Firmware Manager

Manual

For Firmware Manager 3.3

Release 2021-A – May 2021

dSPACE

How to Contact dSPACE

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How to Contact dSPACE Support

If you encounter a problem when using dSPACE products, contact your local dSPACE representative:

- Local dSPACE companies and distributors: http://www.dspace.com/go/locations
- For countries not listed, contact dSPACE GmbH in Paderborn, Germany.
  Tel.: +49 5251 1638-941 or e-mail: support@dspace.de

You can also use the support request form: http://www.dspace.com/go/supportrequest. If you are logged on to mydSPACE, you are automatically identified and do not need to add your contact details manually.

If possible, always provide the relevant dSPACE License ID or the serial number of the CmContainer in your support request.

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/go/patches for software updates and patches.

Important Notice

Contents

About This Document

Content

This document will introduce you to the features provided by the Firmware Manager. It gives you general information on firmware and firmware handling and describes the Firmware Manager's graphical user interface and command line interface.

Usually, the Firmware Manager is used to update the firmware of dSPACE real-time hardware to the latest version to get the full support of new features. However, you can also use it to repair corrupted firmware by reloading the same firmware version to the dSPACE real-time hardware.

The Firmware Manager is used to load firmware to the following dSPACE real-time hardware:

- DS1006 Processor Board
- DS1007 PPC Processor Board
- I/O boards with an updatable firmware in a modular system based on the DS1006 or DS1007
- DS1104 R&D Controller Board
- MicroAutoBox II
- MicroAutoBox III
- MicroLabBox
- SCALEXIO system

For information on not supported hardware and further limitations, refer to Limitations on page 25.

Required knowledge

It is assumed that you know how to handle a PC and the Microsoft Windows operating system.

Note

If you have no experience with firmware management, it is recommended that you read this user documentation before you use the Firmware Manager. This will help you avoid problems when using the hardware.

Symbols

dSPACE user documentation uses the following symbols:

Symbol	Description
DANGER	Indicates a hazardous situation that, if not avoided, will result in death or serious injury.
WARNING	Indicates a hazardous situation that, if not avoided, could result in death or serious injury.
CAUTION	Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.
NOTICE	Indicates a hazard that, if not avoided, could result in property damage.
Note	Indicates important information that you should take into account to avoid malfunctions.
Tip	Indicates tips that can make your work easier.
	Indicates a link that refers to a definition in the glossary, which you can find at the end of the document unless stated otherwise.
	Precedes the document title in a link that refers to another document.

Naming conventions

dSPACE user documentation uses the following naming conventions:

%name% Names enclosed in percent signs refer to environment variables for file and path names.

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

Special folders

Some software products use the following special folders:

Common Program Data folder A standard folder for application-specific configuration data that is used by all users.

`%PROGRAMDATA%\dSPACE\<InstallationGUID>\<ProductName>`

or

`%PROGRAMDATA%\dSPACE\<ProductName>\<VersionNumber>`

Documents folder A standard folder for user-specific documents.

`%USERPROFILE%\Documents\dSPACE\<ProductName>\<VersionNumber>`

Local Program Data folder A standard folder for application-specific configuration data that is used by the current, non-roaming user.

`%USERPROFILE%\AppData\Local\dSPACE\<InstallationGUID>\<ProductName>`

Accessing dSPACE Help and PDF Files

After you install and decrypt dSPACE software, the documentation for the installed products is available in dSPACE Help and as PDF files.

dSPACE Help (local) You can open your local installation of dSPACE Help:

- On its home page via Windows Start Menu
- On specific content using context-sensitive help via **F1**

dSPACE Help (Web) You can access the Web version of dSPACE Help at www.dspace.com/go/help.

To access the Web version, you must have a *mydSPACE* account.

PDF files You can access PDF files via the icon in dSPACE Help. The PDF opens on the first page.

Safety Precautions

Introduction

To avoid risk of injury and property damage, read and ensure compliance with the safety precautions given.

Where to go from here

Information in this section

General Warning

Danger potential

Using the Firmware Manager can be dangerous. You must observe the following safety instructions and the relevant instructions in this document.

Improper or negligent use can result in serious personal injury and/or property damage Using the Firmware Manager software can have a direct effect on dSPACE systems (for example, MicroAutoBox II), technical systems (electrical, hydraulic, mechanical) and networked electronic systems connected to it.

The risk of property damage or personal injury also exists when the firmware properties of a dSPACE system are changed via Firmware Manager before the dSPACE system is used in conjunction with a technical 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 technical systems interfaced by the Firmware Manager 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).

Liability

It is your responsibility to adhere to instructions and warnings. Any unskilled operation or other improper use of this product in violation of the respective safety instructions, warnings, or other instructions contained in the user documentation constitutes contributory negligence, which may lead to a limitation of liability by dSPACE GmbH, its representatives, agents and regional dSPACE companies, to the point of total exclusion, as the case may be. Any exclusion or limitation of liability according to other applicable regulations, individual agreements, and applicable general terms and conditions remain unaffected.

Related topics

Basics

Specific Warnings 12

Specific Warnings

Risk of injury and/or material damage

Updating the firmware can cause uncontrolled movements of connected devices.

- Disconnect actuators and sensors from the associated real-time hardware before you start the update process.

Interrupting the update process disables the hardware

If the firmware update is interrupted, for example, by switching off the power, you have to restart the update process.

Note

Follow the instructions of the firmware management tool to correctly finish the firmware update process. For example, in some cases the hardware has to be rebooted to complete the firmware update.

Related topics

Basics

General Warning 11

Introduction

Introduction

Gives you general information on firmware, firmware handling and the interfaces available for firmware management.

Where to go from here

Information in this section

General Information on Firmware Management

Introduction

Firmware management allows you to update the firmware components of your real-time hardware to fulfill the requirements of your real-time application.

Dependencies between real-time application and real-time hardware

If you build a real-time application based on the firmware and software versions delivered together with the dSPACE real-time hardware, it is guaranteed that the implemented features are running on your hardware.

If you want to execute a real-time application on dSPACE real-time hardware with a *later* firmware version, you can do this without any modifications because later firmware versions are always compatible with earlier ones.

If you want to execute a real-time application on dSPACE real-time hardware with an *earlier* firmware version, it might be necessary to update the firmware. If the firmware version of the hardware does not suit the firmware version required for the real-time application, the real-time application is stopped or cannot be downloaded.

For information on how to get the latest firmware version, refer to Basics on Firmware on page 19.

Firmware management tools

The firmware management features are available via the following tools.

Firmware Manager The Firmware Manager as a stand-alone tool is included in the installation of the following product sets from the dSPACE release:

- Bus Support
- ConfigurationDesk Implementation Version
- ECU Interface Software
- Real-Time Interface

All other platform-relevant product sets provide the firmware management features via the integrated **Update Firmware Wizard**, see below.

To install the Firmware Manager independently of any other dSPACE software, you have to install it via download package from the dSPACE website, refer to https://www.dspace.com/go/FirmwareManager.

For further information on the Firmware Manager, refer to Basics on the Firmware Manager on page 15.

Update Firmware Wizard The **Update Firmware Wizard** is integrated in the platform management of the following dSPACE software products:

- AutomationDesk
- ConfigurationDesk
- ControlDesk
- ModelDesk

It starts when you execute the **`Update Firmware`** command in the **Platform Manager** and provides the same functionality as the **Firmware Management** pane in the Firmware Manager.

Note

If you use the **Update Firmware Wizard**, you can do a firmware update only for the hardware that is supported by the software in which you called the wizard.

Command line interface Script-based access via the `FwManagerCmd` utility allows you to automate firmware updates. It is installed with the Firmware Manager.

For further information on the command line interface, refer to Using the Command Line Interface for Firmware Management on page 35.

Related topics

Basics

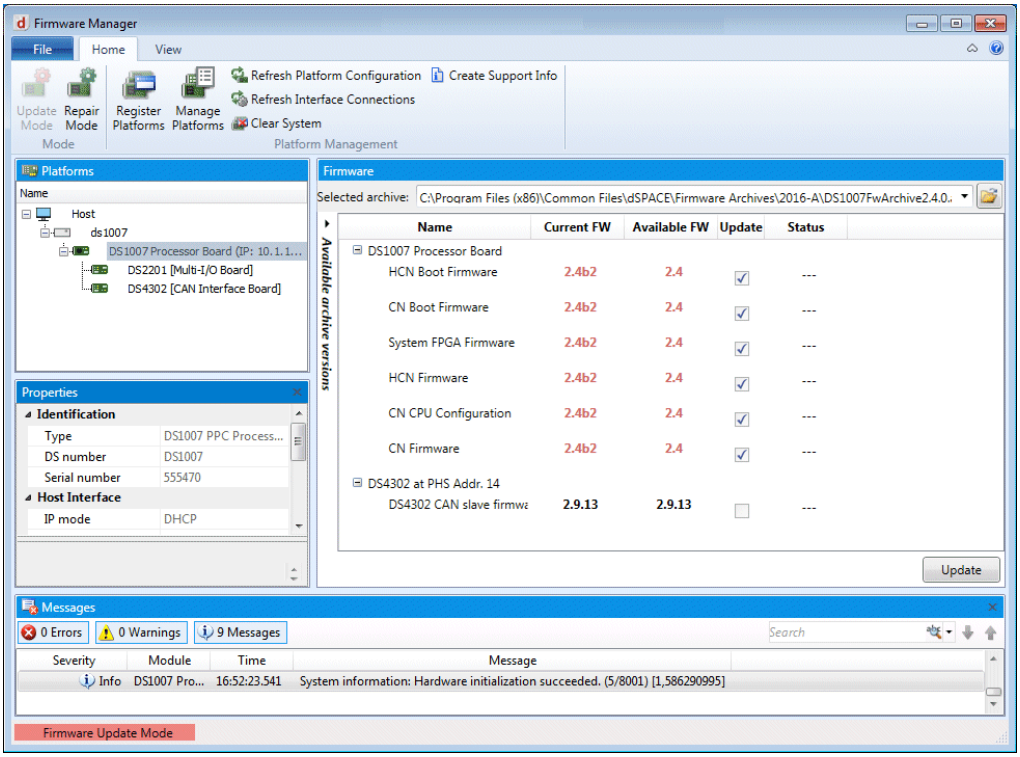
Basics on the Firmware Manager

Introduction

You can update and repair the firmware of your real-time hardware with the Firmware Manager.

Firmware Manager user interface

If you start the Firmware Manager with an already registered platform, the following user interface is displayed.



Platform Manager The Firmware Manager contains the Platform Manager, which is familiar from other dSPACE software such as ControlDesk.

- In the Platforms pane, you can select the real-time hardware whose firmware you want to update.
- The properties of the selected platform component are displayed in the Properties pane.

Firmware Management In the Firmware pane, you can change the preselected firmware archive. The real-time hardware and its updatable hardware components are displayed in a list. Each entry contains the firmware version that is currently on the hardware and the firmware version that is available in the selected firmware archive.

If you click **`Available archive versions`** on the left side of the pane, the installed archive versions of the currently active RCP and HIL installation are displayed with some additional information, such as the installation folder.

In the *Firmware Update Mode*, you can usually start the update process only if the firmware version available in the firmware archive is later than the firmware version on the hardware. If you use a SCALEXIO system, you can also update to an earlier firmware version, if available. For DS1007 and MicroLabBox updating to an earlier firmware version is only enabled for the base board firmware.

In the *Firmware Repair Mode*, you can select hardware components to repair their firmware by overwriting it with the same version from the archive.

There are further hardware-specific dialogs that you have to confirm before the update starts. For example, you will get information on the update duration if the update process will take a long time, so you can decide not to start the update.

Status information When the process is running, you get information on its status. The displayed value is only a rough estimation. The real duration might differ. If the progress information cannot be detected continuously, only the states 50% and 100% are displayed. When the process has finished the Firmware Manager shows the new programmed firmware version or an error message if the update failed.

Logging The Firmware Manager actions are logged, displayed in the Message Viewer and stored in a log file. This log file and an additional support information file, which you can create with the Firmware Manager, can help dSPACE Support solve problems with your real-time hardware.

To analyze the log files created by dSPACE products for error or warning messages via script, you can use the Message Reader API, which is included in the Firmware Manager installation. Refer to Appendix on page 125.

For further information on using the Firmware Manager, refer to Updating and Repairing the Firmware of dSPACE Real-Time Hardware on page 29.

Related topics

Basics

Updating and Repairing the Firmware of dSPACE Real-Time Hardware 29

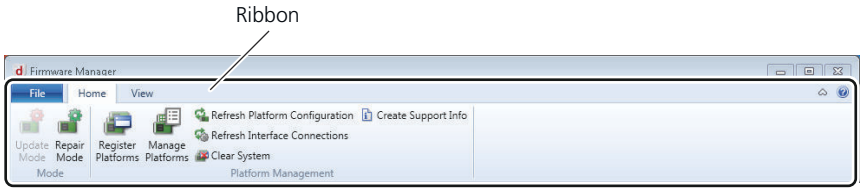
Basics on Ribbons

Introduction

Ribbons are user interface elements that provide access to common commands and dialogs.

Ribbon

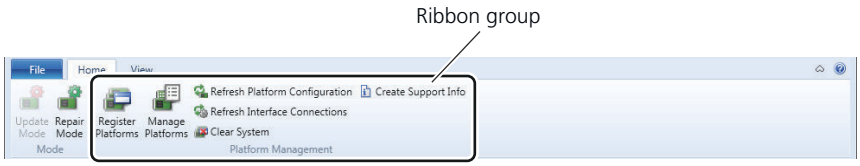
The ribbon organizes and groups commands of a program. The ribbon is located at the top of the user interface, see the following example.



Ribbon group

A ribbon group is a part of a tabbed ribbon. It consists of a set of related commands.

The following illustration shows a ribbon group in the Firmware Manager as an example.

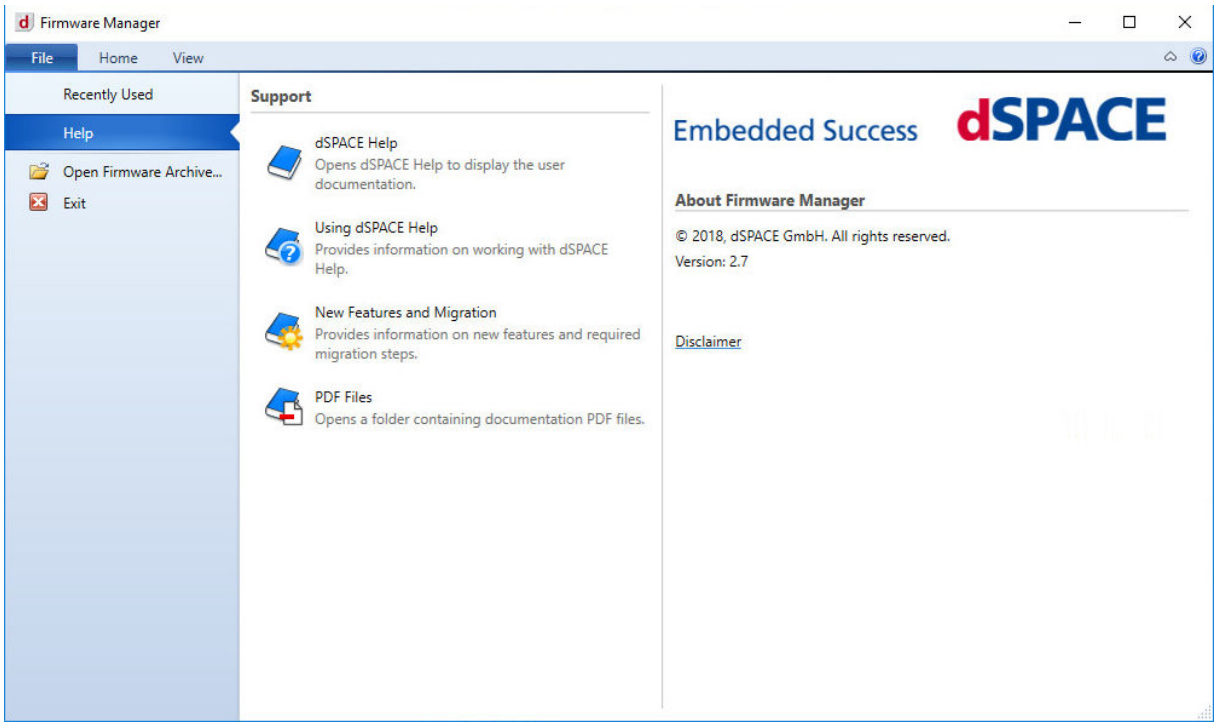


Dialog launcher A dialog launcher is an optional element of a ribbon group that lets you open a dialog related to that ribbon group.

Backstage view

The Backstage view provides basic commands of a software program, such as Save, Open, Close, Exit. The Backstage view can be identified by the colored ribbon tab. When the Backstage view is opened, it covers the entire user interface.

The following illustration shows the Backstage view of the Help ribbon group as an example.



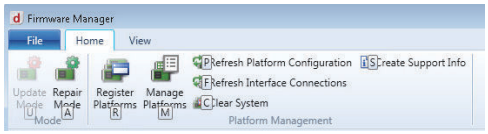
Navigating the ribbon

You can navigate the ribbon via mouse and via keyboard.

Navigation via mouse You can navigate the ribbon with the mouse scroll wheel.

Navigation via keyboard If you want to navigate the ribbon via keyboard, press the **Alt** key. Each command in the Quick Access Toolbar and each ribbon tab then is marked by an access key.

The illustration below shows a ribbon after pressing **Alt** as an example.



If you then press one of the ribbon tab access keys, each command in the selected ribbon is also marked by an access key.

You can remove the access keys by pressing **Alt** again.

Related topics

Basics

Updating and Repairing the Firmware of dSPACE Real-Time Hardware 29

Basics on Firmware

Introduction

You can execute a real-time application on dSPACE real-time hardware only if the different kinds of firmware are available. The loaded firmware version has to provide the functionality implemented in the real-time application.

Firmware features

The firmware for a hardware component provides basic functionality that is stored in a nonvolatile memory. For example, it includes functions for the communication between the host PC and the hardware, and can also provide I/O functions such as CAN or LIN protocol support, or complex I/O functions for an FPGA component.

The firmware archives provides all the relevant firmware components that are required for your hardware.

Details on the firmware archives

The following firmware archives are available.

DS1006FwArchive.arc The firmware archive for a modular system based on a DS1006 Processor Board contains the following firmware components:

- DS1006 boot firmware
- DS1006 FPGA Code

- DS2202 CAN slave firmware
- DS2210 CAN slave firmware
- DS2211 CAN slave firmware
- DS4302 CAN slave firmware
- DS4330 LIN slave firmware
  (see the note above)
- DS4342 firmware

DS1007FwArchive.arc The firmware archive for a modular system based on a DS1007 PPC Processor Board contains the following firmware components:

- HCN Boot Firmware
- HCN Firmware
- CN Boot Firmware
- CN Firmware
- CN CPU Configuration
- System FPGA Firmware
- DS2202 CAN slave firmware
- DS2210 CAN slave firmware
- DS2211 CAN slave firmware
- DS4302 CAN slave firmware
- DS4330 LIN slave firmware
  (see the note above)
- DS4342 firmware

DS1104FwArchive.arc The firmware archive for a modular system based on a DS1104 R&D Controller Board contains the following firmware components:

- DS1104 boot firmware
- DS1104 Slave DSP firmware

MABXFwArchive.arc (for MicroAutoBox II) The firmware archive for MicroAutoBox II contains the following firmware components:

- DS1401 boot firmware
- DS1401 System PLD firmware
- DS1401 Host IF PLD firmware
- DS1401 Host IF firmware
- ADC TYPE 4 PLD firmware
- DIO TYPE 3 PLD firmware
- DIO TYPE 4 PLD firmware
- FPGA TYPE 1 PLD firmware
- AIO TYPE 1 PLD firmware
- CAN TYPE 1 firmware
- DS4342 firmware

Note

To program the firmware that supports the RTI DS1552 I/O Extension blockset for the DS1552 Multi-I/O module, you have to use the **`DS1401UpdateExtIO`** command, which is described in the MicroAutoBox II RTLib Reference 🕮.

DS1403FwArchive.arc (for MicroAutoBox III) The firmware archive for MicroAutoBox III contains the following firmware components:

- ADC Type4 UserFpga
- AIO Type1 UserFpga
- CAN Type1 UserFirmware
- DIO Type3 UserFpga
- DIO Type4 UserFpga
- DS1403 CnFirmware
- DS1403 CnIpl
- DS1403 UserCpld
- DS1403 UserFirmware
- DS1403 UserFpga
- DS1403 UserIpl
- DS1514 FPGA Base Board IoCpld
- DS1521 UserFpga
- DS4342 CAN FD Interface Module UserFpga
- FPGA Type1 IoFpga (DS1552)
- FPGA Type1 IoFpga (DS1554)

DS1202FwArchive.arc (for MicroLabBox) The firmware archive for MicroLabBox contains the following firmware components:

- HCN Boot Firmware
- HCN Firmware
- CN Boot Firmware
- CN Firmware
- CN CPU Configuration
- System FPGA Firmware
- CAN Type 1 firmware
- I/O clock buffer configuration
- I/O CPLD firmware
- I/O FPGA firmware

SCALEXIOFwArchive.arc As of dSPACE Release 2020-B, this is the default firmware archive for SCALEXIO systems. It provides the Linux-based firmware components and the KVM Hypervisor firmware.

The firmware archive for SCALEXIO systems with a Linux operating system contains the following firmware components:

- DSx86_32 UserFirmware
- DSx86_32 FactoryFirmware
- DS2502 UserFpga
- DS2551 UserFpga
- DS2601 UserFirmware and DS2601 UserFpga
- DS2621 UserFirmware and DS2621 UserFpga
- DS2642 UserFirmware and DS2642 UserFpga
- DS2655 UserFirmware and DS2655 UserFpga
- DS2655M1 UserFpga
- DS2655M2 UserFpga
- DS2656 UserFirmware and DS2656 UserFpga
- DS2671 UserFirmware and DS2671 UserFpga
- DS2672 UserFirmware and DS2672 UserFpga
- DS2680 UserFirmware, DS2680 UserFpga, and DS2680 IoFpga1 … 3
- DS2690 UserFirmware and DS2690 UserFpga
- DS2907 UserFirmware and DS2907 UserFpga
- DS6001 UserFirmware, DS6001 UserIplFirmware, and DS6001 UserFpga
- DS6051 UserFpga
- DS6071 UserFirmware
- DS6072 UserFirmware
- DS6073 UserFirmware
- DS6101 UserFirmware, DS6101 UserIplFirmware, and DS6101 UserFpga
- DS6121 UserFpga
- DS6201 UserFpga
- DS6202 UserFpga
- DS6221 UserFpga
- DS6241 UserFpga
- DS6301 UserFpga
- DS6311 UserFpga
- DS6321 UserFpga
- DS6333-CS UserFpga
- DS6333-PE UserFpga
- DS6335-CS UserFpga
- DS6341 UserFpga
- DS6342 UserFpga
- DS6351 UserFpga
- DS6601 UserFpga
- DS6602 UserFpga
- DS6651 UserFpga
- Dsx86_32 HypervisorFirmware

SCALEXIOQNXFwArchive.arc Up to and including dSPACE Release 2020-A, this was the default archive for SCALEXIO systems. To use the QNX firmware archive, you must explicitly select it.

The firmware archive for SCALEXIO systems with a QNX operating system contains the following firmware components:

- DSx86_32 UserFirmware
- DSx86_32 FactoryFirmware
- DS2502 UserFpga
- DS2551 UserFpga
- DS2601 UserFirmware and DS2601 UserFpga
- DS2621 UserFirmware and DS2621 UserFpga
- DS2642 UserFirmware and DS2642 UserFpga
- DS2655 UserFirmware and DS2655 UserFpga
- DS2655M1 UserFpga
- DS2655M2 UserFpga
- DS2656 UserFirmware and DS2656 UserFpga
- DS2671 UserFirmware and DS2671 UserFpga
- DS2672 UserFirmware and DS2672 UserFpga
- DS2680 UserFirmware, DS2680 UserFpga, and DS2680 IoFpga1 … 3
- DS2690 UserFirmware and DS2690 UserFpga
- DS2907 UserFirmware and DS2907 UserFpga
- DS6001 UserFirmware, DS6001 UserIplFirmware, and DS6001 UserFpga
- DS6051 UserFpga
- DS6071 UserFirmware
- DS6072 UserFirmware
- DS6073 UserFirmware
- DS6101 UserFirmware, DS6101 UserIplFirmware, and DS6101 UserFpga
- DS6121 UserFpga
- DS6201 UserFpga
- DS6202 UserFpga
- DS6221 UserFpga
- DS6241 UserFpga
- DS6301 UserFpga
- DS6311 UserFpga
- DS6321 UserFpga
- DS6333-CS UserFpga
- DS6333-PE UserFpga
- DS6335-CS UserFpga
- DS6341 UserFpga
- DS6342 UserFpga
- DS6351 UserFpga
- DS6601 UserFpga
- DS6602 UserFpga

- DS6651 UserFpga
- Dsx86_32 HypervisorFirmware

Note

- The archive format for DS1007 and MicroLabBox changed with Firmware Archives 2.0 contained in dSPACE Release 2015-B. To open an archive in the new format, you must use Firmware Manager 2.0 or later.
- The archive format for SCALEXIO changed with Firmware Archives 2.1 contained in dSPACE Release 2016-A. To open an archive in the new format, you must use Firmware Manager 2.1 or later.

Special firmware

The firmware archives installed with your dSPACE software provide the standard firmware type. There might be other firmware types to be managed with the Firmware Manager.

Custom firmware The Firmware Manager allows you to install custom firmware that dSPACE provides for solutions or engineering projects.

User firmware

Note

When you use a SCALEXIO system, this term is used for the standard firmware. The following restrictions refer only to customized firmware.

User firmware is a firmware that is based on dSPACE firmware but extended with your own functionality. The Firmware Manager does not support loading user firmware.

Note

dSPACE accepts no liability for incorrect operation or property damage when using user firmware with dSPACE hardware.

Default factory firmware MicroAutoBox II, MicroAutoBox III, MicroLabBox, DS1007, and SCALEXIO are providing a secured mode for using the default factory firmware. If firmware is corrupted, the hardware, automatically reboots, if necessary, and loads the default factory firmware that lets you access the board and retry the firmware update.

For further information, refer to:

- Using MicroAutoBox II: How to Start MicroAutoBox II to Secured Mode (MicroAutoBox II Hardware Installation and Configuration 🕮)
- Using MicroAutoBox III: How to Force a Start with Factory Firmware (MicroAutoBox III Hardware Installation and Configuration 🕮)
- Using MicroLabBox: How to Force a Restart with Factory Firmware (MicroLabBox Hardware Installation and Configuration 🕮)
- Using modular system based on DS1007: How to Start the DS1007 to Secured Mode (DS1007 Hardware Installation and Configuration Guide 🕮)

Note

Note the following restriction if you use DS1007, MicroAutoBox II, or MicroLabBox.
In secured mode, for example, caused by an interrupted firmware repair or update process, you cannot repair or update the firmware components of the I/O components of the board (connected I/O boards, internal I/O modules, or the I/O FPGA). You firstly have to repair or update the firmware components of the base board and then reboot the board to leave the secured mode. Error messages regarding to the repair or update process of the I/O components can be ignored. After reboot, you can continue the repair or update process for the firmware of the I/O components.

If your real-time hardware does not provide a secured mode for using the default factory firmware, you have to repair the board's boot firmware. You can do this via the command line interface of the firmware management or via the Platform Manager. To repair the corrupted boot firmware via the command line interface, refer to Examples of Script-Based Firmware Management on page 40.

Related topics

Basics

Basics on the Firmware Manager 15

Limitations

Introduction

Note some limitations when using the Firmware Manager, its command line interface or the **Update Firmware Wizard**.

Unsupported hardware and hardware components

The following hardware components are not supported by the update process of the Firmware Manager, its command line interface and the **Update Firmware Wizard**:

- RapidPro system

  Use the RapidPro-specific update tool for firmware management, refer to How to Update RapidPro Firmware (RapidPro System Hardware Installation Guide 🕮). The firmware archives installation does not contain a firmware archive for RapidPro. The RapidPro firmware is in `<RCP_HIL_InstallationPath>/RapidPro`.
- DS1552 Multi-I/O Module

  If you want to use the RTI DS1552 I/O Extension Blockset with a MicroAutoBox II containing a DS1552 Multi-I/O Module, you have to load the required firmware component via a specific update tool. For further information, refer to **`DS1401UpdateExtIO`**.

If you use MicroAutoBox III containing a DS1552 Multi-I/O Module, you can use the Firmware Manager to load the required firmware component.

- Discontinued dSPACE platforms

  The Firmware Manager does not support the firmware update for discontinued platforms, such as the DS1103 PPC Controller board, or a MicroAutoBox with board revision DS1401-19 and earlier.

  If your discontinued platform requires a firmware repair, contact dSPACE Support.

Restrictions for updating SCALEXIO systems

Note the following restrictions when you use a SCALEXIO system:

- The Firmware Manager supports SCALEXIO systems as of dSPACE Release 2015-B. If you want to update the firmware version on a SCALEXIO system to an earlier version, you have to use ControlDesk or ConfigurationDesk from an earlier dSPACE Release.
- If your SCALEXIO system contains a DS2655M2 Digital I/O Module, a firmware update from firmware version 3.2 or earlier to a firmware version 3.3 or later, might lead to an error and the update process is then stopped.

  To finish the firmware update you have to do the following steps:

  - Restart the SCALEXIO system.
  - Call the **Refresh Interface Connections** command in the **Platform Manager**.
  - Repeat the firmware update process.

  If you are using the command line interface for updating, you have to do the same steps. However, executing the **Refresh Interface Connections** command is not required.
- If your SCALEXIO system contains one or more new hardware components that are not already supported by the currently active firmware on the SCALEXIO Processing Unit or DS6001 Processor Board, a firmware update might lead to an error and the update process is then aborted.

  To finish the firmware update, perform the following steps:

  - Restart the SCALEXIO system.
  - Call the **Refresh Interface Connections** command in the **Platform Manager**.
  - Repeat the firmware update process.

  If you are using the command line interface for updating, you have to do the same steps. However, executing the **Refresh Interface Connections** command is not required.
- The Hypervisor version introduced with dSPACE Release 2018-B provides some modifications, which are not compatible to the Hypervisor version from dSPACE Release 2018-A and earlier. If your SCALEXIO system contains a SCALEXIO Real-Time PC that is using the older SCALEXIO Hypervisor Extension, a firmware update with the new firmware archives from dSPACE Release 2018-B leads to an error and the update process is then aborted.

  If you must update your SCALEXIO system to Release 2018-B, contact dSPACE Support.

- A SCALEXIO fimware archive from dSPACE Release 2020-B or later cannot be used, if the Hypervisor version from dSPACE Release 2020-A or earlier is installed.

  A SCALEXIO firmware archive from dSPACE Release 2020-A or earlier cannot be used, if the Hypervisor version from dSPACE Release 2020-B or later is installed.
- The Hypervisor firmware available with dSPACE Release 2021-A supports the following SCALEXIO Processing Units:
  - SCALEXIO Processing Unit with E3-1275v6 processor
  - SCALEXIO Processing Unit with E5-2640v3 processor
  - SCALEXIO Processing Unit with Intel 6208U processor
  - DS6001 Processor Board

  All other SCALEXIO Real-Time PCs are not supported.

Restrictions of the command line interface

The command line interface does not provide the following functions:

- Create support info
- Clear flash

Warning when using burn applications

Relevant to MicroLabBox and a PHS-bus-based system with a DS1007: If you want to update the hardware with a firmware version later than the firmware version with which a loaded burn application was built, the following warning is displayed:

Application process was built with an older version: '<OlderVersion>'. Current firmware version is: '<CurrentVersion>'.

The update mechanism is not able to recognize firmware version differences that have no effect on the operability of the hardware.

You can ignore this message, because the base board firmware is compatible to older firmware versions. The burn application will be correctly executed after the firmware update.

Related topics

Basics

Introduction 13

Updating and Repairing the Firmware of dSPACE Real-Time Hardware

Introduction

Before you start a firmware update, you have to decide whether to update the firmware to a later version or to repair the currently installed firmware version.

Where to go from here

Information in this section

How to Prepare the Firmware Update

Objective

The preparation of a firmware update consists of specifying some general firmware settings.

Preconditions

The following preconditions must be fulfilled for configuring the general firmware settings:

- The real-time hardware must be connected to the host PC.
- The real-time hardware must be switched on.

- The required firmware archive must be available.

  You can find the latest firmware archives on the dSPACE website at http://www.dspace.com/go/firmware.
- If a real-time application is loaded to the board's flash memory, it is recommended to clear the flash before starting the update process to avoid unpredictable output signals.

  If a real-time application is running, it is stopped by the firmware management.
- If you have registered a multiprocessor system, you can update only one processor at a time.
- If you have registered a multicore system with additional I/O boards, you have to select the core to which the I/O boards are connected for the update of the entire system. The other cores will be updated, too.

Note

- The archive format for DS1007 and MicroLabBox changed with Firmware Archives 2.0 contained in dSPACE Release 2015-B. To open an archive in the new format, you must use Firmware Manager 2.0 or later.
- The archive format for SCALEXIO changed with Firmware Archives 2.1 contained in dSPACE Release 2016-A. To open an archive in the new format, you must use Firmware Manager 2.1 or later.

Method

To prepare the firmware update

1. Start the Firmware Manager.
2. If no real-time hardware is displayed in the Platform Manager, register the real-time hardware that you want to update.
3. Select the real-time hardware in the Platform Manager.

   In the **Firmware** pane, the latest firmware archive for the selected platform is automatically set and the information about the currently installed and the available firmware versions is displayed.
4. Optionally, browse for another firmware archive. This might be useful, for example, if you want to update to a firmware version other than the latest or repair user firmware.
5. Select the firmware update mode.

   By default, the **Update** mode is set to update all firmware components of your real-time hardware with later firmware. With the **Repair** mode enabled, you can select the firmware components to be repaired.

   To switch to the repair mode, click  in the **Home** ribbon.

Result

You have configured the settings which are required for a firmware update process in update or repair mode.

Related topics

HowTos

How to Repair Firmware 32
How to Update Firmware 31

References

Register Platform 83

How to Update Firmware

Objective

Gives you the instructions for the firmware *update* mode.

Preconditions

The firmware update process has to be prepared with the Update Mode specified as described in How to Prepare the Firmware Update on page 29.

Safety precautions

⚠ WARNING

Risk of injury and/or material damage

Updating the firmware can cause uncontrolled movements of connected devices.

- Disconnect actuators and sensors from the associated real-time hardware before you start the update process.

NOTICE

Interrupting the update process disables the hardware

If the firmware update is interrupted, for example, by switching off the power, you have to restart the update process.

Note

Follow the instructions of the firmware management tool to correctly finish the firmware update process. For example, in some cases the hardware has to be rebooted to complete the firmware update.

Method

To update firmware

1 In the Firmware pane, click Update to start the firmware update process.

In the **Update** column, the firmware components to be updated are marked and red. The components are not marked for update if the version of the currently installed firmware is identical to or later than the firmware available in the specified firmware archive.

If there are updatable firmware components, the update process starts. You can see the progress in the **Status** column. The initial '--' entry is replaced by a percentage. If the progress information cannot be detected continuously, only the states 50% and 100% are displayed. If the process successfully finished, an **OK** is shown, otherwise an error message is displayed.

If the firmware update will require more than 40 minutes, an estimate of the time is displayed. Then you can decide whether to start the process. Interrupting a running firmware update process is not possible.

Note

You must not switch off the hardware during the firmware update process. This will cause a corrupted firmware.

Follow the given instructions to complete the firmware update. For example, some firmware components require a hardware restart.

Result

You have updated the firmware components of your hardware.

Related topics

Basics

General Information on Firmware Management 13

HowTos

How to Prepare the Firmware Update 29
How to Repair Firmware 32

How to Repair Firmware

Objective

Gives you the instructions for the firmware *repair* mode.

Preconditions

The firmware update process has to be prepared with the **Repair Mode** specified as described in How to Prepare the Firmware Update on page 29.

Safety precautions

⚠ WARNING

Risk of injury and/or material damage

Updating the firmware can cause uncontrolled movements of connected devices.

- Disconnect actuators and sensors from the associated real-time hardware before you start the update process.

NOTICE

Interrupting the update process disables the hardware

If the firmware update is interrupted, for example, by switching off the power, you have to restart the update process.

Note

Follow the instructions of the firmware management tool to correctly finish the firmware update process. For example, in some cases the hardware has to be rebooted to complete the firmware update.

Method

To repair firmware

1 In the Firmware pane, select the firmware components to be repaired in the Update column.

You can select only firmware components, whose current and available versions are identical. If the versions differ, the components are not displayed at all.

2 In the Firmware pane, click Repair to start the firmware repair process.

This command is enabled only if at least one firmware component is selected for repairing.

If there are updatable firmware components, the repair process starts. You can see the progress in the Status column. The initial '--' entry is replaced by a percentage. If the progress information cannot be detected continuously, only the states 50% and 100% are displayed. If the process successfully finished, an OK is shown, otherwise an error message is displayed.

If the firmware repair process will require more than 40 minutes, an estimate of the time is displayed. Then you can decide whether to start the process. Interrupting a running firmware repair process is not possible.

Note

You must not switch off the hardware during the firmware repair process. This will cause a corrupted firmware.

Follow the given instructions to complete the firmware update. For example, some firmware components require a hardware restart.

Result

You have repaired the firmware components of your hardware.

Related topics

Basics

General Information on Firmware Management....13

HowTos

How to Prepare the Firmware Update....29
How to Update Firmware....31

Using the Command Line Interface for Firmware Management

Introduction

The `FwManagerCmd` utility gives you script-based access to the firmware management.

Where to go from here

Information in this section

Basics on the Command Line Interface 35
For updating the firmware of a board via script, you can use the command line interface of the Firmware Manager.

Examples of Script-Based Firmware Management 40
Scripts for the most relevant use cases are shown.

Information in other sections

General Information on Firmware Management 13
Gives you information why you have to update your firmware and with which tool you can do it.

Basics on the Command Line Interface

Introduction

The Firmware Manager provides a command line interface that you can access via the `FwManagerCmd` utility. You can do all the update actions that are also available via the Firmware Manager's user interface. Additionally, the command line interface allows you to restore corrupted boot firmware and execute it in quiet mode without user interaction for automation purposes.

Using the command line interface

You can type the command directly in a Command Prompt window or you can use a batch file. To open a Command Prompt window for firmware management, you can use the **Command Prompt for dSPACE Firmware Manager** shortcut in the Windows **Start** menu.

Note

The Firmware Manager or other tools accessing the hardware, such as ControlDesk, must not be opened at the same time.

If the entered options are not sufficient to start the action, the interim result is displayed with an **Index** column. You must enter the index number to continue.

The actions are logged and stored in a log file. Use **View dSPACE Log** in the Firmware Manager to open the log file.

Preconditions

Before you can start a firmware update process via script, the following preconditions must be fulfilled.

- The hardware must be registered in the platform management.
- The hardware must be connected to the host PC.
- The hardware must be switched on.
- If a real-time application is loaded to the board's flash memory, it is recommended to clear the flash before starting the update process to avoid unpredictable output signals.

  If a real-time application is running, it is stopped by the firmware management.
- The required firmware archive must be available.

Options of the command line interface

To start a specific firmware management action, you have to enter `FwManagerCmd` followed by one or more of the following options. The options are available in descriptive form and in short form.

Note

You have to enter the options with a preceding `/` or `-`.

Tip

You can split a long command or script over multiple lines by entering a "^".

Example:

```
FwManagerCmd /update /platform DS1007 /silent
```

You can type it also as:

```
FwManagerCmd /update ^
/platform DS1007 ^
/silent
```

Options		Description
Descriptive Form	**Short Form**	
?	??	Displays a description of the available options.
arcfile <ARCHIVE_FILENAME>	f <ARCHIVE_FILENAME>	Lets you specify the path and name of the firmware archive to be used. If you do not enter the `arcfile` option, the default firmware archive is the one that was installed with the latest dSPACE release. If there is no firmware version available for the specified platform type, the update process stops with an error message. You can specify an absolute path or a path relative to your working folder. If the path contains blanks, you have to enter it in quotation marks.
archive	ar	Can be used together with the `view` option. Lets you display the firmware components and their versions available for the specified platform type. Either the platform or the platform-specific firmware archive has to be specified to display the contents of a firmware archive. If the platform type is known, the firmware archive of the latest dSPACE release is used unless you explicitly specified another firmware archive.
arcselect	as	Only valid for SCALEXIO: Lets you select the firmware archive to be used if the active dSPACE Release does not match the latest version of the platform's firmware archive.
hardware	hw	Can be used together with the `view` option. Lets you display the updatable components of the specified platform with their currently installed firmware versions.
ip_address <IP_ADDRESS>	ip <IP_ADDRESS>	This option can only be used together with the `restore_bfw` option. Lets you specify the IP address of the platform to be programmed.
list	l	Displays a list of the registered platforms with their names and serial numbers. You can select a platform via the list index. The `list` option is used by default. To directly specify a platform, you can use the `platform` option. Because the `list` option requires a manual input, it cannot be used together with the `silent` option.
overwrite_custom	oc	Reserved for future use.
platform <PLATFORM_NAME>	pl <PLATFORM_NAME>	Lets you specify the name of the platform whose firmware you want to update. If you do not specify the `platform` option, the `list` option is used by default. You have to specify the platform name displayed in the Platform Manager.
platform_type <PLATFORM_TYPE>	pt <PLATFORM_TYPE>	Lets you specify the platform type. This option is required when you use the `view` or `restore_bfw` option. If the platform type cannot be detected

Options		Description
Descriptive Form	**Short Form**	
		automatically or manual selection of the platform type has to be avoided. The possible values for the platform type are: ▪ DS1006 ▪ DS1007 (only for the `view` option) ▪ DS1104 ▪ DS1202 (for MicroLabBox) ▪ DS1403 (for MicroAutoBox III) ▪ MABX (for MicroAutoBox II) ▪ SCALEXIO
port_address <PORT_ADDRESS>	pa <PORT_ADDRESS>	This option can only be used together with the `restore_bfw` option for the DS1006. Lets you specify the port address of the platform to be programmed in the format `0xABC0`, where `ABC` are the values of the three rotary switches to adjust the I/O base address of a board. For example, for the factory default setting of 0 – 3 – 0, the port address is `0x0300`.
preserve_custom	pc	Reserved for future use.
repair	r	Lets you reload the current firmware version to the specified platform to repair corrupted firmware. The required firmware version must be available in the firmware archive. This option can be used together with the following options: ▪ `select` ▪ `silent`

restore_bfw	rb	To restore corrupted boot firmware.
		The platform has to be specified by:
		▪ The platform type by using the `platform_type` option.
		▪ Platform-specific options:
		  ▪ DS1006
		  Port address by using the `port_address` option.
		  ▪ DS1104
		  Serial number by using the `serial_number` option.
		  ▪ MicroAutoBox II
		  IP address by using the `ip_address` option.
		Note
		▪ If you use a slot CPU in an expansion box with a DS1006 board, you have to specify the IP address of the slot CPU and the port address of the platform.
		▪ The `restore_bfw` option is not required for the DS1007 board, MicroLabBox (DS1202), MicroAutoBox III (DS1403), and SCALEXIO (DS6001), because of their board architectures.

Options		Description
Descriptive Form	**Short Form**	
select	se	Can be used together with the `repair` option. Displays a numbered list of all platform components for which the firmware archives contain a firmware component with the same version. You can start the repair process by entering the appropriate number. Because user input is required, the `silent` option is not applicable.
serial_number <SERIAL_NUMBER>	sn <SERIAL_NUMBER>	This option can only be used together with the `restore_bfw` option for DS1104. Lets you specify the serial number of the platform to be programmed.
silent	si	Suppresses user input. You have to specify the required input by other options. It is not possible to use it together with the `select` and the `list` options.
update	u	Lets you program the specified platform with a later firmware version. The required firmware version must be available in the firmware archive. This option can be used together with the following options: ▪ `silent`
view	v	Displays the firmware versions currently installed on the specified platform or firmware versions available in the platform-specific firmware archive. The `view` option has to be used together with at least one of the following options: ▪ `archive` ▪ `hardware` For some use cases it is necessary to specify either the firmware archive by using the `arcfile` option or the platform type by using the `platform_type` option.

For some script examples, refer to Examples of Script-Based Firmware Management on page 40.

Return values of the command line interface

When script execution finishes, the `FwManagerCmd` utility returns an error code.

Return Value	Description
0	The operation finished successfully and the firmware update process is finalized.
1	The operation finished with an error. See the log file for further information.

Return Value	Description
2	The operation finished successfully. To finalize the firmware update process, you have to switch the real-time hardware off and on to reboot it.

Related topics

Examples

Examples of Script-Based Firmware Management 40

Examples of Script-Based Firmware Management

Introduction

Scripts for the most relevant use cases are shown.

Getting information on firmware and hardware

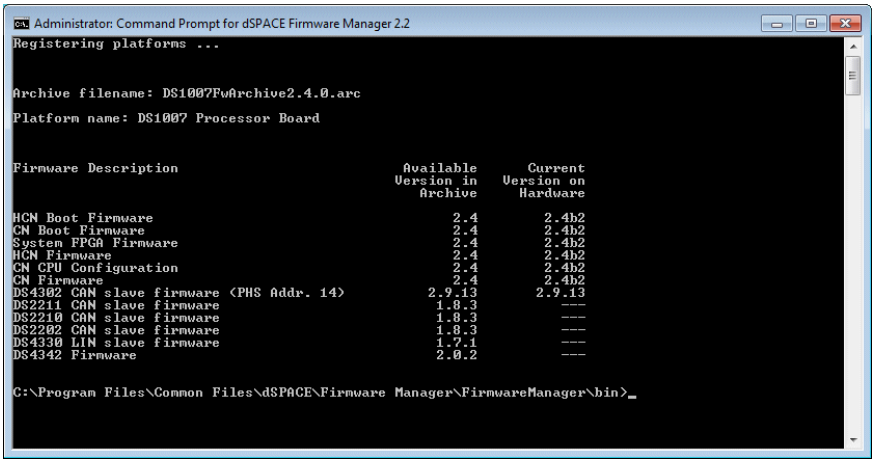
The `FwManagerCmd` utility provides options for information. You can get information on the firmware archives, or on the registered real-time hardware, or on both.

```
FwManagerCmd /view /archive
  # Short form: FwManagerCmd /v /ar
  # Step 1: Lists all platform types supported by latest
  #         installed firmware archives and asks user to
  #         select a platform type
  # Step 2: Lists the firmware components available for
  #         the selected platform type
```

```
FwManagerCmd /view /hardware
  # Short form: FwManagerCmd /v /hw
  # Step 1: (only if more than one platform is registered)
  #          Lists registered platforms and asks user to
  #          select a platform
  # Step 2: Lists the current firmware versions of the
  #         previously selected platform
```

```
FwManagerCmd /view /archive /hardware
  # Short form: FwManagerCmd /v /ar /hw
  # Step 1: (only if more than one platform is registered)
  #          Lists registered platforms and asks user to
  #          select a platform
  # Step 2: Lists the available and current firmware versions
  #         of the previously selected platform
```

Example If you execute `FwManagerCmd /view /archive /hardware` with a modular system (consisting of a DS1007 and a DS4302 board) registered, the result looks like the following output.



The entries marked with '---' shows you that there is no I/O board in your modular system for the related firmware component.

Preconditions

Before you can start a firmware update process via script, the following preconditions must be fulfilled.

- The hardware must be registered in the platform management.
- The hardware must be connected to the host PC.
- The hardware must be switched on.
- If a real-time application is loaded to the board's flash memory, it is recommended to clear the flash before starting the update process to avoid unpredictable output signals.

  If a real-time application is running, it is stopped by the firmware management.
- The required firmware archive must be available.

Updating firmware with default options

The standard use case is to update the firmware of real-time hardware with the default settings.

```
FwManagerCmd
or
FwManagerCmd /update /list
or
FwManagerCmd /u /l
```

If you execute this command, and you have registered more than one real-time hardware system, first a numbered list is displayed for you to select one of them. The latest available firmware archive for the selected hardware is used to update the firmware.

Tip

If you have a multicore system registered, you have to select the processor core that is marked by a '*' in the list to update the entire system, consisting of the base board and the connected I/O boards.

When the update process finishes, an information message is displayed with optional further instructions to complete the update process.

Updating firmware for specific real-time hardware

For automation purposes, you can directly specify the real-time hardware to be updated without selecting it from the list of registered hardware. You can then additionally set the output of the utility to quiet mode to suppress user interaction. Information and error messages are always displayed.

Note

The platform must be registered.

```
FwManagerCmd /update /platform <PlatformName> /silent
or
FwManagerCmd /u /pl <PlatformName> /si
```

If you execute this command, the latest available firmware archive for the specified hardware is used to update the firmware. Messages are displayed during the update process.

To get the platform name you should use the `FwManagerCmd` utility with the `view` option or look in the Platform Manager of, for example, the Firmware Manager or ControlDesk. This also lets you check whether the real-time hardware is already registered.

Example If you execute `FwManagerCmd /update /platform DS1007 /silent`, the registered modular system based on DS1007 is updated without further user interaction. Messages are still displayed.

Updating a SCALEXIO system with multiple processing units

If you update a distributed SCALEXIO system, i.e., a SCALEXIO system with multiple processing units, you have to complete the firmware update via the Firmware Manager by rebooting each connected system. To avoid multiple reboots of a large distributed SCALEXIO system, you can use the `FwManagerCmd` utility in the following way.

Example Open the Register Platforms dialog to get the list of the registered processing units in the SCALEXIO system. For each processing unit, call `FwManagerCmd` with the `silent` option. For example, `FwManagerCmd /update /platform "SCALEXIO Real-Time PC" /silent` updates the processing unit with the name *SCALEXIO Real-Time PC* in silent mode. After you have updated all the processing units, you can reboot the complete system.

Updating specific firmware for real-time hardware

If different firmware archive versions are available on your PC, you can explicitly specify the firmware archive to be used for the update.

You can update the firmware only, if the specified firmware archive contains later firmware versions than installed on your dSPACE real-time hardware.

```
FwManagerCmd /update /arcfile <FileName>
or
FwManagerCmd /u /f <FileName>
```

If you execute this command, and you have registered more than one real-time hardware system, first a numbered list is displayed for you to select one of them. The specified firmware archive for the selected hardware is used to update the firmware.

The firmware archive must suit the selected hardware.

Example If you execute `FwManagerCmd /update /arcfile "C:\Program Files\Common Files\dSPACE\Firmware Archives\2019-B\DS1007FwArchive3.4.1.arc"`, the registered modular system based on the D1007 is updated using the specified firmware archive file. If the firmware archive does not suit the registered platform, an error message is displayed. Only those firmware components are updated, whose firmware versions are earlier than the versions available in the firmware archive.

Repairing corrupted firmware component

If the hardware does not work correctly, it might be necessary, to repair the firmware of a hardware component. With the `repair` option, you can overwrite the firmware already loaded to the hardware component with the same version of the firmware component.

```
FwManagerCmd /repair /select
or
FwManagerCmd /r /se
```

If you execute this command, first a numbered list is displayed for you to select one of the registered real-time hardware systems. A numbered list of the updatable hardware components is then displayed. The repair process starts when you enter a hardware component number.

Repairing corrupted boot firmware

If the hardware has corrupted boot firmware, you have to repair the boot firmware. To access the hardware, you have to specify some hardware properties.

```
FwManagerCmd /restore_bfw /platform_type <PlatformType> /<platform-specific options>
or
FwManagerCmd /rb /pt <PlatformType> /<platform-specific options>
```

If you execute this command, the boot firmware is loaded to the hardware of the specified platform type that is connected to the host PC. To identify the hardware, you have to enter further options, for example, its IP address, port address or serial number.

Example Because the required options depend on the platform type, there are separate examples that show you a correctly configured restore command.

```
# Example for MicroAutoBox II
FwManagerCmd /restore_bfw /platform_type MABX /ip_address 10.1.196.34
or
FwManagerCmd /rb /pt MABX /ip 10.1.196.34
```

```
# Example for DS1104
FwManagerCmd /restore_bfw /platform_type DS1104 /serial_number 374367
or
FwManagerCmd /rb /pt DS1104 /sn 374367
```

Note

If you get the error message `Could not find platform with specified serial number.` when restoring the boot firmware of a DS1104, enter `0` as serial number and execute the command again.

```
# Example for DS1006 used with a slot CPU
# (base address switches set to 4-f-a)
FwManagerCmd /restore_bfw /platform_type DS1006 ^
/ip_address 45.60.203.5 /port_address 0x4fa0
or
FwManagerCmd /rb /pt DS1006 /ip 45.60.203.5 /pa 0x4fa0
```

```
# Example for DS1006 used with bus connection
# (base address switches set to 0-b-d)
FwManagerCmd /restore_bfw /platform_type DS1006 /port_address 0xbd0
or
FwManagerCmd /rb /pt DS1006 /pa 0xbd0
```

Related topics

Basics

Basics on the Command Line Interface 35

Firmware Manager Reference

Introduction

The Firmware Manager provides commands for platform and firmware management.

Where to go from here

Information in this section

Basic Interface

Introduction

The Firmware Manager provides some basic commands.

Where to go from here

Information in this section

About Firmware Manager

Access

You can access this command via:

Ribbon	**File – Help**
Context menu of	None
Shortcut key	None
Icon	None

Purpose

To display information about the Firmware Manager version installed on your system.

Result

Here you can see the Firmware Manager's version number.

Dialog settings

Disclaimer Opens the **Disclaimer** dialog containing general warnings concerning the usage of the Firmware Manager. By default, the **Disclaimer** dialog is displayed, when you start the Firmware Manager. If you clear the **Always show this warning during start-up** option, it is not displayed at the next start-ups.

Related topics

Basics

Introduction 13

Clear Messages

Access

You can access this command via:

Ribbon	None
Context menu of	Message in the **Message Viewer**
Shortcut key	None
Icon	None

Purpose

To remove all entries from the **Message Viewer**.

Result

The Firmware Manager deletes all the entries in the **Message Viewer**.

Related topics

References

Message Viewer 55

Collapse (Messages)

Access

You can access this command via:

Ribbon	None
Context menu of	Message in the **Message Viewer**
Shortcut key	-
Icon	None

Purpose

To collapse all the subelements of the selected message.

Result

The subelements of the selected message are hidden.

Related topics

References

Message Viewer 55

Copy (Messages)

Access

You can access this command via:

Ribbon	None
Context menu of	Message in the: ▪ **Message Viewer** ▪ **dSPACE Log**
Shortcut key	`Ctrl+C`
Icon	None

Purpose

To copy the selected messages in the **Message Viewer/dSPACE Log** to the Clipboard.

Related topics

References

Message Viewer 55
View dSPACE Log 64

dSPACE Help

Access

You can access this command via:

Ribbon	File - Help
Context menu of	None
Shortcut key	F1
Icon	
Others	(at the right side of the ribbon bar)

Purpose

To open dSPACE Help with the start page of the product documentation displayed.

Result

The online help for your product opens.

Description

The start page provides the structure of the user documentation for your product. You can directly navigate to topics or you can use the search edit field on the right upper corner.

Related topics

References

Using dSPACE Help 63

Exit

Access

You can access this command via:

Ribbon	File
Context menu of	None
Shortcut key	Alt+F4
Icon	

Purpose

To exit the current Firmware Manager session.

Result	The Firmware Manager ends the current session.
Description	You can close the current session only if no firmware update is active.
Related topics	Basics Introduction 13

Expand (Messages)

Access

You can access this command via:

Ribbon	None
Context menu of	Message in the **Message Viewer**
Shortcut key	+
Icon	None

Purpose	To expand all the collapsed subelements of the selected message.
Result	The hidden subelements of the selected message are displayed.
Related topics	References Message Viewer 55

Firmware (Pane)

Access	The **Firmware** pane is always visible.
Purpose	To display the selected platform with its updatable hardware components.

Description

If you registered a dSPACE platform and you have selected the first physical board in the platform hierarchy, i.e., for example, a processor board of a modular system or the Processing Unit of a SCALEXIO system, the **Firmware** pane displays the already loaded and the available firmware versions for the platform's updatable hardware components.

Dialog settings

Name Displays the names of the selected platform, its hardware components, and the related firmware components.

Current FW Displays the firmware versions currently loaded to the listed hardware components.

Available FW Displays the firmware versions available in the specified firmware archive.

Update (In firmware update mode) Displays which of the firmware components will be updated.

(In firmware repair mode) Lets you select the firmware components to be repaired. At least one checkbox must be selected to enable the **Repair** button.

Status Displays the status of the firmware update process. If the firmware component does not provide progress information, only the states 50% and 100% are displayed. If the update process finished successfully, the status is set to **OK**.

Buttons and commands of the Firmware pane

The **Firmware** pane provides several buttons and commands.

Selected archive Displays the preselected firmware archive for the selected platform.

Open Firmware Archive Lets you open a **File** dialog to explicitly choose a firmware archive for updating or repairing, refer to Open Firmware Archive on page 67.

Available Archive Versions Displays the installed archive versions of the currently active dSPACE Release with some additional information, such as the installation folder.

Update/Repair Lets you update or repair the selected firmware components. The command depends on the selected update mode, refer to Firmware Update Mode on page 70 and Firmware Repair Mode on page 71.

Related topics

References

Fit All Columns

Access

You can access this command via:

Ribbon	None
Context menu of	Column header of: ▪ Message Viewer ▪ dSPACE Log
Shortcut key	None
Icon	None

Purpose

To optimize the width of all the displayed columns in the Message Viewer or in the dSPACE Log.

Related topics

References

Message Viewer....55
View dSPACE Log....64

Fit Column Width

Access

You can access this command via:

Ribbon	None
Context menu of	Column header of: ▪ Message Viewer ▪ dSPACE Log
Shortcut key	None
Icon	None

Purpose

To resize the selected column to be just a bit larger than the largest column value.

Related topics

References

Message Viewer....55
View dSPACE Log....64

Help (Backstage View)

Access

You can access this ribbon group via:

Ribbon	File
Context menu of	None
Shortcut key	None
Icon	None

Purpose

To provide access to help commands.

Description

You have access to commands such as:

- dSPACE Help on page 50
- Using dSPACE Help on page 63
- New Features and Migration on page 57
- PDF Files on page 57

Related topics

Basics

Basics on Ribbons..... 17

Lock Scrolling

Access

You can access this command via:

Ribbon	None
Context menu of	Message in the: ▪ Message Viewer ▪ dSPACE Log
Shortcut key	None
Icon	None

Purpose

To disable the automatic vertical scrolling mechanism in the Message Viewer or the dSPACE Log.

Description

By default, the Message Viewer and the dSPACE Log automatically scrolls to the latest entry that is displayed.

Related topics

References

Message Viewer....55
View dSPACE Log....64

Message Viewer

Access

You can access this command via:

Menu bar	View – Controlbar – Switch Controlbars - Log
Context menu of	None
Shortcut key	None
Icon	

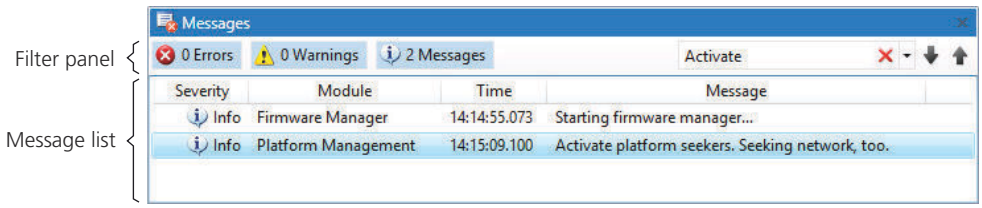
Purpose

To show or hide the Message Viewer.

Description

The Messages pane provides a history of all the info, advice, error and warning messages, and all the questions that occur when you work with the product. This helps you check the system state.

The Message Viewer looks like this:



The Message Viewer provides the following commands via the context menu of a message:

- **Copy** to copy the selected messages to the Clipboard. Refer to Copy (Messages) on page 49.
- **Expand**. Refer to Expand (Messages) on page 51.
- **Collapse**. Refer to Collapse (Messages) on page 49.
- **Show Message** to show the text of a selected message in a separate dialog. Refer to Show Message on page 62.

- **Tree View** to toggle between flat and hierarchy view of the messages in the message list. Refer to Tree View on page 63.
- **Show Filter Panel** to show/hide the filter panel that lets you filter messages and search text in message contents. Refer to Show Filter Panel on page 61.
- **Clear Messages** to remove all entries from the message list. Refer to Clear Messages on page 48.
- **Lock Scrolling** to pause the output of messages and stop the pane from scrolling. Refer to Lock Scrolling on page 54.

You can adapt the message list to your needs by using the following commands from the context menu of the column headers:

- **Fit Column Width** to optimize the width of the selected column. Refer to Fit Column Width on page 53.
- **Fit All Columns** to optimize the width of all displayed columns. Refer to Fit All Columns on page 53.
- **Show Columns** to add/remove a column to/from the message list. Refer to Show Columns on page 59.
- **Reset Columns** to reset the display of message list columns to the default. Refer to Reset Columns on page 59.

Filter panel

If the filter panel is active, it lets you filter the message list and search for text in the message list. Refer to Show Filter Panel on page 61.

Message list

The message list provides the following information for each message:

Information	Description
Date[1)]	The date the message was issued.
Main Module Number[1)] (Main Module)	The main module that issued the message.
Message	The content of the message.
Message Code[1)]	The code of the message.
Module[1)]	The module that issued the message.
Severity	The severity level of the message, indicated by one of the following symbols: ▪ Errors ▪ Warnings ▪ Other messages, i.e., infos, advice, and questions
Submodule Number[1)] (Submodule)	The submodule that issued the message.
Time[1)]	The time the message was issued.

1) You can specify whether this information is displayed via the Show Columns command.

A message can be identified by the combination of message code, main module number and submodule number.

Related topics

References

View dSPACE Log 64

New Features and Migration

Access

You can access this command via:

Ribbon	File – Help
Context menu of	None
Shortcut key	None
Icon	

Purpose

To display new features and required migration steps for all the products in the current dSPACE Release.

Result

dSPACE Help opens with New Features and Migration 🕮 displayed. Navigate to the specific product information to read about the new features of a specific product. If there are migration steps required, the necessary steps are described.

PDF Files

Access

You can access this command via:

Ribbon	File – Help
Context menu of	None
Shortcut key	None
Icon	

Purpose

To open a folder containing documentation PDF files of the current dSPACE Release.

Properties (Pane)

Access

The Properties pane can be opened and closed via:

Menu bar	View – Controlbar – Switch Controlbars
Context menu of	None
Shortcut key	None
Icon	

Purpose

To show or hide the Properties pane.

Description

The Properties pane displays the properties provided by the selected component in the Platforms pane.

Related topics

Basics

Introduction 13

References

Properties (Platform/Device) 82

Reset Columns

Access

You can access this command via:

Ribbon	None
Context menu of	Column header in: ▪ Message Viewer ▪ dSPACE Log
Shortcut key	None
Icon	None

Purpose

To reset the display of message list columns to the default.

Related topics

References

Message Viewer....55
Show Columns....59
View dSPACE Log....64

Show Columns

Access

You can access this command via:

Ribbon	None
Context menu of	Column header of: ▪ Message Viewer ▪ dSPACE Log
Shortcut key	None
Icon	None

Purpose

To add/remove, for example, the following columns to/from the message list of the Message Viewer/dSPACE Log:

- Module
- Time
- Main Module Number
- Submodule Number
- Message Code

For more information on the columns, refer to Message Viewer on page 55 and dSPACE Log (refer to View dSPACE Log on page 64).

Related topics

References

Message Viewer....55
Reset Columns....59
View dSPACE Log....64

Show Details

Access

You can access this command via:

Ribbon	None
Context menu of	Message in the dSPACE Log
Shortcut key	None
Icon	None

Purpose

To show/hide details of a selected message.

Description

If active, the dSPACE Log pane is split horizontally. The bottom pane displays properties of the message selected in the upper pane.

Related topics

References

View dSPACE Log....64

Show Filter Panel

Access

You can access this command via:

Ribbon	None
Context menu of	Message in the: ▪ Message Viewer ▪ dSPACE Log
Shortcut key	None
Icon	None

Purpose

To show or hide the filter panel of the Message Viewer/dSPACE Log.

Filter panel

The filter panel lets you filter the message list and search for text in the message list.

Edit Product Filter (button - only in dSPACE Log) Lets you specify a list of products for filtering the message list.

To apply the product filter, click the Enable/Disable Product Filter button next to the button.

Enable/Disable Product Filter (Products button - only in dSPACE Log) Lets you enable/disable the product filter.

Show/Hide Errors (Errors button) Lets you display or hide errors.

Show/Hide Warnings (Warnings button) Lets you display or hide warnings.

Show/Hide other Messages (Messages button) Lets you display or hide other messages, i.e., infos, advice, and questions.

Search Lets you enter a text string for searching the message list.

You can use the following wildcards in the text string:

- **?** (wildcard for one character)
- ***** (wildcard for any number of characters)

To mask a wildcard, enter the \ character before the wildcard.

To select the next occurrence of the search string, click next to the edit field, or press the **Enter** key while the search field has the focus.

To select the previous occurrence of the search string, click next to the edit field.

Related topics

References

Message Viewer 55
View dSPACE Log 64

Show Message

Access

You can access this command via:

Ribbon	None
Context menu of	Message in the: ▪ Message Viewer ▪ dSPACE Log
Shortcut key	None
Icon	None

Purpose

To show a selected message in a separate dialog.

Tip

You can also double-click a message to show it in a separate dialog.

Related topics

References

Message Viewer....55
Show Details....60
View dSPACE Log....64

Switch Controlbars

Access

You can access this command via:

Ribbon	View - Controlbar
Context menu of	None
Shortcut key	None
Icon	

Purpose

To show or hide panes, for example, the Message Viewer (Messages pane).

Result

The panes are either shown or hidden.

Description

This command opens a submenu showing all optional panes in the Firmware Manager's user interface. The selected panes are shown in the main window. You can also use the Close symbol in the pane's header to hide it.

The Firmware Manager provides the following optional panes:

- Message Viewer on page 55
- Properties (Pane) on page 58

Related topics

Basics

Basics on the Firmware Manager 15

Tree View

Access

You can access this command via:

Ribbon	None
Context menu of	Message in the Message Viewer
Shortcut key	None
Icon	None

Purpose

To toggle between flat and hierarchy views of the messages.

Related topics

References

Message Viewer 55

Using dSPACE Help

Access

You can access this command via:

Ribbon	File – Help
Context menu of	None
Shortcut key	None
Icon	

Purpose

To get information on working with dSPACE Help.

Result

dSPACE Help opens with **Working with dSPACE Help** displayed. It provides information on general handling and instructions on using the search.

Related topics

Basics

Basics on Ribbons..... 17

References

dSPACE Help..... 50

View dSPACE Log

Access

You can access this command via:

Ribbon	▪ View - Show
Context menu of	None
Shortcut key	None
Icon	

Purpose

To display the **dSPACE Log**.

Result

The **dSPACE Log** is shown in a separate pane.

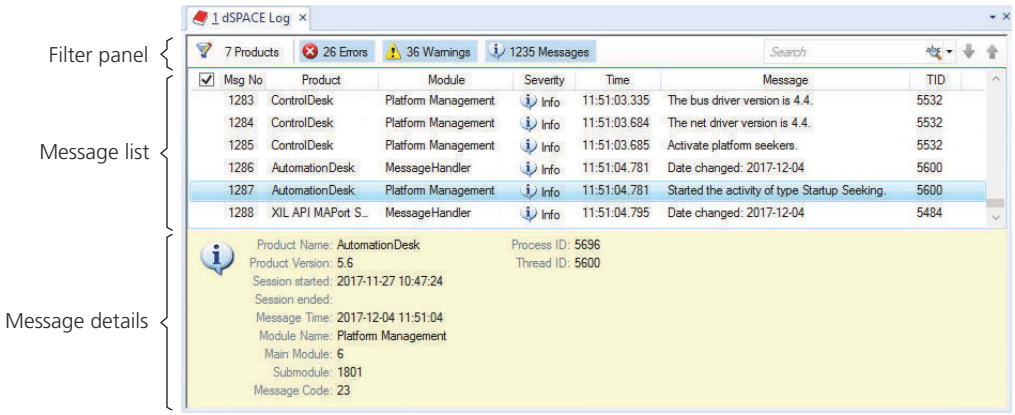
Description

The dSPACE Log is a collection of errors, warnings, information, questions, and advice issued by all dSPACE products and connected systems over more than one session.

In contrast, the **Message Viewer** only shows the errors, warnings, information, and advice issued by the Firmware Manager during the current session.

To get the messages of specific products, you can click on the filter panel to open the product filter.

The dSPACE Log looks like this:



The dSPACE Log provides the following commands via the context menu of a message:

- **Copy** to copy the selected messages to the Clipboard. Refer to Copy (Messages) on page 49.
- **Show Message** to show the text of a selected message in a separate dialog. Refer to Show Message on page 62.
- **Show Filter Panel** to show or hide the filter panel that lets you filter messages and search text in message contents. Refer to Show Filter Panel on page 61.
- **Show Details** to show or hide details of a selected message in a separate pane. Refer to Show Details on page 60.
- **Lock Scrolling** to pause the output of messages and stop the pane from scrolling. Refer to Lock Scrolling on page 54.

You can adapt the message list to your needs by using the following commands from the context menu of the column headers:

- **Fit Column Width** to optimize the width of the selected column. Refer to Fit Column Width on page 53.
- **Fit All Columns** to optimize the width of all displayed columns. Refer to Fit All Columns on page 53.
- **Show Columns** to add or remove a column to/from the message list. Refer to Show Columns on page 59.
- **Reset Columns** to reset the display of message list columns to the default. Refer to Reset Columns on page 59.

Filter panel

If the filter panel is active, it lets you filter the message list and search for text in the message list. Refer to Show Filter Panel on page 61.

Message list

The message list provides the following information for each message:

Information	Description
Show/Hide Messages of Log Sessions	Select this option to expand the messages of all sessions. Clear it to collapse the messages of all sessions. You can expand or collapse the messages of a single session by clicking the corresponding icons (▸/▾) in this column.
Message Number[1] (Msg No)	The consecutive number of the message in the dSPACE Log.
Product[1]	The product that issued the message.
Process ID[1] (PID)	The ID of the process that issued the message.
Severity[1]	The severity level of the message, indicated by one of the following symbols: ▪ Error ▪ Warning ▪ Session start ▪ Other messages, i.e., infos, advice, and questions
Module[1]	The name of the module that issued the message.
Time[1]	The time the message was issued.
Message	The content of the message.
Main Module Number[1] (Main Module)	The number of the main module that issued the message.
Submodule Number[1] (Submodule)	The number of the submodule that issued the message.
Message Code[1]	The code of the message.
Thread ID[1] (TID)	The ID of the thread that issued the message.

[1] You can specify whether this information is displayed via the Show Columns command.

Related topics

References

Message Viewer 55

Firmware Management Commands

Introduction

The Firmware Manager provides commands to handle its user interface and to manage the firmware update process.

Where to go from here

Information in this section

Open Firmware Archive

Access

You can access this command via:

Ribbon	File
Context menu of	None
Shortcut key	None
Icon	

Purpose

To open a firmware archive for a specific platform.

Result

The standard Open dialog opens for you to select the path, folder, file type, and name of the file to be opened.

Description

When you select a registered platform in the Platform Manager, the platform-related firmware archive with the latest firmware archive version is automatically displayed in the **Selected archive** edit field. If not, the firmware archives might not be installed in `C:\Program Files\Common Files\dSPACE\Firmware Archives`.

You therefore have to use the **Open** command only if you want to open a firmware archive from another path or an archive with an earlier version.

If there is no platform selected in the Platform Manager, or the selected firmware archive does not suit to the platform, an error message is displayed.

Dialog settings

File name Displays the name of the selected file.
The **ARC** file type is predefined for filtering.

Open Specifies the selected firmware archive file to be used for updating or repairing.

Related topics

Basics

Updating and Repairing the Firmware of dSPACE Real-Time Hardware..... 29

Recently Used

Access

You can access this command via:

Ribbon	File
Context menu of	None
Shortcut key	None
Icon	None

Purpose

To open a recently used firmware archive.

Result

The firmware archive is opened that you used for the firmware update the last time.

Description

The selected firmware archive must suit to the selected platform, otherwise an error message is displayed.

Dialog settings

None

Related topics

References

Open Firmware Archive.....67

Repair

Access

You can access this command via:

Ribbon	None
Context menu of	None
Shortcut key	None
Icon	None
Others	Button in the **Firmware** pane

Purpose

To reload the same firmware version.

Result

The firmware repair process replaces the currently installed firmware versions of the selected real-time hardware with the same firmware versions.

Description

The **Repair** command is enabled, if the firmware versions available in the selected firmware archive are identical with the versions currently loaded to the hardware, and if at least one firmware component is selected in the **Update** column. Only firmware components with identical versions are displayed.

Before you can use the **Repair** command, you have to switch to the firmware repair mode by using **Firmware Repair Mode** (click  in the **Home - Mode** ribbon group).

If your real-time hardware provides updatable hardware components, you can select the components which you want to repair in the **Firmware** pane. When you start the repair process, the selected firmware components are replaced by the same firmware versions.

Dialog settings

For information on the settings and commands available in the **Firmware** pane, refer to Firmware (Pane) on page 51.

Related topics

Basics

General Information on Firmware Management 13

HowTos

How to Repair Firmware 32

References

Firmware Repair Mode 71
Update 72

Firmware Update Mode

Access

You can access this command via:

Ribbbon	Home - Mode
Context menu of	None
Shortcut key	None
Icon	

Purpose

To switch to the firmware update mode.

Result

The firmware handling process is configured for updating firmware components to a later version.

Description

The firmware update mode is set by default. You have to switch back to it only if you previously switched to the firmware repair mode. In the firmware update mode, you can only load a later firmware version to the selected platform as a whole.

Dialog settings

None

Related topics

Basics

General Information on Firmware Management 13

HowTos

How to Prepare the Firmware Update 29

References

Firmware Repair Mode 71
Update 72

Firmware Repair Mode

Access

You can access this command via:

Ribbon	Home - Mode
Context menu of	None
Shortcut key	None
Icon	

Purpose

To switch to the firmware repair mode.

Result

The firmware handling process is configured for repairing firmware components by loading the same firmware version.

Description

In the firmware repair mode, you can separately select the firmware components that you want to reload on the platform. In this mode, you can select only the firmware archive with the same firmware version currently installed.

Dialog settings

None

Related topics

Basics

General Information on Firmware Management 13

HowTos

How to Prepare the Firmware Update 29

References

Firmware Update Mode 70
Repair 69

Update

Access

You can access this command via:

Ribbon	None
Context menu of	None
Shortcut key	None
Icon	None
Others	Button in the **Firmware** pane

Purpose

To update the firmware components of the selected platform.

Result

The selected platform and all its hardware components are updated to a later firmware version.

Description

The **Update** command is enabled only, if the firmware versions available in the selected firmware archive are later than those already loaded to the hardware.

If you previously switched to the firmware repair mode, you have to switch back to the firmware update mode by using **Firmware Update Mode** (click  in the **Home - Mode** ribbon group) before you can use the **Update** command.

If the selected platform provides hardware components with updatable firmware components, these components are displayed, but you cannot select them. The components that will be updated are displayed in red and cannot be changed. You can start the update process only for the entire hardware system.

Dialog settings

For information on the settings and commands available in the **Firmware** pane, refer to Firmware (Pane) on page 51.

Related topics

Basics

General Information on Firmware Management 13

HowTos

How to Update Firmware 31

References

Firmware (Pane) 51
Firmware Update Mode 70
Repair 69

Platform Management Commands

Introduction

The Firmware Manager provides commands to manage the platform on which you want to update the firmware. The platform management commands are the same as those used in ControlDesk and other tools.

Where to go from here

Information in this section

Clear Flash

Access

The hardware must be connected to the host PC. You can access the command via:

Ribbon	None
Context menu of	**Platform Manager** – platforms
Shortcut key	None
Icon	None

Purpose

To clear the flash memory of the selected multiprocessor platform, in whole or in part.

Note

Relevant for Multiprocessor System platforms: To clear the flash memory of a single processor that belongs to the DS1006-based multiprocessor system, you can alternatively call the Clear Flash Options - Clear Complete Flash Memory or Clear Flash Options - Clear Flash Application command from the context menu of the processor.

Result

The Firmware Manager opens the Clear Flash dialog, which lets you completely or partly clear the flash memory of the selected multiprocessor platform. The real-time processors must be reset for this. If an application is running on the selected platform when the **Clear Flash** dialog opens, you are asked to stop the running RTPs or unload the running applications, respectively.

The dialog displays all connected processing units and/or processor boards that belong to the selected platform and the applications currently loaded to their flash memories. If more than one clearing option is possible for the multiprocessor platform, you can choose the appropriate option. Finally you can select the processing units or processor boards for which the clear flash option is to be applied and start the clearing.

Clear Flash dialog

To completely or partly clear the flash memory of the selected multiprocessor platform.

Clear options Lets you select the clearing option to be applied to the multiprocessor platform. The available clearing options are offered for selection. If only one clearing option is possible, it is selected automatically and you cannot change it.

Processor Board/Processing Unit Displays the processor boards and/or processing units belonging to the multiprocessor system.

Application in Flash Displays for each processor board or processing unit the path of the application that is loaded to the flash memory. If there is no application in the flash memory or after clearing the flash memory, 'No application loaded.' is displayed.

For DS1006 boards of a Multiprocessor System platform, the value 'Currently not available.' might be displayed. This value means that it is not clear whether the application is running on the flash or RAM. The value is set after registering a platform or after the **Refresh Interface Connections** command is executed.

Select Lets you select the individual processor boards or processing units to which the selected clearing option is to be applied.

Clear Lets you execute the selected clearing option for the selected processing units/processor boards.

Related topics

Basics

Introduction 13

Clear System

Access

You can access this command via:

Ribbon	Home – Platform Management
Context menu of	None
Shortcut key	None
Icon	

Purpose

To clear the entire system you are currently working with.

Result

The Firmware Manager clears the system by erasing the recent platform configuration. The Platform Manager and the device drivers are reset to their initial states.

Note

- This command deletes any registered platform from the recent platform configuration and not only the platform you are currently working with.
- Clearing the recent platform configuration is relevant to each dSPACE software installed on your PC that provides platform management.

Tip

Before clearing the system, you can use the **Manage Recent Platform Configuration** dialog, to export the currently active recent platform configuration. Importing this configuration allows you to recover the system after you have cleared it.

Refer to Manage Platforms on page 78.

Related topics

Basics

Introduction 13

References

Refresh Interface Connections 82

Create Support Info

Access

You can access the command via:

Ribbon	**Home – Platform Management**
Context menu of	**Platform Manager**
Shortcut key	None
Icon	

Purpose

To generate an XML file containing textual information on platforms/devices that are currently detected by the **Platform Manager**.

Result

To help dSPACE Support in analyzing an observed problem, the Firmware Manager generates the `SupportInfo.xml` file. The file contains information on all the platforms that are currently detected by the **Platform Manager** and further relevant information on the FirmwareManager. The file is saved automatically, and the path is displayed in a message.

The `SupportInfo.xml` file is overwritten each time you call the **Create Support Info** command.

Related topics

HowTos

How to Collect Diagnostic Information via dSPACE Installation Manager (Providing Diagnostic Information 🕮)

Manage Platforms

Access

You can access this command via:

Ribbon	Home – Platform Management
Context menu of	Platform Manager
Shortcut key	None
Icon	

Purpose

To display and manage the platforms that were registered in your system.

Result

The Firmware Manager opens the Manage Recent Platform Configuration dialog, which lets you manage your recent platform configuration, e.g., you can remove elements from the recent platform configuration. You can import configurations for registered platforms from an XML file or export the recent hardware configuration to an XML file.

Description

When you register a single dSPACE processor or controller board, or a multiprocessor system, the Firmware Manager stores the registration data in the recent platform configuration.

After you close the Manage Recent Platform Configuration dialog, the Firmware Manager may open a dialog prompting you to refresh the interface connections. If so, call the **Refresh Interface Connections** command. Refer to Refresh Interface Connections on page 82.

Manage Recent Platform Configuration dialog

To manage the registered platforms and import or export the configuration of registered platforms.

Recent Platform Configuration Lists the platforms that were registered in your system and whose registration data is stored in the recent platform configuration, and displays some information on the registered platforms.

Commands The following commands are available via buttons and from the menus or context menus:

Command	Access	Description
Activate	▪ Context menu of an inactive platform ▪ Shortcut key: **Alt+A**	Lets you activate the selected inactive platform(s). An active platform is displayed in the **Platform Manager**.
Collapse	Context menu of a platform	Lets you collapse the member items of the platform selected in the platform list.
Deactivate	▪ Context menu of an active platform ▪ Shortcut key: **Alt+D**	Lets you deactivate the selected platform(s). An inactive platform is hidden. It is not displayed in the **Platform Manager**.
Expand	Context menu of a platform	Lets you expand the collapsed elements of the platform selected in the platform list.
Export	▪ Button ▪ **File** menu ▪ Shortcut key: **Alt+E**	Lets you select the XML file you want to export the recent platform configuration to.
Group by Active State	**View** menu	Lets you group the platforms according to their **Active** state.
Group by Platform Type	**View** menu	Lets you group the platforms according to their platform type.
Import	▪ Button ▪ **File** menu ▪ Shortcut key: **Alt+I**	Lets you select the XML file containing the platform configuration you want to import. The currently active platform configuration is replaced by the content of the imported XML file. **Note** You are recommended to import only recent platform configurations that you previously exported.
Refresh	▪ **View** menu ▪ Context menu of a platform ▪ Shortcut key: **F5**	Lets you refresh the visualization of the recent platform configuration in the dialog.
Remove	▪ Button ▪ **Edit** menu ▪ Context menu of a platform ▪ Shortcut key: **Del**	Lets you remove the currently selected platform from the recent hardware configuration. The platform is no longer available as an assignable registered platform and is no longer displayed in the **Platform Manager**. **Note** You are recommended to perform the **Refresh Interface Connections** command after removing a platform that required registration at the device driver.
Remove All	▪ Button ▪ **Edit** menu	Lets you remove all listed platforms from the recent hardware configuration. The platforms are no longer available as assignable

Command	Access	Description
	▪ Shortcut key: **Shift+Del**	registered platforms and are no longer displayed in the Platform Manager. **Note** You are recommended to perform the Refresh Interface Connections command after removing a platform that required registration at the device driver.
Remove Multiprocessor	Context menu of a Multiprocessor System platform	Lets you remove the selected Multiprocessor System platform from the recent hardware configuration. However, all the DS1006 processor boards of the multiprocessor system are converted to single platforms, which are then listed as separate platforms in the platform list.
Select All	▪ Context menu of a platform ▪ Shortcut key: **Ctrl+A**	Lets you select all the items in the platform list.
Sort Alphabetically	View menu	Lets you sort the platform list alphabetically in ascending order by platform names.

Related topics

References

Register Platform 83

Platform Manager

Access

The Platform Manager is one of the Firmware Manager's panes. It is always displayed.

Purpose

To display the hardware components of all hardware systems connected to your host PC and accessible via the Firmware Manager.

Description

The Platform Manager displays all the hardware components which can be accessed via the Firmware Manager. The hardware components are arranged in a hierarchical tree structure. Each node in the tree displays the name of the hardware component it represents. If you select a hardware component in the Platform Manager, you can open a context menu with component-specific commands.

The **Platform Manager** allows you to:

- Stop and unload real-time applications.
- Check the state of a real-time application. Its state is visualized in the **Platform Manager** by symbols.

Symbols

The **Platform Manager** gives access to all the hardware components and subcomponents of the connected platform which can be accessed via the Firmware Manager. It displays each component together with a symbol giving information on the component type.

Symbol	Meaning
	Indicates the host PC.
	Indicates a SCALEXIO rack or system.
	Indicates real-time PC. This element is used to start a firmware update.
	Indicates an I/O unit.
	Indicates a link board, for example, an IOCNET router.
	Indicates an angle unit group.
	Indicates an angle unit.
	Indicates the real-time application.
	Indicates a dSPACE real-time board, for example DS1007. This element is used to start a firmware update.
	Indicates a running real-time application.
	Indicates a stopped real-time application.
	Indicates a terminated real-time application.
	Indicates a signal measurement board, a signal generation board, a bus board, an I/O module, or a bus module.
	Indicates a channel group.
	Indicates a channel.

Related topics

References

Register Platform.....83

Properties (Platform/Device)

Access

This command is available only if a platform is selected. You can access it via:

Ribbon	None
Context menu of	**Platform Manager** – platform
Shortcut key	**Enter**
Toolbar icon	None

Purpose

To view the properties of the selected platform.

Result

The platform properties are displayed in the **Properties** pane. You can also change the properties.

Related topics

Basics

Introduction 13

Refresh Interface Connections

Access

You can access the command via:

Ribbon	**Home – Platform Management**
Context menu of	None
Shortcut key	None
Icon	

Purpose

To refresh the interface connections between the Firmware Manager and the hardware.

Result

The Firmware Manager refreshes the interface connections by resetting the device drivers of the platform connections (via bus interface or Ethernet) and reinitializing the **Platform Manager** with the information from the recent platform configuration. The device drivers for bus connections are always reset, but the device drivers for network connections are reset only if at least one platform using the network connection is registered.

Related topics

Basics

Introduction 13

References

Clear System 76

Refresh Platform Configuration

Access

You can access this command via:

Ribbon	Home - Platform Management
Context menu of	Platform Manager
Shortcut key	None
Icon	

Purpose

To refresh the hardware configuration.

Result

The Firmware Manager scans the recent platform configuration for hardware that is not yet registered and tries to register it. The platform configurations are then refreshed and the view of the structure shown in the **Platform Manager** is updated.

Related topics

Basics

Introduction 13

Register Platform

Access

You can access this command via:

Ribbon	Home - Platform Management
Context menu of	Platform Manager

Shortcut key	None
Icon	

Purpose

To register dSPACE real-time hardware that is supported by the Firmware Manager.

Result

The Firmware Manager recognizes the registered platform.

Description

The registered platform is displayed in the **Platform Manager**. The registration data is stored in the recent platform configuration. The **Platform Manager** can remember the configuration when the Firmware Manager is restarted.

Tip

You do not need to register the DS1104 since it supports the plug & play feature.

Register Platforms dialog

To specify the register settings for a single processor or controller board, a multiprocessor system, or a MicroAutoBox II, and to get information on the platforms registered so far.

Platforms Lets you select the platform type being registered.

Platform properties Lets you view and specify the register settings for the platform. The available properties depend on the selected platform type. For more information, refer to Platform-Related Properties on page 101.

Property	Available for							Description
	DS1006	DS1007	MicroLabBox	MicroAutoBox II[1)]	MicroAutoBox III	Multiprocessor System	SCALEXIO	
Common Properties								
Platform type	✓	✓	✓	✓	✓	✓	✓	Displays the type of the selected platform, for example, DS1006 Processor Board.
Platform name	-	✓	✓	-	✓	✓	✓	Lets you specify an unique name for the selected platform. After registration, the name is displayed in the **Platform Manager**.

Property	Available for							Description
	DS1006	DS1007	MicroLabBox	MicroAutoBox II[1)]	MicroAutoBox III	Multiprocessor System	SCALEXIO	
								The valid characters are "a ... z", "A ... Z", "0 ... 9", "_", "-" and " ". The name must not start or end with an underline, hyphen or blank. If you do not specify a platform name, the default name is displayed in the Platform Manager.
Multiprocessor type	-	-	-	-	-	✓	-	Displays the processor board type the selected Multiprocessor System platform is based on. The value can be "DS1006".
Topology check	-	-	-	-	-	✓	-	Lets you specify if the Firmware Manager checks the topology of the selected DS1006-based multiprocessor system. If enabled, the Firmware Manager checks if all the processor boards of the system are interconnected via Gigalinks. The Firmware Manager does *not* check whether the topology of the connected boards is compatible with the topology required by the real-time application to be loaded to the system, i.e., it does not check whether the correct Gigalink ports of the processor boards are used for interconnection. The topology check is performed: ▪ When the multiprocessor system is connected ▪ When you load an application to the multiprocessor system
Connection Settings Properties								
Connection type	✓	-	-	-	-	✓	-	Lets you specify the connection type of the platform. ▪ Select BUS if the platform is installed in the host PC or in an expansion box and connected to the host PC via a bus interface. ▪ Select NET if the platform is connected to the host PC via Ethernet.
Network client	✓	-	-	✓	-	-	-	(Available for the NET connection type of the DS1006 and MicroAutoBox II) Lets you specify the network client as an alias or IP address.
Port address	✓	-	-	-	-	-	-	Lets you specify the base address of the platform as specified with the DIP switches or the rotary switches on the board.
Connection parameter	-	✓	✓	-	✓	-	✓	Lets you select the connection parameter to specify a platform. You can select one of the following connection parameters: ▪ Alias name Lets you specify the alias name of the connection that is used for assignment. ▪ Board name

Property	Available for							Description
	DS1006	DS1007	MicroLabBox	MicroAutoBox II[1)]	MicroAutoBox III	Multiprocessor System	SCALEXIO	
								Lets you specify the board name used to identify identical hardware. ▪ IP address Lets you specify the network client for assignment. ▪ MAC address Lets you specify the MAC address of the hardware. It is used to identify identical hardware.
Scan for available processor boards	-	✓	-	-	-	-	-	To scan the local network for connected processor boards and select one or more boards to register. This opens the Scan Local Network for Processor Boards dialog.
Scan for available platforms	-	-	✓	-	✓	-	-	To scan the local network for connected platforms and select one or more platforms to register. This opens the Scan Local Network for Platforms dialog.
Scan for available processing units	-	-	-	-	-	-	✓	To scan the local network for connected SCALEXIO processing units to register. This opens the Scan Local Network for Platforms dialog.
Multiprocessor Configuration Properties								
Processors	-	-	-	-	-	✓	-	Lets you specify the number of processors belonging to the multiprocessor system. Click  to add a processor, or click  to delete the selected processor. The type of the board to be added (DS1006) depends on the Multiprocessor type property. **Tip** You should specify the maximum number of processors, since you cannot add members to a multiprocessor system that is already registered.
Processor name	-	-	-	-	-	✓	-	Displays or lets you specify the name of the selected processor board. When you register a multiprocessor system, the Firmware Manager specifies default processor names and board port addresses like this: MASTER, 0x300 (first board), SLAVE, 0x310 (second board), SLAVE_B, 0x320 (third board), SLAVE_C, 0x330 (fourth board), … You should change the processor names according to the variable description to be used with the Multiprocessor System platform.

Property	Available for							Description
	DS1006	DS1007	MicroLabBox	MicroAutoBox II[1)]	MicroAutoBox III	Multiprocessor System	SCALEXIO	
Port address	-	-	-	-	-	✓	-	Lets you specify the base address of the platform as specified with the DIP switches or the rotary switches on the board.
Network client	-	-	-	-	-	✓	-	(Available for the NET connection type of the DS1006) Lets you specify the network client as an alias or IP address.

[1)] The platform type used for MicroAutoBox II is MicroAutoBox.

Note

If you register a DS1006-based multiprocessor system, the connection type and network client are specified for the multiprocessor system, so these settings are valid for all the processor boards belonging to the multiprocessor system. The port addresses are specified individually for the processor boards in the Multiprocessor configuration.

Register Lets you complete the registration. The registered platform is displayed together with the platform properties in the Registered platforms list. The registered platform is also displayed in the Platform Manager.

Registered platforms list Displays all the registered platforms with the following information: platform name, platform type, serial number/identifier, MAC address, network client, and port address.

You can customize the display in the Registered platforms list using the following commands available from the context menu of column headers:

- Best Fit: Lets you optimize the width of the selected column.
- Best Fit (all columns): Lets you optimize the widths of all columns according to the width of the editor or browser.
- Column Chooser: Lets you open a dialog for customizing the columns of the platforms list. To add a column to the list, drag it from the opened dialog to the list header. To remove a column from the list, drag its header to the dialog.
- Sort Ascending: Lets you sort the list alphabetically in ascending order according to the selected column.
- Sort Descending: Lets you sort the list alphabetically in descending order according to the selected column.

Scan Local Network for Processor Boards/Platforms/Processing Units dialog

To scan the local network for connected platforms and select one or more platforms to register.

Type Lets you select the filter item type you want to use to filter the results list. If you select 'None', no filtering is applied.

Value Lets you enter a filter string.

Match whole word Lets you specify to search only for a matching pattern substring.

(Re)scan Lets you start a new scan process. The Firmware Manager scans the subnetwork your host PC is connected to for connected processor boards/platforms matching the specified filter settings, and refreshes the results list.

List of available processor boards/platforms/processing units Displays all the processor boards and platforms that the specified filter found in the network during the scan process. The results list contains the IP address, MAC address, board name, system name and identifier for each processor board, platform, or processing unit that was found.

To select a processor board, platform, or processing unit for registration, click its entry and then press the  button. The selected element is moved to the list of selected processor boards/platforms/processing units, where you can transfer its connection parameter value to the Register Platforms dialog.

Tip

You can multiselect processor boards.

List of selected processor boards/platforms/processing units Displays all the processor boards, platforms, or processing units selected for registration so far. When you click Apply, the listed platform hardware is assigned to the platform you want to register, and the connection parameter value of each list item is transferred to the Register Platforms dialog.

The following buttons are available to move elements from one list to the other:

	Moves the selected element(s) from the Available processor boards/platforms/processing units list to the Selected processor boards/platforms/processing units list.
	Moves the selected element(s) from the Selected processor boards/platforms/processing units list to the Available processor boards/platforms/processing units list.

Apply Lets you confirm the selection of processor board(s), platform(s), or processing unit(s) for registration. When you click this button, the connection parameter value of each element in the Selected processor boards, Selected platforms, or Selected processing units list is stored in the Register Platforms dialog.

Related topics

Basics

Platform Manager 80

Show Connected Clients

Access

You can access this command via:

Ribbon	None
Context menu of	▪ **Platform Manager** – SCALEXIO platform ▪ **Platform Manager** – Processing units of a SCALEXIO platform
Shortcut key	None
Icon	None

Purpose

To display the clients to which the selected SCALEXIO platform or SCALEXIO Processing Unit is connected.

Connected Client Overview dialog

To get details on the clients that are currently connected to the selected SCALEXIO platform or SCALEXIO processing unit.

For each processing unit, the **Connected Client Overview** dialog displays all the client processes that access the unit.

Host Name Displays the host name of the client that is connected to the selected processing unit.

IP Address Displays the IP address of the client that is connected to the selected processing unit.

User Name Displays the user name of the client that is connected to the selected processing unit.

Connection Time Displays the time when the client connection to the selected processing unit was established.

Process Name Displays the name of the client process that accesses the selected processing unit.

Refresh Lets you update the display of the client processes.

Platform-Related Information

Introduction

The platforms supported by the Firmware Manager provide specific properties and commands.

Where to go from here

Information in this section

Platform Descriptions

Introduction

The Firmware Manager supports the following platforms, which provide specific properties and commands.

Where to go from here

Information in this section

DS1006 Processor Board

Introduction

DS1006 Processor Board platform A platform that provides access to a DS1006 Processor Board connected to the host PC for HIL simulation and function prototyping purposes.

Feature overview

For a feature overview of the DS1006 Processor Board, refer to Feature Overview (DS1006 Features 🕮).

Platform properties

The DS1006 Processor Board platform provides the following properties and settings:

Purpose	Refer to
To display details of the selected board.	Board Details Properties on page 102
To specify common properties of the platform.	Common Properties on page 104
To display the connection settings of the selected platform.	Connection Settings Properties on page 106
To display the path of the application loaded to the flash memory of the selected hardware.	Flash Application Path Property on page 108
To display the DS1006 processor boards that form the selected multiprocessor platform, or the DS1007 PPC Processor Boards that constitute the selected DS1007 platform, with their configuration settings.	Member Overview Properties on page 112
To display the memory settings of the selected platform.	Memory Properties on page 114
To display the properties of the selected real-time application currently loaded to the platform.	Real-Time Application Properties on page 115
To display the unique identification number of the selected hardware element.	Serial Number Property on page 116
To display module version information for the selected platform.	Version Properties on page 117

Related commands

The DS1006 Processor Board platform provides the following commands:

Purpose	Refer to
To clear the flash memory of the selected multiprocessor platform, in whole or in part.	Clear Flash on page 75
To collapse the platforms and subnodes of the node selected in the Platform Manager.	Collapse on page 119
To expand the collapsed platforms and subnodes of the node selected in the Platform Manager.	Expand on page 119
To view the properties of the selected platform.	Properties (Platform/Device) on page 82
To stop the application running on the selected platform.	Stop RTP on page 123

Related topics

Basics

Basics on Firmware 19

References

Multiprocessor System 98

DS1007 PPC Processor Board

Introduction

DS1007 PPC Processor Board platform A platform that provides access to a single multicore DS1007 PPC Processor Board or a DS1007 multiprocessor system consisting of two or more DS1007 PPC Processor Boards, connected to the host PC for HIL simulation and function prototyping purposes.

Feature overview

For a feature overview of the DS1007 PPC Processor Board, refer to Feature Overview (DS1007 Features 🕮).

Platform properties

The DS1007 PPC Processor Board platform provides the following properties and settings:

Purpose	Refer to
To display details of the selected board.	Board Details Properties on page 102
To display hardware information on the selected component of the DS1007, MicroAutoBox III, MicroLabBox, or SCALEXIO system.	Board Hardware Properties on page 103
To specify common properties of the platform.	Common Properties on page 104
To display the connection settings of the selected platform.	Connection Settings Properties on page 106
To display information identifying the hardware-related software.	Firmware Version Property on page 106

Purpose	Refer to
To display the path of the application loaded to the flash memory of the selected hardware.	Flash Application Path Property on page 108
To display details on the selected component of the DS1007, MicroAutoBox III, MicroLabBox, or SCALEXIO system for identification purposes.	Identification Properties on page 109
To display information on the MAC address.	MAC Address Property on page 112
To display the DS1006 processor boards that form the selected multiprocessor platform, or the DS1007 PPC Processor Boards that constitute the selected DS1007 platform, with their configuration settings.	Member Overview Properties on page 112
To display the revision number of the board.	Product Version Property on page 114
To display the properties of the selected real-time application currently loaded to the platform.	Real-Time Application Properties on page 115
To display the unique identification number of the selected hardware element.	Serial Number Property on page 116
To display information on the software installed on the selected hardware element.	Software Properties on page 116
To display module version information for the selected platform.	Version Properties on page 117

Related commands

The DS1007 PPC Processor Board platform provides the following commands:

Purpose	Refer to
To clear the flash memory of the selected multiprocessor platform, in whole or in part.	Clear Flash on page 75
To collapse the platforms and subnodes of the node selected in the **Platform Manager**.	Collapse on page 119
To expand the collapsed platforms and subnodes of the node selected in the **Platform Manager**.	Expand on page 119
To view the properties of the selected platform.	Properties (Platform/Device) on page 82
To stop the selected application.	Stop on page 122
To unload the selected application.	Unload on page 124

Related topics

Basics

Basics on Firmware 19

DS1104 R&D Controller Board

Introduction

DS1104 R&D Controller Board platform A platform that provides access to a DS1104 R&D Controller Board installed in the host PC for function prototyping purposes.

Feature overview

For a feature overview of the DS1104 R&D Controller Board, refer to Introduction to the Features of the DS1104 (DS1104 Features 🕮).

Platform properties

The DS1104 R&D Controller Board platform provides the following properties and settings:

Purpose	Refer to
To display details of the selected board.	Board Details Properties on page 102
To specify common properties of the platform.	Common Properties on page 104
To display the connection settings of the selected platform.	Connection Settings Properties on page 106
To display the path of the application loaded to the flash memory of the selected hardware.	Flash Application Path Property on page 108
To display the memory settings of the selected platform.	Memory Properties on page 114
To display the properties of the selected real-time application currently loaded to the platform.	Real-Time Application Properties on page 115
To display the unique identification number of the selected hardware element.	Serial Number Property on page 116
To display module version information for the selected platform.	Version Properties on page 117

Related commands

The DS1104 R&D Controller Board platform provides the following commands:

Purpose	Refer to
To clear the flash memory of the selected multiprocessor platform, in whole or in part.	Clear Flash on page 75
To view the properties of the selected platform.	Properties (Platform/Device) on page 82
To stop the application running on the selected platform.	Stop RTP on page 123

Related topics

Basics

Basics on Firmware 19

DS1202 MicroLabBox

Introduction

DS1202 MicroLabBox platform A platform that provides access to a MicroLabBox connected to the host PC for function prototyping purposes.

Feature overview

For a feature overview of MicroLabBox, refer to Introduction to the Features of MicroLabBox (MicroLabBox Features 🕮).

Platform properties

The DS1202 MicroLabBox platform provides the following properties and settings:

Purpose	Refer to
To display details of the selected board.	Board Details Properties on page 102
To display hardware information on the selected component of the DS1007, MicroAutoBox III, MicroLabBox, or SCALEXIO system.	Board Hardware Properties on page 103
To specify common properties of the platform.	Common Properties on page 104
To display the connection settings of the selected platform.	Connection Settings Properties on page 106
To display information identifying the hardware-related software.	Firmware Version Property on page 106
To display the path of the application loaded to the flash memory of the selected hardware.	Flash Application Path Property on page 108
To display information on the selected FPGA module of the MicroAutoBox II or MicroLabBox or the user-programmable FPGA base board.	FPGA Properties on page 107
To display information on the host interface settings.	Host Interface Properties on page 109
To display details on the selected component of the DS1007, MicroAutoBox III, MicroLabBox, or SCALEXIO system for identification purposes.	Identification Properties on page 109
To display information on the MAC address.	MAC Address Property on page 112
To display the revision number of the board.	Product Version Property on page 114
To display the properties of the selected real-time application currently loaded to the platform.	Real-Time Application Properties on page 115
To display the unique identification number of the selected hardware element.	Serial Number Property on page 116
To display information on the software installed on the selected hardware element.	Software Properties on page 116
To display module version information for the selected platform.	Version Properties on page 117

Related commands

The DS1202 MicroLabBox platform provides the following commands:

Purpose	Refer to
To clear the flash memory of the selected multiprocessor platform, in whole or in part.	Clear Flash on page 75
To collapse the platforms and subnodes of the node selected in the Platform Manager.	Collapse on page 119
To expand the collapsed platforms and subnodes of the node selected in the Platform Manager.	Expand on page 119
To view the properties of the selected platform.	Properties (Platform/Device) on page 82
To stop the selected application.	Stop on page 122
To unload the selected application.	Unload on page 124

Related topics

Basics

Basics on Firmware 19

MicroAutoBox

Introduction

MicroAutoBox platform A platform that provides access to a MicroAutoBox II connected to the host PC for function prototyping purposes such as bypassing.

Feature overview

For a feature overview of MicroAutoBox II, refer to Feature Support (MicroAutoBox II Features 🕮).

Platform properties

The platform provides the following properties and settings:

Purpose	Refer to
To display details of the selected board.	Board Details Properties on page 102
To specify common properties of the platform.	Common Properties on page 104
To display the connection settings of the selected platform.	Connection Settings Properties on page 106
To display the path of the application loaded to the flash memory of the selected hardware.	Flash Application Path Property on page 108
To display information on the selected FPGA module of the MicroAutoBox II or MicroLabBox or the user-programmable FPGA base board.	FPGA Properties on page 107
To display details of the selected I/O board of the MicroAutoBox II.	I/O Board Properties on page 111
To display details of the selected I/O module.	I/O Module Details Properties on page 111
To display the memory settings of the selected platform.	Memory Properties on page 114
To display the properties of the selected real-time application currently loaded to the platform.	Real-Time Application Properties on page 115
To display the unique identification number of the selected hardware element.	Serial Number Property on page 116
To display module version information for the selected platform.	Version Properties on page 117

Related commands

The MicroAutoBox platform provides the following commands:

Purpose	Refer to
To clear the flash memory of the selected multiprocessor platform, in whole or in part.	Clear Flash on page 75
To collapse the platforms and subnodes of the node selected in the Platform Manager.	Collapse on page 119
To save the logged data currently available in a USB mass storage device connected to the platform hardware.	Explore Logged Data on page 120
To expand the collapsed platforms and subnodes of the node selected in the Platform Manager.	Expand on page 119
To view the properties of the selected platform.	Properties (Platform/Device) on page 82
To display the system times of the MicroAutoBox II and the host PC, and to set the system time on the MicroAutoBox II to the system time of the host PC.	Set MicroAutoBox System Time on page 121
To stop the application running on the selected platform.	Stop RTP on page 123

Related topics

Basics

Basics on Firmware 19

References

MicroAutoBox III 97

MicroAutoBox III

Introduction

MicroAutoBox III platform A platform that provides access to a MicroAutoBox III connected to the host PC for function prototyping purposes such as Bypassing.

Feature overview

For a feature overview of MicroAutoBox III, refer to Introduction to the MicroAutoBox III (MicroAutoBox III Hardware Installation and Configuration 🕮).

Platform properties

The platform provides the following properties and settings:

Purpose	Refer to
To display details of the selected board.	Board Details Properties on page 102
To display hardware information on the selected component of the DS1007, MicroAutoBox III, MicroLabBox, or SCALEXIO system.	Board Hardware Properties on page 103
To specify common properties of the platform.	Common Properties on page 104
To display the connection settings of the selected platform.	Connection Settings Properties on page 106
To display information identifying the hardware-related software.	Firmware Version Property on page 106
To display the path of the application loaded to the flash memory of the selected hardware.	Flash Application Path Property on page 108
To display information on the selected FPGA module of the MicroAutoBox II or MicroLabBox or the user-programmable FPGA base board.	FPGA Properties on page 107
To display information on the host interface settings.	Host Interface Properties on page 109
To display details on the selected component of the DS1007, MicroAutoBox III, MicroLabBox, or SCALEXIO system for identification purposes.	Identification Properties on page 109
To display information on the MAC address.	MAC Address Property on page 112
To display the revision number of the board.	Product Version Property on page 114
To display the properties of the selected real-time application currently loaded to the platform.	Real-Time Application Properties on page 115
To display the unique identification number of the selected hardware element.	Serial Number Property on page 116

Purpose	Refer to
To display information on the software installed on the selected hardware element.	Software Properties on page 116
To display module version information for the selected platform.	Version Properties on page 117

Related commands

The MicroAutoBox III platform provides the following commands:

Purpose	Refer to
To clear the flash memory of the selected multiprocessor platform, in whole or in part.	Clear Flash on page 75
To collapse the platforms and subnodes of the node selected in the Platform Manager.	Collapse on page 119
To expand the collapsed platforms and subnodes of the node selected in the Platform Manager.	Expand on page 119
To view the properties of the selected platform.	Properties (Platform/Device) on page 82
To stop the selected application.	Stop on page 122
To unload the selected application.	Unload on page 124

Related topics

Basics

Basics on Firmware 19

References

MicroAutoBox 96

Multiprocessor System

Introduction

Multiprocessor System platform A platform that provides access to:

- A multicore application running on a multicore DS1006 board
- A multiprocessor application on a multiprocessor system consisting of two or more DS1006 processor boards interconnected via Gigalink.

ControlDesk handles a multiprocessor/multicore system as a unit and uses one system description file (SDF file) to load the applications to all the processor boards/cores in the system.

Feature overview

For a feature overview of multiprocessor systems, refer to:

- DS1006 Multiprocessor Systems (DS1006 Features 🕮)

Platform properties

The Multiprocessor System platform provides the following properties and settings:

Purpose	Refer to
To display the DS1006 processor boards that form the selected multiprocessor platform, or the DS1007 PPC Processor Boards that constitute the selected DS1007 platform, with their configuration settings.	Member Overview Properties on page 112
To display the processor boards of the multiprocessor system and their interconnections via Gigalinks.	Topology Information Properties on page 116

Related commands

The Multiprocessor System platform provides the following commands:

Purpose	Refer to
To clear the flash memory of the selected multiprocessor platform, in whole or in part.	Clear Flash on page 75
To collapse the platforms and subnodes of the node selected in the Platform Manager.	Collapse on page 119
To expand the collapsed platforms and subnodes of the node selected in the Platform Manager.	Expand on page 119
To view the properties of the selected platform.	Properties (Platform/Device) on page 82
To stop the applications running on the selected Multiprocessor System platform.	Stop RTPs on page 123

Related topics

Basics

Basics on Firmware 19

SCALEXIO

Introduction

SCALEXIO platform A platform in experiment software such as ControlDesk that provides access to a single-core, multicore or multiprocessor SCALEXIO system connected to the host PC for HIL simulation and function prototyping purposes.

Feature overview

For a feature overview of the SCALEXIO hardware, refer to Standard I/O Boards (SCALEXIO Hardware Installation and Configuration 🕮).

Platform properties

The SCALEXIO platform provides the following properties and settings:

Purpose	Refer to
To display hardware information on the selected component of the DS1007, MicroAutoBox III, MicroLabBox, or SCALEXIO system.	Board Hardware Properties on page 103
To specify common properties of the platform.	Common Properties on page 104
To display the connection settings of the selected platform.	Connection Settings Properties on page 106
To display information identifying the hardware-related software.	Firmware Version Property on page 106
To display the path of the application loaded to the flash memory of the selected hardware.	Flash Application Path Property on page 108
To display information on the selected FPGA module of the MicroAutoBox II or MicroLabBox or the user-programmable FPGA base board.	FPGA Properties on page 107
To display information on the host interface settings.	Host Interface Properties on page 109
To display details on the selected component of the DS1007, MicroAutoBox III, MicroLabBox, or SCALEXIO system for identification purposes.	Identification Properties on page 109
To display information on the MAC address.	MAC Address Property on page 112
To display the revision number of the board.	Product Version Property on page 114
To display the properties of the selected real-time application currently loaded to the platform.	Real-Time Application Properties on page 115
To display the unique identification number of the selected hardware element.	Serial Number Property on page 116
To display information on the software installed on the selected hardware element.	Software Properties on page 116

Related commands

The SCALEXIO platform provides the following commands:

Purpose	Refer to
To clear the flash memory of the selected multiprocessor platform, in whole or in part.	Clear Flash on page 75
To collapse the platforms and subnodes of the node selected in the Platform Manager.	Collapse on page 119
To expand the collapsed platforms and subnodes of the node selected in the Platform Manager.	Expand on page 119
To view the properties of the selected platform.	Properties (Platform/Device) on page 82
To stop the selected application.	Stop on page 122
To unload the selected application.	Unload on page 124

Related topics

Basics

Basics on Firmware 19

Platform-Related Properties

Introduction

To provide specific properties for platforms supported by the Firmware Manager.

Where to go from here

Information in this section

Board Details Properties

Purpose

To display details of the selected board.

Properties

Battery voltage (Availability depends on the platform/device) Displays the voltage of the battery. The limits as set on the board are listed in brackets (n.b. means no border.)

Board temperature (Availability depends on the platform/device) Displays the temperature of the board. The limits as set on the board are listed in brackets (n.b. means no border).

Board version Displays the board version.

Bus frequency (Availability depends on the platform/device) Displays the frequency of the internal bus.

PHS bus address (Availability depends on the platform/device) Displays the PHS bus address of the selected I/O board.

Port address (Availability depends on the platform/device) Displays the base address of the board as specified with the DIP switches or the rotary switches on the board.

Processor frequency Displays the processor clock frequency.

Processor state (Availability depends on the platform/device) Displays the state of the processor.

Processor temperature (Availability depends on the platform/device) Displays the temperature of the processor. The value is updated cyclically.

Processor type Displays the processor type.

Run-time counter (Availability depends on the platform/device) Displays the run-time counter of the board in days, hours and minutes.

Serial number Refer to Serial Number Property on page 116.

Slave processor state Displays the current status of the slave DSP of the selected platform. A status (running, reset) is displayed only if an application is currently loaded on the slave DSP.

Related platforms

These properties are available for the following platforms:

- DS1006 Processor Board on page 91
- DS1007 PPC Processor Board on page 92
- DS1104 R&D Controller Board on page 93
- DS1202 MicroLabBox on page 94
- MicroAutoBox on page 96
- MicroAutoBox III on page 97

Board Hardware Properties

Purpose

To display hardware information on the selected component of the DS1007, MicroAutoBox III, MicroLabBox, or SCALEXIO system.

Properties

Available application cores (Availability depends on the platform/device) Displays the number of processor cores available for real-time applications.

Connector panel (Availability depends on the platform/device) Displays the variant of the connector panel.

CPU (Availability depends on the platform/device) Displays the type of the board's central processing unit (CPU).

Flash (Availability depends on the platform/device) Displays the total size of the flash memory on the board.

Number of cores (Availability depends on the platform/device) Displays the number of processor cores of the hardware.

Processor frequency (Availability depends on the platform/device) Displays the clock frequency of the central processing unit (CPU).

Product version Refer to Product Version Property on page 114.

RAM size (Availability depends on the platform/device) Displays the total size of the board's RAM.

Related platforms

These properties are available for the following platforms:

- DS1007 PPC Processor Board on page 92
- DS1202 MicroLabBox on page 94
- MicroAutoBox III on page 97
- SCALEXIO on page 99

Common Properties

Purpose

To specify common properties of the platform.

Properties

Active variable description Displays the variable description currently active on the selected platform/device.

Board version (Availability depends on the platform/device) Displays the board version of the selected I/O board.

CAN channels (Availability depends on the platform/device) Displays the number of CAN channels available on the selected CAN module.

Configuration check (Availability depends on the platform/device) Displays the result of the DCI-GSI2 configuration consistency check. Configuration consistency is checked automatically when a connection to the DCI-GSI2 is established, if the check is enabled in the `IF_DATA DSPACE_XCP` entry in the A2L file.

Description (Availability depends on the platform/device) Displays a description of the selected board.

ECU image file (Availability depends on the platform/device) Displays the ECU Image file if available.

ECU state (Availability depends on the platform/device) Displays the ECU state.

EPK A2L (Availability depends on the platform/device) Displays the value of the optional EPK attribute of the ECU's A2L file.

EPK ECU (Availability depends on the platform/device) Displays the value of the EPK string of the ECU.

EPK image (Availability depends on the platform/device) Displays the value of the optional EPK attribute of the ECU Image file.

Memory segments (Availability depends on the platform/device) Opens the Memory Segments dialog, which lets you manage the memory segments of the selected device. Refer to Memory Segments (ControlDesk Platform Management 🕮).

Module description (Availability depends on the platform/device) Displays a description of the selected I/O module.

Module type (Availability depends on the platform/device) Displays the type of the selected I/O module.

Module version (Availability depends on the platform/device) Displays the module version of the selected I/O module.

Page concept (Availability depends on the platform/device) Displays the calibration memory pages provided by the ECU. This property value is read from the A2L file.

Platform name Displays the name of the selected platform/device. The name was specified during platform registration.

Platform name in experiment Displays the name of the platform/device in the currently active experiment.

Platform type Displays the type of the selected platform/device.

Processor name (Relevant only for the Multiprocessor System platform) Displays or lets you specify the name of the selected processor board.

When you register a multiprocessor system based on DS1006 boards, the default processor names and board port addresses are specified like this: MASTER, 0x300 (first board), SLAVE, 0x310 (second board), SLAVE_B, 0x320 (third board), SLAVE_C, 0x330 (fourth board), ... You should change the processor names according to the variable description to be used with the Multiprocessor System platform.

Processor name (Relevant only for the DS1007 PPC Processor Board platform) Displays the name of the CPU.

System type (Availability depends on the platform/device) Displays the processor board type the selected Multiprocessor System platform is based on. The value is 'DS1006'.

Related platforms

These properties are available for the following platforms:

- DS1006 Processor Board on page 91
- DS1007 PPC Processor Board on page 92
- DS1104 R&D Controller Board on page 93
- DS1202 MicroLabBox on page 94
- MicroAutoBox on page 96

- MicroAutoBox III on page 97
- SCALEXIO on page 99

Connection Settings Properties

Purpose

To display the connection settings of the selected platform.

Properties

Connection type Displays the connection type of the platform.

MAC address (Availability depends on the platform/device) Displays the MAC address of the selected processor board.

Network client Displays the network client as an alias or IP address.

Related platforms

These properties are available for the following platforms:

- DS1006 Processor Board on page 91
- DS1007 PPC Processor Board on page 92
- DS1104 R&D Controller Board on page 93
- DS1202 MicroLabBox on page 94
- MicroAutoBox on page 96
- MicroAutoBox III on page 97
- SCALEXIO on page 99

Firmware Version Property

Purpose

To display information on the firmware running on the hardware.

Properties

Firmware version Displays the version number of the firmware that is currently installed on the selected hardware.

Related platforms

This property is available for the following platforms:

- DS1007 PPC Processor Board on page 92
- DS1202 MicroLabBox on page 94
- MicroAutoBox III on page 97
- SCALEXIO on page 99

FPGA Properties

Purpose

To display information on the selected FPGA module of the MicroAutoBox II or MicroLabBox or the user-programmable FPGA base board.

Properties

Block RAM size (Availability depends on the platform/device) Displays the size of the block RAM available on the selected FPGA module or the user-programmable FPGA chip.

Default version (Availability depends on the platform/device) Displays the default bitstream version of the user-programmable FPGA. The default bitstream is used internally during the initialization phase.

Device type (Availability depends on the platform/device) Displays the FPGA device type provided by the selected FPGA module or the FPGA chip device type provided by the user-programmable FPGA base board.

DSP slices (Availability depends on the platform/device) Displays the number of DSP slices available on the selected FPGA module or user-programmable FPGA chip.

External RAM size (Availability depends on the platform/device) Displays the size of the external DDR RAM.

FPGA application information (Availability depends on the platform/device) Displays information on the FPGA application.

FPGA firmware version (Availability depends on the platform/device) Displays the version of the FPGA firmware.

FPGA type (Availability depends on the platform/device) Displays the type of the FPGA module.

Logic cells (Availability depends on the platform/device) Displays the number of logic cells available on the selected FPGA module.

Module count (Availability depends on the platform/device) Displays the maximum number of FPGA I/O modules that can be mounted on the FPGA base board.

System Logic cells (Availability depends on the platform/device) Displays the number of logic cells available on the selected FPGA module.

UltraRAM size (Availability depends on the platform/device) Displays the size of the Ultra RAM.

Related platforms

These properties are available for the following platforms:

- DS1202 MicroLabBox on page 94
- MicroAutoBox on page 96

- MicroAutoBox III on page 97
- SCALEXIO on page 99

Related topics

References

Properties (Pane) 58

Flash Application Path Property

Purpose

To display the path of the application loaded to the flash memory of the selected hardware.

Properties

Flash application path Displays the path of the flash application that is loaded to the flash memory of the selected platform, if the platform is in the connected state.

For DS1006 and DS1104 platforms, 'Currently not available.' might be displayed. This is the case if no clear information regarding an application in the flash memory is available. For DS1006 and DS1104 platforms, there is only one property for a loaded application. If there is only an application in the flash memory, the path of the flash application is displayed. But if you loaded an application to the RAM afterwards, the property is overwritten and it is no longer possible to determine whether there is still an undeleted application in the flash memory. 'Currently not available.' is also displayed when you call the **Refresh Interface Connections** command after you clear the flash memoy.

Related platforms

This property is available for the following platforms:

- DS1006 Processor Board on page 91
- DS1007 PPC Processor Board on page 92
- DS1104 R&D Controller Board on page 93
- DS1202 MicroLabBox on page 94
- MicroAutoBox on page 96
- MicroAutoBox III on page 97
- SCALEXIO on page 99

Host Interface Properties

Purpose

To display information on the host interface settings.

Properties

IP address Displays the IP address of the selected hardware element.

IP mode Displays whether the Ethernet network configuration to the host PC is set by a DHCP server or a static network configuration is used.

MAC address Refer to MAC Address Property on page 112.

Subnet mask Displays the subnet mask (network mask) of the DS1007, MicroLabBox, or the SCALEXIO Real-Time PC.

Related platforms

These properties are available for the following platforms:

- DS1007 PPC Processor Board on page 92
- DS1202 MicroLabBox on page 94
- MicroAutoBox III on page 97
- SCALEXIO on page 99

Identification Properties

Purpose

To display details on the selected component of the DS1007, MicroAutoBox III, MicroLabBox, or SCALEXIO system or VEOS simulator for identification purposes.

Properties

Board name (Availability depends on the platform/device) Lets you specify the board name of the selected platform. The board name must match the setting specified in the application to be loaded.

Board type Displays the board type.

DS number (Availability depends on the platform/device) Displays the dSPACE identity number.

Host name (Availability depends on the platform/device) Displays the host name of the PC whose VEOS installation you access.

Installation path (Availability depends on the platform/device) Displays the VEOS installation path on the PC you are accessing.

IP address Displays the IP address of the selected hardware element.

MAC address Refer to MAC Address Property on page 112.

Member of rack (Availability depends on the platform/device) Lets you specify the name of the rack the SCALEXIO Processing Unit belongs to (the rack name must match the setting in the application to be loaded), or displays the rack in which the I/O unit or the DS2907 controller is installed.

If you specify a rack that does not exist yet, a corresponding rack element is created in the assembly view and the selected element is moved to it. If you clear the entry in the **Member of rack** edit field, the assembly view displays the selected element on top level. Racks that do not contain any elements disappear from the assembly view.

Member of unit (Availability depends on the platform/device) Displays the name of the I/O unit the board is inserted into.

Name (Availability depends on the platform/device) Lets you specify or displays the name of the selected hardware element.

Ethernet cards: If you do not specify a name for an Ethernet card, a default name consisting of the MAC address in brackets, followed by 'no name assigned' is used.

PCI/PCIe cards: For a PCI/PCIe card supported by dSPACE, the name cannot be changed.

SCALEXIO racks: Racks are displayed in the assembly view. If a SCALEXIO rack element in the assembly view is selected and you clear its **Name** entry, all its contained elements are displayed at top level in the assembly view.

Port count (Availability depends on the platform/device) Refer to Port Count Property (ControlDesk Platform Management 🕮).

Product version (Availability depends on the platform/device) Displays the product version of the VEOS installation you access.

Serial number Refer to Serial Number Property on page 116.

Slot(s) (Availability depends on the platform/device) Displays the slot number the board is installed in. If the board uses more than one slot, all required slots are listed.

Slot (Relevant only for inter-FPGA connections) Displays the slot number of the base board that is used for the connection.

Solution (Availability depends on the platform/device) Displays the name of the current FPGA I/O solution.

System name (Availability depends on the platform/device) Displays the system name of the SCALEXIO Processing Unit.

Type Displays the type of the selected hardware element.

Type (Relevant only for inter-FPGA connections) Displays the type of connection.

Unit name (Availability depends on the platform/device) Displays the I/O unit the DS2551 IOCNET Router or DS2680 I/O Unit belongs to.

Vendor (Availability depends on the platform/device) Displays the vendor of the transceiver.

Vendor part number (Availability depends on the platform/device) Displays the vendor-specific part number of the transceiver.

Related platforms

These properties are available for the following platforms:

- DS1007 PPC Processor Board on page 92
- DS1202 MicroLabBox on page 94
- MicroAutoBox III on page 97
- SCALEXIO on page 99

I/O Board Properties

Purpose

To display details of the selected I/O board of the MicroAutoBox II.

Properties

I/O board revision Displays the revision of the I/O board of the MicroAutoBox II.

I/O board serial number Displays the serial number of the I/O board of the MicroAutoBox II.

I/O board type Displays the type of the I/O board of the MicroAutoBox II.

Related platforms

These properties are available for the following platforms:

- MicroAutoBox on page 96

I/O Module Details Properties

Purpose

To display details of the selected I/O module.

Properties

Date of adjustment (Availability depends on the platform/device) Displays the date the I/O module was adjusted last.

FPGA version (Availability depends on the platform/device) Displays the FPGA version number of the selected I/O module.

I/O module name Displays the name of the I/O module.

Module interrupts Displays the number of interrupts that are set for this I/O module.

Module position Displays the position of the I/O module to identify modules of the same type.

Module revision Displays the revision of the I/O module of the MicroAutoBox II.

Module speed Displays the speed of the I/O module of the MicroAutoBox II.

Slot number (Availability depends on the platform/device) Displays the number of the COM module or the slot number the selected interface module is connected to.

Related platforms

These properties are available for the following platforms:

- MicroAutoBox on page 96

MAC Address Property

Purpose

To display information on the MAC address.

Properties

MAC address (Availability depends on the platform/device) Displays the MAC address of the selected hardware element.

Related platforms

This property is available for the following platforms:

- DS1007 PPC Processor Board on page 92
- DS1202 MicroLabBox on page 94
- MicroAutoBox III on page 97
- SCALEXIO on page 99

Member Overview Properties

Purpose

To display the DS1006 processor boards that form the selected multiprocessor platform, or the DS1007 PPC Processor Boards that constitute the selected DS1007 platform, with their configuration settings.

Properties

CPU (Availability depends on the platform/device) Displays the CPU of the processor board belonging to the selected DS1007 multiprocessor system.

Name (Availability depends on the platform/device) Displays the names of the DS1006 boards that form the selected multiprocessor system. These are the platform names which are used for the processor boards in the experiment.

Platform name (Availability depends on the platform/device) Displays assignment information for the members of the DS1006-based multiprocessor system. If the member is currently assigned to hardware, the platform name of the assigned processor board is displayed. If the member is currently not assigned, 'unassigned' is displayed.

Port address (Available only for the Multiprocessor System platform and only for the 'Assign to any equal platform' assignment mode) Displays the base address of the board as specified with the DIP switches or rotary switches on the DS1006, or lets you specify the base address of the board. When you register a multiprocessor system, the default processor names and board port addresses are specified like this: MASTER, 0x300 (first board), SLAVE, 0x310 (second board), SLAVE_B, 0x320 (third board), SLAVE_C, 0x330 (fourth board), etc. You should set a port addresses suitable for your real-time hardware.

Processor board (Availability depends on the platform/device) Displays the names of the DS1007 boards that constitute the selected DS1007 multiprocessor system.

Processor name (Relevant only for the Multiprocessor System platform) Displays or lets you specify the name of the selected processor board.

When you register a multiprocessor system based on DS1006 boards, the default processor names and board port addresses are specified like this:

- MASTER, 0x300 (first board)
- SLAVE, 0x310 (second board)
- SLAVE_B, 0x320 (third board)
- SLAVE_C, 0x330 (fourth board)
- ...

You should change the processor names according to the variable description to be used with the Multiprocessor System platform.

Processor name (Relevant only for the DS1007 platform) Displays or lets you specify the name of the selected processor board.

When you register a multiprocessor system based on DS1007 PPC Processor Boards, the default processor names are empty. If you load the real-time application to the DS1007 PPC Processor Board platform, its contained application processes are assigned to the cores of the DS1007 PPC Processor Boards. You can configure the assignment between application processes and the cores by naming the cores according to the CPU names specified in the multiprocessor model underlying the application. In special cases, however, you cannot edit the processor names.

Processor name unavailable (Availability depends on the platform/device) Indicates that no processor name information is available. The selected DS1007

platform represents a DS1007 single-processor system, i.e., only one DS1007 PPC Processor Board was selected during platform registration.

Serial number (For the Multiprocessor System platform available only for the 'Assign to identical platform' assignment mode) Displays or lets you specify the serial number of the board. The number is used to uniquely identify the hardware.

Trace file (Availability depends on the platform/device) Displays the name of the variable description (TRC) file that is currently active for the selected board that belongs to the multiprocessor system.

Related platforms

These properties are available for the following platforms:

- Multiprocessor System on page 98
- DS1007 PPC Processor Board on page 92

Memory Properties

Purpose

To display the memory settings of the selected platform.

Properties

Flash EEPROM size Displays the size of the board's flash memory.

Global RAM size Displays the size of the board's global RAM.

L2 cache size Displays the size of the board's L2 cache.

Local RAM size Displays the size of the board's local RAM.

Related platforms

These properties are available for the following platforms:

- DS1006 Processor Board on page 91
- DS1104 R&D Controller Board on page 93
- MicroAutoBox on page 96

Product Version Property

Purpose

To display the revision number of the board.

Properties

Product version Displays the revision number of the board.

Related platforms

These properties are available for the following platforms:

- DS1007 PPC Processor Board on page 92
- DS1202 MicroLabBox on page 94
- MicroAutoBox III on page 97
- SCALEXIO on page 99

Real-Time Application Properties

Purpose

To display the properties of the selected real-time application currently loaded to the platform.

Properties

Application Displays the name of the real-time application related to the selected application process.

Build date Displays the date and time when the real-time application was built.

Full path Displays the full path to the real-time application file on the PC.

Load date Displays the date and time when the real-time application was loaded.

Name Displays the name of the real-time application loaded to the hardware of the selected platform.

Participants Displays the IP addresses of the hardware components the application processes belonging to the real-time application are loaded to. If the application processes of the real-time application are loaded on several processing units, the IP addresses of these units are displayed in a comma-separated list.

State (Availability depends on the platform/device) Displays the current state of the selected real-time application.

Related platforms

These properties are available for the following platforms:

- DS1006 Processor Board on page 91
- DS1007 PPC Processor Board on page 92
- DS1104 R&D Controller Board on page 93
- DS1202 MicroLabBox on page 94
- MicroAutoBox on page 96
- MicroAutoBox III on page 97
- SCALEXIO on page 99

Serial Number Property

Purpose

To display the unique identification number of the selected hardware element.

Properties

Serial number Displays the serial number of the selected hardware element.

Related platforms

This property is available for the following platforms:

- DS1006 Processor Board on page 91
- DS1007 PPC Processor Board on page 92
- DS1104 R&D Controller Board on page 93
- DS1202 MicroLabBox on page 94
- MicroAutoBox on page 96
- MicroAutoBox III on page 97
- SCALEXIO on page 99

Software Properties

Purpose

To display information on the software installed on the selected hardware element.

Properties

Firmware version Refer to Firmware Version Property on page 106.

Operating system (Availability depends on the platform/device) Displays the operating system that is installed on the selected hardware element.

Related platforms

These properties are available for the following platforms:

- DS1007 PPC Processor Board on page 92
- DS1202 MicroLabBox on page 94
- MicroAutoBox III on page 97
- SCALEXIO on page 99

Topology Information Properties

Purpose

To display the processor boards of the multiprocessor system and their interconnections via Gigalinks.

Properties

Processor Displays the processor names.

Gigalink 0 Displays which member of the multiprocessor system is connected to Gigalink port number 0 of the selected processor board. NC indicates that the port is not used for connection via Gigalinks.

Gigalink 1 Displays which member of the multiprocessor system is connected to Gigalink port number 1 of the selected processor board. NC indicates that the port is not used for connection via Gigalinks.

Gigalink 2 Displays which member of the multiprocessor system is connected to Gigalink port number 2 of the selected processor board. NC indicates that the port is not used for connection via Gigalinks.

Gigalink 3 Displays which member of the multiprocessor system is connected to Gigalink port number 3 of the selected processor board. NC indicates that the port is not used for connection via Gigalinks.

Gigalink topology unavailable (Available only if no topology check has been performed yet) Indicates that currently no Gigalink topology information is available for the multiprocessor system. To get topology information, you must execute a Gigalink topology check. Refer to Check Gigalink Topology (ControlDesk Platform Management 🕮).

Related platforms

These properties are available for the following platforms:

- Multiprocessor System on page 98

Version Properties

Purpose

To display module version information for the selected platform.

Description

Displays the versions of hardware and software modules of the platform hardware. Available only if the platform is in the 'connected' platform/device state.

Properties

FPGA type Displays the FPGA type of the selected hardware.

Piggy-back module version Displays the version of the selected piggy-back module.

Status Displays the software versions and statuses related to the platform.

Version Displays the module versions of the hardware and the software of a DS1006 Processor Board, DS1104 R&D Controller Board, or MicroAutoBox II, the application and the connected periphery boards (I/O modules in the case of MicroAutoBox II).

Related platforms

These properties are available the following platforms:

- DS1006 Processor Board on page 91
- DS1007 PPC Processor Board on page 92
- DS1104 R&D Controller Board on page 93
- DS1202 MicroLabBox on page 94
- MicroAutoBox on page 96
- MicroAutoBox III on page 97

Platform-Related Commands

Introduction

To provide specific commands for platforms supported by the Firmware Manager.

Where to go from here

Information in this section

Unload..... 124
To unload the selected application.

Collapse

Access

You can access this command via:

Ribbon	None
Context menu of	Platform Manager
Shortcut key	None
Icon	None

Purpose

To collapse the platforms and subnodes of the node selected in the Platform Manager.

Result

The Firmware Manager hides the subnodes and platforms of the node selected in the Platform Manager.

Related topics

References

Expand..... 119

Expand

Access

You can access this command via:

Ribbon	None
Context menu of	Platform Manager
Shortcut key	None
Icon	None

Purpose

To expand the collapsed platforms and subnodes of the node selected in the Platform Manager.

Result

The Fimware Manager now displays the hidden subnodes and platforms of the node selected in the **Platform Manager**.

Related topics

References

Collapse..... 119

Explore Logged Data

Access

This command is available only for platforms that support data logging or flight recording.

The following platforms support data logging:

- MicroAutoBox III
- SCALEXIO system based on a DS6001 Processor Board (except for SCALEXIO multiprocessor systems)

The following platforms support flight recording:

- DS1007 PPC Processor Board
- DS1202 MicroLabBox
- MicroAutoBox II

The hardware must be connected to the host PC. You can access the command via:

Ribbon	None
Context menu of	**Platform Manager** – platform
Shortcut key	None
Toolbar icon	None

Purpose

To save the logged data currently available in a USB mass storage device connected to the platform hardware.

Result

The Firmware Manager opens the Logged Data on Mass Storage Device dialog, which displays the connected platform hardware and lists the files which were written to the USB mass storage device during flight recording. The logged data is written in BIN format or MF4 format, depending on the used platform. You can select BIN or MF4 files from the list and upload them to the host PC. Multiple selection is possible by pressing **Ctrl** or **Shift** when clicking a file. The target folder is selected in a standard Windows dialog.

You can also delete obsolete BIN or MF4 files from the USB mass storage device.

Description

The dialog's status bar displays information on the selected file (file type, modification date, and size).

Logged Data on Mass Storage Device dialog

To display the files stored in a USB mass storage device, and to upload BIN or MF4 files to the host PC or delete BIN or MF4 files from the USB mass storage device. In the dialog, you can access the following commands via the context menu:

Upload Lets you upload the selected BIN or MF4 files to the specified target folder on the host PC.

Delete Lets you delete the selected BIN or MF4 files from the USB mass storage device.

Related topics

HowTos

How to Upload Flight Recorder Data Written to a USB Mass Storage Device (ControlDesk Measurement and Recording 🕮)
How to Upload Logged Data (ControlDesk Measurement and Recording 🕮)

Set MicroAutoBox System Time

Access

This command is available only for the MicroAutoBox platform. You can access it via:

Ribbon	None
Context menu of	Platform Manager – MicroAutoBox platform
Shortcut key	None
Toolbar icon	None

Purpose

To display the system times of the MicroAutoBox II and the host PC, and to set the system time on the MicroAutoBox II to the system time of the host PC.

Synchronizing the system times of your MicroAutoBox II and your host PC is useful if you want to use flight recording.

Result

The Set MicroAutoBox System Time dialog opens for you to display the current system times on the MicroAutoBox II and the host PC and to synchronize the system times.

Set MicroAutoBox System Time dialog

To display the current system times of MicroAutoBox II and the host PC, and to set the system time on MicroAutoBox II to the system time on the host PC.

Host PC date and time Displays the date and system time of the host PC.

MicroAutoBox date and time Displays the date and system time of the MicroAutoBox II.

Set Time Lets you set the system time on the MicroAutoBox II to the system time of the host PC.

Related topics

References

MicroAutoBox..... 96

Stop

Access

This command is available only if an application is currently running on one of the following platforms: DS1007, DS1202 MicroLabBox, MicroAutoBox III, and SCALEXIO.

You can access this command via:

Ribbon	None
Context menu of	**Platform Manager** – platform – application
Shortcut key	None
Icon	None

Purpose

To stop the selected application.

Description

The Firmware Manager stops the selected application running on the platform.

The application is not unloaded automatically when it is stopped. If you want to unload it, choose **Unload** from the application's context menu.

Related topics

Basics

Introduction..... 13

Stop RTP

Access

This command is available only for the following platforms: DS1006, DS1104, and MicroAutoBox. You can access this command via:

Ribbon	None
Context menu of	**Platform Manager** – platform
Shortcut key	None
Icon	None

Purpose

To stop the application running on the selected platform.

Description

The Firmware Manager stops the real-time application on the currently selected platform.

Related topics

Basics

Updating and Repairing the Firmware of dSPACE Real-Time Hardware..... 29

Stop RTPs

Access

This command is available only for the Multiprocessor System platform. You can access this command via:

Ribbon	None
Context menu of	**Platform Manager** – platform
Shortcut key	None
Icon	None

Purpose

To stop the applications running on the selected Multiprocessor System platform.

Description

The Firmware Manager stops the real-time applications on the currently selected Multiprocessor System platform.

Related topics

Basics

Introduction 13

Unload

Access

This command is available only for the following platforms: DS1007, DS1202 MicroLabBox, MicroAutoBox III, and SCALEXIO. An application must be loaded. You can access this command via:

Ribbon	None
Context menu of	**Platform Manager** – platform – application
Shortcut key	None
Icon	

Purpose

To unload the selected application.

Description

The Firmware Manager unloads the application from the memory of the selected platform.

Related topics

Basics

Introduction 13

Appendix

Where to go from here

Information in this section

Introduction to the Message Reader API

Where to go from here

Information in this section

Reading dSPACE Log Messages via the Message Reader API

Introduction

You can read log messages of the dSPACE Log via the Message Reader API.

dSPACE Log

The dSPACE Log is a collection of errors, warnings, information, questions, and advice issued by all dSPACE products and connected systems over more than one session.

The dSPACE Log is saved as a collection of binary message log files. These files are created when a dSPACE product is running. A single run of a dSPACE product is called a *log session*.

Note

If the maximum file size for the binary message log file is reached, messages at the beginning of the dSPACE Log might get deleted. Contact dSPACE Support to solve this.

Message Reader API

You can use the Message Reader API to access all binary message log files of the dSPACE Log. You can combine multiple filters to display only log messages according to your specifications. For example, you can configure the Message Reader API to display only log messages from a specific dSPACE product.

The Message Reader API is available as of dSPACE Release 2020-A. For information on the dSPACE products and components that support the Message Reader API, refer to Supported dSPACE Products and Components on page 128.

dSPACE.Common.MessageReader.dll The Message Reader API is implemented by the `dSPACE.Common.MessageReader.dll` file. It is located in the `bin` subfolder of the installation folder of each dSPACE product that supports the Message Reader API.

Supported dSPACE Releases

The Message Reader API lets you access log messages written by dSPACE products since dSPACE Release 2016-B.

Message Reader API change in dSPACE Release 2021-A

There is a migration issue specific to the Message Reader API. The issue occurs if you use the API with Python. The issue was caused by the migration to Python 3.9/pythonnet 2.5.3 with dSPACE Release 2021-A.

There is no migration issue to consider if you use the API with C#.

Specifying a product filter As of dSPACE Release 2021-A, the `Products` property of the `MessageReaderSettings` class can no longer be used to set the list of products for which to filter in the log sessions. The Message Reader API provides the `SetProducts` method for this purpose.

The following table shows how to specify a product filter before and after migration:

Using Message Reader API of ...	
... dSPACE Release 2020-B and Earlier (Python 3.6)	**... dSPACE Release 2021-A and Later (Python 3.9)**

`# Specify products whose messages to read:`
`Settings = MessageReaderSettings()`
`Settings.Products.Add('ControlDesk')`
`Settings.Products.Add('AutomationDesk')`
	`# Specify products whose messages to read:`
	`Settings = MessageReaderSettings()`
	`Settings.SetProducts(['ControlDesk', 'AutomationDesk'])`

Related topics

Basics

Supported dSPACE Products and Components 128

Examples

Example of Reading Messages with C# 130
Example of Reading Messages with Python 128

References

MessageReaderSettings Class 137

Supported dSPACE Products and Components

Supported dSPACE products and components

You can use the Message Reader API to access messages from the following dSPACE products and components:

- ASM KnC
- AutomationDesk
- Bus Manager (stand-alone)
- cmdloader
- ConfigurationDesk
- Container Management
- ControlDesk
- dSPACE AUTOSAR Compare
- dSPACE XIL API .NET Implementation
- Firmware Manager
- ModelDesk
- MotionDesk
- Real-Time Testing
- RTI Bypass Blockset
- SYNECT client
- SystemDesk
- TargetLink Property Manager
- VEOS

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Example of Reading Messages with Python

Introduction

You can read the log messages via Python by using the `clr` module. You can combine multiple filters to display only messages according to your specifications.

Referencing a message reader assembly

You have to reference a `dSPACE.Common.MessageReader.dll` assembly. For information on the location of the assembly, refer to dSPACE.Common.MessageReader.dll on page 127.

In the following examples it is assumed that the dSPACE Installation Manager is installed and that the message reader assembly is installed in `C:\Program Files\Common Files\dSPACE\InstallationManager\bin`.

The following code references and imports the message reader assembly.

```
# Insert path of message log file access assembly:
import sys
AssemblyPath = r'C:\Program Files\Common Files\dSPACE\InstallationManager\bin'
if not sys.path.count(AssemblyPath):
    sys.path.insert(1, AssemblyPath)

# Add reference to assembly and import it:
import clr
clr.AddReference('dSPACE.Common.MessageReader')
from dSPACE.Common.MessageHandler.Logging import *
```

Reading all messages

The following example reads all existing message log files and prints all messages via Python. It is assumed that the message reader assembly is referenced and imported. Refer to Referencing a message reader assembly on page 128.

```
# Create message reader and print text of each message:
Reader = MessageReader(None)
for Message in Reader.ReadMessages():
    print(Message.MessageText)
Reader.Dispose()
```

Filtering messages by severity, product, and session

The following example reads and prints messages with a severity of `Error`, `SevereError`, or `SystemError`. Also, only messages of the last sessions of ControlDesk and AutomationDesk are read and printed. It is assumed that the message reader assembly is referenced and imported. Refer to Referencing a message reader assembly on page 128.

```
# Define error severities:
SEVERITY_ERROR = 3
SEVERITY_SEVERE_ERROR = 4
SEVERITY_SYSTEM_ERROR = 5

# Configure products and sessions whose messages to read:
Settings = MessageReaderSettings()
Settings.MaximalSessionCount = 1
Settings.SetProducts(['ControlDesk', 'AutomationDesk'])

# Create message reader and print text of each error message:
Reader = MessageReader(Settings)
for Message in Reader.ReadMessages():
    # Print error messages only:
    if Message.Severity == SEVERITY_ERROR or \
       Message.Severity == SEVERITY_SEVERE_ERROR or \
       Message.Severity == SEVERITY_SYSTEM_ERROR:
        print('%s: %s' % (Message.Session.ProductName, Message.MessageText))
Reader.Dispose()
```

Note

The ReadMessages method returns an enumerator which must either read all messages or must be disposed when no longer used. It is not possible to use two enumerators interleaved, only one enumerator may read messages at a time. Refer to MessageReader Class on page 136.

Filtering messages by time

Times are given by .NET DateTime objects. Times are given as UTC times (Coordinated Universal Time). You can obtain the current UTC time by `System.DateTime.UtcNow`.

The following example reads all messages after a certain start time. It is assumed that the message reader assembly is referenced and imported. Refer to Referencing a message reader assembly on page 128.

```
import System
Settings = MessageReaderSettings()
Settings.MessageTimeAfter = System.DateTime.UtcNow # Read messages after now

# Create message reader and print time and text of each message:
Reader = MessageReader(Settings)
for Message in Reader.ReadMessages():
    print('%s: %s' % (Message.UtcTimeStamp, Message.MessageText))
Reader.Dispose()
```

Related topics

Basics

References

Example of Reading Messages with C#

Introduction

You can read the log messages via C#. You can combine multiple filters to display only messages according to your specifications.

Referencing a message reader assembly

You have to reference a `dSPACE.Common.MessageReader.dll` assembly. For information on the location of the assembly, refer to dSPACE.Common.MessageReader.dll on page 127.

Reading all messages

The following example reads all existing message log files and prints the messages:

```
using dSPACE.Common.MessageHandler.Logging;
...

// Create message reader and print text of each message:
using (MessageReader reader = new MessageReader(null))
{
    foreach (message in reader.ReadMessages())
    {
        Console.WriteLine(message.MessageText);
    }
}
```

Filtering messages by severity, product, and session

The following example reads and prints messages with a severity of `Error`, `SevereError`, or `SystemError`. Also, only messages of the last sessions of ControlDesk and AutomationDesk are read and printed.

```
using dSPACE.Common.MessageHandler.Logging;
...

// Read the last log sessions of ControlDesk and AutomationDesk only:
MessageReaderSettings settings = new MessageReaderSettings();
settings.MaximalSessionCount = 1;
settings.Products.Add("ControlDesk");
settings.Products.Add("AutomationDesk");

using (MessageReader reader = new MessageReader(settings))
{
    foreach (ILogMessage message in reader.ReadMessages())
    {
        // Print error messages only:
        if (message.Severity == Severity.Error
            || message.Severity == Severity.SevereError
            || message.Severity == Severity.SystemError)
        {
            Console.WriteLine(message.Session.ProductName + ": " + message.MessageText);
        }
    }
}
```

Note

The ReadMessages method returns an enumerator which must either read all messages or must be disposed when no longer used. It is not possible to use two enumerators interleaved, only one enumerator may read messages at a time. Refer to MessageReader Class on page 136.

Related topics

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References

dSPACE.Common.MessageHandler.Logging Reference

Where to go from here

Information in this section

ILogMessage Interface

Namespace

`dSPACE.Common.MessageHandler.Logging`

Description

To access information about a message as written to a log file.

Properties

The element has the following properties:

Name	Description	Get/Set	Type
IsStartMessage	Gets a value indicating whether the message is a session start message.	Get	*Boolean*
IsStopMessage	Gets a value indicating whether the message is a session stop message.	Get	*Boolean*
MainModuleNumber	Gets the main module number of the message.	Get	*Integer*
MessageCode	Gets the error code of the message.	Get	*Integer*
MessageText	Gets the text of the message.	Get	*String*
ModuleName	Gets the module name of the message.	Get	*String*
Session	Gets the log session which issued the message.	Get	ILogSession (refer to ILogSession Interface on page 134)
Severity	Gets the severity of the message.	Get	Severity (refer to Severity Enumeration on page 139)

Name	Description	Get/Set	Type
SubmoduleNumber	Gets the submodule number of the message.	Get	*Integer*
ThreadId	Gets the thread ID of the submitting thread.	Get	*Integer*
TimeStamp	Gets the time when the message was submitted. Given as local time in the time zone of the session.	Get	*DateTime*
UtcTimeStamp	Gets the time when the message was submitted in UTC time.	Get	*DateTime*

Methods

The element has no methods.

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ILogSession Interface..... 134
Severity Enumeration..... 139

ILogSession Interface

Namespace

`dSPACE.Common.MessageHandler.Logging`

Description

To access information about a message log session.

Properties

The element has the following properties:

Name	Description	Get/Set	Type
CloseTime	Gets the time when the session was closed. Returns an undefined time (0, DateTimeKind.Unspecified) if the session is still open or was not closed successfully. Given as local time in the time zone of the session.	Get	*DateTime*

Name	Description	Get/Set	Type
IsOpen	Gets a value indicating whether the session is still open. If true, the session is still open and new messages can be written.	Get	*Boolean*
IsValid	Gets a value indicating whether the session is valid. A session can become invalid if its log files are corrupted.	Get	*Boolean*
MetaData	Gets the products metadata as read from log file session info.	Get	*Dictionary< String, String >*
ProcessId	Gets the process ID of the log session.	Get	*Integer*
ProductName	Gets the product name of the log session.	Get	*String*
SessionId	Gets the ID of the log session. This ID is unique in the context of its session reader.	Get	*Integer*
StartTime	Gets the sessions start time. Given as local time in the time zone of the session.	Get	*DateTime*
TimezoneName	Gets the standard time zone name of the session.	Get	*String*
TimezoneOffset	Gets the time zone offset of the session relative to UTC.	Get	*TimeSpan*
UtcCloseTime	Gets the time when the session was closed as UTC time. Returns an undefined time (0, DateTimeKind.Unspecified) if the session is still open or was not closed successfully.	Get	*DateTime*
UtcStartTime	Gets the start time of the log session as UTC time.	Get	*DateTime*

Methods

The element has the following methods:

Name	Description	Parameter[1)]	Returns
ToSessionTime	Converts UTC time to time zone used when the session was written.	▪ <*DateTime*> `utcTime`: Specifies the UTC time to convert.	Time in the time zone of the logging session. ▪ DateTime

1) <Type> `Name`: Description

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MessageReader Class

Description

To read serialized messages written by dSPACE products.

Constructor

The element has the following constructor:

Name	Description	Parameter[1]	Returns
MessageReader	Initializes a new instance of the MessageReader class.	▪ <MessageReaderSettings>[2] `settings`: Settings which allow to specify which sessions and messages are read. Can be null, causing all existing log files to be read.	None

1) <Type> `Name`: Description
2) Refer to MessageReaderSettings Class on page 137

Properties

The element has no properties.

Methods

The element has the following methods:

Name	Description	Parameter[1]	Returns
Dispose	Performs application-specific tasks associated with freeing, releasing, or resetting unmanaged resources.	None	None

Name	Description	Parameter[1)]	Returns
ReadMessages	Reads the messages written to the log files of the sessions up to now. The messages are returned in chronological order according to their time stamps. **Note** The ReadMessages method returns an enumerator which must either read all messages or must be disposed when no longer used. It is not possible to use two enumerators interleaved, only one enumerator may read messages at a time.	None	Messages read from log file. ▪ IEnumerable< ILogMessage (refer to ILogMessage Interface on page 133) >

1) <Type> `Name`: Description

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References

MessageReaderSettings Class 137

MessageReaderSettings Class

Description

To define the settings of a message reader.

Used to filter the log sessions and messages read.

Constructor The element has the following constructor:

Name	Description	Parameter[1)]	Returns
MessageReaderSettings	Initializes a new instance of the MessageReaderSettings class.	None	None

1) <Type> `Name`: Description

Properties The element has the following properties:

Name	Description	Get/Set	Type
DirectoryNames	Gets a list of specific directory names from which to read log files. If the list is empty, all standard directories are searched for log files.	Get	*List< String >*
MaximalSessionCount	Gets or sets the maximal number of log sessions read for each product. If the count is a positive number n, only the last n sessions are read. If the count is not positive, an unlimited number of sessions is read. The default value is zero, i.e., unlimited.	Get/Set	*Integer*
MessageTimeAfter	Gets or sets the minimal time for which messages are read, given as UTC time. Only messages submitted after the message time are read. The message time may be in the past. The message time must be given as valid UTC time. The default time is undefined, i.e., each message time is allowed.	Get/Set	*DateTime*
Products	Gets the list of product names for which to read log sessions. If the list is empty sessions of all products are read.	Get	*List< String >*
StartTimeAfter	Gets or sets the minimal start time for which sessions are read, given as UTC time. Only sessions which started after the start time are read. The start time may be in the past. The start time must be given as valid UTC time. The default time is undefined, i.e., each start time is allowed.	Get/Set	*DateTime*

Methods

The element has the following methods:

Name	Description	Parameter[1)]	Returns
SetDirectoryNames	Sets the list of specific directory names from which to read log files. You do not have to specify a list. If the list is empty, all standard directories are searched for log files.	*<string[]>* `names`: Array of directory names.	None
SetProducts	Sets the list of product names for which to read log sessions.	*<string[]>* `products`: Array of product names.	None

1) <Type> `Name`: Description

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Severity Enumeration

Description

To specify the severity of a message.

Enumeration values

The enumeration has the following values:

Value	Name	Description
0	Trace	A trace message. Trace messages are usually not created. It depends on the host application if it is possible to configure the message handler to create trace messages.
1	Info	An information message.
2	Warning	A warning message.
3	Error	An error message.
4	SevereError	A severe error message.
5	SystemError	A system error message.
6	Question	A question message.
7	Advice	An advice message.

Related topics

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Examples