Select “Start SPS”.
   - If hardware screen does not appear, check Tech2 hardware connections. This process could take some time depending upon your internet connection. You will be requested to perform an SPS software update, if one is required.
   - Select Diagnostic Tool.
   - Select Programming Process.
   - Select Next
4. Connect the Scan Tool to the vehicle and computer. Select Next.

Note: You may receive a message that states: “Please restart your programming interface and press OK to retry: Press cancel to abort!” It is important to close all programs including TIS2Web when performing SPS to allow programming to continue.

5. Select the Sales Make of the vehicle. Select Next.
6. You may or may not receive a pop-up screen. Ensure correct VIN is displayed. If VIN is incorrect or missing enter the correct. Select Next.

**Note:** In order to reduce the potential for signal loss, the J2534 interface tool should be configured for the most stable communication option at your location.

**Note:** The J2534 interface tool may have wireless capability, however it is recommended when using a programming interface tool to program an ECU that it is hardwired to the programming tool which contains the SPS application.
7. At the Supported Controllers screen:

- Select the appropriate control module under “Select Controller”, e.g. PCM / VCM Control Module etc.
- Select the appropriate programming type (Normal, VCI).
- Select “Next”

**Note:** For VCI programming you will need to contact the ACDelco Aftermarket Support Center.

8. During communication a “validate /select vehicle data” screen will appear. You may or may not get a pop-up screen.
9. At the Calibration Selection screen: Select the appropriate calibration(s).
   - Make sure all folder tabs have a green check mark.
   - Select “Next”.

10. At the Summary screen:
    Verify current calibration(s) with selected calibration(s).
The current calibration is displayed along with the new calibrations available for the selected vehicle.

**Note:** If you are attempting to reprogram a vehicle with the same calibration, a pop up window will appear. In most cases reprogramming will not be required. Select Cancel to stop if reprogramming is not required, otherwise continue on with the procedure. General Motors does not recommend reprogramming with the same calibration.

Select “Next”.

**Caution:** To help avoid damage to the vehicle controllers, DO NOT turn the ignition off during a reprogramming event unless instructed to.

The Transfer Data screen appears as reprogramming begins, finishing when the percentage bar reaches 100 percent. Time may vary depending upon calibration. Estimated remaining programming time will appear on the screen.
11. The Program Controller “Programming Complete” screen appears.
   A Warranty Claim code will appear if applicable. A Warranty Claim Code is a 5 digit code which is unique for each programming event and is required to be documented on a submitted warranty claim.

12. Select “Clear DTCs” to erase history data. The program will return to the TIS2Web main screen. Be sure to verify successful reprogramming.
   **Note:** DTCs may set during programming. Clear DTCs after programming is complete.

13. Turn off the Scan Tool. Select “Cancel”.
   **Note:** Some vehicles will require that Idle Learn, TP Learn, Theft Deterrent Relearn, or Camshaft Variation Learn procedures be performed after programming. Consult the appropriate service information for these procedures.

14. Disconnect the Scan Tool from the vehicle.
Verifying Reprogramming and or Programming Failure

After any kind of control module programming, verify that programming was successful:

Turn the ignition off, wait at least 30 seconds, then start the vehicle to confirm that reprogramming was successful. If the vehicle does not reprogram successfully, repeat the SPS procedure.

Unsuccessful Programming Recovery

In the event of an interrupted or unsuccessful programming event, perform the following steps.

1. DO NOT turn the ignition OFF. Ensure that all ECU, DLC and programming tool connections are secure and the TIS2Web terminal operating software is up to date.

2. Attempt to reprogram the ECU.

3. If the ECU can still not be programmed. Contact Customer Support for assistance.

Programming using USB Memory Stick

Currently a select number of vehicles have the ability to program Navigation, XM, and Audio, using USB memory sticks. These vehicles have the ability to program select ECUs using onboard USB ports instead of downloading the calibrations through the programming J2534 interface tool. This is typically done to reduce programming time due to large calibration files. Service Information bulletins will inform technicians as to the availability of USB programming on current and future vehicles.

Note: USB Memory Stick Specifications – USB 2.0 with a minimum 512 MB.

Note: Data on the USB flash drive will be erased during the TIS2Web to USB flash drive download process.

Setup and Configuration

On some vehicles, some of the ECU’s require additional Setup and or Configuration. Some of these ECU’s have specific Setup or Configuration choices listed on the Supported Controllers screen.

Some examples of setups are:

- Setup BCM using existing keys
- Brake pedal learn
- Tire Pressure Monitor learning
- SDM End Model part number learning
- Steering Angle Sensor learning

When Configuration is chosen for a specific ECU the SPS application identifies how the vehicle was originally built and updates the vehicle’s ECU to reflect this build data.

If these procedures are not performed the vehicle may not operate correctly.

**Sequential Programming**

On some vehicles there are certain ECUs that, when programmed, require other ECUs to also be programmed during the same programming event. Failure to do so may cause some controllers to not operate correctly. Sequential programming may also entail running the Setup and/or Configuration operations for the affected ECUs.

**Note:** Always follow SPS screen instructions. Sequential programming is performed without any additional input from user, unless directed by messages on SPS screens and or service procedure.

**Tech2 Remote SPS Programming**

The Remote SPS method supports 2007 and prior years. The Remote SPS method is a three-step process that involves:

- Connecting the Tech2 to the vehicle and obtaining information from the module.
- Connecting the Tech2 to the PC and downloading a new calibration file from the PC to the Scan Tool's memory.
- Reconnecting the Tech2 to the vehicle and uploading the new calibration file to the module.

**Note:** ECU to be programmed must be installed in the vehicle before beginning this process.

Information entered incorrectly may result in programming errors.

**Caution:** Prior to performing SPS, it is important to heed the following precautions:

- Using an outdated version could damage vehicle modules. The J2534 interface tool and the computer must have the latest software.

15. Make sure the vehicle battery is fully charged. Battery voltage for SPS should be between 12 and 14 volts. Connect a fully charged 12V jumper or booster pack disconnected from the AC voltage supply. DO NOT connect to a regular battery charger.

- Stable battery voltage is critical during programming. Any fluctuation, spiking, over voltage or loss of voltage will interrupt programming.

- Make sure the cable connections are secure. A disconnected cable MAY cause controller failure.

- In using a computer for pass-thru programming, ensure that the power supply is properly connected. If powered by AC and the power cord becomes disconnected,
it could interrupt programming and cause damage to the control module. If the laptop is operating from its internal power source (batteries), then make sure it is adequately charged to complete the SPS process.

Perform remote SPS using TIS2Web as follows:

Obtain Vehicle Information (Request Info) from new ECU or an ECU to be programmed.

1. With the Tech2 and vehicle both OFF, connect the Tech2 to the vehicle DLC.
2. Power on Tech2. At the Tech2 Title Screen, press “ENTER”.
3. Turn the vehicle ignition to “ON” engine off.
4. At the Tech2 Main Menu, select “Service Programming System”.

   **Note:** If a VIN was previously stored in the Tech 2, press “Request New Info” (soft key), and follow the on-screen directions.

6. Follow the on-screen directions. After the vehicle description is entered, turn off all power consuming devices, then press “Continue” soft key.

(1) DLC Cable Connection
(2) SAE 16/19 Pin Adapter (P/N 3000098)
7. The Tech2 reads the VIN, then displays the VIN and calibrations. The Tech2 will ask “Is this VIN correct?” Select “Yes”. (If the answer is No, write down the VIN number).

8. When finished, press “EXIT”, power down, and disconnect the Tech2 from the vehicle. Turn the vehicle ignition off.

Transfer Data from the PC to the Tech2

1. Connect the Tech2 to the terminal, as shown.
2. At the PC, launch TIS2Web.

(1) RS – 232 Port
(2) Power Supply Connected to TECH 2 DLC Adapter
3. From the TIS2Web main screen, select the Service Programming System icon.

4. Select “Start SPS” button.

5. At the Select Diagnostic Tool and Programming Process screen, make the appropriate selection for your procedure.

6. View the “Replace Controller” Instruction screen.

7. If replacing a controller, ensure the instructions on the Instruction screen have been completed.
Note: Under “Select Diagnostic Tool”, select “Tech 2”:

- You would select “Information Only / PROM data” to get calibrations for a particular vehicle without using the Tech 2, or to get “PROM data” for vehicles that cannot be programmed. You would select “Pass-Thru” to perform SPS without disconnection from the vehicle or the terminal.

- Under “Select Programming Process”, select “Reprogram ECU” or “Replace and Program ECU”, depending on whether you are reprogramming an existing module or replacing a module.

8. After making selections, select “Next”.

9. Confirm connections and select “Next” on the “Preparing for Communication” screen.

10. A validate VIN screen will appear. After confirming and / or entering the correct VIN, select “Next”.

    Note: If you answered “NO” to “Is this VIN correct?” in the previous process, a box may appear stating “The ECU could be a service ECU”. Click “OK”.

11. A supported controllers screen will appear asking you to identify the type of controller being programmed. Some vehicles may have more than one programmable controller — examples include PCM, BCM, IPC. Select the appropriate controller for the vehicle being serviced.

    After selecting the controller to be programmed, identify the type of programming to be performed:

    The calibration Select Screen appears. Select “Next”.

12. After making selections, select “Next”.

**Note:** If bulletins are listed together with the calibration files, refer to these service bulletins before performing service programming.

Select “Cancel” if you receive a message stating that the calibration selected is already the current calibration in the control module, reprogramming with the same software calibrations is not allowed.

13. A Calibration Selection screen will appear showing the calibration file history for the vehicle or controller being serviced. The screen displays a description for each calibration file. Select the appropriate files based on these descriptions.

- Vehicles with PCMs will display a screen similar to the one shown. It contains a single tab that summarizes all calibration files for the vehicle.

**Caution:** To help avoid damage to the vehicle controllers, DO NOT turn the ignition off during a reprogramming event.

**Important:** If you are attempting to reprogram a vehicle with the same calibration, a pop up window will appear. In most cases reprogramming will not be required. Select cancel to stop if reprogramming is not required, otherwise continue on with the procedure. General Motors does not recommend reprogramming with the same calibration.

14. The application will automatically initiate the download of the new calibration file to the Tech 2, and a “Transfer Data” screen will track the progress of the download.

15. After the download is complete, a “Programming Complete” screen will appear. Close the application to return to the “TIS2Web Application Selection” screen, then power down and disconnect the Tech2 from the PC.
Controller Specific Instructions

If “Crankshaft Position Variation Relearn Procedure” appears under “Controller Specific Instructions”, you must perform this procedure after reprogramming the PCM / VCM. Refer to Service Manual DTC P01336 or P0315CKP (System Variation Not Learned) for this procedure.

Transfer Data from the PC to the Control Module

With the Tech2 and vehicle both OFF, connect the Tech2 to the vehicle DLC.

1. Power ON the Tech 2. At the Tech2 Title Screen, press “Enter”.

2. Turn the ignition ON (engine off).

3. At the Main Screen, select “F1: Service Programming System”.

4. Select “F1: Program ECU” on the Tech 2. The Tech2 will display the new programming data VIN and software numbers. “Verify”, then select the soft key “Continue”. The Tech2 will display the “Programming in Progress – Downloading calibration file” screen.
5. When the transfer is complete, the Tech2 will display the message “Reprogramming was Successful”. Press the “Continue” soft key to exit the program. Then turn the vehicle ignition OFF first, then turn the Tech2 OFF and disconnect it from the vehicle.

6. After any kind of control module programming, verify that programming was successful.

Turn the ignition OFF, wait at least 30 seconds, then start the vehicle to confirm that reprogramming was successful. If the vehicle does not start or starts but runs rough, repeat the SPS procedure.

When the Programming Complete screen appears. Select “Close”. The program will return to the TIS2Web main screen. Be sure to verify successful reprogramming.
SPS Troubleshooting

If encountering difficulties with SPS, review the following possible hardware and software solutions.

Before troubleshooting a programming/reprogramming event, please confirm that the following items and criteria are in place.

1. Verify the battery voltage is more than 12 volts but less than 16 volts before proceeding with reprogramming. The battery must be fully charged.

2. During reprogramming, the battery voltage must be maintained within the proper range of 12–15.5 volts. Connect a fully charged 12V jumper or booster pack disconnected from the AC voltage supply. DO NOT connect a regular battery charger.

Notice: It is essential that the TIS2Web computer, J2534 interface tool, Tech2 and/or Scan Tool are updated with the latest software available.

3. Verify that the devices being used are updated with the latest available software version BEFORE beginning the reprogramming event.

4. BEFORE beginning reprogramming you MUST refer to CONTROL MODULE REFERENCES in SI for the appropriate Programming and Setup procedures.

5. Reprogram using the Service Programming System (SPS) with the latest calibrations available on TIS2Web. Refer to the SPS procedures in GMSi.

Service Programming System (SPS) Errors

Reference the specific SPS programming error code documented below and follow the instructions, which will assist in understanding the cause and how to resolve the issue without replacing the control Module. Most errors can be resolved by following the basic troubleshooting steps below.

If the programming error cannot be resolved using the following troubleshooting instructions, do not replace the control module. Contact the ACDelco Aftermarket Support Center for assistance.

Note: Using a TIS2Web PC and programming device that meets the minimum specification is essential to successful programming and required for full support.

The following Code and Definitions provide Cause and Resolution action for the codes noted above

E4398 — No Calibration Data

Cause: This programming error is the result of a missing or incomplete data record. This error is not related to the module being programmed or a vehicle issue and cannot be repaired without obtaining a Vehicle Configuration Index (VCI) number.

Resolution: Contact the ACDelco Aftermarket Support Center.
E4399/4403 — Server Error

Cause: These general programming errors are typically the result of a loss of communication between the programming device and module. The loss of communication can be caused by a drop in battery voltage, delay in communication with the module or a vehicle issue such as interruption on the BUS (wiring, connector issue, aftermarket components, etc.).

Resolution: Maintain a minimum of 12.5 volts during programming and check programming device and module connections.

Attempt to re-establish communication with the module. This should first be done with GDS2 or Tech2. If communication can be established, reattempt programming using “Replace and Program ECU” as the programming method.

If communication cannot be re-established, deplete retained power by disconnecting the negative battery terminal for a minimum of five minutes. Re-establish and maintain battery power, attempt to communicate with the control module using a J2534 interface tool or Tech2. Reattempt programming using “Replace and Program ECU”.

Some late model vehicles (pre-2007) may require the use of a Tech2 and the “Legacy Tech2” programming option in SPS in order to utilize a slower programming communication speed.

If issue is still occurring, contact the ACDelco Aftermarket Support Center.

E4413/E4414 — Calibration marked with an (*)

Cause: An (*) indicates that the SPS application is not recognizing the calibrations being read from the control module. This can be caused by a non-GM calibration programmed into the control module or an incomplete SPS data record.

Resolution: Restart the SPS application and select “Replace and Reprogram” as the programming method. This procedure will overwrite the unidentified software and calibrations.

If issue is still occurring, contact the ACDelco Aftermarket Support Center.

E4404/E4494 — No Communication with Diagnostic Tool

Cause: This is a loss of communication between the programming device, (J2534 interface tool or Tech2) and TIS2Web PC and not a module or vehicle problem.

Resolution: Confirm the connection from the PC. If the programming device is connected by USB, select a different USB port on the TIS2Web PC.

If using a wireless network for the MDI connection, Confirm the wireless connection or switch to a USB connection (It is important to disable the MDI wireless connection in the MDI wireless manager when using the USB connection).

If programming with a Tech2, perform a Tech2 self-test found in SPS under “Settings>Diagnostics>Test Connections”. Try a known good TIS2Web PC serial port connector and RS232 cable. A known good Tech2 and Candi module can be used.

Confirm and maintain proper battery voltage before attempting programming.
If issue is still occurring, contact the ACDelco Aftermarket Support Center.

**E4491/E4423 — Programming Failed**

*Cause*: These errors are the result of an incompatibility between the software/calibrations and the module. If encountered on a service module, confirm the correct part number is being used and confirm programming is possible by attempting to program the original module.

*Resolution*: This type of issue cannot typically be resolved without assistance from ACDelco. Be sure to have the original and service module part numbers and error detail when contacting ACDelco.

This can be confirmed by attempting to program the original module. Typically these errors cannot be resolved without the assistance of ACDelco. Do not replace the module. Contact the ACDelco Customer Support Center and be sure to have the original module part number and the service part number when calling.

If issue is still occurring, contact the ACDelco Aftermarket Support Center.
TIS2Web Feedback Selection

From the TIS2Web main menu select the Feedback selection from the top of the screen in the Central Toolbar next the Help selection.

Your opinion and experience with the TIS2Web software application is very important to ACDelco. The information you provide maybe used to help improve TIS2Web and your experience with the various software applications. The TIS2Web Feedback Selection provides direct email feedback to ACDelco for the following TIS2Web selection areas:

- Online Questionnaire
- Software Download
- Standard Information

Contact information is also included as part of the email that is sent to ACDelco. Contact information for the Online Questionnaire and Software Download areas is optional. Certain fields must be completed for Contact Information, Standard Information, Service Bulletins, and Wiring Diagrams. ACDelco requires this information so they can contact you later for specific information regarding your inquiry. We want to hear from you. Don't be afraid to use this important option.