

SMS 510

Installation and Commissioning Manual



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1.3. Guarantee

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1.4. General

This manual provides thorough information on the installation and commissioning of the SMS 510, Substation Monitoring System software. 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>. Please 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

| | |
|--------|--|
| LAN | Local Area Network |
| LON | Local Operating Network, communication protocol developed by Echelon |
| PST | Parameter Setting Tool |
| RAS | Remote Access Service |
| SPA | Data communication protocol developed by ABB |
| SSS | System Self Supervision |
| TCP/IP | Transport Control Protocol/Internet Protocol |

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1.7. Related documents

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 |
| SMS 510 User's Guide | O | 1MRS751267-MUM |
| LON Gateways Configuration Manual | E | 1MRS751870-MEN |
| LONWORKS PCC-10 PC Card User's Guide ¹ | E | n/a |
| LONWORKS PCLTA-20 PC LonTalk User's Guide ² | E | n/a |
| 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 |
| Getting Started CAP2/316 | O | 1MRB520271-Uen |
| SPTO Configuration Tool, Configuration Guide | E | 1MRS751906-MEN |
| HV/Collect User's Manual | O | 1MRK511117-UEN |
| REB500 Selector Operator's Manual | O | 1KHA000967-AEN |
| Other | | |
| SMS 510 Release Note | E,O | |
| MicroSCADA Status Codes manual | O | 1MRS750850-MEN |

1. A manual from Echelon Corporation, not included in SMS 510. Downloadable in PDF format via www.echelon.com.

2. A manual from Echelon Corporation, not included in SMS 510. Downloadable in PDF format via www.echelon.com.

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1.8. Document revisions

| Version | SW Revision number | Date | History |
|----------------|---------------------------|-------------|---|
| B | 1.1.0 | 20.08.2003 | - Windows 2000 updates - RER 109 information removed |
| C | 1.2.0 | 31.08.2004 | - Windows XP updates - Installation of additional software - Uninstallation |
| D | 1.2.0-1 | 20.12.2004 | Maintenance updates |
| E | 1.3.0 | 07.02.2006 | Maintenance updates |

2. Introduction to SMS 510

2.1. Software

Categorization of the software:

| | |
|------------------------|--|
| Base System | Kernel software, additional base tools and services, providing a framework for the object types and tools. |
| RED 500 Support | RED 500 object types and the RED Relay Setting Tool for parametrization of RED 500 series relays. |
| SPACOM Support | SPACOM object type and the SPACOM Relay Setting Tool for parametrization of SPACOM series relays. |
| REB 500/RE.x16 Support | REB 500 and RE. 216/316 object types. |
| REx 5xx Interface | REx 5xx object type and the interface for the Parameter Setting Tool. |
| HV/Collect Tool | HV/Collect Tool for working with the disturbance recorders for REx 5xx series relays. |
| DR-Collector Tool | DR-Collector Tool for working with the disturbance recorders for RED 500 and SPACOM series relays. |
| Documentation | SMS 510 documentation in PDF format. The Adobe Reader is needed to view the documentation. |

This categorization is also present as installation options in the main SMS 510 installation application.

SMS 510 installation applications

The SMS 510 Program CD contains seven installation applications, which you need for installing the complete relay object type support to SMS 510. The applications are the following:

- SMS510.EXE, the main SMS 510 installation application.
- PSTSetup.EXE, which installs the Parameter Setting Tool (PST) and supported terminal libraries of the REx5xx object type.
- ABB_RE_16_Setup.exe, which installs the CAP 2/316 tool for the RE. 216/316 object types.
- REB500 Selector.exe, which installs the REB500 Selector for starting the proper HMI500 - REBWIN tool version.
- HMI500_REBWIN EN.exe, which installs the HMI500 - REBWIN tool for the REB500 object type.
- AdbeRdr602_distrib_enu.exe, which installs the Adobe Reader 6.02.
- ie6_sp1_en_full.exe, which installs the Microsoft Internet Explorer 6 with Service Pack 1.

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Notes about the installation of additional software:

- Adobe Reader 6.02 needs to be installed only if there is no Adobe Reader 5.0 or later installed in the system.
- PST needs to be installed only if REx 5xx object types are used.
- Internet Explorer needs to be installed only if REx 5xx object types are used, and there is no Internet Explorer 4.01 or later installed in the system.
- CAP 2/316 needs to be installed only if RE. 216/316 object types are used.
- REB500 Selector and HMI500 - REBWIN need to be installed only if REB500 object types are used.
- If newer or other versions of the additional software mentioned above are available, the applicable tools can be installed in SMS 510. In this case the new installation must be carried out with caution to proper folders.

2.2.

Documentation

The SMS 510 delivery contains the documentation in electronic format only. The manuals are listed below:

Table 2.2.-1 SMS 510 manuals

| Manual | Description |
|---|---|
| SMS 510 Installation and Commissioning Manual | Provides installation and commissioning instructions for the SMS 510 software. |
| SMS 510 User's Guide | Provides information on using the base system functions of SMS 510. |
| Tools for Relays and Terminals (User's Guide) | Provides information on the Relay Setting tools, DR-Collector Tool, SPA Terminal Emulator, Disturbance Draw Tool, Power Quality Monitoring Tool, RED and SPACOM object types. |
| LON Gateways Configuration Configuration Guide | Provides information on using the communication gateway object types. |
| SPTO Configuration Tool Configuration Guide | Provides information on monitoring and configuring of the SPTO 1D2, 1D5, 1D6 and 6D3 control modules in the SPAC feeder terminal series. |
| REB 500 Selector Description | Operator's Manual for the REB 500 Selector |
| REB 500 Operating Instructions | Operator's Manual for the REBWIN HMI tool. |
| CAP2/316 | Provides information on using the CAP2/316 tool. |
| PST User's Manual | User's Manual for the Parameter Setting Tool (PST). |
| HV/Collect User's Manual | User's Manual for the HV/Collect Tool. |

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2.3. Hardware

The communication cables listed in the following table are regarded as accessories and are not included in the SMS 510 delivery. They can be acquired by placing a separate order.

Table 2.3.-1 Communication hardware

| Relay | Type | Order number |
|--|---|----------------------------|
| REF 541, 543, 545 RET 541, 543, 545 REM 543, 545 REX 521 REJ 51_ / 52_ REU 513, 523 | Opto | 1MKC950001-2 |
| REC 523 | | 1MRS120520 |
| REF 610 REM 610 REU 610 | Opto. *Contact your nearest ABB representative for availability. | 1MRS050698* |
| SPTO front connector SPCR front connector | RS 232 - RS 232 | SPA-ZP 17A3 |
| SPACOM 100/300 series | RS 232 - TTL connector | SPA-ZP 5A3 |
| SPAC 300/500/600 rear | RS 232 - RS 485 | SPA-ZP 6A2 |
| SACO 16A3, 16D1, 16D3 and 64D4 | *Connection cable for SPA-ZP 6A2 to SACO screw terminal | SPA-ZP 21A* and SPA-ZP 6A2 |

3. Requirements

This chapter describes the requirements for installing the SMS 510 software.

3.1. SMS 510 requirements

SMS 510 sets the following hardware and software requirements on the PC. Notice also the kernel-related dependencies explained in Section “System-wide product interdependencies” on page 21.

3.1.1. Software requirements

The following table lists the software requirements set by SMS 510.

Table 3.1.1-1 SMS 510 software requirements

| Item | Required |
|-----------------------------|---|
| Operating system | Microsoft Windows NT 4.0 Workstation Microsoft Windows 2000 Microsoft Windows XP Professional |
| Network | Network software. |
| Network Protocol | Transport Control Protocol/Internet Protocol (TCP/IP). |
| Remote Access Service (RAS) | Installation of RAS to enable remote connections from SMS 510 to SMS 510, SYS 500 and COM 500. |
| Microsoft Internet Explorer | Version 4 or higher to be capable of viewing the HTML help shipped with the PST tool. |

3.1.2. Hardware requirements

The following table lists the hardware requirements set by SMS 510.

Table 3.1.2-1 SMS 510 hardware requirements

| Item | Minimum | Recommended |
|----------------------|---|--|
| Processor | 233 MHz or higher Pentium compatible CPU | 1 GHz or higher Pentium compatible CPU |
| Memory | 128 MB | 256 MB |
| Display | SVGA, 800x600, 256 colours | SVGA, 1024x768, 256 colours |
| File system | NTFS file system on the installation drive | |
| Hard disk space | 300 MB | 500 MB |
| CD-ROM drive | Any device supported by the operating system. Required for installation | |
| Mouse | Any device supported by the operating system | |
| PCI slots | One slot for each PCLTA-20 card | |
| PCMCIA slots | One slot for each PCC-10 card | |
| Network adapter card | Any device supported by the operating system | |
| Modem | Any Hayes compatible modem supported by the operating system. | |

3.1.3. Additional requirements

The following table lists the additional requirements set by SMS 510.

Table 3.1.3-1 Additional requirements

| Item | Description |
|--------------------|--|
| User account | You must be logged on to the operating system with administrator rights in order to install the software successfully. Otherwise the installation is denied. |
| MicroSCADA service | The MicroSCADA service is not allowed to run in the background during the installation. Otherwise the installation is denied. |

4. Installation

This chapter describes the software installation procedure of SMS 510.

4.1. Preparing your computer for the SMS 510 installation

It is highly recommended that you make the following preparations before you install SMS 510.

4.1.1. Install-time user account

Ensure that you are able to logon to the computer from a user account having administrator rights.

4.1.2. Operating system software

Network software

Even if your computer will not be connected to a network, install the Network software, if it has not been done previously. It is recommended to install at least the TCP/IP network protocol.

Windows NT 4.0/Windows 2000/Windows XP

Before you install SMS 510, consider updating the operating system to the recommended level, if it has not been done previously.

4.1.3. Additional software

Before installing SMS 510, it is recommended to check the status and, if necessary, install new versions of the following programs.

Adobe Reader

Adobe Reader is needed to view the documentation included in the SMS 510 delivery. If Adobe Reader 5.0 or later is not already installed in the system, Adobe Reader 6.02 can be installed by starting the ADBERDR602_DISTRIB_ENU.EXE from the \SETUP subdirectory of the SMS 510 Program CD.

Internet Explorer

Microsoft Internet Explorer is needed for viewing the HTML Help delivered with the Parameter Setting Tool. If Internet Explorer 4.01 SP 2 or later is not already installed in the system, Internet Explorer 6.01 SP 1 can be installed by starting the IEC_SP1_EN_FULL.EXE from the \SETUP subdirectory of the SMS 510 Program CD.

4.2. Overview

4.2.1. Current version of the product

SMS 510 installations maintain a single current version of SMS 510 on your computer's system registry. The current version information is the basis for installations to determine proper install-time actions.

4.2.2. Non-forced installation

A non-forced installation means that the installation allows you to install any combination of the available installation options. This is possible only when you install to a destination containing the same version of SMS 510 as determined by the current version information.

This kind of installation should come into question, if part of the product has obviously become corrupt or is missing.

4.2.3. Forced installation

A forced installation means that the installation does not allow you to select which portions of the software to install. This happens if SMS 510 has not been installed to the target computer previously or another version of SMS 510 has been installed to the currently selected destination. This is to guarantee consistent software installations.

4.2.4. License of the product

After the installation of the SMS 510 Base System, you are requested to supply license information when you start SMS 510 for the first time.



If a valid license is found in the system, you do not need to supply the license information again.

The required information is included in the SMS 510 delivery on the license label, which is located on the cover of the SMS 510 Program CD case.



There is no license label on the CD cover if the SMS 510 was ordered without a new license. In that case, the license information found on the cover of your previous SMS 510 main version delivery is used.

Applications running at install-time

It is recommended to close all the unnecessary applications before installing SMS 510.

4.2.5. System-wide product interdependencies

4.2.5.1. Multiple installations of the kernel software

The kernel software is embedded into a line of products. Due to the nature of the kernel, some issues (described in the next sub-sections) may raise regarding computers containing multiple installations of the kernel (each product installs its own copy of the kernel software).

The product line using the same kernel comprises:

- CAP 501 v. 2.0.0 or newer
- CAP 505 v. 2.0.0 or newer
- COM 500 v. 3.0 or newer
- SYS 500 v. 8.4.3 or newer

4.2.5.2. MicroSCADA service

The MicroSCADA service serves as a core part in execution of the kernel software. Without a properly installed MicroSCADA service, you cannot use SMS 510 or any other product utilizing the kernel. A single kernel can execute at a time meaning that you can use only one of these products at a time.

Controlling the rights to start and stop the MicroSCADA service

By default, you are allowed to start and stop the MicroSCADA service only if your logon account is granted Administrator rights. However, you may also grant this right to any user belonging to either the built-in Users group or any non-built-in Users group, defined on your computer.

You can assign these rights by means of the MicroSCADA Service Access Manager Tool. However, you should keep in mind that the access configuration is system-wide, affecting the above mentioned product line. For detailed information on the tool, see Section “MicroSCADA Service Access Manager” on page 34.

4.2.5.3. MicroSCADA user account

A user account named MicroSCADA is created during the installation, if the installation does not detect one on the computer. This user account is required to enable execution of the MicroSCADA service.

When utilizing remote connections, the password of the MicroSCADA user account must be identical on both of the involved computers.



Regarding the modification of this user account, use only the MicroSCADA User Password dialog for the purpose, since usage of the operating system's user account management tools may bring the kernel into an inoperable state. For detailed information on the tool, see Section “MicroSCADA user account” on page 33.

4.2.5.4. Kernel incompatibility issues

Kernel revisions, that are incompatible with this version of SMS 510 and with the above mentioned product line, have been shipped with the following products:

- SYS 500 8.4.2A or older
- COM 500 2.0A or older

If you have either of these product versions installed on your computer, please take into account, that the installation of SMS 510 invalidates SYS 500 versions 8.4.2A and older, and COM 500 versions 2.0A and older. These products will not be operable after the installation of SMS 510. To continue using the SYS 500 and COM 500 products, you must upgrade them according to the following table.

Table 4.2.5.4-1 Required SYS 500 and COM 500 updates

| Product | Incompatible version | Compatible version |
|---------|----------------------|--------------------|
| SYS 500 | 8.4.2A or older | 8.4.3 or newer |
| COM 500 | 2.0A or older | 3.0 or newer |

The SMS 510 installation notifies you, if it detects a SYS 500 or a COM 500 version which should be upgraded. You are also provided the option to cancel the installation without modifying the computer's configuration.



If you are unsure about the possible effects of SMS 510 installation on SYS 500 and/or COM 500, it is recommended that you do not install SMS 510.

4.3. Software installation procedure outlined

4.3.1. Overview

The installation of the SMS 510 software is done according to the following steps and in the following order:

1. Ensure that the operating system is in an acceptable state, see Section "Preparing your computer for the SMS 510 installation" on page 19.
2. Install the main portion of the SMS 510 software by executing the SMS510.EXE installation application.
3. Install the Parameter Setting Tool software by executing the PSTSETUP.EXE installation application.
4. Install the CAP 2/316 software by executing the ABB_RE_16_SETUP.EXE installation application.
5. Install the REB500 Selector software by executing the REB500_SELECTOR.EXE installation application. Note that the default destination folder "C:\Program Files\ABB\REB500\Selector\" should be selected during the installation of the REB500 Selector.
6. Install the HMI500 - REBWIN software by executing the HMI500_REBWIN_EN.EXE installation application.

4.3.2. Main SMS 510 installation

When you have started the main SMS 510 installation, it first gathers the following information from the target system:

| | |
|--|--|
| Operating system | If you are not running Windows NT 4.0 or higher, the installation notifies you that it cannot continue. |
| User rights | If you have logged on with insufficient user rights, you are prompted to exit the installation and to logon to the operating system from an account having Administrator rights. |
| Current version | If a version of SMS 510 has already been installed, the installation suggests to use the destination drive of the existing installation. Otherwise the installation looks for the first suitable destination drive; a physical NTFS formatted hard disk drive, and uses it as the default destination drive. |
| Status of the MicroSCADA service | If the installation detects that the MicroSCADA service is running, you are prompted to exit the application that utilizes the service. You are not allowed to continue with the installation while the service is executing. |
| Incompatible kernel revisions of SYS 500 and COM 500 | Installations of SYS 500 and COM 500, that are known to contain incompatible kernel revisions, are detected. Provided, that such product versions are detected to be installed and superseding versions with compatible kernel of SYS 500 or COM 500 are not detected on the computer, you are prompted whether or not to continue the SMS 510 installation. |

After these initial checks, the installation welcomes you to the SMS 510 installation (see Figure 4.4.2.1.-1). Thereafter, the SMS 510 product license agreement is displayed, explaining you the terms under which the product may be used (see Figure 4.4.2.2.-1). Once you have accepted the license agreement terms by continuing the installation, purely informative System Information dialogs, based on the current version information, inform you about the status of SMS 510 on your computer.

Next, you enter the Select dialog, which is the main dialog of the installation (see Figure 4.4.2.6.-1). Provided, that the current version is the same one you are installing and you are using the suggested destination drive, you can select any combination of the available installation options. Otherwise, the installation forces to install all the available options to the selected destination drive. You can change the destination drive by means of the Select Destination Drive dialog, which you can access from the Select dialog.

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Once you are satisfied with the settings you have specified, you can start the actual software installation from the main dialog. Notice that prior to that, your computer has not been modified in any way.

If you install the Base System, the installation prompts you for the following information:

- Password for the MicroSCADA user account. Whether this MicroSCADA user account information is requested depends on the configuration of your computer.
- The operating system user groups to which you wish to grant the rights to start and stop the MicroSCADA service on your computer.

Finally, when the installation has been completed, you are notified about it. Depending on the status of some of the installed files, you may be requested to reboot your computer.

After the installation has been completed, you will find a program folder named SMS 510 which contains the icons for using the SMS 510 software. In addition, a shortcut to this program folder will also be added onto your operating system desktop.

4.3.3. Installation of other software

The installation of Parameter Setting Tool, CAP 2/316, REB500 Selector and HMI500 - REBWIN is done separately from the main installation by means of the related stand-alone installation applications. Note that these tools need not to be installed if REx 5xx, RE. 216/316 or REB500 relay object types are not used within the SMS 510.

Note also that it is possible to install these applications (same or newer versions) from their original installation CDs or any other source, instead of using the versions located in the SMS 510 installation CD. If doing so, the installation must be carried out with caution to proper folders.

4.4. Installing the software

4.4.1. Starting the main installation

To start the SMS 510 installation, place the SMS 510 Program CD into your CD-ROM drive. The installation application is named as SMS510.EXE and it is located in the root directory of the Program CD.

For example, provided, that your CD-ROM drive has been assigned the drive letter 'Y:' do the following steps:

- Press the <Control>+<Esc> key combination to open the Start Menu of the operating system.
- Choose 'Run' and enter the following command in the Run dialog box:

```
Y:\SMS510.EXE
```

- Click OK to start the SMS 510 installation.

If the initial checks are passed without any notifications, the installation enters the Installation Wizard directly, which is explained in the following.

4.4.2. Installation Wizard

The software installation comprises a series of dialogs referred to as the Installation Wizard, which guides you through the SMS 510 installation. The installation can be exited virtually at any point by either clicking Exit where available or by pressing the <Esc> key from the keyboard. You will be prompted to confirm that you actually wish to exit the installation prematurely.

Most of the information needed to install SMS 510 is gathered in the Installation Wizard dialogs. Thereafter, the installation transfers the software onto your computer. However, during the process of transferring the software, you may be prompted for additional information depending on your computer configuration.

The following paragraphs describe in detail each of the Installation Wizard dialogs in the order they appear during the installation.

4.4.2.1. Welcome

The Welcome dialog welcomes you to the SMS 510 installation (see Figure 4.4.2.1.-1.)

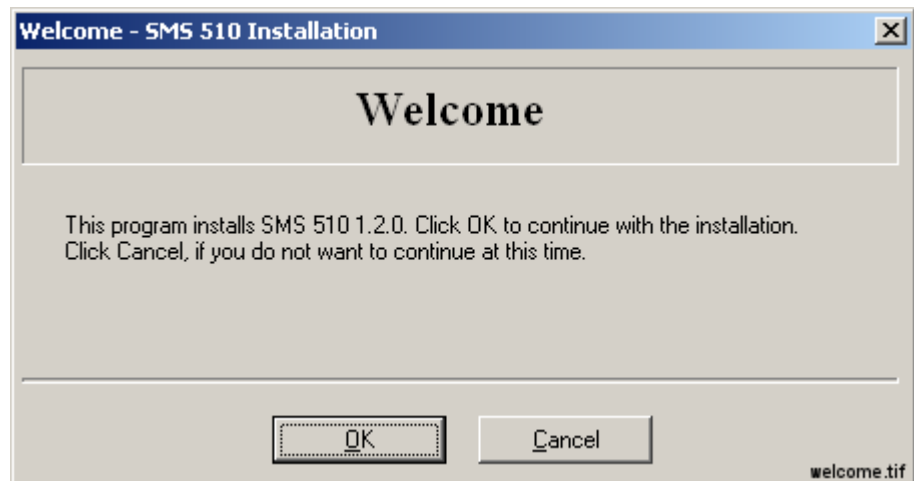


Fig. 4.4.2.1.-1 The Welcome dialog

Click OK to continue with the installation. To exit the installation, click Cancel.

4.4.2.2. Product License Agreement

The Product License Agreement dialog contains the license agreement of SMS 510 (see Figure 4.4.2.2.-1).



Fig. 4.4.2.2.-1 The Product License Agreement dialog

To accept the terms of the license, click Yes to continue. If you do not accept these terms, click No to exit the installation. This dialog is displayed only once during the installation.

4.4.2.3. System Information 1

If you have previously not installed SMS 510, you will see the System Information dialog shown in Figure 4.4.2.3.-1.



Fig. 4.4.2.3.-1 The System Information dialog

To display the Select dialog, click Next>>. Otherwise, click Exit to exit the installation.

4.4.2.4.**System Information 2**

If the installation detects that a SMS 510 version above 1.0.0 has been installed to the destination, you will see the System Information dialog shown in Figure 4.4.2.4.-1.

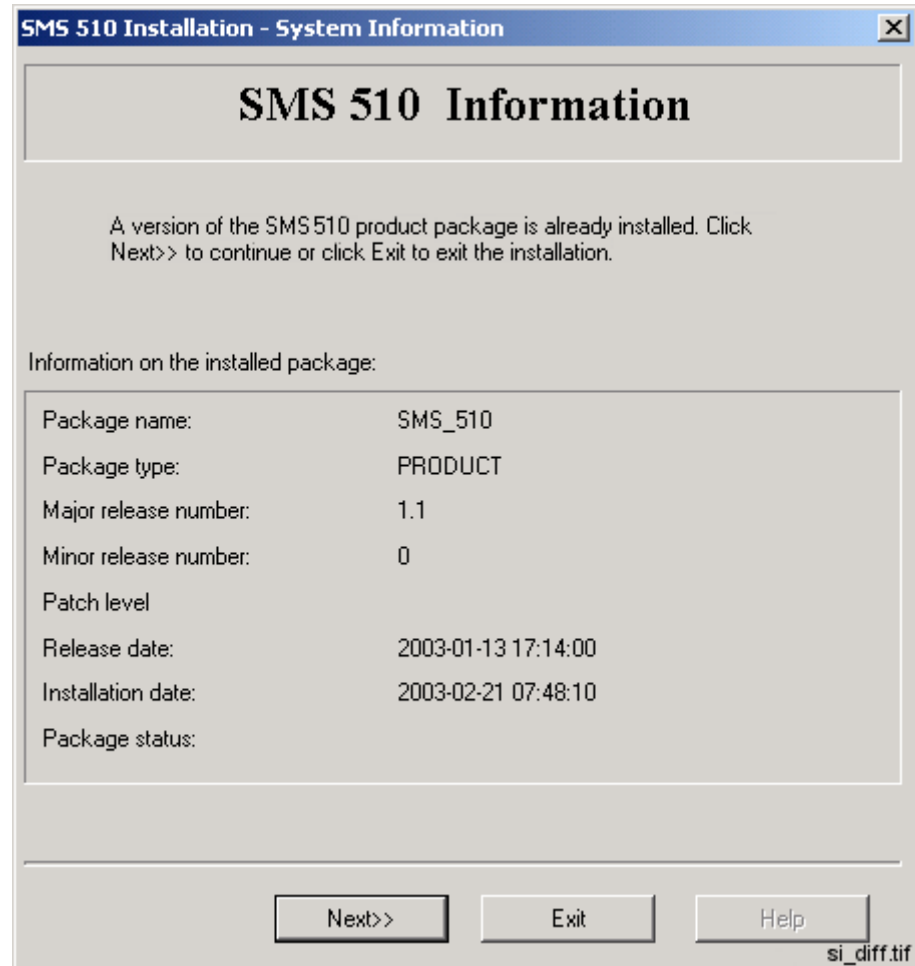


Fig. 4.4.2.4.-1 The System Information dialog

The current version information is available here for viewing. To display the Select dialog, click Next>>. Otherwise, click Exit to exit the installation.

4.4.2.5. System Information 3

If the installation detects that the same version of SMS 510 has been installed to the destination, you will see the System Information dialog shown in Figure 4.4.2.5.-1.

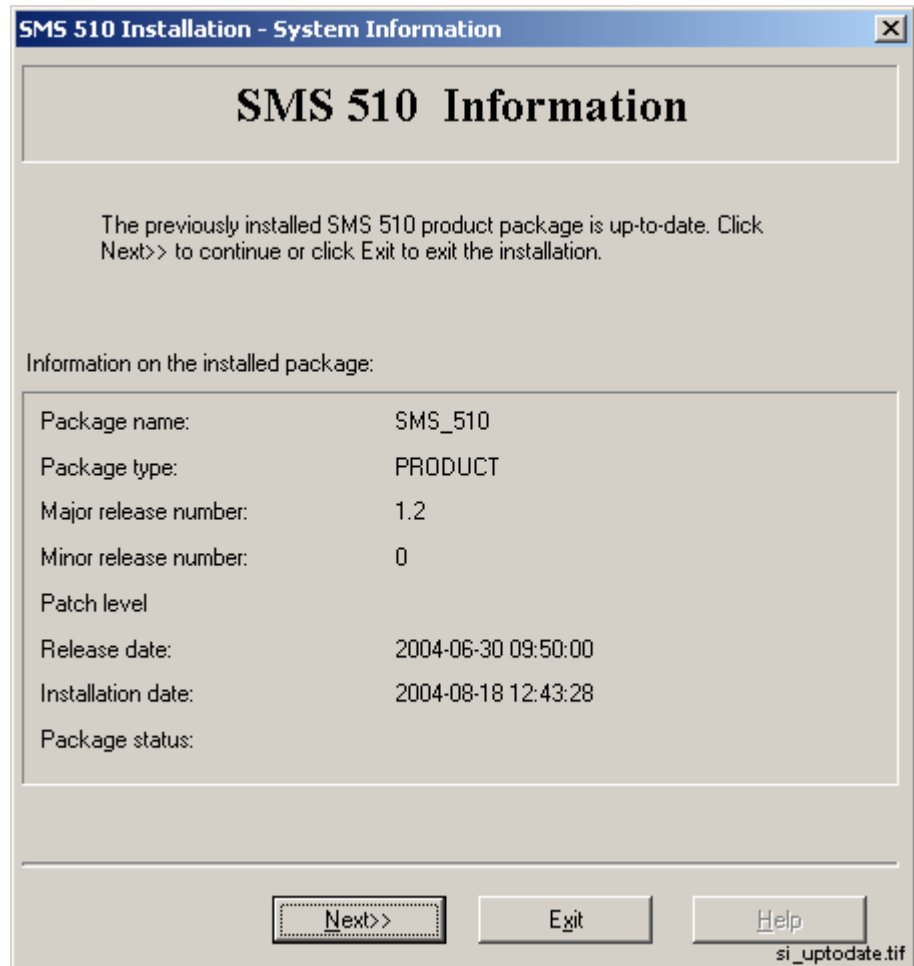


Fig. 4.4.2.5.-1 The System Information dialog

The current version information is available here for viewing. To display the Select dialog, click Next>>. Otherwise, click Exit to exit the installation.

4.4.2.6. Select - forced installation

In case of a forced installation, you will see the Select dialog shown in Figure 4.4.2.6.-1.



As stated in this dialog, the options represented in the dialog cannot be unchecked.

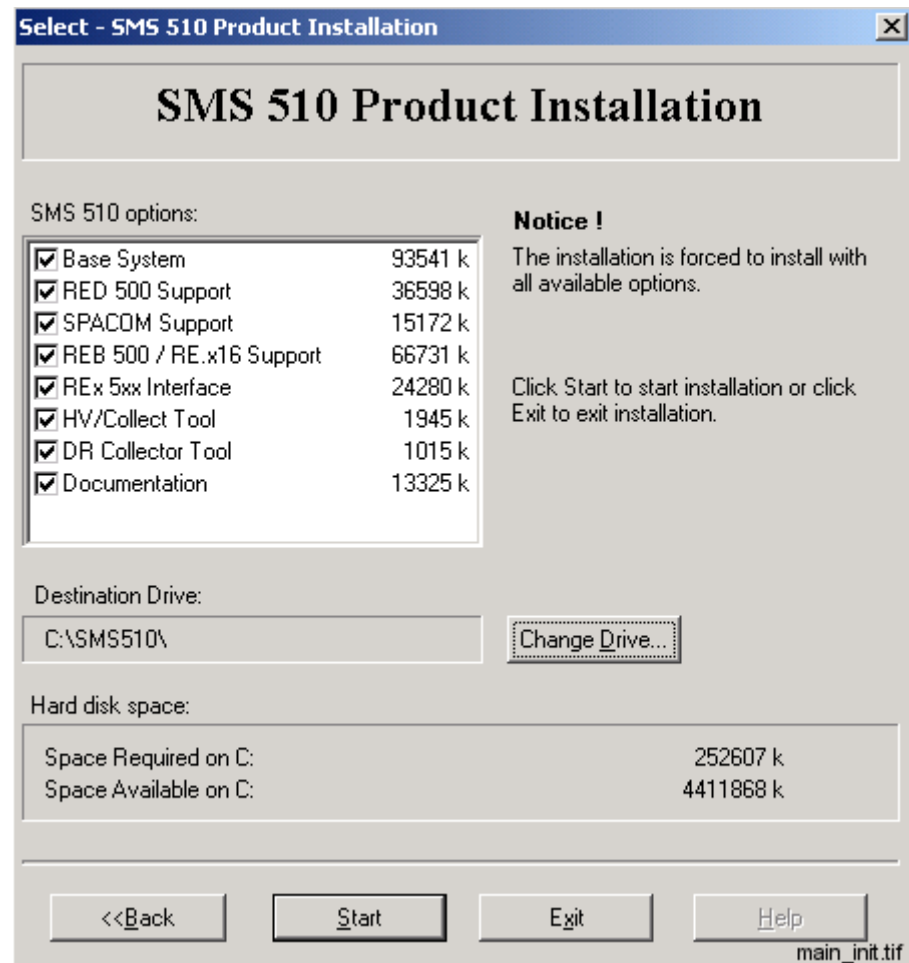


Fig. 4.4.2.6.-1 The Select dialog

This dialog provides the following information:

- The currently selected destination drive and the root directory under which the software will be installed.
- The amount of hard disk space that is required and available on the currently selected destination drive.
- A notification that you cannot choose individual options.

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To change the destination drive for the installation, click Change Drive (see the description of “The Destination Drive dialog” on page 32). To view the previously displayed System Information dialog, click <<Back. If you are satisfied with the current settings, click Start to start the actual software installation.

4.4.2.7.**Select - non-forced installation**

In case of a non-forced installation, you will see the Select dialog shown in Figure 4.4.2.7.-1.

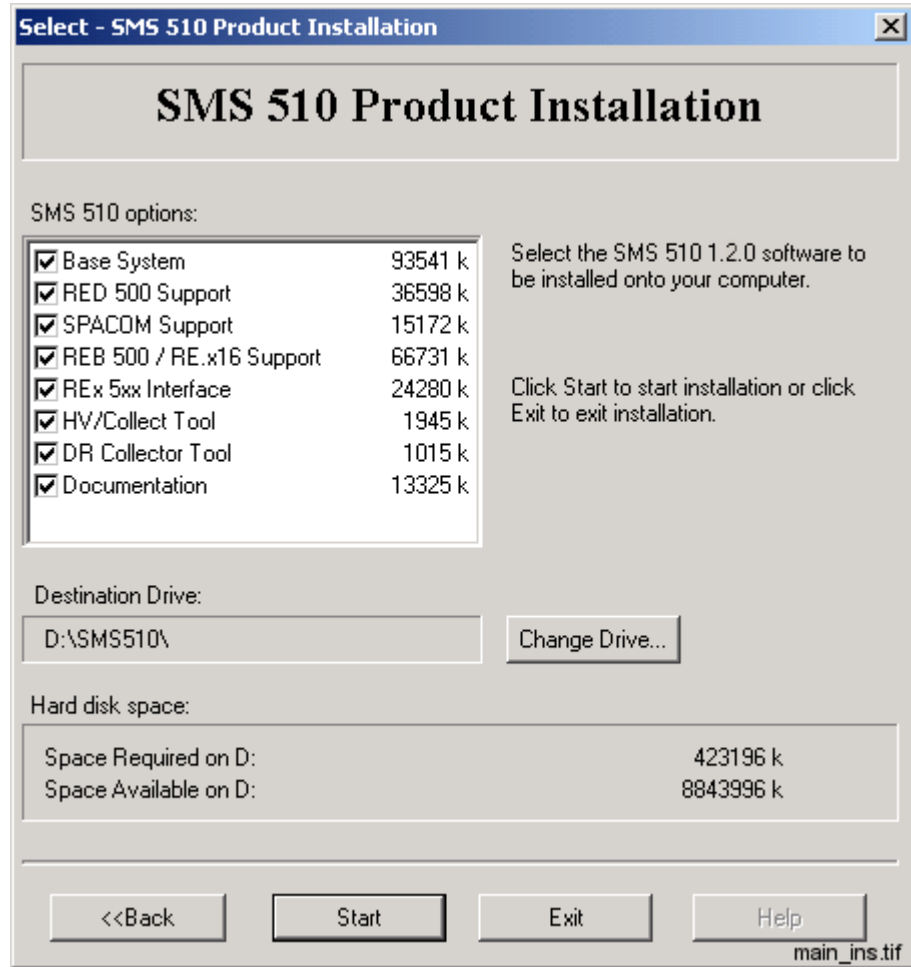


Fig. 4.4.2.7.-1 The Select dialog for a reinstallation

This dialog provides the following information:

- The currently selected destination drive and the root directory under which the software will be installed.
- The amount of hard disk space that is required and available on the currently selected destination drive.
- The software options which will be installed.

The selected options have a check mark on their left side and are subject to installation. Clicking with the mouse on an option toggles its selection status.

To change the destination drive for the installation, click Change Drive to see the description of the Destination Drive dialog below. To view the previously displayed System Information dialog, click <<Back. If you are satisfied with the current settings, click Start to start the actual software installation.

4.4.2.8. Destination Drive

This dialog allows you to select the destination drive for the installation.

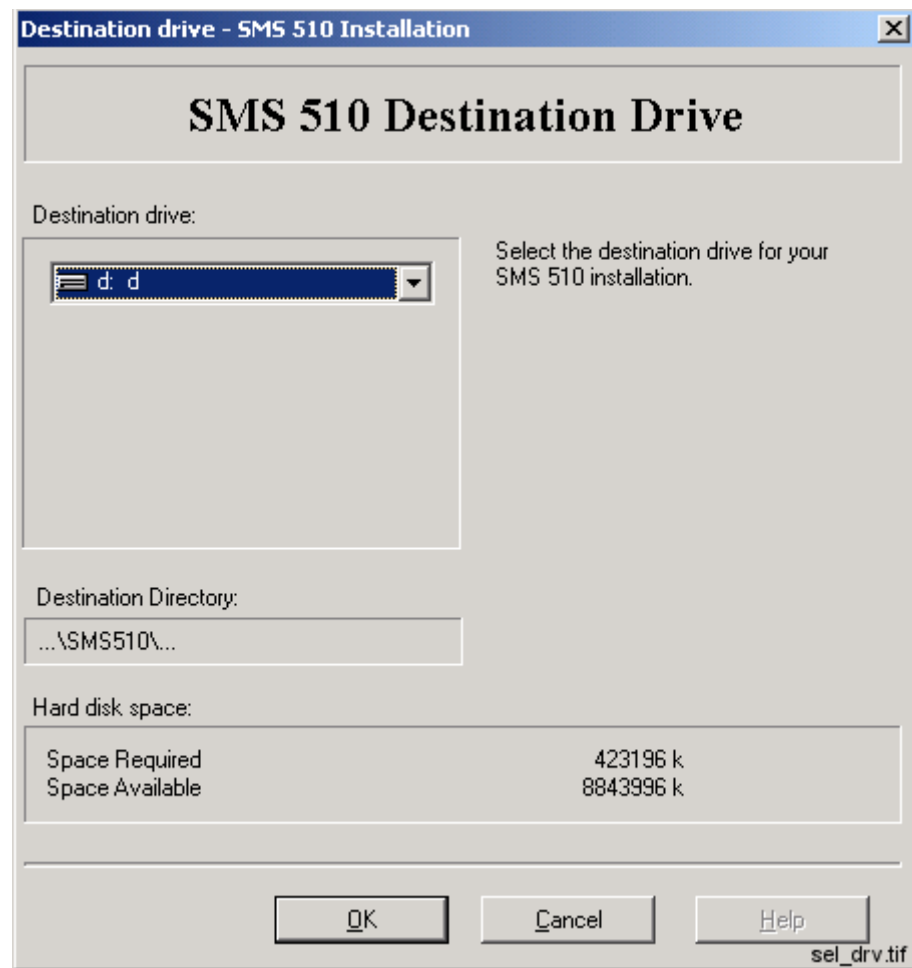


Fig. 4.4.2.8.-1 The Destination Drive dialog

All disk drives available to the operating system are listed on the drive list (highlighted in the above figure). In addition, the amount of available and required hard disk space is also shown on the lower right area of the dialog.

Press the <F4> key from the keyboard or click on the arrowhead on the right side of the drive list to view it in the drop-down mode. You can either use the arrow keys on the keyboard or the mouse to select a drive from the list.

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As you change the selection, the installation checks whether the drive can be used for installing the software. If it cannot be used, you will see a notification message and the drive that was selected at the time of entering the dialog, is reset as the destination drive. The possible notifications are described in more detail in Section “Troubleshooting destination drive error messages” on page 145.

To use the selected drive and to return to the Select dialog, click OK. Otherwise, click Cancel and the changes to the destination drive will be discarded as you return to the Select dialog.

4.4.2.9.

Installing

Once you have clicked the Start button on the Select dialog, the progress of the installation is displayed in a dialog shown in Figure 4.4.2.9.-1.

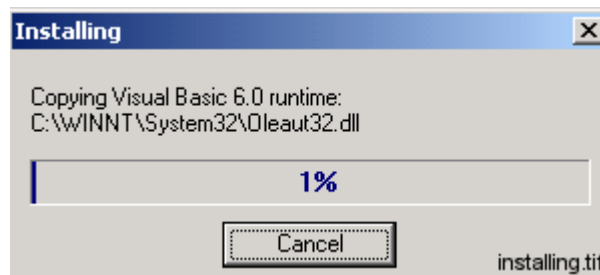


Fig. 4.4.2.9.-1 The Installing dialog

You may cancel the installation by clicking Cancel.



No support for a roll-back is available, meaning that you cannot revert to the SMS 510 configuration that existed prior to the installation of the new SMS 510.

MicroSCADA user account

Overview



Properly configured MicroSCADA user account on your computer is essential for SMS 510. The account is added/configured on your computer by means of the MicroSCADA User Password dialog, shown in Figure 4.4.2.9.-2.

After the installation of SMS 510, you will find an icon for this tool in the SMS 510 program folder, so you can also later modify the account configuration when necessary. Usage of this tool requires logging on to the operating system with administrator rights.

Configuring the account

The MicroSCADA User Password dialog is shown below. This is the only tool you need for the account configuration.

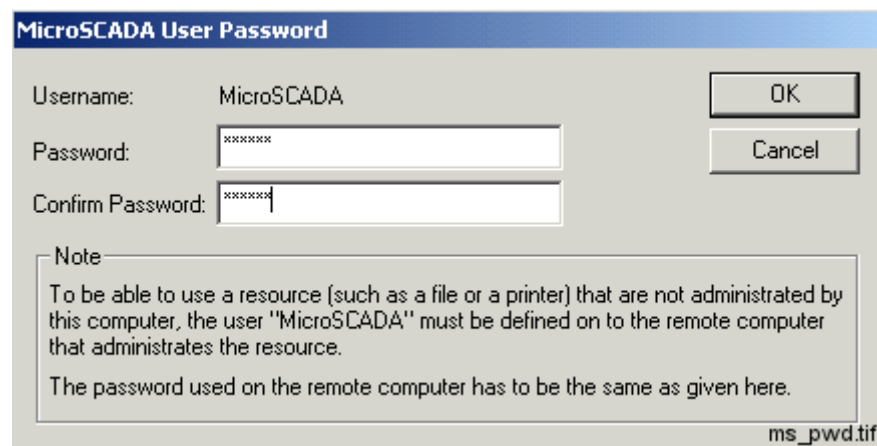


Fig. 4.4.2.9.-2 The MicroSCADA User Password dialog

Enter an appropriate password confirming it. Click OK to apply it. The new password will take effect the next time you start SMS 510. All other properties of the MicroSCADA user account are set automatically.



The note text on the dialog incorrectly states that the MicroSCADA user account is used for accessing non-local printer resources. In SMS 510, you access non-local printer resources in the logged-on user's security context.

4.4.2.10.

MicroSCADA Service Access Manager

Overview

If you install the Base System, the MicroSCADA Service Access Manager dialog (shown in Figure 4.4.2.10.-1) appears on the screen. The installation does not continue until you have closed this dialog. The installation adds an icon for this tool to the SMS 510 program folder, so you can use it any time after the installation. Usage of this tool requires that you have logged on to the operating system with administrator rights.

Purpose

By using the MicroSCADA Service Access Manager you can define those user-defined user groups whose members are allowed to start and stop the MicroSCADA service, i.e. start and stop SMS 510 on the computer. In addition to the user-defined user groups, the built-in Users group can also be granted these rights.

By default, all users belonging to the operating system's Administrators group are granted these rights and, therefore, the tool never displays the Administrators group. If the users of SMS 510 on the computer will not be members of the Administrators group, you should use this tool to set up a proper configuration by granting the appropriate user groups the rights to start and stop the MicroSCADA service.

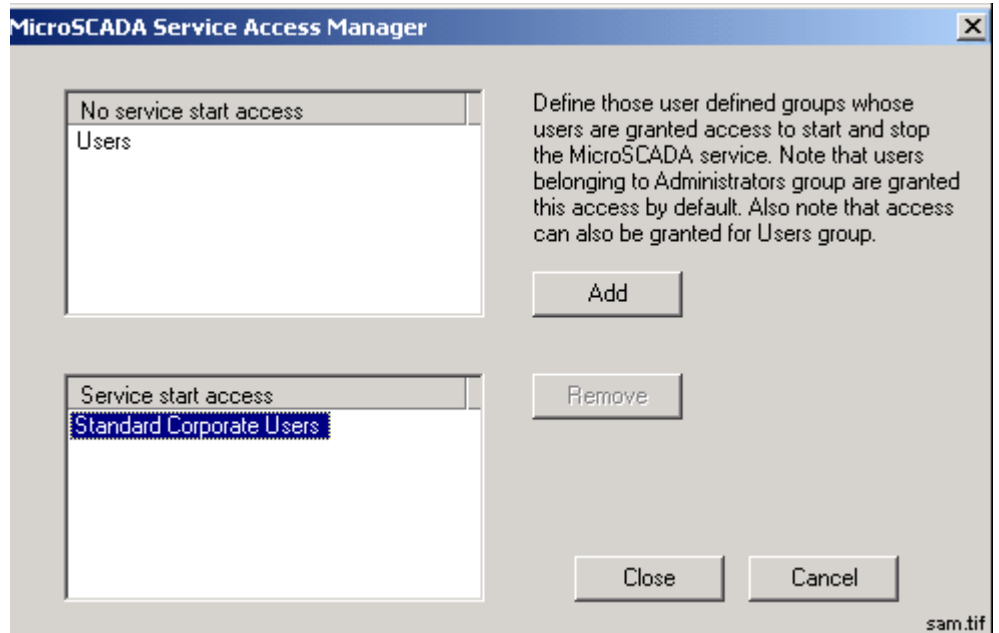


Fig. 4.4.2.10.-1 The MicroSCADA Service Access Manager dialog

Granting the rights to a group

To grant the rights to start and stop the MicroSCADA service to the appropriate user groups, first highlight the group in the upper list labelled 'No service start access' and click Add. In the above figure, the user group named Standard Corporate Users has been granted these rights.

Revoking the rights from a group

To revoke the rights from a user group, first highlight the group in the lower list labelled 'Service start access' and click Remove. In the above figure, the operating system's built-in user group named Users has been revoked these rights.



This is a system-wide configuration which affects also all the other products using the same kernel software. For example, if you have SYS 500 installed on the computer and you grant the rights to a group named Visitors (intended for ordinary visitors), any logged-on member of that group is able to start and stop both SMS 510 and SYS 500 on the computer.

Saving the configuration

To save the configuration, click Close. Confirm that action by clicking OK on the dialog shown in Figure 4.4.2.10.-2.

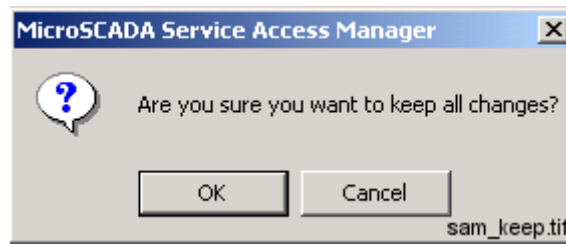


Fig. 4.4.2.10.-2 Confirm to save the service access configuration

Discarding changes to the configuration

To close the tool without saving the configuration, click Cancel in the MicroSCADA Service Access Manager dialog. Provided that the configuration has been changed, you must confirm the cancellation by clicking OK on the dialog shown in Figure 4.4.2.10.-3. Otherwise, click Cancel to return to the Service Access Manager.

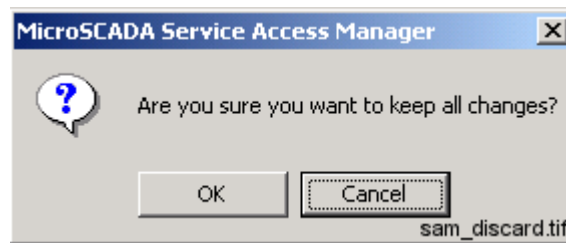


Fig. 4.4.2.10.-3 Confirm to discard the changes to the service access configuration

4.4.2.11. Installation completed

After the selected software has fully been transferred onto your system, the SMS 510 installation displays the following message to inform you that the installation has been completed.

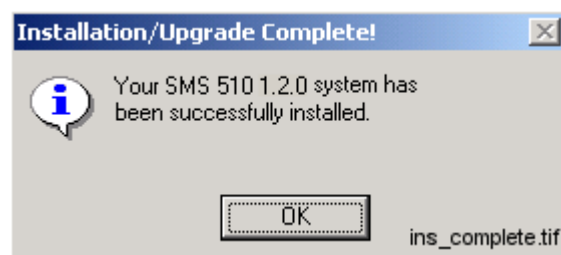


Fig. 4.4.2.11.-1 Notification that the installation has been completed successfully
Click OK to acknowledge the message.

4.4.2.12. System reboot

If some of the installed files were in use at the time of the installation, you are prompted to reboot your computer (see Figure 4.4.2.12.-1).

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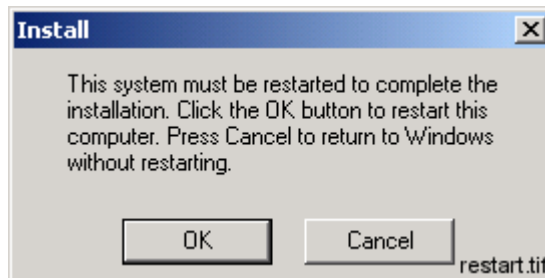


Fig. 4.4.2.12.-1 Request to reboot the computer

Click OK to reboot your computer immediately. You may reboot later if you wish, by clicking Cancel. However, notice that before starting SMS 510 or installing other software, you must reboot the computer in order for all of the changes to take effect in the system.

4.4.3. Cancelling the installation

When you are about to cancel the installation, the dialog shown in Figure 4.4.3.-1 appears on the screen.

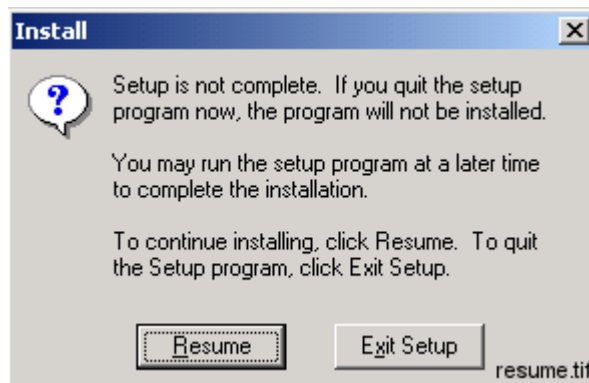


Fig. 4.4.3.-1 Confirmation to cancel the installation

Click Exit Setup to exit the installation. Otherwise, click Resume to continue the installation normally.

4.5. Installing the Parameter Setting Tool software

To install the Parameter Setting Tool, start the PST.EXE and follow the instructions provided on screen.

4.5.1. Starting the PST installation

To start the PST installation, place the SMS 510 Program CD into your CD-ROM drive. The installation application is named as PST.EXE and it is located in the \PST subdirectory of the Program CD.

For example, provided that your CD-ROM drive has been assigned the drive letter 'Y:' do the following steps:

- Press the <Control>+<Esc> key combination to open the Start Menu of the operating system.
- Select Run and enter the following command in the Run dialog:

Y:\PST\PST.EXE

- Click OK to start the PST installation.

The destination location, to where you install the tool, can be freely chosen, since the PST installation automatically configures the environment so that the tool will be available in SMS 510.

4.6. Installing the CAP 2/316 software

To install the CAP 2/316, start the ABB_RE_16_SETUP.EXE and follow the instructions provided on screen.

4.6.1. Starting the CAP 2/316 installation

To start the CAP 2/316 installation, place the SMS 510 Program CD into your CD-ROM drive. The installation application is named as ABB_RE_16_SETUP.EXE and it is located in the \CAP 2.316 subdirectory of the Program CD.

For example, provided that your CD-ROM drive has been assigned the drive letter 'Y:' do the following:

- Press the <Control>+<Esc> key combination to open the Start Menu of the operating system.
- Select Run and enter the following command in the Run dialog:

Y:\CAP 2.316\ABB_RE_16_SETUP.EXE

- Click OK to start the CAP 2/316 installation.

The destination location (where you install the tool) can be freely chosen, since the installation automatically configures the environment so that the tool will be available in SMS 510.

4.7. Installing the REB500 Selector software

To install the REB500 Selector, start the REB500_SELECTOR.EXE and follow the instructions provided on screen.

4.7.1. Starting the REB500 Selector installation

To start the REB500 Selector installation, place the SMS 510 Program CD into your CD-ROM drive. The installation application is named as REB500_SELECTOR.EXE and it is located in the \REB500 subdirectory of the Program CD.

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For example, provided that your CD-ROM drive has been assigned the drive letter 'Y:' do the following:

- Press the <Control>+<Esc> key combination to open the Start Menu of the operating system.
- Select Run and enter the following command in the Run dialog:

Y:\REB500\REB500_SELECTOR.EXE

- Click OK to start the REB500 Selector installation.



The default destination folder "C:\Program Files\ABB\REB500\ Selector\" should be selected during the installation of the REB500 Selector. If it cannot be used, then the "ObjType_EXE_Call" keyword value in the "\SMS510\ObjTypes\SM_CH\Reb500\REB500.ini" file must be manually changed after the installation to point to the existing executable:

```
[REB500]
```

```
ObjType_EXE_Call = C:\Program Files\ABB\REB500\ Selector\ selector.exe
```

4.8. Installing the HMI500 - REBWIN software

To install the HMI500 - REBWIN, start the HMI500_REBWIN EN.EXE and follow the instructions provided on screen.

4.8.1. Starting the HMI500 - REBWIN installation

To start the HMI500 - REBWIN installation, place the SMS 510 Program CD into your CD-ROM drive. The installation application is named as HMI500_REBWIN EN.EXE and it is located in the \REB500 subdirectory of the Program CD.

For example, provided that your CD-ROM drive has been assigned the drive letter 'Y:' do the following:

- Press the <Control>+<Esc> key combination to open the Start Menu of the operating system.
- Select Run and enter the following command in the Run dialog:

Y:\REB500\HMI500_REBWIN EN.EXE

- Click OK to start the HMI500 - REBWIN installation.

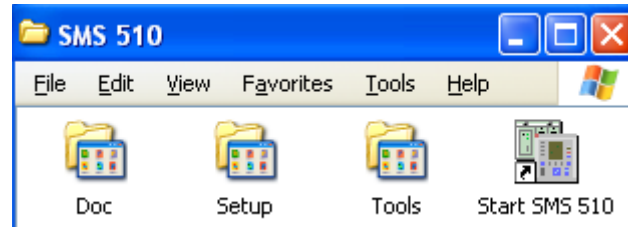
The destination location (where you install the tool) can be freely chosen, since the installation automatically configures the environment so that the tool will be available in SMS 510.

4.9. SMS 510 program folder

The program folder for SMS 510 is named as SMS 510 and it is accessible to all logged-on users Figure 4.9.-1. The program folder contains the following subfolders:

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1. Doc, containing the SMS 510 manuals.
2. Setup, containing additional installation applications.
3. Tools, containing both the maintenance and tools that you can also use outside SMS 510.



program_folder_1

Fig. 4.9.-1 SMS 510 program folder

- To start SMS 510, double-click the Start SMS 510 icon.

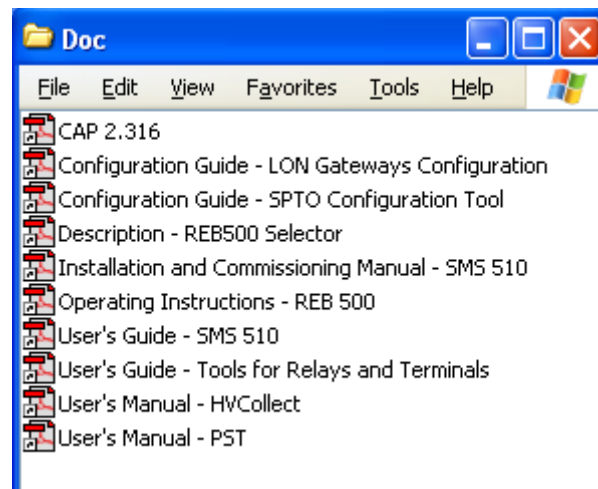
The three subfolders are explained below.

4.9.1.

Subfolder - Doc

Figure 4.9.1.-1 shows the different manuals in the Doc subfolder.

- To view a manual, double-click the appropriate icon entry. Note! This operation requires that a viewer capable of reading PDF files is installed.



doc_folder_1

Fig. 4.9.1.-1 Subfolder - Doc

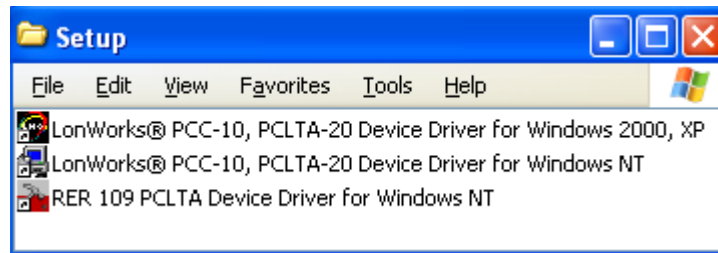
4.9.2.

Subfolder - Setup

Figure 4.9.2.-1 shows the different installation applications in the Setup subfolder.

- To install the LonWorks PCC-10/PCLTA-20 Device Driver for Windows 2000/XP, close any programs you have running and double-click its icon.
- To install the LonWorks PCC-10/PCLTA-20 Device Driver for Windows NT, close any programs you have running and double-click its icon.
- To install the RER 109 PCLTA Device Driver for Windows NT, close any programs you have running and double-click its icon.

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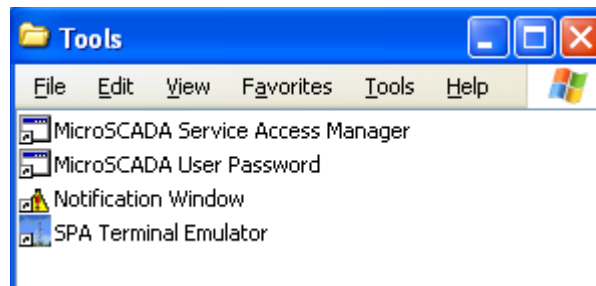


setup_folder_1

Fig. 4.9.2.-1 Subfolder - Setup

4.9.3.**Subfolder - Tools**

- To start the MicroSCADA Service Access Manager tool, double-click the MicroSCADA Service Access Manager icon.
- To start the MicroSCADA User Password tool, double-click the MicroSCADA User Password icon.
- The Notification Window displays messages as they are sent by the system and tools. All notifications are also stored in the "...\sys\Active\sys_SYS_ERROR.LOG" file. The Notification Window can be used for troubleshooting.
- To start the SPA Terminal Emulator, double-click its icon.



tools_folder_1

Fig. 4.9.3.-1 Subfolder - Tools

4.9.4.**Shortcut to the SMS 510 program folder**

A shortcut named SMS 510 has been added onto your desktop (see Figure 4.9.4.-1). This shortcut provides access to the SMS 510 program folder from your desktop.



Fig. 4.9.4.-1 The shortcut to the program folder on your desktop

- To open the SMS 510 program folder, double-click the shortcut.

5. Commissioning

About this chapter

This chapter describes the commissioning activities required after software installation.

5.1. Commissioning tasks

Commissioning the installed software involves the following tasks:

- Applying the license information for SMS 510. Whenever the SMS 510 Base System has been installed, this task must be performed. Without proper license information, SMS 510 will not execute. You apply the license information by using the License tool, see Section “Licensing the product - License tool” on page 43.
- Preparing the computer for communication. This comprises the following optional steps:
 - Installation and configuration of LON communication card(s) and accompanying device drivers, if not done previously. For detailed instructions, see sections “Installing LON cards” on page 64 and “System Configuration Tool” on page 50. Regarding the computer's serial port communication capabilities, it is recommended to verify that the serial ports are correctly configured and working at the operating system level.
 - Installation of Remote Access Service (RAS) and modem(s). For detailed instructions, see Section “RAS/Modem installation on Windows NT” on page 88, “RAS/Modem installation on Windows 2000” on page 102 or “RAS/Modem installation on Windows XP” on page 116, depending on the used operating system.
 - Ensuring proper Distributed COM (DCOM) identity of the CAP2/316 tool. This is needed to have the CAP2/316 tool to run in the security context of the MicroSCADA user account. For detailed instructions, see Section “CAP2/316 - Distributed COM identity” on page 82.
 - Optionally, configuring the operating system's user groups whose members are granted the rights to start and stop the MicroSCADA service on your computer. You grant these rights by using the MicroSCADA Service Access Manager tool. For detailed instructions, see Section “MicroSCADA Service Access Manager” on page 34.

5.2. Licensing the product - License tool

5.2.1. General

The License tool is intended for applying the license information. SMS 510 does not provide any specific entry for accessing this tool. Instead, it appears automatically at SMS 510 start-up, if the computer does not contain a valid license.

5.2.2. License Information dialog

Figure 5.2.2.-1 illustrates the License tool dialog as it is initially displayed when the license information cannot be found, or it is otherwise invalid.

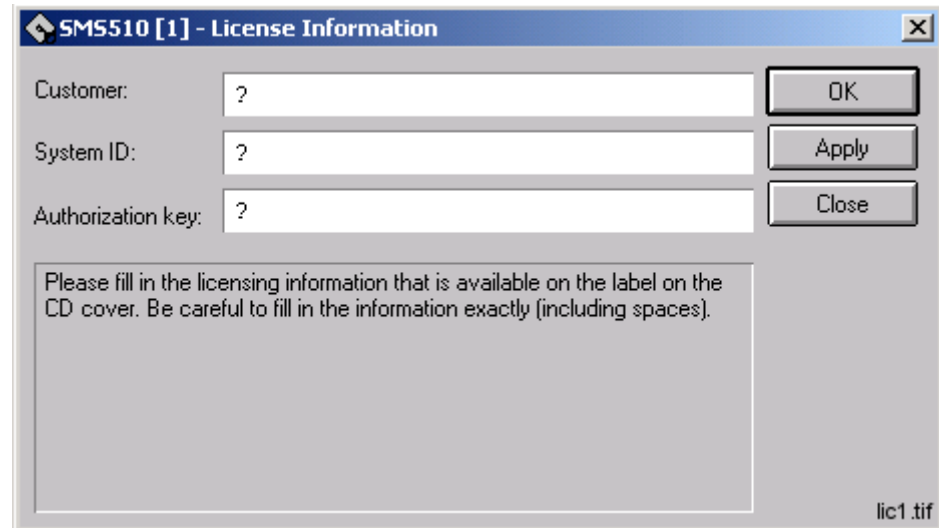


Fig. 5.2.2.-1 License tool dialog

Table 5.2.2-1 Dialog items

| | |
|-------------------------|---|
| Customer field | For entering the value for the Customer. |
| System ID field | For entering the value for the System ID. |
| Authorization key field | For entering the value for the Authorization key. |
| OK button | For saving the license information and closing the License tool, see Section "Entering license information" on page 44. |
| Apply button | For saving the information without closing the License tool, see Section "Entering license information" on page 44. |
| Close button | For closing the License tool. |

5.2.3. Entering license information

SMS 510 delivery contains the license information printed on the license label, which you find on the cover of the SMS 510 Program CD case. Be sure to store that information, so that it is available in case you need to re-supply the license information.



There is no license label on the CD cover if the SMS 510 was ordered without a new license. In that case, the license information found on the cover of your previous SMS 510 main version delivery must be supplied, if requested.

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When you enter the requested items, be careful to type the text exactly as provided on the license label. All the fields are case sensitive; and space characters are also taken into account.



After you have entered all the items, apply the information. Thereafter, you must restart SMS 510 in order for the new license to take effect.

To enter the license information:

1. Type the Customer name into the Customer field.
2. Type the System ID value into the System ID field.
3. Type the Authorization key value into the Authorization key field.
4. Click OK or Apply, if you do not want to close the dialog immediately. If the supplied information is correct, you will see one of the messages shown below:

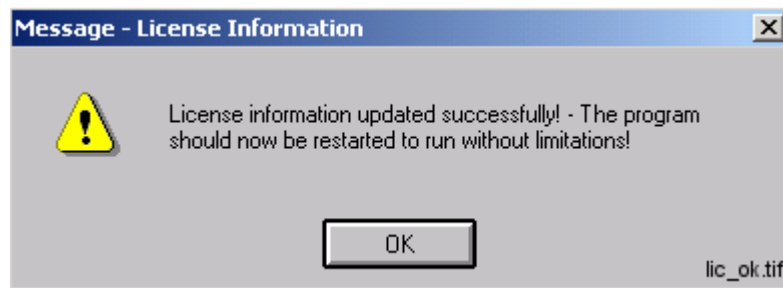


Fig. 5.2.3.-1 License information added successfully

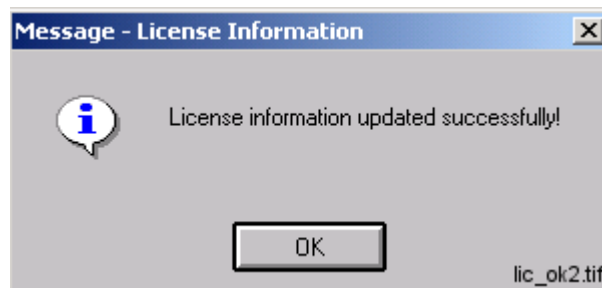


Fig. 5.2.3.-2 License information updated successfully

5. Dismiss the message by clicking OK. When you close the dialog, you will be further notified with the message shown in Figure 5.2.3.-3.

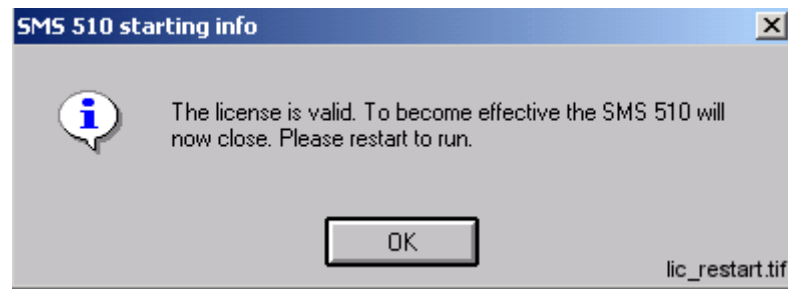


Fig. 5.2.3.-3 SMS 510 restart required

As stated in the message, you have to restart SMS 510.

5.2.4.

Invalid license information

If you have supplied incorrect information, the tool displays the message shown in Figure 5.2.4.-1.

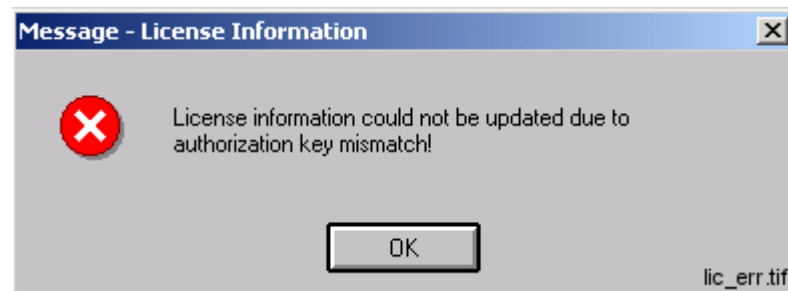
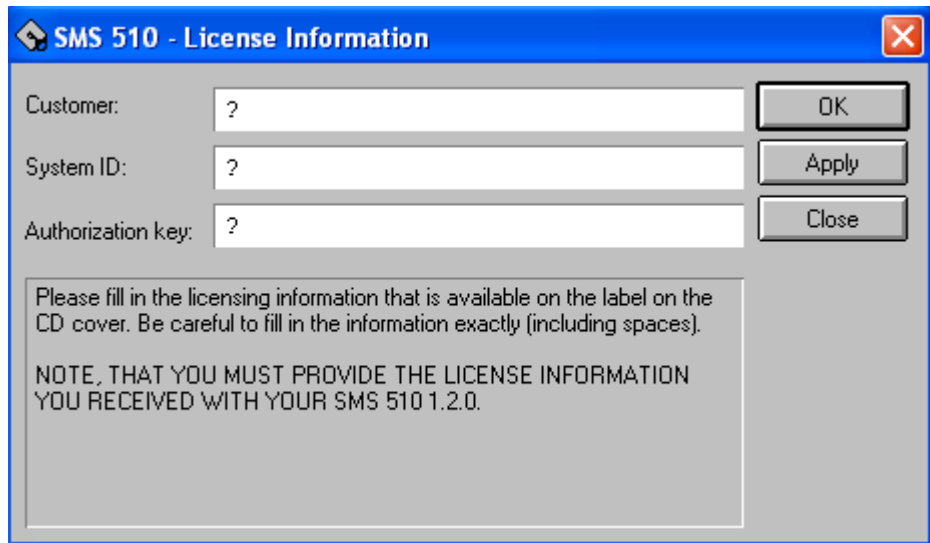


Fig. 5.2.4.-1 Incorrect license information could not be saved



If the license information is not accepted, first check that the license information you supplied corresponds to the requested program version. If the valid license information to be supplied is for another program version than the one currently installed, the program version in question is indicated in the help text of the license dialog.

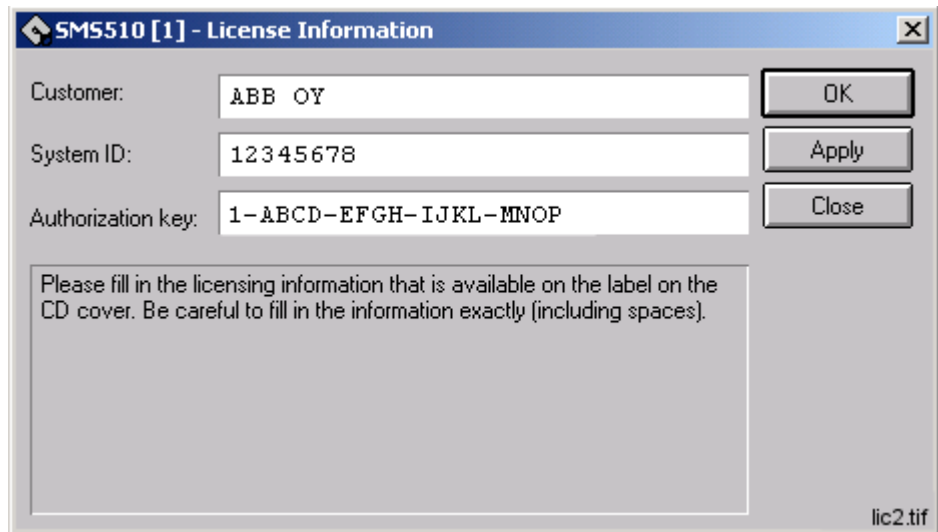
Click OK to dismiss the message and correct the license information carefully.



lic_info_nok

Fig. 5.2.4.-2 License information for other program version is requested

An example of a correctly entered license information is provided in Figure 5.2.4.-3.



lic2.tif

Fig. 5.2.4.-3 An example of license information

5.3. Communication support

5.3.1. Communication protocol support

The following communication protocols are supported by SMS 510:

- SPA for relay communication
- LON for relay communication
- TCP/IP for LAN and RAS type of connections

For information on which communication protocols are applicable to various relay terminals, refer to the *Tools for Relays and Terminals* manual.

5.3.2. **Communication channels**

SMS 510 allows you to define the total of eight (8) communication channels in a project's communication configuration. Each defined serial port using SPA protocol and each LON card channel occupies one communication channel. For example, a PCLTA-20 card reserves one communication channel allowing you to define seven serial ports with the SPA protocol.

5.3.3. **Serial port communication**

5.3.3.1. **SMS 510 vs. operating system's serial port configuration**

Serial ports

Each serial port defined for use in SMS 510 must also exist at the operating system level. For example, if you define serial ports COM1 through COM4 in SMS 510, you must also define them under the operating system. For detailed information on configuring the serial ports under the operating system, refer to the operating system Help or other applicable source of information.

Advanced serial port settings

Advanced serial port settings are defined only at the operating system level. Therefore, you do not have to define them in SMS 510. These settings include:

- Interrupt request line (IRQ)
- Input/output (I/O) addresses
- Data buffering settings

Basic serial port settings

The basic serial port settings that are defined at the operating system level are overridden by the settings you specify in SMS 510. These settings include:

- Baud rate
- Data bits
- Parity
- Stop bits

5.3.3.2. **Using USB ports**

In order to utilize a USB port with SMS 510, you need to use a USB to serial adapter. You also need to install the driver software for it (this software is distributed by the adapter). The adapter can be set to a serial port in the range within COM 1 to COM 8. You need to check your operating system setup for a free COM-port.

In the SMS 510 system configuration setting of serial port you select the serial port you have assigned to be provided by the converter. No further settings are required in SMS 510 for using a USB port since the USB looks to a serial adapter like a genuine serial port to SMS 510. USB ports are applicable in Windows 2000 and in Windows XP, not in Windows NT.

5.3.4. LON communication

5.3.4.1. LON communication adapters

Table 5.3.4.1-1 LON adapter support

| Adapter | Type | Device driver | Remarks |
|---------------------------------|---|---------------|--|
| PCLTA-20 PCI LonTalk Adapter | PCI half-length bus card | PNPLON | SMS 510 supports up to 4 PCLTA-20 cards in the system at the time. Supports Plug-and-Play and downloadable memory. |
| PCC-10 PC Card | A Type II PC card, formerly PCMCIA | PNPLON | Only a single card can be present in the system at a time, due to the operating system Type II PC Card support capabilities. Supports Plug-and-Play and downloadable memory. |



The PCLTA-10 PC LonTalk Adapter is not supported.

RER 109 PCLTA card is also no longer available. It is supported only on the Windows NT operating system.

5.3.4.2. LON communication software components

Table 5.3.4.2-1 Software components for LON communication

| Item | Remarks |
|---------------------------|--|
| MiSCLONP device driver | The device driver for the old RER 109 PCLTA Card. Supplied with an installation and a configuration tool (only for Windows NT system). |
| PNPLON device driver | The device driver for the PCC-10 and PCLTA 20 Cards. Supplied as a third party (Echelon) installation and configuration package. |
| Net Interface Tool | For initial configuration of the Neuron Chip(s) on the RER 109 PCLTA Cards. |

5.3.5. Time synchronization

5.3.5.1. Overview

All bay equipment is equipped with a real-time clock for time stamping. When for example a disturbance occurs in a network, the disturbance recorders are triggered, and the time is added to the disturbance record in order to enable post-disturbance analysis. When gathering information from several terminals for analysis, it is of utmost importance that the clocks of different devices are synchronized. SMS 510 provides time synchronization capabilities both over LON and SPA.

5.3.5.2. Time synchronization over LON protocol

For the LON protocol there are two different ways of obtaining the time synchronization functionality. In the first method, the system clock of the SMS 510 workstation is the time source. In the other method, the time source is e.g. a LON Clock Master equipped with a GPS receiver, which is connected to the LON also

enabling the synchronization of the system clock of the SMS 510 workstation, if desired. Both of these methods can be applied on a SMS 510 workstation simultaneously, provided that there are at least two available LON channels of which one receives the clock sync and the other one sends it.

The used time synchronization is defined separately for every used LON channel. Every single LON channel can have only one time synchronization source. This means that only one device may send the clock sync to the LON bus, and all the other devices read the clock sync from the bus. Any LON channel can also be defined so that it does not participate in the time synchronization function.

The relays connected to the LON bus do not require any settings for the time synchronization; they are preconfigured to receive time synchronization via the LON bus.

5.3.5.3. Time synchronization over SPA protocol

For the SPA protocol, the time synchronization capabilities are reduced so that the system clock of the SMS 510 workstation always acts as the time source, i.e. there is no option to synchronize the SMS 510 workstation's system clock from the SPA. As with LON, any SPA channel can also be defined so that it does not participate in the time synchronization function.

The used time synchronization is defined separately for every used SPA channel. This is a simple On/Off setting which defines whether the time synchronization is sent to a SPA channel or not.

The relays connected to the SPA do not require any settings for the time synchronization; they are synchronized automatically from the SPA channel.

5.3.6. Procedure for commissioning communication components

Generally, commissioning the communication components comprises the following tasks:

1. Install the LON communication card(s) into your computer.
2. Install the device driver for the LON communication card(s).
3. Configure the device driver for the LON communication card(s).
4. Configure sufficient amount of serial (COM) ports.

In Windows 2000 and in Windows XP, steps 1 and 2 are done in reverse order. The main tool for accomplishing these tasks is the SMS 510 System Configuration Tool in the following section.

5.4. System Configuration Tool

5.4.1. Overview

The System Configuration Tool serves the following purposes:

- Creation of the projects' communication configuration which is required to enable communication/time synchronization with the relays. The communication configuration has to be done/verified for every project used in SMS 510. This

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functionality is available on the Communication page of the System Configuration Tool.

- Scheduling of user-defined tasks that are executed automatically without user intervention. This functionality is available on the Scheduler page of the System Configuration Tool.
- Specification of general settings; currently this includes the Autologoff configuration, System Self Supervision and MicroSCADA user password. This functionality is available on the General Settings page of the System Configuration Tool.

5.4.1.1.

Scheduler

For detailed information on the Scheduler functionality, refer to the *SMS 510 User's Guide*.

5.4.1.2.

General Settings

For detailed information on the general settings, refer to the *SMS 510 User's Guide*.

5.4.1.3.

Communication configuration

Every project has its own copy of the communication configuration, which is enforced when the project is opened into the Project Structure Navigator. Likewise, when a project is closed, its communication configuration is stored with the project.

The System Configuration Tool automatically edits the communication configuration of the project that is being opened into the Project Structure Navigator. If there is no project open in the Project Structure Navigator, the System Configuration Tool will not execute.

In every project's communication configuration you define:

- Serial ports that are to be used for various types of communication
- LON card(s) that are to be used for LON communication
- Time synchronization settings for each SPA and LON channel



Some of the System Configuration Tool functions, such as modifying LON device driver settings, require administrator rights at the operating system level.

5.4.2.

Starting

In order to access this tool, two entry points are provided:

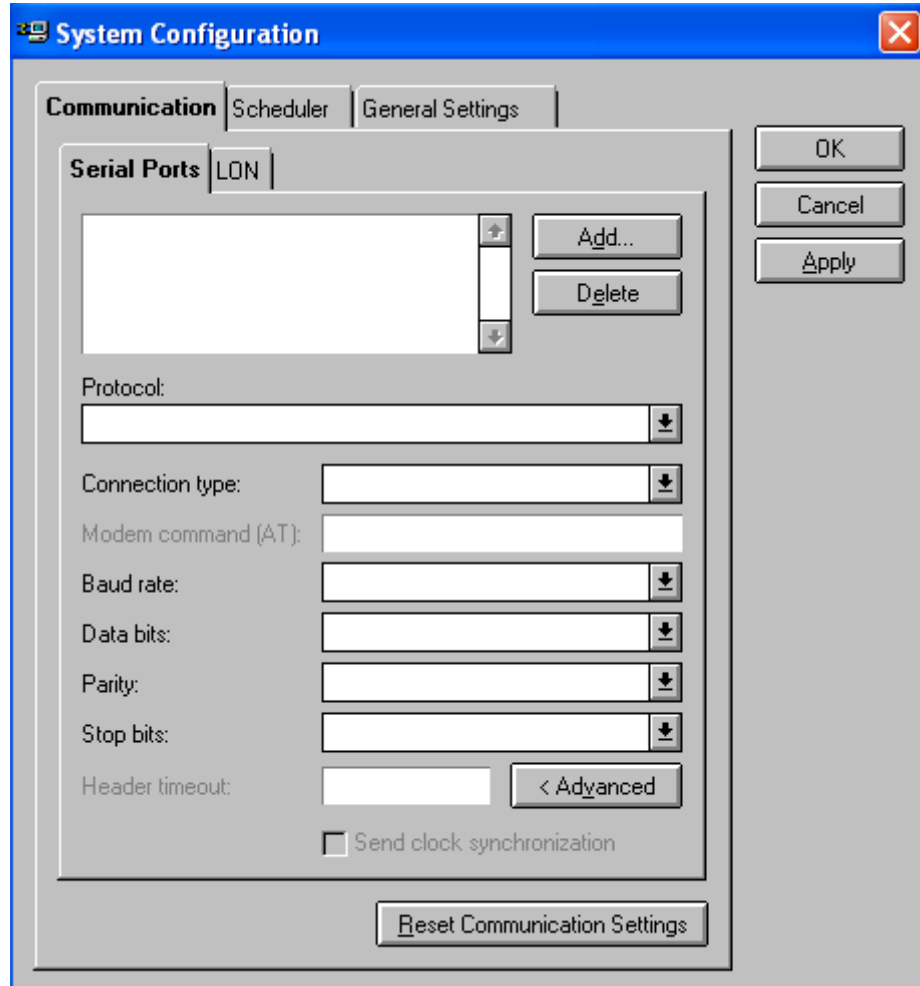
- System Tools menu in the Project Structure Navigator
- The Communication page of the General Object Attributes dialog

5.4.3. System Configuration Tool dialog

Figure 5.4.3.-1 illustrates the System Configuration Tool dialog.

The Communication page contains two pages:

- Serial Ports
- LON



sys_conf_1

Fig. 5.4.3.-1 Communication page of the System Configuration Tool dialog

Table 5.4.3-1 System Configuration Tool items

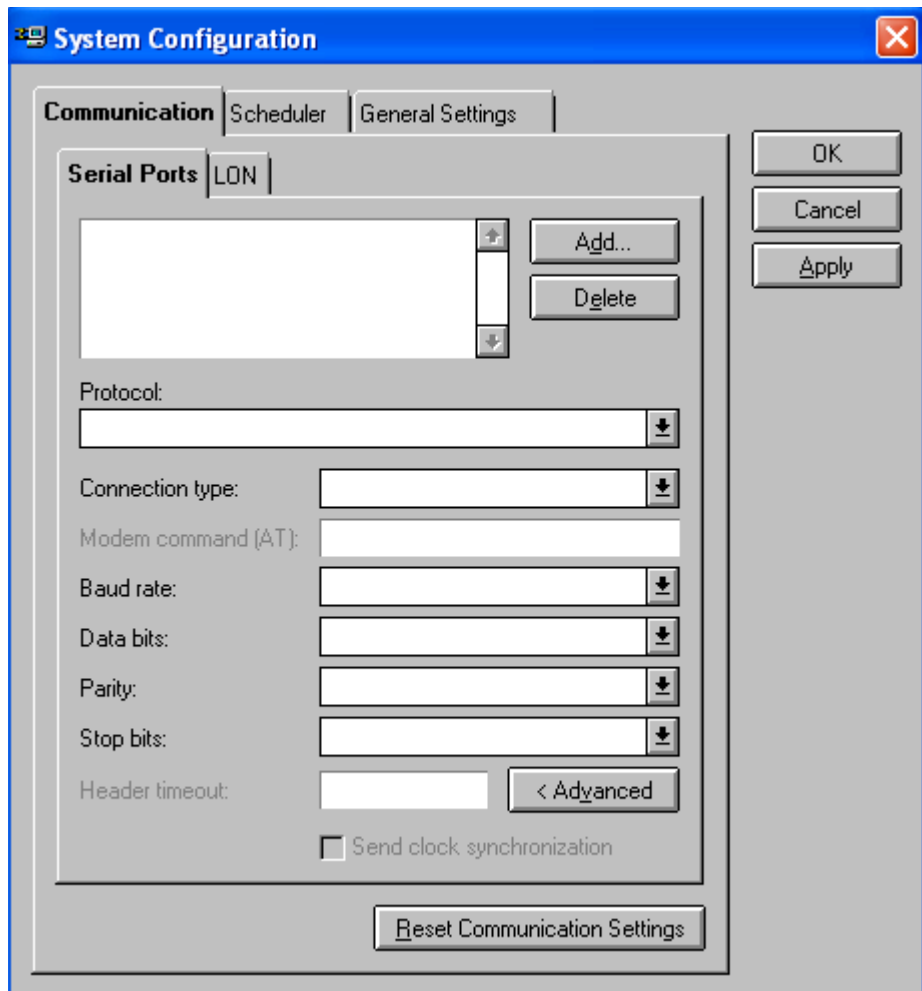
| Communication configuration pages | |
|--|--|
| Serial Ports | For managing serial port configuration, see Section “Serial Ports page” on page 53. |
| LON | For managing the LON configuration, see Section “LON page” on page 57. |
| Communication configuration buttons | |
| Reset Communication Settings | For resetting the communication settings, see Section “Resetting communication settings” on page 63. |

Table 5.4.3-1 System Configuration Tool items

| Common dialog buttons | |
|-----------------------|--|
| OK | For closing the System Configuration Tool and saving the configuration, see Section “Save configuration - close tool” on page 62. |
| Cancel | For closing the System Configuration Tool without saving the configuration, see Section “Discard configuration changes” on page 63. |
| Apply | For saving the configuration without closing the System Configuration Tool, see Section “Save configuration - proceed configuration” on page 62. |

5.4.3.1. Serial Ports page

Figure 5.4.3.1.-1 displays the Serial Ports page of the System Configuration Tool. Initially the configuration is empty, as illustrated.



sys_conf_1

Fig. 5.4.3.1.-1 The Serial Ports page

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Table 5.4.3.1-1 Serial Ports page items

| | |
|--------------------------------------|--|
| Serial Ports | List for selecting a serial port. Displays all the currently defined serial ports. |
| Protocol | List for assigning the communication protocol to the currently selected serial port. |
| Connection type | List for selecting the type of the remote connection. Enabled only when the protocol is SPA. |
| Modem command (AT) | Field for defining the modem initialization command for remote connections over a modem. Enabled only when connection type is 'Modem'. |
| Baud rate | List for assigning the baud rate to the currently selected serial port. |
| Data bits | List for assigning the data bits setting to the currently selected serial port. |
| Parity | List for assigning the parity setting to the currently selected serial port. |
| Stop bits | List for assigning the stop bits setting to the currently selected serial port. |
| Header timeout | Field for defining the Header Timeout attribute for the currently selected serial port. Enabled only after clicking the <Advanced button. |
| <Advanced button | For enabling the editing of the Header timeout field. |
| Send clock synchronization check box | For synchronizing the relays that are connected to the currently selected serial port. Not available for modem connections. Enabled only when the protocol is SPA. |
| Add ... button | For adding a new serial port, see Section "Serial ports - Adding" on page 54. |
| Delete button | For deleting the currently selected serial port, see Section "Serial ports - Deleting" on page 56. |

5.4.3.2.**Serial ports - Adding**

To add a serial port:

1. Click Add ... to bring up the dialog shown in Figure 5.4.3.2.-1.
2. Enter the serial port number, which must be in range of 1 through 8. If you enter an out-of-range value, or a value which is already in use, you are requested to enter a proper value.

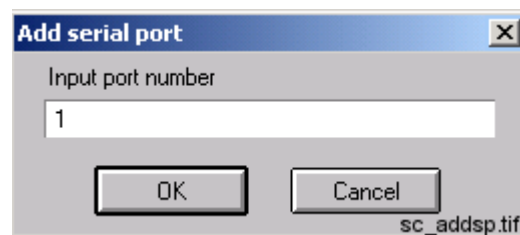
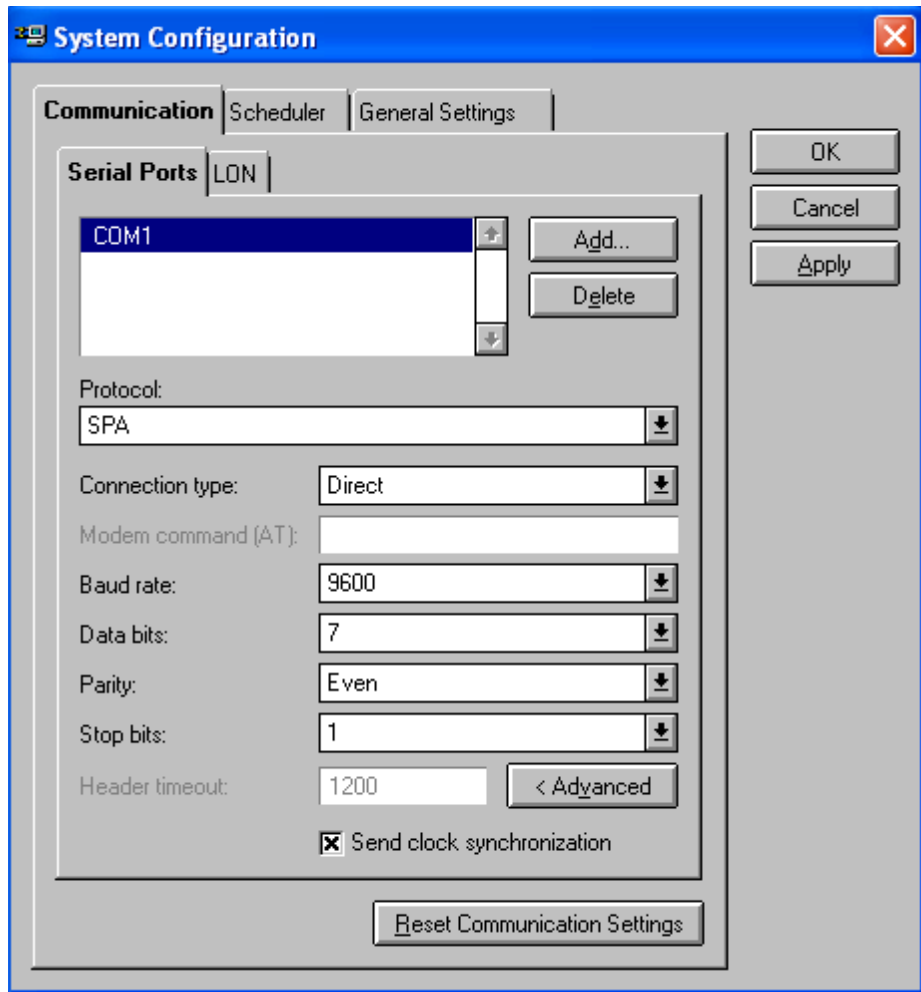


Fig. 5.4.3.2.-1 Define the port number for the new COM port

3. Click OK to add the new serial port, which appears on the Serial Ports list (see Figure 5.4.3.2.-2). Otherwise, click Cancel to keep the configuration unchanged.



sc_newcp_2

Fig. 5.4.3.2.-2 A new serial port COM1 added with default values

Certain default values are assigned to the newly added port's basic settings and communication protocol. If you wish to use other than the default values, you can configure them as described below.

5.4.3.3.

Serial ports - Configuring

The following table displays serial port properties, which you can configure on a per-port basis.

Table 5.4.3.3-1 Configurable serial port properties

| Property | Available values |
|------------------------|---|
| Communication protocol | SPA |
| Connection type | Direct, Modem |
| Modem command (AT) | Any valid AT modem command string |
| Baud rate | 300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600 |
| Data bits | 5, 6, 7, 8 |
| Parity | None, Odd, Even |
| Stop bits | 1, 2 |

Table 5.4.3.3-1 Configurable serial port properties

| | |
|----------------------------|--------------|
| Header timeout | 0-65535 (ms) |
| Send clock synchronization | On / Off |

To configure a serial port property:

1. Select the serial port from the Serial Ports list.
2. Configure the item by selecting the desired value from the appropriate list or by entering the value manually.

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 be received after the transmission of a message. By default, the Header timeout field is disabled to indicate that the value should not normally be modified. When the **<Advanced** button is clicked, a warning message is shown before the value can be changed. The default value for a direct connection is 1200 ms, and for a modem connection 2000 ms.

5.4.3.4.

Serial ports - Deleting

Any serial port, defined in a project's system configuration, can be deleted at any time.

To delete a serial port from the configuration:

1. Select the serial port from the Serial ports list.
2. Click Delete
3. When prompted to confirm the deletion (see Figure 5.4.3.4.-1), click Yes to delete the serial port. Otherwise click No to leave the serial port intact.

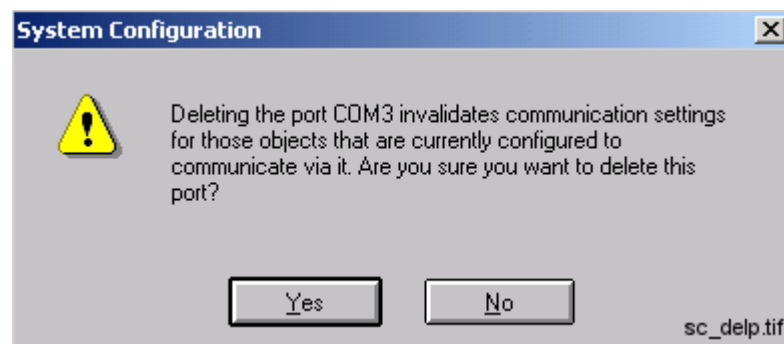


Fig. 5.4.3.4.-1 Confirm to delete the selected serial port

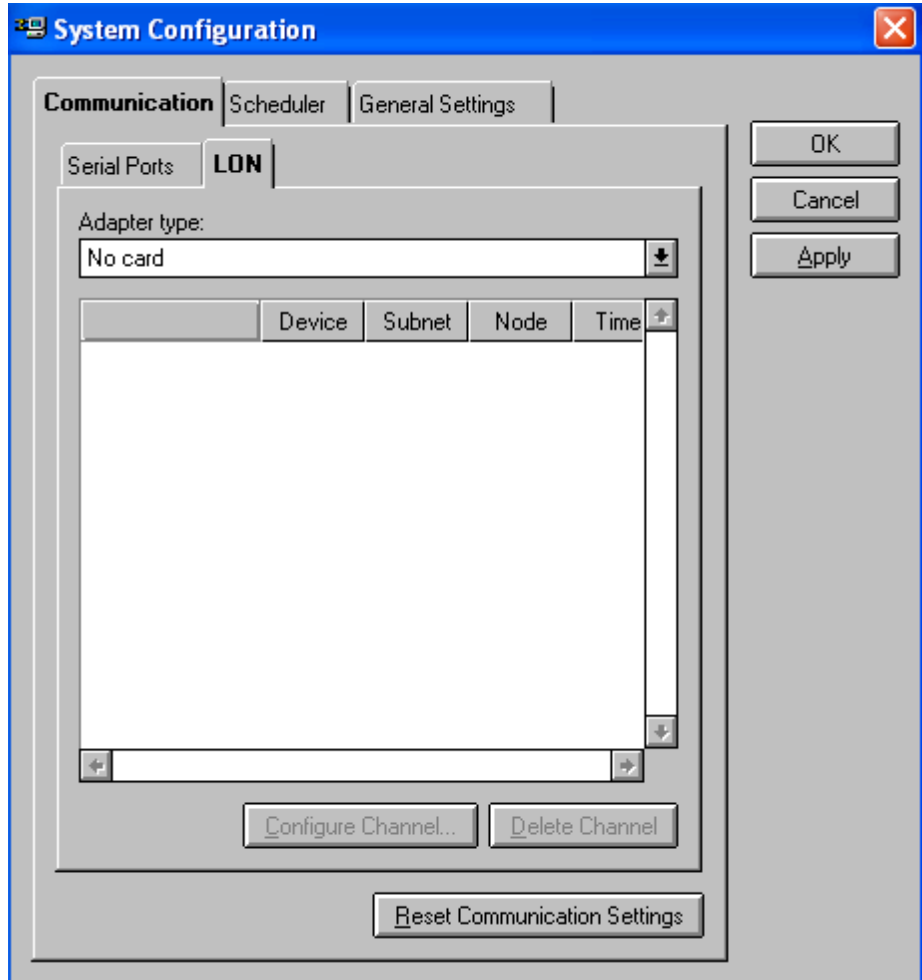
The deletion invalidates the communication settings of any device objects which have been configured to use the port you are about delete.



If you accidentally delete ports, you can revert to the most recently saved system configuration by clicking Cancel (see Section “Discard configuration changes” on page 63).

5.4.3.5. LON page

Figure 5.4.3.5.-1 displays the System Configuration Tool's LON page. Initially no card is selected, as illustrated in the figure.



sc_lon_1

Fig. 5.4.3.5.-1 The LON page

Table 5.4.3.5-1 LON page items

| | |
|-----------------------------|--|
| Adapter type | List for selecting the adapter type. Displays all the supported adapters. |
| Card | List for assigning the Subnet, Node and time synchronization settings to the LON channels. |
| Configure Channel... button | For configuring the currently selected channel. |
| Delete Channel... button | For deleting the currently selected channel. |

5.4.3.6. Selecting the adapter

The System Configuration Tool allows you to use only a single type of a LON card at a time, that is, you cannot have multiple types of LON cards in-use simultaneously. The LON card is selected from the Adapter type list. If you do not use any LON cards, select the option No card from the list.

When you select an adapter from the Adapter type list, the tool scans the computer for currently defined LON devices for the selected adapter type. If such are found, they will be displayed immediately, allowing you to take the channel(s) into use by assigning the appropriate channel settings (see Section “Assigning Subnet/Node settings” on page 58).

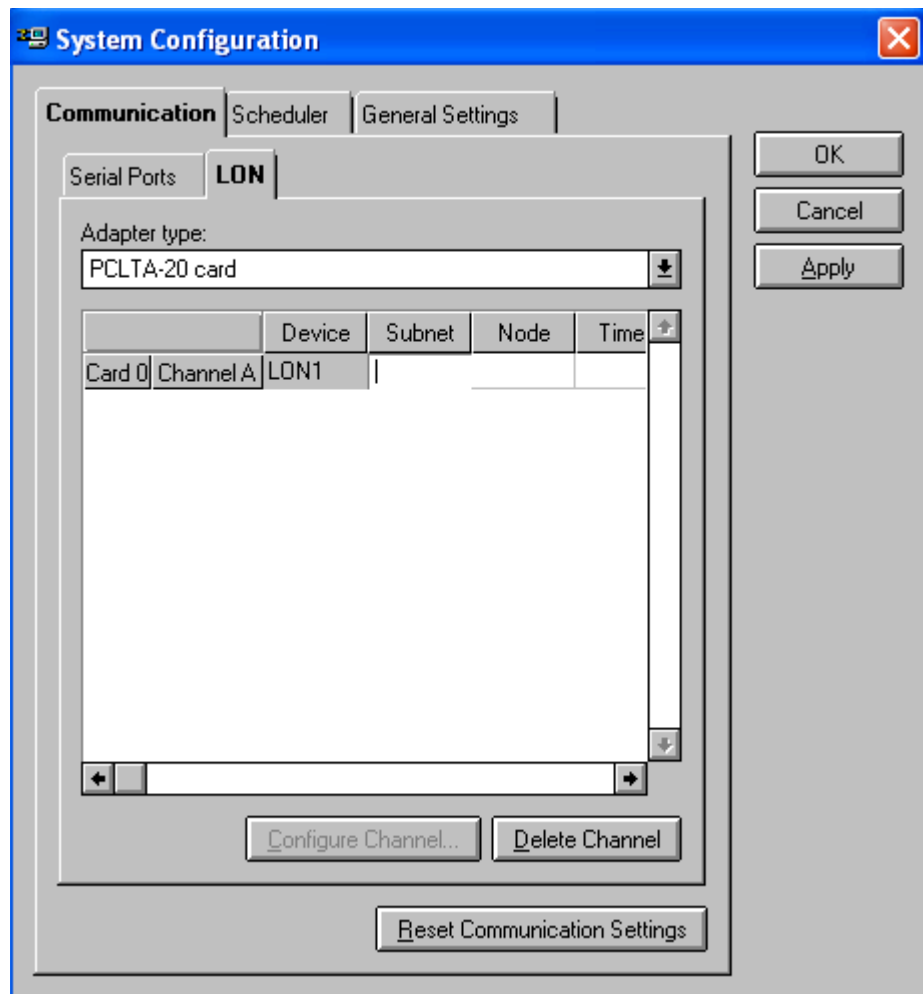
If no LON devices have been defined or you want to modify the current configuration, for example, by adding new devices or removing currently defined devices, you must temporarily exit SMS 510. After exiting SMS 510, you can start the installation application for the appropriate device driver from the Setup subfolder of the SMS 510 program folder.

5.4.3.7. Assigning Subnet/Node settings

Each LON channel needs to have a unique Subnet/Node value pair assigned to it, since it appears as any other node on the network. Valid range is 1 through 127, inclusive for both the Subnet and Node. It is also required to specify the time synchronization setting on a per LON channel basis.

To assign the Subnet/Node values to a LON channel:

1. Click on the intended channel's Subnet cell with the mouse to activate it (see Figure 5.4.3.7.-1).



sc_chnl_1

Fig. 5.4.3.7.-1 Activation of the Subnet cell

2. Type in the appropriate value for the Subnet.
3. Repeat the procedure for the Node cell. When you enter the value for the Node, the channel is assigned a default time synchronization value, which you can change as explained below.

When you edit these values, the device name of the edited channel begins to flash, reminding you, that the edited values have yet to be written to the respective card. To have the values written to the card, select the channel and press the Configure Channel... button. Upon pressing the button, the System Configuration Tool functions are according to the type of the currently selected adapter as follows:

PCC-10 PC card/PCLTA-20 card

If you have not done the initial configuration for the selected channel, then configure it by means of the LonWorks Plug'n Play control panel as explained in Sections "PCC-10 initial configuration" on page 68 or "PCLTA-20 initial configuration" on page 73. In case you are just applying modified Subnet/Node values, just close the LonWorks Plug'n Play control panel, when it appears.

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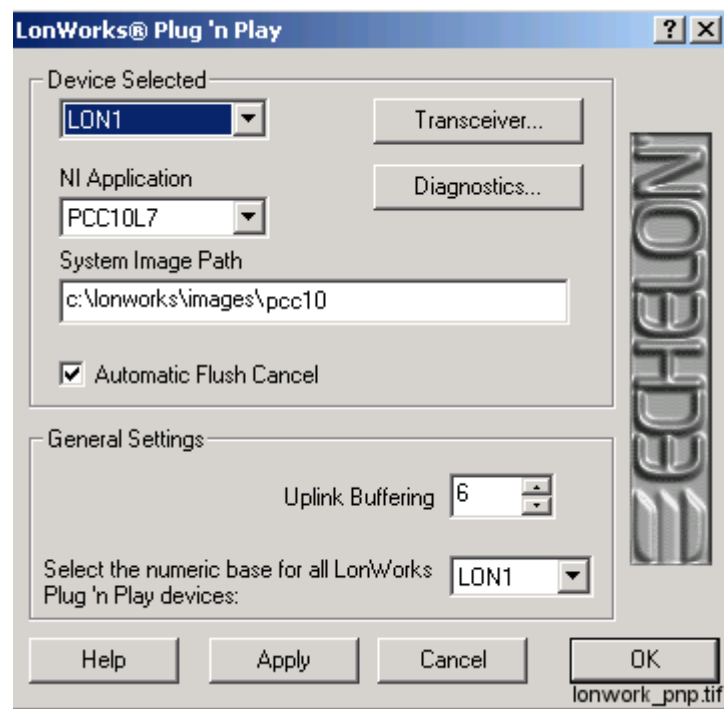


Fig. 5.4.3.7.-2 The LonWorks Plug 'n Play control panel opened for a PCLTA-20 card

Next, specify the time synchronization setting for a LON channel:

1. Click on the intended channel's time synchronization cell. This brings up the Time Synchronization dialog, shown in Figure 5.4.3.7.-3, on which you can specify the appropriate setting.

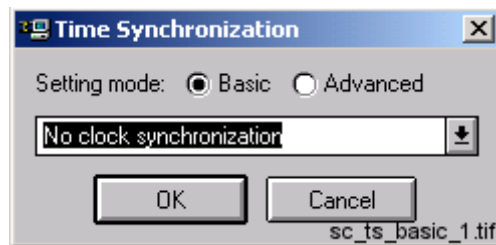


Fig. 5.4.3.7.-3 The Time Synchronization dialog

2. Select the setting mode.

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Time Synchronization in the Basic mode

If you select the Basic mode, you have the following options:

Table 5.4.3.7-1 Basic mode

| Option | Explanation |
|----------------------------------|---|
| No clock synchronization | The channel does not participate in time synchronization. |
| Send synchronization to LON | The time sync will be sent to LON via this channel. This option maps to the 'Link Type 3 - Send LSG and minute pulse' advanced option. This is also the default option when adding new LON channels. |
| Receive synchronization from LON | The system clock of the SMS 510 workstation will be synchronized via this channel. This option maps to the 'Link Type 4 - Receive LSG clock sync' advanced option. Note! Remember that in a project's communication configuration you can have only one LON channel at a time configured with this setting. Otherwise you will be prompted to change the configuration when you attempt to save it. |

Time Synchronization in the Advanced mode

If you select the Advanced mode, you have the following options:

Table 5.4.3.7-2 Advanced mode

| Option | Explanation |
|---|--|
| Link Type 0 - No clock sync | The channel does not participate in time synchronization. |
| Link Type 1 - Send LSG clock sync | Send LSG clock sync (for the relays that utilize nv warning and nv clock telegrams). |
| Link Type 2 - Send minute pulse | Send minute pulse (for the relays that utilize nv time telegram). |
| Link Type 3 - Send LSG and minute pulse | Send LSG and minute pulse. |
| Link Type 4 - Receive LSG clock sync | Receive LSG clock sync |
| Link Type 5 - Receive minute pulse | Receive the minute pulse. Note! It is recommended to use this option only when the other synchronization methods do not work, or when the exact time is not needed because of the inaccuracy on high channel load on a LON line with the minute pulse. |
| Link Type 6 - Send SLCM Reference Time | Send the SLCM Reference Time. |

3. Select the appropriate time synchronization setting.
4. Click OK.

After you have assigned the appropriate values, save the changes to the communication configuration, as explained below.

5.4.4. Saving system configuration

The system configuration is saved permanently by using either the OK or the Apply button. The difference is that the OK button closes the System Configuration Tool, whereas the Apply button allows you to proceed working with the System Configuration Tool.

The tool also provides you with the possibility to revert to the most recently saved configuration, in order to prevent accidental changes to the configuration (see Section “Discard configuration changes” on page 63).

5.4.4.1. Save configuration - close tool

To save a changed configuration, closing the System Configuration Tool, click OK. The System Configuration Tool prompts you to confirm the operation (see Figure 5.4.4.1.-1).

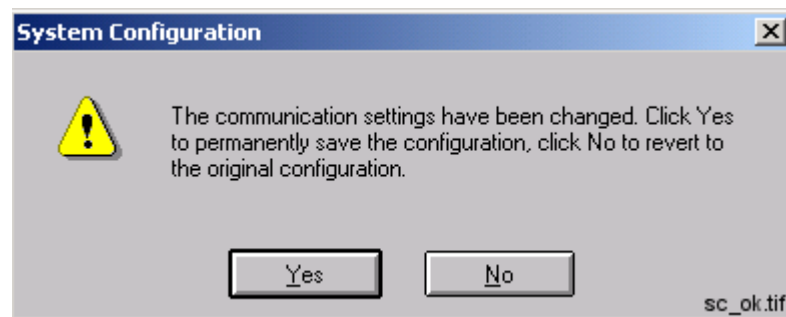


Fig. 5.4.4.1.-1 Confirm to save the configuration

To save the configuration, click Yes. Clicking No enforces the most recently saved configuration.

5.4.4.2. Save configuration - proceed configuration

To save a changed configuration without closing the System Configuration Tool, click Apply. The System Configuration Tool prompts you to confirm the operation (see Figure 5.4.4.2.-1).

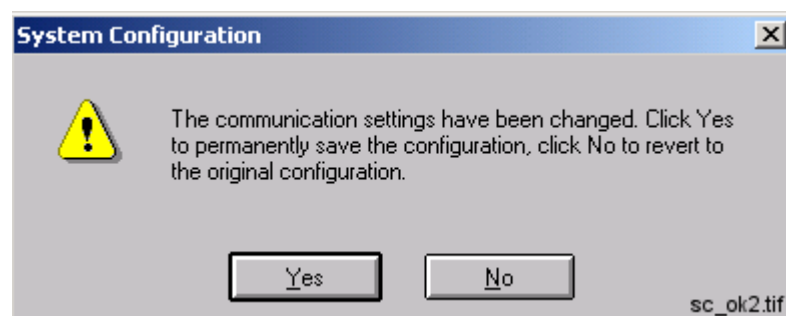


Fig. 5.4.4.2.-1 Confirm to save the configuration

To save the configuration, click Yes so that the configuration becomes the most recently saved configuration. Otherwise click No to proceed without saving.

5.4.4.3. Discard configuration changes

To revert to the most recently saved configuration, click Cancel. This closes the System Configuration Tool without further notifications.

5.4.5. Resetting communication settings

The communication settings of the project can be reset from the System Configuration dialog. Resetting means clearing the communication settings (done in the System Configuration) as well as all the object level communication addresses. The main purpose of this function is to reset the obsolete communication setup of an imported project. The System Configuration dialog prompts you to confirm the operation (see Figure 5.4.5.-1).

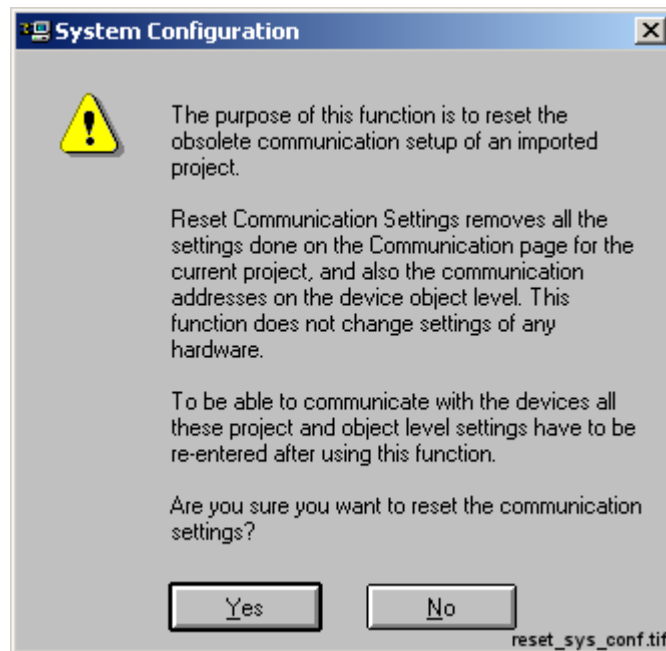


Fig. 5.4.5.-1 The communication settings reset dialog

To reset the communication settings, click Yes. Clicking No cancels the operation.



After accepting to reset the settings, the deleted system configuration cannot be retrieved by clicking the Cancel button of the System Configuration dialog. Also, to be able to communicate with the connected devices again, all the communication settings must be re-entered.

5.5. Installing LON cards

5.5.1. PCC-10 PC Card commissioning procedure

The communications hardware and software are configured in the following order:

1. Install the card into the PC (see Section “PCC-10 PC Card configuration” on page 68).
2. Install and configure the PCC-10 PC Card device driver (PNPLON), (see Sections “Device driver installation” on page 68 and “PCC-10 initial configuration” on page 68).

5.5.2. PCLTA-20 Card commissioning procedure

The communications hardware and software are configured in the following order:

1. Install the card into the PC (see Section “PCLTA-20 Card configuration” on page 72).
2. Install and configure the PCLTA-20 Card device driver (PNPLON), (see Sections “Device driver installation” on page 72 and “PCLTA-20 initial configuration” on page 73).

5.5.2.1. Installation of the PCLTA-20 adapter to Windows 2000 or Windows XP

Software installation

When drivers are installed to a Windows 2000 Server where Terminal Services are running, it should be done using the Add/Remove Programs under the Control Panel. Browse the path where the Driver installation file exists. If the operating system is Windows 2000 or Windows XP Professional, you can run the self-extracting installation exe-file directly.

1. Launch the PCLTA-20 software installation program. Choose Setup
Figure 5.5.2.1.-1.

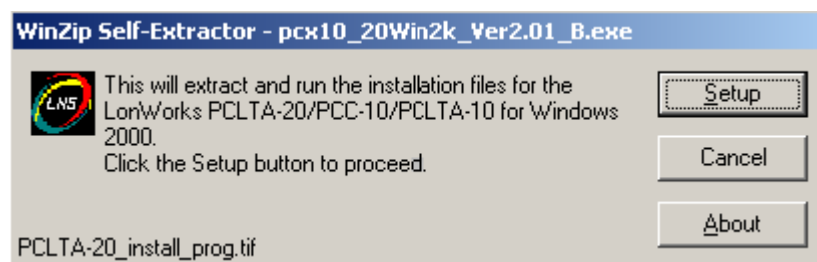


Fig. 5.5.2.1.-1 Dialog for launching the PCLTA-20 software installation

2. Follow the instructions on the screen (see Figure 5.5.2.1.-2).

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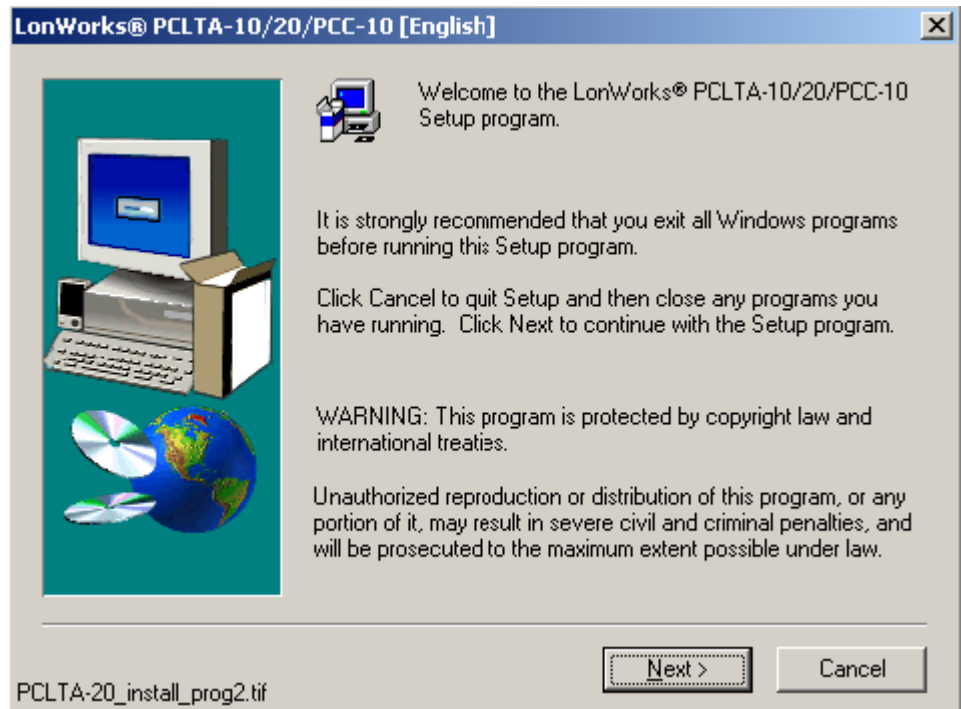


Fig. 5.5.2.1.-2 The welcome dialog of the PCLTA-20 Setup program

- 3. By default, the installation directory is c:\Lonworks. The path may be modified by using the “Browse” button (see Figure 5.5.2.1.-3).

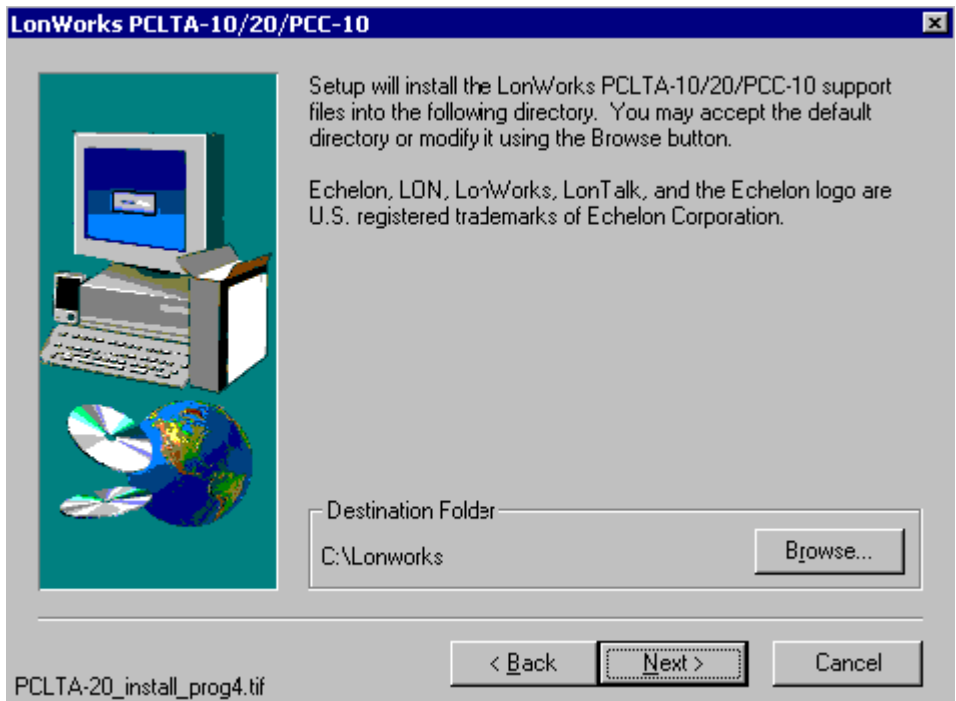


Fig. 5.5.2.1.-3 The dialog shows the default installation directory

- 4. At the end of the installation, select the restart option.

PCLTA - 20 Card installation

1. Turn off the PC and remove the power cord.
2. Open the PC case and locate an empty 32-bit PCI slot.
3. Check that RER107 LON Communication Adapter is attached to the PCLTA-20 adapter.
4. Insert the PCLTA-20 adapter into the slot.
5. Re-insert the power cord and then restart the PC.

A “New Hardware Found” window will be displayed briefly, when the operating system recognizes the PCLTA-20 adapter. You can check if the installation has been successful by using the Control Panel/ Administrative Tool/Computer Management/ Device Manager.

Configuration settings for PCLTA – 20 adapter

Open the Control panel by selecting the “LonWorks Plug’n Play” icon in the Control Panel (see Figure 5.5.2.1.-4 and Table 5.5.2.1-1).

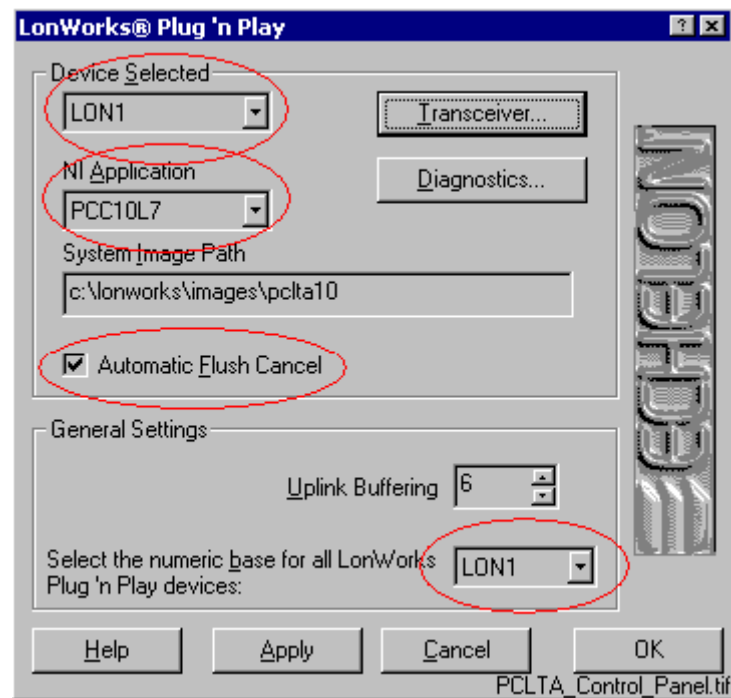


Fig. 5.5.2.1.-4 The PCLTA Control Panel

Table 5.5.2.1-1 Description of the PCLTA Control Panel dialog items

| | |
|------------------------|---|
| Device Selected | Controls which PCLTA-20 adapter is selected for configuration. |
| NI Application | Controls the type of image or application to be used. Image should be set to PCC10L7. |
| Automatic Flush Cancel | Should be checked. |
| Transceiver | Opens the PCLTA-20 Transceiver dialog. Settings should be according to Figure 5.5.2.1.-4. |
| System Image Path | Specifies the full directory path for the PCLTA-20 system images. This path is set by the PCLTA-20 Installation software but may be modified by the user. |

Upon clicking the Transceiver... button, Figure 5.5.2.1.-5 will appear on the screen.

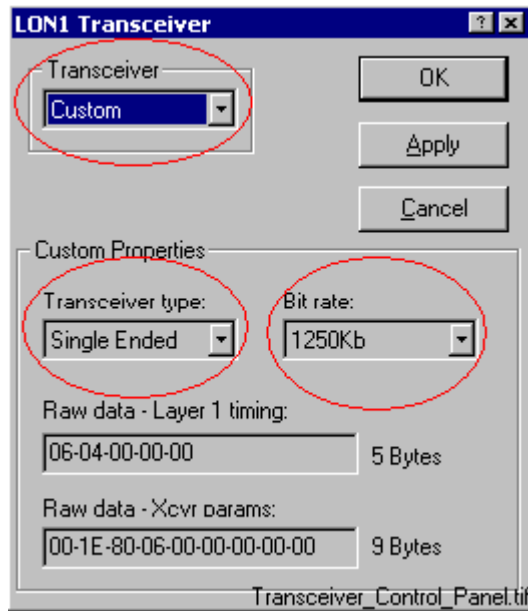


Fig. 5.5.2.1.-5 The Transceiver Control Panel

The chosen options have to be according to the ones presented in the dialog. Click the Apply button to enable the driver to utilize the chosen features.

5.5.3. PCC-10 PC Card configuration

5.5.3.1. Device driver installation

The installer for the PCC-10 PC Card device driver is started from the Setup subfolder of the SMS 510 program folder. Close any programs you have running (including SMS 510) and start the LonWorks PCC-10/PCLTA-20 Device Driver installation application for the proper operating system.



The program, which you start, installs images and the driver (PNPLON.SYS) for the PCC-10, PCLTA-10 and PCLTA-20 cards.

Selecting the destination directory

By default, the destination directory will be C:\LONWORKS. If you decide to install to another directory, you have to manually specify the directory path to the installed system image later.

Selecting the numeric base for LonWorks devices

During the driver installation you is prompted to supply the numeric base for all the LonWorks Plug'n Play devices. To be compatible with SMS 510, please use 1 as the numeric base, so the device name will be created as LON1.

After the driver installation, restart the computer and perform the initial device driver configuration as explained below.

5.5.3.2. PCC-10 initial configuration

After you have installed the PCC-10 card and its device driver, and rebooted the computer, you have to verify that correct settings are to be used. Initialize also the node state of the card's channel as *configured*. This means that the following tasks have to be done:

- Select the correct type of transceiver. The default setting FT-10 has to be changed to Custom with appropriate data.
- Select the correct type of the network interface application (NI Application). By default, the device driver installation program configures the NSIPCC as the NI Application. However, NSIPCC has to be changed to PCC10L7.
- Initialize the card to the configured node state, along with the initial Subnet/Node settings.

To configure:

1. Start SMS 510 and enter the LON page of the System Configuration Tool.
2. If not selected, select the PCC-10 card as the type of the adapter. By this time, a LON channel should be available on the System Configuration Tool. If there are none, then the device driver has failed to start and needs to be re-configured. See Section "PCC-10 PC Card preferences" on page 77.
3. Enter values for the Subnet and Node, and press the Configure Channel... button to open the LonWorks Plug'n Play control panel.

Selecting the network interface application

4. First, select the PCC10L7 network interface application, as shown below.

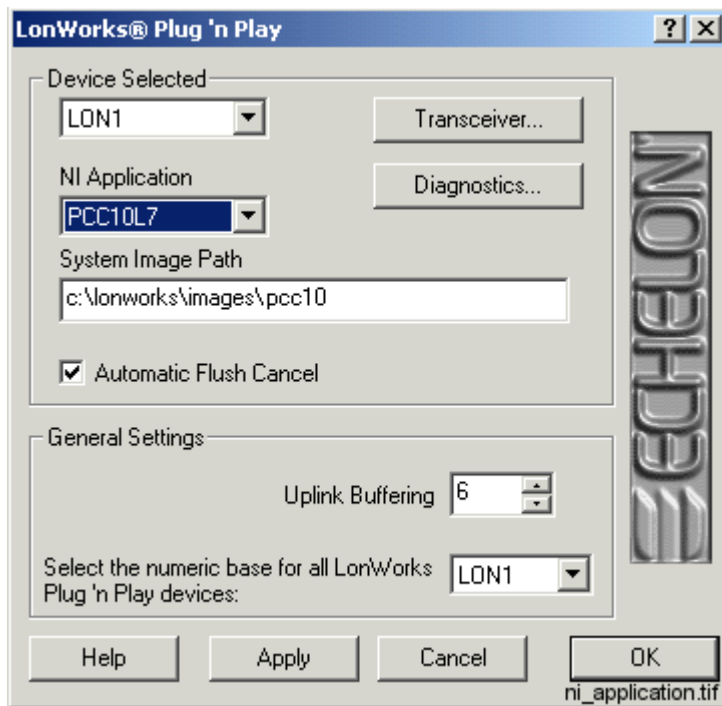


Fig. 5.5.3.2.-1 Selecting the correct NI Application

5. Check the Automatic Flush Cancel option as in Figure 5.5.3.2.-1 above.
6. Click Apply to apply the selections.

Selecting the type of the transceiver

7. Click the Transceiver... button to open the dialog shown below.

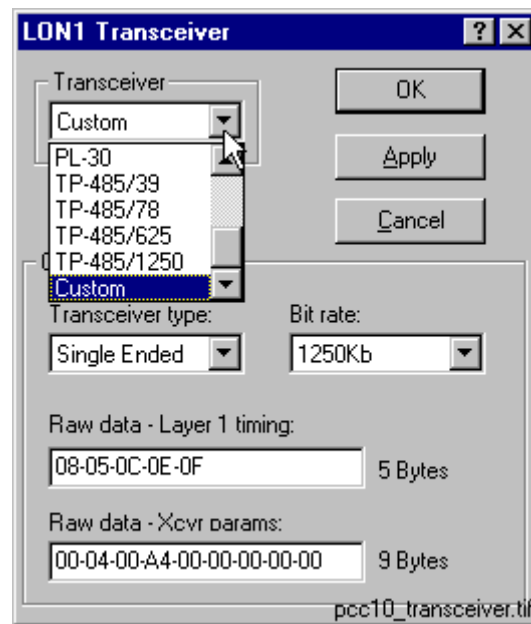


Fig. 5.5.3.2.-2 Switching from the default transceiver setting to the Custom transceiver

8. From the Transceiver list, select the Custom option.
9. Select Single Ended as the type of the transceiver.
10. Set the Bit rate to 1250 Kb.
11. For Raw data - Layer 1 timing, ensure that the following data '08-05-0C-0E-0F' is used.
12. For Raw data - Xcvr params, ensure that the following data '00-04-00-A4-00-00-00-00' is used.
13. Click OK to save the configuration closing the Transceiver dialog. Next, initialize the card to the configured state as explained below.

Initializing the node state to be configured

14. On the LonWorks Plug'n Play control panel (see Figure 5.5.3.2.-1 above), click the Diagnostics... button to open the Diagnostics dialog shown below.

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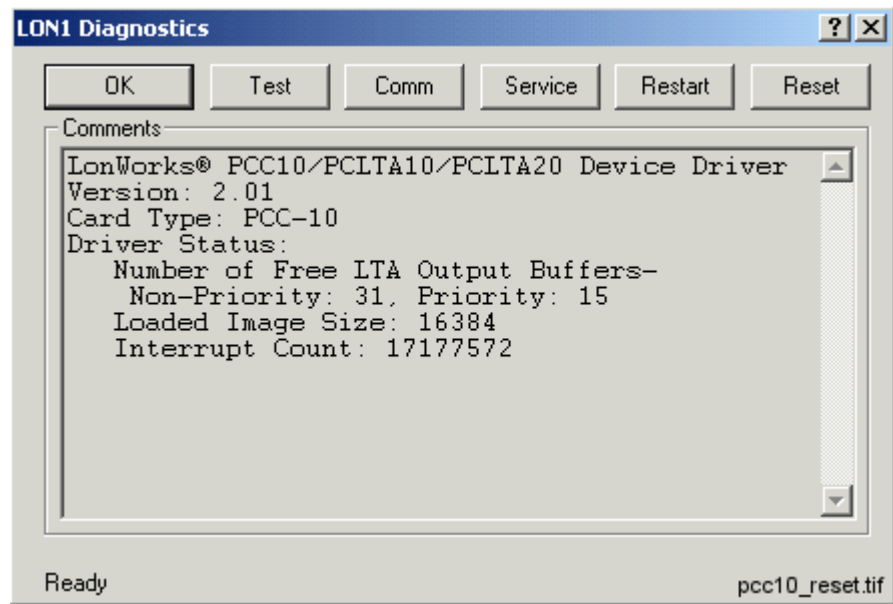


Fig. 5.5.3.2.-3 Some basic diagnostics information available indicating that the device driver has been started and can be configured

15. Initialize the node state to configured by clicking Reset.

16. Verify the initialization by clicking Test. Observe that the *Node State* is reported to be Configured as in the figure below.

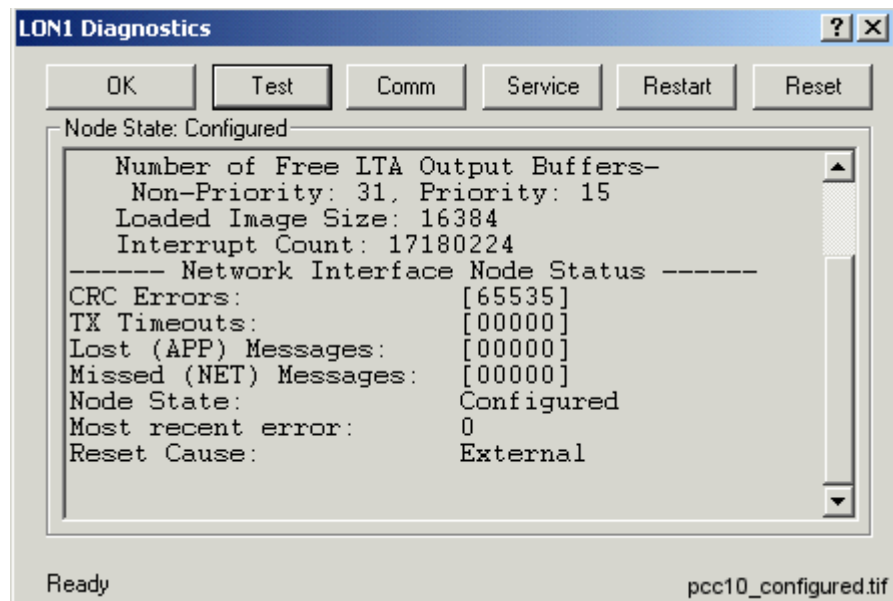


Fig. 5.5.3.2.-4 Results of the Test function, the state is now configured

17. At this stage the card is ready for use. Click OK to close the dialog. Close also the LonWorks Plug'n Play control panel by clicking OK on it and continue your work with the System Configuration Tool.

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For additional information on configuring the PCC-10 device driver, you may want to view the Windows Help shipped with the device driver package. See also Section “PCC-10 PC Card preferences” on page 77.

To access the Help, open the operating system’s Control Panel and open the applet titled LonWorks Plug’n Play, shown in Figure 5.5.3.2.-5.

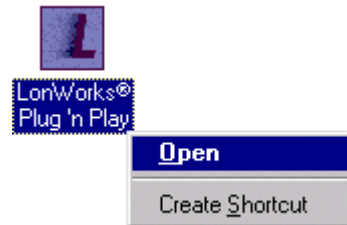


Fig. 5.5.3.2.-5 Starting the LonWorks Plug’n Play applet

Once the LonWorks Plug’n Play applet is running, click Help to view the Help for the package.

5.5.4. PCLTA-20 Card configuration

5.5.4.1. Device driver installation

The installer for the PCLTA-20 Card device driver is started from the Setup subfolder of the SMS 510 program folder. Close any programs you have running (including SMS 510) and start the LonWorks PCC-10/PCLTA-20 Device Driver installation application for the proper operating system.



The program, which you start, installs images and the driver (PNPLON.SYS) for the PCC-10, PCLTA-10 and PCLTA-20 cards.

Selecting the destination directory

By default, the destination directory is C:\LONWORKS. If you decide to install to another directory, you have to manually specify the directory path to the installed system image later.

Selecting the numeric base for LonWorks devices

During the driver installation you will be prompted to supply the numeric base for all the LonWorks Plug’n Play devices. To be compatible with SMS 510, please use 1 as the numeric base, so the first device name will be created as LON1, the second as LON2 and so on.

After the driver installation, close SMS 510 prior to restarting the computer and perform the initial configuration as explained below.

5.5.4.2.**PCLTA-20 initial configuration**

After you have installed the PCLTA-20 card(s) and its device driver, and rebooted the computer, you have to verify that correct settings are to be used. Configure also the node state of each of the channels as configured. This means that the following tasks have to be done:

- Ensure that the correct type of transceiver is used for each channel.
- Ensure that the correct type of the network interface application (NI Application) is used for each channel.
- Initialize the card to the configured node state along with initial Subnet/Node settings.

To configure:

1. Start SMS 510 and enter the LON page of the System Configuration Tool.
2. If not selected, select the PCLTA-20 card as the type of the adapter. By this time, the System Configuration Tool should have as many LON channels as there are PCLTA-20 cards in computer. If there are not, most probably the operating system has failed to provide the card with sufficient/suitable IRQ and I/O resources. Try to free some resources and reboot the computer.
3. For each LON channel, enter values for the Subnet and Node, and press the Configure Channel... button to open the LonWorks Plug'n Play control panel.

Selecting the device name

4. First, ensure that the selected device matches the device name of the channel you selected in the System Configuration Tool (see Figure 5.5.4.2.-1 below).



Fig. 5.5.4.2.-1 Device name LON1 is selected both in the System Configuration Tool and in the LonWorks control panel

Selecting the network interface application

5. Select the PCC10L7 Application, as shown below.

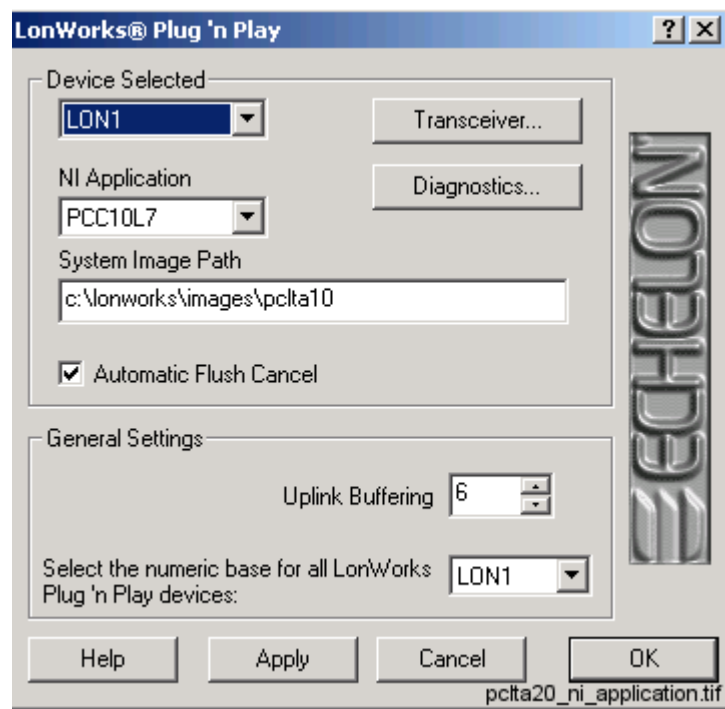


Fig. 5.5.4.2.-2 Selecting the correct NI Application

6. Check the *Automatic Flush Cancel* option as in the figure above.
7. Click Apply to apply the selections.

Selecting the type of the transceiver

8. Click the Transceiver... button to open the dialog shown below.

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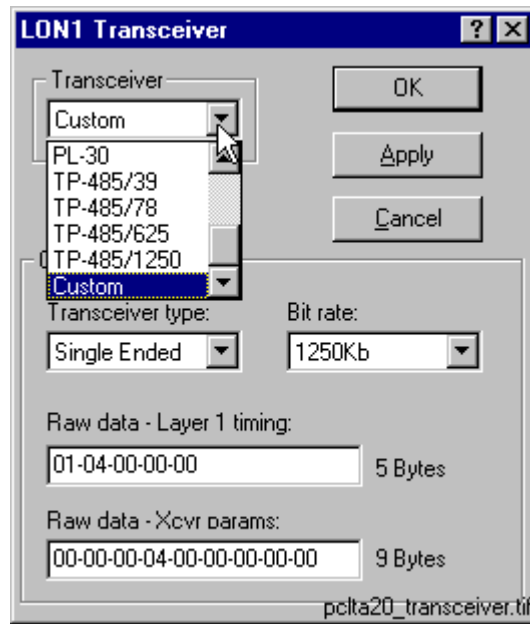


Fig. 5.5.4.2.-3 Switching from the default transceiver setting to the Custom transceiver

9. From the Transceiver list, select the Custom option.
10. Select Single Ended as the type of the transceiver.
11. Set the Bit rate to 1250 Kb.
12. For Raw data - Layer 1 timing, ensure that the following data '01-04-00-00-00' is used.
13. For Raw data - Xcvr params, ensure that the following data '00-00-00-04-00-00-00-00-00' is used.
14. Click OK to save the configuration closing the Transceiver dialog box. Next, initialize the card to the configured state as explained below.

Initializing the node state to configured

15. On the LonWorks Plug'n Play control panel (see Figure 5.5.4.2.-2 above), click the Diagnostics... button to open the Diagnostics dialog shown below.

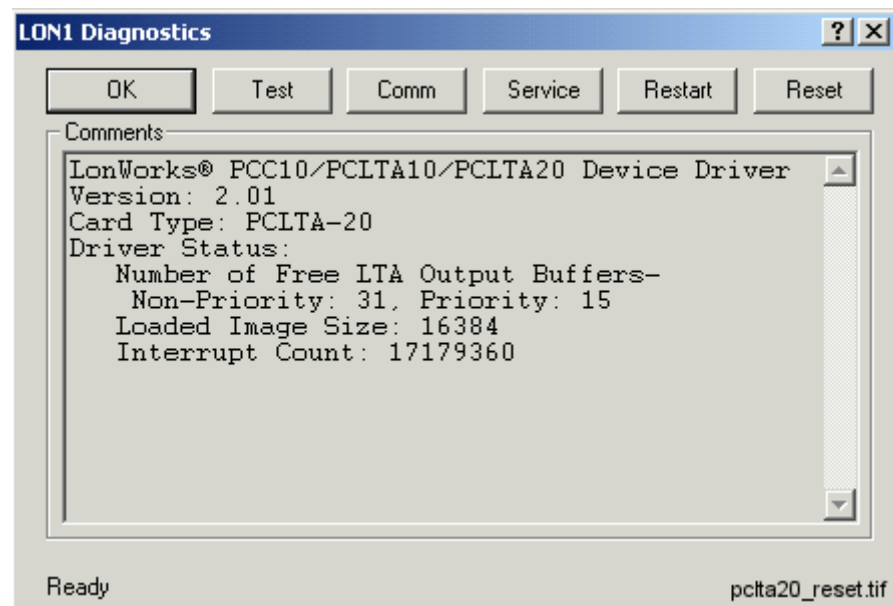


Fig. 5.5.4.2.-4 Some basic diagnostics information available indicating that the device driver has been started and can be configured

16. Initialize the node state to *configured* by clicking Reset.
17. Verify the initialization by clicking Test. Observe that the *Node State* is reported to be Configured as in Figure 5.5.4.2.-5 below.

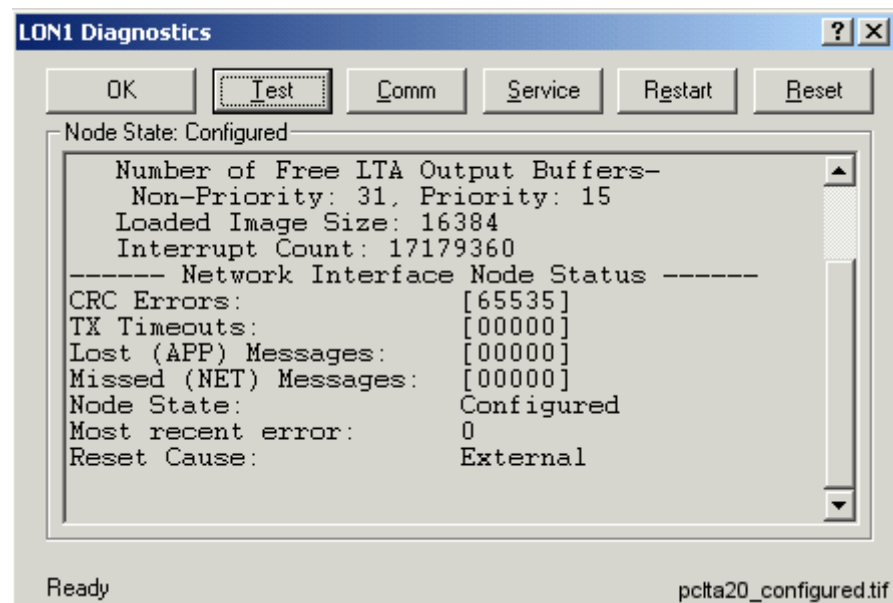


Fig. 5.5.4.2.-5 Results of the Test function, the state is now configured

18. At this stage the card is ready for use. Click OK to close the dialog. Close also the LonWorks Plug'n Play control panel by clicking OK on it and continue your work with the System Configuration Tool.

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For additional information on configuring the PCLTA-20 device driver, you may want to view the Windows Help shipped with the device driver package.

To access Help, open the operating system's Control Panel and the applet titled LonWorks Plug'n Play (shown in Figure 5.5.4.2.-6).

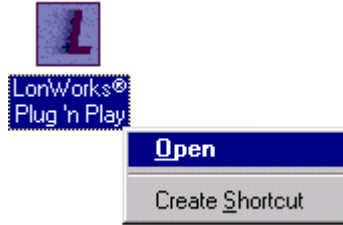


Fig. 5.5.4.2.-6 Starting the LonWorks Plug'n Play applet

5.6. Troubleshooting LON

5.6.1. PCC-10 PC Card preferences

It may be necessary to configure the preferences of the PCC-10 card's device driver, if you are unable to configure the card to the configured state. In such a case, open the Preferences page of the LonWorks Plug'n Play control panel and try another IRQ and/or I/O range setting for the card (see Figure 5.6.1.-1 below). You can modify the current settings by means of the up/down buttons on the dialog (see the cursor in the figure).

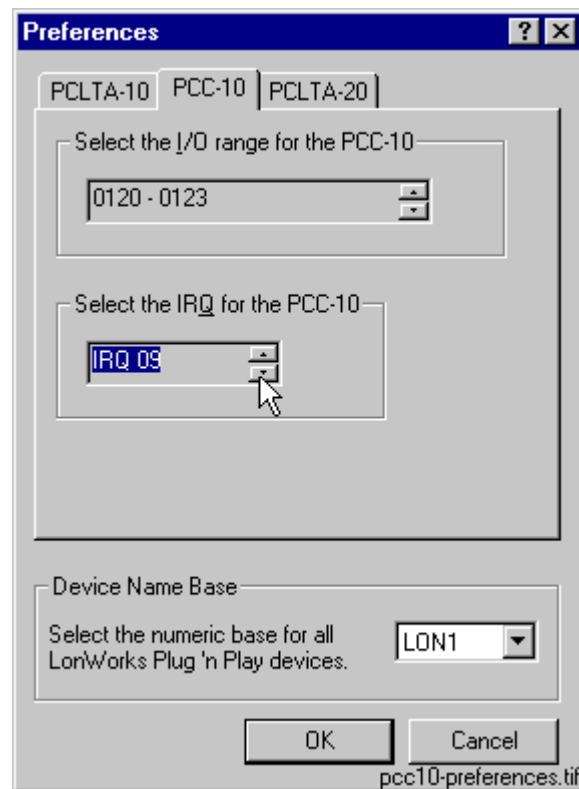


Fig. 5.6.1.-1 PCC-10 preferences

The default IRQ setting is automatic. However, on Windows it may happen that the automatic IRQ assignment results in a non-working configuration even if the assigned IRQ appears to be free for use. You can use e.g. the operating system's diagnostics application (WINMSD.EXE) to determine the IRQs that are free and try to manually set a new IRQ for the PCC-10 card. In the figure above, IRQ 9 has been set for the card. The new setting will take effect on the next computer reboot.

5.6.2.

LON channel configuration failure

Figure 5.6.2.-1 shows the error message, which may appear upon pressing the Configure Channel... button in computers having the Lon Network Tool (LNT 505) installed. In this case, dismiss the message by clicking OK. Do the corrective measures explained in Section "Recovering from failure to configure PCLTA Card channels" on page 79 and retry the channel configuration.

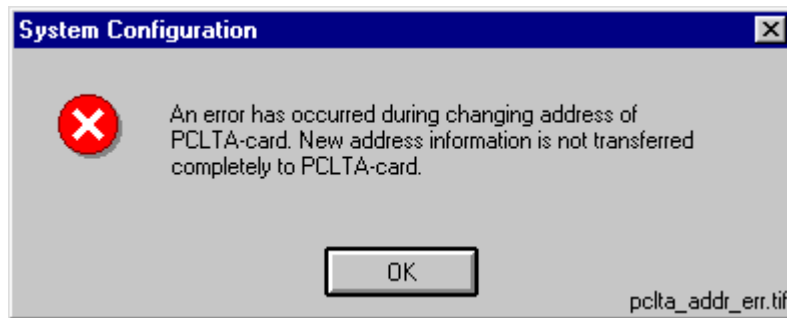


Fig. 5.6.2.-1 Failure in card initialization

5.6.3.

Recovering from failure to configure PCLTA Card channels

This section provides instructions to fix a situation where the usage of the Lon Network Tool (LNT 505) has prevented the channel configuration in SMS 510.

Both LNT 505 and SMS 510 use a common file NETTOOLS.INI. This file is located in the Windows directory of the computer, e.g. C:\WINNT. If you cannot find it there, then you have to reinstall the SMS 510 Base System in order to get a working copy of the file.

LNT 505 may modify the values of the following NETTOOLS.INI keys, so that they cannot be read by the SMS 510 kernel:

- FTR
- LOOKUP
- OFFLINE

These keys can be found under the section STATUS (see Figure 5.6.3.-1).

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```

Nettools.ini - Notepad
File Edit Search Help
DEVICE=LONP0
SUBNET0=5
NODE0=118
AUTH0=FF FF FF FF FF FF
DOMAIN0=
AUTH1=FF FF FF FF FF FF
SUBNET1=0
NODE1=0
[NETAGENT]
LOGCTRL=255
NM_AUTH=0
VERSION=1.3.6
DIR=D:\SMS510\Tool\NetAgent
[LON]
NM_AUTH=0
DEF_TIMERS=33 03
NM_TIMERS=63 06
SPEED=
FREQ=
[TOOLS]
LNT=d:\lnt505
LNTVERS=1.0.1d

[STATUS]
FTR=
LOOKUP=
OFFLINE=
STATUS=
[CH1]
DEVICE=LONP0
SUBNET0=1
NODE0=127
DOMAIN0=
AUTH0=FF FF FF FF FF FF
SPEED=
FREQ=
[CH2]
DEVICE=LON1
SUBNET0=1
NODE0=2
DOMAIN0=
AUTH0=FF FF FF FF FF FF
SPEED=
FREQ=
nettools_ini.tif

```

Fig. 5.6.3.-1 An example of the file NETTOOLS.INI. As the selection indicates, lengthy data has been written for the critical keys.

The solution for the problem is to empty the values of the addressed keys, which is a safe operation to do.

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To empty the values:

1. Preferably, exit LNT 505 if it is running.
2. Open the file NETTOOLS.INI in any ASCII editor, for example Notepad (NOTEPAD.EXE).
3. Under the section STATUS, empty the values of the keys FTR, LOOKUP and OFFLINE as illustrated in Figure 5.6.3.-2 below.

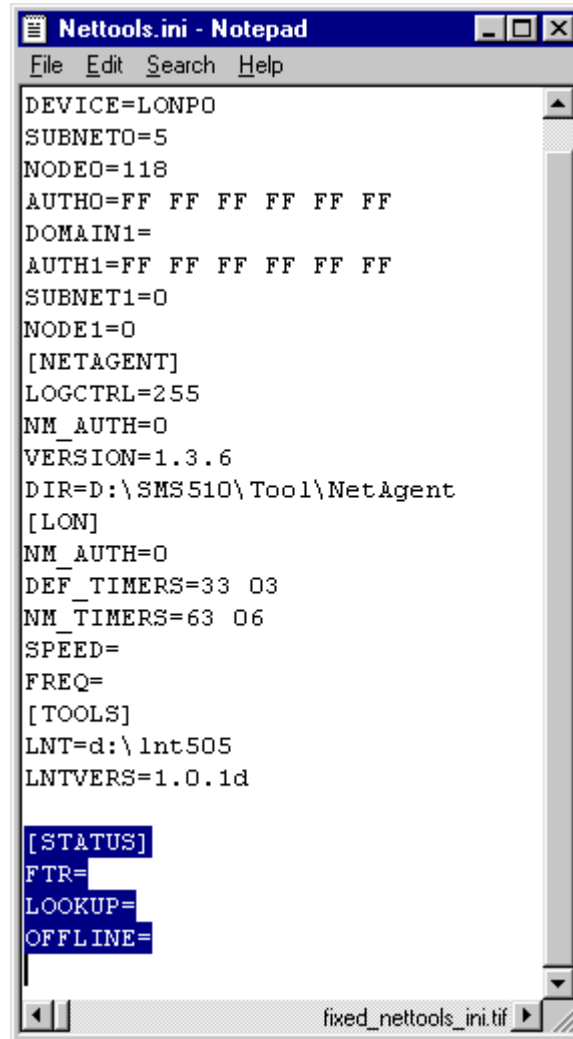


Fig. 5.6.3.-2 An example of the file NETTOOLS.INI. As the selection indicates, the values have been removed.

4. Save changes to the file and close the editor.
5. Retry the channel configuration of the PCLTA card.

5.7. CAP2/316 - Distributed COM identity

5.7.1. Overview

The CAP2/316 tool needs to be configured under Distributed COM (DCOM) to run in the context of the MicroSCADA user account.

5.7.2. When to apply the DCOM identity

The DCOM identity has to be configured when:

- You have installed the option REB 500 / RE.x16 Support.
- You have changed the password of the MicroSCADA user account on the computer.
- You have renamed a computer, on which this DCOM identity has already been configured.

5.7.3. DCOM identity configuration

The identity configuration is done by means of the Distributed COM Configuration Properties dialog (DCOMCNFG.EXE), which is part of the operating system installation.

To configure the identity:

1. Choose Run from the operating system's Start menu.
2. Type 'DCOMCNFG.EXE' in the Run dialog and click OK. This opens the Distributed COM Configuration Properties dialog shown in Figure 5.7.3.-1.

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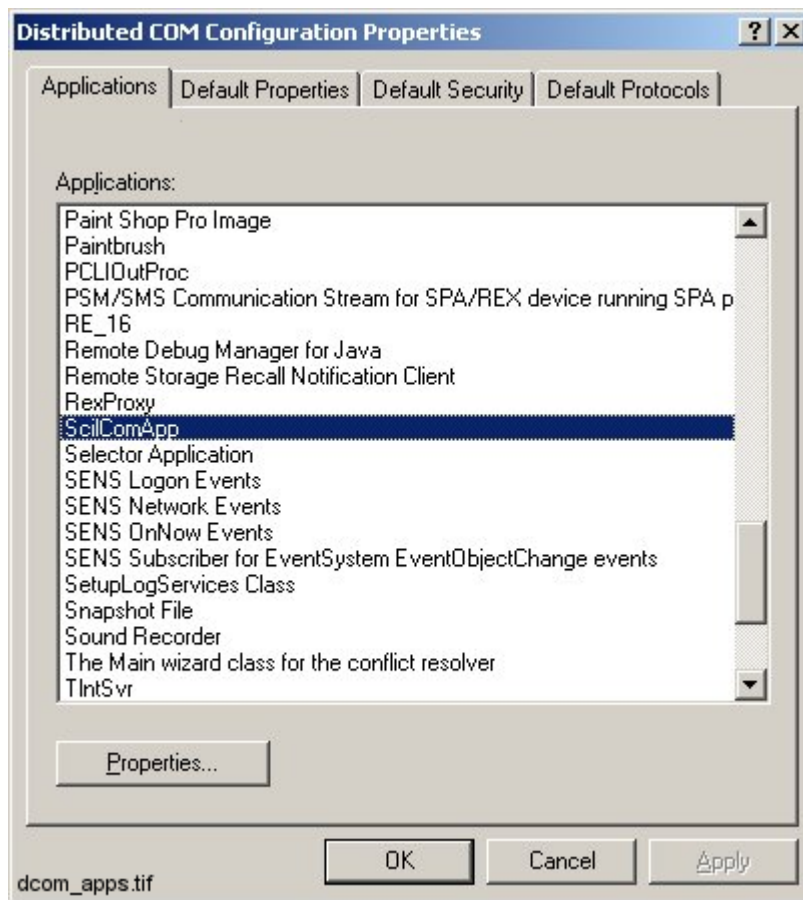


Fig. 5.7.3.-1 The list of registered DCOM applications

3. Browse for the application titled ScilComApp, as in the above dialog, and click the Properties... button.
4. On the opening dialog, click the Identity tab and select the option This user:.
5. As in Figure 5.7.3.-2, type in MicroSCADA as the User. Type in the same password as is used for the MicroSCADA user account on your computer.

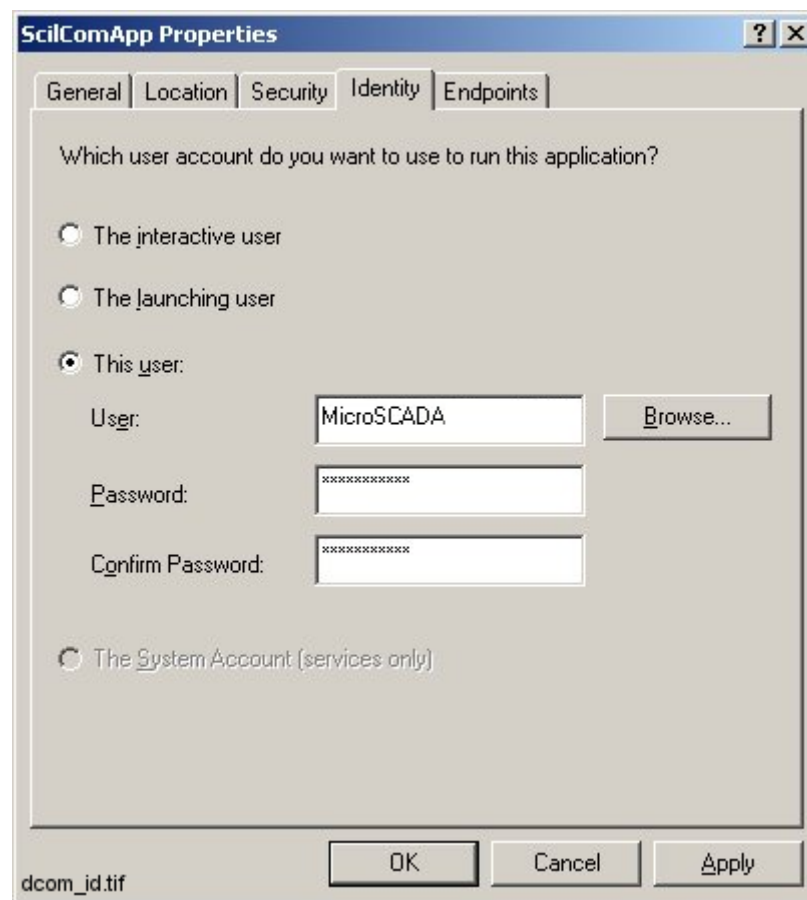


Fig. 5.7.3.-2 MicroSCADA user account as the identity for the application

6. Click OK to return to the previous dialog.
7. Click OK to close also the Distributed COM Configuration Properties dialog.

The identity configuration will take effect the next time you start SMS 510.

The following DCOM settings for the ScilComApp object are set by the SMS 510 installation. See Figure 5.7.3.-3 - Figure 5.7.3.-6.

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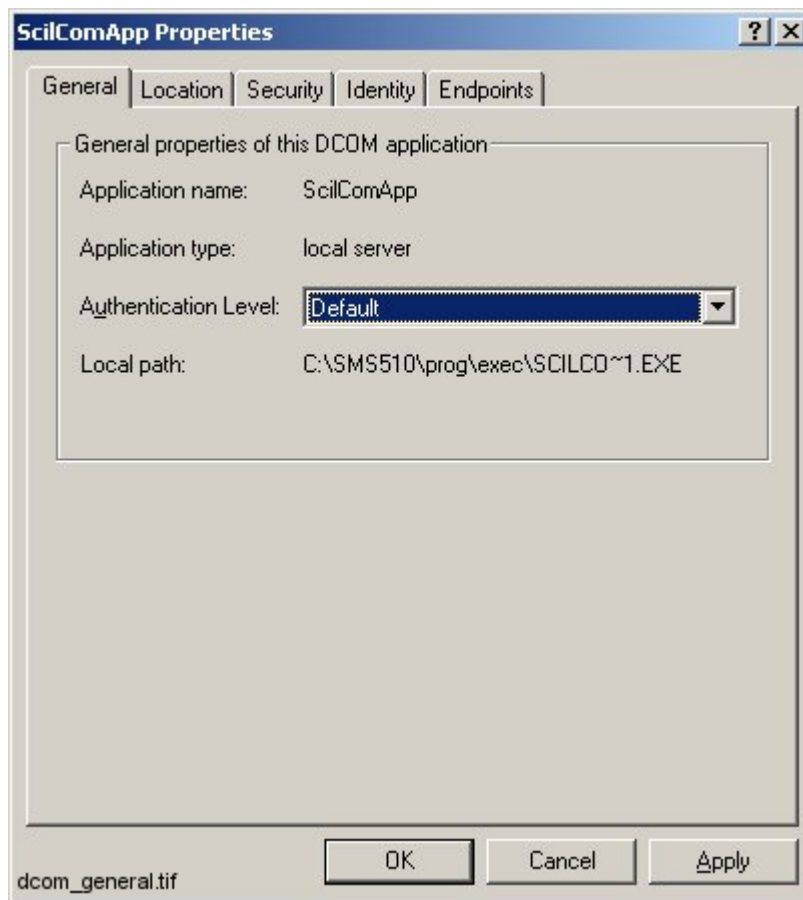


Fig. 5.7.3.-3 The General page of ScilComApp Properties

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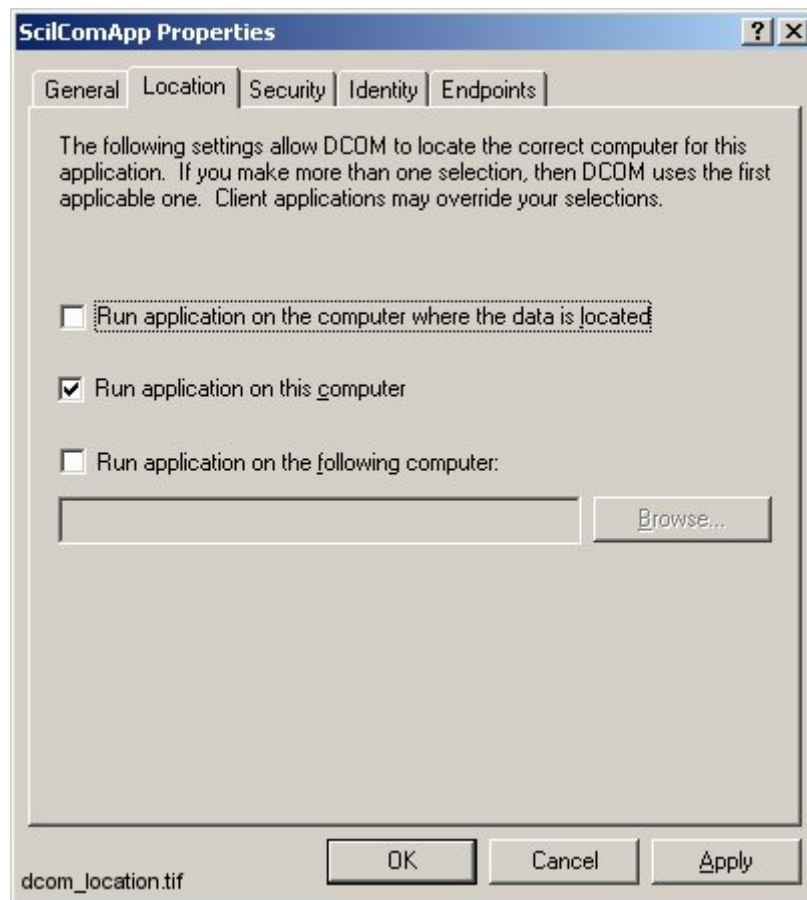


Fig. 5.7.3.-4 The Location page of ScilComApp Properties

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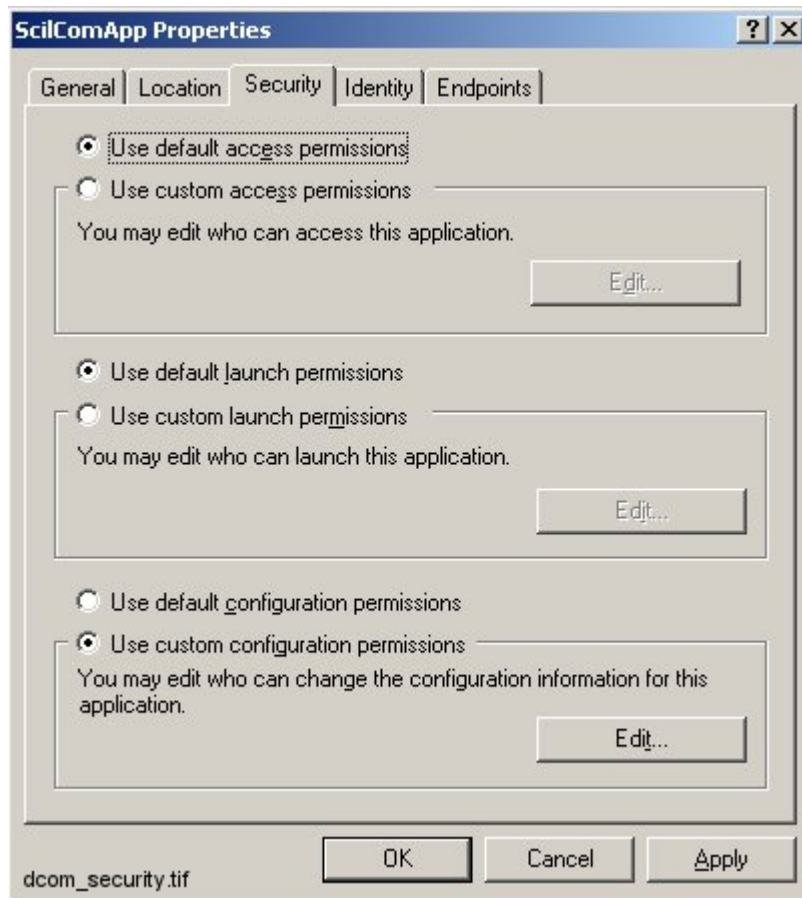


Fig. 5.7.3.-5 The Security page of ScilComApp Properties

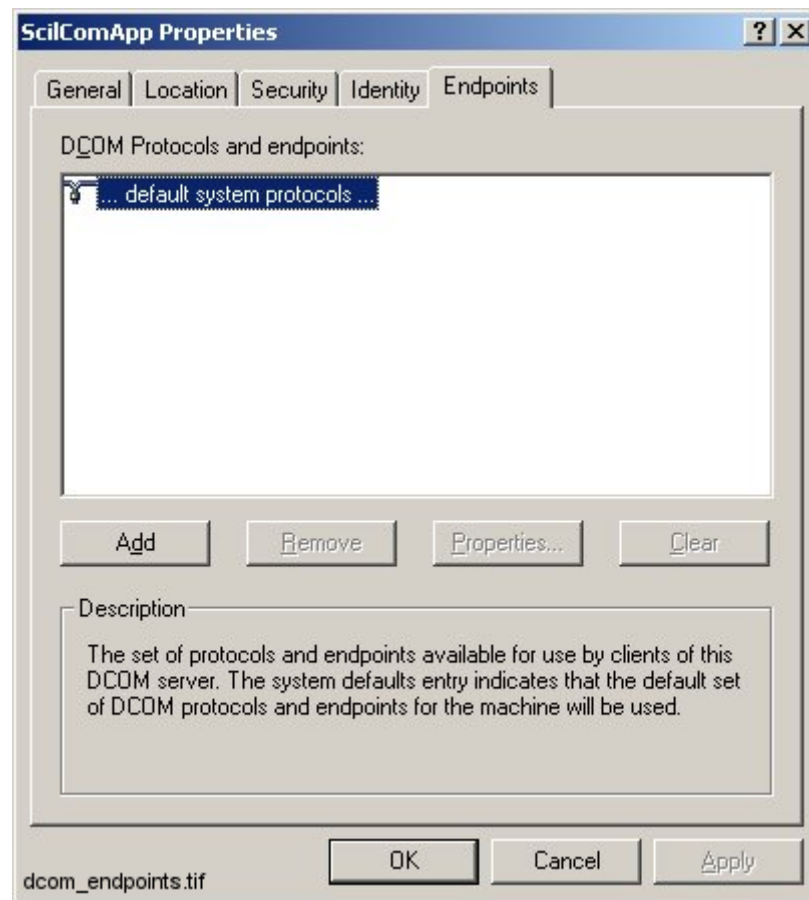


Fig. 5.7.3.-6 The Endpoints page of ScilComApp Properties

5.8. RAS/Modem installation on Windows NT

This section describes the installation of Remote Access Service (RAS) and the installation of modem(s) in Windows NT.

5.8.1. Overview

RAS service is not installed automatically in the express installation of Windows NT. It must be installed afterwards, both in the server and in the client computer to enable Remote connections between SMS 510/other systems. The server is configured to accept incoming calls, while the client is configured to make outgoing calls.

The installation procedure comprises the following steps, which will be detailed below:

- Installing modems to both of the involved computers
- Installing RAS in both of the involved computers
- Installing MS Loopback Adapter driver (in the RAS server computers only)
- Configuring start-up of Remote Access Server on the RAS server

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- Configuring dial-in permissions (in the RAS server computers only)
- Preparing for dial-up from the client computer

5.8.2.**Installing modems**

To install a modem:

1. Double-click the icons My Computer and Control Panel. From Control Panel double-click the Modems icon to bring up the Install New Modem Wizard (see Figure 5.8.2.-1).

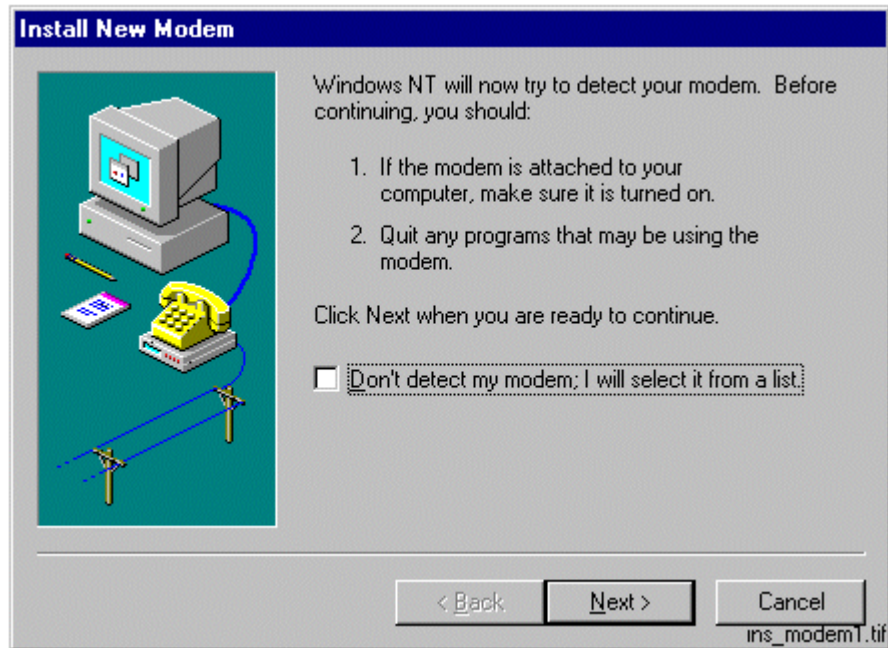


Fig. 5.8.2.-1 Installing a new modem in Windows NT

2. You can either use automatic modem detection or enter the RAS communication media manually.
 - If you use automatic modem detection, select Next> and follow the instructions on the screen.
 - In case you do not wish to use automatic modem detection, the following dialogs will be shown (see Figure 5.8.2.-2 and Figure 5.8.2.-3). Select the type of modem.

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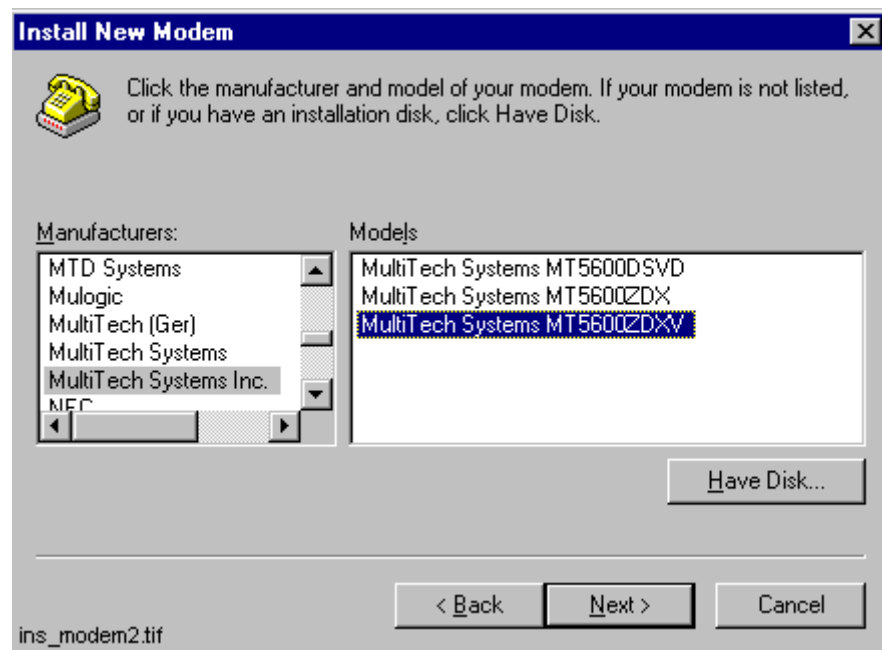


Fig. 5.8.2.-2 Selecting the modem manually in Windows NT

The installation program searches for the type of the connected modem in the MODEM.INF file, in the directory \WINNT\SYSTEM32\RAS. An error message will be produced, if the modem type is not found.

Check that the modem types you are using are mentioned in the MODEM.INF file. If not, add the required code to the file. The code might be provided on a diskette delivered with the modem.

3. Click Next> to select the serial ports for the modem.

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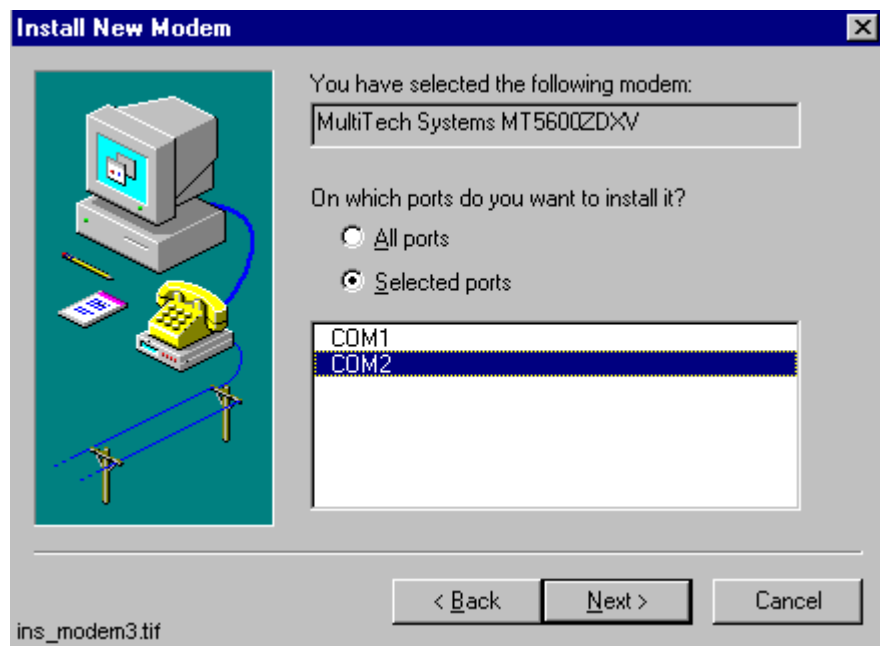


Fig. 5.8.2.-3 Selecting the communication port manually in Windows NT

4. The modem installation completes with the following dialog (see Figure 5.8.2.-4). To finish the installation, click Finish>.



Fig. 5.8.2.-4 Modem installation is ready in Windows NT

5.8.3. Installing Remote Access Service

RAS must be installed both in the client and server computers. A step-by-step description of the RAS installation is shown below. The configuration differences between the server and the client computers are pointed out. Refer also to the applicable operating system documentation, if necessary.

1. Double-click the icons My Computer and Control Panel. Double-click the Network icon from the Control Panel to bring up the Network tool.
2. Select the Services page and click Add to open up the Select Network Service dialog (see Figure 5.8.3.-1).

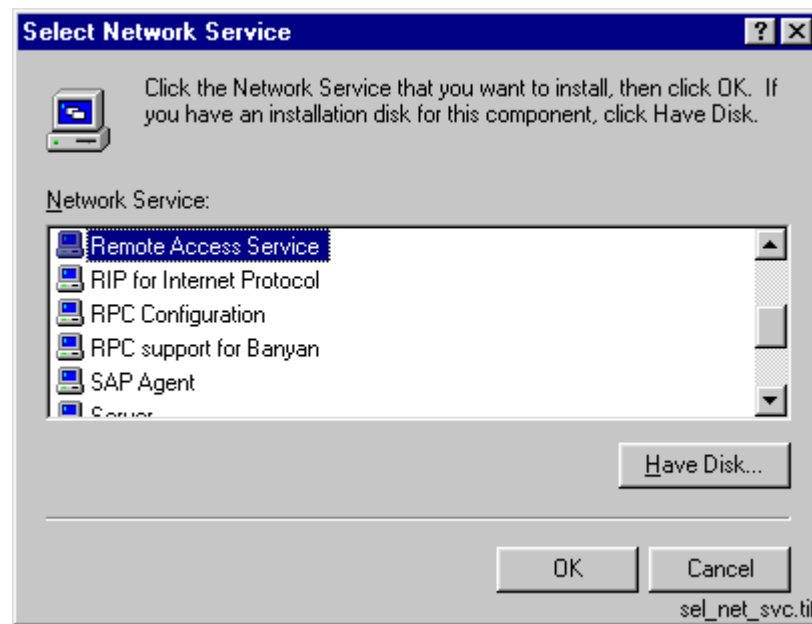


Fig. 5.8.3.-1 The list of network services

3. Select Remote Access Service and click OK.
4. Select the installation media, e.g. E:\Setups\I386\ (see Figure 5.8.3.-2 below).

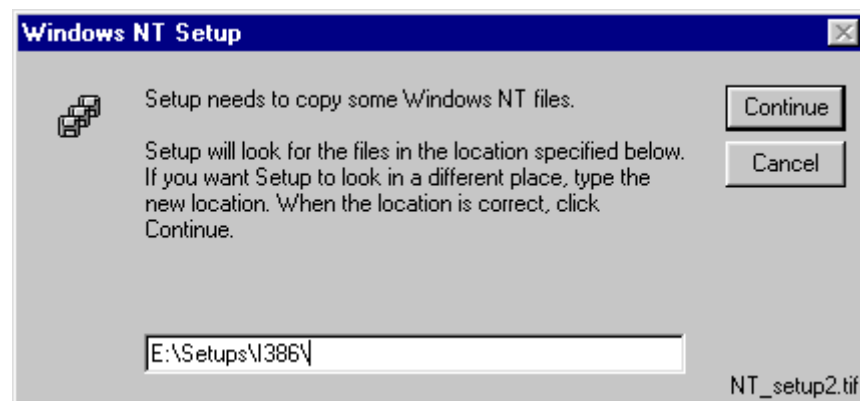


Fig. 5.8.3.-2 Selecting the installation media. Here RAS will be installed from a directory on a local hard disk drive

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- Click Continue to start file copying starts. When it is ready, you are asked the following question if your computer does not contain any modems (see Figure 5.8.3.-3)

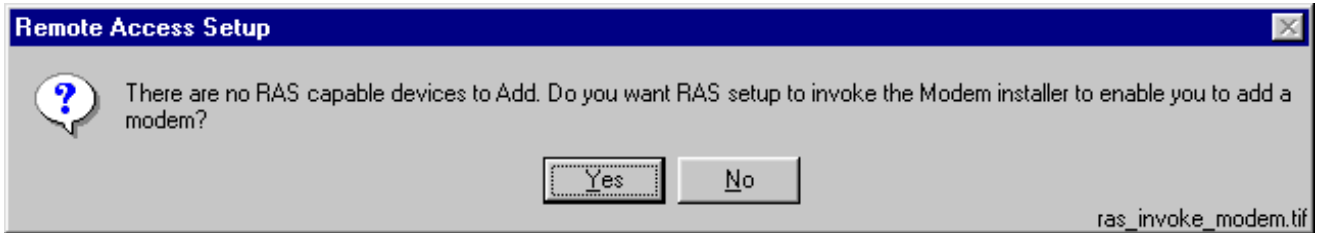


Fig. 5.8.3.-3 Question related to RAS setup

- Make sure that the modem is connected to the desired COM port, and click Yes. This initiates the modem installation procedure explained above.
- Click OK to use the selected modem for the RAS connection. To install additional modems, click Install Modem..., eventually you will return to this dialog (see Figure 5.8.3.-4).

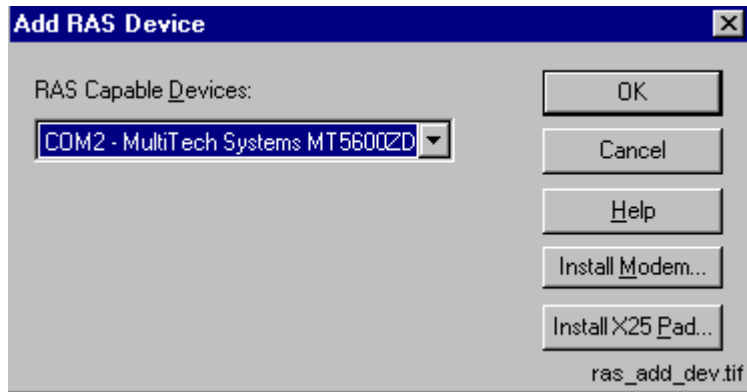


Fig. 5.8.3.-4 Selecting the RAS device

- Select the appropriate device and click Configure (see Figure 5.8.3.-5).

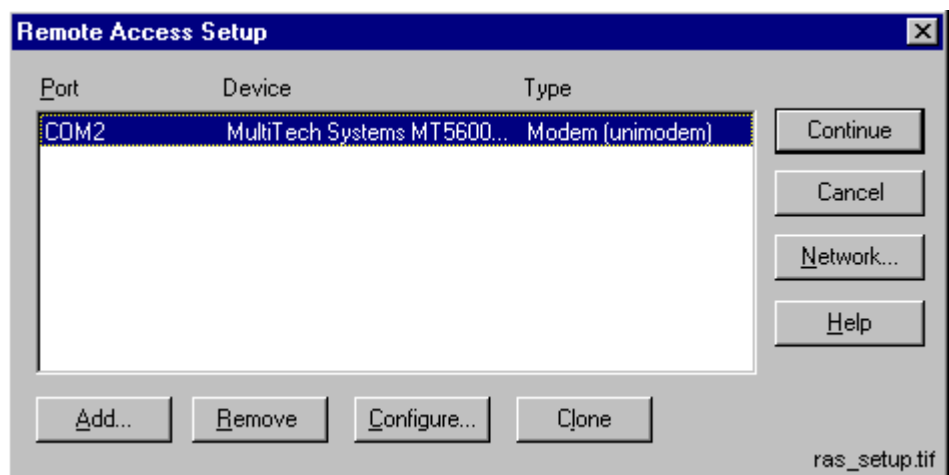


Fig. 5.8.3.-5 Remote Access Setup dialog

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9. Be sure to select the option Dial out and Receive calls in the server computer
Note! The Receive calls option only will not work properly on the server computer. Select Dial out only in the client computer and click OK (see Figure 5.8.3.-6).

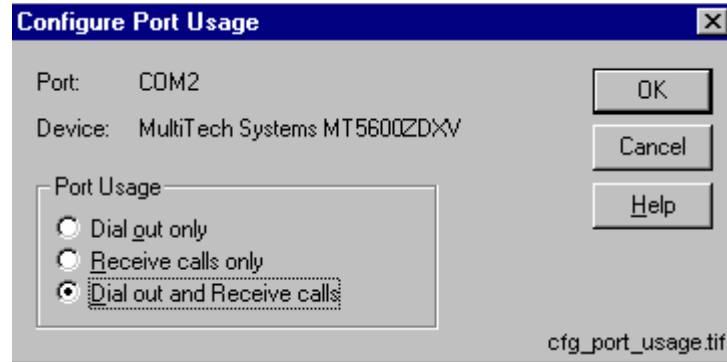


Fig. 5.8.3.-6 Configuring Port Usage

10. Click Network (see Figure 5.8.3.-5).

11. Select the TCP/IP protocol and click Configure (see Figure 5.8.3.-7).

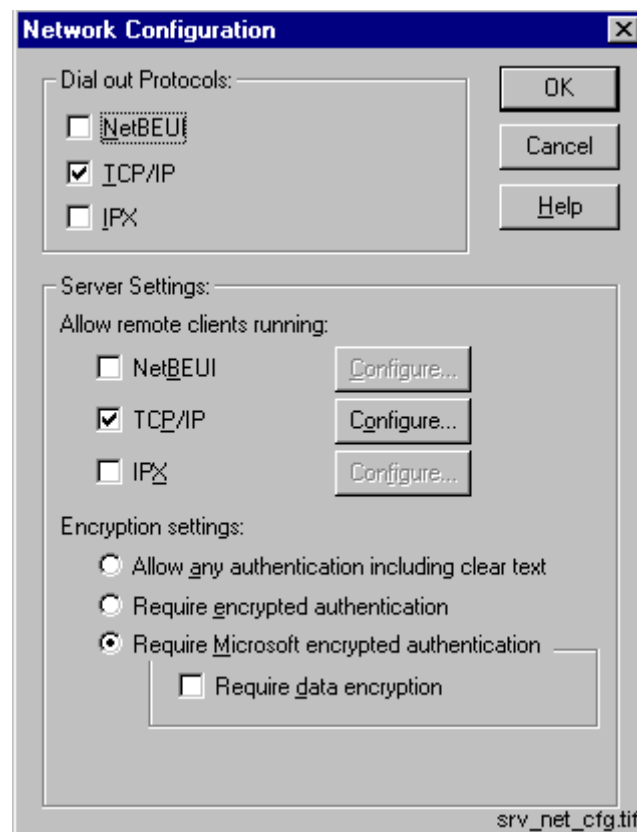


Fig. 5.8.3.-7 Network Configuration dialog

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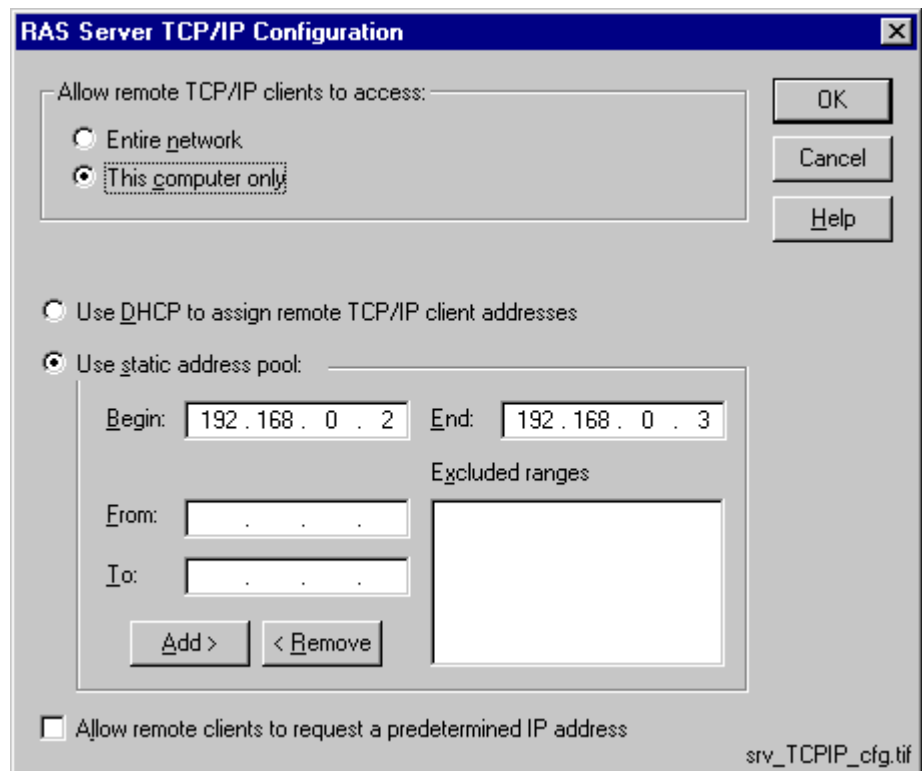


Fig. 5.8.3.-8 Entering TCP/IP addresses in the server computer

12. Configure as shown in Figure 5.8.3.-8. Define a range of at least two IP addresses; RAS assigns one IP for both ends of the RAS connection. Do not include the IP for the Loopback adapter in this range.
13. Click OK and Continue.
14. If you are operating on a computer which will act as a RAS server, install the MS Loopback Adapter driver (see the instructions below). Otherwise, you can exit the Network control panel application and restart the computer for the new configuration to take effect.

5.8.4. Installing MS Loopback Adapter driver

On the RAS server computers, installation of MS Loopback Adapter driver is required. This driver is a part of the operating system delivery.

To install the driver:

1. Double-click the icons My Computer and Control Panel. Double-click the Network icon from the Control Panel to bring up the Network tool.
2. Select the Adapters page and click Add to open up the Select Network Adapter dialog (see Figure 5.8.4.-1). Select the MS Loopback Adapter from the list.

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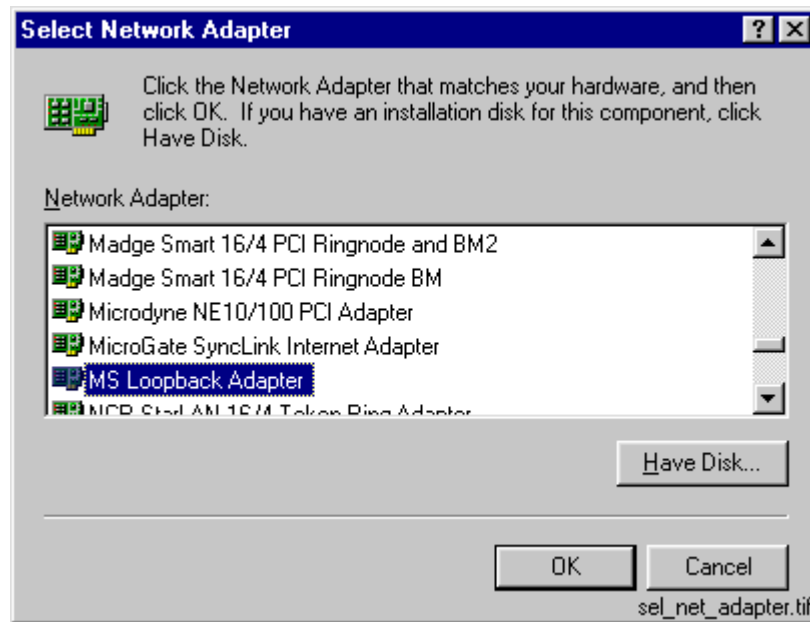


Fig. 5.8.4.-1 MS Loopback Adapter driver selected

- Click OK. On the following dialog, accept the default value '802.3' by clicking OK (see Figure 5.8.4.-2).

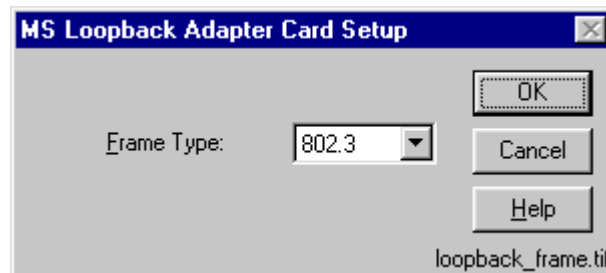


Fig. 5.8.4.-2 Specifying the frame type for the driver

- Next, specify the location of your operating system distribution files on the opening dialog (see Figure 5.8.4.-3).

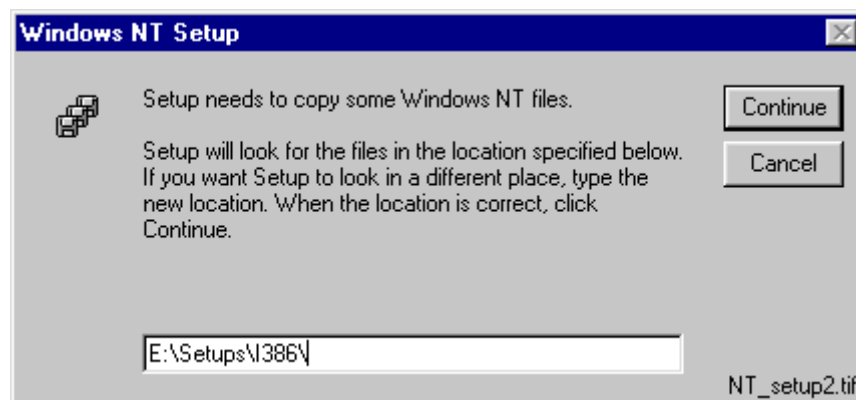


Fig. 5.8.4.-3 Specify the location of the operating system distribution files

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- Click Continue to install the software. Upon completion, you will return to the Network dialog. Make note that the MS Loopback Adapter has appeared to the list of installed adapters.
- Next, switch to the Protocols page, select TCP/IP Protocol as in Figure 5.8.4.-4.

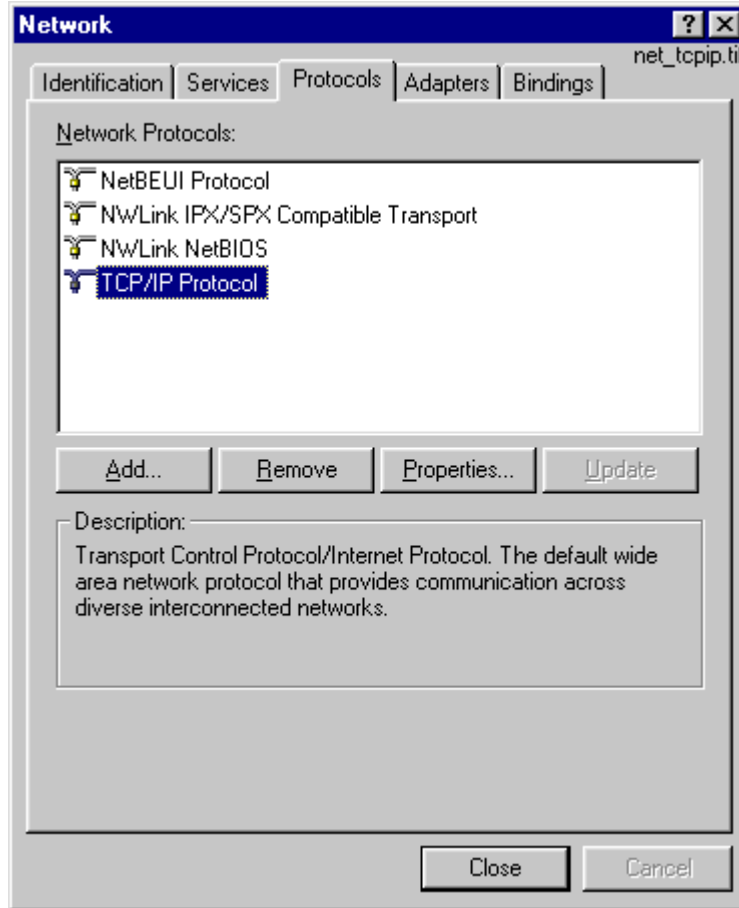


Fig. 5.8.4.-4 Selecting the TCP/IP protocol

- To specify the TCP/IP address for the MS Loopback Adapter, click Properties and select MS Loopback Adapter on the opening dialog as shown in Figure 5.8.4.-5.

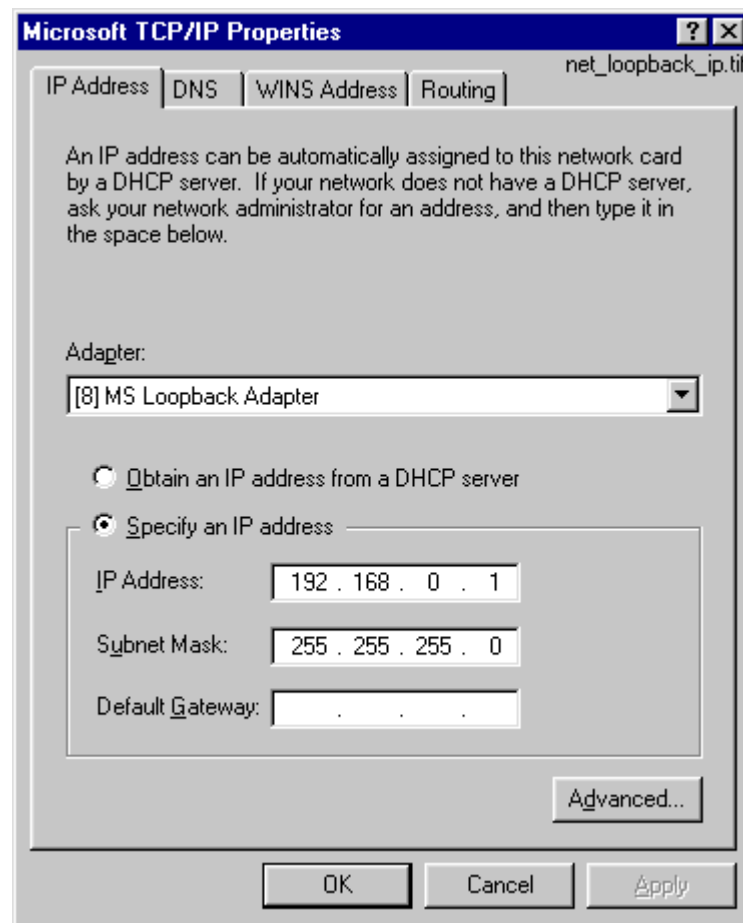


Fig. 5.8.4.-5 Ready to specify the adapter's IP address

8. Set the IP Address to '192.168.0.1' (see the note below for details) and the Subnet Mask to '255.255.255.0'. The Default Gateway can be left empty.
9. Click OK and close the Network dialog by clicking Close to finish the installation. The binding information will be updated, when the dialog box closes. The settings will take effect the next time you start the computer.

5.8.5.

Considerations when specifying IP addresses

If you want a fast and trouble free installation, follow the above examples to the letter (the above described settings are from a working configuration and can be applied as such).

The IP addresses used in this manual are examples (they are part of reserved IP-ranges or nets that are reserved for *private* use). It is thus safe to use them anywhere, provided that the same IP addresses are not used for other purposes in the local network. Discuss with someone knowledgeable in TCP/IP networking, if you are not familiar with it yourself. It may/will save you much grief and frustration.

5.8.6. Configuring start-up of Remote Access Server service

In a RAS server computer, the Remote Access Server service should be configured to start up automatically when the operating system starts. Otherwise, this service has to be manually started to enable RAS client computers to dial-in the server computer.



When configured to start-up automatically, the RAS server reserves all the COM port(s) that have been configured to accept incoming calls. This must be kept in mind, when configuring the serial port communications of the SMS 510 projects to avoid overlapping COM port usage in RAS and SMS 510. If overlapping settings have been specified when turned on, the SMS 510 System Self Supervision will indicate the COM port(s) that are inaccessible.

To configure:

1. Double-click the icon My Computer and Control Panel. Double-click the Services icon from the Control panel.
2. Select Remote Access Server and click Startup (see Figure 5.8.6.-1). This procedure opens the next dialog (see Figure 5.8.6.-2).

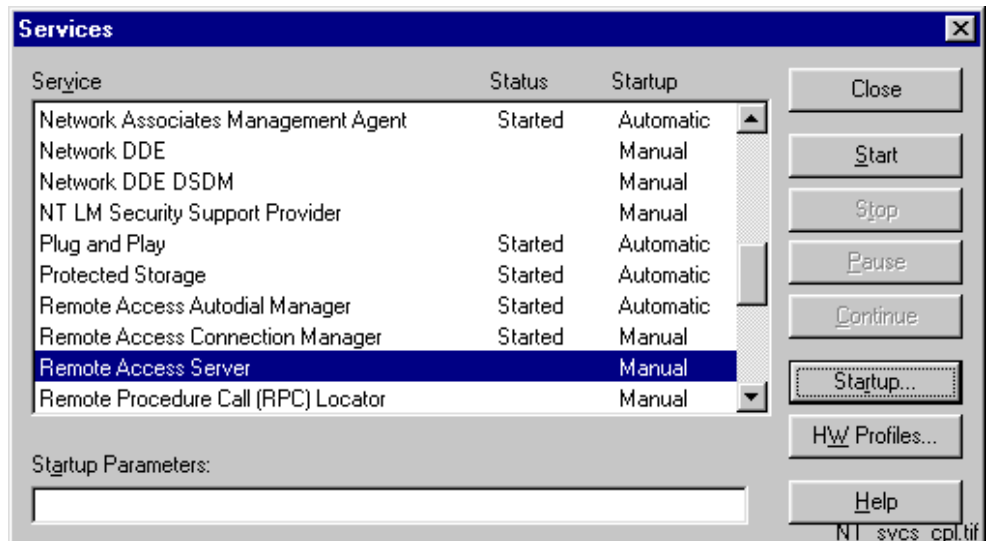


Fig. 5.8.6.-1 The Windows NT window for managing services

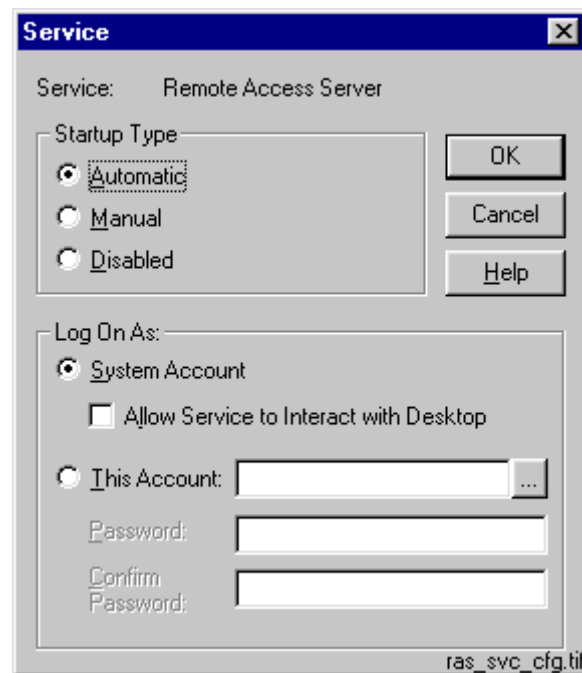


Fig. 5.8.6.-2 Selecting automatic startup

3. Select Automatic startup.
4. Click OK.

5.8.7.

Verifying Remote Access Server service

The operating system provides the Remote Access Admin tool (RASADMIN.EXE), which can be useful in diagnosing the RAS installation and the connections. Under Windows NT 4.0, this tool is started from the 'Start Menu/Programs/Administrative Tools' menu.

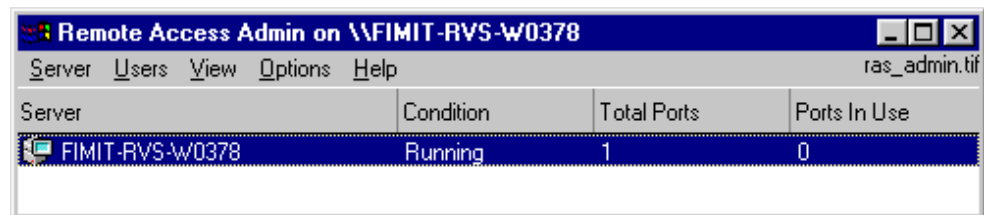


Fig. 5.8.7.-1 Viewing the status of the Remote Access Server service on a server computer

For more information, please refer to the Help shipped with the tool.

5.8.8.

Configuring dial-in permissions in the RAS server computer

The RAS client computer dials the server in the security context of the MicroSCADA user account. This means that the account must be granted the permissions to dial-in the RAS server computer.

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To grant the permissions:

1. Open the operating system's User Manager application. On Windows NT 4.0 it can be found under Start Menu/Programs/Administrative Tools menu.
2. Select the MicroSCADA user account (see Figure 5.8.8.-1).

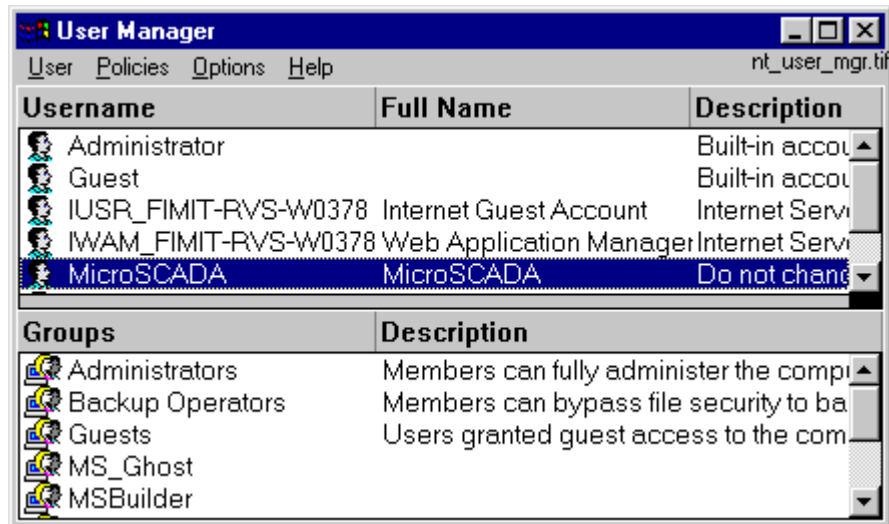


Fig. 5.8.8.-1 The User Manager application

3. From the User menu, choose Properties and on the opening dialog, click Dialin to open the Dialin Information dialog shown below (see Figure 5.8.8.-2).

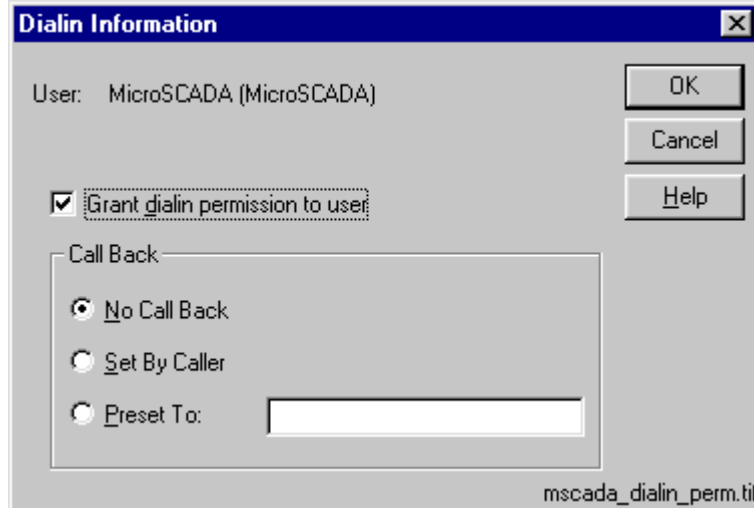


Fig. 5.8.8.-2 Dialin information for the MicroSCADA user account

4. Mark the check box 'Grant dialin permission to user' and click No Call Back. If you wish to apply a more secure Call Back configuration, refer to the operating system help.
5. Click OK twice and close the User Manager by selecting Exit from the File menu.

5.9. RAS/Modem installation on Windows 2000

The server is configured to accept incoming calls, while the client is configured to make outgoing calls.

Overview:

The installation procedure comprises the following steps:

- Installing modems to both of the involved computers
- Creating an incoming connection to server computers
- Installing MS Loopback Adapter driver in server computer
- Preparing for dial-up from the client computer
- Configuring MS Loopback Adapter

To install a modem on Windows 2000:

1. Open the Phone and Modem Control in the Control Panel.
2. (Optional) If you are prompted for location information, enter the dialing information for your location and click OK.
3. On the Modems tab, click Add (see Figure 5.9.-1).
4. Follow the instructions in the Install New Modem Wizard.

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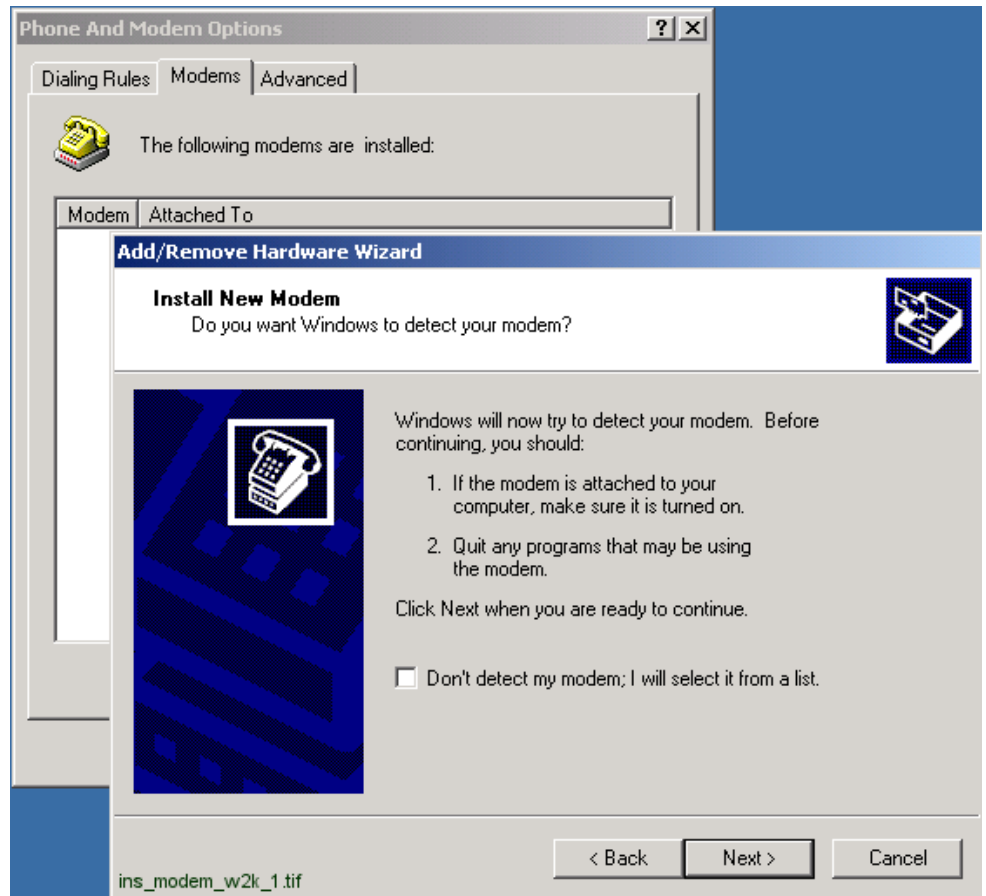


Fig. 5.9.-1 Installing a new modem in Windows 2000

5. You can either use automatic modem detection or enter the incoming communication media manually.
 - If you use automatic modem detection, select Next> and follow the instructions on the screen.
 - In case you do not wish to use automatic modem detection, the following dialogs will be shown (see Figure 5.9.-2 and Figure 5.9.-3). Select the type of modem.

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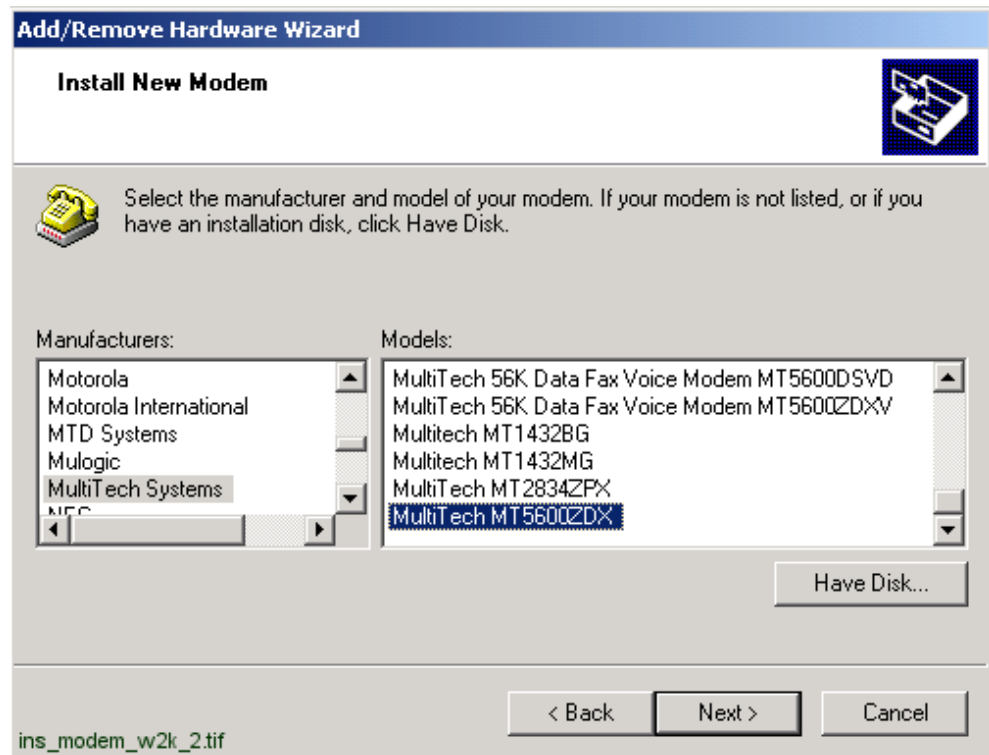


Fig. 5.9.-2 Selecting the modem manually in Windows 2000

The installation program searches for the type of the connected modem in the MODEM.INF file. An error message will be produced, if the modem type is not found.

Check that the modem types you are using are mentioned in the MODEM.INF file. If not, add the required code to the file. The code might be provided on a diskette delivered with the modem.

6. Click Next> to select the serial ports for the modem.

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Fig. 5.9.-3 Selecting the communication port manually in Windows 2000

7. The modem installation completes with the following dialog (see Figure 5.9.-4). To end the installation, click Finish>.



Fig. 5.9.-4 Modem installation is ready in Windows 2000

Incoming connections:

By creating an incoming connection, a computer running Windows 2000 Professional or stand-alone Windows 2000 Server can act as a remote access server.

To make an incoming network connection:

1. Open the Control Panel and choose Network and Dial-Up Connections (see Figure 5.9.-5).
2. Double-click Make New Connection and click Next (see Figure 5.9.-6).
3. Click Accept incoming connections and click Next. Then follow the instructions in the Network Connection Wizard. The following dialogs will be shown (see Figure 5.9.-7 - Figure 5.9.-11)

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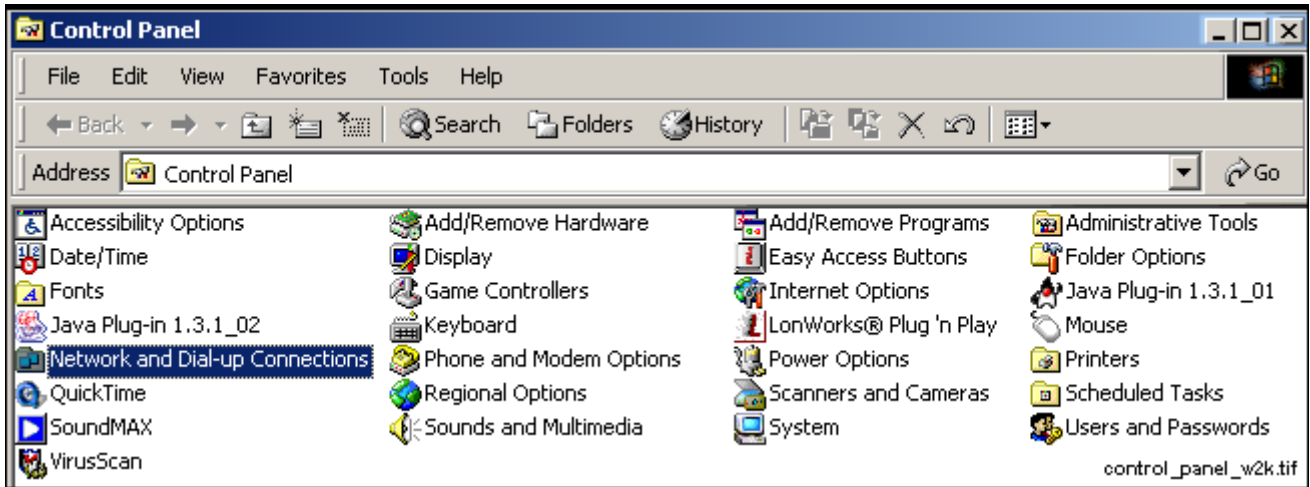


Fig. 5.9.-5 The Control Panel in Windows 2000

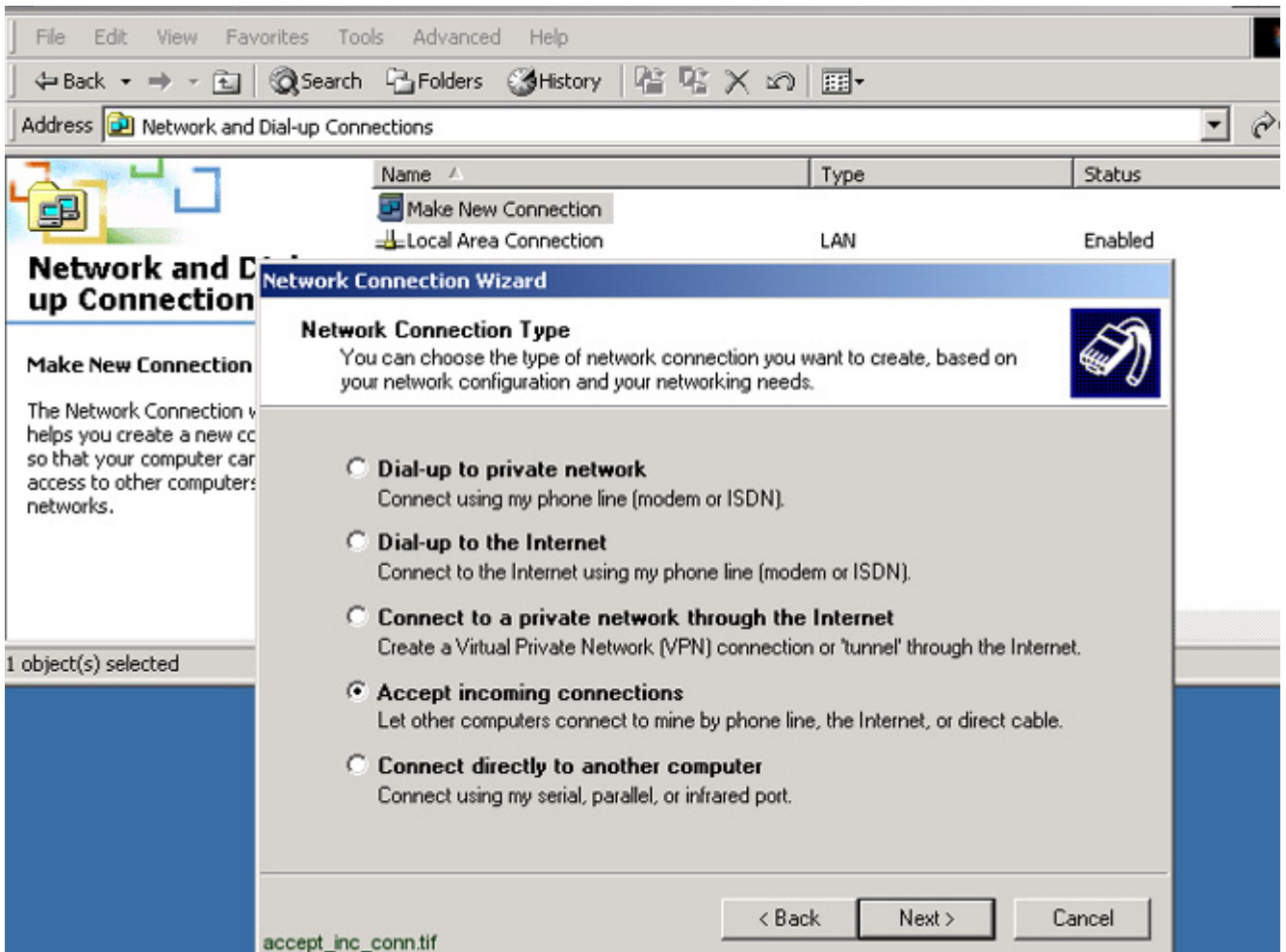


Fig. 5.9.-6 Choosing the network connection type in Windows 2000

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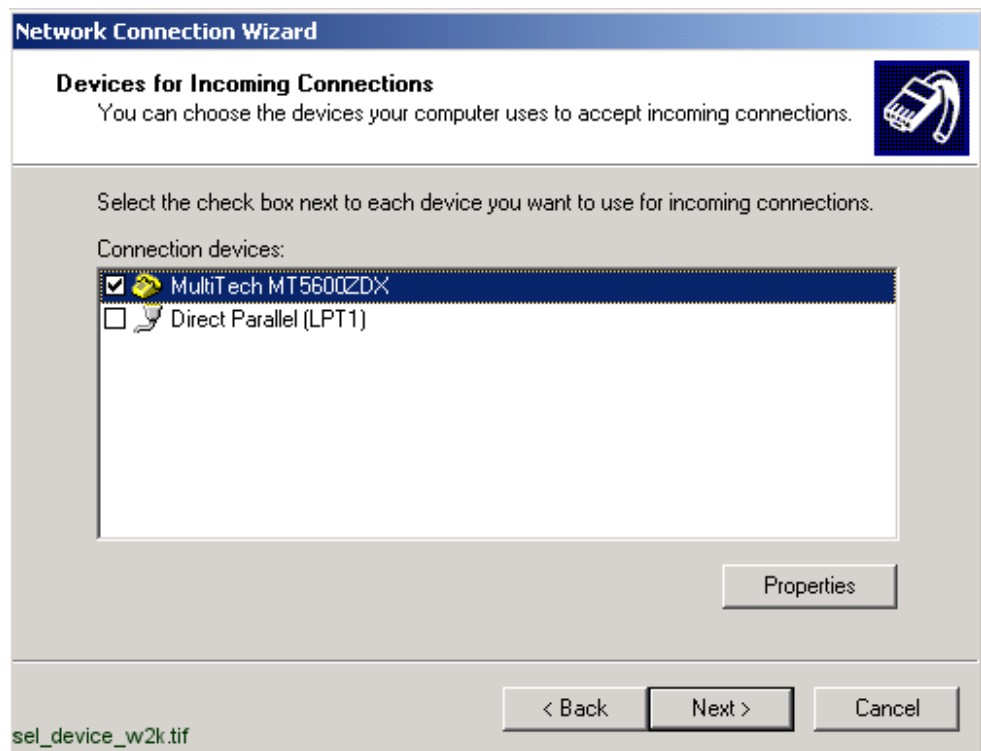


Fig. 5.9.-7 Choosing devices for incoming connections in Windows 2000

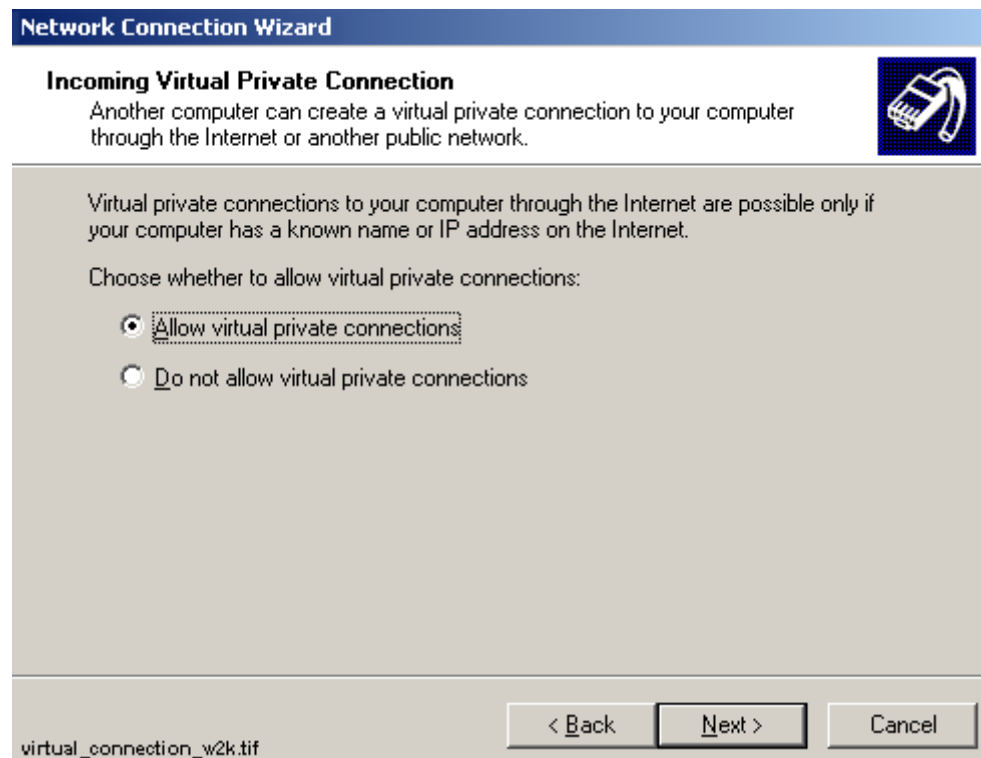


Fig. 5.9.-8 Allowing virtual private connections in Windows 2000

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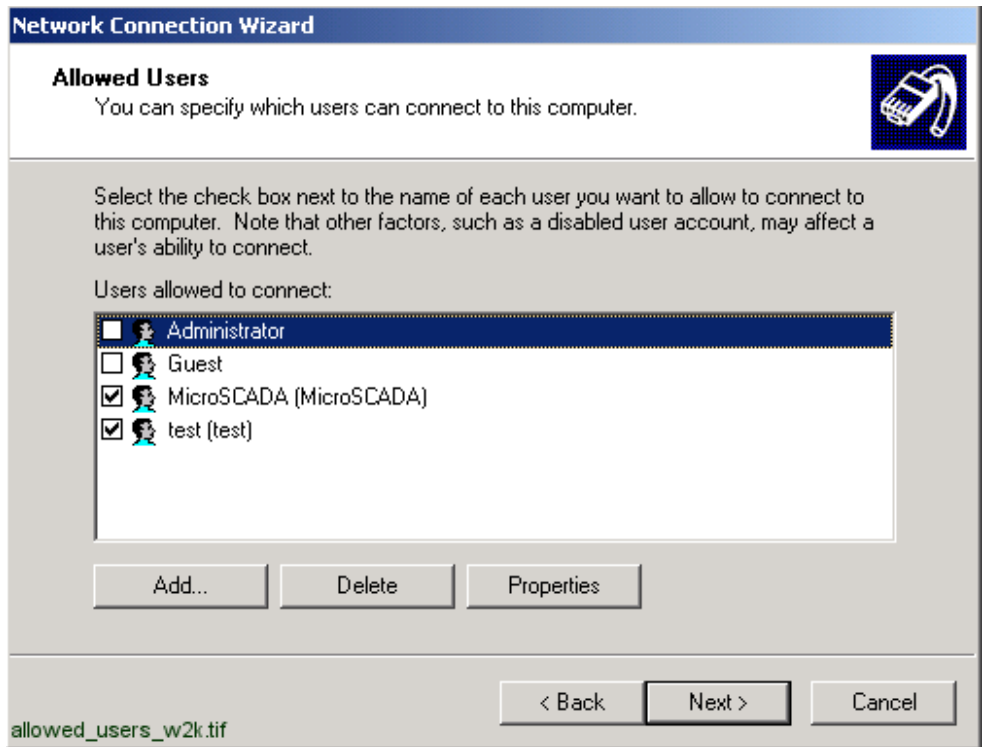


Fig. 5.9.-9 Specifying allowed users to be connected to your computer

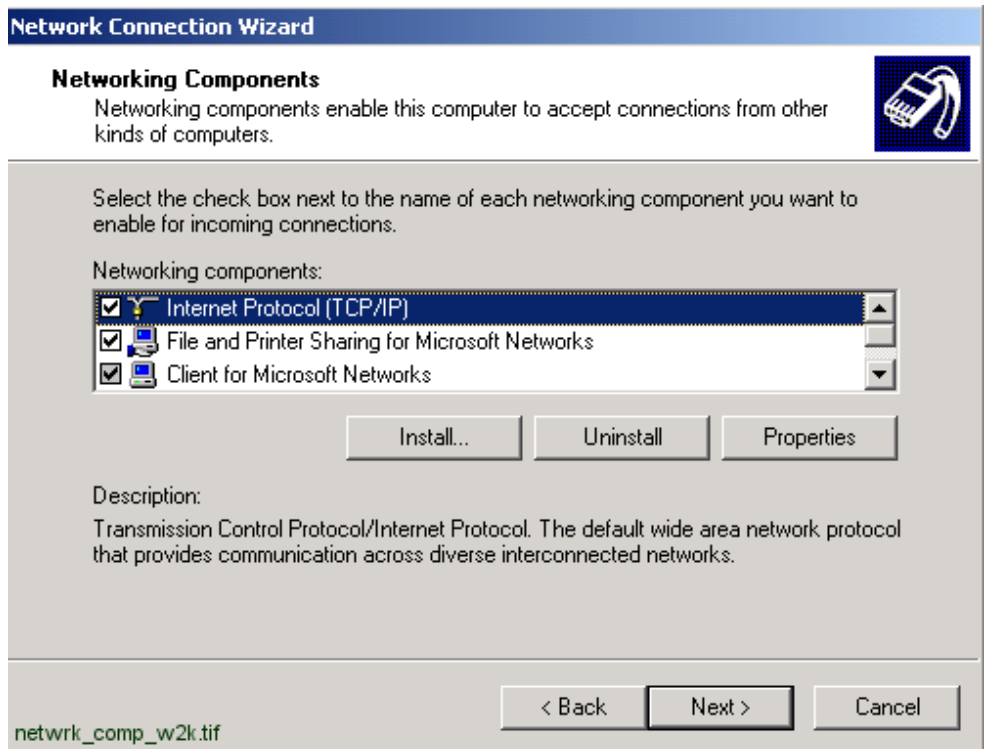


Fig. 5.9.-10 Selecting networking components

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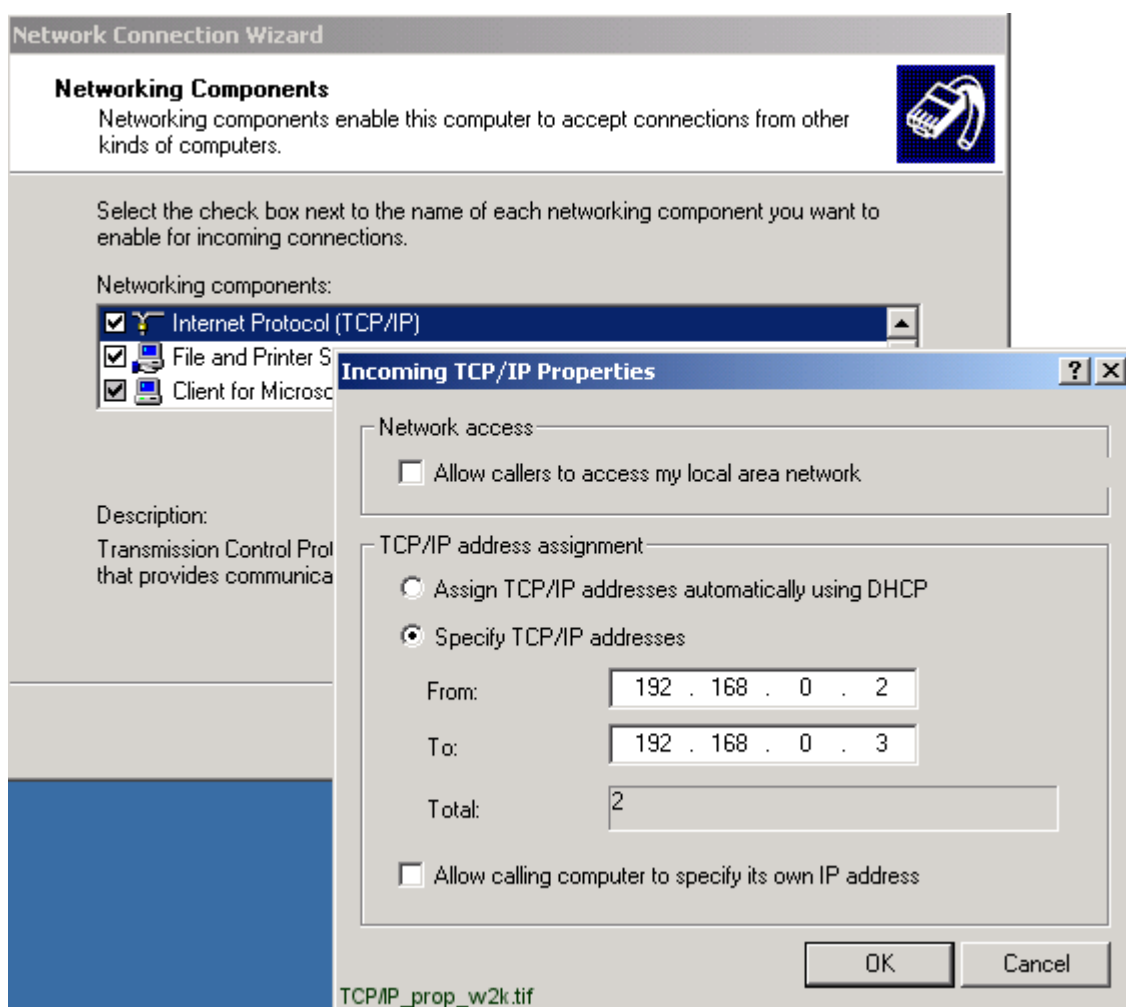


Fig. 5.9.-11 Specifying incoming TCP/IP properties

To install the Microsoft Loopback Adapter in Microsoft Windows 2000:

1. Open the Control Panel, choose Add/Remove Hardware, and then choose Next.
2. Choose Add/Troubleshoot a device, and then choose Next.
3. From the Devices list, select Add a new device, and then choose Next (see Figure 5.9.-12).
4. Choose “No, I want to select the hardware from a list”, and then choose Next.
5. From the Hardware types list, select Network adapters, and then choose Next (see Figure 5.9.-13).
6. From the Manufacturers list, select Microsoft.
7. From the Network Adapter list, select Microsoft Loopback Adapter, and then choose Next (see Figure 5.9.-14).
8. Choose Next, and then choose Finish.

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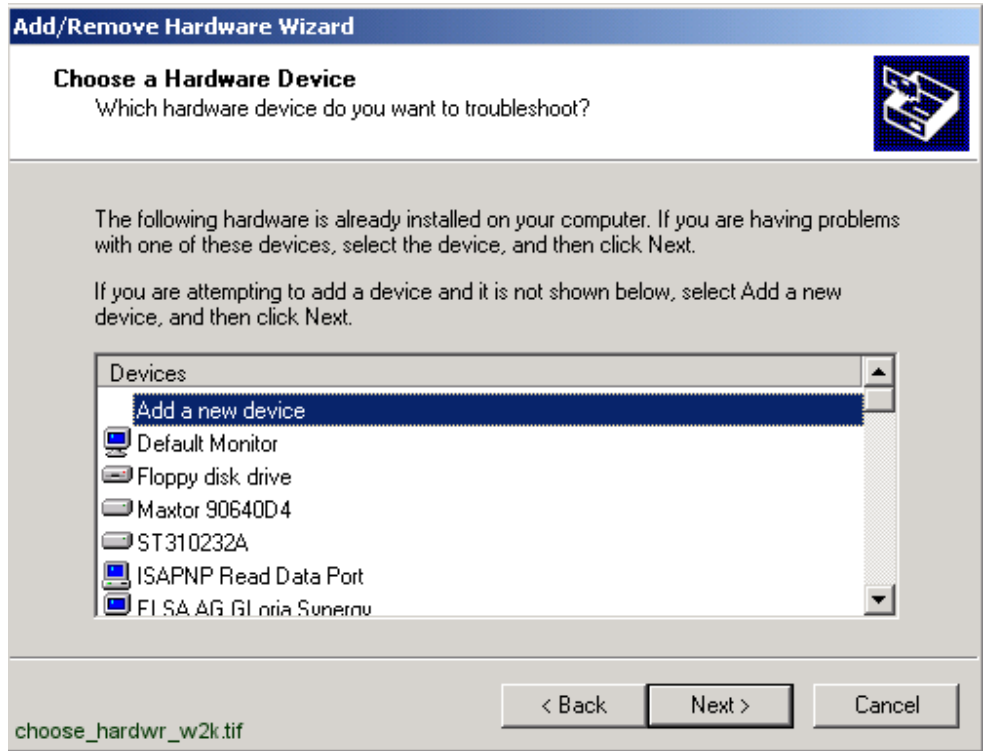


Fig. 5.9.-12 Adding a new hardware device

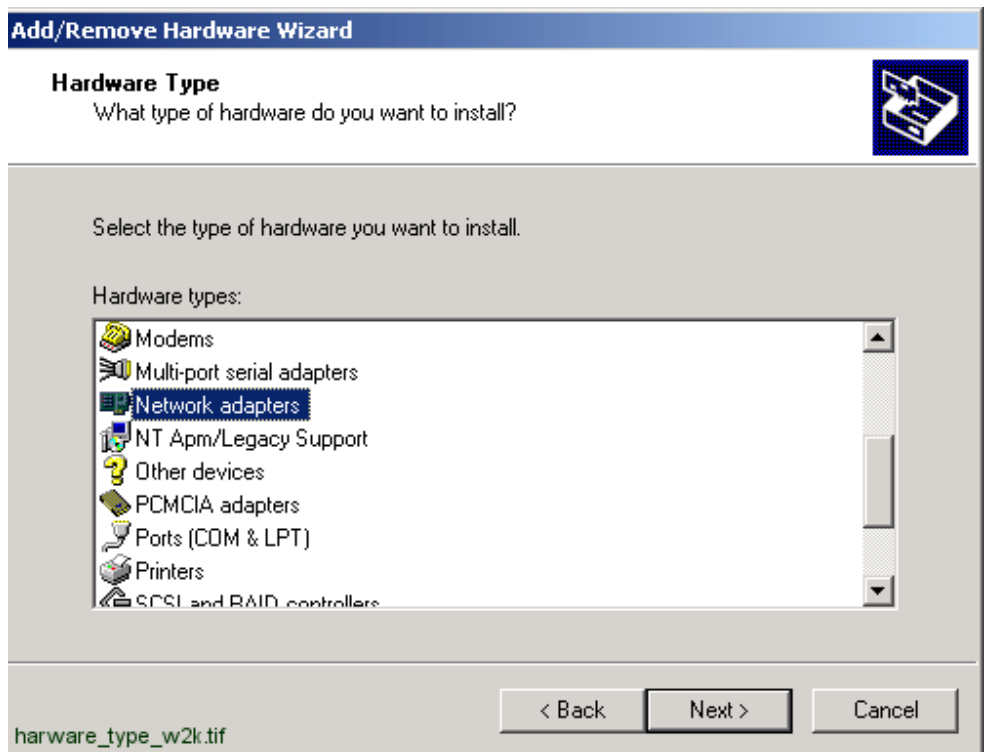


Fig. 5.9.-13 Selecting network adapters to be installed

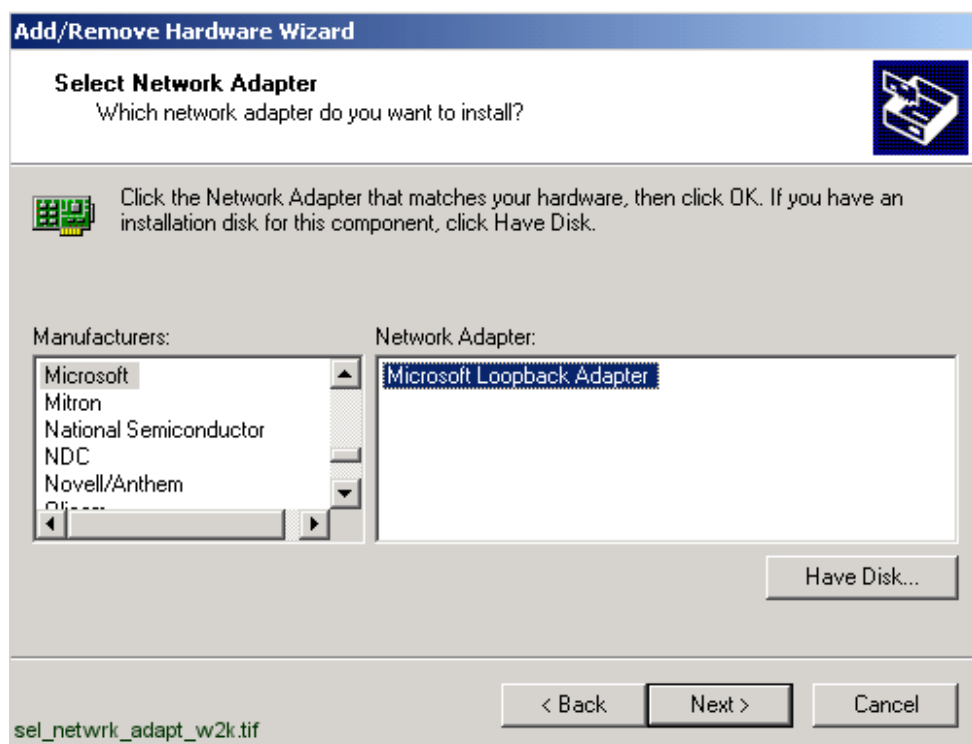


Fig. 5.9.-14 Microsoft Loopback Adapter selected to be installed

Preparing dial-up from the client:

- To open Network and Dial-up Connections, click Start and point to Settings. Then click Network and Dial-up Connections.
- Double-click Make New Connection, and then click Next.
- Click Dial-up to private network and click Next. Then follow the instructions in the Network Connection wizard.

Configuring Loopback Adapter in Windows 2000

1. Select the Control Panel and choose Network and Dial-up Connections (see Figure 5.9.-15).
2. Choose Local Area Connection, Microsoft Loopback Adapter (see Figure 5.9.-16).

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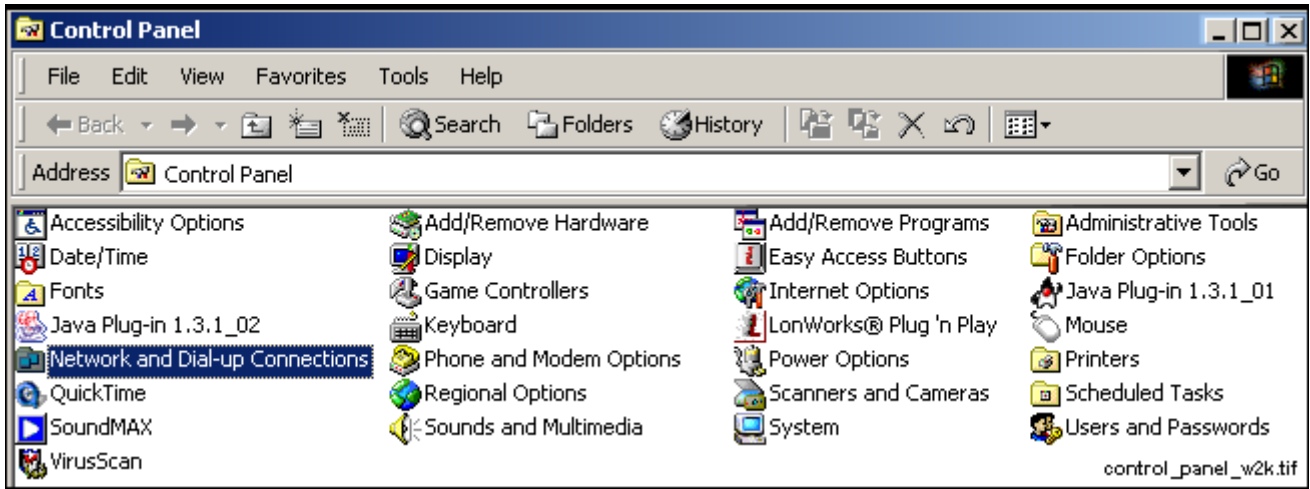


Fig. 5.9.-15 Selecting Network and Dial-up Connections in Windows 2000

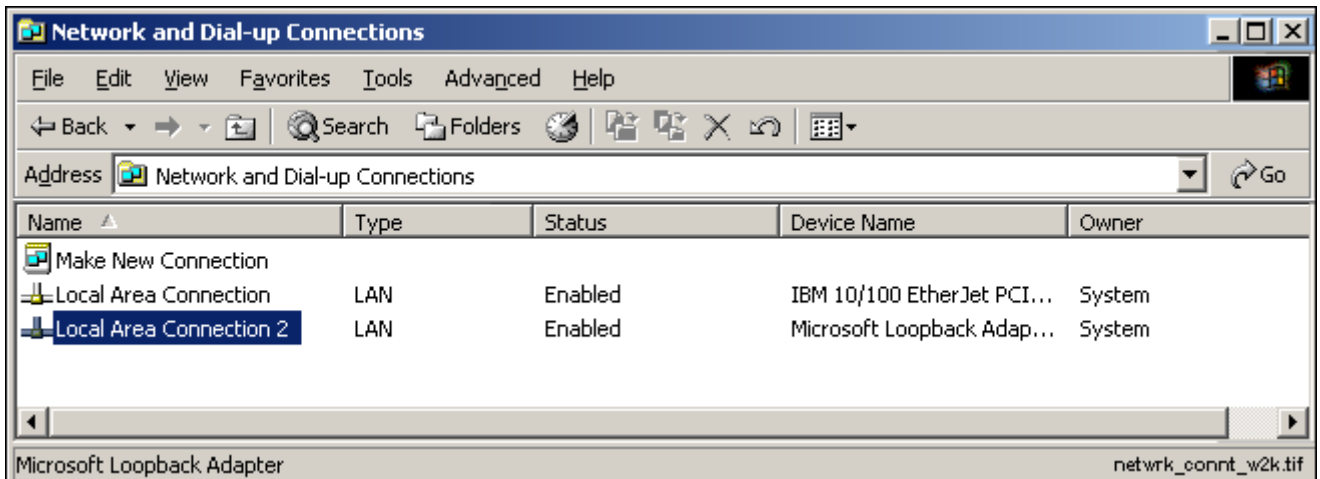


Fig. 5.9.-16 Starting to configure Loopback Adapter in Windows 2000

3. Click the right mouse button and choose Properties. Then choose Internet Protocol (TCP/IP) and click the Properties button (see Figure 5.9.-17).

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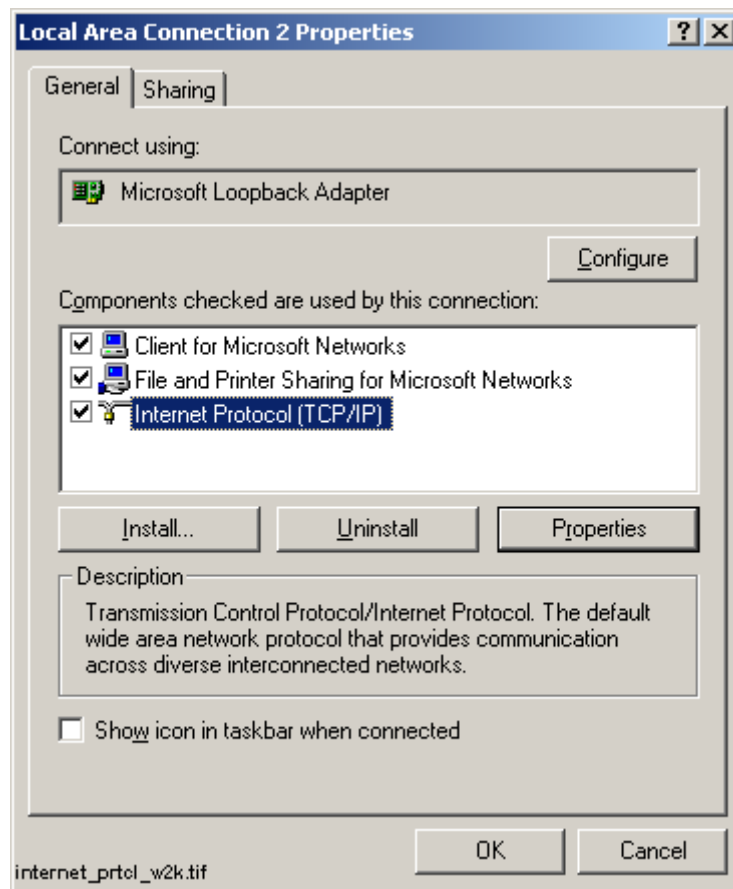


Fig. 5.9.-17 Opening the TCP/IP properties in Windows 2000

4. Choose “Use the following IP address” (see Figure 5.9.-18). Set the IP Address to ‘192.168.0.1’ (see Section 5.9.1. for details) and the Subnet Mask to ‘255.255.255.0’. The Default Gateway can be left empty. Click OK.

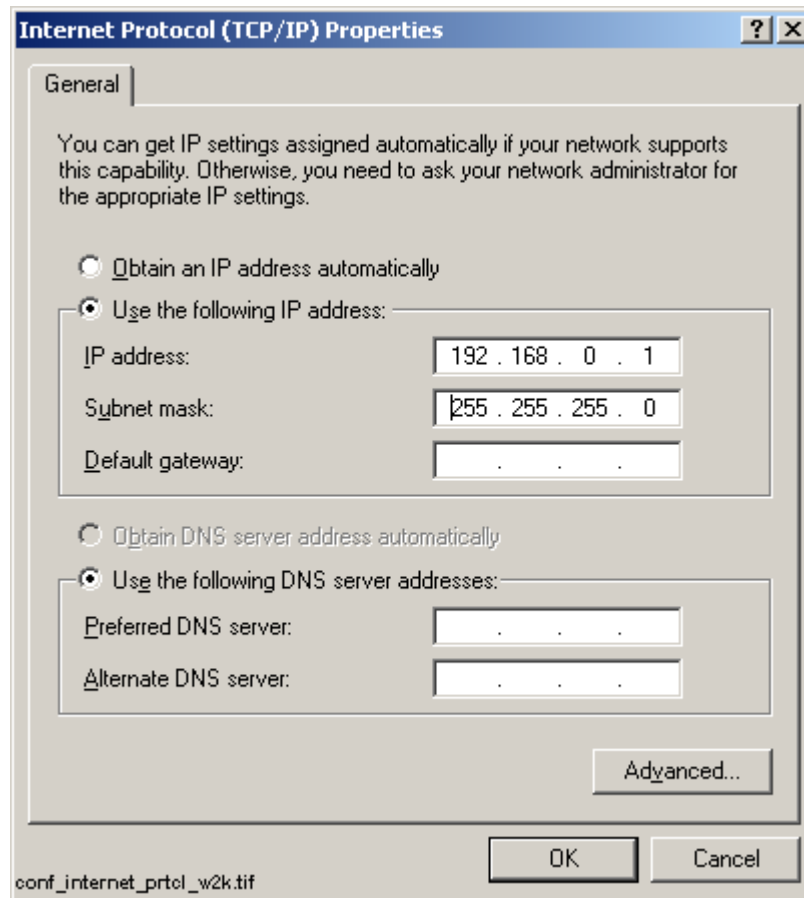


Fig. 5.9.-18 Configuring the TCP/IP Properties in Windows 2000

5.9.1.

Considerations when specifying IP addresses in Windows 2000

If you want a fast and trouble free installation, follow the above examples to the letter (the above described settings are from a working configuration and can be applied as such).

The IP addresses used in this manual are examples (they are part of reserved IP-ranges or nets that are reserved for *private* use). It is thus safe to use them anywhere, provided that the same IP addresses are not used for other purposes in the local network. Discuss with someone knowledgeable in TCP/IP networking, if you are not familiar with it yourself. It may/will save you much grief and frustration.

5.10. RAS/Modem installation on Windows XP

It is very important that the following is taken care of. Otherwise the RAS connection will not work.

In the Network Connections, the Windows Firewall in the Advanced page must be turned off (by default it is on, which prevents any incoming connection to the XP-computer).



Make sure that the following steps for Security settings are carried out:

1. Start the Control panel.
2. Choose Administrative Tools and Local Security Policy settings.
3. Choose Local Policies and the Security Options. Set the value of the option "Network access: Sharing and security model for local accounts" to "Classic - local users authenticate as themselves."

To do this, click the right mouse button and choose Properties. Open the Local Security Settings page and choose "Classic - local users authenticate as themselves."

(By default this option is set to "...local users authenticate as Guest", which leads to "access denied" errors).

The server is configured to accept incoming calls, while the client is configured to make outgoing calls.

Overview:

The installation procedure comprises the following steps:

- Installing modems to both of the involved computers
- Creating an incoming connection to server computers
- Installing MS Loopback Adapter driver in server computer
- Preparing for dial-up from the client computer
- Configuring MS Loopback Adapter

To install a modem on Windows XP:

1. Open the Phone and Modem Options in the Control Panel.
2. (Optional) If you are prompted for location information, enter the dialing information for your location and click OK.
3. On the Modems tab, click Add (see Figure 5.10.-1).
4. Follow the instructions in the Install New Modem Wizard (see Figure 5.10.-2).

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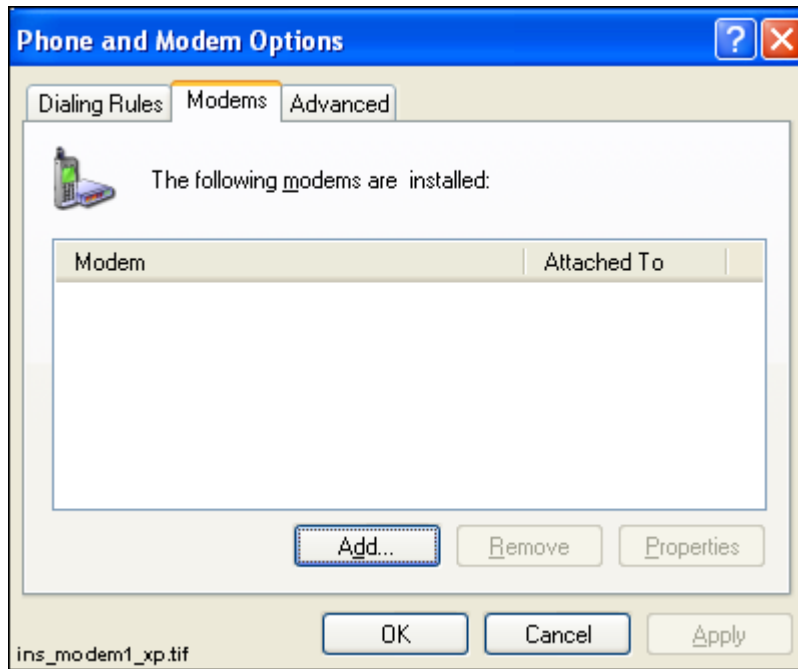


Fig. 5.10.-1 Adding a new modem in Windows XP

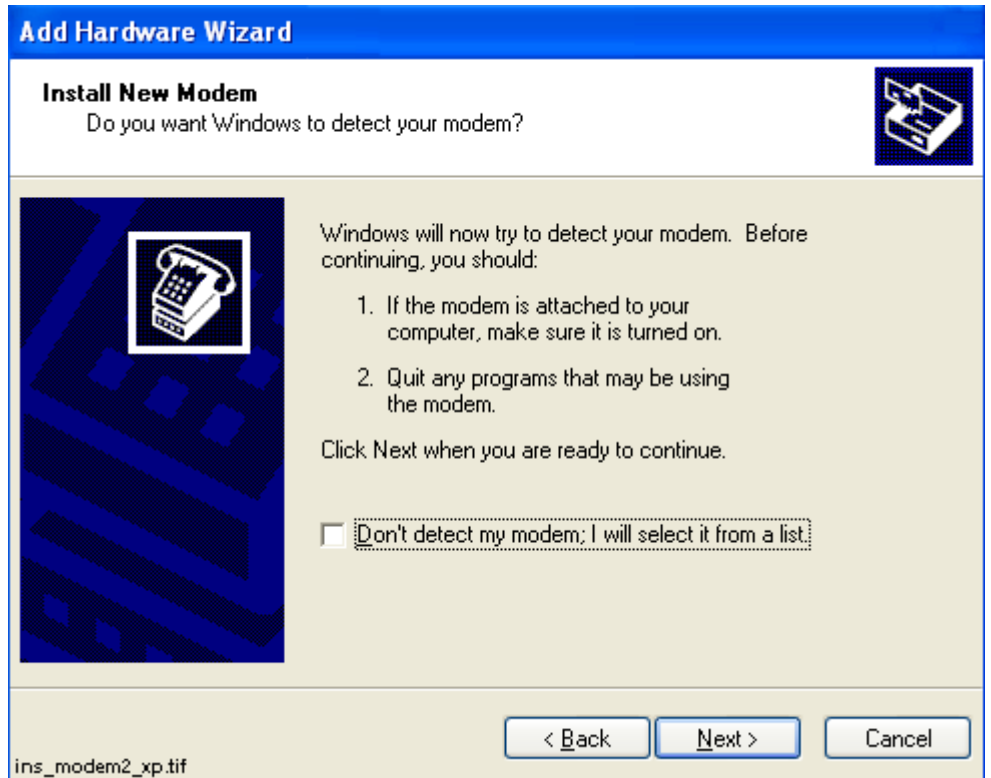


Fig. 5.10.-2 Installing a new modem in Windows XP

5. You can either use automatic modem detection or enter the incoming communication media manually.

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If you use automatic modem detection, select Next> and follow the instructions on the screen.

In case you do not wish to use automatic modem detection, check the box “Don’t detect my modem; I will select it from a list.” The following dialogs will be shown (see Figure 5.10.-3 and Figure 5.10.-4). Select the type of modem.

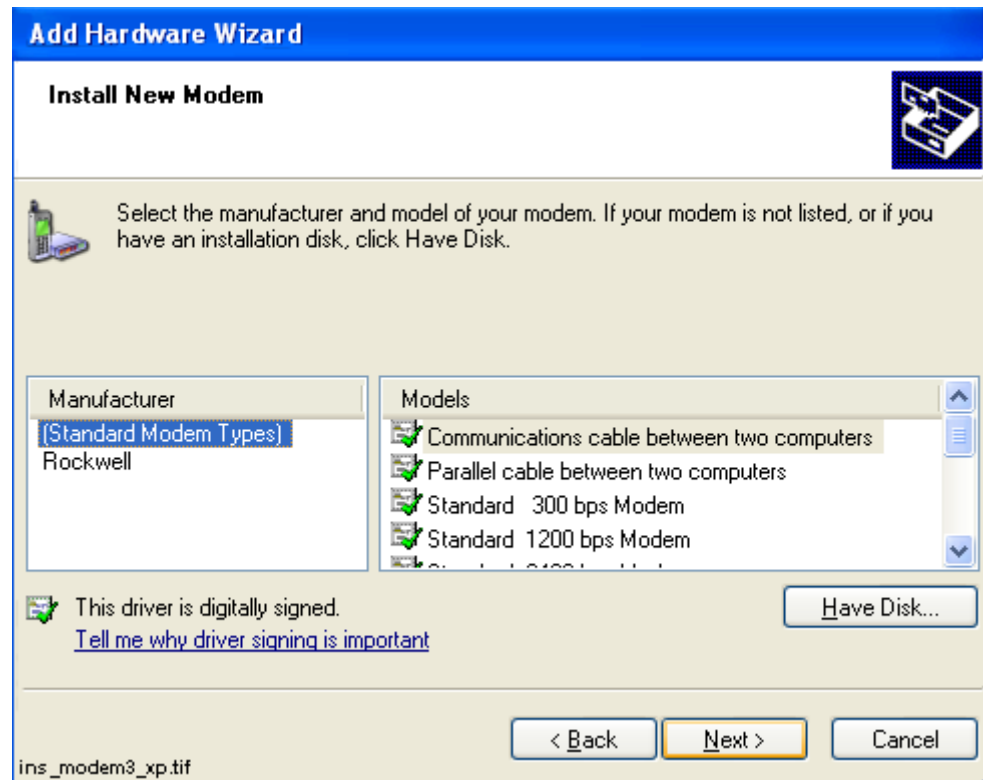


Fig. 5.10.-3 Selecting the modem manually in Windows XP

The installation program searches for the type of the connected modem in the MODEM.INF file. An error message will be produced, if the modem type is not found.

Check that the modem types you are using are mentioned in the MODEM.INF file. If not, add the required code to the file. The code might be provided on a diskette delivered with the modem.

6. Click Next> to select the serial ports for the modem.

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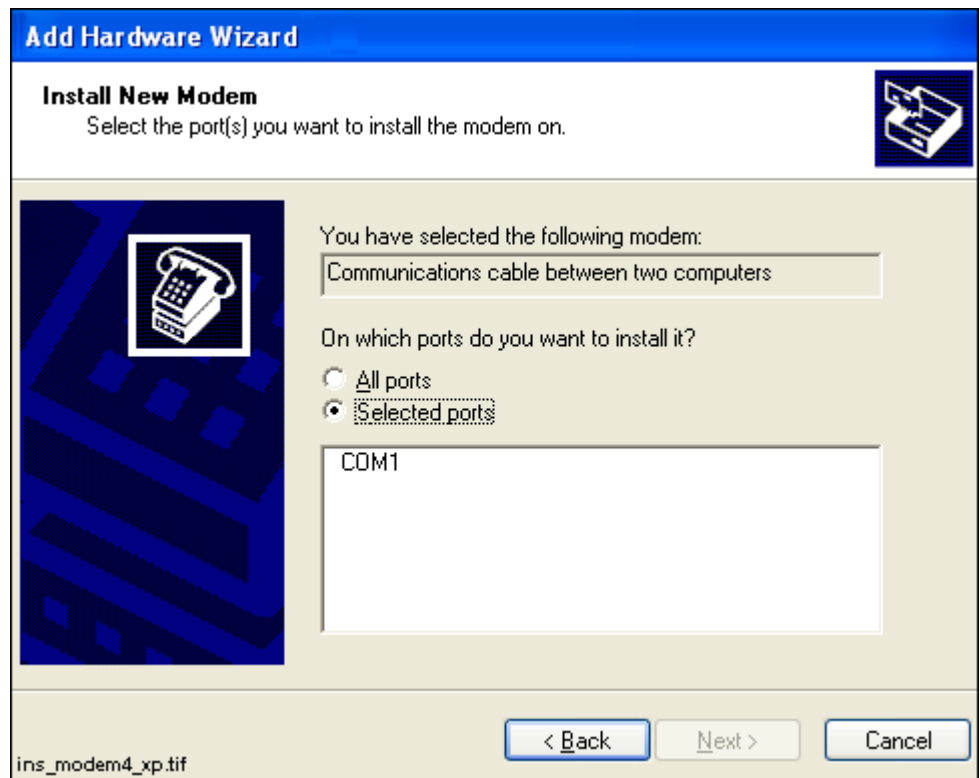


Fig. 5.10.-4 Selecting the communication port manually in Windows XP

7. The modem installation completes with the following dialog (see Figure 5.10.-5). To end the installation, click Finish>.



Fig. 5.10.-5 Modem installation is ready in Windows XP

Incoming connections:

By creating an incoming connection, a computer running Windows XP Professional can act as a remote access server.

To make an incoming network connection:

1. Open the Control Panel and choose Network Connections (see Figure 5.10.-6).
2. Double-click New Connection Wizard and click Next (see Figure 5.10.-7).
3. Choose "Set up an advanced connection" and click the Next button (see Figure 5.10.-8).
4. Choose "Accept incoming connection" and click the Next button (see Figure 5.10.-9). Then follow the instructions in the New Connection Wizard. The following dialogs will be shown (see Figure 5.10.-10 - Figure 5.10.-14).

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Fig. 5.10.-6 The Control Panel in Windows XP

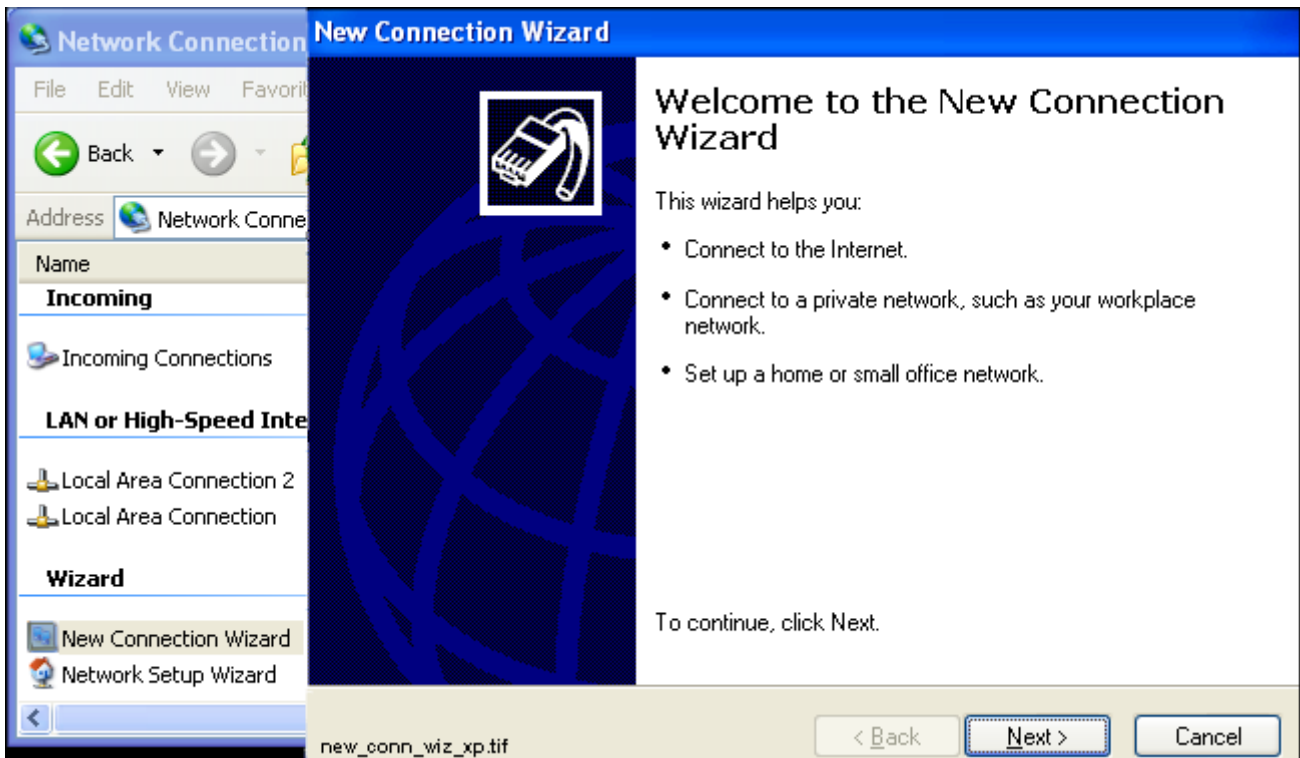


Fig. 5.10.-7 Opening New Connection Wizard in Windows XP

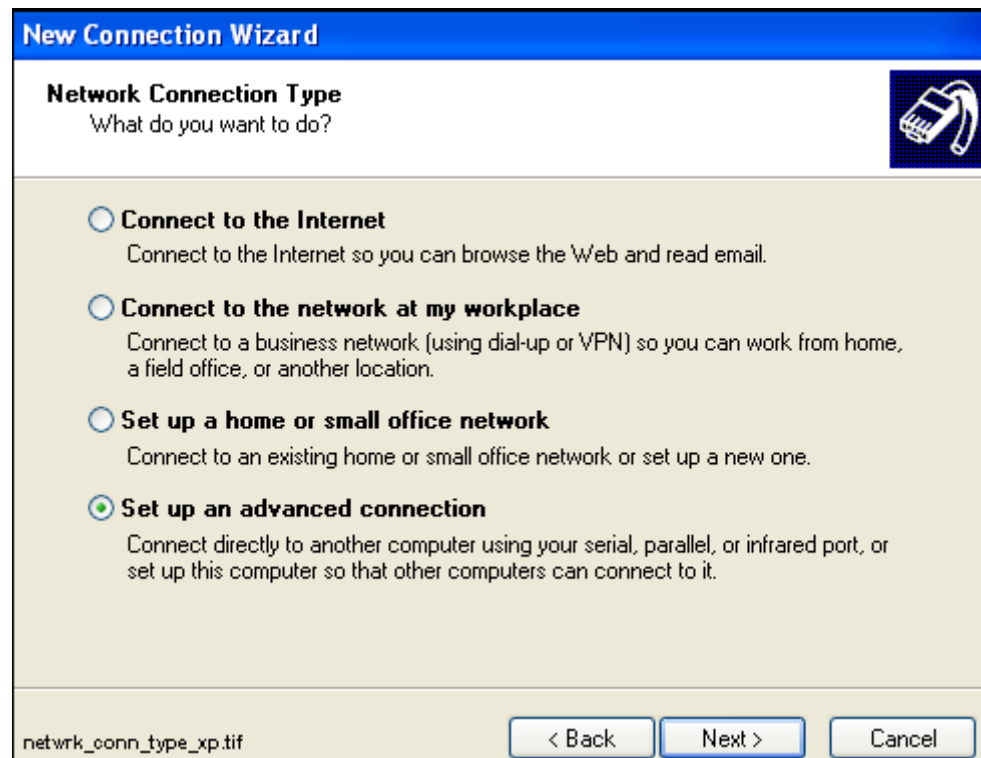


Fig. 5.10.-8 Choosing the network connection type in Windows XP

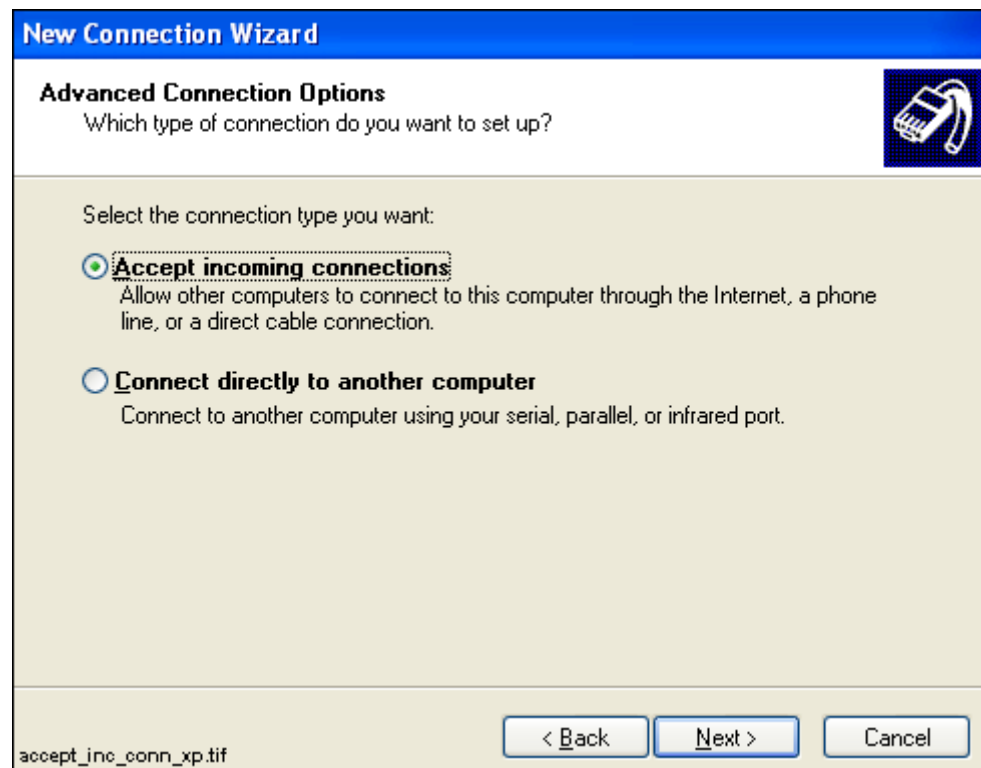


Fig. 5.10.-9 Accepting incoming connections in Windows XP

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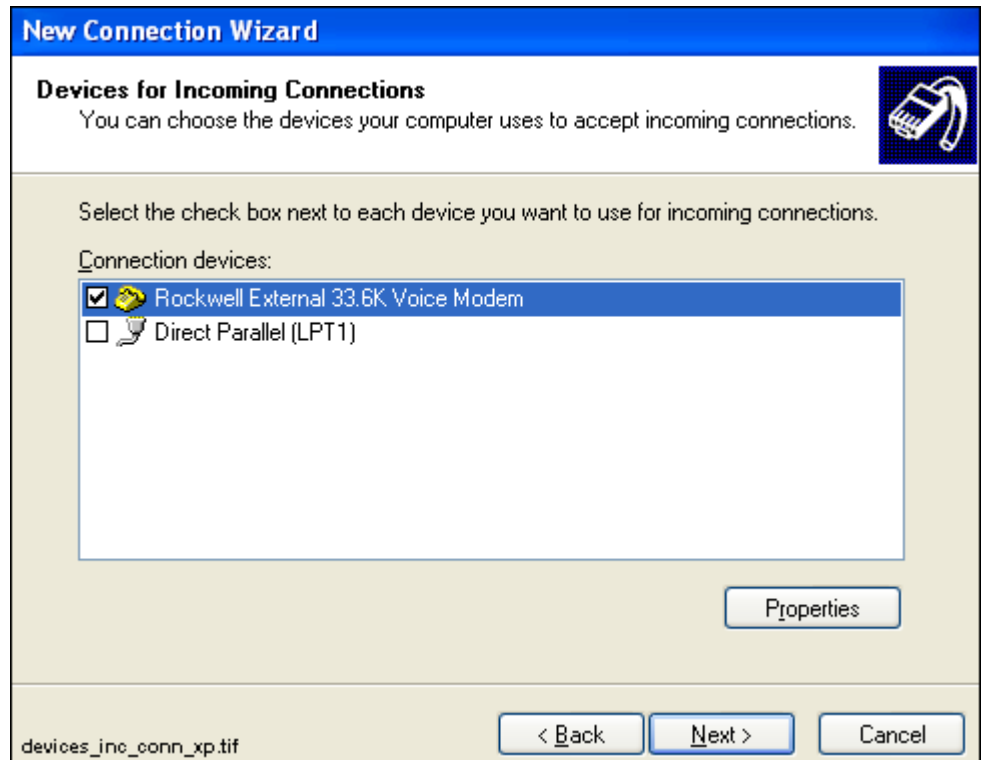


Fig. 5.10.-10 Choosing devices for incoming connections in Windows XP

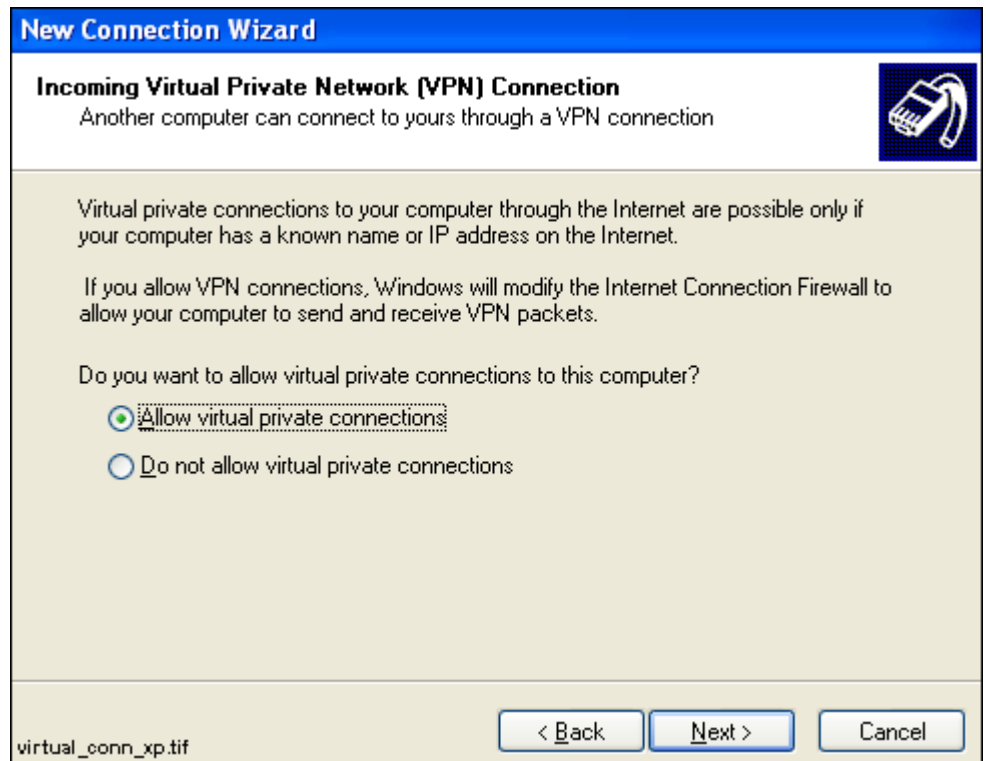


Fig. 5.10.-11 Allowing virtual private connections in Windows XP

Installation and Commissioning Manual



Fig. 5.10.-12 Specifying allowed users to be connected to your computer

To configure the TCP/IP properties, click the Properties button (see Figure 5.10.-13).

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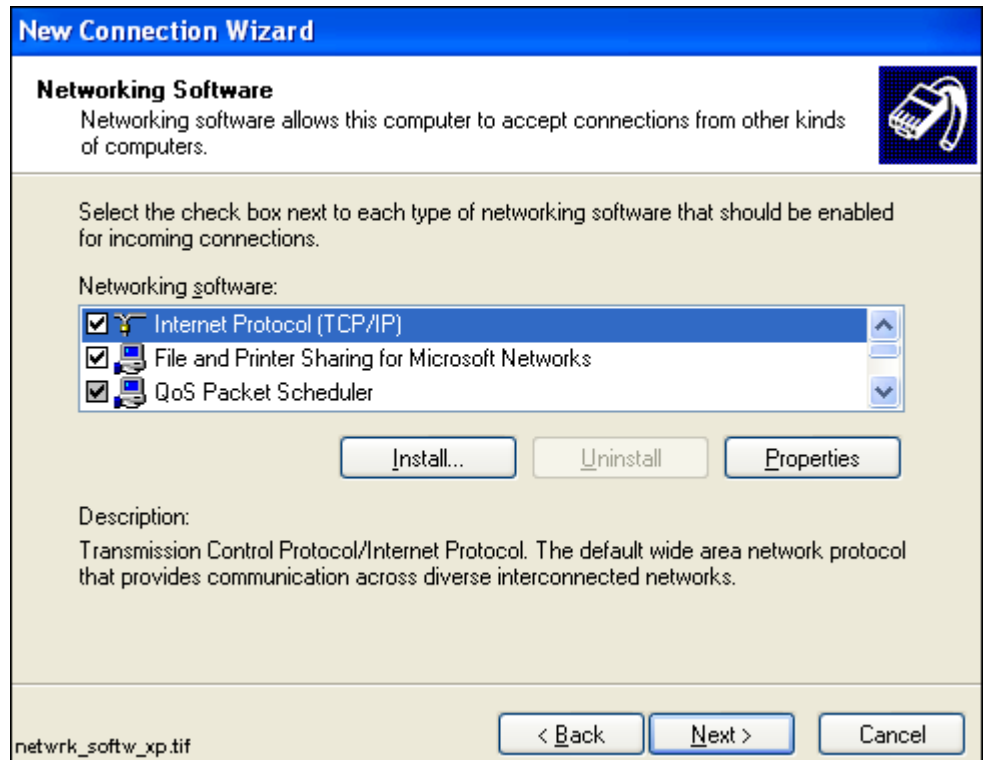


Fig. 5.10.-13 Selecting networking components in Windows XP

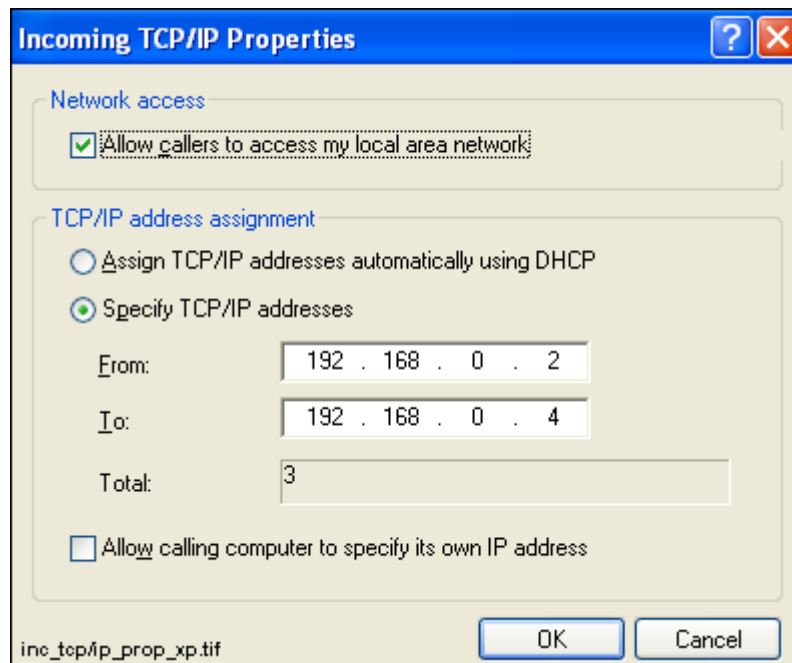


Fig. 5.10.-14 Specifying incoming TCP/IP properties in Windows XP

Installing the Microsoft Loopback Adapter in Microsoft Windows XP:

1. Open the Control Panel, choose Add Hardware, and then choose Next.
2. Choose “Yes, I have already connected the hardware” and then click Next (see Figure 5.10.-15).
3. From the Devices list, select “Add a new hardware device” and then choose Next (see Figure 5.10.-16).
4. Choose “Install the hardware that I manually select...”, and then choose Next (see Figure 5.10.-17).
5. From the Common hardware types list, select Network adapters, and then choose Next (see Figure 5.10.-18).
6. From the Manufacturer list, select Microsoft.
7. From the Network Adapter list, select Microsoft Loopback Adapter, and then choose Next (see Figure 5.10.-19).

Choose Next, and then choose Finish.

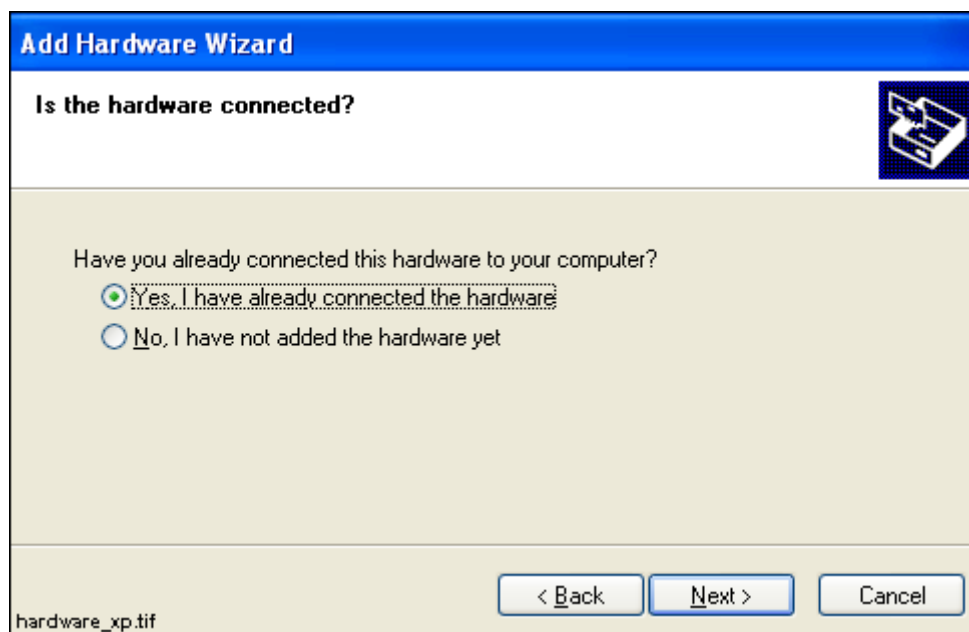


Fig. 5.10.-15 Opening Add Hardware Wizard in Windows XP

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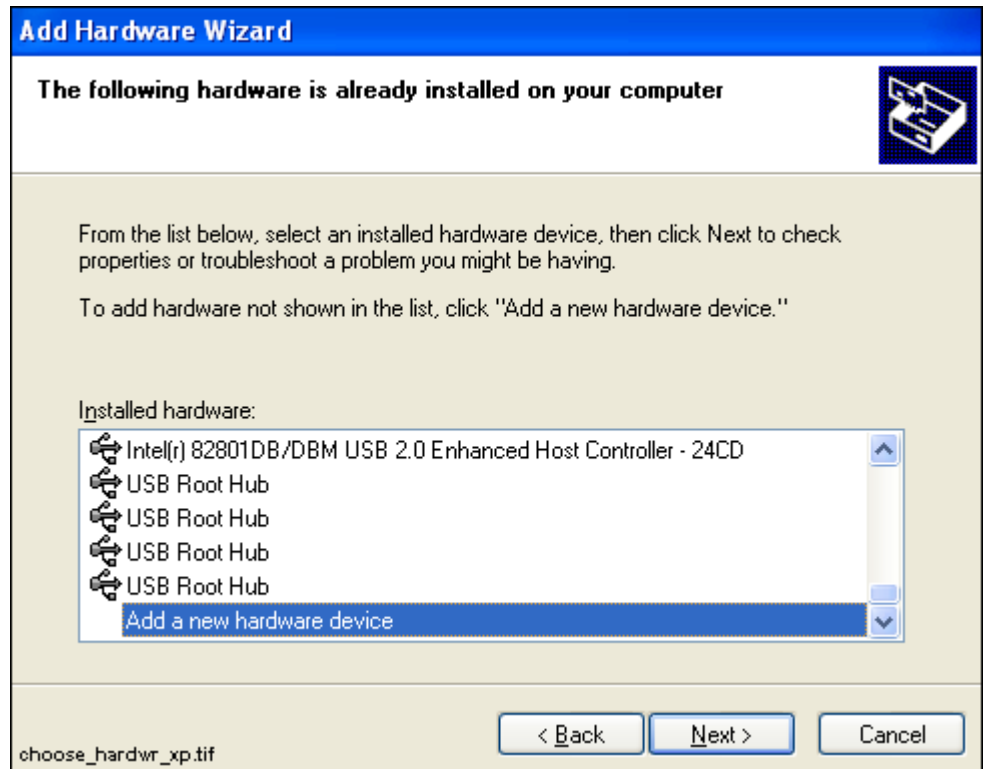


Fig. 5.10.-16 Adding a new hardware device in Windows XP

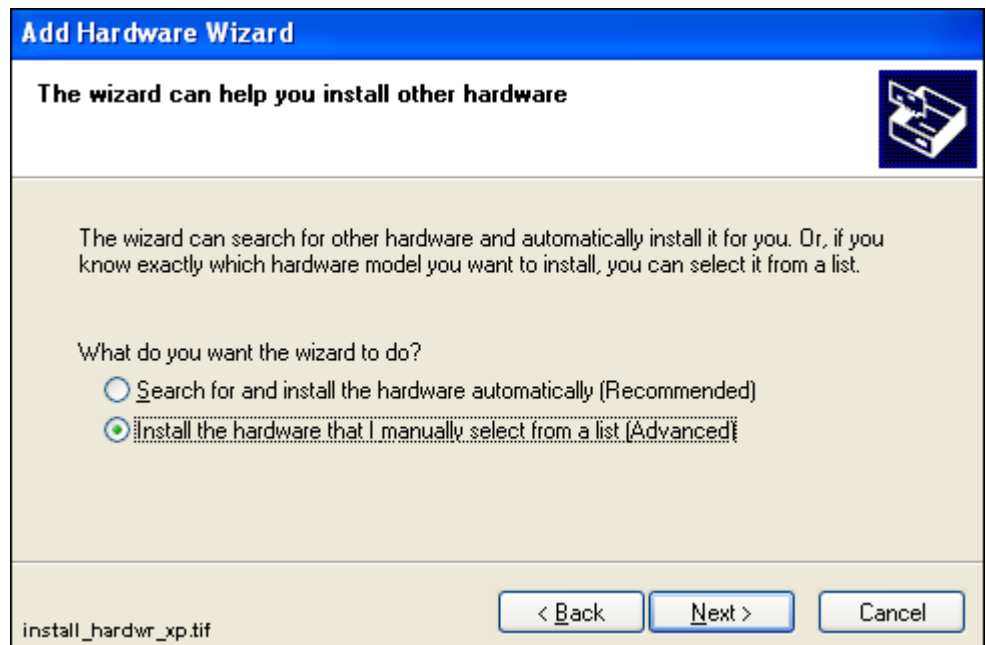


Fig. 5.10.-17 Selecting the hardware in Windows XP

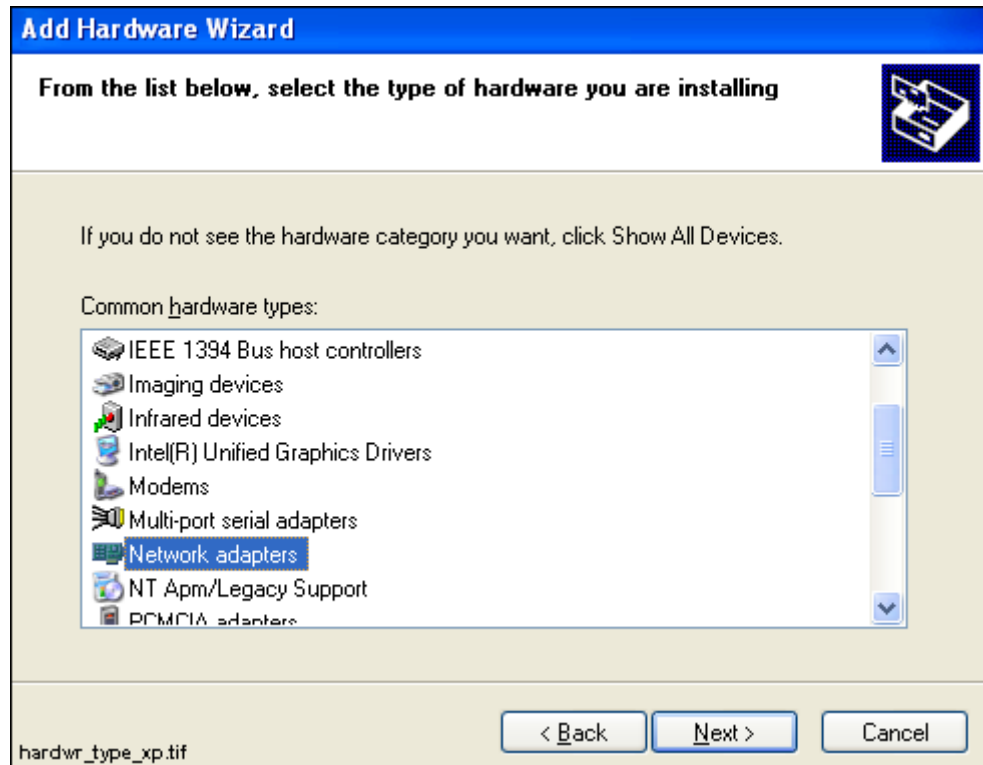


Fig. 5.10.-18 Selecting network adapters to be installed in Windows XP

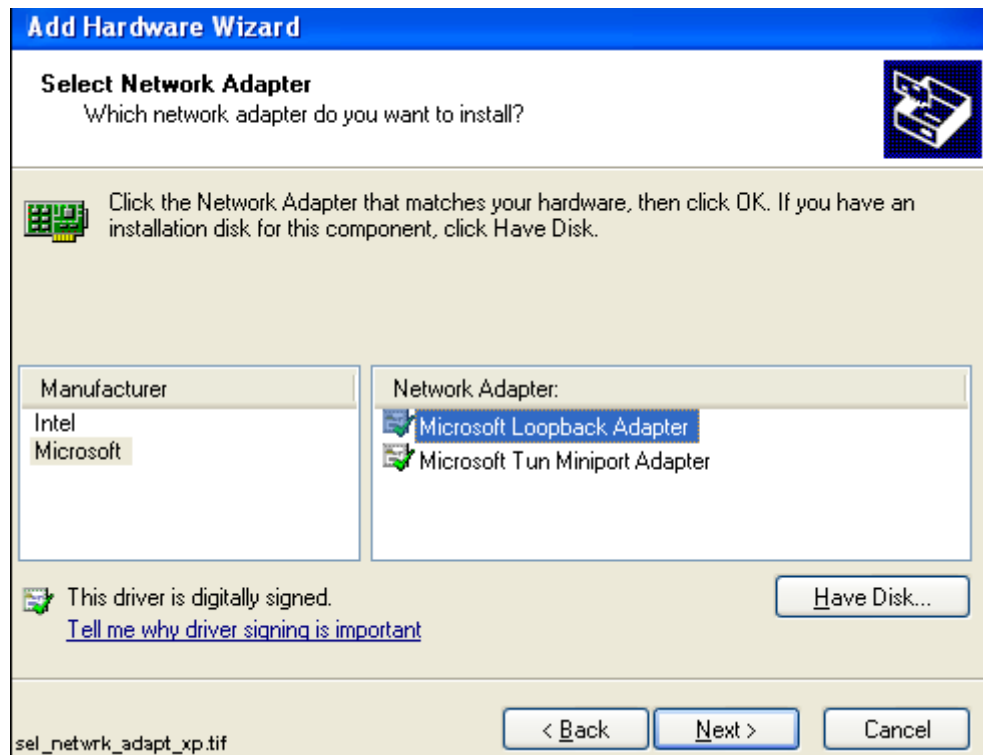


Fig. 5.10.-19 Microsoft Loopback Adapter selected to be installed

Configuring Loopback Adapter in Windows XP

1. Select the Control Panel and choose Network Connections (see Figure 5.10.-6).
2. Choose LAN or High-Speed Internet and Local Area Connection, Microsoft Loopback Adapter (see Figure 5.10.-20).

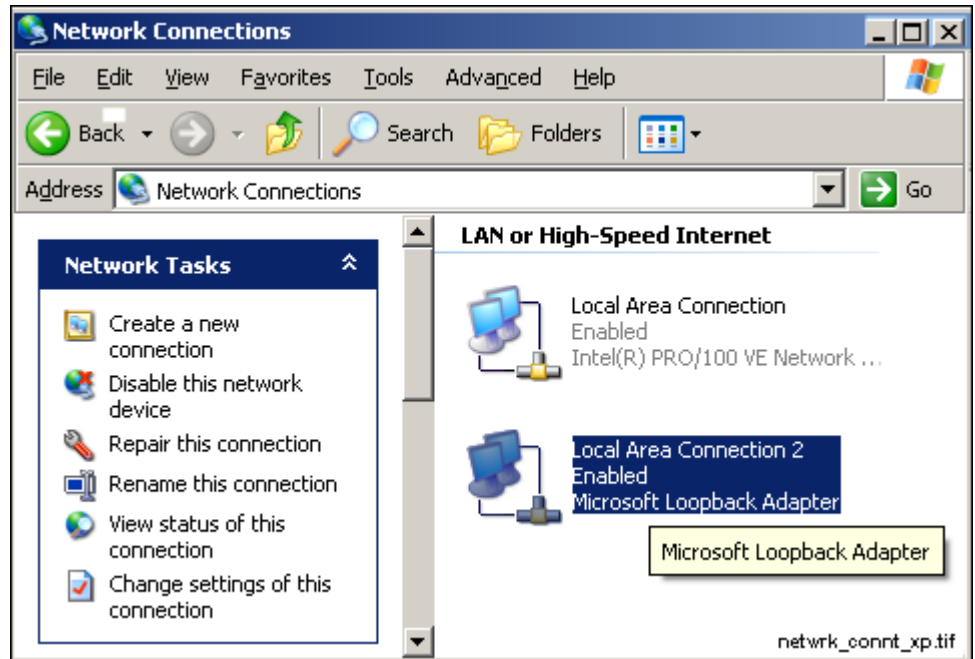


Fig. 5.10.-20 Starting to configure the Loopback Adapter in Windows XP

3. Click the right mouse button and choose Properties. Then choose Internet Protocol (TCP/IP) and click the Properties button (see Figure 5.10.-21).

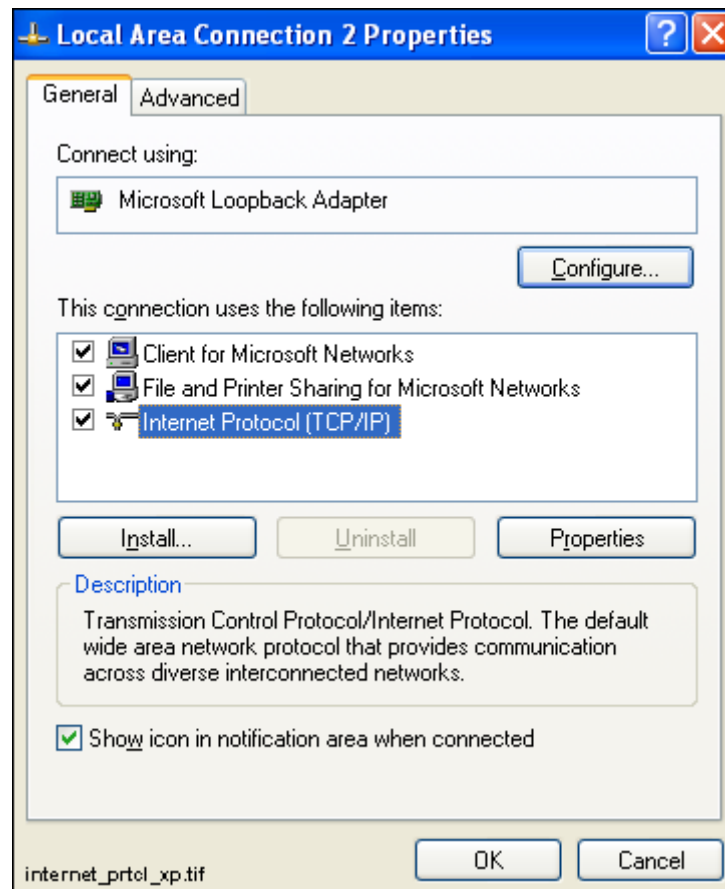


Fig. 5.10.-21 Opening Internet Protocol (TCP/IP) properties in Windows XP

4. Choose “Use the following IP address” (see Figure 5.10.-22). Set the IP Address to ‘192.168.0.1’ (see Section 5.10.1. for details) and the Subnet Mask to ‘255.255.255.0’. The Default Gateway can be left empty. Click OK.

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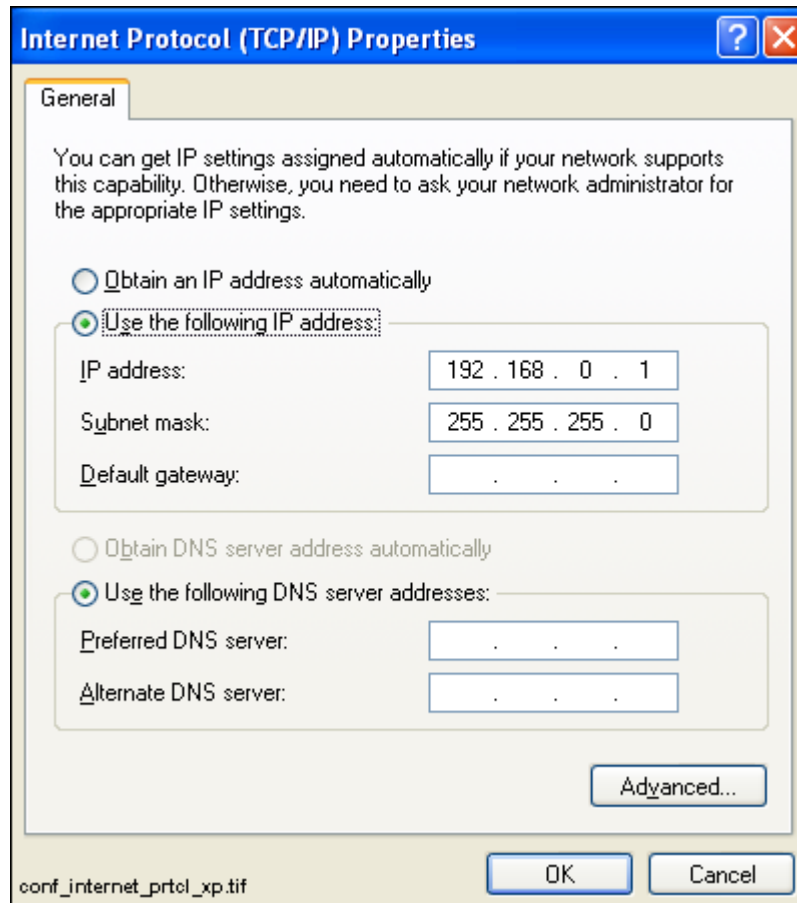


Fig. 5.10.-22 Configuring TCP/IP properties in Windows XP

5. Open the Advanced page. Leave the Internet Connection Firewall box unchecked and click OK (see Figure 5.10.-23).

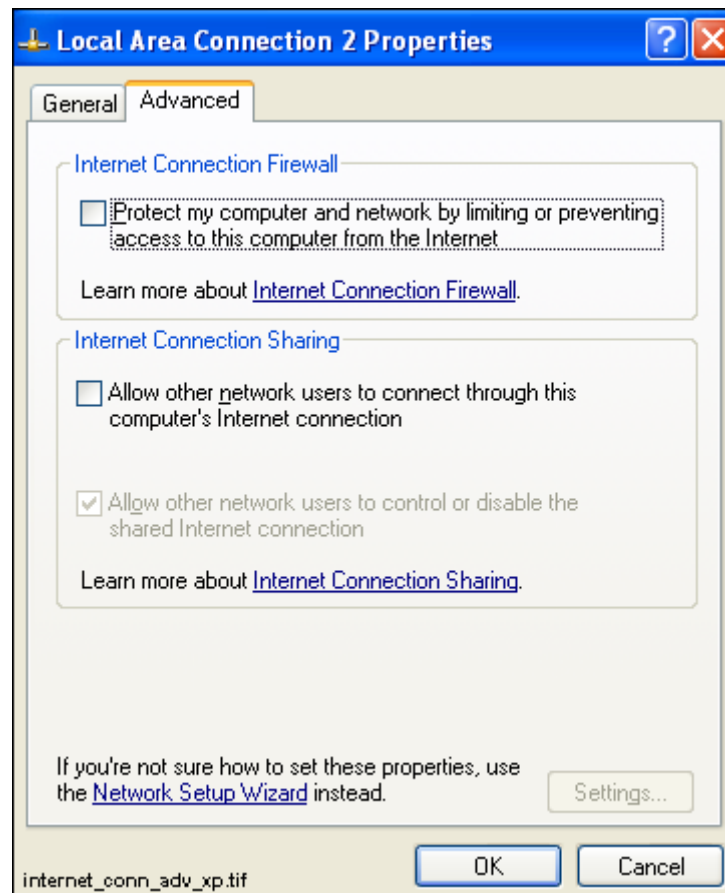


Fig. 5.10.-23 Configuring the Advanced TCP/IP options

6. Click OK and close the Network dialog by clicking Close to finish the installation. The settings will take effect the next time you start the computer.



Local firewalling (in this example, the Internet Connection Firewall) must be turned off. Otherwise the RAS connection will not work.

5.10.1.

Considerations when specifying IP addresses in Windows XP

If you want a fast and trouble-free installation, follow the above examples to the letter (the above described settings are from a working configuration and can be applied as such).

The IP addresses used in this manual are examples (they are part of reserved IP-ranges or nets that are reserved for *private* use). It is thus safe to use them anywhere, provided that the same IP addresses are not used for other purposes in the local network. Discuss with someone knowledgeable in TCP/IP networking, if you are not familiar with it yourself. It may/will save you much grief and frustration.

5.11. About phonebooks and SMS 510

SMS 510 uses a private phonebook, which is not accessible through the operating system's Dial-up Networking functionality. This phonebook is managed by means of the Remote Connection Properties dialog. For more information on utilizing remote connections in SMS 510, see the *SMS 510 User's Guide*.

5.12. Dialing-Up in SMS 510

In SMS 510 the dial-up takes place when you activate a Remote connection from the Project Structure Navigator. The Project Structure Navigator automatically hangs up the call, when you switch to another connection or open a local project.

5.13. Configuring SMS 510 start-up

This section provides information on how to avoid possible SMS 510 start-up problems that may occur under some operating system configurations. Unless you are experiencing SMS 510 start-up problems, you can skip this section.

5.13.1. Avoiding virtual memory overlap at SMS 510 start-up

The MicroSCADA service of SMS 510 uses a hard-coded address for the address of the memory pool.

However, it is possible that in certain PC configurations, some other system component (e.g. a hardware driver) happens to map on an address within the pool. The MicroSCADA service start-up itself has a search mechanism to handle the address overlapping, but it has no chance to prevent other MicroSCADA processes or external programs from failing to map the memory pool. Consequently, SMS 510 does not start.

If this happens, an error message of the following format will be shown in the SMS 510 error log file `\SMS510\SYS\ACTIVE\SYS_\SYS_ERROR.LOG` and on the Notification Window (it can be opened from the SMS 510 Tools program folder under Start menu).

```
Add the following line to sys_config.par and restart MicroSCADA
MEMORY_POOL_HOLE = 30000000 - 301FFFFFF
? Map_Global_Memory(MapViewOfFileEx): 487
```

Since the situation causes SMS 510 (e.g. PICA.EXE program) to crash, the computer must be restarted in order to take the corrective measures explained below.

As the remedy, the `MEMORY_POOL_HOLE` parameter must be activated in the file `\SMS510\SYS\ACTIVE\SYS_\SYS_CONFIG.PAR`. This parameter advises the MicroSCADA start-up code not to use the specified virtual memory area for the global memory pool.

To change the value, open the file `SYS_CONFIG.PAR` in a text editor (for example, `NOTEPAD.EXE`) and specify the memory pool hole copying the line containing parameter name `MEMORY_POOL_HOLE` exactly as shown in the message (note that the address range below is an example only, and the actual values to be used are always configuration dependent):

```
MEMORY_POOL_HOLE = 30000000 - 301FFFFFF
```

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The possibly existing parameter MEMORY_POOL_ADDRES should not be touched. The configuration file may also contain several MEMORY_POOL_HOLE lines, because there is a slight possibility that even the second start-up fails now suggesting another range to be excluded.

Save your changes and exit the editor. Be careful not to make any inadvertent changes to the file! After the restart SMS 510 should be initialized without errors.

Below is an example of a modified SYS_CONFIG.PAR:

```
; File:          Sys_config.par
; Description:   Configuration for 'static' base system parameters
;              Leading ';' indicates commented line
;              Base system version 8.4.4
;-----
;
MEMORY_POOL_HOLE      = 30000000 - 301FFFFF ;Excluded virtual memory area
;MEMORY_POOL_SIZE    = 20 ;Must be 4,8,12,16,20,24,28,... (MB)
PICO_MEMORY_POOL_SIZE = 16 ;Memory Pool for Monitor processes
;REPR_MEMORY_POOL_SIZE = 4 ;Memory Pool for Report processes
;PRIN_MEMORY_POOL_SIZE = 2 ;Memory pool for Printer processes
;
;ASYNCHRONOUS_SHADOW_RECEIVER = 1 ;Should be used in cross-shadowing systems
;
;ANALOG_SWITCH_STATE_OPEN = 2 ;The semantics for MicroTOPOLOGY of AI
;ANALOG_SWITCH_STATE_CLOSED = 1 ;process objects used for indicating the
;ANALOG_SWITCH_STATE_MIDDLE = 0 ;state of a switching device
```

6. Uninstallation

6.1. Overview

The uninstallation is done by means of a special-purposed program (Uninstaller) designed for the removal of software products. Each product comes with its own designated Uninstaller installed with the product.

6.2. Features

The Uninstaller has the following features:

- Removal of files, folders, services, registry keys, user accounts
- Logging of uninstallation operations
- Validation of the integrity of the data the uninstallation is based on
- Ability to cancel/abort the uninstallation
- Ability to re-run the uninstallation as long as the data the uninstallation is based on is available
- Detection of the need to reboot
- Graphical user interface (Uninstall Wizard)

6.3. Scope of uninstallation

Uninstalling the product comprises the following operations:

- Permanent removal of the product's main installation directory
- Permanent removal of the product's program folder(s)
- Permanent removal of the product's key system registry entries
- Permanent removal of the shared MicroSCADA components. This covers for instance the MicroSCADA Service and MicroSCADA User Account. However, the shared MicroSCADA components are removed only if the product utilizes the MicroSCADA Service and no other such a product has been installed.



Note that SMS 510 uninstallation covers only the main SMS 510 product, not the additional software mentioned in Chapter 4. The uninstallation of Parameter Setting Tool, CAP 2/316, REB500 Selector and HMI500 - REBWIN is done separately by means of the related uninstaller applications or by other related instructions provided.

6.4. Preparing for uninstallation

Prior to starting the uninstallation, it is recommended to:

- Have backups of the data produced with the product. The only way to recover the data is to recover it from your personal backups.
- Close all other applications that are running
- Logon from an administrator account

6.5. Backing up the data

It is recommended to use the Project Export/Import Tool to backup the created project(s). More information about the Project Export/Import Tool can be found in the Operator's Manual.

In addition to the project data, there are also two optional data locations to be considered before uninstallation. These locations include data, which may be useful later, but which is not mandatory from the project's point of view:

1. If the user-defined application libraries for REC 52x, REF 54x, RET 54x and/or REM 54x relay types need to be saved, it is recommended to export each configuration to a safe location by means of the object type's "Apl Utils" function. More information on this can be found in the Tools for Relays and Terminals manual.
2. If the uploaded disturbance recordings need to be saved, the contents of the "\\SMS510\Apl\SMS510\RECORDER" directory must be copied to a safe place.

Make sure you store the data outside the product's main installation directory (installation drive/SMS 510 directory).

6.6. Cancelling/aborting the uninstallation

As long as the Cancel button is enabled on the Uninstall Wizard, clicking on it causes the Uninstaller to prompt you to confirm that you wish to stop prematurely.

At a certain point, the Cancel button will be disabled during the actual uninstallation. This is because at that point, the Uninstaller removes the mandatory components for re-running itself.



If you abort the uninstallation when the removal has already been started, you must not try to use the product before you have fully re-installed it.

6.7. Starting the uninstallation

The Uninstaller is started via Control Panel's Add/Remove Programs applet as shown below in Figure 6.7.-1:

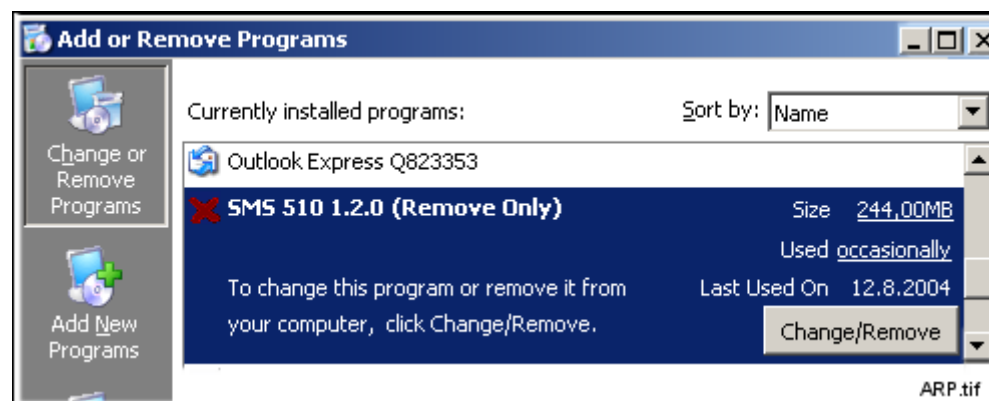


Fig. 6.7.-1 Add/Remove Programs applet

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Prior to entering the Uninstall Wizard, the Uninstaller prompts you whether to proceed as shown below in Figure 6.7.-2:

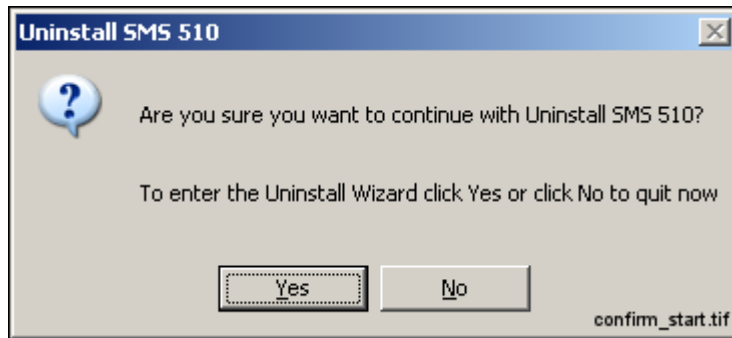


Fig. 6.7.-2 The Confirmation dialog

6.8. Uninstall Wizard

This section describes the Uninstall Wizard in detail.

6.8.1. Overview

The Uninstall Wizard comprises a series of dialogs which guide you through the steps required to uninstall the product. Your computer setup will be modified only after you make the decision to remove the product.

In addition to the dialogs depicted below, the Uninstaller may display other dialogs not documented here. Such dialogs appear, for example, if you decide to abort the uninstallation or unrecoverable error(s) occur at any point of the program execution.

Generally, you will be clearly notified about the end-result of the uninstallation and about the status of your computer setup.

6.8.2. Uninstall Wizard dialogs

The sequence of the dialogs that appear upon a successful operation is described below.

6.8.2.1. Welcome to Uninstall

This dialog welcomes you to the uninstallation (see Figure 6.8.2.1.-1). Just click Next to proceed to the next dialog.

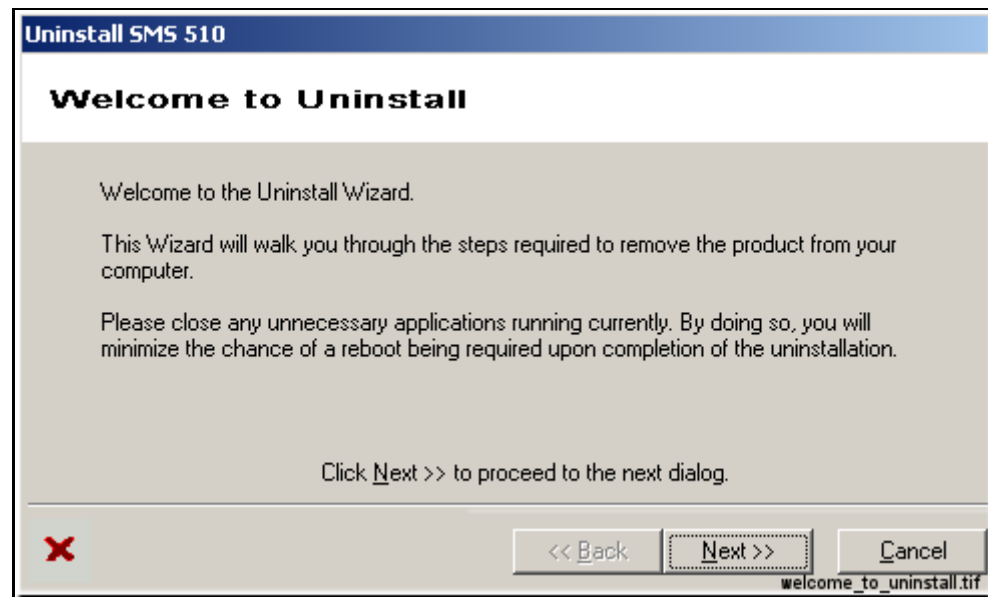


Fig. 6.8.2.1.-1 The Welcome dialog

6.8.2.2.

Backup Notice

This dialog notifies you to ensure backups of the data produced with the product (see Figure 6.8.2.2.-1). All directories subject to removal are displayed. Notice that if you have installed the product in multiple locations (various drives), the list contains all of the main installation directories your installations have used. Be sure that you do not lose data accidentally.

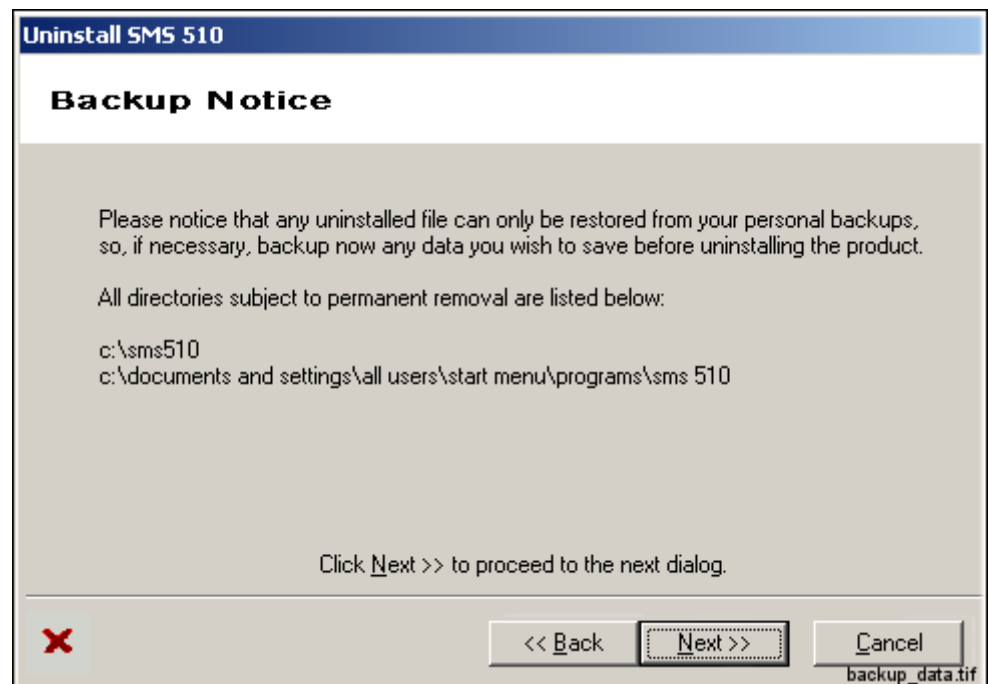


Fig. 6.8.2.2.-1 The Backup Notice dialog

6.8.2.3. Ready to Uninstall

This is the dialog where you start the actual uninstallation by clicking on Uninstall (see Figure 6.8.2.3.-1). Remember that by clicking on Uninstall, your product installation becomes immediately unusable.



Fig. 6.8.2.3.-1 The Ready to Uninstall dialog

6.8.2.4. Uninstall in Progress

This dialog is displayed while the Uninstaller removes the product (see Figure 6.8.2.4.-1).

This dialog displays the progress of the uninstallation while the product is being removed. To abort the uninstallation, click on Cancel (if enabled) and confirm the abort when prompted to do so.

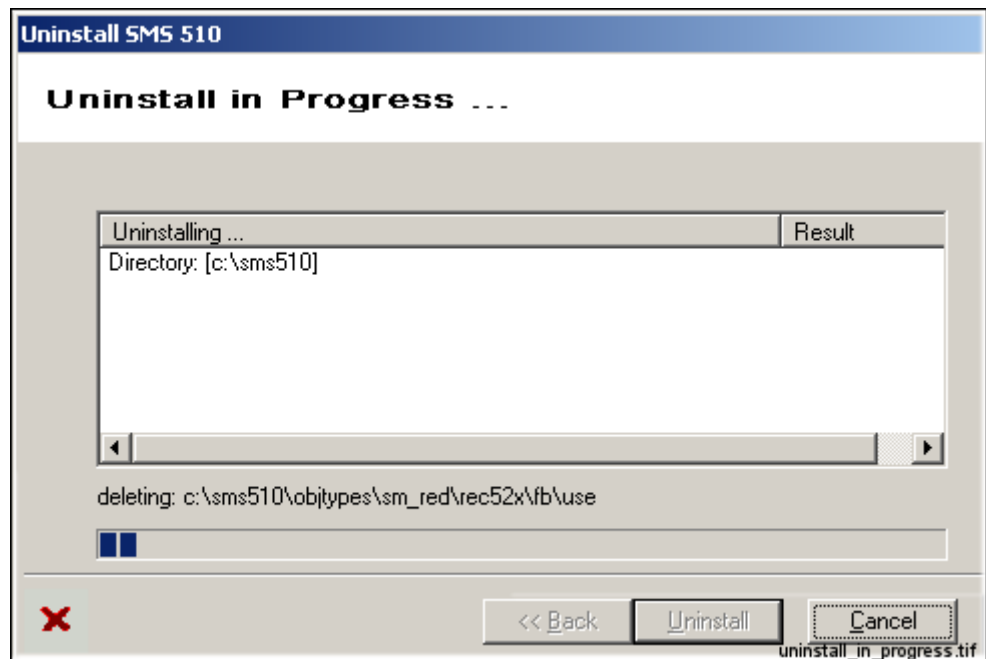


Fig. 6.8.2.4.-1 The Uninstall in Progress dialog

6.8.2.5.

Uninstall Completed

This dialog is displayed when the Uninstaller has successfully removed the product (see Figure 6.8.2.5.-1). You may view the produced log file, if you wish.

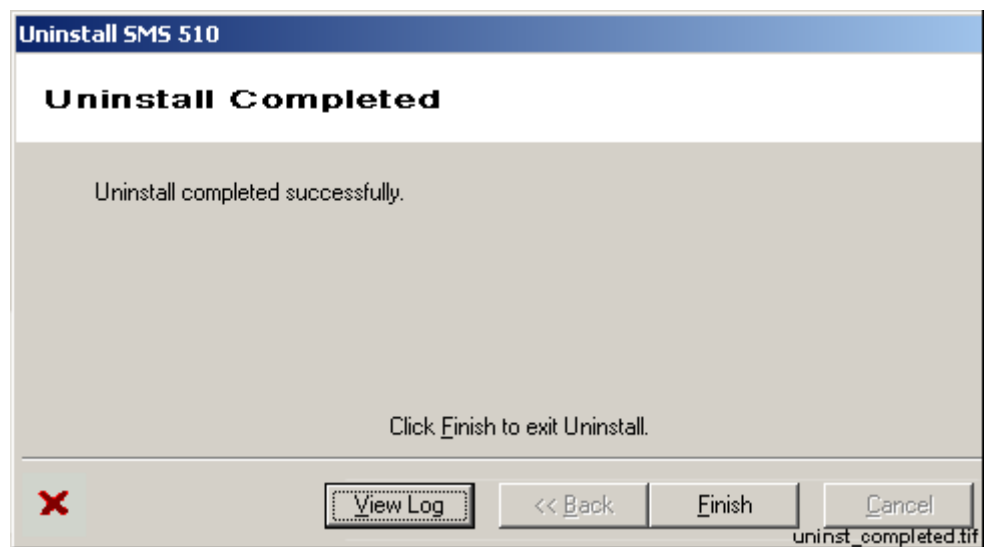


Fig. 6.8.2.5.-1 The Uninstall Completed dialog

6.9. Rebooting

Uninstaller operations may require a reboot in order to be fully carried out. Under such circumstances, the Uninstaller will prompt you to reboot the computer, when you exit the Uninstall Wizard.



It is mandatory to reboot the computer at least prior to installing any new software in the computer. Failure to adhere to that may cause malfunctioning software installations.

6.10. Troubleshooting

In case the uninstallation fails, please ensure that the produced log file remains available to aid in troubleshooting. It will be the only source of information usable for the purpose. You may open the log file in a text editor and save it in a location where it will not be modified further.

7. Troubleshooting installation

This chapter provides information that aims to help your recovering from problems that you have encountered during the SMS 510 installation.

7.1. Incorrect operating system detected

If you attempt to install SMS 510 on an operating system other than Windows NT 4.0, Windows 2000 or Windows XP, the installation notifies you with the message. Ensure correct computer configuration and rerun the installation.

7.2. Incorrect operating system version detected

If you attempt to install SMS 510 on a Windows NT operating system lower than version 4.0, the installation notifies you with the message. Ensure correct computer configuration and rerun the installation.

7.3. Insufficient user rights to install

If you have logged on to your computer having non-administrator rights, the installation notifies you with the message shown in Figure 7.3.-1.

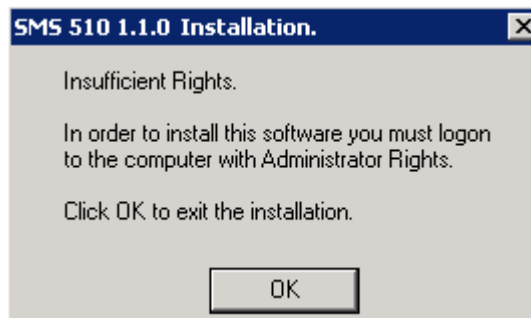


Fig. 7.3.-1 Insufficient user rights to install SMS 510

To recover, click OK and logon to the computer having administrator rights and restart the installation.



You may erroneously receive this notification even if you have logged on with administrator rights. When encountering such behavior, the problem most probably relates to the TEMP environment variable setting on your computer (see Section “TEMP environment variable” on page 148 for instructions to recover).

7.4. MicroSCADA service is running

If the MicroSCADA service is running when you start the SMS 510 installation, you are notified with the message shown in Figure 7.4.-1.



Fig. 7.4.-1 MicroSCADA service must be shut down before continuing with the installation

In order to continue, exit the application currently utilizing the MicroSCADA service and click Yes. The application is one of the applications listed in the message. Notice that you cannot continue with the installation while the service is executing. To exit the installation, click No.

7.5.

Failing to install the MicroSCADA service

If the installation of the MicroSCADA service does not succeed, the installation displays the message shown in Figure 7.5.-1.



Fig. 7.5.-1 MicroSCADA service installation has failed

The most probable reason for this is that the MicroSCADA service has started during the SMS 510 installation. In order to recover from this, click OK to dismiss the message and exit the installation by clicking Cancel on the Installing progress dialog. Restart the installation and install at least the Base system.

7.6. Troubleshooting destination drive error messages

Depending on the current destination drive setting and your computer configuration, you may be notified with a message that SMS 510 cannot be installed to:

- a CD-ROM drive
- a non-NTFS drive
- a network drive
- a removable media drive
- a virtual (substituted) drive

To proceed, click OK and select a suitable destination drive in the Installation Wizard's Select Destination Drive dialog.

7.7. Insufficient disk space

Provided that the selected destination drive does not contain sufficient free disk space, the installation displays the dialog shown in Figure 7.7.-1.

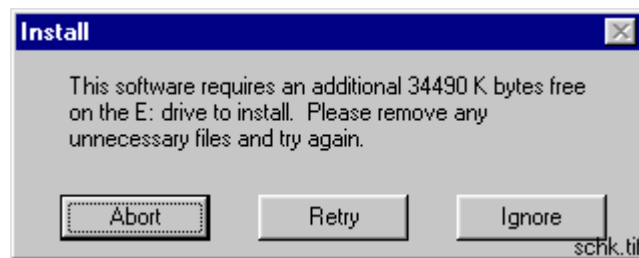


Fig. 7.7.-1 Insufficient disk space to install

The available options are:

- Abort, which aborts the installation immediately. **Note!** Your computer configuration has not yet been modified at this point, so you can safely select this option to exit installation.
- Retry, which checks the disk space and redispays this dialog if the amount of available disk space has not increased sufficiently. Otherwise, the software installation continues normally.
- Ignore, which causes the installation blindly to continue copying the software to the destination. Notice that it is not recommended to use this option as the installation might eventually fail in its operation.

7.8. No suitable destination drive available

If your computer does not contain any drives formatted to NTFS and you have not installed SMS 510 before, the installation displays the message shown in Figure 7.8.-1.

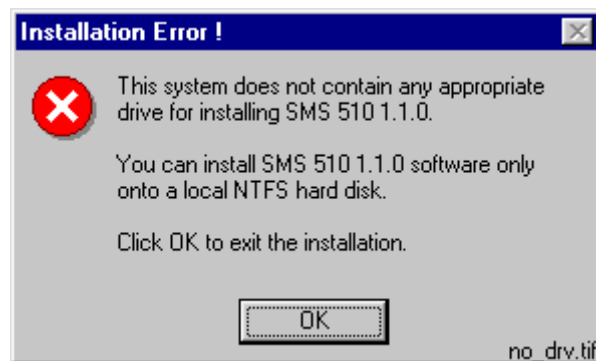


Fig. 7.8.-1 No suitable destination drive available for installation

Click OK to dismiss the message and to exit the installation.

In order to install SMS 510, you must format a drive to NTFS. Use the operating system tools to accomplish this task.

7.9.

Incompatible SYS 500 and/or COM 500 installed

During the start-up of the installation, you may see the notification displayed in Figure 7.9.-1.



Fig. 7.9.-1 Product upgrades will be required if SMS 510 is installed

As stated, the old versions of SYS 500 and COM 500 cannot be used if you install SMS 510. If you are unsure about installing SMS 510, click No to exit the installation. Otherwise, click Yes to continue with the installation.



Provided that you choose to install SMS 510, remember that SYS 500 and COM 500 must be updated to the respective versions stated in the message before you can continue using those products.

7.10. Galaxy Debug window during first start-up

If a Galaxy Debug window is shown when you try to start SMS 510 the first time after its installation, you must restart your computer and try again. See Figure 7.10.-1:

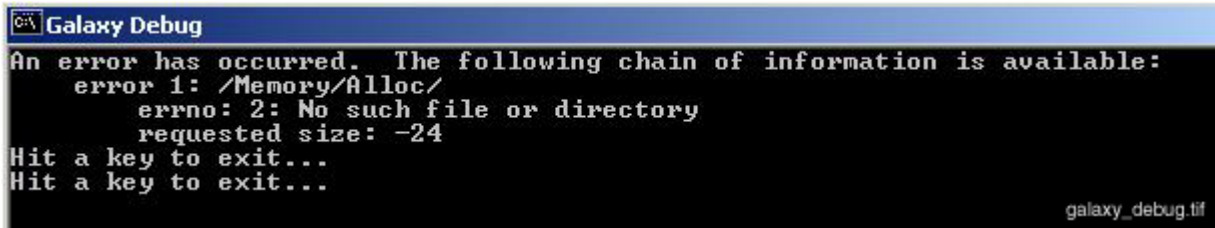


Fig. 7.10.-1 Galaxy Debug window

7.11. CAP 2/316 does not start

If the CAP216/316 tool does not start as it should, the reason may be that the DCOM identity password and the MicroSCADA user password are not the same. Make sure that the passwords are configured according to Section 4.4.2.10. and Section 5.7.3. of this manual.

7.12. Error when opening Remote Connection Properties dialog

In some circumstances the private phonebook of SMS 510 may get corrupted. The Remote Connection Properties dialog cannot be opened due to this corruption and this kind of error will be shown instead:

```
Error:          421 SCIL_ATTRIBUTE_NOT_FOUND
In program:    START_DLG\TOOLMGR\REENAVIG_4\TOOLBAR\CP_REMOTEList.UPDATEList
On line:       29      .Modify This = List(Id2          = Cmd_RemoteList_iVal:vId,-
```

This can be solved only by manually deleting the private phonebook file \SMS510\Services\Communication\Use\BGU_CMGR_RAS.PBK and then restarting SMS 510. After this the remote connection settings must be redefined.

7.13. Miscellaneous

7.13.1. Repaired operating system installations

If your computer experiences operating system failures and you repair the operating system installation, it is recommended that you reinstall at least the following options of the SMS 510 in order to guarantee correct installation of SMS 510:

- Base System
- REB 500 / RE.x16 Support

In addition, reinstall the Parameter Setting Tool (PST).

7.13.2. TEMP environment variable

The TEMP environment variable must be defined on your computer and its content must have reference to an existing directory to which you have read/write access. Also, make sure that the drive on which this directory exists is not running out of storage capacity.

To define the TEMP environment variable on Windows NT 4.0:

1. Open the System applet from the Control Panel.
2. Choose the Environment page as shown in Figure 7.13.2.-1 and locate the TEMP variable from one of the lists. The setting may be defined both as a System and a User variable. If found, the User variable setting overrides the respective System variable setting.

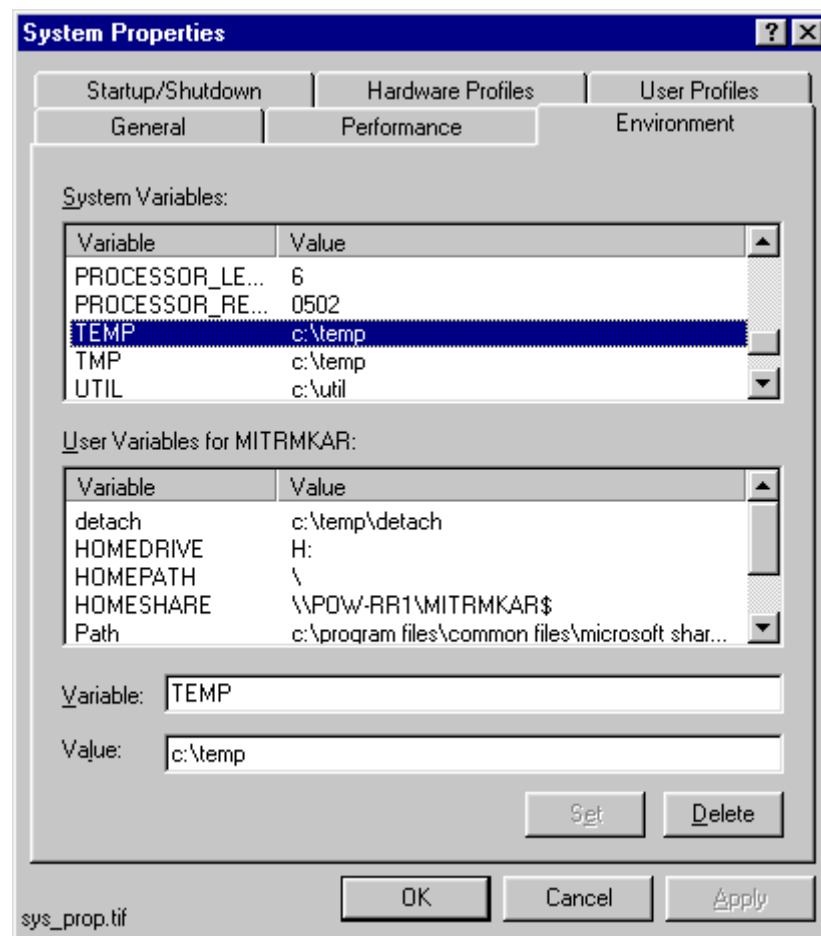


Fig. 7.13.2.-1 TEMP environment variable setting

3. Make sure that the defined directory actually exists on your computer. In the figure above, the directory is 'C:\TEMP'. Use e.g. the Windows NT Explorer to browse for this directory.

To define the TEMP environment variable on Windows 2000:

1. Open the System applet from the Control Panel.
2. Select the Advanced page as shown in Figure 7.13.2.-2.

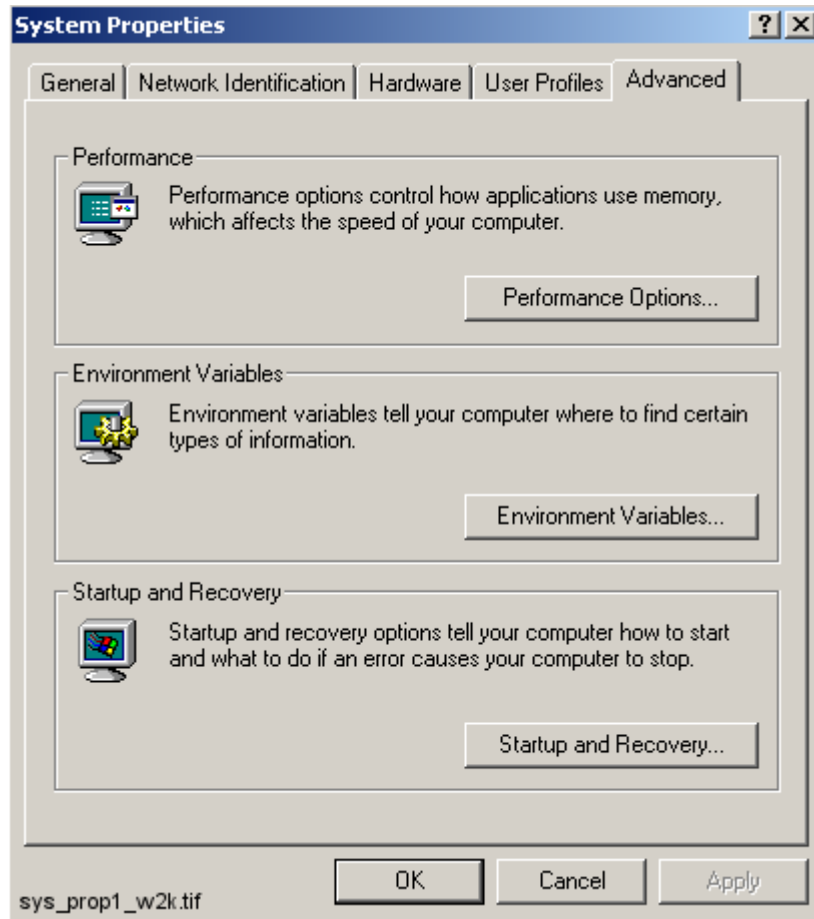


Fig. 7.13.2.-2 Advanced page of System Properties

3. Choose the Environment Variables and locate TEMP variable from the list (see Figure 7.13.2.-3). Verify that you have read/write access to the referenced directory and that there is enough storage capacity.

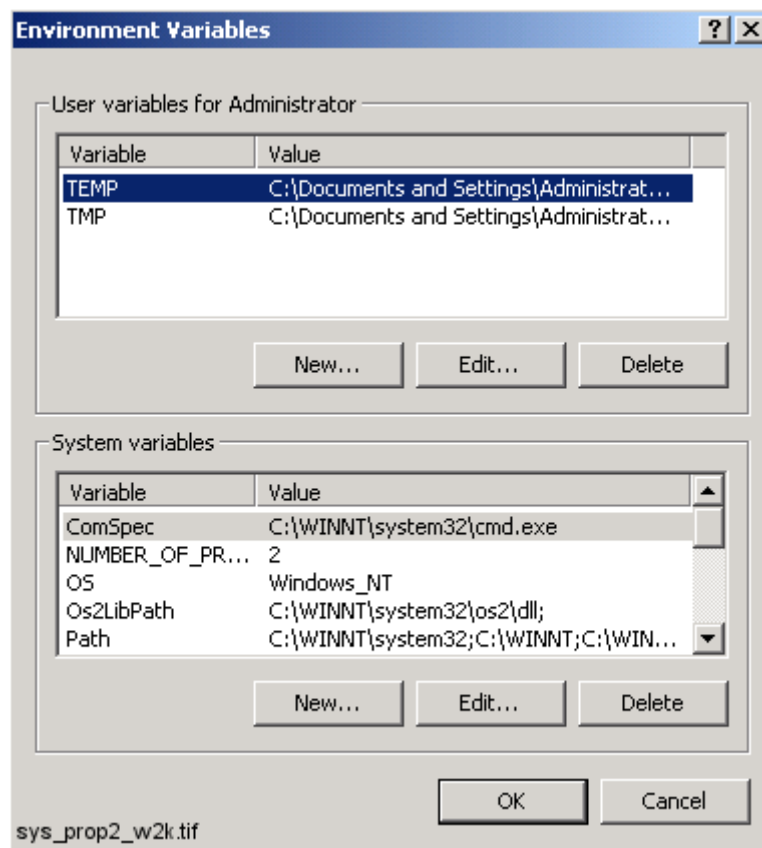


Fig. 7.13.2.-3 TEMP environment variable setting in Windows 2000

To define the TEMP environment variable on Windows XP:

1. Open the System applet from the Control Panel.
2. Select the Advanced page as shown in Figure 7.13.2.-4.

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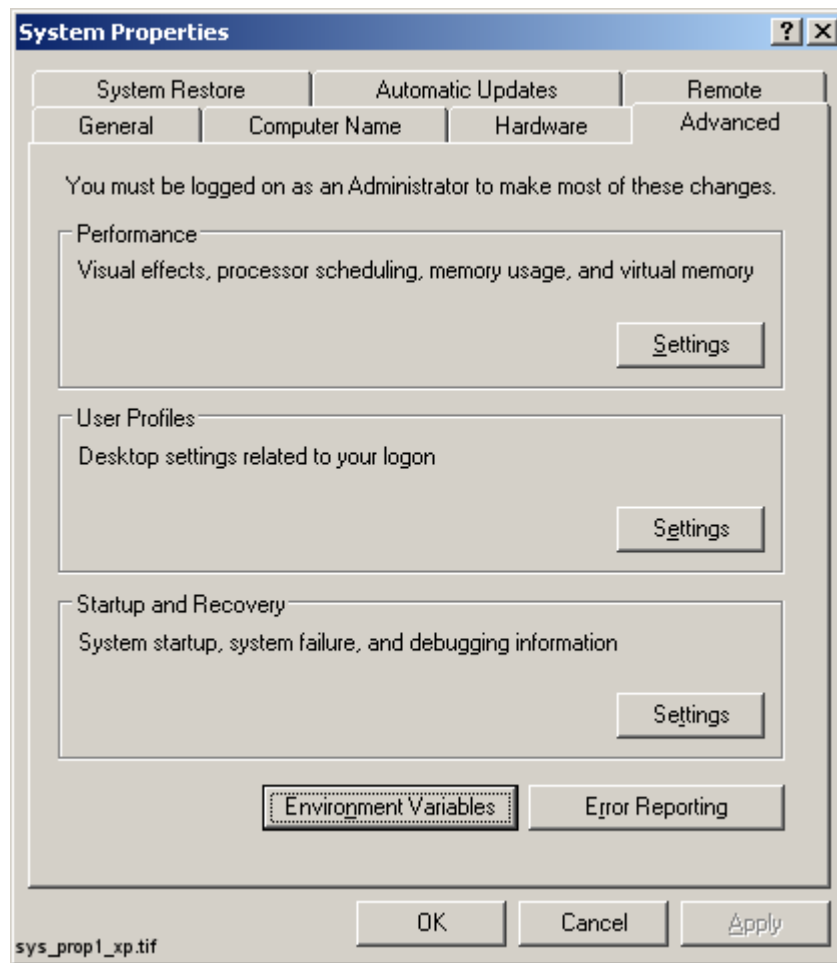


Fig. 7.13.2.-4 Advanced page of System Properties in Windows XP

3. Choose the Environment Variables and locate TEMP variable from the list (see Figure 7.13.2.-5). Verify that you have read/write access to the referenced directory and that there is enough storage capacity.

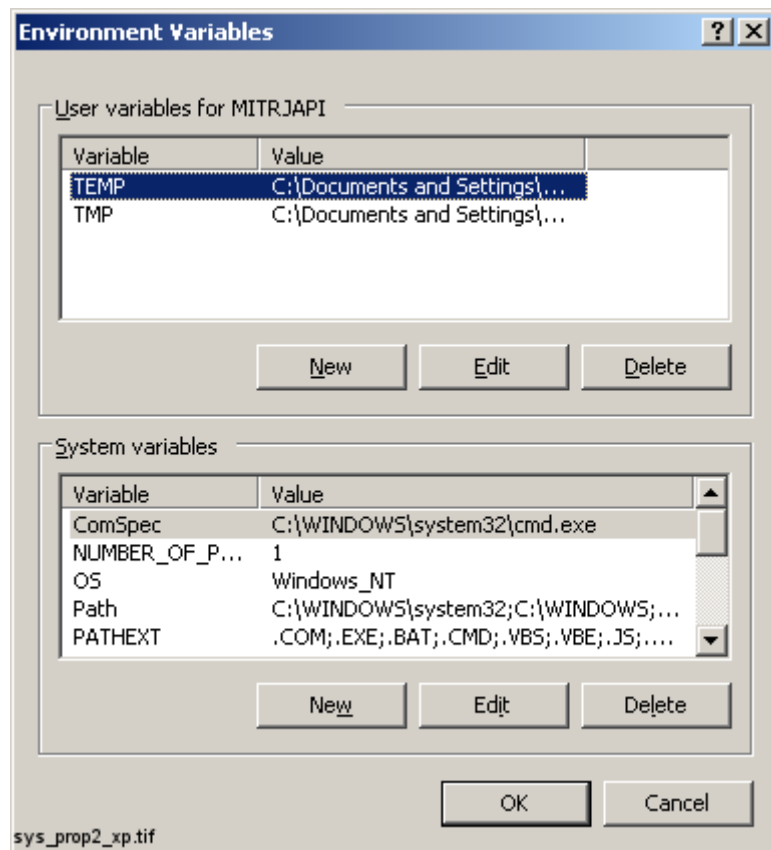


Fig. 7.13.2.-5 TEMP environment variable setting in Windows XP

7.13.3. Incorrect printouts

Printing from Visual SCIL based tools sometimes produces incorrect printouts. Black stripes may be added to the printout, or some images or texts are not printed at all.

Incorrect printouts are due to the "metafile spooling" option used in the current printer driver. This option should be disabled in the printer properties dialog. Different printer drivers may use different names for this "metafile spooling" feature; e.g. the term "advanced printer features" is used by some Hewlett-Packard drivers.

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