SMS 510
Substation Monitoring System

User's Guide

ABB

Contents

User's Guide

1. About this manual

1.1. Copyrights

The information in this document is subject to change without notice and should not be construed as a commitment by ABB Oy. ABB Oy assumes no responsibility for any errors that may appear in this document.

In no event shall ABB Oy be liable for direct, indirect, special, incidental or consequential damages of any nature or kind arising from the use of this document, nor shall ABB Oy be liable for incidental or consequential damages arising from use of any software or hardware described in this document.

This document and parts thereof must not be reproduced or copied without written permission from ABB Oy, and the contents thereof must not be imparted to a third party nor used for any unauthorized purpose.

The software or hardware described in this document is furnished under a license and may be used, copied, or disclosed only in accordance with the terms of such license.

Copyright © 2006 ABB Oy
All rights reserved.

1.2. Trademarks

ABB is a registered trademark of ABB Group. All other brand or product names mentioned in this document may be trademarks or registered trademarks of their respective holders.

1.3. Guarantee

Please inquire about the terms of guarantee from your nearest ABB representative.

1.4. General

This manual provides thorough information on the SMS 510, Substation Monitoring System software and its applications. This document complies with the SMS 510 version 1.3.0.

Pictures shown are examples only, and they may represent older program versions.

Additional information such as the Release Note and README.TXT can be found on the program distribution media.

ABB Oy regularly provides standard training courses on its main products.The training program is available on the Internet at http://www.abb.com/substationautomation. Contact your ABB representative for more information.

1.5. Use of symbols

This publication includes warning, caution, and information icons that point out safety related conditions or other important information. It also includes tip icons to point out useful information to the reader. The corresponding icons should be interpreted as follows:

The caution icon indicates important information or warning related to the concept discussed in the text. It might indicate the presence of a hazard which could result in corruption of software or damage to equipment or property.

The information icon alerts the reader to relevant facts and conditions.

The tip icon indicates advice on, for example, how to design your project or how to use a certain function.

Although warning hazards are related to personal injury, and caution hazards are associated with equipment or property damage, it should be understood that operation of damaged equipment could, under certain operational conditions, result in degraded process performance leading to personal injury or death. Therefore, comply fully with all warning and caution notices.

1.6. Abbreviations

HSB	Hot Stand-By
LAN	Local Area Network
LON	Local Operating Network, communication protocol developed by Echelon
PSN	Project Structure Navigator
PST	Parameter Setting Tool
RAS	Remote Access Service
SMSCT	SMS Conversion Tool
SPA	Data communication protocol developed by ABB
SSS	System Self Supervision
UNC	Universal Naming Convention

1.7. Related documents

MicroSCADA Status Codes is not included in the delivery of the electronic documentation.

The latest versions can be obtained from the Internet. See the page: www.abb.com/ substationautomation.

User's Guide

In column Use, E stands for Engineering type of tasks while O stands for Operation.

Name of the manual:	Use	Document ID
Installation and commissioning		
SMS 510 Installation and Commissioning Manual	E	1MRS751265-MEN
LON Gateways Configuration, Configuration Guide	E	1MRS751870-MEN
Relay Tools		

LIB, CAP and SMS,
Tools for Relays and Terminals,
User's Guide
 	
    Applicable on:
    RED Relay object types
    SPACOM Relay object types
    SPACOM Relay Setting Tool
    RED Relay Setting Tool
    Graphical I/O Setting Tool
    DR-Collector Tool
    SPA Terminal Emulator
    Disturbance Draw Tool
    Event Log Viewer
	E+O	1MRS752008-MUM

Parameter Setting Tool (PST) User's Manual	O	1MRK511114-UEN
REB 500/REB 500sys Operating Instructions	O	1MRB520292-Uen
CAP2/316	O	1MRB520271-Uen
SPTO Configuration Tool, Configuration Guide	E	1MRS751906-MEN
HV/Collect User's Manual	O	1MRK511117-UEN
REB500 Selector, Description	O	1KHA000967-AEN
Other		
SMS 510 Release Note	E,O	
MicroSCADA Status Codes manual	O	1MRS750850-MEN

1.8. Document revisions

Version	SW Revision number	Date	History
C	1.2.0-1	05.01.2005	Maintenance updates
D	1.3.0	07.02.2006	- New Chapter 9. "Gateway object types (COM 610)" - Maintenance updates

2. Introduction to SMS 510

This chapter introduces SMS 510, its documentation, operational features, base system, user interface, functional description and tools.

2.1. General

SMS 510, the **Substation Monitoring System**, is a monitoring and parametrization software system product for medium and high voltage relays in the RED 500 series, SPACOM series, REx 216/316 series, REB 500, REx 5xx and RET 521.

SMS 510 can be used locally in a substation, at a remote location or in a distributed system both with a local and a remote SMS.

SMS 510 is the successor of the well-proven SMS 010.

2.2. Documentation guidance

The SMS 510 documentation, which comprises this User's Guide and the manuals listed in Section 1.7. Related documents, is comprehensive. This section shortly describes how to use the SMS 510 documentation.

2.2.1. Documentation in general

The functions and tools are described in their own stand-alone chapters or in manuals of their own. That makes it easier to find information about the function or tool and to get a detailed description of it. The documentation contains screen shots to make it easy to orientate in the manuals and to present examples.

2.2.2. Navigating in the SMS 510 User's Guide

The manual contains references and links within the texts to tables, pictures and other related chapters and sections, a table of contents list at the beginning of the manual as well as an index at the end of the manual, all in order to make it easier to navigate. Just click the linked item (no links for indexes), and the target destination is brought into focus.

2.2.3. SMS 510 User's Guide contents

The chapters in this *SMS 510 User's Guide* are stand-alone descriptions of the function or tool in question and can be used during operation of SMS 510, as well as technical references.

The following chapters in particular are recommended for those not yet familiar with SMS 510:

SMS 510 system introduction

An introduction to SMS 510 as a whole can be found in Chapter 2. Introduction to SMS 510.

Getting started

A guidance in form of an example of building a project with levels and relays is found in Chapter 3. Quick start example.

Tools and functions

Refer to Section 2.7. SMS 510 functions and tools for a description of SMS 510 functions and tools and corresponding documentation.

2.2.4.   Separate documentation

The *SMS 510 Installation and Commissioning manual* describes the installation of SMS 510 and basic SMS 510 system configuration.

The Relay Tools and Disturbance Recordings Uploading Tools are described in stand-alone manuals, see Section 1.7. Related documents.

2.3.   Operational features

This is a summary of functions provided by SMS 510:

- Product engineering (bay level)
- On-line and off-line engineering
- Framework for relay tools
- Loading of parameters to the relay
- Loading of parameters from the relay
- Loading of recorded values from the relay
- Comparison of present and saved values
- Uploading of disturbance recordings from the relay
- Graphical presentation of disturbance recordings (COMTRADE format)
- Project management
- Object oriented project data management
- User Management
- Integrated System Self Supervision
- Supervision Log Viewer
- Local/remote communication
- Time synchronization of connected units
- Setting of time/date
- Scheduler for defining of tasks to be performed on a regular basis
- Automatic dial-up of substations
- Task Monitor for monitoring the progress of tasks defined in the Scheduler
- Relay Event Log Viewer

2.4. User interface

The user interface of the SMS 510 system consists of the following components:

• Login view
• Project Structure Navigator for tool selection and object management
• Various tools and views

2.5. Base system

The SMS 510 system contains a base system and a communication system.

Supported communication protocols are:

• SPA, through the relay rear or front panel interfaces.

• LON communication, through LonTalk adapter to the relay rear panel interface
• Supported LON communication cards are:
  • PCC-10 PC Card
  • PCLTA-20 Card
  • RER 109 PCLTA Card (in windows NT only)

2.6. Applications

A station control and protection system contains a wide variety of components and functions. SMS 510 is used for handling data and tools during relay engineering projects and for continuous follow-up and maintenance.

2.7. SMS 510 functions and tools

The following sections contain an overview of functions and tools provided within SMS 510. When the function or tool is described within this manual, the corresponding chapter or section is mentioned, otherwise the documentation is found in a separate manual, see Section 1.7. Related documents.

2.7.1. Project Structure Navigator

The Project Structure Navigator provides the tools for building a project tree with objects and a navigator for navigating in the project tree. User-defined views can also be made. Furthermore, the Project Structure Navigator manages insertion and configuration of objects, e.g. relays and launching of relay tools.

This is described in Chapter 4. Project Structure Navigator.

2.7.2. Project handling

Organize projects

The Organize Projects tool is used for project management purposes like deletion, duplication, and creation of projects. In addition to this, the tool is used when a project is to be transferred to another system or brought into the current collection of projects.

This is described in Chapter 5. Project Export/Import Tool.

SMS Conversion Tool

With the SMS Conversion Tool, applications from SMS 010 can be imported to projects for use in SMS 510.

This is described in Chapter 17. SMS Conversion Tool.

2.7.3. System configuration

Plant Structure Settings

The Plant Structure Settings Tool is used for defining the attributes for the plant structure object types.

This is described in Chapter 6. Plant Structure Settings, see also Chapter 8. User Structure object types.

System Configuration Tool

The System Configuration Tool is used for configuring the projects' system.

The System Configuration Tool contains three pages:

1. Communication

The Communication page is used for setting of the basic communication configuration and time synchronization settings for communication over the serial ports and LON. This is described in the *SMS 510 Installation and Commissioning manual.*

2. Scheduler

The Scheduler is a function for defining scheduled task lists to be performed on a regular basis according to given time intervals. The Scheduler also allows suspension of defined tasks and/or task scheduling for an arbitrary period of time.

This is described in Chapter 15. Task scheduling.

3. General Settings

The General Settings page contains the means for enabling/disabling the automatic logoff from SMS 510. This is described in Section 13.3. General Settings.

The General Settings page also contains the means for enabling/disabling the System Self Supervision.

This is described in Section 10.4. Enabling System Self Supervision and Section 10.5. Disabling System Self Supervision.

The General Settings page also contains the MicroSCADA user password for remote connections. This is described in Section 13.3.3. MicroSCADA user settings for remote connections.

Device communication settings

The Communication page, which is opened by selecting the properties function for devices in the project tree, is used for configuring the communication settings, e.g. addressing of the device objects.

Remote connections

The Remote Connections tool is used for setting up various kinds of connections:

- LAN over the local area network to another SMS 510, SYS 500 or COM 500 installation.
- Dial-Up (SPA) over the telephone network
- Remote (RAS) to another SMS 510, SYS 500 or COM 500 installation

This is described in Chapter 12. Remote connections.

User management

The User Management tool is used for defining SMS 510 users with designated authorization levels in SMS 510.

This is described in Chapter 14. User Management.

Time/Date

With the Time/Date tool the operator can check the time and date of the system within the SMS 510 program and also, when needed, change the time and date of the PC.

This is described in Section 13.1. Time/Date Settings.

2.7.4. Monitoring functions

System Self Supervision

The System Self Supervision supports the operator in diagnosing errors encountered in the system.

This is described in Chapter 10. System Self Supervision.

Supervision Log Viewer

The Supervision Log viewer presents operational events in the SMS 510 system. Events generated in the relay modules are not included.

This is described in Chapter 11. Supervision Log Viewer.

Task Monitor

The task monitor displays both historical and actual progress of the tasks that have been defined in the Scheduler.

This is described in Chapter 16. Task monitoring.

Event Log Viewer

The Event Log Viewer is used for uploading and viewing event logs from the RED 500 terminals. An event log is a snapshot of the current events in the event view of the connected terminal. This tool is documented in the *Tools for Relays and Terminals* manual.

Relay Setting tools

The Relay Setting Tools provide service data, e.g. measurement values, counters and registered data from the relays.

2.7.5.   **Relay Setting tools**

The Relay Setting tool (several occurrences depending on selected relay type) is used for parametrization of the relay units. The parameters are set on-line or off-line and downloaded to the relay or uploaded from the relay over a communication port.

The following Relay Setting tools are available in SMS 510 (for manuals, see Section 1.7. Related documents):

RED Relay Setting Tool for

- Parametrization of RED 500 series of relays
- REF54x - REF 54_ relay series
- REM54x - REM 54_ relay series
- REC52x - REC 52_ relay series
- RET54x - RET 54_ relay series
- REJ5xx - REJ 5_ relay series
- REU5xx - REU 5_ relay series
- REX52x - REX 52_relay series
- REx61x - RE_ 61_ relay series
- SPA communication
- LON communication

SPACOM Relay Setting Tool for

- Parametrization of SPACOM series of relays
- SPA communication

CAP 2/316 Tool for

- Parametrization of REx 216/316 series of relays
- SPA communication
- LON communication

REBWIN Tool for

- Parametrization of REB 500 relays
- Serial communication on dedicated serial port

Parameter Setting Tool (PST) for

- Parametrization of the REx 5xx series of relays and RET 521
- SPA communication
- LON communication

Graphical I/O Setting Tool

Graphical I/O Setting Tool is a setting tool for REX 521 relays used for the following tasks:

• Setting of digital inputs, digital outputs and alarm LED signals with graphical matrices

• On-line and off-line parametrization

• Uploading or downloading a group of parameters

The Graphical I/O Setting Tool is complementary to the RED Relay Setting Tool; a change of parameter setting in the Graphical I/O Setting Tool will be visible in the RED Relay Setting Tool, and vice versa.

SPTO Configuration Tool

This tool targets the control modules SPTO 1D2, SPTO 1D5, SPTO 1D6 in SPAC 300 series and SPTO 6D3 in the SPAC 500 and 600 series in the SPACOM range of products.

The tool can be used to configure the SPTO 1D2, 1D5, 1D6 in the SPAC 300 series, when the default setting groups in the modules are not applicable, or whenever it is desirable to make an own configuration.

This tool is documented in the *SPTO Configuration Tool manual*.

2.7.6. Disturbance recording tools

SMS 510 provides the following tools for uploading of recordings from disturbance collecting relays (for manuals see Section 1.7. Related documents):

DR-Collector Tool

With the DR-Collector Tool, disturbance records can be uploaded from the RED 500 and SPACOM series of relays. The supported recording file format is COMTRADE.

HV/Collect

With the HV/Collect Tool, disturbance records can be uploaded from the REx 5xx series of relays and RET 521. The supported recording file formats are COMTRADE and REVAL.

CAP 2/316 Tool for

• Disturbance file uploading

• SPA communication

• LON communication

User's Guide

2.7.7.   Disturbance evaluation tools

Disturbance Draw

With the Disturbance Draw Tool disturbance recordings in COMTRADE format
can be graphically presented.

2.7.8.   Additional tools

MicroSCADA Service Access manager

The user groups that can start and use SMS 510 are defined with this tool. This tool
is documented in the *SMS 510 Installation & Commissioning manual.*

SPA Terminal Emulator

The SPA Terminal Emulator is used for manual sending of SPA messages to
SPACOM relays, e.g. for address changing or communication test purposes.

3.   Quick start example

About this chapter

This chapter discusses the basic steps for getting started with SMS 510 and is intended to serve as an introductory reading to users not familiar with SMS 510.

The quick start example:

- Guides you through the process of constructing a representation of a simple station with bays with RED 500, SPACOM, REx 216/316, REB 500, REx 5xx relays, familiarizing you with basic functions such as adding, configuring and moving objects in a project.
- Illustrates one solution to organize the project by means of user views.

> **i**   In this example, it is assumed that you have completed commissioning of the SMS 510 software, which is explained in the *SMS 510 Installation and Commissioning manua*l.

3.1.   Inserting objects, to observe

You can insert different object types to the project in almost any order. This example starts by inserting the relay objects to the root level of the project. As the next step, the structure with station and bays is inserted and the relay objects are moved to bay level. You can also start by creating the tree level structure with stations and bays and later insert the relays directly to the target location.

This Quick Start example features a moving of objects operation, as an illustration of how it is done. Moving objects is not a part of the ordinary insertion procedure. Furthermore, you can have the relay devices inserted on several levels in the project, starting from the root level.

You should try using project structuring and correct naming conventions, in order to make your project easy to handle and use. You can later change the names of the objects you have inserted.

3.2.   Summary of steps

The steps for project building, i.e. insertion and preparation of objects, system configuration (basic communication) for the project and device level addressing, are listed below. The steps are not numbered because the order is not critical, but use it as a recommendation. (These steps are illustrated in this Quick Start chapter together with launching of object tools).

- Insert the objects to the project
- Use the Properties function to select the proper Object type (relay family)
- Use the Attributes function (when needed) to assign relay modules
- Give the Communication address of the devices

When your project is prepared and ready, you can start configuring other functions or taking additional functions into use, e.g. from the System Tools menu. You can also start launching tools for the objects.

3.3.   **Projects**

SMS 510 supplies an initial empty project titled 'SOST'. Initially, the SOST project is set as the default project, meaning that this project will contain the new objects unless another project is explicitly created and opened, e.g. the Quick Start project, using the **Create…** function in the Project Export/Import Tool, see Fig. 5.2.-1 and Section 5.3.10. Creating a new project. For detailed information on working with SMS 510 projects, see Chapter 5. Project Export/Import Tool.

3.4.   **Views**

The Project Structure Navigator provides the possibility to define different view contexts. This feature makes it possible to group the inserted objects arbitrarily, which is a useful feature when the number of inserted objects is large. For detailed information on working with project views, see Section 3.13. Using user views.

3.5.   **Object types**

There are three main categories of object types, i.e. level object types, device object types and compound object types.

The level object types are used for building the structure of the projects and their views.

The device object types are used when a physical device is to be configured. For example, REF54x is a device object type.

Compound object types combine behaviour of both level and device object types. In essence, compound object types participate in the structuring of a project but they also have configurable properties, similar to the device object types. For instance, you can use Station and Bay objects to build a representation of a station and its bays. Another example is the communication gateway object types, e.g. LSG (LON/ SPA Gateway). Device objects can be hosted by a gateway object, for which you define correct communication settings to enable communication through the gateway.

3.6.   **Object type groups**

Each object type belongs to one named object type group, which provides similar functionality.

Four object type groups are available:

User Structure	Object types of this group serve the purpose of project structuring.
Plant Structure	Object types of this group serve the purpose of project structuring.
Gateway	Object types of this group serve the purpose of project structuring and representation of communication gateway devices.
Protection & Control	Object types of this group serve the purpose of representing protection and control devices.

User's Guide

3.7.		**Starting SMS 510**

To start SMS 510, select the **Start SMS 510** icon from the SMS 510 program folder, created by the SMS 510 installation program, see Fig. 3.7.-1.
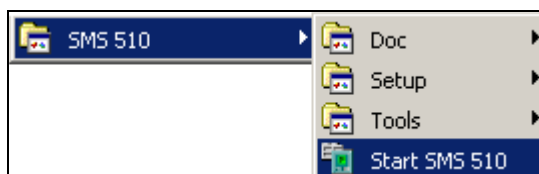
Start_SMS

Fig. 3.7.-1   Starting SMS 510

The SMS 510 Login window, see Fig. 4.6.-1, appears. Click the **Login** button to open the Project Structure Navigator with the default project opened in the Master Design View mode.

3.8.   Exiting SMS 510

By selecting **Exit** from the **File** menu in the Project Structure Navigator, a logout is performed and the Login window appears, see Fig. 4.6.-1. By selecting **Exit** in the Login window, the SMS 510 session is ended completely.

3.9.   Insertion of objects

In this section, you begin by inserting four RED 500 device objects and one SPACOM device object to the project. Then you add a simple representation of a station with three bays, illustrating how to move the device objects in the project structure.

Device object insertion

At this point, your project contains only the abstract root node, which is titled 'ROOT'. Click on the root node, so that the navigator knows where to insert the new object in the project structure. Next, choose **Insert Object** on the navigator's Edit menu, which causes the Add Project Object dialog to appear, see Fig. 3.9.-2. An alternative and quicker way to insert device objects is to use the Insert Object button, see Fig. 3.9.-1, but the easiest way is to press the <Ins> key on the keyboard.

Fig. 3.9.-1   The Insert Object button

User's Guide
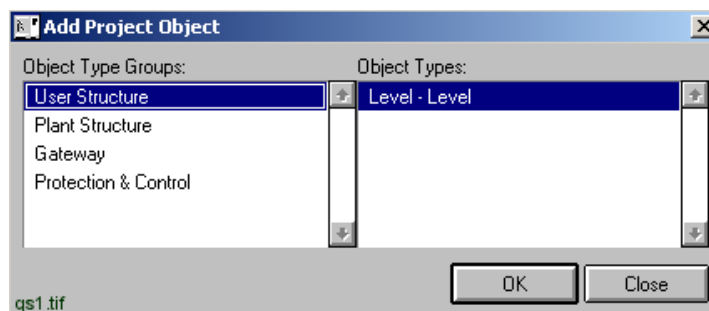
Fig. 3.9.-2   Adding a new object to the project

This dialog displays the object type groups and the object types present in the system. As you are now inserting a device object, the interest group is 'Protection & Control', which groups the RED 500 series, SPACOM series, REx 216/316, REB 500, REx 5xx series and RET 521 object types.

To insert a device object representing a REF54x relay terminal of the RED 500 relay series, click on the **Protection & Control** list item. As a result, the list of Protection & Control object types appears on the screen. The first available object type is automatically selected, as shown in Fig. 3.9.-3.
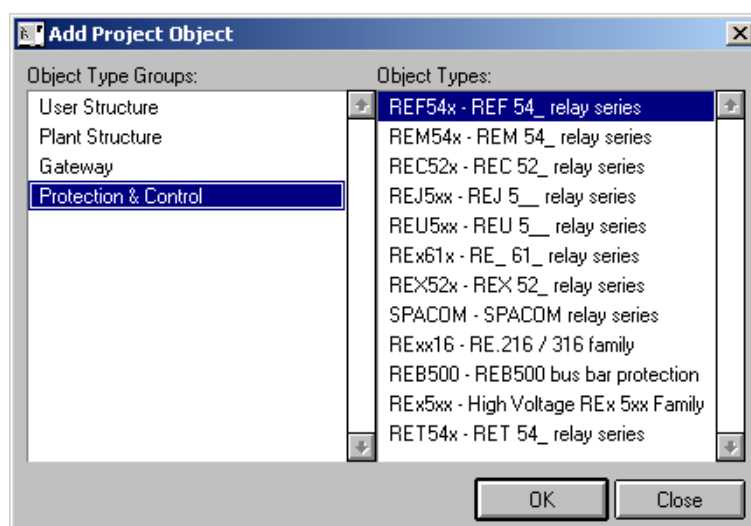
Fig. 3.9.-3   Selecting the type of the object

The appropriate object type (REF54x) is already selected. To insert it, click **OK**, which opens the New Object's Properties dialog for entering the object's name and title, see Fig. 3.9.-4.

'Object Name' is used for SMS 510 object managing and should be unique within the project. 'Object Title' is the object description that is presented to the user in the Project tree for the particular object. Object Name and Object Description can later on be changed in the Properties/General Object Attributes dialog, see Fig. 3.12.2.-2.
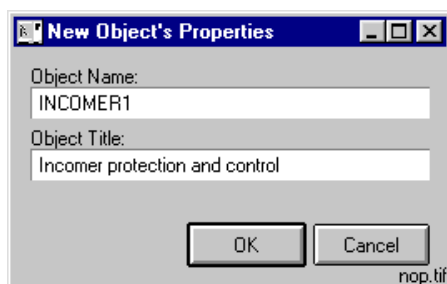
Fig. 3.9.-4   Entering the name and title for the object

Type in the name and title and click **OK,** so that the dialog closes and the object is inserted under the root node. Now your project should look like the one shown in the figure below:
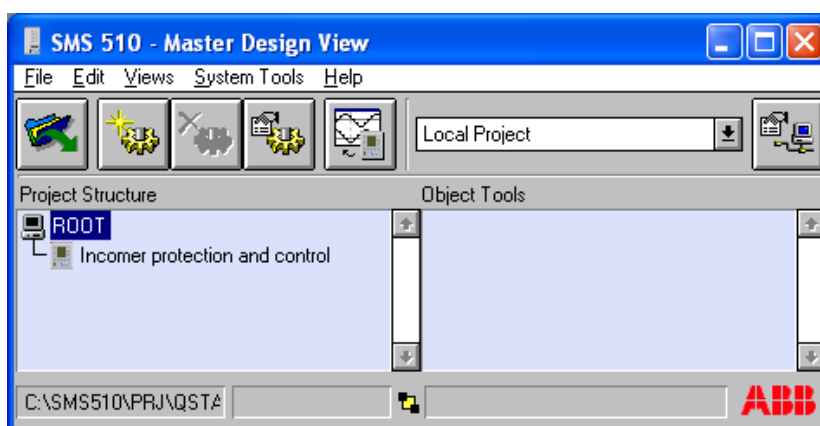
Fig. 3.9.-5   The inserted REF54x device object in the project view

Repeat this insertion procedure twice, specifying 'OUT1' and 'OUT2' as the names and 'Protection and control' as the title for both of the objects. These new REF54x objects will also be inserted under the project's root node, as the project does not yet contain any compound objects being able to host the device objects. Your project should now look like the one shown in Fig. 3.9.-6.
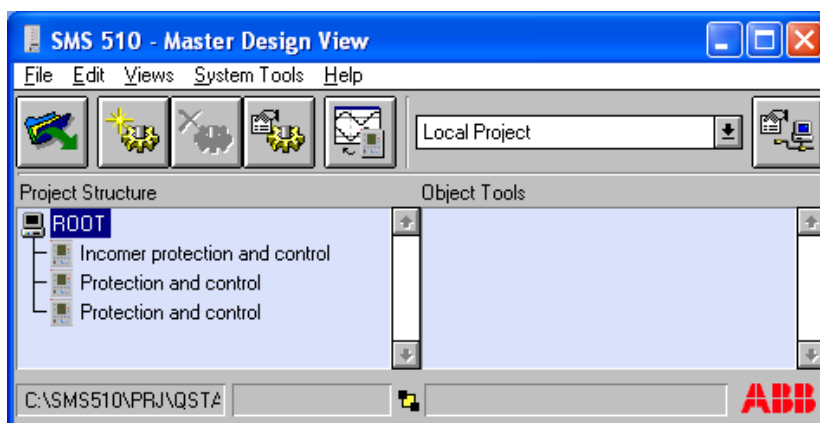
Fig. 3.9.-6   Three REF54x device objects in the project

Now you have three REF54x device objects in the project. As you may recall, the aim is to also insert a device object of the SPACOM type.

To accomplish this, repeat the insertion procedure, with the exception that you select the **SPACOM** object type from the Protection & Control group. For the object's name and title, specify 'INCOMER2' and 'Differential protection'. When you are ready, the project should look like the one shown in Fig. 3.9.-7.

<div align="right">qs5b</div>

Fig. 3.9.-7   Four device objects in the project view

Notice that in terms of usability, these newly inserted device objects are somewhat abstract, since they lack essential information about the physical relay terminals they represent. These objects need to be configured before they can be used. The configuration procedure is explained later.

As you now have some device objects, you can proceed to add compound objects to the project, in order to organize the contents of the project.

Compound object insertion - Plant Structure

Next, you will build a simple representation of a station with three bays.

Start by selecting the project's root node that will be the insert-location for the **Station** object. In fact, the only location where you can insert a Station object is the project's root node.

In the **Edit menu**, choose **Insert Object** to bring up the Add Project Object dialog. Since the Station object type belongs to the Plant Structure group, select **Plant Structure** group as shown in Fig. 3.9.-8.
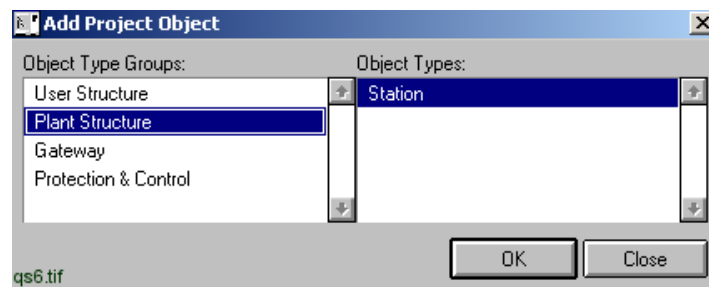
Fig. 3.9.-8   Selecting a Station object

User's Guide

To insert the Station object, click **OK**. The dialog that now appears for entering attributes for the object is specific for insertion of Plant Structure objects, as illustrated in Fig. 3.9.-9. Enter 'Eastwick' as the object's title and 'STA1' as its name.
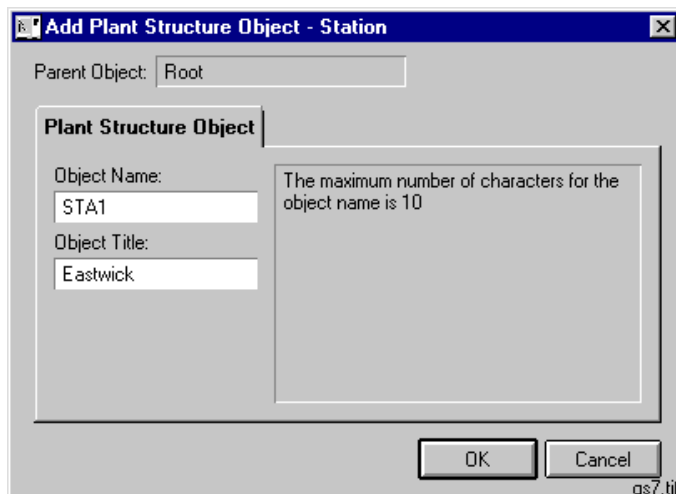
Fig. 3.9.-9   Inserting a Plant Structure object - Station

Click **OK** to insert the station object. Now your project should look like the one in Fig. 3.9.-10.
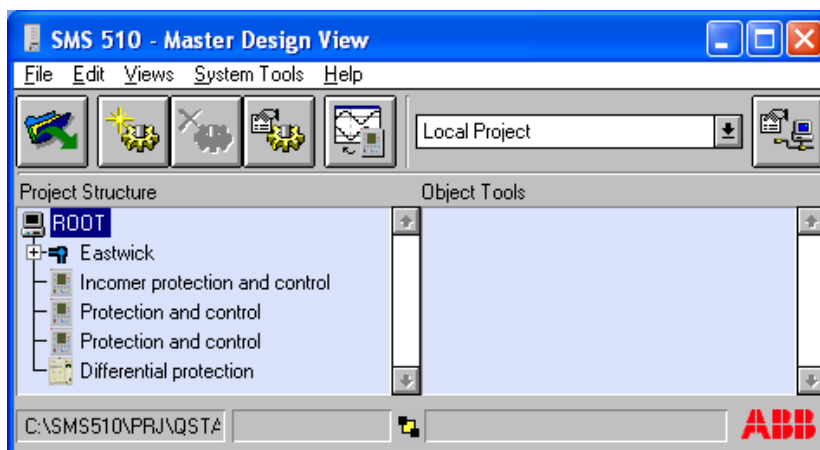
Fig. 3.9.-10 The new Station object in the project view

You now have a Station object capable of hosting the bays. Next, you will insert three Bay objects under the station. Eventually, the project's device objects will be moved under these bays.

As the station will be the parent for the bays, select the **Station object** to set the correct insert-location.

Invoke the Add Project Object dialog. The navigator is aware of the currently selected object's type (Station) and displays the available object groups and types accordingly, see Fig. 3.9.-11.

User's Guide
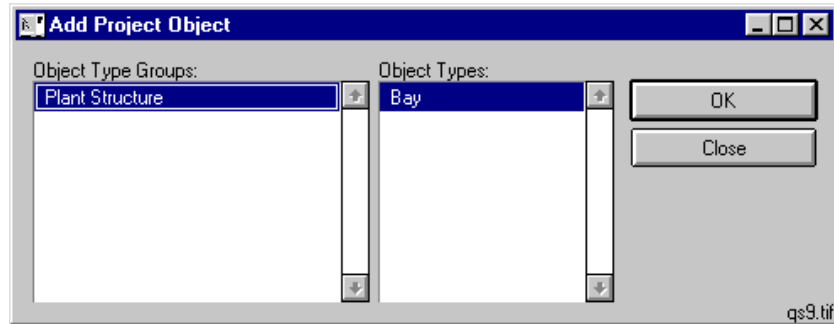
Fig. 3.9.-11 Selecting the Bay object type

To insert the object, click **OK** and specify the name and title as in Fig. 3.9.-12.
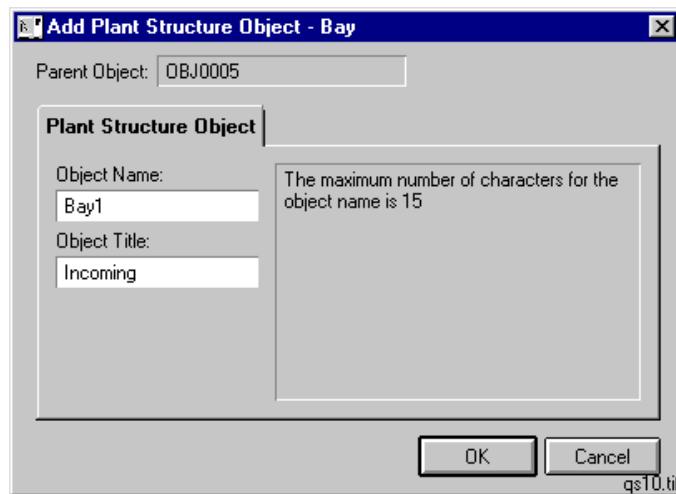
Fig. 3.9.-12 Specifying name and title for the Bay object

Next, add two bays similarly, specifying 'Bay2', 'Bay3' and 'Outgoing 1', 'Outgoing 2' as their names and titles. Now your project should look like the one shown in Fig. 3.9.-13.

User's Guide
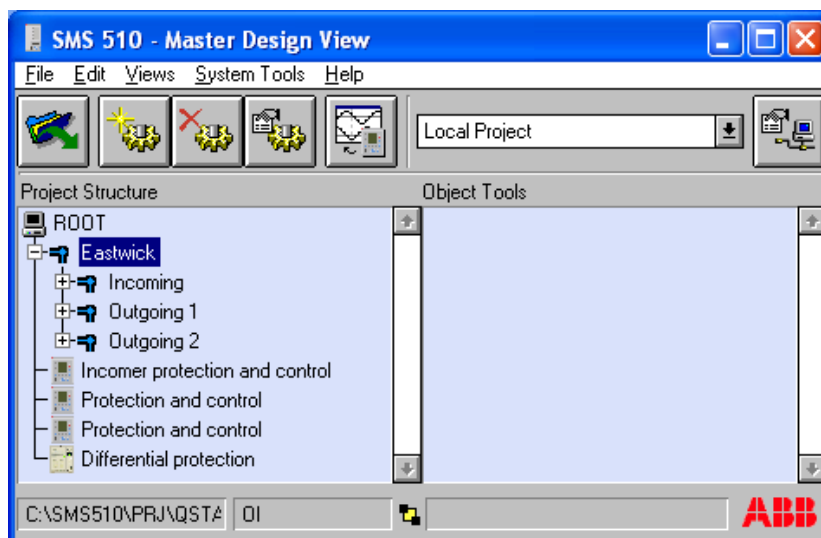
qs11b

Fig. 3.9.-13 The station hosting three bays

You are now ready to organize the project further by moving the device objects to more appropriate locations in the project structure.

3.10.   Moving objects in the project

In this section, the existing device objects are moved to new locations in the project structure.

Fig. 3.10.-1 illustrates the intended final organization of the device objects in the Master Design View.
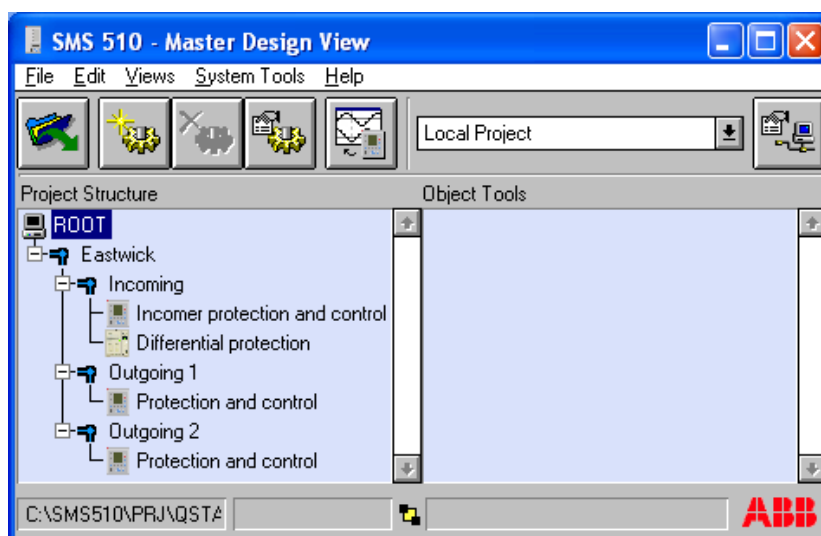
qs12b

Fig. 3.10.-1 Objects in their final locations

The procedure for moving objects in the project's views consists of the following steps:

1. **Select the object you intend to move** by clicking it.
2. On the Project Structure Navigator's **Edit menu**, select **Object Properties** to bring up the General Object Attributes dialog or press <Alt>+<Enter> on the keyboard.
3. Click **Move** on the General Object Attributes dialog to bring up the Move Object dialog.
4. From the project structure, **select the target compound object**, which will host the moved object.
5. Click **Move Here** on the Move Object dialog to move the object to the selected target location.

Following this procedure, move the objects one at a time to the locations shown in Fig. 3.10.-1. Notice that moving a device object under a bay object causes the station node to collapse. A collapsed node is expanded by either double-clicking it or by clicking the plus sign (+) on the node's left-hand side.

3.11.   System configuration

The system communication should also be configured at some point. It has to be done before you configure the communication settings on device (relay) level, see Fig. 3.12.2.2.-3. You need to make the basic communication definitions for the serial ports and LON channels. From the **System Tools menu**, select item **System Configuration** and page **Communication**, see Fig. 3.11.-1.
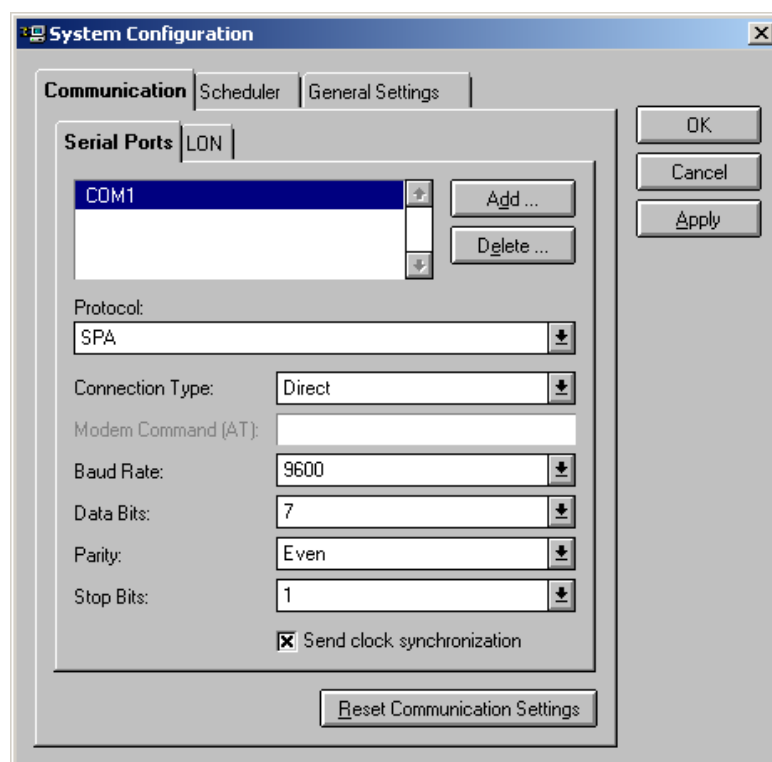
Sys_Conf

Fig. 3.11.-1 Setting up the serial ports

How to set up the LON channel is described in the *SMS 510 Installation and Commissioning manual.*

Use the Add button to add a serial port. Usually the default settings are sufficient. Press OK, to save and to exit.

Next, you will advance by configuring the project's device objects.

3.12. Configuration of device objects

3.12.1. General

Prior to using an inserted device object, the object must be configured. Otherwise, attempts to launch an object tool result in notifications requesting you to configure the object.

For instance, configuring a REF54x device object means that the object is assigned:

1. The software configuration (SW), which is a set of hardware dependent files. The software configurations are supplied solely by ABB.

2. The application (Apl) configuration, which is a set of application dependent files. An application configuration is either supplied by ABB or created within the SMS 510 environment, which is why it has been saved in the application library of the object's object type.

3.12.2. Relay configuration procedure

A device object is configured in the Master Design View by means of a dialog, which is dependent on the device object's type. To enter this type-dependent dialog:

1. **Select the device object** in the project structure.

2. Select **Object Properties** on the **Edit menu** to open the General Object Attributes dialog for the object or press <Alt>+<Enter> on the keyboard. You can use the **Properties** button as well, see Fig. 3.12.2.-1.

Fig. 3.12.2.-1   The Properties button

3. Click **Attributes** to open the object's configuration dialog, see Fig. 3.12.2.-2. (No attribute function is needed for setting of REx 5xx and RET 521 relays).
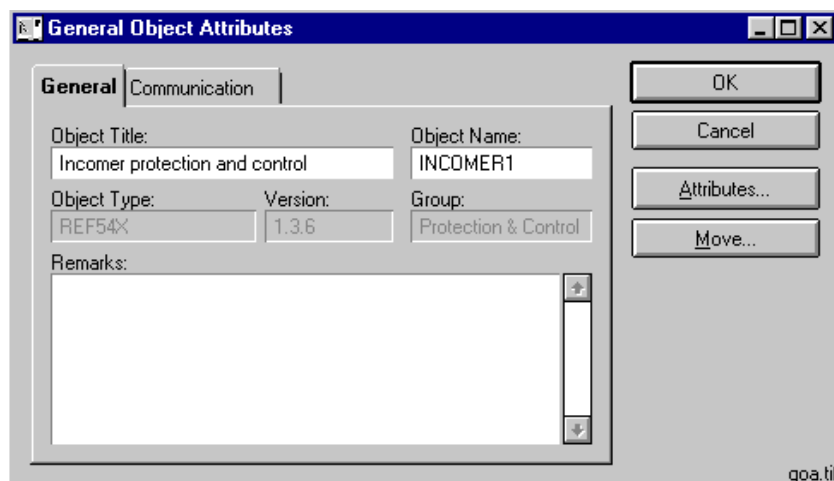
Fig. 3.12.2.-2   General page for INCOMER1

3.12.2.1. RED 500 relay object types

1. In the **SW library**, select the **SW configuration** that matches the relay terminal that is to be used.
2. **Select an application** in the Apl library, or if the application is unknown, some of the RED relay object types allow **uploading of the configuration** from the relay terminal. The uploaded configuration is available for selection in the Apl library list.

Close the object's configuration dialog by clicking **OK** to return to the General Object Attributes dialog. For more information on configuring device objects, see the *Tools for Relays and Terminals manual*.

Configuring quick start device objects

To proceed with the example, you need to configure the device objects in the order they appear in the project. Once you are done, the objects are configured as shown in Table 3.12.3-1.

To proceed, select the device object 'INCOMER1' which is titled 'Incomer protection and control'. On the **Edit** menu, select **Object Properties** to bring up the General Object Attributes dialog. The tabbed page titled **General** is active, displaying general information on the object. Notice that in this dialog, you can change some of the object's attributes in the Master Design View.

To configure the REF54x device, click **Attributes** and you enter the REF54x Configuration dialog, shown in Fig. 3.12.2.1.-1.
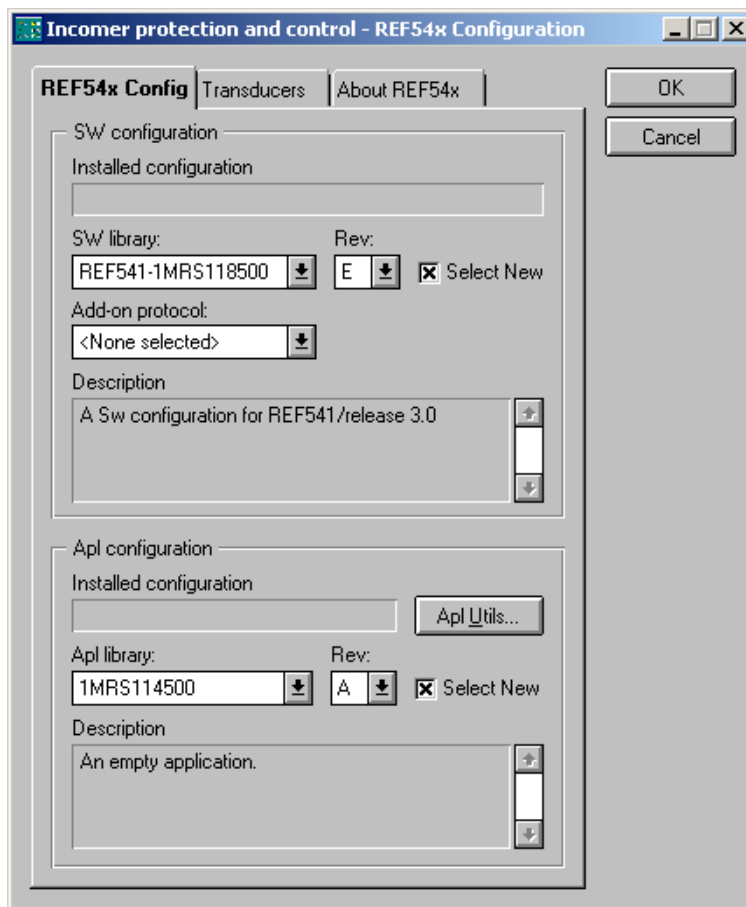
qs13

Fig. 3.12.2.1.-1 The configuration dialog for REF54x device objects

Assigning software configuration

As stated in Table 3.12.3-1, this object's software configuration should be 'REF543-1MRS118501 rev. F', which means that the software configuration suggested by default has to be changed. In the dialog's upper area, the **Select New** check box is checked, allowing you to select the appropriate software configuration.

To change the configuration, select the configuration named 'REF543-1MRS118501' from the list titled SW library and select revision 'F' from the list titled 'Rev'.

Assigning application configuration

To complete this object's configuration, you need to assign the intended application configuration for the object, in this example it is '1MRS114502' revision 'A'.

To assign it, select the application configuration '1MRS114502' from the list titled Apl library and the revision 'A' from the list titled Rev. Next, click **OK** to apply the configuration, saving it to the project database. You now returned to the General Object Attributes dialog, close it by clicking **OK**.

Uploaded application configurations in REF54x, REM54x, REC52x and RET54x object types

The REF54x, REM54x, REC52x and RET54x object types provide an alternative to use an application configuration, which you can upload from the relay terminal. Upon completion of the upload, you save the uploaded configuration into the object type's user-application library. These application configurations are stored without revision information and are available through the Apl library list, shown in Fig. 3.12.2.1.-1. The use of uploaded application configurations is outlined below:

1. **Insert the device object** to the project.

2. **Configure the object** as explained above, assigning an empty application configuration, which you eventually will replace with the uploaded configuration. Apply the configuration normally and then return to the Project Structure Navigator.

3. **Reopen the General Object Attributes** dialog selecting the **Communication** page to provide communication settings for the object. Select the communication protocol and enter the communication settings that match the settings in the relay unit. Connect the communication cable, if not done yet.

4. **Open the object type's configuration** dialog. Click **Apl Utils…** and enter the dialog for maintaining the user application library.

5. By clicking **Receive**, the upload starts bringing up a progress indicator dialog. Upon completion of the upload, you provide the name for the uploaded configuration. This name will appear in the Apl library list.

6. Close the user-application library management dialog by clicking **Close**. Now, to assign the newly uploaded application configuration, check the **Select New** check box and select the configuration from the **Apl library** list.

7. Close the object type's configuration dialog by clicking **OK**. You are prompted to confirm the replacement of the application configuration, click **Yes** to enforce the new configuration.

To proceed with the example, configure the other two REF54x device objects ('OUT1' and 'OUT2') using Table 3.12.3-1 as reference.

3.12.2.2.   SPACOM relay object types

At this point, the SPACOM device object ('INCOMER2') is still not configured. To configure it, enter the object's configuration dialog as you did with the REF54x objects (Attributes button). The configuration dialog that appears (see Fig. 3.12.2.2.-1) differs from the one you used for the REF54x objects (see Fig. 3.12.2.1.-1). For more information on configuring device objects, see the *Tools for Relays and Terminals manual*.

User's Guide
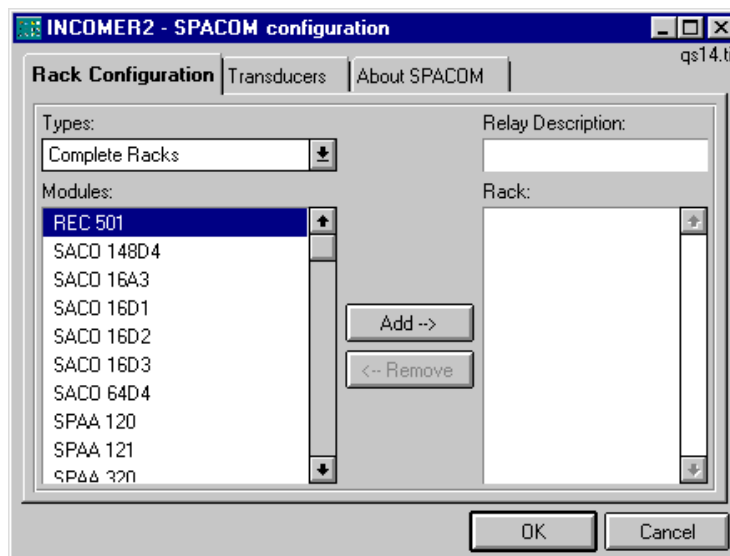
Fig. 3.12.2.2.-1 The configuration dialog for SPACOM device objects

Now locate the module named 'SPAD 346' from the **Modules:** list and click
Add -> when you have selected the module. The dialog should look like the one
shown in Fig. 3.12.2.2.-2.
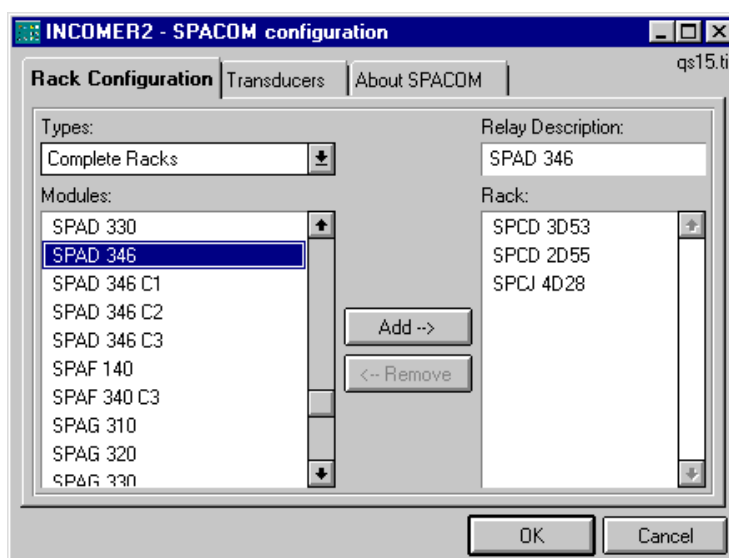
Fig. 3.12.2.2.-2 The selected SPACOM configuration

To apply the configuration, click **OK** and you return to the General Object
Attributes dialog.

Before you can make the communication setup for the individual objects, you have
to set up the system configuration as described in Section 3.11. System
configuration. Alternatively, you can click the **System Configuration** button in the
General Object Attributes dialog (see Fig. 3.12.2.2.-3), which brings up the System
Configuration dialog (see Fig. 3.11.-1).
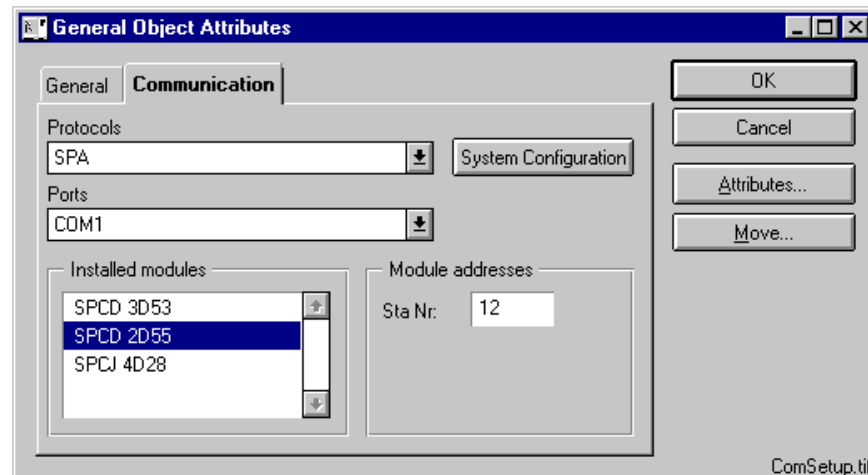
Fig. 3.12.2.2.-3 Communication addresses for some modules using SPA protocol

After having configured the system, you can make the communication setup for the devices. The presentation may vary depending on the selected device.

3.12.2.3.　REx 216/316 relay object types

The general object attributes, see Fig. 3.12.2.-2, have two parts: general data and communication data. Configuring the communication data is possible only after the general data has been set. This is done after creating the device object as follows:

1. Select the **General** page
2. Click the **Attributes…** button. A panel with an **OK** button appears, and for a short moment, an **Initialising…** window is shown. Another panel appears telling you that you may not use this function a second time.
3. Click the **OK** button on the panels. There are no parameters to be set, only the initialization has to be done and is now done.
4. Select the **Communication** page and set the communication parameters in the same way as for any other device.

If the device has been initialized once, no parameter change by means of the **Attributes…** button is possible nor is it necessary. Changing communication parameters on the **Communication** page can be done if necessary, as for all other devices. RExx16 devices support two protocols: Direct SPA communication via PC_NET (protocol SPA), or via the front connector and LON (protocol LON).

When you now operate a relay of the type REx 216/316, the appropriate setting tool CAP2/316 appears. All relay settings as well as the upload of disturbance data are handled with this tool (see separate *Getting Started CAP2/316 manual* for the appropriate relay type).

3.12.2.4. **REB 500 relay object type**

The general object attributes only have the **General** data part, and there are no additional parameters to be set here. Communication parameters are set within the REBWIN setting tool, which already may be launched at this stage.

> The COM port selected for communication within the REBWIN setting tool must not be one of those used by the SMS 510 System Configuration. That is, if REBWIN uses COM1, the SMS 510 SPA communication must not use COM1, but COM2 instead (or the other way around).

3.12.2.5. **REx 5xx relay object types**

The general object attributes have three parts: General data, Communication data and Terminal Version data. Configuring the communication data is possible only after the general data has been set. This is done after creating the device object as follows:

1. Select the **General** page. Notice that no attribute function is needed for setting REX 500 and RET 521 relays, therefore the **Attributes…** button is disabled.
2. Select **Terminal Version** page and select the **Terminal Type** of the REx 5xx relay, either RET or REX. **Terminal Version also** has to be assigned.
3. Select the **Communication** page and set the communication parameters in the same way as for any other device.
4. Click the **OK** button to save the configuration and exit.
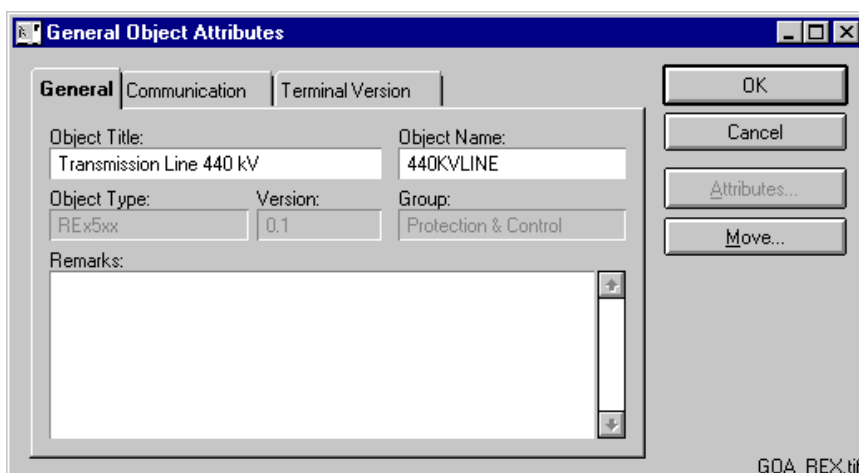
Fig. 3.12.2.5.-1 General object attributes for REx 5xx types of relays

Changing communication parameters on the **Communication** page can be done as necessary as for any other device. REx 5xx devices support two protocols: Direct SPA communication via PC_NET (protocol SPA) and via the front connector as well as LON (protocol LON).

When you now operate a relay of type REx 5xx, the appropriate setting tool PST appears. All relay settings are handled with this tool, while disturbance uploading is done by HV/Collect. (See the *Parameter Setting Tool (PST) User's Manual* and the *HV/Collect User's Manual* for functions).

User's Guide

3.12.3.   Summary

For example, the following devices with the following configuration have been
added to the project:

Table 3.12.3-1 Example device configuration

REF54x device	SW Configuration	Apl Configuration
INCOMER1	REF543-1MRS118501 rev. F	1MRS114502 rev. A
OUT1	REF541-1MRS118500 rev. C	1MRS114501 rev. A
OUT2	REF541-1MRS118500 rev. C	1MRS114501 rev. A
SPACOM device	**Relay Description**	
INCOMER2	SPAD 346	
Rexx16 device		
OUT3	Rexx16	
REB500 device		
OUT4	REB500	
REx5xx device	**Terminal Type**	**Terminal Version**
440KVLINE	REX	REX500_20

At this stage, you have almost completed the example. Next, you can familiarize
yourself with the use of user views in projects. Remember that regarding views, the
example project only contains the Master Design View, which is the only view
allowing you to insert device objects to the project and configure them.

3.13.   Using user views

General

No specific rules for the use of user views exist in regard to their logical contents or
amount.

Creating user views

In this example, you will create two rather self-explanatory user views, namely one
named 'Outgoing' and another named 'Incoming'. You will also populate these
views with the previously inserted device objects.

To proceed building the example project, select **Create view** on the **Views** menu of
the Project Structure Navigator. This opens the Project View Properties dialog
shown in Fig. 3.13.-1.
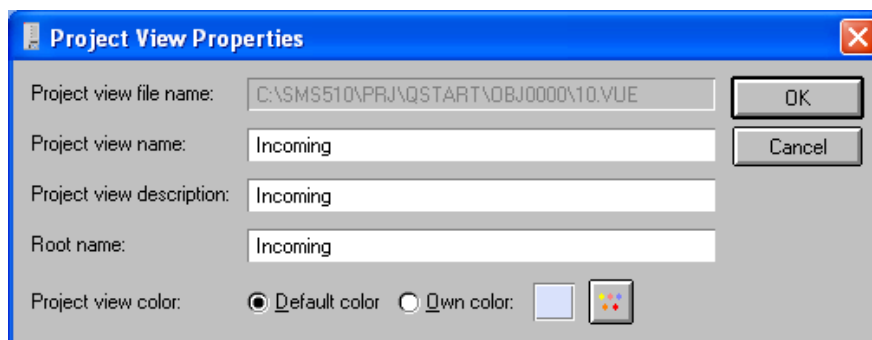
Project_view_prop.

Fig. 3.13.-1 Entering information for the new user view

Specify the information for the view as shown in the figure above. You can later change these properties of views, by selecting the **View Properties** menu item on the **Views** menu. Click OK to create the view. The navigator opens the view immediately. Notice that the Views menu now contains the newly added view below the Master Design View menu item.

Next, add the other user view similarly and specify 'Outgoing' for the view's properties. Now your Views menu should contain the menu items shown in Fig. 3.13.-2.

Fig. 3.13.-2 User view menu items in place

Adding objects to a user view

The final step of this example is to populate the user views with the device objects.

The procedure for adding objects to user views is simplified compared to Master Design View, since the objects already have been assigned names and other basic information.

If the 'Outgoing' view is not currently active, activate it by selecting the 'Outgoing' menu item on the **Views** menu. Now, select **Insert Object** on the **Edit** menu to bring up the 'Add object from Master Design View' dialog, see Fig. 3.13.-3. The dialog lists all device objects that exist in the project, displaying both the titles and the names of the objects. Object names are displayed in parentheses.
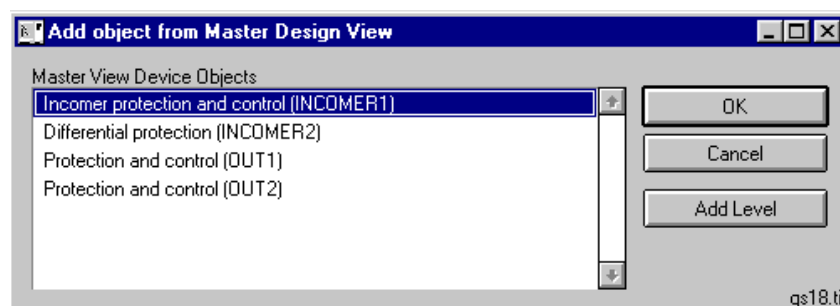
Fig. 3.13.-3 List of objects in Master Design View

Notice the **Add Level** button in the dialog. By clicking this button, you can add Level objects to the user view for organizing the view's contents.

The intention is to add the objects 'OUT1' and 'OUT2' into this view. Select the object named 'OUT1' from the list and click **OK** to add the object and close the dialog. The contents of the view should now be as shown in Fig. 3.13.-4.
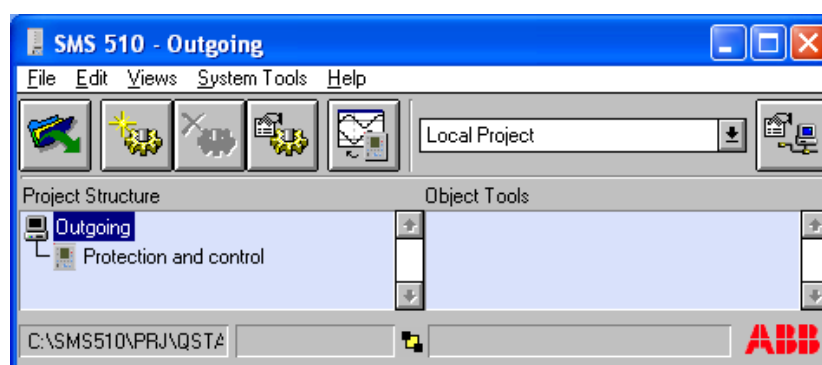
Fig. 3.13.-4 Object 'OUT1' in place

Similarly, add the object named 'OUT2' to this view.

Next, switch the view by selecting the 'Incoming' menu item on the Views menu. Add the remaining device objects 'INCOMER1' and 'INCOMER2' to this view.

3.14.   Launching object tools

Object tools are launched as follows (see Fig. 3.14.-1):

1. **Select the target device object** in the project. Object tools are available in all views of a project.
2. **Double-click the object tool** on the Object Tools list or
3. **Select the tool** from the Object Tools list and press <Enter> on the keyboard.

The Project Structure Navigator allows only one object tool to be used at a time.

LaunchTool2a

Fig. 3.14.-1 Ready to launch the Relay Setting Tool for selected object

Documentation for each SMS 510 tool is supplied, references are listed in Section 1.7. Related documents.
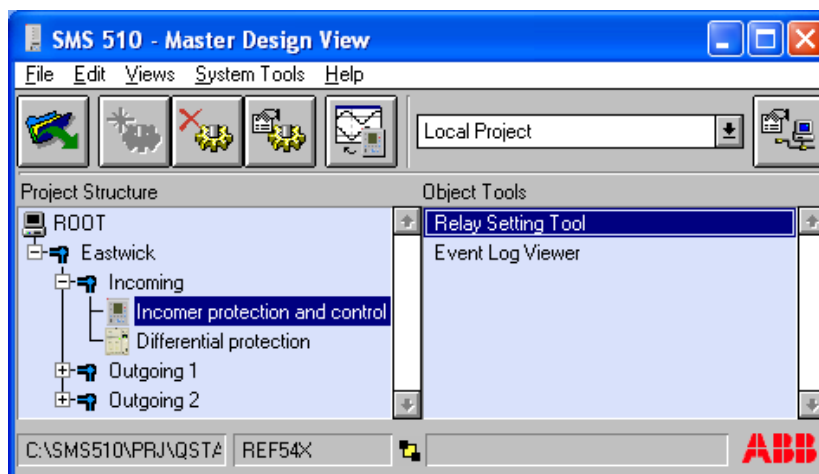
3.14.1. Launching tools for RED 500

When you select a relay of type RED 500, the *Relay Setting Tool* is the only tool available. It launches the RED Relay Setting Tool. All relay settings (upload, download and offline configuration) and detailed device diagnostics are available with this tool.

3.14.2. Launching tools for SPACOM

When you select a relay of type SPACOM, the *Relay Setting Tool* is the only tool available. It launches the SPACOM Relay Setting Tool. All relay settings (upload, download and offline configuration) and detailed device diagnostics are available with this tool.

3.14.3. Launching tools for REx 216/316

When you select a relay of type RExx16, the *Relay Setting Tool* is the only tool available. It launches the CAP2/316. All relay settings (upload, download and offline configuration) as well as upload of disturbance data and detailed device diagnostics are available with this tool (see separate *Getting Started CAP2/316 manual* for the appropriate relay type/version).

If you forget to close the setting tool before you exit/shut down SMS 510, an exception error message may appear. Just press the message button to ignore it; SMS 510 finishes its shut down, and the setting tool enters into offline mode and can be exited as usual.

3.14.4. Launching tools for REB 500

When you select a relay of type REB 500, the *Relay Setting Tool* is the only tool available. It launches the REBWIN program. All relay settings (upload, download and offline configuration) as well as upload of disturbance data and detailed device diagnostics are available with this tool (see separate *REB 500/REB 500sys Operating Instructions manual* for the appropriate relay type/version).

3.14.5.   **Launching tools for REx 5xx**

When you select a relay of type REx 5xx, the *PST* is the only tool available. It launches the *Parameter Setting Tool*. All relay settings (upload, download and offline configuration) and detailed device diagnostics are available with this tool.

4. Project Structure Navigator

This chapter describes the elements and functionality of the Project Structure Navigator.

4.1. General

The Project Structure Navigator is your workspace for managing data and tools. It provides you with access to the SMS 510 tools and project-based object-oriented data management.

4.2. Projects

In SMS 510, projects are the containers for object-oriented data management and storage. Projects allow you to build representations of power stations and their protection and control devices. The maximum number of projects in SMS 510 is limited only by the available disk space on your computer.

The navigator allows you to build projects and operate these by means of a hierarchical tree structure. The structure is comprised of nodes where each node is an instance of an object type. Initially, all projects are empty, meaning that the project tree contains only one node (root level) that gives you a starting point to build the project upon.

The Project Structure Navigator works in one of two modes, the Master Design View mode, or the user view mode.

4.2.1. Master Design View

The Master Design View allows insertion of all available object types in SMS 510. It is the only view, in which you can:

- Insert objects to the project
- Configure the objects
- Configure the communication settings of the objects

The device objects are also available for use in the user views. The Master Design View is a built-in view, meaning that it is always available in every project and cannot be deleted.

4.2.2. User views

User views are intended for designing browsable operator views, e.g. for showing only objects with importance to the user. The object hierarchy in a user view may differ from the one in the Master Design View. Object types of the User Structure object types group provide you with the means of arranging the hierarchy of user views. The device objects, which are available in the Master Design View, can be inserted into the user views.

4.3. Object types

The Project Structure Navigator handles objects of three types, namely:

Level object types	Level object types serve as structuring items in a project. A level object type does not set restrictions on what object types can be inserted underneath it. In many respects, levels behave like directories in a file system since directories may contain files and subdirectories. An example of level object type is the Level type.
Device object types	Device object types control physical devices. A device object stores parameters about physical hardware, e.g. a REF 541 terminal.
Compound object types	Compound object types combine the behaviour of level and device object types. In a project, a compound object has both object properties and structuring properties. As a result, a compound object has private object settings and a view level, under which it is possible to insert objects of object types allowed by the object type. The main difference between views of a level object type and a compound object type is that compound object types set restrictions on what object types can be represented in its views. Examples of compound object types are plant structures and communication gateways.

4.4. Object type groups

Each object type belongs to one named object type group, whose member types provide common functionality.

Four object-type groups are available:

User Structure	Object types of this group serve the purpose of project structuring. Contains level object types only.
Plant Structure	Object types of this group serve the purpose of MicroSCADA compatible project structuring. Contains compound object types only.
Gateway	Object types of this group serve the purpose of project structuring and representation of communication gateway devices. Contains compound object types only.
Protection & Control	Object types of this group represent protection and control devices. Contains device object types only.

4.5. User interface

Access to the various tools and functions is provided by means of a toolbar, menus and keyboard shortcuts. Fig. 4.5.-1 illustrates the navigator's user interface and its elements.
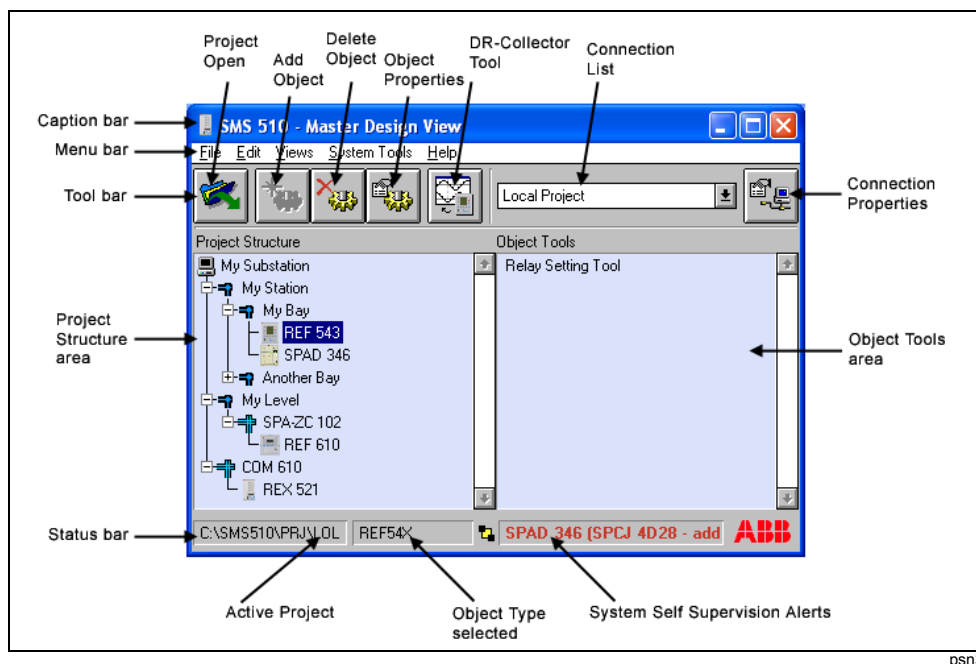
User's Guide

Fig. 4.5.-1   The user interface of the Project Structure Navigator

User interface elements

Caption bar	Displays the name of the current view. In Fig. 4.5.-1, it is the Master Design View. The caption bar also contains the standard operating system's window management commands for minimising, maximising and closing the window.
Menu bar	File, Edit, Views, System Tools and Help menu.
Toolbar	The toolbar contains shortcuts for quick access to the frequently used functions.
Object tools list	An object-selection sensitive list of object tools that are available for the object currently selected in the project structure.
Structure	Displays the objects in the current project view for object selection and navigation.
Status bar	Displays the path of the current project and the type of the object currently selected in the project structure. The right-hand box shows alerts from the System Self Supervision. By clicking the alert, the System Self Supervision Tree is brought into focus, see Chapter 10. System Self Supervision.

The following icon symbols are used for different object type groups in the project view:

Table 4.5.-1   Symbols for different object type groups

|	
⇥	User Structure or Plant Structure
⊹	Gateway
▣ ▣ ▣ etc.	Protection & Control

The menu contents and buttons in Fig. 4.5.-1 are described later in this chapter.

4.6.   Entering the Project Structure Navigator

To enter Project Structure Navigator, proceed as follows:

1. In the SMS 510 program folder, select the shortcut **Start SMS 510,** see Fig. 3.7.-1. This starts the MicroSCADA service bringing up the SMS 510 Login window. Fig. 4.6.-1 illustrates the login panel of the window.

2. In the SMS 510 Login window, click **Login** to enter the Project Structure Navigator.
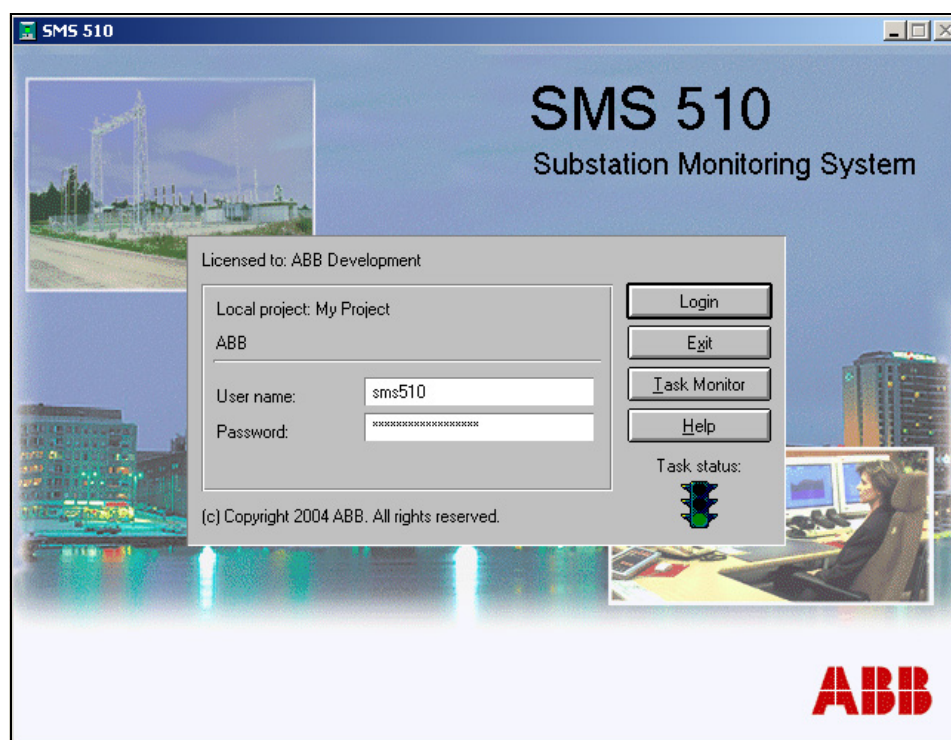
Login1

Fig. 4.6.-1   The login panel of the SMS 510 Login window

Notice that if you attempt to start a second instance of SMS 510, which is not allowed, you are notified that SMS 510 is already running, see Fig. 4.6.-2.
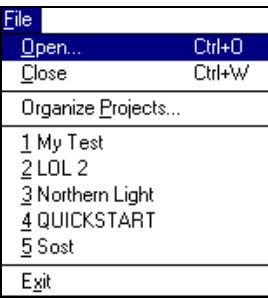
User's Guide

Fig. 4.6.-2   Notification that SMS 510 is already running

Dismiss the notification by clicking **OK**.

4.7.   **File menu**

The File menu, see Fig. 4.7.-1, contains the project handling functions and exit.

File_menu

Fig. 4.7.-1   The File menu

4.7.1.   **File Open**

Keyboard entry: <Ctrl>+<O>

Toolbar entry:

By selecting the **File Open** alternative, the currently open project is closed and the Open Project dialog is opened, see Fig. 4.7.1.-1.
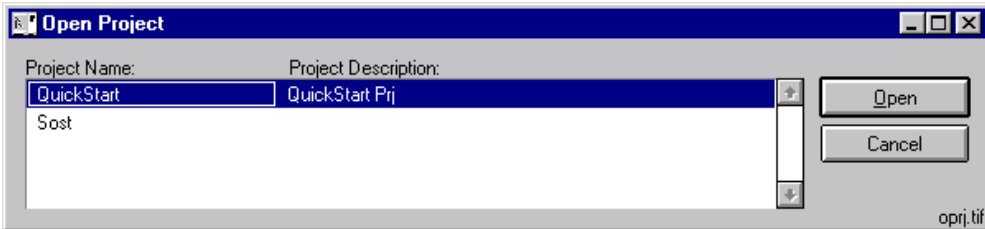

Fig. 4.7.1.-1   The Open Project dialog

To open a project into the navigator view, first select the project and then click **Open**. This also enforces the project's communication configuration, which you can view and modify by means of the **System Configuration Tool** and the **Communication** page.

4.7.2. File Close

File Close closes the currently open project.

4.7.3. Organize Projects

When selecting **Organize Projects**, the Project Export/Import Tool is started. This tool is described in Chapter 5. Project Export/Import Tool.

4.7.4. File History List

The File menu includes a file history list of the previously opened projects. It helps to open some recently used local project quickly.

The five last opened projects (if any) are listed and sorted so that the last used project is the first name on the list. By clicking the project name or by entering the order number from the keyboard, the currently open project is closed and the requested project is opened.

4.7.5. Exit

Keyboard entry: <Alt><F4>

By selecting **Exit**, the tool session is terminated and you enter the SMS 510 Login window.

> To close SMS 510, click **Exit** on the SMS 510 Login window; this will stop the MicroSCADA service.

4.8. Edit menu

The Edit menu contains functions for adding and deleting objects and for invoking the General Object Attributes dialog for the currently selected object.

Accessibility to the menu items depends on the currently selected object. For instance, the **Delete Object** item in Fig. 4.8.-1 is disabled, indicating that the currently selected object cannot be deleted.
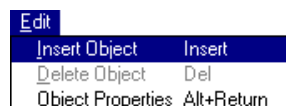

Fig. 4.8.-1   The Edit menu

4.8.1.	**Insert Object**

Keyboard entry: <Insert>

Toolbar entry:

Through this menu alternative, you initiate the insertion of objects in the project.

Insert Object in the Master Design View

When you select the **Insert Object** function in the Master Design View, the Add
Project Object dialog (shown in Fig. 4.8.1.-1) appears, allowing you to specify the
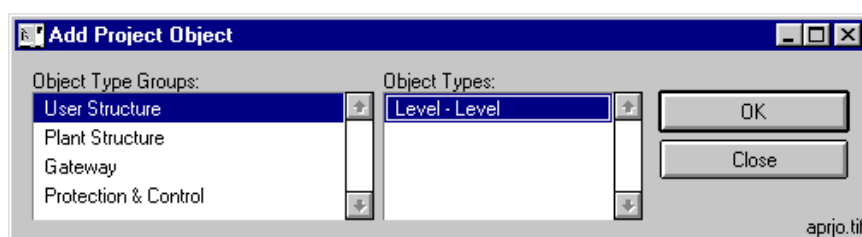type of the object to be added to the currently selected location.

Fig. 4.8.1.-1   Insertion of an object

The Project Structure Navigator displays all object type groups currently available
in the SMS 510 environment. However, the object types of these groups are filtered
according to the currently selected object, which will host the new object.

To insert the object, first choose the appropriate object type group. Select the type
for the new object and click **OK** to enter the dialog, where you give the basic
properties for the new object, see Fig. 4.8.1.-2. Notice that this dialog varies
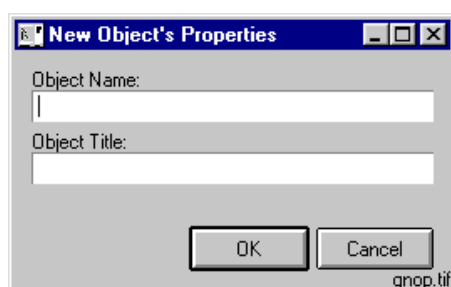according to the type of the new object.

Fig. 4.8.1.-2   Providing properties for the new object

Type in the title and the name for the object and click **OK** to complete its insertion.

'Object Name' is used for SMS 510 object managing and should be unique within the project. 'Object Title' is the object description that is presented to the user in the Project tree for the particular object. Object Name and Object Description can later be changed from Properties/General Object Attributes dialog, see Fig. 4.8.3.1.-1.

> If you do not fill in the Object Name field, the Project Structure Navigator still generates a name.

> The maximum number of STA objects in a SMS 510 project is limited to a total of two hundred (200). One object instance can reserve more than one STA object, so the actual maximum object count in a project may be smaller than 200. If you try to add more than 200 objects, the following notification dialog will be shown:

Fig. 4.8.1.-3   The limitation of project object instances is exceeded

Insert Object in the user views

When you select the Insert Object function in a user view, the Add object from Master Design View dialog appears, allowing you to select the object to be added to the currently selected location.
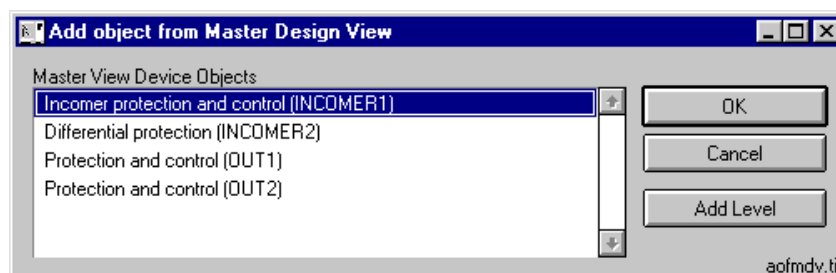

Fig. 4.8.1.-4   Inserting a device object to a user view

To insert a device object, select it from the object list and click **OK** to close the dialog.

> All device objects that you have inserted in the Master Design View are available for selection. However, you can insert a device object only once to a given user view.

This dialog also allows you to insert Level objects, which you can use for organizing the contents of the user view. This is accomplished through the **Add Level** button, see Fig. 4.8.1.-4.

To insert a Level object, either select the root node of the view or another Level object and click **Add Level** to enter the dialog for providing the title of the object, see Fig. 4.8.1.-5.
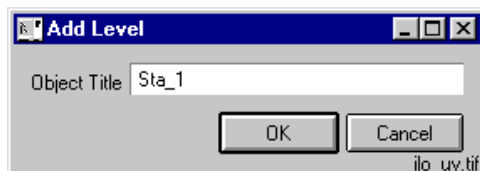

Fig. 4.8.1.-5   Inserting a Level object to a user view

Give a unique title in the view's scope and click **OK** to close the dialog.

4.8.2.   Delete Object

Keyboard entry: <Delete>

Toolbar entry:

To delete the currently selected object, use the function **Delete Object**. You can delete only such objects, which do not contain any subordinate objects.

If you are working in a user view, the deleted object remains in the project database and it can thus be re-added to any user view in the project. However, deleting an object from the Master Design View permanently removes the object from the project database, which in essence means erasing the object's file storage from the hard disk.

4.8.3.   Object Properties

Keyboard entry: <Alt>+<Return>

Toolbar entry:

To bring up the General Object Attributes dialog for the currently selected object, select **Object Properties**.

Notice that if you select the root node, this function brings up the dialog for changing and viewing properties of the project (in the Master Design View) or properties of a user view (in a user view).

4.8.3.1.	**General Object Attributes dialog**

The General Object Attributes dialog, see Fig. 4.8.3.1.-1, is a central tool for project object management. The dialog contains two tabbed pages; **General** and **Communication** for setting and viewing of objects' attributes. The General page is available for all objects in all views, whereas the Communication page is displayed only in the Master Design View for objects that require communication settings. With the dialog's buttons, you invoke the object's configuration dialog (if supported by the object type) and the dialog for moving the object in the project hierarchy.

> The Communication page is not documented here. For detailed information on configuring the communication settings, refer to the manual describing the respective object type (e.g. the *Tools for Relays and Terminals manual*).
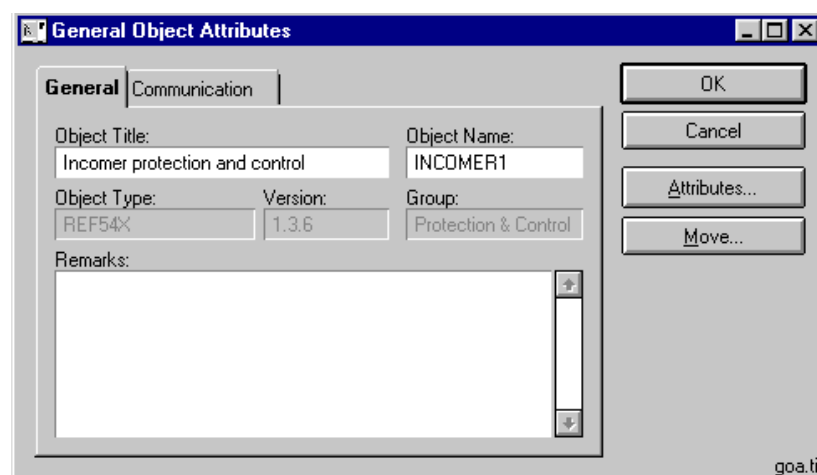

Fig. 4.8.3.1.-1   The General Object Attributes dialog

The following table describes the elements found in Fig. 4.8.3.1.-1.
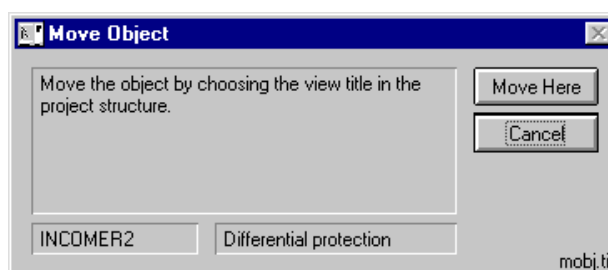
Table 4.8.3.1-1   General Object Attributes dialog items

Field	Explanation
Object Title	A read/write attribute in the Master Design View, read-only in user views.
Object Name	A read/write attribute in the Master Design View, read-only in user views.
Object Type	The type of the object, read-only in all views.
Version	The version of the object's type, read-only in all views.
Group	The group of the object's type, read-only in all views.
Remarks	Remarks on the object. A read/write attribute in the Master Design View, read-only in user views. **Note!** Data is automatically truncated to 253 characters without notice.
Button	
OK	Closes the dialog saving the changes to the object's general attributes.
Cancel	Closes the dialog discarding the changes to the object's general attributes. **Note!** This button does not have any impact on changes to the object's configuration.

User's Guide

Table 4.8.3.1-1 General Object Attributes dialog items

Attributes	Invokes the dialog for configuring the object. Enabled in Master Design View only, on the condition that the object's type supports object configuration, otherwise this button is disabled.
Move	If the object's type supports moving objects, this button invokes the dialog for moving the object within the current view, otherwise this button is disabled. For details on moving objects, see Section 4.8.3.2. Moving objects.

4.8.3.2. Moving objects

Objects can be moved only within the current view. The procedure involves using the Move Object dialog, see Fig. 4.8.3.2.-1. The dialog is invoked using the General Object Attributes dialog (button **Move**). You can access this function only if the currently selected object's type supports moving objects.

Fig. 4.8.3.2.-1   The Move Object dialog

To move an object:

1. Select the object you intend to move.
2. From the **Edit** menu, select **Object Properties** to open the General Object Attributes dialog.
3. Click **Move** to open the Move Object dialog.
4. In the project structure, **select the node**, which will host the moved object. Notice that you can work with the project tree in a normal manner, i.e. expand and collapse nodes.
5. On the Move Object dialog, click **Move Here** to move the object. The Move Object dialog closes causing the project structure to collapse. Notice that in case the Project Structure Navigator detects that the currently selected target node cannot host the object you are about to move, you are not allowed to perform the move operation. This means that clicking **Move Here** has no effect.

To cancel moving the object, click **Cancel** in the Move Object dialog.

4.9. Views menu

The Views menu contains view manipulation functions and the list of user views, if such have been created in the current project. For example, in Fig. 4.9.-1 below, the project contains one user view, titled ''User view 1', while 'Master Design View' shows the entire project. 'ROOT' and 'SSS-System Self Supervision' are used for changing views in the navigator. 'ROOT' or the name assigned to the root of the project, see Fig. 4.9.1.-1 and Fig. 4.9.3.-1, is showing the active view (in this case

either 'Master Design View' or 'User View 1') with devices and access to tools from the System Tools menu, while 'SSS - System Self Supervision' shows the status of the entire SMS 510 system.
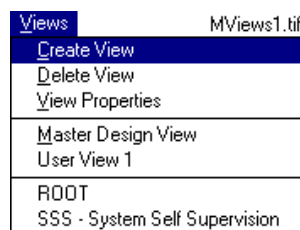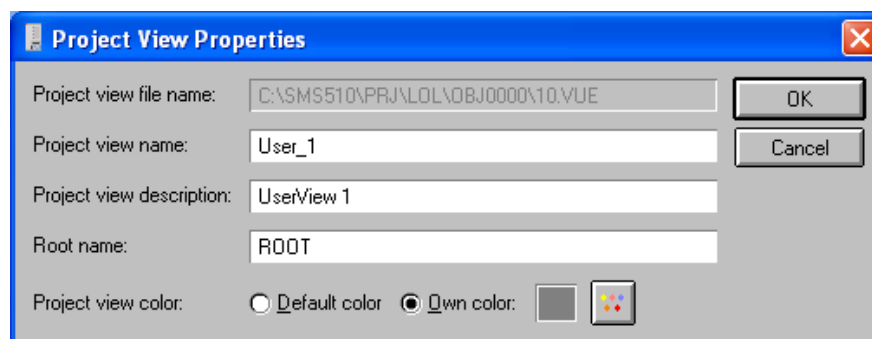

Fig. 4.9.-1   The Views menu

4.9.1.   Create View

With this menu option it is possible to create new user views.

CreateView2

Fig. 4.9.1.-1   Creating a new view

New user views are created by defining the view name, i.e. the instance name, and the view description, i.e. a logical name for the view. The root name is the name of the root node in the new view and can be given a more descriptive name.

Different view colors can be used to differentiate separate projects and/or separate views of one project. By clicking the button next to the "Own color" sample color box, a Color Chooser dialog is opened for selecting a color. The "Default color" option reverts to the default light blue color.
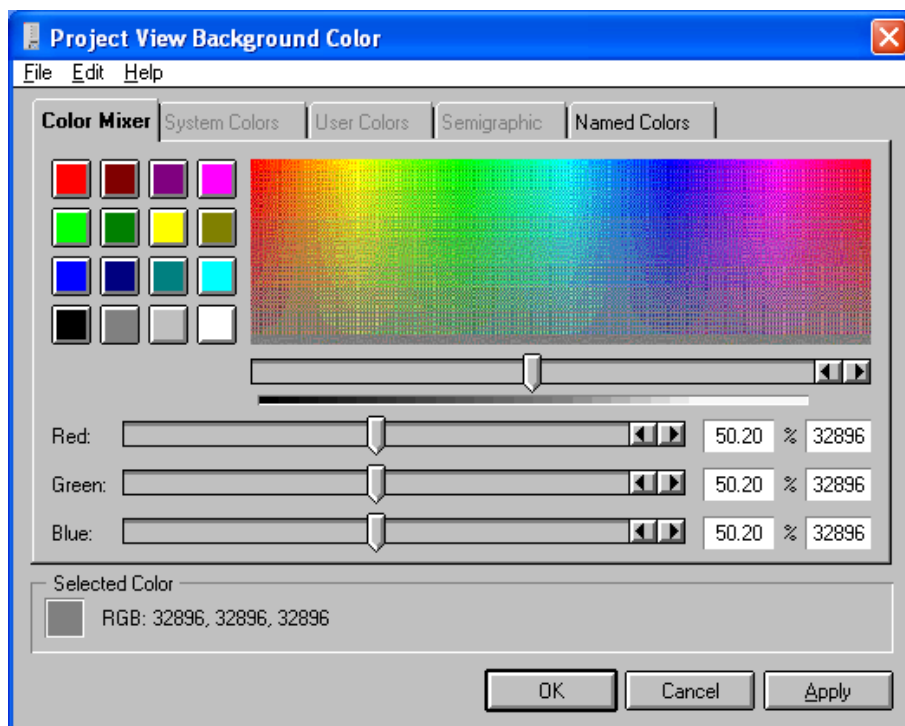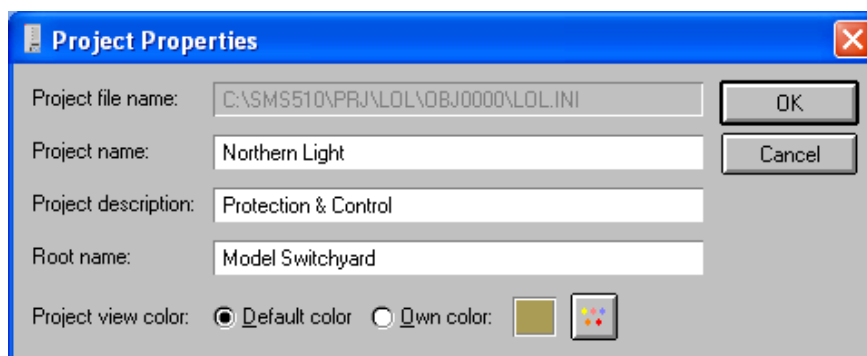
ViewColors

Fig. 4.9.1.-2   Defining own view color

4.9.2.   Delete View

This option deletes the current view, but only user views can be deleted, i.e. you cannot delete the Master Design View.

4.9.3.   View Properties

By selecting this option, the current view's properties can be changed.

Proj_properties

Fig. 4.9.3.-1   The Project Properties dialog

The project name is the instance name and the project description is a logical name for the project. The root name is the name of the root node, i.e. the very first element in the project view presented by the project navigator. The root name can be given a name suitable for the presentation in the project navigator.

The background color for the view can be changed by clicking the button next to the "Own color" sample color box, or the default light blue color selected with the "Default color" option.

4.9.4. View List

The view list is a list of all views defined for the project. By selecting one of the views, the navigator changes the active view. Only the 'Master Design View' is always available, user views are optional.

The difference between 'ROOT' (or the name given to it, see Fig. 4.9.1.-1 or Fig. 4.9.3.-1) and 'SSS - System Self Supervision' is that Root shows the selected view e.g. 'Master Design View' or 'User View 1', while 'SSS - System Self Supervision' shows the entire project from the System Self Supervision point of view. SSS is also generated automatically from the project.

4.10. System Tools menu

The System Tools menu, Fig. 4.10.-1, contains the tools that are available for use at the SMS 510 system level.
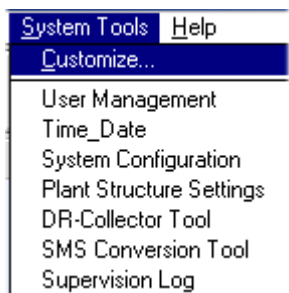
SyTo_Customize

Fig. 4.10.-1 The System Tools menu

You can modify the contents of the menu by selecting the **Customize…** option, see Section 4.10.1. Customize.... By default, menu items for invoking the User Management, Time_Date, System Configuration, Plant Structure Settings, DR-Collector Tool, SMS Conversion Tool and Supervision Log functions are available.

For detailed information on the System Configuration tool/Communication, refer to the *SMS 510 Installation and Commissioning manu*al.

For detailed information on the DR-Collector Tool, refer to the *Tools for Relays and Terminals manual*.

See also the following chapters and sections in this manual:

Chapter 14. User Management.

Chapter 15. Task scheduling.
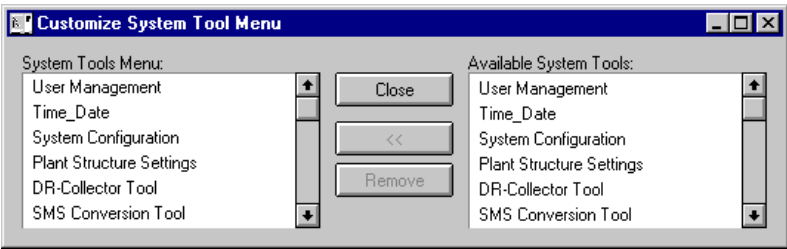
Section 13.1. Time/Date Settings.

Chapter 6. Plant Structure Settings.

Chapter 17. SMS Conversion Tool.

Chapter 11. Supervision Log Viewer.

User's Guide

4.10.1.   Customize...

The Customize… menu alternative, see Fig. 4.10.1.-1, makes it possible to add and remove tools to and from the System Tools menu.


StoolCust1

Fig. 4.10.1.-1   The customization dialog

By selecting a system tool from the right hand list and clicking **<<**, the tool is added to the System Tools menu. By selecting a tool from the left-hand list and clicking **Remove**, the tool is removed from the System Tools menu.

4.11.   Help menu

The Help menu, see Fig. 4.11.-1, contains the function for invoking the About dialog of the Project Structure Navigator and SMS 510.
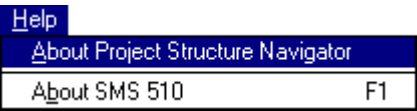
Help

Fig. 4.11.-1   The Help menu

4.11.1.   About Project Structure Navigator

This About dialog contains information about the current version of the Project Structure Navigator and the Project Manager.

4.11.2.   About SMS 510

Keyboard entry: <F1>

The About dialog contains information about the current version of SMS 510.

> The information presented in the About SMS 510 dialog should be available when contacting your local support. It can be copied to the Windows clipboard in a textual format by clicking the Copy button on the About dialog.

User's Guide

5. Project Export/Import Tool

5.1. General

The Project Export/Import Tool is used for copying, exporting, importing, deleting, duplicating, creating of new projects and selecting of the project that is to be regarded as local.

In network environments, this tool can be used to transfer projects to/from e.g. SMS 510, CAP 501, CAP 505, SYS 500 and COM 500.

5.2. Starting the Project Export/Import Tool

The Project Export/Import Tool is started from the **File** menu by selecting **Organize Projects**..., see Fig. 5.2.-1.

Fig. 5.2.-1   File menu with Organize Projects...

The user interface of the Project Import/Export Tool is shown in Fig. 5.2.-2.
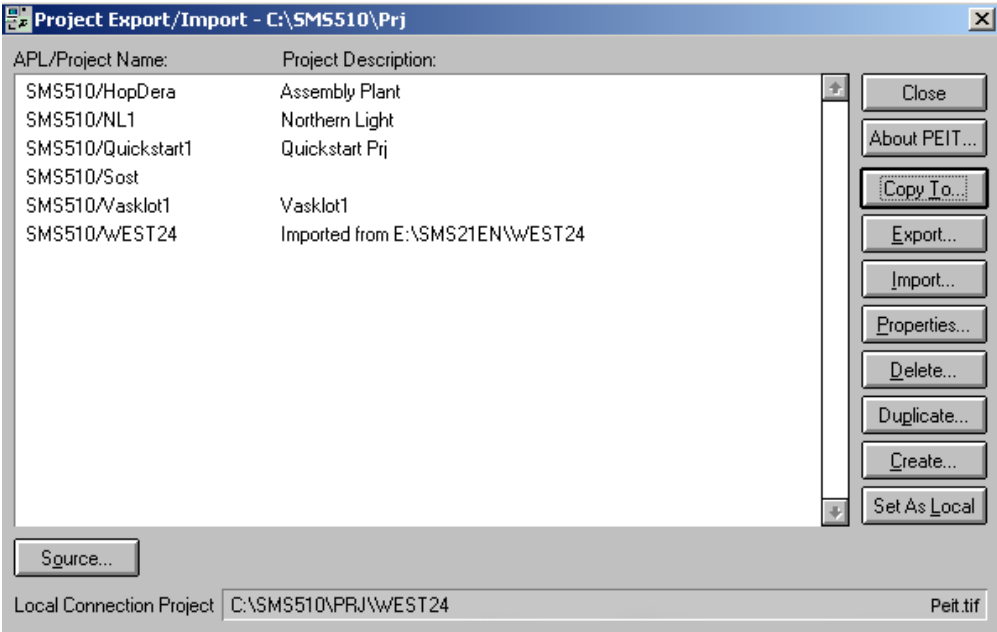

Fig. 5.2.-2   The user interface of the Project Export/Import Tool

Table 5.2.-1 presents the project-management functionality provided by the Project Export/Import Tool.

User's Guide

Table 5.2.-1   Description of the Project Export/Import dialog buttons:

Close	For closing the dialog.
About PEIT...	Provides additional information about the tool and System Information.
Copy to...	For copying projects.
Export...	For exporting projects from the SMS 510 project collection to an arbitrary user-defined location.
Import...	For importing projects from an arbitrary user-defined location to the SMS 510 project collection.
Properties...	Provides information about the project folder.
Delete...	For deleting projects from the SMS 510 project collection.
Duplicate...	For duplicating projects in the SMS 510 project collection.
Create...	For creating projects in the SMS 510 project collection.
Source	For defining the Project Source Directory. It can be the computer you are using or the MicroSCADA environment. You can also define the path manually.

5.3.   Features

5.3.1.   Updating the project list

The operating principle of the Project Export/Import Tool is to first select a project collection to the list view. The project list is updated by selecting the Source button. The project list can be one of the following:

- The user's SMS 510 application projects. By default, the project list displays this selection.
- MicroSCADA application projects on a logical drive, which may also be a network drive.
- Projects stored in an arbitrary user-specified directory.

The project list displays project names in the format APL/ProjectName. When APL is SMS 510 or CAP 505, it means that the project is in the SMS 510 or in the CAP 505 project collection respectively. Any other APL indicates the MicroSCADA application and project name.

The **Source** button invokes the following dialog for choosing one of the alternatives above:
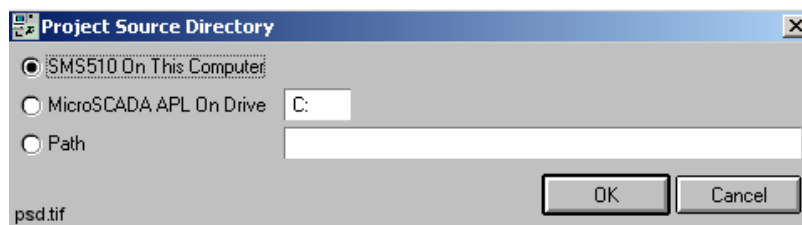

Fig. 5.3.1.-1   The Project Source Directory dialog

The **MicroSCADA Apl On Drive** and **Path** entries allow you to access both local and network computers.

To use the MicroSCADA Apl On Drive option, specify the drive letter followed by a colon (:), for example 'R:'. The Path entry allows using the Universal Naming Convention (UNC) format in addition to the standard format: <drive:>\<directory path>. Sample UNC entries are provided below:

Using a share name

`\\WORKSTA\Backup\SMS510\Projects`

where;

WORKSTA	is the name of the target computer.
BACKUP	is a share name on the target computer.
SMS510\PROJECTS	is a directory path under the share name.

Using an administrative share name

`\\WORKSTA\C$\Backup\SMS510\Projects`

where;

WORKSTA	is the name of the target computer.
C$	is an administrative share name on the target computer, the root directory of the drive 'C'.
Backup\SMS510\Projects	
	is a directory path under the share name.

5.3.2. Project Storage

In SMS 510, projects are stored in the PRJ directory, for example:

`<DRIVE:>\SMS510\PRJ`

The MicroSCADA application projects are stored under the directory:

`<DRIVE:>\SC\APL\APLNAME\PROTECTION\PRJ`

where;

APLNAME	is the name of the MicroSCADA application.

5.3.3. Copying projects between network computers

In network environments, projects can be copied from the local computer to/from other computers in the network, see Fig. 5.3.3.-1. Other computers are referred to by using their computer name, which is a feature of the operating system. You should be granted full access to the share name if the intention is to copy projects to the network computer's project database collection.

The destination can be one of the following alternatives:

• The SMS 510 project collection on the local computer

• A MicroSCADA library application on a drive letter

• A network directory
• A MicroSCADA library application on a network computer

> The object types are not copied along with the project. Before the project is copied, it is up to you to verify that the object types and tools in the project are compatible or equal on the remote system. If the project contains objects of later versions or foreign object types, the remote system may encounter problems if the project is using object types of other versions than what is expected by the object types and tools.

Also notice that a project's system configuration is transferred along with the project. Depending on the communication settings of the project's objects and the communication capabilities of the target computer, the system configuration and/or objects' communication settings may have to be modified to enable correct communication for all objects in the project.

> In Hot Stand-By base systems (HSB) it is important that MicroSCADA is shut down while the project is being copied.

When a project is copied to a MicroSCADA application, it is copied to the application's `PROTECTION\PRJ` directory, e.g. when the application is named PKS, the destination would be `\SC\APL\PKS\PROTECTION\PRJ`. Since a MicroSCADA library application can process one project only, it is named PRJ.

If a project already exists in the destination directory, you are prompted to replace the project or abort the operation. In addition, if you enter a destination directory, which is the same as the source directory, you will be notified that the copying cannot continue.

The **Copy To** button brings up the dialog shown in Fig. 5.3.3.-1, for choosing a destination for the selected project in the project list view.
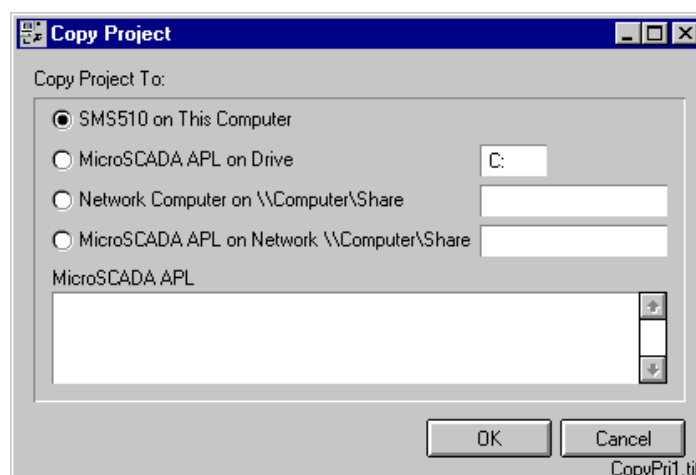

Fig. 5.3.3.-1   The Copy Project dialog

In order for the option **MicroSCADA APL on Drive** to operate, the drive letter must refer to the root directory of the drive on which MicroSCADA has been installed. The network computer name is entered in UNC format, for example \\L40017\MYPRJ. In this example, the computer name is L40017 and MYPRJ is the share name.

The option **MicroSCADA APL on Network \\Computer\Share** refers to the APL directory on the MicroSCADA computer, for example `\\L40017\D_root\SC\APL`. Press <Enter> when your option is MicroSCADA APL on Drive or MicroSCADA APL on Network \\Computer\Share to update the list of MicroSCADA APL applications.

5.3.4. Choosing storage location for temporary projects

A temporary project is a compressed project that has been exported from SMS 510 or another product. It is recommended to save such projects in a special-purpose directory outside the directory structure of SMS 510, for example `C:\EXPORTS`.

> Especially avoid using the directory `\SMS510\TEMP` for such purposes, since the SMS 510 kernel may choose to erase its contents at any time.

5.3.5. Exporting projects

Exporting a project means that all associated object entries in a project are duplicated to some other location specified by you, see Fig. 5.3.5.-1. The destination location can be on the local system or on a network drive: the destination location is specified as a directory path, for example `C:\EXPORTS`. Notice that the destination directory must exist when you issue the export command.

The output result in the specified directory is a compressed archive file with the file extension '.AR'. For example, if the project file name (which is also the actual directory name for the project) is `KRISTIINANKAUPUNKI`, the compressed archive file name is truncated to `KRISTIIN.AR`.

> When the project is later imported, the full project name must be used, although its compressed project file name is only eight (8) characters in length.

The object types used in the project are not exported along with the project, which means that the functionality in a sense is the same as with copying the projects, as described in Chapter 5. Copying projects between network computers.

Fig. 5.3.5.-1   The Export Project dialog

User's Guide

5.3.6.	**Importing projects**

Importing a project is done similarly as exporting, except for the directory entry: the source directory is the location from where the project is copied to your project collection, see Fig. 5.3.6.-1. The source directory can be a directory on your local computer system or on a network drive. The directory entry must be the full directory path to the project, for example C:\EXPORTS\KRISTIINANKAUPUNKI means that a compressed project archive file KRISTIIN.AR is in the directory C:\EXPORTS.

Notice that the project must be specified using its complete project file name although its compressed archive file name is only eight (8) characters in length.

If the compressed archive was distributed to you on several disks, you must first copy the contents from all disks to a common directory on a hard disk drive and import the project from there, see the note in the figure below:
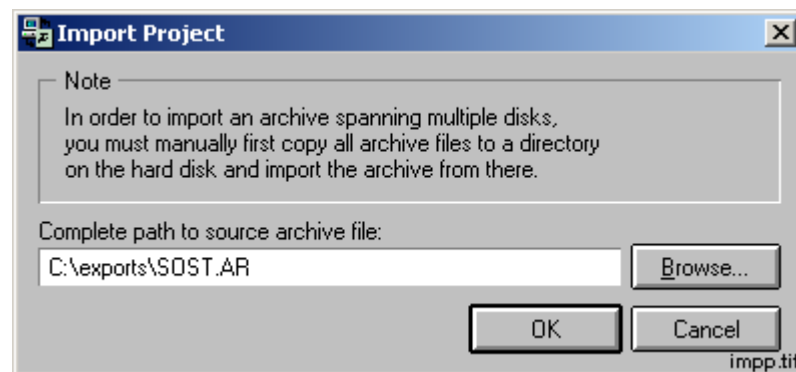
Fig. 5.3.6.-1   The Import Project dialog

The source directory is the path to the project in the export directory. For example, if a project 'DEMO' was exported to X:\EXPORTS then the source directory would be X:\EXPORTS\DEMO (if the drive letter X: is mounted to the same location on both systems).

The system configuration of the project (i.e. the communication settings in the System Configuration and the object level addresses) is preserved when the project is imported. If the communication settings are obsolete or the current communication environment differs too much from the source environment, the communication settings of the project can later be reset from the System Configuration dialog (see Section 3.11. System configuration in this manual). The applicable settings are automatically converted, if the source project is detected to have been exported from another compatible tool product.
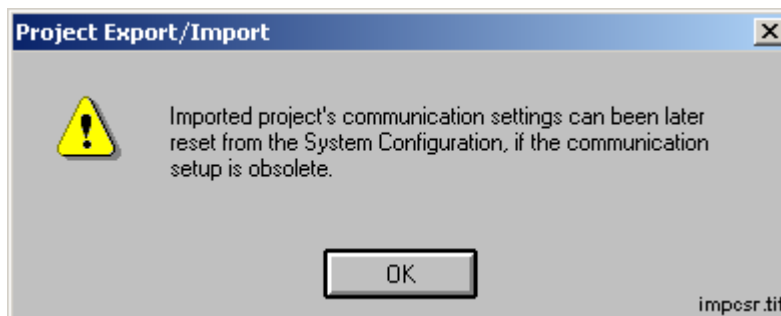
Fig. 5.3.6.-2   The communication settings reset dialog

5.3.7.   **Project properties**

The General Project Properties dialog shows the file name of the selected project, see Fig. 5.3.7.-1:
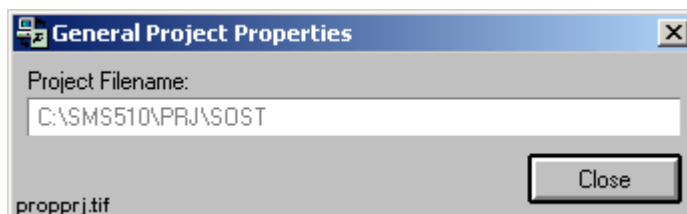

Fig. 5.3.7.-1   The General Project Properties dialog

5.3.8.   **Deleting a project**

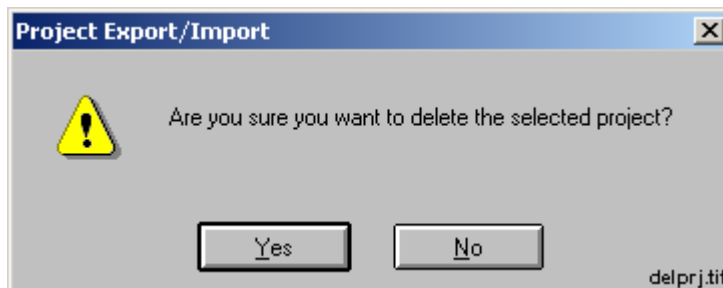Deleting a project is an irreversible operation that cannot be undone, see Fig. 5.3.8.-1.

Fig. 5.3.8.-1   Deleting a project

5.3.9.	**Duplicating a project**

Duplicating a project means that an exact copy of the selected project is copied to your project collection, see Fig. 5.3.9.-1. During the process of duplication, you can specify a different project name and description. The project file name is actually a folder name (directory name) which will become the project's home directory. The project file name may not already exist.

> The 'Project Filename' must be a single-word name without spaces or characters other than:
> - A - Z
> - 0 - 9
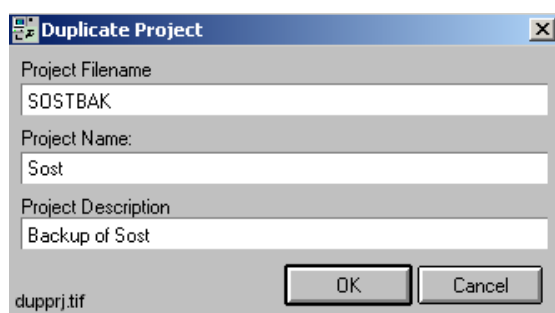
Fig. 5.3.9.-1 The Duplicate Project dialog

5.3.10.	**Creating a new project**

Creating a new project is done in a dialog similar to duplicating a project. The newly created project is assigned an empty system configuration, that is, no LON or serial port communication channels exist in the project's system configuration. Regarding project creation, the same restrictions that apply to the project duplication also apply here, see Section 5.3.9. Duplicating a project.

5.3.11.	**Set As Local**

The function **Set As Local** sets a project as "Local". Local means that the project is "owned" by the current SMS 510 installation and that it is used for direct connection to the relay units, also via telephone modem or other direct communication. This project is also available during logoff mode.

In the list of projects, select the project that you want to use as local and press **Set As Local**, see Fig. 5.2.-2. The project set as "Local" is shown on the row **Local Connection Project**. The name of the local connection project is visible also on the SMS 510 Login dialog, see Fig. 5.3.11.-1.

User's Guide
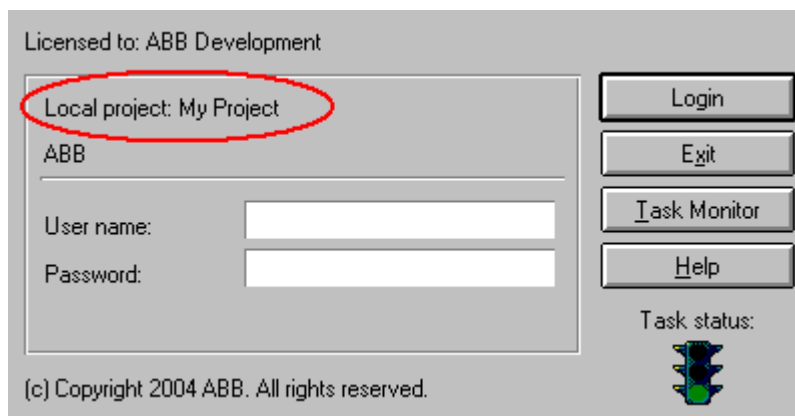
local_project

Fig. 5.3.11.-1   Local connection project name on Login dialog

Notice that you can still open and use any of your other projects in the Project Structure Navigator even if one is set as local.

Set As Local is used in the following cases:

• Connecting one SMS 510 to another SMS 510 over LAN or Remote/RAS (the project to connect to should be set as local)

• Using the Scheduler and e.g. DR-Collector Tool and/or HV/Collect

When choosing the project to be used when uploading disturbance recordings, you can only select among the project set as local (same SMS 510 installation) and projects defined as Remote connection projects (another SMS 510 installation) in the Scheduler. The remote projects are located in the SMS 510 to be connected to.

For more details on using and setting up Remote connections and the Scheduler, see Chapter 12. Remote connections and Chapter 15. Task scheduling.

5.3.12.   Errors accessing remote disk resources

If you attempt to access a disk resource on a remote computer, which does not contain matching MicroSCADA user account, you will receive errors illustrated in Fig. 5.3.12.-1 and Fig. 5.3.12.-2.
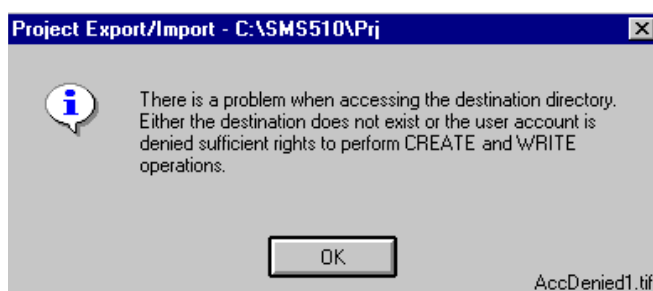
Fig. 5.3.12.-1   Notification about a failed export operation
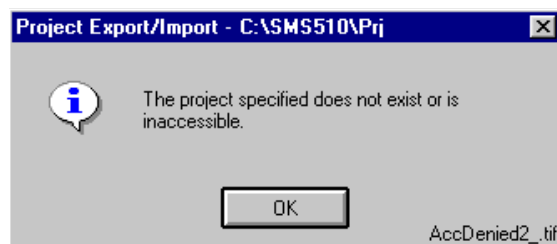
Fig. 5.3.12.-2   Notification about a failed import operation

> ℹ️ The notification in Fig. 5.3.12.-2 also appears if the specified project does not exist.

To recover from such a situation, ensure that the target computer's MicroSCADA user account is assigned the same password as your local computer.

6. Plant Structure Settings

This chapter describes the functionality of the Plant Structure Settings tool.

6.1. General

To be able to define the attributes for the plant structure object types that are applicable to the whole project, this system level tool is available. The tool provides the possibility to modify the predefined attributes and define the properties of the undefined levels in the object type. For more information on the Plant Structure Object Types, see Chapter 7. Plant Structure object types.

The lowest tree levels are disabled because there are no use for them in the SMS 510 environment.

6.2. Starting the Plant Structure Settings Tool

Start the tool by selecting the **Plant Structure Settings** on the **System Tools** menu in the Project Structure Navigator, see Fig. 6.2.-1.
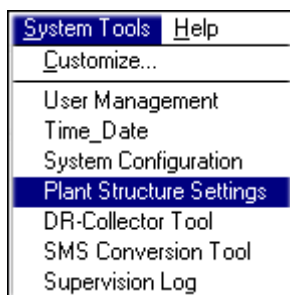
SyTo_PSS

Fig. 6.2.-1   Starting the Plant Structure Settings tool

6.3. Attributes of Plant Structures

The attributes of the plant structure, see Fig. 6.3.-1, are applicable to the whole project, i.e. there cannot be several definitions of the plant structure's attributes. The attributes that can be modified through this tool are:

• Level Id (see Section 6.3.1. Level Id)

• Level Description (see Section 6.3.2. Level Description)

• Field Length (see Section 6.3.3. Field Length)

These attributes are described in more detail in the following chapters.
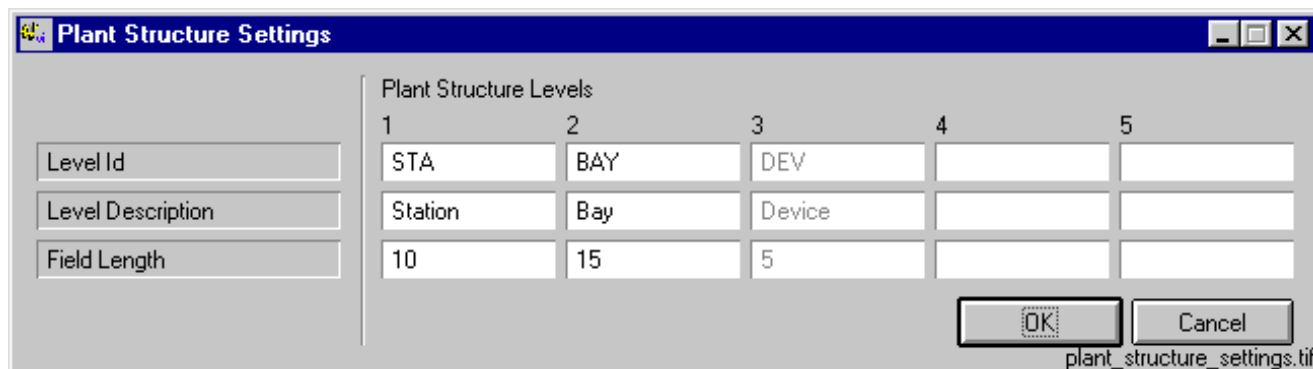
Fig. 6.3.-1   Plant Structure Settings

The default values have been chosen on the basis of the corresponding functionality in the MicroSCADA Network Control system.

> It is not recommended to change the default values, as such a change probably would cause compatibility problems when e.g. exporting projects to MicroSCADA.

6.3.1.   Level Id

The Level Id attribute defines what the identifier is for recognising a certain level in a plant structure.

The defaults are:

- 'STA' that is used for recognising station level objects
- 'BAY' that is used for recognising bay level objects
- 'DEV' that is used for recognising device level objects

6.3.2.   Level Description

The Level Description attribute is used for describing the different levels in the Add Object dialog when an object is inserted.

The defaults are:

- 'Station'
- 'Bay'
- 'Device'

6.3.3.   Field Length

The Field Length attribute defines the maximum possible length of the instances' names when adding an object of the plant structure type to the project.

The defaults are:

- '10'
- '15'
- '5'

7. Plant Structure object types

This chapter describes the object types included in the plant structure object group.

7.1. Overview

The plant structure object types are intended to be used when building MicroSCADA compatible project structures. It is possible to define five structure levels, although three of them are predefined. For more information on structure level definition, see Chapter 6. Plant Structure Settings.

7.2. General

The plant structure object types are level sensitive. This means that it is only possible to insert predefined objects under each level of the structure. For example, it is not possible to insert a bay object under the root level, while the same operation is allowed under the station level.

7.3. Field Length

The length of the instance name in the plant structure object type is restricted to the value defined for the level in the Plant Structure Settings, see Chapter 6. Plant Structure Settings for more information.
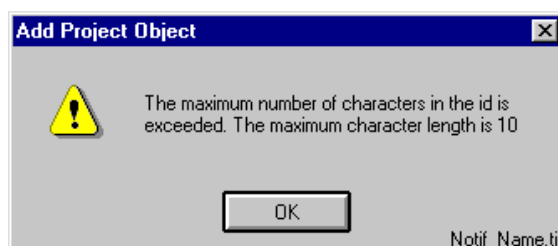
Fig. 7.3.-1   Notification about the instance name length

If the instance name is longer than defined in the Plant Structure Settings, the notification shown in Fig. 7.3.-1 appears. When this happens, the correct thing to do is to shorten the instance name to the maximum number of characters indicated by the notification.

7.4. Station

The station level is intended to be used in conjunction with a subsequent bay level. Highlight the project's root node and select **Insert Object** from the **Edit** menu to open the Add Project Object dialog, see Fig. 7.4.-1.

User's Guide
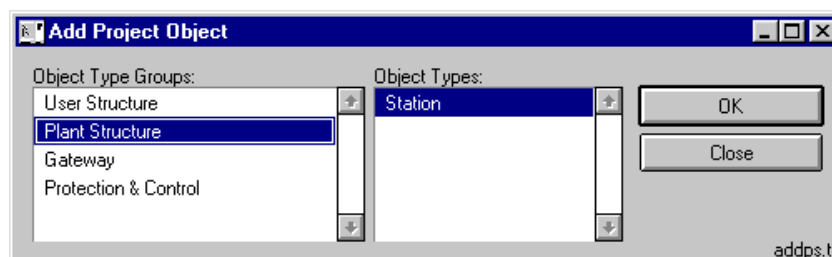
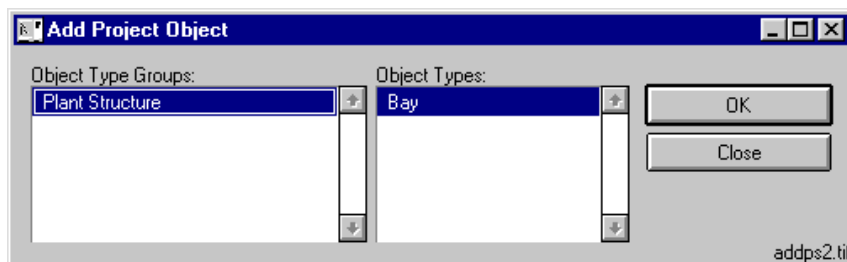*Fig. 7.4.-1   Adding a station level object*

Insert the station object by selecting the **Plant Structure** object group and then the **Station** object type and click **OK** to open the station level object dialog, see Fig. 7.4.-2. (Notice that in the Project Structure Navigator's status bar, the displayed object type is 'OI' for objects of Station type).
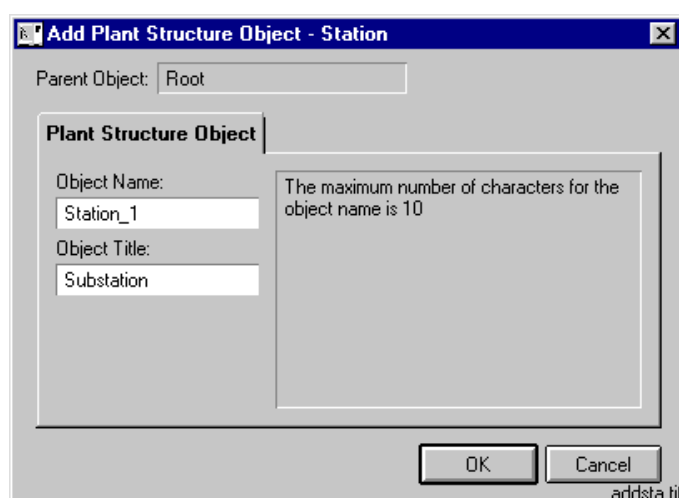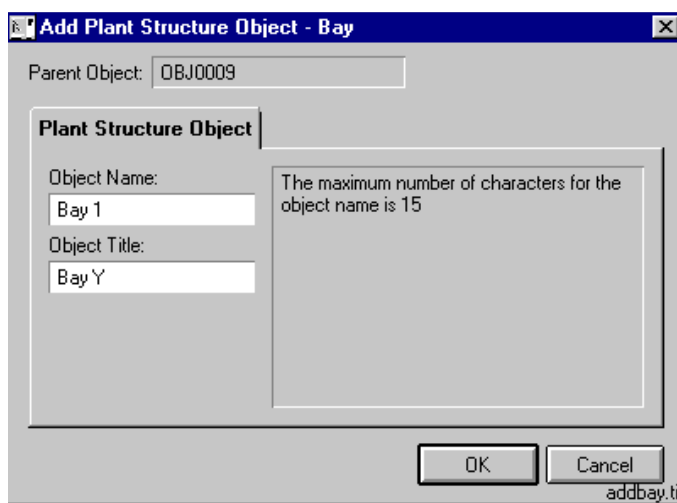

Fig. 7.4.-2   Adding a Station level object

Type in an appropriate name and title for the object and click **OK** to have the station level object inserted.

The name of the object identifies the unique instance in the structure. The instance name length is restricted to the number of characters defined in the Plant Structure Settings. The maximum length of the name is also displayed on the dialog.

The title of the object is a symbolic description and it is visible in the Project Structure Navigator.

7.5.   Bay

Highlight a station level object of a plant structure and select **Insert Object** from the **Edit** menu to open the Add Project Object dialog, see Fig. 7.5.-1.

User's Guide

Fig. 7.5.-1   Adding a Bay level selection

Insert the bay object by selecting the **Plant Structure** object group and then the **Bay** object type and click **OK** to open the bay level object dialog, see Fig. 7.5.-2. (Notice that in the Project Structure Navigator's status bar, the displayed object type is 'OI' for objects of Bay type).

Fig. 7.5.-2   Adding a Bay level object

Type in an appropriate name and title for the object and click **OK** to have the bay level object inserted.

The name of the object identifies the unique instance in the structure. The instance name length is restricted to the number of characters defined in the Plant Structure Settings. The maximum length of the name is also displayed in the dialog.

The title of the object is a symbolic description and it is visible in the Project Structure Navigator.

8.   User Structure object types

This chapter describes the object types included in the **User Structure** object group.

8.1.   Overview

User Structure object types are intended to serve as structuring objects for structures that have other structuring requirements than MicroSCADA compatibility. The level structure can be built as deep as is required for the purpose intended.

8.2.   General

The user structure object types can be used in both the Master Design View and in the user views.

The main difference between User Structure object types and Plant Structure object types is that the User Structure does not have the guided insertion order which means that the levels and their purposes are defined by the user.

8.2.1.   Inserting Level objects

Highlight a level object and select **Insert Object** from the **Edit** menu to open the Add Project Object dialog, see Fig. 8.2.1.-1. Notice that in every view, the root node is also a Level object.
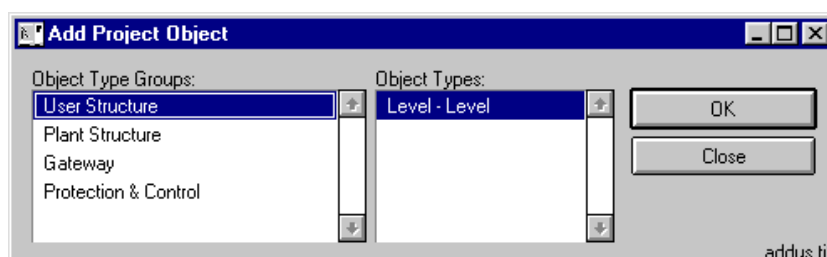
Fig. 8.2.1.-1   Adding a User Structure object

To insert the level object, select the **User Structure** object group and then the **Level-Level** object type. Click **OK** to open the Add Level dialog shown in Fig. 8.2.1.-2.
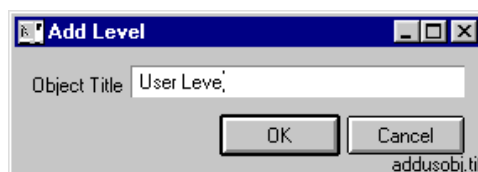
Fig. 8.2.1.-2   Adding a Level object

Enter a title for the object and click **OK** to insert it into the tree structure. The title is visible in the Project Structure Navigator and it must be unique in the scope of its view, that is, you cannot have two Level objects having the same title in a single view.

9. Gateway object types (COM 610)

SMS 510 supports the following gateways:

- LON/SPA Gateway SPA-ZC 100/102 (LSG)
- LON Star Coupler RER 111
- COM 610 communication gateway

The two LON gateway object types are described in a separate *LON Gateways Configuration manual* (see Section 1.7. Related documents). This chapter describes only the COM 610 object type.

9.1. General

In SMS 510, the COM 610 communication gateway can be used as a SPA router for the following relays and terminals:

- RED 500 series
- SPACOM family

Being a communication gateway, the task of a COM 610 is to make protocol conversions between process communication and remote communication. The protocol used in process communication is called the master protocol (protocol between COM 610 and relay/terminal), and the protocol used in remote communication is called the slave protocol (protocol between SMS 510 and COM 610). In general, the master protocol can be selected independently on the selected slave protocol.

For the protocol conversions to be possible, cross-references between different protocols must be done with the engineering tools provided by COM 610. This engineering includes also the mapping of the protocol addresses.

> Installation, configuration and usage of a COM 610 communication gateway itself is not described here. The documentation and tools accompanying the gateway must be utilized.

9.2. Supported protocols

The following master/slave protocols supported by COM 610 can be used in SMS 510.

Slave protocol:

- COM 610 object can be connected to SMS 510 only via SPA router protocol.

Master protocols:

- COM 610 object allows SPA or LON protocols to be defined as the master protocol for the RED 500 series.
- COM 610 object allows only SPA protocol to be defined as the master protocol for the SPACOM family.

> ℹ️ SPA relays connected to a SPA-ZC 400/402 Ethernet adapter and
> using an IEC 61850 OPC server in COM 610 are also supported. In
> that case, the SPA must be selected as the protocol for the device
> object in SMS 510.

9.3. Insertion

> ℹ️ Adding and using a COM 610 object in a project is mandatory only
> in the situation, where the relay is connected to a COM 610 gateway
> with LON protocol. If the devices are using SPA protocol, then the
> device objects can be added to the project with or without a COM
> 610 object.

COM 610 objects can be inserted only in the Master Design View mode of the
Project Structure Navigator, and cannot be used in a project's user views. However,
the device objects hosted by a COM 610 object are normally visible also in the user
views.

You can insert COM 610 objects into the following locations of a project:

- Under the root node of the project
- Under a Station object
- Under a Bay object
- Under a Level object

In contrast to other objects, COM 610 objects are non-movable. This means that
once inserted, a COM 610 object cannot be moved elsewhere in the tree structure.

The modifiable attributes of COM 610 objects are the same as for the other object
types (see Fig. 9.3.-1).

Fig. 9.3.-1   General object attributes for COM 610 objects

User's Guide

9.4. Communication setting

Due to the nature of a communication gateway usage, the communication settings for both the master and the slave protocol must be defined separately. These settings together define the complete communication settings of a single relay/terminal.

In addition, since the cross-reference tables between the master and slave protocols must have been done for COM 610, also the protocol addresses are mapped. In other words, the SPA address of a relay/terminal to be used in SMS 510 is not necessarily the same as defined in the physical relay/terminal.

> SPA addresses behind one COM 610 object must be unique in SMS 510.

9.4.1. Communication settings of COM 610 object

In order to be able to configure the communication settings of the COM 610 object, the project's system configuration must contain one or more serial ports.

The communication settings of COM 610 objects are configured on the Communication page of the General Object Attributes dialog in the Project Structure Navigator (see Fig. 9.4.1.-1).
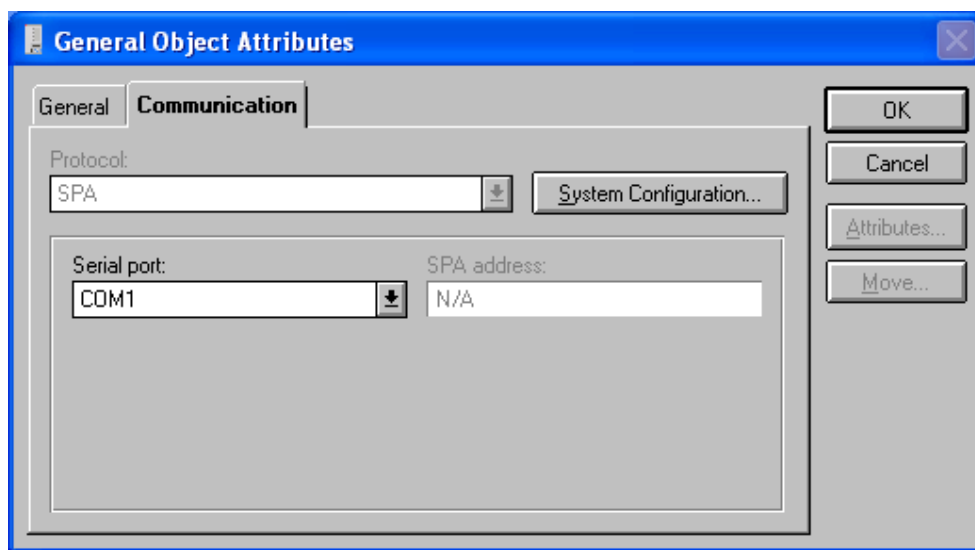
Comm_settings_1

Fig. 9.4.1.-1   Communication settings for COM 610 objects

The only required definition is the serial port to be used. For the protocol there are no other choices, and the SPA address is not applicable for the gateway itself.

9.4.2. Communication settings of device object

In order to be able to configure the communication settings of the device object, the parent COM 610 object's communication settings must have been defined first.

The communication settings of device objects are configured on the Communication page of the General Object Attributes dialog in the Project Structure Navigator (see Fig. 9.4.2.-1).
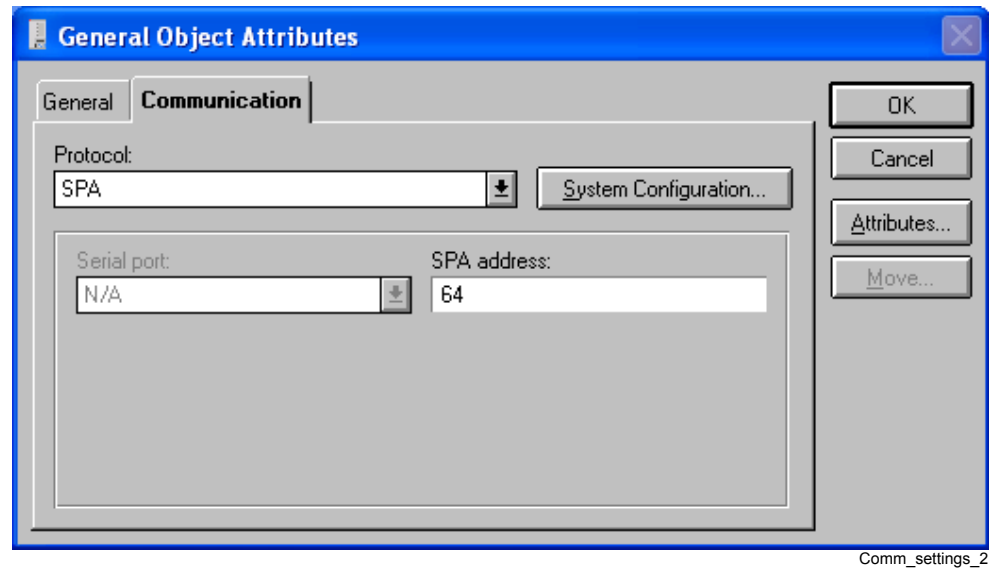
Comm_settings_2

Fig. 9.4.2.-1 Communication settings for RED 500 series terminal with COM 610 as master.

Irrespective of the protocol to be selected (SPA or LON), the only required address definition is the SPA address.

> Address mappings between SMS 510 and COM 610 are based on SPA addresses with all the master protocols.

9.5. Using COM 610 object
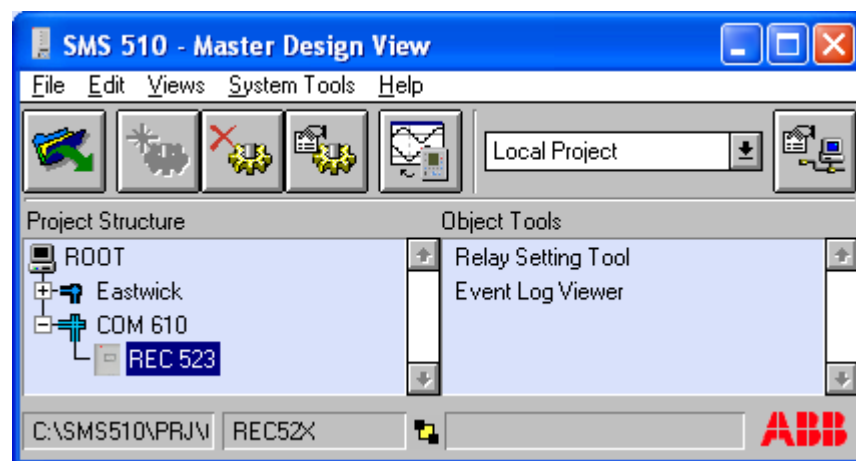
Here is an example of a configured COM 610 object:

Using_COM610_obj

Fig. 9.5.-1 COM 610 object hosting a REC52X object

10. System Self Supervision

This chapter describes the System Self Supervision function in SMS 510. The examples are taken from a project named "Model Switchyard" using two serial ports and having 5 remote devices connected on each.

10.1. General

The intention with System Self Supervision (SSS) is to provide the user with on-line information about the status of the SMS 510 system and devices connected to it. The SSS project view shows the active project in form of a tree using both status icons and texts for the monitored objects, see example in Fig. 10.3.1.-1. Thereby the SMS 510 operator is provided with information about alerts from the supervised objects. The operator can also switch to the SSS project view to check the state of objects of interest.

SSS is operating in the background for currently open projects in the Project Structure Navigator. One project is supervised at a time. Alerts from SSS are shown in red text in an "alert box" down in the right-hand corner in the Project Structure Navigator, see example in Fig. 10.6.-1.

Since the System Self Supervision view is just another view in the project, its background color can be changed by selecting View Properties from the View menu. This view can be made easily recognizable by some other color, if wanted.

10.2. System Self Supervision activation

By default, the System Self Supervision is not activated in SMS 510. Therefore you have to activate the SSS functionality before you can get the System Self Supervision running, see Section 10.4. Enabling System Self Supervision. When you build projects and work off-line in SMS 510, it is convenient to have SSS inactive, see Section 10.5. Disabling System Self Supervision.

10.3. Objects supervised by System Self Supervision

The following types of objects are supervised by SSS:

- Application state (see Section 10.7.3. Application State supervision)
  - Application state
  - Application memory pool supervision
- Line Communication (see Section 10.7.4. Line Communication supervision)
  - (Serial) ports
  - LON Channels
  - Devices
- Operating System (see Section 10.7.5. Operating System Events supervision)
  - Application events from the operating system
  - System events from the operating system
  - Security events from the operating system

10.3.1.   System Self Supervision object presentation

System Self Supervision presents the objects of the project as a tree, as in
Fig. 10.3.1.-1. It shows the entire project with all objects, even if the user might have
defined his own views with fewer objects, see Section 3.13. Using user views.

The Supervision Log Viewer also presents information provided by the System Self
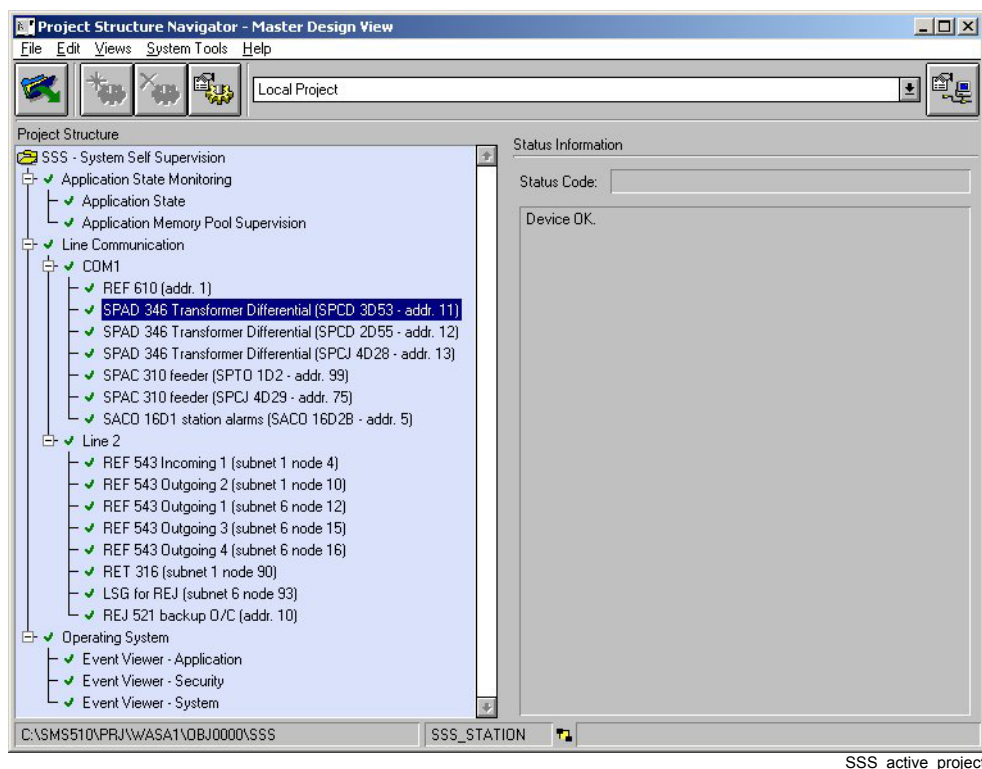Supervision, but in list format, see Chapter 11. Supervision Log Viewer.

SSS_active_project

Fig. 10.3.1.-1   System Self Supervision for the active project

> When the SSS project is in focus in the Navigator, other project
> functions belonging to the project view are disabled. Thus, you
> cannot modify objects in the project or start tools like DR-Collector
> Tool, System Configuration etc.

10.3.2.   System Self Supervision object maintenance

The System Self Supervision project is created automatically from the active project
in the Project Structure Navigator (PSN) upon starting SMS 510 or by opening
another project. When the project is modified in the PSN, the SSS project is rebuilt
automatically. This means that the operator does not need to create or modify any
SSS project or views, since it is done automatically by the PSN.

10.4.   Enabling System Self Supervision

Enabling SSS is easy. Select **System Configuration** from the **System Tools** menu
(see Fig. 15.5.-1) and select the **General Settings** page (see Fig. 10.4.-1). Check the
System Self Supervision enabled check box, and save and exit by clicking **OK** or
apply the change by clicking **Apply**.
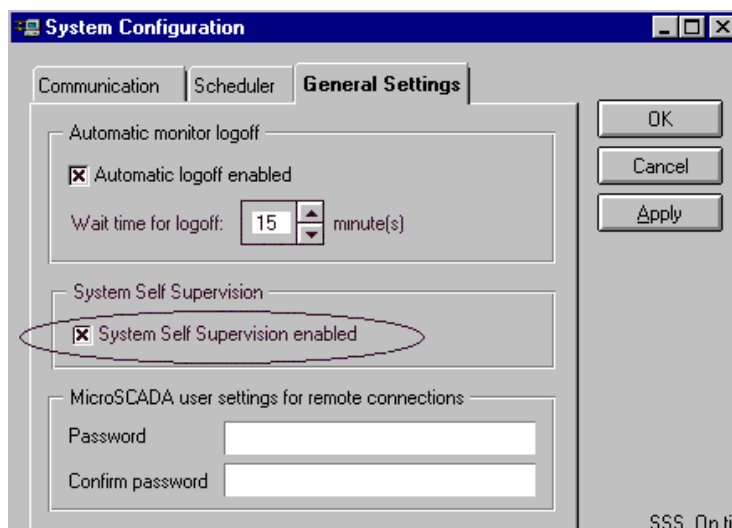
Fig. 10.4.-1 System Self Supervision enabled

The SSS project is created automatically for the project you have open in the Project Structure Navigator and therefore no additional steps are needed.

10.5.   Disabling System Self Supervision

When you want to disable the System Self Supervision, you reverse the operation described in the above Section 10.4. Enabling System Self Supervision.

Remove the 'x' from the check box by clicking at it, see Fig. 10.5.-1. No additional measures need to be taken.
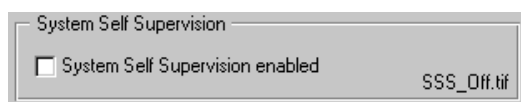
Fig. 10.5.-1 System Self Supervision disabled

> The Supervision Log Viewer (Chapter 11. Supervision Log Viewer) is not updated as to the items Common System Messages and Unknown Process Messages when SSS is disabled. History is still available.

10.6.   Opening the System Self Supervision view

The System Self Supervision tree structure is accessible either by clicking the alerts in the Project Structure Navigator alert box or on demand by the operator in the Views menu.

Proceed as follows:

• By clicking the **Alert** message as in Fig. 10.6.-1, the SSS view is opened. Status code is in parentheses.
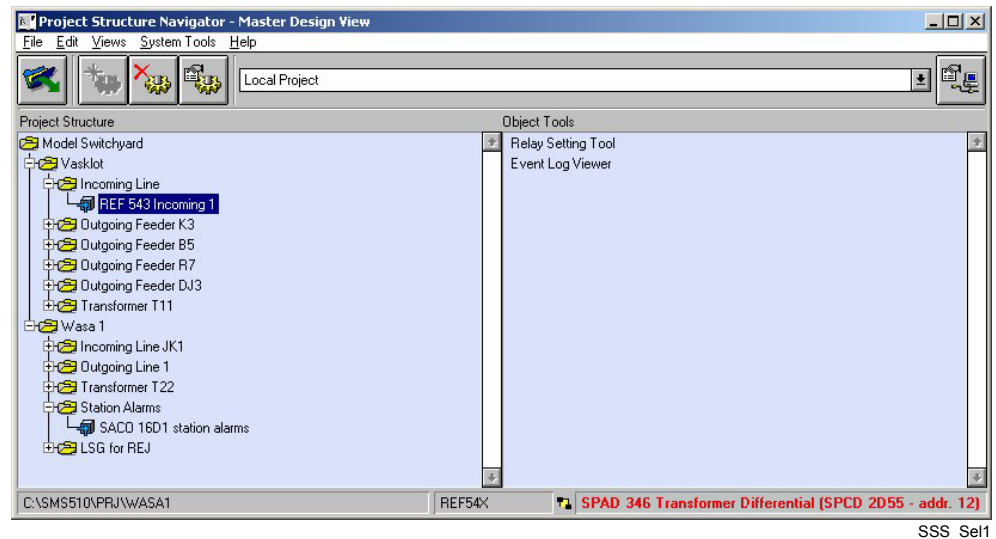
Fig. 10.6.-1 Opening the SSS view by clicking the alert

- To manually open the SSS view, select **SSS - System Self Supervision** in the **Views** menu, see Fig. 10.6.-2.
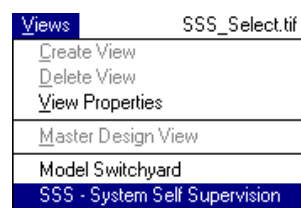
Fig. 10.6.-2 Entering the SSS view

'SSS-System Self Supervision' is not shown in the Views menu when SSS is not in use.

10.6.1. Exiting the System Self Supervision view

Having examined the SMS 510 system in SSS you can return to the project by selecting a view from the **Views** menu. In Fig. 10.6.-2, the project is called Model Switchyard (default name is ROOT). The SSS session can also be ended by choosing **File** menu/**Exit** and thereby exiting SMS 510.

10.7. SSS object status representation

The following describes the graphical representation, icons used, texts and reasons for alerts from the SSS function and some measures to solve the cases.

10.7.1. Status information

In Fig. 10.3.1.-1 and Fig. 10.7.4.-2, there is a field to the right containing **Status Information** which gives the status of the object currently selected in the SSS tree structure.

Status Code

The code for the status. There is an exception for OK, which does not show any code. For instance, code 13251 means that the device is suspended, that is, no contact to the device. The codes are listed in the *MicroSCADA Status Codes Manual*.

Status text

The status text is the text for the status code of the selected object, but also other texts provided by the system. The status text can be e.g. Device OK, Device Suspended, System initialized.

10.7.2.	**Status icons**

The status of the supervised objects are presented by icons as shown in the following sections. Depending on the type of alerts, different types of measures can or should be taken. Some alerts are not severe and can occur during the configuration or creation of the project. For some icons (select the icon in the SSS project tree), a technical explanation of the deviation is given. This technical explanation is intended for expert analysis. The list of corrective measures for each icon lists measures that can be taken to solve the reported deviation.

10.7.2.1.	**Icon OK**

Fig. 10.7.2.1.-1 Status OK

Reason for occurrence

The icon in Fig. 10.7.2.1.-1 represents the "OK" situation for a supervised object and the object is operational. It is, however, possible that the icon is shown even though the device reports a warning indication, but in such cases the warning is not critical or indicates any errors.

10.7.2.2.	**Icon Not OK**

Fig. 10.7.2.2.-1 The object is not operational

Reason for appearance

The most probable reasons for the icon in Fig. 10.7.2.2.-1 to appear are:

1. Communication with the device is lost or fails
2. The communication software is temporarily inactive (e.g. when the operator edits the system configuration)

Other possible reasons are:

3. SSS kernel malfunction
4. The SSS configuration file contains invalid or incomplete data

5. The SSS configuration and the system configuration does not match
6. The device status code is unknown to the SSS kernel

Corrective measures

Measures for correcting the status of the objects are listed in Table 10.7.4-1.

10.7.2.3.   Icon Dimmed

Fig. 10.7.2.3.-1 Data about the object is not available

Reason for appearance

The reason for the icon in Fig. 10.7.2.3.-1 to appear is that data for the object is missing, possible reasons are:

1. Device communication settings are incorrect in the system configuration
2. The device is disconnected or switched off
3. The device has not communicated since the system configuration was activated

Corrective measures

1. Check the communication settings of the object
2. Check the system Configuration communication settings
3. Check that the object is powered on

10.7.2.4.   Icon NoConf

Fig. 10.7.2.4.-1 Icon for object not known to SSS (internal)

Reason for appearance

The icon in Fig. 10.7.2.4.-1 appears when the project's SSS structure includes an object entry that is not in the SSS kernel station list.

The icon appears as a result of an internal consistency malfunction due to interrupted structure updates during parametrization or project entry deletion.

This icon is used when the SSS entry is loaded and it remains unchanged for the rest of the project session.

Corrective measures

Measures to correct the status is to turn the Self Supervision off (see Section 10.5. Disabling System Self Supervision) and then turn it back on (see Section 10.4. Enabling System Self Supervision), to rebuild the SSS project objects.

10.7.2.5. **Icon Stop**

Fig. 10.7.2.5.-1 Data about object in database inconsistent (internal)

Reason for appearance

The icon in Fig. 10.7.2.5.-1 indicates that the SSS kernel fails in executing its program code. The reason for this is most likely internal due to invalid/incomplete data or corrupted program code.

Corrective measures

Measures to correct the status are:

1. Turn the Self Supervision off, (see Section 10.5. Disabling System Self Supervision) and then turn it back on (see Section 10.4. Enabling System Self Supervision) to rebuild the SSS project objects.
2. Create a dummy project, open it and make the system configuration for it. After this operation, open the original project again and the SSS project is rebuilt.
3. Stop SMS 510 (by **Exit** in the Login window as in Fig. 4.6.-1) and then start SMS 510 again.
4. In case of a persisting indication, delete the object from your project and add it again.

10.7.2.6. **Icon No**

Fig. 10.7.2.6.-1 Fault reported by internal status code (internal)

Reason for appearance

The icon in Fig. 10.7.2.6.-1 appears when the internal status code for the item's attributes indicates a failure or malfunction.

Corrective measures

Delete the object from your project and add it again.

10.7.3. **Application State supervision**

Application State supervision is supervising the SMS 510 application in general and available memory.

The part of the project tree belonging to Application State supervision is shown in Fig. 10.7.3.-1, together with the designations that are used in the object box (shows selected object). The same applications are shown in the Supervision Log Viewer.
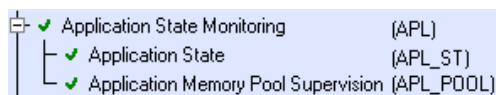
Fig. 10.7.3.-1   Application State Monitoring objects with terms

Alerts generated by the Application State are listed in the following table.

Table 10.7.3-1 Application state supervision items, alerts and measures

Supervised item	Reason for alerts	Corrective measure
Application state (APL_ST)	The SMS 510 system has severe problems.	Restart SMS 510.
Application memory pool supervision (APL_POOL)	The memory pool reserved to the application is running low	Restart SMS 510.

10.7.4.   Line Communication supervision

Line Communication supervision is supervising the serial communication over the serial port(s) to the communication equipment and relay devices for both LON and SPA protocols.

The part of the project tree belonging to Line Communication supervision is shown in Fig. 10.7.4.-1, together with the designations that are used in the object box (shows selected object). The same applications are shown in the Supervision Log Viewer.
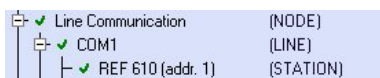
Line_comm.

Fig. 10.7.4.-1   Line Communication objects with terms

The reason for alerts by Line Communication are listed in the following table.

Table 10.7.4-1 Line Communication supervision items, alerts and measures

Supervised item	Reason for alerts	Corrective measure
Line Communication (NODE)	System Configuration might be faulty or inconsistent	Check the settings of the communication channels in the System Configuration and that you have proper equipment connected
COMx /Line x (LINE)	Serial port hardware error or wrong settings made for the serial port initialization in the System Configuration, therefore it cannot be detected and messages cannot be sent or received	Check the settings of the communication channels in the System Configuration and that you have proper equipment connected
Device (STATION)	The external device is not responding to communication or communication not properly configured or communication broken	Check the communication settings of the unit; protocol, serial port, address, and the System Configuration of the project. Furthermore, check that the object is powered on and that possible cables and fibres are properly connected.

User's Guide

Line Communication alert, example

Fig. 10.7.4.-2 shows an example of a relay module on COM1 not responding to the system.

SSS2
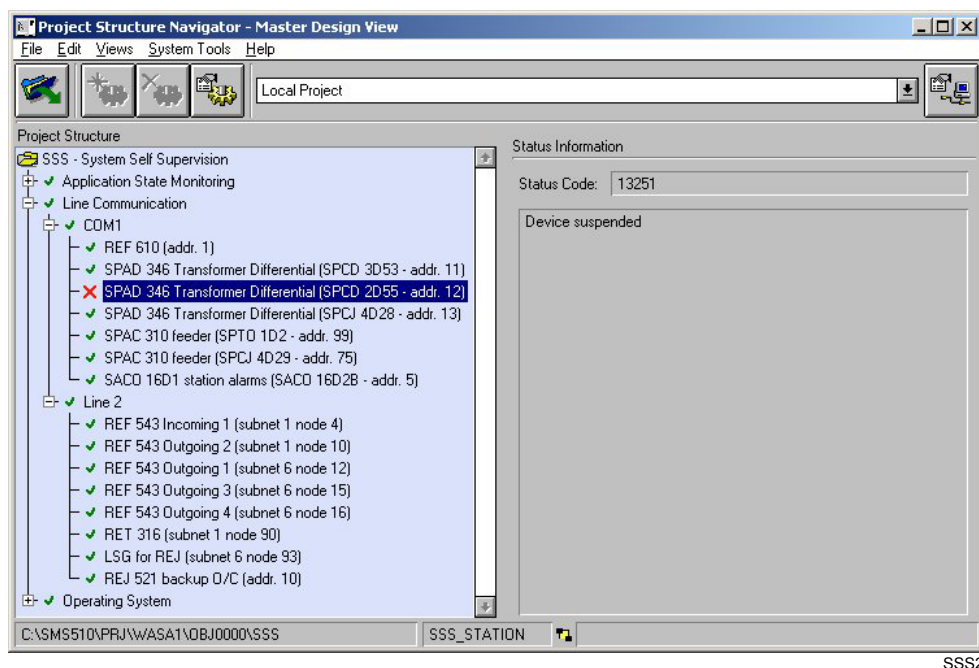
Fig. 10.7.4.-2   A unit on COM1, module SPCD 2D55 address 12 is not responding

10.7.5.   **Operating System Events supervision**

The Operating System (OS) events generated by the OS are available by using the Event Viewer in Administrative Tools. The part of the project tree belonging to Operating System is shown in Fig. 10.7.5.-1, together with the designations that are used in the object box (shows selected object).
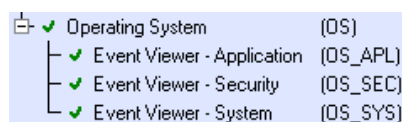
Fig. 10.7.5.-1   Operating System objects with terms

The operating system alerts reference sections are listed in the following table.

Table 10.7.5-1 Operating System supervision items, alerts and measures

Supervised item	Reason for alerts	Corrective measure
System events	See Section 11.2.3.1. System events.	Check with your IT support
Security events	See Section 11.2.3.2. Security events.	Check with your IT support
Application events	See Section 11.2.3.3. Application events.	Check with your IT support

Operating System based events are generated by the operating system (OS) and the information in the log file is consistent with events visible through the Event Viewer provided by the OS. Three different event types are generated by the OS: System, Security and Application.

11. Supervision Log Viewer

This chapter describes the usage of Supervision Log Viewer

11.1. Overview

The Supervision Log Viewer is used to monitor the information that has been collected by the System Self Supervision and the operating system (OS).

The information that the Supervision Log Viewer presents can be ordinary run-time events occurring during normal operations or events generated during faults or other similar situations when there is need to examine the system.

The Supervision Log Viewer displays the information included in several log file types stored on the hard disk. These files contain information in form of events originating from both hardware and software.

Filters can also be used to focus on information from certain objects of interest. The user can only view the log entries in the Supervision Log Viewer, editing is not possible. The updating of the Supervision Log Viewer display is manual. That is, the display has to be refreshed to show new information that has been entered since the display was opened.

The information collected by System Self Supervision can also appear in event and alarm lists (not available in SMS 510), but by default always in the generated log files.

> Supervision Log viewer is based on the System Self Supervision functions. SSS has to be enabled to collect information for the Supervision Log Viewer. Activating SSS is described in Section 10.4. Enabling System Self Supervision.

11.1.1. Supervision Log Viewer users

Some examples of users benefiting from information provided by the system information provided by Supervision Log Viewer are listed in the table below:

Table 11.1.1-1 Users and their need of system information

User	Needed information
Operators	Accurate information about system parts that inhibit or limit operation or events occurring during normal operation
Maintenance people	Detailed information about failing system parts that must be replaced
Engineers and after sales support engineers	Incorrect engineering and behaviour of the system needs to be reported, e.g. application load, communication load.

11.2. Types of log events

Each type of log information can be viewed only from the appropriate menu item in the Log menu. One log event type at a time can be viewed in Supervision Log Viewer.

Views presenting SMS 510 system information:

- Common System Messages
- Unknown Process Messages

Views presenting Operating System logs:

- System Events from Operating System
- Security Events from Operating System
- Application Events from Operating System

The Operating System events that are shown in the Supervision Log Viewer are restricted to events concerning the SMS 510 (MicroSCADA) system. All OS events are available from the Event Viewer in Administrative Tools provided by the Operating System.

Event codes coming from the relay modules are not presented in the Supervision Log Viewer.

11.2.1.   Glossary

Some terms used in the Supervision Log Viewer might need explanation. The terminology is common within MicroSCADA.

MicroSCADA = In this case SMS 510

NET = Communication

Net Line = Communication Line, e.g. Serial port

Running = Connection established to a device

Station = Device, e.g. relay module

Station 30 = Device with SPA address 30

Suspended = e.g. communication is lost to a device

Events with the same time stamp are generally related to the same topic, i.e. there can be a general and a more detailed level of description for a certain event.

11.2.2.   Common events

Common events, see Fig. 11.2.2.-1, include events from the communication unit as well as predefined events in stations and in the SMS 510. Predefined events occur, for example, when a connection to a remote device is lost or re-established, whereas occurrences of SMS 510 events are related to a certain event from the printer, communication unit or external clock connected to the system.

User's Guide

Fig. 11.2.2.-1   Common Events view

Common system messages contain the following information:

- Time stamp with milliseconds, e.g. 2003-06-12 11:32:49.521
- Object type, e.g. Station (relay module)
- Object number, e.g. 115 (module address)
- Communication unit (NET) number (if any), e.g. 2
- Communication unit line (NET Line) number (if any), e.g. 1
- Status code, e.g. Device suspended [13371] (system message from the communication unit) or text, e.g. Running (if application or base system event)

11.2.3.   Operating System events

Operating System based events are generated by the operating system, e.g. Windows NT, Windows 2000 or Windows XP. The information in log file is consistent with events visible through the OS Event Viewer. Three different event types generated by the OS are System, Security and Application. These incoming events are, if defined so, stored into own types of files by the Supervision, described in separate sections below.

11.2.3.1.   System events

An example of an OS System event is shown in Fig. 11.2.3.1.-1.
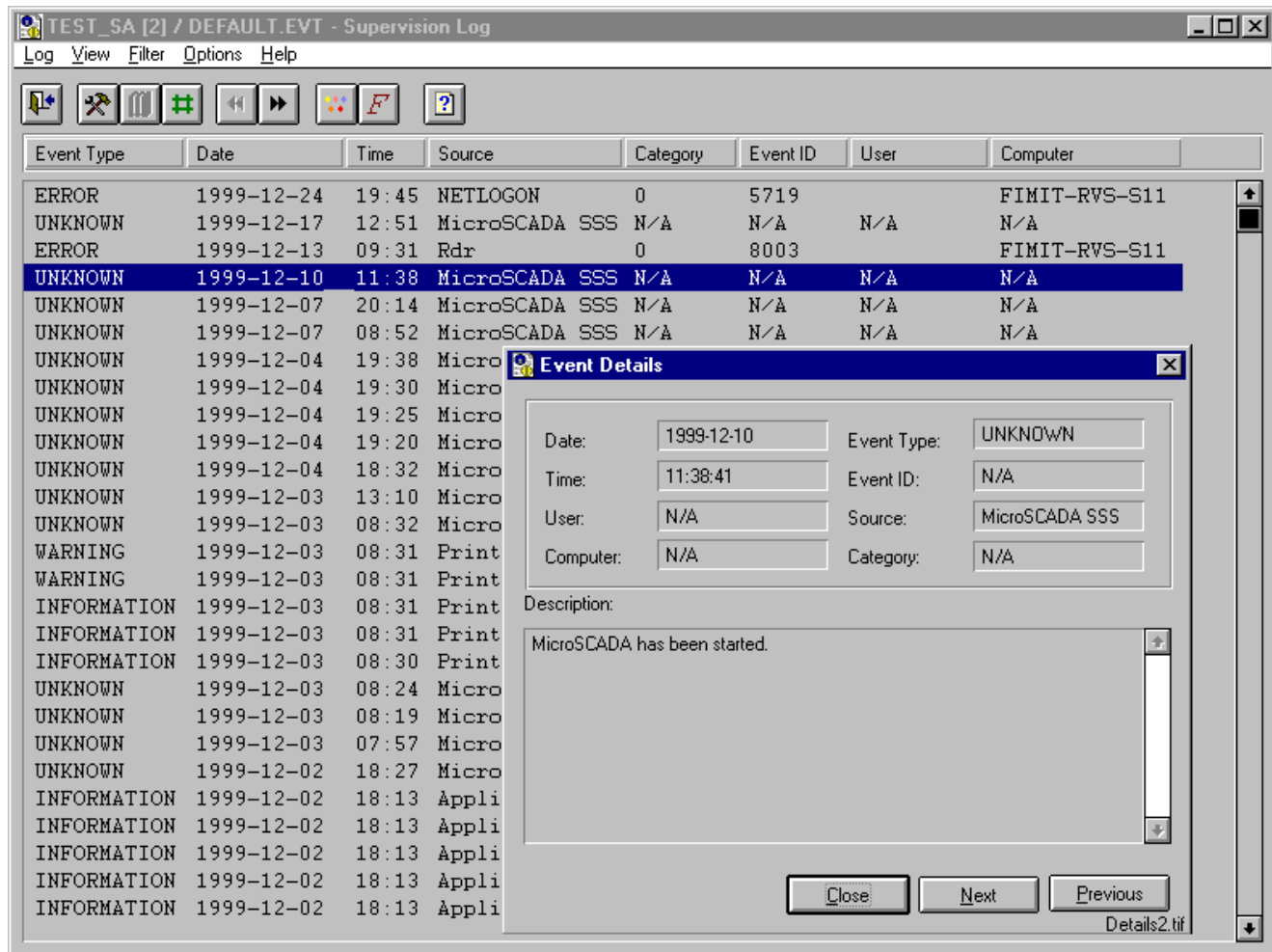
Fig. 11.2.3.1.-1 System Events view, details for the selected event shown

System events contain the following information:

- Time stamp with seconds, e.g. 1999-12-03 08:30:52
- Source specific event id, which together with the name of the source identifies the message, e.g. 9
- Type of event (e.g. ERROR, WARNING, INFORMATION, AUDIT_SUCCESS, AUDIT_FAILURE)
- Source-specific sub category. This information is shown only in the Event Details dialog.
- Active user (if possible to define) at the time the event was logged, e.g. Administrator
- Name of the computer that generated the event, e.g. FIMIT-RVS-S11
- Domain name of the computer that generated the event
- Name of the source, i.e. application, service, driver, subsystem that generated the entry, e.g. Print

- Log type of the event is always SYSTEM. When SYSTEM events are shown in Supervision Log Viewer, it is not possible to view SECURITY or APPLICATION events simultaneously.
- Source specific message string.

If N/A (Not Applicable) is shown for an event, it means that the specified item is not included in the received event information.

11.2.3.2.   Security events

Security events contain the following information:

- Time stamp with seconds, e.g. 1999-12-03 08:30:52
- Source specific event id, which together with the name of the source identifies the message, e.g. 9
- Type of event (e.g. ERROR, WARNING, INFORMATION, AUDIT_SUCCESS, AUDIT_FAILURE)
- Source specific sub category. This information is only shown in the Event Details dialog.
- Active user (if possible to define) at the time the event was logged, e.g. Administrator
- Name of the computer that generated the event, e.g. FIMIT-RVS-S11
- Domain name of the computer that generated the event
- Name of the source, i.e. application, service, driver, subsystem that generated the entry, e.g. Print
- Log type of the event is always SECURITY. When SECURITY events are shown in Supervision Log Viewer, it is not possible to view SYSTEM or APPLICATION events simultaneously.
- Source specific message string. This information is shown only in the Event Details dialog.

If N/A (Not Applicable) is shown for an event, it means that the specified item is not included in the received event information.

11.2.3.3.   Application events

Application events contain the following information:

- Time stamp with seconds, e.g. 1999-12-03 08:30:52
- Source specific event id, which together with the name of the source identifies the message, e.g. 9
- Type of event (e.g. ERROR, WARNING, INFORMATION, AUDIT_SUCCESS, AUDIT_FAILURE)
- Source specific sub category. This information is shown only in the Event Details dialog.
- Active user (if possible to define) at the time the event was logged, e.g. Administrator
- Name of the computer that generated the event, e.g. FIMIT-RVS-S11
- Domain name of the computer that generated the event

User's Guide

- Name of the source, i.e. application, service, driver, subsystem that generated the entry, e.g. Print
- Log type of the event is always APPLICATION. When APPLICATION events are shown in Supervision Log Viewer, it is not possible to view SYSTEM or SECURITY events simultaneously.
- Source specific message string. This information is shown only in the Event Details dialog.

If N/A (Not Applicable) is shown for an event, it means that the specified item is not included in the received event information.

11.3.   Starting Supervision Log Viewer

The Supervision Log Viewer is started from the **System Tools** menu by selecting **Supervision Log** as in Fig. 11.3.-1.

SyTo_SL

Fig. 11.3.-1 Starting the Supervision Log Viewer from the System Tools menu

11.4.   Toolbar and menus

The following section describes the toolbar buttons and the menus in the Supervision Log Viewer.

In the table below, the buttons are presented as a group, but also one by one when the matching menu items are presented. Some of the toolbar buttons and menu items are enabled only when a certain function or view is selected in the Log menu.

Table 11.4.-1 Toolbar buttons and the corresponding functions

Button	Function
	Exit the Supervision Log Viewer.
	Log Settings, select the amount of events to be shown.
	Setting of Mechanism Parameters for the Unknown Process Object. This button is disabled in SMS 510.
	Select operating System Events and Events Types. The button is enabled when the view System Messages from the Operating System is active.
	Scroll one page backward on the list.
	Scroll one page forward on the list.

Table 11.4.-1 Toolbar buttons and the corresponding functions

Button	Function
	Define color settings for the Supervision Log Viewer and view the system colors.
F	Define font settings for the Supervision Log Viewer and view the font settings of the MicroSCADA base system.
	View the About Supervision Log Viewer dialog.

11.4.1.   **Log menu**

In the **Log** menu, see Fig. 11.4.1.-1, you can select different views of events and exit the Supervision Log Viewer.
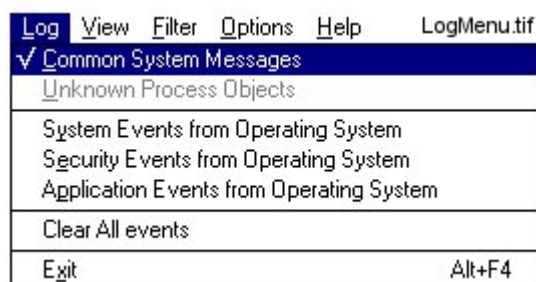
Fig. 11.4.1.-1   Log menu for selecting the types of events to be shown

Common System Messages

This selection shows events in the scope of Common System Events. More information is given in Section 11.2.2. Common events.

Unknown Process Objects

This function is not available in SMS 510.

System Events from Operating System

This selection shows events in the scope of System Events from the Operating System. More information is given in Section 11.2.3. Operating System events.

Security Events from Operating System

This selection shows events in the scope of Security Events from the Operating System. More information is given in Section 11.2.3.2. Security events.

Application Events from Operating System

This selection shows events in the scope of Application Events from the Operating System. More information is given in Section 11.2.3.3. Application events.

Clear All Events

Before the deletion of the appropriate log type, the following dialog is displayed (see Fig. 11.4.1.-2). If you click Yes, the contents of the log type will be cleared.
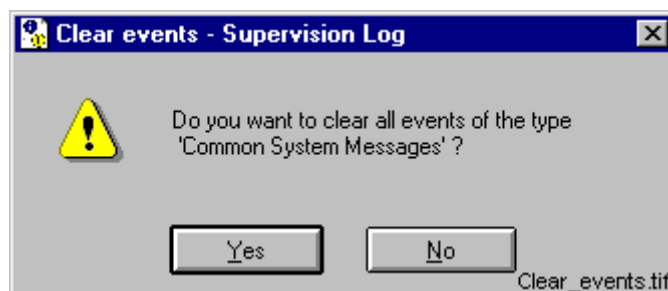
Fig. 11.4.1.-2   Dialog for confirming the clearing of events

Exit

Exit ends the Supervision Log Viewer session.

Keyboard entry: <Alt>+<F4>

Toolbar entry:

11.4.2.   View menu

The **View** menu, see Fig. 11.4.2.-1, contains several functions, which are described in the following sections. All the menu items in the View menu have effect on the view selected from the Log menu.

Fig. 11.4.2.-1   View menu items

All Events

Displays all events of the selected log type, events to be shown are not filtered. This is the default selection, if not otherwise defined in the Supervision Log profile by the user.

Use Event Filter

By selecting the option **Use Event Filter**, the filtering is activated according to the definitions in Supervision Log profile dialog in the Filters menu.

Newest First

Sorts the events in the view, with the newest event on top. This is the default selection, if not otherwise defined into Supervision Log profile by the user.

Oldest First

Sorts the events in the view, with the oldest event on top.

Details…

Keyboard entry: <Enter>

Displays all the event information in the Details dialog for the selected event in the view. It is applicable only when some of the Operating System log types are active in Supervision Log Viewer, i.e. System Events, Security Events or Application Events.

The third way to present details is to double click an event line in the view, see example in Fig. 11.2.3.1.-1.
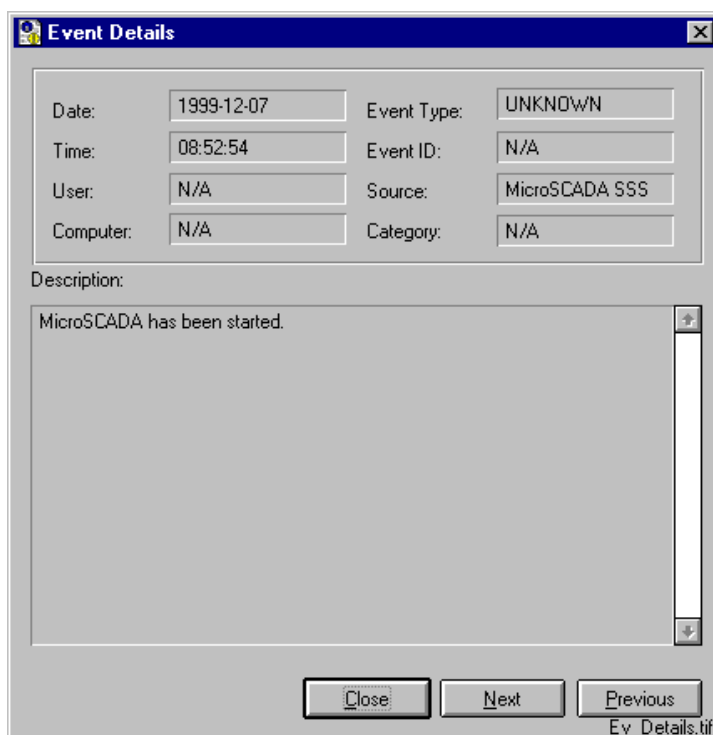
Fig. 11.4.2.-2   Event Details dialog

The following table explains the buttons shown in Fig. 11.4.2.-2 above.

Table 11.4.2-1 Buttons and functions in Event Details

Button	Explanation
Close	Closes the presentation of event details
Next	Shows details of the event on the next line
Previous	Shows details of the event on the previous line

Next Page

Keyboard entry: <Ctrl>+<N>

Toolbar entry:

▶▶

Next Page scrolls forward one page in the list. The count of events to be shown in the view page in the Supervision Log Viewer is defined in the Log Settings dialog accessible from the Options menu.

Previous Page

Keyboard entry: <Ctrl>+<N>

Toolbar entry:

◀◀

Previous Page scrolls backward one page in the list. The count of events to be shown in the view page in the Supervision Log Viewer is defined in the Log Settings dialog accessible from the Options menu.

Refresh

Keyboard entry: <F5>

The Supervision Log Viewer is not automatically updated if new events are received into log files when the Supervision Log Viewer is open. When the user refreshes the view, these new events are displayed in the view. Note that if the Oldest First selection is active in the View menu, the newest events are included at the bottom of the last page.

11.4.3.   Filter menu

The Filter Menu, see Fig. 11.4.3.-1, is used to select filters and Supervision Log profile.

User's Guide

Fig. 11.4.3.-1   Filter Menu

Unknown Process Objects

Toolbar entry:

This function is not available in SMS 510.

Operating System Events

Toolbar entry:

The Operating System Events function, see Fig. 11.4.3.-2, is used to display how the Operating System Events are to be supervised in the system.

The function Operating System Events can be activated when any of the Operating System events views is active, i.e. selected from the Log Menu.
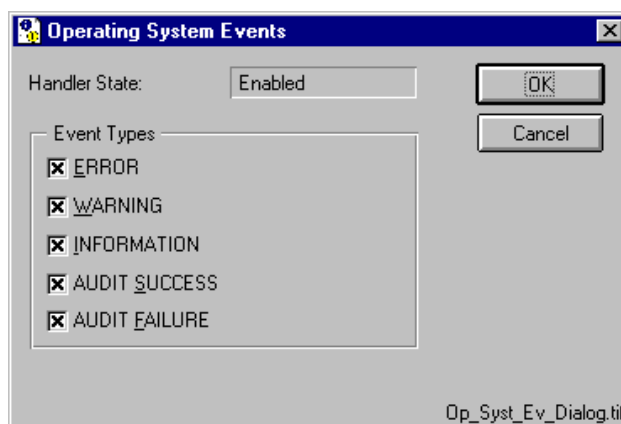
Fig. 11.4.3.-2   Check boxes for selecting Operating System events

A description of the options in Fig. 11.4.3.-2 is given in the following table:

Table 11.4.3-1 The check boxes available in the Operating System Events dialog

Selection	Explanation
Handler State	Indicates whether the Operating System Events are to be supervised in the SMS 510 (Enabled) or not (Disabled). If the handler is in the enabled state, it is possible to log five types of events. If the appropriate dialog item for ERROR, WARNING, INFORMATION, AUDIT SUCCESS or AUDIT FAILURE is selected in the Operating System Events dialog, it means that it has been configured to be supervised into the SMS 510.
ERROR	Error events indicate significant problems that the user should be informed about. These types of events usually indicate a loss of functionality or data.
WARNING	Warning events indicate problems that are not significant immediately, but that may cause problems in future.
INFORMATION	Information events indicate typically infrequent, but important and successful operations in the OS. For instance, when Microsoft SQL Server is initialized successfully, there may be a need to log an information event stating that "SQL Server has started successfully."
AUDIT SUCCESS	Success audit events are security events that occur when an audited access attempt has been successful, e.g. a successful logon has occurred in the OS.
AUDIT FAILURE	Failure audit events are security events that occur when an audited access attempt has failed, e.g. an unsuccessful logon has occurred in the OS.

The settings in Fig. 11.4.3.-2 are settable on-line via HSI and are in use until SMS 510 is shut down.

Supervision Log Profile

By using Supervision Log Profile, see Fig. 11.4.3.-3, it is possible to filter the displayed event information in Supervision Log Viewer. Only events found in the log files that fulfil the filter conditions are shown in the Supervision Log Viewer. This way it is easier to focus on events received from certain supervised object items.

The Supervision Log Profile menu item is available for log types selected from the Log menu. By means of this function you can select events for all log types:

• Events from the first event to the last event

• Events within a certain period of time

• Events after last system start up

With this function, you can also select the following for an Unknown Process Object log type:

• Station items of interest to monitor

User's Guide

With this function you can also select the following for a Common System Message log type:

• Communication unit, communication unit line and station items of interest to monitor
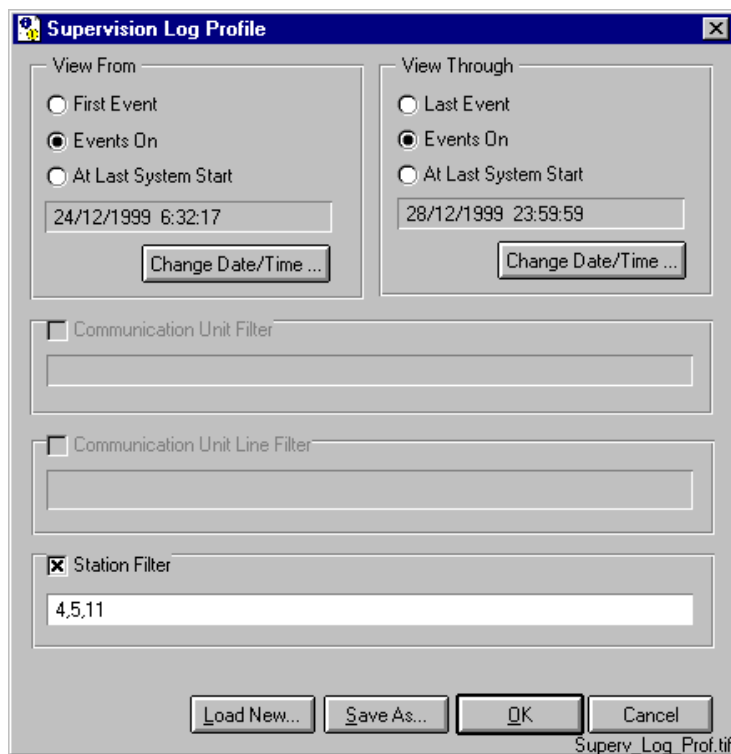
Fig. 11.4.3.-3   Supervision Log Profile

In the figure above, events from stations 4, 5 and 11 are selected. The buttons and corresponding functions in Fig. 11.4.3.-3 are listed in the table below:

Table 11.4.3-2 Buttons and explanations to Supervision Log Profile

Button	Explanation
Load New…	Opens the File Chooser for loading Supervision Log profile from specified folder. Supervision Log profile files include extension .evt
Save As…	Opens the File Chooser for saving the defined Supervision Log profile in the Supervision Log Viewer to the specified folder. It is recommended that the default file extension .evt is used when renaming the profile file.
OK	Activates the profile settings to be used in Supervision Log Viewer.
Cancel	No change is being made to the profile settings.

The profile settings are immediately taken into effect and are also active at the next start-up of the Supervision Log Viewer. In other words, the settings are active until they are changed or another profile is loaded. The profiles are user-specific.

11.4.4.   Options menu

The Options menu, see Fig. 11.4.4.-1, provides settings for changing the environment in the Supervision Log Viewer. The definitions done in the Supervision Log Viewer by using these menu items have an immediate effect on the functionality

User's Guide

of the Supervision Log Viewer and are also stored into the user-specific parameter file. Next time the Supervision Log Viewer is opened, the same definitions are taken into use.
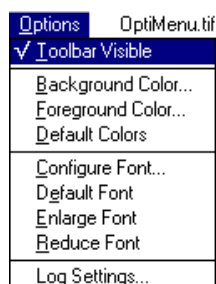
Fig. 11.4.4.-1   Options menu

Toolbar Visible

The toolbar buttons are visible or invisible by selecting this function.

Background Color…

By selecting this menu item the Color Chooser is displayed from which you can select the color that you want to use as background in the Supervision Log Viewer.

Foreground Color…

By selecting this menu item the Color Chooser is displayed from which you can select the color that you want to use as foreground in the Supervision Log Viewer.

Default Colors

Restore the default colors to be used both for the background and foreground in the Supervision Log Viewer.

Configure Font…

By selecting this menu item, the Font Chooser is displayed, see Fig. 11.4.4.-2, from which you can select the font and size of the text.

User's Guide
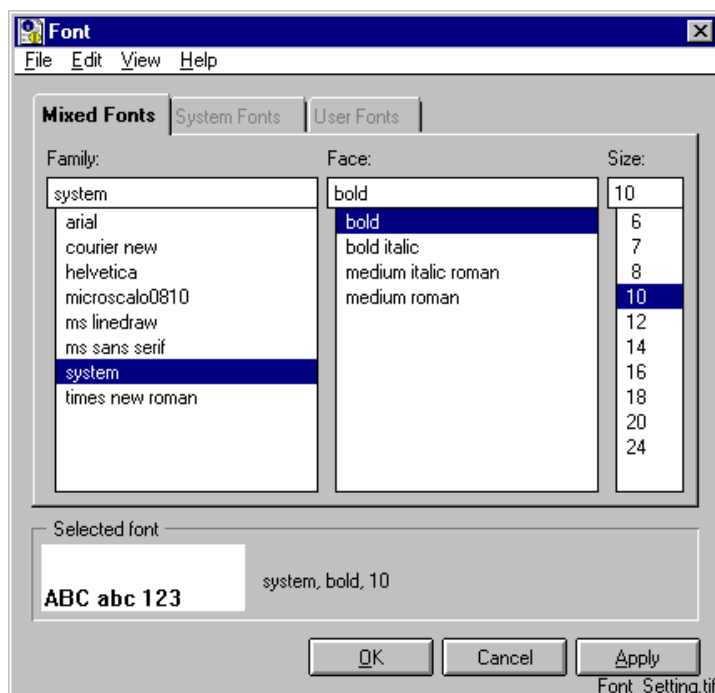
Fig. 11.4.4.-2   Setting fonts for the Supervision Log Viewer

Default Font

Restores the default font settings in the Supervision Log Viewer.

Enlarge Font

Enlarges the font size used in the Supervision Log Viewer.

Reduce Font

Reduces the font size used in the Supervision Log Viewer.

Log Settings…

Toolbar entry:

The Log Settings function, see Fig. 11.4.4.-3, is used to access the Log Settings dialog. In this dialog, it is possible to define how many events that should be shown on each page of the Supervision Log Viewer. The value range for event count is between 100 and 1000.

User's Guide

Fig. 11.4.4.-3   Log Settings

11.4.5.   **Help Menu**

The Help menu provides information about the Supervision Log Viewer.

User's Guide

12. Remote connections

There are several different types of remote connections possible with SMS 510, but in this chapter the focus is set on the function Remote Connections provided by SMS 510, i.e. LAN, Remote/RAS and Dial-Up (SPA). Beyond the scope of this chapter is a description of how to establish a remote connection using fibre optic equipment. From an SMS 510 point of view, it is basically the same as using direct communication over cable to the relays.

12.1. General

In the SMS 510 Remote Connections function, there are three ways of establishing remote connections:

1. LAN over a local network
2. Remote/RAS (Remote Access Service) using a telephone modem
3. Dial-Up (SPA) over the telephone network

12.2. Features

The SMS 510 Remote Communications function features are listed in the following sections.

12.2.1. LAN and Remote/RAS

- LAN and Remote/RAS functions support establishing of connections to projects made and managed by another SMS 510, COM 500 with LIB 5x0 or SYS 500 with LIB 5x0.
- LAN and Remote/RAS do not necessarily need a project of their own in the SMS 510 initializing the connection, since the accessed project is located in the target system.
- Password protected.

12.2.1.1. Application areas

- Direct connection to relays via the remote SMS 510, SYS+LIB 5x0 or COM 500 +LIB 5x0, e.g. for parametrization tasks, but also enabling uploading of recordings from disturbance recorders (manual operation in DR-Collector Tool). The communication is based on the remote project.
- Task Scheduling for transfer of data to/from a remote project. For instance, DR-Collector Tool for collecting already uploaded disturbance recordings from a remote system, at present supported when connecting one SMS to another SMS.

12.2.1.2. Supported relays and tools

SMS 510 to SMS 510 connection:

- RED 500 relays, RED Relay Setting Tool, DR-Collector Tool, Event Log Viewer
- SPACOM relays, SPACOM Relay Setting Tool, DR-Collector Tool
- REx 5xx relays, Parameter Setting Tool, HV/Collect

SMS 510 to SYS+LIB 5x0 or COM 500 +LIB 5x0:

• RED 500 relays, RED Relay Setting Tools, DR-Collector Tool, Event Log Viewer

• SPACOM relays, SPACOM Relay Setting Tool, DR-Collector Tool

12.2.2.   Dial-Up (SPA)

• The project used for the Dial-Up (SPA) connection is located in and managed by the SMS 510 performing the Dial-Up.

• Projects within the own SMS 510 project pool are available.

• Same operations possible as when using direct connection to the relays.

• Utilizing the telephone network.

• SPA protocol.

12.2.2.1.   Application areas

• Connection to relays for data exchange like parametrization, disturbance upload, reading of registered values etc.

12.3.   Activating a remote connection

A remote connection is activated by selecting the desired connection from the Remote Connections list, see Fig. 12.3.-1.

The following is carried out upon selecting an item from the Remote Connections list:

• When selecting an item from the Remote Connections list, an attempt to open the connection is made. In case another remote connection is open, that connection is first closed before the new connection is established.

• Remote connections change focus in the Project Navigator to the project that has been defined for the connection.
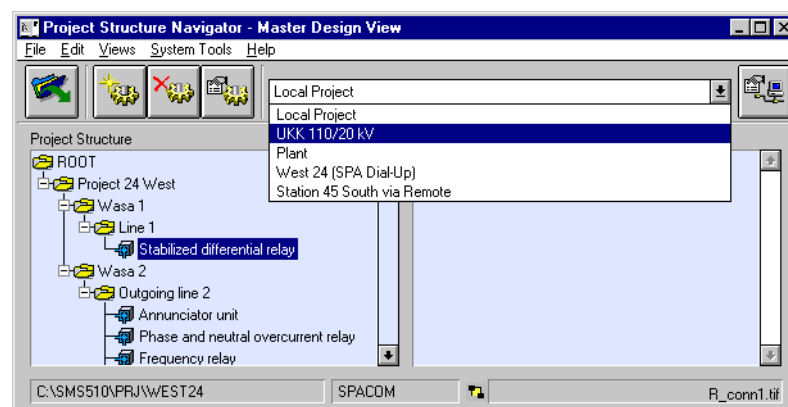
Fig. 12.3.-1 Selecting a connection from the Remote Connections list

Before the remote connection is established, you have to assure that it is OK to open a remote connection, see Fig. 12.3.-2.
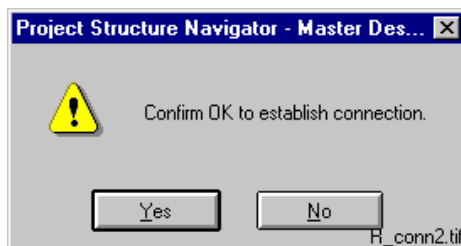
Fig. 12.3.-2 Dialog for establishing a remote connection

12.3.1. Remote/RAS activation

For Remote/RAS type of connections, you need to activate the RAS Service in the target system.

In the SMS 510 from which you initiate the Remote/RAS connection, the SMS 510 initiating the connection is considered as client, but the target system is considered as RAS server. *The RAS Server has to be started before connecting*.

To see the status of the RAS service, select **Administrative Tools** and **Remote Access Admin** from the **Programs** menu in your OS. The service is started by selecting **Start Remote Access Service…** in the **Server** menu.

12.3.2. Connection Status

When being connected to a remote system, a Connection Status dialog opens, see Fig. 12.3.2.-1.
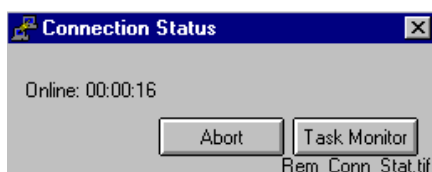
Fig. 12.3.2.-1   Connection status

In Fig. 12.3.2.-1, the button Task Monitor for Dial-Up (SPA) type of connections is disabled. The Connection Status dialog is available as long as there is a connection on-line and it also presents the time elapsed whilst being on-line.

12.3.3. Remote Task Monitoring

When there is a remote connection using LAN or Remote/RAS, the Connection Status dialog in Fig. 12.3.2.-1 is shown. The button **Task Monitor** opens the remote Task Monitor, see Fig. 12.3.3.-1 (disabled for Dial-Up (SPA) type of connections).
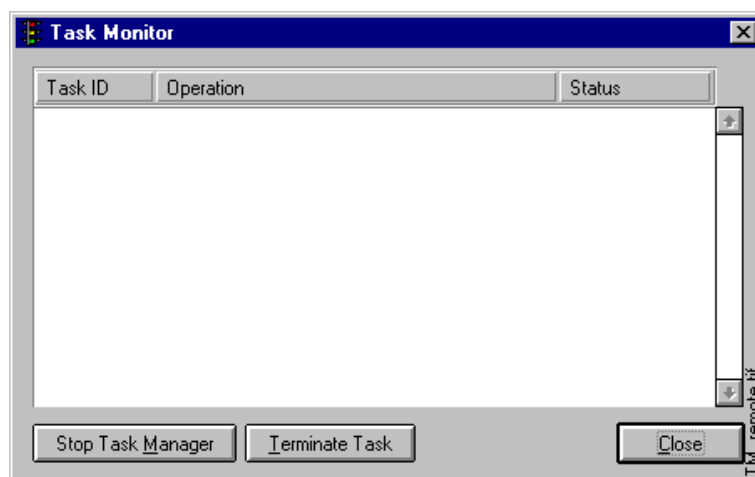
Fig. 12.3.3.-1   Remote Task Monitor

The remote Task Monitor supervises possible ongoing tasks performed by the Scheduler in the remote target system.

The Task Monitor itself is described in Chapter 16. Task monitoring, but there are two buttons, which are not described there. The following table describes the buttons shown in Fig. 12.3.3.-1.

Table 12.3.3-1 Buttons enabled in the remote task monitor

Button	Explanation
Stop Task Manager	The Task Manager is stopped. After the connection is closed, the Task Manager is restarted automatically.
Terminate Task	Select the task to be terminated
Close	Closes the Task Monitor

12.4.   Closing a remote connection

A remote connection is stopped or ended as follows:

• By selecting **Local Project** the remote connection activity is closed, see Fig. 12.3.-1. This means that no projects will be opened in the PSN after the connection is closed, but the user can select one by choosing **Open** in the **File** menu.

• By selecting **another remote connection**, the present one is ended and a new connection is opened, see Fig. 12.3.3.-1

• By selecting any menu item in the **File** menu, i.e. **Open**, **Close**, **Organize Projects** and **Exit** (exiting the Project Structure Navigator)

• By pressing the **Abort** button which is available when there is a connection on-line, see Fig. 12.3.2.-1

The user is notified that the remote connection is being closed.

User's Guide

12.5. **Initial steps before adding a remote connection**

Before the remote connections can be taken into use, the following is required:

• For a LAN or RAS type of connection, there has to be a project available on remote; you cannot establish a connection in advance.

• Prior to using a RAS type of connection, the RAS functionality has to be installed.

• For a Dial-Up (SPA) type of connection, the project has to be available in the local SMS 510.

• Projects can be imported to SMS 510 by selecting **Organize Projects** from the **File** menu, when needed from e.g. CAP 50x, another SMS 510, COM 500 with LIB 5x0 and SYS 500 with LIB 5x0 when needed.

12.5.1. **Passwords and access using LAN and Remote/RAS**

A connection by means of LAN or Remote/RAS *requires that the operator is a member of the administrator group in the operating system in both systems interconnecting*. The user also has to use the same login password when using tools establishing automatic connections via LAN or Remote/RAS, e.g. Scheduler functions.

When connecting manually from the Remote Connections list, see Fig. 12.3.-1, the user is prompted for password to login to the remote system.

12.6. **Preparing remote connections**

Toolbar entry:

By clicking this button, the Remote Connection List is opened, see Fig. 12.6.-1, and you can start creating new remote connections or modify/delete the existing ones.
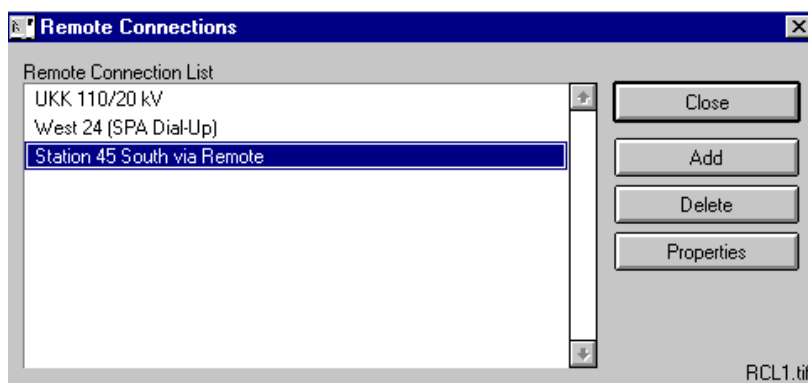
Fig. 12.6.-1 Remote Connection List

12.6.1. Adding an item to the Remote Connection List

By pressing the **Add** button in the Remote Connections dialog, see Fig. 12.6.-1, an empty item with description '**---**' is inserted into the list. The next step **Properties** is started directly upon clicking **Add**.

12.6.2. Modifying an item in the Remote Connection List

Select the item that is to be modified from the list and click on **Properties** to configure it, see Fig. 12.6.-1.

12.6.3. Deleting an item in the Remote Connection List

By selecting the list item to be deleted and clicking **Delete, see** Fig. 12.6.-1, the selected item with its properties is deleted.

> The deletion is carried out without prior confirmation request.

12.6.4. Configuring properties for a Remote Connection List item

The Remote Connection List items are configured by selecting **Properties** in the Remote Connection List, see Fig. 12.6.-1. The Properties function is started automatically when the **Add** button has been pressed.

The Remote Settings are described separately for each Remote Connection type in the following sections.

12.6.4.1. Configuring a LAN type of connection

> A LAN type of connection can be established only when the password in both the actual SMS 510 (MicroSCADA User) and the remote system (MicroSCADA User) is the same. The password for SMS 510 can be changed from the **Programs** menu by selecting **SMS 510/Tools/ MicroSCADA User Password**.

For more information on additional settings of the target system, refer to the *SMS 510 Installation & Commissioning Manual*.

There are two scenarios when configuring a LAN connection, depending on the type of 'Target System' selected.

- Connecting to a remote SMS 510
- Connecting to COM 500/LIB 5x0 or SYS 500/LIB 5x0

Depending on the 'Target System', the following applies to the project to be connected:

- When the 'Target System' is SMS 510, the project to be connected to is the one set as 'Local'.
- When the 'Target System' is SYS 500/LIB 5x0 or COM 500/LIB 5x0, the application (project) to be connected to must be identified by both the 'Local Station Address' as well as the 'Target Station Address'. The Target Station

Address data is located in SYS_BASCON.COM in the remote system. It can either be detected by means of the **Detect** function or inserted manually.

The following settings are to be made in the Remote Settings page, see Fig. 12.6.4.2.-1 and Fig. 12.6.4.2.-2.

Description

Give the name of the LAN connection. That name is presented in the Remote Connections List, see Fig. 12.3.-1 and Fig. 12.6.-1.

Connection Type

Select LAN

Target System

Select whether it is another SMS 510 installation, a SYS 500/LIB 5x0 or COM 500/LIB 5x0.

Installed on

Select the drive where the Target System is located

IP Address

Give the IP address of the remote computer

Local Station Address

When the target system is SYS 500/LIB 5x0 or COM 500/LIB 5x0, the Local Station Address is the address of the SMS 510. The setting you specify must not overlap with any station address used by the target system. To find out which station addresses are in use by the target system, either use the target system's System Configuration Tool or inspect the target system's SYS_BASCON.COM.

Target Station Address

When the target system is SYS 500/LIB 5x0 or COM 500/LIB 5x0, the Target Station Address is the station address of the remote system. The setting is not available when the 'Target System' is SMS 510. The setting can be given manually or by using **Detect**.

Application

The application number refers to the number in the SYS_BASCON.COM file used for LIB 5x0 applications in SYS 500 and COM 500. Use the **Detect** button to get a list with the names of the applications. The setting is not available when the 'Target System' is SMS 510. The setting can be selected from the numbers available or from the application names presented by using **Detect**.

Exit and save

After having configured the LAN connection, you can exit the Remote Connection Properties by clicking **OK**.

12.6.4.2.   **Two LAN setting examples**

Fig. 12.6.4.2.-1 shows the configuration made for a connection to another SMS 510 and Fig. 12.6.4.2.-2 shows a configuration made for a connection to a COM 500.

SMS 510
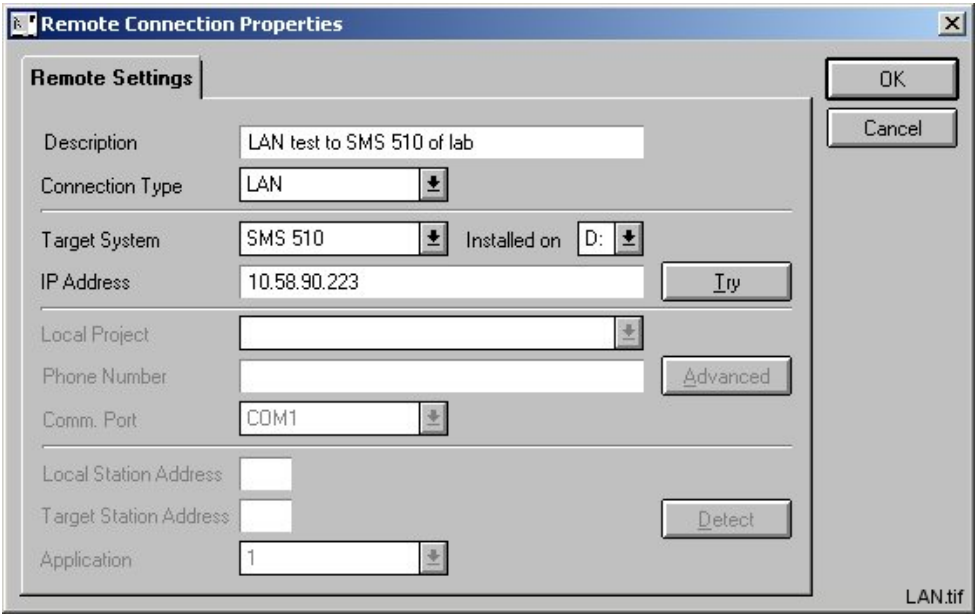
Fig. 12.6.4.2.-1 LAN connection to another SMS 510

COM 500/LIB 5x0 or SYS 500/LIB 5x0
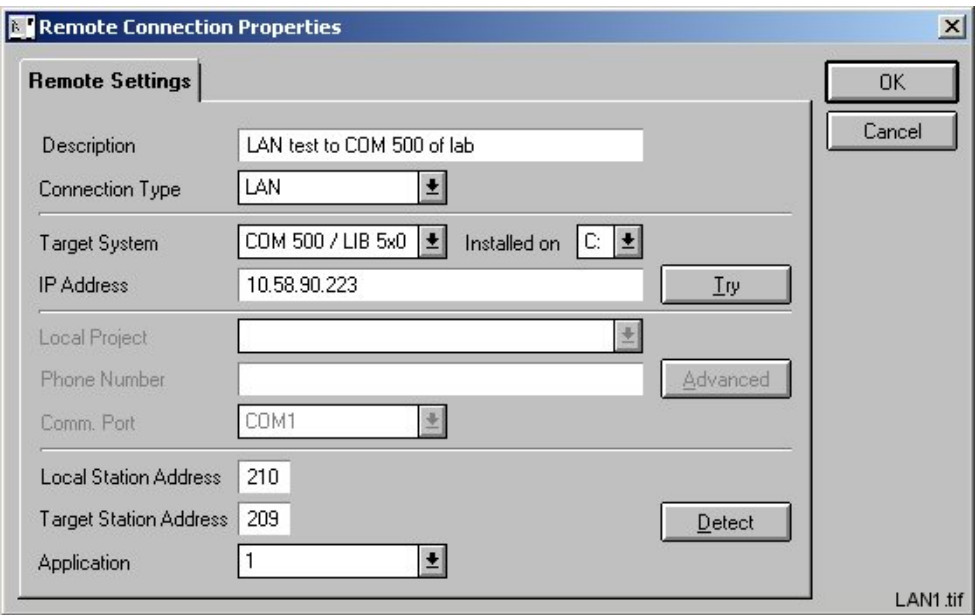
Fig. 12.6.4.2.-2 LAN connection to a COM 500 system

12.6.4.3.   **Checking connection**

The LAN connection configuration can be done without checking that a connection can be established, but it is more convenient to check the connection already during the configuration.

Try

The function **Try** can be applied after the IP address has been given to verify that the connection is OK, see Fig. 12.6.4.3.-1.

Fig. 12.6.4.3.-1 Remote computer found, connection is OK

Detect

Upon a successful Detect operation the 'Station Address' is given the remote station address and the applications numbers in 'Application' are changed to the texts as defined in the remote SYS_BASCON.COM to which the detect is done.

12.6.4.4.   **Configuring a remote type of connection (RAS)**

A RAS remote type of connection can be established only when the password in both the actual SMS 510 (MicroSCADA User) and the remote system (MicroSCADA User) is the same. The password for SMS 510 can be changed from the **Programs** menu by selecting **SMS 510/Tools/MicroSCADA User Password**.

Additional settings required in the target system are that the remote system is configured as RAS server, while the target system is configured as client. These definitions are made when installing the RAS functions.

For more information on additional settings of the target system, refer to the *SMS 510 Installation & Commissioning Manual.*

There are two scenarios when configuring a RAS connection, depending on the type of 'Target System' selected.

• Connecting to a remote SMS 510

• Connecting to COM 500/LIB 5x0 or SYS 500/LIB 5x0

Depending on the 'Target System,' the following applies to the project to be connected:

• When the 'Target System' is SMS 510, the project to be connected to is the one set as 'Local'.

- When the 'Target System' is SYS 500/LIB 5x0 or COM 500/LIB 5x0, the application (project) to be connected to must be identified by both the 'Local Station Address' as well as the 'Target Station Address'. The Target Station Address data is located in SYS_BASCON.COM in the remote system.

The following settings are to be made on the Remote Settings page, see Fig. 12.6.4.5.-1.

Description

Give the name of the Remote/RAS connection. That name is then presented in the Remote Connections List, see Fig. 12.3.-1 and Fig. 12.6.-1.

Connection Type

Select Remote

Target System

Select whether it is another SMS 510 installation, a SYS 500/LIB 5x0 or a COM 500/LIB 5x0

Installed on

Select the drive where the Target System is located

IP Address

Give the IP address of the remote computer

Phone Number

Give telephone number

Comm. Port

Select the serial port

Advanced

The **Advanced** button brings up a Windows system dialog for configuration of the connection. This function is shortly described in Section 12.6.4.6. Advanced settings.

Local Station Address

When the target system is SYS 500/LIB 5x0 or COM 500/LIB 5x0, the Local Station Address is the address of the SMS 510. The setting you specify must not overlap with any station address used by the target system. To find out which station addresses are in use by the target system, either use the target system's System Configuration Tool or inspect the target system's SYS_BASCON.COM.

Target Station Address

When the target system is SYS 500/LIB 5x0 or COM 500/LIB 5x0, the Target Station Address is the station address of the remote system. The setting is not available when the 'Target System' is SMS 510. The setting is given manually.

Application

The application number refers to the number in the SYS_BASCON.COM file used for LIB 5x0 applications in SYS 500 and COM 500. The setting is not available when the 'Target System' is SMS 510. The setting is selected from the numbers available.

Exit and save

After having configured the Remote/RAS connection, you can exit the Remote Connection Properties by clicking **OK**.

12.6.4.5. Remote/RAS setting example

In Fig. 12.6.4.5.-1, a setting example for a Remote/RAS type of connection is given. The settings in grey are disabled, i.e. they are not settable.
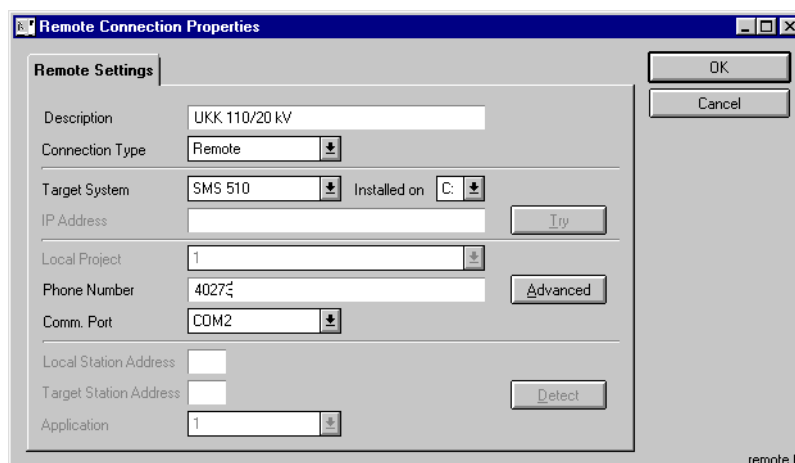
Fig. 12.6.4.5.-1 Example settings for Remote over RAS to another SMS 510

12.6.4.6. Advanced settings

By clicking the **Advanced** button in Fig. 12.6.4.5.-1, an Edit Phonebook Entry dialog is opened, see Fig. 12.6.4.6.-1. This dialog is part of the operating system RAS subsystem. For details, refer to the operating system documentation about RAS.
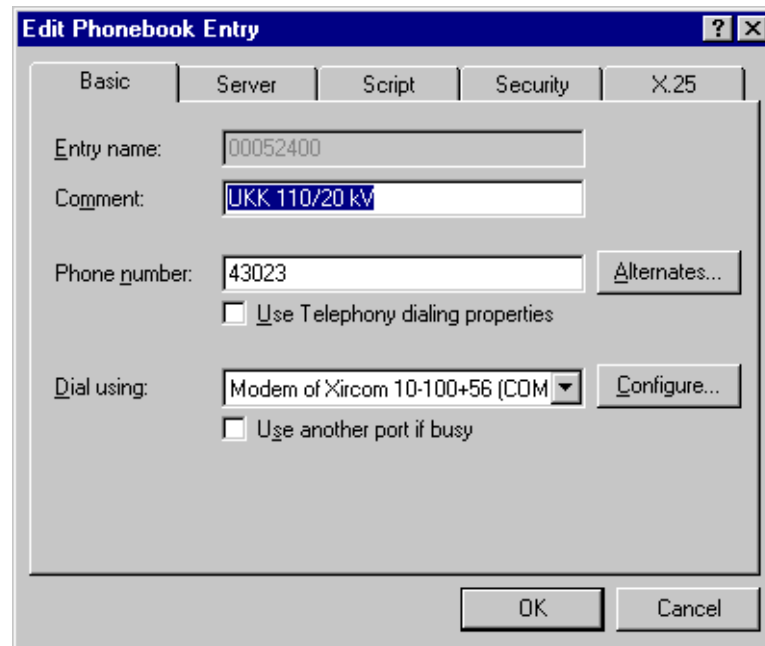
EPE

Fig. 12.6.4.6.-1 The Basic page

12.6.5. Connecting to SYS 500 or COM 500

12.6.5.1. Connecting to SYS 500 or COM 500 systems that have LIB 5x0 installed

The global logical path CMD_TOOL has to be defined in the base system attribute SYS:BPH. The path has to point to a directory, where the file BGU_PRODUCT.INI resides. In LIB 5x0 systems this path is /LIB4/BASE/BBONE/USE. The definition can be made in the file BGU_GLPATH.TXT in the directory /LIB4/BASE/BBONE/USE.

For example:

```
; ##LIB 500 revision 4.0.2##
; Global paths used in LIB500 4.0
;if executed by sys_bascon.com, return list of global paths
;otherwise create global paths
@HOST = SCIL_HOST
#IF HOST:VNAME == "MAIN" #THEN #BLOCK
                            @GLOBAL_PATHS = LIST(-
            BBONE      = VECTOR("/LIB4/BASE/BBONE/USE"),-
            BBONE_INST = VECTOR("/LIB4/BASE/BBONE/INST"),-
            B_4TRPRI   = VECTOR("/LIB4/BASE/BBONE/USE"),-
            CMD_TOOL   = VECTOR("/LIB4/BASE/BBONE/USE"))
    #RETURN %GLOBAL_PATHS
#BLOCK_END
#ELSE_IF LENGTH(SELECT(LIST_ATTR(APL:BPH),"=="""BBONE""")) == 0 #THEN #BLOCK
    ;path for reading paths
    #PATH BBONE /LIB4/BASE/BBONE/USE
    ;path for creating standard function list (MLIB_INDEX.TXT)
    #PATH BBONE_INST /LIB4/BASE/BBONE/INST
    ;path for transparent printout method from FORM pictures
    #PATH B_4TRPRI /LIB4/BASE/EVENT/USE
#BLOCK_END
;Path for default project (handled separately, directory may not exist)
```

User's Guide

```
@APL_NAME = APL:BNA
#PATH DEF_PRJ /APL/'APL_NAME'/PROTECTION
;DR-Collector Tool: Default directory for the disturbance recordings
#PATH RECORDER /APL/'APL_NAME'/RECORDER
;this logical path determines where Project Manager resides,
;(defined only in a LIB4 application)
#IF LENGTH(PATH("LIB4")) > 0 #THEN #PATH CMD_TOOL NO_CREATE, /LIB4/BASE/BBONE/
USE
```

If the RAS connection is used, the file NETEXT.EXE has to reside in the directory
of Communication manager, i.e. in /LIB4/BASE/BBONE/USE, into which it
should be copied from the SMS 510 directory /SERVICES/COMMUNICATION/
USE. NETEXT.EXE is used for fetching the IP address from the remote computer.

12.6.5.2. Connecting to SYS 500 or COM 500 systems that have no LIB 5x0 installed

The project has to exist in the remote system. When the LIB 5x0 is not installed in
the system, the project has to be created elsewhere and be copied to the remote
system. The directory structure should comply with the rules of LIB 5x0, i.e. the
project should reside in the directory: /APL/APL_NAME/PROTECTION/PRJ.

File BGU_PRODUCT.INI has to be copied to a remote system from the system
where the project has been created. The path for the file should comply with the rules
of LIB 5x0, i.e. the file should reside in the directory: /LIB4/BASE/BBONE/USE.

The global logical path CMD_TOOL has to be defined in the base system attribute
SYS:BPH. The path should point to a directory, where the file BGU_PRODUCT.
INI resides. The definition can be made for example in the file /STOOL/DEF/
PATH_DEF.TXT.

Example of PATH_DEF.TXT:

```
;File:        Path_Def.txt
;Description: MS-STool Path definitions
;             Version 8.4.2
;----------------------------------------
@t_Error_State = Error_State
@l_Global_Paths = List(GPRC     = vector("/LAN/ACTIVE/GPRC"),-
                        CONF     = vector("/LAN/ACTIVE/CONF"),-
                        TEMP     = vector("/TEMP"),-
                        START    = vector("/Prog/Exec"),-
                        SYS_TOOL = ("/STool/Misc", "/STool/AplBuild",
                                    "/STool/SysConf",-
                                    "/STool/Def", "/STool/Superv"),-
                        SYS_CONF = vector("/SYS/ACTIVE/SYS_"),-
                        CMD_TOOL = VECTOR("/LIB4/BASE/BBONE/USE"))
#path TEMP /TEMP
@l_Host = Scil_Host
#if l_Host:Vname == "MAIN" #then #block;  Sys_bascon.com
   #Error 't_Error_State'
   #Return %l_Global_Paths
#block_end
#else #block
   #if length(Path("SYS_TOOL")) == 0 #then #block;  no tool paths created
      @v_Path_Names = List_attr(%l_Global_Paths)
      #loop_with i=1..length(%v_Path_Names)
         @t_Path_Name = %v_Path_Names(%i)
         @t_Directories = collect(l_Global_Paths:v't_Path_Name',",")
         #path 't_Path_Name' no_create, 't_Directories'
      #loop_end
   #block_end
```

```
;------------ Create Par directorys to application --------------
#Path tmp     +Par              ;** Create Par    **
#Path Apl_Par  Par/Apl          ;** Create Apl    **
#Path User_Par Par/Default      ;** Create Default **
;----- Create dummy files for shadowing ---------------
@Dummy = write_text("Apl_Par/Info.txt",vector("Rev"))
@Dummy = write_text("User_Par/Info.txt",vector("Rev"))
#Error 't_Error_State'
#block_end
```

If the RAS connection is used, the file NETEXT.EXE has to reside in the directory of Communication manager, i.e. in /LIB4/BASE/BBONE/USE, into which it should be copied from the SMS 510 directory /SERVICES/COMMUNICATION/ USE. NETEXT.EXE is used for fetching the IP address from the remote computer.

12.6.5.3. Remote Connection Properties when connecting to SYS 500/LIB 5x0 or COM 500/LIB 5x0 systems over LAN or RAS

This section applies to connections from SMS 510 to SYS 500/LIB 5x0 or COM 500/LIB 5x0 over LAN or RAS.

On the Remote Connection Properties dialog, the field Station Address has been renamed to Target Station Address. It represents the station address of the remote SYS 500/LIB 5x0 or COM 500/LIB 5x0 system, respectively. The data for this field is located in the file SYS_BASCON.COM of the remote system. You can use the Detect function to fetch the value automatically or you can insert it manually.

A new field, named Local Station Address, has been added to the Remote Connection Properties dialog. The purpose of this field is to allow per-connection definition of the local station address (i.e. the station address of the SMS 510). Initially, SMS 510 assigns a default station address to this field. However, in case this default value is in use in the remote system, it has to be changed to avoid overlapping station addresses. Notice that in addition to the Target Station Address, a SYS 500/LIB 5x0 or COM 500/LIB 5x0 system may use several station addresses which you cannot use as the Local Station Address. To find out which addresses you can use, either use the System Configuration Tool of the remote SYS 500/LIB 5x0 or COM 500/LIB 5x0 system, or manually inspect the remote system's SYS_BASCON.COM, looking for reserved station address definitions.

12.6.6. Configuring Dial-Up (SPA) type of connection

The Dial-Up (SPA) type of connection is based on telephone modems and there is one telephone number for each project. The project has to be located in the actual SMS 510 installation.

Using Dial-Up (SPA) requires configuration by two different tools i.e.

• Properties in Remote Connections List for the Dial-Up (SPA) connection

• System Configuration of the actual project, see Fig. 12.6.6.-2

The following settings are to be made on the **Remote Settings** page, see Fig. 12.6.6.-1.

Description

Give the name of the Dial-Up (SPA) connection. That name is then presented in the Remote Connections List, see Fig. 12.3.-1 and Fig. 12.6.-1.

Connection Type

Select Dial-up (SPA).

Phone Number

Give the telephone number that is to be used.

Exit and save

After having configured the Dial-Up (SPA), you can exit the Remote Connection Properties by pressing **OK**.

Example setting

Fig. 12.6.6.-1 shows an example of settings for a dial-up connection. The settings in grey are disabled.
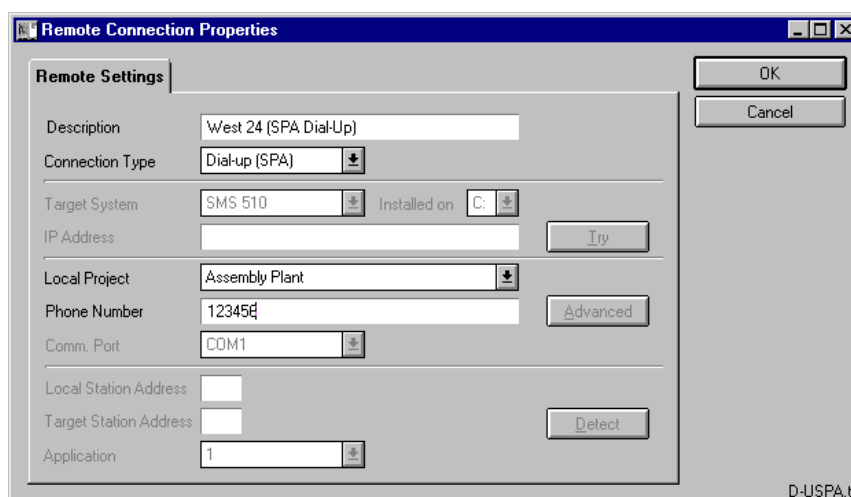
Fig. 12.6.6.-1   Configuring Dial-Up SPA

System configuration for Dial-Up (SPA)

In addition to the Dial-Up (SPA) made to the Remote Connections List, the system configuration, see Fig. 12.6.6.-2, has to be prepared for each project using modem. In the **System Tools** menu, select **System Configuration** and the **Communication** page.

> The project that is to be prepared for modem connection has to be open in the Project Structure Navigator. In case the project is not open, open it by choosing **Open** in the **File** menu.
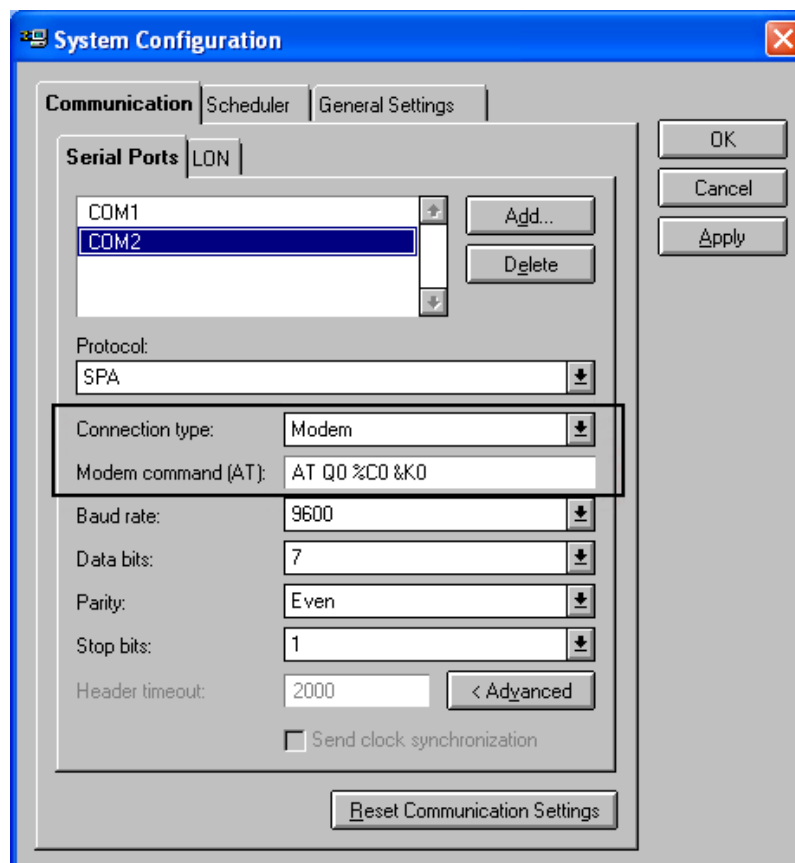
D-USPA2

*Fig. 12.6.6.-2   Selecting Connection Type: modem on COM1 and the default
initialization string for the modem and SPA default settings.*

The following settings should be made in System Configuration, see Fig. 12.6.6.-2.

Serial Port

Add a Serial port in case there is no port in the list.

Protocol

Protocol is always SPA.

Connection Type

The connection type should be set to Modem.

Modem Command (AT)

By default, the modem initialization string gives the initialization string AT Q0 %C0
&K0, but other AT commands can be given as well. When you have pre-configured
the modems, you can leave this field empty.

SPA dial-up configuration

When configuring a SPA dial-up connection, the following modem settings should be used.

The following AT commands have to be set to the modem in the station (SPA IBB):

- %C0 Disables Data Compression
- &K0 Flow control disabled
- Q1 Disable Result Codes
- &D0 Respond as if DTR is always on

The following AT commands have to be set in the modem connected to the SMS 510 computer:

- %C0 Disables Data Compression
- &K0 Flow control disabled
- Q0 Enable Result Codes
- &D2 Hang up if DTR is dropped

Header timeout

The Header Timeout attribute of the SPA lines defines the maximum waiting time in milliseconds within which the first byte of a response from the slave should have been received after the transmission of a message. The default value for a modem connection is 2000 ms, but the value can be increased by clicking the "< Advanced" button, if having a poor communication link.

13. Time/Date Settings, Time Synchronization and General Settings

In this chapter, time based activities such as setting of date and time of the PC, time synchronization of the relays and the Automatic Logoff function are described.

13.1. Time/Date Settings

The Time/Date Settings function is used to check the date and time settings of the system and also to adjust date and time of the PC.

13.1.1. Starting Time/Date Settings

Start the function by selecting **Time_Date** in the **System Tools** menu in the Project Structure Navigator, see the figure below:
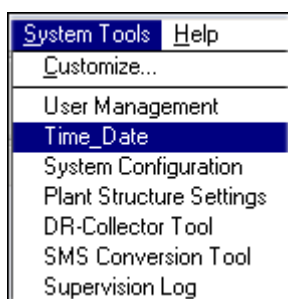
SyTo_TD

Fig. 13.1.1.-1   Starting the Time/Date function

Upon selecting Time_Date, the view in Fig. 13.1.1.-2 appears.
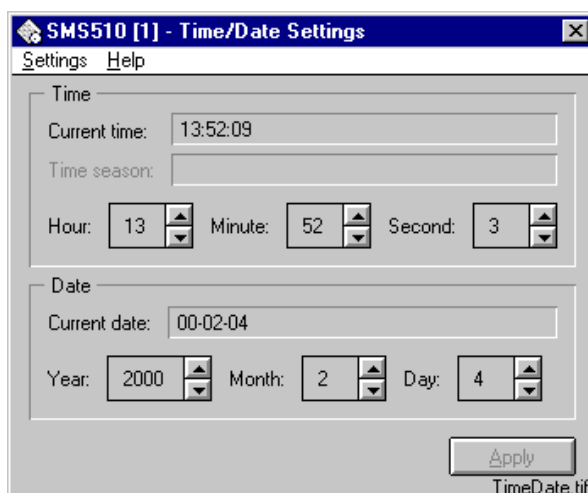
Fig. 13.1.1.-2   Time/Date settings in SMS 510

13.1.2. Menus

There are two menus in Time/Date Settings; Settings and Help.

| 13.1.2.1. | **Settings menu** |

Exit

Fig. 13.1.2.1.-1 Exit the Time/Date tool

You exit the Time/Date tool from the Settings menu by selecting **Exit, see** Fig. 13.1.2.1.-1.

| 13.1.2.2. | **Help menu** |

About

Fig. 13.1.2.2.-1 About the Time/Date Settings

The menu item About Time/Date Settings, see Fig. 13.1.2.2.-1, presents the About Dialog.

| 13.2. | **Time synchronization** |

Time synchronization supports two protocols: LON and/or SPA. LON time synch is not described in this manual, refer to the *SMS 510 Installation and Commissioning manual.* Time Synchronization is available on the **Communication** page of the **System Configuration** in the **System Tools** menu in the Project Navigator. When devices configured to use SPA protocol are directly connected [Connection Type: Direct, see Fig. 13.2.1.-1], they are being synchronized by default. The synchronization can also be disabled. The time is taken from the PC.

Synchronization over the SPA protocol is done using a broadcast address as follows:

- Once per second:>900WT:ss.sss:CCCr
- Full synchronization message>900WD:yy-mm-dd hh.mm;ss.sss:CCCr once per minute.

CC = Checksum, Cr = Carriage return.

More details about setting up and configuring Time synchronization over LON/SPA is given in the *SMS 510 Installation and Commissioning manual*.

| 13.2.1. | **Starting/Stopping Time Synchronization (SPA)** |

The time synchronization of remote devices using SPA protocols can be stopped/ restarted from the **Communication** page in **System Tools** available from the **System Configuration** menu by clicking the **Send Time Synchronization** check box, see Fig. 13.2.1.-1.

User's Guide
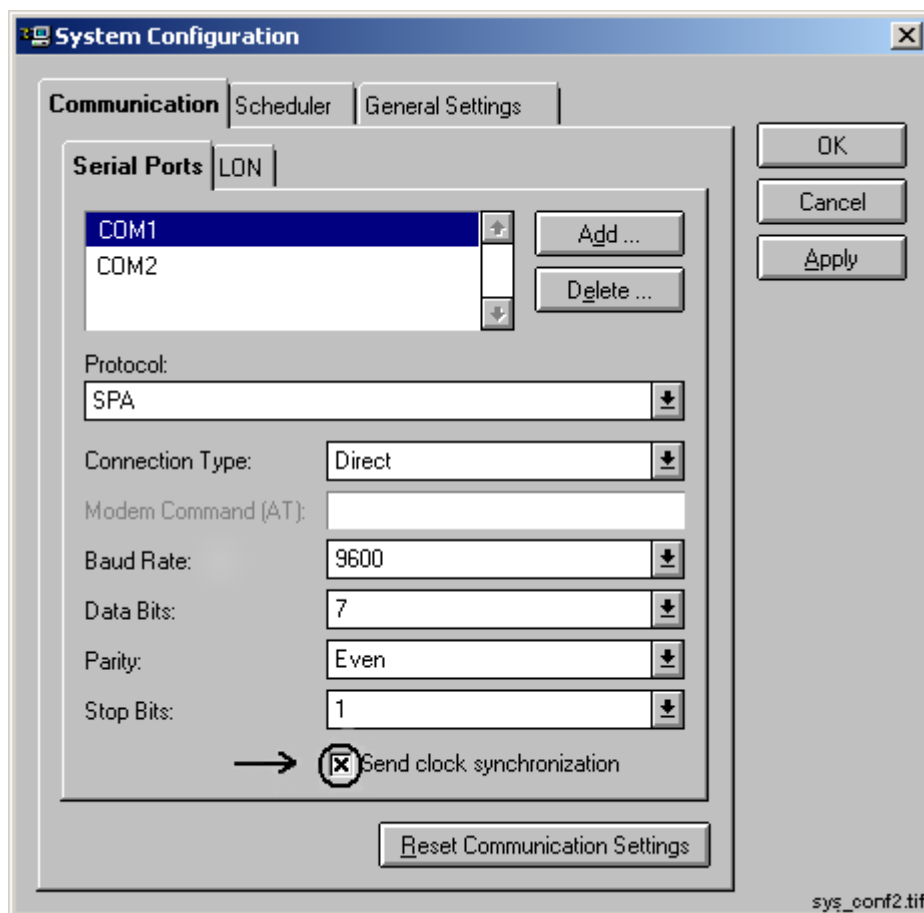
Fig. 13.2.1.-1   Time synchronization is enabled on COM1

13.3.   General Settings

13.3.1.   Automatic Monitor Logoff

The function Automatic Monitor Logoff is used for enabling automatic logoff. This function is found on page **General Settings** in the **System Configuration** in the **System Tools** menu in the Project Structure Navigator, see Fig. 13.3.1.-1.
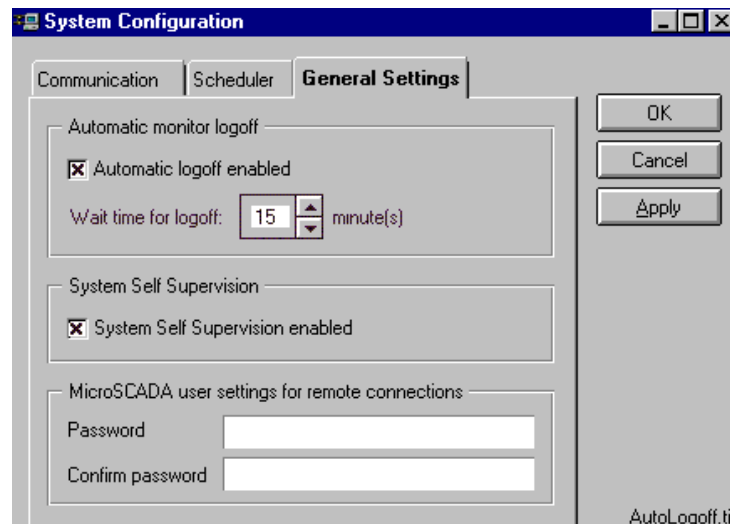
Fig. 13.3.1.-1   The Automatic logoff function is enabled after 15 minutes

The time for logoff can be set between 10 to 60 minutes. The logoff is performed if the specified time elapses without any user activity. The current cursor position is compared to the previous position, and if it is the same, the idle time counter is increased.

Before the actual logoff, a warning message is shown. This message box includes a button for cancelling the logoff. The predefined times for showing the warning is dependent on the defined idle time setting:

• Idle time 10...19 min. → Warning time before logoff = 1 min.

• Idle time 20...29 min. → Warning time before logoff = 2 min.

• Idle time 30...60 min. → Warning time before logoff = 5 min.

The logoff function is also valid when the user authorization mechanism is disabled, see Section 14.3. User Manager main switch.

13.3.2.   System Self Supervision

For more information about enabling/disabling the System Self Supervision function, see Section 10.4. Enabling System Self Supervision and Section 10.5. Disabling System Self Supervision.

13.3.3.   MicroSCADA user settings for remote connections

The password for the MicroSCADA user in remote computer can be defined on the General Settings page in the System Configuration Tool. If the password is not given, the default MicroSCADA user password "microscada" is used when creating connections. This is because the value used in the net use command has to differ from empty string "". Otherwise the net use command (executed in the console) pauses and prompts the user to type the password. Thus, the execution of the SCIL is stopped until the password is given.

The password defined by the user (or the default password respectively) is used while opening the connections both in the invisible monitor by the Scheduler and in the visible monitor opened by the user via the navigator window. If the login fails in

User's Guide

the invisible monitor, an error dialog is shown and the execution of the task is cancelled. If the login fails from the navigator, the login dialog is shown and the user can enter the new password manually.

14. User Management

This chapter describes the User Management function and how to configure it.

14.1. General

The User Management Tool is for defining users and user authorities. In SMS 510, all of the currently included tools belong to the authorization group "GENERAL". The menu items for adding and removing authorization groups are therefore disabled.

The authorization levels used:

- View (0) = Not authorized to make operations
- Control (1) = Authorized to make operations
- Engineering (2) = All rights, but user definition
- Reserved (3) = Reserved for future
- Reserved (4) = Reserved for future
- System manager (5) = All rights

The user with rights on level 5 (system manager) can make changes in the User Management function.

> The modifications will not become active until they are saved in the User Management dialog and SMS 510 is restarted.

14.2. Starting User Management

The User Management tool is opened from the System Tools menu by selecting User Management, see Fig. 14.2.-1.

SyTo_UM

Fig. 14.2.-1 Selecting User Management from the System Tools menu

14.3. User Manager main switch

The whole login mechanism can be disabled by the system manager by setting the User Management and Authorization Mechanism "Off", see Fig. 14.3.-1. Click the check box to toggle mode enable/disable. An 'x' in the check box means that the **Disable authorization mechanism** is selected and authorization disabled.

At start up of SMS 510, the login can therefore be performed without giving a User name and a Password. In that case, the user is granted all authorization rights.

Disable authorisation mechanism: ☐

Fig. 14.3.-1 The authorization mechanism is enabled (part of Fig. 14.3.2.-1)

Authorization is taken back into use by "emptying" the check box in Fig. 14.3.-1, by clicking at the check box.

14.3.1.   User language

The language can be chosen from a list of supported ones, the default is English (0).

14.3.2.   User interface

The authorization levels of the selected user are displayed. The levels can be directly modified by the system manager.

The GENERAL level for the system manager cannot be changed. Changing of levels is done by selecting the authorization group(s) from the list and then selecting the new authorization level with the combo-box below the list.

Access to the various tools and functions is provided by means of a toolbar, menus and keyboard shortcuts. Fig. 14.3.2.-1 illustrates the tool's user interface and its elements.
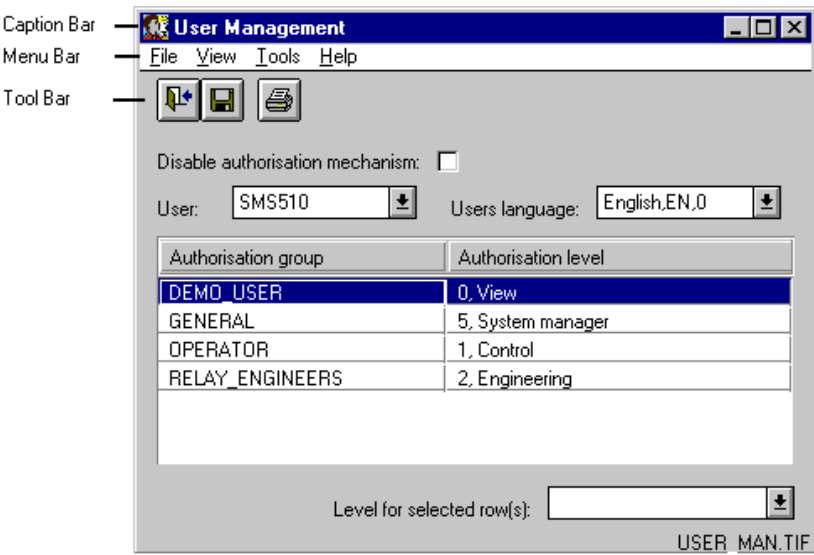
Fig. 14.3.2.-1   User interface of the User Management

A description of the elements in Fig. 14.3.2.-1 is given in the following table.

Table 14.3.2-1 User Management user interface components

Caption bar	Displays the name of the tool. It also contains the standard operating system's window management commands for minimising, maximising and closing the window.
Menu bar	File, Edit, Tools and Help menu.

Table 14.3.2-1 User Management user interface components

Toolbar	The toolbar contains shortcuts for fast access to the frequently used functions.
Disable authorization mechanism	Enabling/Disabling of User Management ("main switch")
User	Contains a list of users
User Language	Contains a list of supported languages
Authorization group	Contains all authorization groups that have been defined.
Authorization level	The authorization level is shown for corresponding authorization group
Level for selected row	Opens a list of the access rights 0..4, the selected level is updated to the authorization level list for the selected authorization group.

14.4. File menu

The **File** menu, see Fig. 14.4.-1, contains the save, print and exit functions.
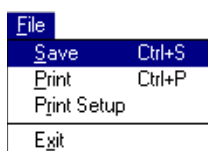
Fig. 14.4.-1 File menu

14.4.1. Save

Keyboard entry: <Ctrl>+<S>

Toolbar entry:

By selecting this function, the currently open User Management settings are saved.

14.4.2. Print

Keyboard entry: <Ctrl>+<P>

Toolbar entry:

By selecting this function the following is printed:

- User
- User language
- Authorization group list
- Authorization level list

14.4.3. Print Setup

By selecting this menu alternative, the user can set up the printer.

14.4.4. Exit

Toolbar entry:

Exit closes the User Management session.

14.5. View menu

The **View** menu, see Fig. 14.5.-1, enables/disables the viewing of the Toolbar buttons.

Fig. 14.5.-1 View menu

14.6. Tools menu

The **Tools** Menu, see Fig. 14.6.-1, contains the tools menu items for User Management.

ToolsMenu

Fig. 14.6.-1 Tools menu

14.6.1. Add User

The system manager can add users with the dialog shown in Fig. 14.6.1.-1.
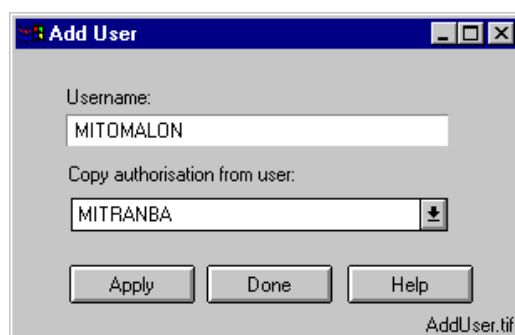
Fig. 14.6.1.-1   Adding a user and copying authorization

In the following table, the buttons in Fig. 14.6.1.-1 are described.

Table 14.6.1-1 Button functions in the Add User dialog

Button	Explanation
Apply	Saves the changes without closing the dialog
Done	Closes the dialog, NO SAVING
Help	Run-time help

The name for the new user can be given in the "Username" field. The name may not include special characters and it may not consist of two characters followed by a number.

In addition, the name cannot begin with a number. Authority levels can be copied from other normal users (not from system manager) by selecting the source. The password for a new user is <enter> before the user changes it with the Change Password dialog.

After the system manager has added new users to SMS 510, then exit SMS 510. Then each new user may perform a login with the new user name in order to assign a new individual password instead of the empty password. Alternatively, the password may also remain unassigned; then the empty password remains valid until changed later.

14.6.2. Remove User

The system manager can remove users with the Remove User function, see Fig. 14.6.2.-1.
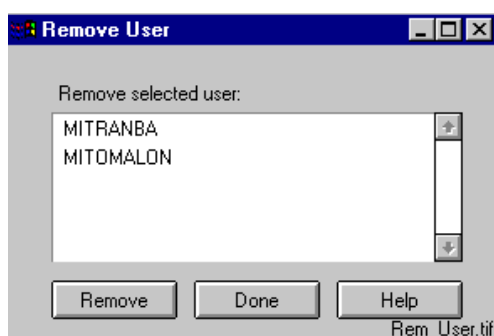
Fig. 14.6.2.-1   Removing a user

In the following table, the buttons in Fig. 14.6.2.-1 are explained.

Table 14.6.2-1 Button functions in the Remove User dialog

Button	Explanation
Remove	Removes the selected user without closing the dialog
Done	Closes the dialog, NO SAVING
Help	Run-time help

The user selected from the list is removed when the remove button is clicked. The system manager cannot be removed.

14.6.3. Add Group

The function is not relevant in SMS 510 and is therefore disabled.

User's Guide

14.6.4.   Remove Group

The function is not relevant in SMS 510 and is therefore disabled.

14.6.5.   Change Password

All users can change their own password by means of the function Change Password, see Fig. 14.6.5.-1.

Fig. 14.6.5.-1   Dialog for changing the password

In the following table, the buttons in Fig. 14.6.5.-1 are explained.

Table 14.6.5-1   Button functions in the Change Password dialog

Button	Explanation
OK	Approves the changed password and closes the dialog
Cancel	Cancels the proposed change of password and closes the dialog
Help	Run-time help

If the old password is correct, the password is changed to the one given in the new password field.

14.6.6.   Define View Monitors

The function is not relevant in SMS 510 and is disabled.

14.7.   Help menu

The Help menu, see Fig. 14.7.-1, contains the General User Management Help and the About User Management dialog.

Fig. 14.7.-1   Help menu

14.7.1.   Help

A run-time help that gives the user information about the User Management functions.

14.7.2.   About User Management

The About User Management item shows the Tool Information.

15.   Task scheduling

This chapter describes the usage of task scheduling in SMS 510 and preparation of Scheduled Tasks. Since uploading of disturbance recordings is a major implementation area for task scheduling, the examples in this chapter are mainly based on disturbance uploading tools, but others may be used as well. Finally, the principles for how DR-Collector Tool is operating in the scope of task scheduling are described.

15.1.   General

There are situations when tasks are needed to be performed automatically on a cyclical basis. One example is uploading of disturbance recordings from relay modules. Therefore, SMS 510 has a Scheduler function that enables tasks to be automatically and repeatedly performed based on time intervals, see Fig. 15.5.-2.

The SMS 510 Scheduler is a function that starts programs or functions defined in a Scheduled Task. There can be one or several Scheduled Tasks with one or more tasks each. Each Scheduled Task has a time interval and the tasks are started according to this interval. There is a Task Manager in the Scheduler that synchronises and controls starting of tasks from different Scheduled Tasks.

Depending on the program, a user interface of the tasks started by the Scheduler can be shown. The DR-Collector Tool, for example, is carrying out its tasks without any user interface when started from the Scheduler.

The status of the tasks is presented in the Task Monitor function, see Chapter 16. Task monitoring.

15.2.   Scheduler operating principles

The Scheduler is a function that is working independently and is automatically started by SMS 510. What you need to do is to define the tasks to the Scheduler as described in Section 15.6. Task preparation for task scheduling. The Scheduler task activation is automatic and is executed when you have logged out from SMS 510.

> In the Scheduler view, see e.g. Fig. 15.5.-2, the tasks are **not** executed. The Scheduler that is described in this chapter is used for assigning and preparing tasks to the Scheduler.

> Task Monitoring, described in Chapter 16. Task monitoring, helps you observe the task execution.

15.3.   Activation of scheduled tasks

The tasks are activated by the Scheduler when:

• SMS 510 is started, but the login has not been performed

• Logging out from SMS 510, but not exiting SMS 510

Furthermore, the following conditions have to be fulfilled:

• "In use" = 'Yes' for Scheduled Tasks (individual setting)

• 'Enable Scheduler' should be selected (setting applicable for all tasks)

• Tasks are assigned (Scheduled Tasks definitions)

> ℹ️ Since the Scheduler is a part of SMS 510, it is running only when the SMS 510 system is running. When a user is logged on to the SMS 510 system, the Scheduler only adds tasks to be performed during that time to the task list. These waiting tasks are performed later when the user has logged off either manually or due to an automatic logoff.

The Task Monitoring, described in Chapter 16. Task monitoring, enables monitoring of the task status.

15.4.   Stopping of Scheduler tasks

The tasks in the Scheduler are stopped in any of the following ways:

• By closing the SMS 510 session by choosing Exit in the login window

• By logging in to SMS 510

• By setting "In use" for a Scheduled Task in the Scheduler to 'No'

• By deleting tasks in the Scheduled Task, see Fig. 15.5.-2.

• **By taking the Scheduler entirely out of use, 'Enable Scheduler' in the Scheduler window, see** Fig. 15.5.-2.

In case there are tasks waiting to be performed and you want to stop these tasks from being performed, refer to Section 16.4. Removing of tasks with status waiting.

15.5.   Opening the Scheduler for task preparation

The Scheduler is opened for task preparation by selecting **System Configuration** in the **System Tools** menu, see Fig. 15.5.-1, and clicking the page **Scheduler**.
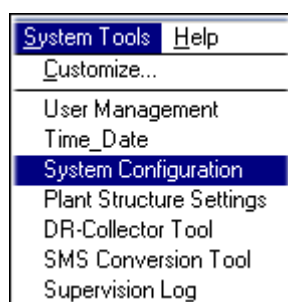
<div align="right">SyTo_SC</div>

Fig. 15.5.-1 Selecting System Configuration from the System Tools menu

In Fig. 15.5.-2, an example with five Scheduled tasks is shown. The tasks are executed according to the conditions described in Section 15.3. Activation of scheduled tasks.
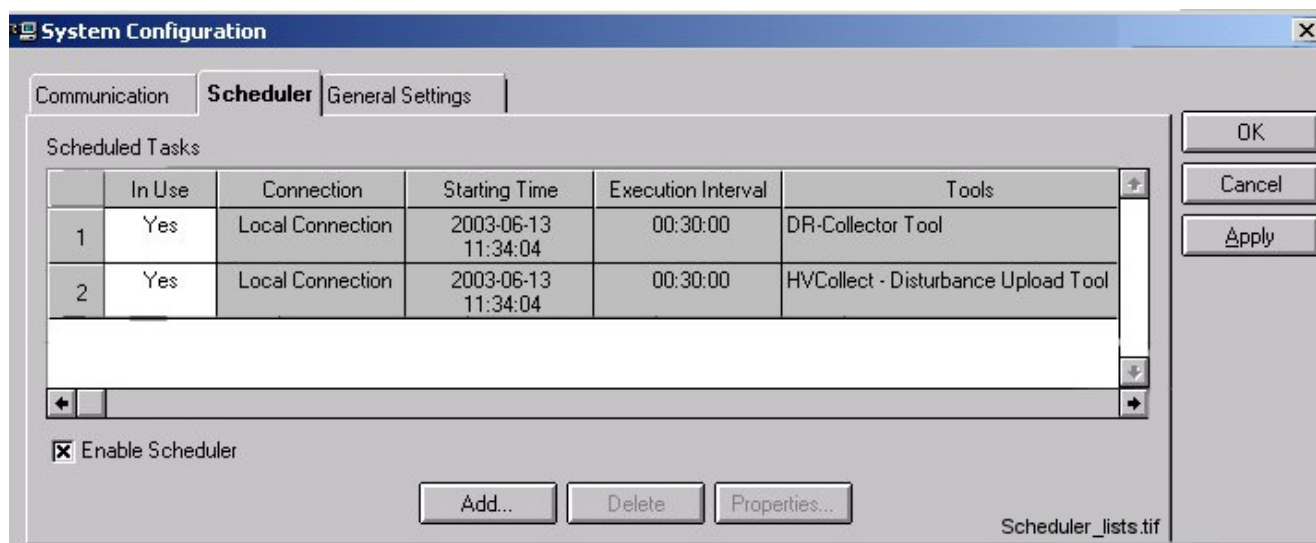
Fig. 15.5.-2 Examples of task lists in the Scheduler

In the following two tables, the Scheduler contents in Fig. 15.5.-2 is described.

Table 15.5.-1   Columns and check box explanations to the Scheduler

Column	Explanation
Scheduled Tasks	Scheduled Task Number
In Use	'Yes' or 'No', the option is changed by double-clicking at it. 'No' means that the Scheduled Task is taken out of use, but can be activated later by clicking 'Yes'. Tasks in waiting mode are executed, even if in 'In Use' is set to 'No'.
Connection	The type of connection that is used for the tasks. Note that the connection is said to be local also for tasks that do not use SMS 510 projects.
Starting Time	The time when the task is started
Execution Interval	The interval for executing the tasks in the Scheduled Task
Tools	The name of the files and programs to be executed, the path is shown for User defined type of programs
Check box	
Enable Scheduler	An 'x' in the check box means that the Scheduler function is enabled, an empty check box that it is taken out of use. Tasks in waiting mode in the Task List are cleared (after **OK** or **Apply**) when (temporarily) taking the Scheduler out of use. Click the check box to toggle mode.

Table 15.5.-2   Scheduler buttons

Button	Explanation
Add	Adding tasks to Scheduled tasks, see Section 15.6. Task preparation for task scheduling.
Delete	Deletes selected Scheduled Task. Select the task to be deleted and press **Delete**. Confirm the removal.
Properties	Shows the properties of a Scheduled Task and enables modification of it. Select a Scheduled Task and press **Properties** to enter the edit mode.
OK	Confirm the Scheduled task settings and exit the Scheduler

User's Guide

Table 15.5.-2   Scheduler buttons

Button	Explanation
Cancel	Exit without saving the tasks
Apply	Confirm the tasks and settings, but without leaving the Scheduler

The Task Scheduling preparation session is closed either by pressing **OK**, **Apply** or **Cancel**.

15.6.   Task preparation for task scheduling

In the following sections, the principles for adding tasks are described briefly and some recommendations are given.

Tool recommendation

Programs that are suitable for use in the Scheduler, are programs that close automatically after finishing the mission. Thereby you can avoid opening a new program session every time the Scheduler activates the task.

Types of tasks

There are two types of tasks (both types can be mixed in the same Scheduled Task):

• Predefined tasks available from a list of tasks (tasks available are defined by SMS 510). Typical predefined tasks are the disturbance uploading tools like DR-Collector Tool and HV/Collect.

• User defined tasks. Examples are disturbance evaluation tools or any other program defined by the user. Start-up arguments for the program can be given.

Callback Function

Using the callback function means that the task execution is supervised by the Tool Manager in the Scheduler. When the program is closed (automatically by the predefined types and manually by user defined types of tool), closing of the program is noticed and the callback is received. Before the callback is received, new tasks in the Scheduled Task list are not started, even if the time to start has elapsed.

The tasks to be performed are set in waiting mode until the callback is obtained from the previous task. User defined tasks, not using callback function are also set on a waiting list when used in the same Scheduled Task as predefined tasks.

15.6.1.   Adding tasks

In the following section, we will follow two examples of how to add tasks to the Scheduler. The examples feature a predefined task and a user defined task.

• DR-Collector Tool is run every 4th hour using remote communication and performs a copy of recordings from an SMS 510 project in another location.

• Notepad is opened every Monday at 7.30 in the morning. The operator may close the program when finished.

User's Guide

These tools are set into different tasks, because the wanted time intervals are different for each tool. A task list can contain one or more tools. Notepad is added just because it is a harmless example, but it gives the idea of using user defined tools.

In Scheduler, start by clicking the **Enable Scheduler** check box, step number 1 in Fig. 15.6.1.-1. Then click **Add**, step number 2 in Fig. 15.6.1.-1, to open the Task Properties.

Disabling the Scheduler is done by clicking the **Enable Schedule**r check box again.
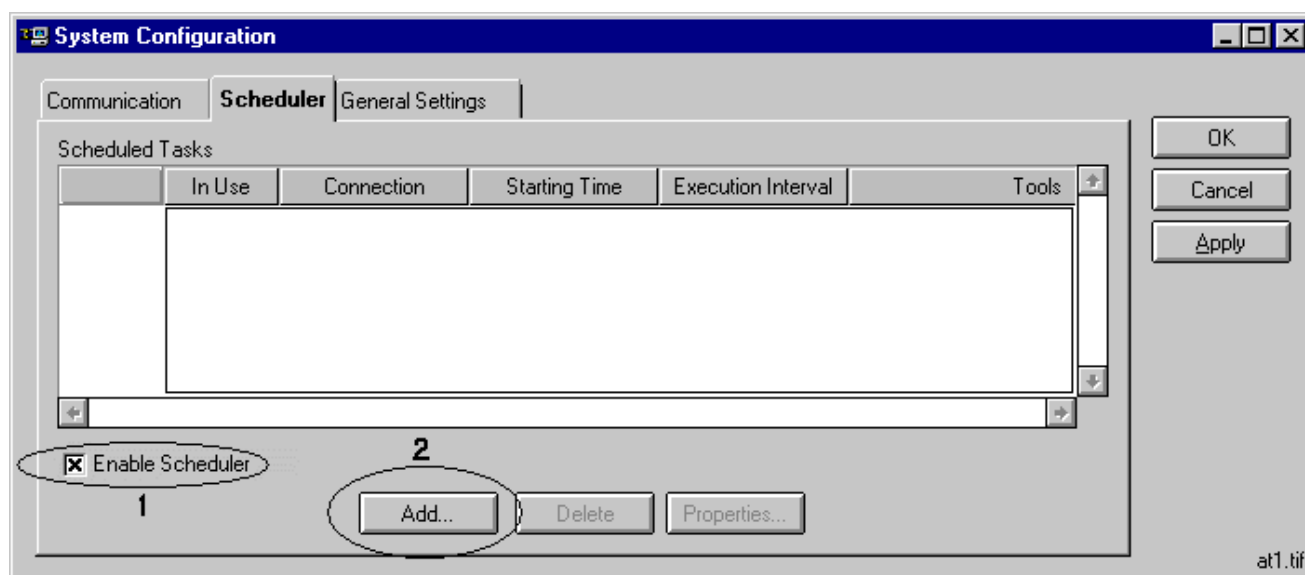
Fig. 15.6.1.-1   Enabling the Scheduler (1) and Adding a Scheduled Task (2)

Task Properties

Upon clicking **Add** in Fig. 15.6.1.-1, the Task Properties view is opened, where you can assign the tasks to be performed as in Fig. 15.6.1.-2.
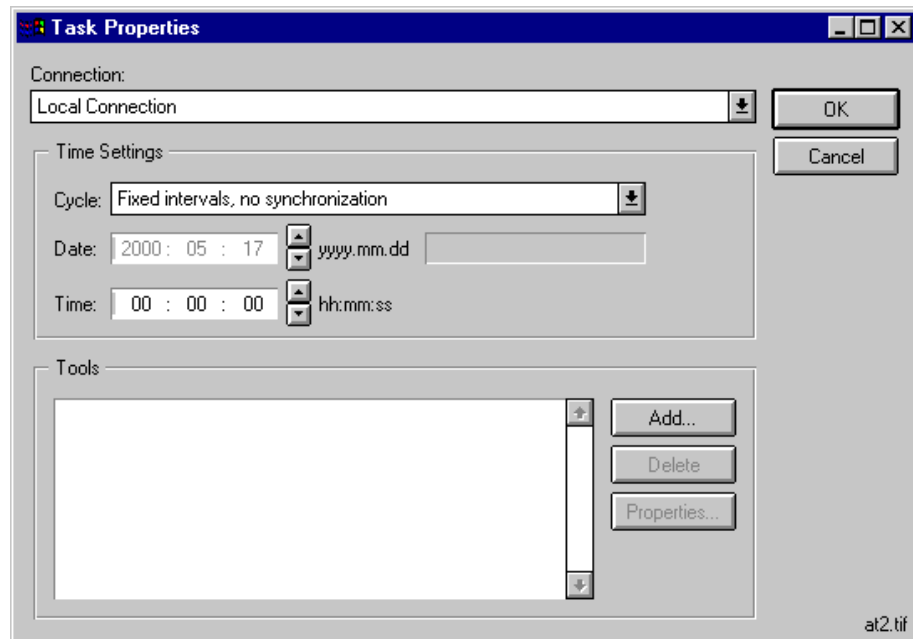
Fig. 15.6.1.-2   Task properties view for setting up tasks

The following properties are set in the Task Properties window Fig. 15.6.1.-2:

Connection:

Select the type of connection you are using. Local (which refers to the project set as local in the actual SMS 510) is always available, but the remote connections that you have defined are also listed.

Time Settings:

Cycle is used for selecting type of interval

Available settings are:

• Fixed intervals, no synchronization
• Absolute point of time, once an hour
• Absolute point of time, once a day
• Absolute point of time, once a week
• Absolute point of time, once a month

Date is used for setting date

Time is used for interval definition or synchronization point

The task is started after the interval has elapsed. This means that if setting the interval to e.g. 30 min., the task can be started at the earliest 30 min. after it was defined.

Fixed interval allows only time setting, no date settings. With the 'Absolute point of time, once a week/month' settings you can set both time and date. You can use the arrows or type the value manually in the fields.

Tools:

This field contains the tools that have been added to this task. Use **Add** to add tools. Once you have a tool in the tools list you can modify or add arguments to the tool by clicking the **Properties** button, or remove the tool by clicking the **Delete** button.

15.6.1.1.	**Adding a predefined tool**

Press **Add** in the Tools field in Fig. 15.6.1.-2 to add tools. When you add a predefined tool, see Fig. 15.6.1.1.-1, the drop down list contains the available tools. These tools are defined by SMS 510. Press OK when the selection is ready.
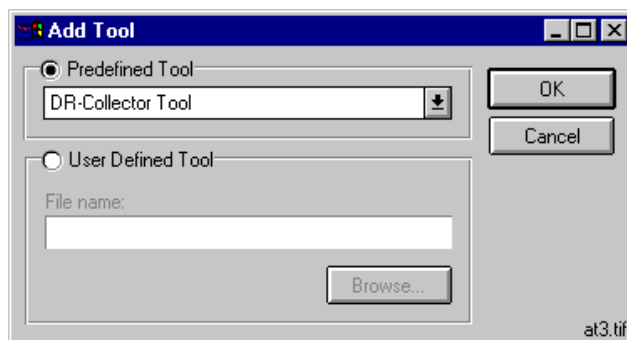
Fig. 15.6.1.1.-1 Adding DR-Collector Tool

Defining properties for the added tool

Once the tool has been added and the 'Connection:' has been made, add properties to the tool, see Fig. 15.6.1.1.-2.
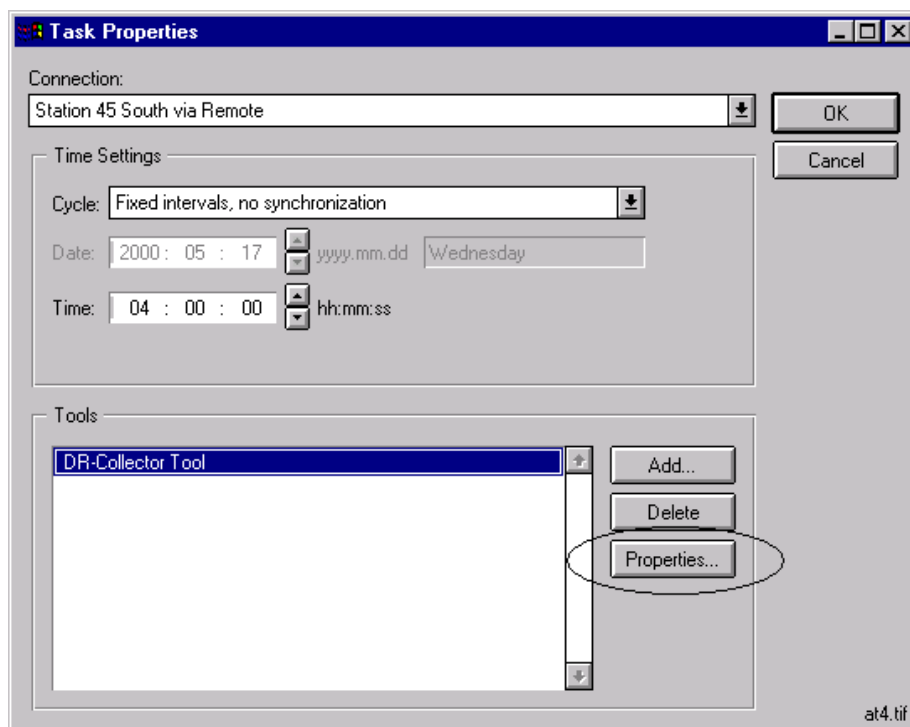
Fig. 15.6.1.1.-2 Defining 'Properties' for the selected tool

Tool Properties

When clicking **Properties**, see Fig. 15.6.1.1.-2, the Tool Properties' view is opened, see Fig. 15.6.1.1.-3.

Fig. 15.6.1.1.-3 Selecting file uploading method for DR-Collector Tool

For the tools of type Predefined tools in SMS 510, the **Callback required** check box is always enabled. The **File Upload Method** check box is enabled when the type of connection is Remote or LAN, i.e. the disturbances are not uploaded from the relay modules directly, but from another remote system that already has performed the uploading.

Selectable settings are **Copy disturbance recordings from station** or **Move disturbance from station**. In the latter case, the recordings are deleted at the source after a successful transfer.

15.6.2. Adding a user defined tool

Press **Add** in the Tools field in Fig. 15.6.1.-2 to add tools. When you want to add a tool that is not in the list of predefined tools, you can add it by activating the **User Defined Tool** selection by clicking that field, see Fig. 15.6.2.-1.

You can add tools either manually by giving path and file name, or by using the browse function (**Browse** button).
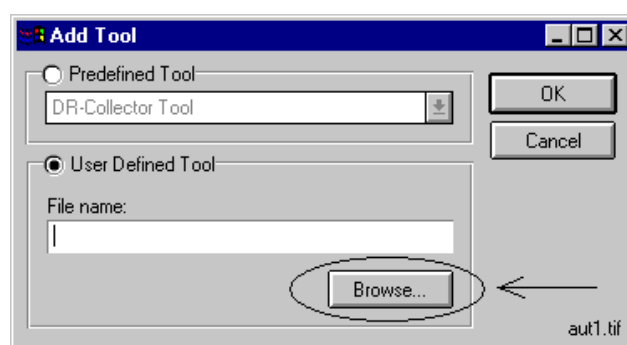
Fig. 15.6.2.-1   Adding a User Defined Tool

15.6.2.1. Browsing for user defined tools

The browse function, see Fig. 15.6.2.1.-1, permits searching for tools on various volumes. There is a tree navigator, which is used for browsing.

User's Guide
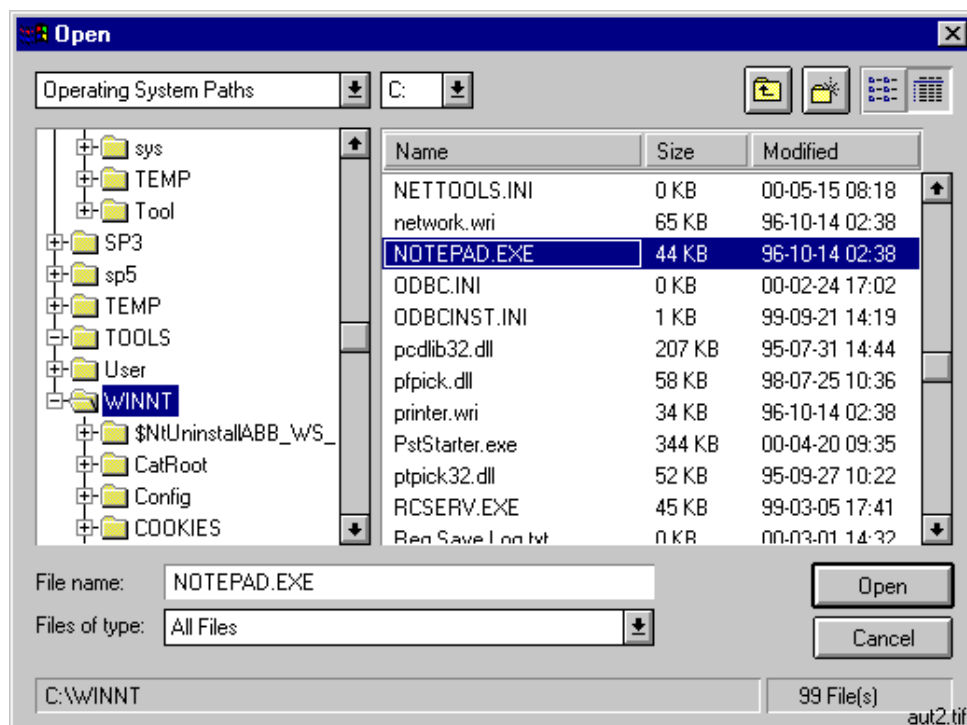
Fig. 15.6.2.1.-1 Browsing for tools

Click on directories in the tree to navigate. The path is shown in the lower left-hand corner.

When you have found the tool or file you are looking for, click on it and it is added to the 'File name:' field.

Use the 'C:' box to select the drive to search. Click the arrow to open the list.

The fields 'Operating System Paths' and 'Files of type' do not contain other options.

The files in the list in the field to the right can be sorted according to 'Name', 'Size' and 'Modified' by clicking on the wanted column.

Press 'Open' when you have found the file you are looking for, and the tool is added, see Fig. 15.6.2.1.-2.

'Cancel' ends the browsing without selecting any tools.
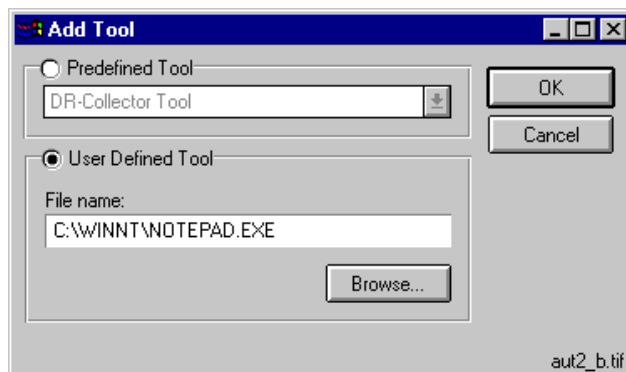
Fig. 15.6.2.1.-2 Notepad is added

User's Guide

When the Tool is added to the Add Tool as in Fig. 15.6.2.1.-2, press **OK** to return to the Task Properties window, see Fig. 15.6.2.1.-3. Now you can give properties to the tool.

Defining tool properties

Properties can be given for a user-defined tool as well. Select the tool and click **Properties, see** Fig. 15.6.2.1.-3.
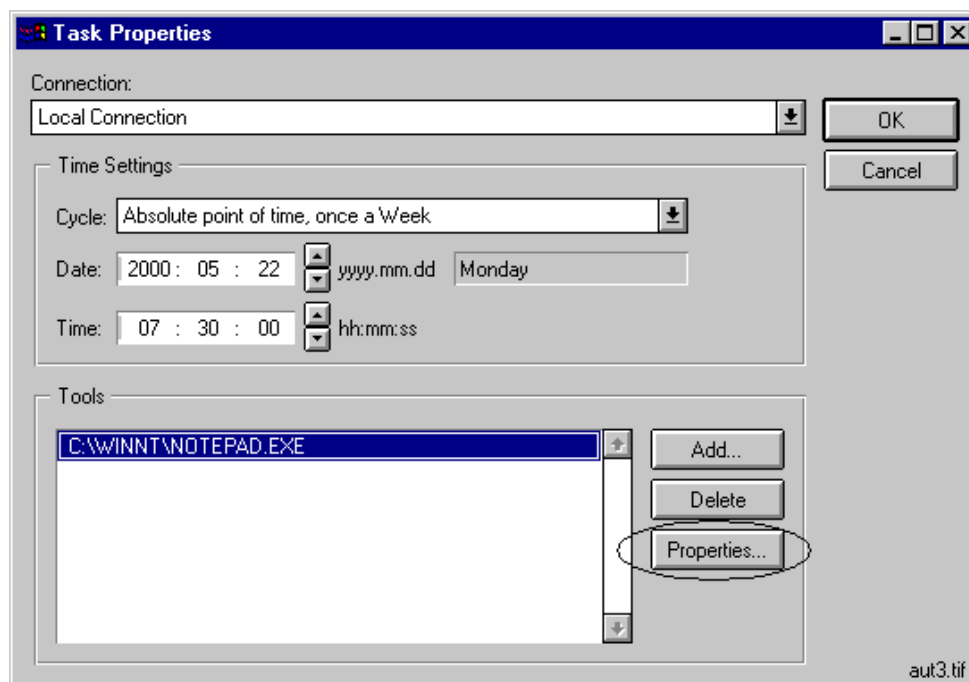
Fig. 15.6.2.1.-3 Selecting properties for the Notepad tool

Tool Properties

The Tool Properties function is launched for the user defined tool, see Fig. 15.6.2.1.-4.
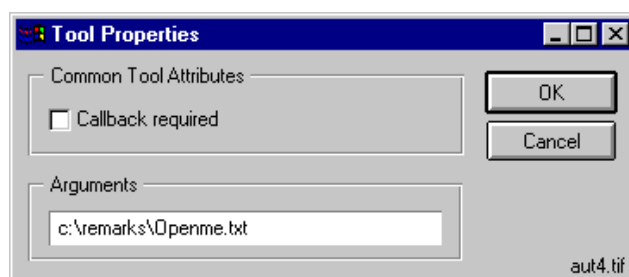
Fig. 15.6.2.1.-4 Tool Properties for a user defined tool

As illustrated in Fig. 15.6.2.1.-4, the callback function can be selected and a tool start-up argument can be chosen.

User's Guide

Callback required

In case callback is selected, the callback is given when the Notepad program is closed. This also means that in case Notepad remains open for a longer time, no other tasks are started until Notepad is closed and the callback received. Thus, the recommendation for user defined tools is to use **Callback required** only when you have programs that close automatically.

Arguments

The arguments are added as input parameters at start up of the tool. In the example, Notepad will open the file openme.txt located in the remarks directory.

Press **OK** to finish and save the settings, or use **Cancel** to exit without changes.

15.6.3. The finished example

After adding the tools as described above, the Scheduler contains two tasks, see Fig. 15.6.3.-1.
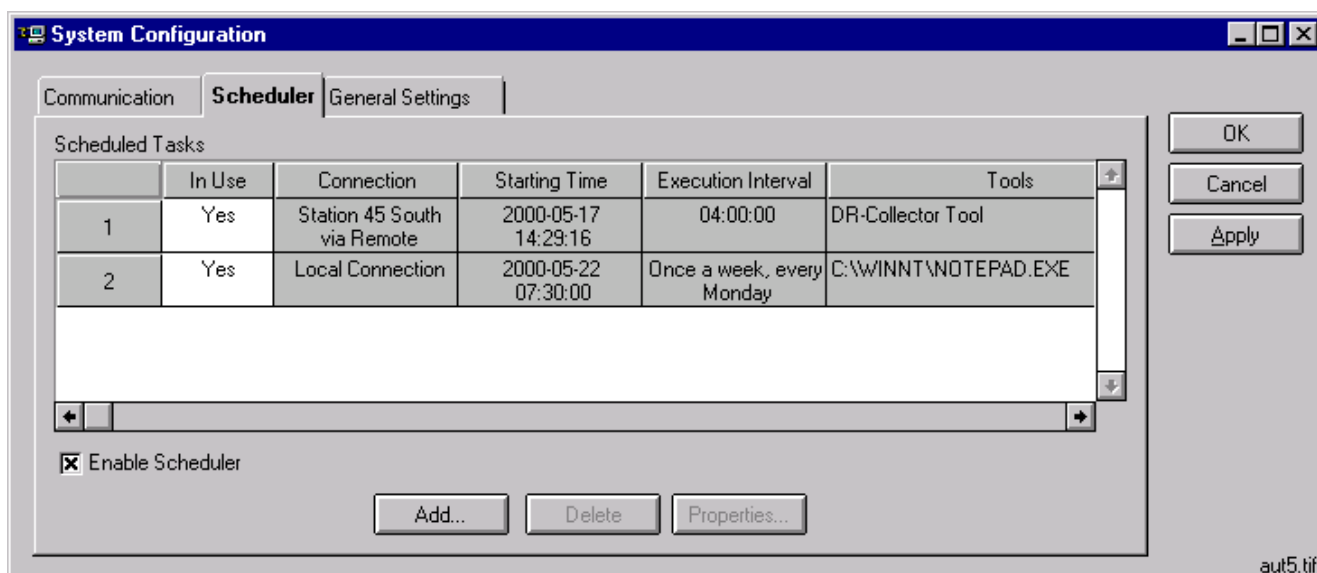
Fig. 15.6.3.-1   Two tasks are added to the Scheduler

15.7. Uploading of disturbance recordings using the Scheduler

The following explains the principles for using DR-Collector Tool as a task in the Scheduler.

15.7.1. Connection methods

There are two main types of connections:

Uploading of recordings from the relays directly

• Direct to the relays (the project is in the same PC as SMS 510 and set as local)

• Dial-Up (SPA) to the relays (the project is in the same PC as SMS 510)

Uploading of recordings from a remote system

- LAN to another SMS 510 (the project is in the remote SMS 510)
- Remote/RAS to another SMS 510 (the project is in the remote SMS 510)

You need to define a separate Scheduled Task for each type of connection.

15.7.2.   Connection type dependent upload

The tasks that DR-Collector Tool performs within the Scheduler depend on the type of connection.

Local and Dial-Up (SPA) connections

The project that is set as local and projects using dial-up modems (SPA bus only) perform the upload of the disturbances from the relay modules and saves the recordings in the SMS 510 project. The path is found from the DR-Collector Tool.

LAN and Remote/RAS connections (SMS to SMS only)

LAN or Remote/RAS can be used to copy or move already uploaded recordings. This means that the remote SMS 510 is performing the upload from the relay modules and the recordings are transferred to the other SMS 510 over LAN or RAS. At the moment, SMS to SMS is supported, SMS to COM 500 + LIB 5x0 or SYS 500 + LIB 5x0 are not supported for transfer of recordings.

> **i** LAN or Remote/RAS connections initiated by the Task Scheduler *do not permit uploading of recordings from the relays*. This has to be done locally, either by task scheduling or by the uploading tool. Uploading of recordings over *remote* from the relays can be done *manually* by using the DR-Collector Tool.

15.8.   Running DR-Collector Tool over LAN/Remote

This information concerns the usage of DR-Collector Tool when started from the SMS 510 Project Navigator (from the System Tools menu), connecting over LAN or Remote/RAS. The recordings of both the remote SMS 510 and the local SMS 510 can be seen in the DR-Collector Tool recordings list, and the recordings are marked with local or remote depending on location. This means that the recordings can be accessed over remote within DR-Collector Tool as well.

The LAN or Remote/RAS connection is opened the usual way in this case, as in the the example in Section 12.3. Activating a remote connection.

User's Guide

16.   Task monitoring

This chapter describes how the status of scheduled tasks is monitored.

16.1.   General

There are two ways of checking the progress and status of tasks.

- On a general level by colors in the traffic light in the SMS 510 login window, see Section 16.2. Task status colors.
- On a detailed level by means of the Task Monitor window, see Section 16.3. Task Monitor.

16.2.   Task status colors

The general status of the tasks is indicated by colors in the traffic light in the login window, see Fig. 16.3.-1.

In the following table, a description of the meaning of the colors used in the traffic light, as well as the effects of a login to SMS 510 for certain colors, is given.

Table 16.2.-1 Traffic light colors, meaning and login action influence

Color	Status	Login action
Green (Fig. 16.2.1.-1)	No tasks scheduled	Proceed with login
(Yellow Fig. 16.2.2.-1)	Tasks are scheduled, but not performed at the moment	A login might postpone the execution of the task
Red (Fig. 16.2.3.-1)	The Scheduler is busy with tasks.	A login or exit terminates the task execution. Consider if you should wait or continue with login. Check the task with the Task Monitor if needed.

16.2.1.   Green color

The green color, see Fig. 16.2.1.-1, indicates that there are no tasks defined in the Scheduler. A login to SMS 510 can be performed without any effects on tasks in the Scheduler.

Fig. 16.2.1.-1   Task status green, no tasks are scheduled

16.2.2.   Yellow color

The yellow color, see Fig. 16.2.2.-1, indicates that there are pending tasks. The tasks are not carried out at the moment, but will become active later according to the interval set for the task(s). Starting SMS 510 might postpone the start of the task(s), in case the time to execute the scheduled task elapses during the user is logged on to SMS 510.

Fig. 16.2.2.-1   Status color is yellow, tasks are scheduled, but not executed

16.2.3.   **Red color**

The red color, see Fig. 16.2.3.-1, indicates that a task is carried out at the moment. Consider if it is possible to wait for the task to finish or check with the Task Monitor to see what is being done at the moment, before you log in.

Fig. 16.2.3.-1   Status color is red, tasks are being performed

Logging in to SMS 510 during red light means that the task executed is terminated, a login notification is shown as in Fig. 16.2.3.-2.
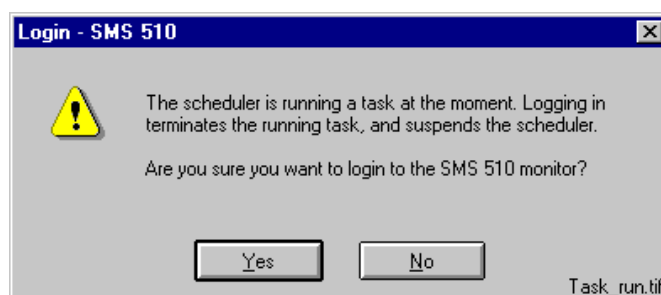
Fig. 16.2.3.-2   The dialog for logging in when a task is being executed

In the same way, when selecting exit in the SMS 510, the user will be informed that the task executed will be terminated, see Fig. 16.2.3.-3.
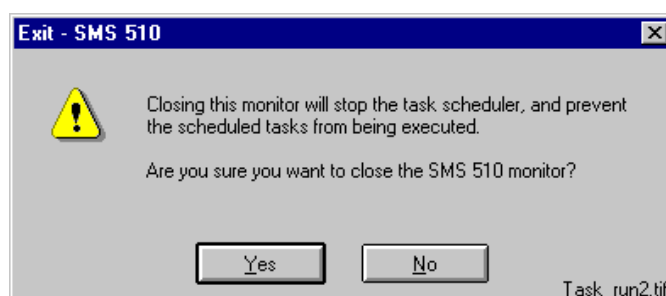
Fig. 16.2.3.-3   The dialog for closing when the Scheduler indicates activity

16.3.   **Task Monitor**

The tasks in the Scheduler are monitored from the Task Monitor function, click **Task Monitor, see** Fig. 16.3.-1.

User's Guide
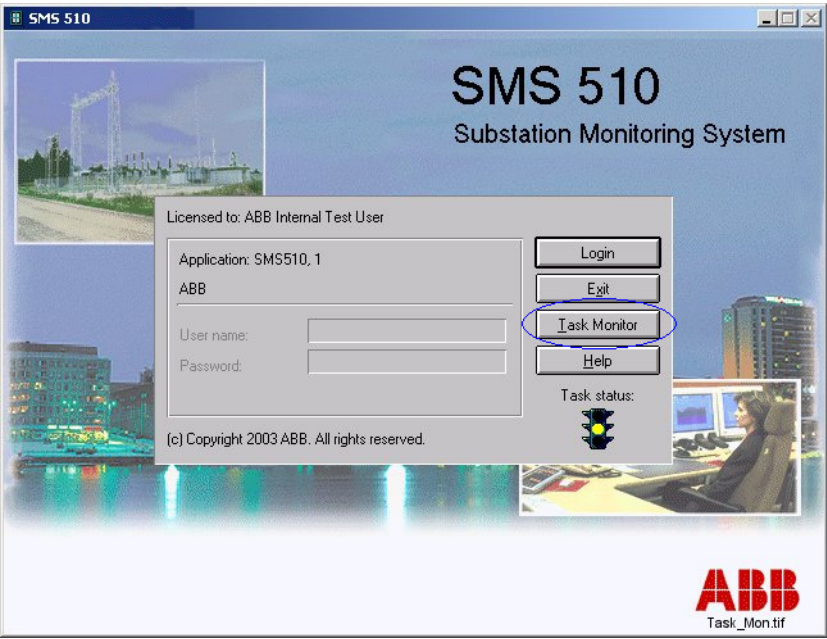
Fig. 16.3.-1 Starting the Task Monitor

16.3.1.   **Task Monitor status list**

The list in the Task Monitor shows the status of the tasks, see Fig. 16.3.-1. The Task Monitor Status List shows tasks running and waiting to be executed. When a task is finished, (callback received by the Scheduler), it is removed from the list.
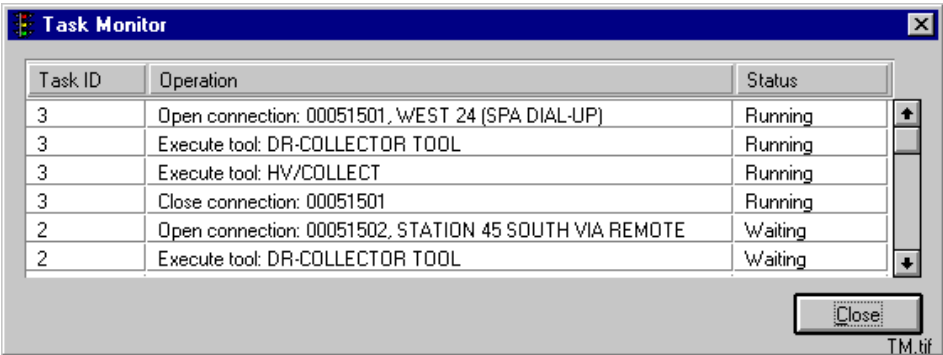
Fig. 16.3.1.-1   List of tasks and corresponding status in the Task Monitor

In the following table, the columns and button in the Task Monitor, see Fig. 16.3.-1, are described.

Table 16.3.1-1 Task Monitor contents

Column	Explanation
Task ID	The number of the Scheduled Task in the Scheduler
Operation	The tasks that have been executed are listed as well as operations concerning establishing the communication in regards to tasks.

Table 16.3.1-1 Task Monitor contents

Status	The progress of the tasks. **Running** means that the task is started but not finished (callback not received) **Waiting** means that the time to be performed already has elapsed, but the task is waiting to start.
Button	
Close	Close the Task Monitor

The Task Monitoring session is ended by pressing **Close**.

16.3.1.1.   Task with status waiting

Tasks in the Scheduler with status 'waiting' are waiting for their turn to be performed and are started when there is a suitable occasion.

A task gets the status 'waiting' as a result of the following:

• If the previous task needs more time than expected and it is of the type giving a callback to the Scheduler when finished, the next task to be started is set on the waiting list and is started when the callback signal has been received.

• When a user is logged on to SMS 510. The longer the user is logged on to SMS 510, the more tasks get status 'waiting'.

16.4.   Removing of tasks with status waiting

It might be convenient to clear tasks with status 'waiting', in particular when there are many tasks in waiting mode.

Waiting tasks are removed by temporarily taking the Scheduler function out of use (**Enable Scheduler** check box in the Scheduler window, see Fig. 15.5.-2). Pressing **OK** or **Apply** when the **Enable Scheduler** is in "off" mode, the tasks in waiting mode are removed. After this, you can take the Scheduler in use again, by clicking the **Enable Scheduler** check box

The Scheduled tasks that you have prepared in the Scheduler are not modified or deleted by the Enable Scheduler "on/off" operation.

Tasks in waiting mode are **not** removed by closing SMS 510 by exit.

17. SMS Conversion Tool

This chapter describes how to import projects from SMS 010 to SMS 510.

17.1. Purpose

The purpose with the SMS Conversion Tool (SMSCT) is to import existing SMS 010 application structures into the SMS 510 environment. Thereby the user can create new SMS 510 projects from existing SMS 010 applications, and view the summary report of operations. To reuse (import) applications made for SMS 010 when upgrading to SMS 510, this SMSCT tool can be used. The original SMS 010 application is not modified during the import procedure to SMS 510.

17.2. What is an SMS 010 application?

An SMS 010 application structure is an application containing five levels; Organization, Station, Object/Bay, Unit and Module and it is created by the SMS-BASE program. The application has a name; e.g. DATA-EX. Another example of an SMS 010 application is C:\SMS\DATA-EX. The same names that have been used in the SMS 010 applications are also used in the imported project.

SMSCT also supports import of applications containing three or four levels (normal is five), which were possible to use in SPASET systems.

17.3. Features

- Reusing of SMS 010 applications (SPACOM relays)
- Application tree browser and details
- Importing SMS 010 application structures to SMS 510 projects
- Import whole application or parts of it
- Skip empty elements at import
- Import report
- Import progress bar
- Support for several languages of the applications
- Setting data of relays converted to the SMS 510 project
- Columns in the views can be resized to fit the contents
- Can select one organization out of several in an SMS 010 application to be imported to a project of its own. As default all organizations are imported

17.4. Limitations

The following limitations apply for SMSCT:

- The units supported for import are relays from the SPACOM series of relays.
- The drives where the source application is to be imported and the destination project is to be produced are located on the hard disk where the SMS 510 is installed.

User's Guide

___

• In case the SMS 010 application is on another disk, you can, before importing it by SMSCT, copy it to the same computer. This can be done by copying the application over the network, copying it to a floppy or compressing it to a ZIP file and then transferring it, using e.g. the AS Handler in SMS 010. Since the application is a stand-alone structure, it can be transferred to any location.

• In case you want to import a compressed SMS 010 application (*.ZIP), you have to decompress it before importing.

• The amount of relays that can be imported is limited to the maximum amount of relays that a project on SMS 510 can hold.

• A project used in SMS 510 can contain maximum 50 relays. Therefore, you should examine the SMS 010 application before importing it. You can use the Details... (see Fig. 17.8.2.-3) to check the amount of "Unit" objects (= relays) in the SMS 010 application you want to import. In case you have more than 50 units in the application you intend to import, then you have to import portions of the application. Thus, via multiple import operations you create two or more separate projects out of the original. Use the Select button (see Fig. 17.10.-3), for partial import of selected branches of the SMS 010 application.

17.4.1.   Import remarks

During the import, the following is automatically performed by SMSCT:

• Conversion of SACO 16D1B to SACO 16D2B

• Conversion of SPCD 3C2X to SPCD3C21, 3C22, 3C23

• If, for some reason, a relay is lacking some settings, i.e. parameters, these are completed during the conversion by default values

• The measuring transducer values in a SMS 010 application are given for each unit as primary and secondary values, plus the relay input value. Thus, if the transducer values have been set to 0, 1 or left empty these are ignored by the SMS Conversion Tool.

17.5.   Abbreviations and terms

The abbreviations used in this chapter are described in the table below:

Table 17.5.-1   Abbreviations

Abbreviation	Full Text
SMSCT	SMS Conversion Tool
Application	SMS 010 Application
Project	SMS 510 Project

SMS 010 terms are mapped to SMS 510 terms as described in the table below:

Table 17.5.-2   SMS 010 and SMS 510 terminology

SMS 010 Term	SMS 510 Term
Application	Project
Application structure root level	Level objects (views)
Organization level	n/a
Station level	n/a
Object/Bay level	n/a

User's Guide

Table 17.5.-2   SMS 010 and SMS 510 terminology

Unit level	Device objects
Module/Part of Unit level	United in a single device object

17.6.   Starting SMS Conversion Tool

The SMS Conversion Tool is started in the System Tools menu in SMS 510 by selecting the menu item SMS Conversion Tool, see Fig. 17.6.-1.

SyTo_SMSCT

Fig. 17.6.-1 Selecting SMS Conversion Tool in the System Tools menu

17.7.   User interface

The main view of SMS Conversion Tool contains lists of applications both in SMS 010 and applications that have been imported to SMS 510 projects.

SMSCT is divided into two sections; one for SMS 010 applications and one for SMS 510. In the figure below, the SMS 010 applications and paths are the ones shown to the left:
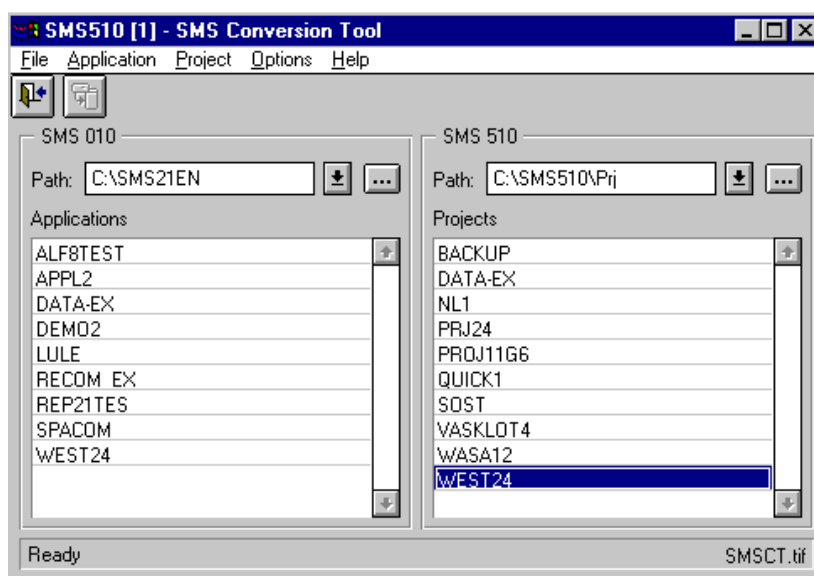
Fig. 17.7.-1 The main view in the SMS Conversion Tool

The following table describes the fields in Fig. 17.7.-1.

Table 17.7.-1   Fields in SMS Conversion Tool

Field	Explanation
Path	The path where the application or project is located
Applications	A list of the applications
Project	List of projects available to SMS 510

17.8.   Menus and toolbar

The following sections describe the Toolbar and the menus.

17.8.1.   File menu

The File menu, see Fig. 17.8.1.-1, contains the menu item for the conversion of SMS 010 applications to SMS 510 Projects and conversion reports as well as exit from the program.

Fig. 17.8.1.-1   File menu

Import

Toolbar entry:

This command opens the dialog containing the import options. The toolbar button and the menu item are enabled only when an application is selected in the SMS 010 application list, which means that you have to select the application to be imported before you can start the import function. The Import function is described in Section 17.10. Importing SMS 010 applications.

Import Report

This menu item shows the most recently performed import operation report.

Exit

Toolbar entry:

Exit and return to the SMS 510 Project Structure Navigator.

User's Guide

17.8.2.	**Application menu**

The Application menu items, see Fig. 17.8.2.-1, apply to the SMS 010 part of the SMS Conversion Tool view.
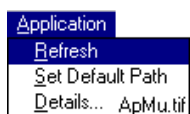
Fig. 17.8.2.-1   Application menu

Refresh

This menu item refreshes the list of applications.

Set Default Path

The path for location of SMS 010 applications is set back to the default path, e.g. C:\SMS\ in the Path: text box as in the figure below:
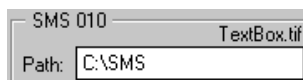
Fig. 17.8.2.-2   Path: text box with default SMS 010 application path

Details…

Select an application in the application list and then select **Details…**from the Application menu and a detail dialog pops up, see Fig. 17.8.2.-3. The same function can also be started by double clicking on an application in the application list.

User's Guide
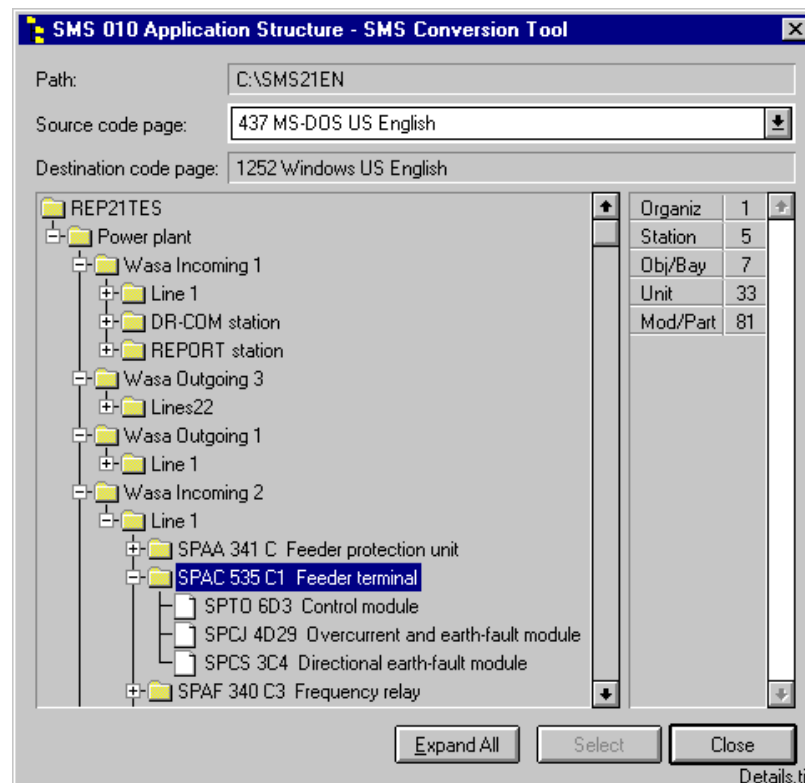
Fig. 17.8.2.-3   Details for an SMS 010 application

The following table describes the fields and buttons in Fig. 17.8.2.-3.

***Table 17.8.2-1   Fields and buttons in the SMS 010 Application detail
presentation***

Field	Explanation
Path:	The path where the application or project is located
Source code page	By means of the source code page selector you can select the proper code page in case you use another language than the default English
Destination code page	Cannot be changed by the user
Button	
Expand All	Show the whole application tree
Select	Has no function in this case, therefore disabled
Close	Exit the details presentation

17.8.3.   Project menu

The Project menu items, see Fig. 17.8.3.-1, applies to the SMS 510 part of the SMS
Conversion Tool view.
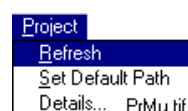
Fig. 17.8.3.-1   Project menu

User's Guide

Refresh

The Refresh menu item refreshes the list of SMS 510 projects that are in the projects list.

Set Default Path

The path for location of SMS 510 applications is set back to the default path e.g. C:\SMS510\Prj in the path text box as in Fig. 17.8.3.-2.
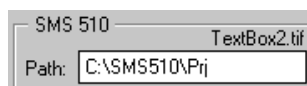
Fig. 17.8.3.-2   Path: text box with default path for SMS 510 projects

Details…

Select a project in the project list and then select **Details…** from the Project menu and a detail dialog pops up, see Fig. 17.8.3.-3. The same function can also be started by double clicking on a project in the project list.

Some options are disabled, while they are used when browsing applications for SMS 010.
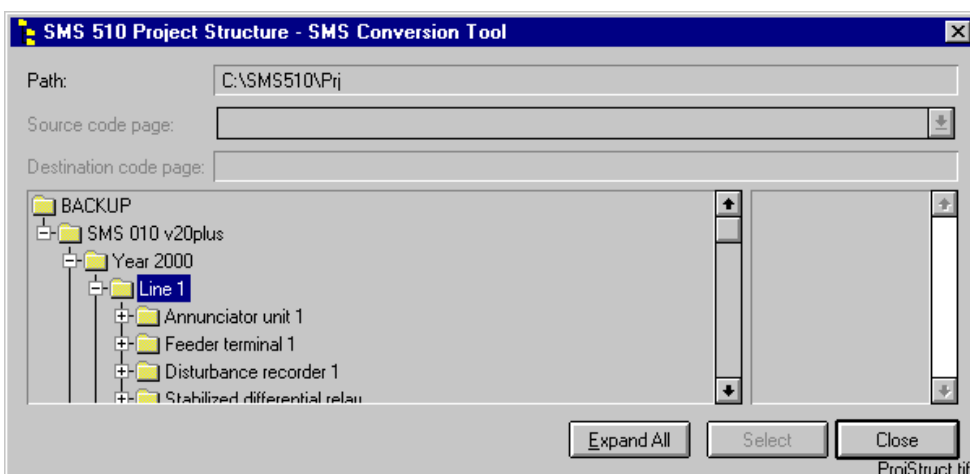
Fig. 17.8.3.-3   Browsing an SMS 510 project

The following table explains the fields and buttons in Fig. 17.8.3.-3.

Table 17.8.3-1 Fields and buttons in the SMS 510 Project detail presentation

Field	Explanation
Path:	The path where the project is located
Source code page	Cannot be changed by the user
Destination code page	Cannot be changed by the user
Button	
Expand All	Show the whole project tree
Select	Has no function in this case, therefore disabled
Close	Exit the details presentation

17.8.4.   Options menu

Options

The Toolbar Visible menu item, see Fig. 17.8.4.-1, toggles the presentation of the Toolbar in SMSCT.

Fig. 17.8.4.-1   Options menu

17.8.5.   Help menu

About

The About menu item in Fig. 17.8.5.-1 presents the About dialog.
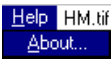
Fig. 17.8.5.-1   Help menu

17.9.   Browsing for SMS 010 applications to import

Before you can start the import function, you have to select the application to be imported. This section describes how to select and browse application paths not available from the default C:\SMS\.

The applications are listed in the application list, see Fig. 17.9.-1, according to the path selected in the Path: text box. Therefore, what you need to know is the path where the applications are at, SMSCT detects the names of the applications.
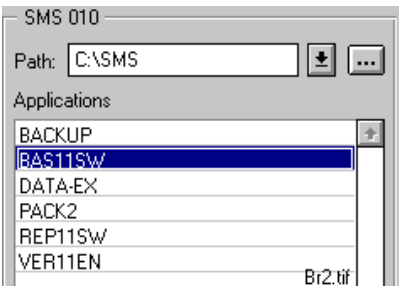
Fig. 17.9.-1 The following applications were found in C:\SMS

17.9.1.   Select path

Click the **arrow down** button to the right of the Path: text box and the known paths are shown, see Fig. 17.9.1.-1.

User's Guide
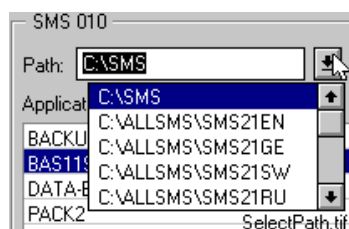
*Fig. 17.9.1.-1   The list of paths containing SMS 010 applications known to
SMSCT*

Click the path you want to select and it is shown in the Path: text box. In case you
have many SMS 010 installations, you get a scroll bar to the right, by which you can
scroll through all paths in the list.

You can also type the path manually in the Path: text box or use the Select a directory
function (explained as the next topic) to add a missing path. The paths listed in the
Path: text box are remembered once they have been added to the path library.

17.9.2.   Select a Directory

In case your SMS 010 application is found at another path than the default one, and
this path is not included in the list, you can add it to the list by the Select a Directory
function. In case you know the exact location, you can fill it in manually in the Path:
text box, see the figure below:
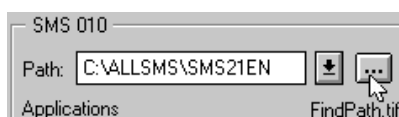
Fig. 17.9.2.-1   Starting the browser by clicking the Select a Directory button

By clicking the **Select a Directory** button, you can start adding more paths, see
Fig. 17.9.2.-2.
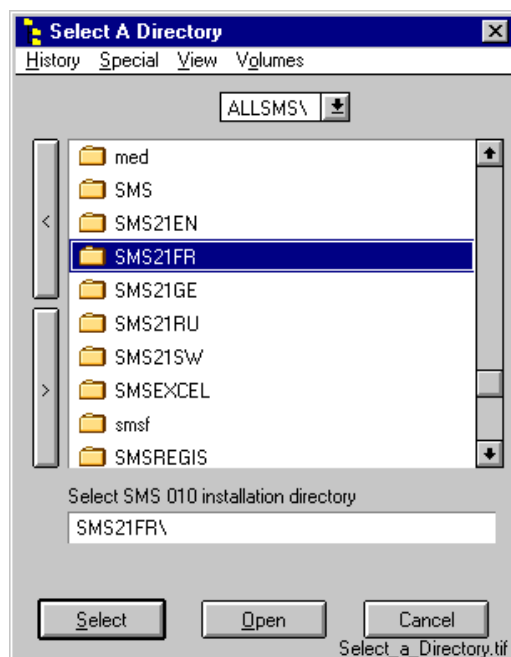
Fig. 17.9.2.-2   Selecting a Directory from which to add SMS 010 application locations

The following table explains the menus and buttons in Fig. 17.9.2.-2.

Table 17.9.2-1 Menus and buttons in the Select a Directory function

Menu	Explanation
History	The recently visited paths are shown
Special	Home <Ctrl><H> Mark <Ctrl><H> Unmark
View	By name (alphabetical) By Date (according to date) By Modified (according to date of modification)
Volumes	The volumes available on the PC; e.g. A, C, D **Note!** Normally network volumes cannot be accessed. In that case you first have to copy the SMS 010 application to the hard drive of the PC and then add these to the list and convert.
Button	
Arrow left	Go one directory back from the selected one
Arrow right	Go one directory up from the selected one
Select	Add the path marked to the Path: list **Note!** Pressing <Enter> is the same as <Select>
Open	Go one directory up, same function as arrow right
Cancel	Exit the function without adding any paths **Note!** Pressing <Esc> is the same as <Cancel>

You can add only one path per session, so you have to redo the procedure for every path you want to add.

17.10.   **Importing SMS 010 applications**

Once you have selected an application in the application list, you can import it, see Fig. 17.10.-1 below:
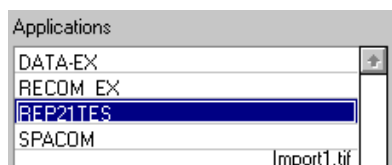
Fig. 17.10.-1 An application is selected in the application list

The import function is started by selecting **Import** in the **File** menu or by clicking the **Import** button:

The Import Options dialog is presented in Fig. 17.10.-3.

Fig. 17.10.-2 The project importing was stopped because of too many objects in the application

User's Guide

ImportingApl

Fig. 17.10.-3 Import Options shown

The following table explains the fields and buttons in Fig. 17.10.-3.

Table 17.10.-1 Fields and buttons in Import Options

Field/Button	Explanation
SMS 010 application path	The path where the application to be imported is located
SMS 010 application name	Name of the application
Application root level	
Application root node	This field is empty by default, which means that the whole application is converted. By using the Select button, you can select a part of the application and only that part of the application structure will be imported
SMS 510 project path	Where the SMS 510 projects are located, changed by SMS 510 Path: text box
SMS 510 project name	The project name that the imported application is getting in SMS 510.
Source code page	Select the code page that have been used for the application.
Destination code page	Cannot be set by the user, the program selects1252 Windows US English or 1251 Cyrillic
Skip empty objects (check box)	The tool converts only those organizations, stations, bays and units, for which at least 1 child unit or module would be transferred to the new project (that is, object type was recognized).
Include relay names into object names (check box)	When check box is selected, the relay name (for example SPAJ 140) is included in the object name of the converted object. The name can then be seen in the tree structure (for example "SPAJ 140 Phase and neutral overcurrent relay"). When the check box is cleared, only the relay description can be seen (for example "Phase and neutral overcurrent relay").
Select	You can select parts (organization or station) of the structure to be imported. See Fig. 17.10.1.-1 as an example.

User's Guide

Table 17.10.-1 Fields and buttons in Import Options

Field/Button	Explanation
Import	The import starts according to the conditions given
Cancel	Exit without importing

17.10.1. Select Application Root Node
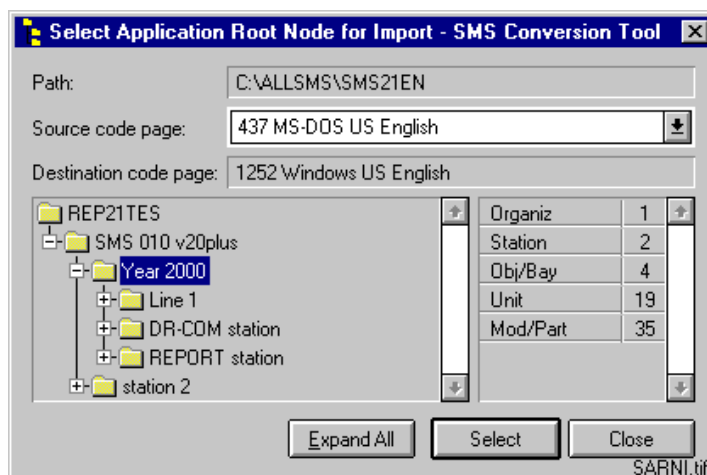
Fig. 17.10.1.-1 Selecting a node from which to import

The following table describes the fields and buttons in Fig. 17.10.1.-1.

Table 17.10.1-1 Fields and buttons in Select Application Root Node for Import

Field	Explanation
Path	The path where the application to be imported is located
Source code page	Select the code page that has been used for the application to present the texts in the right way.
Destination code page	Cannot be set by the user, the programs selects 1252 Windows US English or 1251 Cyrillic
Statistics (list)	The amount of elements on different levels in the application
Button	
Expand all	Show the expanded tree structure
Select	Select the part of the application that you intend to convert, can be any station or organization within the application. The button is disabled on other levels in the application
Close	Exit the function

17.10.2. Starting the import operation

By clicking the **Import** button in Fig. 17.10.-3, the import operation starts. In case the SMS 510 project already exists, a warning is given, see Fig. 17.10.2.-1.

User's Guide

Fig. 17.10.2.-1 Warning saying that the specified project already exists

The import operation progress can be followed on-line as shown in Fig. 17.10.2.-2 below:
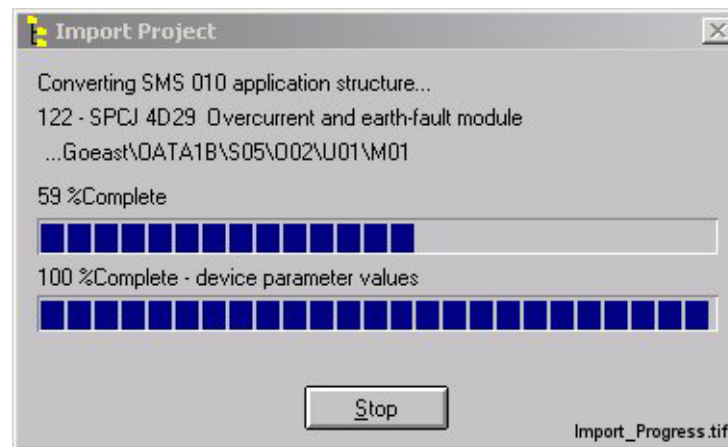
Fig. 17.10.2.-2 Progress of the import

The second row shows the actual object being processed (in this case a SPCJ 4D29 module), while the third row presents the corresponding path to this object as found in the source SMS 010 application.

The entire operation of scanning through the source application to perform the import of individual objects is shown in percentage on the fourth row. This is illustrated by the first progress bar.

The second progress bar is run when the settings of relay modules are imported.

17.10.3.   Import Summary Report

After the import has been carried out, a summary report is presented. There are two ways of presenting it; as a tree view in Fig. 17.10.3.-2 and as a list view in Fig. 17.10.3.-3. The idea is to set focus on objects that for some reason have not been imported. For instance, REPORT and DR-COM stations are of no use to SMS 510; therefore, they are not imported. The whole sub-tree, where all objects have been successfully imported shows a message 'The object is converted successfully', see Fig. 17.10.3.-1.
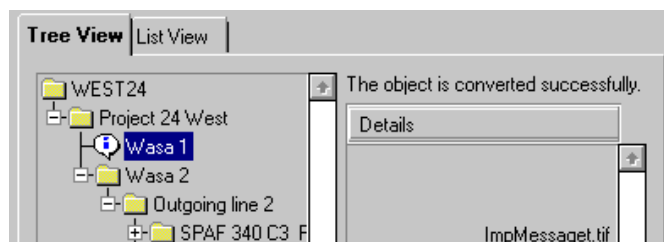
Fig. 17.10.3.-1 Station Wasa1 and all objects within it successfully converted

The whole imported application is shown in the SMS 510 part of SMSCT, see Fig. 17.7.-1.

When you have analysed the report, you can close it with the **Close** button. The report can also be saved by the **Save** button for later analysis. You should save it as a *.TXT file. You can recall the latest import report with the **Import Report** menu item in the **File** menu, but import reports made earlier have to be opened with e.g. Notepad (provided that you have saved them).
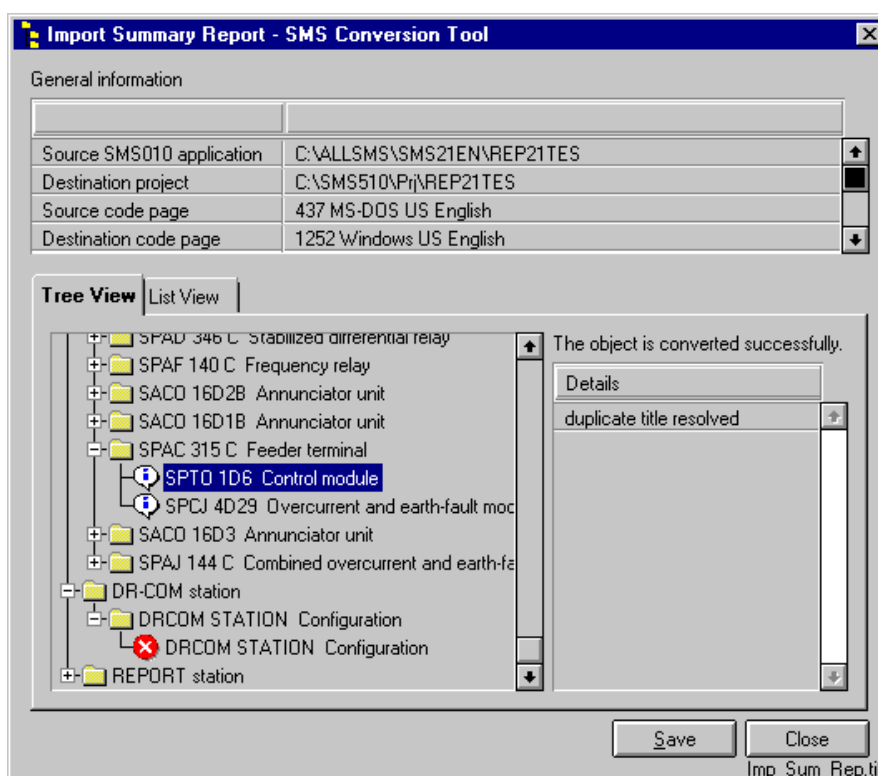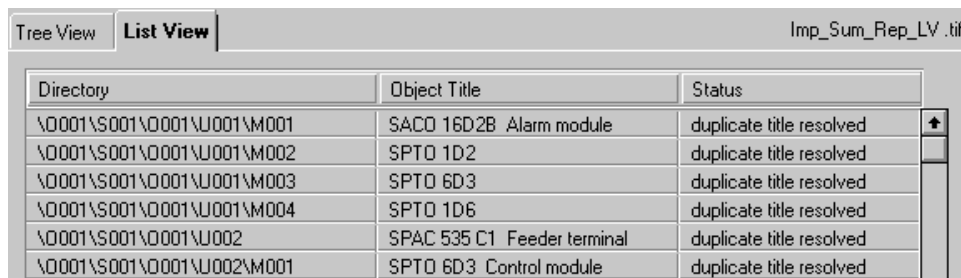
Fig. 17.10.3.-2 Import Summary Report as Tree View

Fig. 17.10.3.-3 Import Summary Report as List View

17.10.3.1.   Import summary messages

The following table explains the import summary messages.

Table 17.10.3.1-1 Import summary messages

Message	Explanation
The object is converted	Conversion successful
Object type could not be mapped	The element in the application could not be mapped. Reason for this can be that it is an unknown element to SMS 510 Project Manager, e.g. a Manual Entry module, or that it has meaning only for SMS 010 like REPORT and DR-COM station settings.
The object is not converted	The object was not converted, and neither was any possible child elements on the next level.
None of child objects converted	The objects within the element were not converted (only the previous level designation), e.g. REPORT station is converted but not the REPORT station configuration.
Duplicate title resolved	Means that the object title was not unique within the application sub-tree being imported. Therefore, a unique numeric suffix is added to such titles. For example, if the source SMS 010 application contains three objects "SPAC 535 C Feeder terminal", they would be named "Feeder terminal 1", "Feeder terminal 2" and "Feeder terminal 3" in the new project. An information message notifies the user that the object title was changed.

17.11.   Browsing SMS 510 projects

After the import of the projects, the project can also be browsed in the SMS 510 project list. Select a project in the list and select **Details** from the **Projects** Menu or double click the item and the details window is opened.

17.12.   Modifying imported projects

When you have imported an SMS 010 application to an SMS 510 project, you can modify the project the same way as a project that has been created by the tools in SMS 510. You just have to select the project to be active in SMS 510 (see the next section).

User's Guide

17.13.	**Taking the imported project into use in SMS 510**

Exit the SMSCT function. Select **Open** from the **File** menu and a dialog for opening project is opened, see Fig. 17.13.-1. More details about opening projects can be found in Section 4.7.1. File Open.
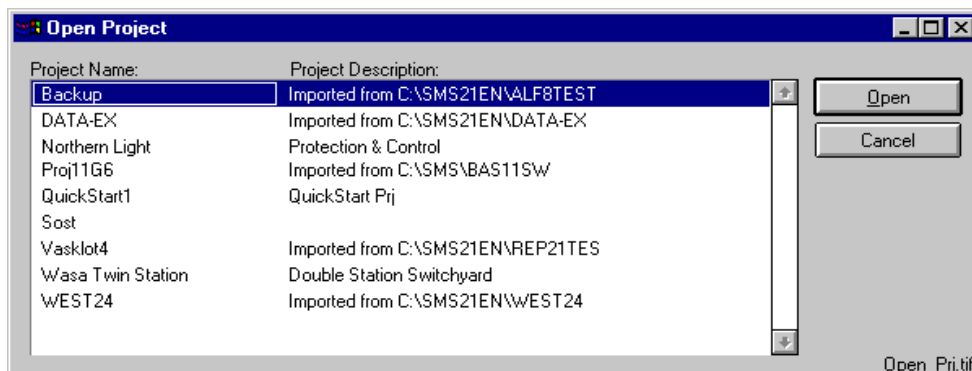
Fig. 17.13.-1 The list of projects with description

Select the project you intend to use and click **Open**.

Check that the system configuration is OK, see Fig. 3.11.-1. Furthermore, you should add and configure relays that for some reason have not been imported to the project.

18. Index

User's Guide

User's Guide

ABB

ABB Oy

Distribution Automation

P.O. Box 699

FI-65101 Vaasa

FINLAND

Tel. +358 10 22 11

Fax. +358 10 224 1094

www.abb.com/substationautomation