

dSPACE Calibration System

New Features and Migration

CalDesk 1.4.1 – March 2007



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How to Contact dSPACE Support

dSPACE recommends that you use dSPACE Support Wizard to contact dSPACE support. It is available:

- On your dSPACE DVD at `\Diag\Tools\dspaceSupportWizard.exe`
- Via Start – Programs – dSPACE Tools (after installation of the dSPACE software)
- At <http://www.dspace.com/goto?supportwizard>

You can always find the latest version of dSPACE Support Wizard here.

Software Updates and Patches

dSPACE strongly recommends that you download and install the most recent patches for your current dSPACE installation. Visit <http://www.dspace.com/goto?support> for software updates and patches.

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About This Document

This document provides you with a brief overview of the major **new features** of CalDesk 1.4.1 and CalDesk 1.4.0 since CalDesk 1.3.0.

It also gives you information on the **migration steps** you have to carry out when you change from a previous release to CalDesk 1.4.1.

CalDesk 1.4.1 and dSPACE Release 5.3

CalDesk 1.4.1 is part of dSPACE Release 5.3. In addition to CalDesk 1.4.1, dSPACE Release 5.3 also provides *TargetLink 2.2* and *RCP and HIL software*.

For the new features of TargetLink 2.2 and RCP and HIL software, refer to:

- *TargetLink New Features and Migration*
- *New Features and Migration*

Where to go from here






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Document Symbols and Conventions

Symbols

The following symbols are used in this document:


	Indicates a general hazard that may cause personal injury of any kind if you do not avoid it by following the instructions given.
	Indicates the danger of electric shock which may cause death or serious injury if you do not avoid it by following the instructions given.
	Indicates a hazard that may cause material damage if you do not avoid it by following the instructions given.
	Indicates important information that you must note to avoid malfunctions.
	Indicates tips containing useful information to make your work easier.


Naming conventions

The following abbreviations and formats are used in this document:

%name% Names enclosed in percent signs refer to environment variables for file and path names, for example, `%DSPACE_ROOT%` specifies the location of your dSPACE installation in the file system.

< > Angle brackets contain wildcard characters or placeholders for variable file and path names, etc.

 Precedes the document title in a link that refers to another document.

 Indicates that a link refers to another document, which is available in dSPACE HelpDesk.

Accessing Online Help and PDF Files

Objective After you install your dSPACE software, the documentation for the installed products is available as online help and Adobe® PDF files.

Online help You can access the online help – dSPACE HelpDesk – as follows:

Windows Start menu Click **Start** – **Programs** – **dSPACE Tools** – **dSPACE HelpDesk**.

Context-sensitive Press the **F1** key or click the **Help** button in the dSPACE software.

Local installation on your host PC Double-click the dSPACEHelpDesk.chm file in %DSPACE_ROOT%\Doc\Online.

PDF Files You can access the PDF files as follows:

dSPACE HelpDesk Click the PDF link at the beginning of a document:



Local installation on your host PC Double-click the PDF file in %DSPACE_ROOT%\Doc\Print.

Related Documents

Below is a list of documents that you are also recommended to read when working with CalDesk:

Information in other documents

CalDesk

CalDesk Tutorial

Guides you through your first steps with CalDesk.

CalDesk Calibration Guide

Explains CalDesk's basic concepts, and provides detailed instructions on carrying out measurement, calibration, and ECU diagnostics tasks with CalDesk.

CalDesk Calibration Reference

Provides detailed information on the menus, context menus and dialogs of CalDesk.

CalDesk Shortcut Key Reference

Lists all shortcut keys to operate CalDesk via the keyboard.

Variable Editor

Variable Editor Guide

Explains the basic concepts of the Variable Editor, and provides instructions on viewing, editing and creating of variable descriptions with the Variable Editor.

Variable Editor Reference

Provides detailed information on the Variable Editor's commands, context menu commands, and dialogs.

Automating CalDesk

CalDesk Automation Guide

Shows you how to automate calibration, measurement, and diagnostic tasks using CalDesk's ASAM-MCD 3MC and ASAM-MCD 3D compatible interfaces.

CalDesk ASAP3 Interface Reference

Provides detailed information on CalDesk's ASAP3-compatible automation interface.

Safety Precautions

Read and follow the safety precautions carefully.

Warning About Using the CalDesk Software

The following warning applies when you use the CalDesk software.

Danger potential

Using the CalDesk software can be dangerous. You must observe the following safety instructions and the relevant instructions in the user documentation.



WARNING

Risk of serious injury and/or property damage

Using the CalDesk software can have a direct effect on networked electronic systems connected to it.

The risk of property damage or personal injury also exists when CalDesk is used via the automation interface of the CalDesk Automation Module. When this is done, CalDesk is part of the overall calibration system and may not be visible to the end user. It nevertheless has a direct effect on electronic systems in the overall calibration system.

- **Only persons who are qualified to use this software, and who have been informed of the above dangers and possible consequences, are permitted to use this product.**
- All applications where malfunctions or misoperation involve the danger of injury or death and the risk of property damage must be examined for potential hazards by the user, who must if necessary take additional measures for protection (for example, an emergency off switch). CalDesk complies with the ASAM-MCD 2 standard, and therefore provides suitable measures for avoiding dangerous situations, including but not only by specifying limits for the system's parameters. The user can and should take such measures to minimize the danger involved in influencing the system.
- When using CalDesk to program or reprogram electronic systems, the user must ensure that the overall system that is controlled by the electronic system to be programmed or reprogrammed is in a safe state (for example, the vehicle's engine must not be running). The electronic system may be reset by programming or reprogramming. The user must also ensure that the electronic system to be programmed or reprogrammed is not affected by other tools and that no other tool accesses it at the same time.
- The CalDesk product, particularly when used in conjunction with the CalDesk ECU Diagnostics Module or the dSPACE ECU Flash Programming Tool, is intended solely for use in the field of vehicle and/or electronic control unit (ECU) development.

Liability

dSPACE products are specifically designed for exclusive use by specially trained and qualified personnel. dSPACE GmbH and its subsidiaries accept no liability for property damage or personal injury resulting from improper or noncontractual use of this product, or from incorrect operation by insufficiently qualified personnel.

If you do not accept the above restrictions, you can return this product at the expense of dSPACE GmbH within one (1) month of receiving it. The purchase price will then be refunded to you immediately.

New Features of CalDesk 1.4.1

CalDesk 1.4.1 comes with several new features and enhancements compared with CalDesk 1.4.0.

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New Features for Accessing a RapidPro System



Simultaneous access by CalDesk and ConfigurationDesk without locking

The RapidPro system now can be accessed simultaneously by CalDesk and ConfigurationDesk. Other tools require exclusive access.


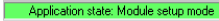
The following list shows the main effects for CalDesk, ConfigurationDesk, and other tools.

- You can activate all possible device states in CalDesk, there is no restriction due to ConfigurationDesk being used simultaneously. The device states are indicated by icons in the Project Manager.


Device States in CalDesk	
	Disconnected
	Connected

Device States in CalDesk	
	Online calibration started
	Measuring

- If you have loaded an application in ConfigurationDesk, it can work in different application states (Connected to RapidPro, Module setup mode). You can activate all application states in ConfigurationDesk even if you are using CalDesk simultaneously. However, when a RapidPro system has the "Connected" device state in CalDesk and is therefore in execution mode, its configuration settings are read-only and can only be uploaded. Downloading requires the RapidPro system to be in idle mode.

Application States in ConfigurationDesk	
	Connected to RapidPro
	Module setup mode

- Some tools need exclusive access to the microprocessor of the RapidPro Control Unit. If such a tool is active, no other tool can access the RapidPro system, too. Exclusive access is required by the following tools: RapidProUpdate.exe, Down1603.exe.

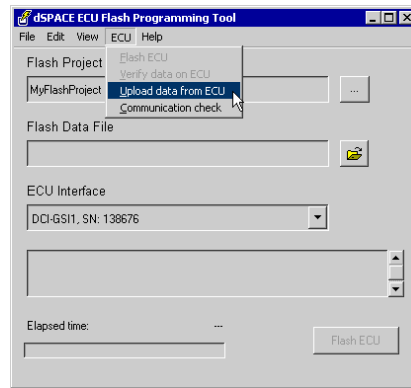
For detailed information, refer to *Using ConfigurationDesk and CalDesk Simultaneously* ( *ConfigurationDesk Configuration Guide*).

New ECU Flash Programming Tool Features

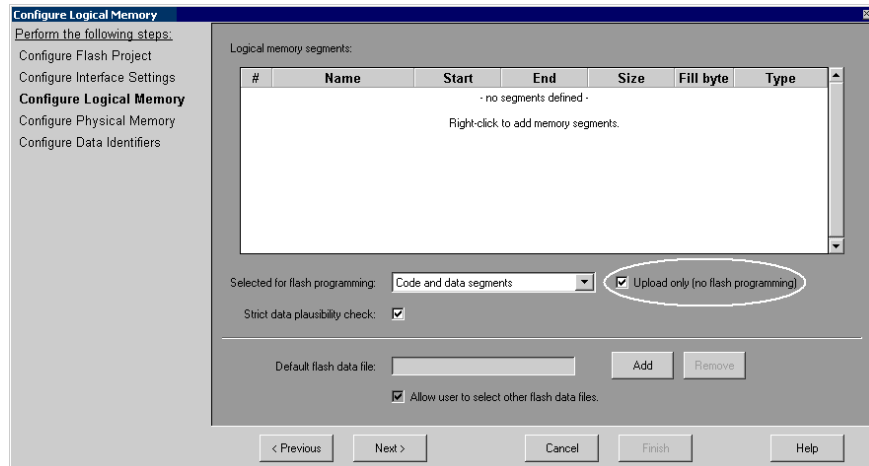
Upload of current ECU memory

With CalDesk 1.4.1 you can use the dSPACE ECU Flash Programming Tool to upload the current ECU memory content and save it to a file.

This allows you to archive data currently stored in the ECU's flash memory. The data to be uploaded is specified by selecting logical memory segments of the flash project.



Upload only If a flash project is to be used only to upload data from the ECU's flash memory and save that data to a file, but not for ECU flash programming, it can be configured accordingly.



New Features of CalDesk 1.4.0

CalDesk 1.4.0 comes with several new features and enhancements compared with CalDesk 1.3.0.

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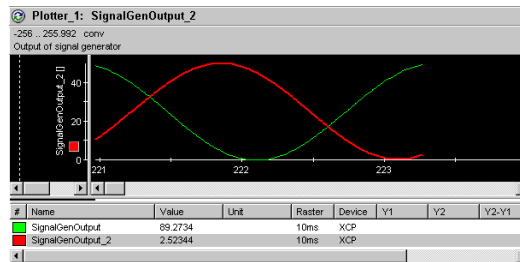
New Plotter Features

The Plotter in CalDesk 1.4.0 offers a variety of new features.

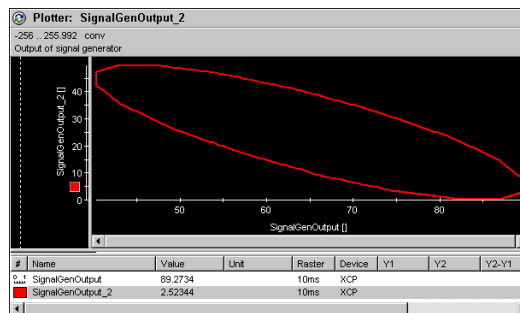
Time plots and XY plots


In addition to time plots (yt plots), CalDesk's Plotter can also now display *XY plots*.


Time plots The Plotter lets you display signals with reference to the measurement time: The x-axis visualizes the time dimension, and one or more y-axes visualize the signals. As an example, the illustration below shows a time plot with the signals *SignalGenOutput* and *SignalGenOutput_2* with reference to the measurement time.



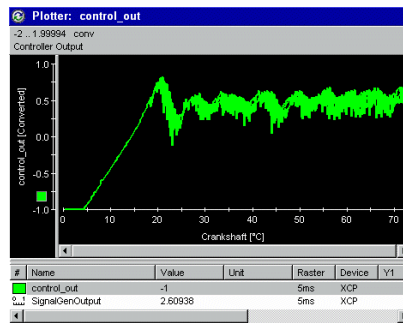
New: XY plots The Plotter now lets you display signals also with reference to another signal, for example, to a crankshaft position or engine torque: The x-axis visualizes the reference signal, and one or more y-axes visualize the signals in relation to the reference signal. As an example, the illustration below shows an XY plot with the signal *SignalGenOutput_2* in relation to the reference signal *SignalGenOutput*.



For details on time plots and XY plots, refer to *Time Plots and XY Plots* ( *CalDesk Calibration Guide*).

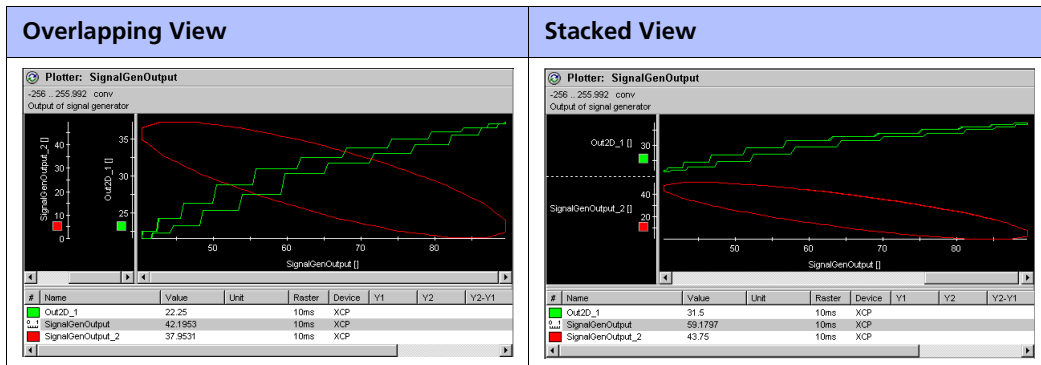
To display one or more signals with reference to a reference signal, drag the reference signal onto the x-axis. Refer to *How to Visualize the Relation Between Variables via an XY Plot* ( *CalDesk Calibration Guide*).

XY plots: display monotonous data points only If you use, for example, the position of a crankshaft as the reference signal, the position value increases from 0° to 720°, then turns around to 0° (nonmonotonously increasing signal). For these signals, you can display only points of the XY plot for which the x values are monotonously increasing.



Refer to *XY Display Mode* ( *CalDesk Calibration Reference*).

Stacked view also for XY plots Like time plots, XY plots can also be displayed with overlapping or stacked y-axes.

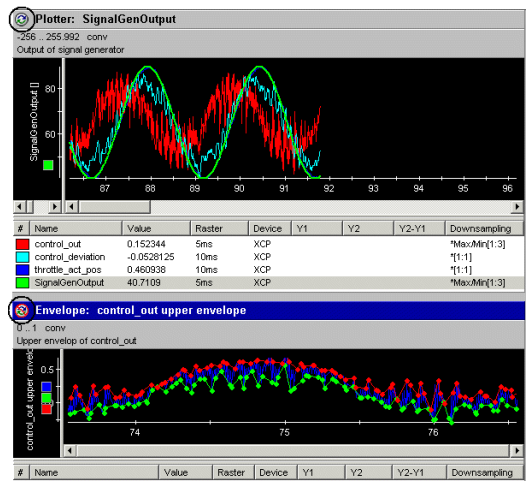


Refer to *Y-Axis Stacked* ( *CalDesk Calibration Reference*).


Excluding Plotters from synchronization

Analyzing and postprocessing actions such as zooming are synchronized for all instruments on layouts of the same type (standard or recorded data layouts) by default.

With CalDesk 1.4.0, you can exclude Plotters individually from being synchronized. This allows you, for example, to zoom into one Plotter while continuing plotting data in another Plotter. The illustration below shows two Plotters: The lower Plotter is excluded from being synchronized. Zooming into this Plotter, for example, does not affect the zoom settings of the other Plotter.

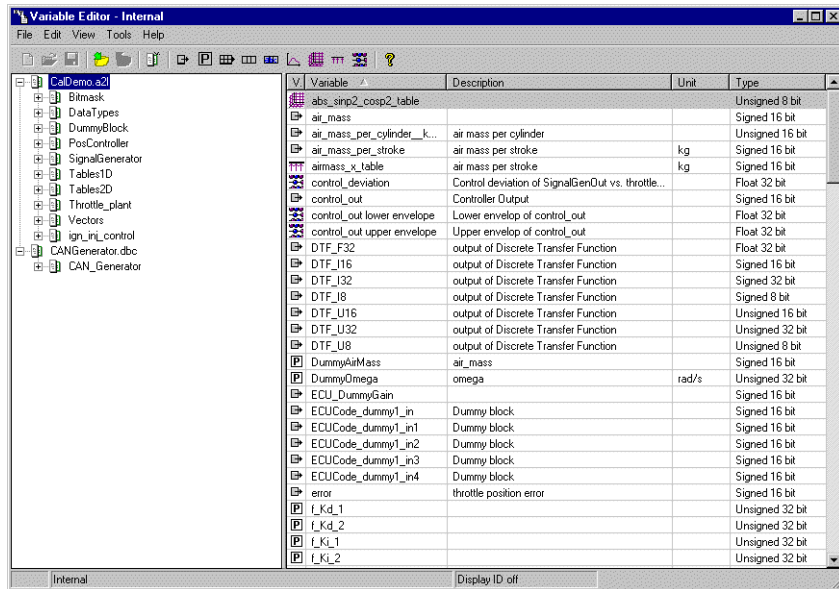


For a Plotter excluded from being synchronized, the zoom settings, the XY cursor, and the displayed time range are independent from the synchronization.

To exclude a Plotter from being synchronized, click its Synchronize button. Refer to *How to Exclude a Plotter from Synchronization* ( *CalDesk Calibration Guide*).

New Variable Editor

The new *Variable Editor* allows you to create new variables, and to create new or edit existing A2L variable descriptions.



Features of the Variable Editor

Using the Variable Editor, you can:

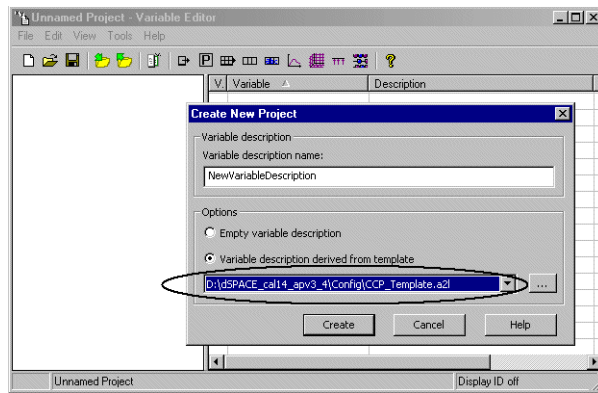
- Create and edit variable groups or subgroups
- Create and edit any type of variables, including calculated variables
- Import any number of A2L files
- Import and edit A2L variable descriptions
- Create new A2L variable descriptions derived from templates, and edit them
- Create subsets or merge contents of A2L files
- Assign MAP files to a variable description
- Automatically create variables from MAP files
- Update address information from MAP files

Stand-alone tool or integrated in CalDesk

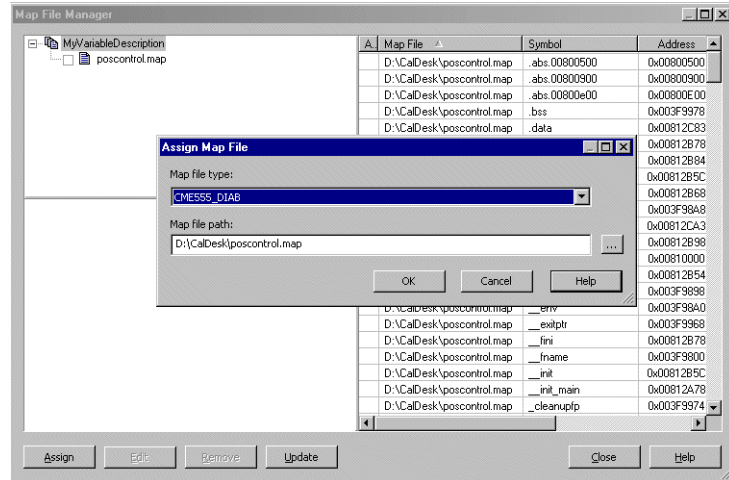
You can use the Variable Editor as a stand-alone tool, or as a tool integrated in CalDesk.

Variable Editor as stand-alone tool As a stand-alone tool, the Variable Editor provides a project management framework. The framework offers the necessary functions for managing the work with a number of variable descriptions such as importing and creating new variable descriptions.

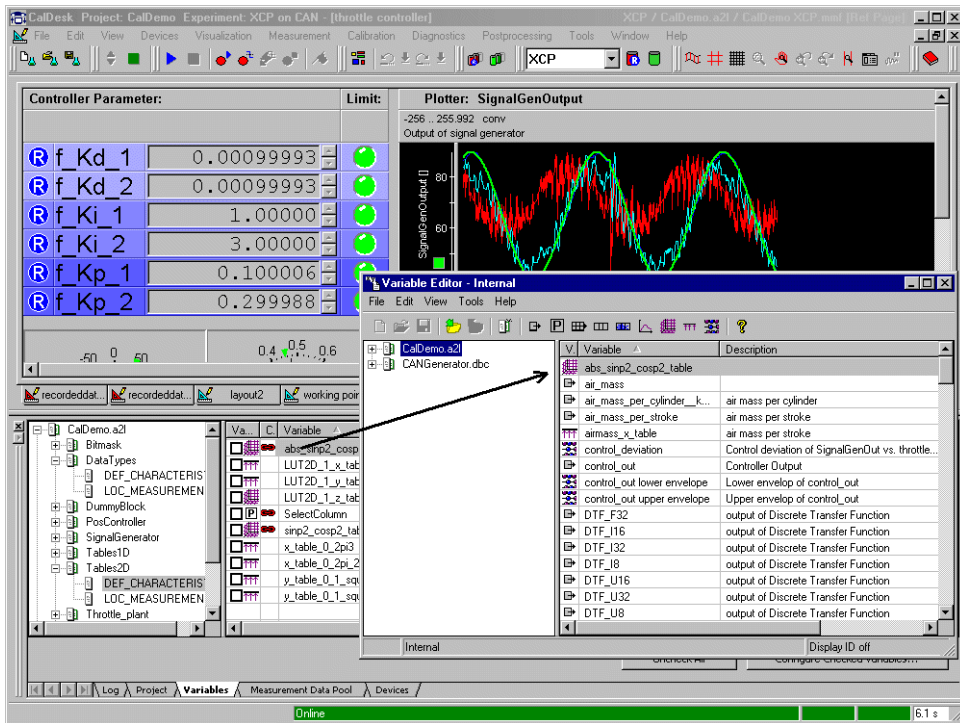
Using the Variable Editor as a stand-alone tool allows you, for example, to create an A2L variable description derived from a template A2L file.



Using the Variable Editor's MAP File Manager, you can, for example, create variables from a MAP file assigned to the new variable description.



Variable Editor integrated in CalDesk When you use the Variable Editor from within CalDesk, you work in the context of the currently active experiment. This allows you to modify the variable descriptions of this experiment, and lets you stay in the context of your current activity in CalDesk. For example, if you select a variable in CalDesk, you can edit it in the Variable Editor without losing the selection. Changes to the variable description currently selected in CalDesk take effect immediately. You do not have to reload the variable description.




Variable Editor license

To use all the functions of the Variable Editor, you have to purchase a license. However, the functionality for creating calculated variables is available without a license. For example, you can create and modify calculated variables, and export and import them via VXF files.

Documentation

For instructions on using the Variable Editor, refer to the *Variable Editor Guide*. For reference information, refer to the *Variable Editor Reference*.

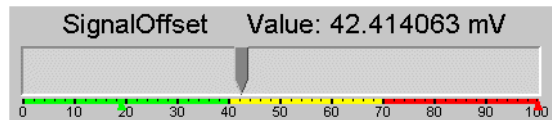
Limitations


There are some limitations for using this version of the Variable Editor. Refer to *Limitations for Using the Variable Editor* .

New Slider Instrument

Slider for parameter calibration

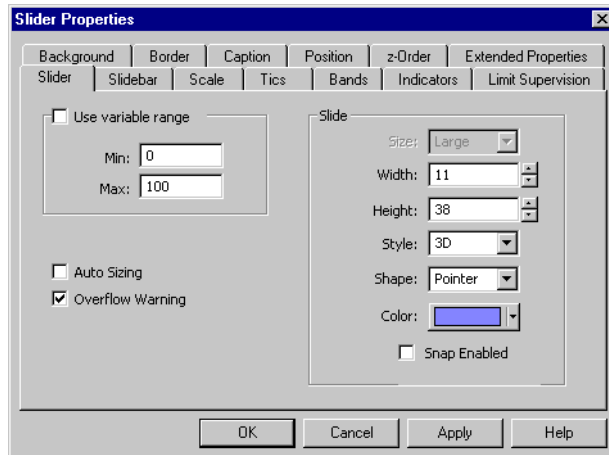
CalDesk 1.4.0 provides the new Slider instrument, which lets you calibrate the value of a scalar parameter by moving a slide on a sidebar with scale.




For instructions on using the Slider for parameter calibration, refer to *How to Change Values with the Slider* ( *CalDesk Calibration Guide*).

Instrument settings

You can configure the instrument settings via the **Slider Properties** dialog.



For instructions on configuring the Slider, refer to *How to Configure the Slider* ( *CalDesk Calibration Guide*).

Related topics

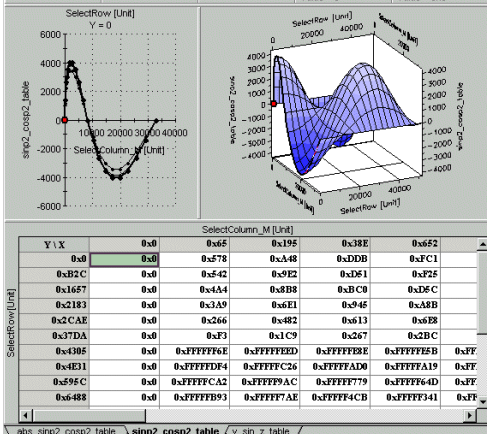
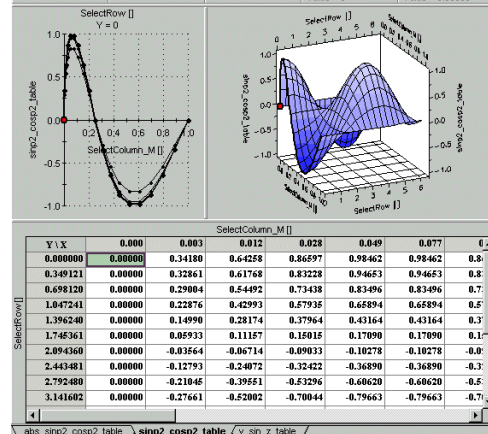
- Basics
 - [Slider Page](#)
- References
 - [Slider](#)

New Table Editor Features

The Table Editor in CalDesk 1.4.0 offers the following new feature.

Hexadecimal and binary representation

CalDesk's Table Editor now allows you to view and edit values also in hexadecimal and binary representation. In the Table Editor's numerical view, you can switch between the hexadecimal (source), binary (source), decimal (source), and physical (converted) representation of data. As an example, the illustrations below show the hexadecimal and physical representation of a map.

Hexadecimal (Source) Representation					Physical (Converted) Representation																								
Table Editor_2: sinp2_cosp2_table <table border="1"> <tr> <th>Data Axis</th> <th>X-Axis</th> <th>Y-Axis</th> <th>Working Point</th> <th>Edit Point</th> </tr> <tr> <td>sinp2_cosp2_table</td> <td>SelectColumn_M [Unit]</td> <td>SelectRow [Unit]</td> <td>X = 0 Y = 0 Value = 0</td> <td>X = 0x0 Y = 0x0 Value = 0x0</td> </tr> </table> 					Data Axis	X-Axis	Y-Axis	Working Point	Edit Point	sinp2_cosp2_table	SelectColumn_M [Unit]	SelectRow [Unit]	X = 0 Y = 0 Value = 0	X = 0x0 Y = 0x0 Value = 0x0	Table Editor_2: sinp2_cosp2_table <table border="1"> <tr> <th>Data Axis</th> <th>X-Axis</th> <th>Y-Axis</th> <th>Working Point</th> <th>Edit Point</th> </tr> <tr> <td>sinp2_cosp2_table</td> <td>SelectColumn_M</td> <td>SelectRow</td> <td>X = 0 Y = 0 Value = 0</td> <td>X = 0.000 Y = 0.000000 Value = 0.00000</td> </tr> </table> 					Data Axis	X-Axis	Y-Axis	Working Point	Edit Point	sinp2_cosp2_table	SelectColumn_M	SelectRow	X = 0 Y = 0 Value = 0	X = 0.000 Y = 0.000000 Value = 0.00000
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sinp2_cosp2_table	SelectColumn_M	SelectRow	X = 0 Y = 0 Value = 0	X = 0.000 Y = 0.000000 Value = 0.00000																									

Refer to [Table Editor](#) (*CalDesk Calibration Reference*).

New Features of the CalDesk ECU Diagnostics Module

The CalDesk ECU Diagnostics Module provides the following new features:

Support of TP2.0 for CAN-based ECU diagnostics

Besides the ISO-standardized diagnostic protocols ISO14230, ISO 15765 and ISO14229, the CalDesk ECU Diagnostics Module now also supports Transport Protocol 2.0 (TP 2.0) for CAN-based ECU diagnostics.

Support of DCI-KLine1

dSPACE provides a new K-Line interface, the *DCI-KLine1*. You can use it to connect an ECU with implemented K-Line-based diagnostic protocol to your CalDesk PC for ECU diagnostics and ECU flash programming purposes. The DCI-KLine1 forwards the messages and data from and to the PC. The ECU Diagnostics device supports the DCI-KLine1.

For details on the DCI-KLine1, refer to the *DCI-KLine1 Feature Reference*.

Maintain vehicle and logical link settings when changing or reloading ODX database

When you change or reload an ODX database, CalDesk now automatically checks whether the following configuration settings can also be applied to the changed or reloaded database:

- Selected vehicle (referenced by short name)
- Selected Logical link(s) (referenced by short names)
- Configuration of the diagnostic protocol and physical connection for each selected logical link

This check is hierarchical: A logical link can be valid only if the corresponding vehicle information still is valid. The diagnostic protocol and physical connection settings can be valid only if the corresponding logical link still is valid.

Protocol and physical type from ODX database

When you configure an ECU diagnostics device, CalDesk now lets you specify to take protocol and physical connection settings from the ODX database automatically, if possible. The settings are automatically preselected in the **Select Logical Link(s)** dialog.

If CalDesk cannot associate the settings from the ODX database, or if using the settings from the ODX database is not enabled, the settings are set to 'None' and you are prompted to configure them manually.

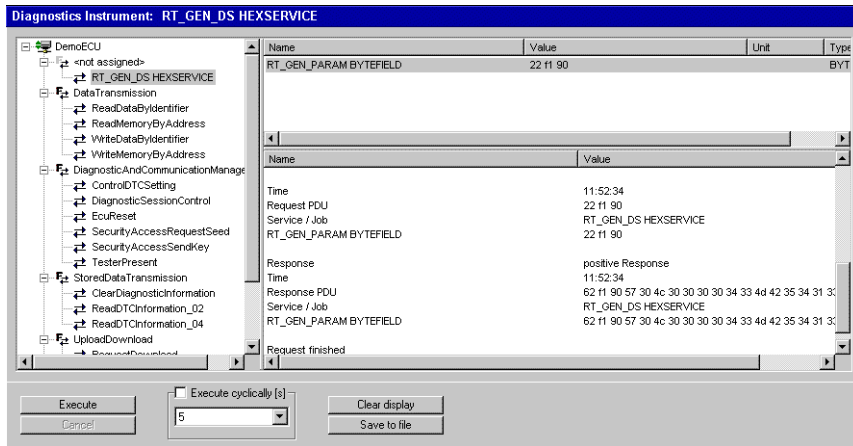


Only ASAM-MCD 2D (ODX) V2.0.1-compliant databases containing information on the protocol and physical connection settings let CalDesk preselect these settings for device configuration.

For details, refer to *Diagnostics Management Page* (*CalDesk Calibration Reference*).

Hex service for ECU communication via PDU information

Via the Diagnostics instrument, you can use an additional, generic diagnostic hex service that allows you to communicate with the ECU via raw protocol data unit (PDU) information. You can configure the request in hexadecimal notation. The hex service response is also in hexadecimal notation. As an example, the illustration below shows the Diagnostics instrument displaying a hex service response.



For details, refer to *Diagnostics Management Page* (*CalDesk Calibration Reference*).

**Diagnostics instrument:
display of complex data
structures**


In the Diagnostics instrument, you can let superordinate complex data of parameters of a diagnostic communication object be displayed together with the parameter name. If for example a parameter is part of a structure, field or multiplexer (= complex data type), the name of this complex data is also displayed. If the parameter is part of a hierarchy of multiple complex data elements, the entire hierarchy structure is displayed.

For details, refer to *Diagnostics Management Page* ( *CalDesk Calibration Reference*).

New Device Management Features


CalDesk 1.4.0 provides the following new features for managing devices:

**DCI-GSI1: calibrating data
in external RAM**


As of CalDesk 1.3, the DCI-GSI1 supports ECUs with calibration data in external RAM. To use this feature, you have to configure the DCI-GSI1 beforehand. CalDesk 1.3 provided a separate configuration utility. As of CalDesk 1.4.0, this utility is now integrated in the DCI Configuration Tool. Refer to *External RAM Calibration Page (only DCI-GSI1)* ( *DCI Configuration*).

**DCI-GSI1: default
configurations**

CalDesk now provides a default configuration for each target processor family supported by the DCI-GSI1. The default configurations make it easy to reuse an existing DCI-GSI1 with another target processor.

After installation of CalDesk, you will find GCF configuration files in the %DSPACE_ROOT%/DCI-GSI1/Configuration folder. You can download these configuration files to the DCI-GSI1 with the DCI Configuration Tool. Refer to *How to Download Configuration Files to a DCI* ( *DCI Configuration*).

Automatic firmware check

CalDesk automatically checks the firmware version of DCI-GME1 and DCI-GSI1 devices as soon they are connected to the CalDesk PC. If an old firmware version is found on the connected device hardware, you are prompted to update the firmware using the DCI Configuration Tool. Refer to *How to Download New Firmware to a DCI* ( *DCI Configuration*).

New Measurement and Recording Features

CalDesk 1.4.0 provides the following new features for measuring and recording data:

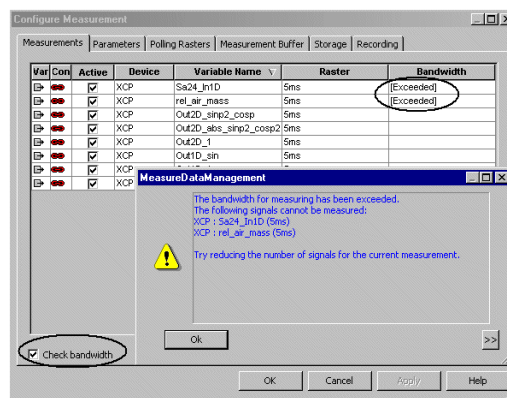
Bandwidth check for CCP and XCP devices

For CCP, XCP on CAN, and XCP on USB devices, CalDesk now provides a bandwidth check. If enabled, CalDesk checks whether the bandwidth of the measurement rasters of the CCP and/or XCP devices in your current experiment allows correct transmission of measurement data to CalDesk. The bandwidth check is available even without a connected ECU.

If the bandwidth check is enabled, the check is carried out in the following situations:

- You load an experiment (with enabled bandwidth check).
- You import a standard layout.
- You add a signal to the measurement signal list, for example, by dragging it from the Variable Browser to a layout.
- You remove a signal from the measurement signal list, using the **Remove from Measurement Signal List** command.
- You modify the measurement signal list via the **Configure Measurement** dialog, and click **OK** or **Apply**.
- You edit the trigger rule configuration via the **Edit Trigger Rules** dialog.

If the bandwidth is exceeded, you get a warning like this. It contains the signals that cannot be measured with the current measurement configuration:



After you acknowledge the message, check and modify the current measurement signal list via the **Configure Measurement** dialog. In this dialog, the signals that cannot be measured are marked with **[Exceeded]**. To start measuring, you have to deactivate some signals until the bandwidth is not exceeded.




If the bandwidth is exceeded with the current measurement configuration, CalDesk opens the **Configure Measurement** dialog *automatically* in the following situations:

- You import a standard layout.
- You add a signal to the measurement signal list by dragging it from the Variable Browser to a layout.
- You add a signal to the measurement signal list via the **Configure Checked Variables** dialog.

CalDesk automatically deactivates all the signals marked with **[Exceeded]** in the **Configure Measurement** dialog. You can start measuring without having to deactivate further signals.



To check the bandwidth, CalDesk requires information on the ECU's measurement rasters and DAQ lists. The information must be specified in the ECU's A2L file.

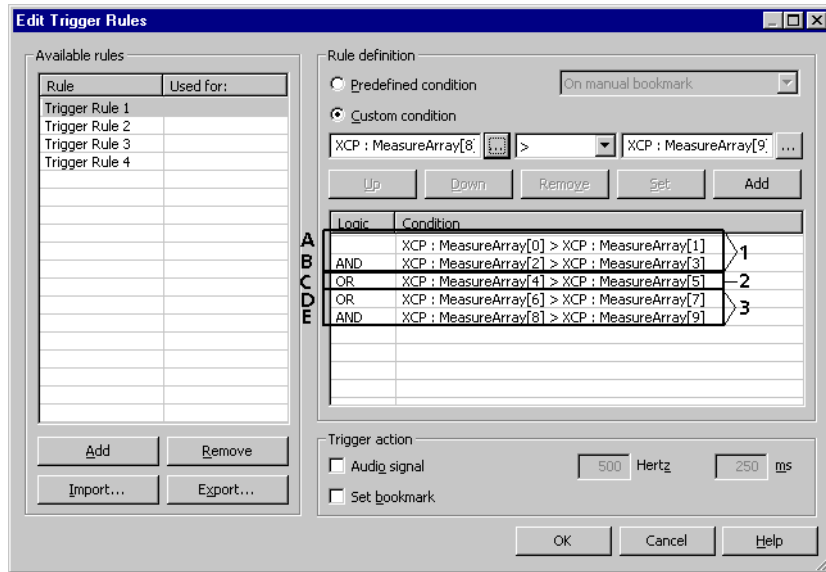
You can enable the bandwidth check on the **Measurements** page of the **Configure Measurement** dialog. Refer to *Configure Measurement* ( *CalDesk Calibration Reference*).

Grouping logical trigger conditions

CalDesk lets you edit trigger rules, for example, to perform triggered recording of data. You can specify trigger conditions, and combine them logically via 'AND' and 'OR' operators to define complex trigger rules.

As of CalDesk 1.4.0, you can group logical conditions in trigger rules: all conditions combined via 'AND' operator represent a trigger condition group. Groups are logically combined via 'OR' operators. The first group that meets the condition invokes the trigger.


Example In the illustration below, there are five trigger conditions (A ... E) combined to make three trigger condition groups (1 ... 3).




The trigger rule defined above equals (A AND B) OR C OR (D AND E).

For details, refer to *Edit Trigger Rules* ( *CalDesk Calibration Reference*).

Removing variables from the measurement signal list

CalDesk now allows you to remove variables from the measurement signal list directly in the Variable Browser. If you remove a variable that is currently connected to an instrument, you get a warning. Refer to *Remove from Measurement Signal List* ( *CalDesk Calibration Reference*).

Editing bookmarks created automatically

CalDesk now also lets you edit bookmarks created automatically. Refer to *Edit Bookmarks* ( *CalDesk Calibration Reference*).

New Data Set Management Features

CalDesk 1.4.0 provides the following new features for managing data sets:

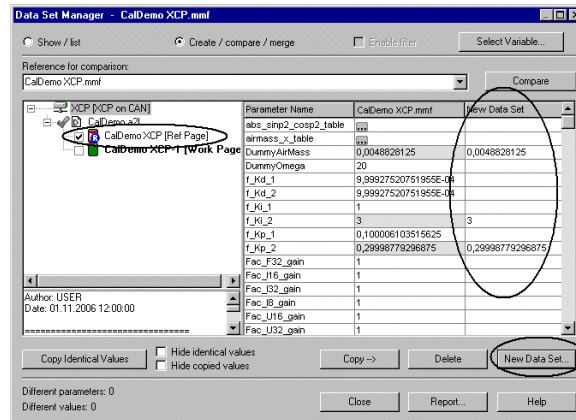
Importing an ECU Image file as data set


CalDesk 1.4.0 lets you import an ECU Image (HEX, MOT, S19) file as a data set. Refer to *Import Data Set* ( *CalDesk Calibration Reference*).

Creating a sub data set from a single data set

CalDesk 1.4.0 allows you to create a new sub data set from a *single* data set, without having to use the compare/merge feature of CalDesk's Data Set Manager.

In the illustration below, the **New Data Set** column displays three variables that were copied from the **CalDemo XCP [Ref Page]** data set. The Data Set Manager's **New Data Set** command lets you save the selected variables as a new sub data set.



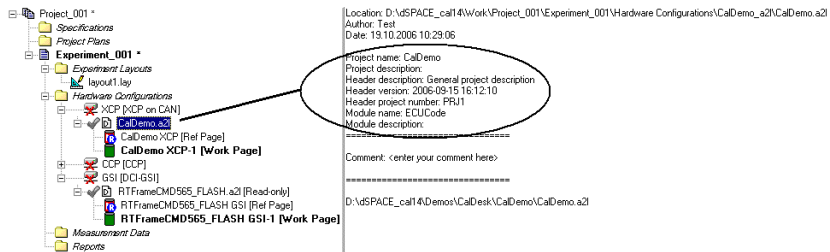
For details, refer to *Data Set Manager* ( *CalDesk Calibration Reference*).

New Project and Experiment Management Features

CalDesk 1.4.0 provides the following enhancements for managing projects and experiments:

A2L files: Display of A2L project information

When you select an A2L in CalDesk's Project Manager, project information contained in the A2L file is displayed in the Item Info field.

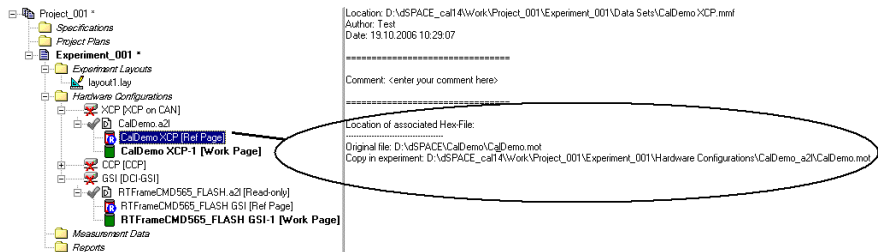


CalDesk displays the following A2L project information:

- Project name and description (LongIdentifier)
- Header description, version, and project number
- Module name and description (LongIdentifier)

Data sets: Display of related ECU Image file

When you select a data set in CalDesk's Project Manager, the file location of the related ECU Image file is displayed in the Item Info field.



CalDesk displays two file locations:

- The original location of the ECU Image file.
- The location of the experiment copy of the ECU Image file.

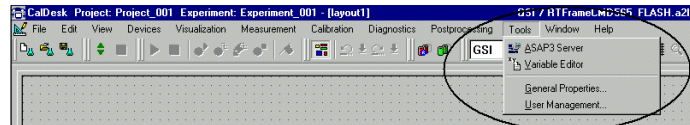
Further Enhancements with CalDesk 1.4.0

CalDesk 1.4.0 provides further enhancements:

More intuitive Tools menu

CalDesk provides a more intuitive **Tools** menu with the following commands:

- **ASAP3 Server**
- **Variable Editor** (available only if the Variable Editor is installed)
- **General Properties** (formerly located in the **View** menu)
- **User Management** (formerly located in the **View** menu)



Migrating to CalDesk 1.4.1

To migrate to CalDesk 1.4.1 and reuse existing experiments, you may have to carry out additional migration steps. The table below shows the cases in which this is necessary.

From CalDesk Version To CalDesk Version						
	1.1.1	1.2.0	1.2.1	1.2.2	1.3.0	1.4.0	1.4.1
1.1.0 ...	No	Yes ¹⁾	Yes ¹⁾	Yes ¹⁾	Yes ¹⁾	Yes ¹⁾²⁾³⁾⁴⁾	Yes ¹⁾²⁾³⁾⁴⁾
1.1.1 ...	–	Yes ¹⁾	Yes ¹⁾	Yes ¹⁾	Yes ¹⁾	Yes ¹⁾²⁾³⁾⁴⁾	Yes ¹⁾²⁾³⁾⁴⁾
1.2.0 ...	–	–	No	No	No	Yes ²⁾³⁾⁴⁾	Yes ²⁾³⁾⁴⁾
1.2.1 ...	–	–	–	No	No	Yes ²⁾³⁾⁴⁾	Yes ²⁾³⁾⁴⁾
1.2.2 ...	–	–	–	–	No	Yes ²⁾³⁾⁴⁾	Yes ²⁾³⁾⁴⁾
1.3.0 ...	–	–	–	–	–	Yes ²⁾³⁾⁴⁾	Yes ²⁾³⁾⁴⁾
1.4.0 ...	–	–	–	–	–	–	No

¹⁾ Refer to How to Migrate an Experiment for an ECU with XCP on CAN.

²⁾ Refer to How to Migrate an Experiment with Calculated Variables for MicroAutoBox and/or DS1005.

³⁾ Refer to How to Migrate an Experiment with SDF, DBC and/or ICZ Variable Descriptions

⁴⁾ Refer to How to Migrate an Experiment with Table Editors

Where to go from here

Information in this section

<i>How to Migrate an Experiment for an ECU with XCP on CAN</i>	38
<i>How to Migrate an Experiment with Calculated Variables for MicroAutoBox and/or DS1005</i>	41
<i>How to Migrate an Experiment with SDF, DBC and/or ICZ Variable Descriptions</i>	42
<i>How to Migrate an Experiment with Table Editors</i>	43

How to Migrate an Experiment for an ECU with XCP on CAN

To work with an ECU with XCP on CAN together with CalDesk 1.2, you must adapt the ECU's A2L file if you created it for use with CalDesk 1.1.1 or earlier, and if the A2L file contains no memory page information.

CalDesk 1.2: Enhanced memory page handling

Up to CalDesk 1.2 ... Up to CalDesk 1.2, CalDesk's memory page handling for ECUs with XCP on CAN was adapted only to ECUs with two physical memory pages. On the host PC, CalDesk automatically created a working page and a reference page, even for ECUs with only one physical memory page.

CalDesk 1.2 and later ... CalDesk 1.2 and later provide enhanced memory page handling for ECUs with XCP on CAN that is adapted to the ECU-specific memory page concept. For example, for ECUs with only one physical memory page (in a read/write area), CalDesk creates a working page only.

Page information required in A2L file

To support enhanced memory page handling, CalDesk 1.2 and later require memory page information, such as the number of pages, in the ECU's A2L file. The information must be specified within the A2L file's `MEMORY_SEGMENT` definitions of `DATA` type. It must be consistent with the configuration of the XCP service that is implemented in the ECU code.

A2L files based on old CalDemo.a2l files

If you used the CalDemo.a2l file provided by CalDesk 1.1.1 or earlier as a template A2L file for your specific ECU with XCP on CAN, you also have to adapt the A2L file by adding the required information to the A2L file manually.



To migrate an experiment that you created or saved the last time with CalDesk 1.1.x requires no adaptation of the A2L file as long as you do not add another A2L file to the XCP on CAN device or reload the file.

The instructions below describe how to specify two ECU memory pages: a read/write working page and a read-only reference page.

Method

To migrate an experiment for an ECU with XCP on CAN

- 1 If you created or saved the experiment the last time with CalDesk 1.0.2 or earlier, open it in CalDesk 1.1.x, save and close it.
- 2 Open the A2L file in a text editor.
- 3 Search for the first MEMORY_SEGMENT definition of DATA type.

The definition may look like this:

```
/begin MEMORY_SEGMENT FlashMemory
  "Description of the Memory Segment"
  DATA
  FLASH
  EXTERN
  0x3a00d000
  0x7E4
  -1 -1 -1 -1 -1
/end MEMORY_SEGMENT
```

- 4 Add the following text before the /end MEMORY_SEGMENT declaration:

```
/begin IF_DATA XCP
  /begin SEGMENT
    0          /* segment logical number */
    0x02      /* number of pages */
    0x00      /* address extension */
    0x00      /* compression method */
    0x00      /* encryption method */
    /* reference page */
  /begin PAGE
    0x00      /* page number */
    ECU_ACCESS_WITH_XCP_ONLY
    XCP_READ_ACCESS_WITH_ECU_ONLY
    XCP_WRITE_ACCESS_NOT_ALLOWED
  /end PAGE
  /* working page */
  /begin PAGE
    0x01      /* page number */
    ECU_ACCESS_WITH_XCP_ONLY
```

```
XCP_READ_ACCESS_WITH_ECU_ONLY
XCP_WRITE_ACCESS_WITH_ECU_ONLY
/end PAGE
/end SEGMENT
/end IF_DATA
```



The keywords you use to describe memory page properties depend on the configuration of the XCP service in the ECU code.

- Repeat steps 3 on page 39 and 4 on page 39 for all `MEMORY_SEGMENT` definitions of `DATA` type in the A2L file. Increment the segment logical number for each `MEMORY_SEGMENT` definition. The segment logical number entries for the following two `MEMORY_SEGMENT` definitions therefore must be:

```
0x01      /* segment logical number */
```

and

```
0x02      /* segment logical number */
```

- Save the A2L file and close it.
- Open the experiment in CalDesk 1.2.
- From the context menu of the XCP on CAN device, select Add Variable Description.
- Specify the updated A2L file as the device's variable description.
- Save the experiment.

Result

You added memory page information to an A2L file for an ECU with XCP on CAN. The information specifies two memory pages: a working page (with number `0x01`) in a read/write memory area and a reference page (with number `0x00`) in a read-only area. The XCP service and the ECU code always access the same memory page at a time. You use the updated A2L file as the device's variable description in CalDesk 1.2.

Consistency check If the XCP service in the ECU code supports the relevant optional XCP commands, CalDesk checks whether the A2L file's memory page information and the information read from the XCP service are consistent. Consistency is checked the next time the device changes to the 'connected' state. If CalDesk detects inconsistencies, you may need to adapt the information you added to the A2L file according to the error message provided by CalDesk.

Related topics

Basics

- [Migrating to CalDesk 1.4.0](#) on page 37

How to Migrate an Experiment with Calculated Variables for MicroAutoBox and/or DS1005

To reuse an experiment with calculated variables for MicroAutoBox and/or DS1005 devices created with CalDesk 1.3 (or earlier), you must export the calculated variables **before** you install CalDesk 1.4.

CalDesk 1.4: Modified internal data model

With CalDesk 1.4, the internal data model of CalDesk has been modified. **Calculated variables defined for MicroAutoBox and/or DS1005 will be lost** if you reuse an experiment created with CalDesk 1.3 or earlier.

To avoid this, you must export the calculated variables before installing CalDesk 1.4.

Method

To migrate an experiment with calculated variables for MicroAutoBox and/or DS1005

- 1 Open CalDesk 1.3 (or earlier).
- 2 Export the calculated variables to be reused.
- 3 Uninstall CalDesk 1.3 (or earlier).
- 4 Install CalDesk 1.4.
- 5 In CalDesk 1.4, load the experiment to be reused.
- 6 Add the variable description(s) of the MicroAutoBox and/or DS1005 device(s) to the experiment to be reused.
- 7 Import the calculated variables to be reused.
- 8 Save the experiment to be reused.

Result

CalDesk 1.4 is installed, and you can reuse the experiment with calculated variables for MicroAutoBox and/or DS1005 devices created with CalDesk 1.3 (or earlier).

How to Migrate an Experiment with SDF, DBC and/or ICZ Variable Descriptions

To reuse an experiment with **SDF** variable descriptions, you must add the variable descriptions again to the experiment's MicroAutoBox and/or DS1005 devices.

To reuse an experiment with **DBC and/or ICZ** variable descriptions, you must reload the variable descriptions.

CalDesk 1.4: Modified internal data model

With CalDesk 1.4, the internal data model of CalDesk has been modified. If you reuse an experiment created with CalDesk 1.3 or earlier, ...

- ... the access to devices with **SDF** variable descriptions (MicroAutoBox and DS1005) is blocked.
- ... the Variable Browser's hierarchy view displays only the variables of the first subnode of each **DBC and ICZ** variable description.

To avoid this, you must add the SDF variable descriptions again to the experiment's MicroAutoBox and/or DS1005 devices, and reload the DBC and/or ICZ variable description(s).



Reloading the SDF variable description is not sufficient. You must add it to the corresponding device.

Method

To migrate an experiment with SDF, DBC and/or ICZ variable descriptions

- 1 In CalDesk 1.4, load the experiment to be reused.
- 2 Add the **SDF** variable description(s) to the MicroAutoBox and/or DS1005 device(s) of the experiment.
- 3 Reload the **DBC and/or ICZ** variable description(s).
- 4 Save the experiment to be reused.

Result

You can reuse the experiment with SDF, DBC and/or ICZ variable descriptions.

How to Migrate an Experiment with Table Editors

To reuse an experiment with Table Editors, you must reload the variable description(s) if you want to view the memory addresses and the reference values of variables in the Table Editor's numerical view.

CalDesk 1.4: Modified internal data model

With CalDesk 1.4, the internal data model of CalDesk has been modified. If you reuse an experiment created with CalDesk 1.3 or earlier, the Table Editor can display only the current value, but not the memory addresses and the reference values of variables.

To avoid this, you must reload the variable description(s).

Method

To migrate an experiment with Table Editors

- 1 In CalDesk 1.4, load the experiment to be reused.
- 2 Reload the variable description(s).
- 3 Save the experiment to be reused.

Result

You can reuse the experiment and view the memory addresses and the reference values of variables in the Table Editor's numerical view.

