



RA CONSULTING

Silver Snap-Tool Manual

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RA Consulting GmbH
Zeiloch 6a
76646 Bruchsal
Germany

www.rac.de

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NOTE

You can always find the latest version of this manual for download (PDF) on <https://silversnaptool.com>.

1. Introduction

1.1. The California Clean Truck Check (HD I/M)

The California Air Resources Board (CARB), in consultation with the Department of Motor Vehicles (DMV) and the Bureau of Automotive Repair (BAR), has developed a comprehensive inspection and maintenance regulation for heavy-duty vehicles (HD I/M) to ensure that heavy-duty vehicle emission control systems function properly and remain low-emission throughout their operating life.

Dubbed the Clean Truck Check, the program applies to all diesel and alternative fuel vehicles with a gross vehicle weight rating (GVWR) of over 14,000 pounds, including all out-of-state and out-of-country vehicles. While older vehicles require a smoke opacity test and a visual inspection, vehicles with model year 2013 and newer diesel engines and model year 2018 and newer alternative fuel engines are required to submit OBD data instead. Data collection through a vehicle's OBD system is a simple and effective method to determine whether a vehicle's emission control systems are functioning properly. RA Automotive Software Solutions, Inc. has developed the Silver Snap-Tool software application specifically for use with the Clean Truck Check and is able to transmit the data automatically to CARB, allowing vehicle owners an effortless way to meet CARB's Clean Truck Check requirements.

Anyone who wishes to collect and submit OBD data for compliance with the Clean Truck Check must successfully complete a free online training session from CARB and receive a Tester ID to become an approved tester (also see [Section 6.1.4, "Where do I get my tester ID?"](#) and [Section 6.1.6, "What is my tester ID used for?"](#)).

1.2. Silver Snap-Tool

Silver Snap-Tool is a Windows software application with the purpose of reading OBD data from light, medium and heavy trucks. After the readout, the data is packaged, encrypted (only CARB will be able to decrypt and read it) and finally transmitted to a CARB server. Each submitted snapshot will have its unique ID (called ticket ID) that also can be used to verify the integrity of the data at a later point, should this be required. The application is very easy to use and allows only really necessary settings to maximize user experience and robustness. VCI hardware is required to connect the computer on which Silver Snap-Tool is operated to the vehicle. Silver Snap-Tool operates as a CARB-compliant OBD scan tool of the California Clean Truck Check.

1.3. ca-hdim.ra-automotive.net

For uploading the encrypted snapshots, users will need to authenticate themselves via email address and password within the Silver Snap-Tool. The authentication and delivery of snapshots is realized by a web service that is hosted at ca-hdim.ra-automotive.net.

During the purchasing process of Silver Snap-Tool you will be asked to provide the email addresses, as

well as the tester IDs, of all persons that should operate Silver Snap-Tool and you should specify how long your "Silver Snap-Tool data transfer service" subscription should be valid. Our sales department will create an account for each of those operators and they will receive an individual welcome email (see [Section 4.1, "Account management"](#)).

The ability to submit snapshots will end according to the "Silver Snap-Tool data transfer service" subscription's duration you chose in your order. The expiration date is shown in on the user profile page (see [Section 4.1, "Account management"](#)). You will be notified in time before the expiration to remind you to renew your subscription by contacting sales@ra-automotive.net, if you need to.

The website also keeps track of your submitted snapshots. So, if you login at <https://portal.ca-hdim.ra-automotive.net> you will see the status and ticket IDs and some other meta data of your submissions on the page "Home" (see [Section 4.2, "Monitor your submissions"](#)).

2. Getting started

Welcome to the Silver Snap-Tool provided by RA Consulting.

At this point you've

- purchased the Silver Snap-Tool
- obtained credentials and a link for downloading its installer from [RA Download Center](#)
- subscribed for "Silver Snap-Tool data transfer service" (cloud server)
- received a welcome email for your account on <https://portal.ca-hdim.ra-automotive.net>,
- set a new password for this account (see [Section 4.1, "Account management"](#)) and
- got yourself a supported and CARB-approved vehicle communication interface (see [Section 6.2, "List of approved interfaces"](#)).

This chapter takes you through the first steps of installation and shows the basics of the OBD data acquisition tool while you are performing your first data acquisition.

2.1. Kvaser VCI driver installation

TIP

If you didn't purchase a Kvaser vehicle communication interface along with Silver Snap-Tool, just skip this section and continue with [Section 2.2, "Wiring and connecting to the vehicle"](#).

If you purchased a Kvaser vehicle communication interface along with Silver Snap-Tool, you may want to install the corresponding drivers now.

2.1.1. Native Kvaser drivers

First, please install the native Kvaser drivers that are provided along with the Silver Snap-Tool installer in [RA Download Center](#).



Figure 1. Welcome screen of Kvaser’s driver installer

When asked for the components to install, it is sufficient to go on with the mandatory 32-bit and 64-bit drivers. You don’t need the J2534 driver, but whether to install additional components is up to you. All options might be enabled by default, though.

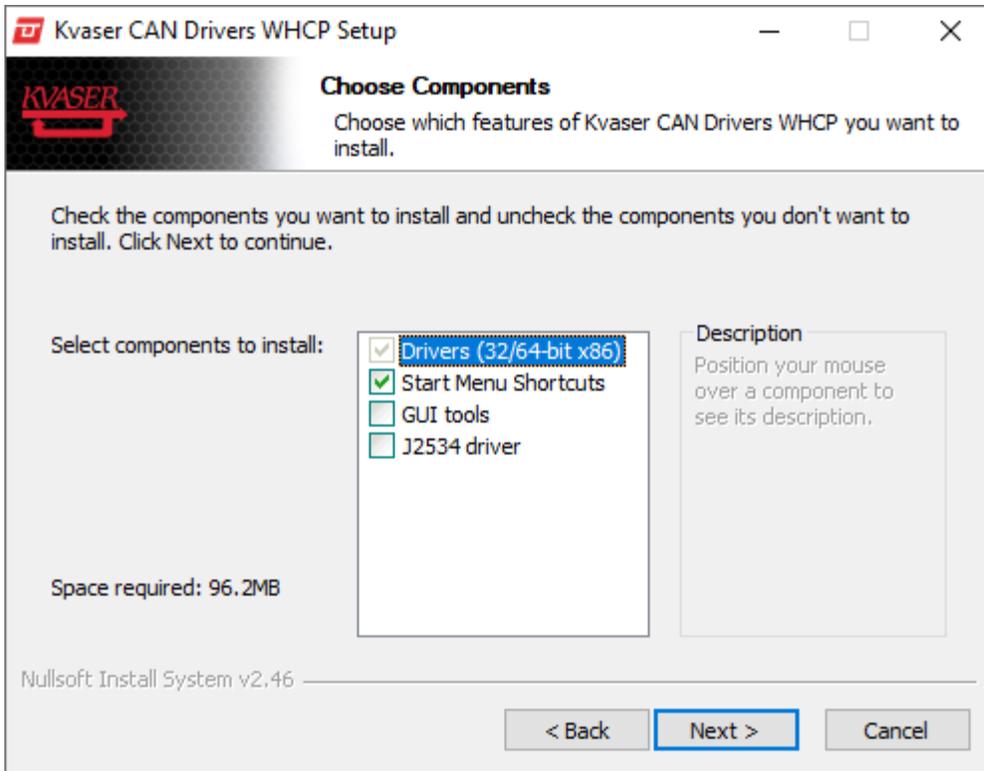


Figure 2. Kvaser driver components: default selection is sufficient

2.2. Wiring and connecting to the vehicle

In order to communicate with your vehicle and to read out a snapshot you need to connect the vehicle to your PC/laptop. This is done by using a vehicle communication interface (VCI). Please see [Section 6.2, "List of approved interfaces"](#). The interface of your choice is then plugged onto the OBD connector of your vehicle and also plugged into a free USB port on your PC/laptop.

There are two kinds of OBD connectors. One of these is present in your vehicle:

- 16-pin OBD II connector used for J1979
- 9-pin J1939 connector (usually found on heavy-duty vehicles)



Figure 3. 16-pin OBD II connector used for J1979



Figure 4. 9-pin OBD connector used for J1939

How to find the OBD connector (taken from SAE J1939-13: SURFACE VEHICLE RECOMMENDED PRACTICE, Off-Board Diagnostic Connector):

The connector shall be mounted inside the cab in a location that is easily

accessible according to the guidelines as follows. However, applications subject to OBD requirements must comply with the applicable regulatory requirements.

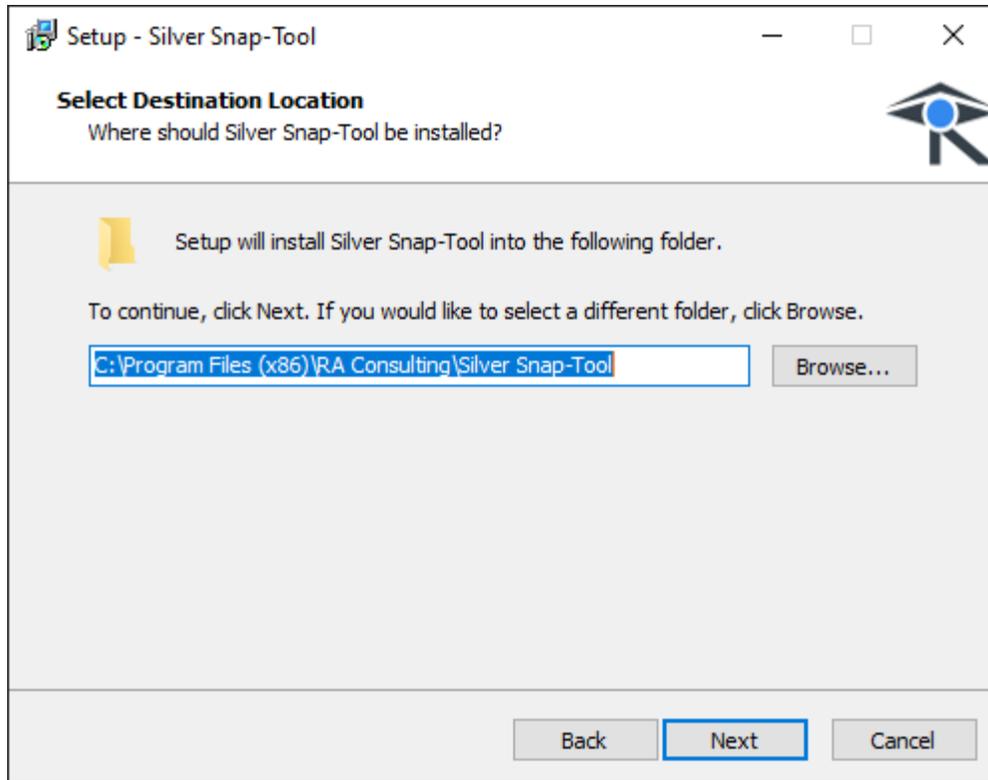
1. For on road heavy trucks, the connector should be mounted on the driver side and if possible, accessible from the ground next to the cab.
2. For buses, the connector should be located within reach of the operator's seat. For rear engine buses, an additional connector may be mounted in the engine compartment that will allow access from the ground next to the bus.
3. For construction and agricultural equipment, it is recommended that the connector for the tractor bus be located behind the operator's seat or under the dash at the operator's knees. This connector must be labeled as the diagnostic connector. A diagnostic connector may be located elsewhere, in addition to a connector at the recommended location.

Depending on your VCI, you might need an additional adapter cable in order to connect to the present OBD connector. For example, [Kvaser U100](#) is shipped with two adapter cables, one for each type of OBD connector.

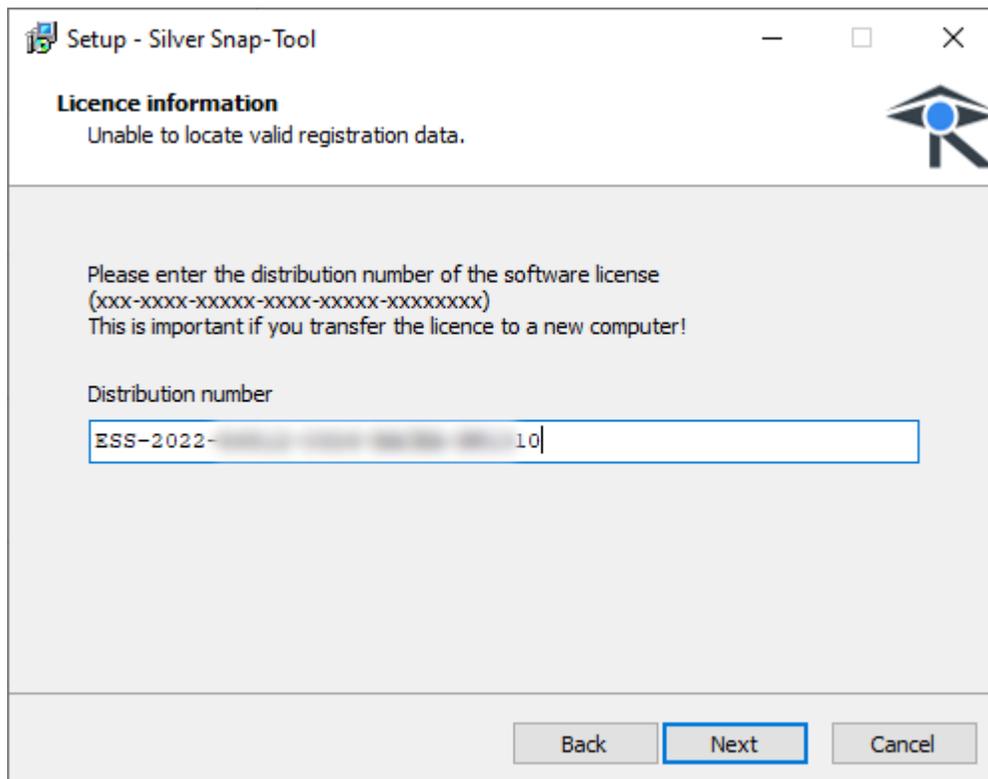
2.3. Silver Snap-Tool installation and license activation

Silver Snap-Tool is delivered via an installer executable that you should already have obtained via a download link after purchasing the software.

1. Run the installer executable.
2. The Windows UAC dialog (user access control) will show up and ask you for the credentials of an account with elevated rights. Please enter the credentials of your administrator account at this point.
3. Choose an installation folder or use the default installation folder (recommended).



- 4. Next, choose further options like the start menu folder and if a desktop icon should be created.
- 5. Enter the distribution number you received along with your license information.



6. Finish the installation.

Now start Silver Snap-Tool by double-clicking the desktop icon or using the Windows start menu. On this very first start-up, the registration assistant will show up and ask you to enter your license key and register the software by pressing the corresponding button.

Registration - Silver Snap-Tool 7.52.42.51679

License information
What's your Registration data and license key?

Please specify your license key, then click "Register" to complete the registration.
Click "Back" if you want to change the distribution number.

Company
RA Consulting GmbH

Department
Automotive Products

User
Thomas Schell

License key ⓘ
[License key field] **Register**

If you for whatever reasons have not received the license key or it is invalid, you can retrieve the license key [here](#) again.

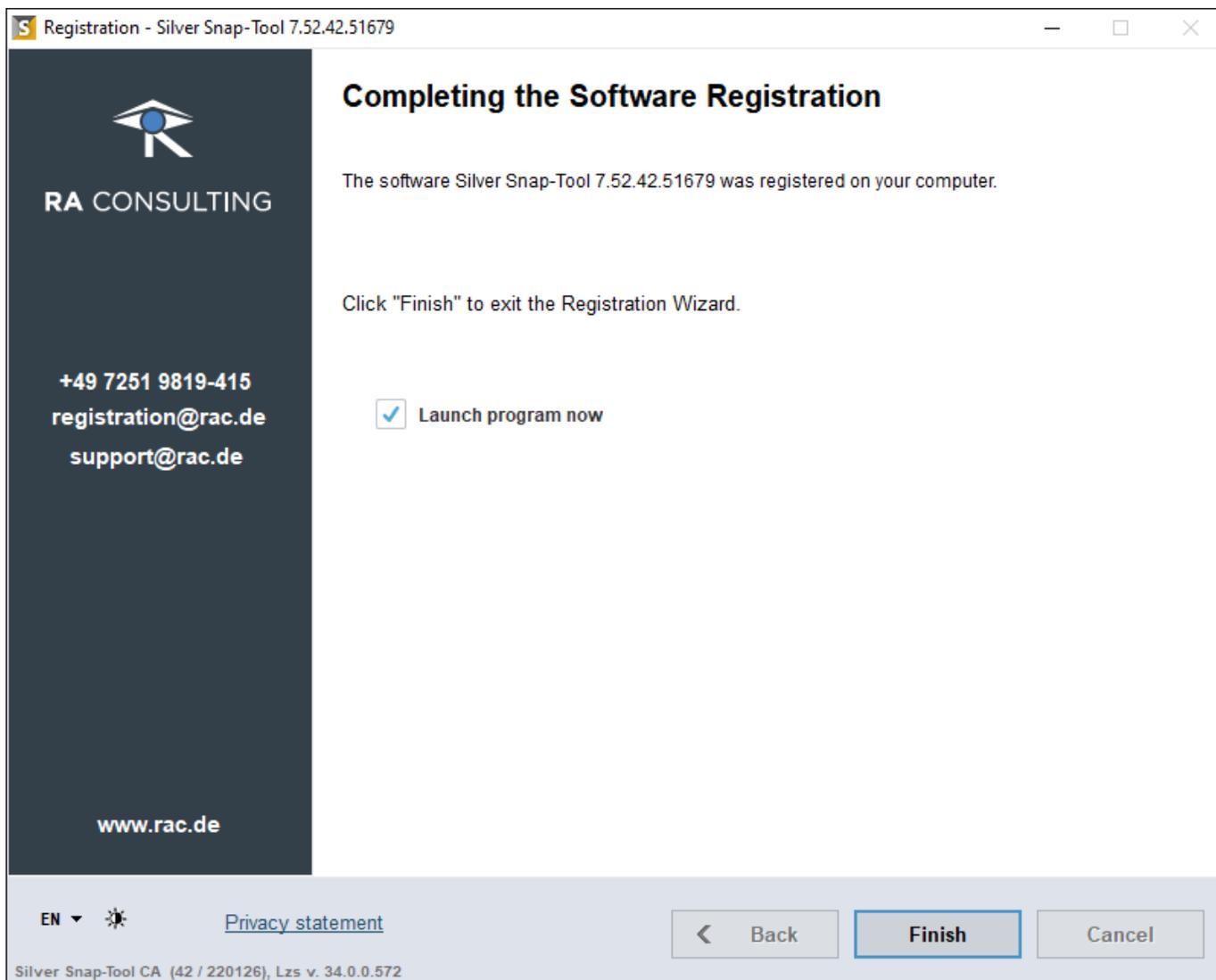
Note: With the clipboard you can copy (Ctrl+C) and paste (Ctrl+V) the license key.

EN ▾ ⚙ [Privacy statement](#) < Back Next > Cancel

Silver Snap-Tool CA (42 / 220126), Lzs v. 34.0.0.572

Figure 5. Enter the license key in order to register the software.

After successful registration, you will be able to finally launch the application.



2.4. Your first OBD snapshot

After Silver Snap-Tool has started, you will be greeted by the OBD snapshot wizard dialog.



Figure 6. Silver Snap-Tool's OBD snapshot wizard dialog

Up to here, all the steps were steps that only need to be done once. Now, what is left to create a snapshot is described in the following chapter. So, please go on with [Section 3.1, "Communication settings"](#).

3. OBD readout explained (for daily use)

TIP | This chapter serves as a go-to for your every day work.

3.1. Communication settings

Depending on your vehicle, you now will need to configure proper communication settings by selecting your VCI, the protocol and its baud rate. So, please open the interface selection dialog by pressing the corresponding  *Change...* button in the wizard dialog.

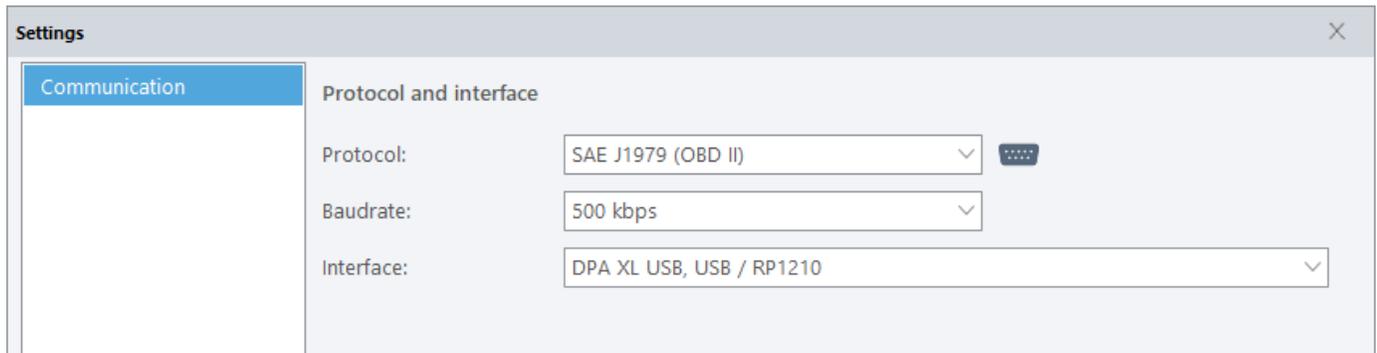


Figure 7. Communication settings

There are two possible choices for communication protocols: SAE J1979 (OBD II) and SAE J1939.

A guide on how to determine which protocol is the correct one to be selected:

If a 9-pin Deutsch connector is present, the vehicle uses the J1939 protocol. Two different communication speeds are possible. A black connector indicates a baud rate of 250 kbps, a green connector indicates 500 kbps in most vehicles. However, in some vehicles 250 kbps may also be the correct setting.

Trucks with a 16-pin OBD II connector use the J1979 protocol. 500 kbps is the only communication speed for this protocol.

The following table summarizes how you can derive the protocol and baud rate from the OBD connector type.

	Black 9-pin Deutsch connector	Green 9-pin Deutsch connector	16-pin OBDII connector
Protocol	SAE J1939	SAE J1939	SAE J1979
Baud rate	250kbps	500kbps	500kbps

TIP | RP1210 detects the baud rate automatically, so you don't have to care about the correct setting, when you are using an RP1210 interface (listed in the dropdown like "... / RP1210"). And even when using Kvaser ("... / Kvaser"), Silver Snap-Tool will try to detect the correct

baud rate on its own, once communication can't be established in first place.

Besides that, just select your interface model (also see [Section 6.2, "List of approved interfaces"](#)), independent from the protocol. It's just that easy.

IMPORTANT

Please be aware that Kvaser devices are only listed and will only be visible in the dropdown, if they are currently attached to your computer.

NOTE

Finally, don't be worried if you are not exactly sure about the settings to choose for your vehicle. The worst that can happen is that the snapshot cannot be read because no communication can be established with the vehicle. In this case, a corresponding message appears and asks you to recheck your communication settings. Then try to find the closest plausible settings to the current ones using the table above and just try again.

After having selected your interface and set the proper protocol and baud rate for your vehicle, please close the settings dialog.

Now press the  *Create snapshot...* button.

3.2. Authentication

This will open the snapshot dialog where you now should enter your account credentials and perform a login by pressing the  *Login* button.

Create snapshot [X]

Authentication

E-mail:

Password: 

[Forgot your password?](#)

 Login

Please check your credentials and log in.

 Next

Figure 8. Silver Snap-Tool's "Create snapshot" dialog

If the login is successful, your personal tester ID (also see [Section 6.1.4, "Where do I get my tester ID?"](#) and [Section 6.1.6, "What is my tester ID used for?"](#)) will be retrieved from the server and will be shown in the status message.

Authentication

E-mail:

Password: 

 Logout

Credentials are valid, you're logged in. Your tester ID is "AB123456".

CAUTION

Please always check if your tester ID is up to date. Your tester ID number is assigned by CARB after you pass its Clean Truck Check Tester Training examination and is valid for two years after the date of issuance. If not, there is a link in the "Create snapshot" dialog that takes you to your web account, where you can edit and update your tester ID. **An invalid or outdated tester ID will lead to a rejection of your submission.**

The Next button becomes available as soon you are logged in. Press it.

3.3. Completing your user information

On the next page, in its upper part, please enter your name and your location.

Create snapshot ✕

Your information

Name:

Location:

E-Mail: j.smith@acme.com

Tester ID: AB123456 [Not my current tester ID](#)

Figure 9. Silver Snap-Tool's "Create snapshot" dialog

CAUTION

Please always check if your tester ID is up to date. Your tester ID number is assigned by CARB after you pass its Clean Truck Check Tester Training examination and is valid for two years after the date of issuance. If not, there is a link in the "Create

snapshot" dialog that takes you to your web account, where you can edit and update your tester ID. **An invalid or outdated tester ID will lead to a rejection of your submission.**

Your name and location will be restored and automatically be available next time you start Silver Snap-Tool.

3.4. Completing the vehicle information

Below your user information, you need to enter the identification number (VIN) and the license plate of the vehicle you are up to test.

Silver Snap-Tool helps you to determine if the entered VIN and license plate are valid. This is shown to you via exclamation mark icons next to the input boxes.

Figure 10. Silver Snap-Tool's snapshot dialog that asks for entering vehicle information

NOTE

VIN and license plate are mandatory. So, you won't be able to start the snapshot before entering these. Also, the VIN must have a length of exactly 17 characters.

You can also add any comment (up to 225 characters) about the vehicle or any kind of helpful reference, optionally.

NOTE

The comment will be part of the submission to CARB and is for your own reference. It will be present in the final test result document that you will receive from CARB.

TIP

Further, you can choose to additionally submit your comment to ca-hdim.ra-

automotive.net. There it then will be visible in your submission history and you can search for it, which might be beneficial when tracking down your submissions.

CAUTION

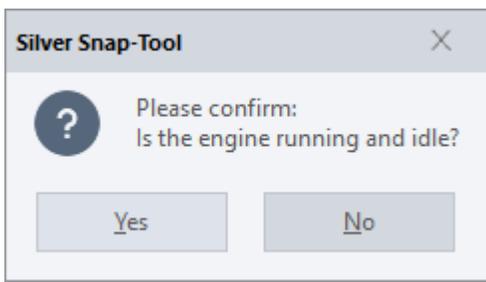
Please keep data privacy in mind if you choose to additionally submit your comment to ca-hdim.ra-automotive.net. While there are state of the art security measures in place to protect your personal data, be aware to not include personal identifying information if not necessary.

Now, the OK button should be enabled. Please press it in order to create the snapshot.

IMPORTANT

In order to create a snapshot in accordance to [CARB testing guidelines](#), please make sure that the engine is running and idle.

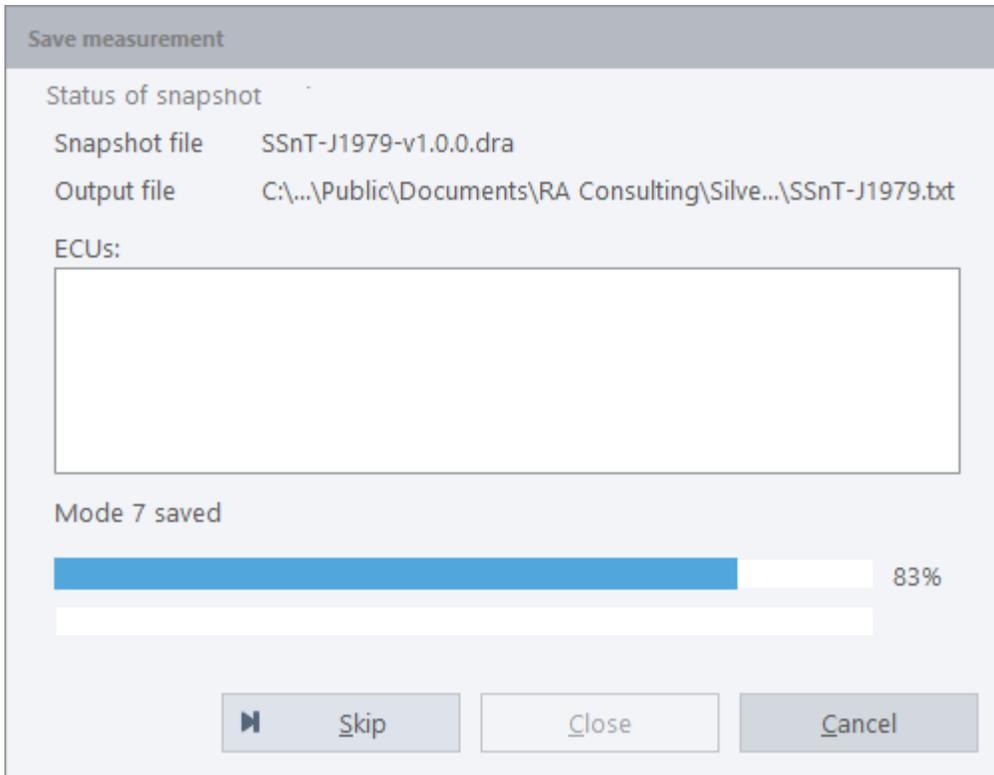
A confirmation shows up that asks you if the engine is running and idle.



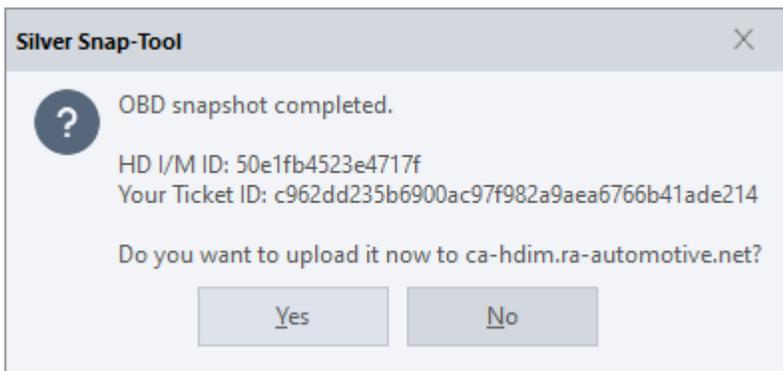
Only if this is true, please press Yes.

3.5. Create and submit snapshot

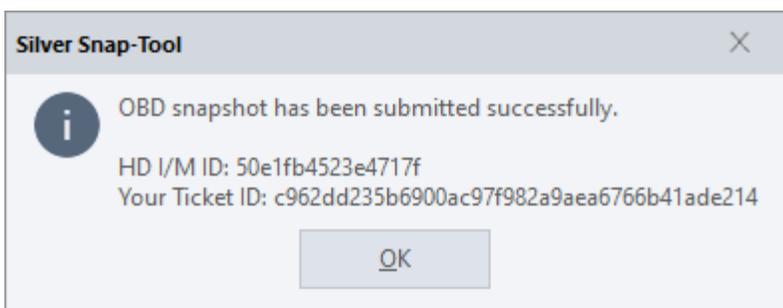
A window will open and inform you about the progress. At this point you can still cancel the snapshot, using the *Cancel* button.



As soon as the snapshot is successfully completed and encrypted, the Clean Truck Check ID (see [Section 6.1.7, “What is the Clean Truck Check ID?”](#)) and the ticket ID (see [Section 6.1.8, “What is my ticket ID about?”](#)) of the snapshot are shown and you will be asked if you want to submit your snapshot.



The successful submission will be confirmed with another message, again containing the Clean Truck Check ID and your ticket ID.



You will also receive an email confirming your submission.



California Clean Truck Check

OBD Snapshot Submission Delivery Successful

This is to confirm the following OBD Snapshot submission has been successfully delivered to CARB.

Ticket ID	cddd88e7b66afdd9ccf7f5e52c7109095c514ada
HD I/M ID	1256741e248b2f56
Received	10/24/2022 2:30:38 AM
Submitted to CARB	10/24/2022 2:30:46 AM

Please do not hesitate to [contact us](#) if you have any questions.



RA Automotive Software Solutions, Inc
[1850 Research Drive, Suite 208](#)
[Troy, MI 48063](#)

Email: sales@ra-automotive.net
Telephone: [+1 \(586\) 782-5121](tel:+15867825121)
www.ra-automotive.net

This message was sent because you used our Silver Snap-Tool software to send an OBD Snapshot.
You receive an email confirmation after every successful submission to CARB.

After the upload, Clean Truck Check ID and ticket ID now also are listed - along with some other meta data - in your submission overview page at <https://portal.ca-hdim.ra-automotive.net> (see [Section 4.2](#), "Monitor your submissions").

4. Your account

4.1. Account management

After you provided your email address and tester ID to the RA Automotive Software Solutions, Inc. sales team, your account will be created and you will receive a welcome email.



California Clean Truck Check

Welcome!

Thank you for choosing Silver Snap-Tool for the California Heavy Duty Inspection and Maintenance Program HD I/M.

Our software requires a user account in our server to do the online submissions.

We have created a user account for you. The registered email address is: j.smith@acme.com.

Before you can start using it, you need to set your password by [clicking here](#).

You can access the website by visiting <https://portal.ca-hdim.ra-automotive.net/>.

Please do not hesitate to [contact us](#) if you have any questions.



RA Automotive Software Solutions, Inc
[1850 Research Drive, Suite 208](#)
[Troy, MI 48083](#)

Email: sales@ra-automotive.net
Telephone: [+1 \(586\) 782-5121](tel:+1(586)782-5121)
www.ra-automotive.net

This message was sent because a user account for our server was created for you.
You are using our Silver Snap-Tool software and the server account is required
to send the data read by Silver Snap-Tool to CARB.

Figure 11. Welcome email example

Using the link in the email, you then should set your personal password for your account. You will be redirected to a short form where you have to enter your email and a fresh, new password.

Reset password

Reset your password.

Email
j.smith@acme.com

Password
●●●●●●

Confirm password
●●●●●●

The password and confirmation password do not match.

Reset

Password requirements

Your new password...

- must be at least 6 characters long,
- must contain at least one digit,
- must contain at least one lowercase letter,
- must contain at least one uppercase letter,
- must contain at least one special symbol.

Figure 12. Password reset page of <https://portal.ca-hdim.ra-automotive.net>

After pressing the reset button you will be notified that the password has been successfully reset.

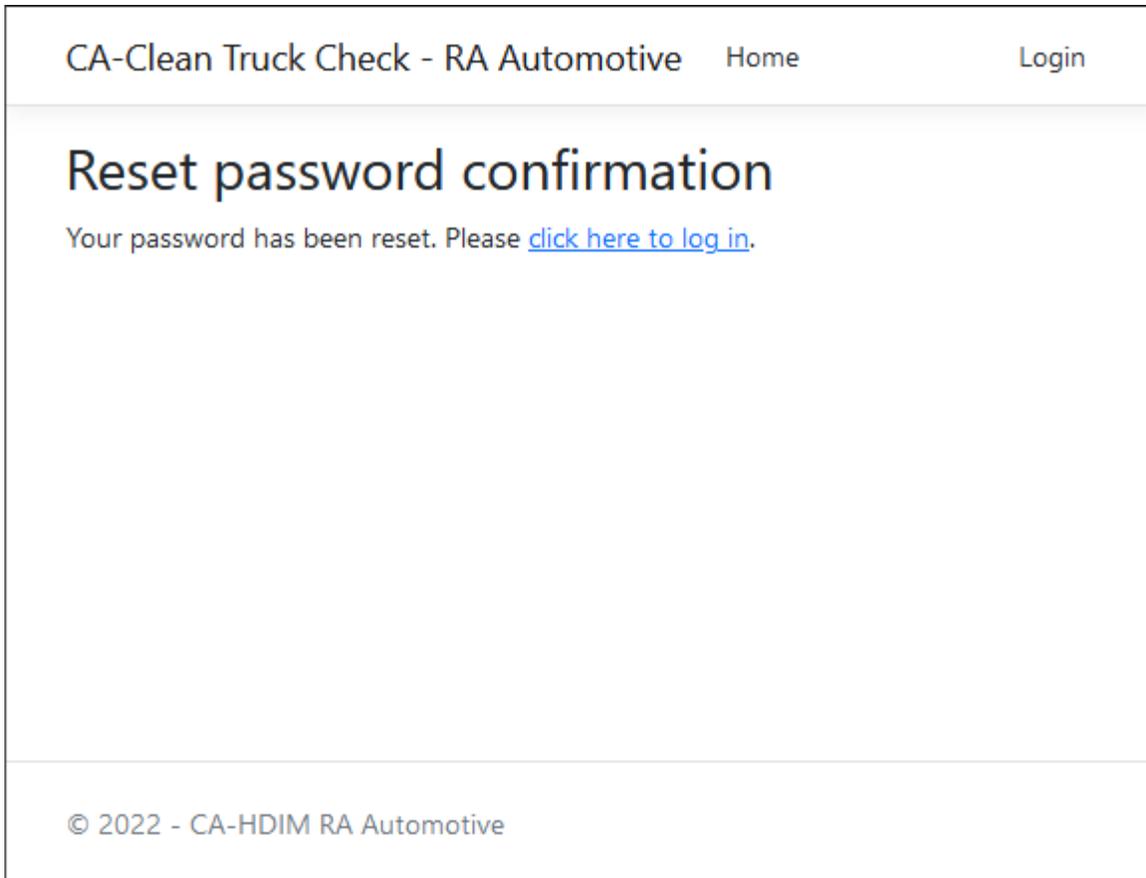


Figure 13. Password reset confirmation page

You now may want to login and manage your user profile. Open the page by clicking your email address that is displayed at the navigation bar at the top of the website ("Hello [j.smith@acme.com!](#)"). Now, for example, you could add your phone number. The user profile is also the place where you can update your tester ID, once it has expired (see [Section 6.1.5, "How long is my my tester ID valid?"](#)). You also will find information on when your Silver Snap-Tool upload subscription will expire.

Manage your account

Change your account settings

Profile

[Email](#)

[Password](#)

[Two-factor authentication](#)

[Personal data](#)

Profile

General Information

Username
j.smith@acme.com

Phone number

Your subscription with RA Automotive Software Solutions, Inc.

Subscription expiration date
09/29/2023

At the end of this date (Pacific Time) you won't be able to make new submissions in SSnT. Please remember to renew your subscription on time to ensure an uninterrupted service.

Your CARB information

Tester ID
AB123456

Figure 14. User profile page of <https://portal.ca-hdim.ra-automotive.net>

4.2. Monitor your submissions

All your snapshot submissions, their ticket IDs and their status will be listed on the website. Just click "Home" to get there. There are options to filter and export the list, too.

Your latest submissions

Copy Excel

Timezone: America/Los_Angeles ▼

Show 10 ▼ entries

Submitted by	Ticket	Hdim ID / VIN	Received	Submitted to CARB	Email notification	Size
j.smith@acme.com Silver Snap-Tool 7.52.42	c962dd235b6900ac97f982a9aea6766b41ade214	50e1fb4523e4717f *****165484	09/29/2022 4:40:00 AM	09/29/2022 4:40:11 AM	09/29/2022 4:40:13 AM j.smith@acme.com	46 KB

Showing 1 to 1 of 1 entries

Previous
1
Next

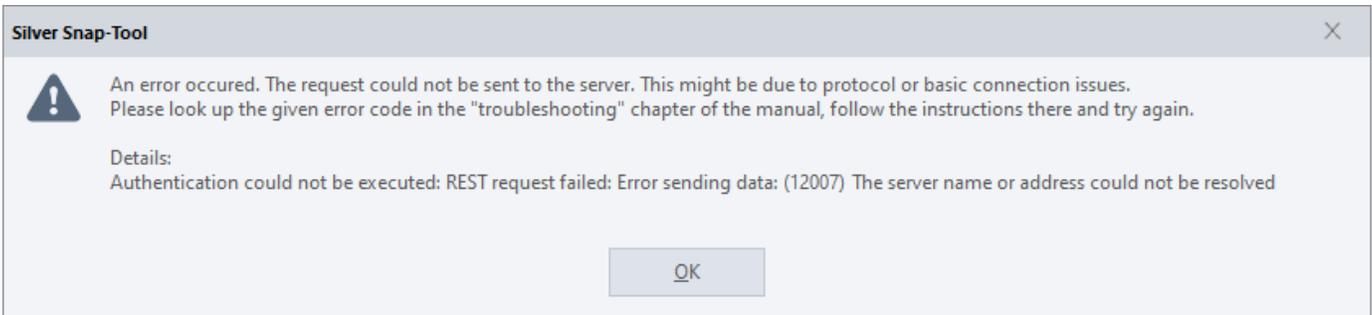
Figure 15. Submissions page of <https://portal.ca-hdim.ra-automotive.net>

5. Troubleshooting

5.1. Internet connection issues

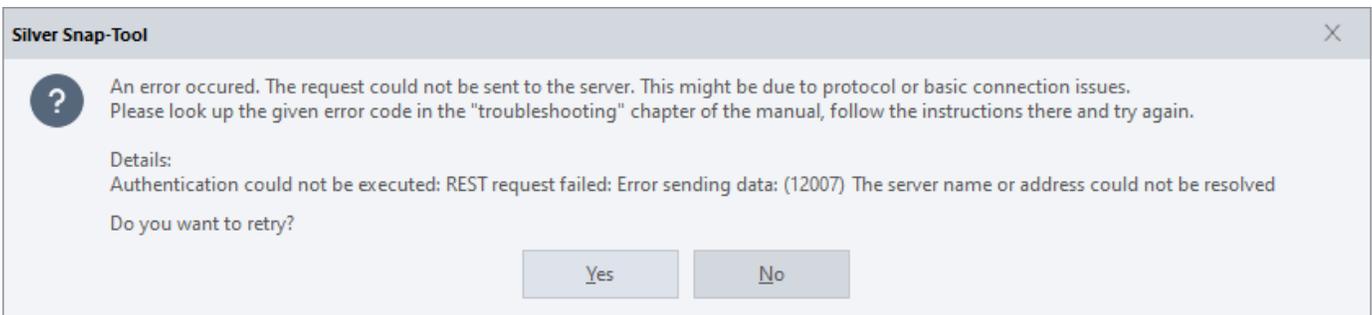
5.1.1. Example

If there is no internet connection available during login, you will encounter a message like this:



Should you encounter random drop outs, it might occur that there is no connection at the moment when you want to submit the snapshot.

In this case, Silver Snap-Tool will ask you to retry the submission.



Take your time to resolve the issue and hit the Yes button in order to try to submit your snapshot.

5.1.2. General resolution measures

TIP

For distinct error codes see the following sections. A list of all error codes can be found at [Microsoft's website](#).

NOTE

As connecting to the internet relies on many services and thus is quite complex, especially if Wi-Fi is used, it is not easy to find the cause of an issue. While the following steps might help to get an overall picture, it is not possible to conclude that everything is working fine, even if they succeed.

- In order to check if your computer has basic internet access, you can check if you are able to browse common websites. Please use Microsoft Edge or Microsoft Internet Explorer to do so, because they

use the same protocol stack as Silver Snap-Tool does.

<https://www.google.com> and/or <https://www.bing.com>

<https://portal.ca-hdim.ra-automotive.net>

- Check or ask your IT department if a proxy server is used within your network.
- Check if Windows firewall prevents Silver Snap-Tool from accessing the network/internet. Silver Snap-Tool communicates via the basic HTTPS port 443.

5.1.3. Error code 12002 (ERROR_INTERNET_TIMEOUT)

NOTE Please also see [Section 5.1.2, “General resolution measures”](#).

This error can be returned as a result of TCP/IP time-out behavior, regardless of time-out values set in Windows HTTP Services.

5.1.4. Error code 12007 (ERROR_INTERNET_NAME_NOT_RESOLVED)

NOTE Please also see [Section 5.1.2, “General resolution measures”](#).

This is an early error in regards to the steps performed when establishing a connection to a server in the internet.

For example, this error usually occurs if you have no network connection to the internet at all. It might be something easy to fix, like if your ethernet cable is unplugged or if you are out of your Wi-Fi's range or if your internet router has no connection to the internet.

5.1.5. Error code 12175 (ERROR_INTERNET_DECODING_FAILED)

NOTE Please also see [Section 5.1.2, “General resolution measures”](#).

Silver Snap-Tool could reach the server but the initial handshake failed or Windows couldn't decode its response.

Explanation

This error might occur if basic encryption protocols are missing or deactivated in your Windows operating system. **The server only supports - and thus Silver Snap-Tool requires - HTTPS protocols TLS 1.2 or TLS 1.3.** The latter is currently (September 2023) only available on Windows 11, so Windows 10 computers must have TLS 1.2 enabled for a submission to succeed.

Reasons

Reasons for this error might be:

- You are using an unsupported version of Windows, like Windows 7 or an earlier version. For example, in Windows 7, by default, only insufficient SSL 3 and TLS 1.0 protocols are enabled by default. To find

out which Windows version is running on your computer, please follow [Microsoft's instructions given on their website](#).

NOTE

Please note that Microsoft has ended support for Windows 7 in 2020 which means that there are no security updates anymore and thus it isn't safe to operate it, especially when connected to the internet. Therefore RA Consulting doesn't support Windows 7 as well, and if you are using Windows 7 we strongly encourage you to upgrade to a recent version of Windows. However, you can try to resolve the issue on your own risk, following the steps given in this [Microsoft article](#).

- Your computer may have gone through a series of Windows version upgrades (like, for example, Windows 7 to Windows 10), and the required TLS versions have not been enabled during those upgrades.
- The required TLS versions might have been manually deactivated on your computer.

Resolving steps

To resolve the latter two causes, please check your Windows settings:

1. Using the Windows start menu, search for "*internet options*".
2. Open the internet options.
3. Head to the "*Advanced*" page.
4. Scroll down all the way and check which protocols are available and activated.
5. Eventually activate the required protocols.

Further reasons and resolving steps

Should the issue persist after performing the above checks and steps, further known reasons for error code 12175 are:

- There has been a Microsoft update in October 2022 that broke the protocols on Windows 10 and Windows 11 and which later was fixed by another Microsoft update. The update must be installed manually and for x64-based systems it can be downloaded, here:

Windows 10: [KB5020435](#)

Windows 11: [KB5020387](#)

- Your computer might have set `DefaultSecureProtocols` to a conflicting custom value in its Windows registry. Does any of the following two registry values exist?

`HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\InternetSettings\WinHttp\DefaultSecureProtocols`

`HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Microsoft\Windows\CurrentVersion\InternetSettings\WinHttp\DefaultSecureProtocols`

If not, everything is fine. If yes, what are their values? Do they miss the required protocols given above?

6. Appendix

6.1. FAQ

6.1.1. What is the "Silver Snap-Tool data transfer service" subscription?

When you order Silver Snap-Tool you will get a license for the software and you also need a "Silver Snap-Tool data transfer service" subscription that allows you to submit the snapshots taken by the tool. During the order you can specify the duration of this subscription. The subscription is different from the license of the software. They are two different things.

6.1.2. What happens if my "Silver Snap-Tool data transfer service" subscription expires?

As soon as your subscription ends you won't be able to submit data anymore. That's all. Your account will still be active and all the snapshots you submitted in the past will still be listed within your account. You will still be able to use Silver Snap-Tool (as long as your license is valid), so you could use again as soon as you renew your subscription or with another existing subscription.

6.1.3. Where do I get my user account?

When you purchase Silver Snap-Tool, you will need to provide your email address and tester ID to the sales team of RA Automotive Software Solutions. They then will create an account for you and you will receive a welcome email. For further details, see [Section 4.1, "Account management"](#).

6.1.4. Where do I get my tester ID?

CARB will assign you a tester ID after you successfully complete the Clean Truck Check (HD I/M) training session.

6.1.5. How long is my my tester ID valid?

Your tester ID number is valid for two years after the date of issuance.

6.1.6. What is my tester ID used for?

Your tester ID will be submitted to CARB, along with the created OBD snapshot, to identify the tester and verify that the tester has the necessary knowledge to complete OBD testing correctly by successfully completing the online training.

6.1.7. What is the Clean Truck Check ID?

Each submission to CARB will be assigned a random and unique ID. This ID can be used to identify the files - once they have been decrypted - that your submission contains. The basename of each file will contain this Clean Truck Check ID.

6.1.8. What is my ticket ID about?

Your ticket ID is the fingerprint (SHA1) of your input. It is calculated from the encrypted data before it is sent to CARB. This calculation is repeatable. With the ticket ID you can ensure or verify the integrity of your submission. If you recalculate the fingerprint of a submission (while it is still encrypted) and the result is still the same, you can assume that the data it contains has not been changed during transmission or afterwards.

6.2. List of approved interfaces

These devices have been approved by CARB:

- [Kvaser Leaf Light HS v2 OBDII](#)
- [Kvaser Leaf Light HS v2 J1939-13 Type II](#)
- [Kvaser U100](#) including adapter cables to OBDII / J1939 Type II
- [DG Technologies DPA XL](#) including adapter cable to OBDII / J1939 Type II
- [Drew Technologies DrewLinQ](#) including adapter cable to OBDII / J1939 Type II
- [NEXIQ Technologies® USB-Link™ 2](#)
- [NEXIQ Technologies® USB-Link™ 3](#)

6.3. Glossary

6.3.1. HD I/M

Acronym for CARB's Heavy-Duty Inspection And Maintenance Program. Later renamed to Clean Truck Check.

6.3.2. J1939

The SAE J1939 network protocol describes communication on a CAN bus in commercial vehicles for transmitting diagnostic data (e.g. engine speed, temperature) and control information.

6.3.3. J1979

The SAE J1979 standard provides a method for retrieving various diagnostic data and a list of available standard parameters from the ECU. The various available parameters are addressed by "parameter identification numbers" or PIDs defined in J1979.

6.3.4. SAE J2534 / PassThru

SAE J2534 describes a programming interface for access to diagnostic protocols. The PassThru API is used for many diagnostic tasks, especially OBD tasks.

6.3.5. RP1210

The RP1210 API is an open interface between Windows-based applications and communication networks in vehicles.

6.3.6. VCI

Acronym for vehicle communication interface. Little piece of hardware that connects a computer to the vehicle, often using a USB port on the computer's end.

7. Footnotes

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