



SIMATIC HMI

WinCC V7.2

WinCC: General information

System Manual

Service and Support

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Migration

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WinCC diagnosis

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Print of the Online Help

07/2013

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Legal information

Warning notice system

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to property damage have no safety alert symbol. These notices shown below are graded according to the degree of danger.

DANGER

indicates that death or severe personal injury **will** result if proper precautions are not taken.

WARNING

indicates that death or severe personal injury **may** result if proper precautions are not taken.

CAUTION

indicates that minor personal injury can result if proper precautions are not taken.

NOTICE

indicates that property damage can result if proper precautions are not taken.

If more than one degree of danger is present, the warning notice representing the highest degree of danger will be used. A notice warning of injury to persons with a safety alert symbol may also include a warning relating to property damage.

Qualified Personnel

The product/system described in this documentation may be operated only by **personnel qualified** for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems.

Proper use of Siemens products

Note the following:

WARNING

Siemens products may only be used for the applications described in the catalog and in the relevant technical documentation. If products and components from other manufacturers are used, these must be recommended or approved by Siemens. Proper transport, storage, installation, assembly, commissioning, operation and maintenance are required to ensure that the products operate safely and without any problems. The permissible ambient conditions must be complied with. The information in the relevant documentation must be observed.

Trademarks

All names identified by ® are registered trademarks of Siemens AG. The remaining trademarks in this publication may be trademarks whose use by third parties for their own purposes could violate the rights of the owner.

Disclaimer of Liability

We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.

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Service and Support

1.1 Warnings

Safety notes

This manual contains information that must be observed to ensure your personal safety and to prevent property damage. Notices referring to your personal safety are highlighted in the manual by a safety alert symbol; notices referring to property damage only have no safety alert symbol. Depending on the hazard level, warnings are displayed in a descending order as follows:

DANGER

means that there can be severe physical injury or even death if the corresponding safety measures are not followed.

WARNING

means that there can be severe physical injury or even death if the corresponding safety measures are not followed.

CAUTION

means that there can be slight physical injury if the corresponding safety measures are not followed.

NOTICE

means that there can be damage to property if the corresponding safety measures are not followed.

Note

means an undesirable result or state can occur if the corresponding instruction is not followed.

Note

is an important information about the product, the way to handle the product or the respective part of the documentation and we wish to especially bring this to your notice.

If multiple levels of hazards can occur, the warning is always displayed with the highest possible level. If a warning with a warning triangle is to be indicate physical injury, the same warning may also contain information about damage to property.

Qualified Personnel

The corresponding machine/ system may only be set up and operated with the help of this documentation. A device/system must only be commissioned and operated by qualified personnel. Qualified persons in the sense of safety instructions in this documentation stand for persons who are authorized to operate, earth and mark machines, system and electrical circuits according to safety standards.

Proper use

Please observe the following:



WARNING

The machine may only be used for the application instances that have been described in the technical description and only in combination with third-party devices and components recommended and/or approved by Siemens. Smooth and safe operations demand proper transport, proper storage, installation and assembling as well as careful operations and maintenance.

Brands

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Security information

Siemens offers IT security mechanisms for its automation and drive product portfolio in order to support the safe operation of the plant/machine. Our products are also continuously developed further with regard to IT security. We therefore recommend that you keep yourself informed about updates and upgrades for our products and always use the latest version of each product. You can find information on this at:

- <http://support.automation.siemens.com> (<http://support.automation.siemens.com>)

You can register for a product-specific newsletter here.

For the safe operation of a plant/machine, however, it is also necessary to integrate the automation components into an overall IT security concept for the entire plant/machine, which corresponds to the state-of-the-art IT technology. You can find information on this at:

- <http://www.siemens.com/industrialsecurity> (<http://www.siemens.com/industrialsecurity>)

Products used from other manufacturers should also be taken into account here.

Disclaimer of liability

We have checked the contents of the description to ensure that it matches with the hardware and the software it describes. Nevertheless, we cannot assume responsibility for any deviations that may arise. The details outlined in this description are checked regularly and the required corrections are done in the subsequent editions. Suggestions for improvement are welcomed.

The statements in the online documentation are more binding than the statements in the manuals and PDF files.

Please follow the Release Notes and Installation Notes. The information in these Release Notes and Installation Notes has priority over that in the manuals and online help with regard to legal validity.

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See also

<http://support.automation.siemens.com> (<http://support.automation.siemens.com>)

<http://www.siemens.com/industrialsecurity> (<http://www.siemens.com/industrialsecurity>)

1.2 Customer Support

Customer Support and Technical Support

You can reach the SIMATIC hotlines at the times specified in the following table. The SIMATIC hotline employees speak German and English. The Authorization hotline offers French, Italian or Spanish customer support in addition to German and English.

Technical support

Nuremberg (GMT +1:00)

Service Hours Monday - Friday, 8:00 to 17:00 (CET/CEST)

Phone +49 (0)911 895 7222

Fax +49 (0)911 895 7223

E-mail <http://www.siemens.com/automation/support-request> (<http://www.siemens.com/automation/support-request>)

An overview of the Technical Support is available at the following URL:

- <http://support.automation.siemens.com/WW/view/en/16605032> (<http://support.automation.siemens.com/WW/view/en/16605032>)

Automation Value Card (AVC)

The Automation Value Card (AVC) provides extended Technical Support and is available 24 hours every day of the week. Information on the AVC can be found at the following URL:

- <http://support.automation.siemens.com/WW/view/en/21981898> (<http://support.automation.siemens.com/WW/view/en/16605032>)

SIMATIC Customer Online Support

Service and Support

An overview of the support offering for our products is available at the following URL:

- <http://www.siemens.com/automation/service&support> (<http://www.siemens.com/automation/service&support>)

In Product Support, for example, you will find downloads of firmware updates, service packs and useful utilities.

Online Help is available so that you can successfully use the Support offering. Open the Online Help by selecting the corresponding button on the Internet site or at the following URL:

- http://support.automation.siemens.com/WW/support/html_00/help/Online_Hilfe.htm (http://support.automation.siemens.com/WW/support/html_76/help/Online_Hilfe.htm)

WinCC FAQs

WinCC Online Support with information on FAQs (Frequently Asked Questions) may also be found at the following URL:

- <http://support.automation.siemens.com/WW/view/de/10805548/133000> (<http://support.automation.siemens.com/WW/view/en/10805583/133000>)

Searching in the Support database

The topic-related search in the Support database can be found under the following URL:

- <http://www.siemens.com/automation/csi/km> (http://www.siemens.de/automation/csi_en/km)

Technical Forum

The Technical Forum supports exchange with other SIMATIC users. It is available at the following URL:

- <http://www.siemens.com/automation/csi/forum> (http://www.siemens.de/automation/csi_en/forum)

Technical documentation for SIMATIC products

You can find a guide to the technical documentation provided for individual SIMATIC products and systems at the following URL:

- <http://www.siemens.com/simatic-tech-doku-portal> (<http://www.siemens.com/simatic-tech-doku-portal>)

Contact person database

To contact your local agent, search our contact database at the following URL:

- <http://www.automation.siemens.com/partner/index.asp> (<http://www.automation.siemens.com/partner/index.asp?lang=en>)

Product Information

SIMATIC WinCC

Go to the following URL for additional information about WinCC products:

- <http://www.siemens.com/wincc> (<http://www.siemens.com/wincc>)

SIMATIC Products

Go to the following URL for additional information about SIMATIC products:

- <http://www.siemens.com/simatic> (<http://www.siemens.com/simatic>)

See also

Internet: Support Request (<http://www.siemens.com/automation/support-request>)

Internet: Technical support (<http://support.automation.siemens.com/WW/view/en/16605032>)

Internet: Automation Validation Card (AVC) (<http://support.automation.siemens.com/WW/view/en/21981898>)

Internet: Service and Support (<http://www.siemens.com/automation/service&support>)

Internet: WinCC FAQs (<http://support.automation.siemens.com/WW/view/en/10805583/133000>)

Internet: Support Technical Forum (http://www.siemens.de/automation/csi_en/forum)

Internet: Support Search (http://www.siemens.de/automation/csi_en/km)

Internet: Support Online Help (http://support.automation.siemens.com/WW/support/html_76/help/Online_Hilfe.htm)

Internet: Technical documentation for SIMATIC products (<http://www.siemens.com/simatic-tech-doku-portal>)

Internet: Contact person database (<http://www.automation.siemens.com/partner/index.asp?lang=en>)

Internet: Information about WinCC (<http://www.siemens.com/wincc>)

Internet: SIMATIC Products (<http://www.siemens.com/simatic>)

1.3 Support Request

Dear customer

In order to provide you with fast and effective support, please complete the "Support Request" form online on the Internet. Describe the problem in as much detail as possible. We would appreciate if you would provide us with all project data, so that we can reproduce the error situation or shorten the turn-around time.

Before filling out the support request, check whether your configured quantity structure is within the range of tested quantity structures (see topic "Performance Data").

Support Request form

The Support Request form is available at the following URL:

- <http://www.siemens.com/automation/support-request> (<http://www.siemens.com/automation/support-request>)

When filling out the report, you will be guided through several steps, which will ask about all required information.

A detailed description of the Support Request can be found at the following URL:

- <http://support.automation.siemens.com/WW/view/en/16605654> (<http://support.automation.siemens.com/WW/view/en/16605654>)

Procedure

1. Open the "Support Request" form using the link on the Internet. Step 1 "Select product" is displayed:
2. Enter the project name in the "Product/Order number" box. Upper/lower case is not relevant. Search for parts of the product name or enter the full product name in the correct order. You can e. g. search for the following terms:
 - "WinCC Runtime"
 - "WinCC DataMonitor"
 - "wincc webnavigator"
 - "Connectivity"The found products are offered in the "Product selection" field.
3. Select the desired product and click on "Next" to switch to step 2 "Select use case".
4. Select a use case or describe your specific use case in the "Other use case" field.
5. Press "Next" to switch to step 3 "Our solutions".

Suggested solutions and FAQs for the selected key words are listed.

Once you have found a suggested solution for your problem, you can close the form in the browser.

If you did not find any applicable suggested solutions, press "Next" to switch to step 4 "Describe problem".

6. Describe your problem as exactly as possible in the "Details" field.
Pay particular attention to the following questions and comments. Please also check the WinCC installation and configuration with regard to the following references.
If you have any idea what has caused the error, please let us know. No detail should be omitted, even if you consider it unimportant.
 - Was the configuration data created with older WinCC versions?
 - How can the error be reproduced?
 - Are other programs running simultaneously with WinCC?
 - Have you deactivated the screen saver, virus checker and power management function?
 - Search the computer for log files (WinCC\Diagnose*.log, drwatson.log, drwtsn32.log).
The log files are needed for error analysis. Thus, be sure to send the log files as well.
7. Use the "Search" button to upload your affected project and the log files (e. g. as a Zip file) to the Support Request.
Press "Next" to switch to step 5 "Provide contact information".
8. Enter your contact information.
Read the privacy notice and choose whether your personal data should be permanently saved.
Press "Next" to switch to step 6 "Summary & Send".
9. Press the "Print" button if you would like to print the support request.
You close the support request by clicking the "Send" button.
Your data will be transmitted to Customer Support and processed there.

Thank you for your cooperation. We hope that we can be of assistance in solving your problems.
Your WinCC Team

See also

Internet: Error Report (<http://www.siemens.com/automation/support-request>)

Internet: Overview of Support Request (<http://support.automation.siemens.com/WW/view/en/16605654>)

1.4 Help on WinCC Documentation

1.4.1 WinCC Documentation

WinCC Online Information

WinCC assists you in your tasks by providing a wide range of comprehensive information and data.

Depending on the actual situation and needs, you can access background information, call up handling instructions, study examples or refer to summary instructions regarding a single operating element.

WinCC offers the following support for configuration tasks:

- Tooltips
- Notes in the status bar
- Direct Help
- WinCC Information System with detailed documentation
- PDF files
- Web-based Help via "My Documentation Manager"

For Runtime operation, WinCC provides assistance in the form of "What's This?" help. Additional information can be accessed via a link from the "What's This?" help to the WinCC Information System.

Customized information for the user can be stored in the project. Users also have the option to configure additional help.

See also

Tooltips and Status Bar (Page 15)

Direct Help ("What's This?") in WinCC (Page 16)

WinCC Information System (Page 17)

Navigation in the WinCC Information System (Page 19)

Search in WinCC Information System (Page 22)

1.4.2 Tooltips and Status Bar

Information on Menu Commands and Buttons

After positioning the mouse pointer on a menu command or a button, a Tooltip on the corresponding element is displayed, providing a brief explanation of its features. Simultaneously, a brief description of the function appears in the status bar.

Information in the Status Bar

The status bar is the bar at the bottom of the WinCC window. It contains general and editor-specific information. General information relates, for example, to the keyboard settings and the current editing language. Editor-specific information includes information on the position and size of a selected object in the Layout Editor.

The status bar is also used to display information on menu commands and the buttons in the toolbars.

See also

WinCC Documentation (Page 15)

Direct Help ("What's This?") in WinCC (Page 16)

WinCC Information System (Page 17)

Navigation in the WinCC Information System (Page 19)

Search in WinCC Information System (Page 22)

1.4.3 Direct Help ("What's This?") in WinCC

Direct Help ("What's This?") in WinCC

The "What's This?" help contains information on the buttons, icons, fields, windows and dialogs in WinCC. A tooltip window opens after you call the Direct Help. From this window, you may request additional help from the WinCC Information System via links.

Call up Using F1

During configuration, you call up "What's This?" help by using the function key <F1>.

After selecting an element in a window or dialog, call up "What's This?" help on the element by pressing <F1>. The operable elements in a window can be selected by pressing the <TAB> key.

Call up Using a Button

Call up the "What's This?" help using one of the following buttons:

-  in the WinCC toolbar, in order to obtain help regarding buttons, icons and windows of WinCC
-  in the title bar of an open dialog, in order to obtain help regarding the dialog

The mouse pointer takes the form of a question mark. After clicking an element with the question mark, the "What's This?" help opens. The links provided in the "What's This?" help enable you to access the WinCC Information System. It contains further information, step-by-step instructions and examples.

When you right-click in the direct help, you can copy or print the direct help text.

Documentation outside the WinCC Information System

Help appears directly on the following topics:

- "PROFIBUS DP" Channel (communication)
- "SIMATIC 505 TCPIP" Channel (communication)

By clicking the "Search" and "Index" buttons, only the above individual documents are accessed. To search the entire WinCC Information System, click the "Global Search" button.

Accessing the WinCC Information System

If further help is requested from the "What's This?" help, a window opens containing the WinCC Information System. You are directed to the chapter containing information related to your "What's This" query. The title of the superordinated chapter appears in the window header. If another link to the WinCC Information System is selected from the "What's This?" help, a second window is opened.

Note

Close the windows that are not currently required. This helps limiting the number of open windows.

See also

Tooltips and Status Bar (Page 15)
WinCC Documentation (Page 15)
WinCC Information System (Page 17)
Navigation in the WinCC Information System (Page 19)
Search in WinCC Information System (Page 22)

1.4.4 WinCC Information System

Contents of the WinCC Information System

The WinCC Information System enables you to access the entire WinCC documentation at any time during configuration. It contains the following components:

- Complete documentation on WinCC
- Documentation on installed optional packs, add-ons and drivers
- Printable PDF version of the WinCC documentation
- Release notes with important up-to-date information on WinCC

Calling up the WinCC Information System

Menu command "?" > "Help Topics"

The "Contents" tab contains the graphic table of contents of the online documentation. It lists all available topics sorted by category.

Using the entry "Start Page", you can call up the WinCC Portal. It provides links to the most important topics in the WinCC Information System.

From "What's This?" help

A topic can be accessed directly from the related "What's This?" help.

From the Start Menu

The WinCC Information System can be called up using the Windows Start menu: "Start" > "Simatic" > "WinCC" > "WinCC Information System".

Structure of the WinCC Information System

The WinCC Information System is divided into two panels: The navigation panel on the left features a number of tabs for different access and search options. The topic panel on the right displays the individual help topics.

Some help topics are not directly accessible in WinCC Information System. When you click a grey button on a page, a second window is opened with the respective contents. This window provides information on how to use the "Contents", "Index" and "Search" tabs. Use the ">>" and "<<" buttons to scroll to the next or previous page. Click the "Global Search" button to return to the WinCC Information System.

Color coding in the section headings in online help

Section headings in online help are colored. The color code indicates the type of information provided in the related text. Sections of the same information type have the same color.

The following table shows the different color codes used to identify the information types in online help.

Color code
Basics and background information
Instructions
Examples

Dropdown texts

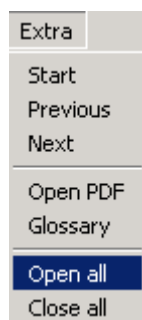
Some pages of the online help features headings underlined in blue. Click these headings to call up drop-down texts.

The additional information consists of text, tables, etc. To hide the drop-down text, click it again.

The following notation is used in the online help:

Icon	Meaning
<i>Expandable text</i>	Heading with this form indicate expandable text in the online help.

Use menu commands "Tools" > "Open" and "Close" to open or close all drop-down texts of a page.



Print versions of the WinCC Information System

The help provided in the WinCC Information System can also be printed.

In the table of contents of WinCC Information System, double-click the entry for the section you wish to print. Open a page of the section by clicking the  icon. A grey menu bar will appear on the upper edge of the displayed page. Open the printable version using the entry "Tools" > "Open PDF". To do this, you will need Adobe Acrobat Reader.

You can download the Adobe Acrobat Reader free of charge from the following URL:

- <http://www.adobe.com/products/acrobat> (<http://www.adobe.com/products/acrobat>)

The PDF files of the online help are also included on the WinCC product DVD in the "Documents" directory.

See also

Tooltips and Status Bar (Page 15)

Adobe Acrobat Reader (<http://www.adobe.com/products/acrobat>)

1.4.5 Navigation in the WinCC Information System

WinCC Portal

The start page contains the WinCC Portal links, providing an overview of the WinCC Information System.

Apart from the chapters of the WinCC Information System, you can also find links to Service and Support in the lower part of the page.

You can also easily enter the main chapter of WinCC Information by using the portal pages as the Homepage.

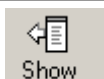
Navigation Area Tabs

The left panel of the Online Help contains the navigation section. The tabs allow you to search and access help in different ways:

Tab	Description
"Contents"	Contains a hierarchical overview of all help topics that can be accessed directly from here.
"Index"	The index terms can be used as a basis for searching for help topics.
"Find"	Enter a search term for full text search of the entire documentation.
"Favorites"	Use this function to store topics that you wish to refer to again. They can then be called up without having to search for them.

Navigation using Header Buttons

The buttons in the header provide the following access options:

Tab	Meaning
 Hide	Click this button to hide the navigation section with the "Contents", "Index" and "Search" tabs. The information system then requires less space on the screen.
 Show	If the navigation panel is hidden, it can be unhidden again clicking this button. If the navigation panel is hidden, the table of contents displayed is not updated following a topic change.
 Back	Click this button to return to the previous page.
 Forward	Click this button to go to the next page.

Navigation on the "Contents" Tab

The "Contents" tab contains the table of contents of the WinCC Information System:

Tab	Meaning
	Click this button to display the subordinate hierarchy levels of a book.
	Double click this button to simultaneously open a help topic and display the subordinate hierarchy levels. Click this button to open the help topic on its own, without displaying the subordinate hierarchy levels.

Tab	Meaning
 	Double click one of these buttons to open a help topic.
	Double click one of these buttons to open a an instruction for action.
	Double click one of these buttons to open an example.

Shortcut menu in the table of contents

You can open all the hierarchical levels in the table of contents at the click of a mouse via the shortcut menu with "Open all". Select "Close all" to close all the hierarchical levels again. Select "Print..." to print the selected page or all pages of the lower hierarchy level.

Navigation on a Help Page

There is an additional menu bar above the title of a page. Move the mouse pointer over a menu item to call up the related list. Use the mouse to select the topic you wish to call up.

Tab	Description
In Section	Go to a specific topic within the page.
Instructions	Provides links to step-by-step instructions.
Examples	Provides links to application examples and sample cases.
Basics	Provides links to additional information, e.g. definitions or details.
Properties	Provides links to information on the properties of objects.
Methods	Provides links to information on methods that are applied to objects.
Events	Provides links to information on events that are applied to objects.
Objects	Provides links to information on related objects.
Tools > Open PDF	Opens the printable PDF file of the help topic.
Tools > Open	Opens all closed dropdown texts and dropdown images.
Tools > Close	Closes all open dropdown texts and dropdown images.
Tools > Verlauf	Offers links to topics opened earlier. Maximum ten topics are saved in Verlauf.

Additional Links

For some topics, there are links provided directly on the help page. These links are indicated by a  symbol or underlined in blue. Click the underlined text or the blue arrow to call up the additional information.

Navigation Using the Keyboard

The navigation options available for the mouse can also be operated using the keyboard.

Operation	Function
<ALT+RIGHT>	Go to next page.
<ALT+LEFT>	Go to previous page.
<LEFT>	Move the scroll bar in the active window to the left.
<RIGHT>	Move scroll bar in the active window to the right.
<UP>	Move scroll bar in the active window upwards.
<DOWN>	Move scroll bar in the active window downwards.
<CTRL+TAB>	Switch between the tabs ("Contents", "Index", "Search" and "Favorites"). Arrow Key Navigation in the Table of Contents
<ENTER>	Display a topic selected on a tab in the navigation panel. Trigger the function of the button previously selected.
<F6>	Toggle between navigation and topic panel.
<TAB>	Switch between the buttons in the topic area.

See also

WinCC Documentation (Page 15)

Tooltips and Status Bar (Page 15)

Direct Help ("What's This?") in WinCC (Page 16)

WinCC Information System (Page 17)

Search in WinCC Information System (Page 22)

1.4.6 Search in WinCC Information System

Full Text Search on the "Search" Tab

The "Search" tab enables you to search for a particular topic in a highly efficient manner.

Expanded Search

If the precise spelling of a term is not known or if you wish to search for all words containing the entered character string use the asterisk * as a wildcard. The asterisk stands thereby for any number of characters.

- Example: Using search term `"*messages"` the following words are found: "Messages", "System operator input messages", "Process controlling messages", "Process messages" etc.

Quotation Marks

Use quotation marks to search for phrases.

- Example: `"Configuring graphics"`

Boolean Operators

The arrow beside the input field can be used to logically link the search term with AND, OR, NEAR and NOT.

- Example: `"Configuring" AND "graphics"`

Match Similar Words

After clicking the "Match Similar Words" check box, a search is made for terms with a similar spelling. Special characters, such as umlauts, etc. are searched for as special characters in an ungrouned form.

Search Titles Only

After activating the "Search Titles Only" check box, a search is made only in the headings of the individual pages.

Search Previous Results

If the "Search Previous Results" check box is activated following a search, only pages found previously are searched for the new term. This of course limits the search and makes it more targeted.

Ensure that the check boxes are cleared prior to the next search where you wish to include all contents.

Sorting Search Results

To sort the search results alphabetically, click "Title" or "Location" button at the top of the list. In the "Location" column, you can see the help topic in which the respective page is included.

Storing Search Terms

The last search terms entered are stored in the list and can be called in again.

Displaying Search Results

After clicking on a topic in the navigation panel, the corresponding page is displayed. The search term is highlighted on the page.

If the search term is only part of a word, it is possible that the term is not marked. Use the key combination <CTRL+F> to activate the search within the page.

See also

WinCC Documentation (Page 15)

Tooltips and Status Bar (Page 15)

Direct Help ("What's This?") in WinCC (Page 16)

WinCC Information System (Page 17)

Navigation in the WinCC Information System (Page 19)

1.4.7 Documentation in the Internet

Overview

You can search for WinCC documentation in the Internet. The search results will be displayed in "My Documentation Manager". There, you compile your own documents which you can then output in the formats PDF, RTF or XML.

Searching for WinCC Help topics in the Internet

1. Click support.automation.siemens.com (<http://support.automation.siemens.com/WW/view/en/10805583/133000>) to search in the WinCC documentation.
2. Select "Manuals/Operating Instructions" as the entry type in the filter settings.
3. Go to the "WinCC Information System Online Help" documentation and click on one of the desired manuals, such as "WinCC: Working with WinCC".
4. Click on the link "Displaying and configuring" in the open page. The page "My Documentation Manager" opens and the topics of the manual will be displayed.

Direct call of "My Documentation Manager"

If you have already displayed or compiled documents in "My Documentation Manager", use support.automation.siemens.com (<http://support.automation.siemens.com/WW/view/en/10805583/133000>) to open "My Documentation Manager". Click on the link "My Documentation Manager" in the link box "mySupport" on the right. On the start page you will find a detailed description of the functions and operation of "My Documentation Manager".

If you want to use all the functions without any restrictions, you have to register for "My Documentation Manager". The registration link can be found at the top right in "My Documentation Manager". After registration, you can download the PDF version of the manual via "My Library".

Searching for Help topics in "My Documentation Manager"

In "My Documentation Manager" you can restrict the search within a manual to a specific topic type, such as action or example.

1. Go to the "Search" tab.
2. Enter a search term, for example, WinCC alarm system
3. Select the type of Help page as the topic type, for example, "Action".
4. Click "Search". The search results are displayed below.
5. Click on one of the search results. The topic of the WinCC Information System is displayed on the right.
6. If you click on the "Last visited" tab, you will see the topic embedded in the structure of the manual.
7. You can also search for search terms using the index. Right-click on one of the chapters of the manual. The index of the document is displayed via the "Show index" menu.

Compiling Online Help documents for more processing

If you want to print parts of the Online Help or reuse them in other programs, you have to collect and generate the documents in a library. You must have registered and be logged in.

You can read how to create a generated document, as a PDF, for example, in the description of "My Documentation Manager". The generated document can then be saved in a freely selectable location.

Language support in "My Documentation Manager"

The WinCC documents are available in all languages supported by WinCC. These are mainly German, English, French, Italian, Spanish, Japanese, Chinese, Korean and Taiwanese.

To set the language for a document in "My Documentation Manager", right-click on the title of the document. Select the required language.

Migration

2.1 Introduction

Introduction

This section contains information on the migration of WinCC projects created in WinCC V6.2.3 or V7.0.

You are prompted to migrate a project of a previous version when opening it in WinCC V7.2. However, you may also use WinCC Project Migrator to migrate several WinCC projects in a single step.

Prior to migration, it is recommended to make a backup copy of the original version of the project. For more information on this, refer to the "Working with WinCC" > "Working with projects" > "Copying and duplicating projects" section in the WinCC Information System.

Multi-user Projects

When you are working on a multi-user project that was created in the previous version in WinCC V7.2, migrate the individual multi-user projects from all servers in the system.

Redundant Systems in Normal Operation

A project can be upgraded in a redundant system without deactivating operation. This requires that you update the server, clients with their own project and clients without their own project in a certain sequence. Detailed instructions are provided in the section "Upgrading Redundant Systems in Normal Operation".

NOTICE
Migrating redundant systems without extended interruption
In order not to affect system operation, it is essential to observe the sequence of steps described and to complete all the steps without any long interruptions.
A client may always only be connected to one server, on which the same WinCC version is installed.

Behavior during migration of ServiceMode projects

At the start of migration, the Migrator checks whether or not the project on hand is a ServiceMode project. The following is also verified if it is a ServiceMode project:

- If a service user has been entered
- If the service user is available

- If the service user is a member of the "SIMATIC HMI" group
- If the service user is able to log on

An error message is output and the migration process is aborted if one of these criteria is not met.

The central archive server WinCC/CAS is migrated to Process Historian

In WinCC V7.2, the data of the WinCC/CAS is migrated to SIMATIC Process Historian. Observe the migration description in the Process Historian documentation.

Audit V7.2 after migration

If you are using Audit V7.2, start by opening the Audit Editor after having migrated the WinCC projects. Click "Apply" to activate the trigger.

Note

No migration of a WinCC V6.2.3 project if a WinCC editor has never been opened before

You cannot migrate a project to WinCC V7.2 if you have never opened an editor in a WinCC V6.2.3 project, for example, Alarm Logging or text library.

Converting project data

You may also import selected project data and files from projects created in a previous version for use in a new WinCC project. For this purpose, for example, you need to adapt screens and script files to the current version of WinCC and convert these to the current format.

NOTICE
Conversion is irrevocable
Conversion of data cannot be undone.
Conversion starts immediately once you have selected the entry. No confirmation prompt is displayed.

Note

It is not possible to convert an individual picture or a library object.

Conversion of pictures and libraries may take some time.

Procedure

1. Select the "Tools > Convert project data" menu command in WinCC Explorer.
2. Select the project data to be converted:
 - Pictures and faceplates
 - Global libraries
 - Project libraries
 - Page layouts and line layouts
 - C and VB project functions and actions
 - C and VB standard functions
 - Data for Basic Process Control
3. Confirm with "OK".
The selected data is converted to the current version of WinCC.

See also

Differences between predecessor versions and WinCC V7.2 (Page 30)
Conditions for Migration (Page 32)

2.2 Differences between predecessor versions and WinCC V7.2

Introduction

Version 7.2 of WinCC provides new and extended functions as compared to the predecessor version. An overview of the new features is provided in the section "What's New in WinCC V7.2?".

Conversion to Unicode in V7.2

WinCC as of V. 7.2 supports Unicode.

- The Asian version contains all functionalities of the European version.
- Projects created in the Asian version can be executed on a European version and vice versa. A dongle is prerequisite for running projects in Asian languages.
- An WinCC project may contain several languages. The languages do not need to have the same code page.
 - The text library may contain text in languages with different code pages. A text column is generated accordingly for each language. For this purpose, set a font that contains all necessary characters.
 - You may add different runtime languages to a WinCC project, regardless of the code page of these languages. All languages listed in the text library are available in Runtime.
 - Process tag names may contain both Chinese and German characters, for example. You may archive these process tags and view them in Runtime in TagLogging controls.
- Setup contains a project library for all languages.

NOTICE
The source language of a project cannot be set more than once in the migrator You cannot rectify an incorrect setting of the source language, because a project can be migrated only once to the version. Backup the projects and project libraries before you launch migration.

To be installed for migration of Asian projects on European operating systems such as Windows XP:

- Asian language support
- The respective language code page.

The source language of the project must be known and set up for migration.

Exceptions

- Scripting components.
VB Scripts may contain text in a specific language.
The C compiler does not support Unicode. Even though you can save C scripts in Unicode, for example, the compiler converts them into multi-byte character strings (MBCS).
- Older Active X elements
- Channels, to ensure compatibility with the Channel Development Kit (CDK) and data types within the PLC.

2.3 Conditions for Migration

Introduction

You can migrate a WinCC project on any computer on which WinCC V7.2 has been installed. The WinCC Project Migrator is default installation in the setup of WinCC V7.2.

Use Project Duplicator to copy the configuration data of the project to the migration computer. For information on copying projects, refer to the "Working with projects" > "Copying and duplicating projects" section in the WinCC Information System.

The code page settings of projects that you want to migrate in a single step must be uniform.

Requirements

The computer on which the migration should be performed must fulfill the following conditions:

	Requirement
Operating system	The requirements are specified in the "Hardware requirements" and "Software requirements" section of the installation instructions.
CPU	
RAM	
Free memory space on the hard disk	In addition, at least the size of the overall project. Migration increases the size of the projects.
User Rights	User must be a member of the "SIMATIC HMI" group
WinCC version installed	WinCC V7.2
WinCC version project data	WinCC V7.0 or V6.2.3
Licenses	• New V7.2 RC license or RT license for Power Tags • if needed additional license for archive tags
System status	WinCC closed: • Runtime deactivated • WinCC Editors closed • WinCC Explorer closed

2.4 How to migrate WinCC data to V7.2

Introduction

This chapter describes the migration of WinCC V6.2.3 or V7.0 projects to WinCC V7.2.

You have two options of migrating the projects:

- Migration of the configuration data and runtime data when opening an old project
- Using WinCC Migrator to migrate several projects in a single step.

There is no difference between single-user projects, multi-user projects and clients with their own projects with regard to migration.

The projects are migrated to UNICODE. Tables that do not originate from WinCC are excluded from migration.

The time it takes to migrate a project depends on the project size and computer performance. The time it takes to migrate the runtime data varies depending on the number of messages and tags. The operation may take several hours.

Note

Generate a backup copy of the project prior to migration. You can rely on this copy of the original project to retrieve your data if migration fails.

If you have used a DDE connection in WinCC prior to V7.0, you must remove this connection prior to migration. DDE is no longer supported as of WinCC V7.0.

Using WinCC Project Migrator to migrate the WinCC projects

1. Open "Simatic > WinCC > Tools > Project Migrator" in the Start menu of the operating system. Project Migrator opens with the "CCMigrator - Step 1 of 2" start window.
2. Select the project directory in which the WinCC project is located by clicking the button "...". If migrating several projects, select the corresponding paths of the directories that contain the WinCC projects.
3. Set the language of the computer on which you have created the project or projects. The language version that was set in the OS language options for non-Unicode programs or in the system locale is set by default.
4. Click "Migrate".
The "CCMigrator - Step 2 of 2" window opens. Project Migrator displays the migration steps. Wait for successful completion of the migration. The migration of a project may take several hours.
5. If migration was successfully completed, the Project Migrator sends the following message: "WinCC project migrated successfully".
6. Click "Finish".

2.5 How to migrate S7 projects

Introduction

You have three options for migrating S7 projects from WinCC V6.2.3 or V7.0 to WinCC V7.2:

- Migration of the configuration data and Runtime data of an S7 project when opening the old project
- Using SIMATIC Manager to migrate an S7 multi-project
- Using WinCC Migrator to migrate several WinCC projects in a single step. This last option includes the WinCC projects, but not the S7 project. The OM database is migrated the next time you open the S7 project.

Note

Generate a backup copy of the project prior to migration. You can rely on this copy of the original project to retrieve your data if migration fails.

Migrating an S7 project

1. Open the S7 project. You are prompted to start migration.
2. Click "Yes". The WinCC Migrator opens. The project path is set by default. You cannot select or enter a different path.
3. Set the language of the computer on which the project was created. The language version that was set in the OS language options for non-Unicode programs or in the system locale is set by default.
4. Click "Migrate". Wait for successful completion of the migration.
5. Acknowledge the prompt to wait for completion of the migration. Migration is completed and the S7 project opens.

Migrating an S7 multi-project

1. Open the S7 multi-project. Proceed to step 2 if none of the project partitions is opened automatically. Otherwise, the project is migrated as specified in chapter "Migrating an S7 project". Wait for completion of the migration. Proceed as follows.
You may also open the project partitions successively to migrate them separately.
2. Select the "Migrate OS projects" command in the "Tools" menu of SIMATIC Manager. The WinCC Project Migrator opens. You cannot select or enter a different path.
3. Set the language of the computer on which the project was created. The language version that was set in the OS language options for non-Unicode programs or in the system locale is set by default.
4. Click "Migrate". Wait for successful completion of the migration.
5. Confirm the final prompt. Migration is complete.

Using WinCC Migrator to migrate all integrated WinCC projects

You may also use WinCC Migrator to migrate all integrated WinCC projects. The procedure corresponds with the description on the "How to migrate WinCC data to V7.2" page.

You are prompted to start migration if you now open an S7 project. Click "Yes" to open WinCC Migrator. You are informed of the updated state of the project as soon as you click "Migrate".

Note**You must migrate all components of an S7 project**

You must first migrate all components of an S7 project before you can work on this project. Operation of a partially migrated project may result in inconsistencies.

2.6 Migrating Multi-User Projects

Introduction

Clients are migrated together with the associated multi-user project.

When migrating multi-user projects, proceed in exactly the same way as in the migration of single user projects.

Make a backup copy of the project before the migration. You can rely on this copy of the original project to retrieve your data if migration fails.

Multi-user System with One Server

In a multi-user system, all required data is transferred to the server when migrating the multi-user project.

No data is stored on clients created in multi-user projects. For this reason, no client projects are created on the WinCC clients in WinCC V7.2. The settings necessary for the WinCC clients and respective preferred server are defined in the multi-user project.

Following migration, a package must be created in the multi-user project. If an existing package was deleted for this, the newly created package must have the same name.

In the "ServerData" editor, activate the "Automatic import" setting under "Implicit Update". This provides all necessary data to clients which do not run their own project.

Multi-user System with Several Servers

If clients which run their own project were used in your original project, migrate each client project separately. Proceed in exactly the same way as for a single user project or a multi-user project. After migration, create new packages on the servers and load them onto the client. If existing packages were deleted, the newly created packages must get the respective names of the deleted packages.

It is possible that the original system uses several clients with their project with the same configuration and runtime data. In this case, migrate one client with their own project and copy to the other WinCC clients. Use Project Duplicator for the configuration data. Then load the packages of the respective servers on each client.

Note

The following restrictions apply after the migration of multi-user systems:

Access to clients: Automatic, simultaneous booting of several clients is no longer possible. Each server in the system can be activated by using the "Simatic Shell" dialog for remote access.

Deactivating servers and clients in multi-user systems: An automatic, simultaneous booting of several servers and clients is no longer possible. Each server in the system can be deactivated by using the "WinCC Projects" dialog for remote access.

2.7 Additional Steps

Introduction

You still have to make some project settings after migration.

Adding new system messages to Alarm Logging

Once you integrated the system messages in the message system and completed migration, activate the new system messages for Alarm Logging. To add the new system messages, select one of the two options in the "Create system messages" section of the "WinCC System Messages" dialog and click "Create". Save the changes in Alarm Logging.

Adapting process-controlled archive tags

If the "Compile OS" function is used, the assignment of the process controlled archive tags changes. The name of process controlled archive tags is no longer defined according to the raw data tag ID. The name of the raw data tag is used instead. You must convert these tags to adapt their assignment, for example, in Controls. For this purpose, open the "Properties" dialog of the archive tag once and then close it again without making any changes.

If you are not using the "Compile OS" function, you may continue using the process-controlled archive tags with their original structure in WinCC V7.2.

Multi-user projects Loading packages

After migration of a multi-user project, create the packages on the server and downloaded these to the clients. For more information, refer to "Configuration > Multi-user systems > "Server configuration" or "Client configuration" in the WinCC Information System.

See also

Migration Diagnostics (Page 50)

2.8 Upgrading a Redundant System in Normal Operation

2.8.1 Upgrading a Redundant System in Normal Operation

Introduction

Migrate a redundant system with WinCC V6.2.3 and V7.0 step-by-step to WinCC V7.2. This will not interfere with plant operation.

Compare the initial situation described in the quick reference instructions with your system and prepare your system accordingly.

Note

Framework Conditions for Upgrading During Ongoing Operation

A client may always only be connected to one server, on which the same WinCC version is installed.

An upgrade in WinCC ServiceMode is not possible in logged off state.

Objective

- The automation system remains permanently in Runtime.
- The process is constantly operable.

Process

Upgrading consists of the following phases:

1. Upgrading the Standby Server
2. Upgrade WinCC clients
3. Upgrading Master Server
4. Defining Master Server

2.8.2 Quick Reference Instructions: Upgrading Redundant Systems in Normal Operation

Introduction

A redundant system in operation is upgraded in four phases. Each phase is divided into individual working steps. The necessary working steps are listed in the Section "Procedure". Detailed instructions are provided in the chapters "Phase 1" to "Phase 4".

Initial Situation

- Server1 is the master server.
(Server1 stands for all master servers in a redundant server pair.)
- Server2 is the standby server.
(Server2 stands for all standby servers in a redundant server pair.)
- WinCC Client1 is connected to Server1.
(WinCC Client1 stands for all WinCC clients originally connected to Server1, which should be reconnected with Server1 after the migration.)
- WinCC Client2 is connected to Server2 because it is configured for it as the preferred server.
(WinCC Client2 stands for all WinCC clients originally connected to Server2, which should be reconnected with Server2 after the migration.)

Procedure - Quick Reference

Note

In order not to interrupt operation of the system, observe the sequence of steps described.
The working steps from Phase 1 to Phase 4 must be completed without any longer interruptions.

Note

Create a backup of the entire system before upgrading the server.
Configure a preferred server for all clients to be upgraded.

Phase 1: Upgrading the Standby Server

1. WinCC Client1: Configure Server1 as preferred server
2. WinCC Client2: Configure Server1 as preferred server
3. Server2: Deactivate
4. Server2: Exit WinCC
5. Server2: Reboot the computer
6. Server2: Installing WinCC V7.2
7. Server2: Migrate project
8. Server2: Activate
9. Server2: Other redundant server pairs: Execute Steps 1 to 8

Phase 2: Upgrade WinCC clients

10. WinCC Client2: Deactivate and exit WinCC
11. WinCC Client2: Reboot the computer
12. WinCC Client2: Installing WinCC V7.2

13. WinCC Client2: Migrate project
14. WinCC Client2: Configure Server2 as preferred server
15. WinCC Client2: Activate
16. WinCC Client1 and other WinCC clients: Execute Steps 10 to 15

Phase 3: Upgrading Master Server

17. Server1: Deactivate and exit WinCC
18. Server1: Reboot the computer
19. Server1: Installing WinCC V7.2
20. Server1: Migrate project
21. Server1: Activate
22. WinCC Client1: Loading Packages and Configuring the Preferred Server
23. WinCC Client2: Loading Packages and Configuring the Preferred Server
24. Other redundant server pairs: Execute Steps 17 to 23

Phase 4: Defining Master Server and Completing Upgrade

25. Switch master server manually

Results

When all the working steps from 1 to 25 have been completed, the system has the following status:

- Upgraded Server1 is the master server.
- Upgraded Server2 is the standby server.
- Upgraded WinCC Client1 is connected to its preferred server Server1.
- Upgraded WinCC Client2 is connected to its preferred server Server2.

The upgrade of your redundant system to WinCC V7.2 is complete.

Note

Following migration of a server, the respective packages must be regenerated on this server. Following migration of a client with own project, the respective packages must be regenerated on this server.

2.8.3 Phase 1: Upgrading the Standby Server

Introduction

In the first phase, the redundant standby server Server2 is upgraded. This prevents an unnecessary redundancy switching by WinCC clients.

You system will only run on one server while you complete the phase 1 steps.

NOTICE
Procedure
In order not to interrupt operation of the system, observe the sequence of steps described. Complete the steps in phases 1 to 4 without any longer interruption.
Note
Create a backup copy before upgrading the server.

Initial Situation Prior to Phase 1

- Server1 is the configured default master server.
(Server1 is synonym for any master server of a redundant pair of servers.)
- Server2 is the standby.
(Server2 is synonym for any standby server of a redundant pair of servers.)
- WinCC Client1 is connected to Server1.
The master server package is loaded on WinCC Client1.
- (WinCC Client1 is synonym for all WinCC clients that were originally connected to Server1 and which have to be reconnected with Server1 after migration.) WinCC-Client2 is connected to Server2 because this is its configured preferred server.
The master server package is loaded on WinCC Client2.
(WinCC-Client2 is synonym for all WinCC clients that were originally connected to Server2 and which have to be reconnected with Server2 after migration.)

Procedure, Phase 1

For a detailed description of the procedure, please click one of the following working steps.

Note
Please note that you must work alternately on Server1 and Server2.

1. WinCC Client1: Configure Server1 as preferred server

So that each client is connected with the associated server during the upgrade, a preferred server must be configured for all clients in the system.

If a preferred server is not yet configured for WinCC Client1, then enter Server1 as the preferred server.

Deactivate WinCC Client1 and reactivate the client so that the changed preferred server is applied.

2. WinCC Client2: Configure Server1 as preferred server

Configure Server1 as the preferred server for WinCC Client2.

Deactivate WinCC Client2 and reactivate the client so that the changed preferred server is applied.

WinCC Client2 connects with Server1.

3. Server2: Deactivate

Deactivate WinCC Runtime on the standby Server2.

The system behaves as follows:

- WinCC Client1 remains connected to Server1.
- WinCC Client2, for which Server1 is now configured as the preferred server, remains connected to Server1.
- Server1 detects an interruption through the deactivation of Server2.
If you have configured system alarms, Server1 creates a corresponding process control message.

Create a backup of Server2 and save the WinCC data before you upgrade the server.

4. Server2: Exit WinCC

End WinCC on the existing standby server Server2.

5. Server2: Reboot the computer

Close Windows and restart Server2.

6. Server2: Installing WinCC V7.2

A WinCC V7.2 server only runs in compliance with system requirements specified in the "Installation Notes" of the WinCC Information System.

Install WinCC V7.2 and all necessary options or run an update. Information on installation is available in the WinCC Information System under the topic "Installation Notes".

7. Server2: Migrate project

Migrate the WinCC data of Server2 to WinCC V7.2.

Modify the project for WinCC V7.2 after migration. Observe the corresponding notes in the chapter "Additional steps".

Note

Following migration of a server, the respective packages must be deleted and regenerated on this server. The package must have the same name as the deleted package.

8. Server2: Activate

1. Start WinCC on Server2.
2. Activate WinCC Runtime.

The system behaves as follows:

- There is no server switching. The activated Server2 is now standby in the upgraded WinCC V7.2 project.
- The WinCC Client1 remains connected to Server1.
- The WinCC Client2 remains connected to Server1.

Wait for completion of any active redundancy synchronization before you go to the next step. If you have configured system messages, Server1 then creates a corresponding process control message.

9. Other redundant server pairs: Execute steps 1 to 8

If several redundant server pairs are implemented, the respective standby server, Server2, must be upgraded.

Execute steps 1 through 8 for each Server2.

Complete the upgrading of one standby server before beginning with upgrading the next standby server.

Result of Phase 1

- Standby Server2 has been upgraded.
- WinCC Client2 is connected to Server1.
- WinCC Client1 is connected to Server1.

2.8.4 Phase 2: Upgrade WinCC clients

Introduction

Upgrade all WinCC clients to WinCC V7.2 clients in Phase 2.

In order for the system to remain operable, at least one WinCC client must remain connected to an active server of the same WinCC version during the upgrade. The same WinCC version must run on this server as on the WinCC client.

Initial situation in advance of phase 2

- Server1 is master in the V6.2.3 or V7.0 project.
- Upgraded Server2 is the standby in the migrated V7.2 project.
- WinCC Client1 is connected to Server1.
- WinCC Client2 is connected to Server1.

Phase 2 procedure

For a detailed description of the procedure, please click one of the following working steps.

10. WinCC Client2: Deactivate and exit WinCC

Deactivate WinCC Runtime on the WinCC Client2 and exit WinCC.

11. WinCC Client2: Reboot the computer

Close Windows and restart the WinCC client.

12. WinCC Client2: Installing WinCC V7.2

A WinCC V7.2 client only runs in compliance with system requirements specified in the "Installation Notes" of the WinCC Information System. Create a backup of the client and save the WinCC data before the installation.

Install WinCC V7.2 with all necessary options or run an update. Information on installation is available in the WinCC Information System under the topic "Installation Notes".

13. WinCC Client2: Migrate project

Migrate the WinCC data of the WinCC client to WinCC V7.2.

Modify the project for WinCC V7.2 after migration. Observe the corresponding notes in the chapter "Additional steps".

Note

Following migration of a WinCC client with own project, the packages must be reloaded to the migrated server.

14. WinCC Client2: Enter Server2 as preferred server

Change the preferred server in the migrated WinCC client and enter Server2 instead of Server1.

15. WinCC Client2: Activate

1. Start WinCC on the migrated WinCC client.
2. Activate WinCC Runtime.

The system behaves as follows:

- The WinCC client connects to the upgraded Server2.
- Server2 remains the standby server.

16. Other WinCC clients: Execute Steps 10 to 15

For WinCC Client1, the same procedure applies as for WinCC Client2.

When a WinCC client has been upgraded, repeat steps 10 to 15 for the next WinCC client until all the WinCC clients in the system have been upgraded.

After the upgrade, also enter Server2 as the preferred server for WinCC Client1.

Complete the upgrading of one WinCC client before beginning with the upgrading of the next WinCC client.

Result of Phase 2

- Upgraded WinCC Client2 is connected to the upgraded Server2 as the preferred server.
- Upgraded WinCC Client1 is connected to Server2 as preferred server.
- Server1 is master in the V6.2.3 or V7.0 project.
- Upgraded Server2 is the standby in the migrated V7.2 project.

2.8.5 Phase 3: Upgrading Master Server**Introduction**

In Phase 3, the master server Server1 is upgraded.

While carrying out the working steps in Phase 3, the system runs on just one server. The system can be operated via the WinCC clients upgraded in Phase 2. Further information on redundancy synchronization is available in the WinCC Information System under the topic "Configurations > Redundant Systems".

Note

If necessary, create a backup copy before upgrading the server.

Initial Situation Prior to Phase 3

- Server1 is master in the V6.2.3 or V7.0 project.
- Upgraded Server2 is the standby in the migrated V7.2 project.
- The redundancy synchronization of Server1 and Server2 is complete.
- Upgraded WinCC Client1 is connected to Server2.
- Upgraded WinCC Client2 is connected to its preferred server Server2.

Procedure, Phase 3

For a detailed description of the procedure, please click one of the following working steps.

Note

Please note that you must work alternately on Server1 and Server2.

17. Server1: Deactivate and exit WinCC

1. Deactivate WinCC Runtime on the master server Server1.
2. Exit WinCC on the server.

Create a backup of Server2 and save the WinCC data before you upgrade the server.

18. Server1: Reboot the computer

Close Windows and restart Server1.

19. Server1: Installing WinCC V7.2

A WinCC V7.2 server only runs in compliance with system requirements specified in the "Installation Notes" of the WinCC Information System. First, save the WinCC data on the server if necessary.

Install WinCC V7.2 with all necessary options or run an update. Information on installation is available in the WinCC Information System under the topic "Installation Notes".

20. Server1: Migrate project

Migrate the WinCC data of the server to WinCC V7.2. Modify the project for WinCC V7.2 after migration. Observe the corresponding notes in the chapter "Additional steps".

Note

Following migration of a server, the respective packages must be regenerated on this server. The package must have the same name as the original package.

21. Server1: Activate

1. Activate WinCC Runtime.

The system behaves as follows:

- Server1 becomes the standby server.
- Archive synchronization is performed for the message archives, process value archives and user archives.
- If system messages have been configured, a corresponding process control message is generated.
- All the values during the downtime period are synchronized.

22. WinCC Client1: Loading Packages and Configuring the Preferred Server

Load the Server1 package to the WinCC clients.

Configure Server1 as the preferred server for WinCC Client1.

Deactivate and activate the respective client to apply the changed configuration to the preferred server.

- The WinCC Client1 connects to the upgraded preferred server, Server1.

23. WinCC Client2: Loading Packages and Configuring the Preferred Server

Load the Server1 package to the WinCC clients.

Configure Server2 as the preferred server for WinCC Client2.

Deactivate and activate the respective client to apply the changed configuration to the preferred server.

- The WinCC Client2 connects to the master server, Server2.

24. Other redundant server pairs: Execute Steps 17 to 23

If several redundant server pairs are implemented, then upgrade the master server, Server_1.

Execute steps 17 through 23 for each Server1.

Complete the upgrading of one server before beginning with the upgrading of the next server.

Result of Phase 3

- Upgraded Server1 is the standby server.
- Upgraded Server2 is the master server.
- Upgraded WinCC Client1 is connected to its preferred server Server1.
- Upgraded WinCC Client2 is connected to its preferred server Server2.

2.8.6 Phase 4: Defining Master Server and Completing Upgrade

Introduction

After upgrading the system, all WinCC clients, for which no preferred server has been configured, are connected to the master server. As a result of the redundancy switching for upgrading, the original master server, Server1, was set to standby server. The original standby server, Server2, was set to master server.

In order to restore the original status, the master server must be reset manually. Follow the instructions in step 25. This step concludes the upgrade of your redundant system to WinCC V7.2.

Further information on preferred servers in redundant systems is available in the WinCC Information System under the topic "Configurations > Redundant Systems".

Initial Situation Prior to Phase 4

- Server1 is the standby server.
- Server2 is the master server.
- WinCC Client1 is connected to its preferred server, Server1.
- WinCC Client2 is connected to its preferred server, Server2.

Procedure, Phase 4

For a detailed description of the procedure, click working step 25:

25. Switch master server manually

In order to restore the initial situation of the system, define Server1 as the master server manually.

Set the redundancy tag "@RM_Master" on Server1 from 0 to 1. You can query and set the redundancy tag "@RM_Master" via an I/O field, for example:

1. Configure an I/O field in the multi-user project from Server1.
2. Link the I/O field with the @RM_Master tag.
3. Enter a "1" in the I/O field in Runtime. Server1 becomes the master server. As a result of the redundancy switching, Server2 becomes the standby server.

Alternatively, the redundancy tag can be set via scripts.

Result of Phase 4

- Server1 is the master server.
- Server2 is the standby server.
- WinCC Client1 is connected to its preferred server, Server1.
- WinCC Client2 is connected to its preferred server, Server2.

The upgrade of your redundant system to WinCC V7.2 is complete.

2.9 Migration Diagnostics

Introduction

When a fault occurs, clear the fault in a copy of the migrated project. Then restart the migration.

Errors During Migration

An error during the migration of a component does not interrupt the migration. The Project Migrator writes an error message in a diagnostics file and processes the next components.

Check the list of migrated components after migration. Double-click the list entries that contain errors or warnings to view the error in a ".txt" file.

Cancelation of Migration

You may restart an aborted migration after having eliminated all errors. Use a backup copy instead of the project containing the migration errors.

Migration after elimination of errors

You can migrate the individual components after having eliminated the respective errors. The computer name and the name of the local computer must match.

Select "Tools > Convert project data" in WinCC Explorer. Select the components that you want to migrate.

Diagnostics file

The Project Migrator saves the "MigratorLog.txt" diagnostics file to the directory of the migrated project. You can view this file in any text editor.

The file contains the following general information:

- Project name
- Project type
- Type of migrated data
- Start and end of migration

If an error occurs during migration, the Project Migrator writes an error message in the file.

2.10 Appendix

2.10.1 Documentation of Functions of Predecessor Versions

Introduction

You will find information on functions and documentation of the predecessor versions in this chapter.

Overview

Information on functions and documentation concerning the predecessor versions:

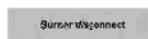
- The documentation on the controls before WinCC V7 are located following the description of the new controls.
- The documentation for previous user objects is still located in the WinCC Information System.
- The appendix also contains documentation on the WinCC Push Button Control.

2.10.2 WinCC Push Button Control

2.10.2.1 The "WinCC Push Button" Control

Introduction

- The "WinCC Push Button" control can be used to configure a command button, which is connected to the execution of a command.
In Runtime the Push Button can adopt the states "Pressed" and "Not pressed". Both statuses can be assigned a different image, which shows the current state of the button.



Insert Push Button

The Push Button is inserted from the object palette into a picture:

- As a Smart Object:
The Smart Object "Control" is inserted from the "Standard" tab of the Object Palette. The Push Button is selected in the dialog "Insert a Control".
- from the tab "Controls"
The Push Button is inserted from the "Controls" tab of the Object Palette.



The properties of the control are changed in the configuration dialog "Properties of the WinCC Push Button Control" or in the window "Object Properties".

Project Documentation Features in Graphics Designer

The attributes for the "Push Button" control object are listed in the Graphics Designer project documentation.

The following correlation applies to the output of object data for the attributes "PictureSelected" and "PictureUnselected":

- If there is no picture entered, a hyphen "-" is output in the project documentation.
- If a picture is entered, "none" is output.

See also

- How to Assign Pictures to the Push Button (Page 56)
- How to Change the Font of the Push Button (Page 55)
- How to Change the Color of the Push Button (Page 54)
- How to Change the Appearance and Labeling of the Push Button (Page 53)

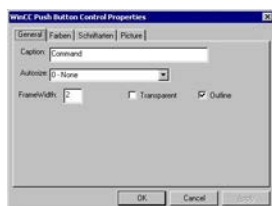
2.10.2.2 How to Change the Appearance and Labeling of the Push Button

Introduction

On the "General" tab, you have the option to adapt the general appearance of the Control. In addition, you can also enter a function description as a labeling of the Push Button.

Requirements

- Double-click the inserted control to open the "WinCC Push Button Control Properties" dialog.
- Select the "General" tab.



Caption

Enter here a text for the labeling of the button. This label can, for instance, contain a function description.

Autosize

For the geometry of the Push Button, you can configure automatic size adaptation.

Select option 0 - None, in order to disable the automatic size adaptation. With option 1 - Adjust Picture Size To Button the size of the image is adapted to the geometry of the button. Select option 2 - Adjust Button Size To Picture, in order to adapt the geometry of the Push Button to the size of an assigned picture.

Frame Width

Enter a value for the 3D Border Width of the button in pixel(s).

Transparent

The background of the button can be displayed transparent. In this case, the configured background color is not shown.

Outline

The 3D border of the Push Button can be surrounded with an additional outer border line.

See also

The "WinCC Push Button" Control (Page 52)

How to Assign Pictures to the Push Button (Page 56)

How to Change the Font of the Push Button (Page 55)

How to Change the Color of the Push Button (Page 54)

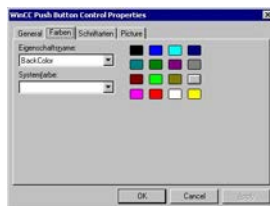
2.10.2.3 How to Change the Color of the Push Button

Introduction

You can use the "Colors" tab to adapt the color for the display of the Control.

Requirements

- Double-click the inserted control to open the "WinCC Push Button Control Properties" dialog.
- Select the "Colors" tab.



Property Name

From the drop-down list box, select the color attribute that you wish to change. The "OLE Automation Name" is displayed. The "OLE Automation Name" is the name under which the attribute is registered in WinCC.

System Color

The drop-down list box contains all the picture elements, the display options of which can be adapted in the operating system control panel.

Select the picture element that has the color you wish to apply. Click the "Apply" button to assign this system color to the color attribute selected in the "Property Name" area.

Basic Color Palette

The right-hand area shows the 16 standard colors of the operating system as buttons.

Select one of the 16 standard colors. Click the "Apply" button to assign this system color to the color attribute selected in the "Property Name" area.

See also

The "WinCC Push Button" Control (Page 52)

How to Assign Pictures to the Push Button (Page 56)

How to Change the Font of the Push Button (Page 55)

How to Change the Appearance and Labeling of the Push Button (Page 53)

2.10.2.4 How to Change the Font of the Push Button

Introduction

Use the "Fonts" tab to adapt the label on the Push Button.

Requirements

- Double-click the inserted control to open the "WinCC Push Button Control Properties" dialog.
- Select the "Font" tab.



Property Name

The currently selected property is shown.

Font

Select the required font for the control label. You can use any of the fonts registered in the operating system.

Font Style

Select the required font style from the drop-down list box. The number of available font styles depends on the font selected.

Size

Select the required font size from the drop-down list box. Alternatively, enter the font size directly in the field. The value is specified in points (pt).

Effects

Select one or more effects. The selected font can be displayed as "Underline" and "Strikethrough".

Example:

The selected settings are displayed in a preview.

See also

The "WinCC Push Button" Control (Page 52)

How to Assign Pictures to the Push Button (Page 56)

How to Change the Color of the Push Button (Page 54)

How to Change the Appearance and Labeling of the Push Button (Page 53)

2.10.2.5 How to Assign Pictures to the Push Button

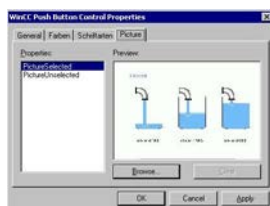
Introduction

You can use the "Picture" tab to assign pictures for the statuses "Pressed" and "Not pressed" to the Push Button.

Requirements

- Double-click the inserted control to open the "WinCC Push Button Control Properties" dialog.
- Select the "Picture" tab.

Changing Configuration



Properties

Select the property for which you want to change the picture assignment. The current picture is shown in the "Preview" area.

In Runtime, the Push Button can be in statuses of "Pressed" or "Not pressed". The image, which is assigned to the property "PictureSelected", is displayed only if you click the button. As long as the Push Button is not pressed in Runtime, it shows the image that is assigned to the property "PictureUnselected".

Browsing

Click the "Browse..." button to access the "Find Picture" dialog. Select the graphic file, to which you want to assign the selected property.

Pictures in the following formats can be inserted:
BMP, DIB, ICO, CUR, EMF, WMF, GIF and JPG.

Deleting

Click the "Clear" button to move on from the opening picture.

See also

The "WinCC Push Button" Control (Page 52)

How to Change the Font of the Push Button (Page 55)

How to Change the Color of the Push Button (Page 54)

How to Change the Appearance and Labeling of the Push Button (Page 53)

WinCC diagnosis

3.1 Runtime Monitoring of Actions

Introduction

WinCC script processing is a very open system. It allows Windows APIs and dedicated DLL functions to be called. The underlying programming language C is very comprehensive and offers a high degree of freedom. Incorrect implementation of these capabilities can also lead to crashing the system. Incorrect configuration can also seriously decrease the performance of the system.

The ApDiag.exe diagnostics tool should be used to support the analysis of errors and performance problems. Note that the diagnostics application itself will affect performance; collecting additional values costs time. Individual diagnostic functions can therefore be activated and deactivated to avoid degrading the runtime of the system during operation.

This is why you should ensure that the diagnostic functions are deactivated during the final commissioning stage.

This description will not explain every possible item of diagnostic information in detail, since certain parts require a well-grounded knowledge of the system architecture for this. The purpose of this description is to indicate possibilities and handling of the ApDiag diagnostics tool so that ApDiag can be utilized as intended should the need arise.

3.2 Starting ApDiag.exe

Start ApDiag

Apdiag.exe is located in the installation directory in folder "...\\Siemens\\WinCC\\Utools".



As soon as WinCC is opened, you can start the application as usual (double click). It is irrelevant whether runtime is activated or not. If no project has been opened, a link to the action controller can be created.

ApDiag is ended when changing projects and when closing WinCC.

To permanently display diagnostics information, independent of operation and navigation in the system, ApDiag is in the foreground. Set your window position and size so that ApDiag disturbs as little as possible. These settings are saved and reestablished again during the next startup.

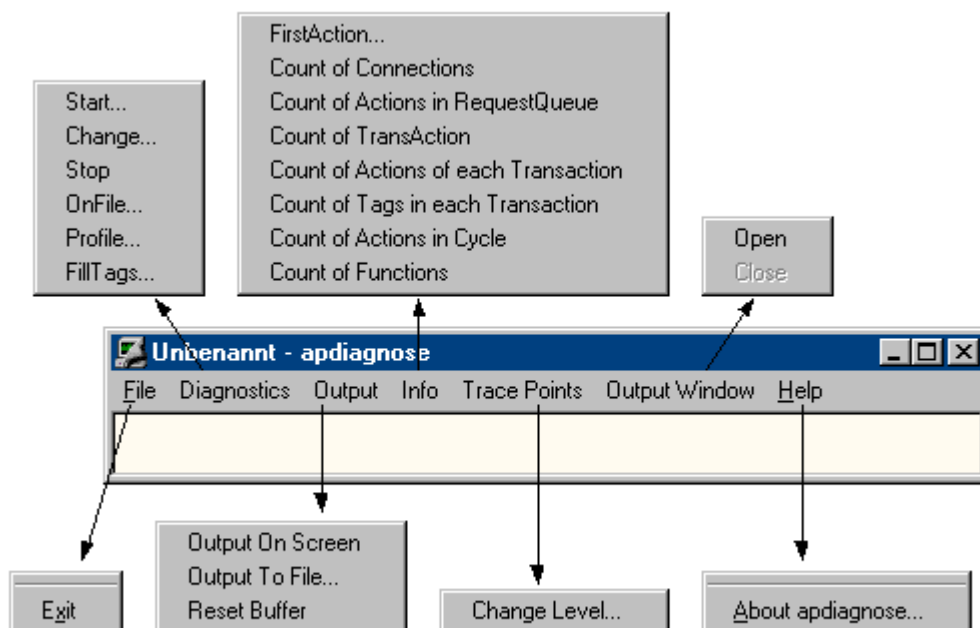
3.3 ApDiag Menu Commands

3.3.1 Menu Bar Overview

Overview

ApDiag operation is described in the following chapters.

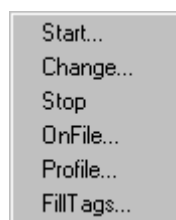
The menu bar is constructed as follows:



In the online help, you can click on a menu command with the mouse and display the respective description.

Diagnostics

Menu "Diagnostics" offers several types of diagnostics information.



3.3 ApDiag Menu Commands

Using "Start", "Change" and "Stop", the recording of diagnostic information (tracing) can be controlled.

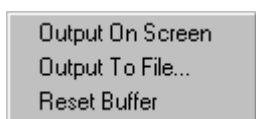
Menu command "OnFile" can be used for defining the output source for the individual types of diagnostics information.

The runtime of actions can be measured and queue growth can be monitored with command "Profile".

Using command "FillTags", saving important diagnostics information in internal tags is activated and deactivated.

Output

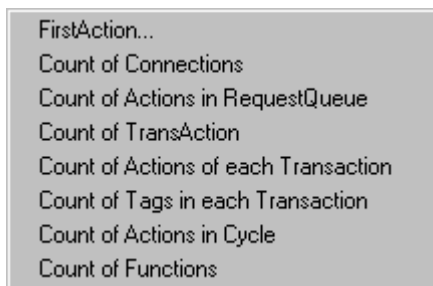
Using menu "Output", trace entries generated with diagnostics can be output to a window, stored in a file or deleted.



The trace entries are also collected in a circulating buffer when the window is not shown.

Info

Menu "Info" delivers current information on the system.

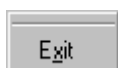


The diagnostic information is output one time when selected (not automatically). The output is done as trace (Level1) and as printf.

3.3.2 File - Exit

Description

Use command "Exit" to end ApDiag.

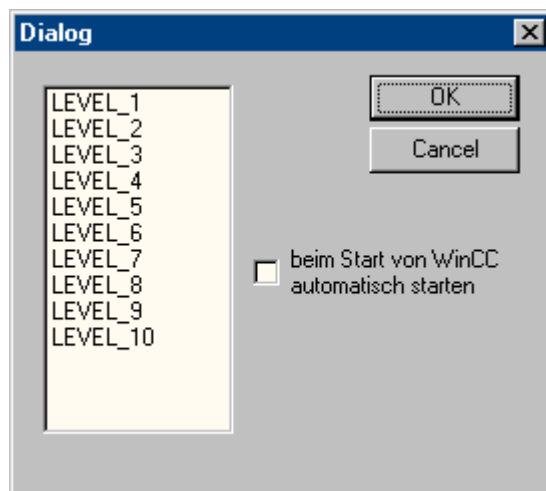


3.3.3 Diagnostics

3.3.3.1 Start

Description

Use menu command "Start" to open a dialog, in which a diagnostics level can be selected. Select the "OK" button to start the diagnosis and write the trace point in the defined level.



The higher the level, the more frequent and less serious the trace points are.

In level 1, only faults are output, as of level 3, printf (OnErrorExecute) are output as well. Levels 9 and 10 are mainly for testing for whether the script.exe application reacts.

In chapter "Trace points and their diagnostics level), a selection of trace points is described.

The diagnosis is different from the "printf information" in that the entries are collected with the window closed as well and mainly system messages (trace points) are shown.

Other trace entries can also be created using internal functions TraceTime() and TraceText(). The functions are described in the WinCC Help.

The trace entries are output in the diagnostics window as standard.

Note

End ApDiag

The diagnosis is switched off when changing projects and when ending ApDiag.

The option "Start automatically at WinCC start" offers the ability to start the diagnosis in the defined level automatically, each time a project is opened.

3.3 ApDiag Menu Commands

Since writing the trace points influences the performance, trace should really be switched off for normal operation.

Note

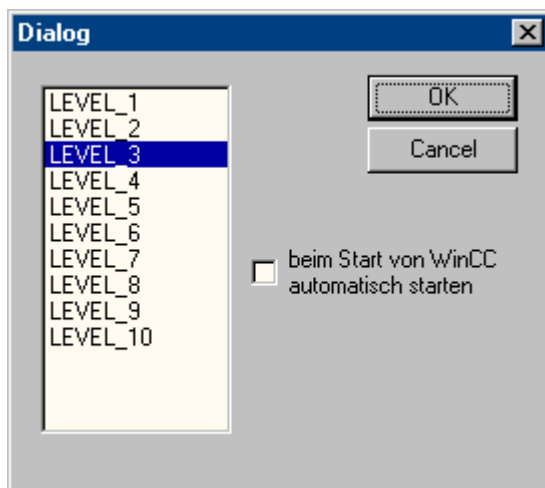
End ApDiag

This setting is also retained after ending ApDiag.exe and after restarting the computer.

3.3.3.2 Change

Description

With menu command "Change", you can recognize whether a trace is switched on and change the current diagnostics level if required:



The current diagnostics level is marked. Select another level and click on "OK" to change the level.

Note

If no diagnosis is started, selecting "Change" opens no dialog.

3.3.3.3 Stop

Description

Writing trace points is ended with menu command "Stop". Since writing the trace points influences the performance, trace should really be switched off for normal operation.

Note**End ApDiag**

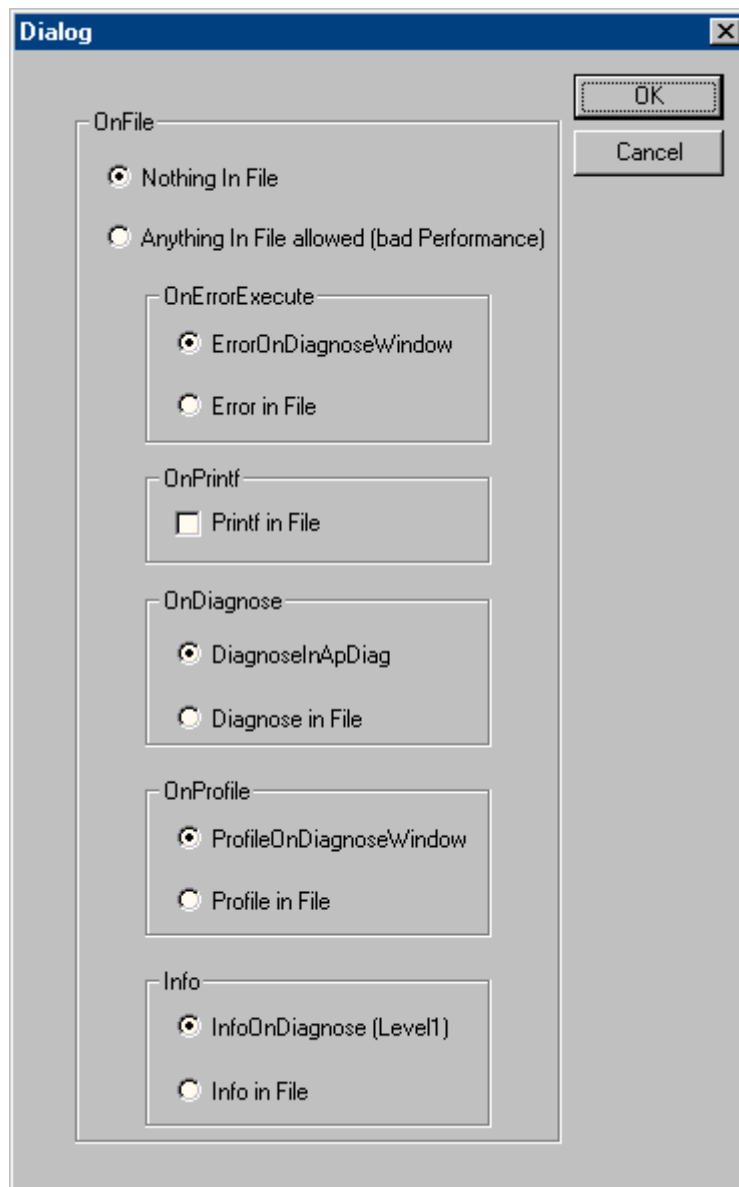
When ending ApDiag or when changing a project, the trace is ended.

3.3.3.4 OnFile

Description

Dialog "OnFile" can be used to convert diagnostics information (e.g. OnErrorExecute, printf) into a text file. All settings are stored in the registry and are retained after a restart as well.

Since converting the diagnostics information influences the performance and the settings made here are retained after restarting WinCC or the computer, you can use option "NothingInFile" to centrally stop writing the diagnostics information to a file.



Nothing In File

This option can be used to centrally suppress the conversion of diagnostics information to a file.

Anything In File

Use this option to centrally activate the conversion of diagnostics information. The information that is actually concerned, depends on the settings under "In File".

OnErrorExecute

This parameter can be used to define whether the output of an OnErrorExecute (standard function of WinCC, which is called by the system in case of an error) to a file or in the output window. An OnErrorExecute is lost when the diagnostics window is not shown, another error analysis is enabled with the output to a file, even afterward.

The following applies for the output to a file: The file is called OnErrorN.txt and is located in the installation directory:

- ..\Siemens\WinCC\Diagnose

A certain number of entries is written to a file. Then the next file is begun. It is always started with OnError0. After file OnError10, it begins with OnError0 again. After activating the project, it starts with OnError0 again the first time the function is called. The size of the files can be influenced by modifying the limit value for tag "dwErrorCount" of this WinCC standard function in the C editor for the Global Script.

OnPrintf

This parameter can be used for setting whether the outputs created by printf() are made to a file or to the output window.

The following applies for the output to a file: The file is called OnprintfX.txt and is located in the installation directory:

- ..\Siemens\WinCC\Diagnose

Particular attention is paid to the file size. 64 KB is written to a file and then the next file is begun. It is always started with Onprintf0. After file Onprintf10, it begins with Onprintf 0 again. After activation, it is also started with Onprintf 0 the first time the function is called.

OnDiagnose

When the diagnosis is switched on, all trace information for the respective level can be routed to a file.

The following applies for the output to a file: The file is called OnDiagnoseX.txt and is located in the installation directory:

- ..\Siemens\WinCC\Diagnose

Particular attention is paid to the file size. 64 KB is written to a file and then the next file is begun. It is always started with OnDiagnose0. After file OnDiagnose10, it begins with OnDiagnose0 again. After activation, it is also started with OnDiagnose0 the first time the function is called.

OnProfile

This parameter is used for defining whether the diagnostics information delivered with OnProfile will be output in a file or the application window.

The following applies for the output to a file: The file is called OnDiagnoseX.txt and is located in the installation directory:

3.3 ApDiag Menu Commands

- ..\Siemens\WinCC\Diagnose

Particular attention is paid to the file size. 64 KB is written to a file and then the next file is begun. It is always started with OnDiagnose0. After file OnDiagnose10, it begins with OnDiagnose0 again. After activation, it is also started with OnDiagnose0 the first time the function is called.

OnInfo

This parameter defines whether the information output via the menu Info should be output to a file.

The following applies for the output to a file: The file is called OnInfoX.txt and is located in the installation directory:

- ..\Siemens\WinCC\Diagnose

Particular attention is paid to the file size. 64 KB is written to a file and then the next file is begun. It is always started with OnInfo0. After file OnInfo10, it begins with OnInfo0 again. After activation, it is also started with OnInfo0 the first time the function is called.

3.3.3.5 Profile

Description

As of 10000 queued actions, by default, the system outputs message: "ActionOverflow:more than 10000 Actions to work" to diagnostics file WinCC_Sys_01.log.

With this entry, determining the cause for an increase or overflow of the queue can only be done with difficulty.

Menu command "Profile" now offers diagnostics information that enables the early detection of growth or an overflow of the queue. Time measurements can be activated for actions and an growth in the queue (ActionQueue) can be checked.

General Information on Queue Overflow

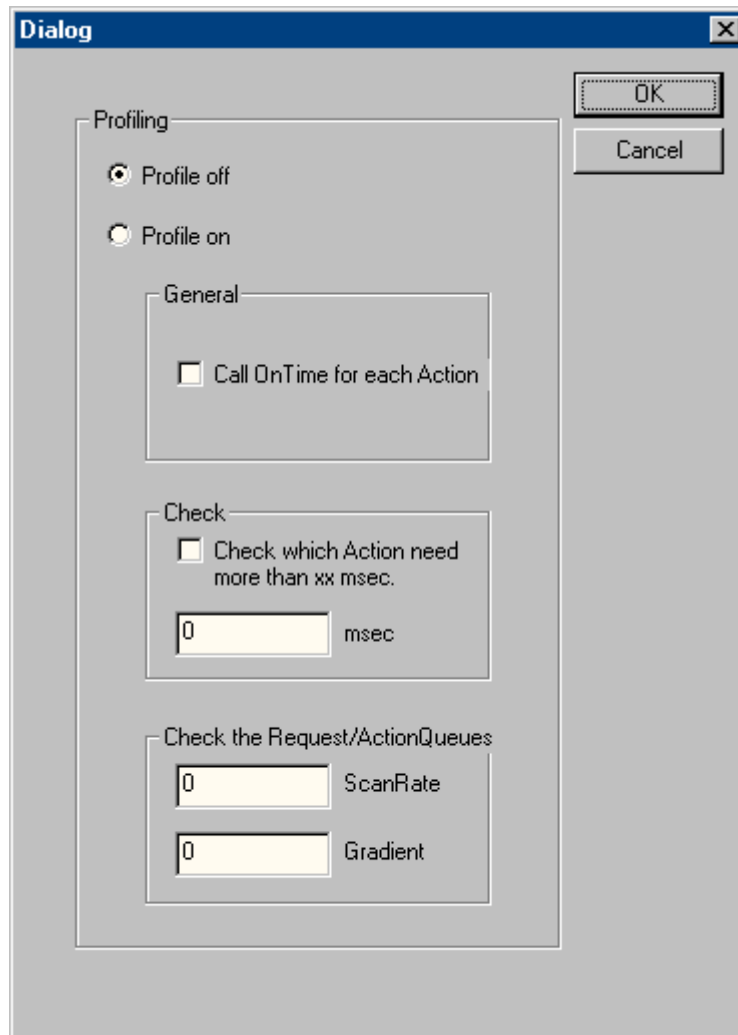
A queue overflows if too many actions are running in a cycle that is too small (gradually, the actions to be processed will build up) or an action freezes (e.g. sleep, loop, dialog output, waiting for a response from another application). All the other actions are then blocked in the queue and cannot be processed.

This can be regained to a certain extent but with 10000 entries in the queue, this is no longer possible.

Decreasing the Load

Since performance measurements themselves will cause extra load and any settings made in this context are retained after restarting WinCC or the computer, a superordinate switch has

been integrated, which allows a quick overview to prevent any diagnostics measurements from remaining switched on.



Profile off

This option is superordinate and can be used to switch measurements off.

Profile on

This option is superordinate and can be used to switch measurements on. It is absolutely necessary to switch the switch and the desired information on to activate a measurement.

General

If option "Call On Time for each Action" is activated, a time measurement is performed for every action that is executed and is output with standard function "On Time".

Example

```

=====OnTime=====
dwCode:                (ThreadId 327)  113
szTimeText:            (ThreadId 327)  PROFILE_EACH_ACTION
dblTime:               (ThreadId 327)  358.744
szApplicationName:     (ThreadId 327)  PDLRuntimeSystem
bCycle:                (ThreadId 327)  acycle
szFunctionName:        (ThreadId 327)  @51
lpszPictureName:       (ThreadId 327)  STARTBILD.BILDFENSTER1:AKTIONSTESTBILD3
lpszObjectName:        (ThreadId 327)  Button17
lpszPropertyName:      (ThreadId 327)  (NULL)
dwParamSize:          (ThreadId 327)  12
=====OnTime=====

```

Check

If checkbox "Check wich Action need more than xx msec" is activated, the runtime for all actions that run longer than the defined time is output. This allows limiting the number of outputs and less load is created by the measurement itself (the function OnTime will not continue to cycle).

Example

```

=====OnTime=====
dwCode:                (ThreadId 492)  114
szTimeText:            (ThreadId 492)  PROFILE_FOR_XX_TIME
too long               (ThreadId 492)
dblTime:               (ThreadId 492)  4326.03
szApplicationName:     (ThreadId 492)  PDLRuntimeSystem
bCycle:                (ThreadId 492)  cycle
szFunctionName:        (ThreadId 492)  @55
lpszPictureName:       (ThreadId 492)  STARTBILD.BILDFENSTER1:AKTIONSTESTBILD
lpszObjectName:        (ThreadId 492)  EAFeld1
lpszPropertyName:      (ThreadId 492)  Visible
dwParamSize:          (ThreadId 492)  12
=====OnTime=====

```

Check the Request/ActionQueues

This parameter allows recognition of slow growth in the queue, which would only lead to error message "more than 10000 Actions to Work" after several hours or days. Individual pictures can also be checked for correct action programming.

Value "ScanRate" can be used to define after which amount of new jobs that the length of the queue should be checked. If the queue has grown by more than the value defined with Gradient, a notice in the form of a printf is output.

If you enter e.g. with ScanRate "100" and Gradient "30", then after 100 new entries (actions) have been placed in the queue, a check is performed to determine whether the queue has grown by more than 30 entries (less than 70 processed from the 100 new jobs). If this is the case, the following diagnostics information is output in the form of a printf().

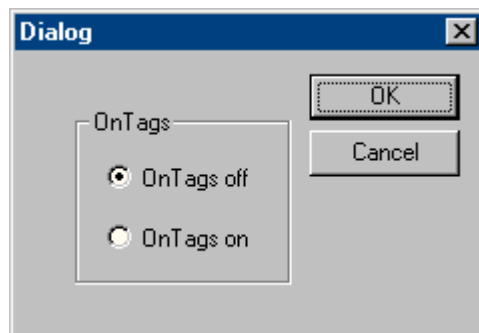
Example

The ActionCount grows too fastly: ScanRate: 100 projectGradient: 30 actualGradient: 87

3.3.3.6 FillTags

Description

Using menu command "FillTags", saving important diagnostics values in tags can be switched on.



The diagnostics tags are created during the creation of a WinCC project and can be used as usual. Switching on and off is also possible with internal function FillDiagnoseInTags(). This function is described in the WinCC Help.

Note that writing the diagnostics values created more basic load. The runtime for each started action is lengthened since the diagnostics values also have to be written in the tags. This functionality should therefore be switched on for a short time only.

WinCC Diagnostics tags

@SCRIPT_COUNT_TAGS	This tag contains the current number of tags requested via Script.
@SCRIPT_COUNT_REQUEST_IN_QUEUES	This tag contains the current number of jobs.
@SCRIPT_COUNT_ACTIONS_IN_QUEUES	This tag contains the current number of actions that exist for processing.

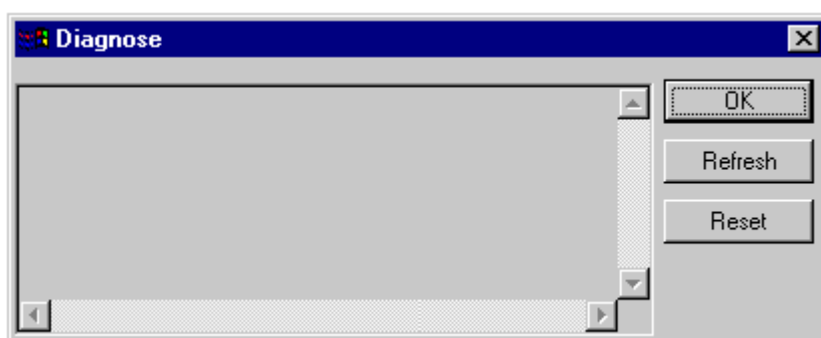
3.3.4 Output

3.3.4.1 Output On Screen

Description

Use menu command "Output On Screen" to open the diagnostics window.

The previously collected trace entries are output here. Unlike Output Window, the diagnostics window is only updated when opening and with the "Refresh" button. The contents are only deleted if Reset is actuated or the diagnostics buffer has been written full.



Note

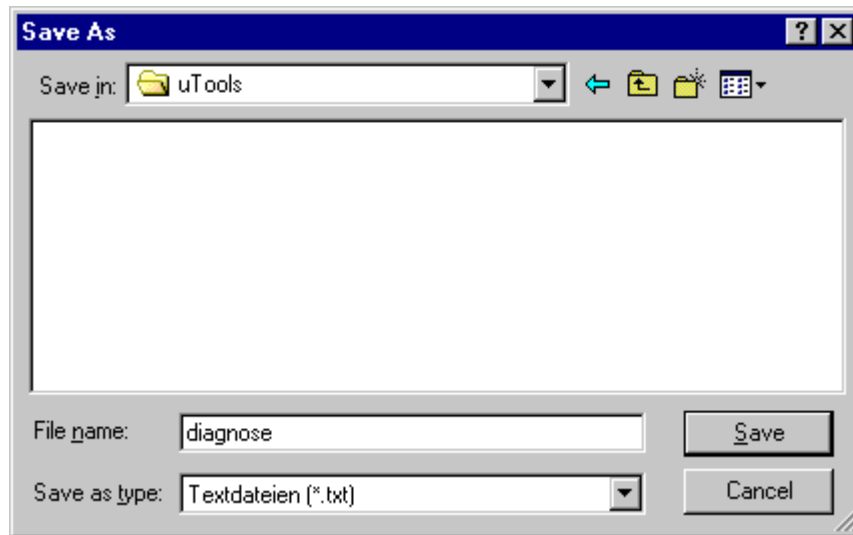
Sequence in the Diagnostics Buffer

The diagnostics buffer is a circulating buffer. The lowest entry is therefore not necessarily the oldest entry.

3.3.4.2 Output To File

Description

Menu command "Output To File" can be used one time to put the previously collected trace entries into a text file.



3.3.4.3 Reset Buffer

Description

Use menu command "Reset Buffer" to delete the previously collected trace entries.
This functionality corresponds with the "Reset" button in the diagnostics window.

3.3.5 Info

3.3.5.1 FirstAction

Description

Menu command "FirstAction" delivers information on the action that is running and therefore provides the ability to recognize which action in the queue is in the first position and e.g. blocks the processing of other actions with a loop.

Similar to OnErrorExecute, the actions that are currently being processed are put in a text file. In addition, the stack for these actions is output so that it is possible to recognize whether the action e.g. is frozen in DLL calls.

The information on the currently processed action is also output again as OnErrorExecute.

Note

If no action is blocking the processing, no text file will be created and no OnErrorExecute will be output.

Example

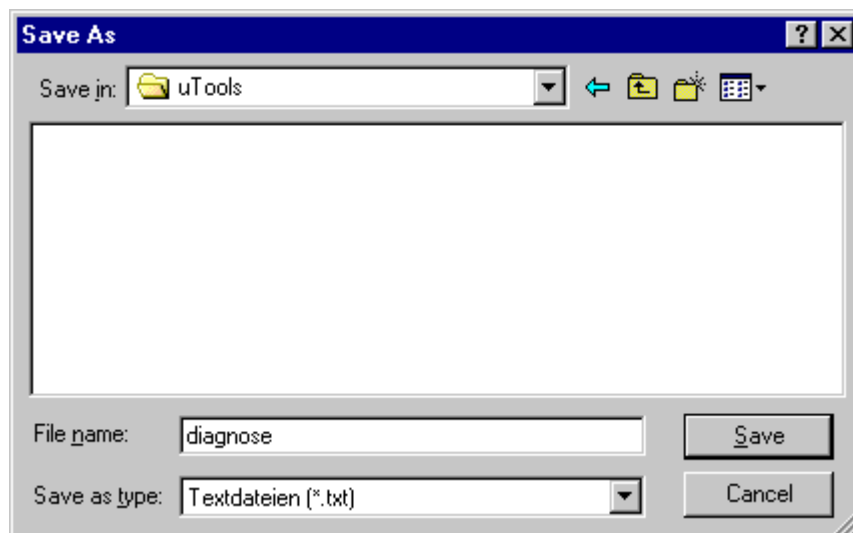
A "blocking" action can be simulated using the `MessageBox(NULL, "Welt", "Hallo", MB_OK);` function.

The action which calls the error box is not resumed until the box has been closed. This is comparable to a Message Box with a loop or a `Sleep()`.

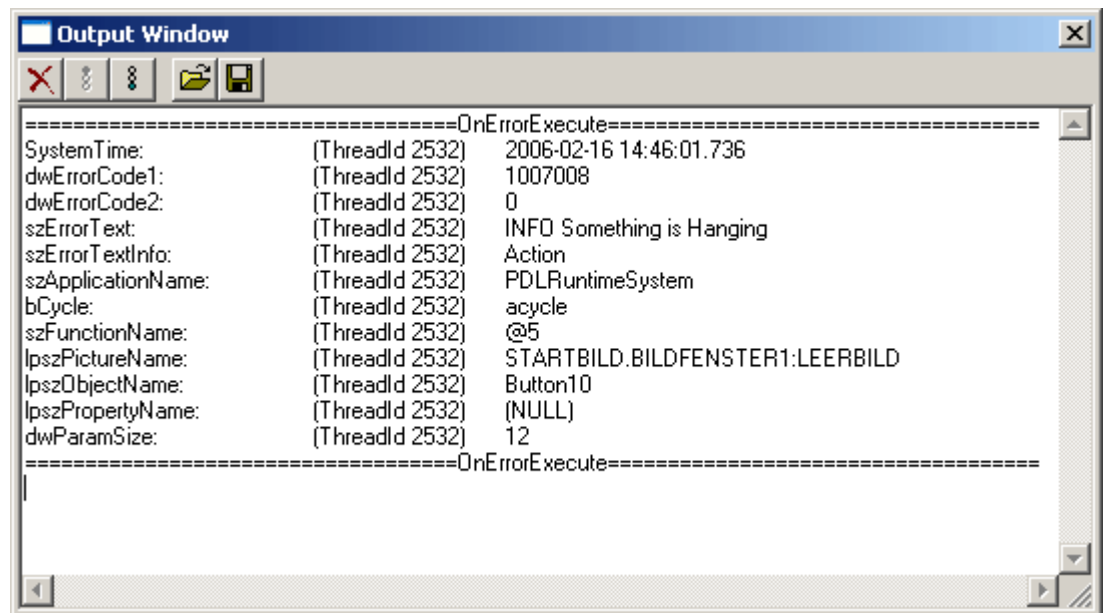


To check whether an action is blocking processing:

1. Start ...Siemens\WinCC\uTools\Apdiag.exe.
2. Select "Info > FirstAction".
3. Enter the name of a text file in dialog "Save as".



The following information is then put in the text file:



And the following OnErrorExecute is output:

```

=====Doku to Action=====
Info: The following Request is hanging.
Type of Request: Action
szApplicationName: PDLRuntimeSystem
acycle
szFunctionName: @5
szName1: STARTBILD.BILDFENSTER1:LEERBILD
szName2: Button10
szName3:
dwParamSize: 12
=====Doku to Action=====
//
// Call stack:
// -----
// Address | Frame |
// -----
// 7C94ED54 | 0312F410 | KiFastSystemCallRet+0
// 77E2F122 | 0312F438 | DefDlgProcW+5FC
// 77E41722 | 0312F6F8 | SoftModalMessageBox+6FB
// 77E41004 | 0312F848 | AppendMenuA+1F4
// 77E51A28 | 0312F8A0 | MessageBoxTimeoutW+5B
// 77E75E47 | 0312F8D4 | MessageBoxTimeoutA+A1
// 77E5DD8B | 0312F8F4 | MessageBoxExA+1B
// 77E5D923 | 0312F910 | MessageBoxA+45
// 00316860 | 0312F98C | CissDeleteModuleEx+11A0
// 0031132E | 0312FA34 | 0001:0000032E C:\Programme\Siemens\wincc\bin\CISS62.dll
// 0032C5FE | 0312FACC | CissGetLastError+199E
// 00347798 | 0312FB48 | fileno+4988
// 00323DD8 | 0312FB98 | CissExecuteFunctionEx+88
// 00313083 | 0312FBD4 | CissExecuteFunction+53
// 10002309 | 0312FE7C | 0001:00001309 C:\Programme\Siemens\wincc\bin\AKTSTEU.dll
// 10001C4B | 0312FEC0 | 0001:00000C4B C:\Programme\Siemens\wincc\bin\AKTSTEU.dll
// 10006621 | 0312FF14 | CApSteu::CApSteu+1571
// 73DC22CB | 0312FF84 | Ordinal1184+15B
// 77B9B530 | 0312FFB8 | endthreadex+A3
// 7C826063 | 0312FFEC | GetModuleFileNameA+EB

```

Note**"MB_SYSTEMMODAL" parameter**

Execution of a message box function with parameter "MB_SYSTEMMODAL" ensures that the message box is displayed in the foreground. If this parameter is not specified, the message box is hidden to users and (in the background) and cannot be operated. Mouse click events outside the message box are written to a buffer and processed after you exit the message box.

Example: `MessageBox(NULL, "Welt", "Hallo", MB_SYSTEMMODAL | MB_OK);`

3.3.5.2 Count of Connections

Description

The menu command "Count of Connections" lists all applications that have established a connection to the action control.

Example

```
=====
1.Applikation: GSC_RT
2.Applikation: ITLG-RT
3.Applikation: PDLRuntimeSystem
4.Applikation: APDiagnose
=====
```

3.3.5.3 Count of Actions in RequestQueue

Description

Menu command "Count of Actions in RequestQueue" outputs the current number of actions that are queued for processing.

There are jobs from Global Script, cycle jobs from pictures and event-controlled jobs from pictures.

Example

```
=====
Applikation: GSC_RT cycle Count of Requests 0
Applikation: PDLRuntimeSystem cycle Count of Requests 0
Applikation: PDLRuntimeSystem acycle Count of Requests 1
=====
```

3.3.5.4 Count of TransAction

Description

Menu command "Count of TransAction" lists the current number of transactions for every application that is logged in.

One transaction is established e.g. for every event-controlled action, for every picture window, which contains at least one cyclic action, and for global scripts.

Example

```
=====
1.Applikation: GSC_RT Count of Transactions 1
2.Applikation: ITLG-RT Count of Transactions 0
3.Applikation: PDLRuntimeSystem Count of Transactions 7
4.Applikation: APDiagnose Count of Transactions 0
=====
```

3.3.5.5 Count of Actions of each Transaction

Description

Menu command "Count of Actions of each Transaction" lists the number of actions contained in the transactions.

The output is in the following form:

- Name of the Application
- Number of the Transaction
- Number of Actions

At the end of the list, the total sum of actions is output.

Example

```
=====
Info to Transaktions: Count of Action in Transaction
1.Applikation: GSC_RT Count of Actions in TransAction(0): 15
3.Applikation: PDLRuntimeSystem Count of Actions in TransAction(7): 1
3.Applikation: PDLRuntimeSystem Count of Actions in TransAction(6): 1
3.Applikation: PDLRuntimeSystem Count of Actions in TransAction(5): 1
3.Applikation: PDLRuntimeSystem Count of Actions in TransAction(3): 1
3.Applikation: PDLRuntimeSystem Count of Actions in TransAction(2): 1
3.Applikation: PDLRuntimeSystem Count of Actions in TransAction(0): 19
3.Applikation: PDLRuntimeSystem Count of Actions in TransAction(1): 1
Info to Transaktions: Count of Action in Transaction 40
=====
```

3.3.5.6 Count of Tags in each Transaction

Description

Menu command "Count of Tags in each Transaction" lists the number of tags requested in the transactions.

The output is in the following form:

- Name of the Application
- Number of the Transaction
- Cycle time, with which the tags use for logging in
- Number of tags

At the end of the list, the total sum of tags requested in transactions is output.

The numerical value defined in Cycle corresponds with the following trigger:

0	Upon change
1	250 ms
2	500 ms
3	1 s
4	2 s
5	5 s
6	10 s
7	1 min
8	5 min
9	10 min
10	1 h
11 - 15	User cycle 1 - 5

Example

```
=====
Info to Transaktionen: Count of Tags in Transaction
1.Applikation: GSC_RT Count of Tags in TransAction(0) in Cycle 0: 1
1.Applikation: GSC_RT Count of Tags in TransAction(0) in Cycle 4: 6
3.Applikation: PDLRuntimeSystem Count of Tags in TransAction(0) in Cycle 2: 1
Info to Transaktionen: Count of Tags in Transaction 8
=====
```

3.3.5.7 Count of Actions in Cycle

Description

Menu command "Count of Actions in Cycle" lists the amount of cyclic actions sorted by trigger. In this case, the numerical values correspond with the following triggers:

0	250 ms
1	500 ms
2	1 s
3	2 s
4	5 s
5	10 s
6	1 min
7	5 min
8	10 min
9	1 h
10 - 14	User cycle 1 - 5

Example

```
=====
Count of Actions in Cycle (0): 6
Count of Actions in Cycle (1): 5
Count of Actions in Cycle (2): 0
Count of Actions in Cycle (3): 6
Count of Actions in Cycle (4): 0
Count of Actions in Cycle (5): 1
Count of Actions in Cycle (6): 0
Count of Actions in Cycle (7): 0
Count of Actions in Cycle (8): 0
Count of Actions in Cycle (9): 0
Count of Actions in Cycle (10): 0
Count of Actions in Cycle (11): 0
Count of Actions in Cycle (12): 0
Count of Actions in Cycle (13): 0
Count of Actions in Cycle (14): 0
=====
```

3.3.5.8 Count of Functions

Description

Menu command "Count of Functions" provides the number of standard functions and project functions and lists the functions by name.

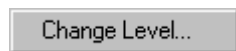
Example

```
=====
Count of Functions 112
FunctionName UTC PathName \\SERVER1\WinCC50_Project_GSLasttest
\library\UTC.Fct
FunctionName WriteNow PathName \\SERVER1\WinCC50_Project_GSLasttest
\library\WriteNow.Fct
=====
```

3.3.6 Trace Points - Change Level

Description

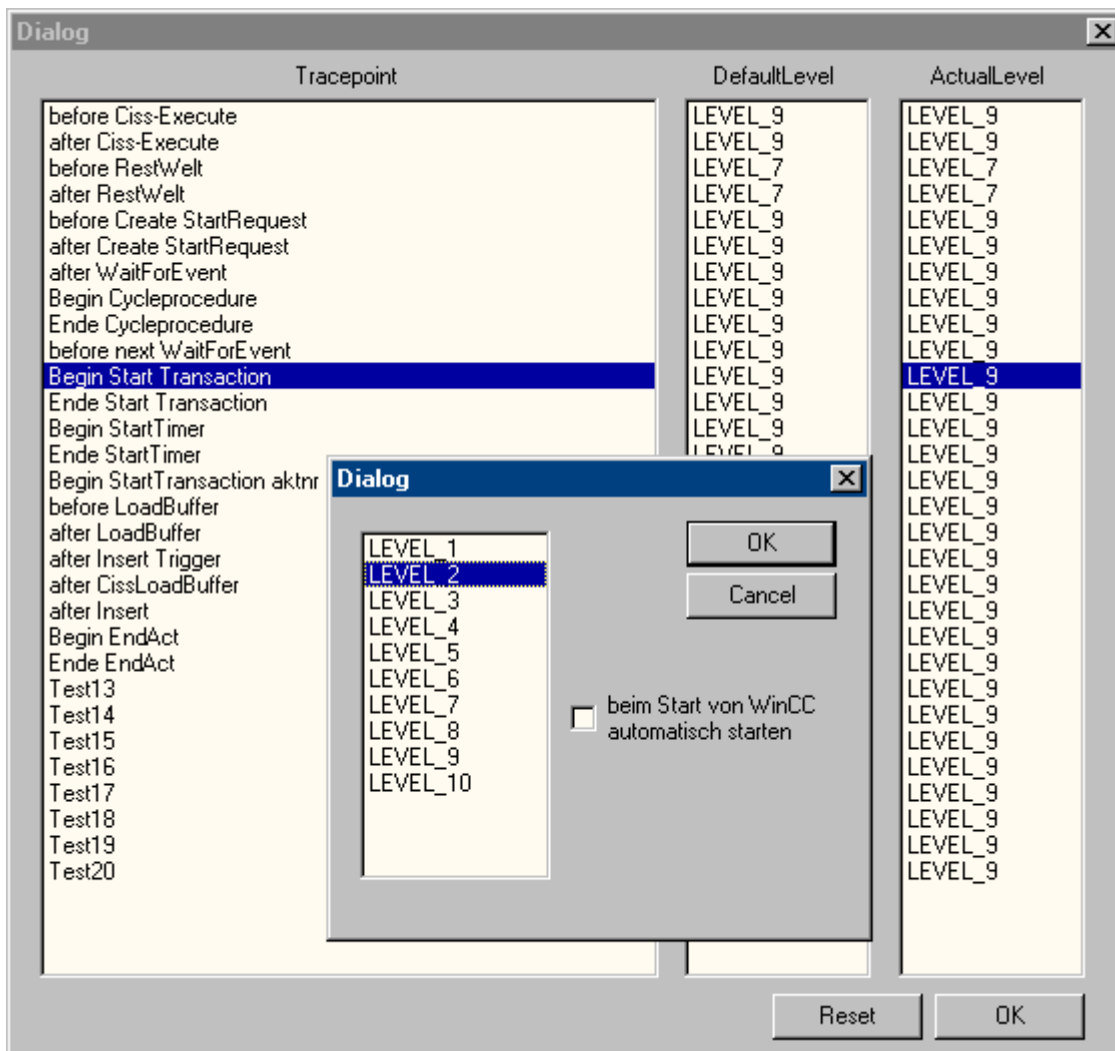
The levels of certain trace points can be changed with this menu command.



If you expect e.g. only one certain trace point, you can set the respective level high and are no longer disrupted by a number of other trace points.

You can change the level by double clicking "Actual Level" for the desired trace point, setting the desired level in the dialog box and leaving the box with "OK".

The original level is set again with a reset.



3.3.7 Output Window - Open / Close

Description

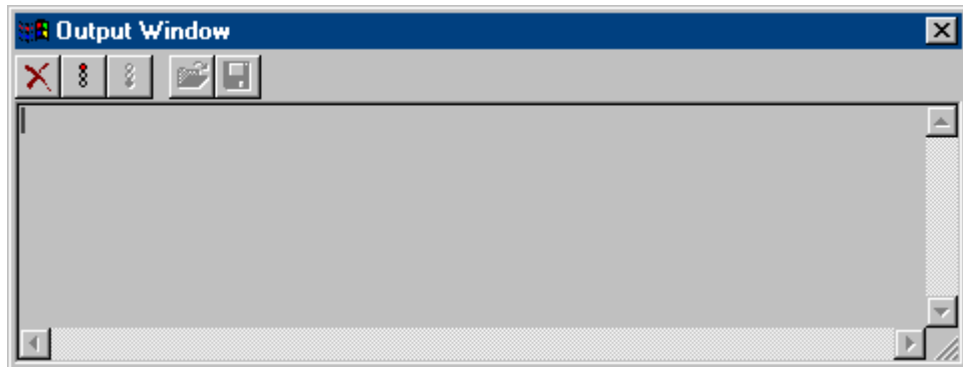
Opens or closes the output window.



The output window corresponds with application window GSC diagnosis, but offers the following advantages:

- It is independent of the configuration. The configuration does not have to be accessed, especially with third-party projects.

- It remains visible with an picture change as well.
- It can be opened even before activating runtime and can therefore show error messages during power up, which remain hidden from the application window GSC diagnosis.



3.4 Appendix

3.4.1 Trace points and their diagnostics level

Introduction

Following is a list of selected trace points.

The trace points indicated with "d" can be changed in the respective level. These are allocated to level 9 by default.

Overview

Trace point	Level	Description
NewRequest nCount	9	With more than 5 jobs, the position is output in the queue for every new job (Request).
more as 10000 Actions to work	9	Overflow, more than 10000 actions in the queue.
before Execute dwID	d	Before executing an action, the action ID is output in hex. If it is a Global Script action, the connection to the action name can be made via the GSC runtime application window. -The same ID is output in OnErrorExecute.
Exception in cissexecute dwID	d	If there is an error with an action, the action ID is output in hex. If it is a Global Script action, the connection to the action name can be made via the GSC runtime application window.
after Execute dwID	d	After executing an action, the action ID is output in hex. If it is a Global Script action, the connection to the action name can be made via the GSC runtime application window.
Exception in new Variant dwID	d	Error with return value of an attribute side action.
Ende Execute dwID	d	Action ID processing complete.
Anfang deaktivieren	3	Deactivation initiated.
Ende deaktivieren	3	Deactivation complete.
APDMConnect-Thread said goodbye	1	The thread that prepares the connection between the script control, tag management and other applications was ended unexpectedly.

Trace point	Level	Description
Begin Start Transaction dwTransID:	d	A new transaction is logged in and the transaction ID output.
no PCode	3	A Global Script action or a function contains no executable code (P-Code). Measures: Compile action or function.
Error in FunctionName	3	Incorrect function name.
Function %s unknown.	3	Unknown function
wrong ReturnTyp	3	Return value type is invalid.
Ende Start Transaction dwTransID:	d	Transaction logged in.
Begin Start TransactionGTI dwTransID:	d	A transaction with cyclic actions or Global Script actions is logged in.
Begin EndAct	d	Transaction logging out initiated.
Begin EndAct dwTransID:	d	Transaction number
Ende EndAct ok	d	Transaction logging out completed.
Begin Compile	6	Compiler process initiated.
projectpath:	6	Compiler: Aplib and Library directory
Ende Compile	6	Compiler process complete.
printf aus Aktionen	3	Printf() outputs
Begin Disconnect dwAppID:	6	An application logs out from the script control.
ChangeFct	6	Function was changed.
LoadFct	6	Reloading a function
DirInfo.szProjectLibDir:	6	Project functions path
DirInfo.szGlobalLibDir:	6	Path of standard functions and internal functions
m_szIncludepathProj:	6	Project path for a compiler include
m_szIncludepath:	6	General path for a compiler include
Thread said goodbye	1	A job thread has ended unexpectedly.
Exception in Request	1	An error has occurred in a request.
Timeout Variable ist nicht gekommen	1	Tag request was not answered within 10 seconds.

3.4.2 System messages

Introduction

The following system messages are generated by the script controller and are entered in the Logfiles WinCC_SStart_xx.Log or WinCC_Sys_xx.Log.

Overview

Legend for the "Type" column:

- 1 = Note
- 2 = Warning
- 3 = Fault

Number	Type	Short description in Alarm Logging	Text in diagnosis	Description
1007000	3	Überlauf Overflow Débordement	ActionOverflow: more than 10000 Actions to work	Overflow, more than 10000 actions in the queue.
1007001	3	Aktionsfehler Action-Error Erreur d'action	ExecuteError in Action %s (Functionsname)	An error occurred while processing an action. The Action ID was also output. If it concerns a Global Script action, the connection to the action name can be made via the application window GSC Runtime, as long as the runtime has not been restarted or a Global Script action is saved.
1007001	3	Aktionsfehler Action-Error Erreur d'action	10 errors occurs, no more errors will be reported	One of the above faults has occurred 10 times and will no longer be logged for performance reasons.
1007002	3	Überlauf Overflow Débordement	DM_queue overflow	Overflow of an internal list.
1007003	2	Verbindungsfehler ConnectionError Erreur de liaison	no connection to server %s (Servername)	The connection to the server is broken. Measure: Start server again.
1007004	3	Aktionsfehler 1 Action-Error 1 Erreur d'action 1	Function %s (Functionsname) unknown	Unknown function.
1007004	3	Aktionsfehler 1 Action-Error 1 Erreur d'action 1	10 errors occurs, no more errors will be reported	The above fault has occurred 10 times and will no longer be logged for performance reasons.
1007005	3	Aktionsfehler 2 Action-Error 2 Erreur d'action 2	no PCode	A Global Script action or a function contains no executable code (P-Code). Measures: Compile action or function.
1007005	3	Aktionsfehler 2 Action-Error 2 Erreur d'action 2	Error in FunctionName	The function name is incorrect.

Number	Type	Short description in Alarm Logging	Text in diagnosis	Description
1007005	3	Aktionsfehler 2 Action-Error 2 Erreur d'action 2	wrong Return Type	The Return value type is invalid.
1007005	3	Aktionsfehler 2 Action-Error 2 Erreur d'action 2	Fault in LoadAction	Compiler error when loading the action.
1007005	3	Aktionsfehler 2 Action-Error 2 Erreur d'action 2	Fault in OpenFunktion %s (Dateiname der Funktion)	A function could not be loaded.
1007005	3	Aktionsfehler 2 Action-Error 2 Erreur d'action 2	Fault in LoadFunktion %s (Dateiname der Funktion) error: %s (Fehlerursache)	A function could not be loaded. Measures: Correct the fault cause indicated in the diagnosis entry.
1007005	3	Aktionsfehler 2 Action-Error 2 Erreur d'action 2	Fault in LoadFunktion new_function error: "new_function": doubly defined function	Two *.fct files are using the same function name in the directory "<Project>\Library". Measures: When executing menu command "Regenerate header" in the Global Script, you are notified of the duplicate file name.
1007005	3	Aktionsfehler 2 Action-Error 2 Erreur d'action 2	10 errors occurs, no more errors will be reported	One of the above faults has occurred 10 times and will no longer be logged for performance reasons.
1007006	3	Variablenfehler VariableError Erreur de variable	Variable %s not exist	Requested tag does not exist.
1007006	3	Variablenfehler VariableError Erreur de variable	Variable %s timeout	Tag request was not answered within a certain amount of time.
1007006	2	Variablenfehler VariableError Erreur de variable	10 errors occurs, no more errors will be reported	One of the above faults has occurred 10 times and will no longer be logged for performance reasons.
1007007	1	Info	FindFirstFile INVALID_HANDLE_VALUE GetLastError() %d	On multi-user projects, the directory .. \Siemens\WinCC\aplib is enabled with the name SCRIPTFCT. If there is no access to the directory, this entry is found and a second attempt is started.

Number	Type	Short description in Alarm Logging	Text in diagnosis	Description
1007007	1	Info	Alles vorbei INVALID_HANDLE_VALUE GetLastError() %d	The second access attempt failed. The SCRIPTFCT directory and the functions and header files contained within are not available. Possible causes: Network is faulty, no current ServicePack for NT or changed access authorization.
1007007	1	Info	countall %d in szFolder %s	Number of functions in one directory.
1007007	1	Info	before Read Standardfunction	Before reading the standard functions.
1007007	1	Info	runtimeproject %s ok(getprojectdir) %d	Project path definition.
1007007	1	Info	global %s szProjectLibDir %s	The global path and the project path are output.
1007007	1	Info	count StandardFunctions: %d	Number of standard functions.
1007007	1	Info	count StandardFunctions +ProjectFunctions: %d	Number of standard and project functions.
1007007	1	Info	DM_NOTIFY_SHUTDOWN	Request, to end runtime.
1007007	1	Info	RemoveClient	A client has disabled the connection.
1007007	1	Info	InstallClient ok	Communication Client/Server disabled.
1007007	1	Info	InstallClient no ok	A client was not able to establish communication with the server.
1007007	1	Info	no client	Client not logged in.
1007007	1	Info	vor share	Multi-user project: Before enabling directly ..\Siemens\WinCC\aplib.
1007007	1	Info	nach share	Multi-user project: After enabling directly ..\Siemens\WinCC\aplib.
1007007	3	Aktionsfehler 2 Action-Error 2 Erreur d'action 2	Deactivation : Action was stopped by script	An action was still running 50 s after ending runtime and was deactivated.
1007008	3	Aktionsfehler 2 Action-Error 2 Erreur d'action 2	EndAct Timeout	An action was not able to log out within one minute and was therefore ended. Example: An action with a longer runtime was started and changed to another picture. The action will be ended after one minute.
1007009	3	Fehler im Thread Error in Thread Erreur en Thread	Thread said good-bye	A job thread has ended unexpectedly.
1007009	3	Fehler im Thread Error in Thread Erreur en Thread	APDMConnect-Thread said good-bye	The thread that prepares the connection between the script control, tag management and other applications was ended unexpectedly.

Licensing

4.1 Software Has a Value

Usage Authorization

With the purchase of this software, you have acquired the unlimited right to use the software and its functionality. Furthermore, in accordance with our Terms and Conditions, you are entitled to:

- our warranty
- our support
- our service

Our WinCC software is protected against unlawful use. The programs protected in such a manner can run only in a restricted manner when a valid license for the program or the software package has been transferred to the harddisk of the corresponding computer.

For WinCC, licensing represents the usage authorization and thus its real value.

Documentation

This section shows you

- How to Transfer Licenses
- How to Remove Licenses
- how to administer licenses
- how to repair licenses
- what type of licenses exist

4.2 Software Protection and Licensing

Introduction

SIMATIC WinCC has software protection, just like the rest of SIMATIC software. Each installed software requires a valid license for unrestricted operation. Without a valid license, WinCC software can only be used in Demo mode.

Principle of Licensing

In technical terms, the license is represented by a License Key which the customer receives on a license data carrier upon purchase of the WinCC basic software package. This license key is copied to the hard disk of the computer and enables unlimited use of the software installed from the DVD.

The required license keys and the Automation License Manager program is transferred as part of the WinCC installation. The program manages the license key. A license key can thus be transferred subsequently by the user.

Each license data carrier with valid License Keys for WinCC is supplied with a unique worldwide serial number. This serial number is transferred to the computer while transferring the license key and the same can be read by the Automation License Manager.

Please give this serial number with every inquiry, e.g. in case of a service call.

Note

WinCC versions prior to V6.0 SP3 used the program AuthorsW to manage licenses. The "License Key" was referred to as "Authorization" in these WinCC versions. The respective serial number consisted of a 10-digit numerical sequence.

You have the option to manage authorizations such as license keys of other SIMATIC products with the Automation License Manager.

Copy Protection Procedure

A license key cannot be copied. The copy protection used prevents the copying of License Keys to a license data carrier or hard disk. Encryption technology and alteration of the physical file structure prevent the "functional" copying of a license key for a protected program.

License Key Data Medium

When the WinCC system software is ordered, you will receive a license data carrier along with the software on DVD.

One license data carrier is included for each WinCC option and for the Powerpacks.

Management of License Keys

The Automation License Manager program is also installed during the setup of WinCC and serves to manage license keys for WinCC from Version V6.0 SP3.

During first transmission of a license key, the Automation License Manager creates a directory "AX NF ZZ" on the harddisk. This directory has the attributes "system" and "hidden" and is automatically deleted when the last license key is removed.

NOTICE**Do not change the "AX NF ZZ" directory**

Neither the name nor the attributes of the "AX NF ZZ" directory may be changed because the transferred license keys can be irrecoverably lost.

Powerpack

The number of external tags (PowerTags) and archive tags (ArchivTags) permissible for a WinCC software configuration - within a version - can be upgraded with a Powerpack.

- For the Powerpack of the PowerTags, there is the "WinCC RT (xxx) Powerpack" and "WinCC RC (xxx) Powerpack" package. If the permissible number of PowerTags is exceeded in Runtime, WinCC switches to demo mode. The number of PowerTags will not be checked on a client.
If configured without RC license, WinCC runs in demo mode. In this case, the you can use the editors until the demo mode period elapses.
- Upgrade license for ArchiveTags
A license to use 512 ArchiveTags is included in the RT and RC licenses. If you wish to use more than 512 ArchivTags in RT, you must upgrade the system.

Note

The Powerpack is only used for the Upgrade procedure and cannot be used to operate the WinCC software.

You can only upgrade the system once with the License Key held on the license data carrier.

RT and RC Licensing

WinCC differentiates between RT licenses (Runtime) and RC licenses (Runtime and Configuration). Another distinction is based on the number of tags.

- RT licenses permit the operation of WinCC in Runtime mode for an unlimited period of time. The editors may only be used in demo mode for a limited period of time.
- RC licenses permit the operation of WinCC in Runtime mode and in project configuration mode for an unlimited period of time.
- The description of the "WinCC RT (xxx)" or "WinCC RC (xxx)" license specifies how many external tags and archive tags are permitted for the configuration.
Example: "WinCC RC (65536)"
With this license, you can use up to 64*1024 PowerTags (PTg) and up to 512 ArchiveTags (ATg) in RT.
The system goes into demo mode if you activate a project where the number of external tags or archive tags exceeds the number of permitted tags. In this case the system behaves as if there was no license at all.

Note

On a client, the maximum number of PowerTags (256*1024) and ArchivTags is always permitted with an existing RT/RC license since the number of tags is only checked on a server.

Client licensing for "RT Client" and "RC Client"

As of WinCC V7.0 SP3, new RT Client and RC Client licenses are available for client licensing.

You can use these licenses for both clients without a custom project as well as for clients with a custom project. Note the following:

- Microsoft SQL Express must be installed.
If the SQL Standard Server is installed, the "RT Client" license causes display of a license message that requires acknowledgment.
- The database on the client can be a maximum of 2 GB in size.
- The SIMATIC Information Server requires the SQL Standard Server. This means the Information Server cannot be installed on the RT Client PC.
- The Client Upgrade package contains either only the RT Client upgrade or only the RC Client upgrade.
SIMATIC NET and other options, for example WinCC/WebNavigator, are not included in this Client Upgrade package.

Archive licenses

Archive licenses can be cumulated from WinCC V6.2 onwards. If there are two or more single archive licenses locally on a computer, then the permissible volume for RT is the sum of the individual archive licenses. You need the Automation License Manager Version V3.0 or higher to cumulate the archive licenses.

Example:

Archive license (5000 tags) + Archive License (1500 tags) --> Archive license (6500 tags)

Archive licenses basically belong to "Floating License" type; however, they always need to be transferred locally to the computer.

Note

For the Archives license count, the following applies as of WinCC V6.0 SP3:

- The tags for the process value archive are counted individually. A check of the tag numbers is performed in Runtime.
 - The tags for the compressed archive are no longer included in the license count.
 - A license is only required for Runtime for user archives.
-

Remote use of licenses

You can also remotely use RC licenses.

If a RC license is remotely located on another computer, then it can only be used in CS. To use RT, you also need a RT license locally.

Missing Option Licenses

If you configure data for an option or a channel DLL, the system can be used in an unrestricted manner only if all license keys have been transferred. Missing license keys for an option used or a channel DLL causes WinCC to switch to demo mode, regardless of whether or not other license keys are available.

4.3 Basic license types and license types in WinCC

Introduction

From WinCC V6.0 SP3, software licenses for WinCC and other SIMATIC products are managed using the Automation License Manager.

The Automation License Manager assigns each software license a 20-digit serial number. If it displays only 10-digit serial number, the software license represents a version prior to WinCC V6.0 SP3.

All software licenses acquired with older WinCC versions can no longer be used with WinCC V6.2 and above. You must upgrade the licenses so that you can work with these licenses on WinCC V6.2 and higher. This distinguishes between the following cases:

- License upgrade from WinCC V5.x --> WinCC V6.2
- License upgrade from WinCC V6.x --> WinCC V6.2

License Keys are assigned to different basic license types and license types.

Overview

The License Keys and the authorizations prior to V6.0 SP3 were displayed in the "Management" view in the Automation License Manager. The column display depends on the selected view.

Status	Family	Product	Version	Standard license type	License type	Number of license keys	Validity	License key
—	SIMATIC HMI	WinCC Ind.DataBridge (10000)	6.2	Single	Unlimited	1	Unlimited	SISLA9IDB40602
—	SIMATIC NET	Industrial Ethernet SOFTNET-S7 Lean	6.4	Single	Unlimited	1	Unlimited	SISLNSIESL0604
—	SIMATIC HMI	WinCC Chipcard	6.2	Single	Unlimited	1	Unlimited	SISLA1WPC40602
—	SIMATIC HMI	WinCC Load Balancing	6.2	Single	Unlimited	1	Unlimited	SISLA9wLB10602
—	SIMATIC HMI	WinCC S5 Ethernet TF	6.2	Single	Unlimited	1	Unlimited	SISLA9wC170602
—	SIMATIC HMI	WinCC Archive	6.2	Floating	Count relevant	1	120000 Tag(s)	SIFCY9WTGX06026
—	SIMATIC HMI	WinCC S5 Ethernet Layer4	6.2	Single	Unlimited	1	Unlimited	SISLA9wC180602
—	SIMATIC HMI	WinCC TI Ethernet Layer4	6.2	Single	Unlimited	1	Unlimited	SISLA9wC190602
—	SIMATIC HMI	WinCC Connectivity Pack	6.2	Single	Unlimited	1	Unlimited	SISLA9wOP10602
—	SIMATIC HMI	StoragePlus	1.2	Single	Unlimited	1	Unlimited	SISLA1STOP0102
—	SIMATIC HMI	WinCC Connectivity Station	6.2	Single	Unlimited	1	Unlimited	SISLA9wOP20602
—	SIMATIC HMI	WinCC Profibus FMS	6.2	Single	Unlimited	1	Unlimited	SISLA9wCL60602

Additional information on the meaning of individual columns may be found in the online help of the Automation License Manager program.

Basic license types and license types

Differentiation is made between the following basic license types and license types. The software behaves differently for different types.

Note

Read the current information on the licenses in the Release Notes.

4.3 Basic license types and license types in WinCC

Basic license types	Description
Single License	Standard license with time restrictions; it can be transferred to any computer and used there. The type of use is determined from the Certificate of License (CoL). Single licenses can only be used locally. The single license is marked as "SISL" and can be upgraded.
Floating License	Standard license with no time restrictions; it can be transferred to any computer and used there. The license can also be read from a license server over the network. The license size cannot be chosen however. The first free license on the license server is assigned. You must therefore ensure that sufficient floating licenses are available on the license server. Otherwise, the requesting computer is switched to demo mode. If an RC license is present locally and remotely, WinCC always uses the local license. Please refer to the Installation Notes of WinCC/Central Archive Server Information System for more information about archive licenses for CAS. You must also note the following if you acquire the floating license via the network: • the Automation License Manager must be installed on the license server • The license is only usable for configuration (CS) • For Runtime, a RT license must be installed on the local computer • After disconnection, the program is restarted only after 3 hours in demo mode The floating license is labeled with "SIFL" and can be upgraded.
Upgrade License	A specific system status can be changed using this license, e.g.: • update to a newer version of the program • extension of quantity structure The Upgrade License is labeled as "SIUP" or "SIPP". It contains all Runtime licenses including the following WinCC options: • WinCC/Connectivity Pack & WinCC/Connectivity Station • WinCC/DataMonitor • WinCC/Redundancy • WinCC/Server • WinCC/User Archives • WinCC/WebNavigator Extension of the server-client configuration as of WinCC V6.0 SP4 If you use at least WinCC V6.0 SP4 in your plant, you can also use Runtime licenses for WinCC V7.2 or later for additional WinCC clients. You need the Automation License Manager as of version V5.2 for this.

4.3 Basic license types and license types in WinCC

License types	Description
Count Relevant License	With this license, software utilization is limited as follows: • the number of operating hours stated in the contract Please refer the Installation Notes of WinCC/Central Archive Server Information System for more information about archive licenses for CAS. The Count Relevant License is labelled as "SIFC".
Rental License	With this license, software utilization is limited as follows: • the number of operating hours stated in the contract • the number of days from the day of first use stated in the contract • the period until the expiry date stated in the contract • Use only on a local PC. The rental license is labeled with "SIRL".

4.4 WinCC in the Demo Mode

Introduction

A missing license causes WinCC to run in demo mode. This mode permits the operation of WinCC for testing and presentation purposes or for configuration modifications on site if only an RT license is available.

- During installation of WinCC, a message informs the user that WinCC may only be operated in demo mode without licensing.
- After one hour, the configuration software is terminated for lack of license RCxxx. You are permitted to save changes before the software terminates. After one hour, the WinCC Explorer and the editors are closed. In Runtime, the system will request the acquisition of a valid license. This dialog will appear every 10 minutes.
- Upon the start of Runtime, a box appears requesting acknowledgment and acquisition of a valid license (lack of license RTxxx). This message is redisplayed every 10 minutes and must be acknowledged. If the message window is moved, the window reappears again, centered, after 30 minutes at the most. As long as you are in Runtime, WinCC Explorer is not terminated. On exiting from runtime, WinCC Explorer is also closed.

You can upgrade from a WinCC demo version to the full version. To do this, proceed as follows:

- Install the required licenses.
- Install the SQL Standard Server using the WinCC DVD.

When you subsequently transfer a license in the demo mode, it is effective only when you restart WinCC.

Note

Even without a license, operational processing is fully functional without loss of data for archiving or message system.

4.5 Error Avoidance

Introduction

You must remove all license keys and authorizations before using a disk optimization program that moves fixed blocks. This also applies to formatting, compressing, or restoring the hard disk or to installing a new operating system on your computer.

It is not possible to use compressed hard disks or disk drives.

If a backup contains copies of the license keys and authorizations, you run the risk of the existing valid license keys and authorizations will be overwritten and thus destroyed when you restore the backup files on the harddisk.

If you lose a license key, it is possible to restore it again. Additional information may be found under "How to Restore a License Key".

NOTICE
You may not change the directory "AX NF ZZ" or its contents! While transferring a WinCC license to the harddisk, a cluster is marked as "defective". Do NOT attempt to restore it! Hence you must remove the license keys before each backup or exclude them from the backup.

4.6 Management of Licenses

4.6.1 Management of Licenses

Introduction

The licenses for WinCC and other SIMATIC products are managed using the Automation License Manager.

The Automation License Manager uses the term "License Key" for licenses of WinCC and other SIMATIC products. The term "Authorization" refers to a license of WinCC prior to V6.0 SP3.

4.6.2 System Requirements

Introduction

WinCC licenses or the license keys of other SIMATIC software can only be transferred using IUSB memory sticks or uncompressed hard disk drives. You cannot transfer licenses to RAM drives, DOS diskettes or compressed harddisk drives.

Exception: In case of compressed drives you can transfer the license to the corresponding host drive.

The minimum amount of required space is 20 MB. You can transfer as many licenses as you want if there is enough memory on the harddisk.

NOTICE
A write operation to the license data carrier is performed each time when you transfer or remove a WinCC license.

Requirements for the Automation License Manager

Hardware

The hardware requirements for using the Automation License Manager are:

- Computer (Industrial computer, programming device, etc.) with
- Working memory ≥ 128 MByte
- Free hard disk space > 30 MB

Software

The 32-bit edition of the Automation License Manager is released for the following 32-bit operating systems:

- MS Windows XP SP2 or SP3
- MS Windows Server 2003 SP1 or SP2 Standard Edition with or without R2
- MS Windows Server 2008 with or without SP2
- MS Windows 7

The 64-bit edition of the Automation License Manager is released for the following 64-bit operating system:

- MS Windows Server 2008 R2

The software runs on all language versions for the supported operating systems.

Note

If you install the Automation License Manager as license server without WinCC, then you also need to customize the firewall settings. At least File and Printer Release must be enabled in the firewall.

Proceed as follows if you are using Windows Firewall:

Open Settings in the Control Panel in the Windows Start menu. Open the Windows Firewall dialog.

Enable the File and Printer Release option in the Exceptions tab.

4.6.3 Transferring licenses

Introduction

Transferring a WinCC license means activating it on a local drive and deactivating it on the license data carrier so that WinCC can use the license.

There are two ways of transferring your WinCC license:

- During the installation of the WinCC software. Call the Automation License Manager administration program to transfer the licenses.
- By using the Automation License Manager administration program at a later point in time.

Note

If several licenses are present, WinCC uses the license found first. In many cases, this license is not the most powerful license. Hence you need to ensure that only one and not many licenses are transferred.

See also

System Requirements (Page 101)

How to Transfer Licenses using Automation License Manager (Page 103)

4.6.4 How to Transfer Licenses using Automation License Manager

Introduction

You require the Automation License Manager program for license management. Setup automatically installs the program while installing WinCC.

Automation License Manager can also be installed subsequently on computer where WinCC has not been installed, for e.g. on a license server. Go to Start dialog on the WinCC DVD and select "Other Software". To start installing the Automation License Manager program use the Automation License Manager item in the Other Software dialog.

Automation License Manager Program

After the installation, you can find a link to the Automation License Manager program in the Windows start menu.

The existing authorizations for WinCC prior to V6.0 SP3 and license keys for WinCC beginning with V6.0 SP3 and other SIMATIC products are displayed by the Automation License Manager in the "Manage" view.

Procedure

1. Plug the WinCC USB stick into your USB port and select the drive in the Automation License Manager navigation window.
The WinCC licenses on the license data carrier are displayed.
2. Select a license from the table. You can select more than one license for transfer. Choose the "Transfer..." option from the pop-up menu of the license. The "Transfer License Key" dialog opens. Select the target drive and confirm the selection with "OK".
3. The desired license is transferred and written to the destination drive in directory "AX NF ZZ".

For more information, please see the online help for the Automation License Manager.

Note

You may also move the licenses using "Drag & Drop".

See also

System Requirements (Page 101)

Transferring licenses (Page 102)

4.6.5 How to Remove Licenses

Introduction

Removing a license means deactivating it on the local drive and activating it again on the license data carrier so that the license can be used on other machines.

WinCC licenses are always removed using the Automation License Manager program.

Procedure

1. Connect the WinCC license data carrier with the computer. In the navigation window of the Automation License Manager, select the drive where the license to be removed is located. The WinCC licenses on the drive are displayed.
2. Select the desired license from the table. You can also select multiple licenses for removing. Choose the "Transfer..." option from the pop-up menu of the license. The "Transfer License Key" dialog opens. Select the license data carrier as the target drive and confirm your selection with "OK".
3. The desired license is transferred and written to the destination drive in directory "AX NF ZZ".

For more information, please see the online help for the Automation License Manager.

Note

You may also move the licenses using "Drag & Drop".

See also

System Requirements (Page 101)

4.6.6 How to Collect Licenses

Introduction

You can collect licenses on different media such as USB memory sticks or hard disk drives.

You can thus collect all licenses belonging to a WinCC configuration and collectively transfer and remove them and thus transfer them easily from one computer to the other.

Licenses are collected by transferring the licenses from the used storage medium to the harddisk. On the other hand, licenses are removed by transferring them from the harddisk to various storage media. Both are performed with the Automation License Manager.

Transferring the License to the Hard Disk

1. Transfer the license from the license data carrier to the hard disk drive in the same way as you transfer licenses normally.
2. Repeat this process for each license data carrier.

Procedure for transferring collected licenses to a license data carrier

1. Select the licenses collected on the hard drive.
2. Transfer the license to the license data carrier by selecting "License Key > Transfer..." from the menu.

For more information, please see the online help for the Automation License Manager.

All licenses transferred to the license data carrier are labeled on it by a '1' in the "Number of license keys" column and can now be transferred to another machine.

See also

How to Transfer Licenses using Automation License Manager (Page 103)

4.6.7 How to Upgrade Licenses

Introduction

Upgrading the permitted number of tags (PowerTags) and the Archive tag amount (ArchivTags) is performed using the Automation License Manager.

You need the following:

- RT/RC licenses to be upgraded and archive licenses to be upgraded
- Powerpack license data carrier with upgrade license

Procedure

1. Plug the Powerpack license data carrier into a USB port.
2. Start the Automation License Manager using the Start menu. In the navigation window, select the drive where the license to be upgraded is located. Select this license from the table.
3. Select menu instruction "License Key" > "Upgrade...". The upgrade process is started.
4. The upgrade process concludes with the transfer of the upgraded license to the local drive.

Additional information may be found in WinCC Information System under the topic of "Migration > Upgrade Licenses" and in online help of Automation License Manager under "Working with the Automation License Manager" > "Handling License Keys" > "How to Upgrade a License".

See also

Management of Licenses (Page 101)

4.7 Diagnosis and Repair of Licenses

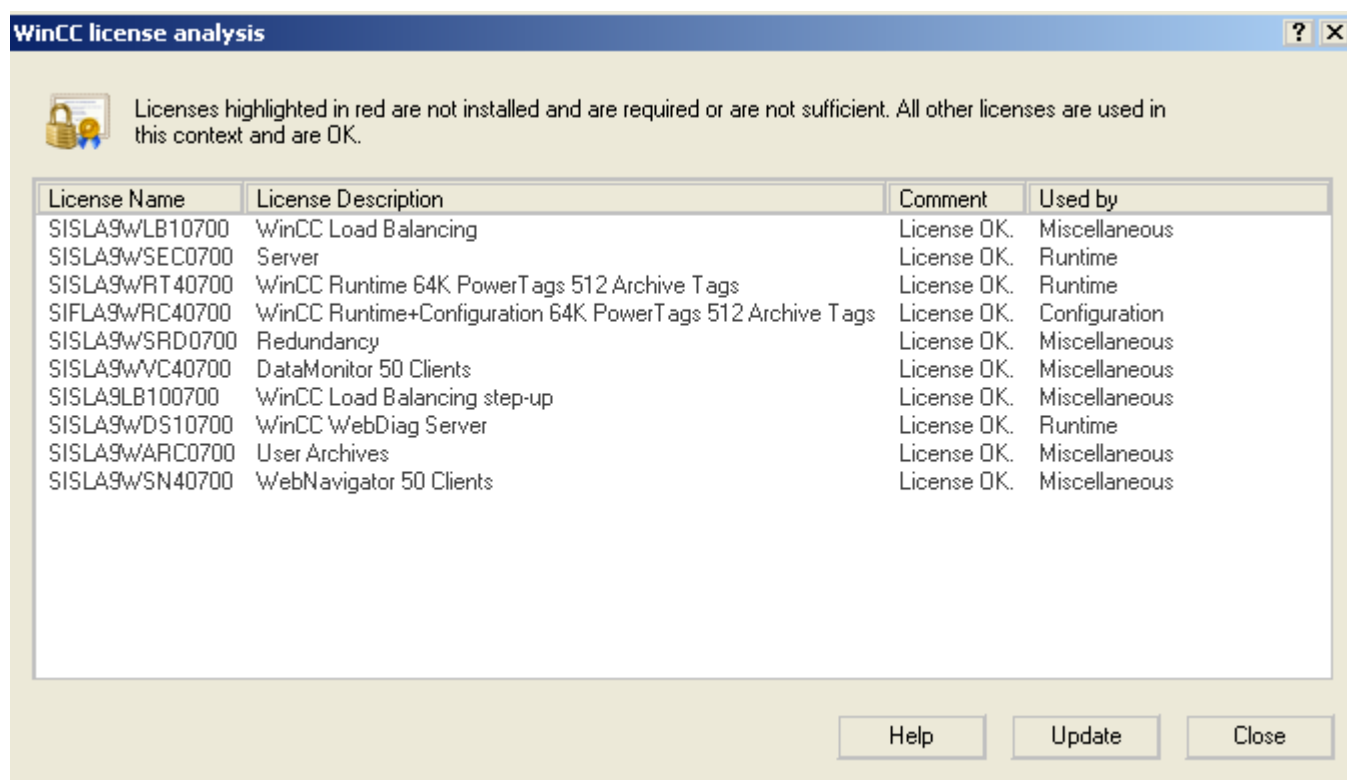
4.7.1 Diagnostics of Licensing Problems

License Check

If WinCC continues to switch to demo mode even though the licenses have been transferred, WinCC and the Automation License Manager offer a diagnostics function to check the licenses.

How to check the licenses using WinCC License Analysis

1. In the Windows start menu, select the "License Analysis" entry in the "SIMATIC > WinCC > Tools" folder. WinCC License Analysis opens.



2. The window displays the installed licenses and the required licenses. Required licenses that are not installed or not adequately dimensioned are highlighted in red.
3. Click "Update" if you install licenses via the Automation License Manager with the License Analysis open.

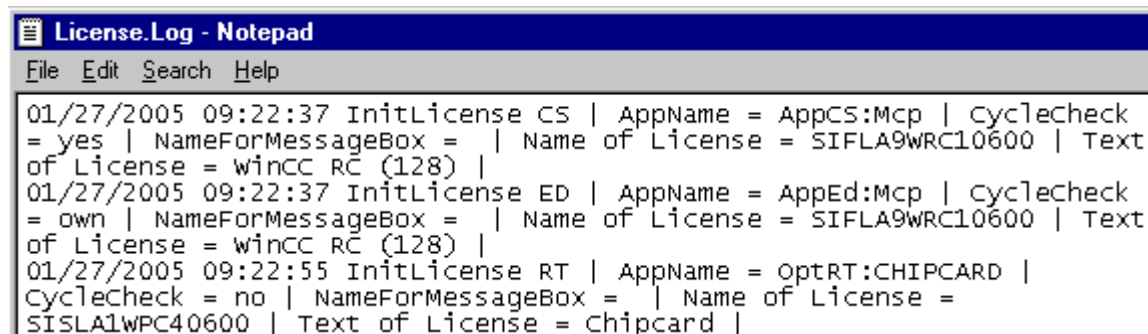
How to check the licenses using the Automation License Manager

1. Select the view "Management" in the Automation License Manager.
2. Select the storage location that the authorization or the License Key to be checked is stored in, from the navigation window. The existing authorizations and Licenses are shown.
3. Select the authorization or license key to be checked from the table and select the entry "Check" from the pop-up menu.
The selected license is checked and the result of the check is indicated in the table by means of a status icon.

The License.log File

The License.log diagnosis file displays the licenses called by WinCC. Upon a missing license, the corresponding entry is shown.

The file is saved in the "WinCC\Diagnose" folder that is automatically set up when WinCC is run for the first time.



```
License.Log - Notepad
File Edit Search Help
01/27/2005 09:22:37 InitLicense CS | AppName = AppCS:Mcp | CycleCheck
= yes | NameForMessageBox = | Name of License = SIFLA9WRC10600 | Text
of License = WinCC RC (128) |
01/27/2005 09:22:37 InitLicense ED | AppName = AppEd:Mcp | CycleCheck
= own | NameForMessageBox = | Name of License = SIFLA9WRC10600 | Text
of License = WinCC RC (128) |
01/27/2005 09:22:55 InitLicense RT | AppName = OptRT:CHIPCARD |
CycleCheck = no | NameForMessageBox = | Name of License =
SISLA1WPC40600 | Text of License = Chipcard |
```

Note

If the license for a used option is missing, WinCC switches to demo mode.

See also

How to Restore a License Key (Page 108)

4.7.2 How to Restore a License Key

Introduction

A license (authorization) key is defective if it is no longer accessible on the hard drive and so cannot be removed by the Automation License Manager, or if the key disappears during transfer to the license data carrier.

Using "Support for License Management", the license key may be restored.

To contact your local agent for Automation & Drives, search our contact database at the following URL:

- <http://www.automation.siemens.com/partner/index.asp> (<http://www.automation.siemens.com/partner/index.asp>)

Preparations

If you contact "Support for License Management", please have the following information ready:

- Company data (Name, Address, Country, Telephone/Fax...)
- From license data carrier: The product number (e.g., "6AV..."), product description in plain text, and the serial number (license number).

Procedure

1. Select the view "Management" in the Automation License Manager. Switch to the view of the drive to which the license data carrier is linked.
2. From the table, select the license key to be restored. Select menu instruction "License Key" > "Restore". The "Restore License Key" dialog is opened.
3. Contact the "Support for License Management" and inform them of the product name, license number and the numerical inquiry code.
4. Customer Support gives you a numerical Enable Code. Enter this code in the entry field.
5. The lost license key is restored to your license data carrier (counter = 1) and can now be transferred to a local drive.

NOTICE
For several lost license keys, this process must be repeated for the appropriate number of times.

See also

Internet: Contact person database (<http://www.automation.siemens.com/partner/index.asp>)

Performance Data

5.1 Performance Data

Contents

This chapter provides important technical data and performance limits on WinCC V7.

5.2 Configurations

Quantity structure in a multi-user system

	Maximum ¹⁾
Server or redundant server pairs ²⁾	18
WinCC clients in a system	32 ³⁾ ⁴⁾
Web clients in a system	150 ⁵⁾

¹⁾ The performance of the WinCC system depends on the employed hardware and the volume of process data.

²⁾ Central archive server is counted as one server. It cannot be used simultaneously as an operating unit.

³⁾ If the server is also used as an operating unit, the number of clients for this server is reduced to four.

⁴⁾ Mixed configuration: 32 Clients + 3 Web Clients

⁵⁾ Mixed configuration: 150 Web clients + 1 WinCC client (also for Engineering)

5.3 Graphics System

Configuration

	Maximum
Objects per picture ¹⁾	No limit ²⁾
Levels per picture	32
Pictures (PDL files) per project	No limit ²⁾
Instances of fixed picture components in a system picture	31 instances of the same picture type
Picture size in pixels	10,000 x 10,000
Nesting levels of picture objects	20
Number of colors	Dependent on graphics card

¹⁾ The number and complexity of the objects affect the performance.

²⁾ Limited by system resources.

Runtime

Change picture from empty screen to...	Time, in seconds
• Picture with standard objects (100 objects)	1
• Picture with 2,480 I/O fields (8 internal tags)	2
• Picture with 1,000 I/O fields (1,000 internal tags)	1
• Picture of 10 MByte size (bitmap)	1
• Message window	2
• Table with 4 columns, each with 120 values ¹⁾	1

¹⁾ The values specified apply to data from "Tag Logging Fast".

Note

The values depend on the hardware implemented.

5.4 Message system

Configuration

	Maximum
Configurable messages per server/single user	150.000
Process tags per message line	10
User text blocks per message line	10
Message classes (incl. system message classes)	18
Message types	16
Message priorities	17 (0...16)

Runtime

	Maximum
Messages per message archive	No limit ¹⁾
Messages per short-term archive	1.000
Messages per long-term archive	1.000 ²⁾
Messages per message window	5.000 ³⁾
Continuous message load without loss (single user/server)	10/sec
Message flow (single user/server)	2,000/10 sec every 5 min ⁴⁾

¹⁾ Limited by system resources.

²⁾ On single user station or server or on clients per server or per redundant server pair if "LongTimeArchiveConsistency" is set to "no". On single user, server, client or redundant server pair if "LongTimeArchiveConsistency" is set to "yes".

³⁾ On single user station or server or on clients per server or per redundant server pair.

⁴⁾ If the interval to the next message flow is under five minutes, messages may be lost.

Note

The message overload and continuous message flow can be created simultaneously on a single-user station or server.

5.5 Archiving system

Configuring

	Maximum
Trend windows per picture	25
Configurable trends per trend window	80
Tables per picture	25
Columns per table	12
Values per table	30.000
Archives per single user/server	100
Archive tags per single user/server ¹⁾	80.000 ²⁾
Archive tags registered on WinCC CAS	120.000

¹⁾ Dependent on the archive PowerPack used for the archive tags. 512 archive tags are contained on the basis version.

²⁾ V6.0: up to 30,000 tags. Later versions: up to 80,000 tags.

Note

In cases of a combination of the maximum values, high picture selection times can occur.

Runtime

	Maximum
Archiving in database for server/single user ("Tag Logging Fast")	5,000 values/second ¹⁾
Archiving in database for server/single user ("Tag Logging Slow")	1,000 values/second ^{1) 2)}
Trend printouts for each configured trend	The number of printed values matches the number of values shown in OnlineTrendControl.

¹⁾ The stated values apply to archiving without signing-off of data.

²⁾ During "Tag Logging Slow", you must expect longer picture selection times for identical quantity structures than in "Tag Logging Fast".

5.6 User archives

Configuration

	Maximum
Total archives	No limit ¹⁾
User archive fields ²⁾	500
User archive data records	3.000
User archive views	No limit ¹⁾

¹⁾ Limited by system resources.

²⁾ Maximum 100,000 fields total.

Runtime

The following measurement values are guideline values for WinCC user archives in Runtime. The values depend on the hardware used and the configuration.

Limit conditions

Hardware used:

- 1.5 GHz AMD Athlon 4
- 2 GB RAM
- No hardware linking

Software used:

- Windows Server 2003 SP2

Configuration of the user archives in the WinCC project used:

- One WinCC tag per field
- 300,000 entries each:
 - 10 fields with 30,000 data records.
 - 500 fields with 600 data records.

Determined Values (approx.)

	10 fields	500 fields
Picture change from a neutral picture to a picture with a linked UserArchiveControl. Measurement result depends on the fill level of the control: Full display takes up to 15 seconds during the first load or in the case of large configuration changes in the user archive.	1 second	5 seconds
Read record: Click the control button to read the value to the corresponding tags.	1 - 2 seconds ¹⁾	n seconds ²⁾
Write record: Click the control button to write the value to the corresponding tags and display the tag contents in I/O fields.	1 - 3 seconds ¹⁾	n seconds ²⁾
Focus change from first to last record.	1 - 2 seconds	1 - 2 seconds

¹⁾ 10 fields with a total of 10 tags.

²⁾ 500 fields with a total of 500 tags.

5.7 Reports

Configuring

	Maximum
Configurable logs	No limit ¹⁾
Log lines per body	66
Tags per log ²⁾	300

¹⁾ Limited by system resources.

²⁾ The number of tags per log is dependent on the performance of the process communication.

Runtime

	Maximum
Simultaneously running message sequence reports per server/client	1
Simultaneously running message sequence reports	3

5.8 Scripting with VBS and ANSI-C

Runtime

The following measured values indicate the difference between VB scripting and C scripting based on the comparison of orientation values. The values depend on the hardware implemented.

The measured values are specified in milliseconds.

Pentium 4 2.5 GHz, 512 MByte RAM

	VBS	ANSI-C
Set colors from 1,000 rectangles	220	1.900
Set output values from 200 I/O fields	60	170
Select a screen with 1,000 static texts which determine the object name and are issued as the return value	460	260
Read 1,000 internal tags	920	500
Re-read 1,000 internal tags	30	120
Conduct 100,000 calculations ¹⁾	280	70

Pentium III 700 MHz, 512 MByte RAM

	VBS	ANSI-C
Set colors from 1,000 rectangles	610	4.440
Set output values from 200 I/O fields	170	670
Select a screen with 1,000 static texts which determine the object name and are issued as the return value	770	310
Read 1,000 internal tags	3.650	1.310
Re-read 1,000 internal tags	70	250
Conduct 100,000 calculations ¹⁾	820	170

¹⁾ Calculations in the example:

VBS

```
For i=1 To 100000
value=Cos(50)*i
Next
```

ANSI-C

```
for(i=1;i<=100000;i++)
{
dValue=cos(50)*i;
```

}

Note

The measured values can be negatively influenced by the type of configuration as well as other processes, such as Tag Logging or Alarm Logging.

5.9 Process Communication

Introduction

The following table provides information on the possible configurations and maximum number of connections.

Note

The limit values listed in the table are also dependent on the performance capability of the system and the quantity structure of the WinCC project (e.g. number of process values/time unit).

Configuration

Communication channels in WinCC ¹⁾	PC-based ²⁾	MPI/Profibus Soft-Net ³⁾	MPI/Profibus Hard-Net ³⁾	Industrial Ethernet Soft-Net ³⁾	Industrial Ethernet Hard-Net ³⁾
SIMATIC S7 Protocol Suite¹⁾					
• MPI	---	8	44	---	---
• Soft-PLC	---	1	---	---	---
• Slot-PLC	---	1	---	---	---
• Profibus (1)	---	8	44	---	---
• Profibus (2)	---	8	44	---	---
• Named Connections	---	---	---	64	60
• Industrial Ethernet ISO L4 (1)	---	---	---	64	60
• Industrial Ethernet ISO L4 (2)	---	---	---	64	60
• Industrial Ethernet TCP/IP	---	---	---	64	60
SIMATIC S7-1200	32 ⁵⁾	---	---	---	---
SIMATIC S7-1500	16 ⁵⁾	---	---	---	---
SIMATIC S5 Programmers Port					
• AS 511	2 ⁴⁾	---	---	---	---
SIMATIC S5 Serial 3964R					
• RK 512	2 ⁴⁾	---	---	---	---
SIMATIC S5 Profibus FDL					
• FDL	---	---	50	---	---
SIMATIC S5 Ethernet Layer 4 + TCP/IP					
• Industrial Ethernet ISO L4 (2)	---	---	---	---	60
• Industrial Ethernet ISO L4 (2)	---	---	---	---	60
• Industrial Ethernet TCP/IP	---	---	---	60	60
SIMATIC 505 Serial					
• NITP / TBP	2 ⁴⁾	---	---	---	---
SIMATIC 505 Ethernet Layer 4					
• Industrial Ethernet ISO L4 (1)	---	---	---	---	60

Communication channels in WinCC ¹⁾	PC-based ²⁾	MPI/Profibus Soft-Net ³⁾	MPI/Profibus Hard-Net ³⁾	Industrial Ethernet Soft-Net ³⁾	Industrial Ethernet Hard-Net ³⁾
• Industrial Ethernet ISO L4 (2)	---	---	---	---	60
SIMATIC 505 Ethernet TCP/IP					
• Industrial Ethernet TCP/IP	--- ⁵⁾	---	---	---	---
Profibus FMS					
• FMS	---	---	40	---	---
Profibus DP (V0-Master)					
• DP 1	---	---	122	---	---
• DP 2	---	---	122	---	---
• DP 3	---	---	122	---	---
• DP 4	---	---	122	---	---
Allen Bradley - Ethernet IP					
• CAMP ⁶⁾	--- ⁵⁾	---	---	---	---
Modbus TCP/IP					
• Modbus TCP/IP	--- ⁵⁾	---	---	---	---
OPC					
• Data Access	--- ⁵⁾	---	---	---	---
• XML-DA	--- ⁵⁾	---	---	---	---

Remarks

¹⁾ In principle, all communication channels can be combined with each other. However, the subordinate communication drivers can lead to limitations.

When the SIMATIC S7 Protocol Suite is used, a maximum of 64 S7 connections can be operated. A typical configuration contains 60 S7 connections, for example.

Examples:

- 8 S7 connections via "MPI" and 52 S7 connections via "Industrial Ethernet TCP/IP"

or

- 60 S7 connections via "Industrial Ethernet TCP/IP"

²⁾ COM1/COM2 or internal software interfaces for SIMATIC S7 Protocol Suite communication "Soft-PLC" and "Slot-PLC" as well as DCOM for OPC.

³⁾ In the case of Soft-Net, communication runs on the PC processor. In the case of Hard-Net, the communication card has its own microprocessor and relieves the PC processor during communication.

Only a Soft-Net module may be operated in the PC for the process communication. Combinations with Hard-Net communication cards are possible. The driver software for Hard-Net communication cards are supplied with the SIMATIC NET CDs enclosed.

Hard-Net communication cards enable the parallel operation of up to 2 protocols, e.g. Ethernet communication using the SIMATIC S7 Protocol Suite and SIMATIC S5-Ethernet. In this case, a reduction of approx. 20% of the table values must be taken into account.

Example:

- 40 connections using the "SIMATIC S7 Protocol Suite" combination and 8 connections via "SIMATIC S5 Ethernet".

⁴⁾ Depending on the number of serial interfaces. Can be expanded using communication cards with several serial interfaces, e.g. Digi-Board with 8/16 ports.

⁵⁾ Communication is routed via the standard Ethernet port of the computer.

The maximum number of connections is restricted by the available system resources and their performance data, particularly in terms of the CPU, RAM and the Ethernet connection.

⁶⁾ CAMP = Common ASCII Message Protocol

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