

# Logena Service Tool ZR32-A Plugin Instructions v1.20.docx

Author: René van Ruiten  
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# 1 History

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1.10	2010-08-25	R. van Ruiten	See revision history
1.20	2012-05-09	N. Cvijetic	See revision history

Table 1: History of Logena Service Tool ZR32-A Plugin Instructions v1.20.docx

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## 2 Table of Contents

1	History .....	2
2	Table of Contents.....	3
3	Terms and Abbreviations .....	4
3.1	Terms .....	4
3.2	Abbreviations.....	4
4	Installation.....	5
4.1	Hardware Requirements.....	5
4.2	Software Requirements.....	5
4.3	Installation of ZR32-A Plugin .....	6
5	ZR32-A Plugin .....	9
5.1	Settings User Management.....	9
5.1.1	Enable / Disable Functions .....	10
5.2	Starting the Logena Service Tool.....	12
5.3	Read / Edit Information.....	14
5.4	Read / Clear Diagnostics .....	19
5.5	Read / Write Parameters .....	24
5.6	IO Monitoring .....	29
5.6.1	General.....	29
5.6.2	User Interface.....	30
5.6.2.1	Main screen.....	32
5.6.2.2	Signals .....	34
5.6.2.3	Graphs .....	37
5.6.2.4	Dashboard .....	39
5.7	Software Download .....	41
5.8	History tab .....	44
6	Troubleshooting.....	48
7	Revision History.....	51
8	References .....	52

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### 3 Terms and Abbreviations

#### 3.1 Terms

0

#### 3.2 Abbreviations

ZR32-A	Zentral Rechner 32 bit
FMI	Failure Mode Identifier
OCC	Occurrence Counter
SPN	Suspect Parameter Number

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## 4 Installation

This chapter describes the steps to install the Logena Service Tool ZR32-A Plugin

### 4.1 Hardware Requirements

- 25MB of free space on your hard disk.

### 4.2 Software Requirements

- The use of ZR32-A Plugin requires that the Logena Service Tool has been installed.
- Administrator rights are required for installation and normal use of the ZR32-A Plugin.

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### 4.3 Installation of ZR32-A Plugin

- Uninstall all previous versions of ZR32-A Plugin.  
(Start→Programs→Logena Automotive→Logena Service Tool→Uninstall ZR32-A Plugin).
  - Make sure that the USB Hardlock and the communication interface are not connected to the PC.
  - On the installation cd go to x:\Logena Service Tool Plugins\Logena Service Tool ZR32-A Plugin\Logena Service Tool ZR32-A Plugin v1.x.x.x
  - Start the installation by executing setup.exe.
  - Follow the prompts in the installation dialogue until installation is complete.
1. In the Welcome screen of the “Logena Service Tool ZR32-A Plugin Setup Wizard” click the “Next” button.

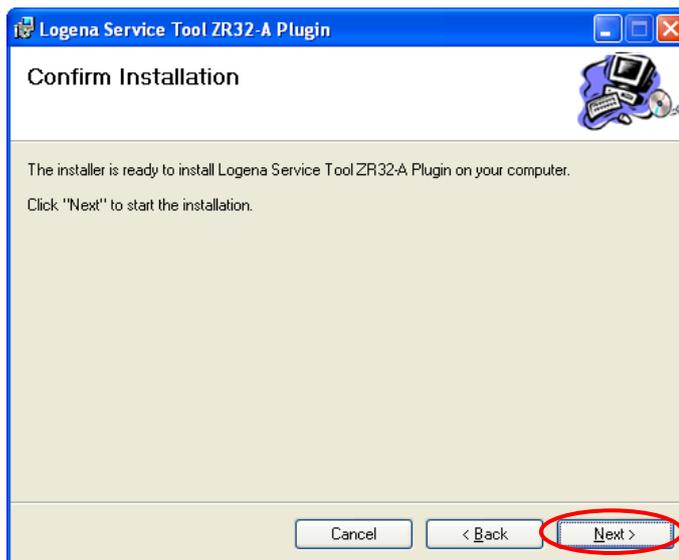


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2. Read the License Agreement carefully, when you agree with the License Agreement, check the box "I Agree" and click "Next".

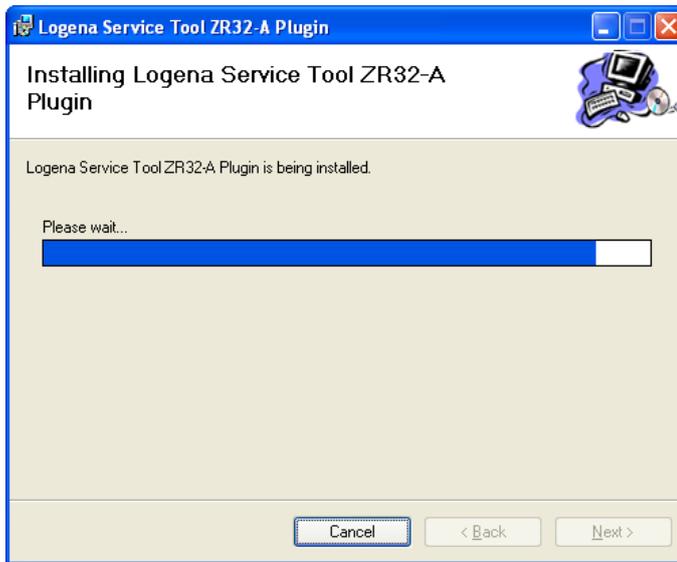


3. In the Confirm Installation screen, click the "Next" button.

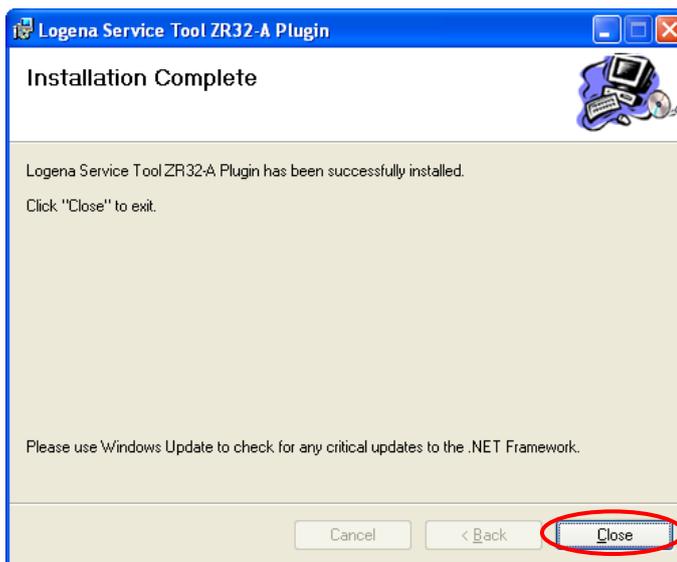


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- The "Installing Logena Service Tool ZR32-A Plugin" screen appears, wait until the Logena Service Tool ZR32-A Plugin is installed.



- When the installation is completed the Installation Complete screen appears, click the "Close" button.



The Logena Service Tool ZR32-A Plugin is now fully installed.

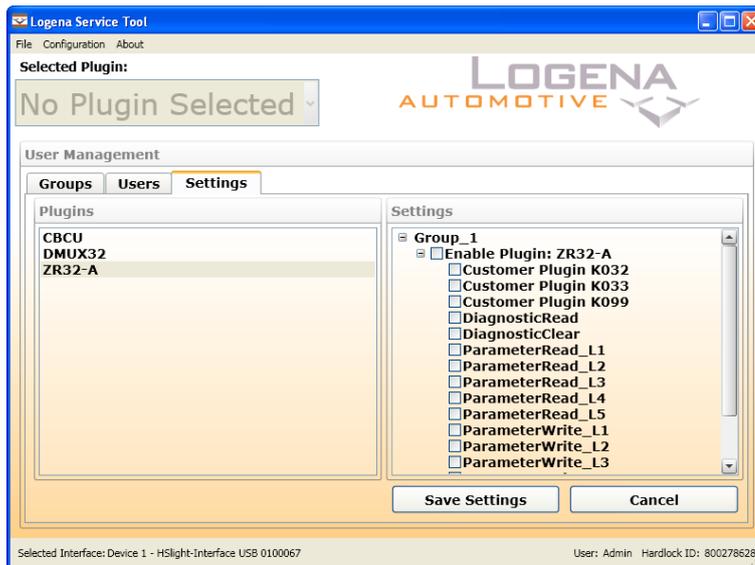
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## 5 ZR32-A Plugin

This chapter describes the functional usage of the ZR32-A plugin for the Logena Service Tool.

### 5.1 Settings User Management

Before the ZR32-A plugin can be used the plugin must be configured. To access the ZR32-A plugin settings see chapter 8 References, reference Logena Service Tool ZR32-A Plugin Developer Instructions v1.xx.



To enable the plugin check the box for "Enable Plugin: ZR32-A". In the user management settings the administrator can enable / disable the different functions per group. When an item is checked, this item is accessible for the user. For example: when the "DiagnosticClear" is disabled the user cannot clear the diagnostic information.

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### 5.1.1 Enable / Disable Functions

The following items can be checked:

- Customer plugins
- DiagnosticRead
- DiagnosticClear
- ParameterRead\_L1
- ParameterRead\_L2
- ParameterRead\_L3
- ParameterRead\_L4
- ParameterRead\_L5
- ParamterWrite\_L1
- ParamterWrite\_L2
- ParamterWrite\_L3
- ParamterWrite\_L4
- ParamterWrite\_L5
- SoftwareDownload
- VINWrite
- IOMonitoring

Customer plugins:

Enables or disables the customer plugin which are allowed to use with used the hardlock.

DiagnosticRead:

Enables or disables the possibility to read the diagnostic information, when this function is disabled the DiagnosticClear is automatically disabled.

DiagnosticClear:

Enables or disables the possibility to clear the diagnostic information.

ParameterRead\_L1:

Enables or disables the possibility to read the level 1 parameters, when this function is disabled the ParameterWrite\_L1 is automatically disabled.

ParameterRead\_L2:

Enables or disables the possibility to read the level 2 parameters, when this function is disabled the ParameterWrite\_L2 is automatically disabled.

ParameterRead\_L3:

Enables or disables the possibility to read the level 3 parameters, when this function is disabled the ParameterWrite\_L3 is automatically disabled.

ParameterRead\_L4:

Enables or disables the possibility to read the level 4 parameters, when this function is disabled the ParameterWrite\_L4 is automatically disabled.

ParameterRead\_L5:

Enables or disables the possibility to read the level 5 parameters, when this function is disabled the ParameterWrite\_L5 is automatically disabled.

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ParamterWrite\_L1:  
Enables or disables the possibility to write the level 1 parameters.

ParamterWrite\_L2:  
Enables or disables the possibility to write the level 2 parameters.

ParamterWrite\_L3:  
Enables or disables the possibility to write the level 3 parameters.

ParamterWrite\_L4:  
Enables or disables the possibility to write the level 4 parameters.

ParamterWrite\_L5:  
Enables or disables the possibility to write the level 5 parameters.

SoftwareDownload:  
Enables or disables the possibility to download software into the ZR32-A.

VINWrite:  
Enables or disables the possibility to write the Vehicle Identification Number.

IOMonitoring:  
Enables or disables the possibility to Monitor IO's.

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## 5.2 Starting the Logena Service Tool

1. Start the tool and login with a user other than "Admin".



2. After a successful login the following screen appears:



- Click on the "No Plugin Selected" dropdown box and select the ZR32-A plugin.

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- When the ZR32-A plugin is selected the home screen of the ZR32-A appears.



Different tabs can be selected, the usage of the tabs is explained in the following chapters.

- When there are changes made and those are not processed, and you are navigating to another tab, a message pops up:



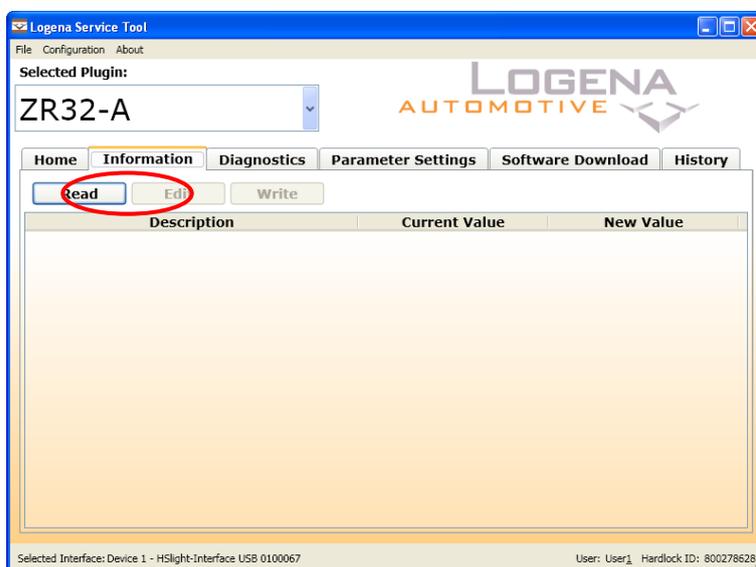
When the "OK" button is clicked the changed values will get lost.  
 When the "Cancel" button is clicked, you will not navigate to the other tab and you will be able to write the changed values into the ZR32-A.

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## 5.3 Read / Edit Information

Under the information tab, information can be read from and written into the ZR32-A. For example the ZR32-A VIN.

1. To read the information from the ZR32-A, click the "Read" button.



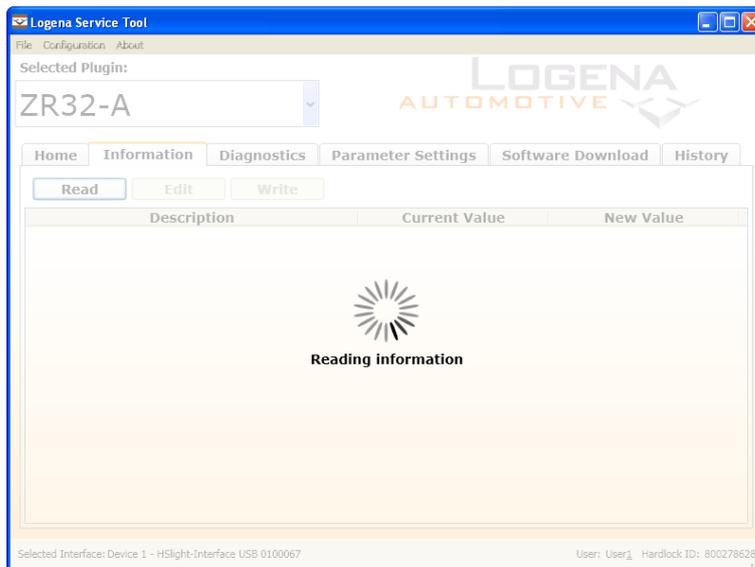
2. Every time the communication is started with the vehicle a warning message pops up:



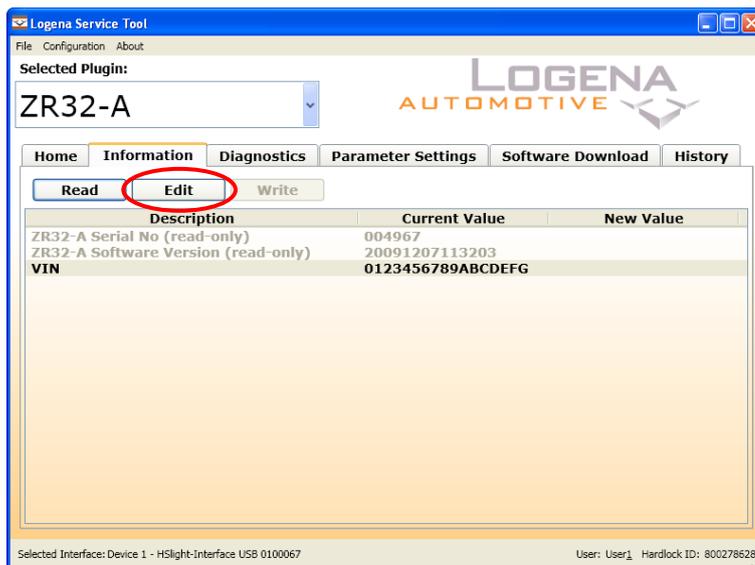
This warning reminds you to follow several safety precautions. Read this warning carefully, when all the warnings and precautions are read and understood, click the "OK" button, otherwise click the "Cancel" button.

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- The Information screen shows progress sign with the text: Reading Information.



- When the information is read out of the ZR32-A, the information is displayed in the Information window:



- The VIN can be changed. To change one of these values, double click on the description or select the description and click the "Edit" button. See picture above.

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6. To change the VIN, the right format of the new date must be filled in correctly. The maximum value is 17 characters. When the correct format is not filled in the textbox is red and the text Validation not OK is displayed:

The screenshot shows a dialog box titled "Logena Service Tool - Edit Information". It contains the following fields and values:

- Name: VIN
- Type:
- Minimum Value: -
- Maximum Value: -
- New Value: ABCDEFGHIJKLMNOPQR

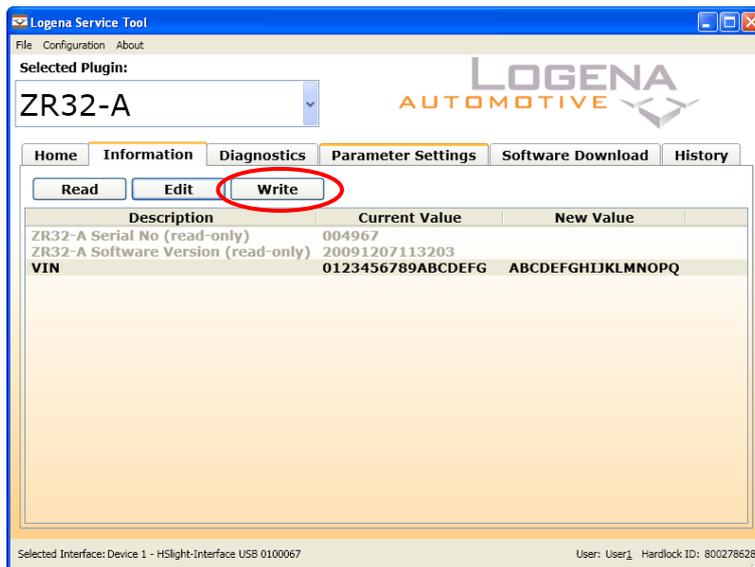
Below the input fields, the text "Validation not OK" is displayed in red. Underneath, a message reads: "Please fill in the Vehicle Identification Number. (17 characters A-Z, 0-9)". At the bottom, there are "OK" and "Cancel" buttons. The "OK" button is disabled (greyed out).

When the validation is Ok, the blue line appears and the "Ok" button is enabled. Click on the "Ok" button to change VIN:

The screenshot shows the same dialog box as above, but with successful validation. The "New Value" field now contains "ABCDEFGHIJKLMNOQ" (17 characters). The "Validation not OK" message is no longer present. The "OK" button is now enabled and highlighted with a red oval, indicating it is ready to be clicked.

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7. To write the information into the ZR32-A click the "Write" button:



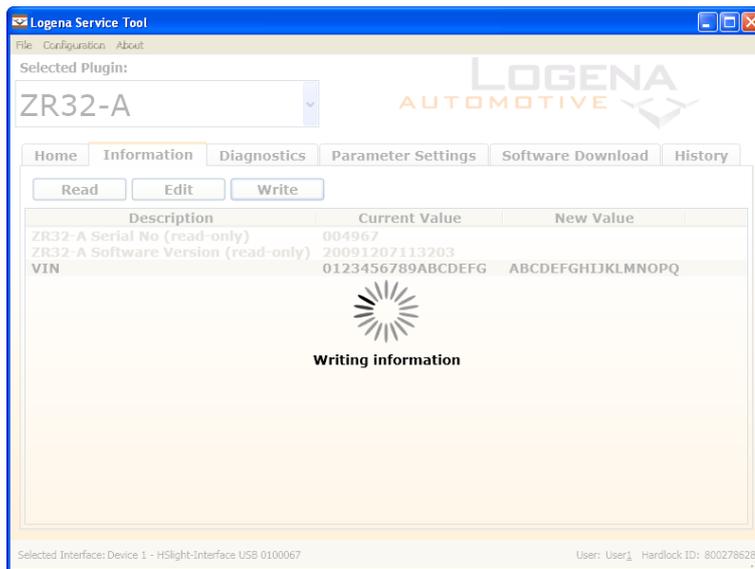
8. Every time the communication is started with the vehicle a warning message pops up:



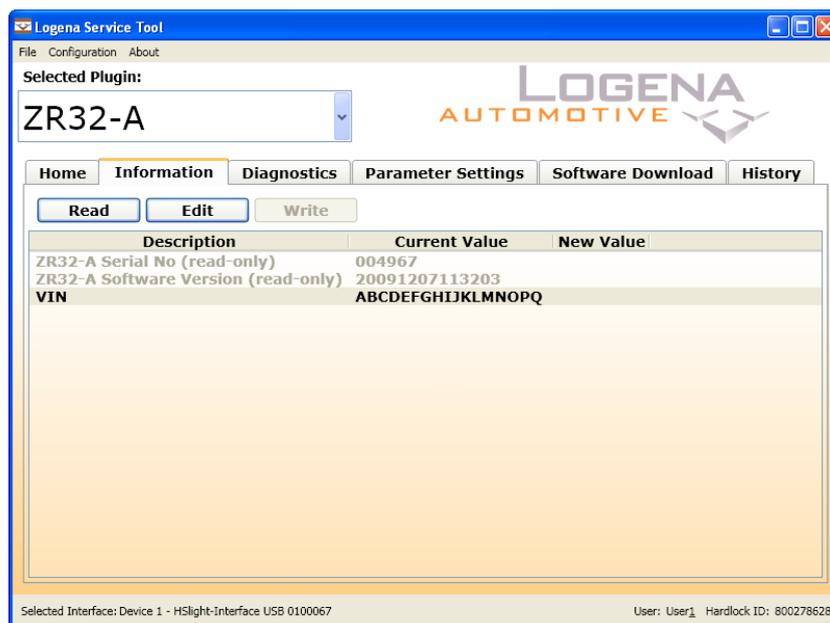
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9. The Information is written into the ZR32-A while the following screen is visible:



10. After the information is written, the updated values are displayed under "Current Value".

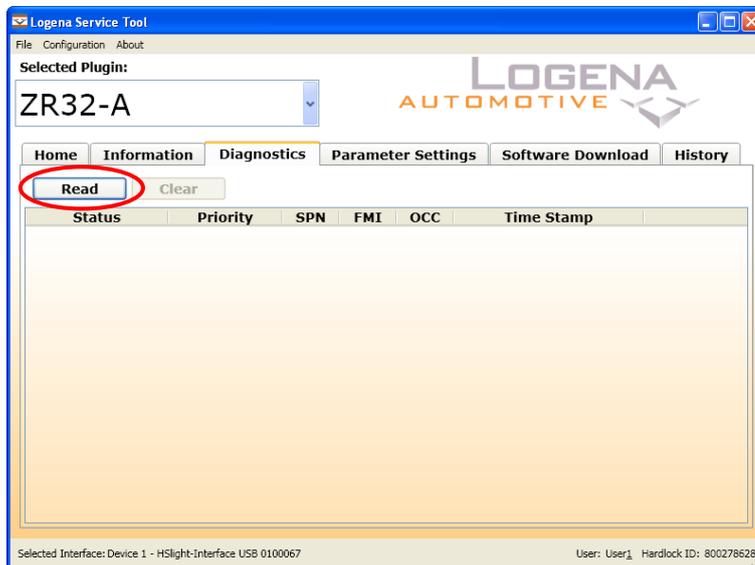


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## 5.4 Read / Clear Diagnostics

Under the Diagnostics tab, the diagnostic information can be read from the ZR32-A.

1. To read the diagnostic information from the ZR32-A, click the "Read" button.



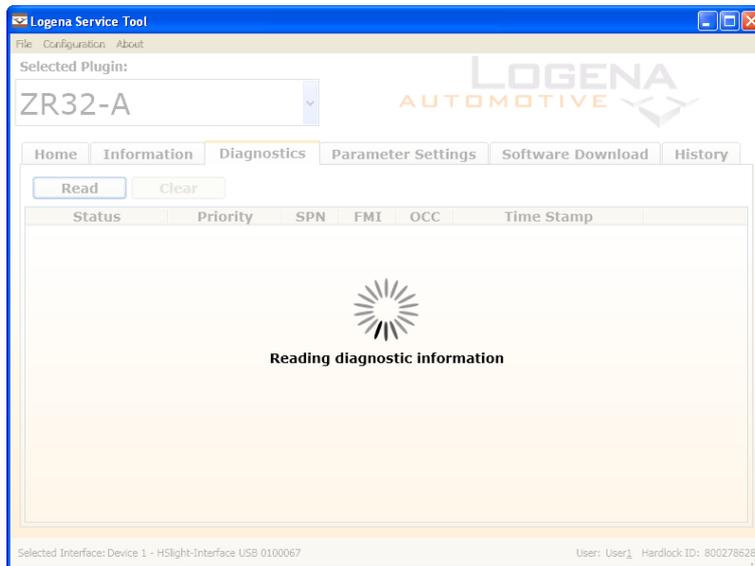
2. Every time the communication is started with the vehicle a warning message pops up:



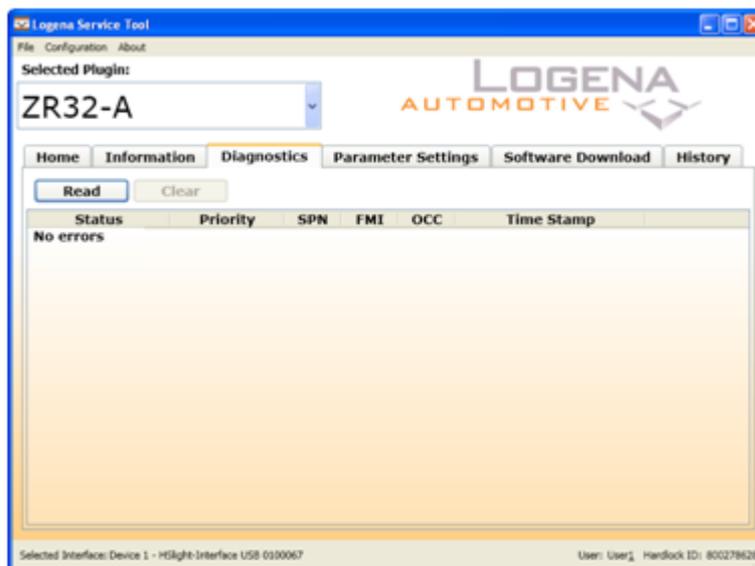
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3. While the Logena Service Tool is reading the diagnostic information the following screen is displayed:

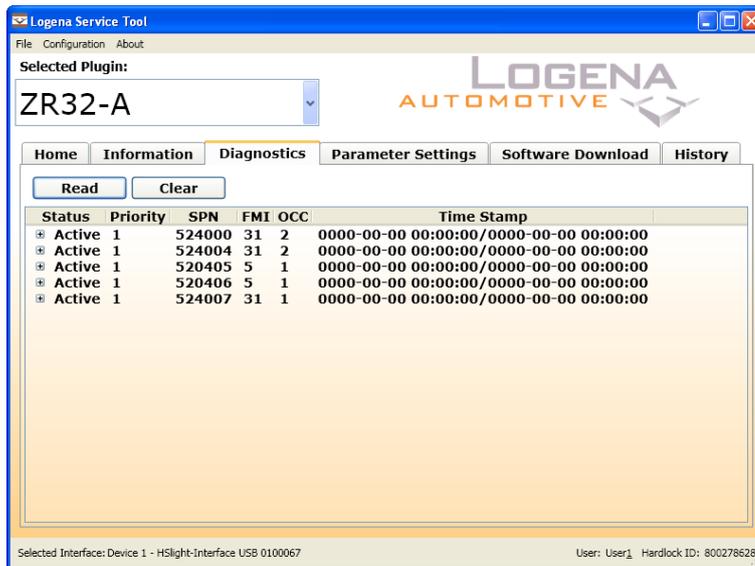


4. When the ZR32-A has no errors stored, the text "No errors" is displayed.

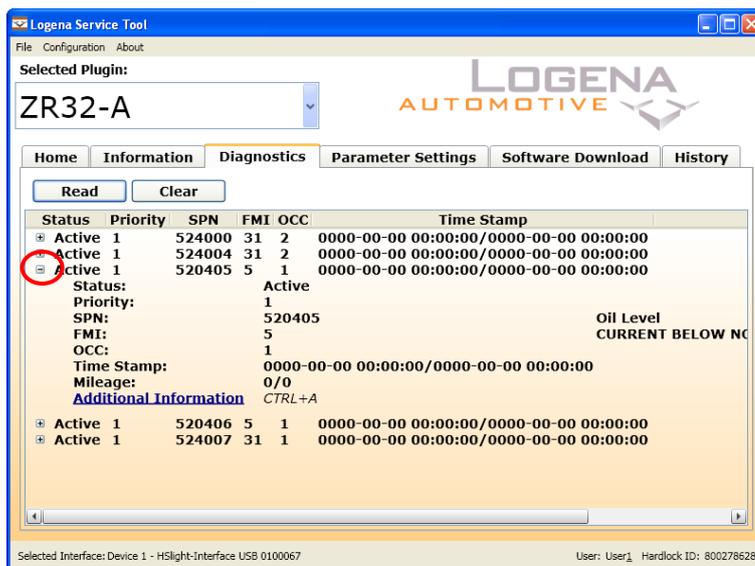


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- If there are errors stored in the ZR32-A, the errors are displayed in the diagnostics tab.

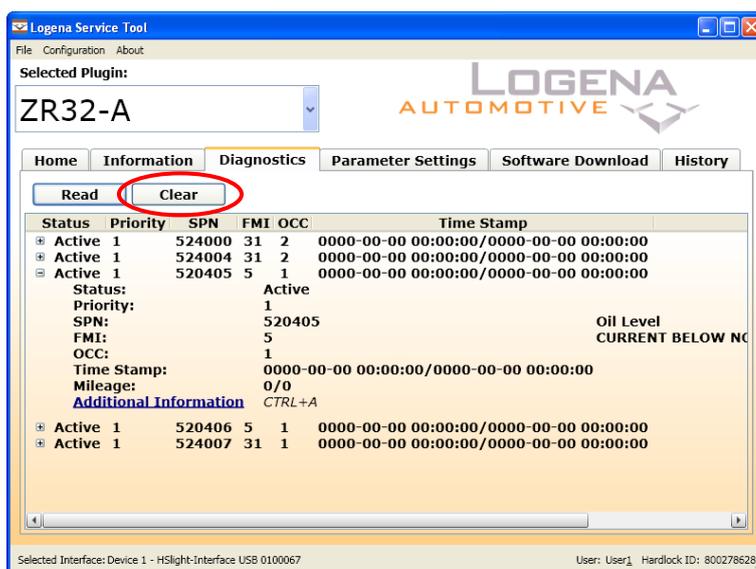


- To see detailed information of an error, expand the error by clicking on the + box left of the error.



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7. To clear the diagnostic information, click the "Clear" button.



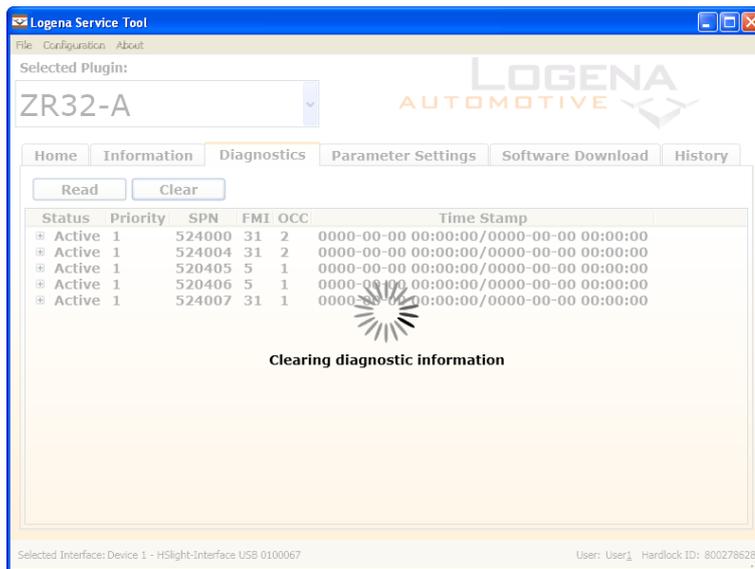
8. Every time the communication is started with the vehicle a warning message pops up:



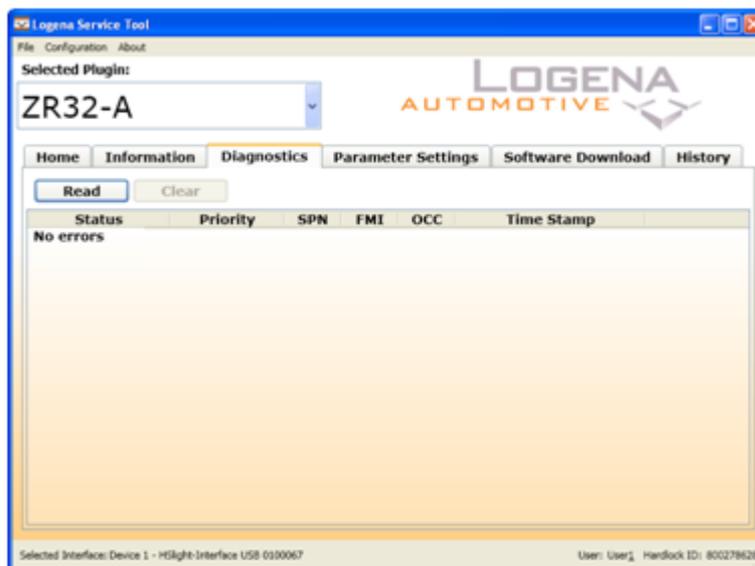
This warning reminds you to follow several safety precautions. Read this warning carefully, when all the warnings and precautions are read and understood, click the "OK" button, otherwise click the "Cancel" button.

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9. While the information is cleared the following screen is displayed:



10. When all the errors are cleared and there are no active errors, the following screen is displayed:



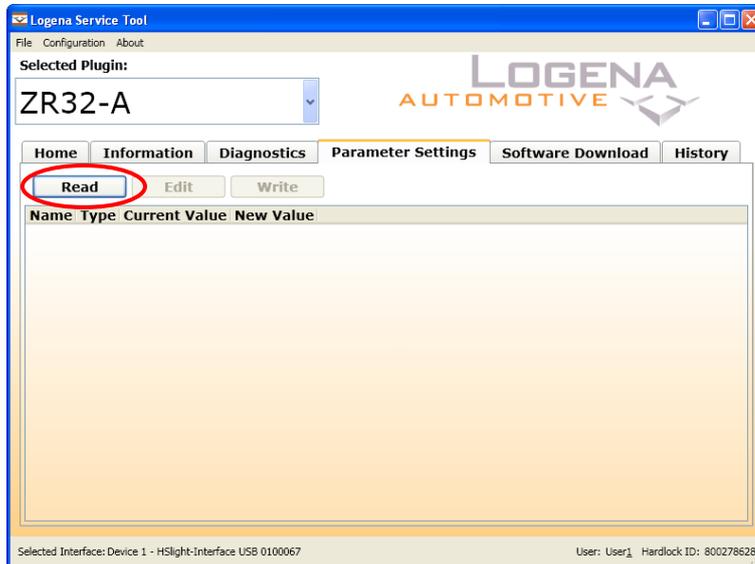
If there are active errors, the errors will be displayed after a Diagnostic Clear.

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## 5.5 Read / Write Parameters

Under the parameters tab the parameters can be read, edited, and written.

- To read the parameters from the ZR32-A, click the "Read" button.



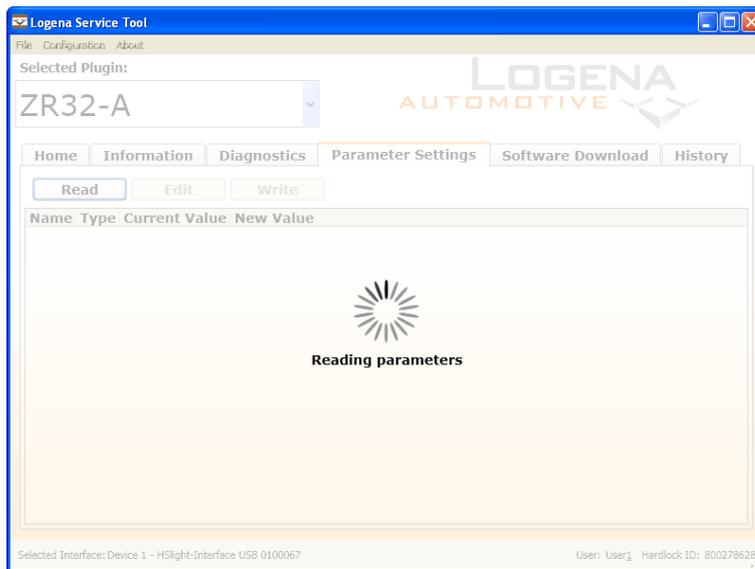
- Every time the communication is started with the vehicle a warning message pops up:



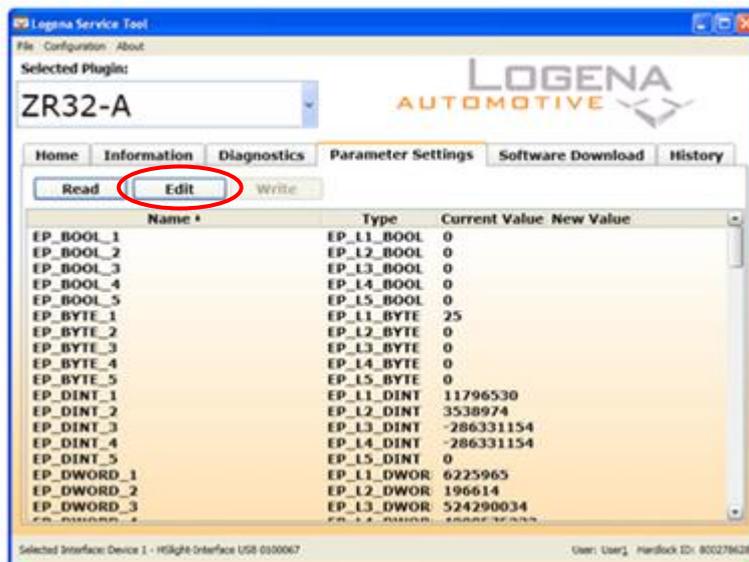
This warning reminds you to follow several safety precautions. Read this warning carefully, when all the warnings and precautions are read and understood, click the "OK" button, otherwise click the "Cancel" button.

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3. While the parameters are read from the ZR32-A the following screen is displayed.

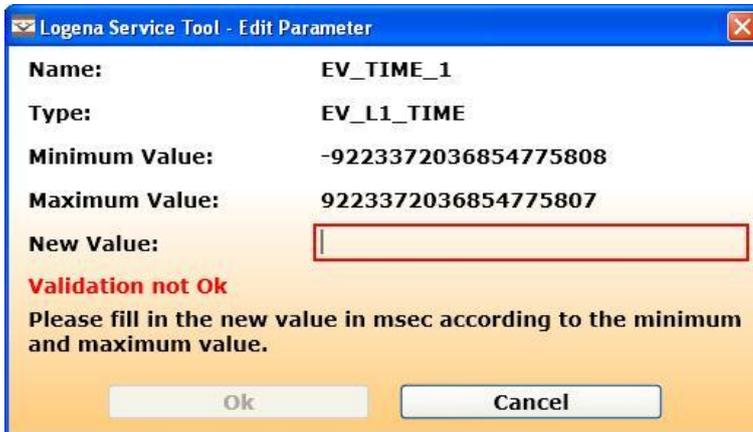


4. The present parameters are displayed in a list. To change a parameter value, double click on the parameter or select the parameter and click the "Edit" button.

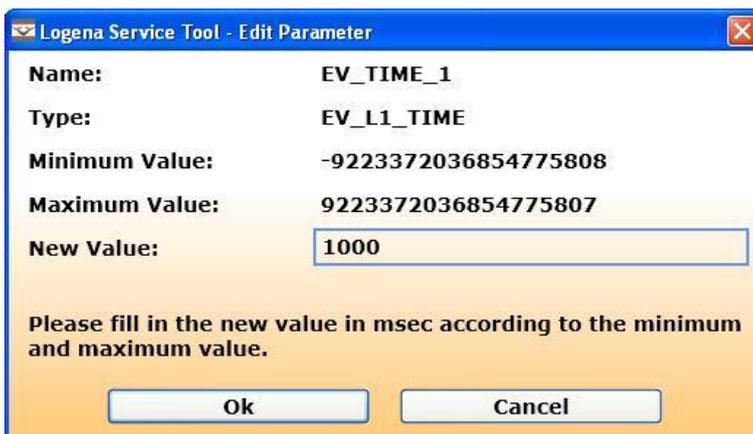


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11. To change a parameter value a valid value must be filled in. The minimum and maximum values of the parameter are displayed in the popup screen. The Type of the parameter is also displayed in the popup screen. As long as no correct format is filled in, the textbox is red and the text "Validation not Ok" is displayed:

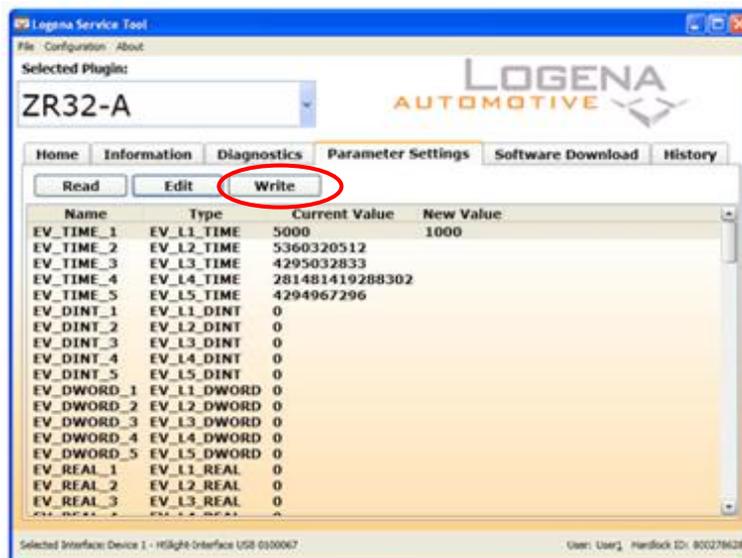


12. When a valid value is given in the "Ok" button is enabled, the parameter value can be changed, click the "Ok" button to confirm.



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13. The changed parameters have a new value and are displayed in the new value column. To write the new values to the ZR32-A click the "Write" button.



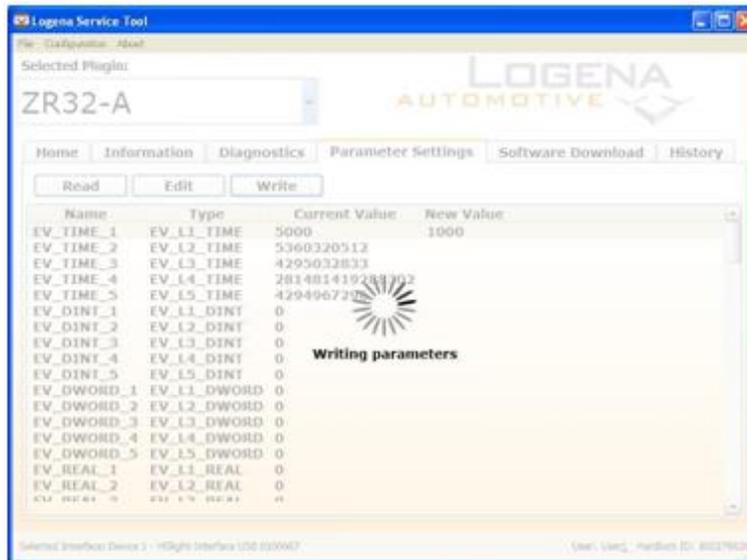
14. Every time the communication is started with the vehicle a warning message pops up:



This warning reminds you to follow several safety precautions. Read this warning carefully, when all the warnings and precautions are read and understood, click the "OK" button, otherwise click the "Cancel" button.

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15. While the parameters are written into the ZR32-A the following screen is displayed:



16. After the parameters are written, the New Value is written to the Current Value.



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## 5.6 IO Monitoring

### 5.6.1 General

This feature makes it possible to monitor the I/O signals of a ZR32-A ECU.

The signal list including all necessary details is retrieved from the embedded ASAM file read out from the ZR32-A. Obviously the signals must be defined in the ZR32-A firmware to be able to use this feature.

Up to 8 different signals may be selected to be monitored simultaneously. The sampling rate is adjustable in the range 50 – 10000 milliseconds. The signal samples are stored in queues with a maximum of 10000 samples. If this limit is exceeded, the oldest samples will be removed and the new ones added at the end.

The signal values are retrieved, calculated and formatted according to their specifications in the embedded ASAM file (e.g. data type, address, min, max, unit, conversion etc.).

There is a possibility to show signal graphs and also to view the current signal values through large gauges on a Dashboard (easily seen from a distance).

Up to 4 different signals may be simultaneously selected to be included in the Graph view and up to 6 signals to be shown through gauges in the Dashboard view.

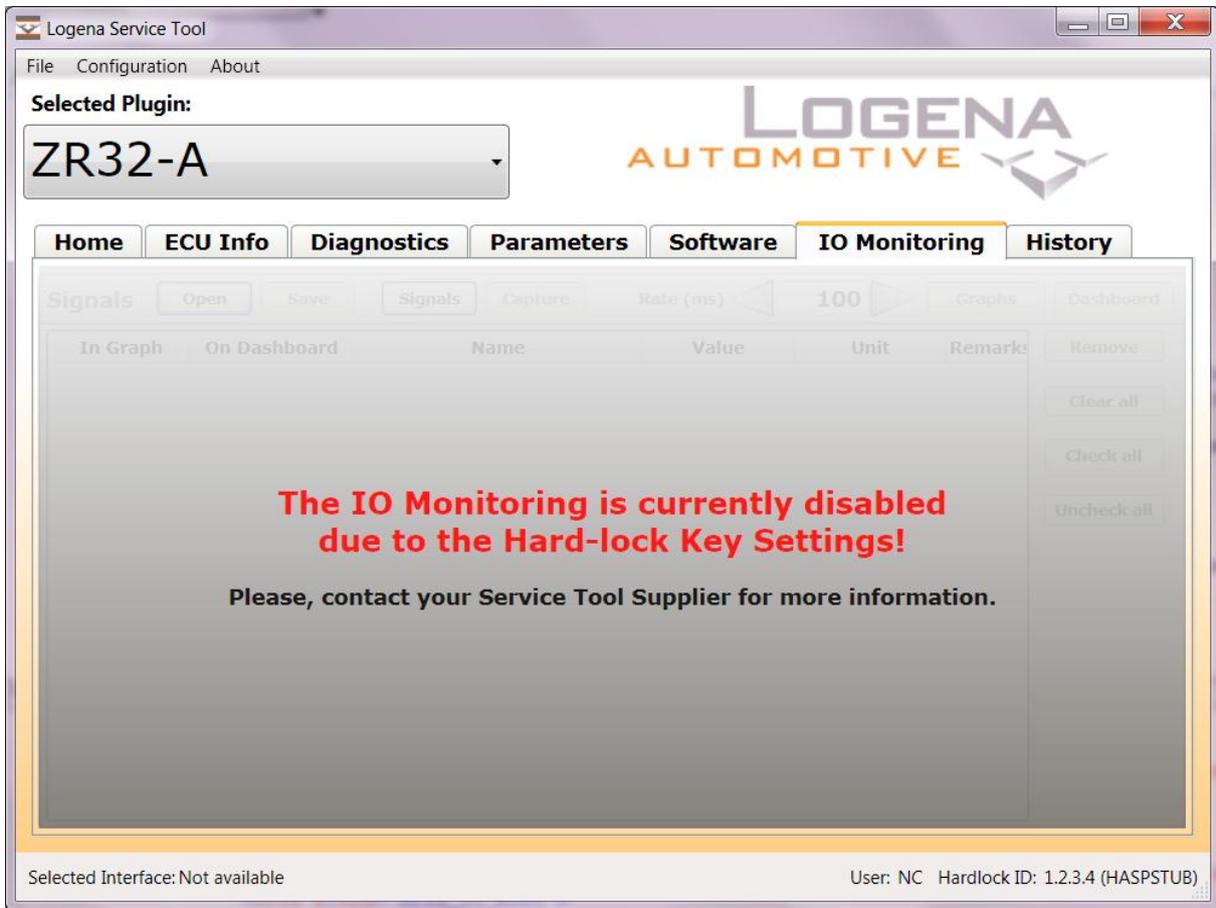
The signal traces may be saved to a file and loaded from it again for later analysis.

**Note:** it is very important to close as many other applications as possible during the signal sampling to avoid too much delay by the Windows system.

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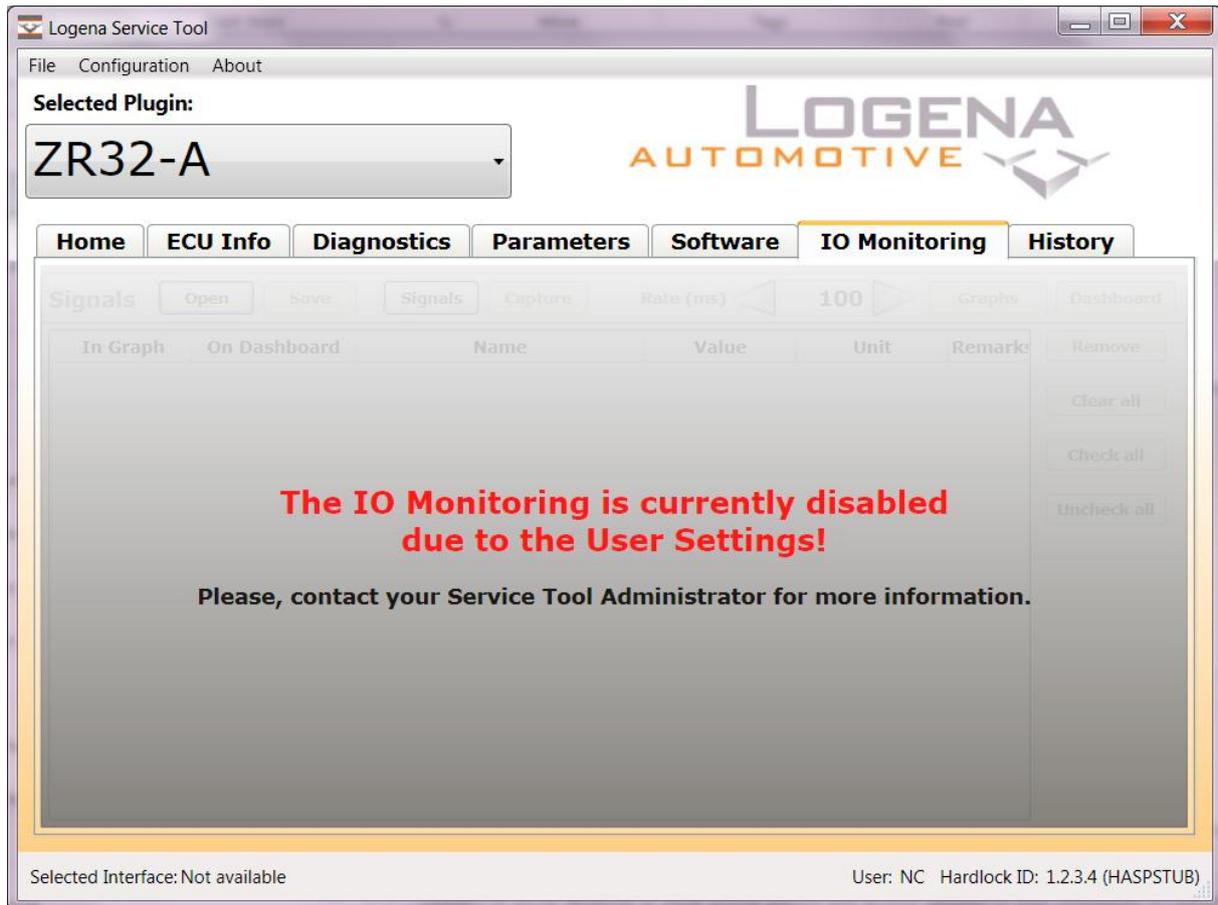
### 5.6.2 User Interface

The IO Monitoring must be enabled by the hard-lock key settings as well as in the User settings. Otherwise, one of the following two screens will be shown:



Or

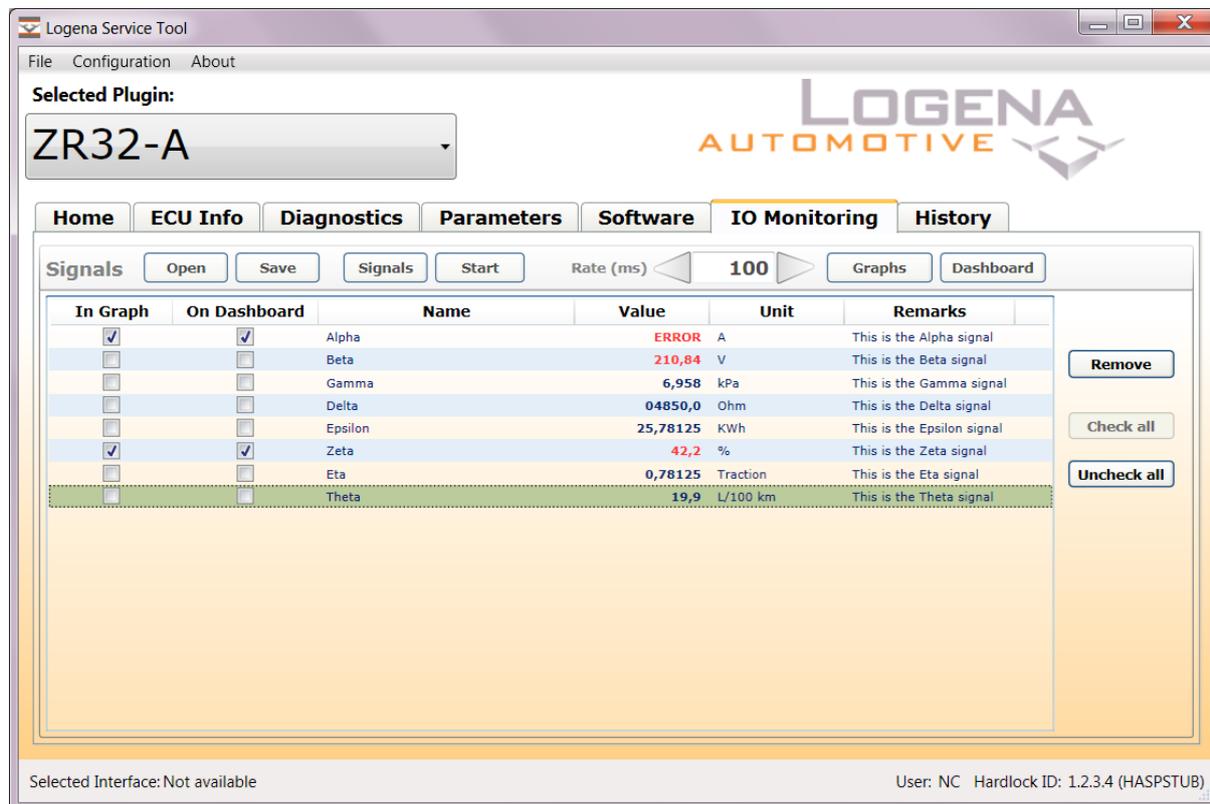
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### 5.6.2.1 Main screen

The IO Monitoring main screen is shown below:

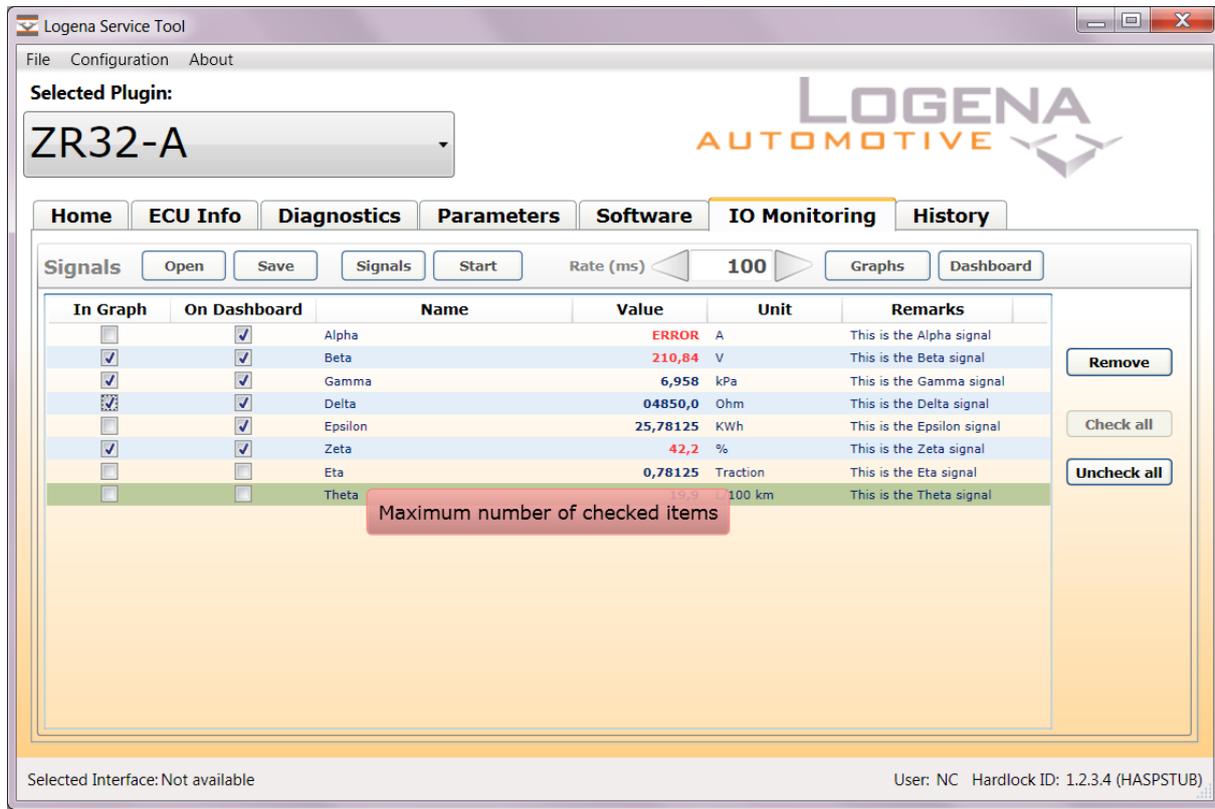


#### 5.6.2.1.1 Controls and actions of the main screen

- **“Open”** button: Opens a signal trace file (\*.lst) previously saved by the Service Tool.
- **“Save”** button: saves the current signals and its samples to a file (\*.lst).
- **“Signals”** button: opens another window for retrieving and selecting wanted signals (please see chapter 5.6.2.2).
- **“Start/Stop”** button: starts or stops the sampling of the signals.
- **“Rate”** numeric box: selects the sampling rate.
- **“Graphs”** button: opens another window containing the graphs of the checked signals in the column “In Graph” (please see chapter 5.6.2.3).
- **“Dashboard”** button: opens another window containing the Dashboard with the gauges for the checked signals in the column “On Dashboard” (please see chapter 5.6.2.4).
- **“Remove”** button: removes the selected signals from the list.
- **“Check all”** button: checks all signals in the list to be included in both the Graph view and the Dashboard view. **Note:** this button will be disabled if there are more than 4 signals in the list.
- **“Uncheck all”** button: unchecks all signals in the list to be excluded from both the Graph view and the Dashboard view.

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If more than 4 signals are checked for the Graph view or more than 6 for the dashboard view, then the following warning will be shortly shown and the “oldest” checked signal will be unchecked in favor of the last checked one:



### 5.6.2.1.2 Sampling

Use the “**Start/Stop**” button to start/stop the sampling of the current signals. The signal values are retrieved, calculated and formatted according to their specifications in the embedded ASAM file.

The Service Tool needs to communicate with the ZR32-A during the sampling. So ensure that the hardware is properly connected and initialized before pressing the “**Start**” button.

If a signal exceeds its min/max limits, then its value will be shown red. If a signal value cannot be retrieved (due to an error), then the “ERROR” text will be shown in place of its value.

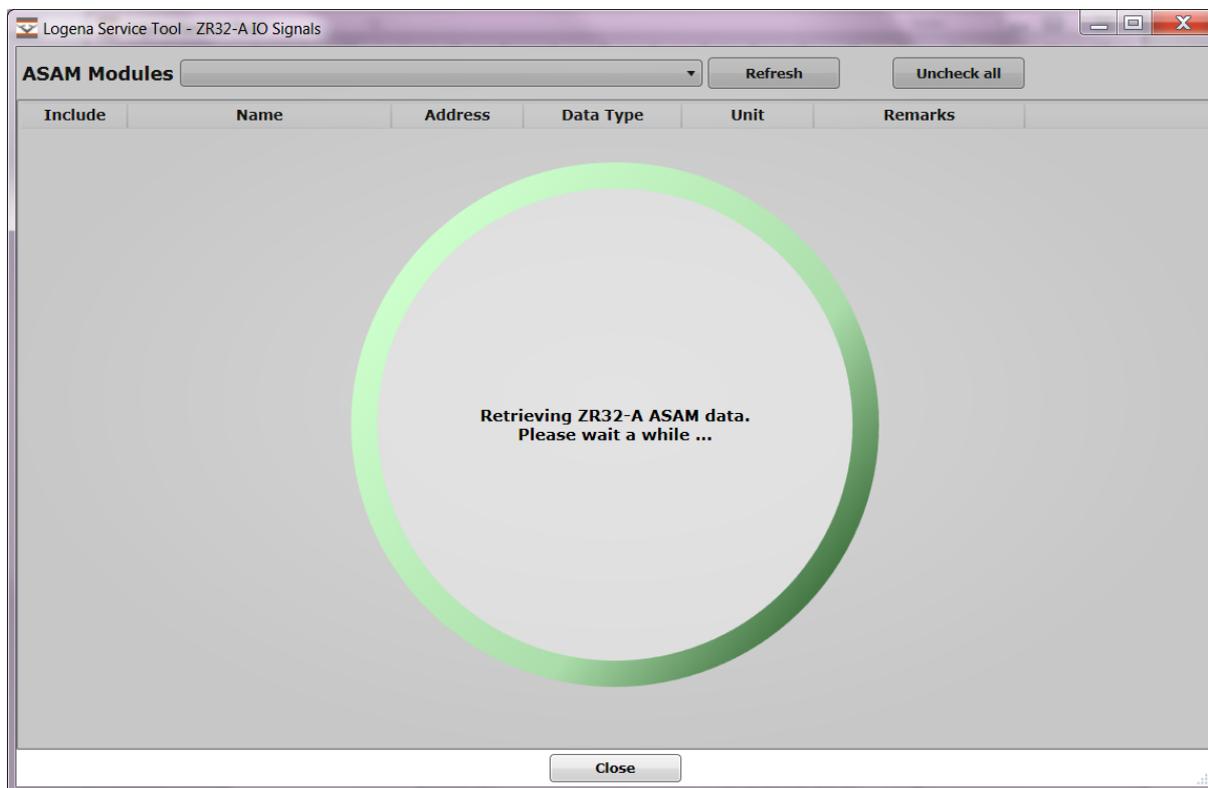
**Note:** during the sampling only the “**Stop**”, “**Graphs**” and “**Dashboard**” buttons are accessible.

**Note:** Use as few signals as possible at the same time in order to achieve higher sampling rates (because of the slow communication through the KWP 2000 protocol used for reading the signal values).

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### 5.6.2.2 Signals

When the **“Signals”** button on the main IO Monitoring screen is pressed the following screen will be opened:

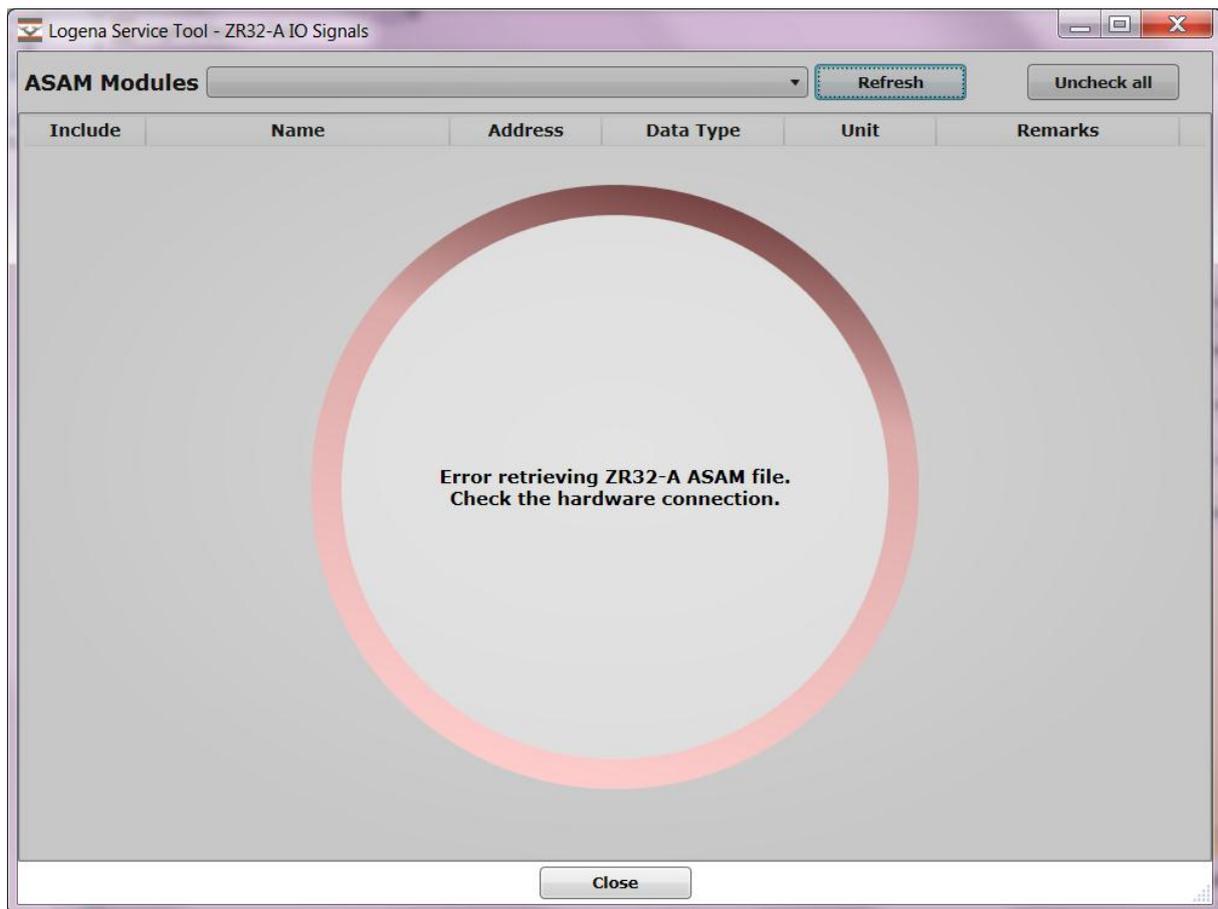


Use the **“Refresh”** button to retrieve (again) the ASAM file and to refresh the whole signal list.

The Service Tool needs to communicate with the ZR32-A when this window is opened for the first time or when the **“Refresh”** button is pressed. So ensure that the hardware is properly connected and initialized before opening this window.

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If an error occurs during this action, then the following message might be displayed:

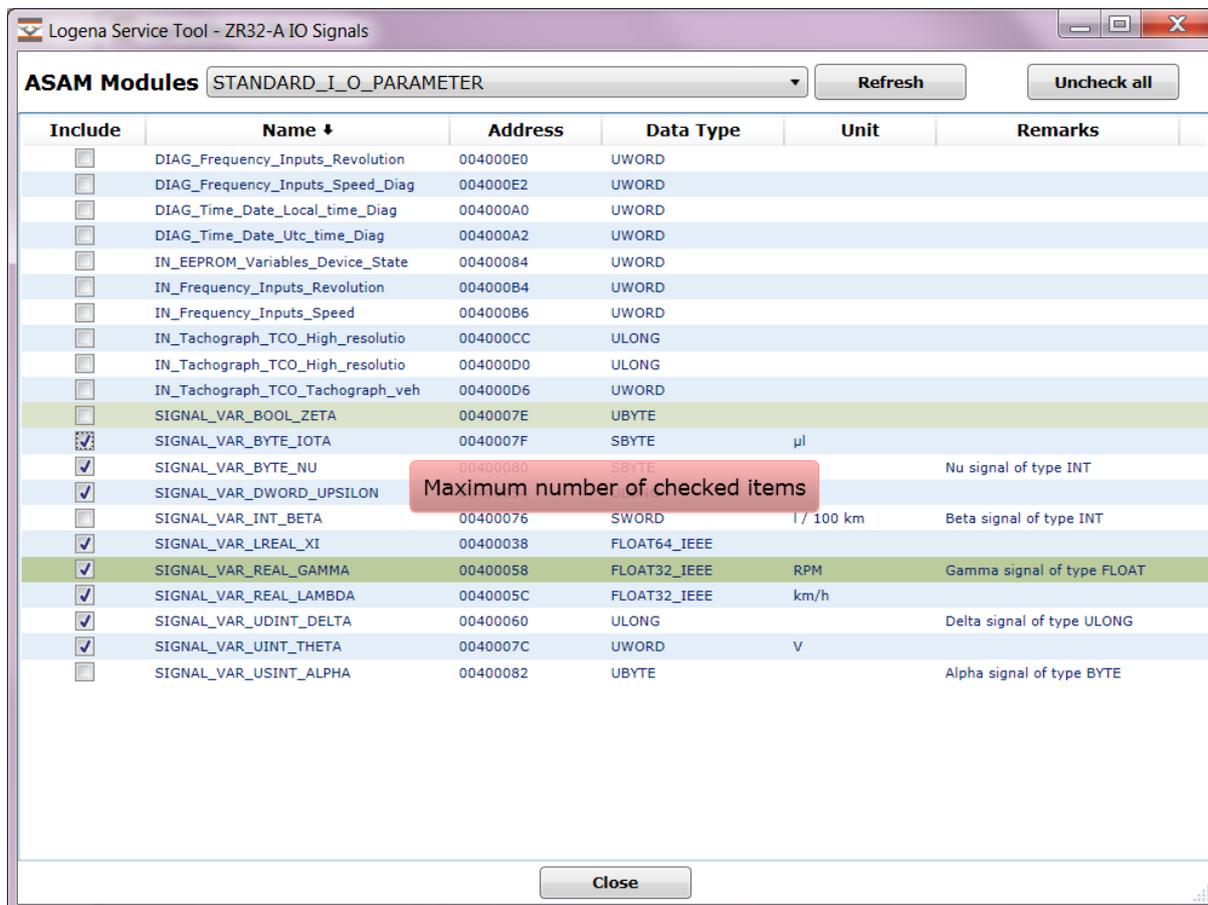


Reconnect and initialize again all hardware components in this case and press then the **"Refresh"** button.

Select the wanted module in the **"ASAM Modules"** drop-down box and check the signals you want to monitor after the successful retrieval of the signal information.

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There can be up to 8 signals checked for simultaneous monitoring. If more than 8 signals are checked, then the following warning will be shortly shown and the “oldest” checked signal will be unchecked in favor of the last checked one:



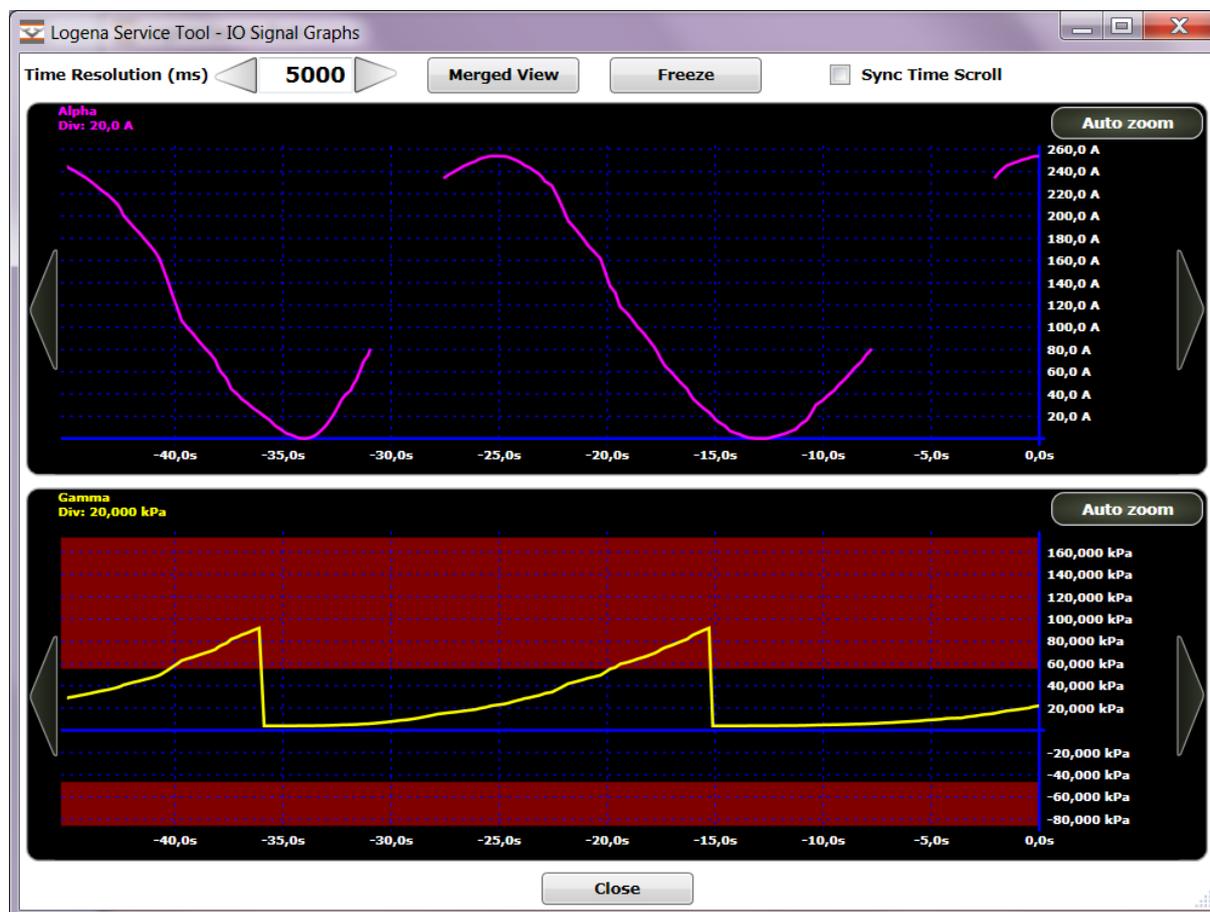
The “**Uncheck all**” button can be used to uncheck all currently checked signals.

When the wanted signals are checked, press the “**Close**” button to update the signal list and to return to the IO Monitoring main screen.

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### 5.6.2.3 Graphs

Press the **"Graphs"** button on the main IO Monitoring screen to open the Graph view of the signals checked in the column **"In Graph"**. The following window will be opened:



The graph will be shown in the color of the signal (automatically assigned when a signal is added to the list on the main screen).

If an error occurs during the sampling, then a time gap will be "shown" on the graph of the corresponding signal.

Use the **"Time Resolution"** numeric box to adjust the (horizontal) time resolution.

Use the **"Freeze/Unfreeze"** button to temporarily freeze/unfreeze the updating of the graphs. **Note:** this will not stop the sampling of the signal values.

Check the **"Sync Time Scroll"** check box to synchronize the time scrolling simultaneously in all graphs.

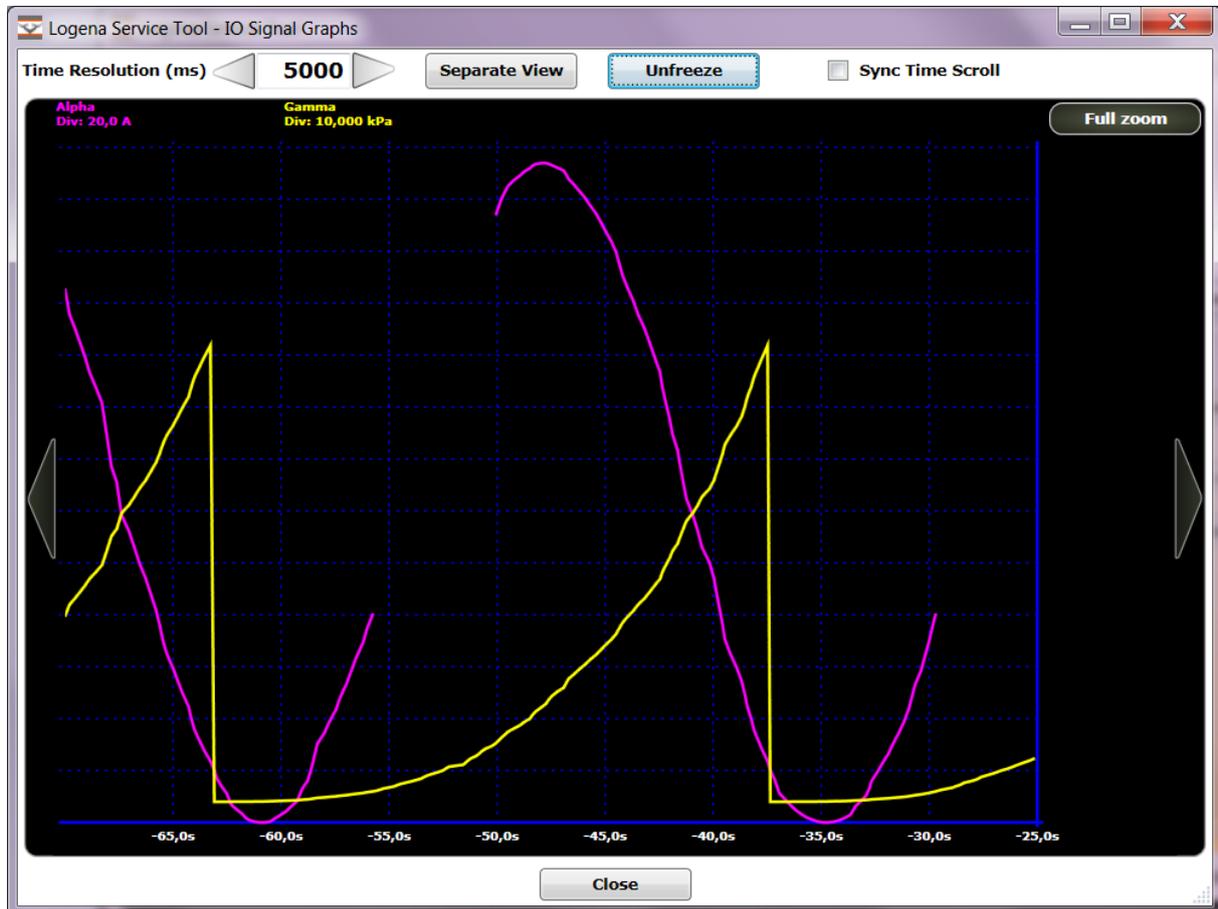
Pressing on the **"Auto zoom/Full zoom"** button can be toggled between the full zoom (including optional min/max value regions) and the auto zoom (larger view when possible).

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The time scrolling is performed through the “**Arrow**” buttons on the graphs.

Press the “**Merged View/Separate View**” button to toggle between the merged view (below) and the separate view (above).

In the Merged View all signal graphs are merged together (for easier comparison) as shown below:

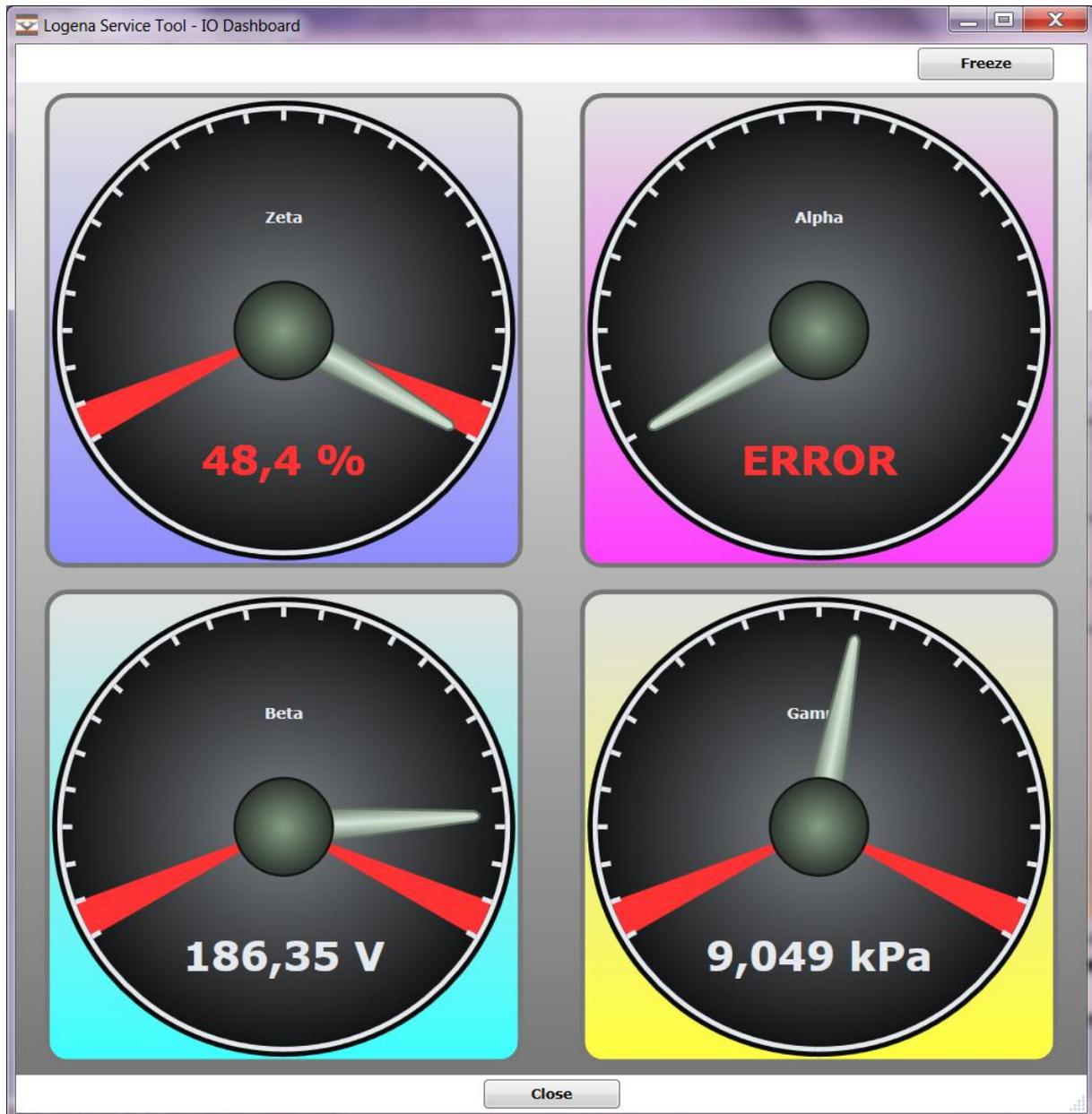


The Graph view may simultaneously be open together with the Dashboard view. This is especially useful on the machines having multiple screens.

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### 5.6.2.4 Dashboard

Press the **“Dashboard”** button on the main IO Monitoring screen to open the Dashboard view of the signals checked in the column **“On Dashboard”**. The following window will be opened:



The Dashboard view contains gauges showing the current values (and optional min/max value regions) that are easily seen from a distance.

Each gauge will be shown in the color of the corresponding signal (automatically assigned when a signal is added to the list on the main screen).

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The gauges are automatically scaled based on the window size and the number of gauges.

The values exceeding their limits will be shown red. And the "ERROR" text will be displayed in case of an error.

Use the "**Freeze/Unfreeze**" button to temporarily freeze/unfreeze the updating of the gauges. **Note:** this will not stop the sampling of the signal values.

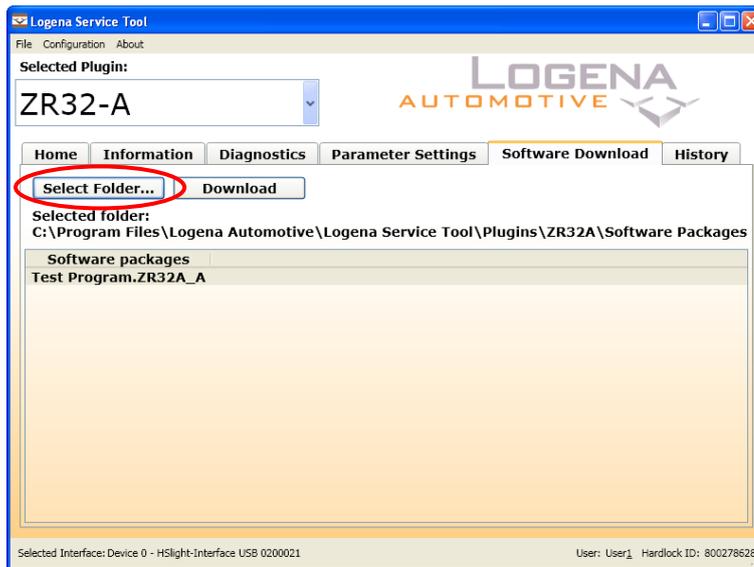
The Dashboard view may simultaneously be open together with the Graph view. This is especially useful on the machines having multiple screens.

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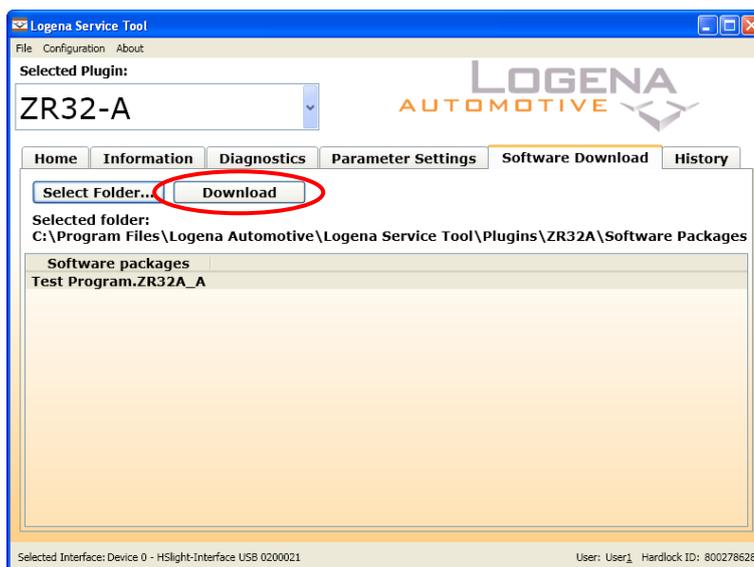
## 5.7 Software Download

Under this tab new software can be downloaded into the ZR32-A

1. Select a file to download into the ZR32-A. The standard folder for the Software Packages is: C:\Program Files\Logena Automotive\ Logena Service Tool\Plugins\ZR32A\Software Packages. When a download package with the right extension is placed in this folder, it is displayed in the Software packages list. The extension that is accepted is \*.ZR32A\_A. If you desire another folder for the ZR32-A download packages, select the folder in which the download files are located by clicking the "Select Folder" button and navigate to the desired folder.



2. To download software to the ZR32-A, select the software package to download and click the "Download" button.



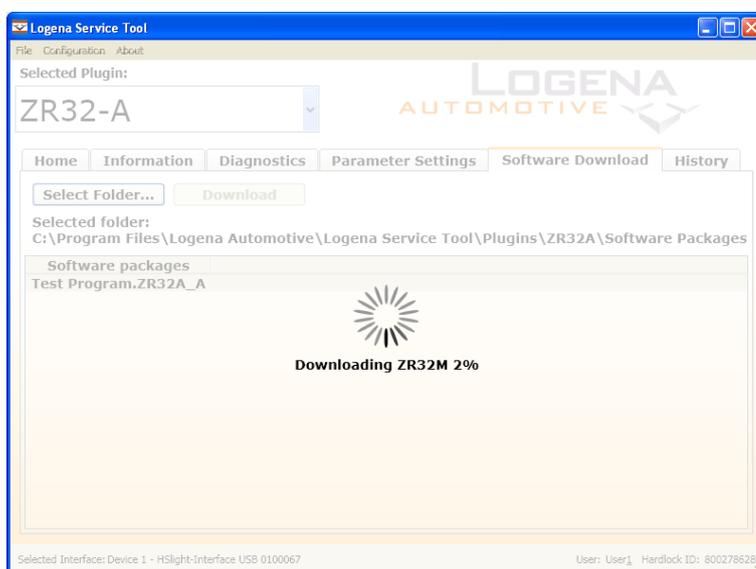
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- Every time the communication is started with the vehicle a warning message pops up:



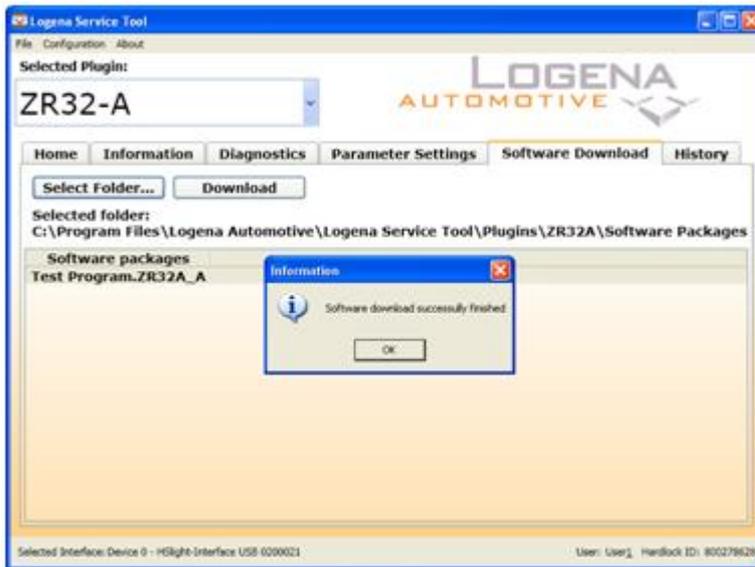
This warning reminds you to follow several safety precautions. Read this warning carefully, when all the warnings and precautions are read and understood, click the "OK" button, otherwise click the "Cancel" button.

- While the software is being downloaded the different states of the download are displayed in the busy screen.



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- When the busy screen disappears, and the popup "Software download successfully finished" is displayed. Click "OK".

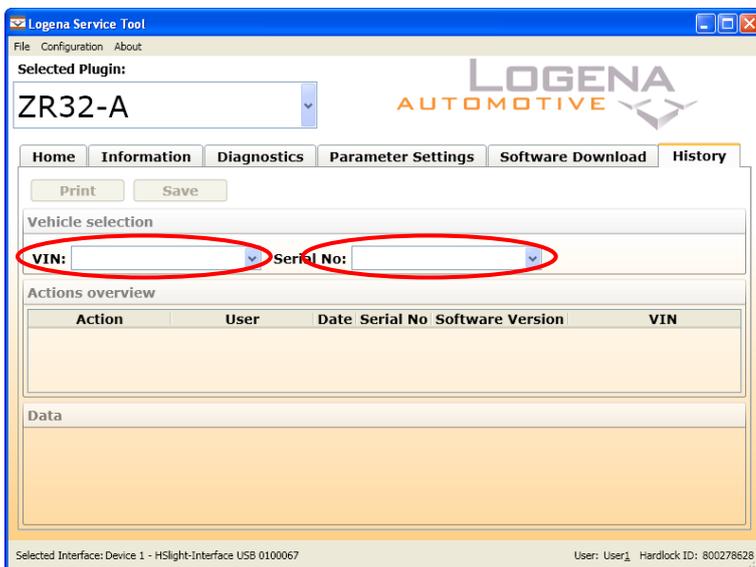


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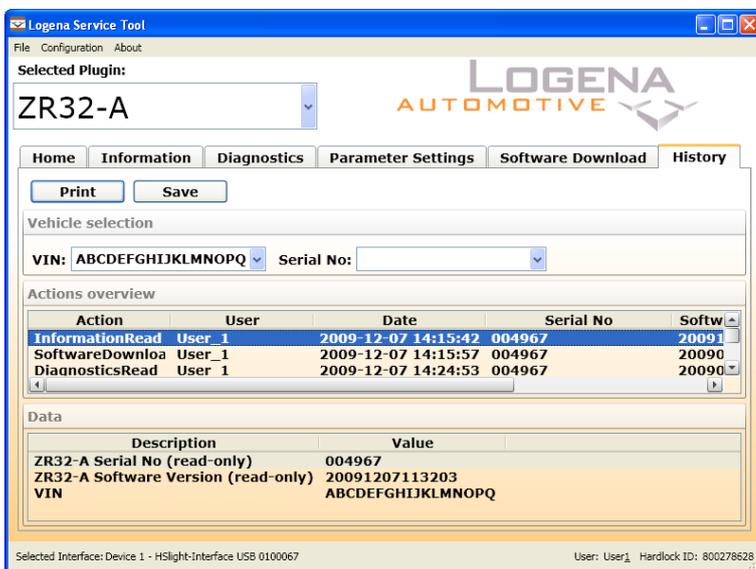
## 5.8 History tab

All read, write, clear and download actions are saved in the History tab. The history actions can be viewed per VIN or per ZR32-A Serial No.

1. Select a VIN or ZR32-A Serial No, to see the history of actions performed on the specific vehicle.

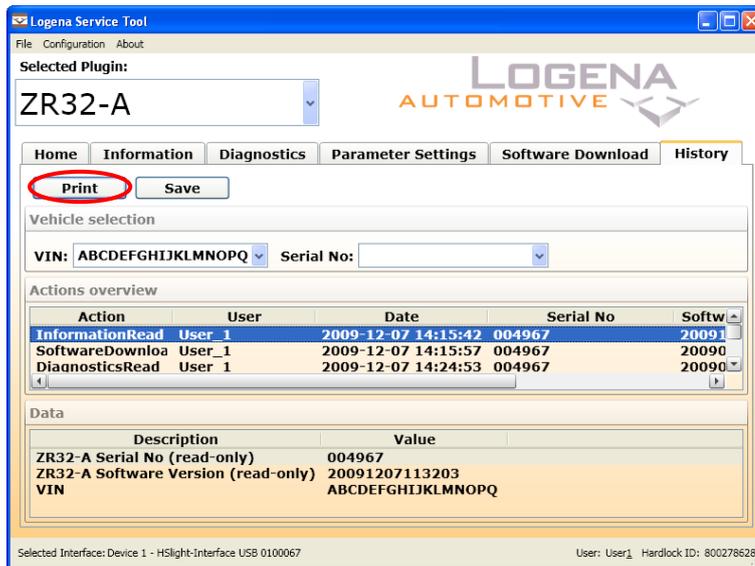


2. In the "Actions overview" column all the actions for the chosen vehicle are displayed. Select an action to view the information of the action in the "Data" column.

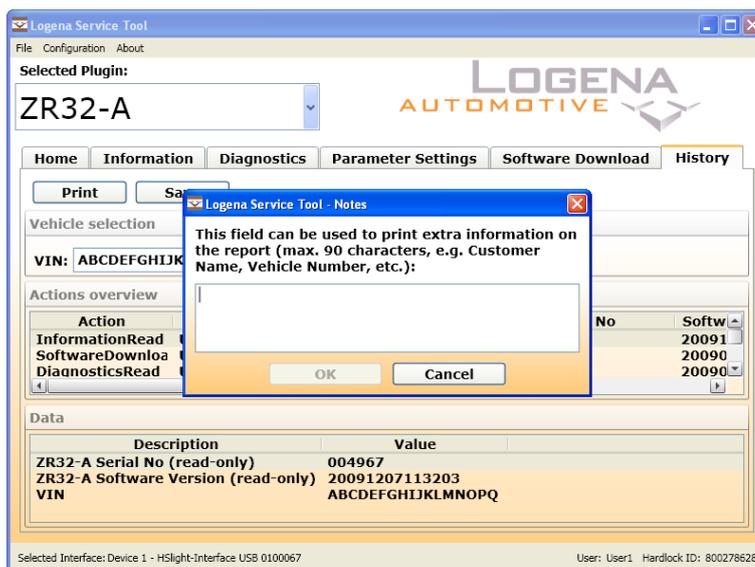


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- It is possible to print a report of the action that is selected by clicking the "Print" button.

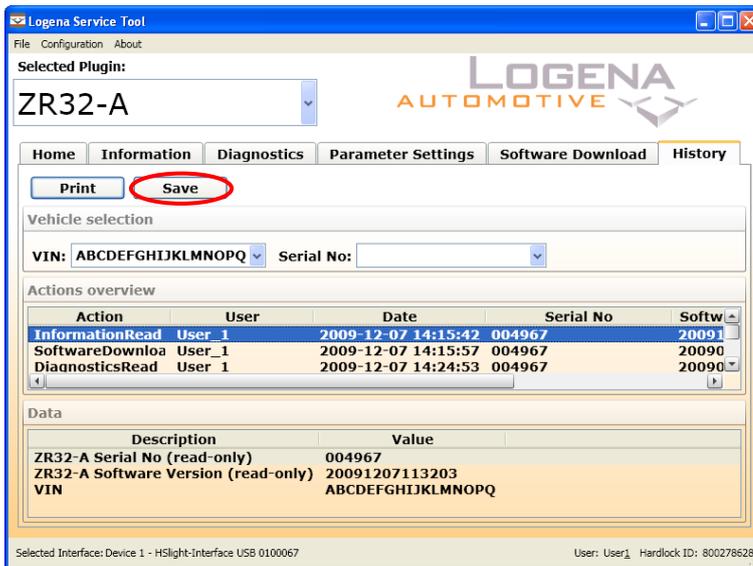


- A window pops up, in this window additional information must be filled in. Click the "OK" button to proceed the printing of the report. A standard Windows print window pops up, follow the standard steps to finish the printing of the report.

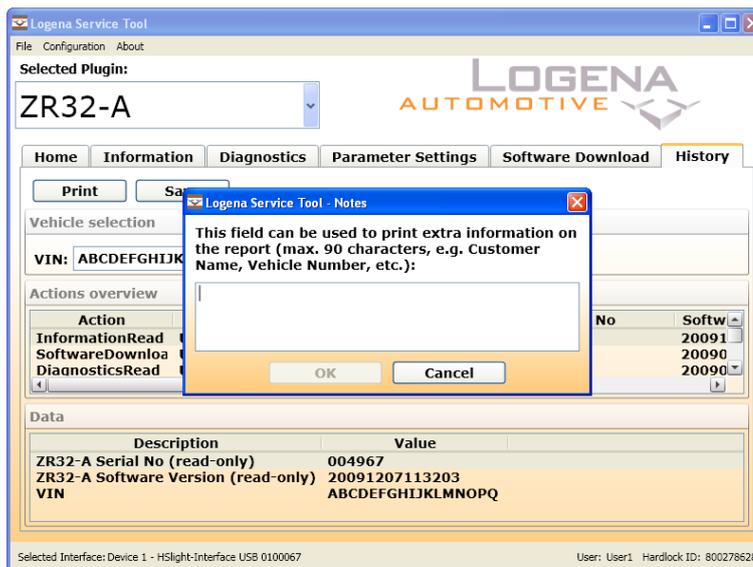


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5. Instead of printing a report, a report can also be saved. Click the "Save" button to save the report.

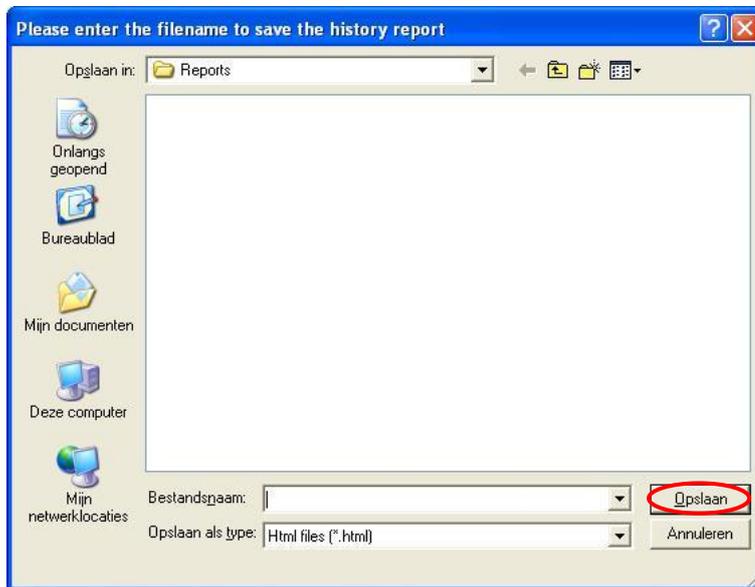


6. A window pops up, fill in the additional information and click the "OK" button.



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- The window to save the report pops up. Choose a name for the report and the folder to save the report in. The standard folder to save the reports in is: "C:\Program Files\Logena Automotive\Logena Service Tool\Plugins\ZR32A\Reports"  
Click the "Save" button to save the report.



- The message that the report is saved successfully pops up, click "Ok" to confirm the message.



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## 6 Troubleshooting

Problem	Cause	Solution
<p>Popup screen: "Code: 0x02010100 Communication Interface could not be found! Possible solutions: -verify connection to Communication Interface -(re)connect Communication Interface -verify Serial Number of Communication Interface"</p>	<p>Initializing of device failed, not connected or wrong interface selected?</p>	<p>verify connection to Communication Interface -(re)connect Communication Interface -verify Serial Number of Communication Interface"</p>
<p>Popup screen: "Code: 0x020102xx Communication Failed! Possible solutions: -verify connection between Vehicle and Communication Interface -verify that the Communication Interface has power (check UBAT/POWER LED on Communication Interface) -verify that the Control Unit has power -verify that the Control Unit is awake (one of the wakeup switches is active)"</p>	<p>Starting communication failed</p>	<p>b-verify connection between Vehicle and Communication Interface -verify that the Communication Interface has power (check UBAT/POWER LED on Communication Interface) -verify that the Control Unit has power -verify that the Control Unit is awake (one of the wakeup switches is active)"</p>
<p>Popup screen: "Code: 0x02010400 ZR32-A Customer Plugin not enabled!"</p>	<p>ECU Customer Plugin is not enabled</p>	<p>Use a dongle with the involved customer enabled.</p>

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Problem	Cause	Solution
<p>Popup screen: "Code: 0x02010512 Action failed! Possible cause: -no program loaded in ZR32-A"</p>	<p>Starting diagnostic session failed, probably no program loaded</p>	<p>Load a program into the ZR32-A</p>
<p>Popup screen: "Code: 0x02010800 Communication Interface could not be found! Possible solutions: -verify connection to Communication Interface -(re)connect Communication Interface -verify Serial Number of Communication Interface"</p>	<p>Initializing of device failed, not connected or wrong interface selected?</p>	<p>verify connection to Communication Interface -(re)connect Communication Interface -verify Serial Number of Communication Interface"</p>
<p>Popup screen: "Code: 0x020109xx Communication Failed! Possible solutions: -verify connection between Vehicle and Communication Interface -verify that the Communication Interface has power (check UBAT/POWER LED on Communication Interface) -verify that the Control Unit has power -verify that the Control Unit is awake (one of the wakeup switches is active)"</p>	<p>Starting communication failed</p>	<p>b-verify connection between Vehicle and Communication Interface -verify that the Communication Interface has power (check UBAT/POWER LED on Communication Interface) -verify that the Control Unit has power -verify that the Control Unit is awake (one of the wakeup switches is active)"</p>
<p>Popup screen: "Code: 0x02010B00 ZR32-A Customer Plugin not enabled!"</p>	<p>ECU Customer Plugin is not enabled</p>	<p>Use a dongle with the involved customer enabled.</p>

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Problem	Cause	Solution
Popup screen: "Code: 0x02010C12 Action failed! Possible cause: -no program loaded in ZR32-A"	Starting diagnostic session failed, probably no program loaded	Load a program into the ZR32-A
Popup screen: "Code: 0x02020100 ZR32-A Customer Plugin unknown!"	Customer plugin not known by DLL	Use a ZR32-A and DLL with matching customer numbers
Popup screen: "Code: 0x02060200 Serial No of ZR32-A does not match, please perform a read action!"	ECUSN is different	Perform a Read action
Popup screen: "Code: 0x02060400 ZR32-A Software Version does not match, please perform a read action!"	SSPLCSVN is different	Perform a Read action
Popup screen: "Code: 0x02070201 Importing download file failed!"	Importing ZR32M.MHX failed, the file is corrupt	
Popup screen: "Code: 0x02070202 Importing download file failed!"	Importing ZR32S.MHX failed, the file is corrupt	
Popup screen: "Code: 0x02070203 Importing download file failed!"	Importing PLC.MHX failed, the file is corrupt	
Popup screen: "Code: 0x02070204 Importing download file failed!"	Importing ASAM.MHX failed, the file is corrupt	
Popup screen: "Code: 0x02070205 Importing download file failed!"	Importing PLATFORM.MHX failed, the file is corrupt	
Popup screen: "Code: 0x02070206 Importing download file failed!"	Importing EEPROM.MHX failed, the file is corrupt	

Table 2: Error Codes Logena Service Tool ZR32-A Plugin Instructions v1.20.docx

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## 7 Revision History

Revision Number	Changes	Remarks
1.00	1 <sup>st</sup> issue	
1.10	Added IO Monitoring	
1.20	Updated IO Monitoring	

Table 3: Revision History Logena Service Tool ZR32-A Plugin Instructions v1.20.docx

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## 8 References

1. Logena Service Tool ZR32-A Plugin Developer Instructions v1.xx  
(Developer guideline)

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