WHY MY ADAPTER ISN'T WORKING

AND

WHAT TO DO ABOUT IT

VERSION: 1.4

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1. Table of Contents

2. Introduction and Excerpts from the RP1210B Document

2.1. RP1210B Background

TMC RP1210 has undergone two prior revisions, the original RP1210 Version 0 (commonly called RP1210-0), and RP1210A. The latest revision to take effect over the next several years called RP1210B presents mostly enhancements and additions to RP1210A as requested by OEM's, software development firms specializing in onboard vehicle communications, as well as manufacturers of VDA's. Many loopholes were fixed in RP1210B.

2.2. RP1210B, Backwards Compatibility, Operating Systems

For the most part, RP1210B remains backward compatible with RP1210A. The only real exception is that the J1850 support (that not many people were using) got completely defined in RP1210B. Something to note is that most VDA vendors and application providers are slowly getting rid of support for Windows 95/98/NT, and Millennium Edition (Me). You should also note that with the addition of Windows Vista, there are many places for problems than we have had in the past. We'll cover this in more detail later.

2.3. The Term "RP1210B-compliant"

In previous versions of RP1210, no mention was given to the phrase "RP1210-compliant". This ultimately led to some confusion in the marketplace as to what that phrase actually meant. The following sections define what it means to be an RP1210B-compliant VDA and what it means to be an RP1210B-compliant software application.

> In general, any RP1210B-compliant application should work with any RP1210B-compliant VDA for their commonly supported operating systems and protocols.
>
> RP1210B-compliant does not mean that a software application or VDA vendor "must", "will", or "even should", support all operating systems and protocols or even any produced adapter.

2.3.1. An RP1210B-Compliant VDA

An RP1210B-compliant VDA:
- ❖ Specifically follows the RP1210B document for that vendor's supported operating systems and protocols.

2.3.2. An RP1210B-Compliant Application

An RP1210B-compliant software application:
- ❖ Is any software application that implements and specifically follows the RP1210B document for that vendor's supported operating systems and protocols.
- ❖ Will present to the user a "complete" list of adapters installed in the C:\WINDOWS\RP121032.INI file.
  - o In the past, applications failed to read past the first several entries, or failed to read the INI file correctly if it had multiple commas or spaces in it. More later.
- ❖ In addition to presenting the user with a "complete" list of adapters installed, any RP1210B-compliant application "shall allow" a user to use any of those adapters.
  - o Some applications only have a select few adapters that they "allow", thereby reducing VDA marketplace competition. More on this later.

2.4.   RP1210B-Compliant Application and "Supported VDA's"

The three major VDA vendors that authored this document pride themselves in following the RP1210 specifications to the letter. Most of the problems arise with the main RP121032.INI file (discussed in detail later) or with configuring an application to use the adapter. Other applications only "support" or "allow" the user to select only a few adapters (this is why your adapter may not be seen in the adapter configuration boxes). Other applications limit what a generic RP1210-compliant adapter can do (such as not allowing reprogramming). When it comes down to technical support dollars, it is easy to understand that application developers want to control which adapters they "support". No application provider wants to "have" their technical support representatives supporting "all" adapters on "all" PCs and on "all" operating systems.

Does RP1210B-compliancy mean that an application "has to support" (meaning doing extensive testing and validation of) all of the adapters? In short, the answer is "no", they only have to allow the selection and use of all the adapters. The application developer can get around having to spend an enormous amount of testing and support by clearly stating that they will only "support" a specific list of adapters on a "specific type of PC" and on a "specific operating system". In order to keep from falling into a major time-eater situation, if an "outside-the-supported-list" adapter does not work, then they tell the user to aquire one of the supported adapters.

2.5.   Post Fall-2007-TMC-Nashville Notes on RP1210B-Compliancy

S.12 created a task force at the Fall-2007 meeting in Nashville tasked with developing an RP1210 "compliancy worksheet" for both VDA's and applications. This RP will be short of a formal "RP1210 Test Plan", but will be more of a "requirements" document (foundation for your own formal test plan). RP1210 "compliancy" will be self-administered by each company. Lee Lackey of Noregon Systems (llackey@noregon.com) has volunteered to be the task force chairman. This is great news for fleets and independent service shops!

3.   Who's Who in the World of the VDA

The top three VDA vendors, their "current" flagship adapter, and their legacy adapters are listed below in alphabetical order. Most application developers for OEM/engine/transmission/ABS develop, test, and validate against adapters from these manufacturers.

It is also noteworthy to mention that application developers have kept a very close watch on all of these adapters "through the years" and have designed and validated their code to work with these adapters. There are other "non-top-three" adapters on the market, some from very recognizable companies, but application developers typically test with the "big three" because "they are the ones out there". OEMs and component suppliers wanting name branded adapters tend to go with these companies as well. We are not stating that a "non-top-three" adapter will not work, only that it may not be extensively tested by the OEM application developers.

Typically, you cannot go wrong with a "late model" (5 years old or less) adapter from any of these companies as each product is fairly mature and has been tested very thoroughly with all of the current diagnostic software. Since these VDA vendors each work well with the diagnostic software on the market, they generally compete in the arena of "speed of reprogramming", "means of connecting to the PC", "ease of install", "ruggedness", "number of protocols supported", "customer service", etc…

Vendor	Current "Flagship" Adapter	Legacy Adapters
Dearborn Group (DG)	Dearborn Protocol Adapter (DPA) 4+	DG DPA III, III+ DG DPA 4 DG DPA-RF
NEXIQ Technologies (NT)	USB-Link	NT Lite-Link NT Blue-Link NT USB-Link NT/MPSI PDM
Noregon Systems (NS)	DLA_USB	NS DLA (Parallel / Serial) NS DLA_USB NS PLC/J1708 Adapter

4. Notes Given to Application Developers

Although it does not mean much to the fleet or independent service bay, it bears mentioning some of the notes that were given in RP1210B to the application developers. Because of these notes, your future RP1210 experience should be simpler and less "eventful", meaning less tech support "down-time".

4.1. "Least Common Denominator" Development

If the deployment of a software application requires potential compatibility with all VDA's (total RP1210B-compliancy), then the application must be designed based upon the lowest common denominator of adapter performance.

4.2. Windows Vista and RP1210B-Compliancy

Microsoft's deployment of Windows Vista™ has caused a lot of concern in the RP1210 task force. With Vista, Microsoft has basically "virtualized" the "C:\WINDOWS" and "C:\Program Files" directories (possibly other directories unknown at the time of this writing). Microsoft Vista supposedly makes the PC more friendly and secure for multiple users on the same PC. Much task force discussion was around either going to the registry, or to XML files. It was determined that neither would be required if we did the following two things:

4.2.1. RP1210B-Compliancy for VDA Vendors and Windows Vista

To be considered RP1210B-compliant:

❖ VDA vendors will require that the person who installs the drivers on a Windows Vista machine be logged in specifically as "Administrator".

❖ VDA vendors will install their drivers for "ALL USERS", not just the current user.

4.2.2. RP1210B-Compliancy for Application Developers and Windows Vista

To be considered RP1210B-compliant:

❖ Application developers will also require that the person who installs their application on a Windows Vista machine be logged in specifically as "Administrator".

❖ Application developers will also require that their applications be installed for "ALL USERS", not just the current user.

If all VDA and all application developers cooperate, we will reduce the frequency of unnecessary technical support calls, as there could be 5-6 (even more) copies of the same driver or application on a single PC. What is worse is that they could be different versions. An extremely simple example:

❖ Technician1 installs VDA Vendor1 drivers at version 1.0, and Technician2 installs VDA Vendor1 drivers at version 2.0 (a release that included "major" bug fixes from version 1.0).

❖ Technician1 encounters a problem with Application1 (and "buggy" VDA drivers at version 1.0). He asks Technician2 to try the application and it works perfectly (wasting time for the technician and costing the fleet money).

❖ Technician1 calls the technical support line for Application1, and the people responsible for Application1 spend hours trying to track down the problem. This costs both the fleet money, as well as the developers of Application1, not to mention VDA Vendor1 if the problem gets escalated to them!

5. The Majority of Problems – C:\WINDOWS\RP121032.INI

Many of the problems that occur today are a direct result of problems with the file "c:\windows\RP121032.ini". But before we go into INI problems, it makes sense to give a high level overview as to how RP1210 works.

5.1. High-Level RP1210 Interface Conceptual

The following is a diagram of how the RP1210B model is implemented. It allows VDA vendors to focus primarily on their adapters and allows application developers to focus primarily on their application. This benefits customers of both!

❖ The RP1210B application developer is interested in only the "RP1210B Application" box.

❖ The RP1210B VDA manufacturer is only responsible for the API, the DLL, the VDA Drivers, and the physical interface device (VDA).
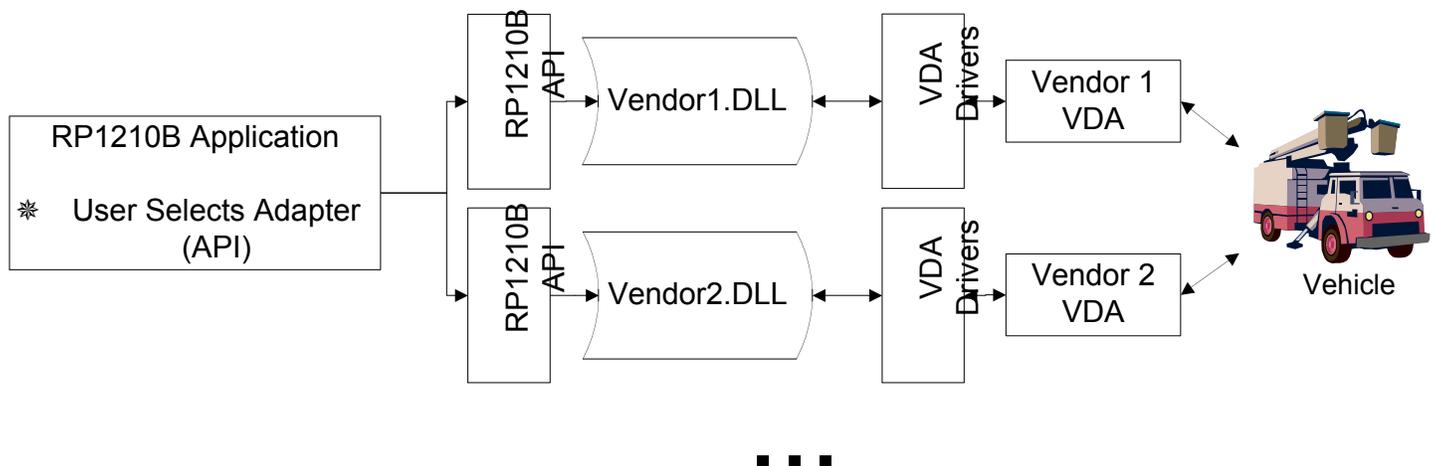
5.2. INI File Background

RP1210 was developed back in the Windows 3.1 days when INI files were in use by all applications and devices. There simply was not a "Windows Registry". Most people reading this probably remember editing an INI file in Windows 3.1 or Windows 95. Even though Windows has moved on to a "registry", and now moving to an XML type of hybrid, RP1210 has remained an INI based standard. If you think it would be fun trying to explain to an end-user how to use the Windows "notepad" to edit an INI file, try explaining one how to use the Windows "regedit" tool (a tool that could potentially keep the PC from even booting up). Trust us, INI files are much easier!

5.3. The INI File Structure of RP1210 (Main INI File – Vendor INI Files)

Master INI File
Pointers to Vendor INI and DLL Files

```
C:\WINDOWS\RP121032.INI

[RP1210_Support]
APIImplementations=AAARP32,BBBRP32
```

Vendor INI File(s)
Also in C:\Windows

```
AAARP32.INI

[VendorInformation]
Name=AAA Systems
...
```

```
BBBRP32.INI

[VendorInformation]
Name=BBB Company
...
```

Vendor DLL File(s)
Also in C:\Windows

AAARP32.DLL

BBBRP32.DLL
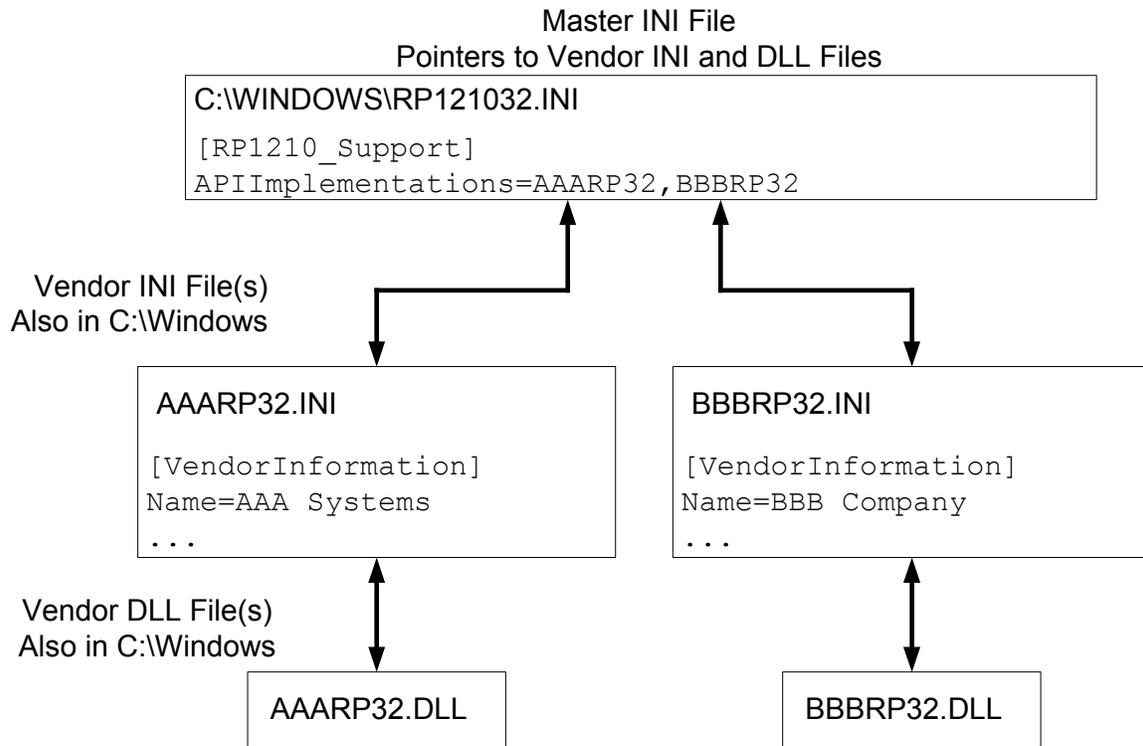
5.4. How the RP1210 INI System Works

There is a "primary" or "master" INI file called C:\WINDOWS\RP121032.INI. There is only one section [RP1210_Support] and only one variable called "APIImplementations". This variable points to all installed RP1210 VDAs on the PC and is only modified when a VDA is installed or uninstalled. In the above picture, you see that vendor AAA and BBB had VDA devices installed on the PC. These entries point to VDA provided INI files, but these INI files are very involved, and tend not to get "mangled", so we will not cover them.

The "normal" format of the RP121032.INI file is as follows:

```
[RP1210Support]
APIImplementations=[vendor_1],[vendor_2],...,[vendor_n]
```

Each $vendor_i$ identifies the name of the vendor INI and vendor DLL file associated with the vendors' VDA API.

A "typical" and "good" RP121032.INI file showing a Dearborn, a NEXIQ, and Noregon API is as follows:

```
[RP1210Support]
APIImplementations=DG121032,NXULNK32,PCSRP32
```

5.5.   How An RP1210-Compliant Application Uses the INI File Structure

When an RP1210-compliant application initializes, it completely reads the variable APIImplementations from the [RP1210_Support] section of the RP121032.INI file. It then starts breaking that variable down into single instances of installed adapter APIs ("DG121032", "NXULNK32", "PCSRP32", etc). For each API, it reads that adapters INI file ("DG121032.INI", "NXULNK32.INI", "PCSRP32.INI", etc) and builds a list of adapters and protocols supported. The application then presents a list to the user of all of the adapters that it found.

5.6.   Problem - Multiple Commas/Spaces in RP121032.INI

In 2007, it was noted by VDA vendors that they have been spending a lot of time doing technical support because VDA vendors were leaving multiple commas or spaces in the RP121032.INI file during an install or uninstall. These spaces, commas, and commented lines have caused OEM application developer's issues by not seeing all VDA entries in the file. Thusly, when an end-user installed an adapter ("any adapter") and was not allowed to select it, that adapter manufacturer received a tech support call even though it "was not their problem".

RP1210B states that VDA vendors shall ensure that when their drivers are installed or uninstalled, that there are no stray commas or spaces remaining in the RP121032.INI file. If spaces are stray commas are seen, the VDA install/uninstall application will fix them, not leave them there for someone else's tech support department to find. Also, application developers should ensure that when they parse the RP121032.INI file that they completely parse the entire line and not just the first 'x' number of entries. Application developers should be aware that multiple commas and potentially spaces could be left in the file.

Although these changes will occur as VDA vendors and application developers roll out RP1210B versions, you as the end-user may end up having to deal with INI problems.

5.6.1.   A Bad (But Typical) C:\WINDOWS\RP121032.INI file

The following shows an INI file in a "mangled" state. Who knows what happened…

```
[RP1210Support]
APIImplementations= ,xxxxxx32, yyyyyy32,, ,zzzzzz32,   ,aaaaaa32
```

5.6.2.   Fix it Using Windows Notepad!

From the Windows Start Menu choose "Start->Run" and then type "notepad.exe c:\windows\rp121032.ini" in the dialog box and click Ok. Make the INI file look like it should be removing spaces, extra commas and commented lines. The bad INI file should look like the good one (below). Do a "File ->Save" and exit Notepad.

NOTE: Only do this if you are very familiar with notepad. If you were to remove an entry, you would not see that entry in your applications. Also, removing anything in the file up to the "=" could have disastrous results.

```
[RP1210Support]
APIImplementations=xxxxxx32,yyyyyy32,zzzzzz32,aaaaaa32
```

5.7.   Problem – Applications Not Seeing Installed Adapters

This one has been causing problems for several years! Check the above paragraph and ensure that the INI file is the way it should be (no extra commas or spaces). After checking that, there are still some applications that do not present the user with a complete list of all installed adapters. Some applications in the past have only shown the first adapter in the list. Because the problem may still exist with legacy software installed on your PC, we are going to show you how to "fix" the C:\WINDOWS\RP121032.INI file so that the adapter you need to use will be seen. We are going to change the INI file so that vendor "aaaaaa" gets to be first in the list. This still does not fix the problem of an OEM application that only "allows" certain adapters to be used.

5.7.1.   Fix it Using Windows Notepad!

From the Windows Start Menu choose "Start->Run" and then type "notepad.exe c:\windows\rp121032.ini" in the dialog box and click Ok. Make the INI file look below (don't forget to check for and remove extra spaces, extra commas and commented lines). The initial version of the INI file might look like the one below.

```
[RP1210Support]
APIImplementations=xxxxxx32,yyyyyy32,zzzzzz32,aaaaaa32
```

Make it look like the following:

```
[RP1210Support]
APIImplementations=aaaaaa32,xxxxxx32,yyyyyy32,zzzzzz32
```

Do a "File->Save" and exit Notepad. Next, try again to configure the application to see the adapter.

SHOULD THIS NOT GET THE ADAPTER SEEN BY THE APPLICATION, CALL YOUR APPLICATION PROVIDER.

6. Problem/Solution - Number of Client Connections

In RP1210A, each VDA vendor must support a minimum of 16 clients (connections), but was not clearly defined as to how these "clients" were connected. In RP1210B, we have specified that these clients can be from different applications, not just one application using 16 clients. Some adapters do not support multiple applications.

6.1. Symptom

Try to connect to an application and get an error such as:

ERR_CLIENT_ALREADY_CONNECTED
ERR_CLIENT_AREA_FULL
ERR_CONNECT_NOT_ALLOWED
ERR_DEVICE_IN_USE
ERR_INVALID_DEVICE
ERR_MULTIPLE_CONNECTIONS_NOT_ALLOWED_NOW

6.2. Potential Solution

If you are using an adapter that does not support multiple applications, ensure that you have not "minimized" another application into "the background", or commonly referred to as the "Windows task-bar". If so, close all open diagnostic applications and retry. Before calling the VDA vendor, try a clean reboot of the system, as the VDA drivers sometimes get "hung" (it happens to all VDA drivers from time to time).

7. VDA Adapters Require Installing Drivers!

Believe it or not, VDA vendors still get calls from customers who have not even installed the drivers for their VDA. They tell us that they expected that when they plugged it in, that it would work! Although it seems that even though the PC has been in the service bay for years and that "installing drivers" is routine, the reminder still needs to be given. How are VDA vendors calling attention to this?

NEXIQ Technologies PLACES A STICKER OVER THE USB PORT ON THEIR ADAPTERS THAT STATES TO INSTALL DRIVERS FIRST.

Noregon Systems HAS A "QuickStart Guide" THAT IS THE FIRST THING SEEN WHEN YOU OPEN THE PACKAGE THAT STATES TO INSTALL DRIVERS FIRST.

Dearborn Group WILL BE DOING BOTH STARTING WITH THE DPA5.

Each of the three VDA vendors place the latest VDA drivers on their websites:

http://www.dgtech.com
http://www.NEXIQ.com
http://www.Noregon.com

8.   You Have to Configure the Application to Use the VDA!

Believe it or not, VDA vendors still get calls from customers who do not know that they have to configure applications to use the adapter they just installed. Although we understand that some users have been "spoiled" because some applications do an "auto-detect", most applications still require you to configure the adapter. The following section shows how to configure an application to use vendor "VENDOR NAME" and device "DEVICE NAME AND/OR DEVICE NUMBER".

8.1.   Allison DOC

1. Start program.
2. Click "Connect to Vehicle".
3. Select the Correct Transmission Type.
4. Uncheck "Smart Connect".
5. Click "Connect".
6. Click "Advanced Setup".
7. Select vendor of "[VENDOR NAME]".
8. Select protocol of "J1939" or "J1708".
9. Select correct device of "[DEVICE NAME AND/OR DEVICE NUMBER]".
10. Click "Ok".

8.2.   Bendix ABS Diagnostics

NOTE: DO NOT RUN Bendix ABS Diagnostics until you have done the following:

1. Start program.
2. If "Diagnostic Interface Selection" dialog box does not appear, click on "Vehicle Interface Adapter" icon.
    a.   Select "RP1210A Device Using J1708 Line: [DEVICE NAME AND/OR DEVICE NUMBER]"
3. Click Ok.

A screen appears indicating that device selection was a success.

8.3.   Caterpillar Electronic Technician

1. Start Program.
2. Click "Utilities ➔ Preferences ➔ Communications" from the menu bar.
3. Click on "Communication Interface Device" dropdown box.
4. Select "RP1210 Compliant Device".
5. Click "Advanced"
6. Select "([DEVICE NAME AND/OR DEVICE NUMBER])" in the RP1210 Communication Adapter Device box.
7. Click Ok
8. Check "Enable Dual Data Link Service"
9. Click Ok.

8.4. Cummins Insite

1. Start Program.
2. Click on "File ➔ Connections ➔ Add New Connection".
3. Click "Next".
4. Click radio button for "RP1210A" and click "Next".
5. Select correct device ([DEVICE NAME AND/OR DEVICE NUMBER]), and protocol you want to use, J1708/J1939.
6. Click "Next" and a "Connection Name" screen appears.
7. Click Next and a screen prompts you to indicate whether you want to make this connection active or set up another connection.
8. Click on "*make this connection active*".
9. Click Finish.

8.5. Detroit Diesel Diagnostic Link V7

8.5.1. From Windows Start Menu

1. Start ➔ Programs ➔ Detroit Diesel ➔ Diagnostic Link ➔ SID configure
2. Select "[DEVICE NAME AND/OR DEVICE NUMBER]".
3. Click Ok.

8.5.2. From Inside DDDL

1. Tools ➔ Options ➔ Connections Tab ➔ SID Configure.
2. Select "[DEVICE NAME AND/OR DEVICE NUMBER]".
3. Click Ok.

8.6. Eaton ServiceRanger 3.x

1. Start Program
2. Click "Tools ➔ Settings ➔ Connection".
3. Under "Driver" choose "[VENDOR NAME]"
4. Select "[DEVICE NAME AND/OR DEVICE NUMBER]" for both the J1708 and J1939 device.
5. Click Ok.

8.7. Freightliner ServiceLink

1. Start program.
2. From the top menu bar, choose "Admin".
3. From the left menu bar, choose "Vehicle".
4. Click on "Show All Devices".
5. In the "Vendor" box, choose "[VENDOR NAME]".
6. Select "[DEVICE NAME AND/OR DEVICE NUMBER]" in the J1708, J1939, and CAN dropdowns.
7. Click "Save Settings".

8.8. International Truck and Engine

8.8.1. MD

File ➔ MD Settings➔ COM Device ➔ Window with general VDA selection
"[VENDOR NAME]" ➔ Window with specific port "[DEVICE NAME AND/OR DEVICE NUMBER]"

8.8.2. Navistar Hyd ABS

File ➔ Hydraulic ABS Settings ➔ COM Device ➔ Window with general VDA selection
"[VENDOR NAME]" ➔ Window with specific port "[DEVICE NAME AND/OR DEVICE NUMBER]"

8.8.3. Navistar IPC

File ➔ Settings ➔ COM Device ➔ Window with general VDA selection
"[VENDOR NAME]" ➔ Window with specific port "[DEVICE NAME AND/OR DEVICE NUMBER]"

8.8.4. Diamond Logic Builder (DLB)

Tools➔ Select Com Link ➔ Listing of adapters "[VENDOR NAME]" ➔ Listing of ports"[DEVICE NAME AND/OR DEVICE NUMBER]"

8.8.5. Service Assistant (The New MD - Should Be in Marketplace Shortly)

Press third button from the top along the left side (has an icon that
looks like a miniature interface cable.) ➔ A window comes up that says
Communication Device Selection and has two drop down boxes. Box 1 is
device selection "[VENDOR NAME]" Box 2 is Device ID "[DEVICE NAME AND/OR DEVICE NUMBER]"

8.9. Meritor-WABCO ABS Toolbox

1. Start Program.
2. Click "System Setup"; then select "COM Port".
3. Select "[VENDOR NAME]", the protocol to use J1939 or J1708.
4. Select [DEVICE NAME AND/OR DEVICE NUMBER] and click Ok.

8.10. Volvo/Mack VCADS Pro

8.10.1. From Initial VCADS Setup

1. When prompted to configure a "Communication Unit", instead of the "9998555" or "88890020" entries, select "RP1210A adapter".
2. When prompted for the adapter, select "[DEVICE NAME AND/OR DEVICE NUMBER]".
3. Select "USB" for the Port.
4. Select "J1708 for the protocol".
5. When prompted for the "Electrical Systems".
   a. Click "Volvo Trucks – VERSION2" and select "RP1210A Adapter"
   b. Click "Volvo Trucks – Vehicle electronics '98" and select "RP1210A Adapter"
   c. Click "Mack Trucks – V-MAC I/II/III, ITC" and select "RP1210A Adapter"
   d. Click "Volvo Trucks – V-MAC IV" and select "RP1210A Adapter"
6. Continue with installation.

8.10.2. From Inside VCADS

7. Start Program.
8. Click the "Tools" menu and choose "Options".
9. Select the "Comm. Unit Configuration" tab.
10. Select "RP1210A Adapter" and then select "[DEVICE NAME AND/OR DEVICE NUMBER]".
11. Select "USB" for the Port.
12. Select "J1708 for the protocol".
13. Go to the "Comm. Unit Selection" tab.
   a. Click "Volvo Trucks – VERSION2" and select "RP1210A Adapter"
   b. Click "Volvo Trucks – Vehicle electronics '98" and select "RP1210A Adapter"
   c. Click "Mack Trucks – V-MAC I/II/III, ITC" and select "RP1210A Adapter"
   d. Click "Volvo Trucks – V-MAC IV" and select "RP1210A Adapter"
14. Click "Ok".

8.11. Volvo/Mack Premium Tech Tool (PTT)

Select Settings from the PTT menu.

Communication Unit configuration tab: ➔ It is here that you select the settings for each adapter that you may use. For example, if you have an RP1210A adapter, it is here that you select which adapter, port, and protocol.

NOTE: This identifies the settings for each adapter. It does not select which adapter the PTT application will use to communicate with the vehicle.

Comm unit selection tab: ➔ It is here that you identify which adapter is to be used by the PTT application to communicate with the vehicle. You may have to change this selection depending upon the vehicle. For example, if you typically use an 88890020 adapter in direct mode, when you need to communicate with an older vehicle you will need to change to RP1210A adapter or the 9998555 adapter, depending upon the vehicle.

9.   Connect and Un-Connecting on the DB Side of Cable

There can be electrical problems when you connect and disconnect the D-Shell DB-15 or DB-25 cable from the adapter WHILE THE CABLE IS STILL CONNECTED TO THE TRUCK AND THE TRUCK IS HOT (ON). Be aware that the power and ground connectors are sometimes close together and the VDA vendors have seen "sparks fly".

The recommendation is to always use the Deutsch connector to connect/disconnect from the vehicle.

10. Two USB Port Issues – Not VDA Issues

10.1. VDA Drivers are NOT Microsoft Certified

If you plug in a VDA (or any other USB device) that does not have "Microsoft Certification" associated with it (none of the three VDA vendors do) into a different USB port than where it was installed the first time, you are going to get the "New Hardware Found" wizard again. No need to contact technical support, choose "Install the software automatically (Recommended)" and press the "Next" button and follow instructions. For the small quantities in the heavy-duty adapter marketplace, it is cost-prohibitive for a VDA vendor to pay the exorbitant amount of money that Microsoft wants to get them "certified". Hitting cancel when seeing this is a sure-fire way for your adapter "not to work".

10.2. Inherent USB Port Problems on PCs

Another common USB trait sometimes causes a VDA to lose communications with the PC. If you lose PC communications, before calling the VDA vendor:

1. Unplug the USB cable from the VDA.
2. Unplug the vehicle-side cable from the truck (ensure power is off for 3-5 seconds).
3. Plug the USB cable into the VDA.
4. Reconnect the VDA to the truck.

11. Before You Call Your OEM Application Help Desk

Before calling your OEM Application help desk, you should validate that the adapter you are using can be "connected to" (seen by the PC) and "can see message traffic" (meaning an application should be able to do the same). To do this, you would use an adapter validation application, which are commonly available for free from your VDA vendor. We will cover two of them, one from Dearborn Group, and one from NEXIQ. Noregon Systems has several applications that they use depending on which issue you have and they will e-mail it to you when needed.

11.1. Dearborn Adapter Validation Tool (Commonly Called "RapidCheck")

AVT is a completely RP1210-compliant application that will work with ANY RP1210-compliant device and ANY RP1210-defined protocol. This makes it easy for the end-user with any adapter to ensure that the PC can read data. The main screen, showing a successful connect and a successful reading of data is below. Start by selecting the vendor, device and protocol you would like to try, and then click "Run Test".

11.1.1. Good Connect, Good Reading of Data
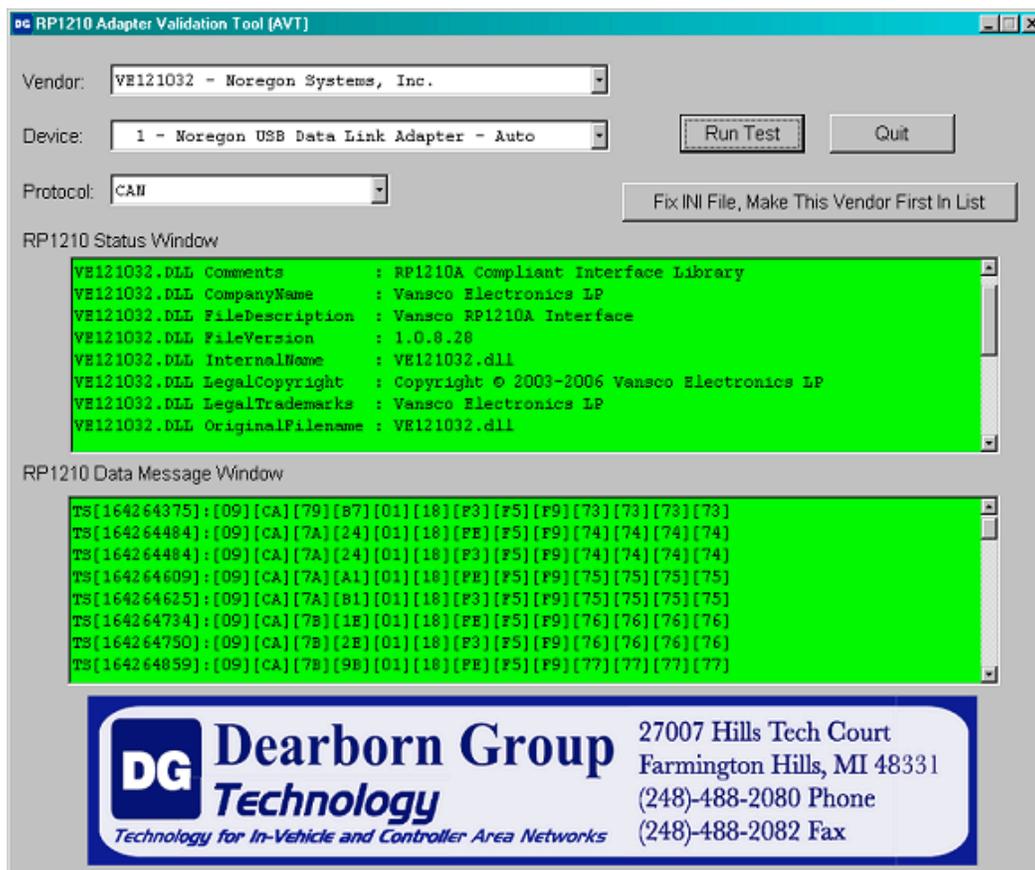
11.1.2. Good Connect, No Reading of Data

The following screen shows that the AVT was able to connect ("see") the adapter, but did not see traffic on the data bus.
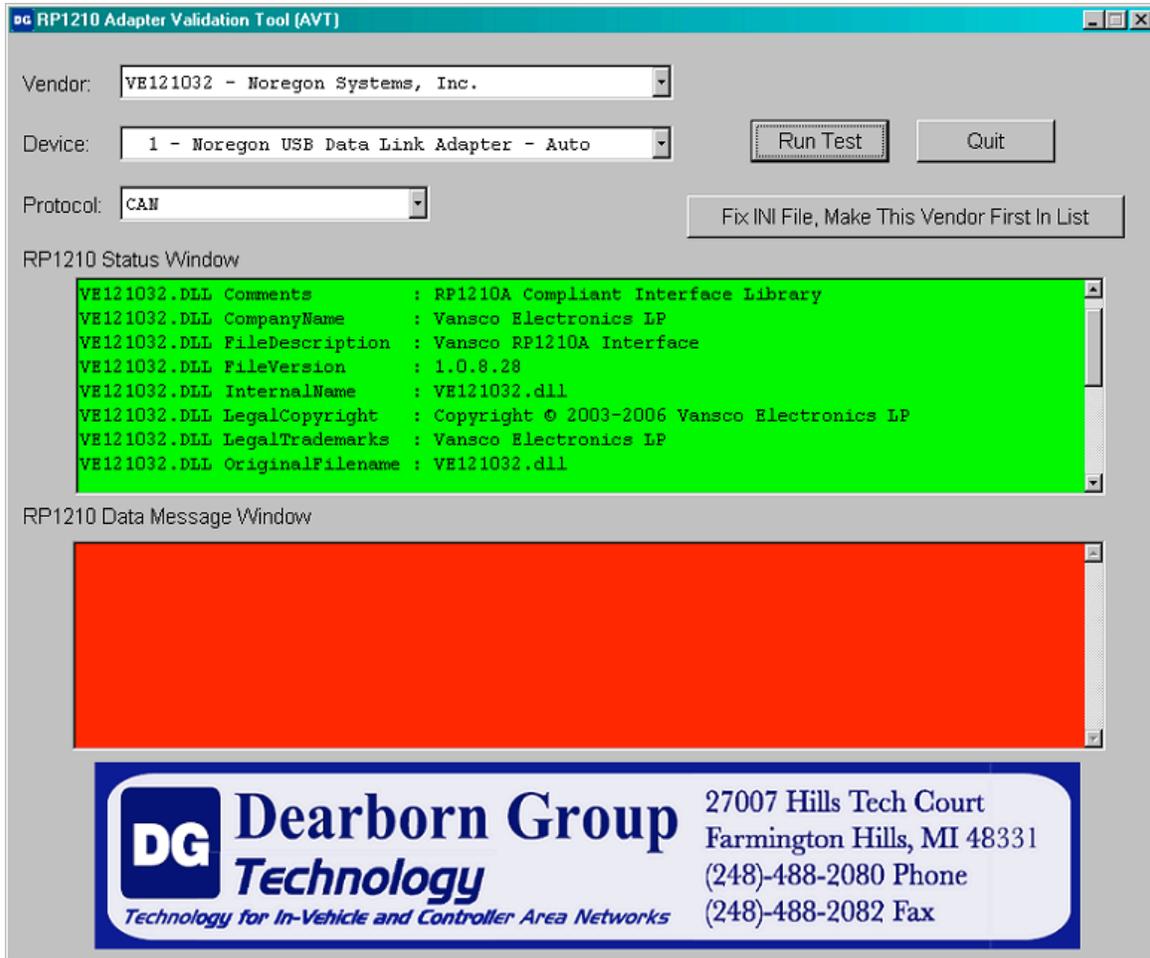
11.1.3. Bad Connect, No Reading of Data

The following screen shows that the AVT was not able to connect ("see") the adapter. Application cannot try to read data.
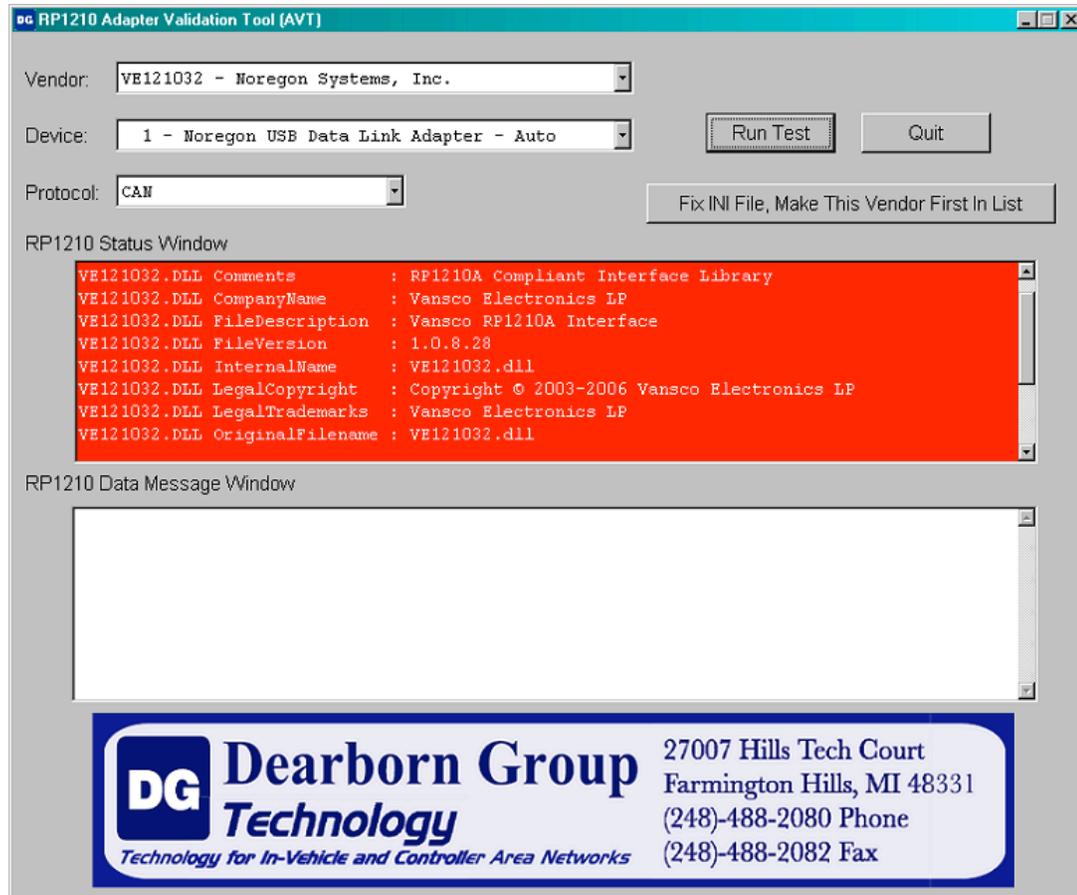
11.1.4. Results Discussion Screen

Once the test is complete, the application will display an informational screen listing some steps to correct the issues based upon what it was able to determine. There are three possibilities (as shown above):

1. Good Connect to Adapter (PC can "see" VDA)
     i. Good Data Read (PC can also "see" vehicle Messages).
2. Good Connect to Adapter (PC can "see" VDA)
     i. No Data Read (PC can't "see" vehicle Messages).
3. Failure to Connect to Adapter (PC cannot even "see" the VDA).

. The following is a "results discussion screen" for when the AVT can both connect and read data.

```
Dearborn Group RP1210 Adapter Validation - Test Results Discussion and Next Steps          [X]

   SUCCESS - A successful connect to DLL VE121032.DLL, Device# 1, and Protocol CAN.

     => There were 52 messages seen in 5 seconds.

   These results indicate that the adapter you are using is working perfectly.

       !!! THERE IS NO NEED TO CONTACT YOU VDA VENDOR HELP DESK !!!

       If there is a problem with your RP1210 application, before calling your
               APPLICATION HELP DESK, try the following things:

   1.  Have you configured the application correctly for the adapter being used?
           -> Note that some OEM applications may not allow you to select the
              adapter you are trying to use.
           -> Note that some OEM applications have two or three different places
              you must select the adapter.

   2.  Have you configured your application to use the correct protocol?
           -> Note that some OEM applications let you select "any" protocol an
              adapter supports but will not work with that protocol.

   3.  Have you checked the c:\windows\rp121032.ini file for errors?
           -> Click the "Fix INI File, Make This Vendor First In List" button
              which can fix a potentially mangled INI file.

   If these steps don't work, contact your APPLICATION PROVIDER HELP DESK.



                                  [ Close ]
```

11.1.5. Automatically Fixing a "Mangled" INI File – Moving the Current Adapter to Front of List

The application also has a button "Fix INI File, Make This Vendor First in List" that will allow you to view the C:\Windows\RP121032.INI file and fix it if there are errors detected. It also puts the current VDA vendor in the front of the list. Below is the screen showing a bad INI file and what it will look like after pressing the "Make Changes" button.
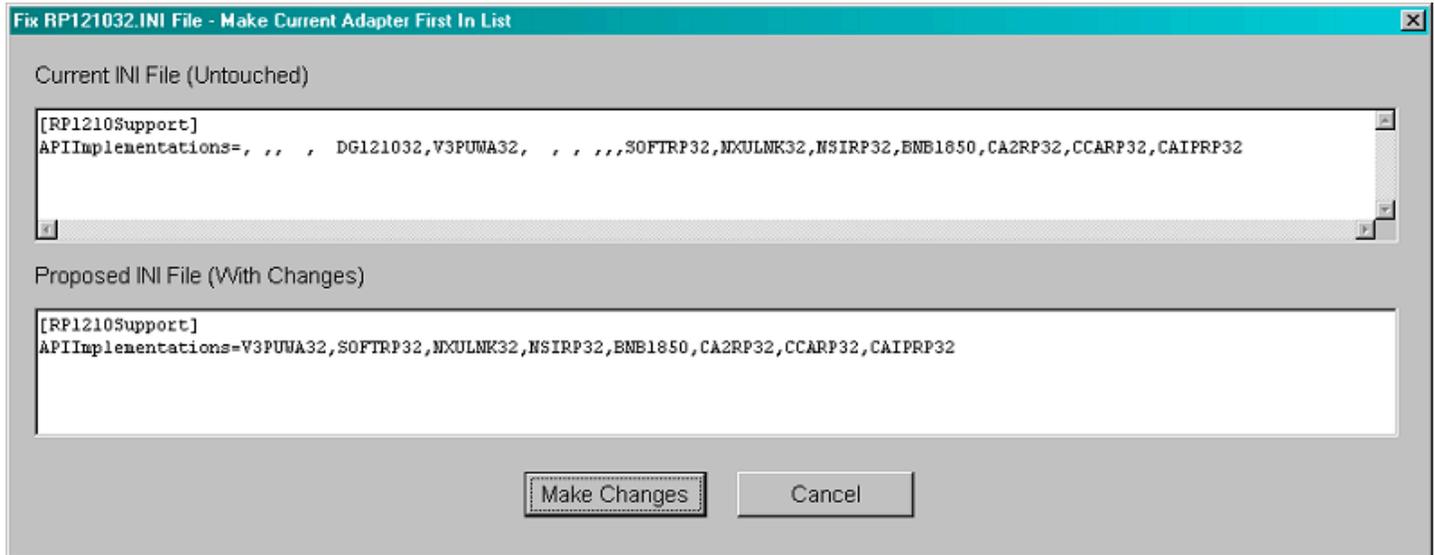
11.2. NEXIQ Device Tester

The NEXIQ Device Tester application works with any NEXIQ adapter and is very simple to use. Simply select the NEXIQ device and protocol and click "Start Test". If the application is able to see data on the link, it will show up in the application. Below is an example of a successful reading of data.
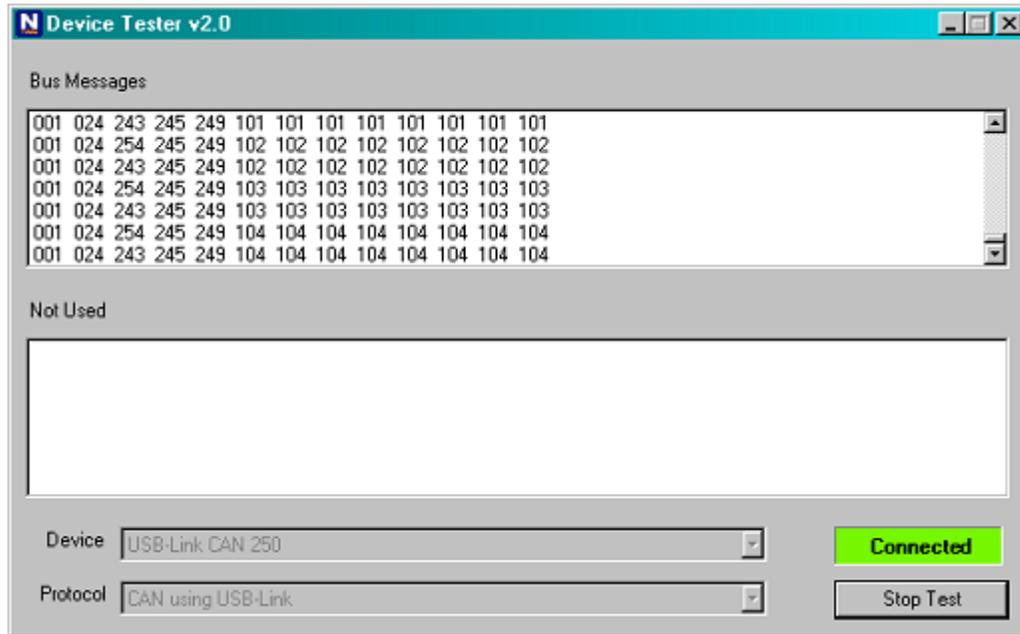
12. When You Call Your OEM Application Help Desk

If you can see traffic on the data bus, then you should call your OEM application help desk. If not, call your VDA vendor help desk. The three VDA vendors mentioned herein have been hearing disturbing news from our end-users. They tell us that when they call the OEM application help desk, they receive the following comment, "You need to buy 'our' adapter". Ask them if their application is RP1210-compliant. If so, tell them that you know that the VDA vendors listed herein are RP1210-compliant and are most likely tested with their application. Also tell them that you have run the VDA vendors' validation tool and can see data on the vehicle network.

13. Troubleshooting Flow Chart

The following list the first steps a user should take prior to calling their "DIAGNOSTIC APPLICATION PROVIDER" to find out why the application is not working. In the event that the end-user has not gone through these steps, the diagnostic application provider should run the user through them.

13.1. Connection Issues

1. Is the power light to the adapter on?
2. If using a plug and play interface such as USB or BlueTooth. Turn up the speaker volume; unplug the adapter and then plug it back in. You should get the "ta-dahhh" sound when the operating system and drivers connect to the adapter.

13.2. INI File Problems

1. Per this document, check to ensure your C:\WINDOWS\RP121032.INI file is in the proper format and is not "mangled". If so, fix it.
2. Look at the INI file to see if an entry for your adapter is there. Although it is an ugly solution, try moving it to the front of the list. If the entry is not there, download and install the latest VDA drivers.

13.3. Data Flowing?

1. Use the VDA vendors' validation application to check to see if it can see data on the data bus.

13.4. Configured Properly?

If there is data flowing through the adapter, then there is no need to contact your VDA vendor's technical support department. Before calling your application provider, try the following:

1. Using the information found in this document, ensure that the application is "completely" set up to use the adapter that you want to use. Note that for some applications (like Volvo/Mack VCADS above), you have to select your adapter in several different locations.