ConfigurationDesk for RapidPro

Guide

For ConfigurationDesk 6.7

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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.
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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 Guide

ConfigurationDesk for RapidPro

ConfigurationDesk for RapidPro lets you conveniently configure the signal conditioning (SC) modules and power stages (PS) modules of dSPACE's RapidPro hardware.

Contents

This guide introduces you to ConfigurationDesk for RapidPro and shows you how to use it:

- Configuring RapidPro hardware, that is, units, modules, and their channels used for signal input/output.
- Monitoring RapidPro hardware, for example, to measure the temperature of modules and the input/output voltage of channels.
- Exporting data that is required by other applications (RTI RapidPro Control Unit Blockset) and users (pinout information to build a cable harness).
- Setting up projects and applications which hold all the hardware data that is relevant to configuring RapidPro hardware.

Target group

This guide is primarily targeted at engineers who configure the signal conditioning and power stages for sensors and actuators.

- The target audience performs some or all of the following tasks:
  - Configure signal conditioning modules and power stages modules
  - Give instructions on installing, wiring, and connecting sensors and actuators
- The target audience must have the following knowledge:
  - Familiar with the basics of RapidPro hardware
  - Know all about the sensors and actuators used
  - Familiar with Windows(TM) applications

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

General Warnings on Using dSPACE Products

Using ConfigurationDesk for RapidPro

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

⚠ WARNING

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

Using the ConfigurationDesk for RapidPro software can have a direct effect on dSPACE systems and technical (electrical, hydraulic, mechanical) systems connected to them.

- **Only persons who are qualified to use dSPACE software, and who have been informed of the above dangers and possible consequences, are permitted to use it.**
- All applications where malfunctions or misoperation involve the danger of injury or death must be examined for potential hazards by the user, who must if necessary take additional measures for protection (for example, an emergency off switch).

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.

Data loss during operating system shutdown

The shutdown procedure of Microsoft Windows operating systems causes some required processes to be aborted although they are still being used by dSPACE software. To avoid data loss, the dSPACE software must be terminated manually before a PC shutdown is performed.

Introduction to ConfigurationDesk for RapidPro

Objective

ConfigurationDesk for RapidPro lets you conveniently configure the signal conditioning and power stage modules of RapidPro hardware.

Where to go from here

Information in this section

Features of ConfigurationDesk for RapidPro

Feature overview

ConfigurationDesk for RapidPro provides a bundle of features that are helpful in RapidPro hardware configuration:

Feature	Description
Configuring RapidPro hardware	Configuration of RapidPro units, modules, and their channels. Configuration is possible with and without connected hardware.
Diagnostics handling	Diagnostic messages about the connection of sensors and actuators are provided, such as overcurrent, short circuit, open load, overheat, and over- and undervoltage. This makes it easy to detect and locate failures.
Hot plugging the RapidPro hardware	Hardware can be connected and disconnected during run time. Connecting RapidPro hardware starts an automatic hardware scan, which detects the connected hardware. It is immediately displayed in the Platform Manager.

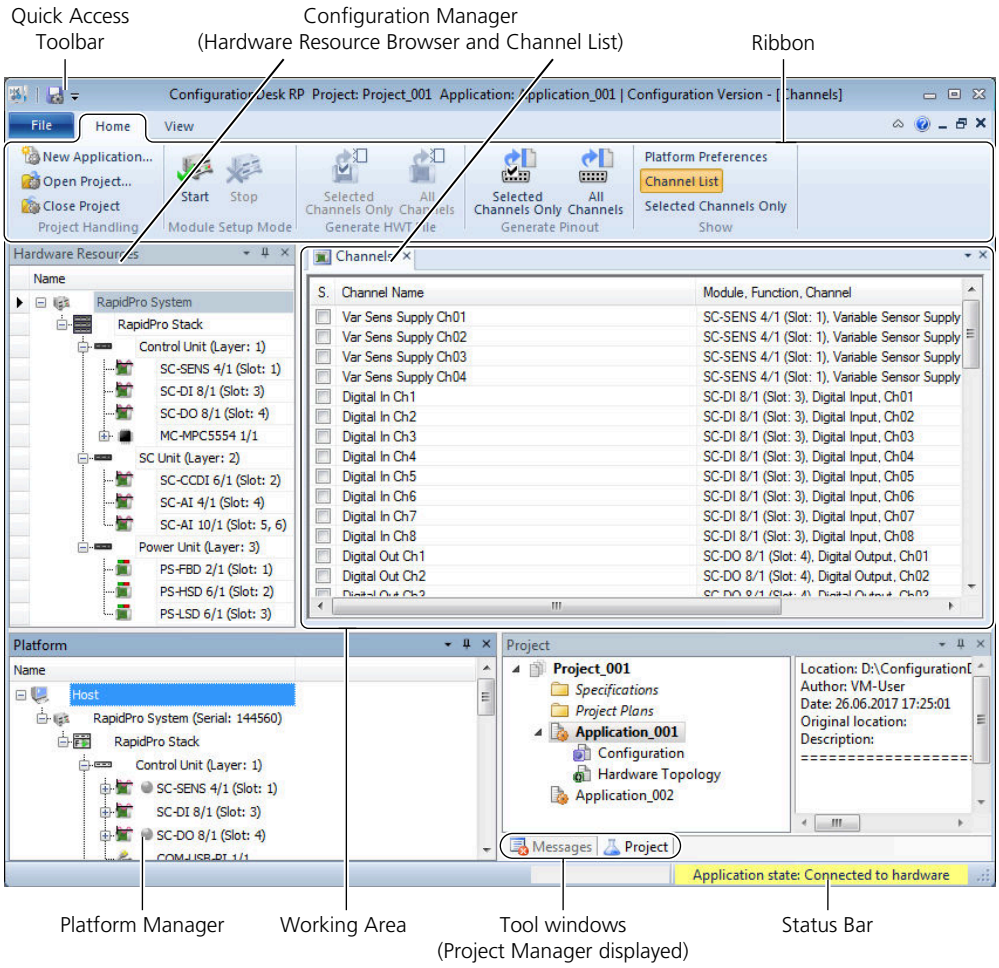
Feature	Description
Hardware identification	ConfigurationDesk's Platform Manager gives you detailed information on the hardware topology (including the hardware TopologyID), and the SC and PS modules used, for example, their serial numbers.
Project management	ConfigurationDesk's Project Manager allows you to organize all the relevant project information, such as configurations and application-specific data.
Monitoring signal and system values	Monitoring ▪ Signal values (logical states, input/output voltage) support you in connecting sensors and actuators to the RapidPro hardware when the system is put into operation. ▪ System values (internal voltages, temperatures) are for troubleshooting purposes.
Data export	You can export: ▪ HWT files for introducing the RapidPro hardware to the RTI RapidPro Control Unit Blockset. ▪ Pinout information needed for building a cable harness.

User Interface of ConfigurationDesk for RapidPro

Overview of the user interface

ConfigurationDesk for RapidPro is a stand-alone Windows(TM) application that is intuitive and efficient to use. The user interface consists of the following parts:

- Quick Access toolbar
- Ribbon
- Hardware Resource Browser (that belongs to the Configuration Manager)
- Working area (with Start page and Channels List that belongs to the Configuration Manager)
- Platform Manager
- Tool windows
- Status bar



Quick Access toolbar

The Quick Access toolbar is an easy way to call commands. You can customize it to contain the commands you use most frequently.

Ribbon

The ribbon organizes, groups and labels commands of ConfigurationDesk for RapidPro.

Configuration Manager

The Configuration Manager consists of the Hardware Resource Browser (left) and the Channel List (in the working area):

- The Hardware Resource Browser displays the hardware topology (units and modules) of your active application. You can access all unit-, module- and channel-related data via the Hardware Resource Browser. For details on the Hardware Resource Browser, refer to Hardware Resource Browser (ConfigurationDesk for RapidPro User Interface Reference 🕮).

- The Channel List displays the input and output channels of the modules. You can access all module-, and channel-related data via the Channel List. For details, refer to Channel List (ConfigurationDesk for RapidPro User Interface Reference 🕮).

Platform Manager

The Platform Manager displays the hardware components (stack, units, modules, and channels) of one RapidPro system connected to your host PC. How many hardware components are displayed in ConfigurationDesk for RapidPro depends on your use case. Each hardware component in the Platform Manager offers you component-specific commands. For details on the Platform Manager, refer to Platform Manager (ConfigurationDesk for RapidPro User Interface Reference 🕮).

Tool windows

By default, ConfigurationDesk's user interface contains the following tool windows below the Channel List:

- The Project Manager displays your project data.
- The *Message Viewer* displays all system messages in chronological order, for example, diagnostic messages. It lets you search for messages and filters the messages to be displayed.

Status bar

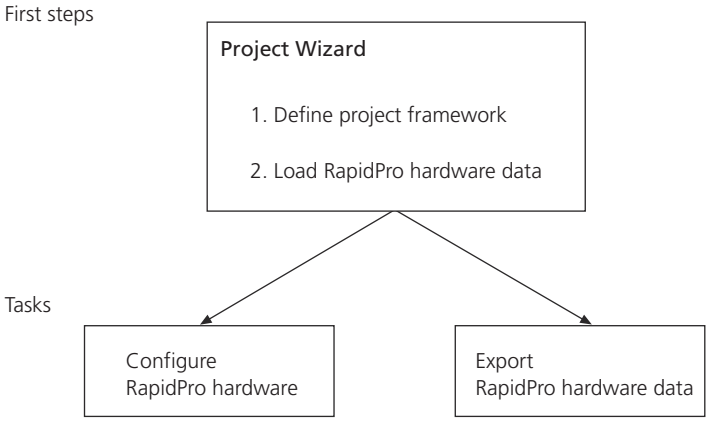
The status bar displays:

- The state of an active application in relation to the connected hardware (connected to RapidPro, not connected to RapidPro, module setup mode). For details on the different states, refer to Status Bar (ConfigurationDesk for RapidPro User Interface Reference 🕮).
- Progress bar when routing information is updated (Configuring hardware...)

Workflow for Creating Projects and Applications

Creating projects

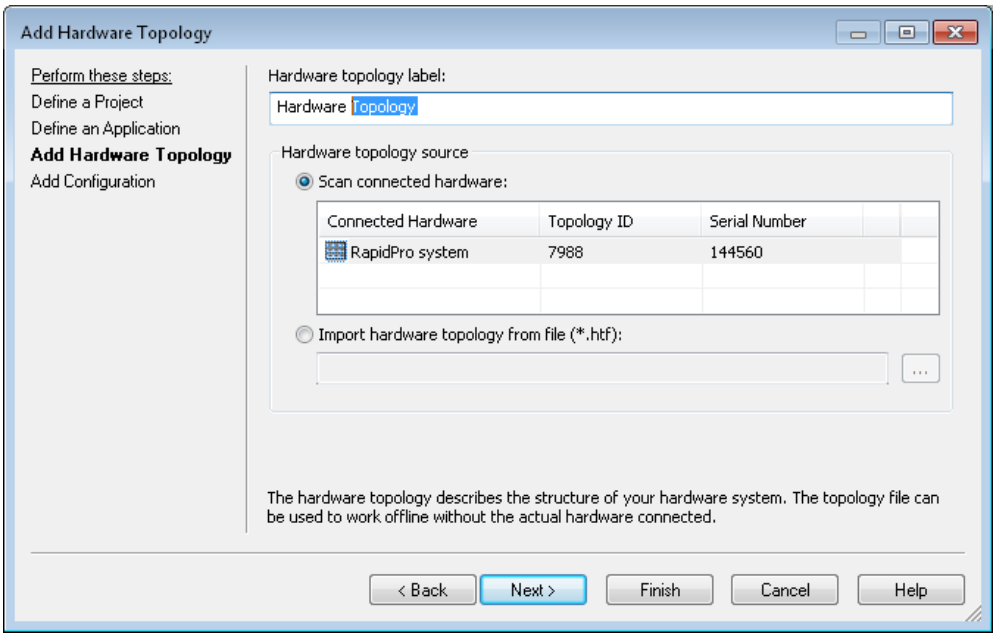
For most of your activities, you need a project and application data. To create a project, you must first of all define a project framework and load RapidPro hardware. You can do this via the Project Wizard, which organizes the storage of all project-relevant files in your file system. Afterwards ConfigurationDesk for RapidPro lets you perform application-related activities. The workflow described can be visualized as follows:



- The first steps are described here:
  - Managing Projects and Applications on page 27
  - Loading RapidPro Hardware Data on page 47
- The activities are described here:
  - Configuring RapidPro Hardware on page 61
  - Exporting RapidPro Hardware Data on page 109

User interface of the Project Wizard

The Project Wizard comprises several steps, each with its own dialog. The left-hand side of the dialog lists all the possible steps with the current step highlighted. The settings that are to be edited are on the right.



Note

You do not have to perform the sequence of steps as a whole. You can open and quit the Project Wizard at any time. If you have quit in the middle of the Project Wizard, context menu commands in the Project Manager allow you to continue your work.

Starting ConfigurationDesk for RapidPro

Objective

ConfigurationDesk for RapidPro is started in the same way as other Windows-based software programs. However, there are some points to note.

Where to go from here

Information in this section

Points to Note

Objective

You can avoid problems when starting ConfigurationDesk for RapidPro or identify the cause of problems, by noting the following points.

Connecting multiple systems

Only one RapidPro system can be accessed via ConfigurationDesk for RapidPro. If multiple RapidPro systems are connected to the host PC and powered, the first RapidPro system detected by the host PC is accessible via ConfigurationDesk for RapidPro.

How to Start ConfigurationDesk for RapidPro

Precondition

ConfigurationDesk for RapidPro must be installed on your host PC.

Method

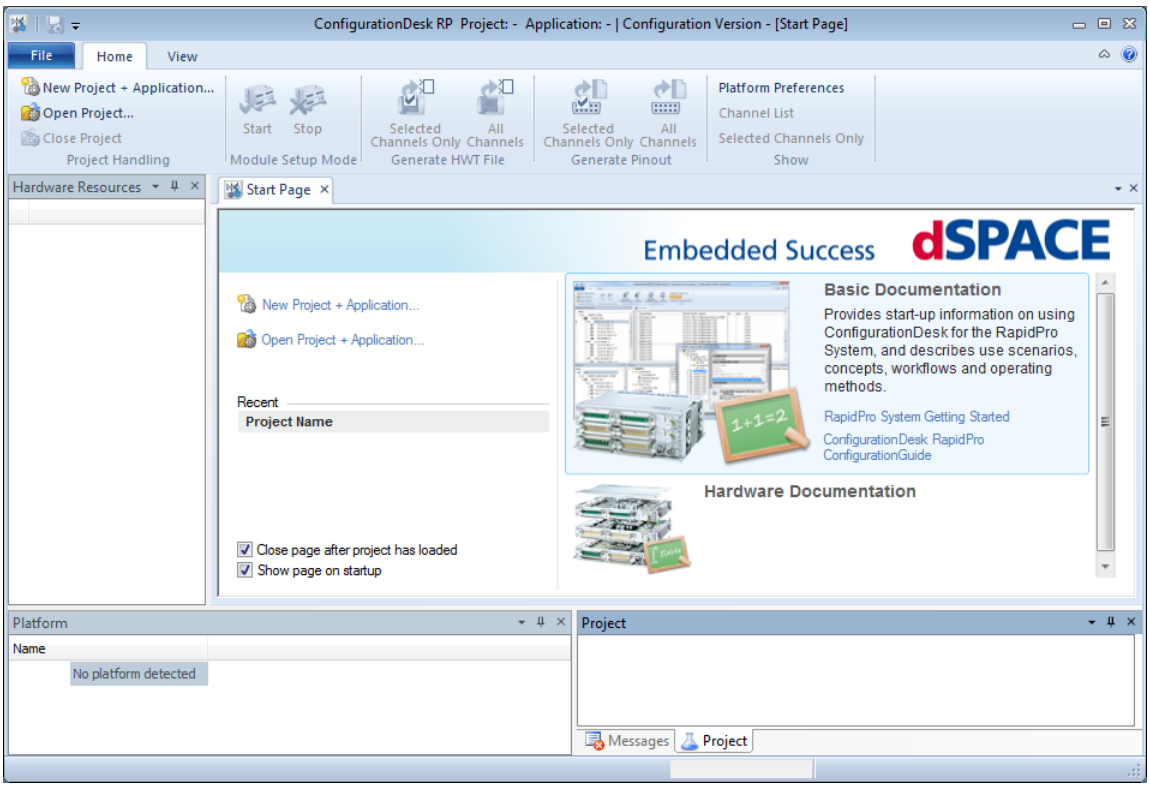
To start ConfigurationDesk for RapidPro

1 From the Start menu, select dSPACE ConfigurationDesk for RapidPro <x.y>, and click dSPACE ConfigurationDesk for RapidPro <x.y>.

<x.y> is a placeholder for the software version, since your host PC can have multiple installations and multiple items in your start menu.

Result

The Platform Manager and the tool windows are shown. No project is open and no RapidPro hardware details are shown.

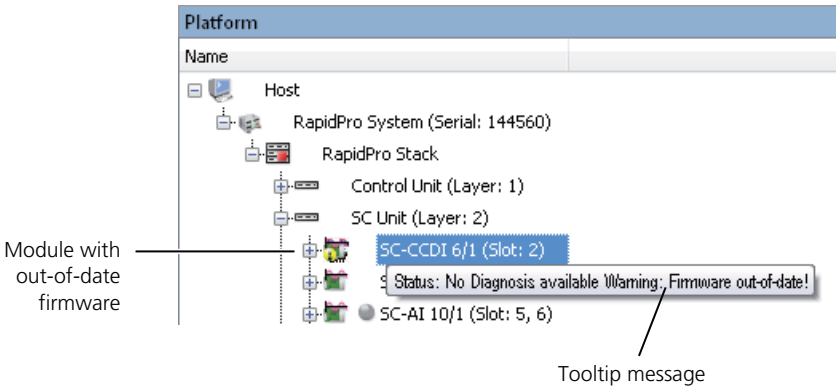


Firmware check

While loading hardware data, ConfigurationDesk for RapidPro checks if your RapidPro system contains out-of-date firmware.

> **Note**
>
> ConfigurationDesk for RapidPro provides this automatic firmeware check only if the **Real-Time Interface** product set is installed on your PC. This product set contains the latest RapidPro firmware and the required firmware update tool.

Affected components are marked with a specific symbol. In addition, a tooltip message is provided. If the firmware is out-of-date, working with these components is not possible.



To work without restrictions, you have to update the firmware. For instructions, refer to How to Update RapidPro Firmware (RapidPro System Hardware Installation Guide 🕮).

How to Customize the Screen Arrangement

Objective

The screen arrangement defines which panes are displayed and how they are arranged. The first time you execute the application, it starts with its default screen arrangement, which you can modify.

Screen modifications

The screen arrangement contains information about:

- Display states and positions of the toolbars
- Display states and positions of the panes such as the **Platform Manager**
- Pane settings, such as the docking state

Saving the screen arrangement

All the modifications you made to the screen are automatically saved to the current screen arrangement when you exit the application. You cannot save them explicitly.

Resetting the screen arrangement

To discard all the modifications that you made in the screen arrangement, you can reset it to its default. Use the Reset View Set command from the View – View Set ribbon to make the user interface look like it did the first time you started the application.

Commands for customizing the screen arrangement

The application provides various commands, such as the Floating command, to modify the state of each pane. You can execute all of these commands quickly and flexibly via mouse. The following instructions describe how to do this.

Method

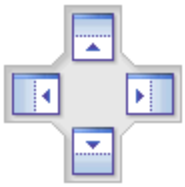
To customize the screen arrangement

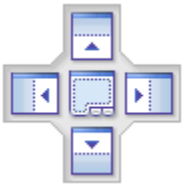
1. Move the mouse pointer onto the title bar of the pane whose position you want to change.

   If you want to move a tabbed pane, you must select its tab instead of the title bar.

2. Drag the pane to another position while holding the left mouse button down.

   The docking state of the pane is automatically changed to *floating* and the screen displays *docking stickers* that you can use to specify the new position.

Docking Sticker	Description
	The pane is docked to the top of your application's main window.
	The pane is docked to the bottom of your application's main window.
	The pane is docked to the left of your application's main window.
	The pane is docked to the right of your application's main window.
	The pane is docked to the top, bottom, left, or right of your application's working area.

Docking Sticker	Description
	The pane is docked above, below, to the left, or to the right of the selected pane. If you drag the mouse onto the middle docking sticker, the pane is docked as a new page.

3 Move the mouse pointer onto a docking sticker. When the area of the new position is displayed, release the left mouse button.

Result

The component is moved to the new position in the user interface and docked to another component.

If you release the mouse button anywhere except on a docking sticker, the docking state of the pane remains floating.

Tip

If you want to change the order of pane tabs, you can drag them to new positions.

Basics on Ribbons

Introduction

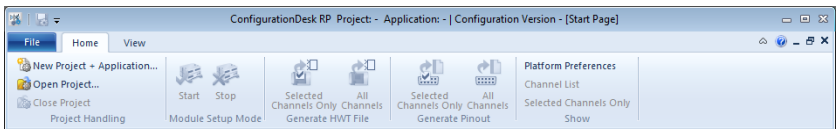
Ribbons are user interface elements that provide access to common commands and dialogs.

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.

The ribbon consists of several ribbon tabs, see the following example of the Home ribbon.

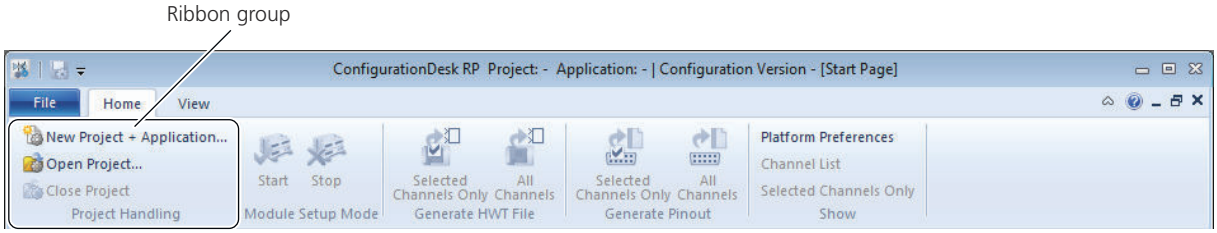
The ribbon consists of several ribbon tabs. Refer to the following example of the Home ribbon.



Ribbon group

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

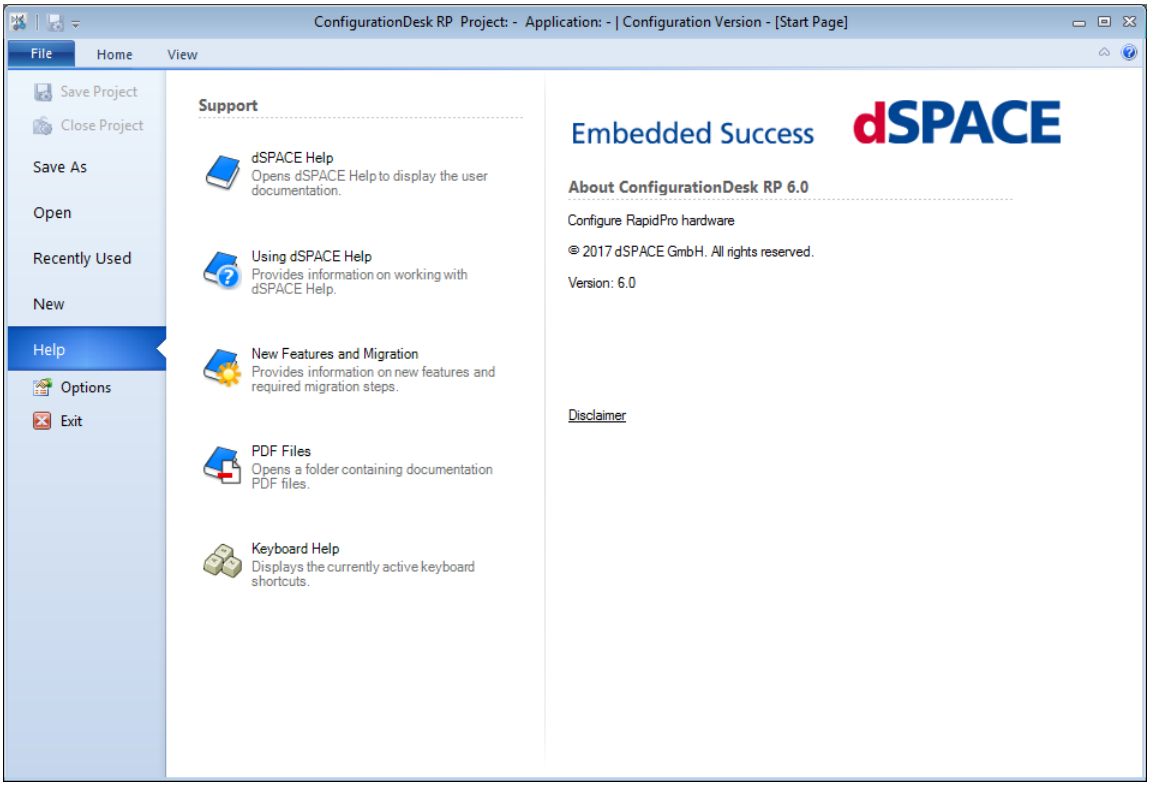
The following illustration shows a ribbon group in ConfigurationDesk.



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.



Quick Access Toolbar

The Quick Access Toolbar is an easy way to call commands. You can customize it to provide the commands you use most frequently.

For information on how to add or remove commands to/from the Quick Access Toolbar, refer to How to Customize the Quick Access Toolbar on page 25.

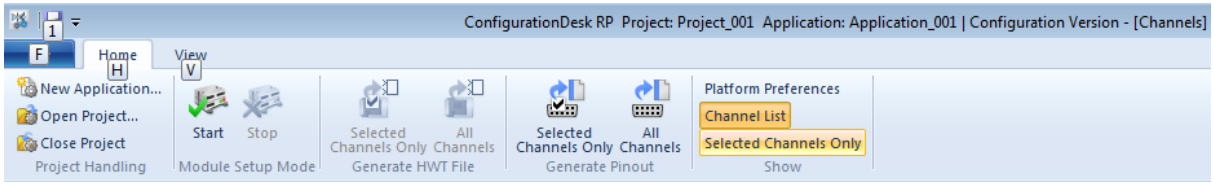
Navigating the ribbon

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 following illustration 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.

How to Customize the Quick Access Toolbar

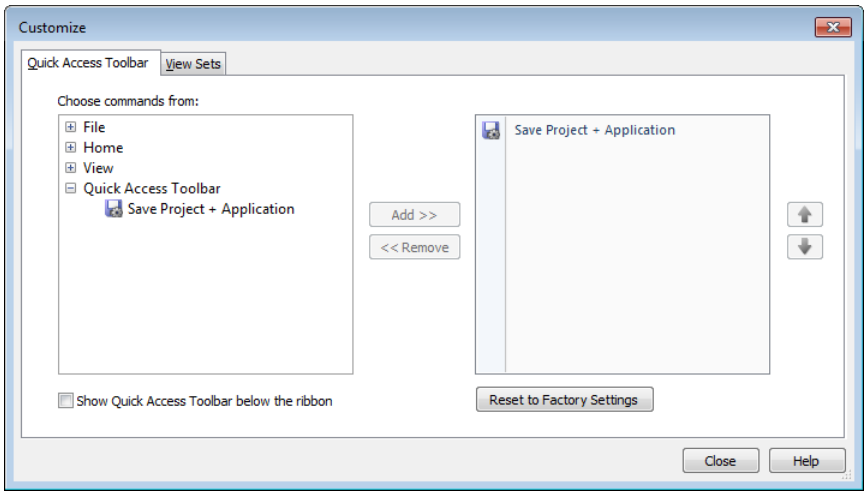
Objective

You can customize the Quick Access Toolbar to display the commands that you use frequently and you can specify its position.

Method

To customize the Quick Access Toolbar

1 On the Quick Access Toolbar, click – More Commands.
The Quick Access Toolbar page of the Customize dialog is displayed.



2 On the **Quick Access Toolbar** page you can add and remove commands, reset the toolbar and specify the position of the Quick Access Toolbar.
   - To add a command to the Quick Access Toolbar, open the **Choose commands from** list and select a ribbon. Then select a command from the list on the left and click **Add**.

     Tip

     To add a command to the Quick Access Toolbar, you can also select **Add to Quick Access Toolbar** in the context menu of a command in a ribbon.

   - To remove a command from the Quick Access Toolbar, select the command in the list on the right and click **Remove**.

     Tip

     To remove a command from the Quick Access Toolbar, you can also select **Remove from Quick Access Toolbar** in the context menu of a command icon in the Quick Access Toolbar.

   - To reset the Quick Access Toolbar to the factory default, click **Reset**.
   - To show the Quick Access Toolbar below the ribbon, select **Show Quick Access Toolbar below the ribbon**.
3 Click **Close** to save the changes.

Result

You have customized the Quick Access Toolbar.

Managing Projects and Applications

Objective

To structure your RapidPro hardware configuration tasks you must work with projects and applications in ConfigurationDesk for RapidPro.

Where to go from here

Information in this section

Basics of Managing Projects and Applications

Application as the basis for a configuration task

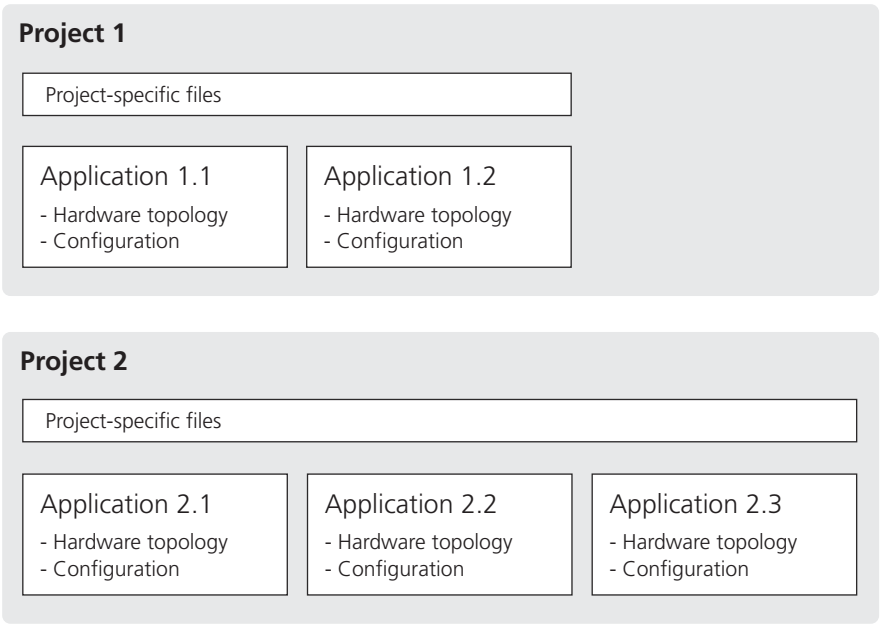
An application is the basis for carrying out a specific configuration task, for example, configuring signal conditioning modules that adapt sensor signals to

peripheral devices. An application represents a specific RapidPro hardware configuration. It contains two files:

- The hardware topology (HTF file): It describes the architecture of RapidPro hardware.
- The configuration (CDS file): It contains the settings of the configuration parameters of RapidPro hardware.

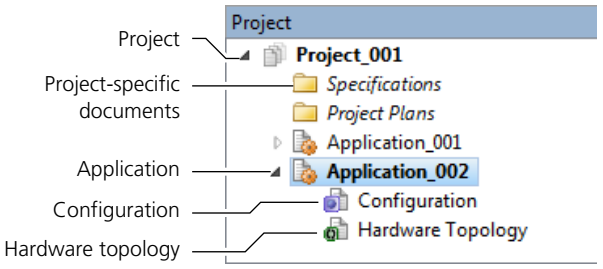
Project as the container for applications

A project manages different applications that belong together. It holds the applications related to the RapidPro configurations tasks, and documents relevant to the entire project.



Handling projects with the Project Manager

To handle projects and applications, ConfigurationDesk for RapidPro provides the *Project Manager*. The Project Manager gives you easy and intuitive access to all the applications and documents of a project. The illustration below shows the Project Manager with a project and two applications managed by the project.



To handle projects, the Project Manager provides several context menus with commands for saving, renaming or removing applications and other objects in

the tree. The commands for handling individual project-specific documents depend on the document type.

Note

A project can also contain applications from ConfigurationDesk. You can identify these applications by the  symbol (green gear wheel). However, these applications have restricted functionality. Only the commands Explore Folder and Remove from Application are available.

Project structure and file storage

The representation of a project in ConfigurationDesk's Project Manager reflects the hierarchical structure of projects. For more details on the structure of ConfigurationDesk for RapidPro projects and on how ConfigurationDesk for RapidPro saves projects and applications to the file system, refer to Project Structure and File Storage on page 30.

Project root directories for grouping projects

Each ConfigurationDesk for RapidPro project is related to a project root directory. This is a folder on your file system to which ConfigurationDesk for RapidPro saves all project-relevant data, such as the applications and documents of a project. Several projects can use the same project root directory.

Default project root directory ConfigurationDesk for RapidPro will use `<InstallationFolder>\Work` as the default project root directory unless you specify a different one.

Specifying further project root directories You can specify further project root directories in addition to the default project root directory. This allows you to specify different destination directories for your projects, and to group projects. Refer to How to Specify a Project Root Directory (ControlDesk Project and Experiment Management 🕮).

Handling external documents in ConfigurationDesk for RapidPro

Projects and applications allow you to handle ConfigurationDesk-specific documents. You can also include external documents in a ConfigurationDesk for RapidPro project. External documents are documents that cannot be modified with ConfigurationDesk for RapidPro, such as DOC, PDF, XLS, or HTML files.

Accessing external documents via ConfigurationDesk for RapidPro You cannot modify external documents via ConfigurationDesk for RapidPro, but you can access them. Accessing external documents via ConfigurationDesk for RapidPro means the following:

- External documents are displayed as items in ConfigurationDesk's Project Manager.
- You can open external documents in the corresponding programs from within ConfigurationDesk for RapidPro. For example, ConfigurationDesk for RapidPro opens Adobe® Reader® if you double-click a PDF file in the Project Manager.

This allows you to include important documents such as project plans, specifications, and memos in a ConfigurationDesk for RapidPro project or application, and access them from within ConfigurationDesk for RapidPro.

Adding external documents To make external documents accessible via ConfigurationDesk, you must add them to a ConfigurationDesk project or application. For instructions, refer to How to Add External Documents to a Project on page 38.

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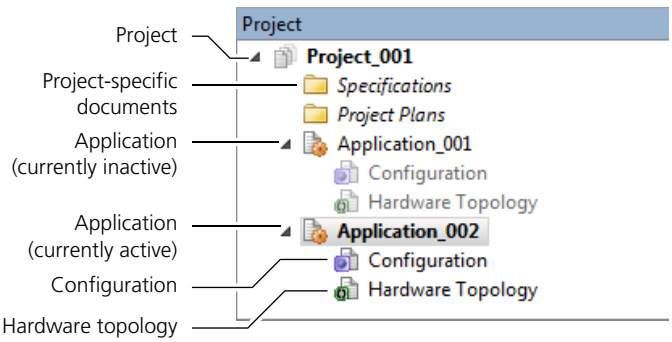
Project Structure and File Storage

Hierarchical project structure

The structure displayed in ConfigurationDesk's Project Manager reflects the hierarchical project structure. The hierarchy helps you to organize configuration tasks.



The different items – applications and documents – of a project are structured like this:

- There are *project-specific documents* such as project plans or specifications.

- A project can contain one or more *applications*. Only one application can be active at a time. An application contains:
  - A hardware topology
  - A configuration

On your file system, ConfigurationDesk for RapidPro creates a folder structure for each project. The root of the folder structure is the project root directory.

Automatic file storage in component's folder

If a project contains unsaved data, ConfigurationDesk for RapidPro displays an asterisk next to the project name in the Project Manager. The asterisk disappears when you save the project. An asterisk next to an application indicates that the application contains unsaved data.

ConfigurationDesk for RapidPro automatically saves files generated by its different components to the corresponding folders.

Related topics

Basics

Basics of Managing Projects and Applications.....27

How to Define a Project

Objective

A project manages different applications that belong together, such as different configurations used in rapid control prototyping experiments. Defining a project therefore allows you to group ConfigurationDesk applications.

Project Wizard

The Project Wizard guides you through all the steps necessary to define a project and application, and to add a hardware topology and a configuration to an application.

When you define a project, ConfigurationDesk for RapidPro opens the appropriate dialog of the Project Wizard.

Preconditions

To define a project, the following preconditions apply:

- At least one project root folder must be specified. For instructions, refer to How to Specify a Project Root Folder on page 40.
- No other project must be open.

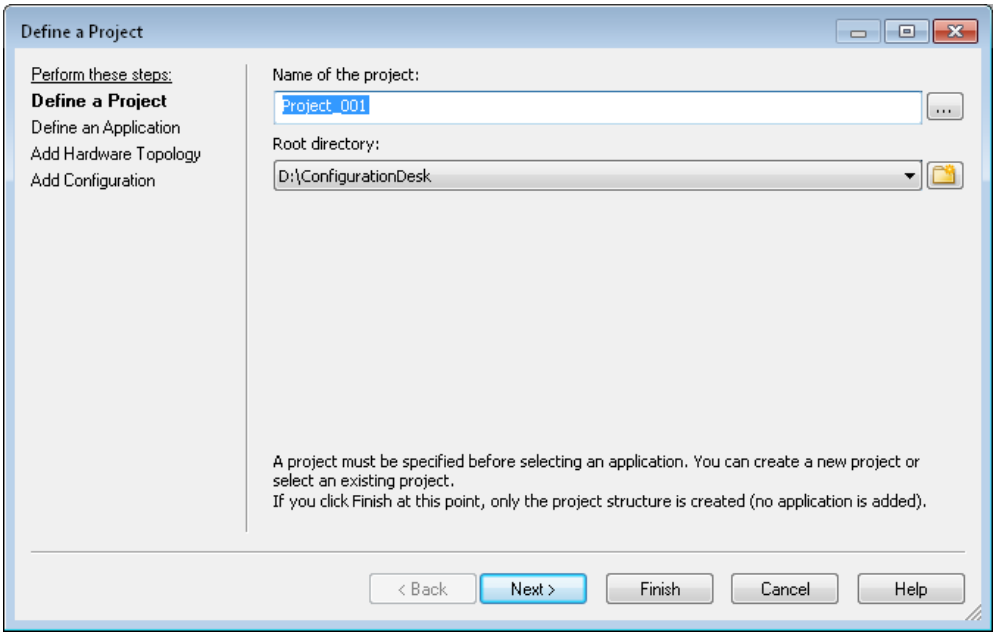
Method

To define a project

1 On the File, click Home – New Application ….

ConfigurationDesk for RapidPro opens the Define a Project dialog.

2 In the Name of the project edit field, change the default name given. The name you enter must not contain a dot or whitespace as the first or last character.



3 From the Root folder edit list, select the desired project root folder.

To specify a new project root folder, click .

4 Click Next> or click Finish.

ConfigurationDesk for RapidPro creates a project.

If you click Next>, ConfigurationDesk for RapidPro opens the Define an Application dialog that lets you define an application for the new project.

If you click Finish, ConfigurationDesk for RapidPro creates an empty project, that is, a project without an application. You can define an application afterwards.

Result

You defined a new project.

Next steps

You can define an application for the new project. Refer to How to Define an Application on page 33.

Related topics

Basics

Basics of Managing Projects and Applications..... 27

HowTos

How to Back up and Transfer a Project..... 42
How to Open a Project..... 35

References

Project Wizard (ConfigurationDesk for RapidPro User Interface Reference 🕮)

How to Define an Application

Objective

An application is the basis for carrying out a specific configuration task.

Application

An application contains data relating to a specific RapidPro configuration, for example, the configuration of the signal conditioning modules that adapt sensor signals to peripheral devices. An application allows you to manage all the associated files and data. You can organize your configuration tasks by defining applications for them.

Project Wizard

The Project Wizard leads you through all the steps necessary to define a project and application, and to add a hardware topology and a configuration to an application.

When you define a new application, ConfigurationDesk for RapidPro opens the appropriate dialog of the Project Wizard.

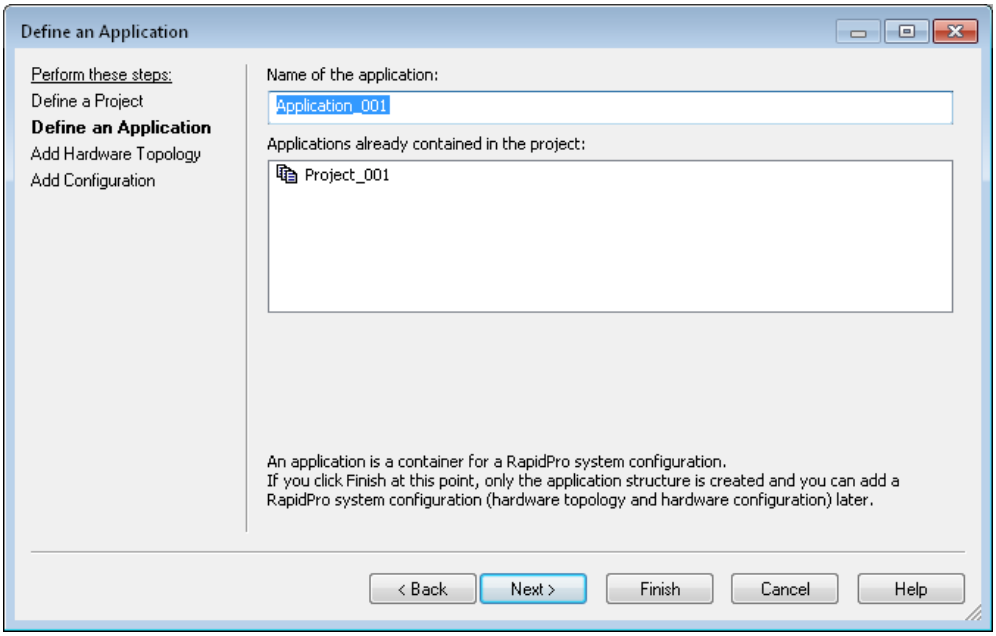
Preconditions

A project must be open. If no project is currently open, you have to open one (refer to How to Open a Project on page 35), or define a new project (refer to How to Define a Project on page 31).

Method

To define an application

1 On the File ribbon, click Home – New Application ….
ConfigurationDesk for RapidPro opens the Define an Application dialog.



2 In the Name of the application edit field, change the default name given. The name you enter must not contain a dot or whitespace as the first or last character.

3 Click Next> or click Finish.
ConfigurationDesk for RapidPro creates an application.
If you click Next>, ConfigurationDesk for RapidPro opens the Add Hardware Topology dialog, which lets you generate a hardware topology for your RapidPro hardware.
If you click Finish, ConfigurationDesk for RapidPro creates an empty application. You can add a hardware topology and a configuration afterwards.

Result

You defined an application.

Next steps

You can add RapidPro hardware to the application. Refer to Loading RapidPro Hardware Data on page 47.

Related topics

Basics

Basics of Managing Projects and Applications....27

HowTos

How to Activate an Application....36
How to Add External Documents to a Project....38
How to Back up and Transfer a Project....42

References

Project Wizard (ConfigurationDesk for RapidPro User Interface Reference 🕮)

How to Open a Project

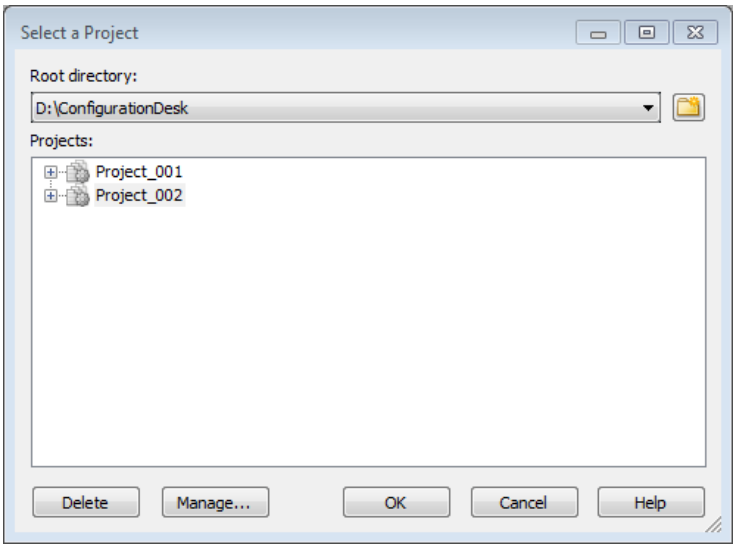
Objective

To perform configuration tasks you must first open a project.

Method

To open a project

1 On the File ribbon, click Home – Open Project ….
ConfigurationDesk for RapidPro opens the Select a Project dialog.



2 From the Root folder drop-down list, select the project root folder containing the project you want to open, or click to define a new one.

3 In the Projects list, select the project you want to open.

4 Click **OK**.

ConfigurationDesk for RapidPro:

- Closes the current project,
- Opens the selected project,
- Opens and loads the last active application in this project.

Result

You opened a project and its last active application.

If RapidPro hardware is connected to your PC, different scenarios can occur regarding the state of your application. For details, refer to Assigning Connected RapidPro Hardware to Applications on page 49.

Easy working

- You can use the **Select a Project** dialog to delete projects. Right-click the project you want to remove and select **Delete**.
- You can create a desktop shortcut for each ConfigurationDesk application via its context menu. This allows you to open ConfigurationDesk for RapidPro and quickly load the project containing a specific application.

Related topics

Basics

Basics of Managing Projects and Applications....27

HowTos

How to Activate an Application....36
How to Define a Project....31

References

Open Project/Open Project and Application (ConfigurationDesk for RapidPro User Interface Reference 🕮)

How to Activate an Application

Objective

A ConfigurationDesk project usually contains several applications, each representing a specific RapidPro configuration. You can work with only one application – the *active* application – at a time. All the other applications of the project are inactive. To work with another application of the project, you have to activate it first.

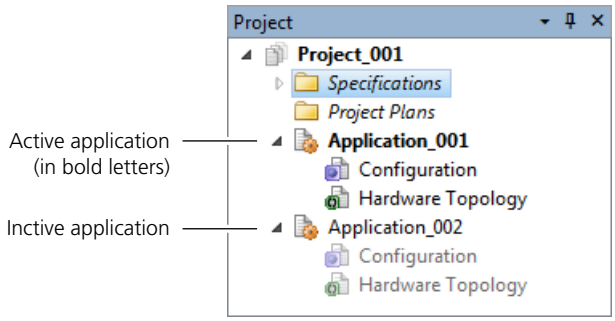
Restrictions

- Only one application can be activated within a project at a time. Refer to How to Open a Project on page 35.
- You cannot activate an application created with ConfigurationDesk. You can identify these applications by the  symbol (green gear wheel).

Method

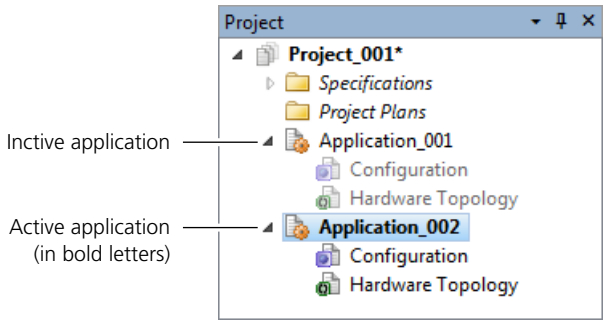
To activate an application

1 In the Project Manager, right-click the inactive application you want to activate.



2 From the context menu, select Activate.

ConfigurationDesk for RapidPro activates the selected application, and deactivates the other.



Result

If RapidPro hardware is connected to your PC, different scenarios can occur regarding the state of your application. For details, refer to Assigning Connected RapidPro Hardware to Applications on page 49.

Related topics

Basics

Basics of Managing Projects and Applications 27

HowTos

How to Define an Application 33

References

Activate (Application) (ConfigurationDesk for RapidPro User Interface Reference 🕮)

How to Add External Documents to a Project

Objective

To make external documents such as Microsoft Word or Adobe PDF documents accessible via ConfigurationDesk for RapidPro, you must add them.

Accessing external documents via ConfigurationDesk for RapidPro

Accessing external documents via ConfigurationDesk for RapidPro means the following:

- External documents are displayed in ConfigurationDesk's **Project Manager** .
- You can open external documents in the corresponding programs from within ConfigurationDesk for RapidPro. For example, ConfigurationDesk for RapidPro opens Adobe Reader if you double-click a PDF file in the **Project Manager** (if Adobe Reader is installed on your system).
- If you back up a project, the resulting ZIP file contains all external documents that are visible in the **Project Manager**.

Restrictions

External documents can be viewed or edited only within the corresponding program, not within ConfigurationDesk for RapidPro.

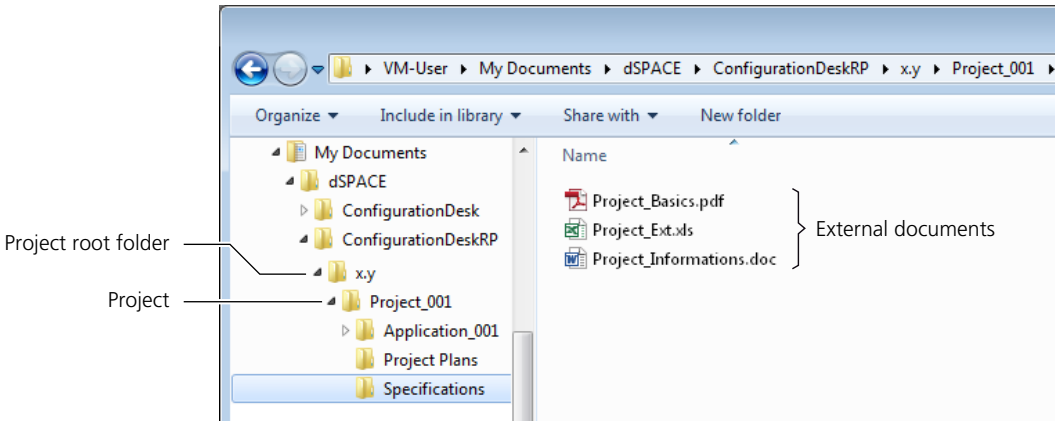
Method

To add external documents to a project or application

1 Open Windows Explorer.

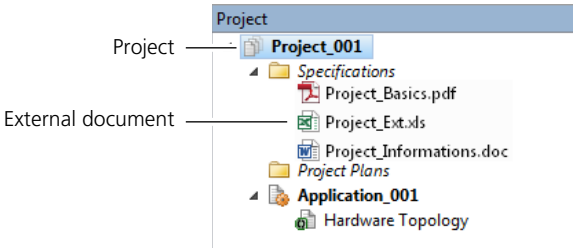
You can do this from within the Project Manager. Right-click the destination folder and select **Explore Folder**.

2 In the file system, add the external document to its destination folder in the ConfigurationDesk project structure.



3 In the Project Manager, select **Refresh** from the project's context menu.

ConfigurationDesk for RapidPro renews the folder structure shown in the Project Manager, and displays the external document in its destination folder.



Result

You added an external document to a ConfigurationDesk project. You can open the document by double-clicking it in ConfigurationDesk for RapidPro.

Easy working

- If you want to add a new folder to a project, select **New folder** from the context menu of the project.
- You can specify which documents in a folder are visible in the Project Manager. Select **Configure** from the context menu of the project.

Related topics

Basics

Basics of Managing Projects and Applications....27

HowTos

How to Define a Project....31
How to Open a Project....35

References

Add Folder (ConfigurationDesk for RapidPro User Interface Reference 🕮)
Configure Folders / Configure (Folder) (ConfigurationDesk for RapidPro User Interface Reference 🕮)
Refresh (Project) (ConfigurationDesk for RapidPro User Interface Reference 🕮)

How to Specify a Project Root Folder

Grouping projects in root folders

Each ConfigurationDesk project is related to a project root directory. This is a physical directory on your file system. ConfigurationDesk for RapidPro creates a folder structure beneath the project root directory and stores all the files of a project to it. Specifying different project root directories therefore allows you to group ConfigurationDesk projects on your file system.

Default project root directory

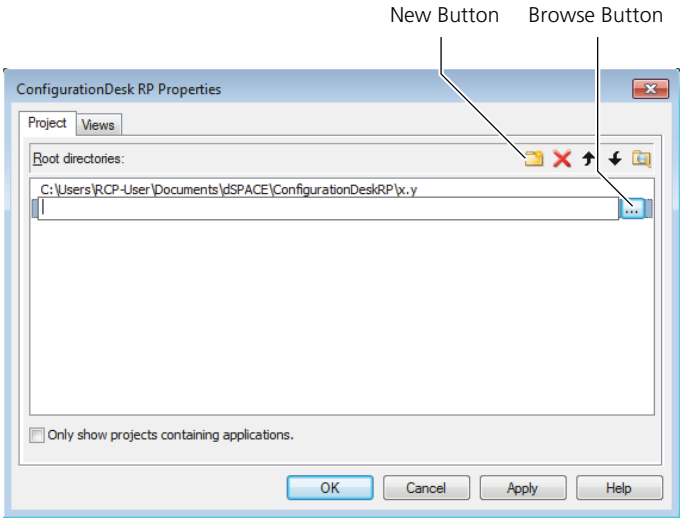
ConfigurationDesk for RapidPro uses the default root directory unless you specify a new project root directory: `<InstallationFolder>\Work`.

Method

To specify a project root folder

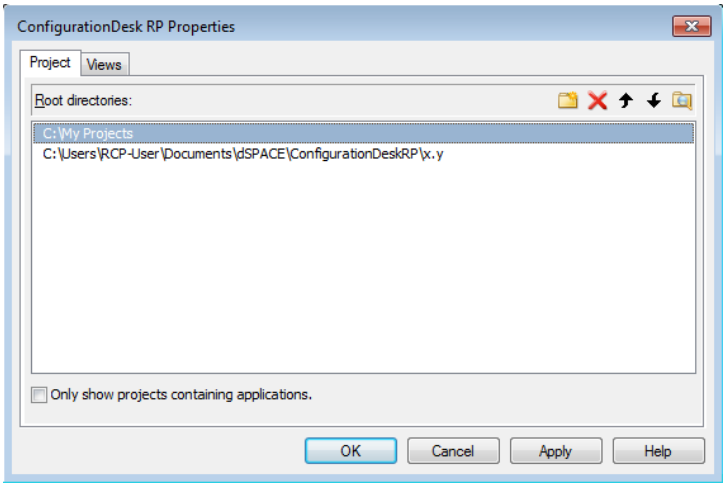
1 On the File ribbon, click Optionsto open the ConfigurationDesk for RapidPro Properties dialog.

2 On the Project page of the ConfigurationDesk for RapidPro Properties dialog, click  , then click the Browse button.



3 In the Browse for Folder dialog, select the new project root folder and click OK.

The ConfigurationDesk for RapidPro Properties dialog displays the new entry:



The new project root folder now is at the top of the list. Whenever you need to specify a project root folder, the entry at the top of this list is preselected.

4 Click OK to confirm your setting.

Result

You specified a new project root folder.

Easy working

You can modify a project root folder by double-clicking and then editing its list entry in the ConfigurationDesk for RapidPro Properties dialog.

Related topics

Basics

Basics of Managing Projects and Applications 27

References

General Properties - Project Page (ConfigurationDesk for RapidPro User Interface Reference 🕮)

How to Back up and Transfer a Project

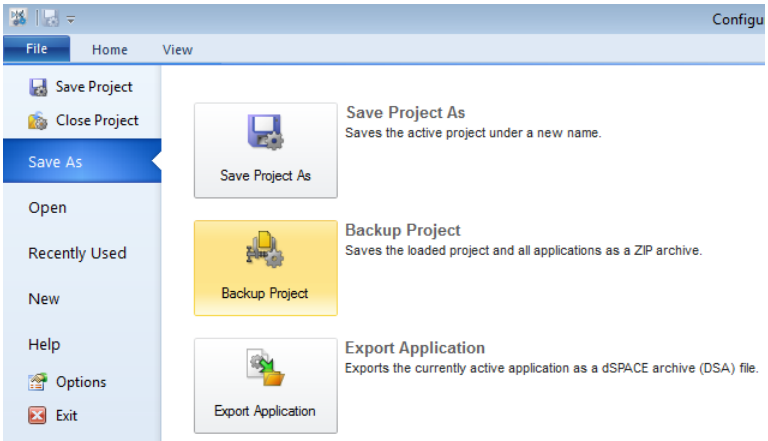
Objective

Backing up a project allows you to save and transfer the whole content of a project in one ZIP file.

Method

To back up and transfer a project

1 On the File ribbon, click Save As – Backup Project.

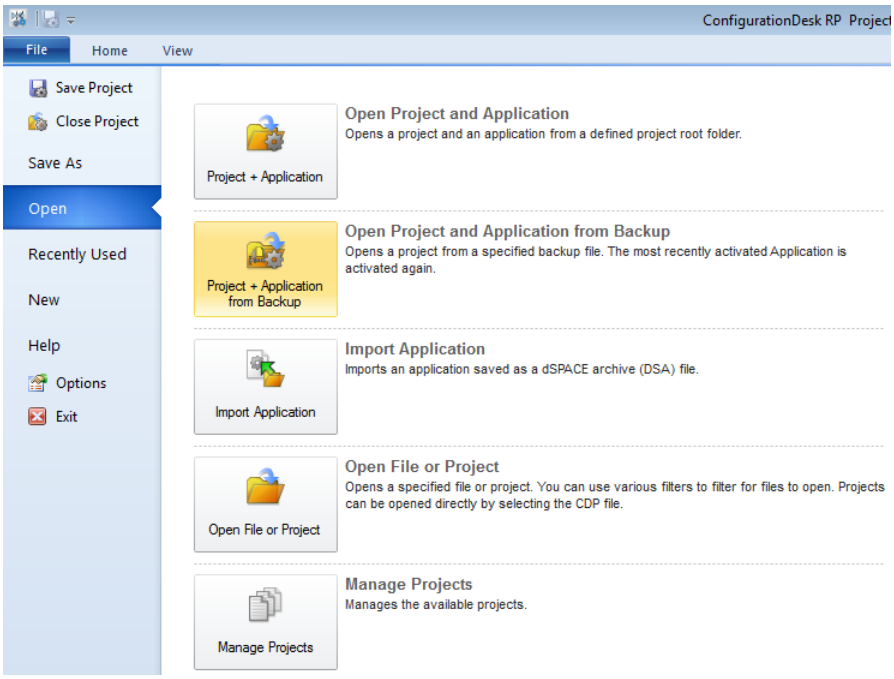


A standard Save As dialog opens.

2 Save the project as a ZIP file.

You can keep the ZIP file as a backup or transfer its content to a different project root folder on the same or a different PC.

3 To load the content of a project backup, click **Open – Project + Application from Backup** on **File** ribbon.



A standard **Open** dialog opens.

4 Select a ZIP file and a project root folder.

5 Click **Open** to extract all the files of the project backup to the specified project root folder.

Result

You have backed up and transferred the content of a project.

Related topics

Basics

Basics of Managing Projects and Applications.....27

References

Open Project and Application from Backup (ConfigurationDesk for RapidPro User Interface Reference 🕮)

How to Export and Import an Application

Objective

Exporting an application allows you to save the content of one application in one DSA (dSPACE archive) file and transfer the application to another project.

Tip

You can use the export/import function to make a copy of an application in the same project.

Restriction

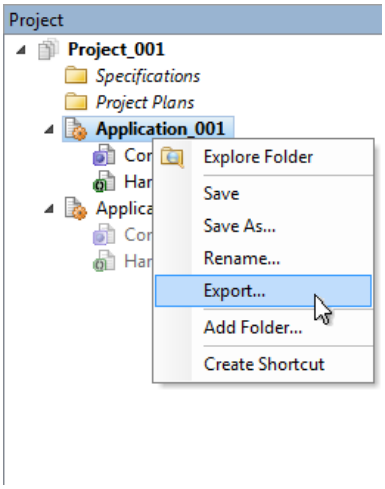
You can export only activated applications. To activate an application, refer to How to Activate an Application on page 36.

Method

To export and import an application

1 In the Project Manager, right-click the activated application.

2 From the context menu, select Export.

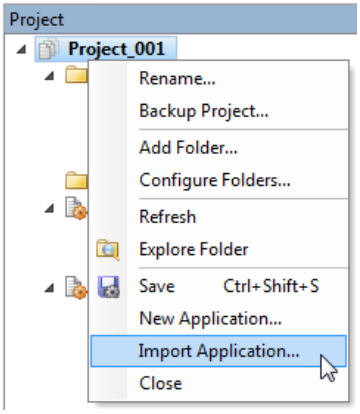


A standard Save As dialog opens.

You can keep the generated DSA file as a backup or transfer its content to a different ConfigurationDesk project.

3 To load the content of an exported application, right-click a project in the Project Manager.

4 From the context menu, select Import Application.



A standard Open dialog opens.

5 Select the desired DSA file.

6 Click Open to extract all files of the exported application.

Result

You have exported and transferred the content of an application.

Related topics

Basics

Basics of Managing Projects and Applications 27

References

Export (Application) / Export Application (ConfigurationDesk for RapidPro User Interface Reference 🕮)
Import Application (ConfigurationDesk for RapidPro User Interface Reference 🕮)

Loading RapidPro Hardware Data

Objective

To work with applications, you must supply ConfigurationDesk for RapidPro with RapidPro hardware topology and configuration data.

Where to go from here

Information in this section

Details on RapidPro Hardware Data

Hardware representation

ConfigurationDesk for RapidPro uses HTF and CDS files to represent the RapidPro hardware (topology, configuration).

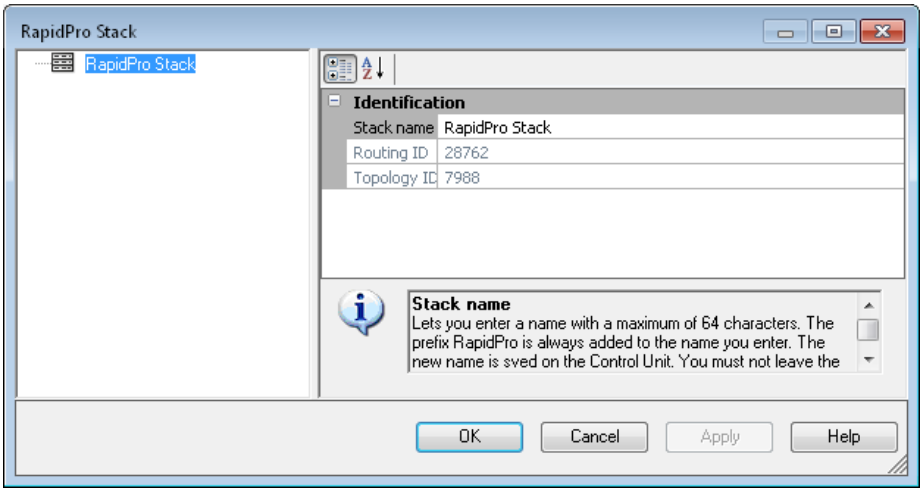
HTF file

The hardware topology file contains

- Hardware-related information on a specific RapidPro system, such as components, their installation positions and serial numbers, and the TopologyID.
- The parameters of the user-configurable circuits.

In conjunction with the CDS file, it allows you to configure a RapidPro hardware system regardless of whether it is physically connected to your host PC or not.

TopologyID The TopologyID is a decimal number that uniquely represents the architecture of RapidPro hardware. You can find the TopologyID of your connected hardware by clicking a RapidPro stack in the Platform Manager and selecting **Properties** from its context menu. Its properties dialog opens, displaying the TopologyID as follows:



Note

An application can contain one RapidPro hardware topology only.

CDS file

The configuration file contains information on the configuration settings, for example, the settings of software-configurable parameters of a specific ConfigurationDesk application. It allows you to load, change and save the configuration data of all modules contained in the topology file and/or in the connected hardware.

Note

To assign different configurations to the same hardware topology, you must create a separate application (containing the topology) for each configuration.

Related topics

Basics

Workflow for Creating Projects and Applications....16

HowTos

How to Activate an Application....36
How to Define an Application....33

How to Generate Data Required by the RTI RapidPro Control Unit Blockset..... 113
How to Load a RapidPro Configuration..... 57

References

File Types (ConfigurationDesk for RapidPro User Interface Reference 🕮)
Project Wizard (ConfigurationDesk for RapidPro User Interface Reference 🕮)

Assigning Connected RapidPro Hardware to Applications

Checking hardware and application data

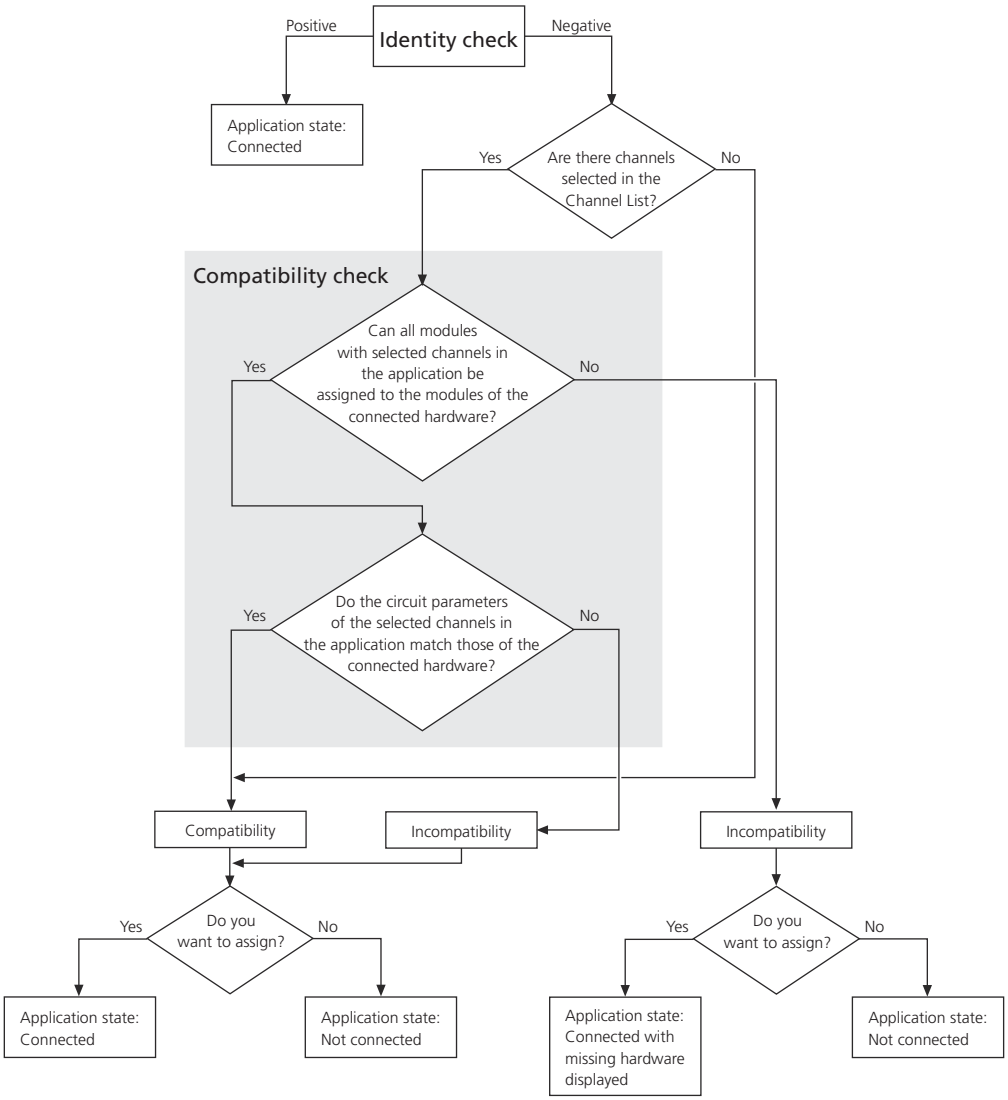
If RapidPro hardware is connected to your host PC and you load a new application, ConfigurationDesk for RapidPro automatically checks whether your connected hardware matches the new application. This check is often a successive process, consisting of the following two steps:

- Step 1: Identity check
- Step 2: Compatibility check

Note

The first check is always performed, but the second check is performed only for modules in your application that have at least one channel selected in the Channel List.

The check of hardware and application data can be visualized as follows:



Identity check

If a new application is loaded and hardware is already connected to your host PC, ConfigurationDesk for RapidPro immediately checks whether your connected RapidPro system is identical to your application. Identical means that the following items are the same in the hardware and the application:

- The hardware topology and
- The circuit parameters, if available.

If this is true, your connected hardware is automatically assigned to your loaded application and the state of your application changes from not connected to connected. This is displayed in the status bar.

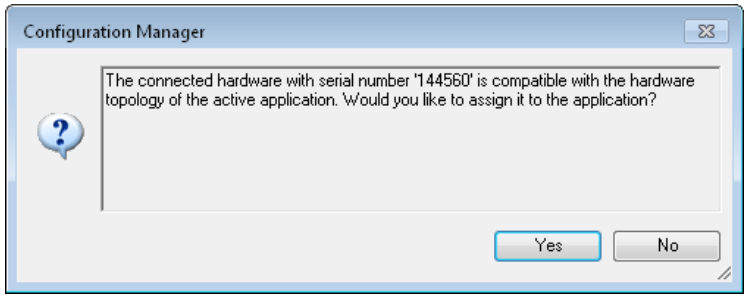
Compatibility check

If your connected RapidPro system and your loaded application are not identical, ConfigurationDesk for RapidPro performs a further check: whether the modules of your application match the connected hardware and whether the circuit parameters of the selected channels in your application match those of the connected RapidPro system. If this is the case, your connected hardware is compatible with your loaded application. Otherwise your connected hardware is incompatible with your loaded application. Note that modules with no channels selected in the Channel List are not checked for compatibility.

Confirming (in)compatibility

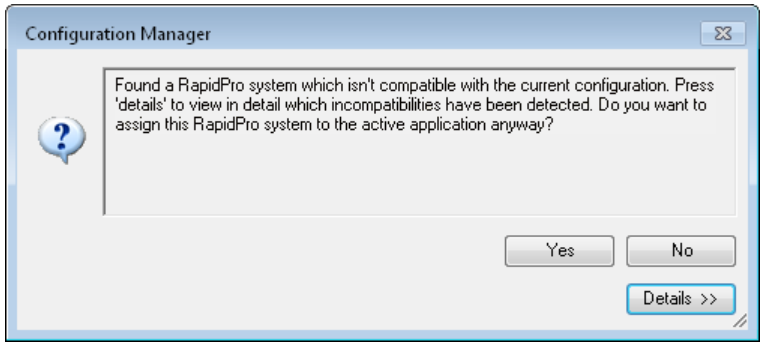
Depending on whether it detects compatibility or incompatibility, ConfigurationDesk for RapidPro behaves as follows:

- If your connected hardware is compatible with your loaded application, ConfigurationDesk for RapidPro asks you whether you want to assign your connected hardware to your application. A message dialog like the following appears:



  If you click **Yes**, your connected RapidPro system is assigned to your loaded application. The application state changes from not connected to connected. This is visualized in the status bar. If you click **No**, the state of your application remains not connected.

- If your connected hardware is not compatible with your loaded application, ConfigurationDesk for RapidPro asks you whether you want to assign your connected RapidPro system to your loaded application despite the detected incompatibilities. A message dialog like the following appears:



By clicking **Details** on the message dialog, you can display information on the hardware components which are not compatible. If you click **Yes**, your connected RapidPro system is assigned to your loaded application. The application state changes from not connected to connected. This is displayed in the status bar. The Hardware Resource Browser and the Channel List display the incompatible hardware components as missing hardware. For details, refer to Basics on Missing Hardware on page 52.

If you click **No**, the state of your application remains not connected.

Basics on Missing Hardware

Defining missing hardware

In ConfigurationDesk for RapidPro, a module and its channels are defined as missing hardware:

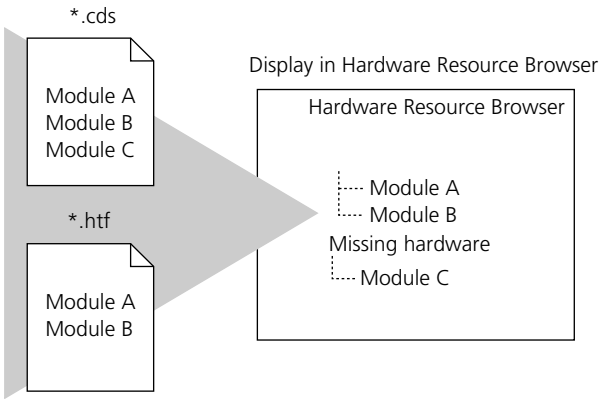
- If it is contained in the configuration of the active application

  and

- If it is not contained in the hardware topology of the active application

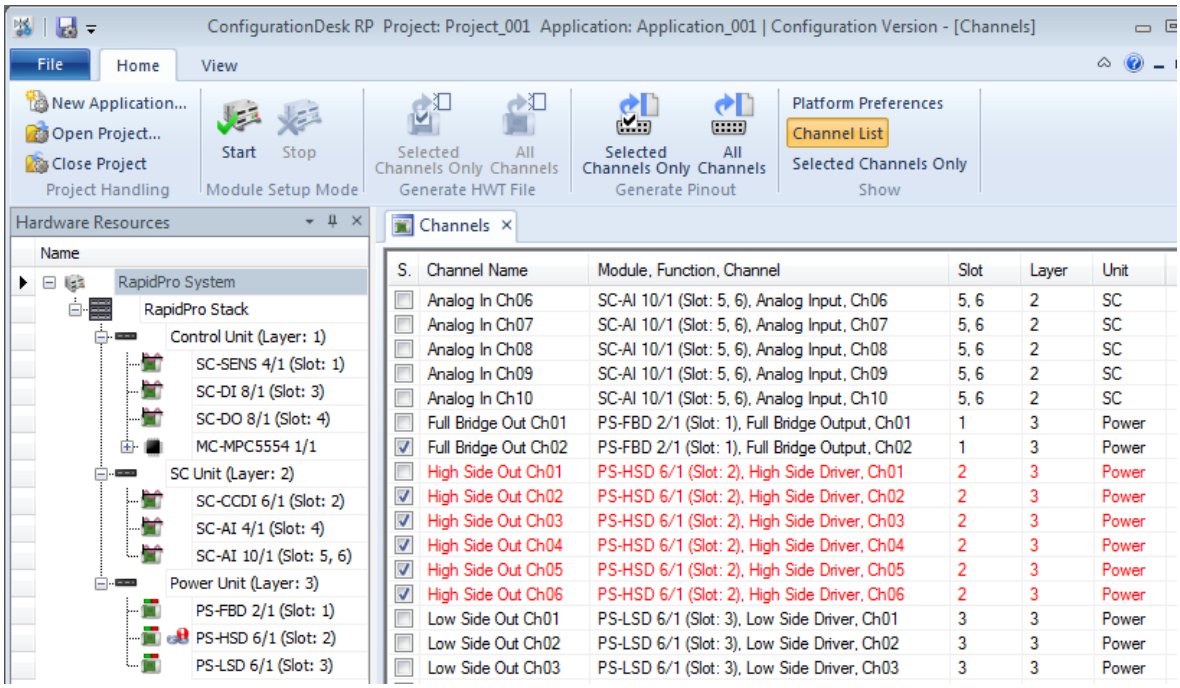
  and

- If at least one of the module's channels is selected in the Channel List.



Display of missing hardware

Missing modules are displayed with a red warning symbol in the Hardware Resource Browser. The Channel List displays missing channels in red.



Note

For a module and its channels to be displayed as missing hardware in ConfigurationDesk for RapidPro, at least one channel of the module must have been selected beforehand in the Channel List.

Reasons for missing hardware

There can be missing hardware for the following reasons:

- The active application does not contain a hardware topology.
- A hardware topology is added to the active application but does not contain the same hardware components as the application's configuration.

Configuring missing hardware

Missing modules and their channels can still be configured. Changes of module and channel parameters are saved in the CDS file of your active application. If you modify your application or your connected hardware in such a way that modules are no longer missing, you can afterwards easily download your parameter changes to your connected RapidPro hardware.

Deleting missing hardware

Missing channels which are no longer of any use, can be cleared in the Channel List to indicate that they do not belong to the active application anymore. If all channels of a missing module are cleared in the Channel List, the associated

module is automatically removed from the "Missing hardware" folder in the Hardware Resource Browser. You can also remove a missing module manually via its context menu. By selecting it in the Hardware Resource Browser and selecting **Remove Module** from its context menu, the selected module is deleted from the active application and no longer displayed in the Hardware Resource Browser. Note that a deleted missing module cannot be recovered unless a hardware topology is assigned to the application which contains the respective module type in the respective slot.

Related topics

References

File Types (ConfigurationDesk for RapidPro User Interface Reference 🕮)
Remove Module (ConfigurationDesk for RapidPro User Interface Reference 🕮)

How to Load a RapidPro Hardware Topology

Objective

ConfigurationDesk for RapidPro requires information on the hardware topology of the RapidPro hardware that is to be configured. The hardware topology describes the architecture of the RapidPro hardware and all hardware components that make up the RapidPro hardware.

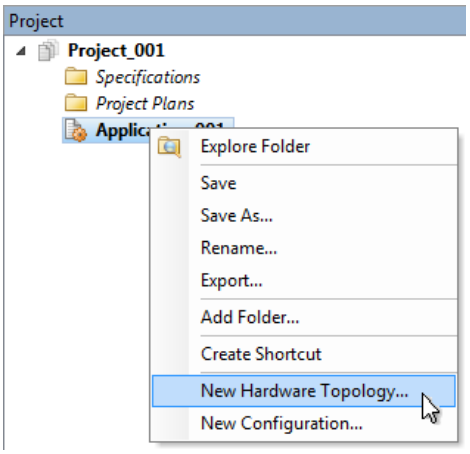
Preconditions

An application must already be defined and activated. Refer to How to Define an Application on page 33 and How to Activate an Application on page 36.

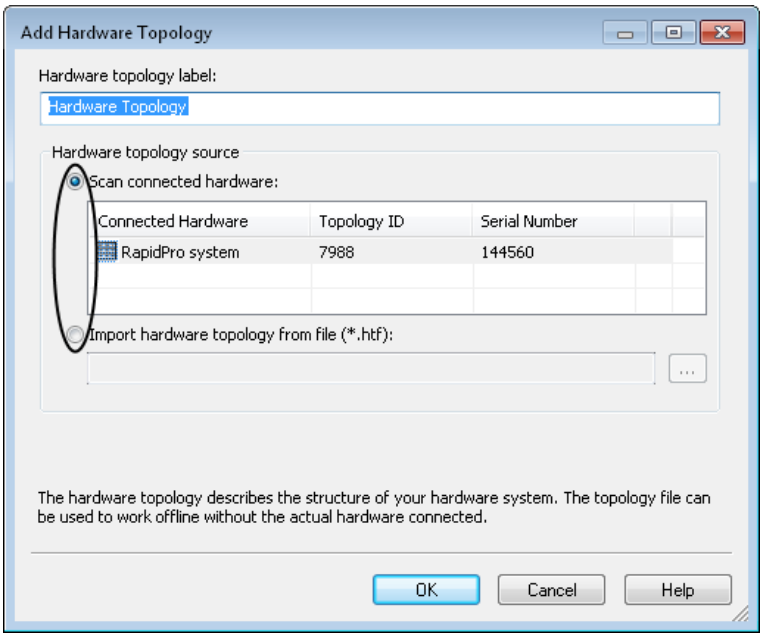
Method

To load a RapidPro hardware topology

1 If the **Add Hardware Topology** dialog of the Project Wizard is not already open, right-click the application in the Project Manager and select **New Hardware Topology** from the context menu.



An Add Hardware Topology dialog opens.



2 Choose the source of the hardware topology information:
   - Scan the connected and powered RapidPro hardware. Select the desired hardware system from the list.

     or:
   - Import an existing hardware topology file (HTF file) from a prior scan. This is the only option you can choose if no RapidPro hardware is detected.

3 Enter a name that represents the hardware topology in ConfigurationDesk for RapidPro. You can edit the default name.

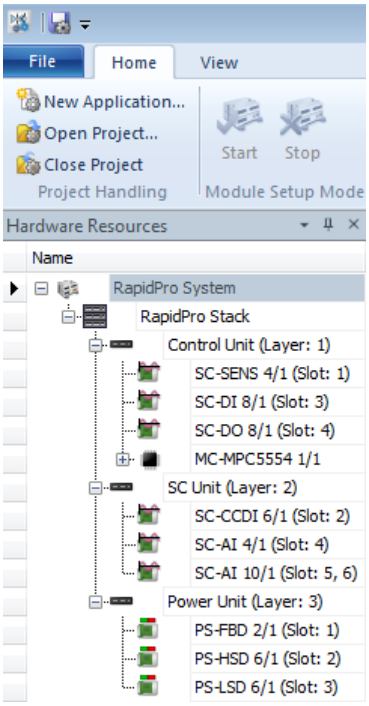
Tip

You can change the name at any time by selecting Rename from the context menu of the Project Manager.

4 Click OK.

Result

- ConfigurationDesk for RapidPro adds the RapidPro hardware topology information to the active application. The Project Manager displays the hardware topology either with the name you have entered or with its default name *HardwareTopology*. The Hardware Resource Browser is also displayed.



- If RapidPro hardware is connected to your host PC, different scenarios can occur regarding the state of your application. For details, refer to Assigning Connected RapidPro Hardware to Applications on page 49.
- If your active application already contains a configuration, adding a new hardware topology can influence the display of hardware components in ConfigurationDesk for RapidPro as follows:
  - If the configuration contains modules with selected channels and if these modules are not contained in the new hardware topology, they are displayed as missing hardware in the Hardware Resource Browser. For details on missing modules, refer to Basics on Missing Hardware on page 52.
  - Modules and their channels are not displayed as missing hardware if they are contained in the configuration of your active application and if the installation (layer, slot, type) is identical in the source hardware topology and the new one.

Related topics

Basics

Workflow for Creating Projects and Applications 16

HowTos

How to Load a RapidPro Configuration 57

References

File Types (ConfigurationDesk for RapidPro User Interface Reference 🕮)
Project Wizard (ConfigurationDesk for RapidPro User Interface Reference 🕮)

How to Load a RapidPro Configuration

Required configuration information

ConfigurationDesk requires information on the configuration of the RapidPro hardware that is to be configured. The configuration stored as a CDS file contains all the configuration parameters of the RapidPro hardware and their settings.

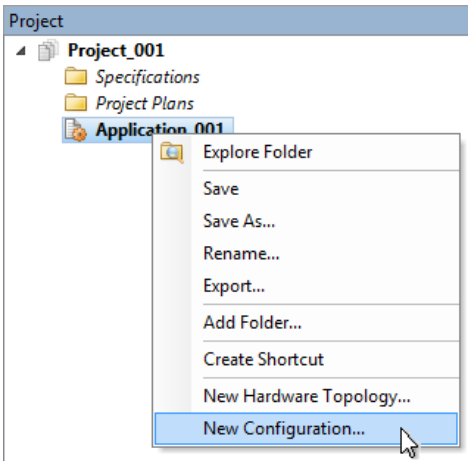
Preconditions

An application must already be defined and activated. Refer to How to Define an Application on page 33 and How to Activate an Application on page 36.

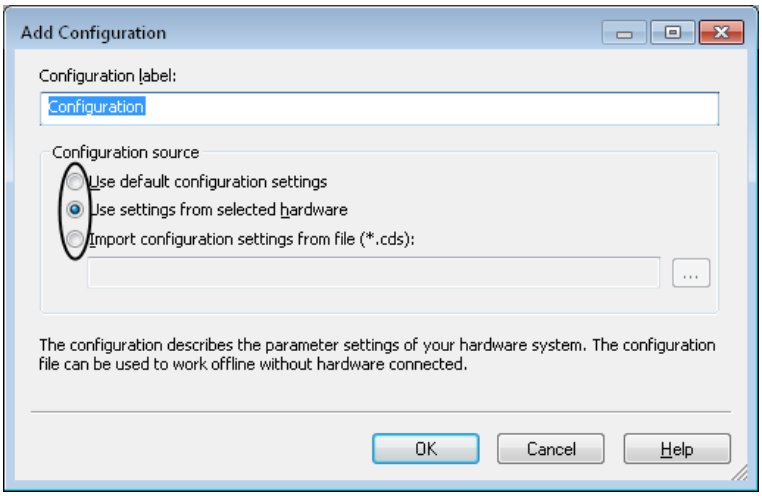
Method

To load a RapidPro configuration

1 If the Add Configuration dialog of the Project Wizard is not already open, right-click the application in the Project Manager and select New Configuration from the context menu.



An Add Configuration dialog opens.



2 Choose the source of the configuration information:
   - Default configuration settings.

     or:
   - The connected and powered RapidPro hardware.

     or:
   - An imported configuration (CDS file) from a prior scan.

3 Enter a name that represents the configuration in ConfigurationDesk. You can edit the default name.

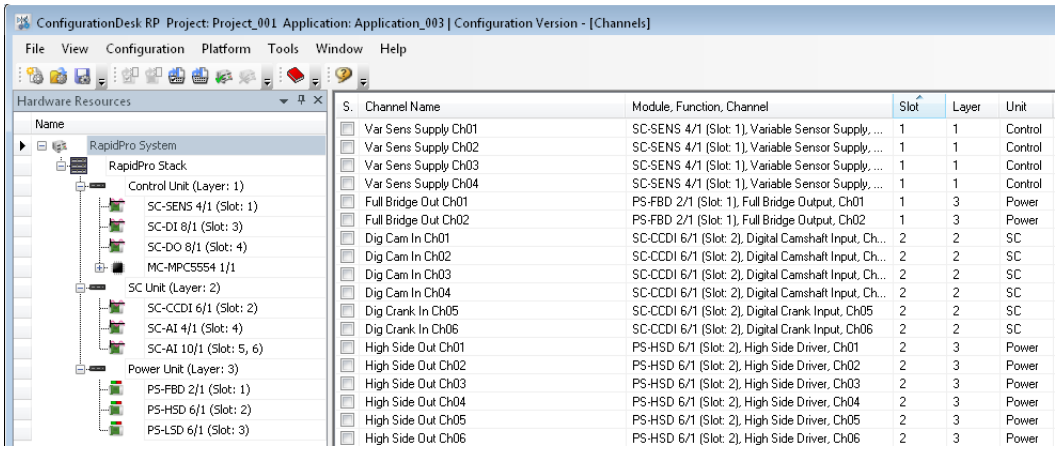
Tip

You can change the name at any time by selecting Rename from the context menu of the Project Manager.

4 Click OK.

Result

- ConfigurationDesk adds the configuration information to the active application. The Project Manager displays the configuration either with its default name *Configuration* or with the name you have entered. The Channel List is also displayed.



- If RapidPro hardware is connected to your host PC, different scenarios can occur regarding the state of your application. For details, refer to Assigning Connected RapidPro Hardware to Applications on page 49.

Related topics

Basics

Basics of Managing Projects and Applications....27
Workflow for Creating Projects and Applications....16

HowTos

How to Load a RapidPro Hardware Topology....54

References

File Types (ConfigurationDesk for RapidPro User Interface Reference 🕮)
Project Wizard (ConfigurationDesk for RapidPro User Interface Reference 🕮)

Configuring RapidPro Hardware

Objective

You can configure your RapidPro hardware via the Configuration Manager. It gives you access to the configuration of hardware parameters, system parameters (for example, the watchdog function), and the naming of some hardware components.

Where to go from here

Information in this section

Display of RapidPro Hardware in the Configuration Manager

Objective

When working with ConfigurationDesk for RapidPro, you need to know how your RapidPro hardware is displayed in the Configuration Manager and how to adapt the display to your requirements.

Where to go from here

Information in this section

Information in other sections

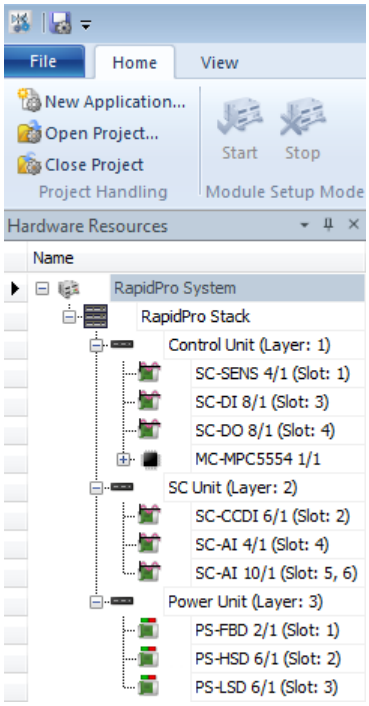
Display of Hardware Components in the Configuration Manager

Precondition

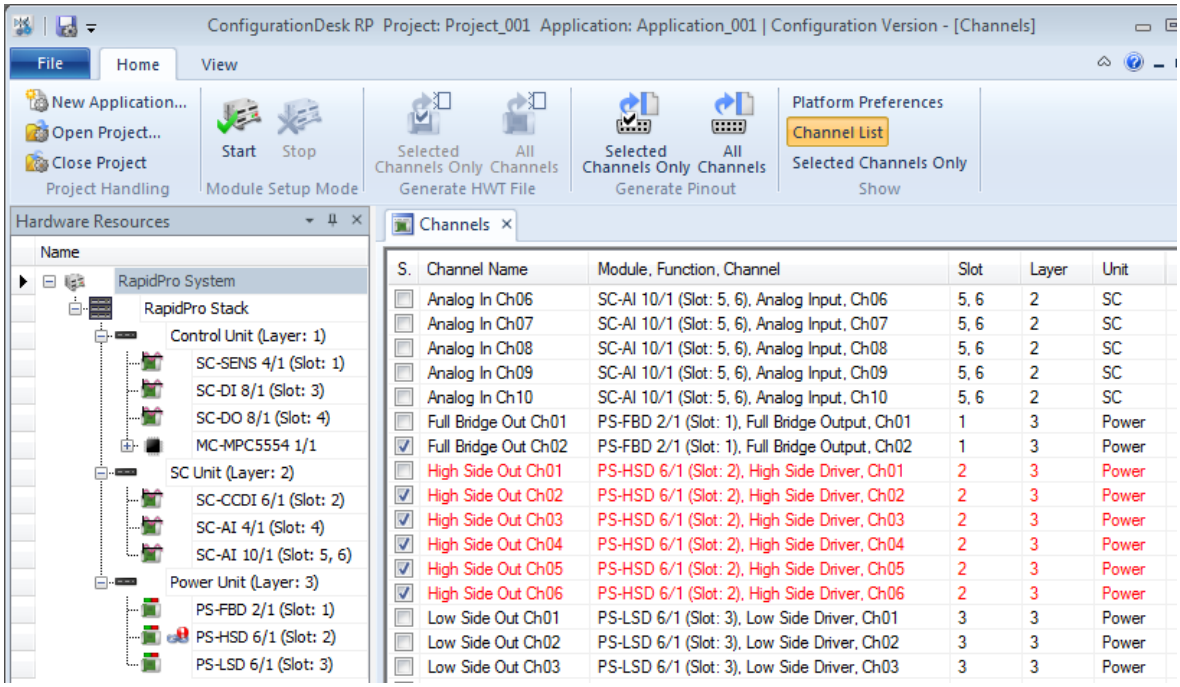
The Configuration Manager, or more precisely the Hardware Resource Browser and the Channel List, display information only if an application is loaded in ConfigurationDesk for RapidPro.

Hardware Resource Browser

You can access all unit-, module- and channel-related data via the Hardware Resource Browser. It displays all hardware components which are contained in the hardware topology of your active application in a hierarchical tree structure. The RapidPro stack is displayed as a container for the units. A unit is displayed as a container for all the modules installed in it.

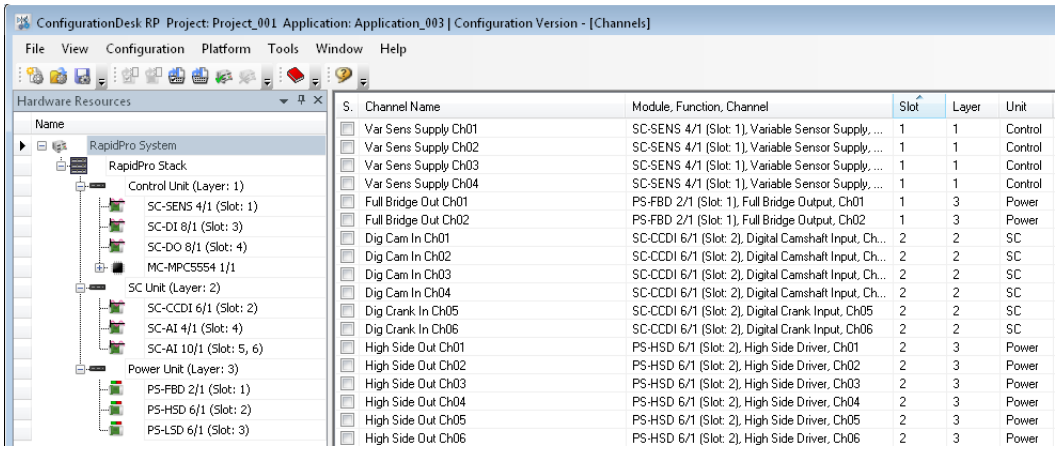


It may happen that a configured module with selected channels is no longer represented in the hardware topology because the hardware topology was replaced. In this case the module is displayed with a red warning symbol in the Hardware Resource Browser. A missing module can still be configured. If it is no longer needed, it can be removed from the hardware topology.



Channel List

You can access all module and channel-related data via the Channel List. The Channel List displays all the channels of the node selected in the Hardware Resource Browser. Selecting the RapidPro System in the Hardware Resource Browser displays, for example, all the channels of the RapidPro System in the Channel List. You can sort the Channel List by clicking the column header. These settings are used again after restart.



Right-click any channel in the Channel List and select **Show in Hardware Resource Browser** from the context menu to display the module associated with the channel in the Hardware Resource Browser. If the Hardware Resource Browser is collapsed, it will be expanded to display the module.

The Channel List displays the following categories (column headers) for each channel:

S.	Channel Name	Module, Function, Channel	Slot	Layer	Unit
☐	Var Sens Supply Ch01	SC-SENS 4/1 (Slot: 1), Variable Sensor Supply, ...	1	1	Control
☐	Var Sens Supply Ch02	SC-SENS 4/1 (Slot: 1), Variable Sensor Supply, ...	1	1	Control
☐	Var Sens Supply Ch03	SC-SENS 4/1 (Slot: 1), Variable Sensor Supply, ...	1	1	Control
☐	Var Sens Supply Ch04	SC-SENS 4/1 (Slot: 1), Variable Sensor Supply, ...	1	1	Control

- Checkbox to select/deselect the channel in the Channel List. You can sort according to a selection, or hide deselected channels.
- Name of the channel (user-configurable)
- Label of the RapidPro module, usage of the channel, module-related channel number
- Unit-related number of the module's slot

- Number of the layer (from bottom to top of the RapidPro stack)
- Type of the RapidPro unit (Control, SC, or Power)

Related topics

References

Hardware Resource Browser (ConfigurationDesk for RapidPro User Interface Reference 🕮)
New Hardware Topology (ConfigurationDesk for RapidPro User Interface Reference 🕮)

How to Move Columns of the Channel List

Objective

You can change the column order of the Channel List to adapt it to your personal preferences.

Method

To move columns of the Channel List

1 Click the header of the column, keeping the mouse button pressed.

S.	Channel Name	Module, Function, Channel	Slot	Layer	Unit
☐	Full Bridge Out Ch01	PS-FBD 2/1 (Slot: 1), Full Bridge Output, Ch01	1	3	Power
☐	Full Bridge Out Ch02	PS-FBD 2/1 (Slot: 1), Full Bridge Output, Ch02	1	3	Power
☐	Var Sens Supply Ch01	SC-SENS 4/1 (Slot: 1), Variable Sensor Supply, ...	1	1	Control
☐	Var Sens Supply Ch02	SC-SENS 4/1 (Slot: 1), Variable Sensor Supply, ...	1	1	Control
☐	Var Sens Supply Ch03	SC-SENS 4/1 (Slot: 1), Variable Sensor Supply, ...	1	1	Control
☐	Var Sens Supply Ch04	SC-SENS 4/1 (Slot: 1), Variable Sensor Supply, ...	1	1	Control
☐	Dig Cam In Ch01	SC-CCDI 6/1 (Slot: 2), Digital Camshaft Input, Ch...	2	2	SC
☐	Dig Cam In Ch02	SC-CCDI 6/1 (Slot: 2), Digital Camshaft Input, Ch...	2	2	SC

2 Drag the column header to the new position and release the mouse button.

S.	Module, Function, Channel	Channel Name	Slot	Layer	Unit
☐	PS-FBD 2/1 (Slot: 1), Full Bridge Output, Ch01	Full Bridge Out Ch01	1	3	Power
☐	PS-FBD 2/1 (Slot: 1), Full Bridge Output, Ch02	Full Bridge Out Ch02	1	3	Power
☐	SC-SENS 4/1 (Slot: 1), Variable Sensor Supply, ...	Var Sens Supply Ch01	1	1	Control
☐	SC-SENS 4/1 (Slot: 1), Variable Sensor Supply, ...	Var Sens Supply Ch02	1	1	Control
☐	SC-SENS 4/1 (Slot: 1), Variable Sensor Supply, ...	Var Sens Supply Ch03	1	1	Control
☐	SC-SENS 4/1 (Slot: 1), Variable Sensor Supply, ...	Var Sens Supply Ch04	1	1	Control
☐	SC-CCDI 6/1 (Slot: 2), Digital Camshaft Input, Ch...	Dig Cam In Ch01	2	2	SC
☐	SC-CCDI 6/1 (Slot: 2), Digital Camshaft Input, Ch...	Dig Cam In Ch02	2	2	SC

Result

The column has been moved to the new position.

Related topics

Basics

User Interface of ConfigurationDesk for RapidPro..... 14

HowTos

How to Hide Channels in the Channel List..... 66

References

Channel List (ConfigurationDesk for RapidPro User Interface Reference 🕮)

How to Hide Channels in the Channel List

Objective

You can cause ConfigurationDesk for RapidPro to hide channels in the Channel List by not selecting them in the Channel List.

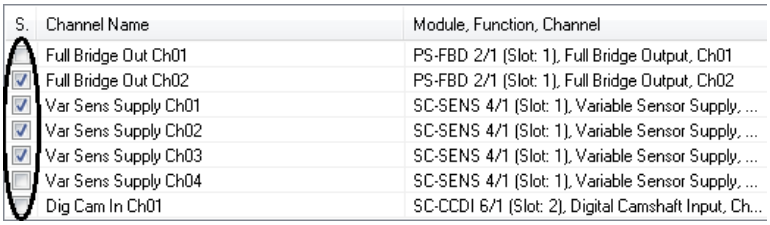
Note

By selecting channels in the Channel List, you specify that they belong to the active application. This selection has important effects on the display of missing hardware in ConfigurationDesk for RapidPro. For details, refer to Basics on Missing Hardware on page 52.

Method

To hide channels in the Channel List

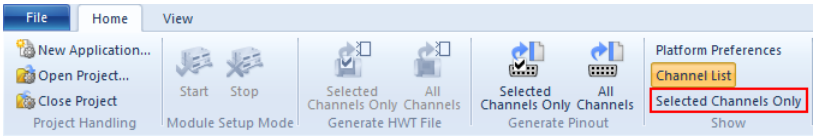
1 Do not select the checkboxes of channels you want to hide. Select only the checkboxes of channels that you want to display.



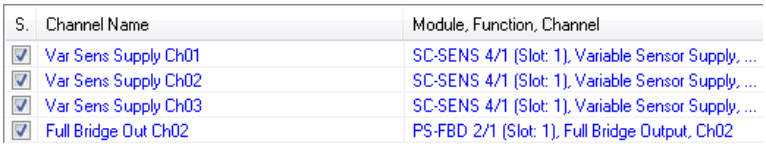
Tip

You can highlight several channels in the Channel List at a time. This multiselection allows you to change the status of all the highlighted channels at once.

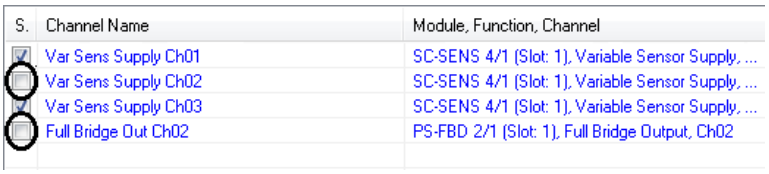
2 On the Home ribbon, click Show – Selected Channels Only.



The selected channels are still shown in the Channel List, and the channels with the cleared checkboxes are hidden. The Channel List entries are now displayed blue, instead of black. This indicates that the Channel List comprises more channels than currently displayed.



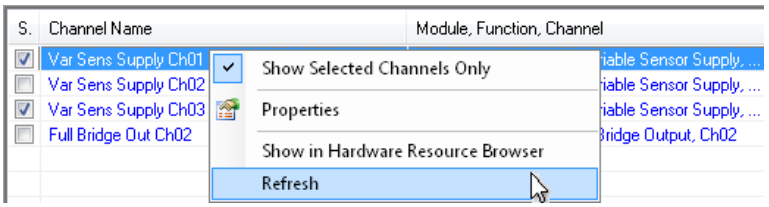
3 To hide further channels in the Channel List, clear the related checkboxes.



4 Right-click in the Channel List.

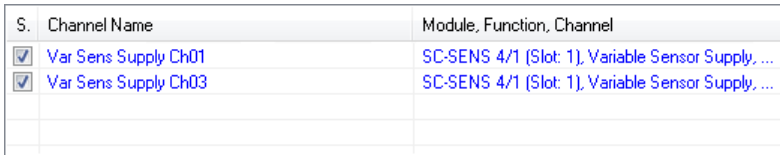
A context menu opens.

5 From this context menu, select Refresh.



Result

The channels with the cleared checkboxes are hidden.



Note

The status of the checkboxes is stored in the system configuration (CDS) file, but not on the RapidPro hardware.

Related topics

Basics

User Interface of ConfigurationDesk for RapidPro..... 14

References

Channel List (ConfigurationDesk for RapidPro User Interface Reference 🕮)

Switching to Modes and States

Objective

To achieve optimal working results, RapidPro hardware and ConfigurationDesk for RapidPro provide different operating modes and application states. Each mode and state has its own characteristics.

Where to go from here

Information in this section

Information in other sections

Characteristics of Application States and Operating Modes

Objective

Note that configuring RapidPro hardware can have different effects, depending on the mode of the RapidPro hardware and the application state ConfigurationDesk for RapidPro is in.

Application states in ConfigurationDesk for RapidPro

If you have loaded an application in ConfigurationDesk for RapidPro, it is in one of the following states:

- Not connected to RapidPro
- Connected to RapidPro
- Module setup mode

The application states are visualized in the status bar as follows:

State	Visualization	Description
Application state: Not connected to Hardware	 (red)	This state occurs if one of the following cases apply: ▪ The active application has no connection to the connected

State	Visualization	Description
		RapidPro hardware or there is no RapidPro hardware connected. ▪ The active application contains no hardware topology. Changes to configuration settings are saved in the CDS file.
Application state: Connected to Hardware	Application state: Connected to Hardware (yellow)	▪ This state occurs if the application loaded in ConfigurationDesk for RapidPro has a hardware topology that matches the hardware topology of the connected hardware. ▪ Changes to configuration settings are not saved on the hardware, but only in the CDS file.
Application state: Module setup mode	Application state: Module setup mode (green)	▪ This state occurs if the application loaded in ConfigurationDesk for RapidPro has a hardware topology and configuration that match the hardware topology and configuration of the connected hardware. ▪ Changes to configuration settings are immediately saved on the hardware.

For details on the application states and how they interact, refer to Assigning Connected RapidPro Hardware to Applications on page 49.

Operating modes of RapidPro hardware

Your RapidPro hardware can operate in different modes, as follows:

RapidPro System	Icon	Description
Idle mode		Indicates that the RapidPro system is in idle mode: ▪ If you use your SC or Power Unit as a single unit: A single RapidPro unit (SC/Power) has been switched to idle mode via its ENABLE pin (default setting). For details, refer to Connecting the Enable Input (RapidPro System Hardware Installation Guide 🕮). ▪ If you use your RapidPro system as an I/O subsystem: No application is being executed on your rapid control prototyping (RCP) system (like dSPACE's MicroAutoBox). You can download data to the hardware and change software-configurable hardware parameters. System and signal monitoring are also possible. The display of diagnostic messages, however, is not supported.

RapidPro System	Icon	Description
Execution mode		Indicates that the RapidPro system is in execution mode: ▪ If you use your SC or Power Unit as a single unit: A single RapidPro unit (SC/Power) has been switched to execution mode via its ENABLE pin (default setting). **Note** You can additionally activate the watchdog function via ConfigurationDesk. If the watchdog function is activated there must be signals connected to the enable input *and* the watchdog input to switch on the module outputs of the unit. For details, refer to Connecting the Enable Input (RapidPro System Hardware Installation Guide 🕮). ▪ If you use your RapidPro system as an I/O subsystem: An application is being executed on your rapid control prototyping (RCP) system (like dSPACE's MicroAutoBox). You cannot download data to the hardware or change software-configurable hardware parameters. System and signal monitoring, however, are possible. The display of diagnostic messages is also supported. You can stop a real-time application in ConfigurationDesk for RapidPro by switching the RapidPro system to idle mode. For more information, refer to How to Switch from Execution Mode to Idle Mode on page 78.
Error mode		Indicates that the RapidPro system is in error mode. This mode can occur if you perform incorrect actions in ConfigurationDesk for RapidPro, for example, if you try to start an application even though there are no applications saved. The error mode can also occur if temporary errors were found. Restarting often helps to solve the problem. If this is not the case, contact dSPACE support.

Note

If your application is in module setup mode and the RapidPro system is in execution mode, the configuration of modules is disabled.

Switching to module setup mode

Before the module setup mode can be started, the active application in ConfigurationDesk for RapidPro must be in the state "Connected to RapidPro". If this is the case ConfigurationDesk for RapidPro resynchronizes the configuration of the RapidPro hardware and the configuration of the application currently active in ConfigurationDesk for RapidPro.

Note

Resynchronization means overwriting data.

When you start the module setup mode, ConfigurationDesk for RapidPro asks you to choose between two resynchronization options, downloading and uploading:

Symbol	Description
	If you *download* the configuration settings from the active application, the configuration of the RapidPro hardware is updated.
	If you *upload* the configuration settings from the RapidPro hardware, the configuration data of the active application in ConfigurationDesk for RapidPro is updated.

Note

It is also possible to enter configuration changes when ConfigurationDesk for RapidPro is not in module setup mode. In this case you have no direct access to the connected hardware. If you change configuration settings, the changes can only be saved in your system configuration (CDS file). They are not downloaded to the connected hardware.

Automatic stop of module setup mode

ConfigurationDesk for RapidPro automatically stops the module setup mode, if one of the following conditions is fulfilled:

- USB connection to the host PC:
  - You have disconnected the RapidPro hardware from the host PC. Module setup mode must be restarted when you reconnect the RapidPro hardware to the host PC.
  - You have switched off the power supply of the RapidPro hardware. Module setup mode must be restarted when you switch on the power supply again.
- Project management:
  - You have closed the project.
  - You have renamed the project.
  - You have saved the project with another name.
- Application management:
  - You have activated another application.
  - You have created a new application within the current project.
  - You have renamed the active application.

If you use ConfigurationDesk for RapidPro simultaneously with ControlDesk, module setup mode has some specific characteristics.

Related topics

Basics

Connecting the Enable Input (RapidPro System Hardware Installation Guide 🕮)
Diagnostics Handling....97
Monitoring RapidPro Hardware....92

HowTos

How to Start the Module Setup Mode....75
How to Stop the Module Setup Mode....77

References

Open (Configuration) (ConfigurationDesk for RapidPro User Interface Reference 🕮)

Ways of Accessing ConfigurationDesk Activities

Performing activities

You can perform activities in ConfigurationDesk for RapidPro via the Platform Manager or via the Configuration Manager displaying the active application. The following table gives you an overview of ways of accessing important activities in ConfigurationDesk for RapidPro, and their required operating modes and application states.

If you need information on operating modes of the RapidPro system (execution mode, idle mode) and application states in ConfigurationDesk for RapidPro (not connected, connected, module setup mode) refer to Characteristics of Application States and Operating Modes on page 69.

Activities			Idle mode			Execution mode		
			Not connected	Connected	Module Setup Mode	Not Connected	Connected	Module Setup Mode
Configuration Activities								
Switching from execution mode to idle mode		Platform Manager	–[1)]	–	–	✓[2)]	✓	✓
		Configuration Manager	–	–	–	–	–	–
Enabling the watchdog function		Platform Manager	–	–	–	–	–	–
		Configuration Manager	✓	✓	✓	–	–	–
Configuring module and channel parameters		Platform Manager	–	–	–	–	–	–
		Configuration Manager	✓	✓	✓	–	–	–
Changing parameters of user-configurable circuits		Platform Manager	✓	✓	✓	✓	✓	✓
		Configuration Manager	–	–	–	–	–	–
Changing stack and unit names		Platform Manager	✓	✓	✓	✓	✓	✓
		Configuration Manager	–	–	–	–	–	–
Changing channel names		Platform Manager	–	–	–	–	–	–
		Configuration Manager	✓	✓	✓	✓	✓	–
Viewing hardware data		Platform Manager	✓	✓	✓	✓	✓	✓
		Configuration Manager	✓	✓	✓	✓	✓	✓
Diagnostic Activities								
Enabling the display of diagnostic warnings		Platform Manager	✓	✓	–	✓	✓	–
		Configuration Manager	✓	✓	✓	✓	✓	–
Resetting shutdown states of modules		Platform Manager	–	–	–	✓	✓	✓
		Configuration Manager	–	–	–	–	–	–
Deleting acknowledged warning messages		Platform Manager	–	–	–	✓	✓	✓
		Configuration Manager	–	–	–	–	–	–

Activities		Idle mode			Execution mode		
		Not connected	Connected	Module Setup Mode	Not Connected	Connected	Module Setup Mode
Monitoring Activities							
Monitoring logical states and voltages of specific signals	Platform Manager	✓	✓	✓	✓	✓	✓
	Configuration Manager	–	✓	✓	–	✓	✓
Monitoring system values (for example, temperatures, supply voltages)	Platform Manager	✓	✓	✓	✓	✓	✓
	Configuration Manager	–	✓	✓	–	✓	✓

1) – means not possible.
2) ✓ means possible.

Related topics

Basics

Characteristics of Application States and Operating Modes.....69

How to Start the Module Setup Mode

Objective

You must start the module setup mode, if you want to perform tasks like the following:

- You want to download the configuration of your active application which you have changed offline.
- You want to upload the current configuration of the connected hardware.
- You want your changes to be written to the connected hardware immediately.

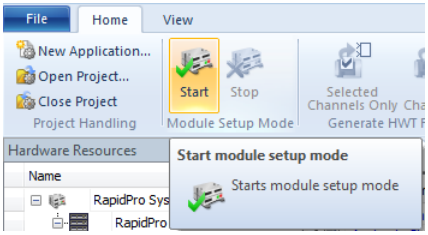
Preconditions

- RapidPro hardware must be connected to the host PC and must be powered.
- An application must be active and its state must be "Connected to RapidPro".

Method

To start the module setup mode

1 On the Home ribbon, click Module Setup Mode – Start.

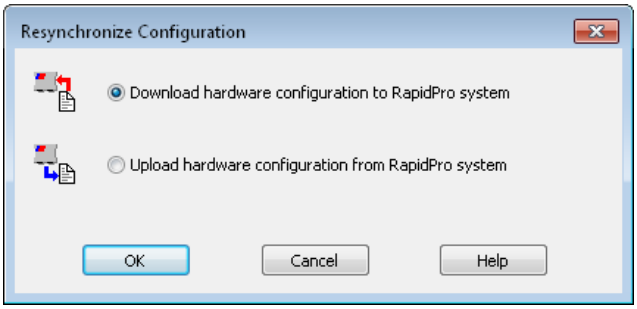


A Resynchronize Configuration dialog opens.

Note

Resynchronization means overwriting data.

2 Select a resynchronization option and click OK.



Note

Downloading is possible only if the RapidPro system is in idle mode, that is, no application is being executed on your RapidPro hardware.

ConfigurationDesk for RapidPro is busy for a few seconds while the configuration settings are resynchronized.

Result

The module setup mode is started. The application state changes from connected to module setup mode. This is displayed on a green background in the status bar.

Related topics

Basics

Characteristics of Application States and Operating Modes.....69

Diagnostics Handling....97
Monitoring RapidPro Hardware....92

HowTos

How to Generate Data Required by the RTI RapidPro Control Unit Blockset....113
How to Stop the Module Setup Mode....77

References

Open (Configuration) (ConfigurationDesk for RapidPro User Interface Reference 🕮)

How to Stop the Module Setup Mode

Objective

ConfigurationDesk for RapidPro enables you to easily stop the module setup mode.

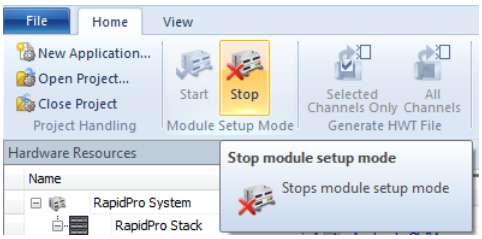
Precondition

ConfigurationDesk for RapidPro must be in module setup mode.

Method

To stop the module setup mode

1 On the Home ribbon, click Module Setup Mode – Stop.



Result

The module setup mode is stopped. The application state changes to connected. This is displayed on a yellow background in the status bar.

Related topics

Basics

Characteristics of Application States and Operating Modes....69

HowTos

How to Generate Data Required by the RTI RapidPro Control Unit Blockset....113

How to Start the Module Setup Mode....75

References

Stop Module Setup Mode (ConfigurationDesk for RapidPro User Interface Reference 🕮)

How to Switch from Execution Mode to Idle Mode

Objective

If you use your RapidPro system as an I/O subsystem, you can switch operating modes (execution mode, idle mode) via ConfigurationDesk for RapidPro.

Note

You should switch from execution mode to idle mode via ConfigurationDesk for RapidPro only in exceptional or emergency cases, when you want to stop the execution mode very fast. In all other cases stop the execution of the real-time application via the I/O subsystem.

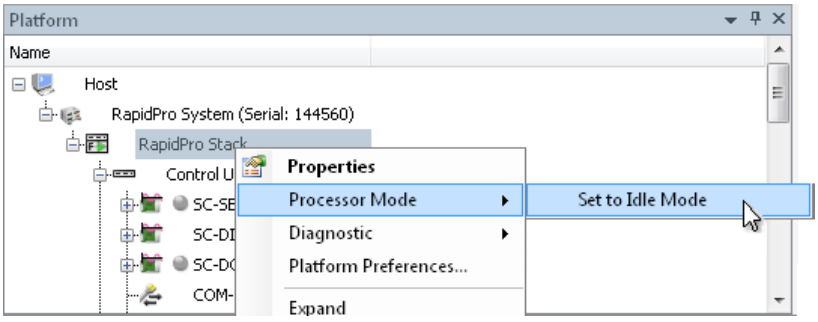
Preconditions

An application must be running on your RapidPro system, that is, your system must be in execution mode.

Method

How to switch from execution mode to idle mode

1 Right-click the RapidPro stack in the Platform Manager and select Processor Mode – Set to Idle Mode from the context menu.



A message dialog queries whether you really want to stop the RapidPro system.

2 Click Yes.

Result

Your RapidPro system is switched to idle mode and the real-time application running on the Control Unit is stopped. If you use your RapidPro system as an I/O subsystem, the application running on the RCP system (for example, MicroAutoBox) is stopped, too.

Switching back

If the RapidPro system is used as an I/O subsystem and you want to switch back to execution mode, you must start the application on your RCP system first. Afterwards the RapidPro system is set to execution mode. Keep in mind that the real-time application cannot be started via ConfigurationDesk for RapidPro in this use case.

Related topics

Basics

Basics on Connecting the Enable and Watchdog Inputs (RapidPro System Hardware Installation Guide 🕮)
Characteristics of Application States and Operating Modes.....69

References

Set to Idle Mode (ConfigurationDesk for RapidPro User Interface Reference 🕮)

Configuring RapidPro Hardware Parameters

Objective

ConfigurationDesk for RapidPro enables you to configure, for example, modules, channels and system parameters like the watchdog function, as well as parameters of user-configurable circuits.

Where to go from here

Information in this section

How to Enable the Watchdog Function of Single SC and Power Units

Objective

SC Units and Power Units used as single units offer you a watchdog function for safety purposes which can be enabled or disabled.

Watchdog function

Single SC and Power Units provide a watchdog timer (WDT) pin on their rear I/O connector for the watchdog function. If the watchdog function is enabled via Configuration Desk for RapidPro:

- There must be a signal applied to the WDT pin to enable the outputs of the unit.
- The outputs of the unit are disabled if there is no signal applied or a signal outside the specified range.

By default, the watchdog function is disabled.

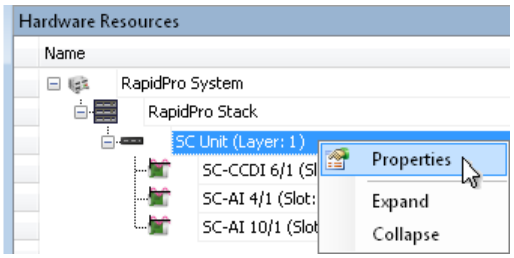
Preconditions

- The RapidPro system must be in idle mode.
- A signal which corresponds to the required specification must be applied to the WDT pin. For signal specification, refer to Connecting the Watchdog Input (RapidPro System Hardware Installation Guide 🕮).

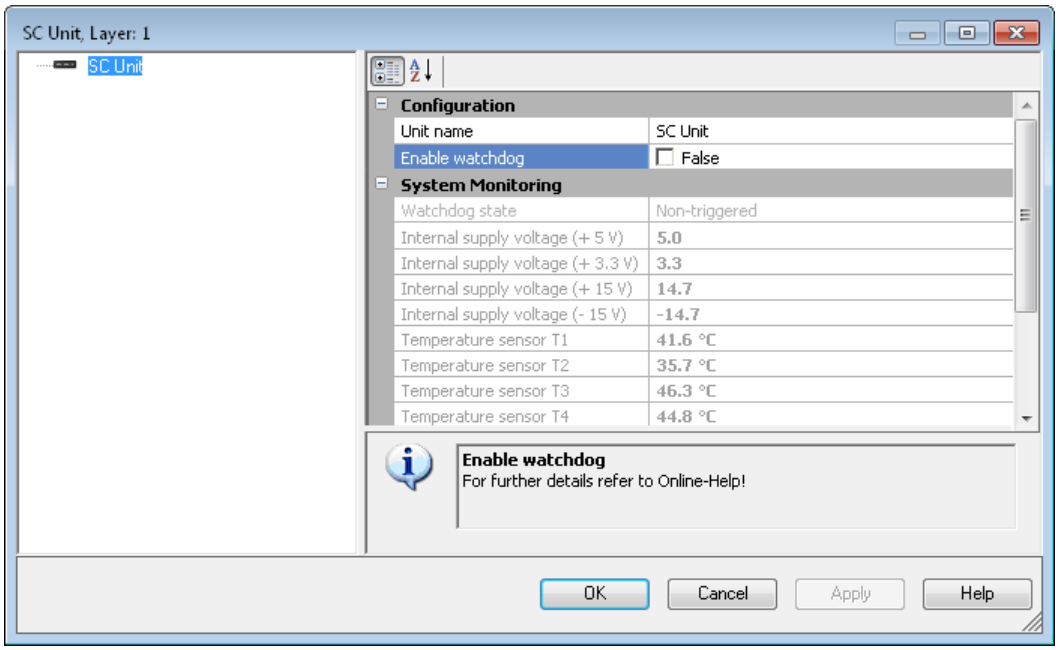
Method

How to enable the watchdog function of a single SC/Power Unit

1 In the Hardware Resource Browser, right-click the unit and select Properties from the context menu.



The properties dialog of the unit opens.



2 In the dialog, set the Enable watchdog option to True.

3 Click OK.

The properties dialog is closed.

Result

You have enabled the watchdog function. Your RapidPro hardware is immediately updated. A signal at the WDT pin is now necessary to enable the outputs of the unit.

Related topics

Basics

Connecting the Watchdog Input (RapidPro System Hardware Installation Guide 🕮)

How to Configure Module and Channel Parameters

Objective

Modules and channels provide parameters which you can change according to your personal requirements. Note that not all modules are configurable.

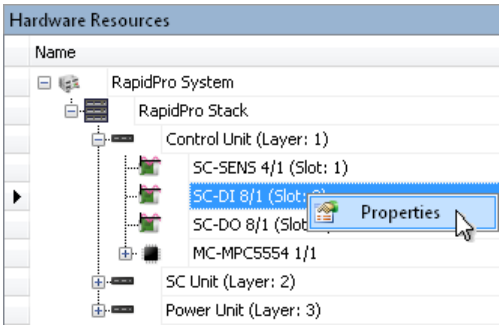
Preconditions

The application that holds the module must be active. Refer to How to Activate an Application on page 36.

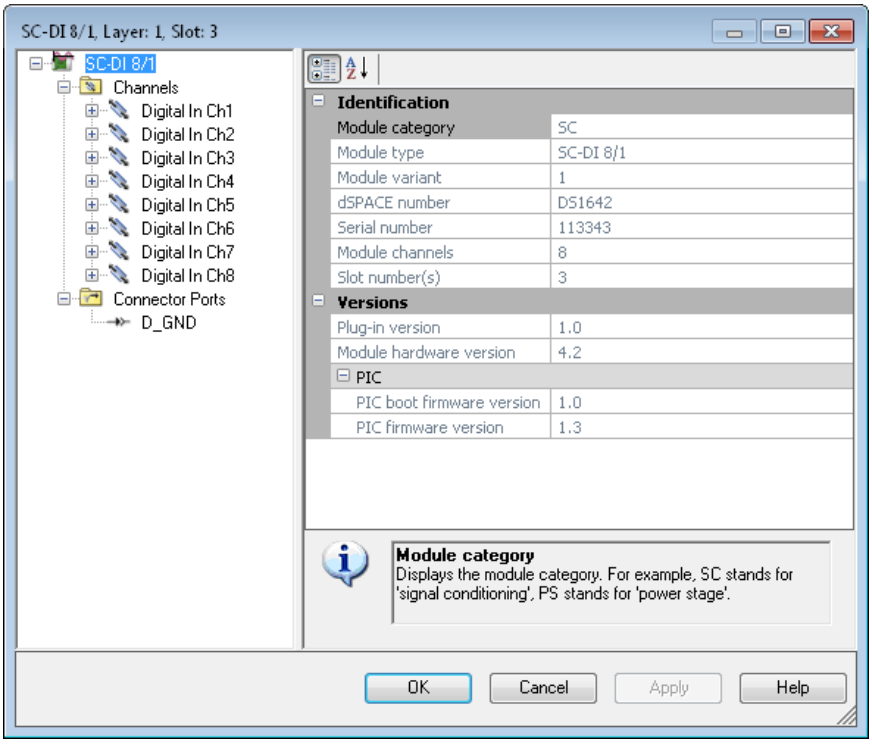
Method

To configure modules and channels

1 In the Hardware Resource Browser or in the Channel List, right-click a module/ channel and select Properties from the context menu.



A properties dialog opens.



⚠ WARNING

Changes to hardware parameter values can cause uncontrolled movements and/or material damage to connected devices.

Risk of injury and material damage!

Before changing the hardware configuration, think through the effects of the changes you are planning.

Ensure that no one is in the potential danger zone of the device (test bench, etc.) when the changes first take effect.

2 Configure module and channel parameters according to your needs.

3 Click OK.

Result

You have configured module and channel parameters. If your active application is in module setup mode, the configuration of the RapidPro hardware is updated.

How to Change Parameters of User-Configurable Circuits

Objective

Some channels provide user-configurable circuits for adaptation to different use cases. You can change circuit parameters according to your hardware setup.

Hardware behavior

The values for user-configurable circuits are stored on the RapidPro hardware as reminders. They do not affect the channel's behavior. Note that ConfigurationDesk for RapidPro does not check if your entries comply with the connected hardware equipment.

By default, the changing of circuit parameters is locked.

Restriction

Parameters of user-configurable circuits can only be changed via the Platform Manager.

Precondition

The following preconditions must be fulfilled:

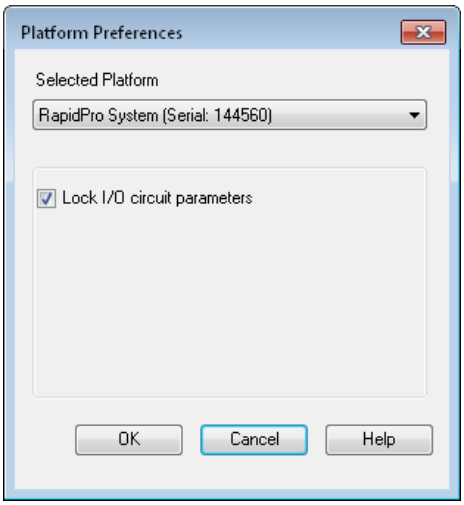
- RapidPro hardware must be connected to your PC and powered.
- Your application must not be in module setup mode.

Method

To change parameters of user-configurable circuits

1 On the Platform menu, click Platform Preferences.

A Platform Preferences dialog opens.



2 From the drop-down list, select the platform whose circuit parameters you want to unlock.

3 Clear the Lock I/O Circuit Parameters option and click OK.

The circuit parameters are now unlocked and can be changed.

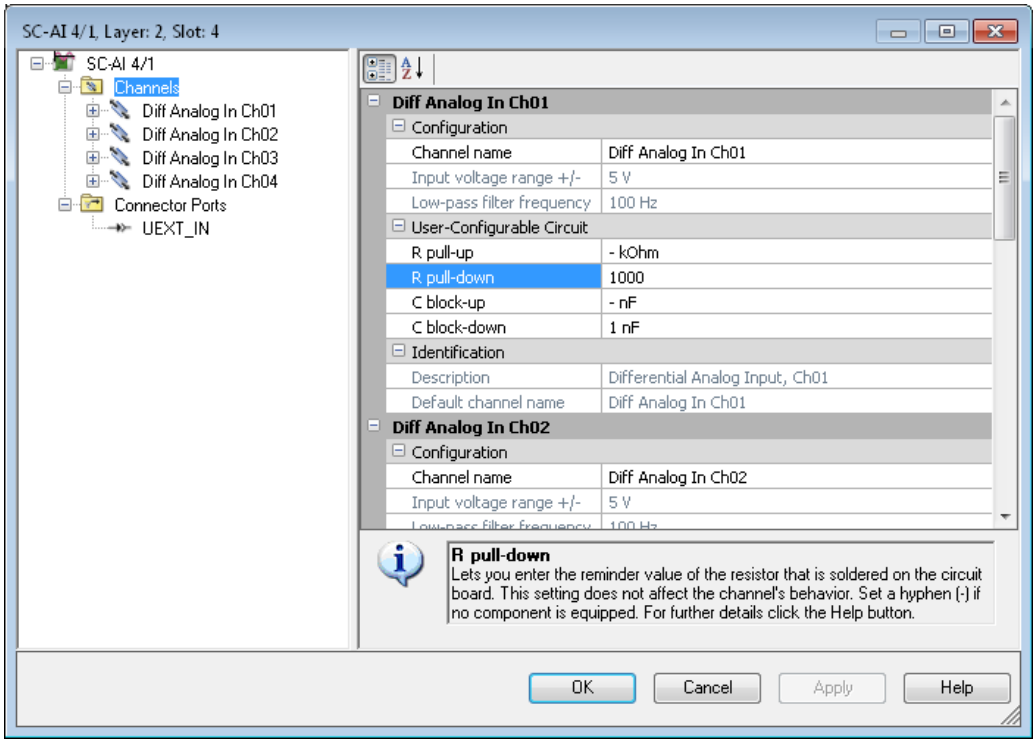
4 In the Platform Manager, select a hardware component whose circuit parameters you want to change.

5 From the context menu, select Properties.

A properties dialog opens.

Tip

Selecting a hardware component and double-clicking it or pressing Enter also opens the properties dialog.



Change the circuit parameters according to your needs and click **OK**.

Result

The circuit parameters of the selected hardware component are changed according to your entries. The entries are stored on your RapidPro hardware.

Tip

You can also unlock circuit parameters by selecting a RapidPro stack in the Platform Manager and selecting **Platform Preferences** from its context menu.

Changing Stack, Unit, and Channel Names

Objective

ConfigurationDesk for RapidPro allows you to rename RapidPro stacks, units, and channels so that the naming meets your requirements. The names of RapidPro stacks and units can only be changed via the Platform Manager, and channels can only be renamed via the Hardware Resource Browser.

Where to go from here

Information in this section

How to Change a Stack Name

Use of stack names

A stack name is just used as a label. It is not used, for example, by the RTI RapidPro Control Unit Blockset.

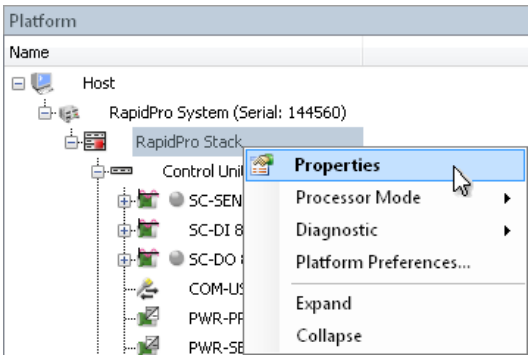
Restrictions

- Only stacks that consist of a RapidPro Control Unit can be renamed.
- Stacks can only be renamed via the Platform Manager.

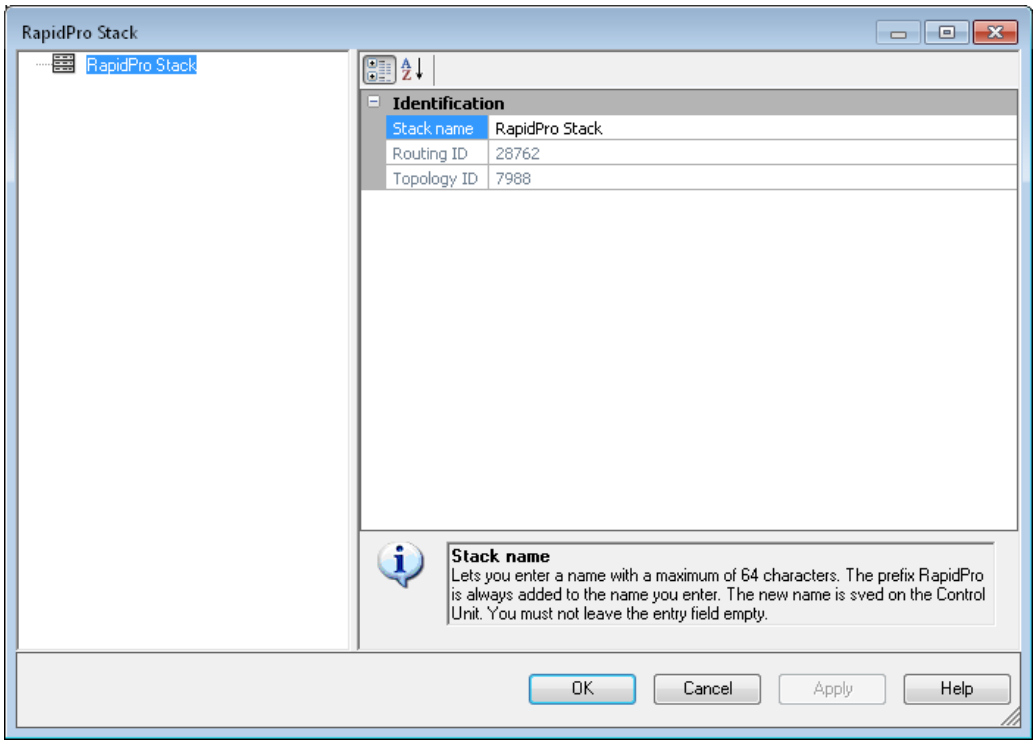
Method

To change a stack name

1 In the Platform Manager, right-click the stack and select **Properties** from the context menu.



The properties dialog of the stack opens.



2 Click in the Stack name edit field.

3 Enter a new stack name and click OK.

Result

The RapidPro stack is renamed. The new stack name is displayed in the Platform Manager and the RapidPro hardware is updated.

Related topics

HowTos

How to Activate an Application....36
How to Change a Channel Name....89
How to Change a Unit Name....87

How to Change a Unit Name

Use of unit names

A unit name is just used as a label. It is not used, for example, by the RTI RapidPro Control Unit Blockset.

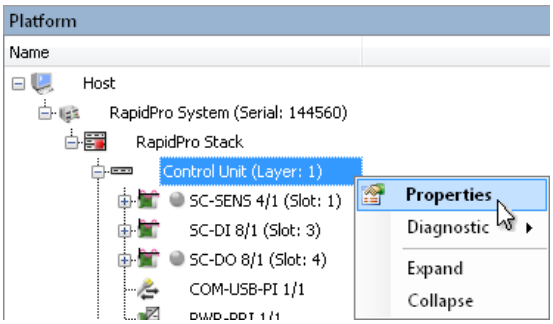
Restriction

Units can only be renamed via the Platform Manager.

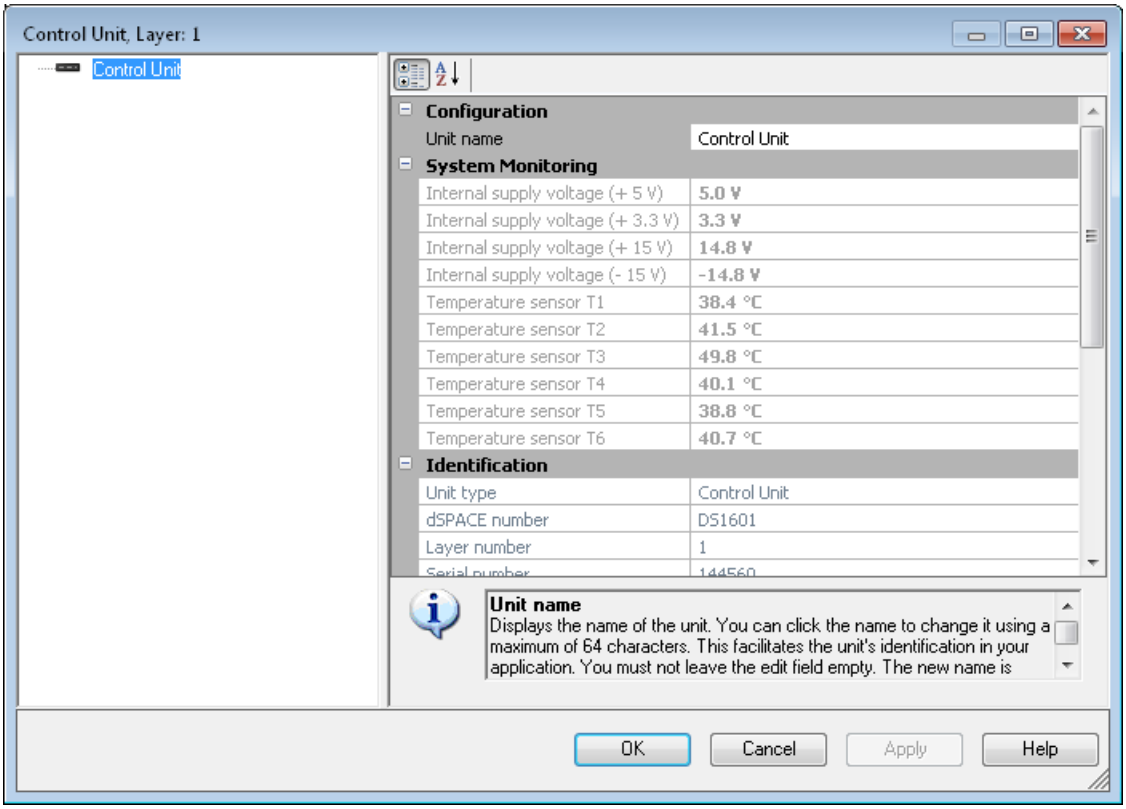
Method

To change a unit name

1 In the Platform Manager, right-click the unit and select Properties from the context menu.



The properties dialog of the unit opens.



2 Click in the Unit name edit field.

3 Enter a new unit name and click OK.

Result

The RapidPro unit is renamed. The new unit name is displayed in the Platform Manager and the RapidPro hardware is updated.

Related topics

HowTos

How to Change a Channel Name

Changing channel names

ConfigurationDesk for RapidPro provides default channel names. You can change channel names to include information on the channel's configuration, etc.

Access to channel names

The channel names which you see in ConfigurationDesk for RapidPro and which you can change are part of the exported output data required in other worksteps. You can view these channel names:

- In the pinout information list
- In the settings of the blocks in the RTI RapidPro Control Unit Blockset

For details, refer to How to Export Pinout Information on page 109 or How to Generate Data Required by the RTI RapidPro Control Unit Blockset on page 113.

Restriction

Channels can only be renamed via the Hardware Resource Browser or the Channel List.

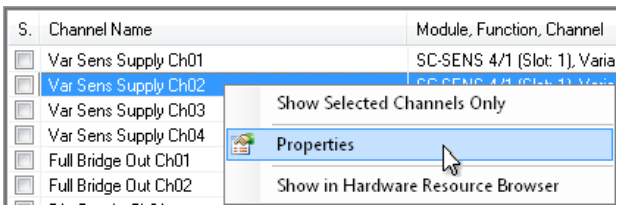
Preconditions

The application that holds the channel must be active. Refer to How to Activate an Application on page 36.

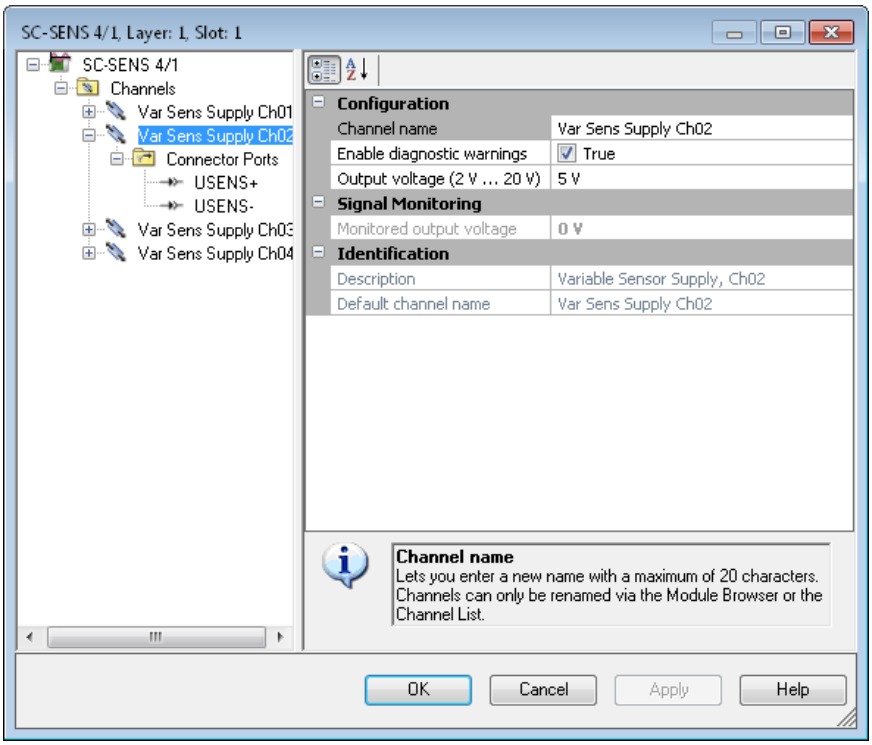
Method

To change a channel name

1 In the Channel List, right-click the channel and select Properties from the context menu.



The property dialog opens.



2 Click in the **Channel name** edit field.

3 Enter a new name for the channel and click **OK**.

Result

The channel is renamed. The new channel name is displayed in the Channel List at its original position. If your active application is in module setup mode, the new channel name is saved on your connected hardware and displayed in the Platform Manager.

Next steps

- If you want to sort the Channel List alphabetically, click the column title **Channel Names**.
- If you work with a RapidPro Control Unit, changing a channel name requires the generation of a new HWT file for the RTI RapidPro Control Unit Blockset. Refer to How to Generate Data Required by the RTI RapidPro Control Unit Blockset on page 113.

Related topics

HowTos

How to Activate an Application....36
How to Change a Stack Name....86
How to Change a Unit Name....87

Monitoring and Diagnostics

Objective

You can monitor the condition of RapidPro hardware and the connection of sensors and actuators to it. This supports troubleshooting if there was a malfunction in your RapidPro system caused, for example, by the connected sensors or actuators.

Where to go from here

Information in this section

Monitoring RapidPro Hardware

Objective

You can monitor:

- Signal values of specific channels (voltages or logical states)
- Temperatures on units and SC/PS modules
- Internal and external supply voltages of units

Where to go from here

Information in this section

How to Monitor Signal Values of Specific Channels

Objective

ConfigurationDesk for RapidPro displays the signal values (voltages or logical states) measured for a specific channel.

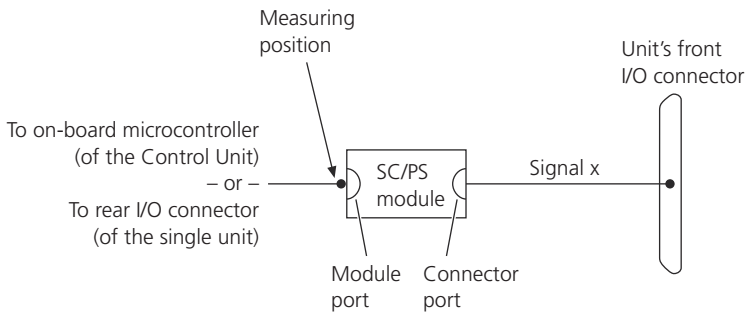
Restriction

Note

Not all modules and channels provide signal monitoring. For the availability of this feature, refer to the respective chapters (Monitoring) of the RapidPro modules in the RapidPro System Hardware Reference 🕮.

Measuring position

By default, the signals are measured at the module port of a channel. The measuring position is shown below:



Module Port A module port represents a signal of a channel (or a channel-independent signal of a module) which is connected to further signal processing. Depending on the use case, it is connected to the microcontroller of the Control Unit or to the rear I/O connectors of single SC and Power Units. Each channel (and each module) can contain multiple module ports.

Connector Port A connector port represents one signal of a channel (or a channel-independent signal of a module) which is connected to the front I/O connectors of a RapidPro unit. Each channel (and each module) can contain multiple connector ports.

Scan rate

The voltages are measured with a scan rate of approx. 200 ms. Thus, you can measure only DC signals properly.

Required modes and states

You can access the monitored values via an activated application and via the Platform Manager. The following table shows the required modes and states.

Operating Mode	Application State	Access via ...	
		Platform Manager	Active Application
Idle mode	Not connected	✓ [1]	– [2]
	Connected to RapidPro	✓	✓
	Module setup mode	✓	✓
Execution mode	Not connected	✓	–
	Connected to RapidPro	✓	✓
	Module setup mode	✓	✓

[1] Monitoring is possible.
[2] Monitoring is not possible.

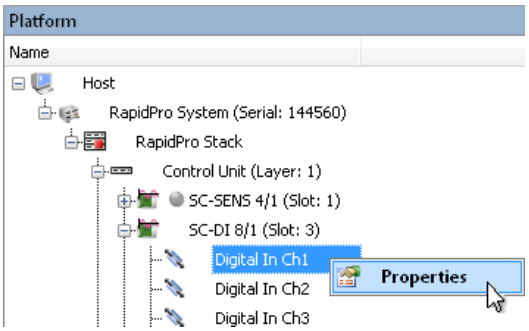
Preconditions

RapidPro hardware is connected to your host PC and displayed in the Platform Manager.

Method

To monitor signal values of specific channels

1 In the Platform Manager (or Hardware Resource Browser), right-click on a channel and select Properties from the context menu.

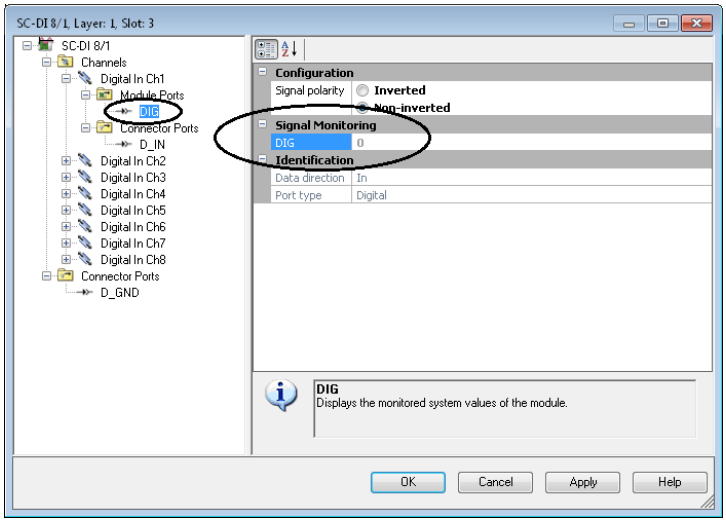


The properties dialog opens.

2 In the properties dialog, select a module port.

Result

The current value of the selected signal at the module port is displayed in the Signal Monitoring category:



How to Monitor System Values such as Temperatures and Supply Voltages

Objective

You can monitor values of your RapidPro system which are displayed for troubleshooting purposes.

Available system values

System Value	Description	Scan Rate
Unit temperatures	The temperatures of RapidPro units are measured at several critical locations on the unit's carrier boards. For details on the sensor locations, refer to the respective chapters (Temperature Sensors) of the RapidPro units in the RapidPro System Hardware Reference 🕮.	The actual temperature is displayed with a typical scan rate of approx. 500 ms.
Module temperatures	The temperature of some RapidPro modules are measured either: ▪ At several locations for each channel separately or ▪ At one or more critical locations on the module	
Internal supply voltages	For all RapidPro units, internal supply voltages which are generated on the carrier board are displayed.	The supply voltages are displayed with a typical scan rate of approx. 500 ms.
External supply voltages	For Power Units external supply voltages (applied at the external UBAT pins) are displayed, too.	

Required modes and states

You can access the monitored values via an activated application and via the Platform Manager. The following table shows the required modes and states.

Operating Mode	Application State	Access via ...	
		Platform Manager	Active Application
Idle mode	Not connected	✓ [1]	– [2]
	Connected to RapidPro	✓	✓
	Module setup mode	✓	✓
Execution mode	Not connected	✓	–
	Connected to RapidPro	✓	✓
	Module setup mode	✓	✓

[1] Monitoring is possible.
[2] Monitoring is not possible.

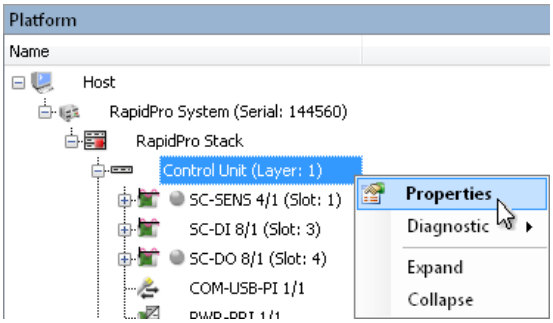
Preconditions

RapidPro hardware is connected to your host PC and displayed in the Platform Manager.

Method

To monitor system values such as temperatures and supply voltages

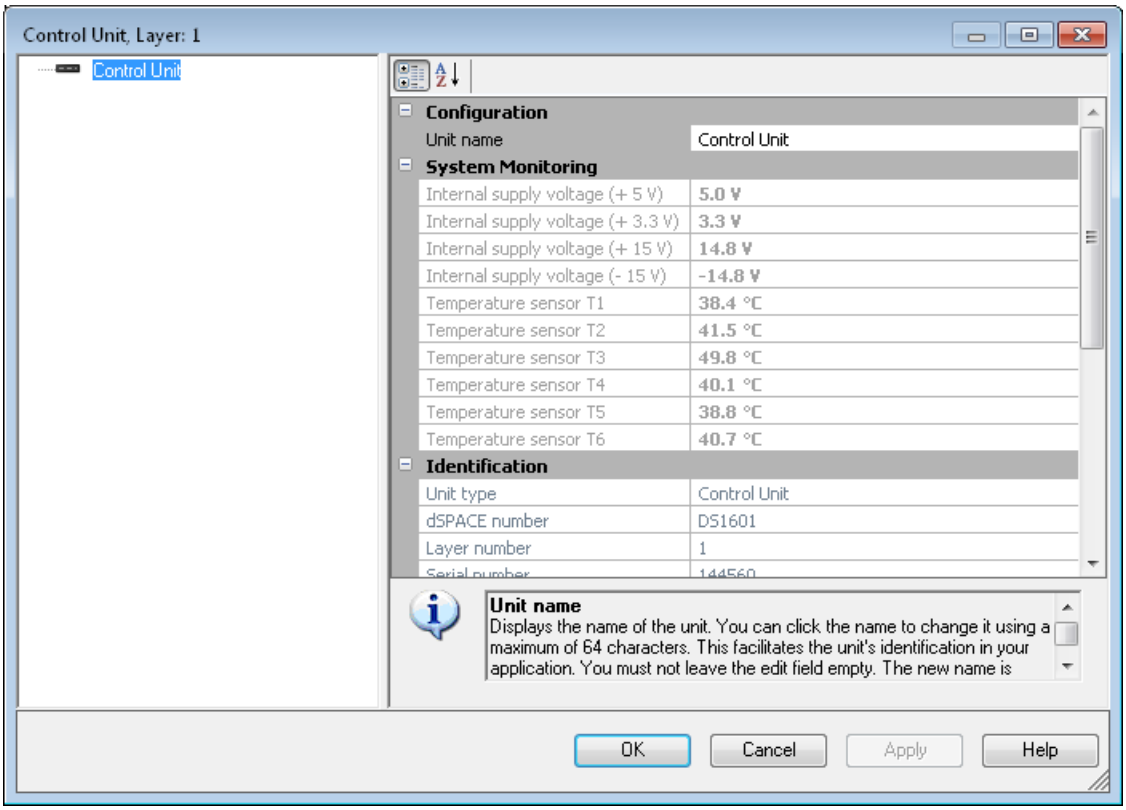
1 In the Platform Manager (or Hardware Resource Browser), right-click on a hardware component (unit or module) and select **Properties** from the context menu.



Result

The properties dialog opens.

The system values are displayed in the System Monitoring category shown by the Control Unit as an example:



Diagnostics Handling

Objective

You need the following information when handling diagnostic messages generated by connected sensors and actuators, such as overcurrent, short circuit, open load, overheat, and over- and undervoltage.

Where to go from here

Information in this section

Basics on Diagnostic Messages

Diagnostic messages

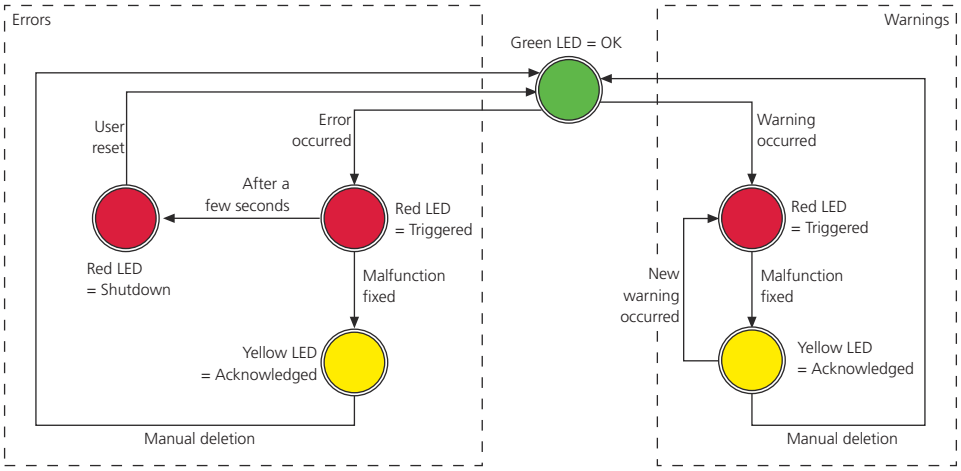
Diagnostic messages are represented in the Platform Manager via diagnostic LEDs. There is also a **Diagnostic View** dialog providing detailed information on diagnostic messages. Diagnostic messages can be divided into diagnostic warnings and diagnostic errors, depending on their severity.

Diagnostic errors Diagnostic errors indicate dangerous malfunctioning of the RapidPro hardware, for example, a short circuit. Such malfunctioning triggers a shutdown of the channel or module concerned, i.e., all functions are disabled.

- If the malfunction is fixed *before* the channel or module has been shut down, the error message is automatically acknowledged by the RapidPro system.
- If the malfunction is fixed *after* the channel or module has been shut down, you must reset the associated module manually via ConfigurationDesk for RapidPro. If the error is still present when the module reset is triggered, the associated channel or module will shut down again. Otherwise, normal module function is restored and shutdown- and error messages are acknowledged.

Diagnostic warnings Diagnostic warnings indicate non-dangerous malfunctioning of the RapidPro hardware, for example, an open load. If the malfunction is fixed, the warning message is always automatically acknowledged by the RapidPro system. However, it is not deleted automatically. You must delete it manually. Thus, you can always check whether diagnostic warnings have been acknowledged. For example, a connection which had a loose contact is displayed as an acknowledged "open load" warning.

The following illustration visualizes the diagnostic behavior described above.



Preconditions

ConfigurationDesk for RapidPro displays diagnostic messages about channels sent by the RapidPro modules only if the following preconditions are fulfilled

- The RapidPro system must be in execution mode, i.e., a real-time application must be running.
- The firmware of the connected RapidPro system must be up-to-date.

Possible diagnostic messages

Keep in mind that not every SC and PS module provides diagnostic features and that diagnostic messages depend on the affected module. For detailed information on possible diagnostic messages, refer to the respective *Diagnostics* chapters for the RapidPro modules in the RapidPro System Hardware Reference 🕮.

Related topics

Basics

Basics on the Display of Diagnostic Messages 99

HowTos

How to Enable/Disable the Display of Diagnostic Warnings 103
How to Reset Shutdown States of Modules 105

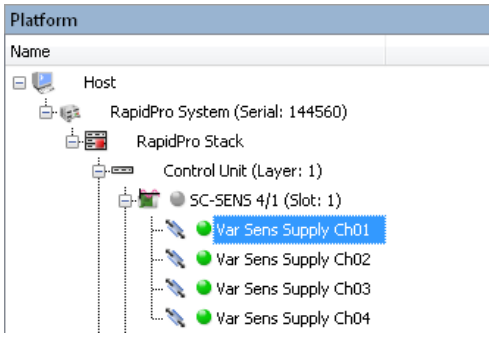
Basics on the Display of Diagnostic Messages

Objective

To handle diagnostic messages efficiently, you must know how they are represented in ConfigurationDesk for RapidPro. Most of the RapidPro modules can generate diagnostic messages.

Display in the Platform Manager

Modules and channels which can generate diagnostic messages provide diagnostic LEDs in the Platform Manager.



Modules and channels which do not support diagnostic features do not have diagnostic LEDs in the Platform Manager.

The following LEDs are available:

LED		Meaning
	Green	Diagnostic errors/warnings do not exist.
	Red	Diagnostic errors/warnings exist.
	Yellow	Acknowledged warning messages exist.
	Gray	Either the display of diagnostic warnings is disabled, or the module does not provide diagnostic warnings.
No LED		No diagnostic features available.

If diagnostic messages exist at subcomponents belonging to the selected hardware item, this is indicated by arrows in the Platform Manager:

Symbol		Meaning
	Red	Diagnostic messages (warnings and/ or errors) exist at subcomponents of the selected hardware item.
	Black	Diagnostic messages which have been automatically acknowledged by the RapidPro system exist at the subcomponents of the selected hardware item.

Diagnostic LEDs and arrow symbols can appear separately, but also together. For example, you can find combinations like this:

Symbol		Meaning
	Red arrow, green LED	There are no diagnostic messages (warnings and/ or errors) at the selected hardware item, but at its subcomponents. For example, there are no diagnostic warnings available for a selected module, but for its channels.
	Red arrow, red LED	Diagnostic messages (warnings and/ or errors) exist at the selected hardware item and at its subcomponents. For example, there are diagnostic warnings available for a selected module, and also for its channels.

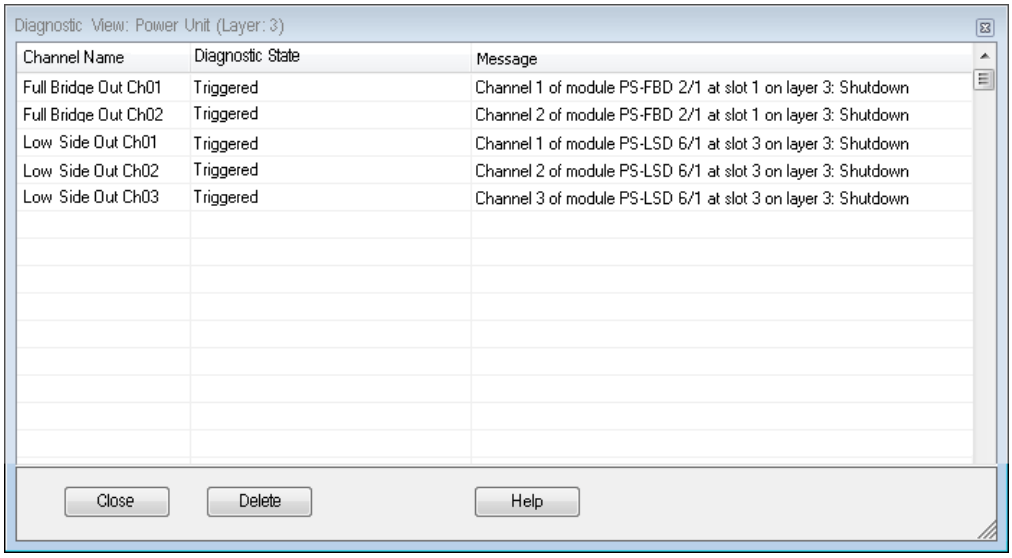
For details on further combinations of diagnostic LEDs and arrow symbols refer to Platform Manager (ConfigurationDesk for RapidPro User Interface Reference 🕮).

If an error message exists for a few seconds, the affected hardware component shuts down. For a channel in the Platform Manager, for example, this is visualized like this:

Symbol	Meaning
	A channel is in shutdown mode.

Display of diagnostic entries

Available diagnostic messages are listed and described in detail in a **Diagnostic View** dialog. It can be evoked by right-clicking every node in the Platform Manager which has at least one error or warning message and selecting **Diagnostic - View Diagnostic Entries** from the context menu. Diagnostic messages are displayed in a list for the complete hardware system, for a unit, for a module or a channel, depending on which node you select in the Platform Manager.

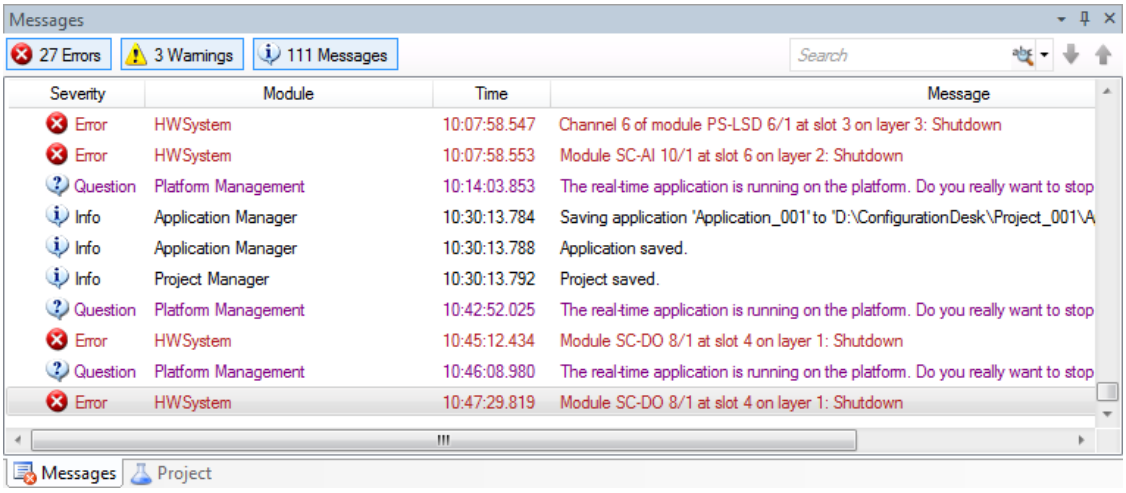


For details on the list's entries, refer to View Diagnostic Entries (ConfigurationDesk for RapidPro User Interface Reference 🕮).

Acknowledged warning messages are listed in the **Diagnostic View** dialog until you delete them manually. For instructions on the deletion of acknowledged warning messages, refer to How to Delete Acknowledged Warning Messages on page 106.

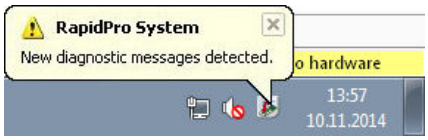
Display on the Message Viewer

The *Message Viewer* displays all system messages in chronological order, for example, diagnostic messages. It lets you search for messages and filters the messages to be displayed. For more information on searching and filtering messages, refer to Message Viewer (ConfigurationDesk for RapidPro User Interface Reference 🕮).



Display of diagnostic messages in the task bar

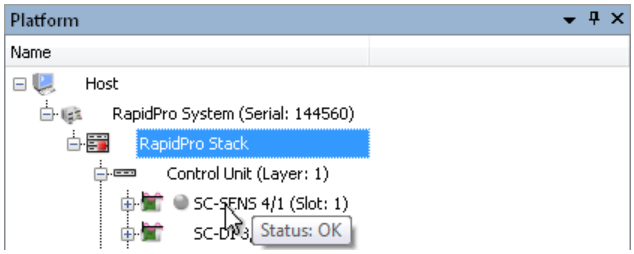
Whether ConfigurationDesk for RapidPro is running in the foreground or in the background, or is minimized, you are informed about new diagnostic messages as follows:



You can close the balloon message by clicking the icon in the task bar or the balloon message itself. Note that only one message of a task bar icon can be displayed at a time. Thus, the diagnostic message can be displaced temporarily by a message of another task bar icon.

Tooltip messages

If a diagnostic message exists for a particular hardware component, a tooltip message is available for the component in the Platform Manager. It gives you information on the status of the diagnostic message.



For details on the different kinds of tooltip messages in ConfigurationDesk for RapidPro, refer to Platform Manager (ConfigurationDesk for RapidPro User Interface Reference 🕮).

Related topics

Basics

Basics on Diagnostic Messages 97

HowTos

How to Delete Acknowledged Warning Messages 106
How to Enable/Disable the Display of Diagnostic Warnings 103
How to Reset Shutdown States of Modules 105

How to Enable/Disable the Display of Diagnostic Warnings

Objective

By enabling diagnostic warnings, you specify that not only diagnostic errors are displayed in ConfigurationDesk for RapidPro, but also diagnostic warnings.

Access possibilities and operating mode

You can enable/disable the display of diagnostic warnings via the Platform Manager and the Hardware Resource Browser. Depending on whether you want to work with the Platform Manager or the Hardware Resource Browser, you must note the following restrictions:

- If you want to use the Platform Manager, your active application must not be in module setup mode. Note that your changes take immediate effect on the connected RapidPro system when you use the Platform Manager.
- If you want to use the Hardware Resource Browser, your active application must be in module setup mode and your connected hardware must be in idle mode if you want your changes to take immediate effect on the connected hardware. If ConfigurationDesk for RapidPro is not in module setup mode, you must download your changes to the hardware before they can become effective.

Possible methods

You can choose between two methods when enabling/disabling diagnostic warnings.

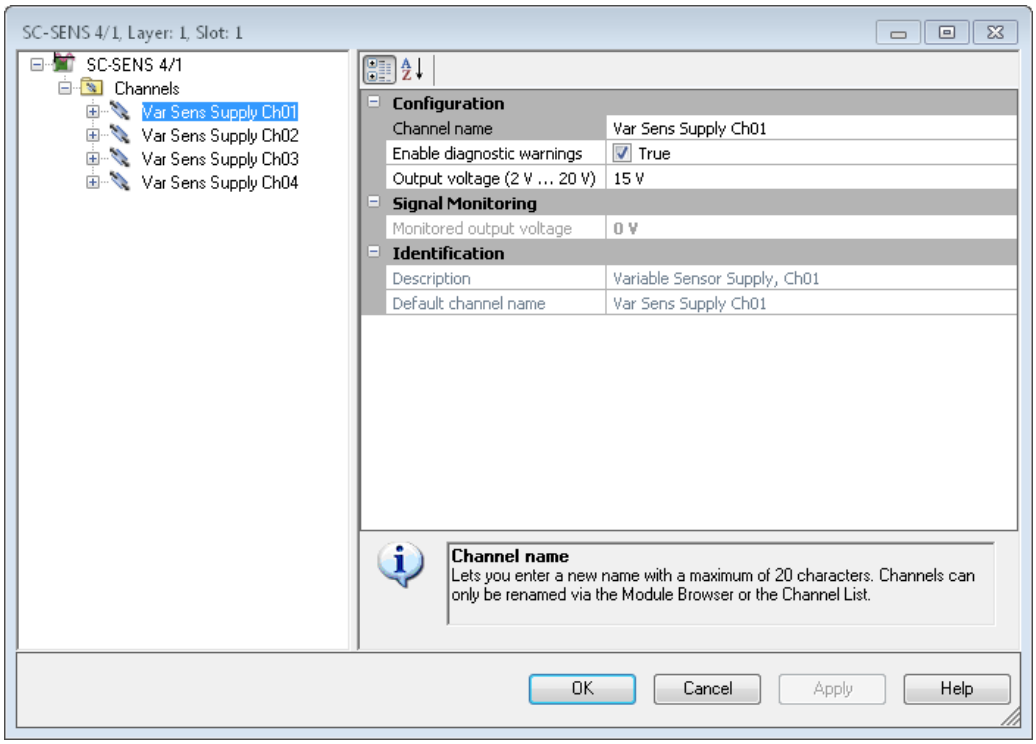
- You can enable/disable diagnostic warnings via property dialogs in the Platform Manager, Hardware Resource Browser, or Channel List. The Hardware Resource Browser is used as an example below. For instructions, refer to Method 1.
- You can enable/disable diagnostic warnings via the Platform Manager. For instructions, refer to Method 2.

Method 1

To enable/disable diagnostic warnings via property dialogs

1 In the Hardware Resource Browser, select a node that provides diagnostic features. The same can be done in the Platform Manager or the Channel List.

2 From the context menu, select Properties.
A property dialog for the selected node opens.



Tip

Double-clicking the selected node or pressing Enter also opens the property dialog.

3 In the dialog, set the Enable Diagnose option(s) to True.

Method 2

To enable/disable diagnostic warnings via the Platform Manager

1 In the Platform Manager, select a node that provides diagnostic features.

2 From the context menu, select Diagnostic - Diagnostic Warnings - Enable All (for a module) or Enable (for a channel).

Result

- If the diagnostic warnings are enabled, ConfigurationDesk for RapidPro displays diagnostic warnings in addition to diagnostic errors for the selected node and its subnodes, if available.
- If the diagnostic warnings are disabled for a hardware component for which there is a diagnostic warning, the warning is automatically acknowledged. The diagnostic LED of the associated hardware component changes from red to yellow in the Platform Manager provided that no diagnostic errors exist.

- If the diagnostic warnings are disabled for a hardware component for which there is no diagnostic warning, the diagnostic LED of the associated hardware component changes from green to gray in the Platform Manager.

Related topics

Basics

Basics on Diagnostic Messages 97
Basics on the Display of Diagnostic Messages 99

References

Disable/Disable All (ConfigurationDesk for RapidPro User Interface Reference 🕮)
Enable/Enable All (ConfigurationDesk for RapidPro User Interface Reference 🕮)

How to Reset Shutdown States of Modules

Objective

If hardware components have been shut down, you can easily reset them module-wise or globally for the entire system. If you reset a particular channel, note that you always automatically reset the associated module.

Preconditions

- The RapidPro hardware must be connected to the host PC, and must be working in execution mode.
- The Platform Manager must be displayed.

Method

To reset shutdown modes

1. In the Platform Manager, right-click a node that is in shutdown mode.
2. From the context menu, select **Diagnostic - Reset Module**. At a stack node, the command is named **Reset all Modules**.

Result

You can reset the shutdown state(s) of the complete hardware system, of a unit, of a module, or of a channel and its module, depending on the selected node in the Platform Manager.

Note

If a malfunction still exists, new diagnostic messages are immediately generated and displayed and new shutdown states can occur.

Related topics

Basics

Basics on Diagnostic Messages 97
Basics on the Display of Diagnostic Messages 99

HowTos

How to Enable/Disable the Display of Diagnostic Warnings 103

References

Reset All Modules (ConfigurationDesk for RapidPro User Interface Reference 🕮)
Reset Module (ConfigurationDesk for RapidPro User Interface Reference 🕮)

How to Delete Acknowledged Warning Messages

Objective

Diagnostic warnings which have been acknowledged automatically are not deleted automatically. You must delete acknowledged warning messages manually.

Preconditions

- RapidPro hardware must be connected to your host PC, and must be working in execution mode.
- The Platform Manager must be displayed.

Possible methods

You can choose between two methods when deleting acknowledged warning messages.

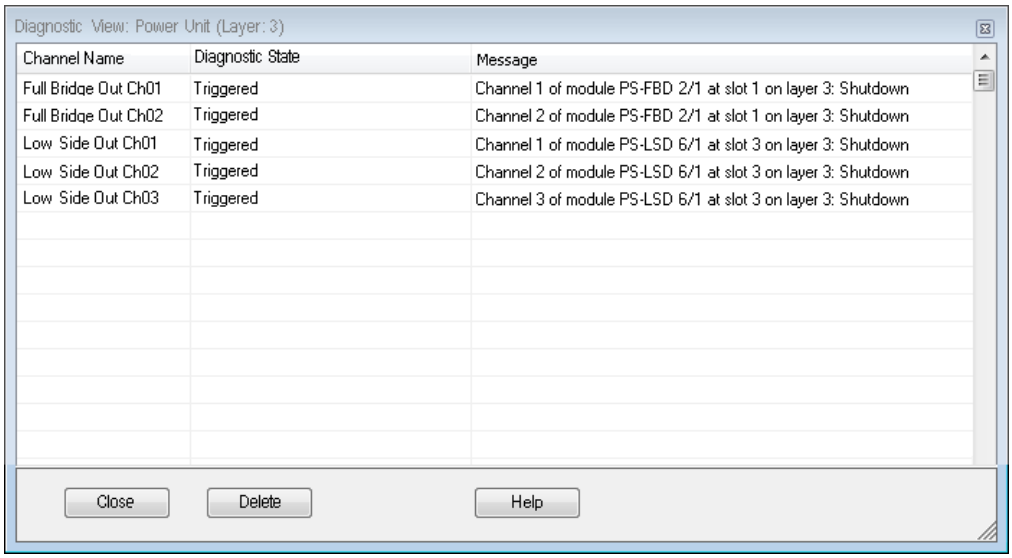
- You can delete the acknowledged warning messages of a node and its subnodes individually. For instructions, refer to Method 1.
- You can delete all the available acknowledged warning messages of a node and its subnodes globally. For instructions, refer to Method 2.

Method 1

To delete acknowledged warning messages individually

1. In the Platform Manager, select a node for which acknowledged warning messages exist. This is indicated by a yellow LED next to the node.
2. From the context menu, select Diagnostic - View Diagnostic Entries.

A Diagnostic View dialog opens.

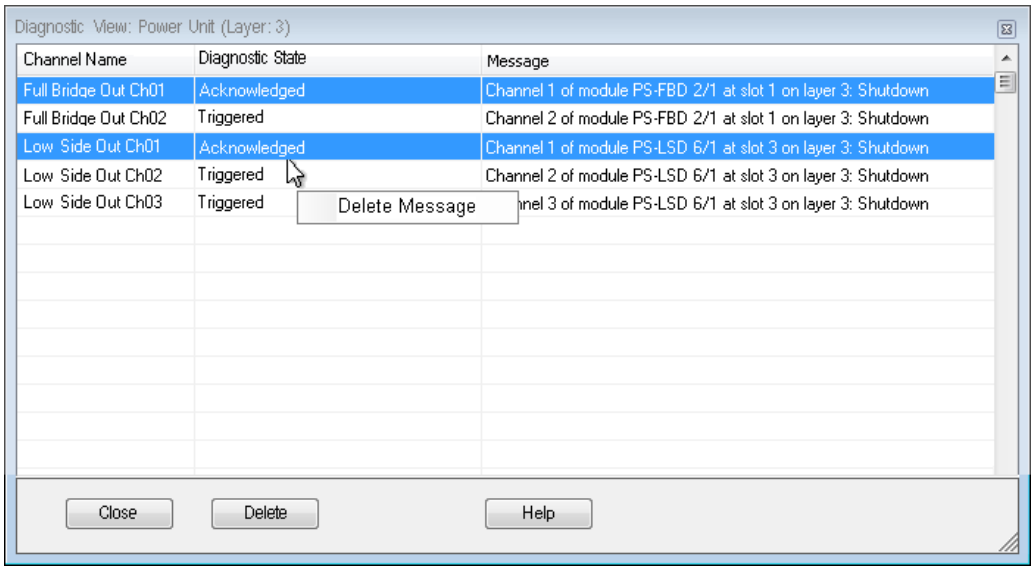


3 In the **Diagnostic View** dialog, select the acknowledged warning message you want to delete.

Tip

You can multiselect several acknowledged messages by using the *Ctrl* or the *Shift* key.

4 Right-click and select **Delete Message** from the context menu or click the **Delete** button at the bottom of the dialog.



Note

Deletion is not possible if unacknowledged warning messages have been selected.

Method 2

To delete acknowledged warning messages globally

1. In the Platform Manager, select a node for which diagnostic warning messages exist. This is indicated by a yellow LED next to the node.
2. From the context menu, select Diagnostic - Diagnostic Warnings – Delete All.

Result

Either all or only selected acknowledged warning messages of the node and its subnodes are deleted. The LED of the selected node changes from yellow to green in the Platform Manager.

Related topics

Basics

Basics on the Display of Diagnostic Messages..... 99

References

View Diagnostic Entries (ConfigurationDesk for RapidPro User Interface Reference 🕮)

Exporting RapidPro Hardware Data

Objective

Specific hardware data of your RapidPro system is needed for other worksteps. For example, when you have to prepare and build the cable harness you have to know the pinout information of the I/O connectors. ConfigurationDesk for RapidPro features functions for access to this specific information.

Where to go from here

Information in this section

How to Export Pinout Information

Objective

You need the pinout information of your RapidPro system:

- For building the I/O connectors of the cable harness
- For implementing hardware-related RTLib functions of the RapidPro implementation software

The pinout depends on the types of the installed modules and the slots on the units that they are inserted in. ConfigurationDesk for RapidPro lets you export the required pinout information to a file.

Range of exported data

According to your needs you can export either the pinout of all channels or the pinout of selected channels only. You can select/deselect channels via checkboxes in the channel list.

File format

The pinout information can be exported in an XLS file (Microsoft Excel(TM)) or in a CSV file *comma separated value*. CSV files can be viewed with CSV viewers, or with Microsoft Excel.

Reasons for updating the pinout information

If you change the RapidPro hardware as follows, the pinout information has to be updated:

- Add or remove a module
- Replace a module with one of another type
- Insert a module in another slot

Note

The following actions are also possible and require a pinout update, but must be performed by dSPACE:

- Add or remove a unit
- Rebuild a stack with the units in a different order

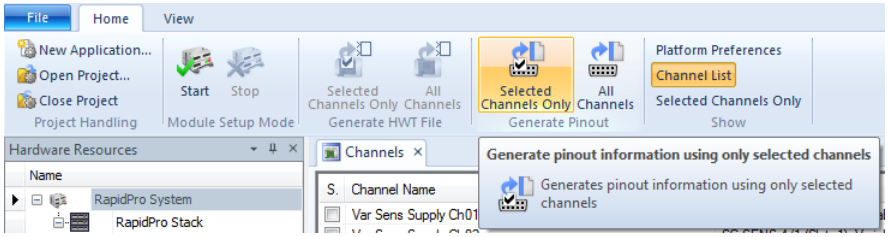
Preconditions

An application which contains hardware data (topology and configuration data) is active.

Method

To export pinout information

1 Click either Home – Generate Pinout – Selected Channels Only or Home – Generate Pinout – All Channels according to your needs.



The Save as dialog opens.

2 Choose a folder.

3 If Microsoft Excel is installed on your PC, you can select the Excel file name extension (`.xls`) in the Save as type list, otherwise `.csv`.

4 Enter a file name (with or without file name extension).

5 Click Save.

Result

The pinout information of the active application is exported as follows, depending on the file type chosen in step 3:

File Type Chosen	Generated Files
.xls	XLS and CSV files
.csv	CSV file

Related topics

HowTos

How to Generate Data Required by the RTI RapidPro Control Unit Blockset..... 113

Examples

Example of a CSV File..... 111

Example of a CSV File

Objective

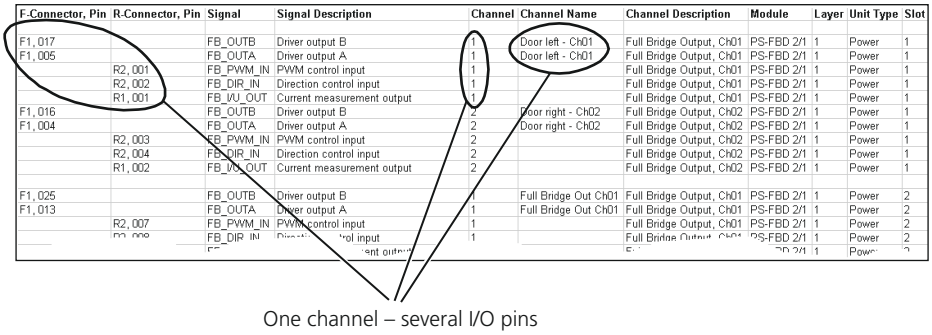
ConfigurationDesk for RapidPro lets you save the pinout information of the connected hardware as an XLS or a CSV file. This file contains all the relevant information to enable you to build the cable harness.

Entries in the pinout information file

The entries in the file are explained below, taking a Power Unit used as a single unit as an example.

Note

Several I/O pins on the front I/O connector (F-Connector) and rear I/O connector (R-Connector) may be related to a single logical channel number, for example, for complex I/O channels like full bridge drivers.



F-Connector, Pin	R-Connector, Pin	Signal	Signal Description	Channel	Channel Name	Channel Description	Module	Layer	Unit Type	Slot
F1, 017		FB_OUTB	Driver output B	1	Door left - Ch01	Full Bridge Output, Ch01	PS-FBD 2/1	1	Power	1
F1, 005		FB_OUTA	Driver output A	1	Door left - Ch01	Full Bridge Output, Ch01	PS-FBD 2/1	1	Power	1
	R2, 001	FB_PWM_IN	PWM control input	1		Full Bridge Output, Ch01	PS-FBD 2/1	1	Power	1
	R2, 002	FB_DIR_IN	Direction control input	1		Full Bridge Output, Ch01	PS-FBD 2/1	1	Power	1
	R1, 001	FB_VO_OUT	Current measurement output	1		Full Bridge Output, Ch01	PS-FBD 2/1	1	Power	1
F1, 016		FB_OUTB	Driver output B	2	Door right - Ch02	Full Bridge Output, Ch02	PS-FBD 2/1	1	Power	1
F1, 004		FB_OUTA	Driver output A	2	Door right - Ch02	Full Bridge Output, Ch02	PS-FBD 2/1	1	Power	1
	R2, 003	FB_PWM_IN	PWM control input	2		Full Bridge Output, Ch02	PS-FBD 2/1	1	Power	1
	R2, 004	FB_DIR_IN	Direction control input	2		Full Bridge Output, Ch02	PS-FBD 2/1	1	Power	1
	R1, 002	FB_VO_OUT	Current measurement output	2		Full Bridge Output, Ch02	PS-FBD 2/1	1	Power	1
F1, 025		FB_OUTB	Driver output B	1	Full Bridge Out Ch01	Full Bridge Output, Ch01	PS-FBD 2/1	1	Power	2
F1, 013		FB_OUTA	Driver output A	1	Full Bridge Out Ch01	Full Bridge Output, Ch01	PS-FBD 2/1	1	Power	2
	R2, 007	FB_PWM_IN	PWM control input	1		Full Bridge Output, Ch01	PS-FBD 2/1	1	Power	2
				1						

One channel – several I/O pins

File entry descriptions

The table below provides descriptions of the file entries:

Column	Description
F-connector, Pin	Information for locating the pin on a specific *front* connector. Example: ▪ F1 = Front I/O connector F1 ▪ 017 = Pin number 17 To locate the front I/O connector of a specific unit in a stack precisely, you also need the layer number.
R-connector, Pin	Information for locating the pin on a specific *rear* connector: Example: ▪ R2 = Rear I/O connector R2 ▪ 001 = Pin number 1
Channel	Number of the channel on the specific module.
Channel name	Shows the name that you edited via ConfigurationDesk for RapidPro.
Layer	Indicates the position of the unit, as follows: ▪ In a stack with unit connection bus (UCB), the layer number is counted up from the bottom unit (layer number 1) to the top unit. ▪ In a single unit (or a stack without UCB), the layer number is always "1".
Unit Type	The type of the RapidPro unit in which the module is inserted. ▪ "SC" stands for SC Unit. ▪ "Power" stands for Power Unit. ▪ "Control" stands for Control Unit.
Slot	The number of the unit slot in which the module is inserted.

Note

If you export the pinout information of a RapidPro stack with UCB, the "R-Connector, Pin" column is replaced by the "MC Channel" column.
The "MC Channel" column indicates which channel of the Control Unit's microcontroller module is involved.

Related topics

HowTos

How to Export Pinout Information..... 109

How to Generate Data Required by the RTI RapidPro Control Unit Blockset

Objective

If your RapidPro system is used as an I/O subsystem for an existing rapid control prototyping (RCP) system, the RTI RapidPro Control Unit Blockset requires hardware topology information.

ConfigurationDesk for RapidPro lets you generate the required information to an HWT file. The HWT file can be imported in the RTI RapidPro Control Unit Blockset, and introduces the RapidPro hardware to the blockset.

Reasons for generating a (new) HWT file

If you perform one of the following actions, a new HWT file has to be generated:

- Change the name of a channel
- Download of new routing information
- Changes of the RapidPro hardware (means change of the topology ID):
  - Add or remove a module
  - Replace a module with one of another type
  - Insert a module in another slot

Note

The following actions are also possible and require the generation of a new HWT file, but must be performed by dSPACE:

- Add or remove a unit
- Rebuild a stack with the units in a different order

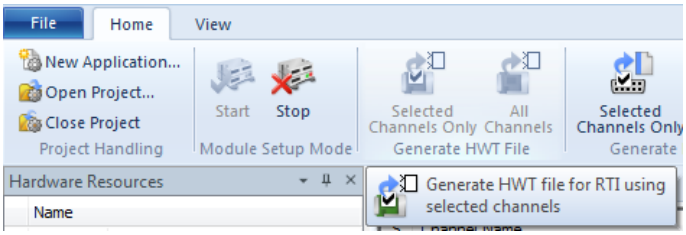
Preconditions

- An application which contains hardware data (topology and configuration data) is active.
- Generating an HWT file for RTI is only possible if your application holds hardware data of a RapidPro system which is used in an I/O subsystem scenario (= Control Unit based on MPC565 microcontroller).

Method

To generate an HWT file

1 Click either Home – Generate HWT File – Selected Channels Only or Home – Generate HWT File – All Channels according to your needs.



The Save as dialog opens.

2 Choose a folder.

3 Enter a file name (with or without file name extension **.hwt**) and click **Save**.

Result

An HWT file is generated for the active application and saved in the chosen folder. This file can be imported in the RTI RapidPro Control Unit Blockset. For instructions, refer to How to Import the Hardware Topology to a Model (RapidPro System – I/O Subsystem MPC565 Implementation Features 🕮).

Related topics

Basics

Loading RapidPro Hardware Data..... 47

HowTos

How to Change a Channel Name..... 89
How to Export Pinout Information..... 109

Troubleshooting

Objective

If you have problems when working with ConfigurationDesk for RapidPro, refer to the following collection of possible malfunctioning scenarios and how to solve the problem.

Getting further support

Support Knowledge Base If the information in this section does not help you to solve the problem, check the Support Knowledge Base on our website. See http://www.dspace.com/go/kb.

dSPACE Support If self-help does not help you to solve the problem, contact dSPACE Support and provide information about your dSPACE environment and the problems you have. It is recommended to use the support request form provided on the website at http://www.dspace.com/go/supportrequest. However, you can also send an e-mail or phone us.

Where to go from here

Information in this section

Hardware-Related Problems

Hardware is not displayed in the Platform Manager

Although RapidPro hardware is connected to your host PC, it is not displayed in the Platform Manager of ConfigurationDesk for RapidPro.

- Check the power supply and the connecting cable.

Hardware connection is lost

If you use your RapidPro hardware as an I/O subsystem and you switch from idle mode to execution mode, the connection to the hardware is lost.

- Switch your RapidPro system off and on.

LVDS communication does not work

The LVDS communication between Control Unit and MicroAutoBox/DS4121 does not work.

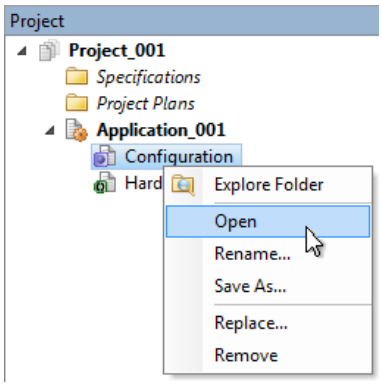
- The RapidPro hardware is not powered or the power supply is not sufficient. Check the power supply.
- Check the LVDS connection cable and change it if necessary.

Software-Related Problems

Channel List is not available

The Channel List is closed.

- Select **Open** in the context menu of the configuration in the Project Manager.



In the following two cases, the **Open** command is not available:

- The selected application does not contain a Configuration.
  - Add a configuration. Refer to How to Load a RapidPro Configuration on page 57.
  - Activate an application that contains a configuration. Refer to How to Activate an Application on page 36.
- You are working without a required license:
  - Check the validity of your ConfigurationDesk for RapidPro license.
  - Check if the dongle is connected correctly.

Assigning hardware to application is not possible

Compatible hardware cannot be assigned to the active application if you once rejected assigning it to the active application.

- Reconnect your hardware

  or

- Reload your project

  or

- Delete your active hardware topology. Then add a new hardware topology by either scanning your hardware or by importing an HTF file.

Generation of hardware topology based on connected hardware is not possible

You cannot generate a hardware topology based on connected hardware because your firmware is out-of-date.

- Update your firmware. For instructions, refer to How to Update RapidPro Firmware (RapidPro System Hardware Installation Guide 🕮).

Generation of HWT file is not possible

You cannot generate an HWT file because

- The HTF file of your active application is created with ConfigurationDesk 1.0.
  - Rescan your hardware.
- You are working with single SC and Power Units.

Channels are not available in the RapidPro Control Unit Blockset

Channels to be used by the Simulink model are not available in the RapidPro Control Unit Blockset.

- Ensure that the channels have been selected in the Channel List before the HWT file is generated.

Projects are not saved before backup

If you use the Backup Project command, the project is not saved before the backup.

- Save the project before you back it up.

Projects are not saved before export

If you use the Export command in the Project Manager, the project is not saved before the export.

- Save the project before you export it.