

dSPACE Calibration System

New Features and Migration

CalDesk 2.0 – March 2008



How to Contact dSPACE

Mail:	dSPACE GmbH Technologiepark 25 33100 Paderborn Germany
Tel.:	+49 5251 1638-0
Fax:	+49 5251 66529
E-mail:	info@dspace.de
Web:	http://www.dspace.com http://www.caldesk.com

How to Contact dSPACE Support

There are different ways to contact dSPACE Support:

- Visit our Web site at <http://www.dspace.com/goto?support>
- Send an e-mail or phone:
 - General Technical Support:
support@dspace.de
+49 5251 1638-941
 - CalDesk Support:
support.caldesk@dspace.de
+49 5251 1638-363
- Use the dSPACE Support Wizard:
 - 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 the dSPACE Support Wizard here.

dSPACE recommends that you use the dSPACE Support Wizard to contact dSPACE Support.

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.

Important Notice

This document contains proprietary information that is protected by copyright. All rights are reserved. Neither the documentation nor software may be copied, photocopied, reproduced, translated, or reduced to any electronic medium or machine-readable form, in whole or in part, without the prior written consent of dSPACE GmbH.

© Copyright 2008 by:
dSPACE GmbH
Technologiepark 25
33100 Paderborn
Germany

This publication and the contents hereof are subject to change without notice.

AutomationDesk, CalDesk, ConfigurationDesk, ControlDesk and TargetLink are registered trademarks of dSPACE GmbH in the United States or other countries, or both. Other brand names or product names are trademarks or registered trademarks of their respective companies or organizations.

Contents

About This Document	5
<i>Document Symbols and Conventions</i>	6
<i>Accessing Online Help and PDF Files</i>	7
<i>Related Documents</i>	8
Safety Precautions	9
<i>Warning About Using the CalDesk Software</i>	10
New Features of CalDesk 1.4.1	13
<i>New Features for Accessing a RapidPro System</i>	13
<i>New ECU Flash Programming Tool Features</i>	15
New Features of CalDesk 2.0	17
<i>New Project and Experiment Management Features</i>	18
<i>New Devices and Device Management Features</i>	20
<i>New Variable Management Features</i>	24
<i>New Instruments and Instrument Features</i>	25
<i>New Visualization Features (Common to All Instruments)</i>	29
<i>New Calibration Features</i>	33
<i>New Measurement and Recording Features</i>	36
<i>New Data Set Management Features</i>	37
<i>New Features of the Variable Editor</i>	40
<i>New Features of the CalDesk ECU Diagnostics Module</i>	40
<i>New Features of the CalDesk Automation Module</i>	41
<i>New ECU Flash Programming Tool Features</i>	42
<i>Further Enhancements with CalDesk 2.0</i>	43
Migrating to CalDesk 2.0	47
<i>In Which Cases Is Migration Necessary ?</i>	47
<i>How to Migrate an Experiment for an ECU with XCP on CAN</i> .	48
<i>How to Migrate an Experiment with Calculated Variables for</i> <i>MicroAutoBox and/or DS1005</i>	51
<i>How to Migrate an Experiment with SDF and/or DBC Variable</i> <i>Descriptions</i>	52
<i>How to Migrate an Experiment with Table Editors</i>	53
<i>How to Migrate a Project to CalDesk 2.0</i>	54

<i>Migrating to Python 2.5</i>	56
Index	57

About This Document

This document provides you with a brief overview of the major **new features** of CalDesk 2.0 since CalDesk 1.4.0.

It also gives you information on the **migration steps** you have to carry out when you change from a previous release to CalDesk 2.0.

It also includes information on the **limitations** that apply to CalDesk 2.0.

CalDesk 2.0 and dSPACE Release 6.1

CalDesk 2.0 is part of dSPACE Release 6.1. In addition to CalDesk 2.0, dSPACE Release 6.1 also provides *TargetLink 2.3*, *RCP and HIL software*, *SystemDesk 1.0* and *Model Compare 1.0*.

For the new features of TargetLink 2.3 and RCP and HIL software, refer to:

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

Where to go from here

Information in this section

<i>Document Symbols and Conventions</i>	6
<i>Accessing Online Help and PDF Files</i>	7
<i>Related Documents</i>	8






Information in other sections

Safety Precautions	9
To avoid risk of injury and/or damage, read and ensure compliance with the warnings stated.	
New Features of CalDesk 2.0	
CalDesk 2.0 comes with several new features and enhancements compared with CalDesk 1.4.1.	
New Features of CalDesk 1.4.1	13
CalDesk 1.4.1 comes with several new features and enhancements compared with CalDesk 1.4.0.	
Migrating to CalDesk 2.0	47
To reuse existing experiments with this version of CalDesk, you may have to carry out additional migration steps.	
Limitations of CalDesk 2.0	
For technical reasons, there are a few limitations that apply to the current version of CalDesk.	

Document Symbols and Conventions

Symbols

The following symbols may be 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 should be kept in mind, for example, 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**.

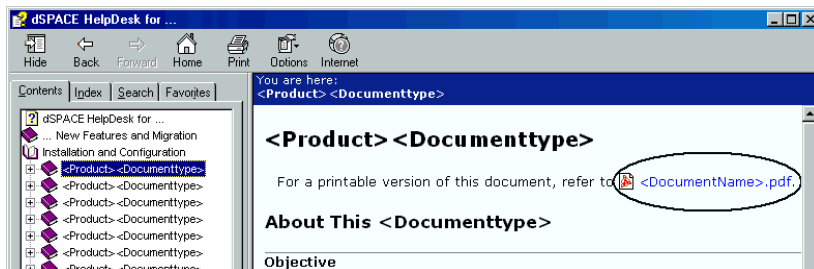
Context-sensitive Press the **F1** key or click the **Help** button in the dSPACE software.

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

Note the following warning when using the CalDesk software.

Danger potential

Using this product 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.

Improper or negligent use can result in serious personal injury and/or property damage.

- **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.**
- 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 produces a direct effect on electronic systems within the overall calibration system.
- All applications where malfunctions or misoperation involve the danger of injury or death 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.
- Furthermore, CalDesk provides advanced features to modify ECU memory content directly or to send CAN messages to a connected CAN-bus network and all connected network nodes. Using these features increases the risk of property damage or personal injury, as CalDesk cannot detect operating errors made by the user. Only users with specific knowledge of the connected system or network should use these features.



WARNING

Risk of serious injury and/or property damage

- CalDesk's Variable Editor allows the creation or modification of variable descriptions. Accessing networked electronic systems connected to CalDesk using an incorrect variable description may lead to unforeseeable system behavior with an increased risk of property damage or personal injury. Correct specification of variable descriptions and responsible use of safety measures such as system parameter limits are therefore crucial and are the sole responsibility of the user.
- 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 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 staff.

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.

Where to go from here

Information in this section

<i>New Features for Accessing a RapidPro System</i>	13
<i>New ECU Flash Programming Tool Features</i>	15




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
	Online calibration started

Device States in CalDesk	
	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	
Application state: Connected to RapidPro	Connected to RapidPro
Application state: Module setup mode	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.

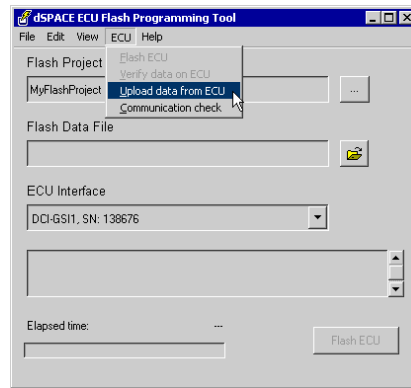
For detailed information, refer to *Using ConfigurationDesk and CalDesk Simultaneously* ( *ConfigurationDesk Configuration Guide*).

New ECU Flash Programming Tool Features

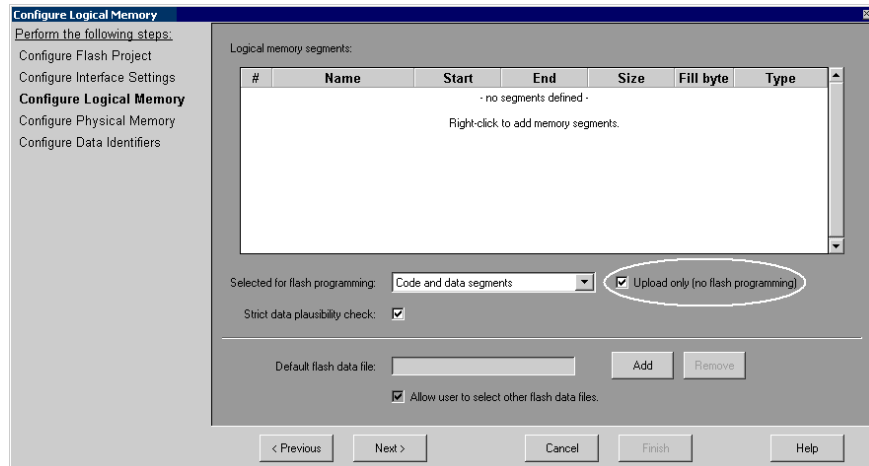
Upload of current ECU memory

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 2.0

CalDesk 2.0 comes with several new features and enhancements compared with CalDesk 1.4.1. For the new features and enhancements of CalDesk 1.4.1 compared with CalDesk 1.4.0, refer to *New Features of CalDesk 1.4.1* on page 13.

White spaces in path names

As of CalDesk 2.0, you can use white spaces in the installation and work paths.

Printed user documentation

The printed user documentation is not delivered with CalDesk 2.0 if you receive the release as an update for your existing CalDesk version. Use the digital user documentation, for example, dSPACE HelpDesk, to obtain information about new features, enhancements, and the current safety precautions of your products.

Where to go from here

Information in this section

<i>New Project and Experiment Management Features</i>	18
<i>New Devices and Device Management Features</i>	20
<i>New Variable Management Features</i>	24
<i>New Instruments and Instrument Features</i>	25
<i>New Visualization Features (Common to All Instruments)</i>	29
<i>New Calibration Features</i>	33
<i>New Measurement and Recording Features</i>	36
<i>New Data Set Management Features</i>	37
<i>New Features of the Variable Editor</i>	40

<i>New Features of the CalDesk ECU Diagnostics Module</i>	40
<i>New Features of the CalDesk Automation Module</i>	41
<i>New ECU Flash Programming Tool Features</i>	42
<i>Further Enhancements with CalDesk 2.0</i>	43

New Project and Experiment Management Features

CalDesk 2.0 provides the following new features for managing projects and experiments:

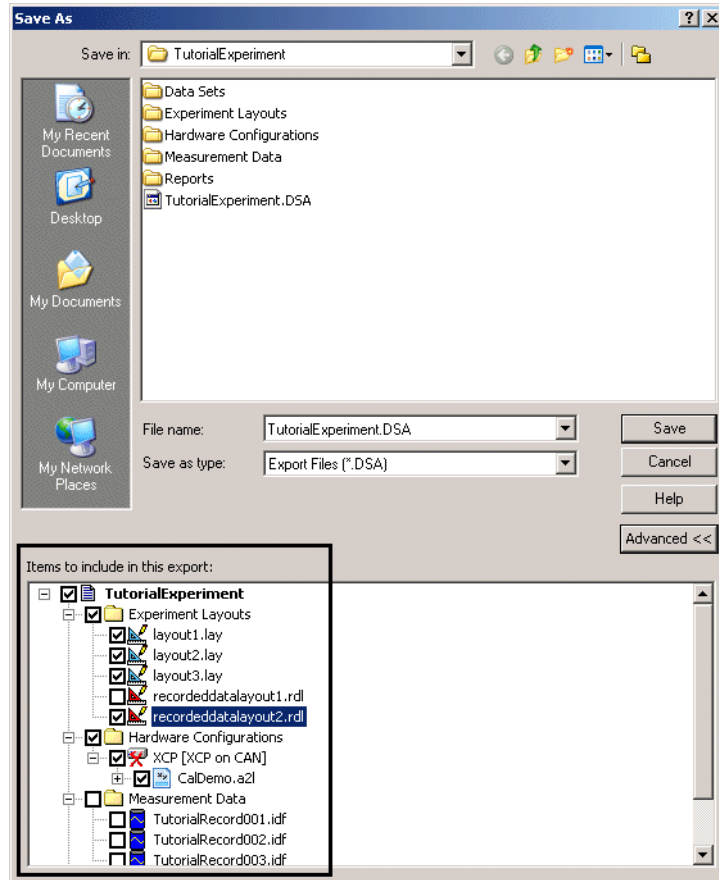
Loading the experiment most recently used on startup


You can now specify to automatically load the most recently used experiment whenever you start CalDesk. This option is disabled by default.

Refer to *Project Page* ( *CalDesk Calibration Reference*).

Configuring the export of experiments

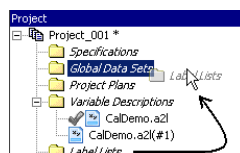
When you export a CalDesk experiment, you can now select the experiment items to be included in the export file.




For details, refer to *Export (Experiment)* ( *CalDesk Calibration Reference*).


Rearranging folders

In the Project Manager, you can rearrange folders that are on the same hierarchy level by dragging them to new positions.



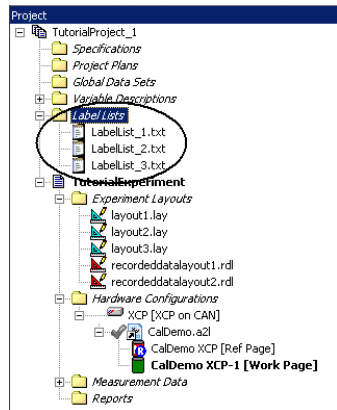
Refer to *Advanced: How to Configure Folder Settings* ( *CalDesk Calibration Guide*).

Deleting a project more easily

It is now easier to delete projects. Refer to *Open Project + Experiment* ( *CalDesk Calibration Reference*).

Improved label list handling

CalDesk 2.0 improves the handling of label lists. Label lists, which can be used for filter settings in variable lists, can now be added to the project's label list folder. This makes the lists available to all the experiments of the current project.



New Devices and Device Management Features

CalDesk 2.0 provides the following new devices and features for managing devices:

New LIN Monitoring device


CalDesk 2.0 lets you access a Local Interconnect Network (LIN) bus via the new *LIN Monitoring device*. The device monitors the data stream on a LIN bus connected to the CalDesk PC. LIN monitoring is restricted to the LIN bus members that are defined in a LIN description (LDF) file. LIN standard versions 1.3, 2.0, and 2.1 are supported.

For details, refer to *LIN Monitoring* ( *CalDesk Calibration Reference*).

New XCP on Ethernet device

CalDesk lets you access parameters and measurement variables of ECUs that have an XCP service included in the ECU code. XCP (Universal Measurement and Calibration Protocol) is a protocol standard for serial calibration, measurement, bypassing, and ECU flash programming. CalDesk supports CAN and USB as the transport layers for communication with ECUs with XCP.

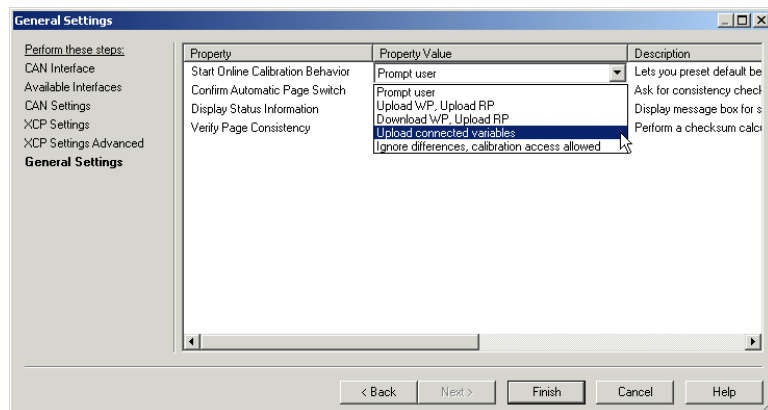
CalDesk 2.0 now also supports Ethernet as a transport layer, with the new *XCP on Ethernet device*. TCP/IP and UDP/IP are supported as the Ethernet transmission protocols.

For details, refer to *XCP on Ethernet* ( *CalDesk Calibration Reference*) and to the *XCP Feature Reference*.

Configurable behavior for starting online calibration


To prevent CalDesk from opening the **Calibration Memory** dialog whenever the parameter values on the hardware and on the host PC differ, you can now specify a default start online calibration behavior individually for each device. It defines the way CalDesk is to upload/download the parameter values when online calibration is started, without prompting you.

As a default start online calibration behavior, CalDesk also provides an option to upload/download only the parameter values that are currently selected for calibration in instruments. This option can speed up the start of online calibration significantly, particularly if there is a large number of parameters connected to calibration instruments.



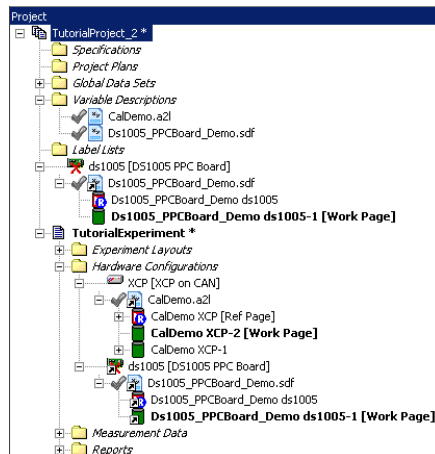
For details, refer to *Starting Online Calibration* ( *CalDesk Calibration Guide*).

Improved handling of global devices

When you add a device to an experiment, you can specify it as either experiment-specific or project-global. Specifying a device as project-global allows you to reuse it in other experiments of the project. CalDesk then holds the actual device in the project and references it in the corresponding experiments. In the Project Manager, a reference to a global device is marked by an additional  symbol.

The variable description of a global device is now displayed below the device. The variable description is also global.

The illustration below shows the Project Manager with a project containing one global device (DS1005 PPC Board) which is referenced once, and one experiment-specific device (XCP on CAN).



For details, refer to *Basics of Devices* ( *CalDesk Calibration Guide*)

Support of CAN interfaces from Kvaser and Vector Informatik GmbH

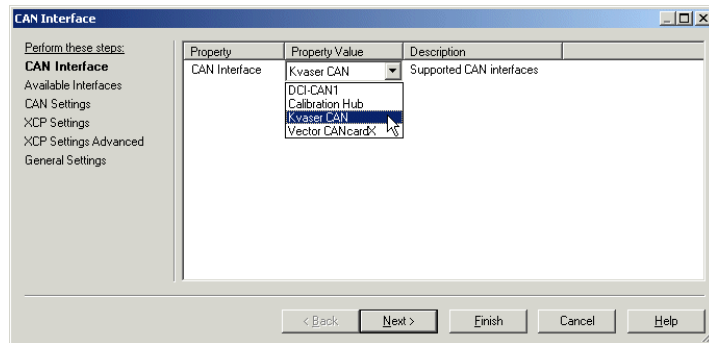
CalDesk now supports the following CAN interfaces from Kvaser:

- LAPcan
- LAPcan II
- Leaf Professional
- Memorator Professional
- USBcan II
- USBcan Professional

CalDesk now supports the following CAN interfaces from Vector Informatik GmbH:

- CANcardXL

- CANcardX (already supported by previous CalDesk versions)



You can use these interfaces for the CAN-based devices in CalDesk.



CAN interfaces from Kvaser are not supported for the ECU Diagnostics device. You can use a DCI-CAN1, a Calibration Hub, or a supported CAN interface from Vector Informatik GmbH.


Check on A2L and application (EPK check)

For calibration devices and the RapidPro device, CalDesk performs an EPK check to check whether the experiment is consistent with the application on the ECU or RapidPro system. When online calibration is started, the EPK string in the A2L file is compared with the EPK string read from the hardware.



CAUTION

If the strings differ, the application is not consistent with the experiment. A warning message is displayed, but you can continue calibrating and measuring variables. If you continue calibrating, however, you must note the *Warning About Using the CalDesk Software* on page 10.

For details, refer to *Advanced: Consistency Checks* ( *CalDesk Calibration Guide*).



New Variable Management Features

CalDesk 2.0 provides the following new features for managing variables:

Faster exchange of variable descriptions and ECU Image files

CalDesk 2.0 allows you to exchange software versions significantly faster than previous CalDesk versions. This comprises the activation and reloading of variable descriptions and ECU Image files.

Refer to:


- *Activate Variable Description* ( *CalDesk Calibration Reference*)
- *Reload Variable Description* ( *CalDesk Calibration Reference*)

Variable Editor: Automatic assignment of symbols to variables

The Variable Editor coming with CalDesk 2.0 now supports automatic assignment of symbols in map files to variables in the associated A2L file. Refer to *New Features of the Variable Editor* on page 40.

Calculated variables: Access to values in the past

You can now access values in the past for defining computation formulas for calculated variables. This allows you to implement filters, derivations, integrations, and statistical functions such as the calculation of the mean value.

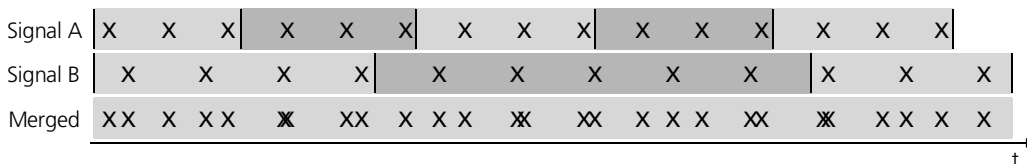
For examples, refer to *Examples of Defining a Formula for Calculated Variables* ( *CalDesk Calibration Guide*) .


Calculated variables: Improved measurement raster handling

For calculated variables, CalDesk 2.0 provides the *merged raster*. In this raster the time stamps of all input variables are merged in a new raster. The merged raster is the default raster for calculated variables.

The illustration below shows the two input signals A and B, which are measured periodically and in different rasters. The illustration also indicates that CalDesk receives the data of the input signals at different points in time, bundled in data packages of unequal size.

The calculated variable derived from the two input signals is measured in the *merged raster* in which the time stamps of the signals A and B are merged.



For details, refer to *Basics of Computing Calculated Variables in CalDesk* ( *CalDesk Calibration Guide*).

Improved label list handling

CalDesk 2.0 improves the handling of label lists. Refer to *Improved label list handling* on page 20.











New Instruments and Instrument Features

CalDesk 2.0 provides the following new instruments and instrument features:

New Variable Array

The new Variable Array is a multi-purpose instrument for displaying and changing scalar variables.

The illustration below shows a Variable Array with several variables connected to it. Each variable is displayed in a separate instrument row. The **Value** column displays the variables according to the selected *value cell type* such as Alphanumeric Input (see first row) and Check button (see last row).

Variable Array: Fac_I16_gain			
0..1 Converted Incr. +-0,1 / 1			
	Variable	Value	Unit
	SignalAmplitude	10.0078	
	SignalGenOutput	40.6563	
	SignalOffset	15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0	DEC
	MeasureArray[0][0][0]		
	Fac_I16	-300 -200 -100 0 100 200 300	
	f_Kd_1	0 10 20 30 40 50 60	DEC
	Fac_U8_gain	Push (0)	
	Fac_I8_gain	OnOff (1 1 0)	
	Fac_I16_gain	<input checked="" type="checkbox"/> Check (0 1 1)	

The Variable Array covers the functionality of the following instruments in former CalDesk versions:

- Alphanumeric Input
- Alphanumeric Display
- Bar (also available as a stand-alone instrument)
- Bitfield Editor
- MultiState LED

These have been replaced by the Variable Array. Like the above instruments, the Variable Array also allows you to display several variables in an array, with one row for each variable.







When you migrate an experiment to CalDesk 2.0, the above instruments are automatically converted into Variable Arrays. For example, an array of former Bitfield Editors is converted into a Variable Array with an array of Bitfield Editor value cell type.

In addition, the Variable Array provides the following new value cell types:

- Slider (also available as a stand-alone instrument)
- Push button
- OnOff button
- Check button

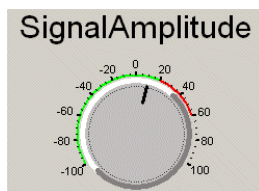
For instructions on using the Variable Array, refer to


- *How to Change Values with the Variable Array (Alphanumeric Input Value Cell Type)* ( *CalDesk Calibration Guide*).
- *How to Change Values with the Variable Array (Bitfield Editor Value Cell Type)* ( *CalDesk Calibration Guide*).
- *How to Visualize Variable States with the Variable Array (LED Value Cell Type)* ( *CalDesk Calibration Guide*).


For reference information, refer to *Variable Array* ( *CalDesk Calibration Reference*).

New Knob instrument

The new Knob instrument allows you to set the value of the connected parameter by means of a knob on a circular scale.



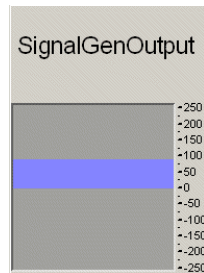
For instructions, refer to *How to Change Values with the Knob* ( *CalDesk Calibration Guide*).


For reference information, refer to *Knob* ( *CalDesk Calibration Reference*).

New Bar instrument

The new Bar instrument allows you to display a numerical value as a bar deflection on a horizontal or vertical scale.


Compared to the Bar Display in the Variable Array, the (stand-alone) Bar instrument provides more configuration options.



For reference information, refer to *Bar* ( *CalDesk Calibration Reference*).

Plotter: Saving Plotter data as a measurement data file

You can now save the data that is currently displayed in a Plotter to a measurement data file. To reduce the data volume in the measurement data file, you can also downsample the data or reduce the time range to be saved.

For instructions, refer to *How to Save Plotter Data as a New Measurement* ( *CalDesk Calibration Guide*).

Plotter: Recorded data and measured data in the same instrument

CalDesk 2.0 allows you to display data from a recorded data file and data from a currently running measurement in the same Plotter.

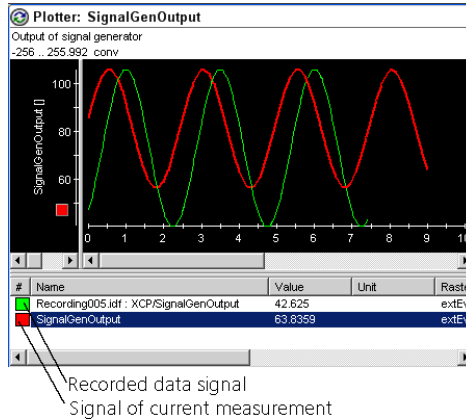


Table Editor: Hex and binary representation of data in the graphical view

The Table Editor in CalDesk 2.0 can also display hexadecimal and binary data in the graphical view.

Refer to *Table Editor* (*CalDesk Calibration Reference*).

Table Editor: changed indexing for maps and curves of "Direct Lookup Table (n-D)" type

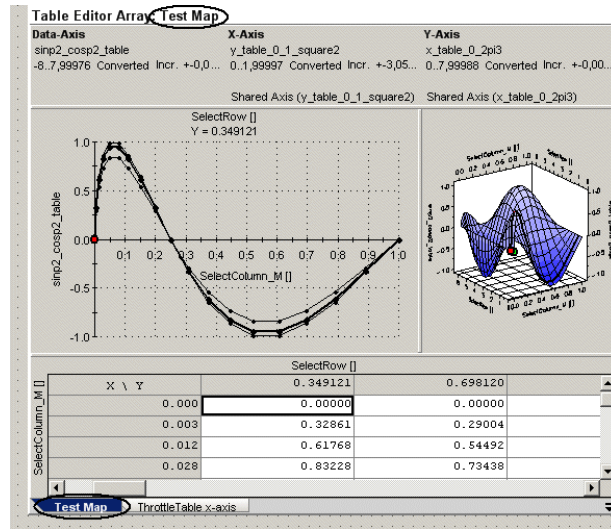
The indexing of maps and curves of the "Direct Lookup Table (n-D)" type imported from SDF variable descriptions has been changed: Before CalDesk 2.0, axis indexing for these maps and curves started with "1". As of CalDesk 2.0, axis indexing starts with "0".

This has the following consequences:

- The axis visualization is different.
- Axis information is also stored in data sets. When you load an SDF variable description containing maps or curves of the "Direct Lookup Table (n-D)" type in CalDesk 2.0, the contents of data sets created from the variable description differ from the contents of data sets created with an older CalDesk version.

Table Editor: Customizing tab names

You can define custom names for the tabs of a Table Editor. The name of the currently selected tab is also displayed in the Table Editor caption.



Refer to *Tab Pages Properties* (*CalDesk Calibration Reference*).


New Visualization Features (Common to All Instruments)

CalDesk 2.0 provides the following new visualization features:


Editing layouts and calibrating parameters in the same mode

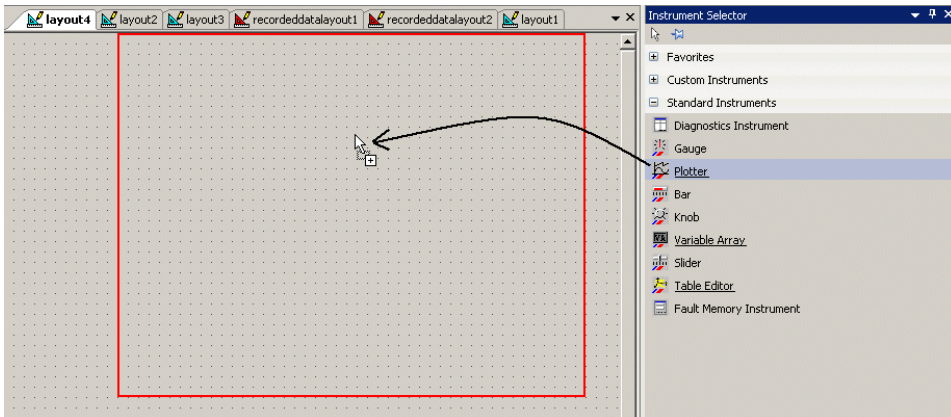
You can now edit CalDesk layouts, for example, to resize and move instruments, and change parameters in instruments, in the same mode. Unlike with previous CalDesk versions, you no longer need to switch the *Layout Editing* mode on and off, which makes working with CalDesk 2.0 more intuitive and faster.

New Instrument Selector



CalDesk's new Instrument Selector lets you place instruments on layouts via drag and drop, double-click, or cross-hair cursor. This allows you to arrange instruments on layouts *before* placing variables onto an instrument. For instructions, refer to *How to Place Variables on a Layout via the Instrument Selector* ( *CalDesk Calibration Guide*).





Using the new Instrument Selector is an alternative to placing variables on a layout via drag and drop from the Variable Browser and using the Configure Variables dialog. These methods are well-known from previous CalDesk versions. For instructions, refer to *How to Place Variables on a Layout via the Variable Browser* ( *CalDesk Calibration Guide*).



The Instrument Selector displays instruments in the following categories:

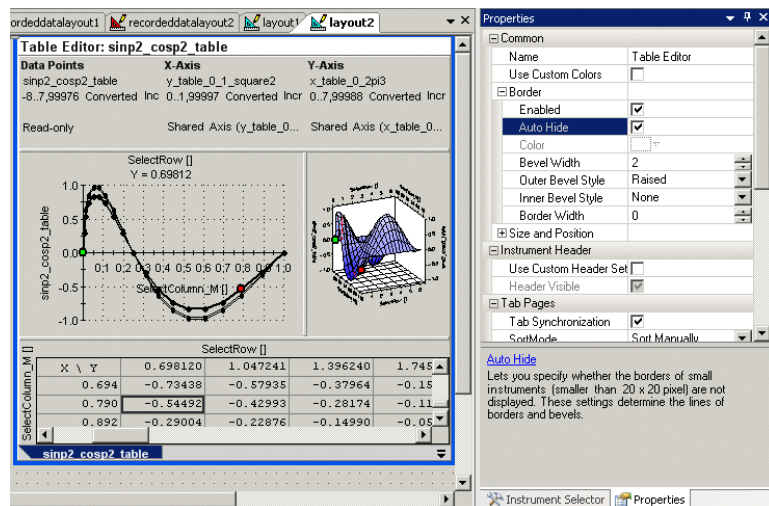
- *Custom Instruments*– Library of instruments configured individually
For instructions, refer to *How to Define Custom Instruments* ( *CalDesk Calibration Guide*).
- *Favorites*– User-specific collection of favorite instruments for quick access
For instructions, refer to *How to Define Default and Favorite Instruments* ( *CalDesk Calibration Guide*).
- *Standard Instruments*– The entire set of instruments in CalDesk 2.0

You can specify a *default instrument* for each variable type. In the Instrument Selector, default instruments are underscored. For instructions, refer to *How to Define Default and Favorite Instruments* ( *CalDesk Calibration Guide*).

For reference information, refer to *Instrument Selector* ( *CalDesk Calibration Reference*).

Improved configuration of layout and instrument properties

CalDesk 2.0 provides the *Properties* controlbar, which lets you configure the properties of layouts and instruments.



It replaces the Property pages of previous CalDesk versions, and has the following advantages:

- Properties can be changed for several instruments in one go
- Property configuration always in the same place and same style
- More structured display of properties
- Easier and faster configuration

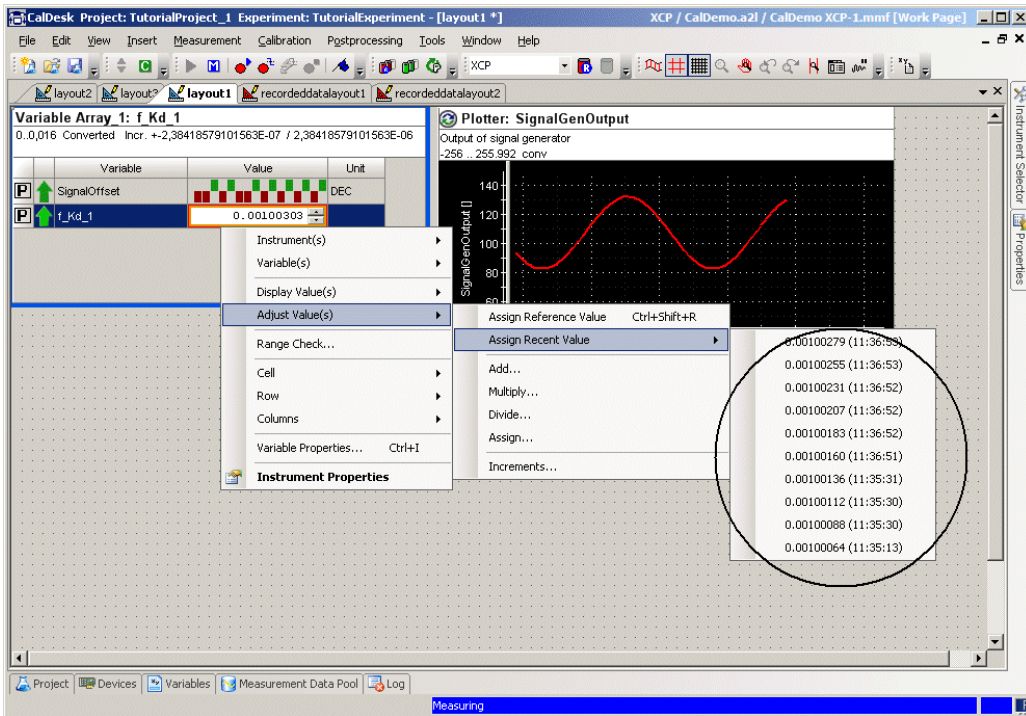
Unlike the Property pages, the new Properties controlbar can be open for instrument configuration at any time, without having to interrupt your calibration work.

Undoing/redoing parameter value changes

For undoing and redoing value changes to scalar parameters, CalDesk instruments now provide a list of the ten most recent parameter values. The values are displayed together with their timestamps, and can be reassigned to the selected parameter.

Assigning recent parameter values is supported by the following instruments:

- Variable Array
- Knob
- Slider



Refer to *Assign Recent Value* (*CalDesk Calibration Reference*).

Copying variables between instruments

CalDesk 2.0 lets you copy variables from one instrument to another via drag & drop, so you can place variables on several instruments quickly without having to search for them in the Variable Browser.

For instructions, refer to *How to Copy Variables Between Instruments* (*CalDesk Calibration Guide*).

Specifying the display format of variables globally

CalDesk 2.0 allows you to specify the display format of variables globally.

Refer to *Display Format Page* ( *CalDesk Calibration Reference*).

Hiding instrument header and variable information

To save space on layouts, CalDesk now allows you to hide the instrument header and variable information individually for each instrument of the following instrument types:

- Plotter
- Table Editor
- Variable Array

Refer to *Header Visible Property* ( *CalDesk Calibration Reference*).

New Calibration Features

CalDesk 2.0 provides the following new calibration features:

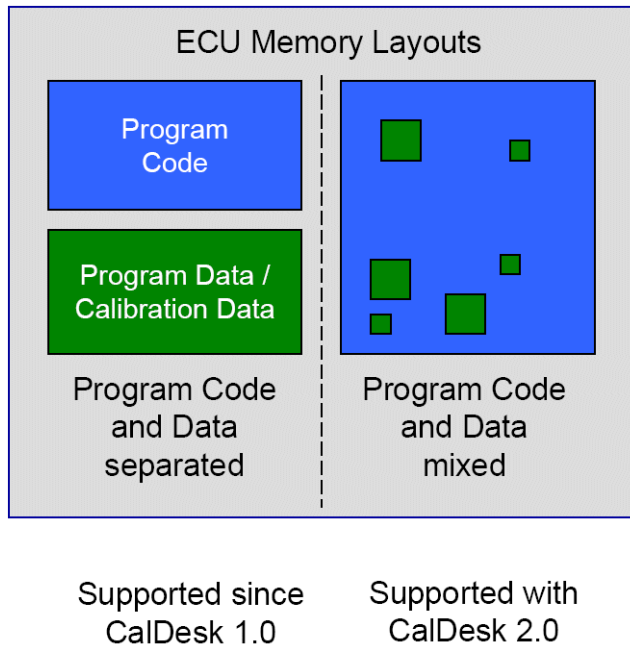
Calibration outside or without memory segments

The memory of an ECU or RapidPro system is mostly divided into calibration memory segments containing the calibratable parameters. The segments can be used to evaluate the memory pages of an ECU or RapidPro system when online calibration is started.

CalDesk now also lets you perform parameter calibration outside the defined memory segments, or even if no memory segments are defined in the A2L file. That means CalDesk allows online calibration of:

- Parameters that are located inside the defined memory segments
- Parameters that are located outside the defined memory segments

- Parameters even if the memory does not consist of memory segments. However, ECUs with DCI-GSI1, ECUs with DCI-GME1, and RapidPro systems used as stand-alone prototyping ECUs always require memory segments.



Configurable behavior for starting online calibration


You can now specify a default start online calibration behavior individually for each device. Refer to *Configurable behavior for starting online calibration* on page 21.

Calibration of measurement variables

CalDesk now also lets you calibrate measurement variables if they have the `READ_WRITE` attribute in the A2L file.

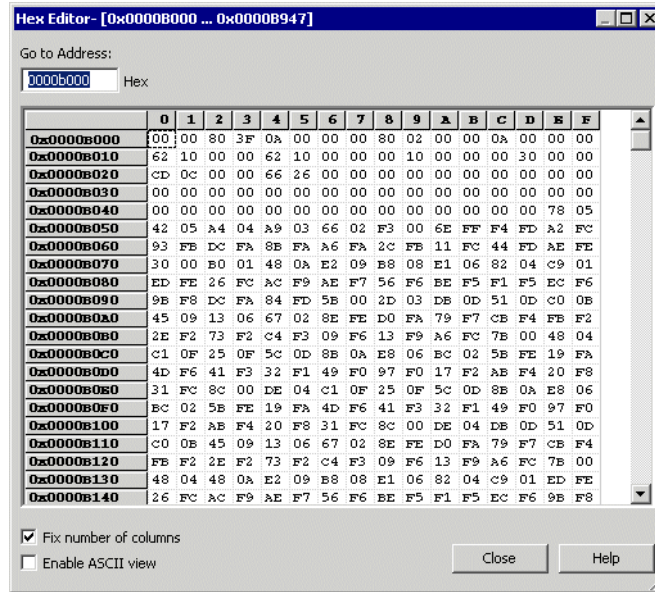
This allows you to:

- Set adaptive parameters
- Set function outputs to specific values (required, for example, for ECU testing and ECU start-up)
- Set any RAM variables

For details, refer to *Calibrating Writable Measurement Variables* ( *CalDesk Calibration Guide*).

Hex Editor

CalDesk's new Hex Editor displays the parameter values of a data set in hexadecimal notation sorted by their memory addresses. If the data set is writable and if CalDesk is currently in offline calibration mode, you can directly edit parameter values.



For details and instructions, refer to *Advanced Practices: Handling the Hex Editor* (*CalDesk Calibration Guide*).

Refreshing the values of connected parameters

CalDesk now lets you refresh the values of parameters connected to instruments. You can update parameter values on demand and read the values directly from the hardware. This is typically useful when multiple parameters refer to the same ECU address, as common with bit-masked parameters.

For details, refer to *Refresh Connected Parameters* (*CalDesk Calibration Reference*).

Measurement and calibration via the ECU Diagnostics device


You can measure and calibrate scalar variables via the ECU Diagnostics device. Refer to *Measurement and calibration via the ECU Diagnostics device* on page 40.

New Measurement and Recording Features

CalDesk 2.0 provides the following new features for measuring and recording data:

Saving current values in a snapshot

CalDesk allows you to save a snapshot, which is a CSV file containing the current values of selected ECU variables captured at a specific time. Before taking a snapshot you have to specify the variables to be saved by selecting a label list file. The snapshot file is stored as a report file in the CSV format in the Reports folder of the project.

For instructions, refer to *How to Save Current Values in a Snapshot* ( *CalDesk Calibration Guide*).

Warning mechanism for configuring a measurement

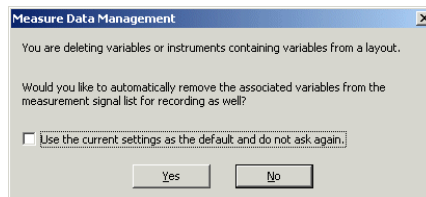
CalDesk now performs the following checks when you modify the measurement signal list via the Configure Measurement dialog:

- If you delete or deactivate a variable used in a trigger rule from the measurement signal list, CalDesk outputs a warning.
- If you delete or deactivate a variable used as an input parameter for a calculated variable from the measurement signal list, CalDesk outputs a warning.
- If you change raster settings of a variable used as an input parameter for a calculated variable, CalDesk outputs a warning if the raster of the calculated variable must be changed.

Automatic deletion of variables from measurement signal list

When you delete variables from a layout, you can specify to remove them from the measurement signal list either fully automatically or after a prompt.

CalDesk removes variables from the list only if they are no longer used on any open layout, by a trigger rule or as an input signal for a calculated variable.



Refer to *Visualization Page* ( *CalDesk Calibration Reference*).

Plotter: Saving Plotter data as a measurement data file

CalDesk allows you to save the data that is currently displayed in a Plotter to a measurement data file. Refer to *Plotter: Saving Plotter data as a measurement data file* on page 27.

Measurement and calibration via the ECU Diagnostics device

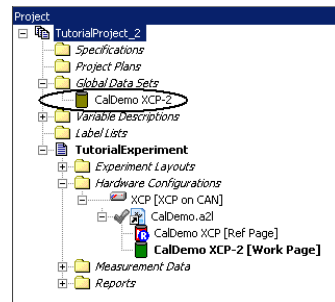
You can measure and calibrate scalar variables via the ECU Diagnostics device. Refer to *Measurement and calibration via the ECU Diagnostics device* on page 40.


New Data Set Management Features

CalDesk 2.0 provides the following new features for managing data sets:

Global data sets for comparing data sets of different experiments

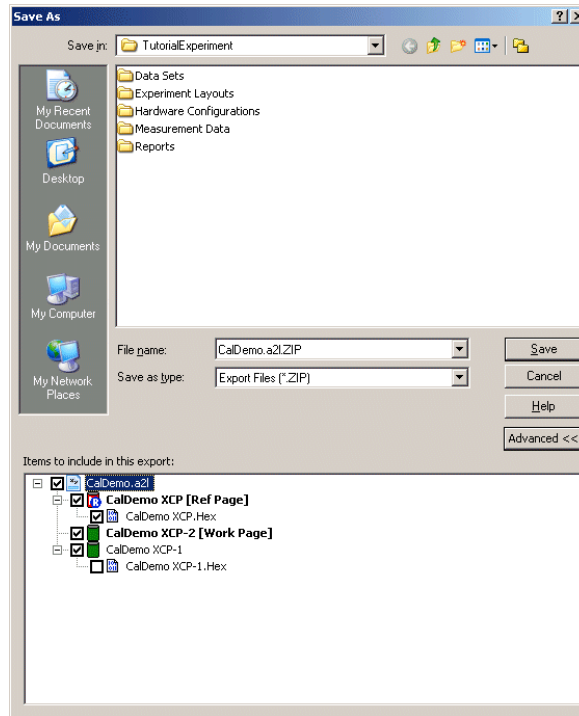
Up to CalDesk 2.0, you could only work with data sets of the active experiment. CalDesk now lets you export *global data sets*, and compare and merge them with data sets of any other experiment in the current project. Global data sets are stored in the project's **Global Data Sets** folder.




For instructions, refer to *How to Create a Global Data Set* ( *CalDesk Calibration Guide*).

Data set container for consistent exchange of data sets

CalDesk now lets you create *data set containers*. A data set container contains a variable description together with a number of data sets and/or ECU Image files belonging to it. Using a data set container makes it easy to exchange multiple data sets consistently.



For instructions, refer to *How to Export Files to a Data Set Container* ( *CalDesk Calibration Guide*).

Indication of missing and new parameters in data set comparisons

When you compare data sets, the Data Set Manager now displays the number of missing and new parameters:

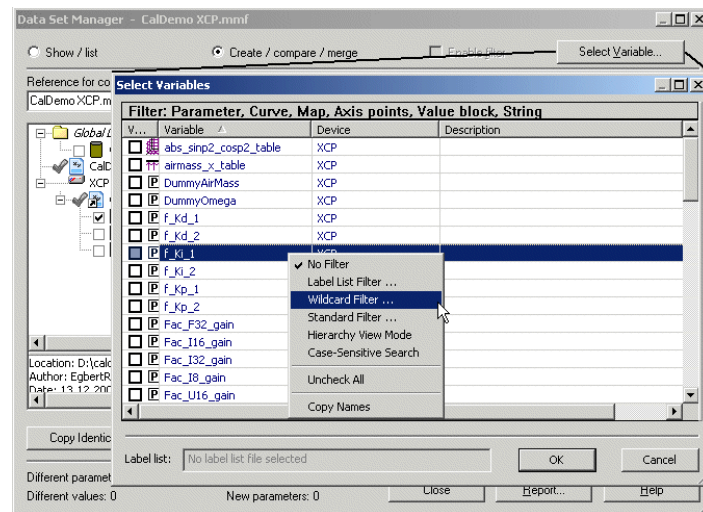
- *Missing parameters* are parameters that are available in the reference for comparison, but are not available in at least one of the compared data sets. A parameter which is missing in one or more of the compared data sets is counted as one missing parameter.
- *New parameters* are parameters that are not available in the reference for comparison, but are available in at least one of the compared data sets. A parameter which is new in one or more of the compared data sets is counted as one new parameter.


When you compare data sets, CalDesk also generates label list files containing the different, missing, and new parameters. You can use these files to filter variable lists, for example, in the Variable Browser or in the Data Set Manager (Show/list mode).

For instructions, refer to *How to Compare Data Sets* ( *CalDesk Calibration Guide*).

Extended filter functions in the Select Variables dialog

The Select Variables dialog now lets you define filter settings for the displayed parameters.



For details, refer to *Create/Compare/Merge Data Sets* ( *CalDesk Calibration Guide*).

New Features of the Variable Editor

Automatic assignment of symbols to variables

The Variable Editor coming with CalDesk 2.0 supports the automatic assignment of symbols in map files to variables in the associated A2L file. When the ECU application is recompiled, the variable addresses in the application's A2L file can be updated easily by updating the map file. You do not have to change the addresses in the variable description manually.

For basic information, refer to *Basics of Symbol Addresses and Map Files* (📖 *Variable Editor Guide*). For instructions, refer to *How to Assign a Map File to a Variable Description and Update Symbol Addresses* (📖 *Variable Editor Guide*).

New Features of the CalDesk ECU Diagnostics Module

The CalDesk ECU Diagnostics Module provides the following new features:

Measurement and calibration via the ECU Diagnostics device

You can measure and calibrate scalar variables via the ECU Diagnostics device. This means diagnostic protocols can be used for measurement and calibration. CalDesk can generate the variable description from the ODX database specified for the device.


- For the preconditions that must be met to perform measurement and calibration via the ECU Diagnostics device, refer to *Basics of ECU Diagnostics* (📖 *CalDesk Calibration Guide*).
- You can perform polling measurement and calibration via the ECU Diagnostics device in the same way as with other devices in CalDesk. For details, refer to *Measuring and Recording Data* (📖 *CalDesk Calibration Guide*) and *Calibrating Parameters* (📖 *CalDesk Calibration Guide*).

Support of the GMLAN diagnostic protocol

The CalDesk ECU Diagnostics Module now also supports the CAN-based GMLAN (General Motors In-Vehicle Local Area Network) diagnostic protocol.



For an overview of the supported diagnostic protocols, refer to *Basics of ECU Diagnostics Devices* (📖 *CalDesk Calibration Guide*).

Support of logical links to ECU variants



CalDesk 2.0 now also supports logical links that reference the ECU Variant ODX layer. Refer to *Basics of ECU Diagnostics Devices* ( *CalDesk Calibration Guide*).

Display of logical links according to ODX database layer hierarchy

When you configure the ECU Diagnostics device, CalDesk now displays the logical links of an ODX database hierarchically, according to the structure of the ODX database layers (protocol, functional group, ECU base variant, ECU variant). For the sake of clarity, you can reduce the display to the logical links to ECU base variants and ECU variants.

For instructions, refer to *How to Configure an ECU Diagnostics Device* ( *CalDesk Calibration Guide*). For reference information, refer to *Select Logical Link(s) page* ( *CalDesk Calibration Reference*).

Automation: Server for configuring logical links

If you perform ECU diagnostics tasks via the ASAM-MCD 3D interface, you can now use CalDesk's *ECU Diagnostics Configuration Server* to configure logical links directly in the automation script. For details on the server, refer to *ECU Diagnostics Configuration Server API* ( *CalDesk Automation Guide*). For an example script, refer to *Example of Performing Diagnostic Tasks* ( *CalDesk Automation Guide*).

New Features of the CalDesk Automation Module

The CalDesk Automation Module provides the following new features:

Python 2.5

Since dSPACE Release 6.0, all dSPACE products that work with Python support Python 2.5. As of CalDesk 2.0, this also applies to the CalDesk Automation Module. For information on how to migrate from a previous Python version, refer to *Migrating to Python 2.5* on page 56.

Recording measurement data

The CalDesk Automation Module now allows you to record measurement data.

- For details on recording measurement data via the ASAM-MCD 3MC interface, refer to *Basics of Automating CalDesk's Measurement and Recording Features* (📖 *CalDesk Automation Guide*) and *How to Record Variables* (📖 *CalDesk Automation Guide*).
- For details on recording measurement data via the ASAP3 interface, refer to *Recorder* (📖 *CalDesk ASAP3 Interface Reference*).

Using the automation interface, you can also specify the destination file and path for the recording. Keep in mind, however, that an automated recording is stored by CalDesk, not by the automation system. To access the recorded measurement data from the automation system, specify a destination file and path on a network drive.

Absolute time information for measurement variables

The CalDesk Automation Module now provides absolute time information for measurement variables. This allows you, for example, to compare data measured using CalDesk to data from other sources.

For details, refer to *Adding Absolute Time Information* (📖 *CalDesk Automation Guide*).

New ECU Flash Programming Tool Features

The *dSPACE ECU Flash Programming Tool* on CalDesk 2.0 provides the following new features:

ECU flash programming via XCP on USB

The *dSPACE ECU Flash Programming Tool* now also supports ECU flash programming via XCP on USB.

For details, refer to *Supported ECU Interface Types* (📖 *ECU Flash Programming*).

Support of CAN interfaces from Vector and Kvaser

The *dSPACE ECU Flash Programming Tool* now also supports the following CAN-based interfaces for the connection between the ECU and the host PC:

- Vector CAN interfaces: CANcardX, CANcardXL

- Kvaser CAN interfaces: LAPcan, LAPcan II, Leaf Professional, Memorator Professional, USBcan II, USBcan Professional

For details, refer to *Supported ECU Interface Types* ( *ECU Flash Programming*).

ECU flash programming without dSPACE XCP boot loader

ECU flash programming via XCP on CAN and XCP on USB is now also possible *without* integrating the dSPACE XCP boot loader in the ECU code if an XCP service other than the dSPACE XCP Service is integrated in the ECU code.




However, for safety and performance reasons, it is recommended to use the dSPACE XCP boot loader.

For details, refer to *Principle of ECU Flash Programming via XCP on CAN* ( *ECU Flash Programming*) and *Principle of ECU Flash Programming via XCP on USB* ( *ECU Flash Programming*).

Starting the tool via CalDesk's Tools menu

You can also start the dSPACE ECU Flash Programming Tool via CalDesk's **Tools** menu.


For preconditions and instructions, refer to *How to Start the dSPACE ECU Flash Programming Tool* ( *ECU Flash Programming*).

Further Enhancements with CalDesk 2.0


CalDesk 2.0 provides further enhancements:

New installation features

Option for installing CalDesk automatically If you want to install a CalDesk on several host PCs, you can use the installation program's *silent setup* option. The option allows you to record the CalDesk installation and use this recording on other PCs to install CalDesk automatically.

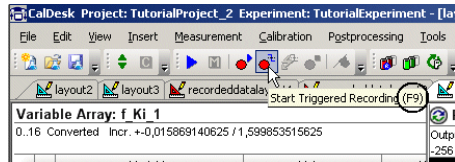
For instructions, refer to *How to Install dSPACE Software with Silent Setup* ( *Software Installation and Management Guide*).


Customizing the installation If you want the CalDesk installation program to run user-specific tasks such as replacing one configuration file by another, you can install CalDesk together with a user-specific batch file.

For instructions, refer to *How to Customize a CalDesk Installation* ( *Software Installation and Management Guide*).

Display of shortcuts in menus

CalDesk optionally can display the shortcut key of a command in the tooltip of its toolbar icon.



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

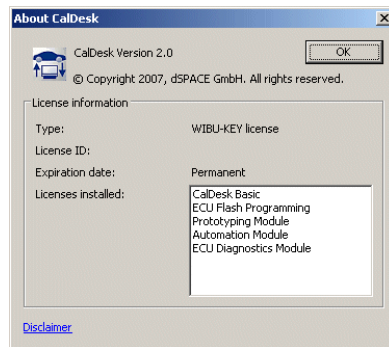
Opening external tools from the CalDesk user interface

CalDesk now lets you add external tools to the Tools menu and the User Functions toolbar. This allows you to open external tools directly from the CalDesk user interface.

Refer to *Customize* ( *CalDesk Calibration Reference*).

List of installed licenses

CalDesk now lets you display a list of the installed licenses.



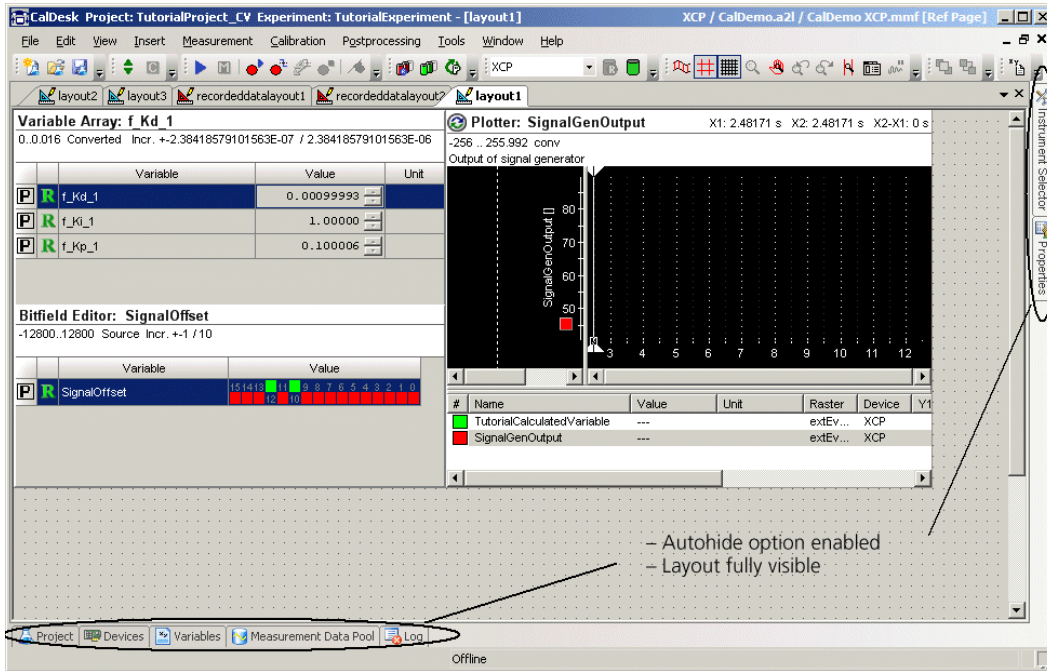
Refer to *About* ( *CalDesk Calibration Reference*).

Customizing the screen arrangement and toolbars

Customizing the screen arrangement CalDesk lets you modify the screen arrangement:

- You can configure the location of controlbars on the screen to meet your individual requirements.

- You can enable the autohide option for controlbars. This allows you to display layouts in full size easily.



The first time you run CalDesk, it opens with its default screen arrangement, which you can modify.

For instructions, refer to *Step 2: How to Customize the Screen Arrangement* (*CalDesk Tutorial*).

Customizing toolbars CalDesk lets you customize toolbars, for example, by reducing the number of displayed toolbars, changing toolbar positions, and creating your own toolbars.

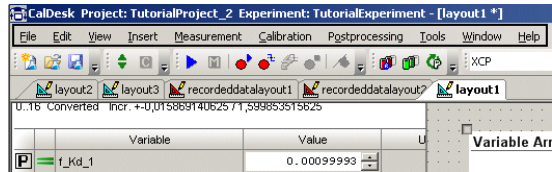


Custom toolbar

For instructions, refer to *How to Customize Toolbars* (*CalDesk Calibration Guide*).

More intuitive menu bar

CalDesk provides a more intuitive menu bar similar to those in Microsoft® Word and Microsoft® Excel.



Migrating to CalDesk 2.0

Where to go from here

Information in this section

<i>In Which Cases Is Migration Necessary ?</i>	47
<i>How to Migrate an Experiment for an ECU with XCP on CAN</i>	48
<i>How to Migrate an Experiment with Calculated Variables for MicroAutoBox and/or DS1005</i>	51
<i>How to Migrate an Experiment with SDF and/or DBC Variable Descriptions</i>	52
<i>How to Migrate an Experiment with Table Editors</i>	53
<i>How to Migrate a Project to CalDesk 2.0</i>	54
<i>Migrating to Python 2.5</i> Since dSPACE Release 6.0, dSPACE products using Python work with Python 2.5.	56

In Which Cases Is Migration Necessary ?

To migrate to CalDesk 2.0 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 Version To Version							
	1.1.1	1.2.0	1.2.1	1.2.2	1.3.0	1.4.0	1.4.1	2.0
1.1.0 ...	No	Yes ¹⁾	Yes ¹⁾	Yes ¹⁾	Yes ¹⁾	Yes ¹⁾²⁾³⁾⁴⁾	Yes ¹⁾²⁾³⁾⁴⁾	Yes ¹⁾²⁾³⁾⁴⁾⁵⁾

From Version To Version							2.0
	1.1.1	1.2.0	1.2.1	1.2.2	1.3.0	1.4.0	1.4.1	
1.1.1 ...	–	Yes ¹⁾	Yes ¹⁾	Yes ¹⁾	Yes ¹⁾	Yes ¹⁾²⁾³⁾⁴⁾	Yes ¹⁾²⁾³⁾⁴⁾	Yes ¹⁾²⁾³⁾⁴⁾⁵⁾
1.2.0 ...	–	–	No	No	No	Yes ²⁾³⁾⁴⁾	Yes ²⁾³⁾⁴⁾	Yes ²⁾³⁾⁴⁾⁵⁾
1.2.1 ...	–	–	–	No	No	Yes ²⁾³⁾⁴⁾	Yes ²⁾³⁾⁴⁾	Yes ²⁾³⁾⁴⁾⁵⁾
1.2.2 ...	–	–	–	–	No	Yes ²⁾³⁾⁴⁾	Yes ²⁾³⁾⁴⁾	Yes ²⁾³⁾⁴⁾⁵⁾
1.3.0 ...	–	–	–	–	–	Yes ²⁾³⁾⁴⁾	Yes ²⁾³⁾⁴⁾	Yes ²⁾³⁾⁴⁾⁵⁾
1.4.0 ...	–	–	–	–	–	–	No	Yes ²⁾³⁾⁴⁾⁵⁾
1.4.1 ...	–	–	–	–	–	–	–	Yes ²⁾³⁾⁴⁾⁵⁾

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 and/or DBC Variable Descriptions.

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

⁵⁾ Refer to How to Migrate a Project to CalDesk 2.0.

Migrating automation scripts

If you use the CalDesk Automation Module you must note some points when migrating Python scripts from Python 2.2 to Python 2.5. For details, refer to *Migrating to Python 2.5* on page 56.

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 or later, 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 or later, 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.

- 5 Repeat steps 3 on page 49 and 4 on page 49 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 */
```

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

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 2.0* on page 47

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 1.4.1 (or later).

**As of CalDesk 1.4:
Modified internal data
model**

As of version 1.4, CalDesk has a modified internal data model. **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 1.4.1 (or later).

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 1.4.1 (or later).
- 5 In CalDesk 1.4.1 (or later), 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 1.4.1 (or later) 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 and/or DBC 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** variable descriptions, you must reload the variable descriptions.

As of CalDesk 1.4: Modified internal data model

As of version 1.4, CalDesk has a modified internal data model. If you reuse an experiment created with CalDesk 1.3 or earlier, ...

- 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** variable description.

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



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

Method	<p>To migrate an experiment with SDF and/or DBC variable descriptions</p> <ol style="list-style-type: none"> 1 In CalDesk 1.4.1 (or later), 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 variable description(s). 4 Save the experiment to be reused.
Result	You can reuse the experiment with SDF and/or DBC 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.
As of CalDesk 1.4: Modified internal data model	<p>As of version 1.4, CalDesk has a modified internal data model. 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.</p> <p>To avoid this, you must reload the variable description(s).</p>
Method	<p>To migrate an experiment with Table Editors</p> <ol style="list-style-type: none"> 1 In CalDesk 1.4 (or later), 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.

How to Migrate a Project to CalDesk 2.0

If a project was created before CalDesk 2.0, you have to migrate it to reuse it (and its experiments) in CalDesk 2.0.

Possible methods

You can migrate a project in two ways:


- Using CalDesk. Refer to Method 1.
- Using the *CalDesk Project Converter*. Refer to Method 2.

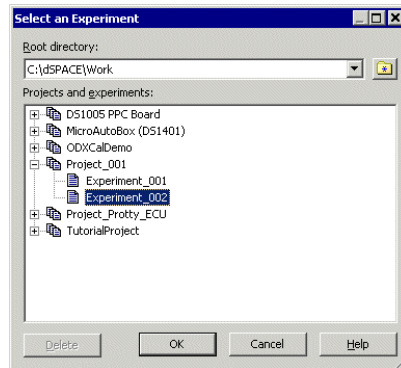


A project (and its experiments) last saved with CalDesk 1.3 or before cannot be migrated *directly* using the methods described below. Instead, you first have to migrate such a project to CalDesk 1.4 or 1.4.1, and then use one of the methods described below.

Method 1

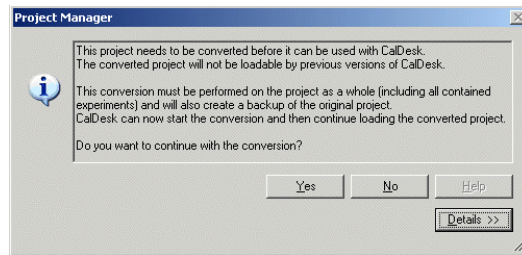
To migrate a project to CalDesk 2.0 via CalDesk

- 1 Start CalDesk 2.0.
- 2 From the File menu, select **Open Project + Experiment**, or press **Ctrl+Shift+O**, or click .
CalDesk opens the **Select an Experiment** dialog.



- 3 From the **Root directory** drop-down list, select the project root directory containing the project and experiment you want to migrate.
- 4 From the **Projects and experiments** list, select the project and experiment you want to migrate.
- 5 Click **OK**.

6 CalDesk displays the following dialog:



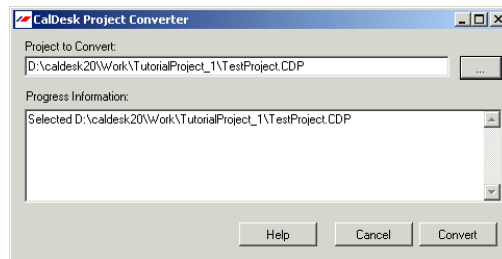
7 Click **Yes**.

CalDesk migrates the project and all its experiments, and then opens the selected experiment.

Method 2

To migrate a project to CalDesk 2.0 via CalDesk Project Converter

- 1 Run `CalDeskProjectConverter.exe`. After installation of CalDesk 2.0, it is located in the `%DSPACE_ROOT%\CalDesk\Bin` folder. The **CalDesk Project Converter** opens.
- 2 In the **CalDesk Project Converter**, select the project to be converted.



3 Click **Convert**.

CalDesk migrates the project and all its experiments.


Result

The project and all its experiments are ready for use with CalDesk 2.0.

Once a project is migrated, you can no longer use it with a CalDesk version earlier than 2.0. For this reason, CalDesk stores a backup of the original project in the project root folder during migration. You can use the backup project with a CalDesk version earlier than 2.0.

Related topics


HowTos

- *How to Open a Project and Experiment* ( *CalDesk Calibration Guide*)

References

- *Open Project + Experiment* ( *CalDesk Calibration Reference*)

Migrating to Python 2.5

You must note some points when migrating Python scripts from Python 2.2 to Python 2.5. For details, refer to *Migrating Python Scripts from Python 2.2 to Python 2.5* ( *CalDesk Automation Guide*).

C

CalDesk
safety precautions 9

S

safety precautions 9

