jscan-docs

Oct 28, 2022

General

As JScan is growing bigger and bigger, with more features and more suported vehicles, we decided to initiate this documentation project. As time passes, we hope this evolves to become the main source of knowledge about adaptations, diagnostics and maintenance procedures enabled in the app.

CHAPTER 1

Contents

1.1 Getting Started

1.1.1 Installation

You can install the JScan app via Apple Appstore or Google Play, free of charge.

First steps & DEMO mode

After installation you can immediately start using JScan.

We highly suggest you start with the Demo Mode first. To enter the demo mode, simply choose your vehicle, and on the OBD Adapter choice screen select “Demo Adapter”.

The demo mode doesn’t connect to a real vehicle, uses sample data and gives you a preview of functions and features specific to the selected model.

You can also start with *Connecting* to your vehicle (you will need one of the compatible adapters).

1.1.2 How to use JScan

JScan is a quite straightforward application, but there are some basics you should understand before you connect to your car.

There are three main areas of the app:

- Dashboard: with diagnostic and trail view functions
- Modules: gives you access to *live data* of the vehicle’s modules
- Adaptation: lets you configure / reprogram your vehicle

See the details below.

Dashboard / Main screen

1) Quick Diagnostic - this screen is responsible for displaying “generic” - “check engine light” Trouble Codes
2) Live Data - this screen will dispay “generic” live data - live data that is common across multiple cars and models

Quick Diagnostic and Live Data available on main screen are generic (standard) data available on almost all cars and models to allow an independent technician to diagnose a car - this is how 99% of cheap OBD tools work

3) Advanced Scan - this is where fun begins - this screen will go through all modules available on the car and it will query about trouble codes

Modules

This screen shows all possible modules for this model - it doesn’t mean that are all actually installed on this particular car.

Each module has 3 functionalities:

1) Trouble Codes - this screen will allow you to show/clear - Trouble Codes on currently selected module
2) Live Data - this screen will allow you to show live data for currently selected module - you need to select pids/live data to start showing data for this module.
3) Activations -> This is a tab is for testing purpose - it alows you to test relays, bulbs, wipers etc.

Adaptations

This screen will show all availalbe adaptations (configuration, settings changes) for this particular car.

Search button is available on bottom - we are trying to group related settings but this is not always possible.

1.1.3 Free & Licensed features

Free

Straight after installation JScan allows you to connect to your vehicle (as long as it is supported of course) and *read* the data from the ECU. This means, that you can run a Quick Diagnostic but also take a look into ECU settings (via Adaptations) to see current values (for example wheel size, gear ratios, various features status etc.)

License

What is a license for? License gives you the following additional functions:

- Advanced Scan
- Live data in specific modules
- Trail View (for selected Vehicles)
- Data modfication: **writing** to the ECU

How does license work?

A license is a slot for 1 VIN. It's attached to your **account token** (found in settings > Manage Licesnses & Account > Status). You can use this token to use JScan on multpile devices with the same vehicle(s). Just install JScan on another phone or tablet and type the token in the settings - both devices will use the same license.

If you sell your vehicle, you can pass the account token to the new owner, clear it from your phone and get yourself a new license for your new vehicle (this will also generate a new token for you to use).

If you have multiple licenses used under the same token and want to pass only one of them when selling the car, please contact us via Facebook message.

Can I transfer my license to another device?

Short answer: Yes. In late 2020 we introduced a new licensing system.

- On your current device go to Settings > Manage Licenses > Status. You will see a yellow field with a 6-character token there
- On your new device, go to the same place and tap the token button (it should say "Add") and type the token in
- Tap refresh icon and/or restart the app if necessary

Note: If there's no token on your old device or you are experiencing other license issues, please get in touch with us.

I didn't read the docs before I changed phones and I don't have the token - what now?

Please get in touch with us, and provide the VIN and the purchase transaction ID.

The transaction ID looks like GPA.xxxxxxxxxxxxxxxxxxx and can be found either in your purchase history in the app store or in the purchase confirmation email.

How do I buy a license?

When connecting to a new vehicle, you will be prompted if you want to assign a license to the vehicle, or if you want to buy a license if you do not have one. This is the most common way.

The second way of obtaining a license is entering settings (gear icon in top right corner) -> "manage licenses". In this screen you can buy a license to assign it later during connection. Note that this is the only way of obtaining a license if you are using a WiFi adapter, as on most phones you will not be able to access the internet while connected to the adapter's WiFI network.

JScan doesn't accept my payment!

That's quite correct, because it is not JScan that processes your payment, but rather the appplication store (Google Play or Apple App Store). If you are having trouble with the payment, please review the app store help or contact the app store support.

I bought a license, but nothing happened!!! What next?!

Almost correct. You can check in Settings > Manage Licenses & Account > Status if the number of purchased licenses increased. If yes (if you have more "Purchased" than "Used" licenses) just connect to your vehicle (see below). That's it. Although we recommend reading the documentation first. It will really save a lot of trouble in future.

1.1.4 Connecting

You will need a compatible adapter. Check out the list of compatible adapters.

For Wrangler JL, Gladiator JT and some other vehicles from 2018 onwards, you **will need a security bypass cable**. See details for each vehicle on our website and read the warning on the main screen of JScan app.

Bluetooth adapter

1. **Plug the adapter into the OBD port** In newer vehicles (2018+) you might need to use a security bypass cable in order to make changes to your vehicle. See the vehicle-specific section.
2. **Turn the key to ON/RUN position**

> **Caution:** The dashboard controls need to light up, basic checks need to be performed.
>
> ACC position is not enough.
>
> You *can* connect to your vehicle with engine running but **don't** make any Adaptations unless they are explixitly designed for it. It's fine to use Trail View, read Live Data, etc.

3. To connect with most modern OBD Adapters there is **no need to pair them with the phone first**. You might need it with older devices (BT 3.0 & 2.0), but try without pairing first.
4. Open JScan app
5. Select your vehicle
6. **Select "Autoconnect" if your adapter is listed in the option's description, or choose your proper BT adapter (note, that the**

> **Note:** This is when the app store account license reads and locks the vehicle VIN, so if you connect to your mom's / dad's / friend's vehicle to show them how JScan works, you will bind the license to their VIN. There's no "undo".

7. Explore

Note: Hint: If you are having issues with connecting to the OBD Adapter please make sure that you gave all required permissions to the JScan app. This includes Location / GPS, and it has to be turned on in your phone. We DO NOT collect, store, or even use the location data in any way, but it has to be enabled dues to how mobile systems prviacy rules are built (in short: JScan needs to be *allowed to* to determine your location, because - in theory - it *could* do it based on the Wi-Fi or a BT device you are connected to).

Wi-Fi adapter

Follow the steps above, but at step 3.

- connect to a Wi-Fi cast by the adapter
- some adapters and phones will require you to disable mobile data transfer, otherwise the connection will fail
- make sure you allow JScan to use your device location - it's needed for establishing the wi-fi connection (see note above)

1.2 Quick Diagnostic

Free. Tap here to run a quick scan of general errors reported by the vehicle.

1.3 Advanced Scan

Requires a license. Allows a more detailed look into any errors reported by the vehicle.

Returns errors and allows clearing them (tap the trash can icon).

Note: Advanced Scan and code clearing does NOT solve the reason why errors occur.

There are different error statuses, two of them being the most frequent (status is written jut below the error code):

- **stored:** the error occurred in the past and usually is not present anymore. In most cases, this type of error will be permanently deleted when you clear error codes
- **active:** the error is currently reported by the car. In most cases, this error will come back after clearing error codes

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Note: FYI: We are not able provide advice on fixing either mechanical or electrical issues with your car, so a question "how do I fix code XYZ?" should rather go to your car mechanic.

1.4 Modifying your vehicle

This is a high-level guide about how to change a setting in your vehicle:

1. Find JScan in your app store
2. Install JScan
3. Purchase a license (from within the app)
4. Connect to your vehicle
5. Go to Adaptation section
6. Find the setting you want to change
7. Choose a new value and tap the "GO" button.
8. Check the result - it's reasonable to restart the vehicle before you do.

1.4.1 Modules

The modules section of the app gives access to actual control modules of the vehicle, live data provided by them and module-specific Activations.

Note: Activation is a "live" change that will **NOT** be stored after vehicle restart.

1.4.2 Adaptations

The Adaptation section allows making changes to various settings in the ECU. .. note:: Adaptations are permanent.

1.4.3 Trail View

In some vehicles you will be able to access some "live" features, which work when JScan is connected to the vehicle. These can be used with the engine running.

1.5 Troubleshooting

1.5.1 Troubleshooting connection issues

Attention: Do NOT purchase the license as a "fix". The license has nothing to do with the communication between the devices.

First steps:

1. Make sure the key is in RUN, not ACC position.
2. Make sure you are using a supported adapter (check the list of compatible adapters).
3. Make sure your phone has Bluetooth or Wi-Fi enabled (depending on the adapter type).
4. Make sure you gave JScan all required permissions
5. Make sure you **choose the correct adapter** from the list

... note:: The *Auto-connect* option is for BT 4.0 (BLE) devices only.

6.Make sure no other OBD applications are using the adapter (and uninstall Torque, it works in the background preventing JScan from connecting)

If the connection is established, but JScan features don't work (App can't read VIN, adaptations fail, etc.) it is usually an issue with the adapter, especially if it's a cheaper one.

OBD Adapter check

Go to JScan settings and tap on *ELM327 Identification*.

- If every row reports TRUE (green) then the adapter is most likely fine. It means it is responding to basic OBD commands (it does not mean that it's capable of performing all adaptations though - again, check the list of supported adapters).

- **If any row reports FALSE (red) then there is a communication issue:**
  - All rows except the last one (Module) are testing the communication between your phone and the adapter. Any issues here usually indicate an unsupported or malfunctioning adapter. Replace the adapter.
  - **The last row - Module - is an adapter-vehicle communication problem. There are multiple possible reasons:**
    - The car is not turned on (set the key to RUN, not ACC)
    - The socket connection is bad (check the pins 6 & 14 for OBD2 network connectivity)
    - The adapter is faulty (replace the adapter)
    - Other, unknown causes - get in touch with us

JScan doesn't read the VIN

1. Make sure the key is in ON position (not ACC) – i.e. dashboard controls are on.
2. Inspect the OBD adapter and socket. Do pins fit tight? Or are they loose / dirty / rusty / broken?
3. Go to JScan settings (cog, top-right corner) > ELM327 identification. All entries except ABS are adapter-phone communication. ABS is adapter-car. Any "false" values will indicate a possible adapter issue.
4. If it's a new purchase use "Return and Replace" or similar method to get another device from the vendor.

Connection lost - You will be disconnected from: Bluetooth

If you are getting the error above, please uninstall Torque application. If you don't have Torque, but are still getting this error please contact us.

Other issues

Other common problem include:

- no bypass cable in a vehicle that requires it (2018+)
- incorrect adapter choice in the list
- incorrect vehicle choice in the list (especially tricky with WK2 2014 - make sure you choose the correct pre- or post-lift model)
- another diagnostic application using the BT connection (yes, they do it even when not running - they work in the background)

Note: If you're facing any other issue, or the problem solutions described above don't work - get in touch with us on FB messenger. We will figure this out. Please include the vehicle model & year, adapter brand, phone OS (Android or iOS) and what steps you took.

1.5.2 Troubleshooting license purchase issues

If you run into problems when purchasing the license, first of all **read** the error message. It usually provides an explanation of what the problem is:

- **No network connection issue:**
  - make sure you are connected to the web, and **disconnect** from a Wi-Fi cast by the adapter
  - make sure that you have granted JScan all the required permissions: that includes Location / GPS, and make sure GPS is actually enabled. **We do not use or collect this data.** However a connectivity framework on mobile phones is build in a way taht requires these permissions.
- **Item already owned error:**
  - this can happen if you bought your first licence before 2020, when we introduced account tokens and decoupled the licenses from your Apple/Google ID, and you are trying to buy another license.
  - go to JScan settings > Manage Licenses & Account > Status
  - write down your account token if present
  - tap the green icon (. . .) and select > "Consume all in-app purchases"
  - close JScan (completely, not just drop to background with the Home button)
  - open JScan again and try buying the license
  - if it still doesn't work, restart the phone

1.5.3 Troubleshooting specific adaptations

Tire size issues:

Check engine light is on and speedometer not working:

> Was the adaptation done with engine working? Have you started the vehicle immediately after making the adaptation (without turning it off first)?
>
> If yes, open "Quick Diagnostic" page and tap "Trash" icon. Engine must be OFF and Ignition must be ON (usually second key position). All should be back to normal.
>
> If not, (that is, if adaptation was done with key in RUN, engine OFF), you probably typed the tire size manually. However, the manual input here is for circumference (in mm), NOT the diameter (height). So, either do the math (tire height inches * 2.54 * PI) and type the result in manual input, or – recommended – use the drop down to find the closest value matching tire height (in).

Note: Factory speedometer is ALWAYS showing higher reading than you actually drive. That's a safety feature, required legally for example in the EU. If you want to 'fix' it, just pick a slightly smaller tire height (0.25"-0.5" less than real).

Check engine and / or ABS fault is on:

> The new tire size is outside of an acceptable range. Some vehicles (more 'civilian') have a hard-coded limit of a tire size.

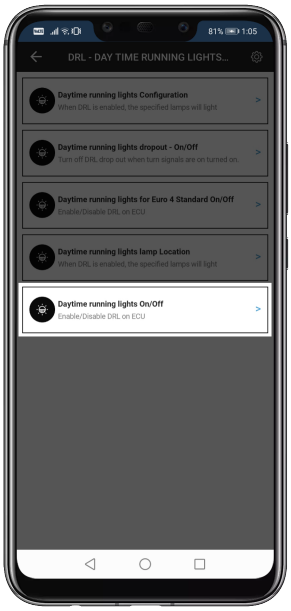
Gear ratio issues:

After changing the gear ratio the vehicle goes int limp mode and "incorrect gear ratio" error appears in Advanced scan:

> Make sure you set the correct gear ratio (we've heard about mis-labeled gear sets) If the ratio is fine, make sure you followed the correct procedure. If not - repeat it.

Troubleshooting DRLs

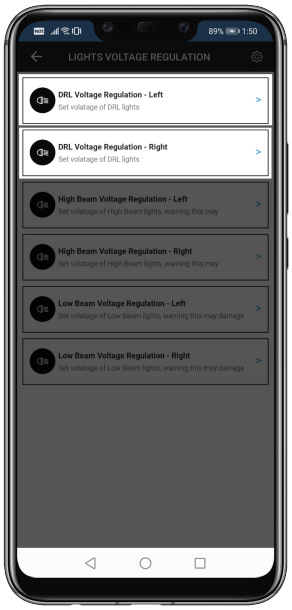
Check your Daytime running lights On/Off, this option should be set to Active



Check DRL Voltage Regulation Left & Right to make sure there is power set to:

- 5.0 V or 7.0 V for classic bulbs if you want them to shine at 50% power
- *12.4 V for LEDs* or full power from regular bulbs

Those settings are available under Lights Voltage Regulation



1.6 TPMS - Tire Pressure Monitor System

There are two types of the TPMS: Standard and Premium. They both monitor tire pressure, but the premium version is capable of displaying more details, like current pressure on the EVIC (the electronic display in the instrument cluster). The basic TPMS version was installed up to around 2011 in Wrangler JK, and most other vehicles past 2012 have the premium variant.

Note: TPMS is slow to respond to changes. It has it's own cache and can remember multiple settings. Either be patient, or reset the TPMS after applying changes - see details below.

1.6.1 Disabling TPMS

That's the most basic change. If you want to disable the system completely it is advisable (though not necessary) that you have a proper tire pressure before you begin, i.e. no warning is up.

1. Connect to your vehicle
2. Open Adaptation
3. Open TPMS settings
4. Set the following, if present (these options' naming varies from vehicle to vehicle):
    - TPMS On/Off: *deactivated*
    - TPMS Premium On/Off: *deactivated*
    - Base TPMS system present On/Off: *deactivated*
    - TPMS System present On/Off: *deactivated*
    - Premium TPMS System present On/Off: *deactivated*
5. Don't worry if deactivating some of these does not work. This only means that the setting is present in the vehicle software, but this particular model doesn't use it.
6. Reset the TPMS:
    - Close the car, let it sit for a few minutes. If you see no change in behaviour, continue to the next step:
    - On most vehicles disconnecting the battery for a few minutes resets the TPMS, hower some newer vehicles have others systems relying on a constant power supply, so instead you can use **!Restart all ecus** option (usually available in Miscellaneous Settings section).

1.6.2 Changing TPMS thresholds

This is a simple change, and again - it is highly advisable to not have any TPMS warnings active.

1. Connect to your vehicle
2. Open Adaptation
3. Open TPMS settings
4. Set TPMS thresholds in the following:
    - TPMS Threshold: for vehicles equipped with the basic version
    - TPMS Threshold - EVIC version: well... yes, for vehicles with the premium version

- Light Load Inflation Pressure Front / Rear Tire: Leave at 0.
- Max Load Inflation Pressure Front / Rear Tire: for vehicles that have a load sensor (Gladiator, RAM trucks). This value is used as the **minimum** pressure when the **vehicle is fully loaded**. Change this value first and see if it does the job.

5. Reset the TPMS:
   - Close the car, let it sit for a few minutes. If you see no change in behaviour, continue to the next step:
   - On most vehicles disconnecting the battery for a few minutes resets the TPMS, however:
   - some newer vehicles have others systems relying on a constant power supply, so instead you can use **!Restart all ecus** option (usually available in Miscellaneous Settings section).

1.7 DRL - Daytime Running Lights setup

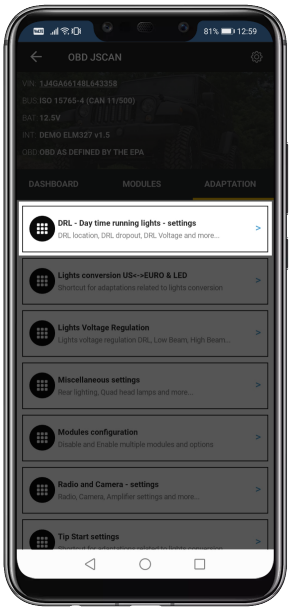
A daytime running lamp (DRL, also daytime running light) is an automotive lighting on the front of a roadgoing vehicle, automatically switched on when the vehicle's handbrake has been pulled down and is in drive, emitting white, yellow, or amber light. Their job is not to help the driver see the road but to help other road users see the vehicle.

Important:

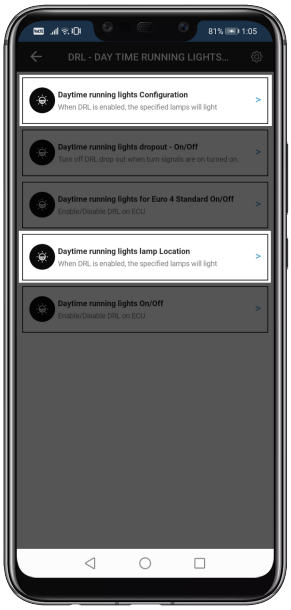
- When you change DRL settings Engine should be OFF and ignition set to RUN
- When you try to test DRL start car and release emergency brake and put your gearbox in to Drive. On Manual gearbox you only need to release emergency brake.

1.7.1 DRL Configuration & Customization

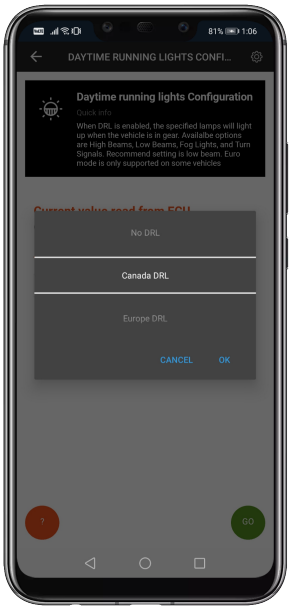
Slide to adaptation section and locate DRL – Day time running lights – settings



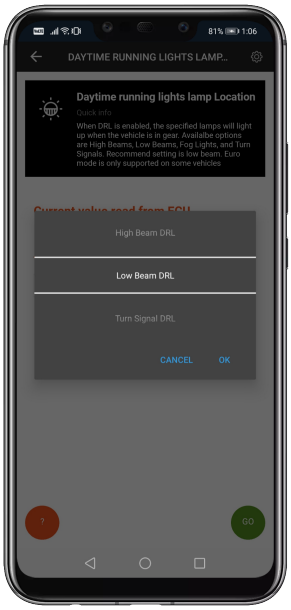
Now we have to set up DRL lights – lets start with Daytime Running Lights Configuration & Daytime Running Lights Location



First start with Daytime Running Lights – Configuration. Choose Canada DRL and update ECU.



Now, it's time to set Day Time Running Lights Location – start with Low Beam and update ECU.



1.7.2 Test your lights

Start the car and release emergency brake put your gearbox in to Drive “D”. On Manual gearbox just release emergency brake.

If needed, consult troubleshooting section.

1.8 LED Lights / Indicators setup

1.8.1 First steps:

If you install LED lights - be it headlights, tail lights, indicators, etc., there is a high chance that you will get one of the following:

- fast blinking indicators
- flickering headlights
- no headlights
- no DRL
- light malfunction warning on the dashboard

1.8.2 If any of these issues occur:

- connect to your vehicle with JScan
- go to Adaptations section
- find LED Light settings or a similarly called group, OR, use the search (the green icon with a magnifying glass) and search for LED

- identify settings called “LED <type of light> present ON/OFF” and enable it for every LED light you have

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Note: If there is no setting for a given type (i.e. no LED Fog Lights for Wrangler JK) it means the vehicle software is not designed to accomodate for LED lights of a given type. You’ll have to install resistors (a.k.a. “anti-flicker harness”) or a CAN-compatible LED bulb.

1.8.3 Troubleshooting:

If the following steps didn’t solve the problem, you can try to:

- search for adaptations with the word “diagnostic” or “DTC” and *disable* to disable the persistent trouble code (only in newer vehciles)
- locate the HID (HIgh Intensity Discharge) Headlights Present, Quad Headlamp Present, and or Bi-Xenon Headlamp present and try if enabling any one or any combination of them eliminates the flickering. If not, you’ll need a harness or better quality headlamps
- find an adaptation with the word “voltage” and ensure you set the DRL / LED headlamp volatage to 12-14V (most LEDs will not work at all on lower voltage settings and it’s not possible to adjust LED brightness with a lower voltage - this trick works only with traditional bulbs)

1.9 Tire Size change

Changing the tire size works the same in all vehicles.

Attention: Make sure your engine is NOT RUNNING

1. Connect to your vehicle
2. Open Adaptation
3. Open Tire & Axle settings.
4. Set Tire Size:
    - Choose a value from the drop-down list. It represents a tire *diameter* in inches.

    Note: If you pick a value that matches your tire size exaclty, your speedometer will be showing a higher reading than your GPS. That’s normal - your factory wheels with factory settings worked the same. Blame the law-makers (At least in the EU). We recommend setting a value that is about 0.5 inch smaller than your actual tire size.

    - If you enabled it in App & Adapter settings, you will have manual input availabe. This however is wheel **circumference** in mm. Not recommended.
    - With manual input enabled you migth get an error when trying to set a value from a drop-down. In that case, disable manual input.
5. **Disconnect, close the car, let it sit for a few minutes.** No ECU reset required.

1.9.1 Notes:

Some vehicles (especially the more "civilian" ones) have a max tire size value they can handle. You can set a higher one, but the ABS module will throw a warning on your dash. Decrease the tire size.

If you have any errors after setting the tire size (including because of the issue above):

1. Connect to your vehicle
2. Run Advanced Scan
3. Clear the codes
4. Fix the tire size setting
5. Restart the vehicle and see if the problem is fixed
6. If not, go to Adaptations, use search to find "ABS Static Init" (preferred) or other ABS Initialization procedure and run it.
7. Clear the error codes again
8. Restart your vehicle

If the steps above didn't solve the problem, then most likely your vehicle is not designed to accept any other value than factory. Go to JScan settings > Trace & Restore Adaptations to either check the history of changes or revert all settings to factory.

1.10 Key Programming - BETA

Attention: Both key programming and this documentation section are *work in progress*. That means it might or might not work, the process and details described might be inaccurate, etc. You have been warned.

1.10.1 Foreword

JScan has the capability of adding a new key to a list of keys accepted by the vehicle, **HOWEVER** this is still a work-in-progress feature, a **BETA, EXPERIMENTAL FEATURE** if you will. We cannot guarantee it will work for your particular vehicle and - what's more important - for a particular key / fob. In addition, there is a lot of external factors that can interfere with the coding process and they are beyond JScan control. We cannot provide individual support for key programming issues.

1.10.2 Requirements

The following are a must:

- a Bluetooth Adapter - it **will not work** with a wi-fi OBD device
- internet connection (either via wi-fi or mobile data)

Recommended:

- an OEM key that mathces the original key part number - aftermarket keys might or might not work, even from the same supplier
- a new battery in the fob - or at least check the battery voltage; with flat battery the buttons will surely not work

1.10.3 How to program a key

1. **Acquire a vehicle PIN. To do it via JScan:**
    - Connect to your vehicle using your current key
    - Open Adaptations
    - Find "PIN Reading - BETA" or similarly named adaptation (use the search)
    - From the dropdown list choose an appropriate WCM (see models listed in brackets on the dropdown list)

    Note: To determine, which WCM your vehicle is equipped with, see the hint in the adaptation, or follow these steps:

    Go to Modules section, open either RFH (Radio Frequency Hub) or WCM (Wireless Control Module / Wireless Control TPMS) Check Active Diagnostic Variant (RFH) or Variant ID (WCM) value. This is the identifier of the module responsible for handling the key IDs.

    - *RUN THE PROCEDURE* - the initially displayed PIN (23 31 usually) is NOT an actual PIN
2. Turn the car off
3. Use the new key (already cut to shape of course) and turn it to RUN position, just like in a normal connection procedure. Don't try to start the engine, it will not work yet.
4. Connect to the vehicle as usual
5. Find "Ignition Key programming - BETA" or similarly named adaptation (use the search)
6. Select the correct WCM if applicable (the same as you used to read the PIN)
7. Run the adaptation and follow the instructions

If needed, consult troubleshooting section.

1.10.4 How it works

What JScan does?

JScan instructs the vehicle to bind the key with the immobilizer, allowing the key to start the vehicle. To complete the procedure

- in some vehicles the PIN can be retrieved with JScan
- in others, it can be obtained from a dealership
- most recent (MY 2018+) are not supported due to more complex security measures (and not even a code from the dealer will help)

What JScan doesn't do?

JScan (nor any other device / software, even the professional ones) does not bind the key on its own - it only instructs the vehicle to do it.

JScan doesn't handle the fob buttons binding process. This happens automatically between the key and the vehicle ECU.

Jscan doesn't remove previously programmed keys - there is no known way to un-bind a key. It is important to consider that when adding new keys because most vehicles have a maximum count of keys that can be added.

1.11 NAG1 tranmission reset & learning

This article is based on NAG1 installation manual. You can download the original and keep it for reference.

1.11.1 TCM ADAPTATION for NAG1 transmission

This procedure allows the electronic transmission system to re-calibrate itself. This will provide the proper baseline transmission operation. The adaptation procedure should be performed if any of the following procedures are performed:

1. Transmission Assembly Replacement
2. Transmission Control Module Replacement
3. Clutch Plate and/or Seal Replacement
4. Electro-hydraulic Unit Replacement or Recondition

We also recommend it if shifting feels off after:

1. Changing gears in axles (axle ratio)
2. Changing **significantly** the tire size

The procedure

1. Connect with JScan to your vehicle
2. Open Adaptations and naviate to the Tire & Axle or Vehicle Maintenance section, or use search to locate "Reset Learned Adaptives (NAG1)" or similarly named adaptation and run it.
3. Start your vehicle and go for a ride (you will need a highway or a similar road, where you can reach higher speeds)
4. **Drive the vehicle until the transmission temperature is:**
    - greater than 60°C (140°F)
    - and less than 100°C (212°F)
    - Failure to stay within these temperature ranges will void this procedure.
5. Drive until you get the 5th gear, and perform a coast-down (release the gas pedal and let the engine downshift) from 5th to 4th and then from 4th to 3rd gear. Repeat 4 to 5 times.
6. Stop the vehicle, then moderately accelerate the vehicle and obtain all forward gear ranges while keeping the Engine RPM below 1800 RPM. Repeat this procedure 4 to 5 times.
7. Obtaining 5th gear may be difficult at 1800 RPM. Allow transmission to shift into 5th gear at a higher RPM then lower the RPM to 1800 and perform manual shifts between 4th and 5th gears using the shift lever.

Warning: The TCM stores adaptives every 10 minutes, so once you complete the process above, make sure that the vehicle stays running for at least 10 minutes OR use "Store learned adaptives" procedure in JScan.

1.12 Throttle Body (ETC) Relearn

Throttle body (ETC) Re-Learn procedure is now available at JScan. When you replace your throttle body, pcm, gas pedal it may be required to run ETC re-learn procedure. Before you start this procedure make sure your gas pedal is working correctly.

This procedure applies to multiple cars/years/models. 3.6, 3.8, 5.7, 6.2 etc.

ETC Relearn is available under **Vehicle Maintenance** group in Adaptations.

Note: Tech Tip: Jeep JK 3.8 - You can swap "Viper" Throttle body part number 53032837AB to Jeep JK 3.8. It's a bolt on update. You will just need silicone intake tube 4" to 3" adapter.

1.13 Jeep

Note: This is *NOT A FULL LIST* of features available for modification, rather a colletion of more complex, vehicle-specific settings. For a complete list of features go to the JScan app and use demo mode connection.

1.13.1 Wrangler JK (2009-2018)

Installing LED Fog Lights

JScan can't help much here, but please see this great guide on installing LED fog lights in your JK.

TPMS

Follow the generic TPMS instructions.

US -> EU Light conversion

If you imported a JK from the USA, you will need to adapt (among other things) the rear lights. In American version the stop light is also the turn signal. In Europe, these need to be separated.

1. Connect to your vehicle
2. Open Adaptation
3. Open "Lights conversion US<->EURO & LED"
4. Set "Rear Lighting Combined On/Off" to **disabled**

Now your side lamps will work as indicators only, and you need to route a wire from the third (central) stop light to each of the rear lamps to power the European stop lights as well.

Transmission gear ratio

Change this *only* if you physically changed the gears. Make sure you know the actual ratio (don't trust the labels on boxes).

1. Connect to your vehicle
2. Open Adaptation
3. Open "Tire & Axle Settings"
4. Change T-Case High and/or T-Case Low Ratio
5. Execute Initialize EGS

> **Note:** For WA580 - NAG1 automatic transmission only. This step is *not* required in JK 3.8 with an older transmission (it doesn't have the EGS).

6. Turn off the vehicle
7. Close & lock the door and leave the vehicle for a 15 min break
8. Go for a test drive

Note: If there are errors mentioning "incorrect gear ratio" see **'Troubleshooting'_**

Jeep Wrangler JK Automatic transmissions

Below you will find tech tips and procedures dedicated for each gearbox. There were 3 automatic gearboxes in JK 42RLE (4 speed), 545RFE (5 speed), WA580/NAG1 (5 speed)

- JK 2.8 CRD 2007 - 2010 - 545RFE
- JK 2.8 CRD 2010 - 2018 - WA580/NAG1
- JK 3.8 Petrol - 2007-2011 - 42RLE
- JK 3.6 Petrol - 2011 - 2018 - WA580/NAG1

545RFE

The 545RFE transmission has its own transmission control unit Procedures:

- "Quick Learn" - Quick Learn should only be used when a transmission has been replaced or overhauled, or when the Transmission Control Module has been replaced or flashed.
- "Clear VLP Counters" - Shift Counters
- "Clear VLP Counters" - Tooth Counters

42RLE

The 42RLE gearbox has a gearbox controller connected to the engine control unit (all in one module) Procedures:

- "Quick Learn" - Quick Learn should only be used when a transmission has been replaced or overhauled, or when the Transmission Control Module has been replaced or flashed.
- "Clear VLP Counters" - Shift Counters
- "Clear VLP Counters" - Tooth Counters

WA580/NAG1

The WA580 gearbox has its own gearbox control unit (it is roughly to the right of the driver's feet) Procedures:

- Initialize EGS - This procedure will transfer data in to transmission module, it is required when you update Axle Ratio and recommend with significant Tire Size update (if you experience poor shifting).
- TCM Reset Learned Adaptives - This procedure This program allows the electronic transmission system to re-calibrate itself.
- TCM Store Learned Adaptives - This procedure This program allows the electronic transmission system to save current calibrations.

See NAG1 How-To for details.

1.13.2 Wrangler JL (2018+)

Choosing the right adapter

Jeep JL (and JT) are quite advanced in terms of electronic systems installed in the vehicle. Some of these systems don't operate on the standard CAN bus network, and to access them you will need either the OBD Link MX+ or vLinker MC+ adapter.

The affected modules are:

- HVAC (Heat, Ventilation, Air Conditioning)
- BSM (Blind Spot Module)
- some other radio features

Bypassing the Security Gateway

Chrysler's Secure Gateway Module came out in 2018. The SGW is a module whose function is simply to keep the communication networks secure. The SGW protects the vehicle networks from being exploited by creating a firewall between two portions of the network with the most vulnerability. This means, that to make any changes, you will need a SGW bypass - usually a cable. See our SGW Bypass page for details.

Changing TPMS thresholds

1. Connect to your vehicle
2. Open Adaptation
3. Open TPMS settings
4. Set TPMS thresholds in the following:
    - Light Load Inflation Pressure Front / Rear Tire: Leave at 0.
    - Max Load Inflation Pressure Front / Rear Tire: This value is used as the **minimum** pressure. Change this to your liking.
5. Close the car, let it sit for a few minutes. If you see no change in behaviour, continue to the next step:
6. Reset the TPMS. Use **!Restart all ecus** option:
    - from the drop-down menu choose Tire Pressure Monitor - Power On Restart
    - tap GO

- once procedure is complete, repeat step 5.

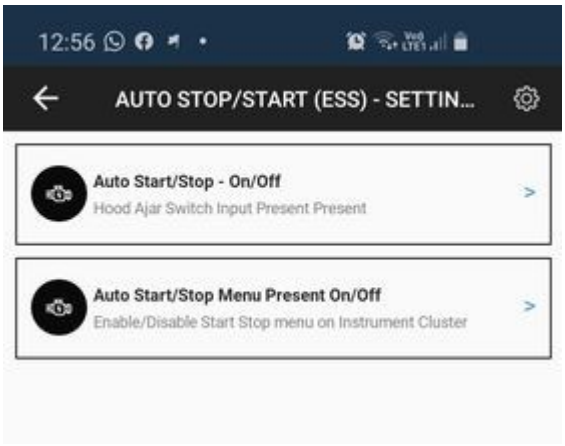
ESS - Engine Start/Stop System

Warning: ESS settings seem to be ignored and **will not work** in your vehicle.

There is a workaround disabling Engine Start/Stop System is possible, but requires a small hardware modification (reversible) and *will* result in a warning on the dashboard and will disable Remote Start as well.

Software settings:

1. Connect to your vehicle in JScan
2. Go to Adaptation > Auto Stop/Start (ESS) Settings and see the following:



   a) Auto Start/Stop On/Off - disable this setting to stop the ECU from monitoring the Hood Ajar switch.

Note: This will also disable Remote Start feature.

   b) Auto Start/Stop Menu Present On/Off - disable this setting to remove the ESS-related menu entries on your instrument cluster (dashboard).

Note: If you don't want to disable ESS but want to explore any issues with the system, enable this option - it will give you quite a good overview of the system status.

3. Disconnect JScan
4. Turn the vehicle OFF

Workaround:

Open the hood and follow the instructions below to disengage the Hood Ajar sensor:

a) The sensors (two of them) are basically simple switches. Located just next to the grille on the left side of the vehicle (on your right, when you stand in front and look at the hood).

b) You need to remove only one of the sensors, but leave it plugged in to the harness

c) On the top side of the sensor, there are two tabs in the ring that mount the sensor to the metal bracket. Press both of them to release the sensor.

d) Pull the sensor up

e) Gently pry the plastic tab that holds the sensor together to disconnect the top part

f) Pull the cable along with the lower part through the metal bracket opening

g) Reassemble the sensor and secure it below & behind the bracket in an extended position (do not squeeze it - you want to simulate the hood open state)

Tire size - Manual transmission

When changing tire size in a JL with a **manual** transmission it is necessary to follow the procedure below to avoid DTC P08A6 error.

1. Restart the PCM (Power Control Module) by either disconnecting the battery (batteries) or using JScan *!Restart all ECUs* adaptation
2. **Once reset, drive the Jeep so:**
    a) Vehicle speed is 40-80mph, in 6th gear
    b) Accelerator pedal position is more than 0.392 volts
    c) Flywheel torque is >75 Nm
3. Drive like this for at least 20 seconds.
4. Once the module reads all the data it will re-enable the all gear sensor performance diagnostic.

LED lights / indicators warning

When original traditional lights / indicators are replaced with LEDs, even if you set the corresponding settings to let the ECU know that LEDs are present, it is possible to get a dashboard error about malfunctioning light / indicator.

If you are certain the lights / indicators work properly and want to remove the error from your dashboard:

1. Go to Adaptation
2. Tap search (a magnifying glass in a green circle)
3. Type “diagnostics”
4. Disable the corresponding “diagnostics present” setting.

This will tell the ECU not to monitor the state of the sepcified lamp or indicator.

Enabling auto high beam option on Jeep JL / JT

Note:

- this REQUIRES you have the forward facing module up center of the windshield, in the area of the inside rear view mirror. This contains the DASM. It’s the radar and camera that handles ACC, Forward Collision Warning, etc.

This option may not work on early 2019 JL models - software update at the dealer may be required.

If you do not have that black box up there, you cannot enable auto high beams.

Go to Adaptations and open group "Auto Headlamp & Auto High Beam"

- Auto High Beam -> Activated it will activate this option
- Auto High Beam Module Location -> Select IRCM - this tells ecu where the module is installed
- Auto High Beam On Threshold -> 25 km/h - this is default on some cars, on others it is 0 and in booth cases it should work.
- Auto High Beam Off Threshold -> 20 km/h - this is default on some cars, on others it is 0 and in booth cases it should work.
- Auto High Beam CSM Present-> Activated Radio settings screen under "Lights", adds the menu selection so you can turn it on or off

1.13.3 Gladiator JT (2018+)

General hints for JT

Please see the JL section above - JT shares a lot with the JL model.

Changing TPMS thresholds

1. Connect to your vehicle
2. Open Adaptation
3. Open TPMS settings
4. Set TPMS thresholds in the following:
    - Light Load Inflation Pressure Front / Rear Tire: *SUPPOSEDLY* This value is used as the **minimum** pressure when the **vehicle is not loaded**. Possible range is **25-80psi**, however, there are reports that his value is set to 0 by default. If that's the case in your vehicle (see "Current value in ECU" when doing the adaptation), don't change it.
    - Max Load Inflation Pressure Front / Rear Tire: *SUPPOSEDLY* This value is used as the **minimum** pressure when the **vehicle is fully loaded**. Possible range is **25-80psi**.
5. Reset the TPMS. Use **!Restart all ecus** option:
    - from the drop-down menu choose Tire Pressure Monitor - Power On Restart
    - tap GO

1.13.4 Grand Cherokee (WK/WK2)

Tire Size

Note: In models equipped with the advanced Park Sense module (not the basic, 4-sensor one) setting a bigger tire size **will cause Park Sense and ABS errors** and there is currently no known solution.

Generally, follow the default Tire Size procedure, and then:

- if everything works fine after you restart the car, you're good to go
- **if you are getting an ABS error:**
  - Run **ABS Initialization** adaptation
  - Run Advanced Scan and clear the error codes
  - Cycle the ignition (shut the car down, wait a moment, start it again)

SRT Mode vs Performance Pages

If you want to enable SRT / Performance Pages on the radio, **don't use SRT Mode Adaptation.** This adaptation is used if you actually have an SRT hardware. To enable SRT options on the radio use Performance Pages adaptation, and be aware that the radio might need up to 24 hrs to catch up on changes made and/or a hard reset (pulling the radio fuse) if 24 hrs wait is not enough.

How to: Convert rear lamps on Grand Cherokee < 2014 from US to EU spec

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Note: This description is based on Wrangler JK process and might not be accurate. Inspect your vehicle wiring, diagrams and consult with someone who has some experience already. If the description is inaccurate, please reach out to us. Your feedback is highly appreciated.

- Replace US rear lights with EU version
- Set Combined Rear Lightning On/Off -> Set this option to Deactivated. This will leave only turn signals instead of combined lamps.
- You will now need to add a wire from the third (center) stop light to the stop lights on the sides.

How to: Convert rear lamps on Grand Cherokee 2014-2020 from US to EU spec

General steps required to convert car to euro spec

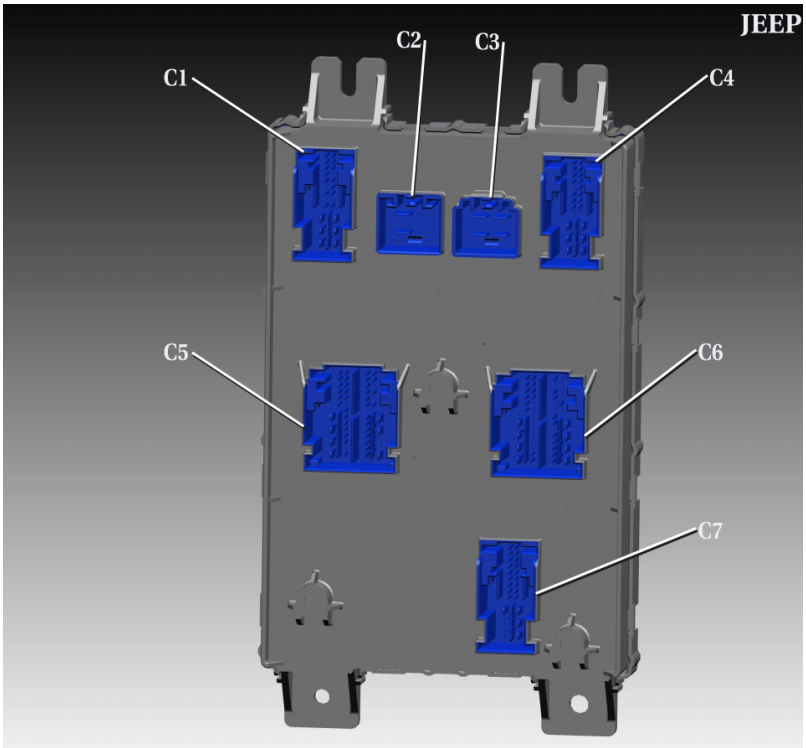
Steps required to enable rear turn signals

- Combined Rear Lightning On/Off -> Set this option to Deactivated – this option will disable, brake with turn, only brake light will be available.
- **Check if Rear Turn Lamps Output Present -> Activated – this option will enable large pins C5/E pin number 3 & C6/F pi**

  Note: In most vehicles the wiring harness will already have those pins properly wired. If the conversion doesn't work as expected, check the wiring first.

- Right – Second Reverse Lamp – On/Off -> Set this option to Deactivated
- Left – Second Reverse Lamp – On/Off -> Set this option to Deactivated
- Replace white reverse bulbs with orange bulbs and conversion is completed

BCM diagram:



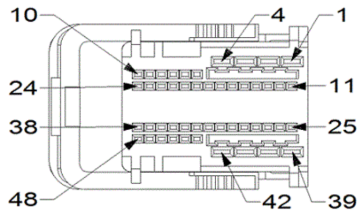
Plug / connector layouts:

MODULE-BODY CONTROL C5/E

Full Repair Kit: 68440522AB

No terminal repair kits have been identified.

End View

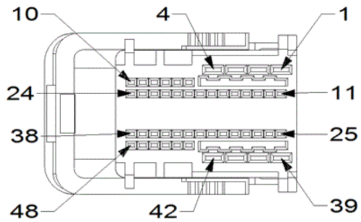


MODULE-BODY CONTROL C6/F

Full Repair Kit: 68440523AB

No terminal repair kits have been identified.

End View



Steps required to enable rear fog lights

1) Rear Fog Lamps Output Present -> Activated – This option will activate two new pins on BCM C5/E pin number 39 & C6/F pin number 5:

Small pins “KOSTAL 1,2 MLK”

2) Right – Rear Fog Lamp or High Beam Shutter On/Off -> Set to Activated
3) Left – Rear Fog Lamp or High Beam Shutter On/Off -> Set to Activated
4) Add wires to BCM C5/E pin number 39 & C6/F pin number 5
5) Connect wires to new rear fog lights
6) Fog lamp button should now work with double press

1.13.5 4xe

Tire size

When changing tire size in a JL 4xe, you need to run ABS Initialization procedure. ABS Static Init (Hybrid) should be used.

Gear ratio

The 4xe **will not work** with axle ratios **higher than 4.50**. There is no currently known workaround to this limit.

1.14 RAM

Note: This is *NOT A FULL LIST* of features available for modification, rather a colletion of more complex, vehicle-specific settings. For a complete list of features go to the JScan app and use demo mode connection.

1.14.1 RAM 2015

How to disable TPMS System

1) Disable TPMS Premium (Instrument Cluster) or/and TPMS Base
2) Go to Adaptations > Radio Frequency Hub - adaptation settings. From there:
3) Read vehicle PIN
4) Run Radio Frequency Hub Replace Procedure
5) Open !Restart All ECUs and from the drop-down choose “Instrument Cluster - Power On Restart” and tap GO.
6) Once completed, turn the car off completely
7) Close the door, wait a minute or two, open the door
8) Done: start the car, TPMS should be gone

EU Lights Conversion

1) Rear Lights Combined -> Deactivated
2) Rear Turn Lamps Output Present -> Activated
3) Add two wires to BCM Pin 42 and 3
4) Check turn signals either add new bulbs for turn signals or change lights do whaterver you want.

1.14.2 Disabling TPMS

Dodge RAM: After disabling TPMS you need to re-initialize Radio Frequency Hub, which requires vehicle PIN. And this is to be tested.

See ESS - Engine Start/Stop System in Wrangler JL section

1.15 Dodge

Note: This is *NOT A FULL LIST* of features available for modification, rather a colletion of more complex, vehicle-specific settings. For a complete list of features go to the JScan app and use demo mode connection.

1.15.1 Challenger

- How to enable Launch Control on Challenger:
- Performance Pages Present: Active
- Drive mode feature configuration: Active
- Memory drive mode sub-feature configuration: Active
- ESC drive mode sub-feature configuration: Active
- Chassis Type: Type 77
- Super track pack present: Active
- ABS module initialization

1.16 Glossary

1.16.1 Module abbreviations & names

- ABS - Anti Lock Brakes
- ACC- - Adaptive Cruise Control
- AHLM - Auto Headlamp Leveling Module
- AMP - Amplifier
- ASBS - Automatic Sway Bar System (Wrangler Rubicon feature)
- BCM- - Body Control Module
- CCN - Cabin Compartment Node (Instrument Cluster)
- DTCM - Drive Train Control Module
- EGS - Electronic Gear Shifter (aka ESM)
- ESC / ESP - Electronic Stability Control / Electronic Stability Program
- EPS - Electric Power Steering
- FCM / FFCM - Forward-facing Camera Module
- HF / HFM - Hands-Free Module (For Uconnect Radio)
- HVAC - Heat, VEntilation, A/C
- ICS - Integrated Center Stack
- IPC - Intrument Panel Cluster
- ITM - Intrusion T?????? Module (for VTA)
- OCM - Occupant Classification (after 2007 renamed to ORC)
- ORC - Occupant Restraint Control (seatbelts etc.)
- PCM - Powertrain Control Module
- RFH - Radio Frequency Hub
- SCM / SCCM - Steering Column (Control) Module
- TCM - Transmission Control Module
- TPMS - Tire Pressure Monitor System
- TTM - Trailer Tow Module
- VES - Video Entertainment System (VES 2, VES 3 for video screens in 2nd / last seats row)
- VTA - Vehicle Theft Alarm
- WCM - Wireless Control Module (TPMS, Key fob / remote, etc.)

For more, please visit techautority

1.17 Customers' voice

FYI, I received my by pass cable and I was able to read my 2019 1500 with out any issues. My tire size is now correct and I'm ba

- Tyler

1.18 Downloading the docs

It is possible to download the whole documentation for off-line use - see the bottom left corner (click on Read the Docs with the book icon), but be aware that this documentation is being constantly updated.

1.19 Indices and tables

- genindex
- modindex
- search