

# ECU Module Programming Guide Using FDRS

Mongoose Edition

[Original Link](#)

[F150 Gen14 Forum ECU Guide](#)

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# **ECU Module Programming Guide Using FDRS**

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## Mongoose Edition

### Introduction

Every effort has been made to guide you through the steps to successfully update your modules. Please read through this entire guide and the [thread](#) created by iceman77 prior to starting to avoid any potential issues. Pay very close attention to the steps in FDRS. Failure to do so can result in a failed update. Fortunately, most failures can be recovered and those steps are outlined later in the guide.

Some of the issues we have seen with update failures is the lack of patience, low/defective batteries or failure to follow FDRS instructions. Some modules can take a long time to update, and this is especially true for the IPMA module which takes approx. 3 hours to complete, it will appear at times as though nothing is happening. But, you can be assured that the update process is working and doing its job so again, PLEASE BE PATIENT and don't rush the process!

This cannot be stressed enough; make sure your battery is **fully charged** prior to starting as some updates will put a strain on the battery during the update process and if the voltage drops too low you can go into a "Restart Loop". If your battery fails so will the update!

**DISCLAIMER:** Many people have done the updates using the procedure below with little to no major issues or failures. This does not mean a failure can't happen! Flashing ECU modules is a dangerous operation. **YOU ARE DOING THIS AT YOUR OWN RISK!** You are responsible for any damage to your vehicle regardless of the procedures outlined in this guide!

**FORSCAN USERS:** If you have done any modifications using FORScan and have backed up your original AsBuilt data then it is highly suggested you restore your original defaults prior to doing updates, this is especially true for the **APIM, IPC & IPMA** as some people have experienced failed updates due to configuration mismatches. You should only revert the changes you made and **DO NOT** do a complete restore as in a "**Load All**", "**Write All**" as this can possibly cause other issues from changes made by prior OTA updates!

If you have not done an original backup then you need to download a current AsBuilt from [here](#) before proceeding. Then, download another after you've completed the updates, make sure you label the backups accordingly so you don't overwrite any prior ones. There may be issues such as Persistent DTC's and configuration issues when updates modify the AsBuilt data for your vehicle. This may be caused by additional lines in a module's AsBuilt and/or a configuration change that conflicts with the FORScan changes.

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### Required Tools

#### Recommended Laptop Specifications:

- Windows 7/10/11 Professional (64Bit Only)
  - Intel Core i5 6000 or greater
  - 8GB RAM or greater
  - SSD – Solid State Drive 256GB
- 
- USB 3.0 Flash drive - 64GB or greater (formatted to exFAT)
  - 12V Battery Charger/Power Supply (This is recommended from [Amazon](#)). This should be set to Power Supply mode and capable of delivering a minimum of 10 amps to sustain the voltage.

### Interface

- **Mongoose-Plus Ford2** interface (can be purchased from [Amazon](#)). Download the Mongoose installer [here](#).

### Software

- **Ford Diagnostic & Repair Software (FDRS)** located [here](#).  
Once you register on the [Motorcraft](#) site, use the same credentials for logging into FDRS.

### FDRS License

- A software license is required to use FDRS and can be purchased [here](#).

### License Pricing

365 day FJDS/FDRS Software License = \$899.00 per license

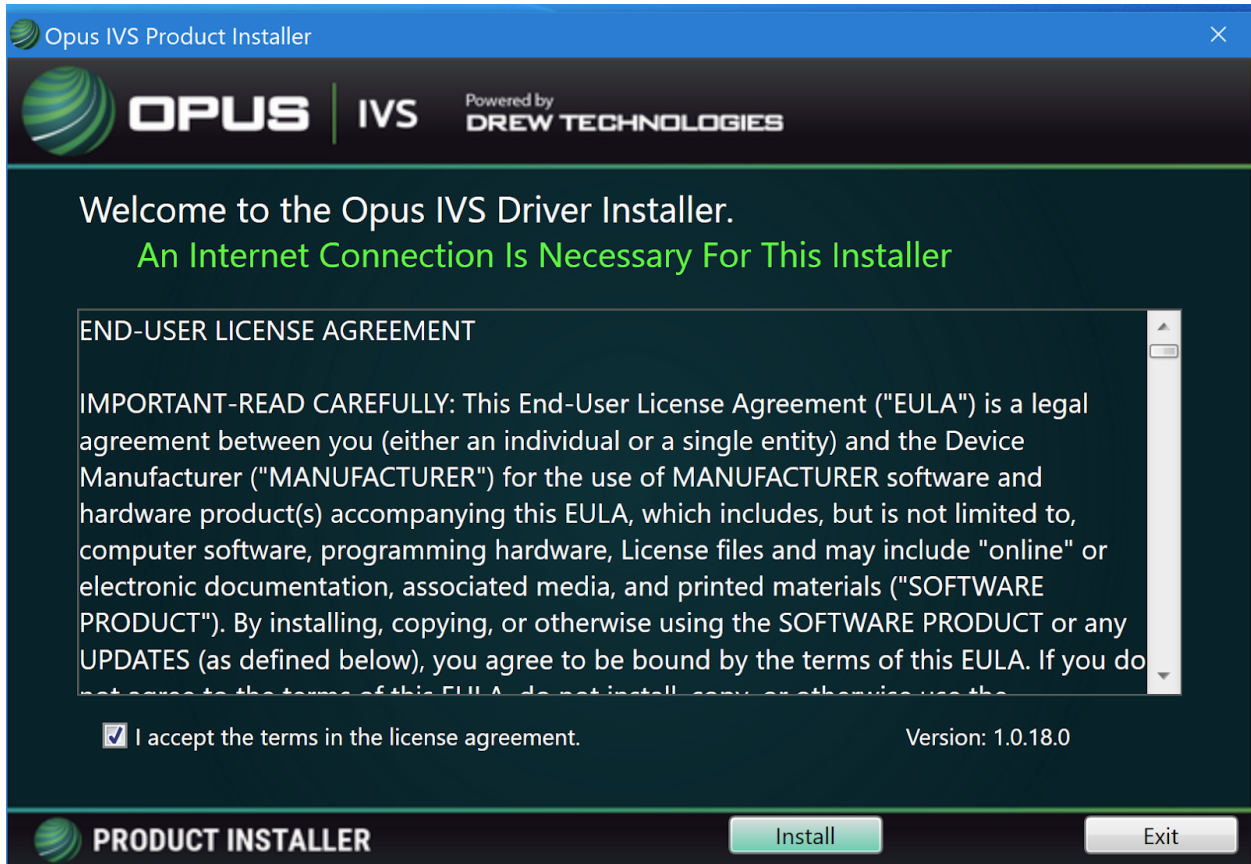
30 day FJDS/FDRS Software License = \$200.00 per license

2 day FJDS/FDRS Software License = \$50.00 per license

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## Mongoose Installation & Setup

- Download the **OPUS IVS driver** for your Mongoose-Plus device from [here](#).
- Connect your Mongoose-Plus device to your PC and launch the installer. You should be presented by the following screen



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## Activate Device

- Follow on-screen instructions, when prompted, to activate the device!  
NOTE: In some instances the device is already activated so no need to worry. It does not mean the device was “used”. Recently, they all seem to be shipped “already activated”.



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## J2534 Toolbox

- Before using your Mongoose with FDRS, run the J2534 Toolbox app that was installed with the Mongoose and select the Support tab.

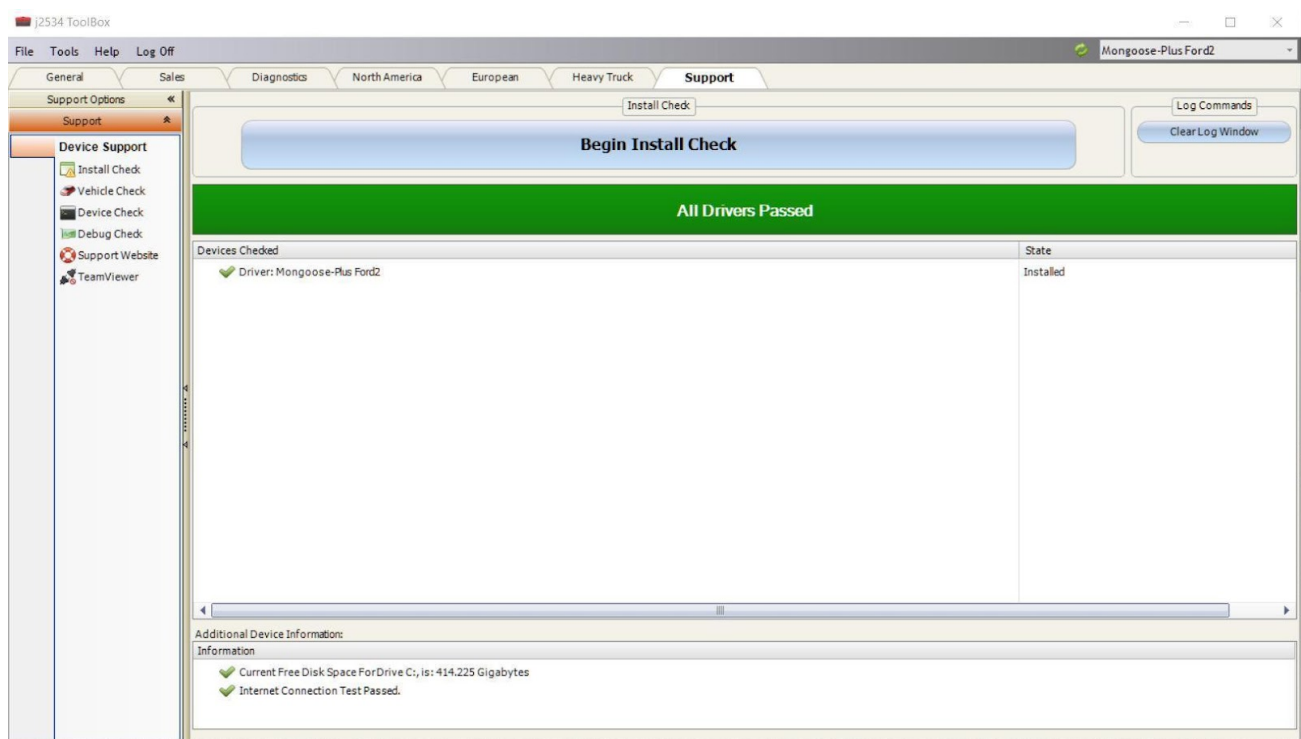
## Testing The Mongoose

There are 3 tests you need to run to determine everything is working correctly. Make sure you have the Mongoose connected to the OBDII port and have the **key on/engine off** to properly run these tests.

- Install Check - Verifies that the install was successful.
- Vehicle Check - Verifies communication is successful to the truck's OBDII Port.
- Device Check - Verifies the drivers are correctly installed and are current.

## Install Check

Select the Install Check > Begin Install Check



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## Vehicle Check

Select the Vehicle Check > OBD2 Check Connection.

**NOTE:** Make sure your key is on and engine is off and your VIN populates the right column.

The screenshot shows the J2534 ToolBox software interface. The main window title is "Mongoose-Plus Ford2". The menu bar includes "File", "Tools", "Help", and "Log Off". The navigation pane on the left shows "Support Options" with "Support" selected, and "Device Support" with sub-items: "Install Check", "Vehicle Check", "Device Check", "Debug Check", "Support Website", and "TeamViewer".

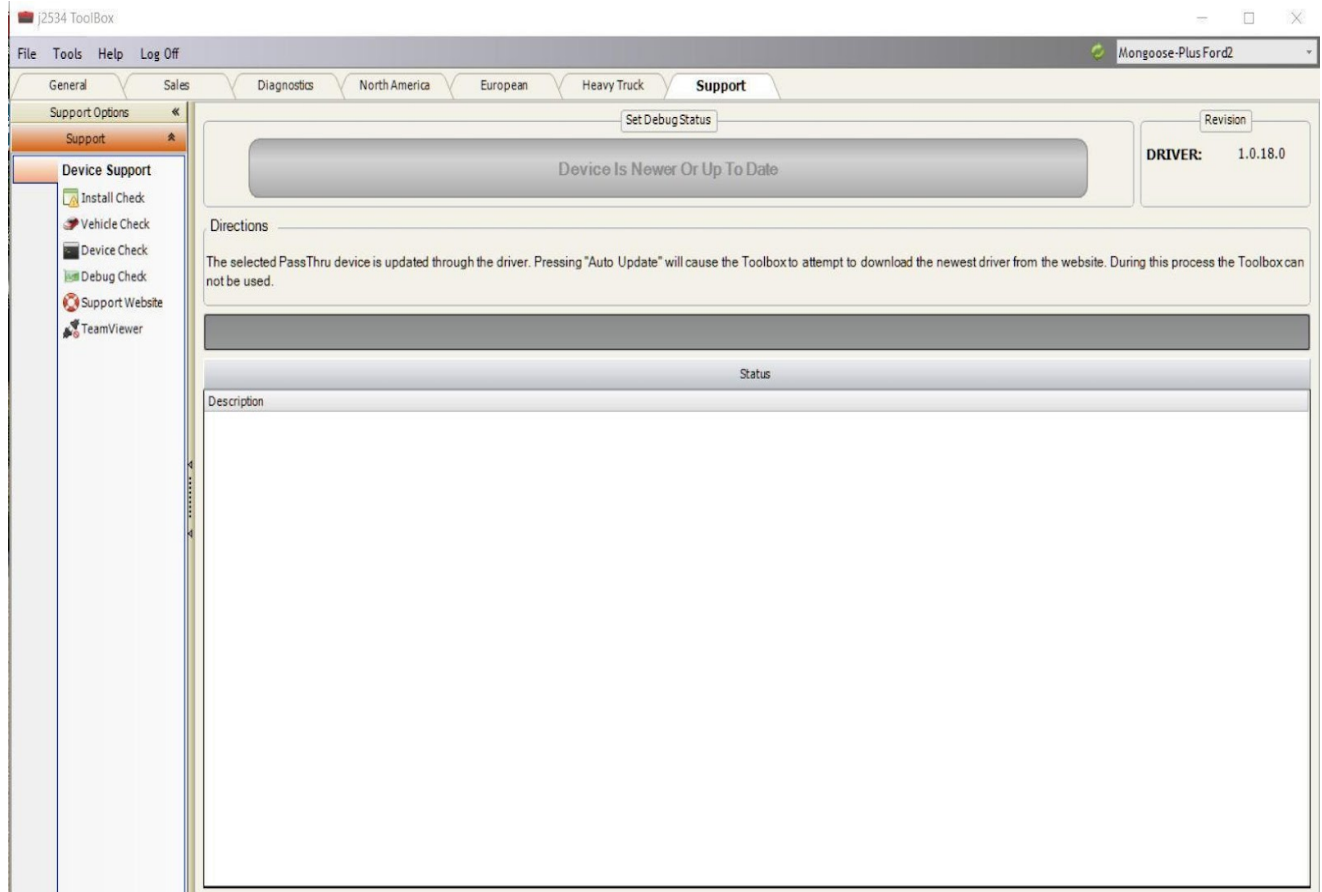
The main content area is titled "Vehicle Check" and "OBD2 Check Connection". It shows a status bar indicating "Communicating with the J2534 device." Below this are two tables:

J2534 Device Information		Protocol Information		
API	04.04	<b>Vehicle Voltage: 12.1 Volts</b> <input type="checkbox"/> Check SCI		
Device Name	Not Applicable	Protocol	Status	VIN
DLL Version	Mongoose-Plus Ford2 J2534 Library v1.0.18.0	J1850VPW	Unsupported or Failure Experienced.	
Firmware Version	Mongoose-Plus Ford2 FW:0.1.13.0 BL:0.1.7.0 SN: SMWBK000000419D	J1850PWM	Not Active	
IP Address	Not Applicable	ISO9141	Not Active	
Serial Number		ISO14230 SLOW	Not Active	
		ISO14230 FAST	Not Active	
		ISO15765 11 Bit	ACTIVE	Your VIN should show here
		SCI B	User Skipped	
		SCI A	User Skipped	
		SCI B DIESEL	User Skipped	

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## Device Check

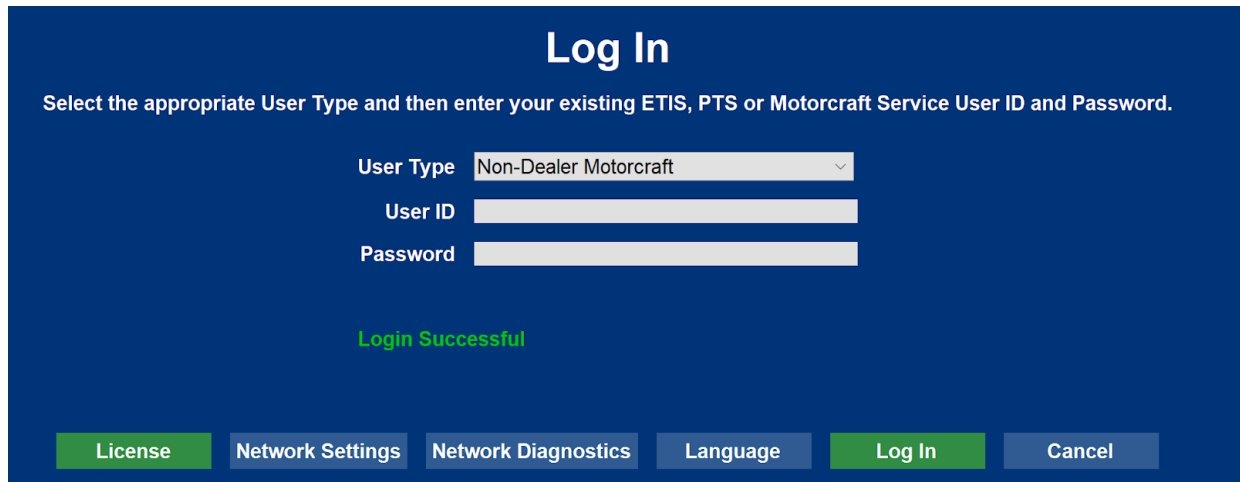
Select the Device Check



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## FDRS Software Installation

- Launch FDRS. You will be prompted to enter the license that you have just purchased.
- Login using your credentials created on Motorcraft website.
- Make sure you select **Non-Dealer Motorcraft** as User Type



**Log In**

Select the appropriate User Type and then enter your existing ETIS, PTS or Motorcraft Service User ID and Password.

User Type: Non-Dealer Motorcraft

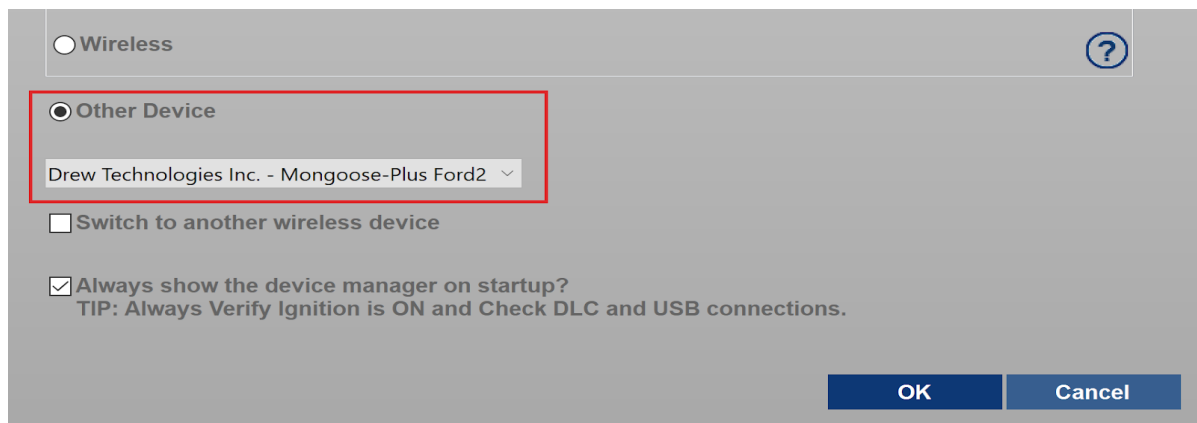
User ID: \_\_\_\_\_

Password: \_\_\_\_\_

Login Successful

License Network Settings Network Diagnostics Language Log In Cancel

- Connect the Mongoose to your truck's OBDII port and connect the USB cable to the PC running FDRS.
- Once connected the FDRS Device Manager pops up.
- Make sure you select **Other Device**, in the drop-down dialog and that the correct device is showing.
- Select **Drew Technologies Inc. - Mongoose-Plus Ford2**



Wireless

Other Device

Drew Technologies Inc. - Mongoose-Plus Ford2

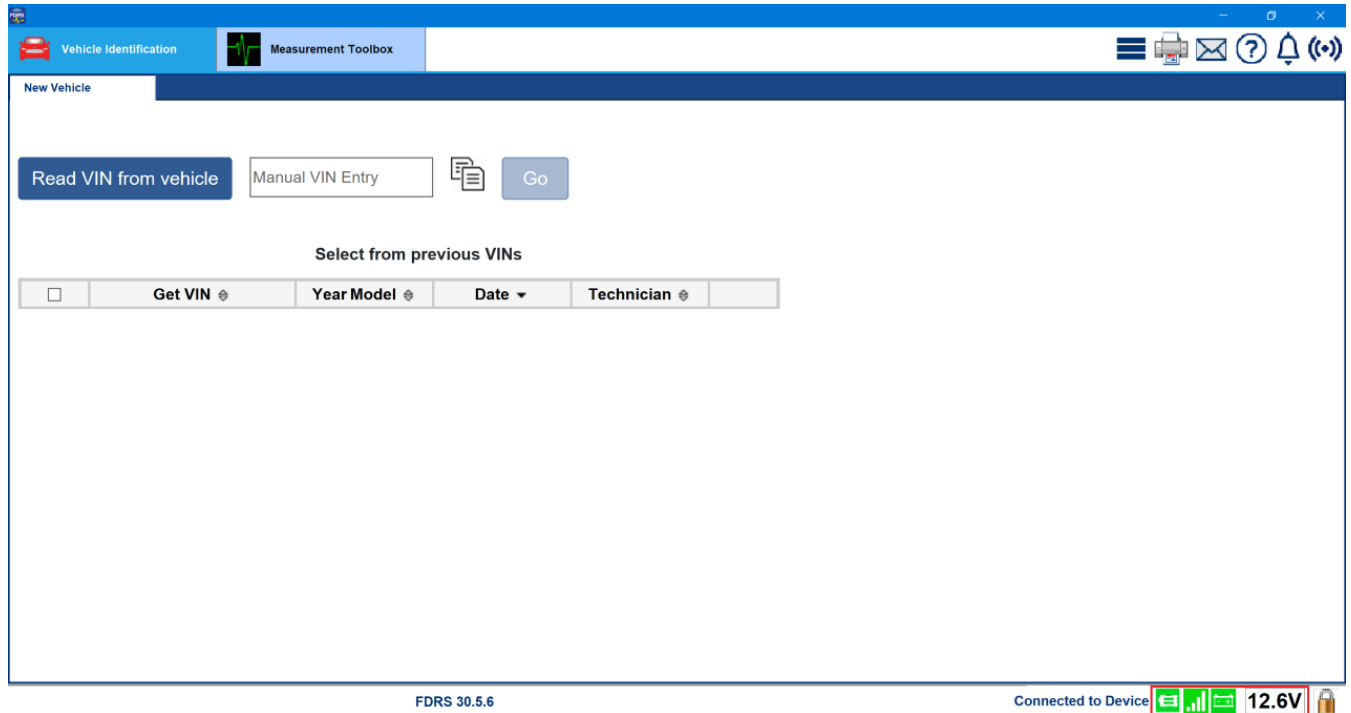
Switch to another wireless device

Always show the device manager on startup?  
TIP: Always Verify Ignition is ON and Check DLC and USB connections.

OK Cancel

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The icons at the bottom right should be all **green** with battery voltage shown



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## Running Network Test (Initial Scan)

- Turn Ignition On, Engine Off
- Click **Read VIN from vehicle**
- Click **Go** to initiate Network Scan
- Once completed a new tab called **Toolbox** will appear at the top of your FDRS screen.

The screenshot displays the FDRS Toolbox interface. At the top, there are three tabs: "Vehicle Identification", "Toolbox" (highlighted with a red box), and "Measurement Toolbox". Below the tabs, the "Toolbox" section shows "Network Test Results" with a legend: "Not Responding" (grey), "Responded Positively" (green), "Responded Negatively" (purple), "CMDTCs detected" (orange), and "Historical DTCs" (yellow). A "Rerun Network Test" button is visible. The main area is divided into two columns. The left column lists modules grouped by system: FD1 (PCM, ABS, CCM, CMR, IPMA, PSCM, SODCMC, SODCMD, SODL, SODR, TCCM), HS1 (BCM, BCMC, GWM), HS2 (ATCM, GSM, HCM, OCSM, RCM, SASM, SCCM, SECM), and HS3 (ACM, APIM, DSP, IPC). The right column shows a "SW U..." tab selected, displaying "GSM - Gear Shift Module (GSM) Software Update" with a "Download" button. Text below the update information states: "FDRS checks the software level in all modules during Vehicle ID. If a software update is available for any module, then the tool needed to download and install the update will be shown above. The modules shown below are already programmed to the latest available software level." The bottom status bar shows "F150 3.5L CYCLON-D4- G-DI-TIVCT-UPG", "FDRS 30.5.6", "Connected to Device", and "12.6V".

On the left hand side you will see all modules detected on your truck. The ones that responded positively will be marked **green**. On the right hand side notice the **SW Updates** tab. Here you will find available SW updates for your modules.

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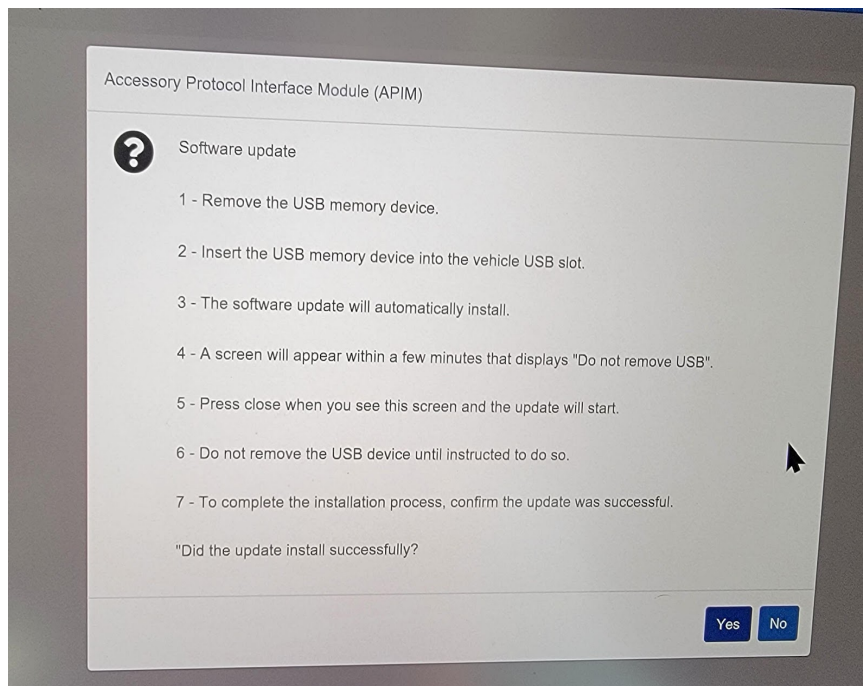
### Module SW Update Procedure

- If there are updates available, click the Download button. The tool will download the necessary files for the module update.
- Once the download completes the button turns green with the text "Run".
- Run the SW Update procedure and follow the on-screen prompts very carefully
- Be patient, some modules take a long time to update. This is especially true for the IPMA module which takes approx. 3 hours to complete. Therefore, it is very important to have your truck connected to an external power supply (battery charger/maintainer).

### USB Update Procedure

**Note:** Certain modules need to be updated via a USB 3.0 flash drive. This is especially true for updates to the GWM, APIM, IPC and TCU modules. You will need to erase (Quick Format) the USB drive between each of these module updates.

FDRS tool will prompt you to insert a blank USB flash drive into your PC. Make sure the drive is formatted to **exFAT**. The tool will copy all necessary files onto the flash drive and once complete, you will be prompted to insert it into your truck's USB hub under the HVAC controls.



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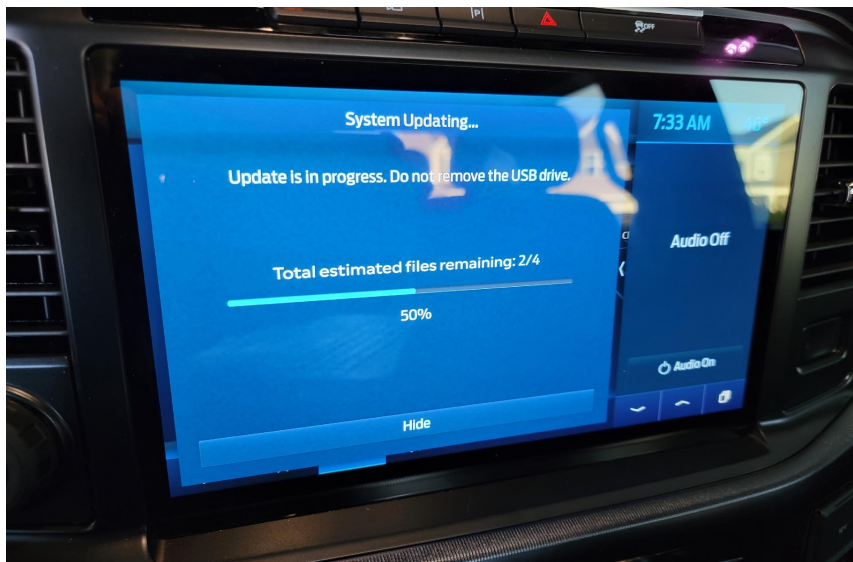
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You will see the following on your Sync screen shortly after you insert the USB stick into the truck. You can close this if you want.

**NOTE:** It may take up to 5 minutes for the vehicle to recognize the USB flash drive.



You can tap on the "System updating" at the top left to see the progress of the update.

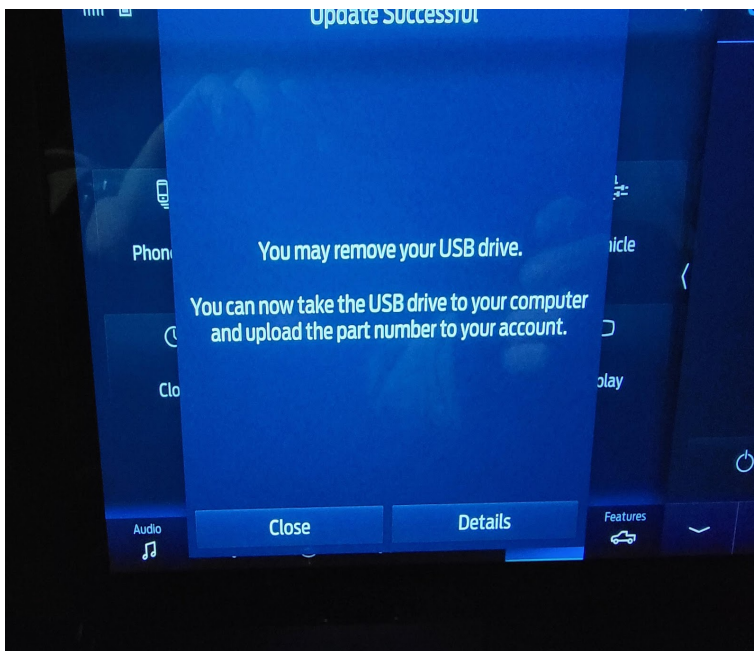


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Once done, you will see a “Restart Required” on your SYNC screen. At this point, turn the ignition to OFF and open the driver’s door. **DO NOT REMOVE THE FLASH DRIVE!**



Wait at least 10 minutes for the truck to completely power down, during this time, do not approach the truck with your FOB. You’ll know when the truck has shut down completely when the LED Halo around the rear USB ports are no longer illuminated. Now open the driver’s door, turn the ignition to ON. You should shortly get a message “**Update Successful**” and it will say to remove the USB flash drive and return it to your computer. Follow the instructions in FDRS to finish the update process.



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## APIM Update

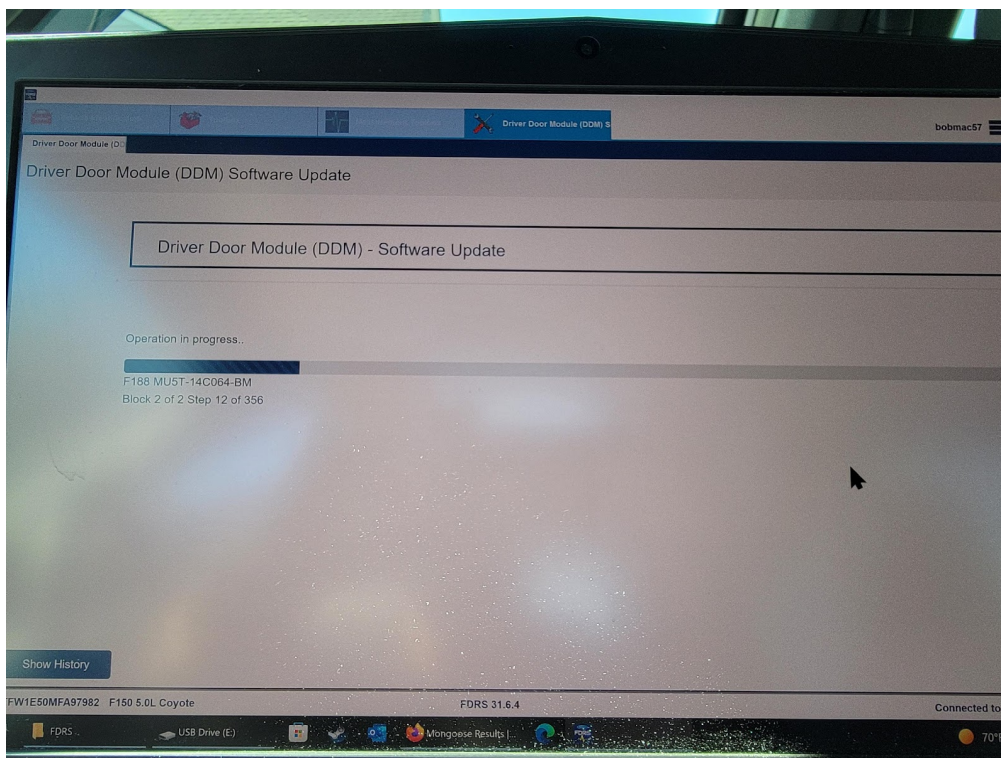
There is a TSB out that instructs you to update the GWM module prior to updating the APIM!

## IPC Update

The IPC has TWO parts - first is a USB update and the second is the CANBUS update, so please pay close attention as you do it.

## CAN Bus Update Procedure

- A CAN Bus update does not use the USB, but sends the update directly to the module via the GWM and Mongoose adapter.



## Troubleshooting

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### Failed USB Update

If a USB update fails you can initiate a CAN Bus update that will complete the process

**Note:** This can take considerable time and in some instances approx. 3 or more hours.

To start this process remove the USB stick from the vehicle then, select “No” to the “Did the update install successfully”, it will prompt you to try the USB Update again, select “No” to start the CAN Bus process.

### Diagnostic Trouble Codes (DTCs)

#### U2100

**Cause:** Initial configuration not complete. This comes from the configuration not completing after a module update.

**Resolution:** Run a PMI on the affected module and select the original module is NOT installed and follow the prompts.

#### U2101

**Cause:** This is a ‘Configuration Incompatible’ and most likely caused by a FORScan change from the original AsBuilt defaults, the affected module is provided in the details.

**Resolution:** Go to FORScan and change the values back to their original.

#### U2400

**Cause:** Communications error with another module.

**Resolution:** This will clear on its own. If you want to be proactive, you can use FDRS or FORScan to clear the DTC. **DO NOT** run a PMI procedure to correct this!

### Updates Reappear

If you have successfully updated a module and the update immediately reappears i.e., ABS, GSM, IPMA & PSCM

**Cause:** Unknown. This appears to be a glitch with either the Ford Servers or FDRS.

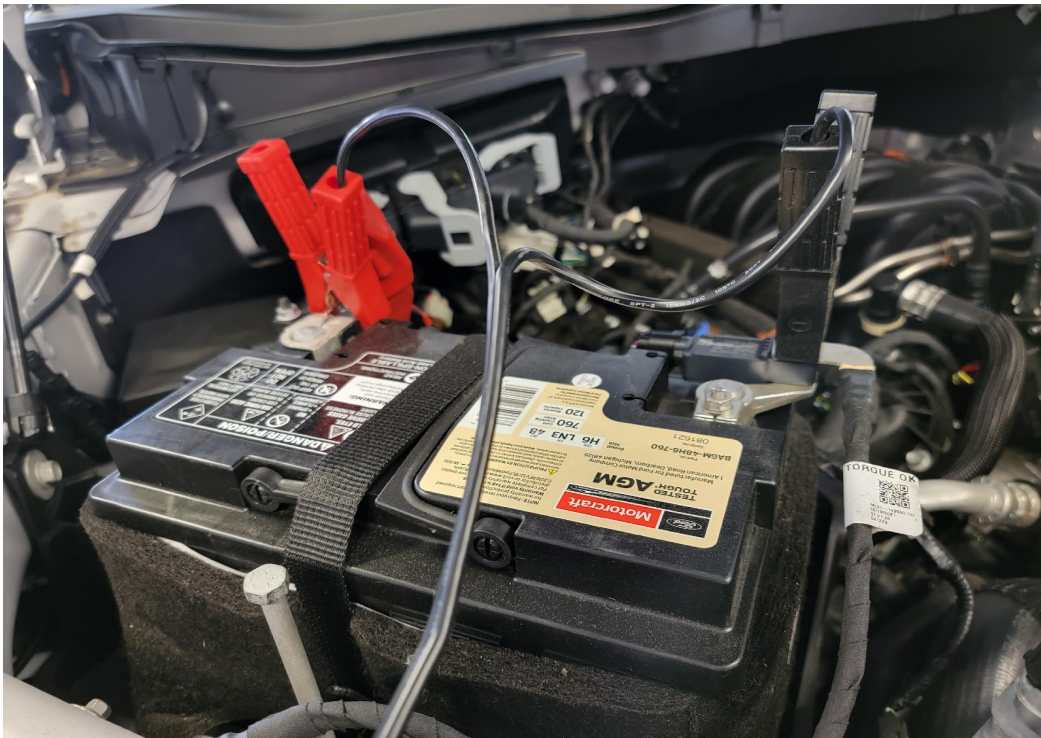
**Resolution:** You can disregard them and they will disappear. You can try running a Network Scan the following day after the servers had time to process the previous day’s updates.

### Additional Info

#### Power Supply Connection

**DO NOT** connect the negative (black) charger clamp directly to the negative battery terminal, it must be connected to the engine or chassis ground in order to bypass the BMS circuitry. Two options are provided below to ensure you have the best connection.

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### Reinstalling FDRS

There may be a time where you will have to remove FDRS and reinstall for whatever reason. The following steps will help you reinstall and retain your license.

1. First you need to select "Return License" so you can reuse it when doing the reinstall.
2. Uninstall FDRS and allow it to remove all user data.

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3. Install FDRS, click License > Add License.

### Helpful Links

[F150gen14 Forum \(iceman77\)](#)'s original ECU Module Programming Guide Using FDRS).

[FORScan](#) - FORScan is a software scanner for Ford, Mazda, Lincoln and Mercury vehicles, designed to work over ELM327 and J2534 Pass-Thru compatible adapters.

[WinMerge](#) - WinMerge is an [Open Source](#) differencing and merging tool for Windows. WinMerge can compare both folders and files, presenting differences in a visual text format that is easy to understand and handle.

### Other Software

[As Built Explorer](#) (by Jesse Yeager) - This tool helps to compare, analyze and explore AsBuilt data.