

Tesla Powertrain Diagnostics RAV4 – Service Software User Manual

The Tesla Powertrain Diagnostics RAV4 - Service software is a program, running on the Techstream 2.0 device, which will communicate with the electric powertrain on the RAV4 EV. This software can be used to display DTCs, faults, and live data from the vehicle. In addition, the software can also be used to update the powertrain firmware (calibration update), extract and deliver vehicle log data information to engineers for additional diagnostics, and perform active tests on certain vehicle systems.

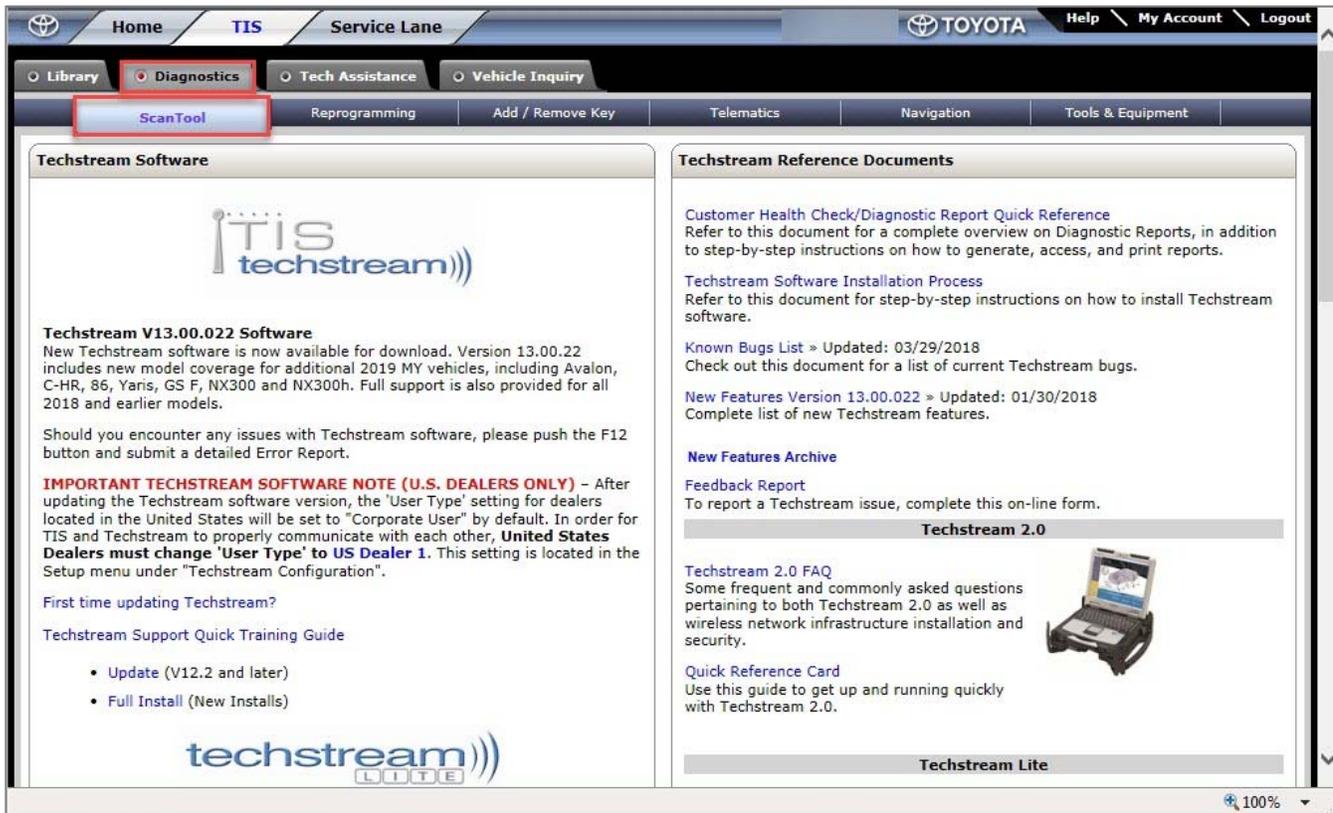
Contents

1. Software Installation	2
2. Software Registration	9
3. Patch Installation.....	14
4. Diagnostic Cable Kit.....	18
5. IP Configuration.....	19
6. Launching Software	23
7. Network Configuration.....	25
8. Change Perspective	28
9. Monitor Check Box.....	31
10. Modem Connection Test.....	31
11. BMS_w023 Reset Utility	33
12. Clear THC DTCs.....	34
13. Vehicle Firmware Update	35
14. Pulling Alerts	36
15. Log File Upload.....	39
16. Battery Ship Screen	42
17. Acronym Finder	43

1. Software Installation

Description:

Tesla Powertrain Diagnostics RAV4 - Service software is available for download on TIS. Go to TIS >> Diagnostics >> ScanTool >> Software Downloads portlet.



The screenshot displays the Toyota TIS website interface. The top navigation bar includes 'Home', 'TIS', and 'Service Lane'. The main menu has 'Library', 'Diagnostics', 'Tech Assistance', and 'Vehicle Inquiry'. The 'Diagnostics' menu is expanded to show 'ScanTool', 'Reprogramming', 'Add / Remove Key', 'Telematics', 'Navigation', and 'Tools & Equipment'. The 'ScanTool' option is highlighted with a red box.

The main content area is divided into two columns:

- Techstream Software:**
 - Logo: TIS techstream))
 - Techstream V13.00.022 Software**

New Techstream software is now available for download. Version 13.00.22 includes new model coverage for additional 2019 MY vehicles, including Avalon, C-HR, 86, Yaris, GS F, NX300 and NX300h. Full support is also provided for all 2018 and earlier models.

Should you encounter any issues with Techstream software, please push the F12 button and submit a detailed Error Report.

IMPORTANT TECHSTREAM SOFTWARE NOTE (U.S. DEALERS ONLY) - After updating the Techstream software version, the 'User Type' setting for dealers located in the United States will be set to "Corporate User" by default. In order for TIS and Techstream to properly communicate with each other, **United States Dealers must change 'User Type' to US Dealer 1.** This setting is located in the Setup menu under "Techstream Configuration".

First time updating Techstream?

Techstream Support Quick Training Guide

 - Update (V12.2 and later)
 - Full Install (New Installs)
 - Logo: techstream)) LITE
- Techstream Reference Documents:**
 - Customer Health Check/Diagnostic Report Quick Reference**

Refer to this document for a complete overview on Diagnostic Reports, in addition to step-by-step instructions on how to generate, access, and print reports.
 - Techstream Software Installation Process**

Refer to this document for step-by-step instructions on how to install Techstream software.
 - Known Bugs List » Updated: 03/29/2018**

Check out this document for a list of current Techstream bugs.
 - New Features Version 13.00.022 » Updated: 01/30/2018**

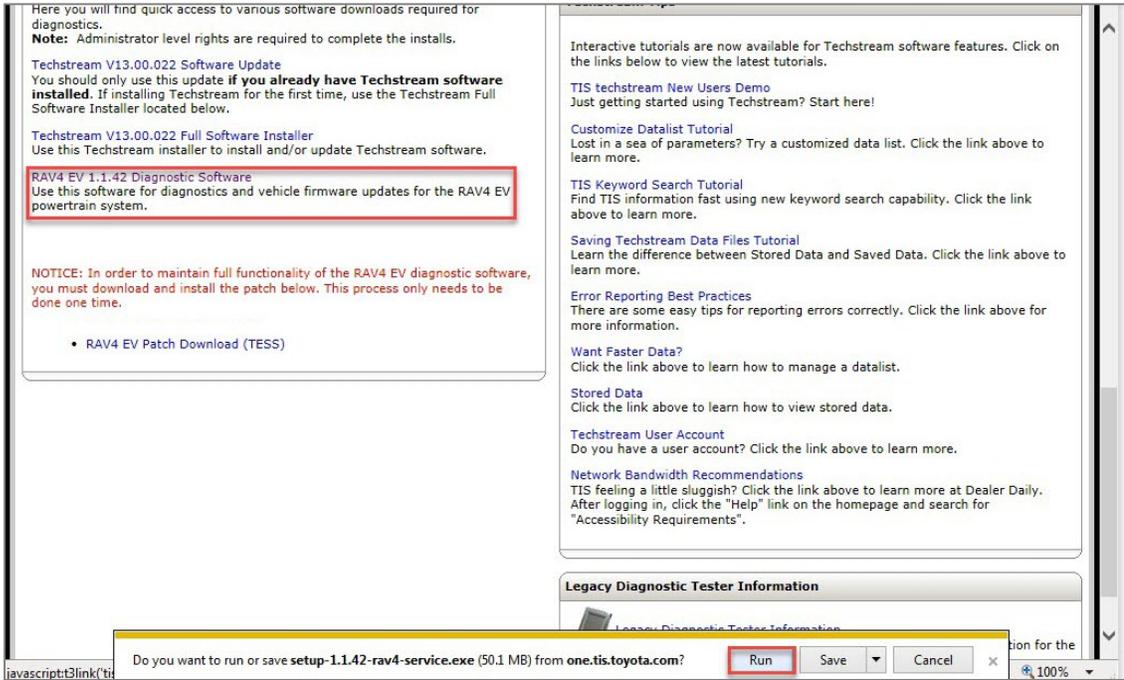
Complete list of new Techstream features.
 - New Features Archive**
 - Feedback Report**

To report a Techstream issue, complete this on-line form.
 - Techstream 2.0**
 - Techstream 2.0 FAQ**

Some frequent and commonly asked questions pertaining to both Techstream 2.0 as well as wireless network infrastructure installation and security.
 - Quick Reference Card**

Use this guide to get up and running quickly with Techstream 2.0.
 - Techstream Lite**

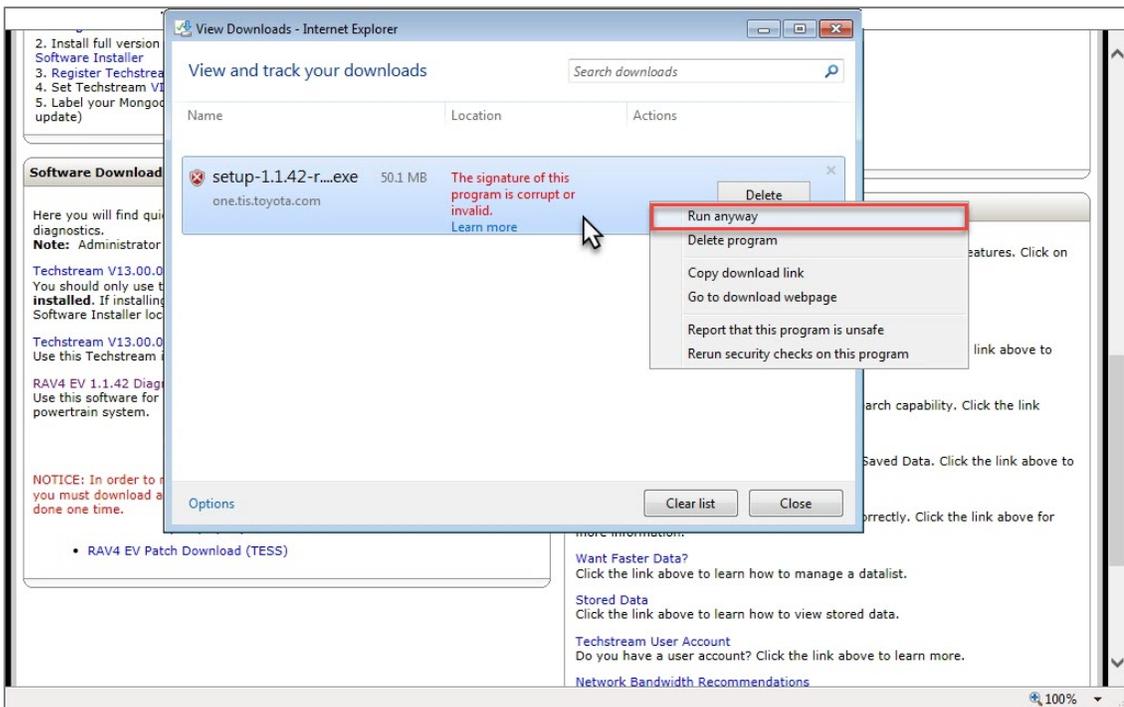
1. Click on “Run” to begin the download. Follow the prompts on the screen to complete the installation.



If you get the below error message saying the signature is corrupt or invalid, follow these directions.

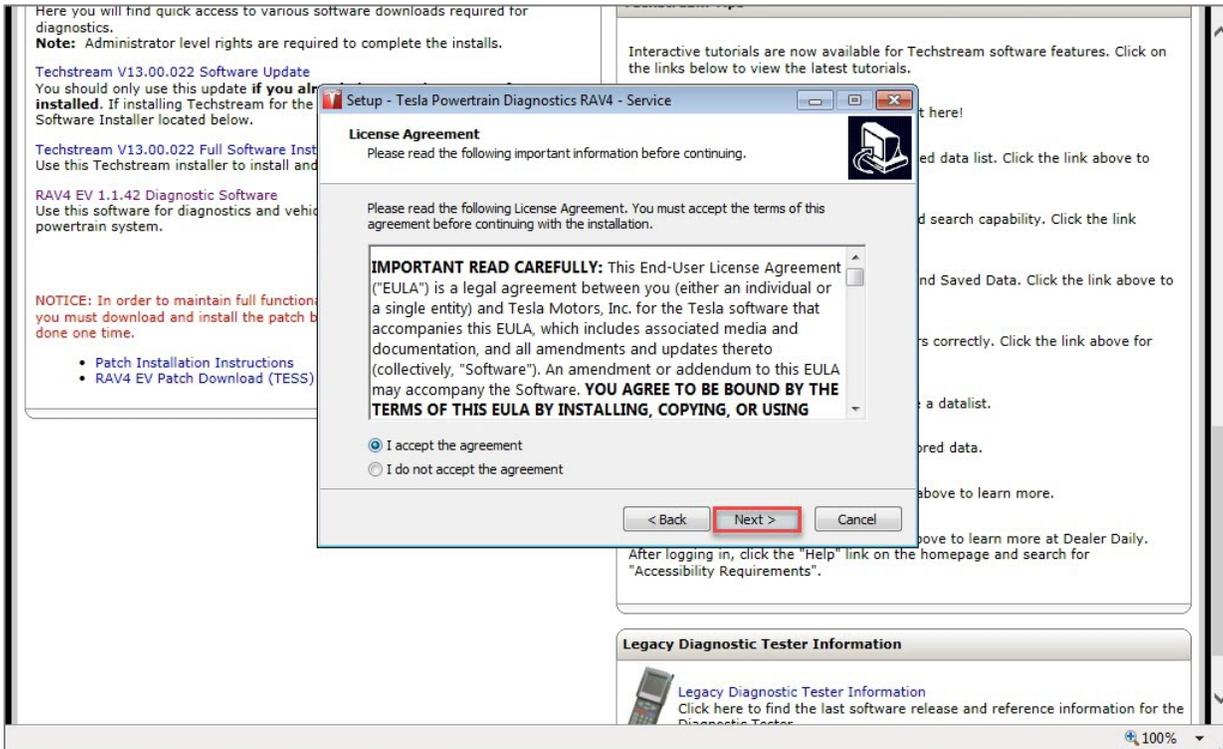


a. Click on “View downloads”.

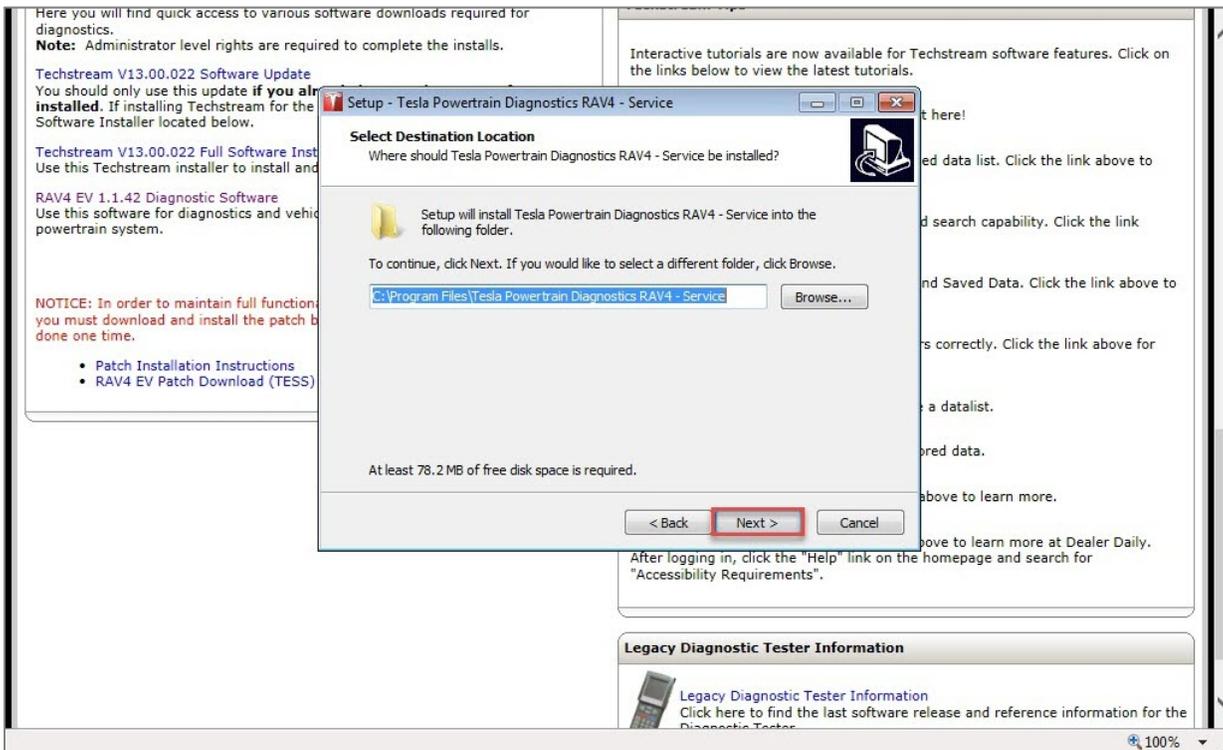


b. Right click on the program and select “Run anyway”.

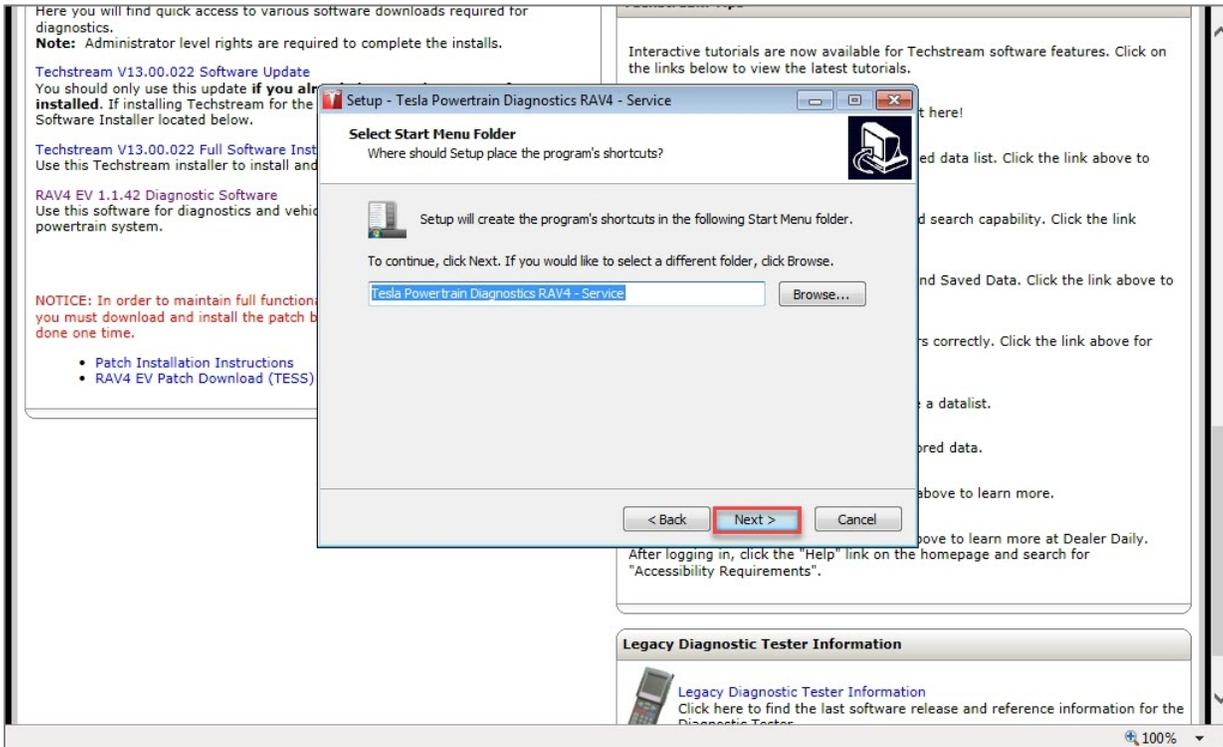
2. Accept the License Agreement.



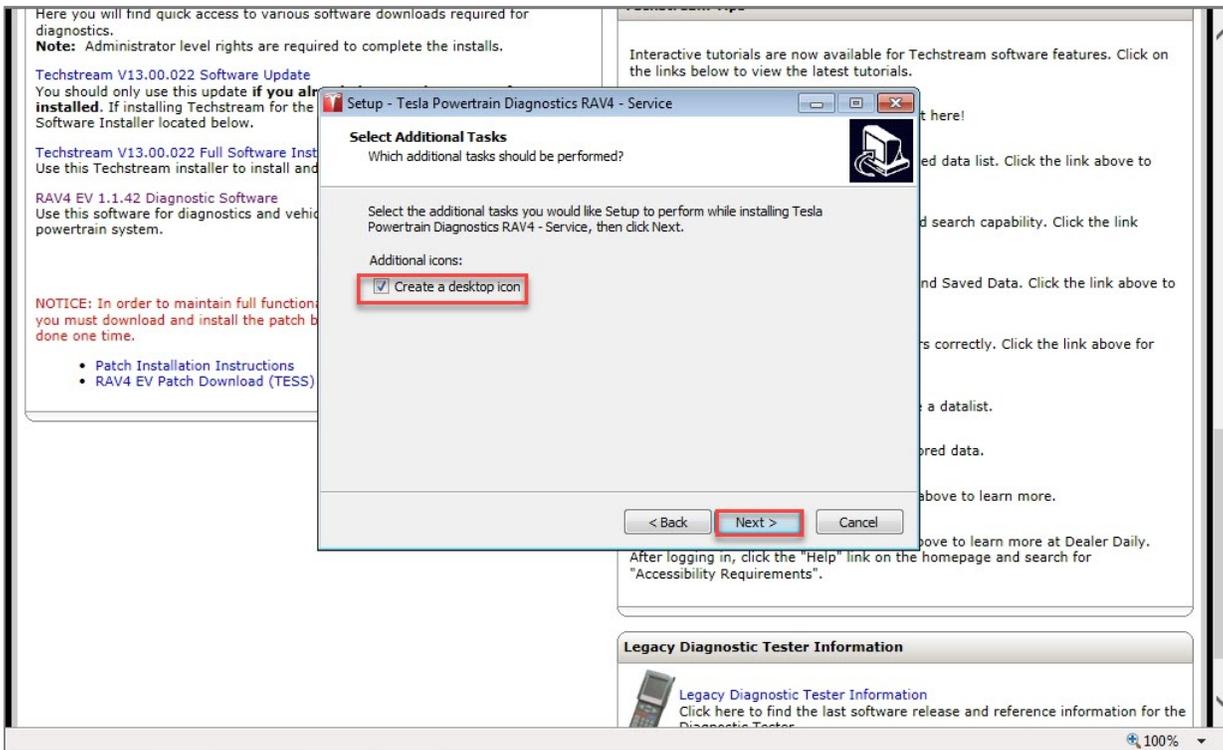
3. Select the Destination Location on the PC. Selecting the default location is preferred.



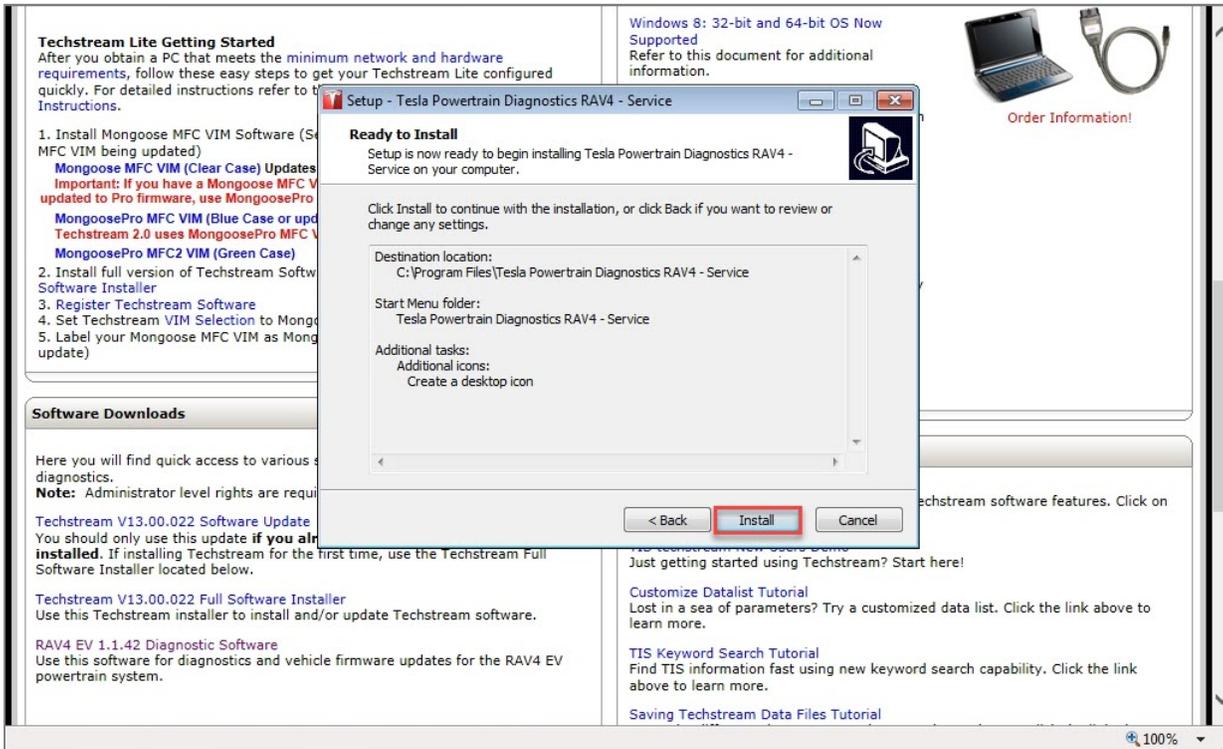
4. Confirm the Start Menu Folder. Selecting the default location is preferred.



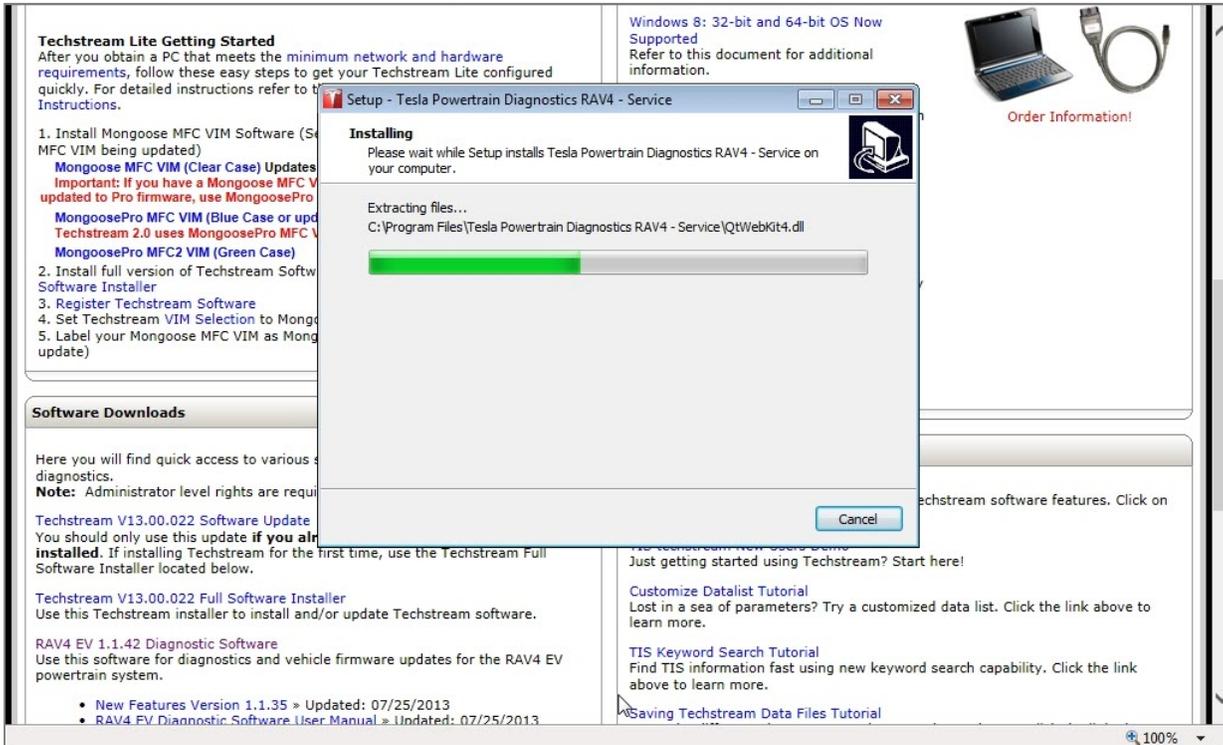
NOTE: It is recommended that the box labeled "Create Desktop Icon" be checked for easier access to the software.



5. The software is now ready to install.



6. The software begins installing.



7. The software is now installed. If the box is checked, the software will launch when you click "Finish".

Techstream Lite Getting Started
After you obtain a PC that meets the minimum network and hardware requirements, follow these easy steps to get your Techstream Lite configured quickly. For detailed instructions refer to the Instructions.

1. Install Mongoose MFC VIM Software (See MFC VIM being updated)
Mongoose MFC VIM (Clear Case) Updates
Important: If you have a Mongoose MFC VIM updated to Pro firmware, use MongoosePro MongoosePro MFC VIM (Blue Case or updated Techstream 2.0 uses MongoosePro MFC VIM MongoosePro MFC2 VIM (Green Case)
2. Install full version of Techstream Software Installer
3. Register Techstream Software
4. Set Techstream VIM Selection to Mongoose
5. Label your Mongoose MFC VIM as Mongoose (update)

Software Downloads

Here you will find quick access to various software downloads for Techstream diagnostics.

Note: Administrator level rights are required to install software.

Techstream V13.00.022 Software Update
You should only use this update **if you are already installed**. If installing Techstream for the first time, use the Techstream Full Software Installer located below.

Techstream V13.00.022 Full Software Installer
Use this Techstream installer to install and/or update Techstream software.

RAV4 EV 1.1.42 Diagnostic Software
Use this software for diagnostics and vehicle firmware updates for the RAV4 EV powertrain system.

Windows 8: 32-bit and 64-bit OS Now Supported
Refer to this document for additional information.

Order Information!

Setup - Tesla Powertrain Diagnostics RAV4 - Service

Completing the Tesla Powertrain Diagnostics RAV4 - Service Setup Wizard

Setup has finished installing Tesla Powertrain Diagnostics RAV4 - Service on your computer. The application may be launched by selecting the installed icons.

Click Finish to exit Setup.

Launch Tesla Powertrain Diagnostics RAV4 - Service

Finish

Techstream software features. Click on

Just getting started using Techstream? Start here!

Customize Datalist Tutorial
Lost in a sea of parameters? Try a customized data list. Click the link above to learn more.

TIS Keyword Search Tutorial
Find TIS information fast using new keyword search capability. Click the link above to learn more.

Saving Techstream Data Files Tutorial

100%

2. Software Registration

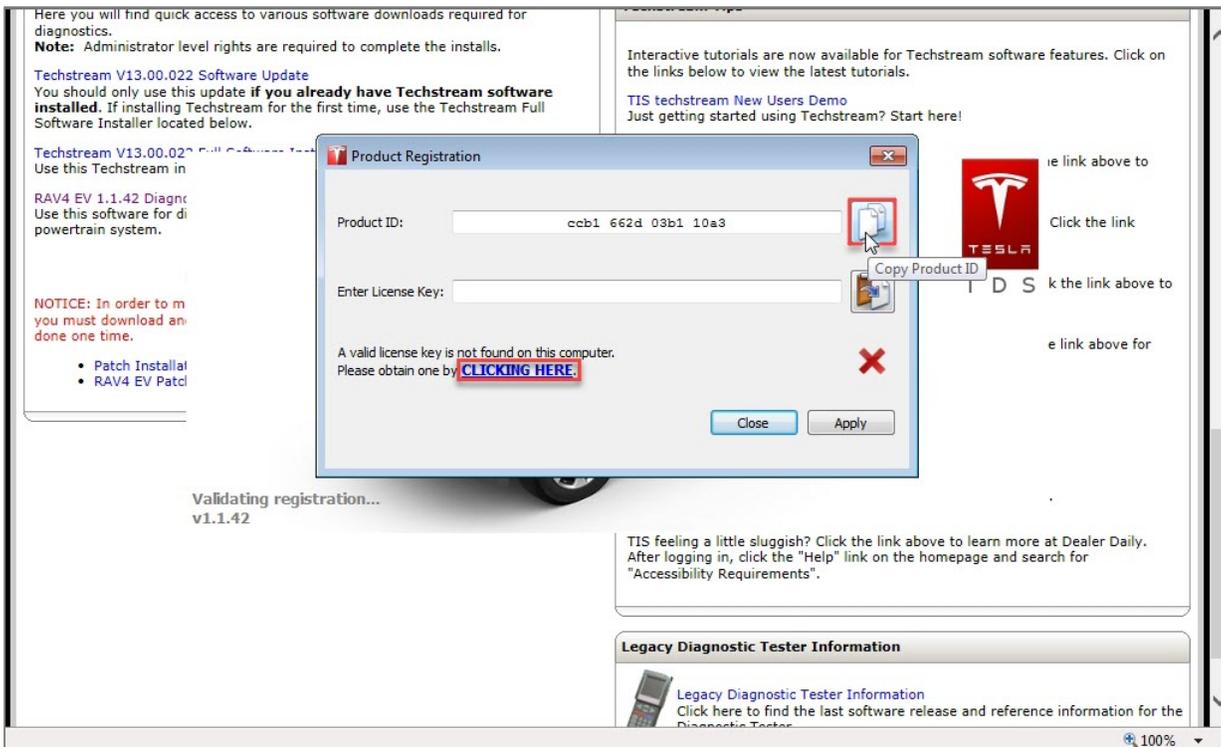
Description:

The first time the Tesla Powertrain Diagnostics RAV4 - Service software is launched, it will prompt the user to register. There is also a manual process.

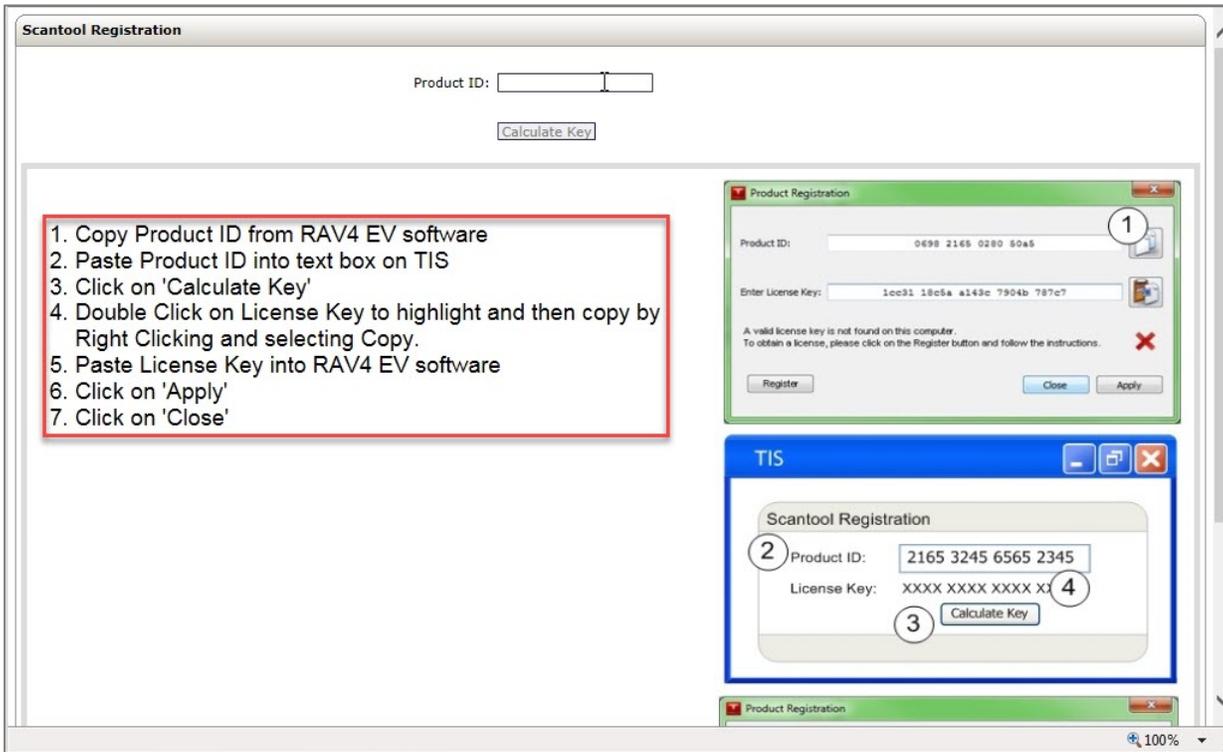
Both processes utilize the steps below (if the prompt shows up, skip to step 3).

1. Click on "Help".
2. Click on "Product Registration".
3. Click on "Copy Product ID" on the Product Registration Page.
4. Click on "**CLICKING HERE**" on the Product Registration Page.
5. Log into TIS if you have not already done so.
6. Follow instructions on TIS to complete the Registration Process.

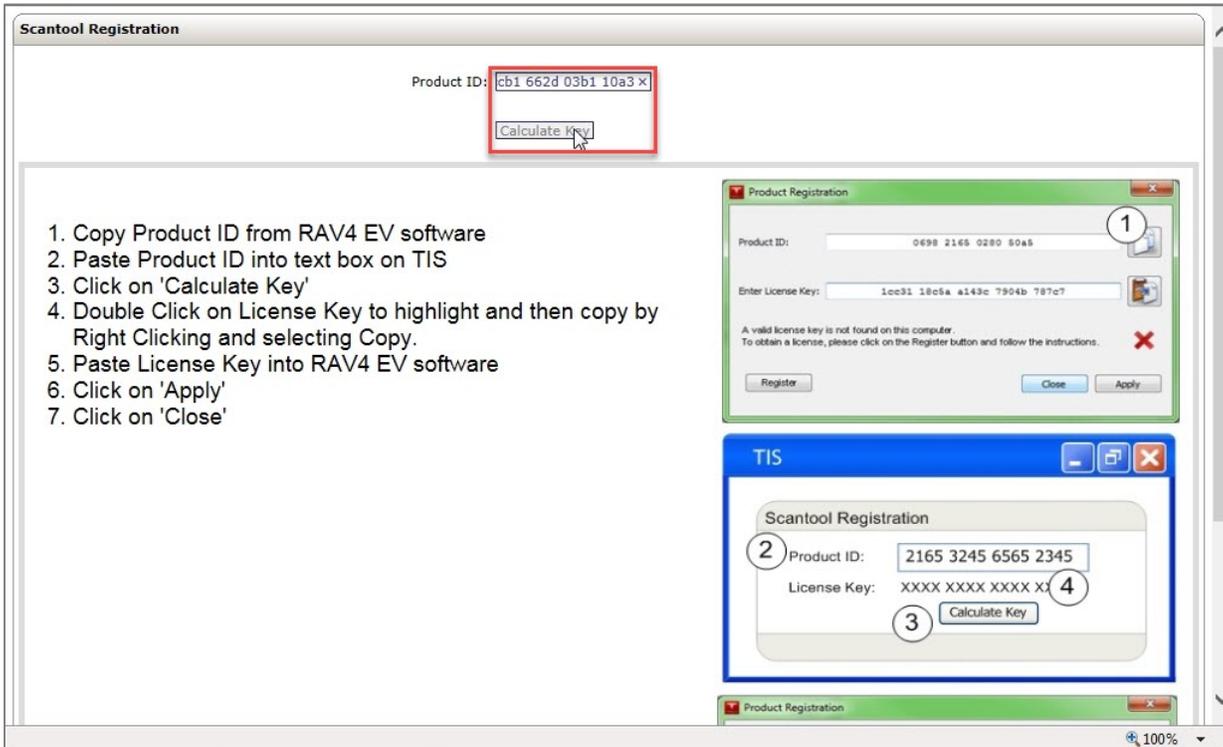
3. Copy the Product ID by hitting the copy button shown below. After copying the Product ID, click on "**CLICKING HERE**" to launch the Scantool Registration page.



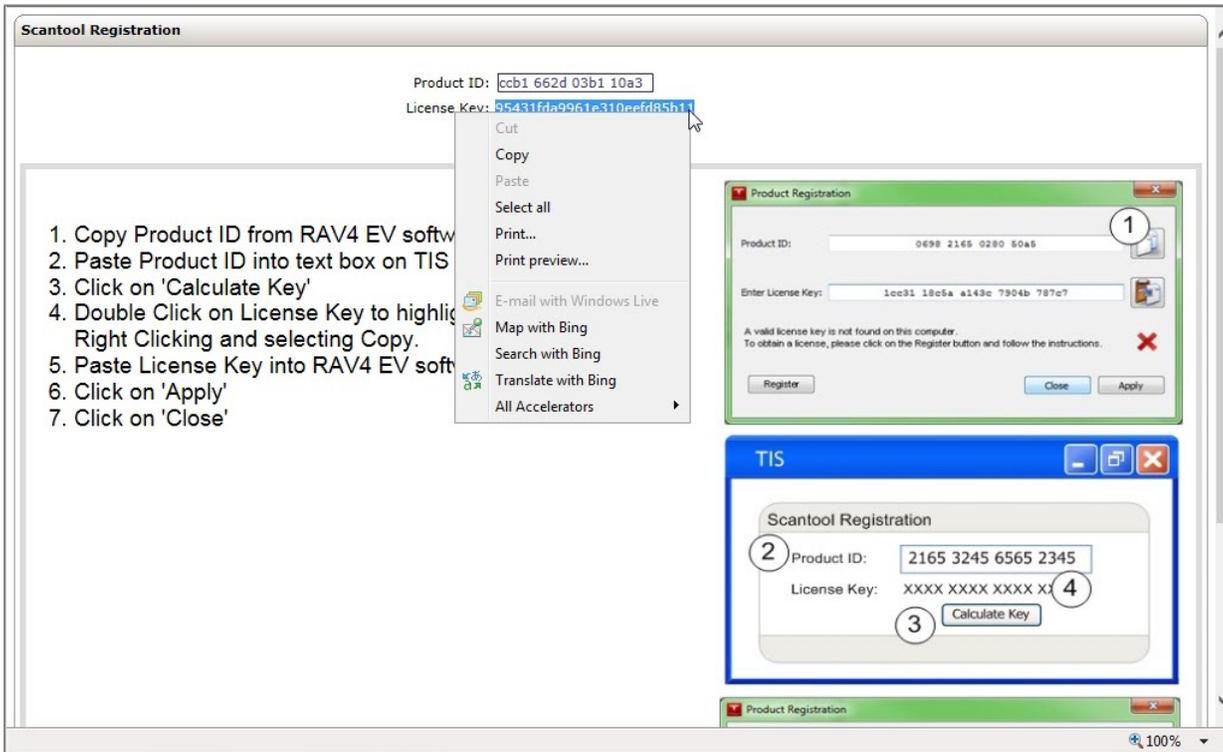
4. Follow the directions on the Scantool Registration page shown below.



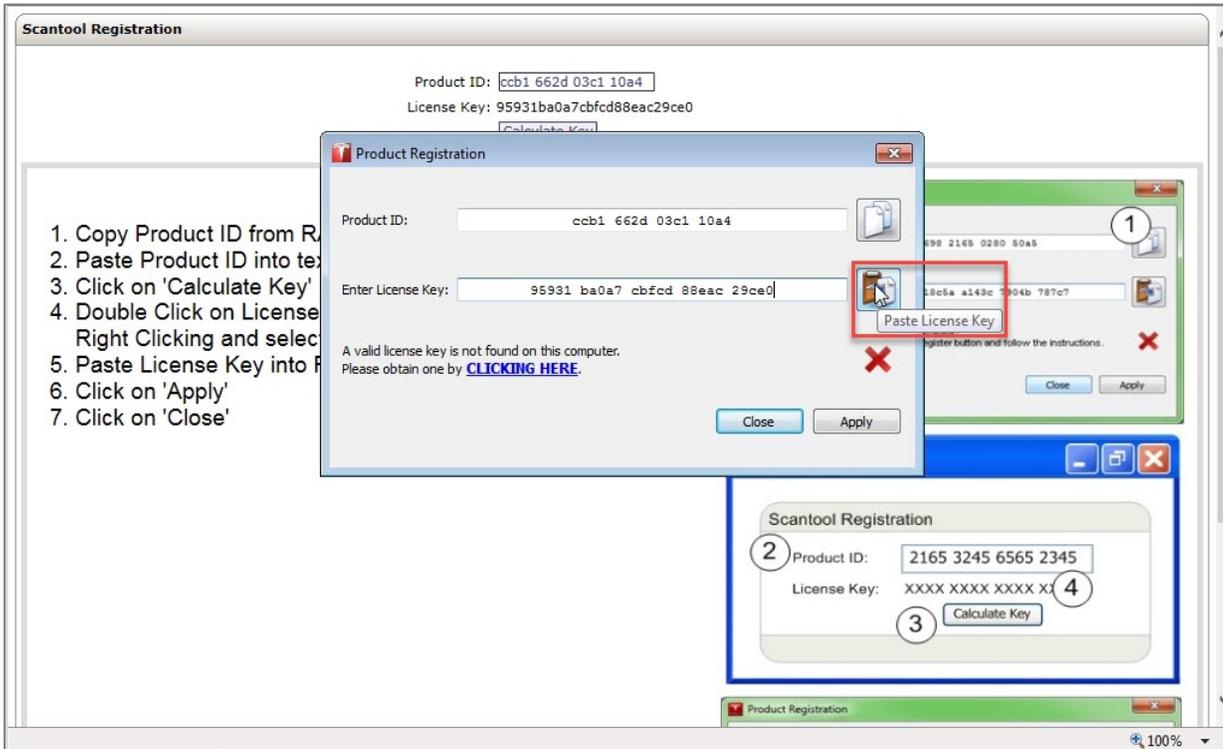
5. Paste the Product ID into the text box, and then click on "Calculate Key".



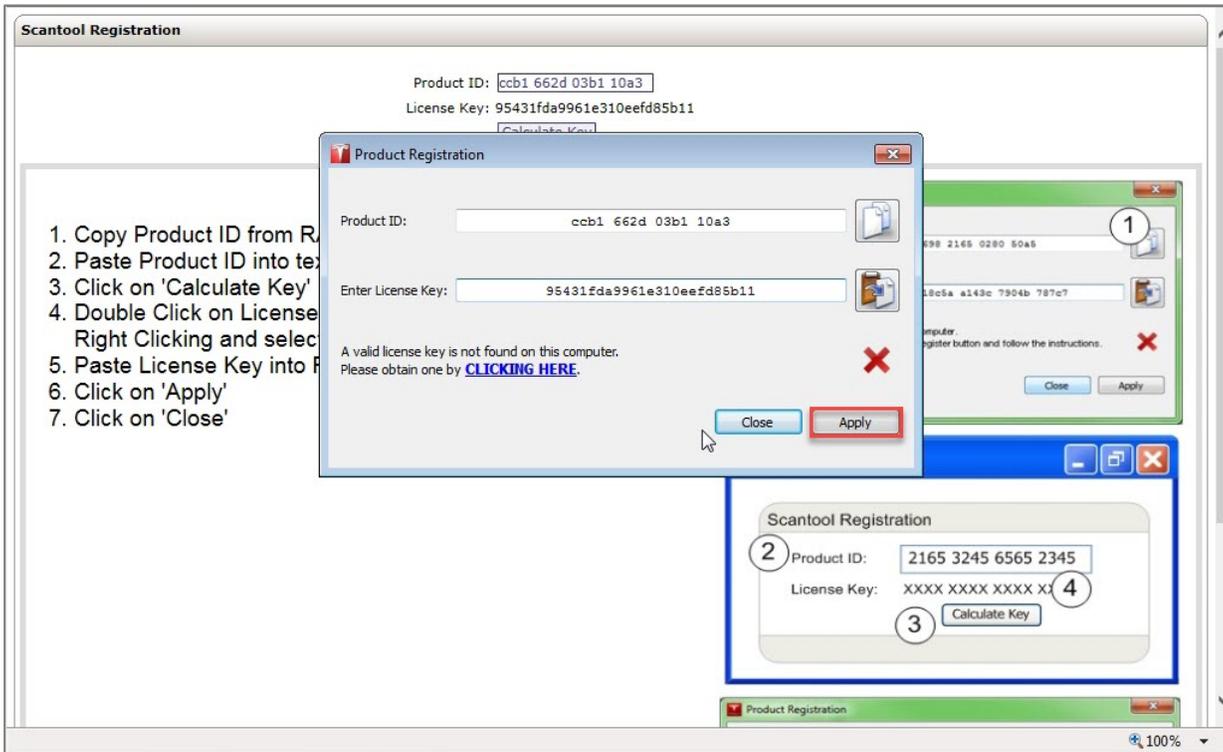
6. Double click on "License Key" to highlight and then copy by Right Clicking and selecting "Copy".



7. Paste the key into the "Enter License Key" box on the Product Registration Page.

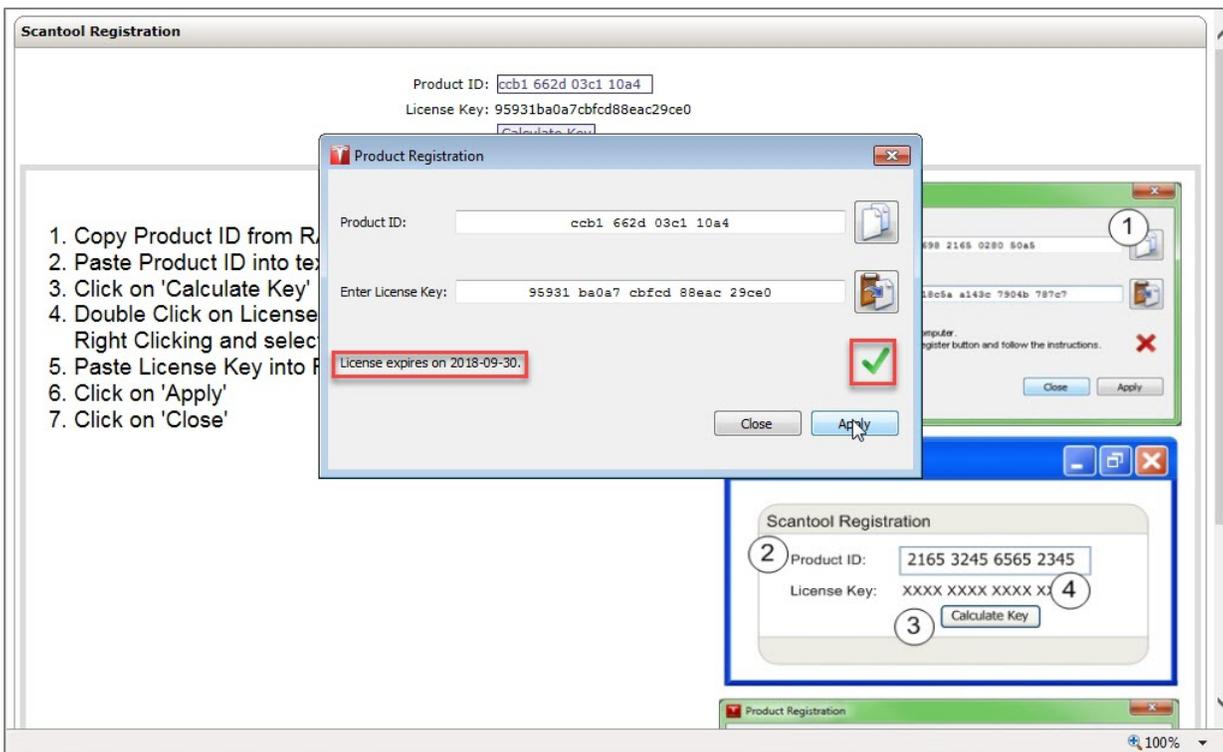


8. Click "Apply" to finish the registration process.

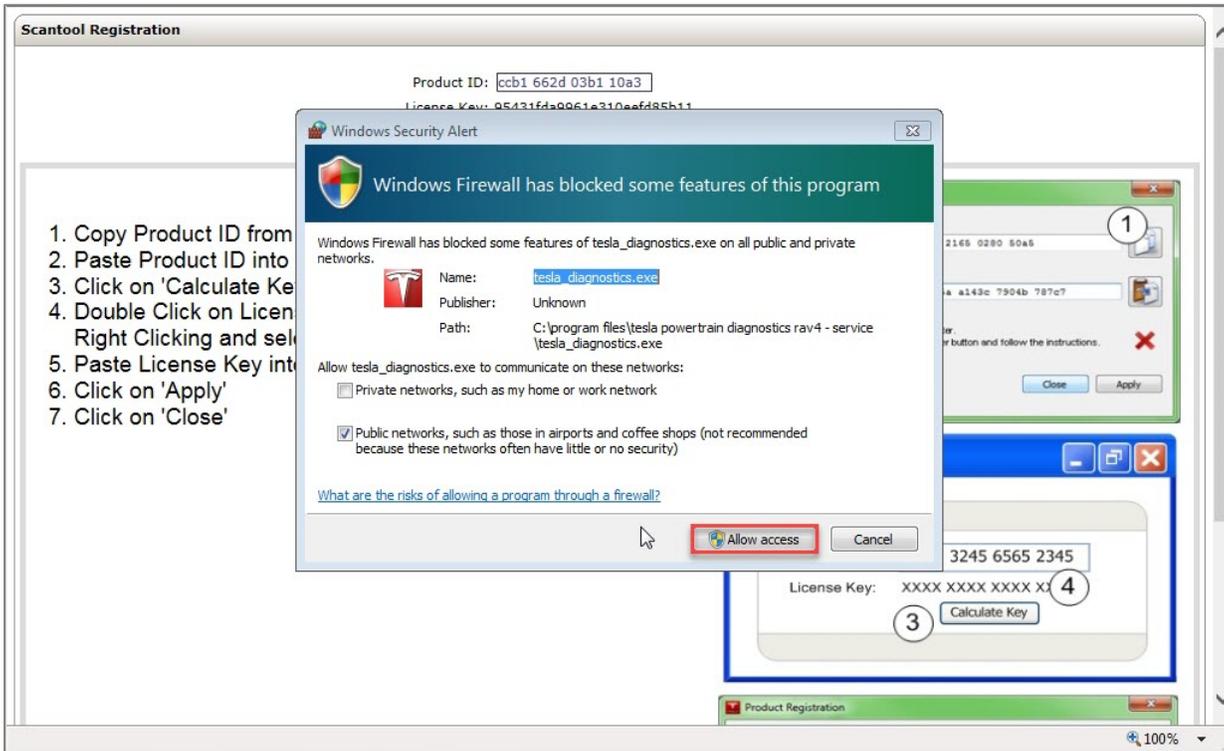


9. When the registration completes successfully, you will see a green checkmark.

NOTE: The software will need to be reregistered every six months.

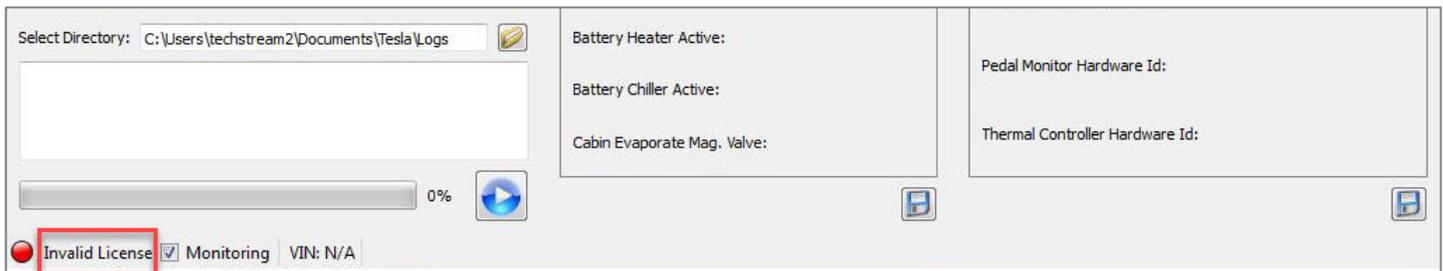


NOTE: Sometimes a Windows Security Alert will appear. Just click on “Allow access” to proceed.



10. Click “Close” to return to the Tesla Software.

NOTE: If the License Key is invalid, when returning to the Tesla Software you will see a red indicator and it will say “Invalid License” in the lower left corner.

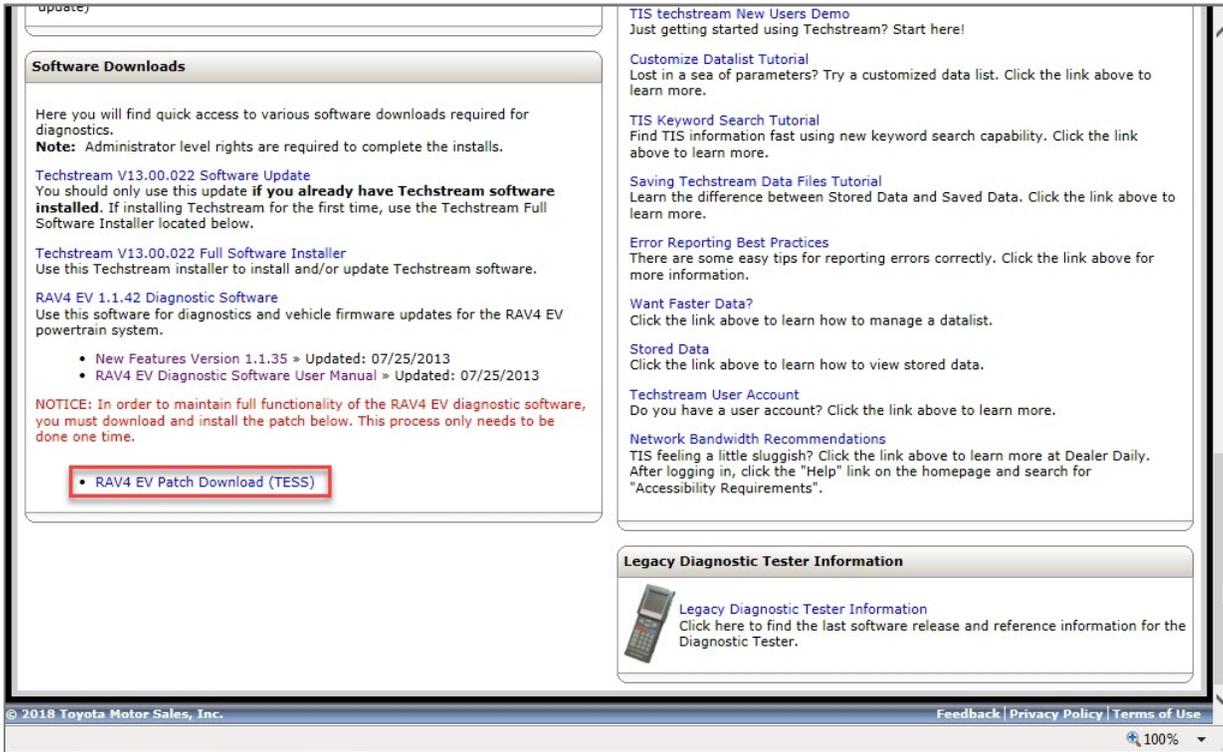


3. Patch Installation

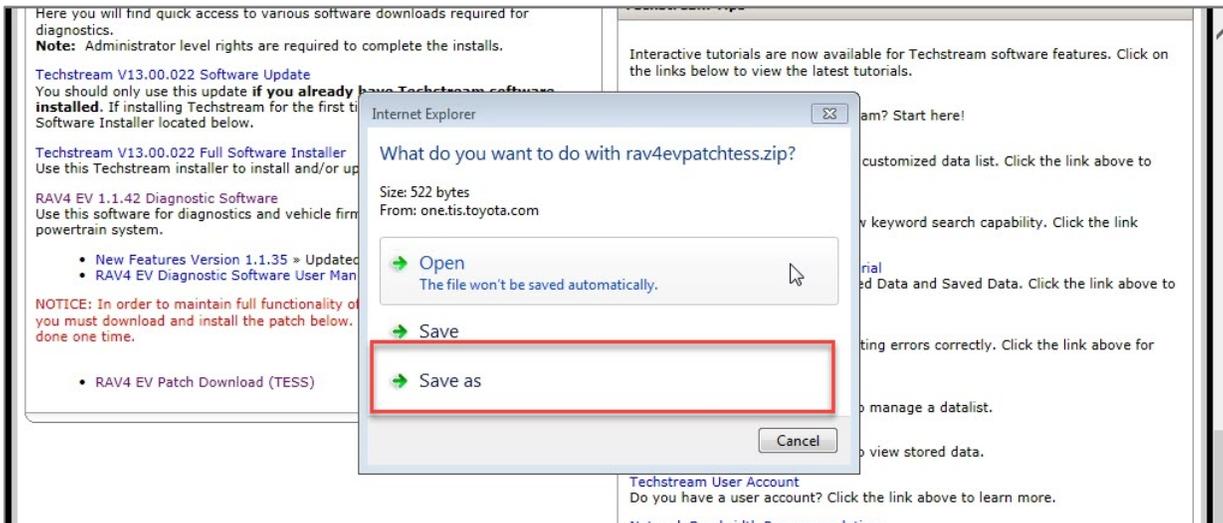
Description:

In order to maintain full functionality of the Tesla Powertrain Diagnostics RAV4 - Service software, you must download and install the patch on TIS. This process only needs to be done one time.

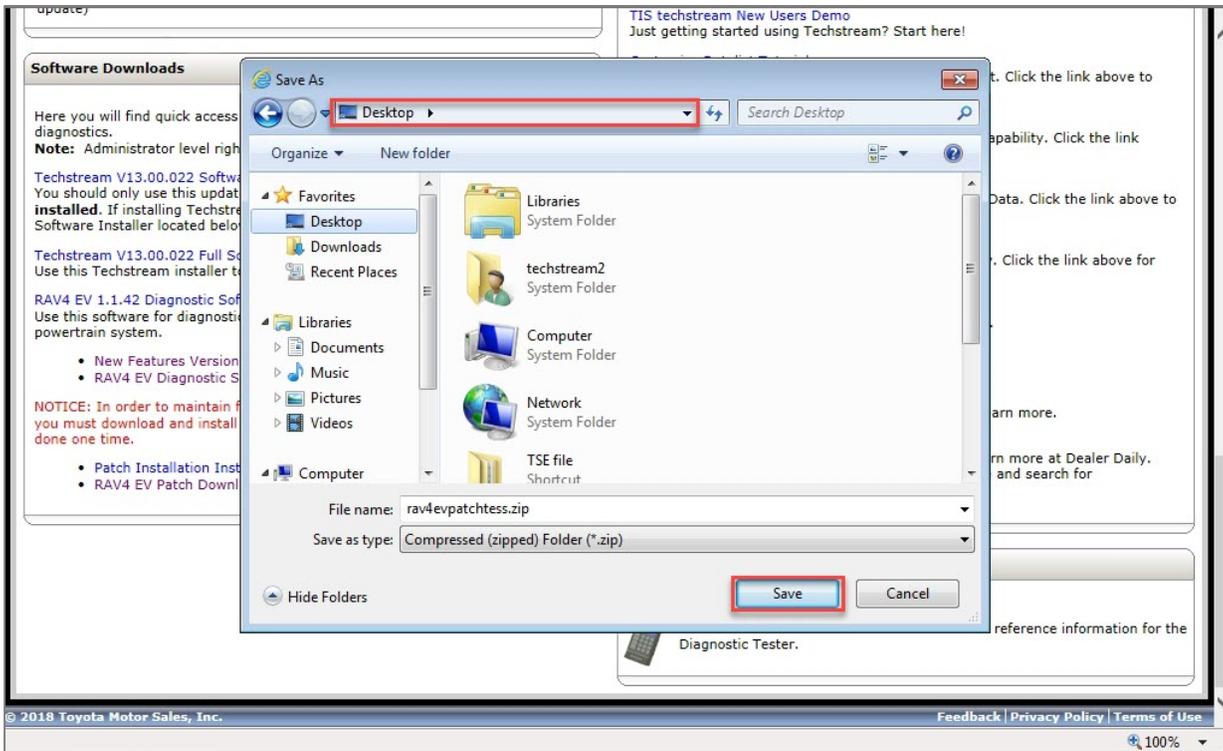
1. Ensure that the Tesla Powertrain Diagnostics RAV4 - Service software is already installed.



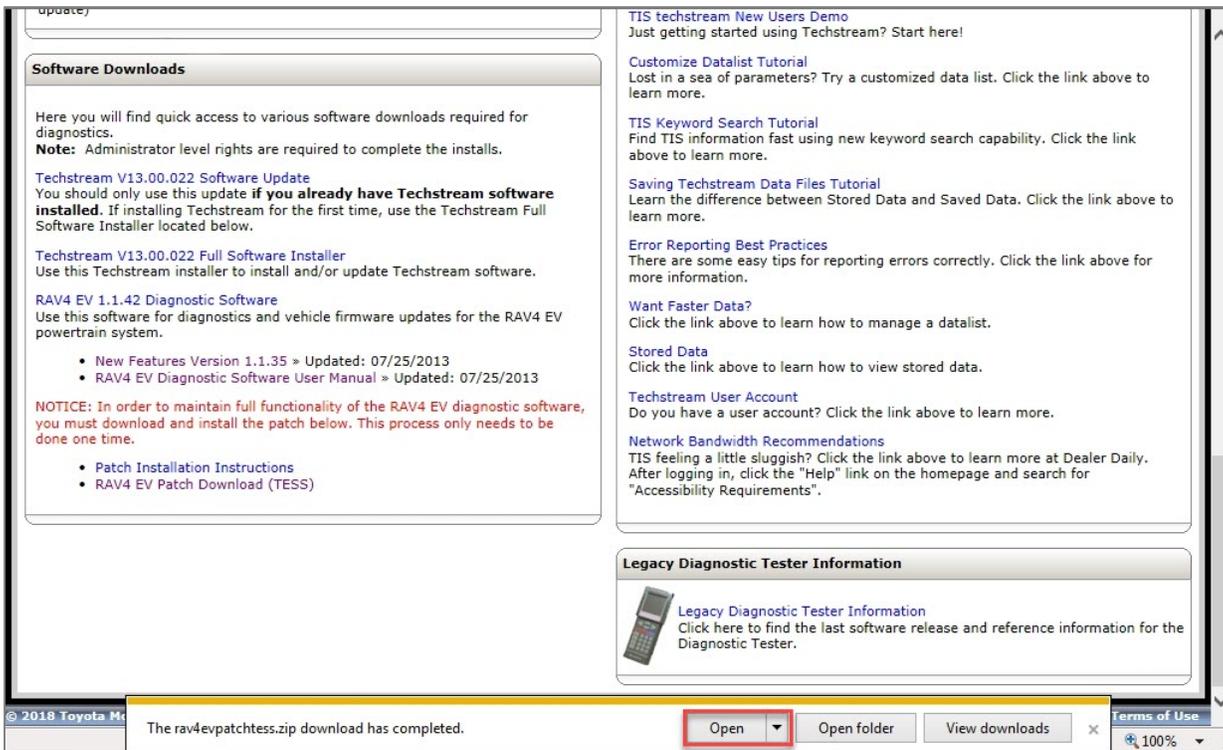
2. Save the “RAV4EVPATCHDOWNLOAD.ZIP” file to a temporary location (i.e.Desktop) on your PC



3. Confirm the location and click “Save”.

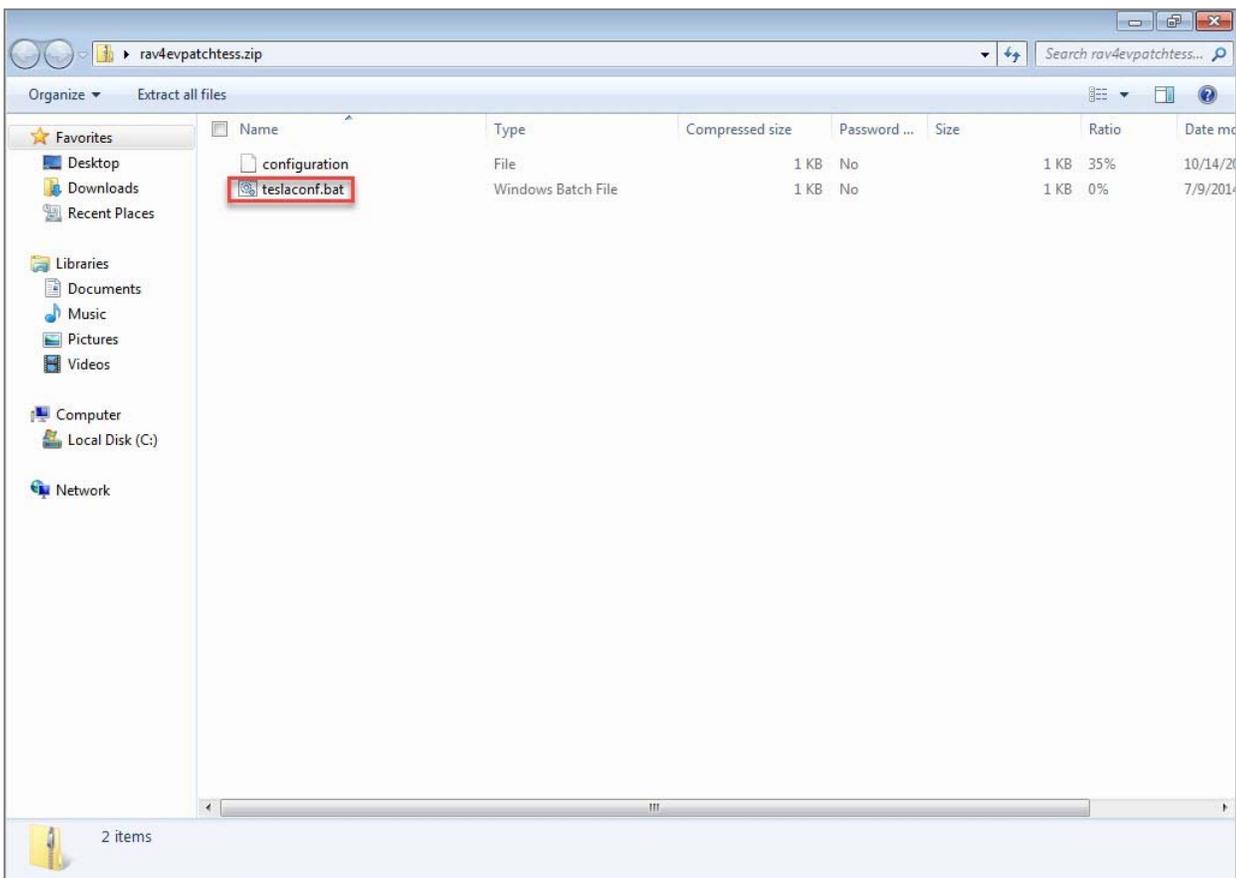


4. Click “Open” to see the files.

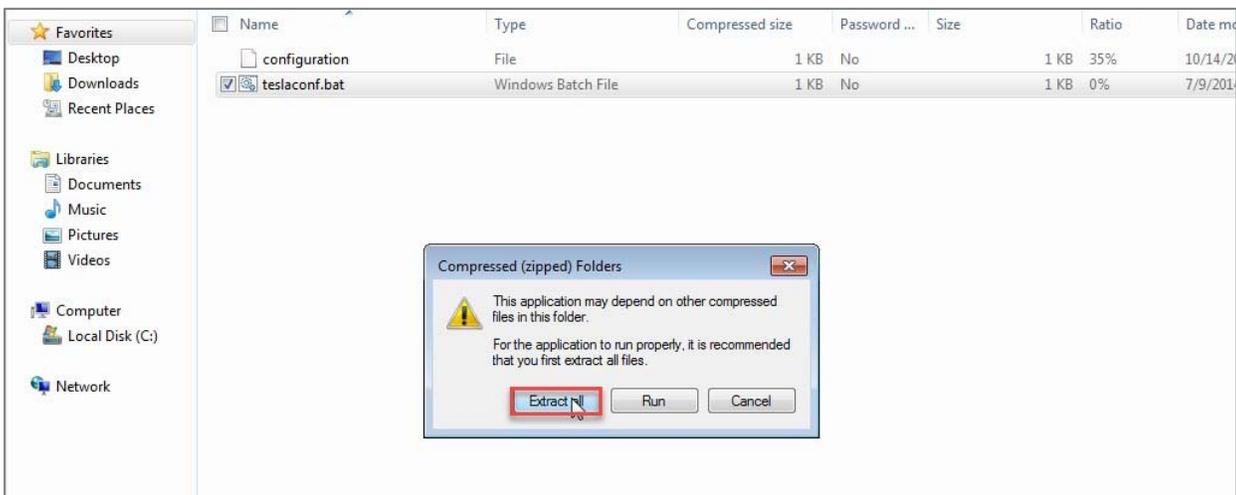


5. You should see 2 files:

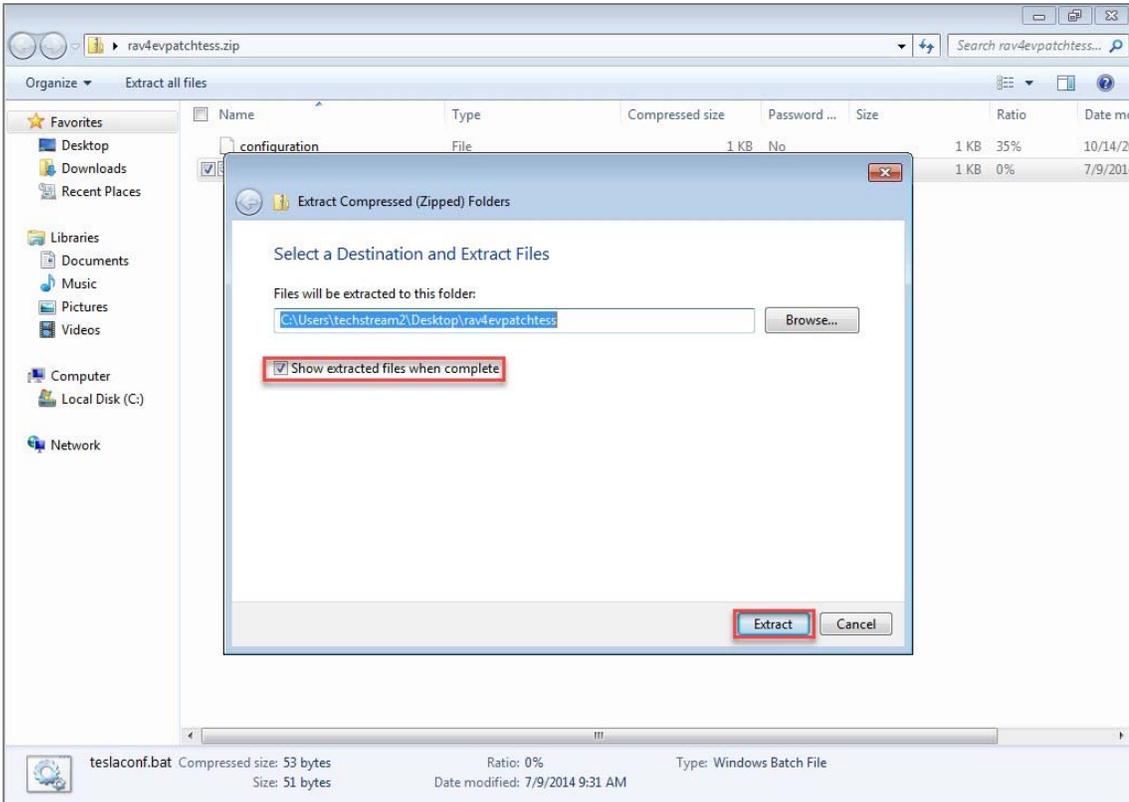
1. configuration
2. Teslaconf.bat



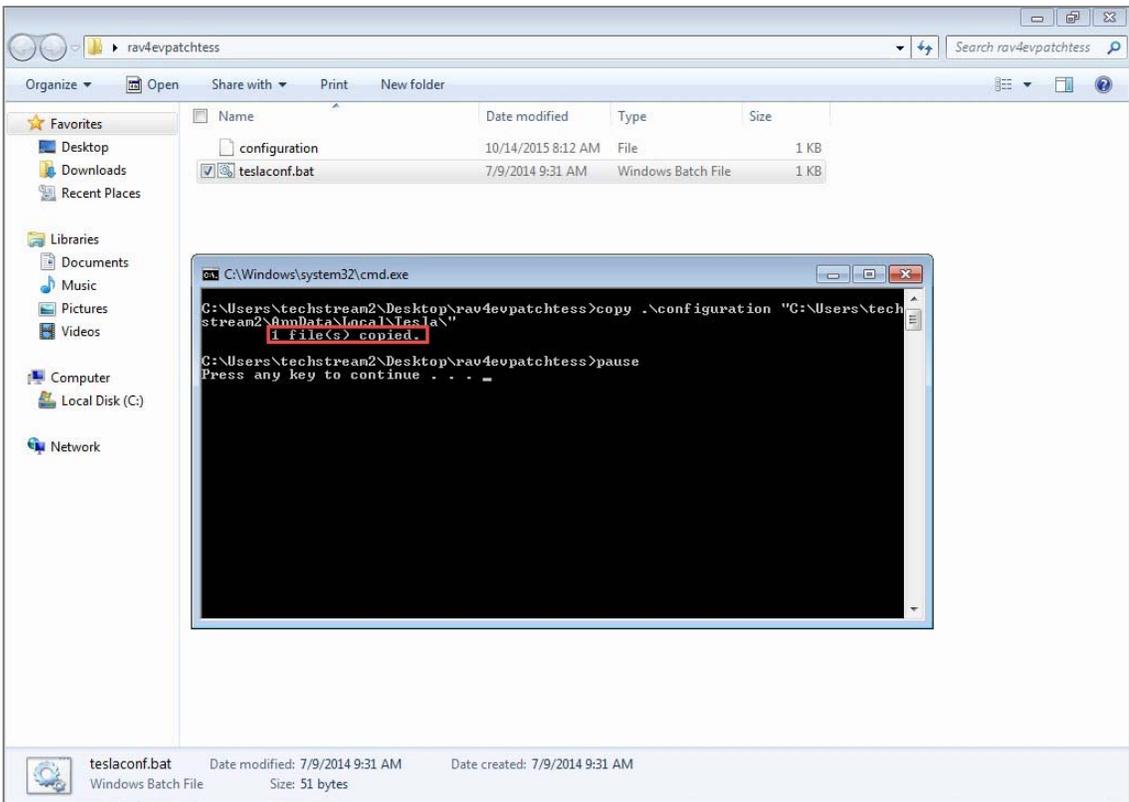
6. Double click on the “Teslaconf.bat” file. When prompted, select “Extract all”.



7. Make sure the highlighted box is checked and then click “Extract”



8. Double click on the “Teslaconf.bat” file. You should see the following screen:



9. Confirm you see “1 file(s) copied”. If you see “0 files copied”, please contact Dealer Daily support.

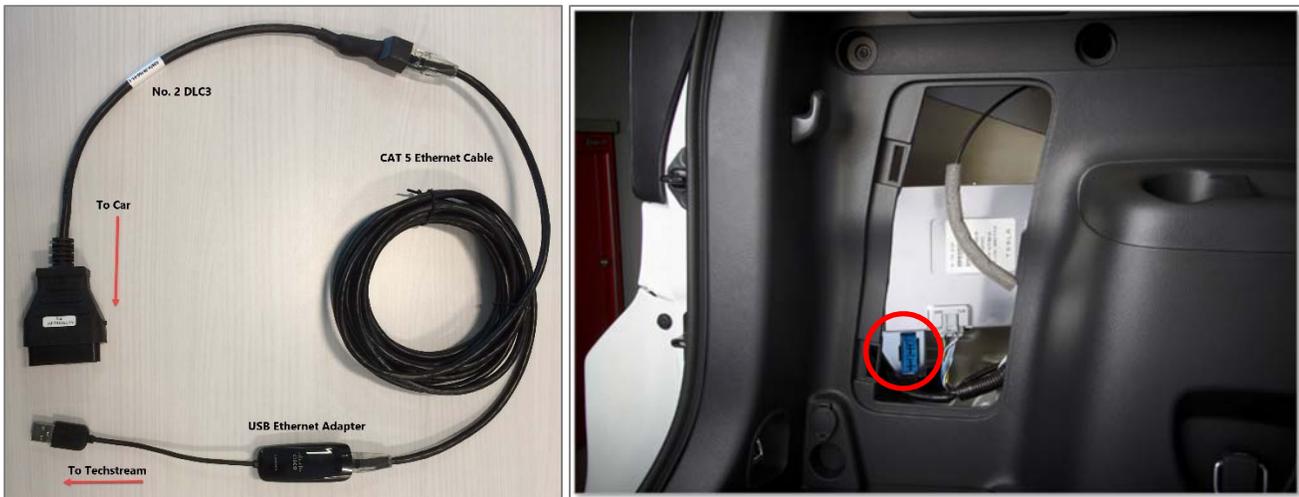
10. Press any key and continue; the patch installation was successful. You can now delete the files that were temporarily saved to your PC (i.e. Desktop).

4. Diagnostic Cable Kit

Description:

There is a Special Service Tool, EV HV Powertrain Diagnostic Cable Kit (Part # - 82824-36150-01), required in order to connect to and communicate with the RAV4 EV for Electric Powertrain diagnostics.

NOTE: For all other diagnostics, the DLC3 connector under the dash will be used with Techstream as normal.



5. IP Configuration

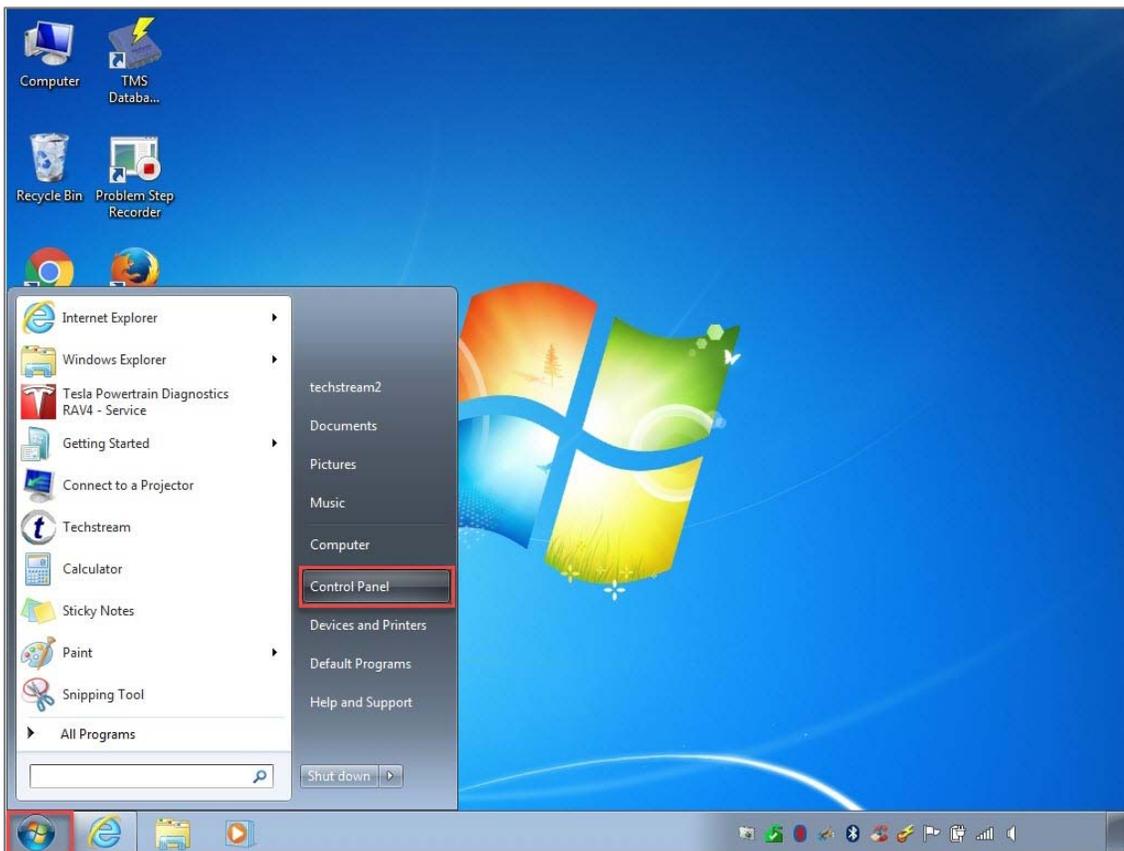
Description:

The Tesla Powertrain Diagnostics RAV4 - Service software requires some IP Configuration in order for the vehicle to communicate with the software.

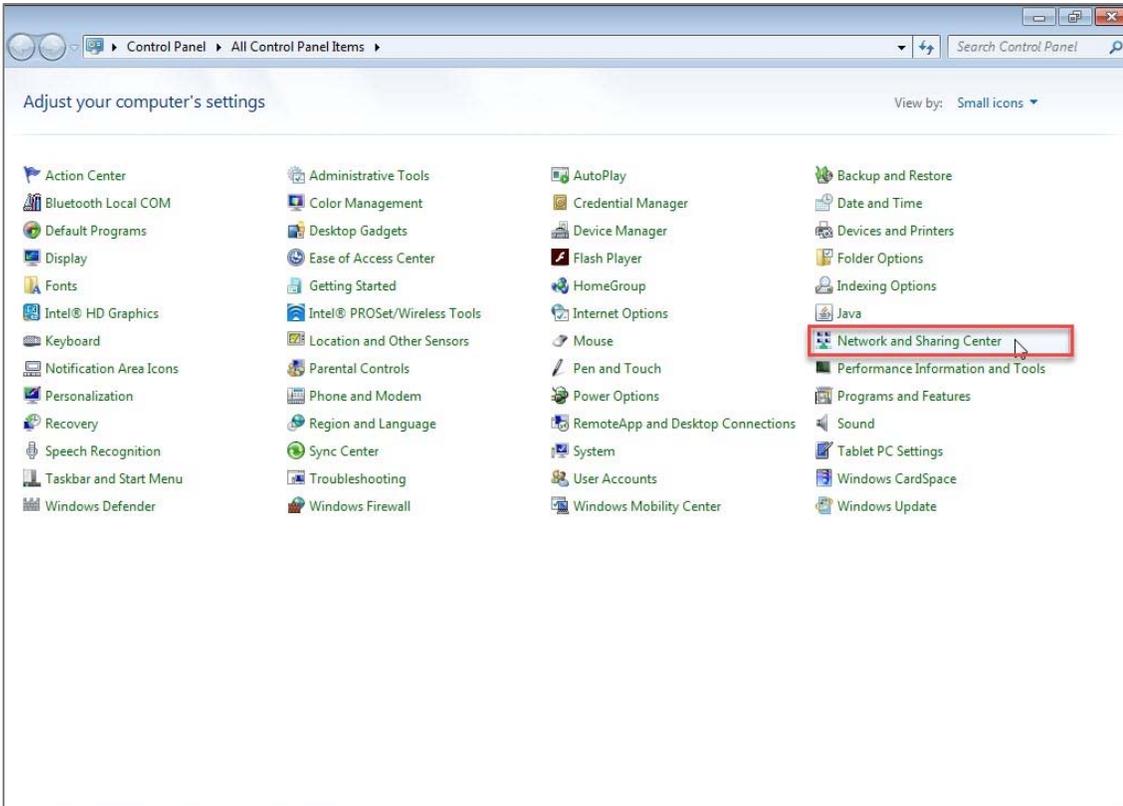
1. Plug the USB-Ethernet adapter from the SST(Part # - 82824-36150-01) into a USB port on the Techstream.



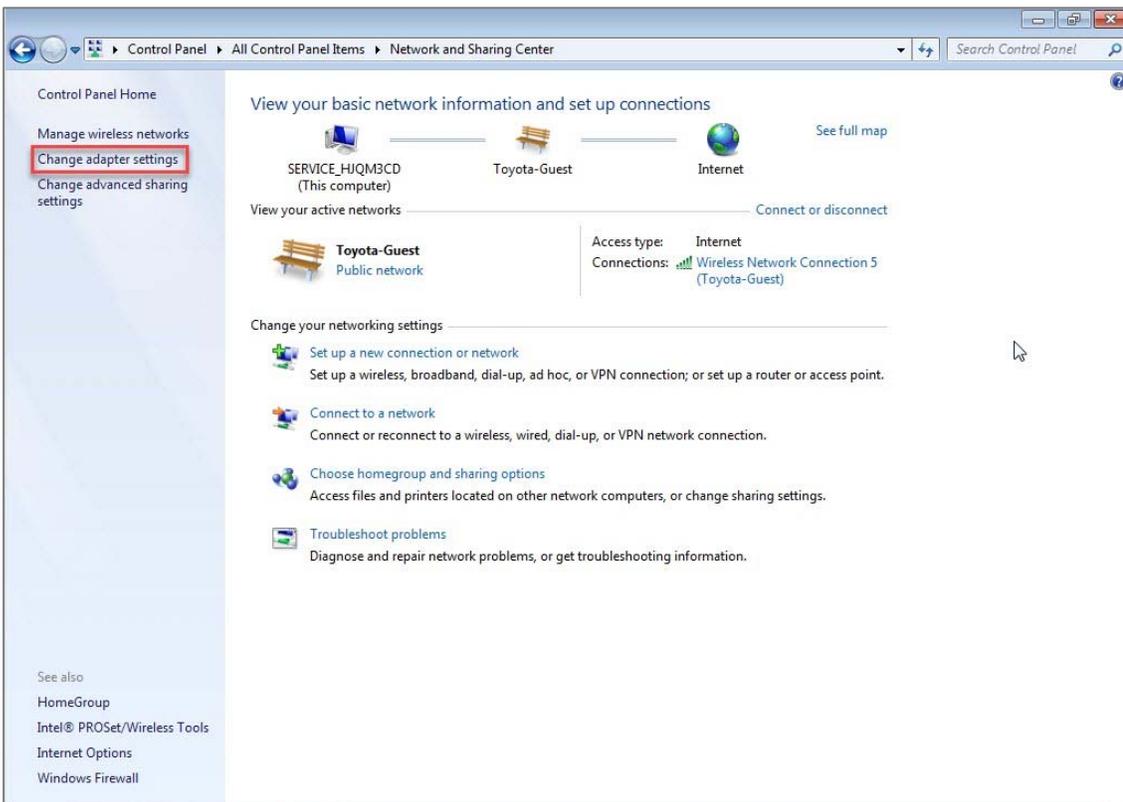
2. Click "Start" >> "Control Panel".



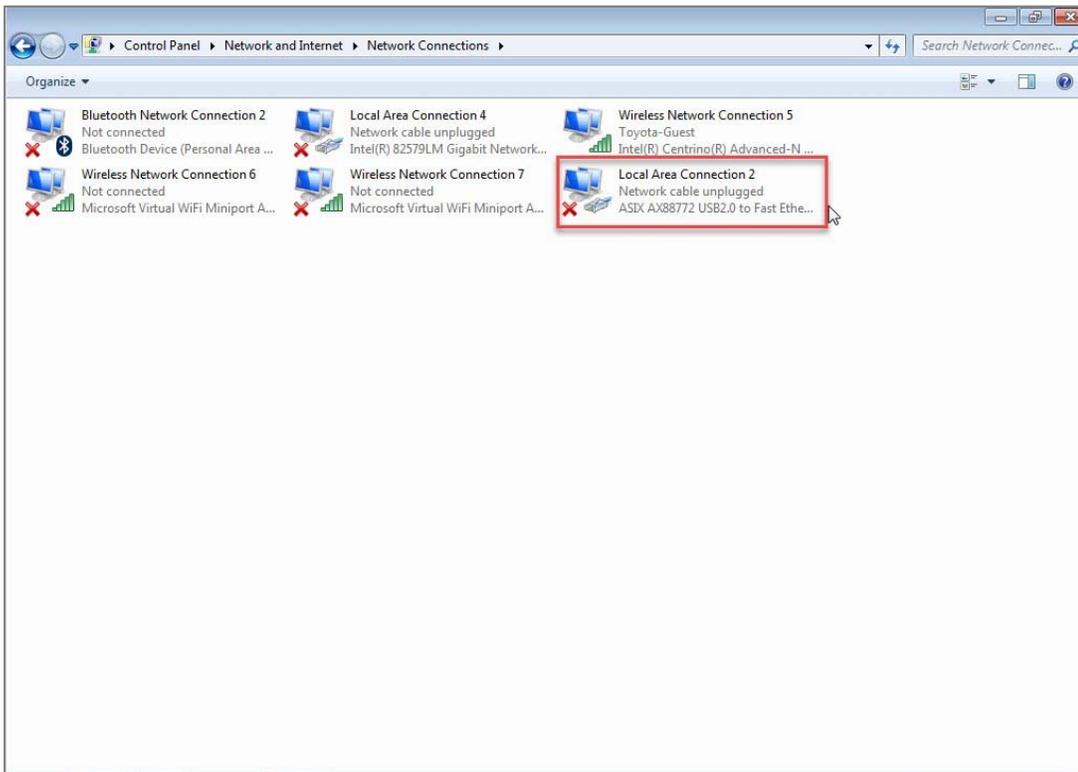
3. Click “Network and Sharing Center”.



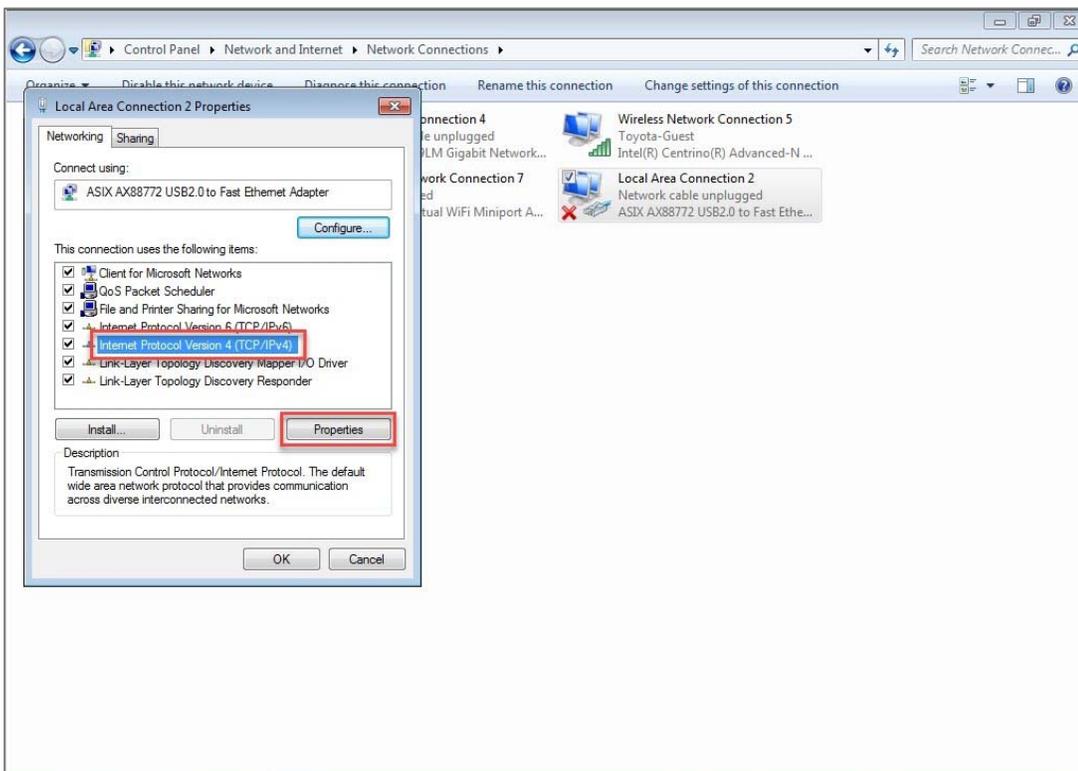
4. Click “Change adapter settings”.



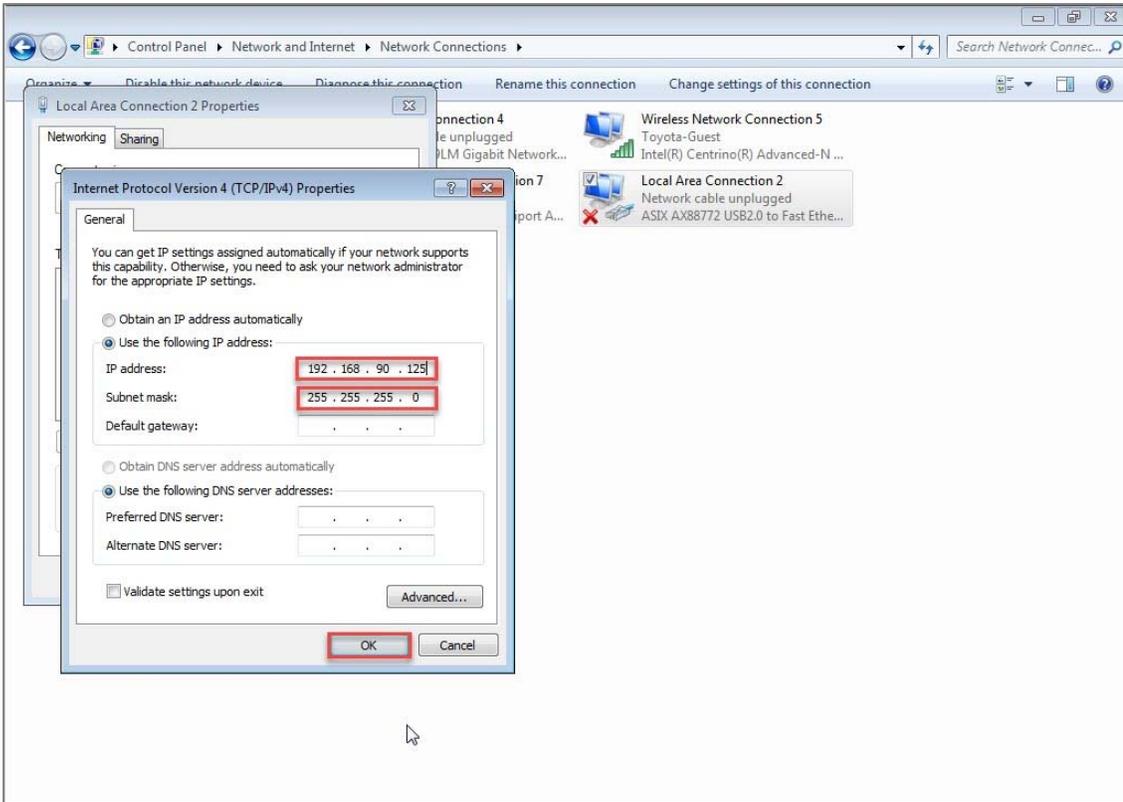
5. Right click the Local Area Connection that shows the following – “ASIX AX88772 USB2.0 to Fast Ethernet Adapter” and select Properties.



6. Click on “Internet Protocol Version 4 (TCP/IPv4)” and click on “Properties”.



7. Click the radio button "Use the following IP address:"
 - a. Enter "192.168.90.125" into the IP Address section.
 - b. Enter "255.255.255.0" into the Subnet Mask section (this may automatically populate).
8. Click "OK".



9. Click "Close".

NOTE: If all steps have been completed and the status light on the Tesla Powertrain Diagnostics RAV4 - Service software is still red, this is potentially a local firewall issue. Call your IT Department, and register a TAS Case.

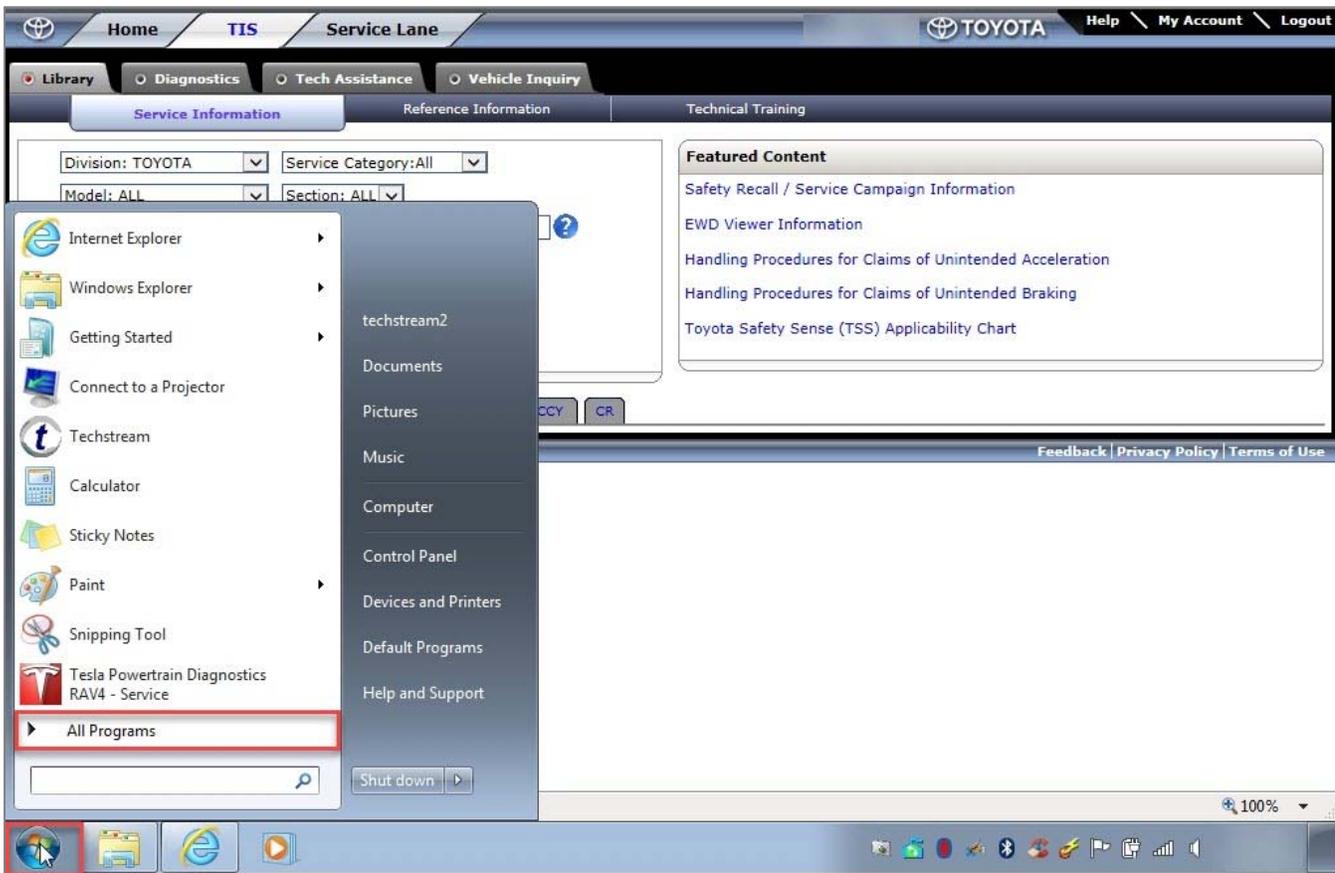
6. Launching Software

Description:

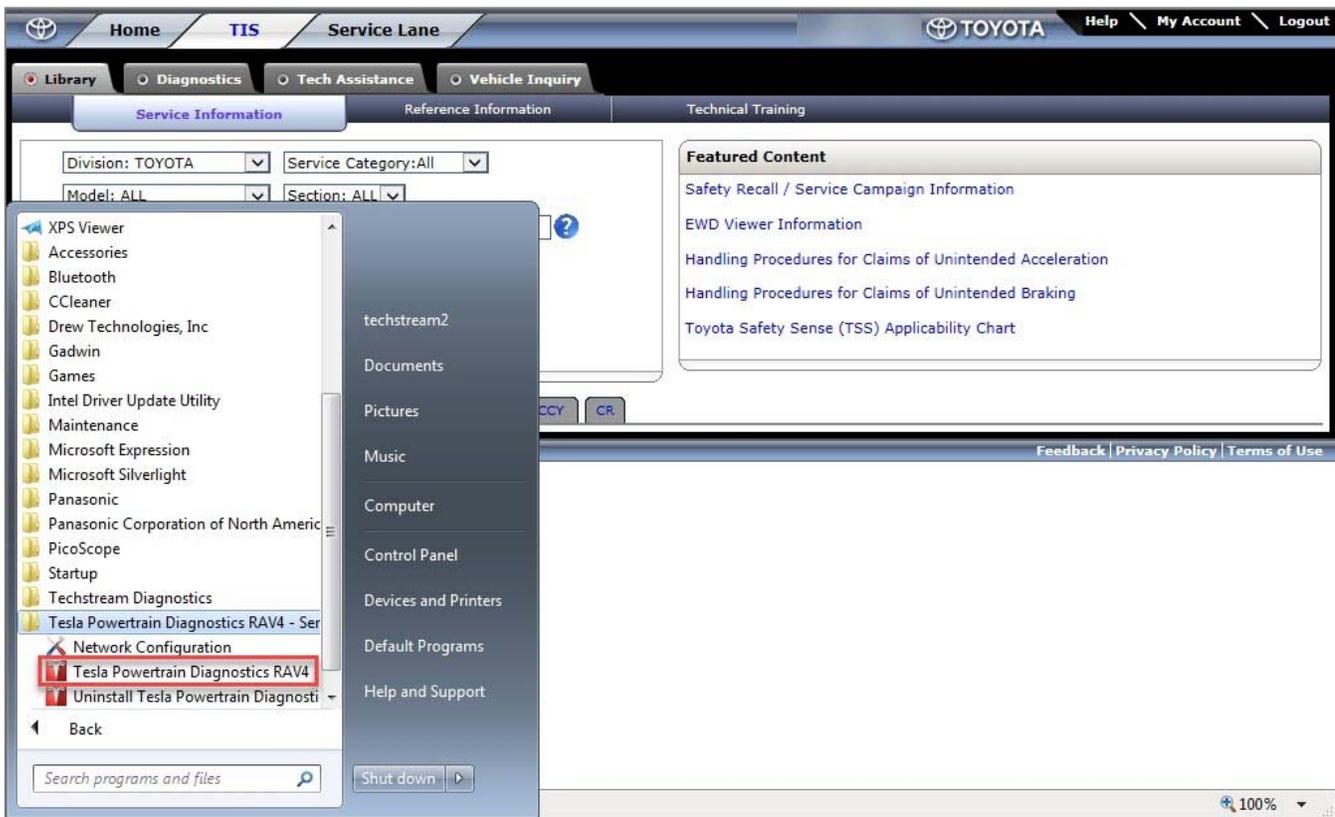
To launch the RAV4 EV diagnostics program, follow the instructions below.

1. Connect the RAV4 EV Diagnostic Cable (shown above) to the No.2 DLC3 connector located in the rear cargo area of the vehicle.
2. Cycle Ignition switch ON (Ready OFF).
3. Click Start >> All Programs

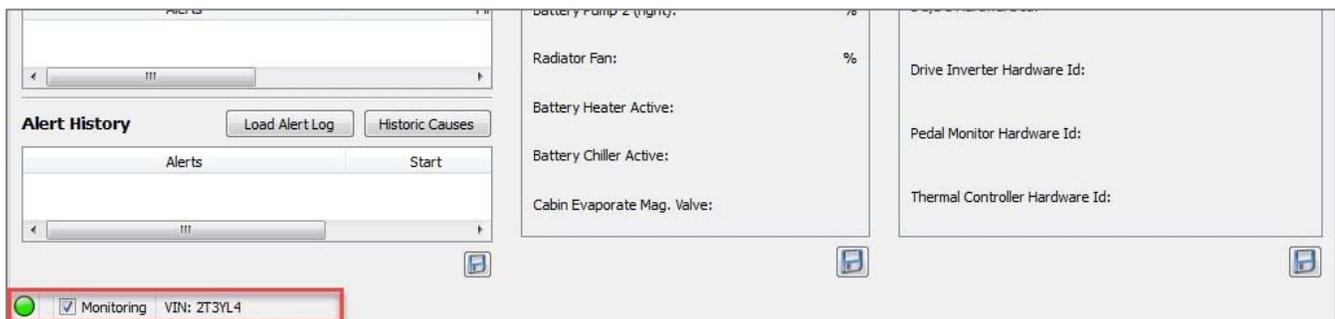
NOTE: If there is an icon on the desktop (recommended) you may access the program in this way.



4. Open the “Tesla Powertrain Diagnostics RAV4 – Service” folder and select “Tesla Powertrain Diagnostics RAV4 – Service” program.



5. When the application launches, confirm that the green light is illuminated in the bottom left corner of the software screen and the VIN is populated.



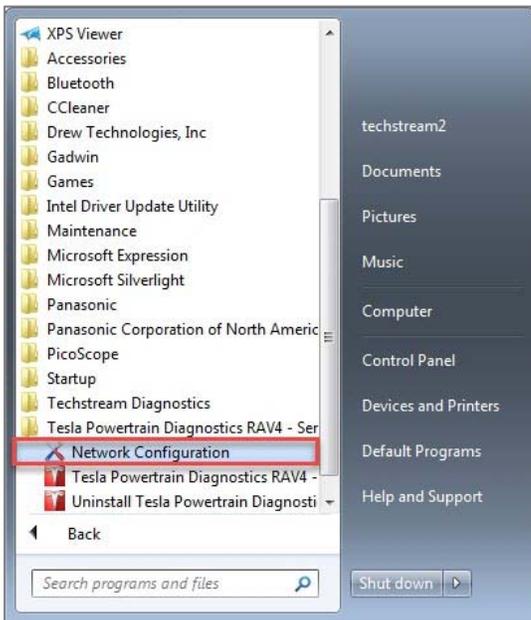
NOTE: If the light is still red, you may need to enable your network configuration which is shown below.

7. Network Configuration

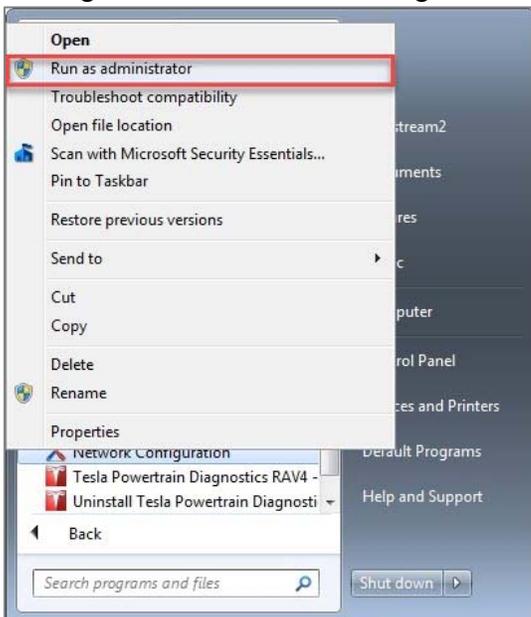
Description:

If you see a red light and “N/A” for the VIN, you will need to establish the network connection. You may have to do this each time you connect to a vehicle.

1. Click Start >> All Programs
2. Open the “Tesla Powertrain Diagnostics RAV4 – Service” folder.”

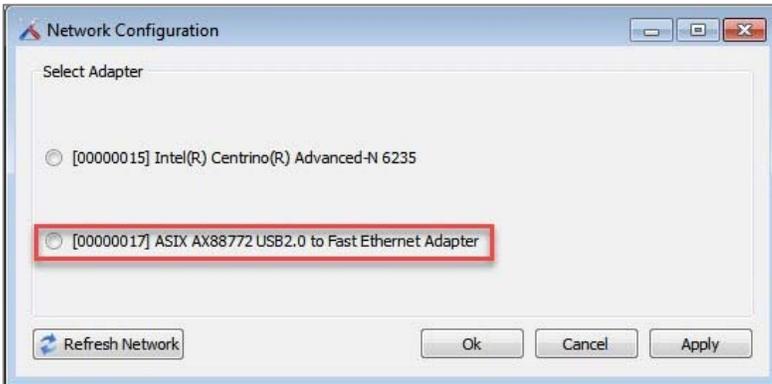


3. Right click “Network Configuration” and select “Run as administrator”

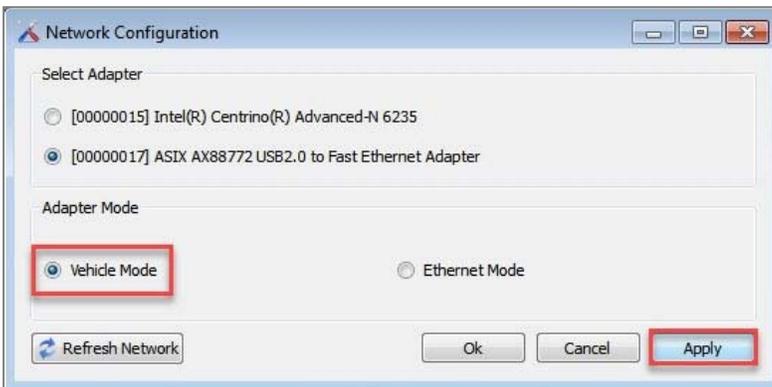


If you get a Windows popup box asking if you want to allow the following program from an unknown publisher to make changes to this computer, click “Yes”.

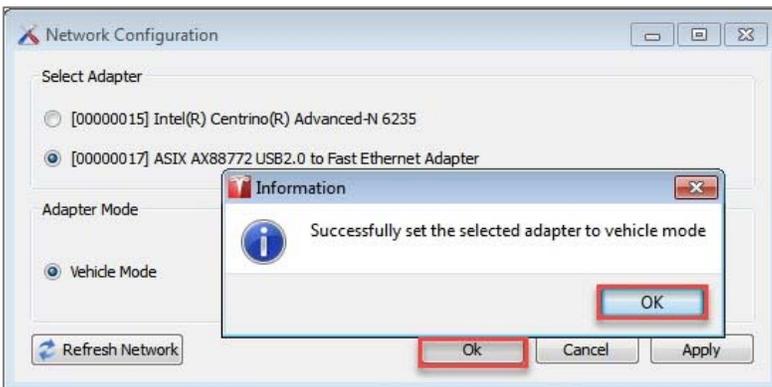
4. Select the radio button next to the adapter labeled “ASIX AX88772 USB2.0 to Fast Ethernet Adapter”.



5. Select the radio button next to “Vehicle Mode” and click “Apply”.

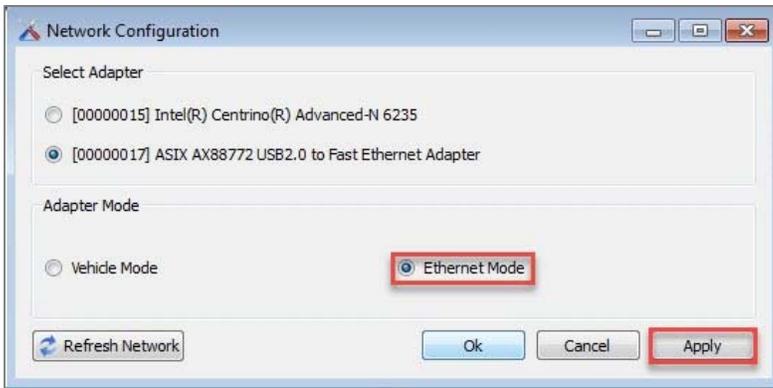


6. You will see the message below:

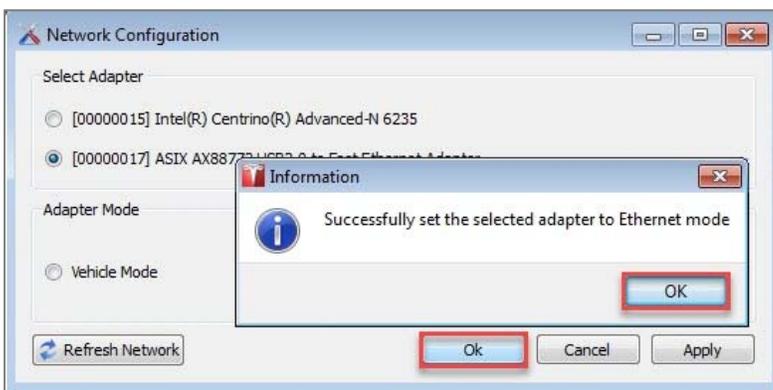


7. Click “OK” on this message and then click “Ok”

8. If the light is still red, try selecting the “Ethernet Mode” and click “Apply”.



9. Click “OK” on this message and then click “Ok”



NOTE: If the light is still red, contact your IT Administrator.

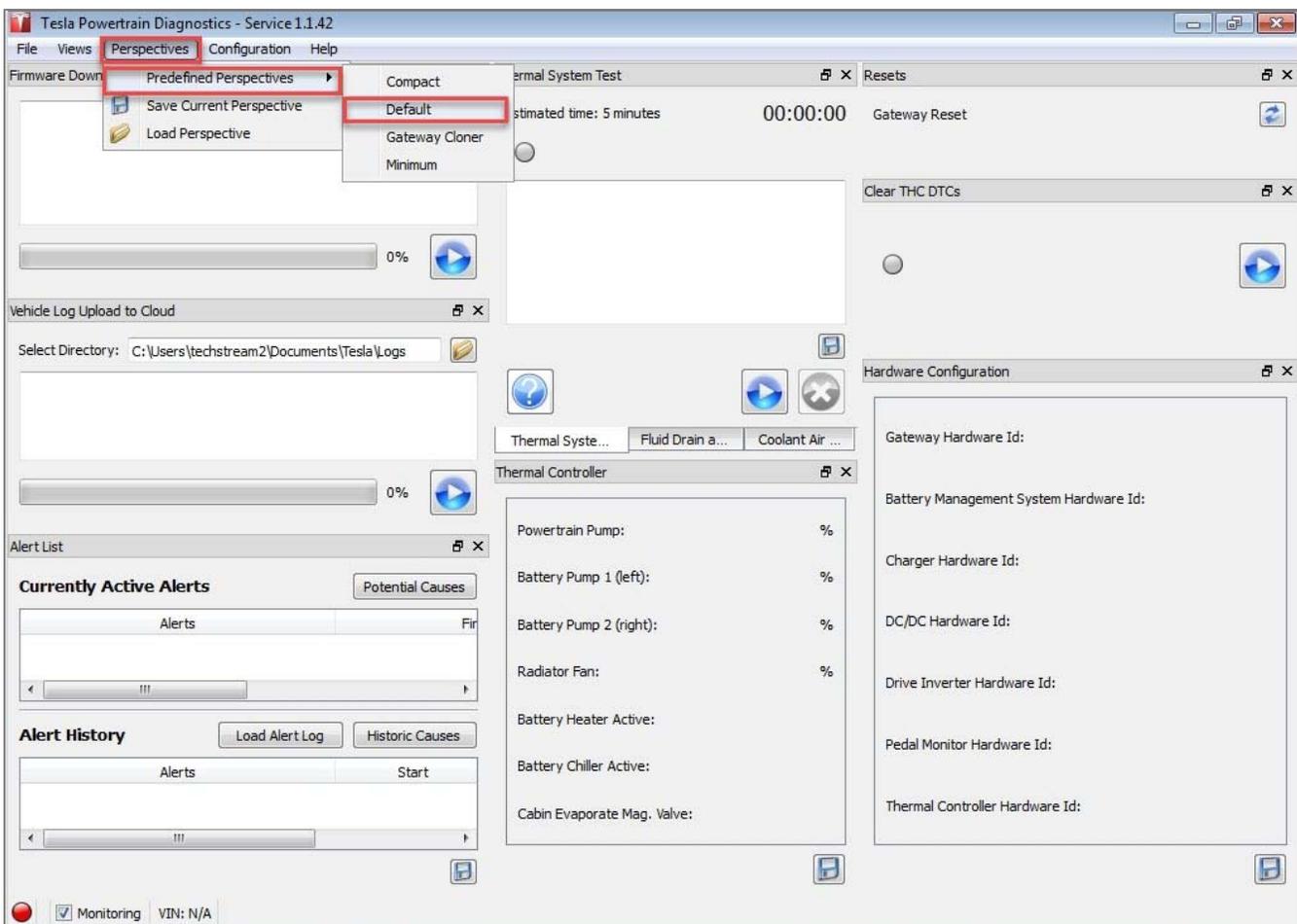
8. Change Perspective

Description:

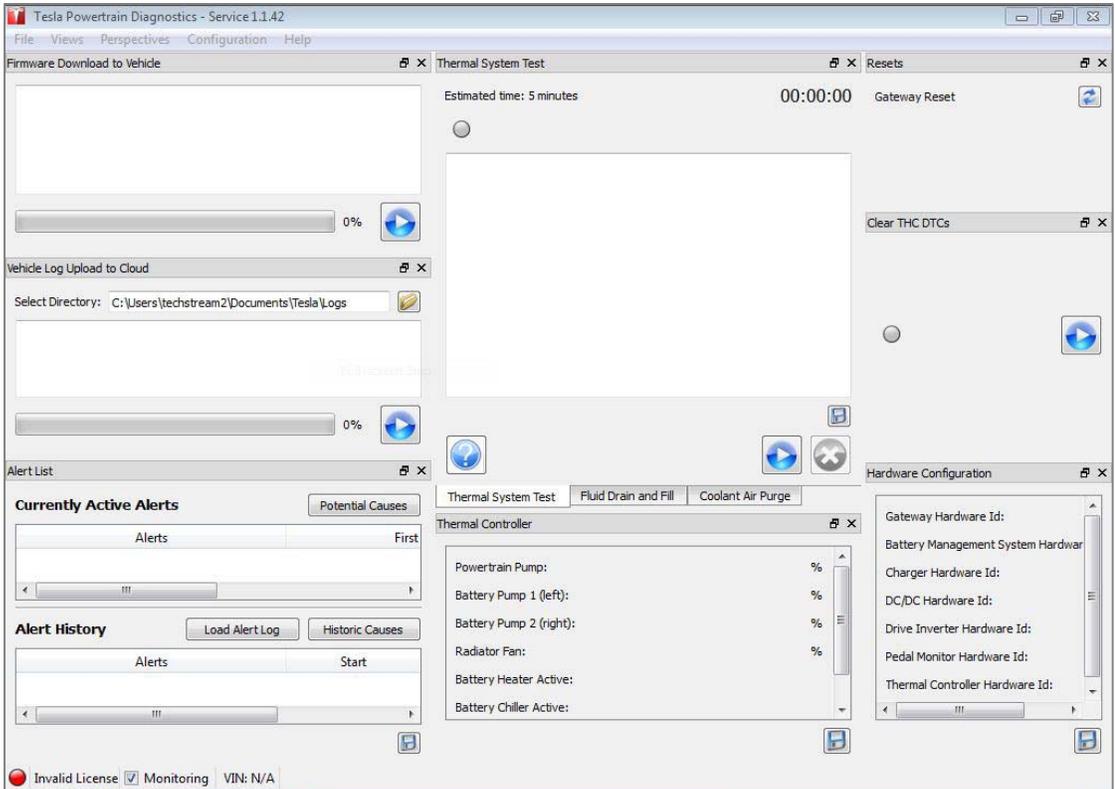
The view of the Tesla Powertrain Diagnostics RAV4 - Service software is customizable. These different views are referred to as Perspectives. The tool comes preloaded with four different views. To change between these perspectives, select “Perspectives” from the menu bar and open the “Predefined Perspectives” menu. You also have the ability to create and save your own views (create your layout and select “Save Current Perspective” from the Perspective drop down).

NOTE: The software remembers the last used view and will launch that view when the software is opened again. The preferred perspective is “Default”.

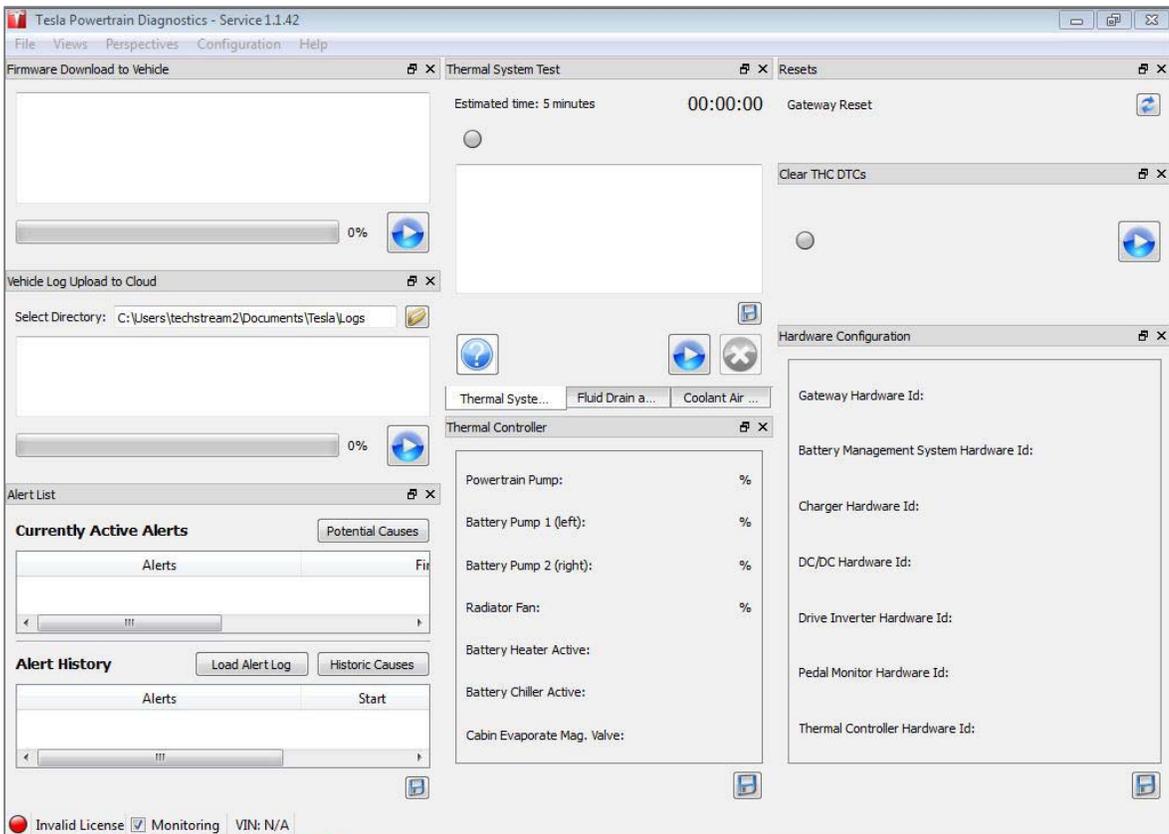
The four Perspectives are Compact, Default, Gateway Cloner, and Minimum.



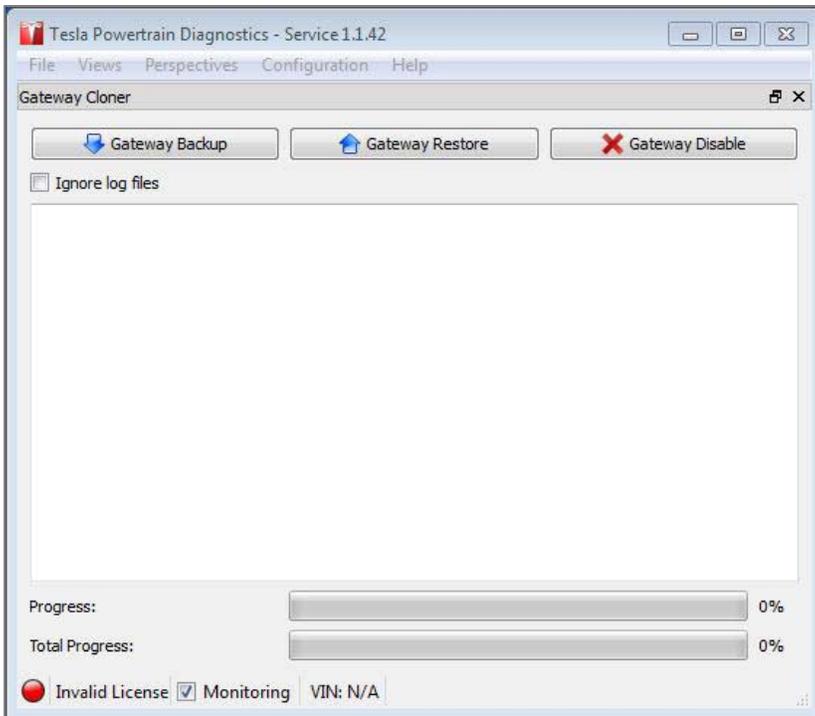
1. Compact



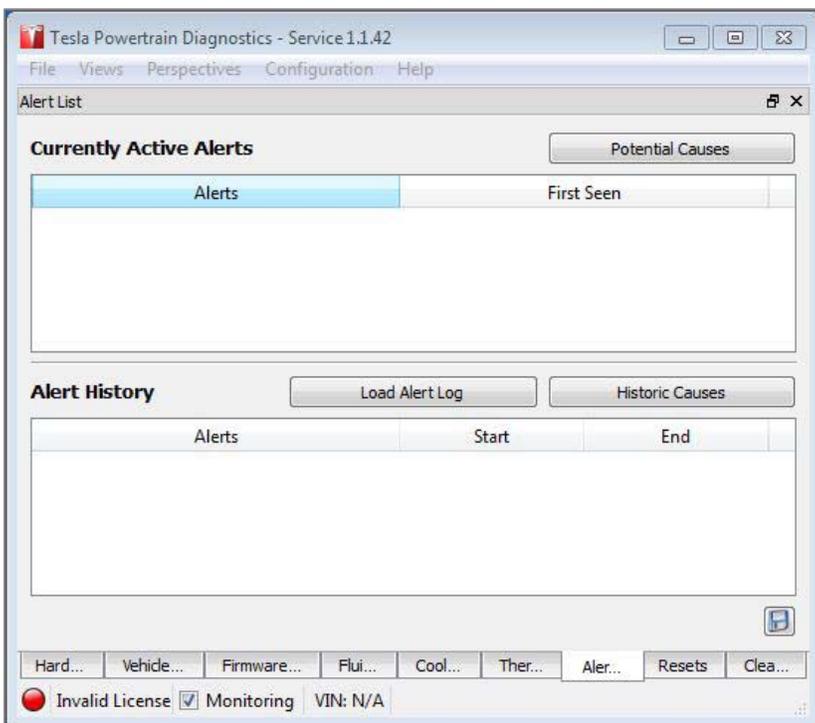
2.Default



3. Gateway Cloner



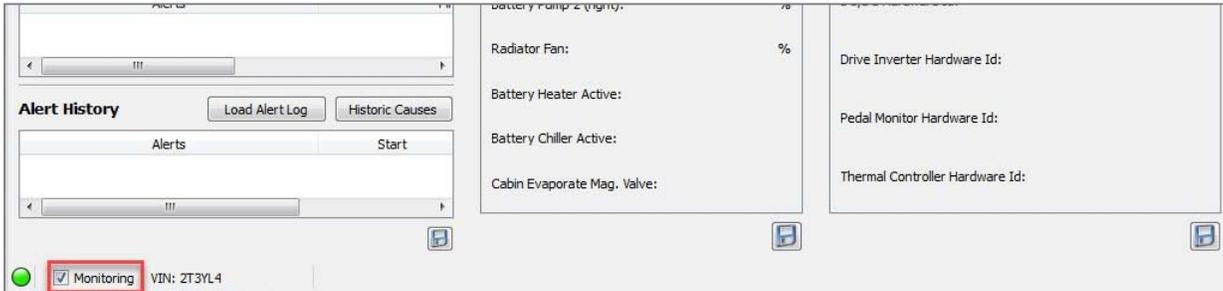
4. Minimum



9. Monitor Check Box

Description:

This function is used to disable some communication functions within the vehicle in order to perform some of the heavier CPU performance utilities of the software (i.e. Coolant Air Purge, Fluid Drain and Fill). This shouldn't normally be used, but if you are experiencing erratic performance, this box can be unchecked.

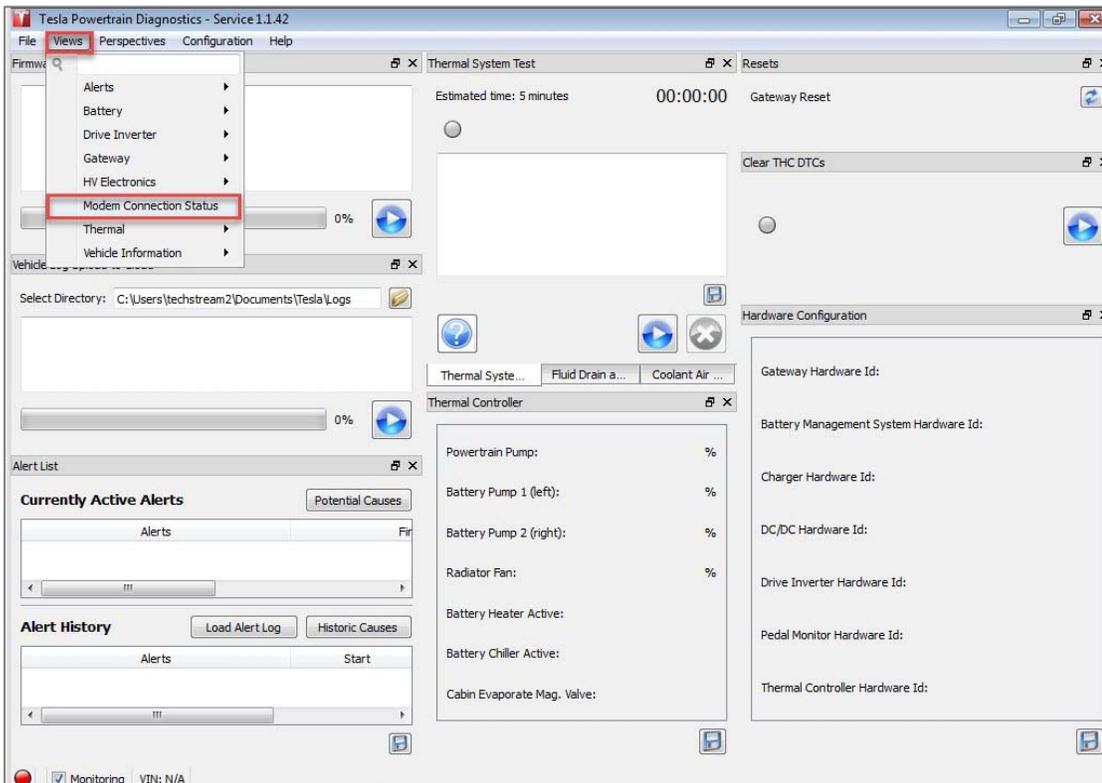


10. Modem Connection Test

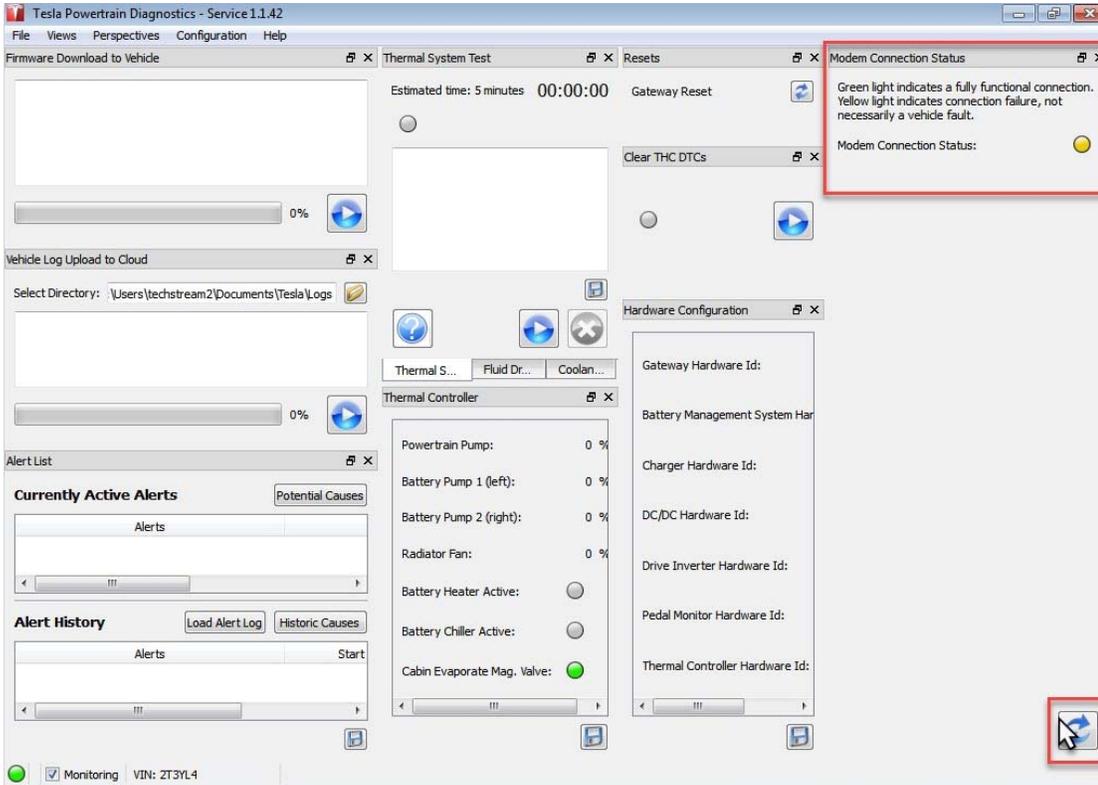
Description:

Simple test to ensure the GSM modem can connect to the Log Upload Server.

1. Click on "Views" >> "Modem Connection Status".



2. If the Modem Connection Status is yellow, click on the refresh button.

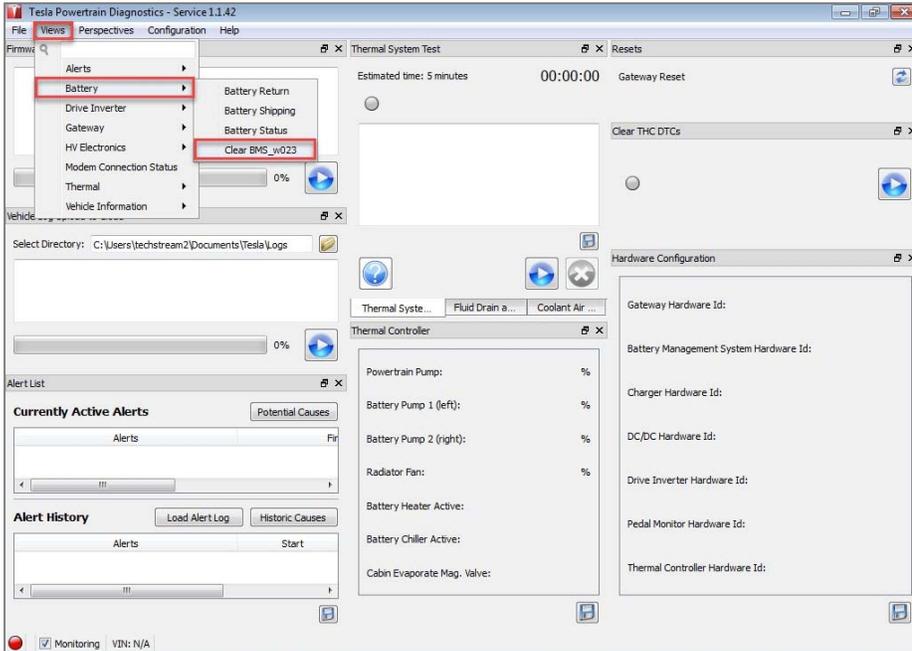


11. BMS_w023 Reset Utility

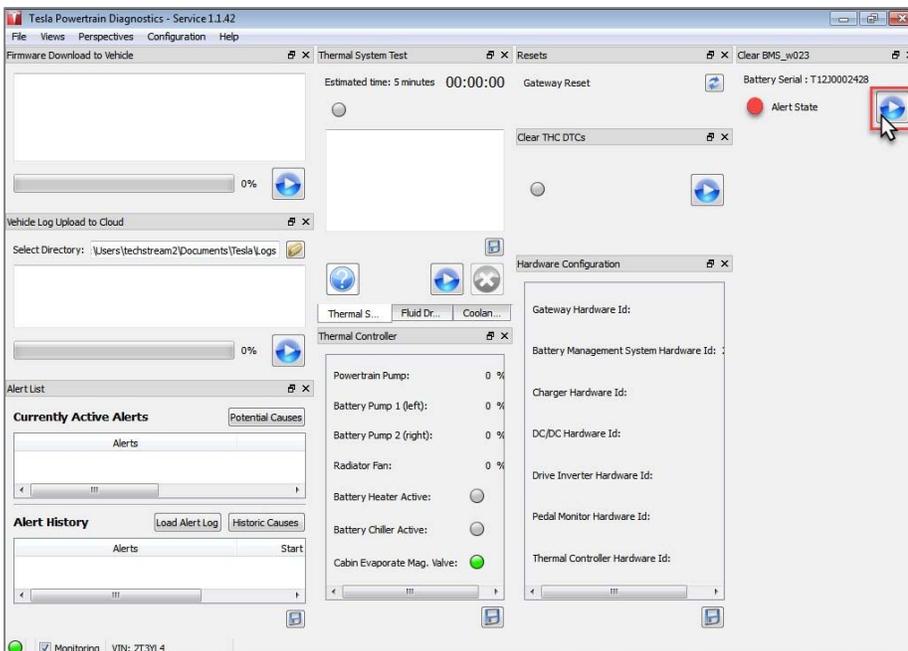
Description:

This function enables the technician to clear BMS_w023, which can be falsely set by low auxiliary battery voltage.

1. Click on “Views” >> “Battery” >> Clear BMS-w023.



2. If the Alert State shows red, click the blue “Play” button.

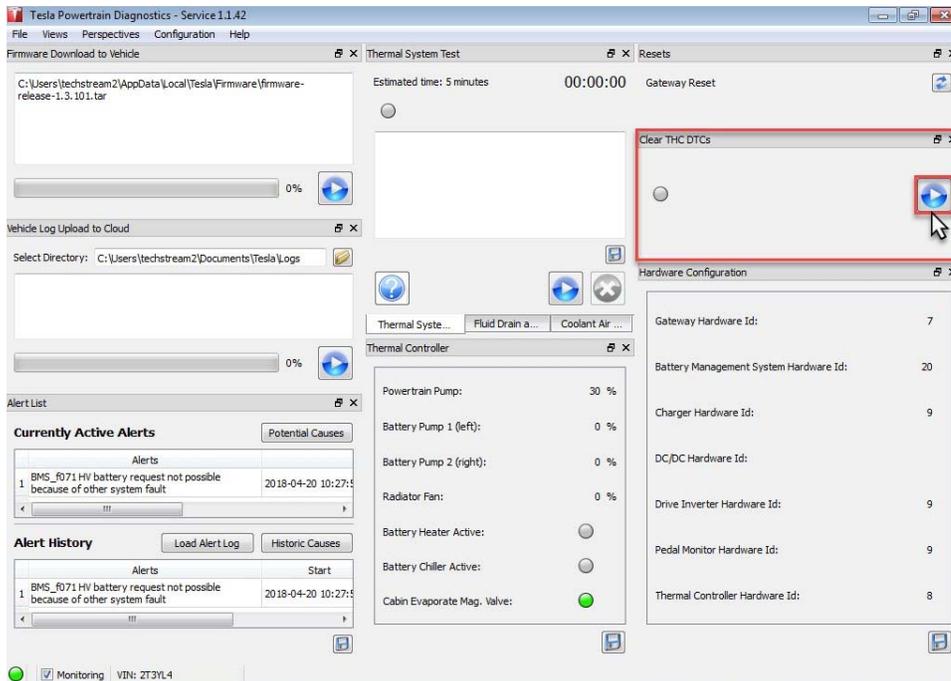


12. Clear THC DTCs

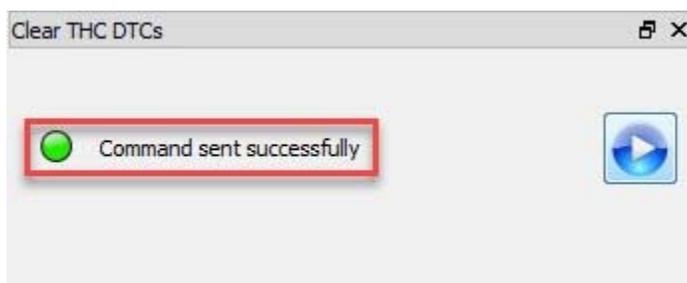
Description:

This function is used to clear DTCs from the Thermal Controller (THC).

1. On the right side of the “Default” Perspective there is a box labeled “Clear THC DTCs”
2. Click on the blue Play button.



3. You will see the message “Command sent successfully” and the light change to green.



13. Vehicle Firmware Update

Description:

For improved vehicle performance/efficiency or to correct an operation issue, it may be necessary to update the vehicle firmware (similar to Toyota Calibrations). There are two processes that will inform the user of a needed update.

NOTE: Please reference the related TSBs prior to beginning any software update for this vehicle.

13.1 Using Techstream Software – This process is the same as other Toyota vehicles.

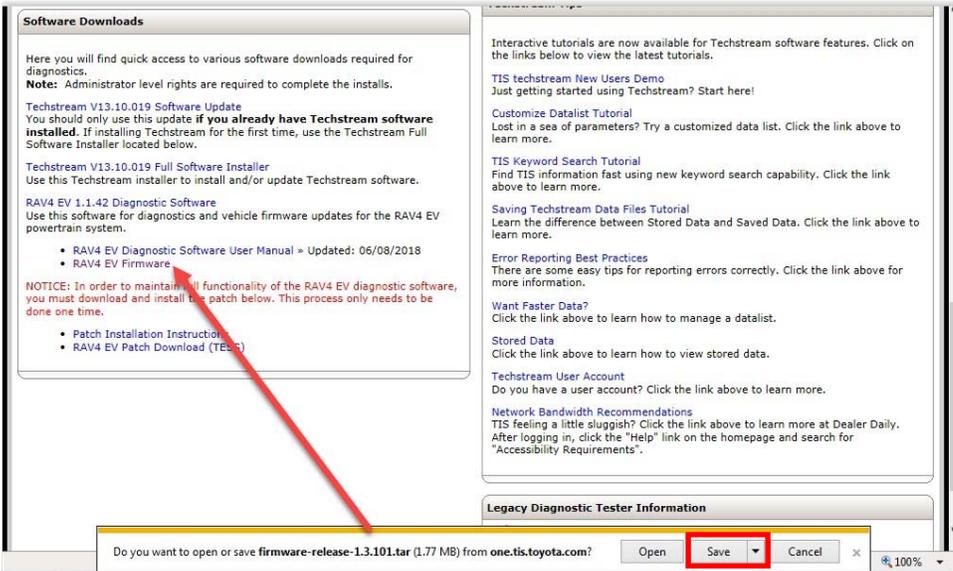
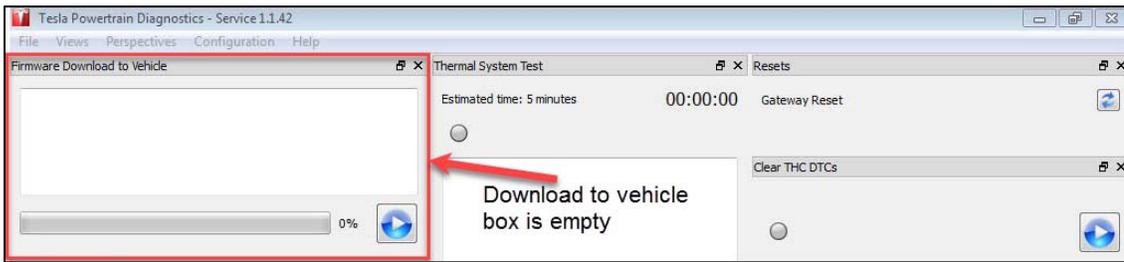
- a. Perform a Health Check.
- b. Electric Propulsion Control System – Check the Update column for “Yes” flag.
- c. Clicking “Yes” will launch TIS, automatically searching for the calibration, and display the link for the TSB.
- d. Opening the TSB will give instructions on connecting the RAV4 EV Diagnostic Tool (please see below for instructions using this tool).

13.2 Using the Tesla Powertrain Diagnostics RAV4 - Service software.

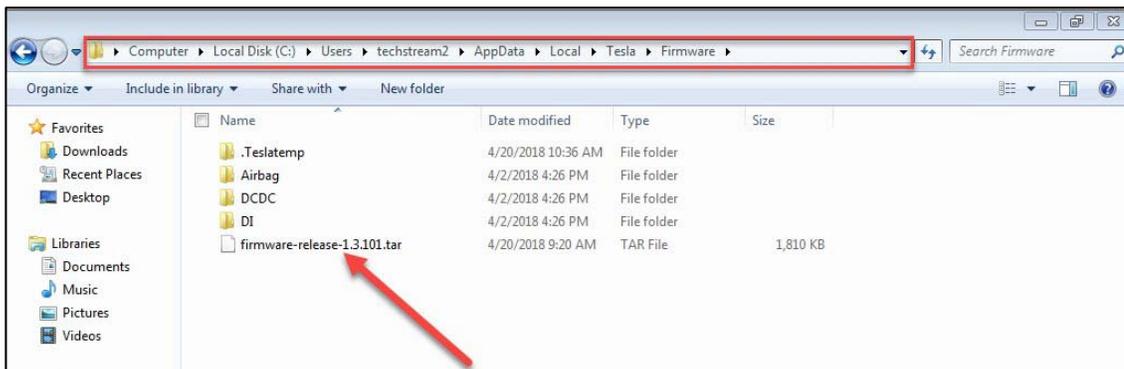
- a. Connect Vehicle Communication SST (see Diagnostic Cable Kit section for instructions).
- b. Launch the Tesla Powertrain Diagnostics RAV4 - Service Software (see Launching Software section for instructions).
- c. Software will attempt to update. If no firmware is currently installed on the PC, the Firmware Download to Vehicle box will be empty. Refer to section **13.3** to download the firmware from TIS.
- d. If OK, a pop-up window will notify the user of a vehicle firmware update. Clicking “Yes” will switch to the Firmware Download tab.
 - i. If the update is to be performed later, select No and select the Firmware Download tab when needed. (See Change Perspective section for instructions)
 - ii. The firmware file will be displayed in the window. Press the blue Play button.
- e. Cycle the ignition On (Ready OFF).
- f. A message will appear when firmware update is complete (can take up to 15 minutes).

13.3 Download firmware from TIS.

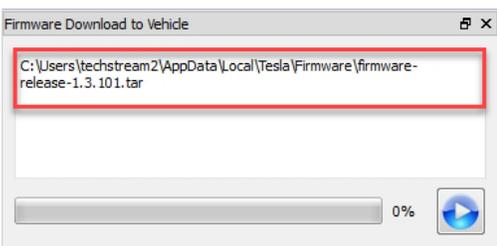
- a. If the Firmware Download to Vehicle box is empty in the Tesla Powertrain Diagnostic Software, download the .tar file from TIS. Location – TIS >> Diagnostics >> Scantool >> Software Downloads.



- b. Save file to the below location for Tesla Powertrain Diagnostic Software to locate-
C:/Users/*Your Computer Name*/AppData/Local/Tesla/Firmware
 (you may need IS support to get Admin rights to download)



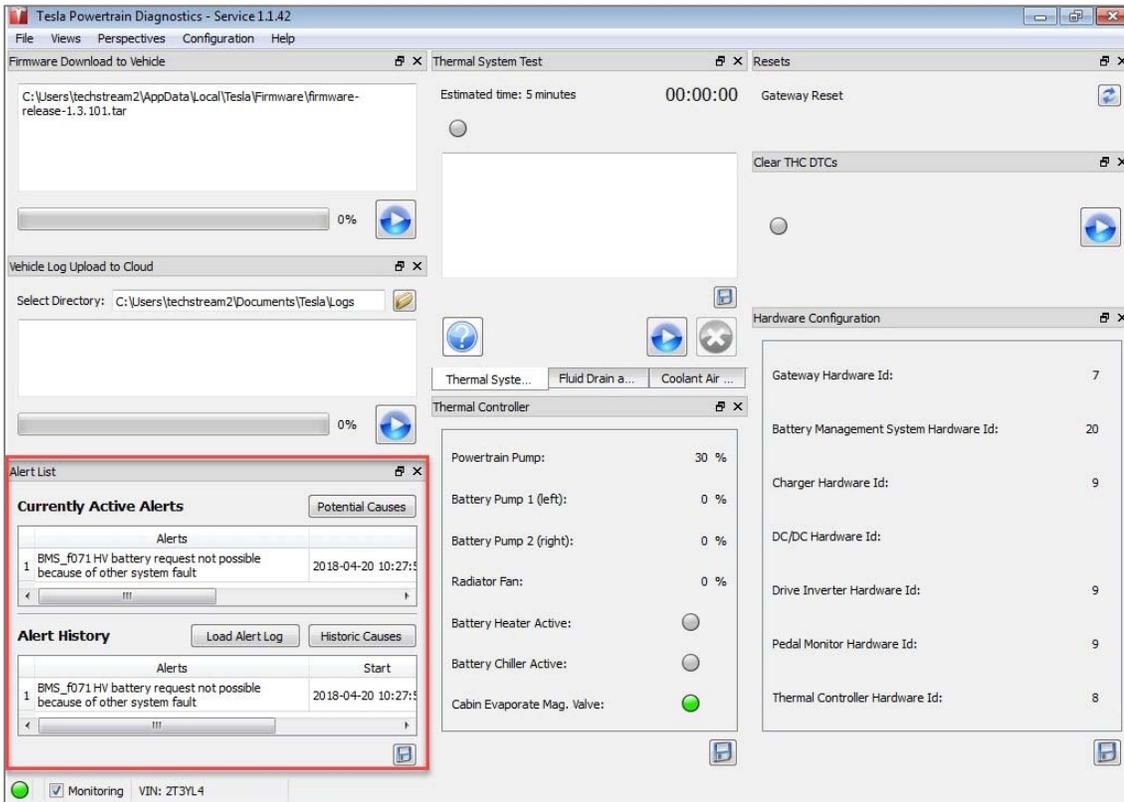
- c. Shutdown and restart the Tesla software. Once Tesla Diagnostic Software finds the .tar file, Firmware Download to Vehicle box will have some text.



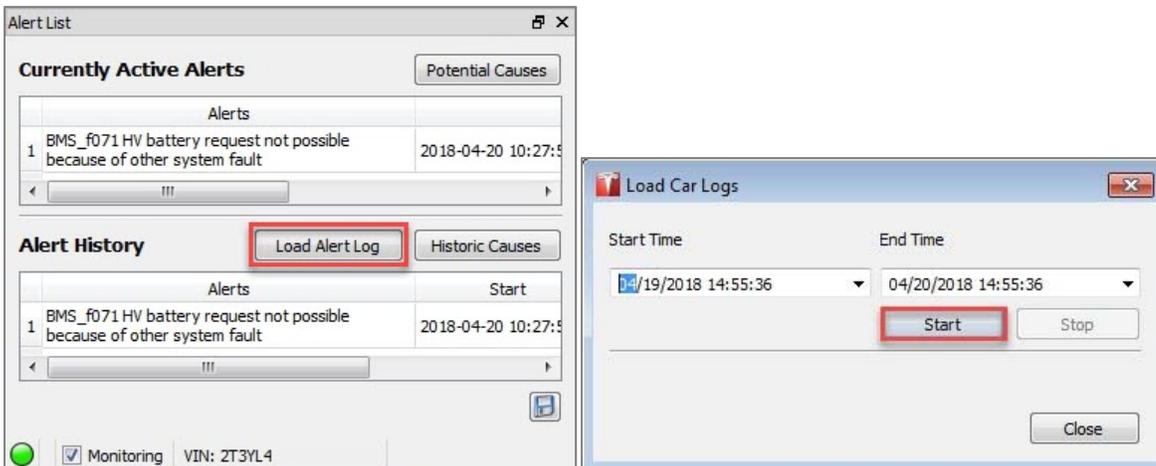
14. Pulling Alerts

Description:

The Tesla Powertrain Diagnostics RAV4 – Service software will allow you to view alerts. On the lower left side of the “Default” perspective you will see two boxes. The boxes are labeled “Currently Active Alerts” and “Alert History”. Any current alerts will be shown in the upper box.



Historical alerts can also be pulled from the “Alert History” box. Click on the “Load Alert Log” button. A Text box will pop-up asking for Start and End Time. Enter the Start Time and End Time from the drop-down calendars, then click Start.



Once the Alert Log is loaded, you will see the below pop-up message. If there are any historic alerts, they will now appear in the “Alert History” box.



15. Log File Upload

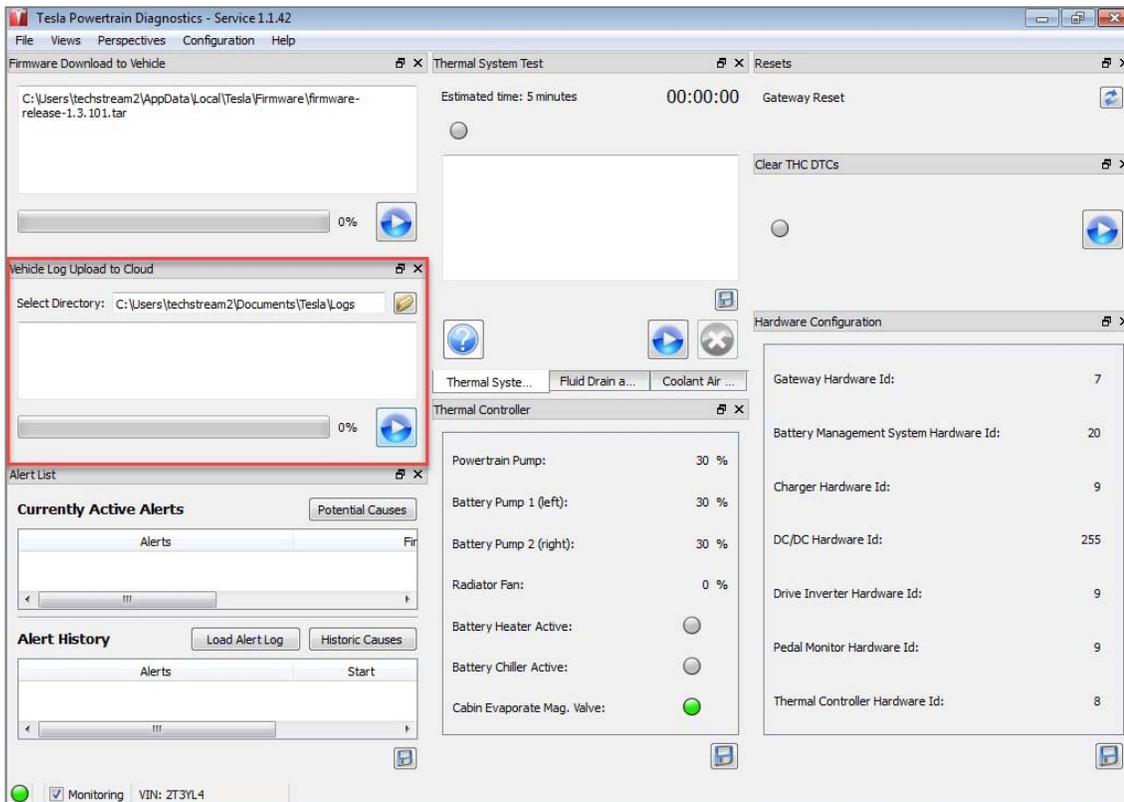
Description:

The Log File Upload function will be used per the request of the agent when calling to open a TAS Case. This information will be used by engineers to further diagnose issues on the vehicle.

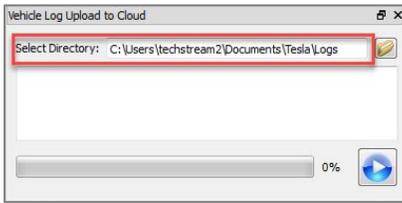
1. Locate the Wireless (WIFI) on/off switch under the cover on the left side of the Techstream unit and turn it off.



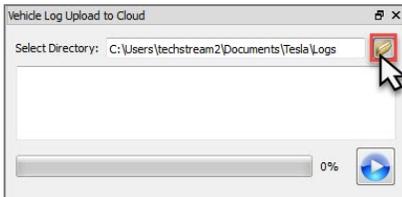
2. Locate the “Vehicle Log Upload to Cloud” box in the center of the left side in the “Default” perspective.



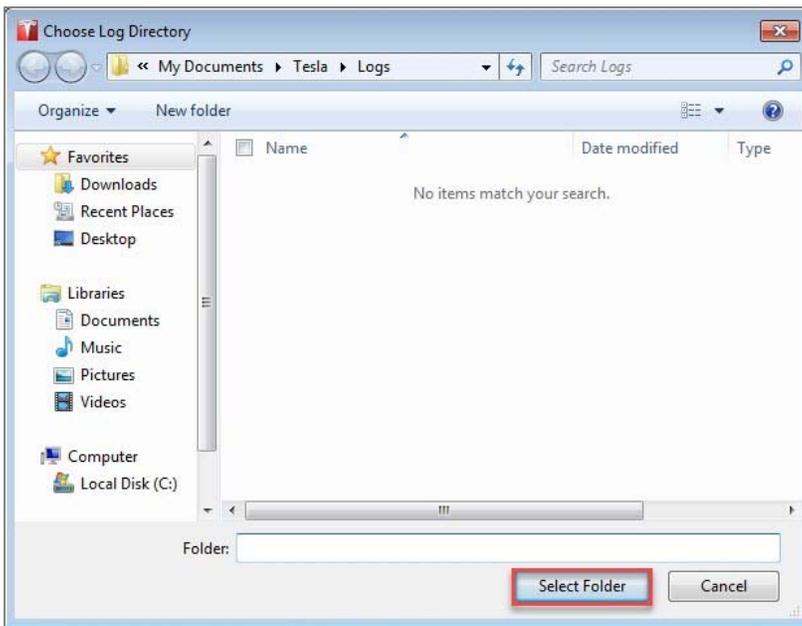
3. Confirm that the folder path is C:\Users\User Name\Documents\Tesla\Logs.



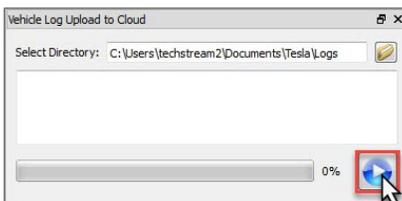
4. If that is not the current location, select the “Folder” icon, located in the top right hand side of the box.



5. Use the pop-up box to choose the correct log directory, and then click “Select Folder”.



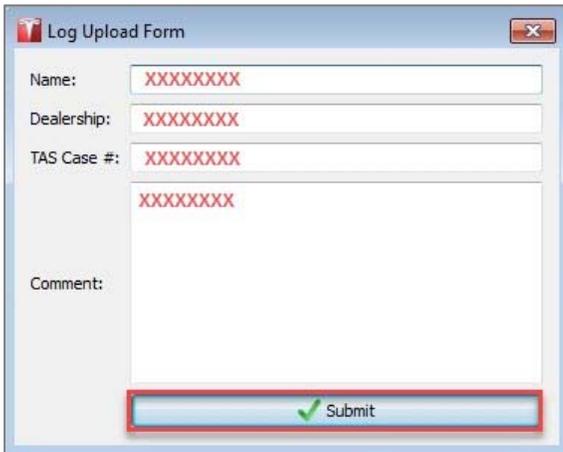
6. Click on the blue Play button to start the download.



7. When the below pop-up message appears, click on “Pull Tesla Format Log”.



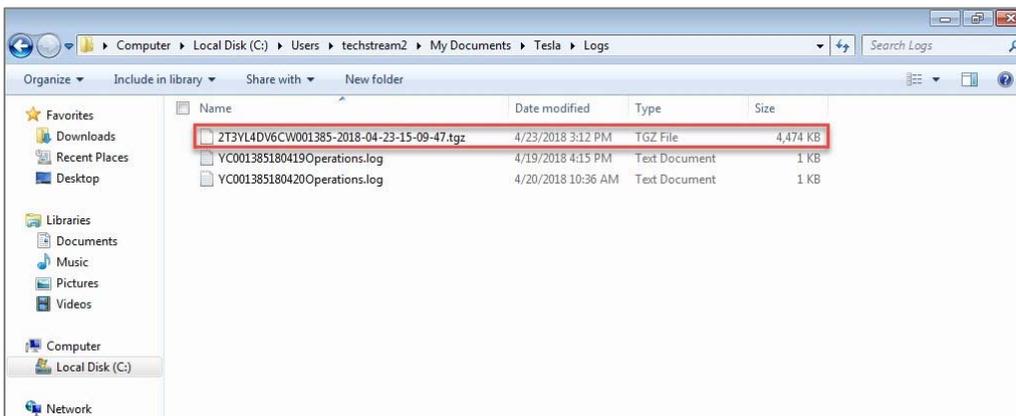
8. When the Log Upload Form appears, fill in all fields and click “Submit”.



9. Since the Wireless is turned off, you should see the following Error message. Click “OK”.



10. Locate the folder “Logs” at C:\Users\User Name\My Documents\Tesla\Logs. In that folder, locate the file with the VIN of the vehicle you are working on that ends with .tgz. You can also do a search in Windows Explorer using the VIN as a keyword and locate the file that ends in .tgz. **Email this file to TAS@toyota.com.**

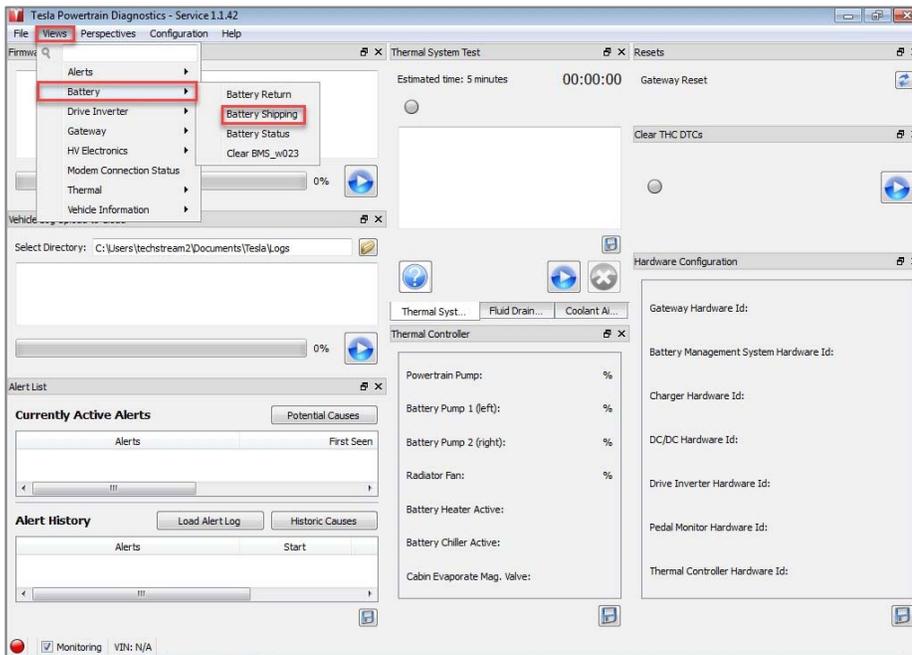


16. Battery Ship Screen

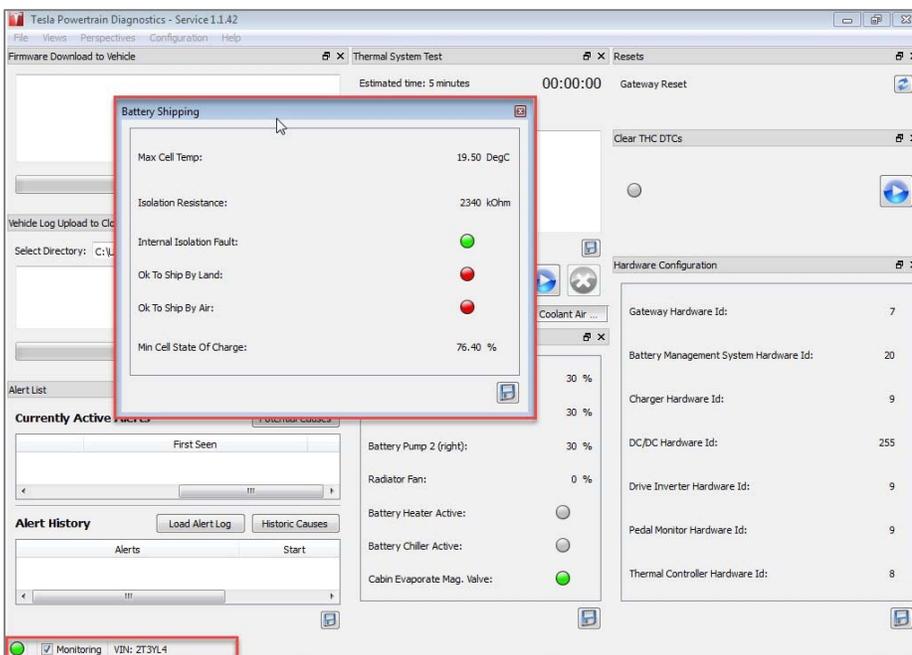
Description:

Whenever a battery needs to be shipped, you will need to send certain information to TAS.

1. Click on “Views” >> “Battery” >>”Battery Shipping.



2. When the pop-up below appears, make sure you can see the VIN and green light in the lower left corner. Take a screenshot or digital picture of the screen and send it to TAS@toyota.com.



17. Acronym Finder

Description:

This function is used to decipher the RAV4 EV specific acronyms. Review the entire list of acronyms or input one in the search box to jump right to it.

1. Click on “Help”.
2. Click on “Acronyms”

