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DiagnosticLink 8.12 Features Service Diagnostics & Tools

Daimler Trucks



DiagnosticLink 8.12 Release Features Summary :

- **Full support included for Heavy Duty (HD) engines (DD13/15/16) for the MY2020 ECU software release.**
- **Full support included for Medium Duty (MD) engines (DD5 and DD8) for the MY2020 ECU software release**
- **Extended support included for New Cascadia units (ACM3+MCM21T+CPC5):**
 - MCM21T - m17.1.1.203
 - ACM301T - s8.50.0.203
 - CPC501T - R19.32.00
- Includes support for diagnostic panels
 - ACM3 programming
 - CPC5 software programming

DiagnosticLink 8.12 Release Features Summary (Cont.)

- **Extended support for New Cascadia**

- Includes support for ICC5 programming (Handling of Large file download support in zip files and CFF files)
- Panel updates covered:
 - APS3 calibration to support sensor offset mitigation
 - ABS02T instrumentation panel update to support displaying 5 axles information

- **Support added for CTP updates - flash over the airwave (FOTA)**

- CTP Initialization panel updates for capturing the VIN write, sending up configuration data etc.
- CTP GPRS config panel
- CTP Factory Reset panel

DiagnosticLink 8.12 Release Features Summary (Cont.)

- **Enhancements or extended support added for the Guided Diagnostic work**
 - Enable TechLane radio button without a truck connection
 - Send TechLane fault codes in the prioritized order
 - Included DiagnosticLink tool version for Troubleshooting report uploaded to the TechLane system
 - Included the DiagnosticLink version and the language being used by the runtime as a metadata information for the TechLane server

- **Included support for warranty work analysis/customer driven enhancements**
 - Package programming support included for powertrain related ECUS
 - Support engine troubleshooting manuals from DTNACconnect
 - Automated the download of updating the troubleshooting content in background
 - Program Device description for multiple parameter settings
 - If a panel shows missing data because an ECU is missing, indicate missing ECU name in panel

DiagnosticLink 8.12 Release Features Summary (Cont.)

- Program Device new UI should attempt to match target dataset part numbers to correct flash area / EcuInfo item
- Compare Parameters screen indicates incorrect variant
- Support for Drumroll 64-bit
- CTP Initialization Panel Improvements
- New “Telematics” Actions Menu
- TechLane Support Improvements
- DiagnosticLink digital signature
- Create and Install a Test panel in DL for troubleshooting connection issues to server
- Revise error messages shown in DiagnosticLink failure dialog when connection to DLBroker fails
- Improvements to Toolbar menu buttons in the main screen
- CTP GPRS Configuration Panel
- Upcoming Tool Release Dates

Program Device Package Programming (powertrain)

- Supports programming of all powertrain controllers with a single operation
- To begin programming all relevant controllers must be connected and have valid hardware for the data downloaded from the server
- New UI for programming that allows the user to see the progress of multiple controller programming

Connected Powertrain



CPC302T

MCM21T

Connected ACM21T hardware does not match expected A0004463754-001

Connected CPC302T hardware does not match expected A0044462502-002

Connected TCM01T hardware does not match expected A0504463109-901

 **Program Device**  VIN: 3AKJHHR3JSJH8711 Engine: DDEC16-DD15
ESN: 472910S0491716 Transmission: DT12-DT12 DA

Gather Data > Select Operation > Program Device





Select the device to program

Name	Description
Connected Powertrain	All powertrain devices for connected unit 3AKJHHR3JSJH8711 (472910S0491716)
CPC302T	Common Powertrain Controller 3
MCM21T	Motor Control Module 2.1
TCM01T	Transmission Control Module MY2013
IPPC01T	Integrated Predictive Powertrain Control
ACM21T	Aftertreatment Control Module 2.1
ICC501T	Manual connection required for programming
BHM_J1939	Manual connection required for programming

Program Device Package Programming (powertrain)

Gather Data > Select Operation > Program Device

Processing: MCM21T - Motor Control Module 2.1

- + IPPC01T - Integrated Predictive Powertrain Control Success 
- + ACM21T - Aftertreatment Control Module 2.1 Success 
- + CPC302T - Common Powertrain Controller 3 Success 
- MCM21T - Motor Control Module 2.1 Processing 

Commit settings to permanent memory; Committing...

Operation Information

Operation: Replace Device Settings with Server Configuration (same device)
 Settings: latest

Configuration	Current	Target
Software	A0404487935-001 (6.7.0.2)	A0404487935-001 (6.7.0.2)
Fuelmap Part Number	A0614486135-001 (R_6702_2SI201X015)	A0614486135-001 (R_6702_2SI201X015)






Identification	Current	Target
Vehicle Identification Number	3AKJH-	3AKJH-
Engine Serial Number	47291	47291

Hardware

ECU Serial Number
 Hardware Part Number
 Hardware Revision

Gather Data > Select Operation > Program Device

Success: Programming was successfully completed but device(s) may have configuration errors

- + IPPC01T - Integrated Predictive Powertrain Control Success 
- + ACM21T - Aftertreatment Control Module 2.1 Success 
- + CPC302T - Common Powertrain Controller 3 Success 
- + MCM21T - Motor Control Module 2.1 Success 
- + TCM01T - Transmission Control Module MY2013 Success 

Support Engine manual downloads from DTNA Connect

- In preparation for the sundown of PSL the powertrain technical literature / troubleshooting manual content is now downloaded from DTNA connect.
- This solution is similar to that used for the chassis manuals and involves the scraping of the website itself.
- After development of the feature, the content was migrated to a new server. This required updates to our scraping algorithm.

The screenshot displays a web browser window with two overlapping windows. The background window is titled 'DDC-SVC-MAN-0140 - Detroit Transmissions Manual' and shows a table of contents with a tree view on the left. The right pane shows the content for section '21.7.1 SPN 520714/FMI 3', which includes a title 'TCM Battery Supply Voltage Open' and a list of steps: 'Check as follows: 1. Disconnect the Transmission Co...', '2. Turn the ignition ON (key ON, e...', and '3. Measure the voltage between TC... Is the voltage less than 11.5 volt...'. Below this, there are sub-steps: '3.a Yes; restore voltage to TCM X1 21-pin connector pins 1, 2, 3, 4, and 6.', '3.b No; Go to step 4.', '4. Turn the ignition OFF.', '5. Measure the resistance between TCM X1 21-pin connector pins 16, 19, 20, 21, and the negative battery post. Is resistance greater than three ohms?', '5.a Yes; restore battery ground to TCM X1 21-pin connector pins 16, 19, 20, and 21.', and '5.b No; replace the Transmission Control Module (TCM).'. The foreground window is a Daimler login overlay with the Daimler logo, 'DAIMLER TRUCKS NORTH AMERICA', a 'LOGIN' button, and input fields for 'Username' and 'Password'. Below the fields are links for 'New User', 'Forgot Password', and 'Change Password', and a green 'LOG IN' button.

Download Troubleshooting content in the background

- DiagnosticLink has had the ability to update troubleshooting content from the server for some time.
- This required the user to wait while the content downloads.
- In this release the behavior is changed such that the user may continue using the tool while the content is downloaded in the background.
- The status of the download is indicated in the yellow bar.

English (United States) troubleshooting content (DDC-SVC-MAN-0191, DDC-SVC-MAN-0193, DDC-SVC-MAN-0200, DDC-SVC-MAN-0211) is more than 14 days old and should be refreshed. This requires an internet connection and may take a few minutes, but you may continue working while the download is in progress. Click here to refresh this content now.

Updating English (United States) troubleshooting content - 86% complete. Downloading: DDC-SVC-MAN-0193 (1216/1401)

Parameters were successfully read from the device.

Program Device – description for multiple parameter settings

- The RESERVOIR (previously DEPOT) system is able to provide up to five sets of parameter settings content to DiagnosticLink, for powertrain devices.
- For each of those settings files, this ETI derives and displays a descriptive status information based on the type of setting indicated by the server.

The screenshot shows the 'Program Device' window in DiagnosticLink - Professional. The window title is 'DiagnosticLink - Professional' and it includes a menu bar (File, Edit, View, Log, Parameters, Actions, Tools, Help) and a toolbar. The main area is titled 'Program Device' and shows the VIN: 3AKJHHR1MSLJ7890 and Engine: DDEC16-DD15. The window is divided into several sections:

- Left Panel:** A navigation pane with icons for Identification, Fault Codes, Troubleshooting, Instrumentation, Service Routines, I/O Control, Parameters, and Program Device (selected).
- Connections:** A list of connected devices:
 - Common Powertrain Controller 5 (CPC501T): Online
 - Motor Control Module 2.1 (MCM21T): Online
 - Transmission Control Module MY... (TCM01T): Online
 - Aftertreatment Control Module ... (ACM21T): Online
- Device Selection Table:** A table with columns 'Name' and 'Description'.

Name	Description
Connected Powertrain	Required device(s) not connected: IPPC01T
CPC501T	Common Powertrain Controller 5
MCM21T	Motor Control Module 2.1
TCM01T	Transmission Control Module MY2013
ACM21T	Aftertreatment Control Module 2.1
- Reprogramming Operation:** Radio buttons for:
 - Replace Device Settings with Server Configuration
 - Update Device Software
 - Change Dataset
- Unit Selection Table:** A table with columns 'Unit' and 'Status'.

Unit	Status
1FUJHHR3MLMA3273 (472910S0750373)	OK
3AKJHHR1MSLJ7890 (472910S0752300)	OK
- Settings History Table:** A table with columns 'Settings', 'Status', 'Timestamp', and 'Comment'.

Settings	Status	Timestamp	Comment
latest	DiagnosticLink upload configuration	5/20/2020 7:09:16 AM	DiagnosticLink
history	DiagnosticLink upload configuration (historical)	5/19/2020 7:39:24 AM	DiagnosticLink
history	DiagnosticLink upload configuration (historical)	5/13/2020 11:10:33 AM	DiagnosticLink
history	DiagnosticLink upload configuration (historical)	5/12/2020 10:25:24 AM	DiagnosticLink
history	DiagnosticLink upload configuration (historical)	5/11/2020 10:04:55 AM	DiagnosticLink
oem	Vehicle plant configuration	1/11/2020 8:54:58 PM	DiagnosticLink

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If a panel shows missing data (warning triangle) because an ECU is missing, indicate missing ECU name in panel

- Information displayed in DiagnosticLink can come from multiple sources/devices.
- Where this information is missing it has traditionally been indicated with a warning triangle. A tooltip/mouse-over provides more information as necessary.
- It was requested to add some of that information (the ECU name) to the main user interface itself so that the problematic device(s) can be identified at a glance.
- We expand on that requirement by also providing additional graphics that indicate the reason for the missing data.



Grey arrow: data will become available once routine is run



Spinning wheel: device connected, waiting for pending data



Warning triangle: data not available/device not connected



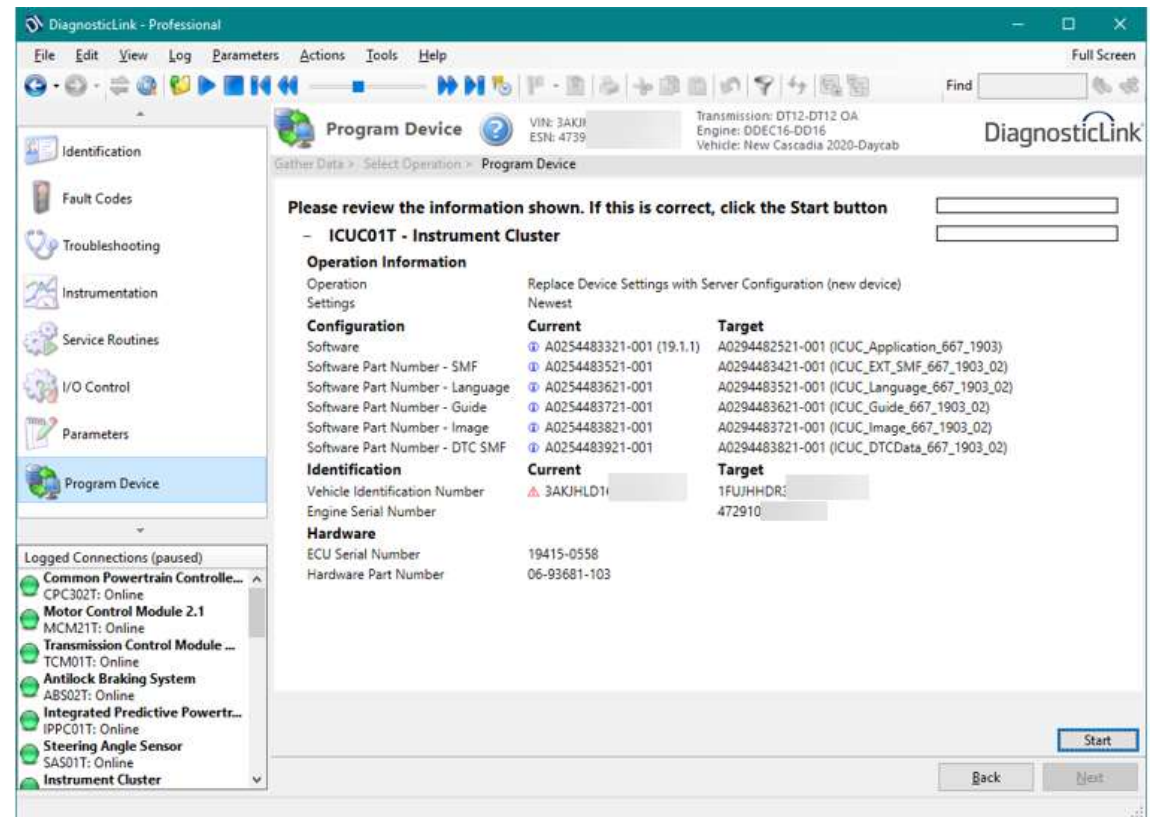
Grey X: device connected but item not defined in variant



Red X: data available but out of scaling range

Program Device new UI should attempt to match target dataset part numbers to correct flash area / EcuInfo item

- Where an ECU requires multiple datasets to be programmed, these are not received from the server with any context (i.e. as to which flash area they relate to).
- In the new Program Device UI we show the Current and Target information to the user.
- To facilitate this a scheme was devised to allow the tool to match each reported part number with the target flash job/area. The target flash job can then be used to reference the flash data provided from the server.
- This gives a clear indication of exactly what the changes to the ECU will be.



Compare Parameters screen indicates incorrect variant

- Some sources of data for the Compare Parameters screen do not indicate the variant from which the data was captured or created for.
- In order to compare the data, it must be loaded via a diagnostic variant. Where that variant is not available, we have code that makes the best guess at this.
- Where we have guessed at a variant, this is now clearly indicated in the user interface in order to not mislead the user.

Parameter	Part	Factory App_0203 (assumed)	Part	Latest App_0204 P	Units
Identification					
software part number		0004485049-001		0004485049-001	
vin		3AKJHH		3AKJHHI	
device		RDF02T		RDF02T	
settings		Factory		Latest	
hardware part number		A0004463349-001		A0004463349-001	
diagnostic variant		App_0203 (assumed)		App_0204	
ecu model				P	
Chassis Leveling System Available On Axle	A0004476549-001	PMD ABST.SENSOR / DEF. DID120...	A0004476549-001	PMD ABST.SENSOR / DEF. DID120...	
GVC Activation-Deactivation	A0004477449-001	PMD ABST.SENSOR / DEF. DID120...	A0004477449-001	PMD ABST.SENSOR / DEF. DID120...	
Vehicle Parameter Set 4	A0004476449-001	PMD ABST.SENSOR / DEF. DID120...	A0004476449-001	PMD ABST.SENSOR / DEF. DID120...	
Vehicle Parameter Set 1			A0004470049-001	Default_Height_850mm	
VertPos			A0004478349-001	0.68	m

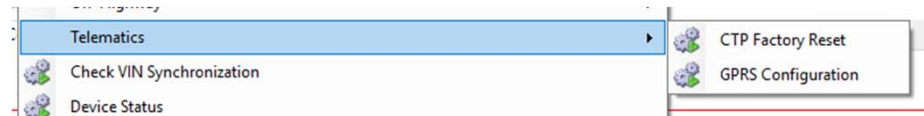
Show differences only Show items from offline data only

Drumroll x64 build

- In the 8.12 development lifecycle we have taken the steps necessary to build 64-bit versions of all versions of DiagnosticLink. All tools are now built as 32-bit and 64-bit versions.
- A 64-bit version of DiagnosticLink removes the 3GB process space (memory usage) limitation that applies to 32-bit processes. This will in particular be desirable when the MVCI kernel is used more widely and for more ECUs.
- Migration to 64-bit is a big step that comes with some risks and challenges.
 - We have to determine if there is a point at which we can release 64-bit only versions of DiagnosticLink to the field. It may not be practical to distribute and support both 32-bit and 64-bit versions in parallel (server side changes – e.g. ordering system, and for service pack distribution – would be necessary to support that).
 - A 64-bit version of DiagnosticLink can only be installed to a 64-bit version of the operating system. In 8.11SP2 we released a change that provides documentation back to our data mining system (dataloader) that will allow us to analyze what percentage of the DiagnosticLink user base is using a 64-bit operating system.
 - A 64-bit version of DiagnosticLink will require 64-bit RP1210 drivers. To our knowledge, only NEXIQ USB Link 2 and our internal DDXL32 driver (for Vector CAN devices) are provided as 64-bit versions. This may require further discussion with TMC.
 - Not all CBFs have yet been created in a way that is compatible with 64-bit CAESAR.
- As such, the 64-bit builds are currently accessible for internal/development level testing only.

New “Telematics” Actions Menu

- Organized all of the Telematics related content into a single sub menu under the Actions menu



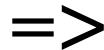
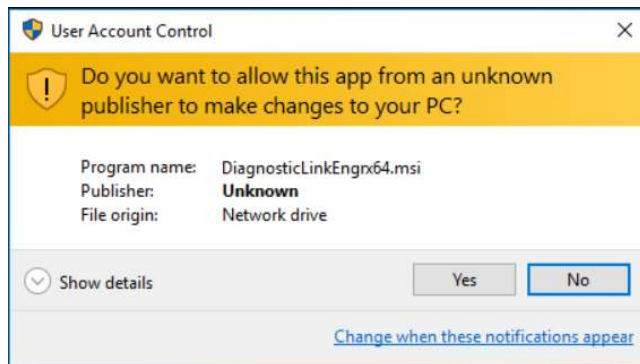
TechLane Support Improvements

- Include “Major Component” with fault code information
- Include DiagnosticLink version and language used by runtime as metadata for TechLane
- Support download of ADF graphics when filename is not provided by server
- Improve authentication error handling when user does not have proper permissions to download files from TechLane file server

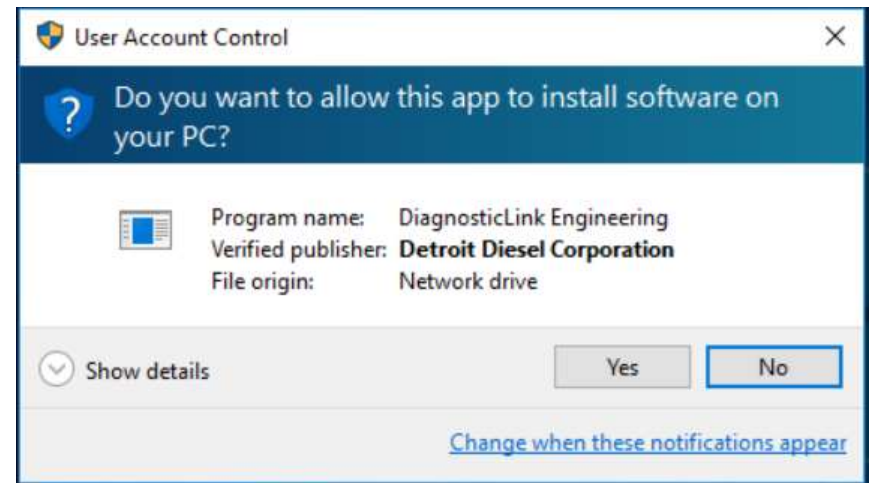
DiagnosticLink digital signature

- DiagnosticLink installation media is now signed with secure RSA key resulting in a recognized Program Name and Publisher*

Before



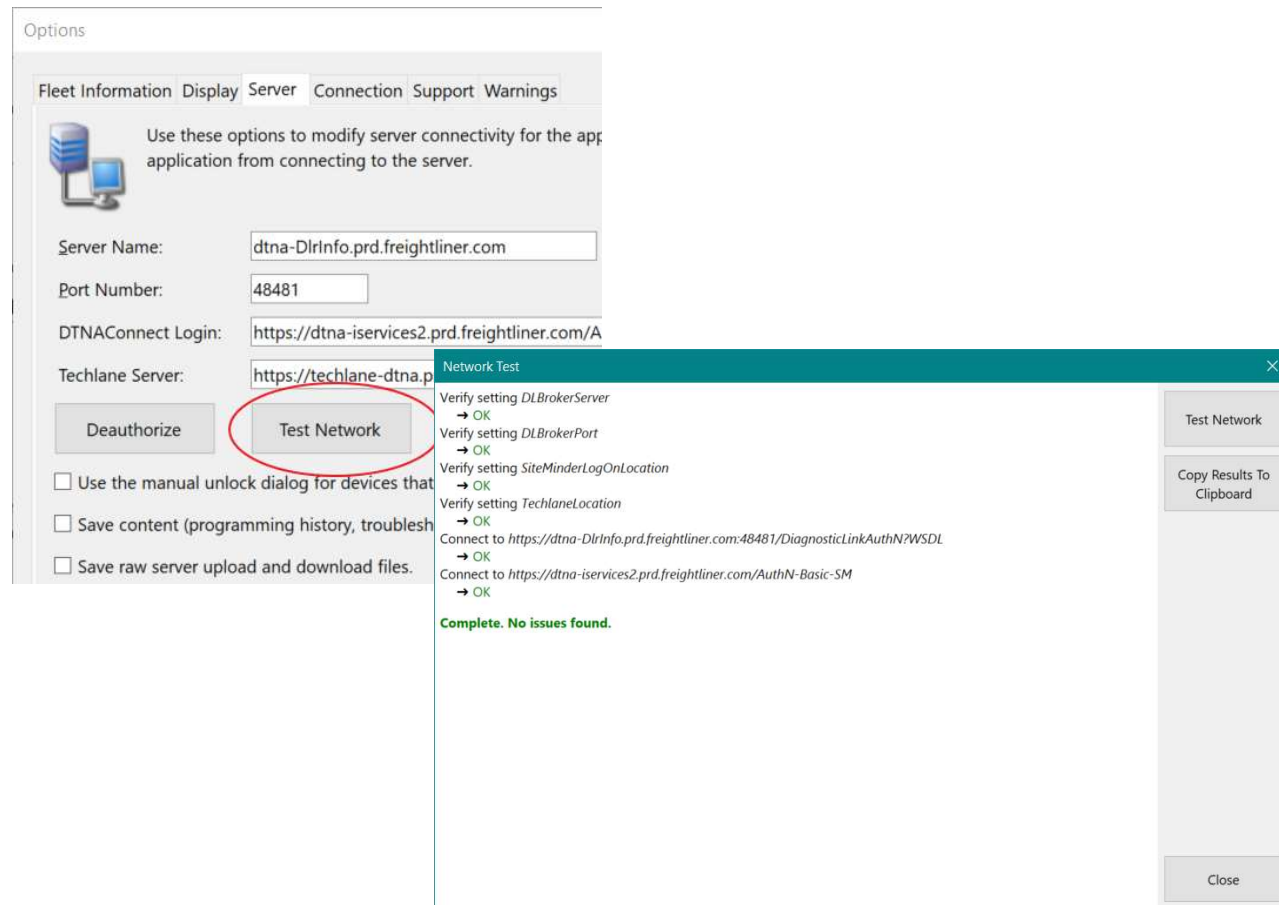
After



* Network connection may be required for Windows to verify the key.

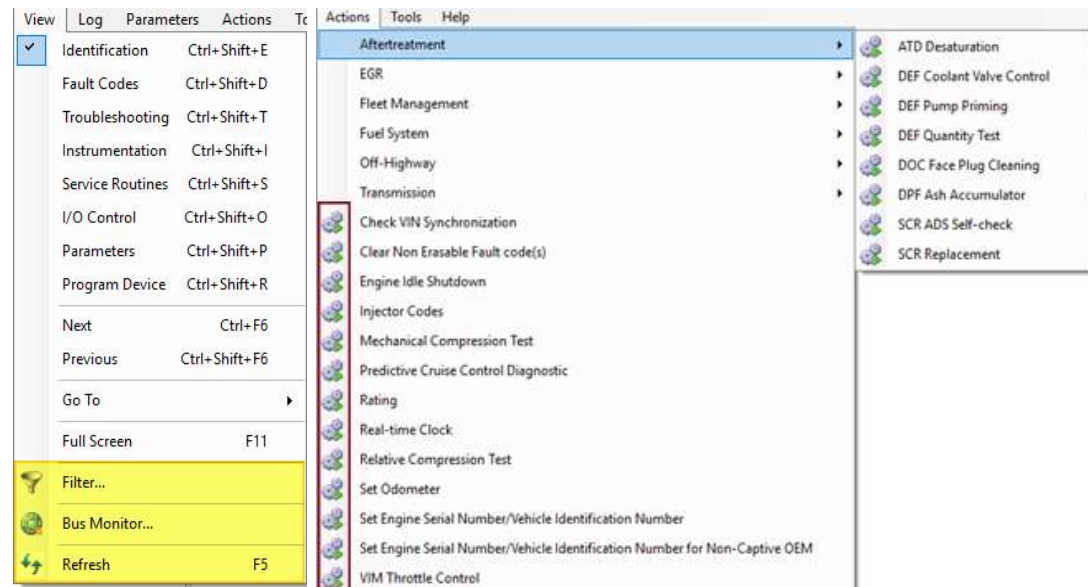
Create and Install a Test panel in DL for troubleshooting connection issues to server

- “Test Network” button is now available from Server Options.
- Tool will attempt to contact network locations used by DiagnosticLink and should allow faster and easier diagnoses of networking problems.



Improvements to Toolbar menu buttons in the main screen

- Added missing icons for menu items, Filter, Bus Monitor , Refresh (Under the View menu), that are also represented by a toolbar button
- Added icons for items in the Actions menu so that would show the image/icon (same as shown in the places bar) for the view from which the dialog originates (i.e. Service Routines, Parameters)



CTP GPRS Configuration Panel

- Applicable only to CTP1 and CTP2 devices running supported software
- Verifies the GPRS configuration of the device is correct, if it is not correct the panel will write the correct configuration into the CTP

