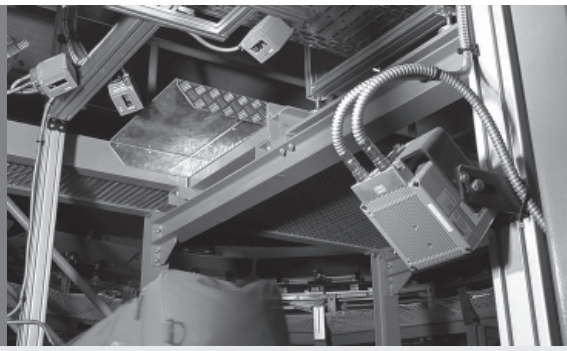
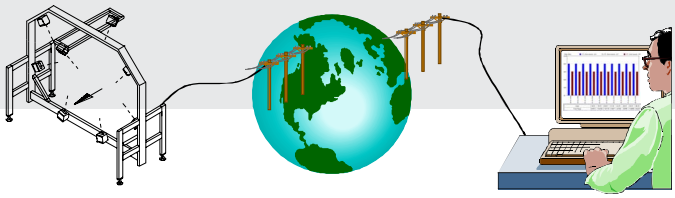
OPERATING INSTRUCTIONS

RDT400
Remote Diagnostic Tool



Version 2.0



SICK
Sensor Intelligence.

Software versions described

Software	Version	Part No.	Remark
RDT400-S Software 1-3 Clients	V2.0	1 026 419	Server Version
RDT400-S Software 4-10 Clients	V2.0	1 026 418	Server Version
RDT400-S Software 11-24 Clients	V2.0	1 023 647	Server Version
RDT400-S Software 25-64 Clients	V2.0	1 023 648	Server Version
RDT400-W Software	V2.0	1 022 154	Workstation Version

Table 1. Software versions

Contents

Figures

Tables

1 General description of the RDT400 Remote Diagnostic Tool

The RDT400 Recorder software is a 32-bit Windows program requiring Windows NT 4.0 as an operating system. Besides this, Windows 2000 and Windows XP can also be used.

RDT400 Display has been designed as a web application based on Microsoft's Internet Information Servers (IIS). For this purpose an ISAPI server expansion (IIS Application Programming Interface) is used for reading-in the daily statistics log file data from which the desired HTML page with the appropriate graphics is generated dynamically at the request of the client (browser).

The graphics (histograms, etc.) are created in PNG format. The use of PNG format involves no license fees (unlike the GIF format). Display of data takes place via Internet Explorer or Netscape Navigator. Both browsers (Netscape Navigator from V 4.04 and Internet Explorer from V 4.0) support the PNG format.

MS Internet Information Server 4.0 is supplied with MS Windows NT Server 4.0 which must be purchased separately. As an alternative to IIS, the Peer Web Services that are supplied can also be used under Windows NT Workstation. The number of connections of Peer Web Services are limited compared to those of the IIS.

2 Installation of the RDT400

Administration rights under Windows NT; Windows 2000 Professional and Windows XP Professional are required for the installation of the Web Server (valid for Windows NT), the IIS (Internet Information Server - valid for Windows 2000 Professional and Windows XP Professional) and the RDT400 software described below.

➢ Log in as the administrator or as a user with administrator rights before starting installation.

2.1 Web Server under Windows NT

The installation and configuration of the "Peer Web Server" services under Windows NT4.0 is described in this chapter. The Windows NT Installation CD is required.

2.1.1 Installation of the Web Server under Windows NT

1. Call up "Network" settings in the Start menu via "Start / Settings / Control Panel".
2. Select the "Services" register card in the network dialogue box and click on the "Add" button.

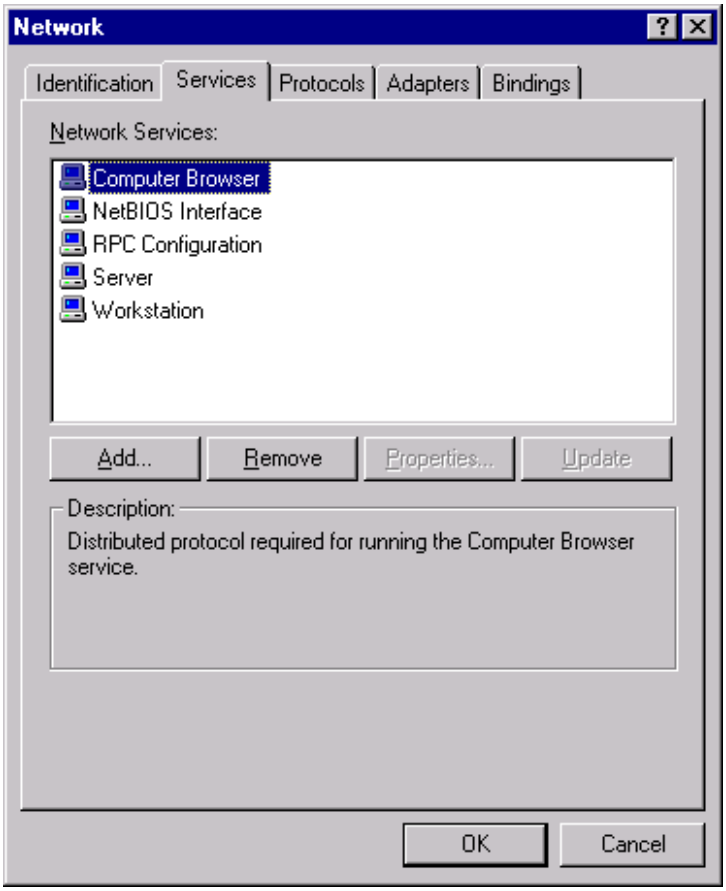


Fig. 1. Windows NT: the Network dialogue box, "Services" register card

3. The "Select Network Service" dialogue box appears.
   Select the "Microsoft Peer Web Server" service and confirm with OK.

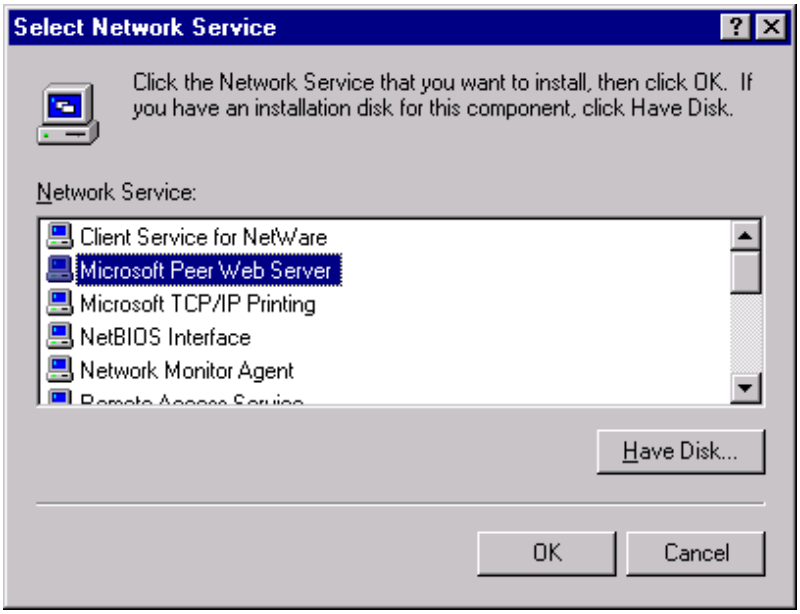


Fig. 2. Windows NT: the "Select Network Service" dialogue box

4. When requested, insert the Windows NT Installation CD into the CD drive.
   Change the drive letter in the "Installed from:" field to the CD drive currently in use.
5. Confirm with OK.

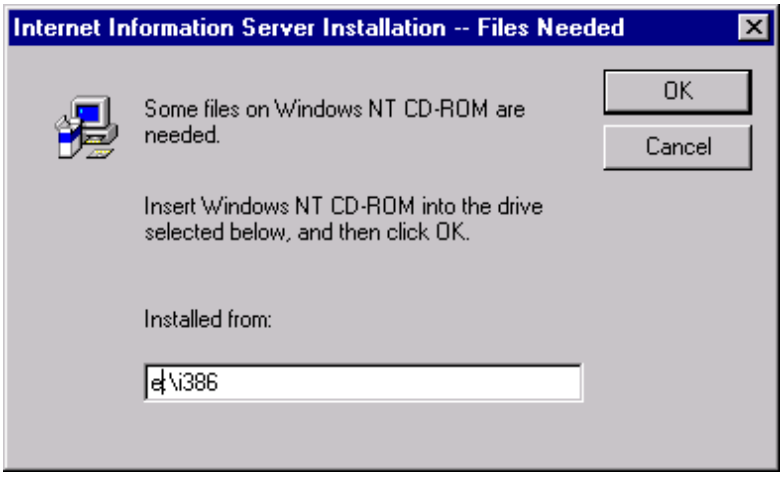


Fig. 3. Windows NT: the "IIS Installation – Files Needed" dialogue box

6. The "Microsoft Peer Web Services Setup" dialogue box appears.
   Follow the instructions and start the process with OK.

Fig. 4. Windows NT: the "Microsoft Peer Web Services Setup" dialogue box

The components to be installed can be selected in the next dialogue box.
Only WWW Service is required for RDT400 Display (Web Interface). In addition, the Internet Service Manager must be installed as it is necessary for configuring the WWW Service.

7. Select these two options and start the process with OK.

   Please note:
   If "delete" appears in brackets after selection of WWW Service, check whether WWW Service has already been installed on the computer. If this is not the case please consult *Chapter 2.1.2 "Potential problems installing the Web Server"*.

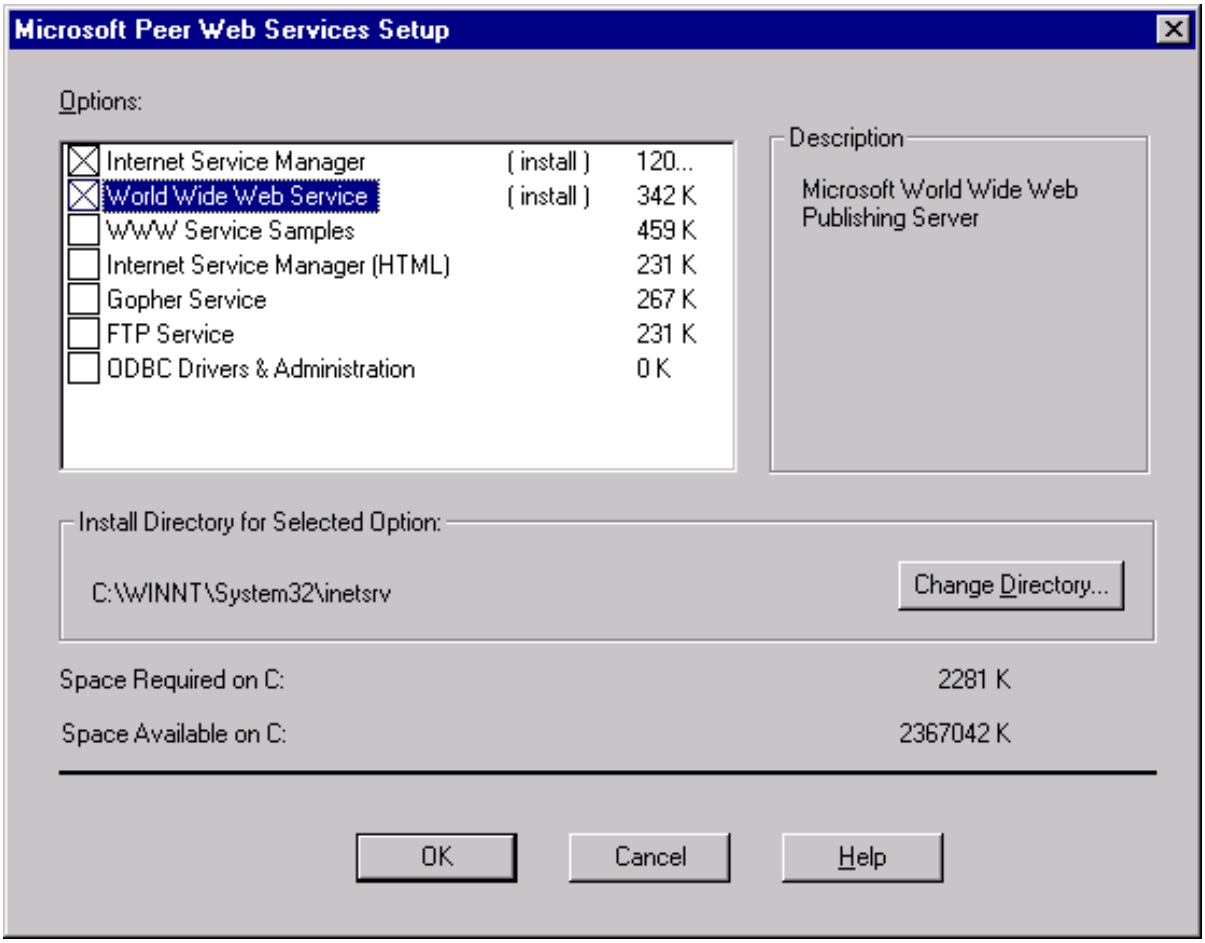


Fig. 5. Windows NT: the "Web Service Components" dialogue box

8. The dialogue box for the configuration of the WWW Publishing Directory appears. The RDT400 start pages (HTML) are copied to this directory during installation of the RDT400 Web Interface. Use the default setting for the directory or change it if desired.
9. Start the installation process with OK. The RDT400 software can be installed after this installation has been completed successfully.

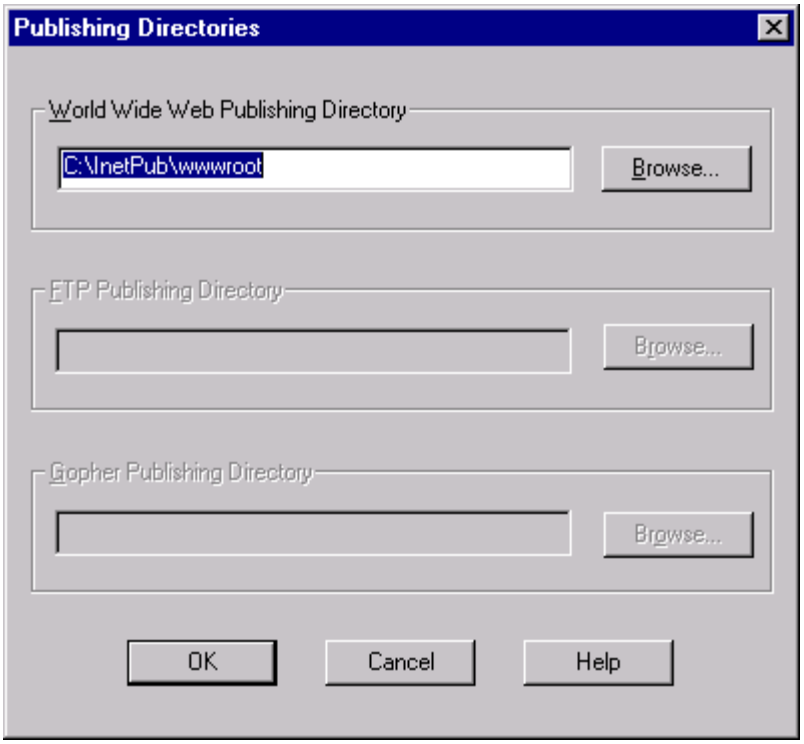


Fig. 6. Windows NT: the "Publishing Directories" dialogue box

2.1.2 Changing the TCP/IP settings under Windows NT

When an RDT400 Recorder server is integrated into a network it is necessary to adapt the settings for the TCP/IP protocol to the network.

1. Call up the dialogue box for TCP/IP settings via the Start menu "Start / Settings / Control Panel / Network".
2. Select the TCP/IP protocol under the "Protocols" register card and click on the "Properties" button.

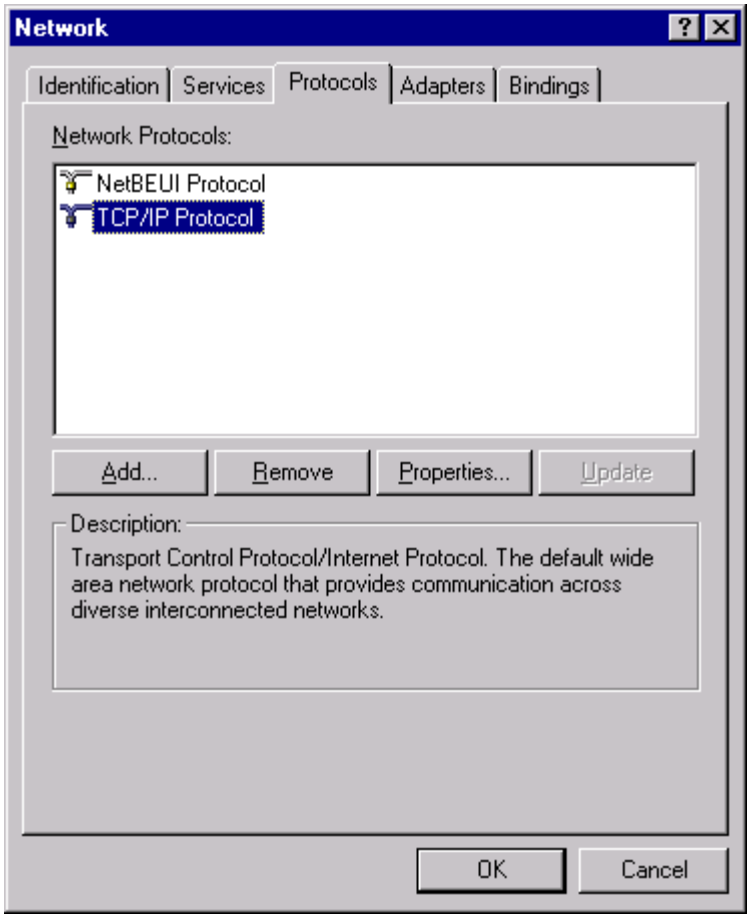


Fig. 7. Windows NT: network settings

3. The "Microsoft TCP/IP Properties" dialogue box appears.

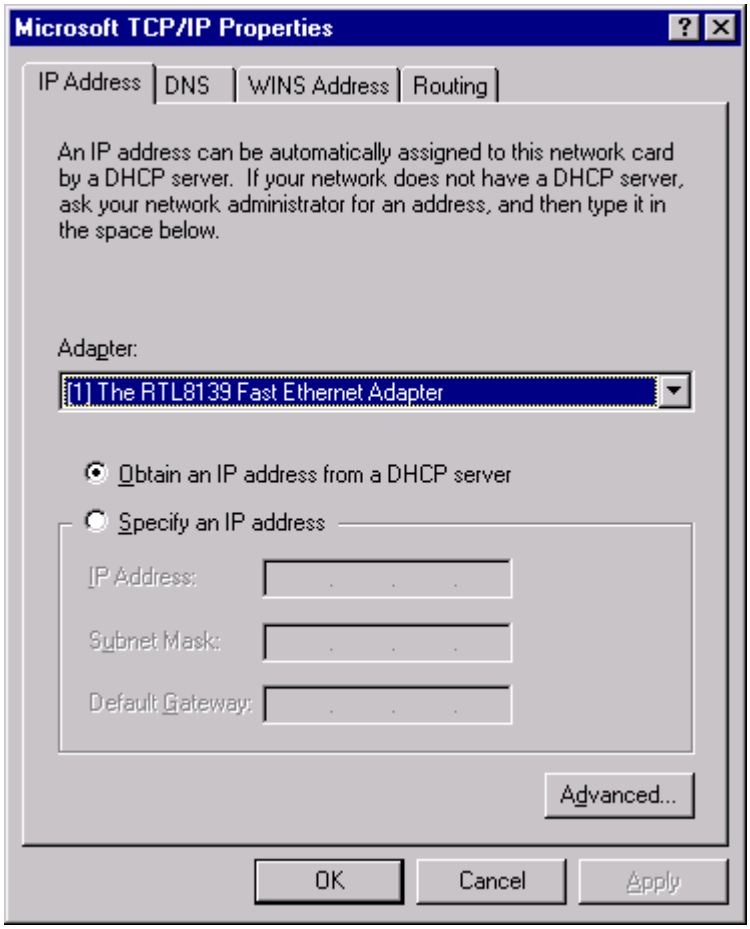


Fig. 8. Windows NT: TCP/IP settings

All the relevant TCP/IP settings (such as IP address, Subnet Mask, Standard Gateway, DHCP, DNS, WINS) relevant to the integration of the RDT400 Recorder server can be carried out under the various register cards in this dialogue box. The parameters to be set depend upon the particular network and must be allocated by the corresponding network administrator.

2.2 Installation of the IIS under Windows 2000 Professional

The installation and the configuration of the ‘IIS’ under Windows 2000 Professional is described in the chapter. The Windows 2000 Professional CD is required. The MS Internet Information Server 5.0 is supplied with MS Windows 2000 Server and with MS Windows 2000 Professional (workstation).

About 11 megabytes of free space is required.

1. Select Add/ Remove Programs in the Control Panel.
2. Click Add/ Remove Windows Components from left margin.

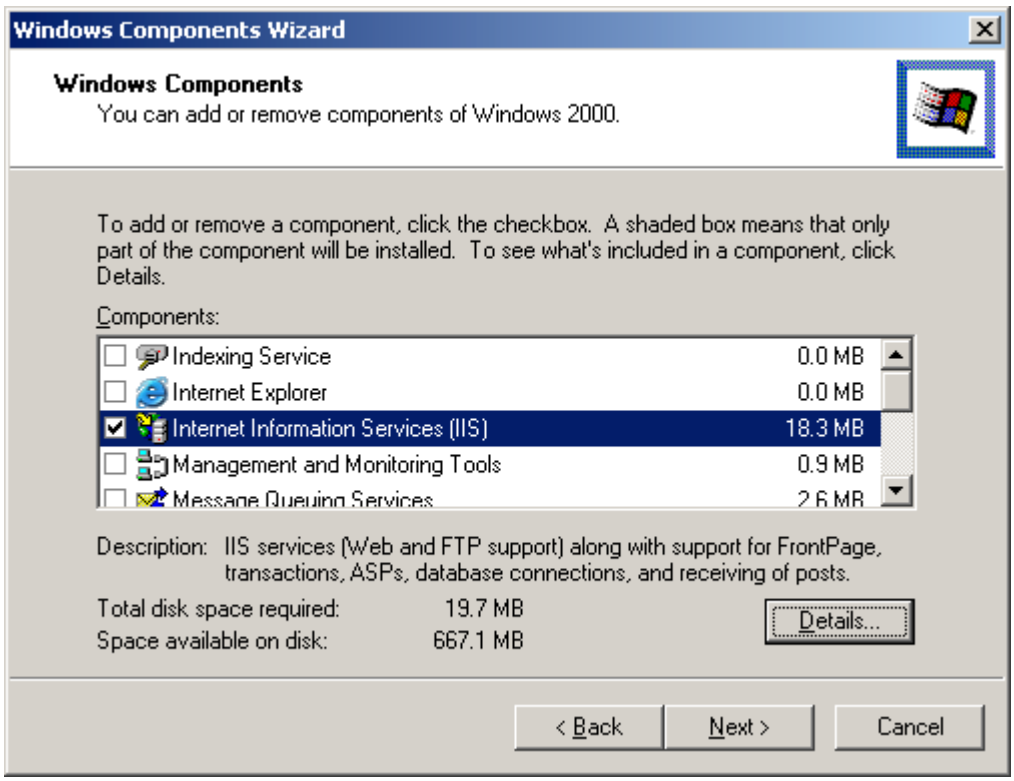


Fig. 9. Windows 2000: Windows Components Box

3. Select the checkbox next to Internet Information Services (IIS)
4. Afterwards click the ‘Details’ buttom

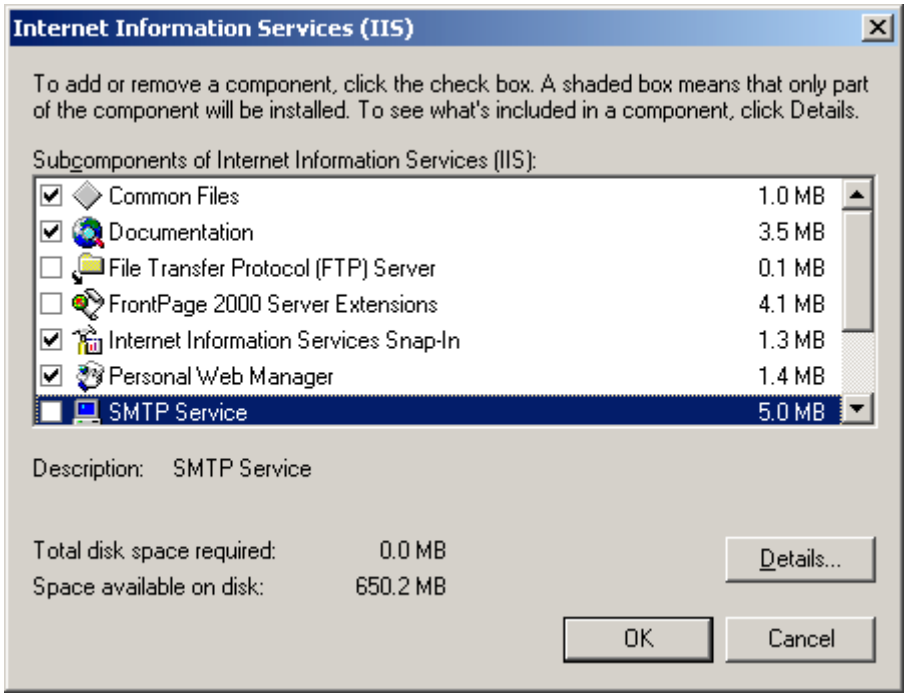


Fig. 10. Windows 2000: Internet Information Services (IIS) Box

5. Uncheck the ‘File Transfer Protocol (FTP) Server’, ‘FrontPage 2000 Server Extensions’, ‘SMTP Service’ and ‘Visual InterDev RAD Remote Deployment Support’. When clicking ‘FrontPage 2000 Server Extensions’ you may see the following window. If so, click ‘Yes’.

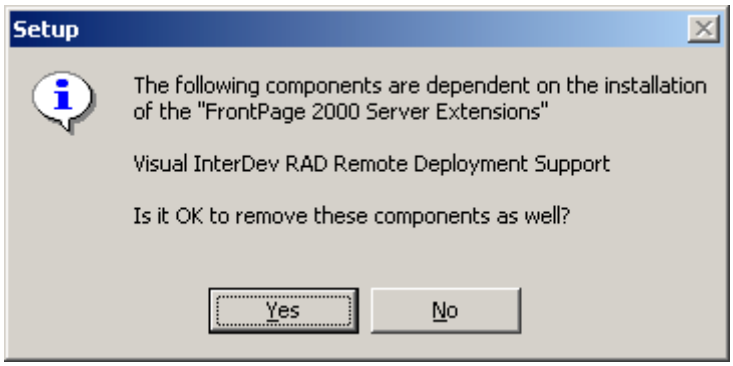


Fig. 11. Windows 2000: Front Page 2000 Server Extensions Setup Box

6. Click ‘OK’, then the ‘Next>’ button. The ‘Windows Component Wizard’ will then begin the installation, asking for the Windows Installation CD.
7. Change the drive letter to the CD-ROM drive letter in which the installation CD resides. If you had previously copied the i386 directory to your hard drive, you may also provide the path to the location on the hard drive.

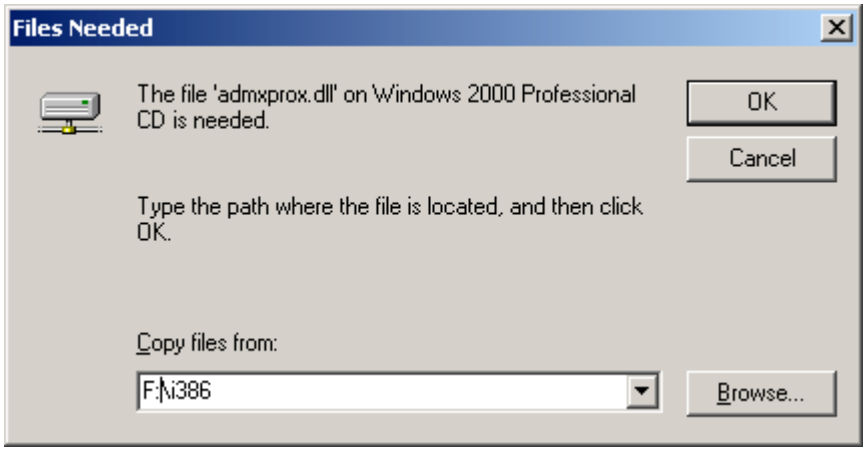


Fig. 12. Windows 2000: Files Needed Box

8. Click ‘Finish’ on the ‘Windows Component Wizard’ window.

Fig. 13. Windows 2000: Windows Components Wizard Box

2.2.1 Changing the TCP/IP settings under Windows 2000 Professional

1. Right click the ‘My Network Places’ icon on your desktop
2. Choose ‘Properties’

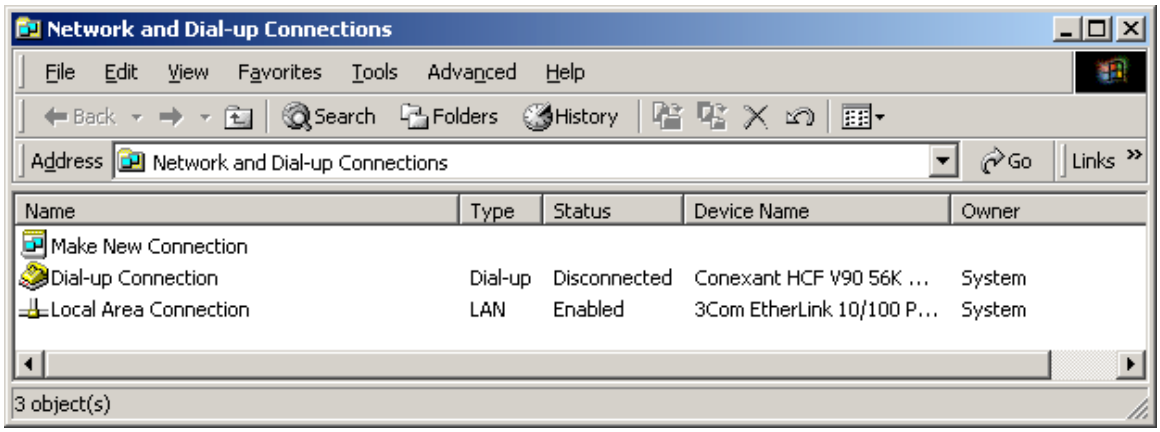


Fig. 14. Windows 2000: Network and Dial-up Connections Box

3. Right click ‘’Local Area Connection’
4. Choose ‘Properties’ or whichever of the LAN cards is enabled (your network device might be named differently, and there may be multiple network cards installed)

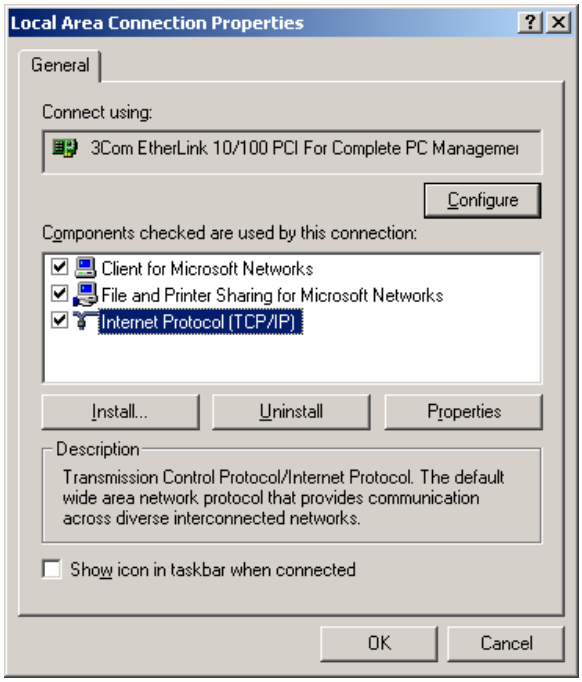


Fig. 15. Windows 2000: Local Area Connection Properties Box

5. Double- click the ‘Internet Protocol (TCP/IP)’ entry.

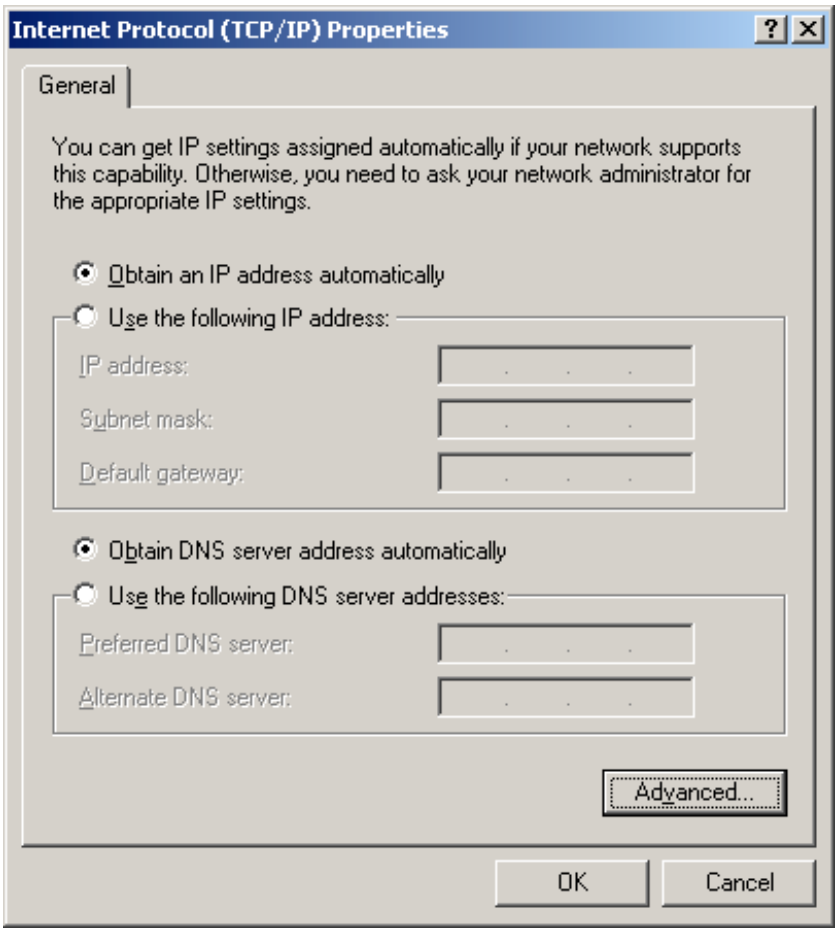


Fig. 16. Windows 2000: Internet Protocol (TCP/IP) Properties Box

6. Click the ‘Advanced’ button’.

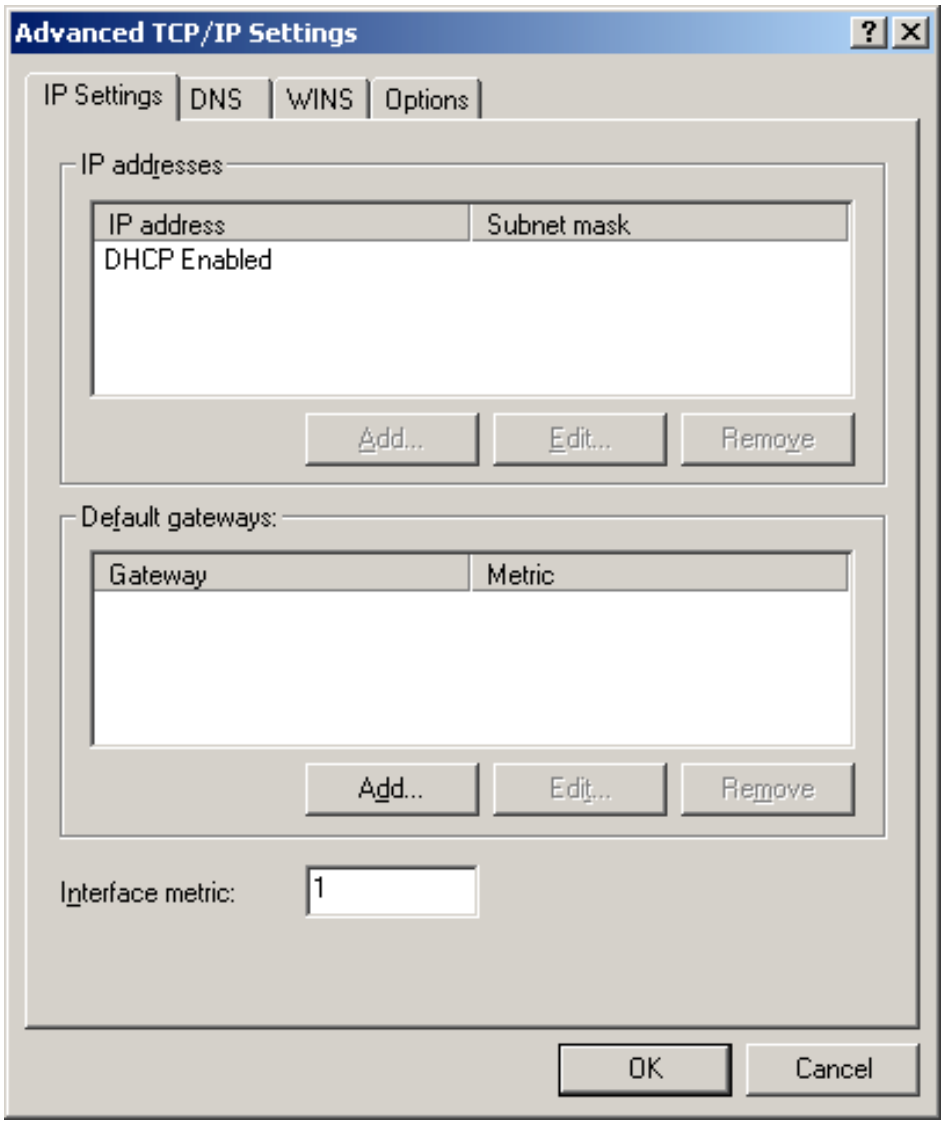


Fig. 17. Windows 2000: Advanced TCP/IP Settings Box

All the relevant TCP/IP settings (such as IP address, Subnet Mask, Standard Gateway, DHCP, DNS, WINS) relevant to the integration of the RDT400 Recorder server can be carried out under the various register cards in this dialogue box. The parameters to be set depend upon the particular network and must be allocated by the corresponding network administrator.

2.3 Installation of the IIS under Windows XP Professional

The installation and the configuration of the ‘IIS’ under Windows XP Professional is described in the chapter. The Windows XP Professional CD is required.

About 11 megabytes of free space is required.

1. Select Add/ Remove Programs in the Control Panel.
2. Click Add/ Remove Windows Components from left margin.

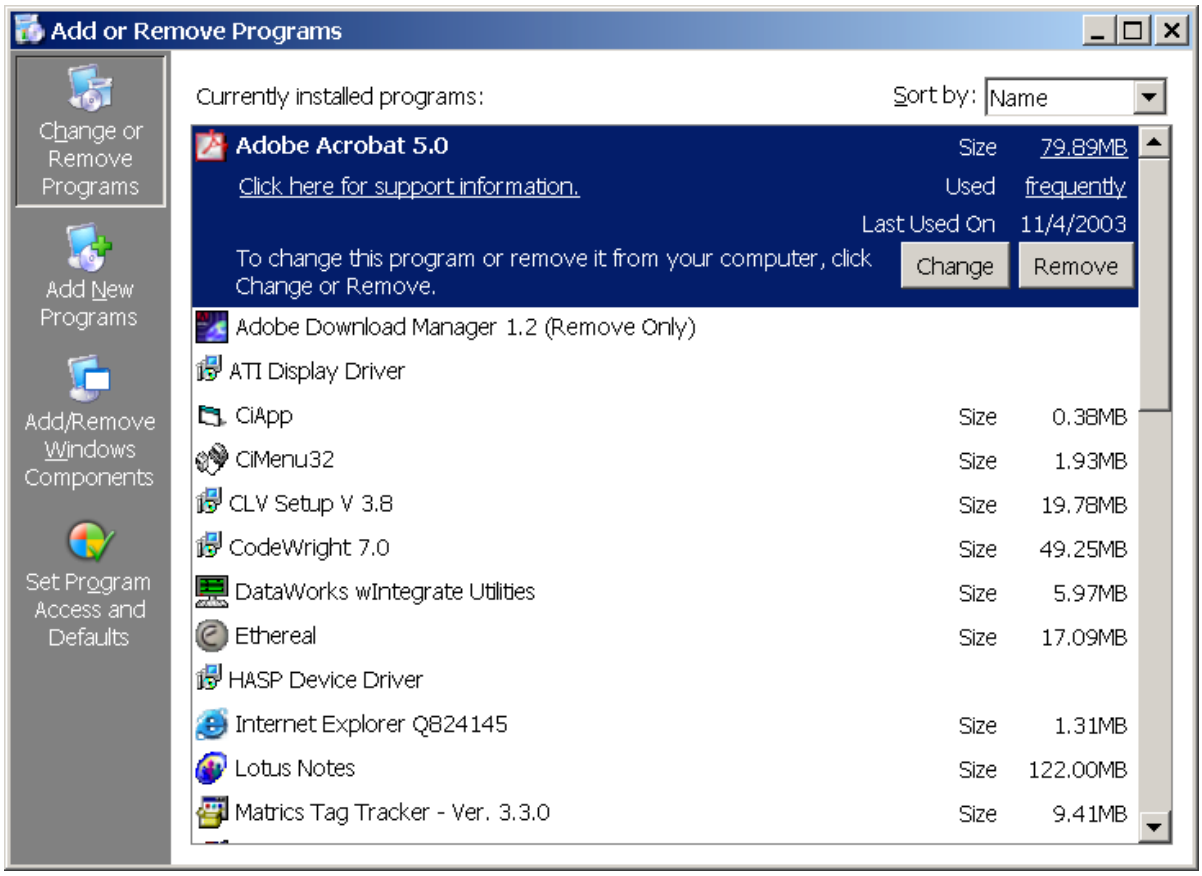


Fig. 18. Windows XP: Add or Remove Programs

3. Select the checkbox next to Internet Information Services (IIS)
4. Afterwards click the ‘Details’ buttom

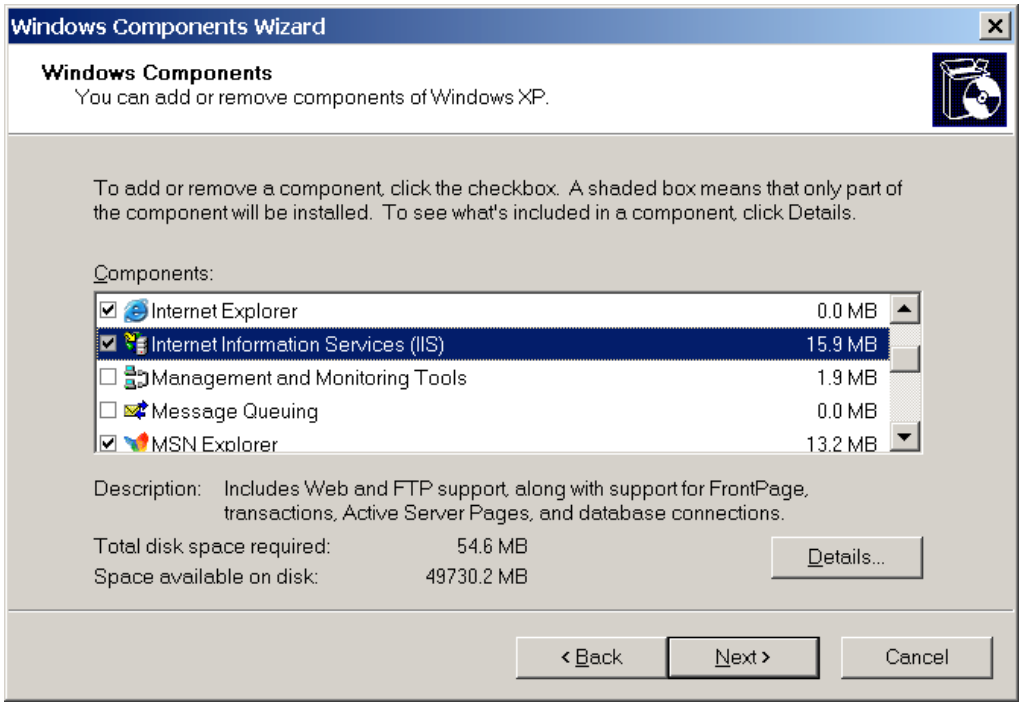


Fig. 19. Windows XP: Windows Components Wizard Box

5. Uncheck the ‘File Transfer Protocol (FTP) Server’, ‘FrontPage 2000 Server Extensions’, ‘SMTP Service’ and ‘Visual InterDev RAD Remote Deployment Support’.
6. Click ‘OK’, then the ‘Next>’ button. The ‘Windows Component Wizard’ will then begin the installation, asking for the Windows Installation CD.
7. Change the drive letter to the CD-ROM drive letter in which the installation CD resides. If you had previously copied the i386 directory to your hard drive, you may also provide the path to the location on the hard drive.

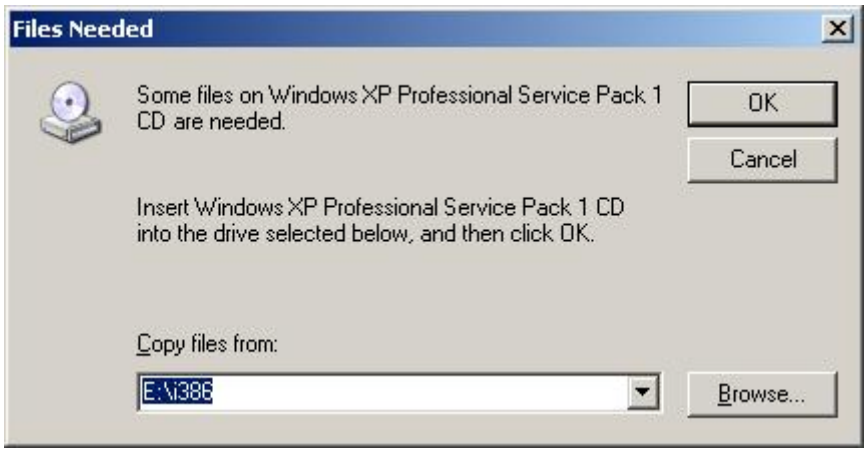


Fig. 20. Windows XP: Files Needed Box

8. Click ‘Finish’ on the ‘Windows Component Wizard’ window.

Fig. 21. Windows XP: Windows Components Wizard Box

2.3.1 Changing the TCP/IP settings under Windows XP Professional

1. Right click the ‘My Network Places’ icon on your desktop
2. Choose ‘Properties’
3. Right click ‘’Local Area Connection’
4. Choose ‘Properties’ or whichever of the LAN cards is enabled (your network device might be named differently, and there may be multiple network cards installed)

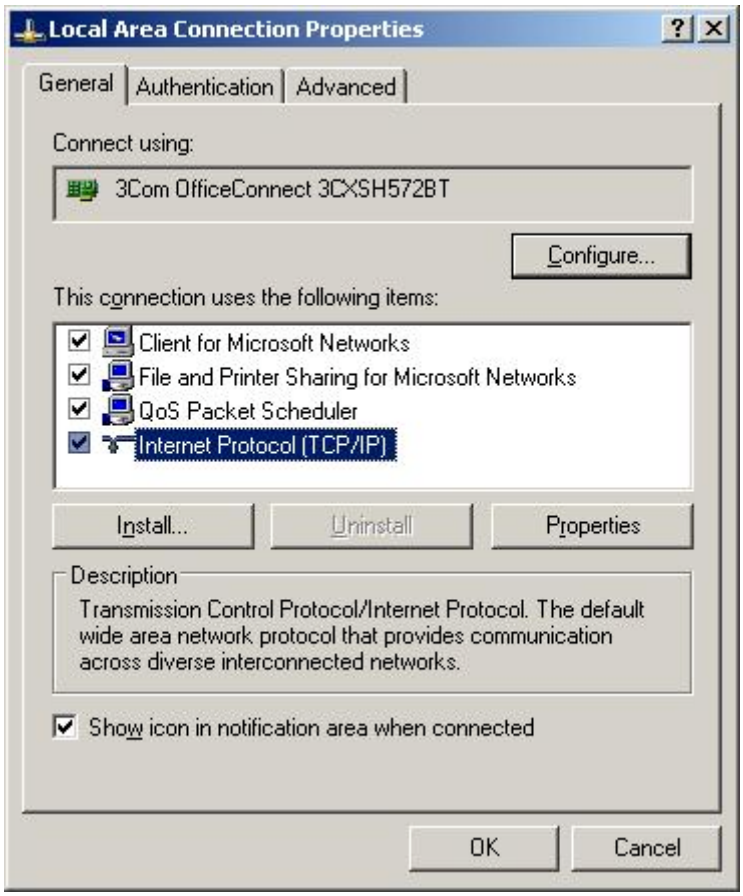


Fig. 22. Windows XP: Local Area Connection Properties Box

5. Double- click the ‘Internet Protocol (TCP/IP)’ entry.
6. Click on the next window the ‘Advanced’ button’.

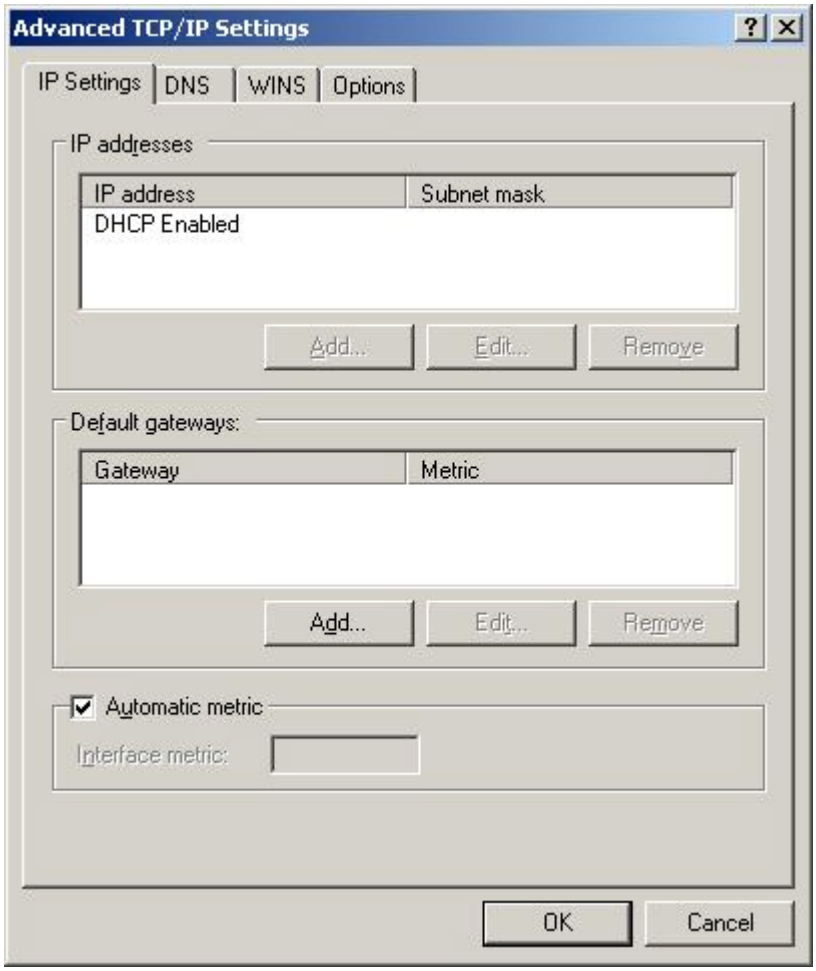


Fig. 23. Windows XP: Advanced TCP/IP Settings Box

All the relevant TCP/IP settings (such as IP address, Subnet Mask, Standard Gateway, DHCP, DNS, WINS) relevant to the integration of the RDT400 Recorder server can be carried out under the various register cards in this dialogue box. The parameters to be set depend upon the particular network and must be allocated by the corresponding network administrator.

2.4 Installation of the RDT400 software

- Insert the RDT400 software installation CD in the CD drive.
- Call up the "**Setup.bat**" program on the installation CD via the Start menu using "Start / Run".

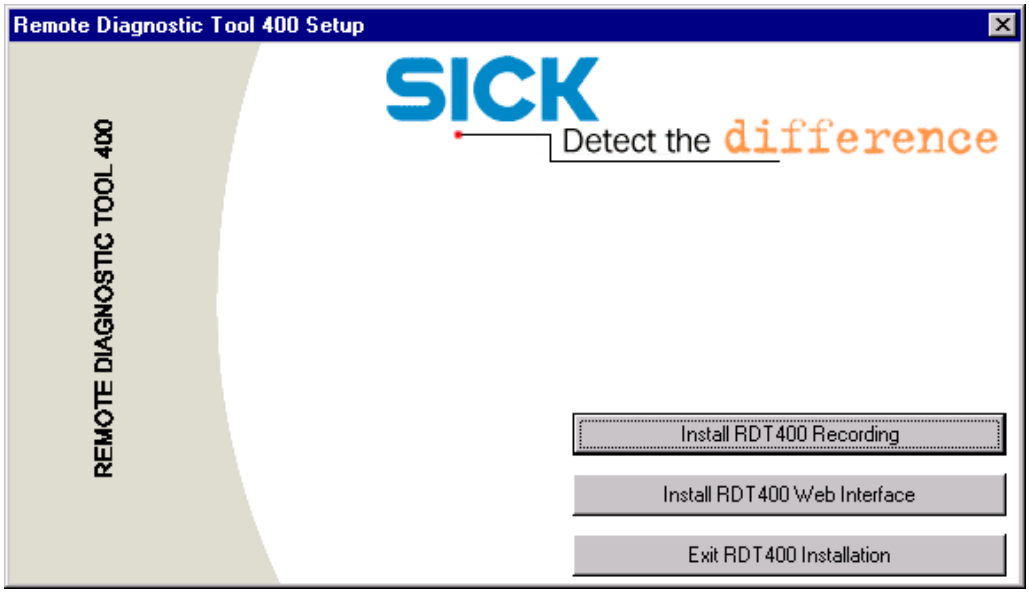


Fig. 24. RDT400: setting up the RDT400 software

2.4.1 Installation of the RDT400 Recorder

➢ Click on the "Install RDT400 Recording" button to start installation of the RDT400 Recorder. Follow the instructions provided by the Installation Wizards (Assistants).

The program automatically returns to the Setup dialogue box after successful installation.
Then the RDT400 Display can be installed.

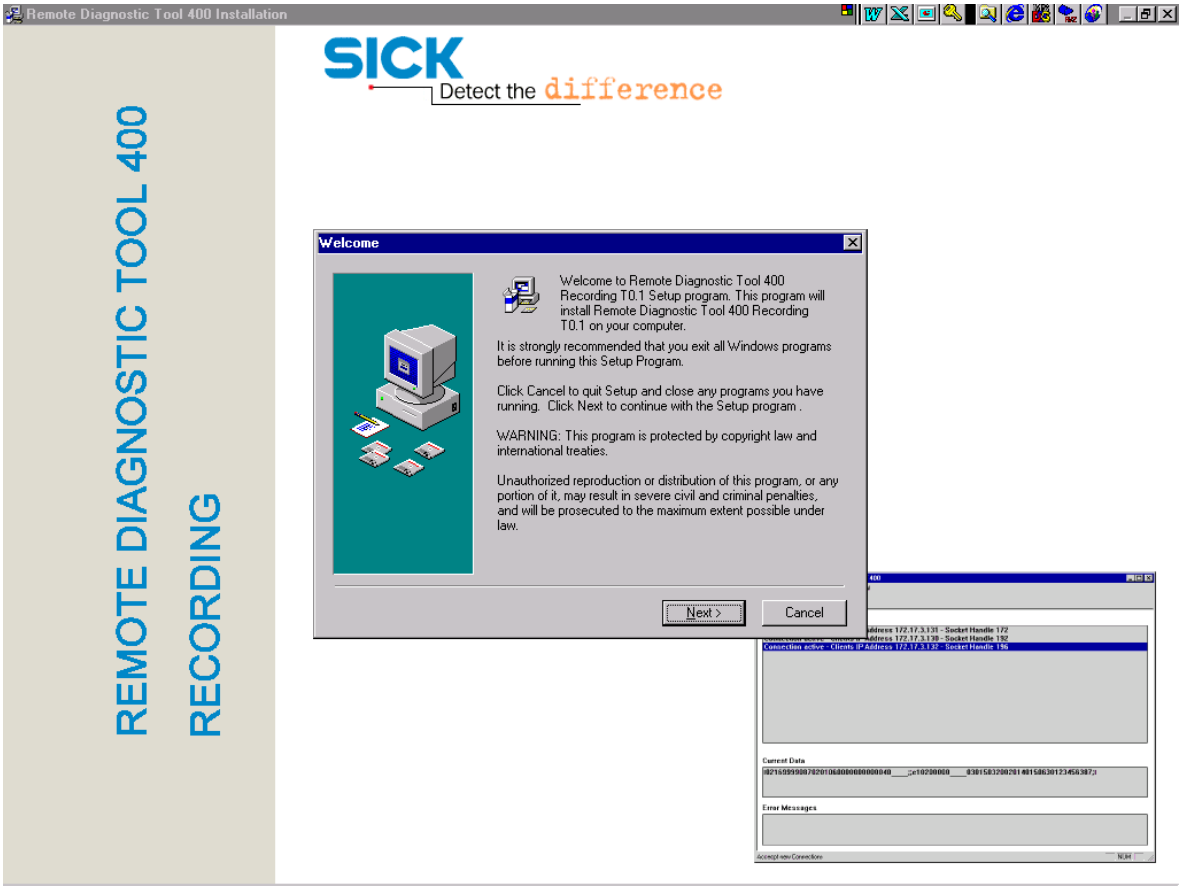


Fig. 25. RDT400: Set-up for the RDT400 Recorder

2.4.2 Installation of the RDT400 Display (Web Interface)

- Click on the "Install RDT400 Web Interface" button to start installation of RDT400 Display. Follow the instructions provided by the Installation Wizards (Assistants).

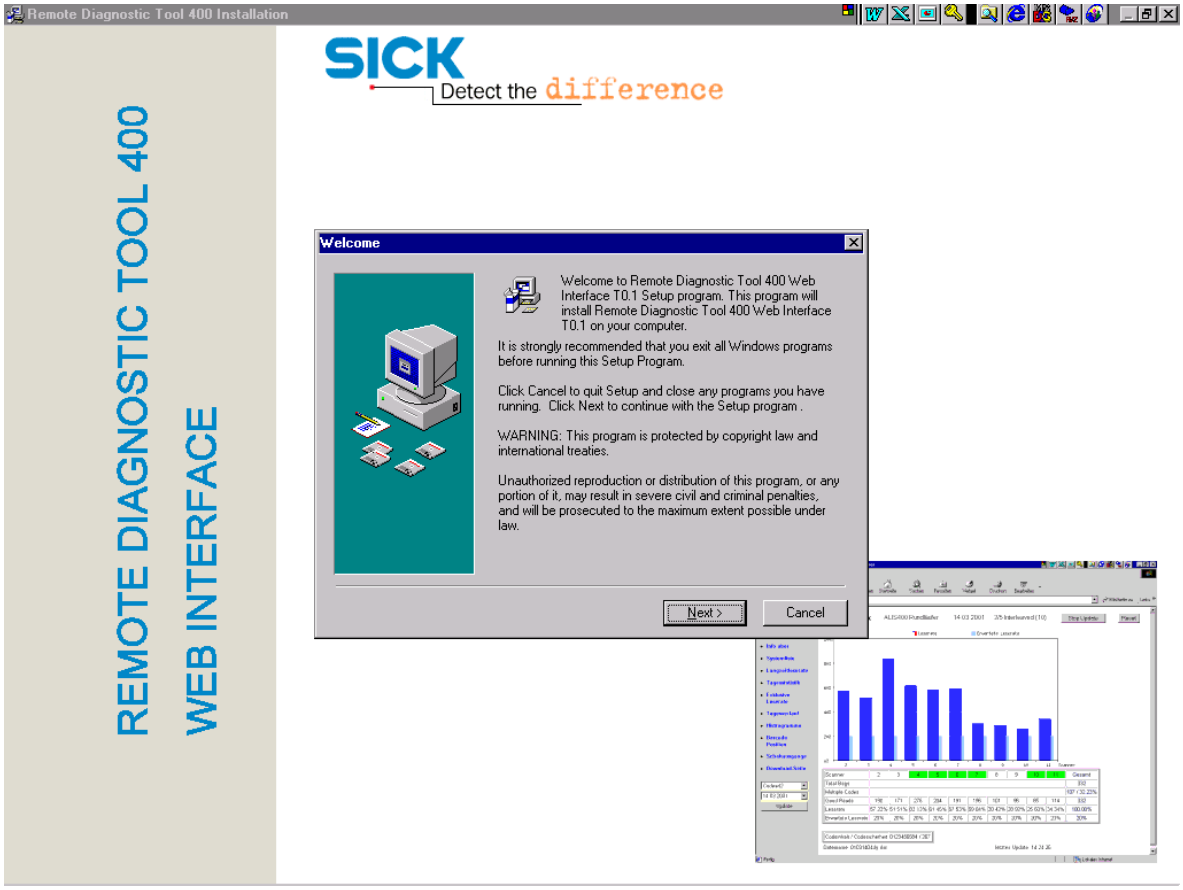


Fig. 26. RDT400: Set-up for RDT400 Display

The program automatically returns to the Setup dialogue box after successful installation of the RDT400 Web Interface.

➢ Click on the "Exit RDT400 Installation" button to close the Setup dialogue box.

2.5 Configuration of the Web Server under Windows NT

➢ Start the "Internet Service Manager" in Windows NT from the Start menu via "Start / Program / Microsoft Peer Web Services (General)". This program can be used for making the settings for the WWW Service.

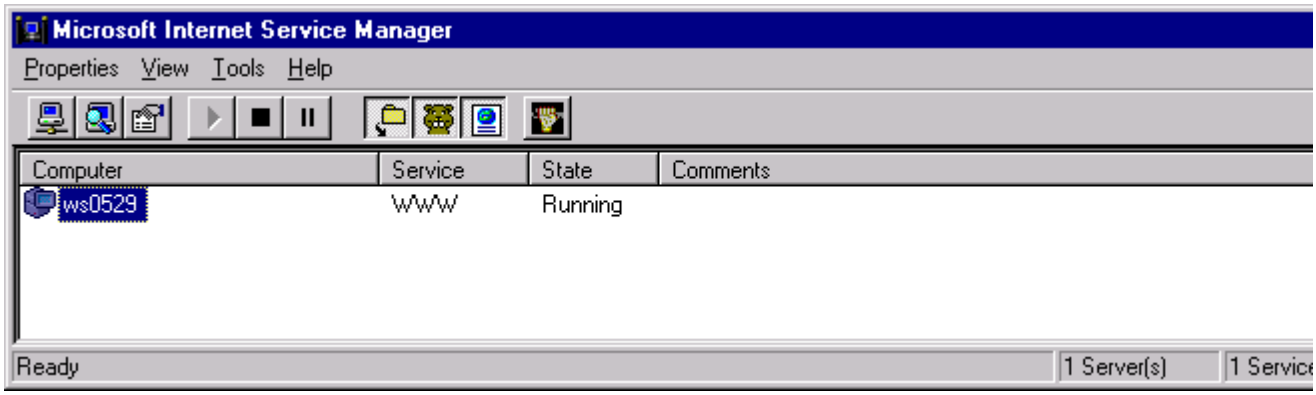


Fig. 27. Windows NT: the Internet Service Manager

Carry out the following steps in order to configure the WWW Service for RDT400 Display:

1. Select the name of the computer and call up the "Service Properties" from the "Properties" menu. The "WWW Service Properties for ..." dialogue box appears.

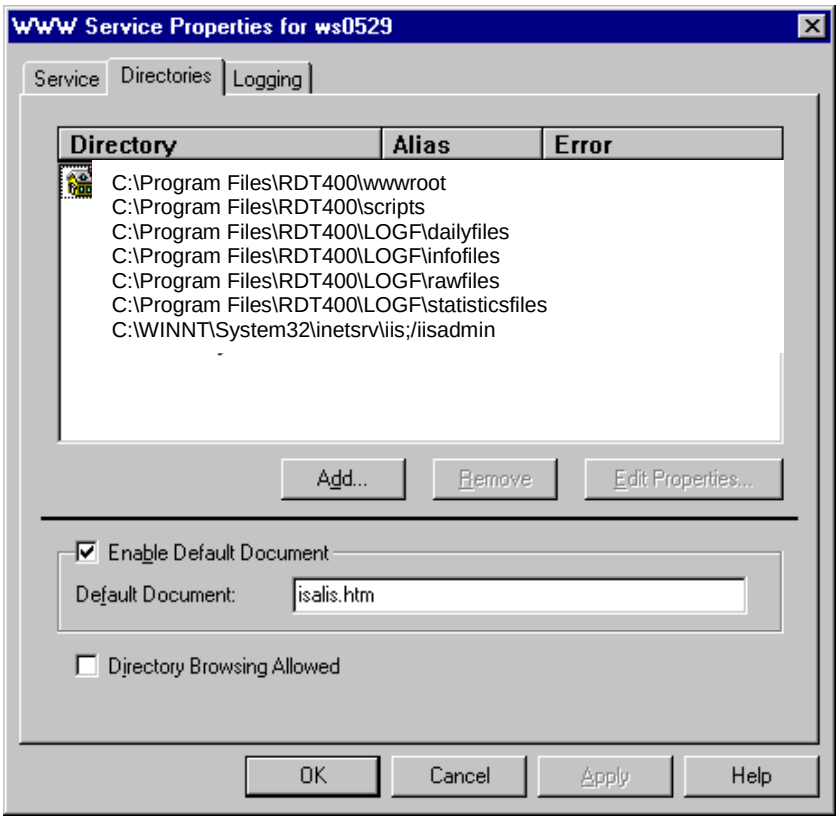


Fig. 28. Windows NT: the "WWW Service Properties" dialogue box

2. Switch to the "Directories" register card.
3. Click on the "Enable Default Document" option and enter "isalis.htm" as the name of the default document.

The log files directories laid down during the installation of the RDT400 Recorder must now be released for the WWW Service and provided with the appropriate reading rights.

4. Click on the "Add" button to release the directory of raw data files for the WWW Service (*Fig.16*).
5. In the "Directory Properties" dialogue box (*Fig. 17*) select the directory path as it was constructed when the RDT400 Recorder was installed (*Chapter 2.2.1*).
6. Enter the name "/rawfiles" as the alias for the virtual directory.
7. In order to provide reading rights for the log files activate the "Read" option in the "Access" field.

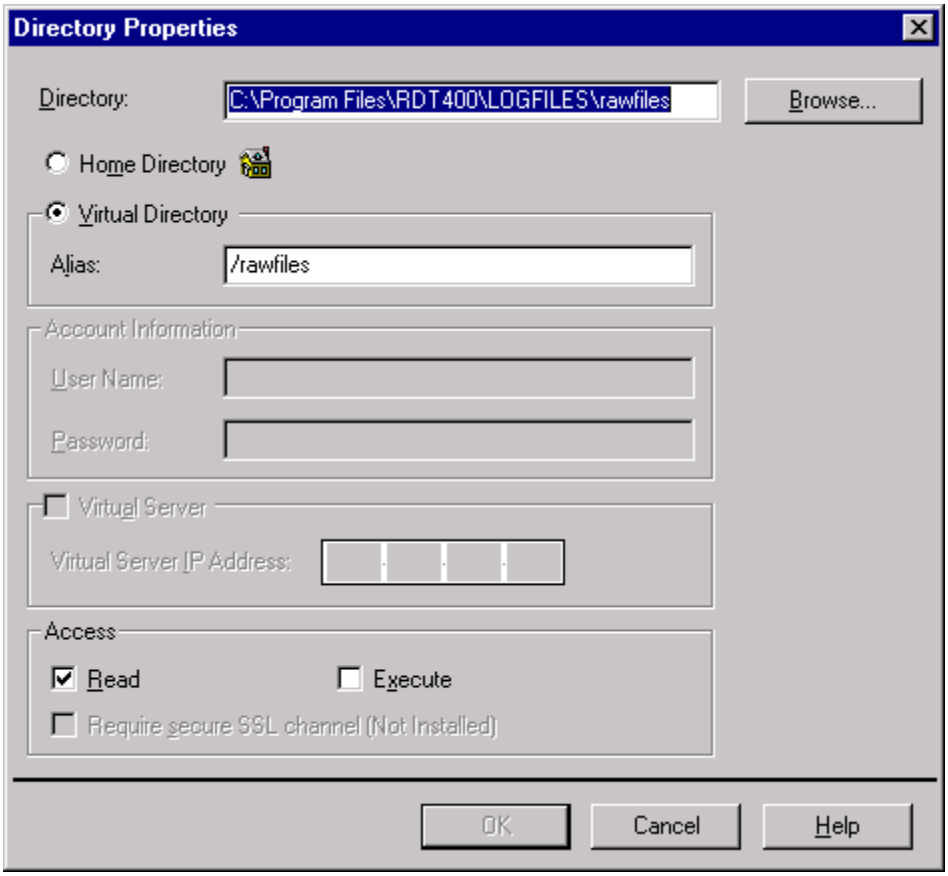


Fig. 29. Windows NT: adding WWW directories

8. Repeat these steps to release the "daily statistics" and "info data" directories. Use the aliases provided in *Table 2*.
9. Activate the "Execute" option in the "Access" field to provide the script directory with running rights in its properties.

Table 2 provides an overview of the WWW directories and their aliases and access rights.

Directory	**Alias**	**Access rights**	
		Read	Execute
WWW root directory	Basis	X	
Script directory	/scripts	X	X
Raw data directory	/rawfiles	X	
Daily statistics directory	/dailyfiles	X	
Statistics files directory	/statisticsfiles	X	
Info data directory	/infofiles	X	

Table 2. Access rights for the directories

Please note:
Alias names for the virtual directories must be assigned according to *Table 2*, otherwise the RDT400 Web Interface cannot be run correctly.

10. Click on the "Apply" button to take up these settings and close the dialogue box with OK.
11. Carry out a restart of the WWW Service by selecting the computer name and using the Stop symbol. Then activate the Start symbol.

This completes the configuration of the WWW service for RDT400 Display.

2.6 Configuration of the IIS under Windows 2000 Professional

Configure ‚IIS' through the 'Personal Web Manager' found in the 'Administration Tools' in the 'Control Panel'. Double- click on the 'Personal Web Manager' icon.

Fig. 30. Windows 2000: Administrative Tools Box

Once the Personal Web Manager is open you will see the Main dialog box were it will show your home page and home directory defaults values. Where the home page is shown below as 'http://My_Computer', will be 'http//' followerd by the name of your computer. Clicking on each of these values will open your home page in your default web browser or open the default home directory in Windows Explorer.

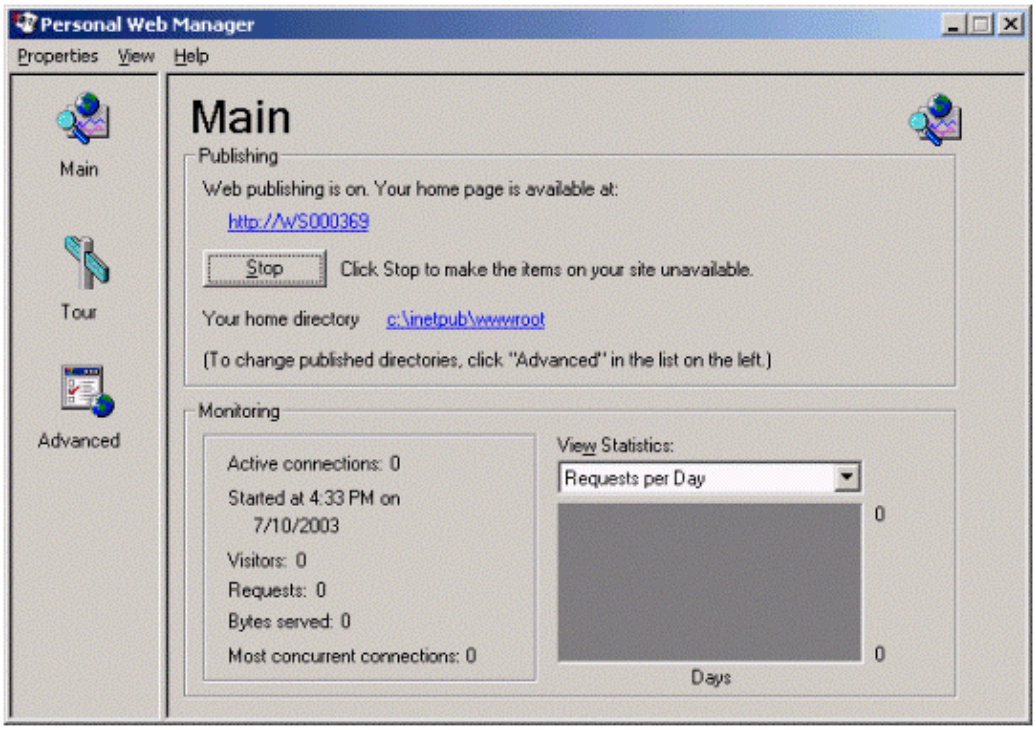


Fig. 31. Windows 2000: Personal Web Manager Box

The IIS server can also be administrated by selecting ‘Internet Services Manager’ from ‘Administrative Tools’ under the Programs entry found in the ‘Start’ menu.

Be certain to reinstall whatever service pack you had on the Workstation or Server.

Your home directory must be changed as described under

2.5 Configuration of the Web Server under Windows NT.

2.7 Configuration of the IIS under Windows XP Professional

Configure ‚IIS‘ found in the ‘Administration Tools’ in the ‘Control Panel’. Double- click on the ‚IIS‘ icon.

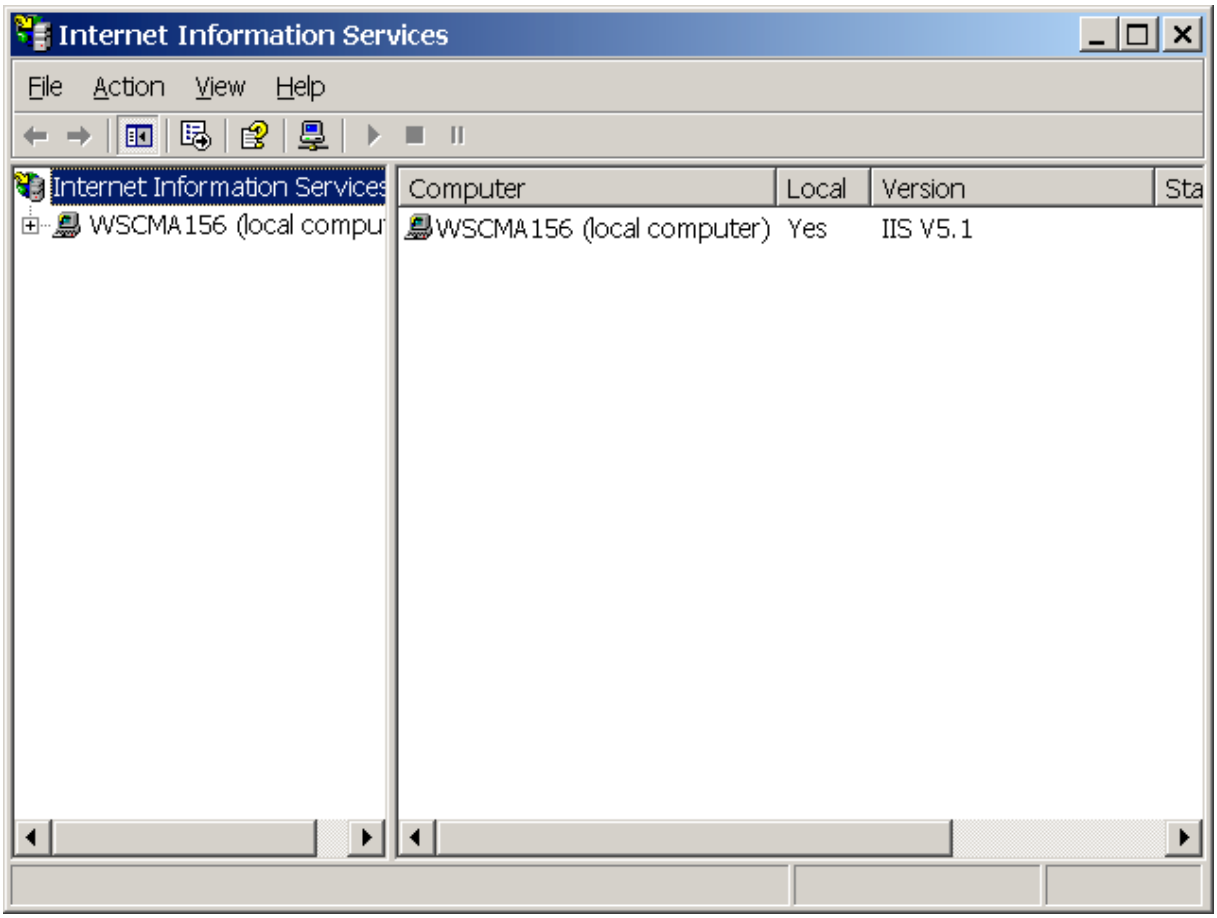


Fig. 32. Windows XP: Internet Information Services

Once the IIS is open you will see the Main dialog box were it will show your home page and home directory defaults values. Where the home page is shown below as ‘http://My_Computer’, will be ‘http//’ followerd by the name of your computer. Clicking on each of these values will open your home page in your default web browser or open the default home directory in Windows Explorer.

The IIS server can also be administrated by selecting ‘Internet Services Manager’ from ‘Administrative Tools’ under the Programs entry found in the ‘Start’ menu.

Be certain to reinstall whatever service pack you had on the Workstation or Server.

Carry out the following steps in order to configure the WWW Service for RDT400 Display:

1. Click on ‘Default Web Site’ in the left window.

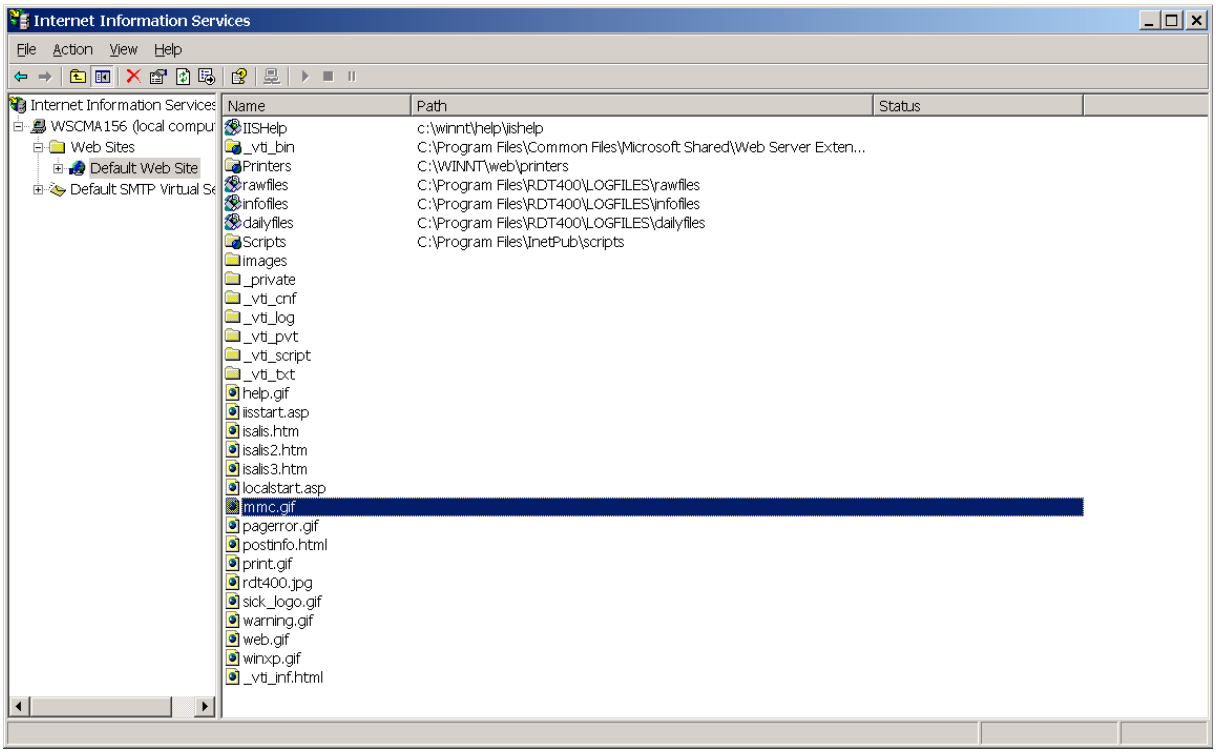


Fig. 33. Windows XP: Internet Information Services/ Default Web Site

2. Select the menu item ‘Action / Properties’ to open the dialog ‘Default Web Site Properties’.
3. Select the tab ‘Home Directory’.
4. Verify / change the local path of the WWW-Root directory to the location where the RDT400 Web Interface is installed.
5. Set the execute permissions to ‘Scripts and Executables’.

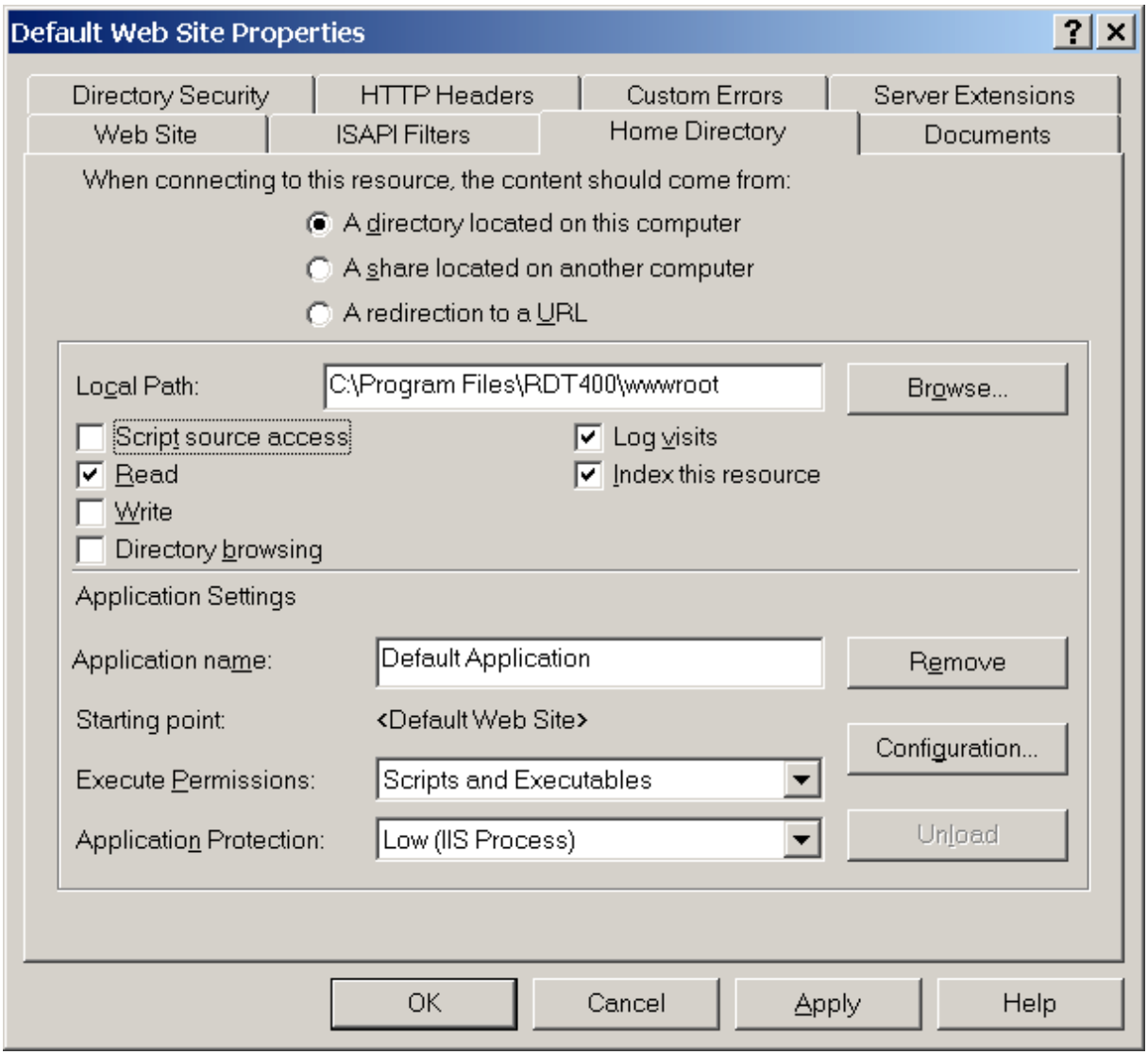


Fig. 34. Windows XP: Default Web Site Properties/ Home Directory

6. Select the tab ‘Documents’.
7. Activate the ‘Enable Default Document’ option and add the name of the RDT400 default document ‘isalis.htm’ as shown in the following dialog.

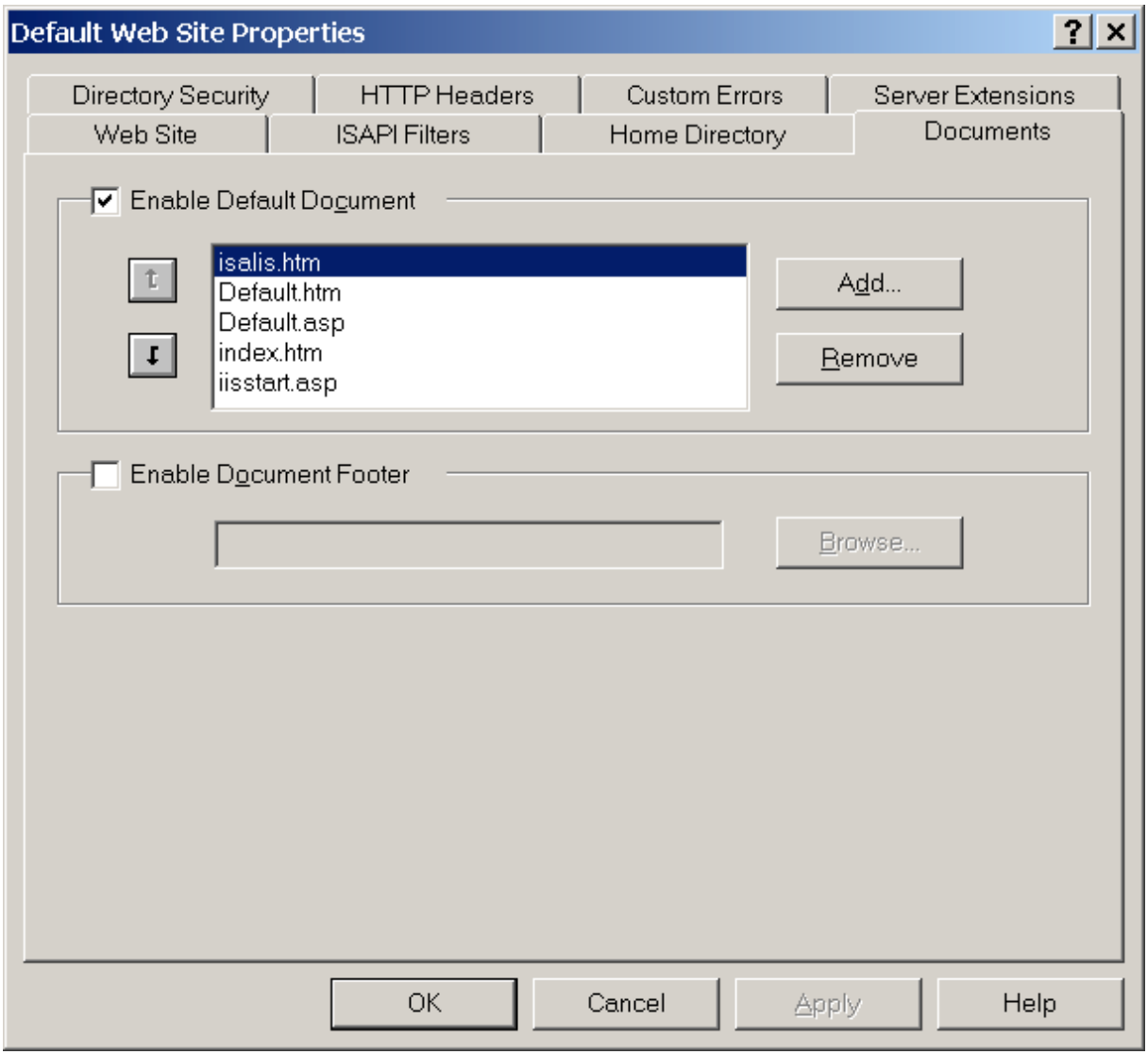


Fig. 35. Windows XP: Default Web Site Properties/ Documents

8. Select the menu item ‘Action / New / Virtual Directory’ to open the ‘Virtual Directory Creation Wizard’.

Fig. 36. Windows XP: Virtual Directory Creation Wizard

9. Click the ’Next‘ button to continue.
10. Now add a virtual scripts directory to publish the IIS the location of the RDT400 Web Interface DLL. As shown in the following dialog enter the name ‘scripts’ in the Alias edit field and press the ‘Next’ button.

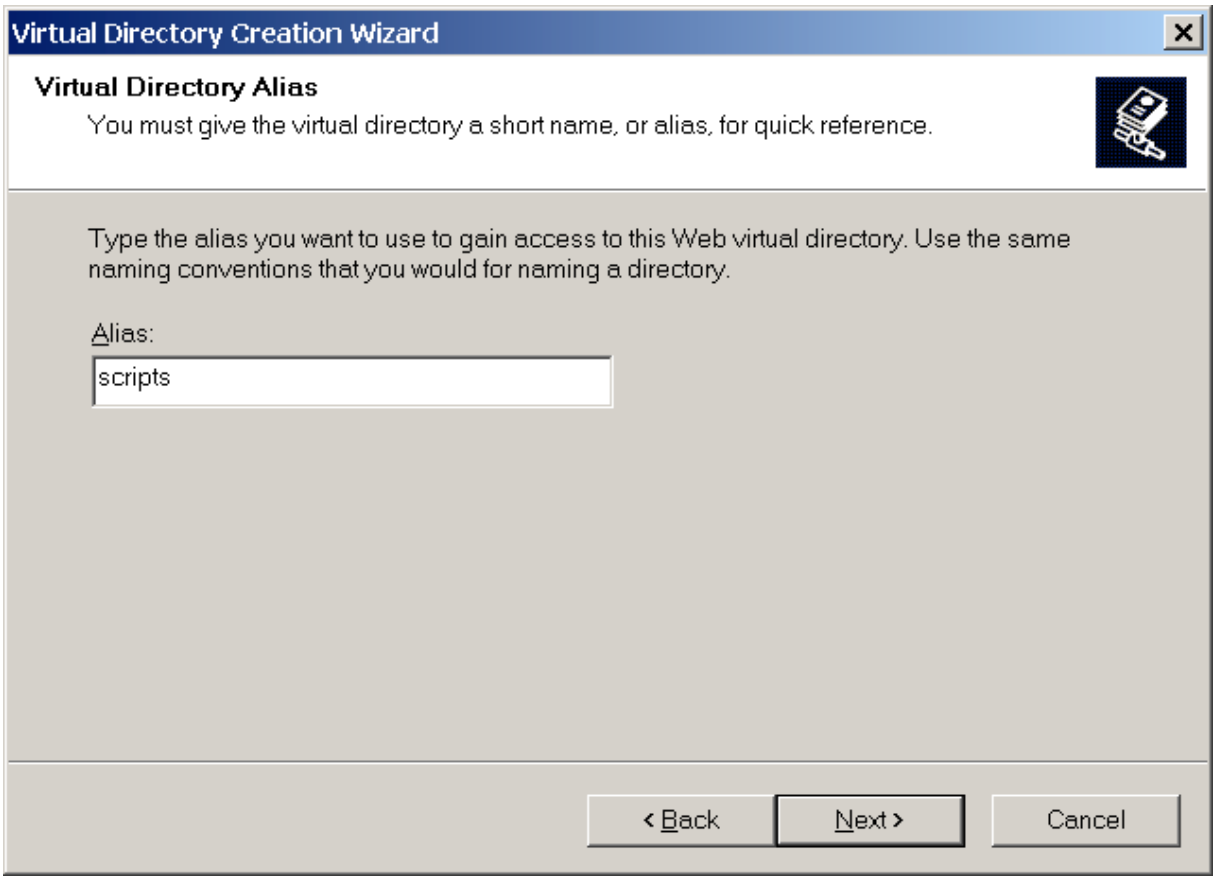


Fig. 37. Windows XP: Virtual Directory Creation Wizard/ Virtual Directory Alias

11. Choose the location on the hard disk where the RDT400 scripts directory is located and press the ‘Next’ button.

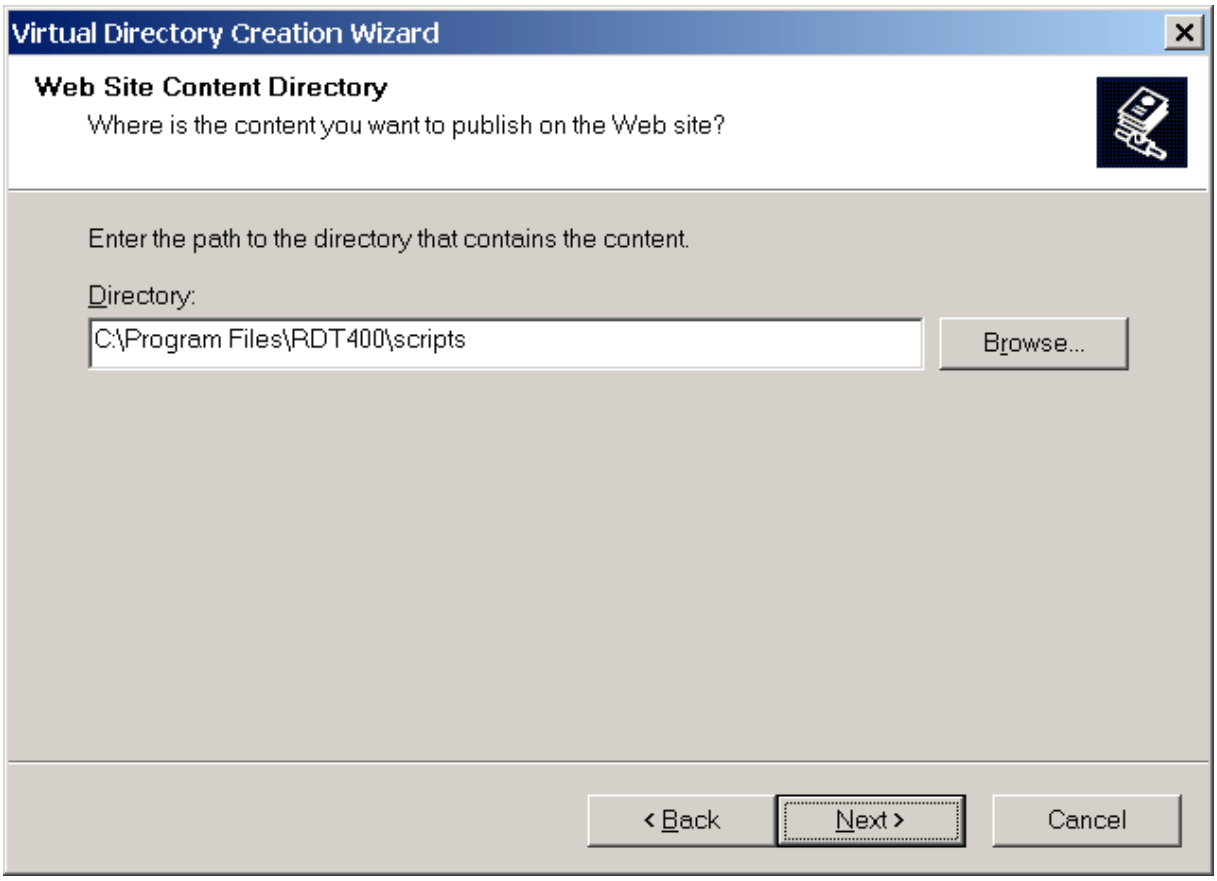


Fig. 38. Windows XP: Virtual Directory Creation Wizard/ Web Site Content Directory

12. Set the access permissions for the scripts directory as shown in the following dialog. Press the ‘Next’ button to finish the ‘Virtual Directory Creation Wizard’.

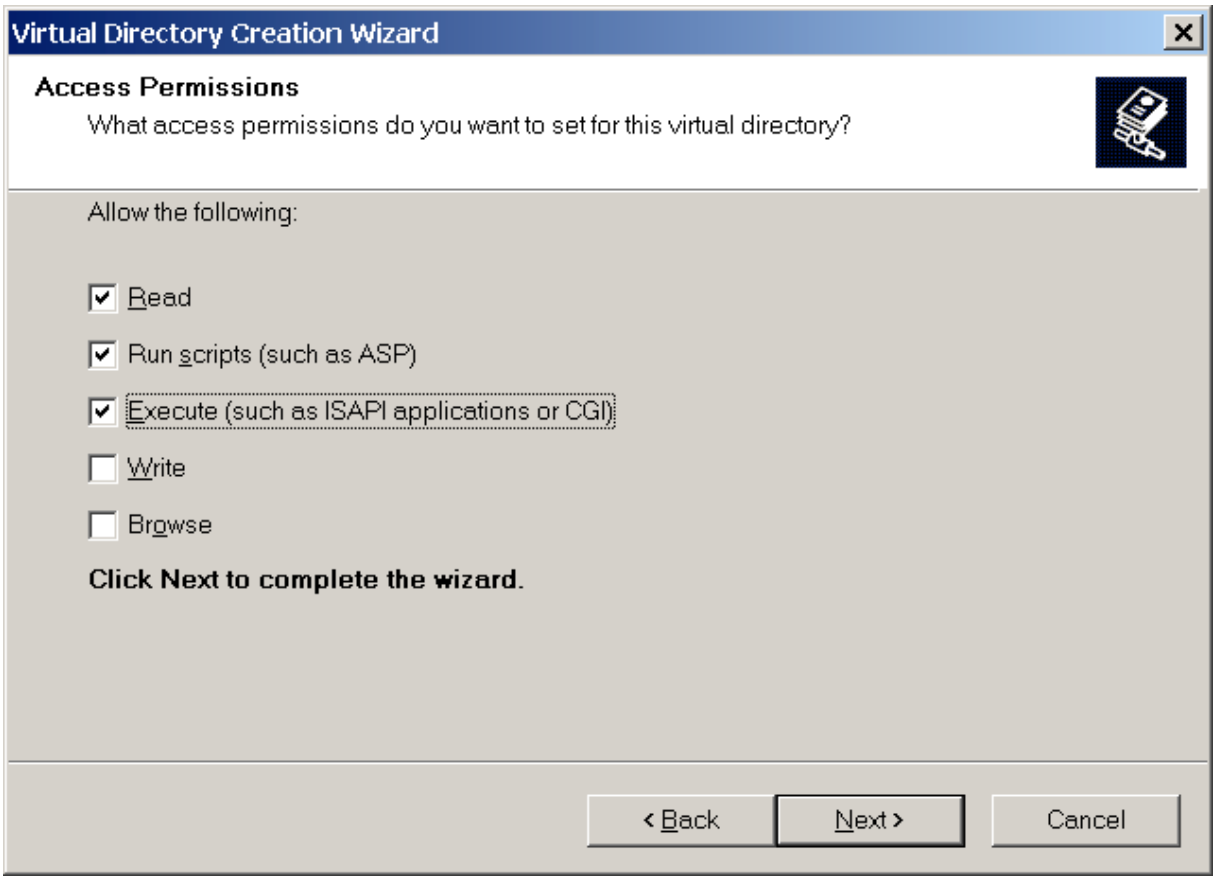


Fig. 39. Windows XP: Virtual Directory Creation Wizard/ Access Permissions

The log files directories laid down during the installation of the RDT400 Recorder must now be released for the WWW Service and provided with the appropriate reading rights.

13. Repeat the process for creating a virtual directory for the following directories:

Directory	*Alias*	*Access rights*
Raw data directory	/rawfiles	Read
Daily statistics directory	/dailyfiles	Read
Statistics files directory	/statisticsfiles	Read
Info data directory	/infofiles	Read

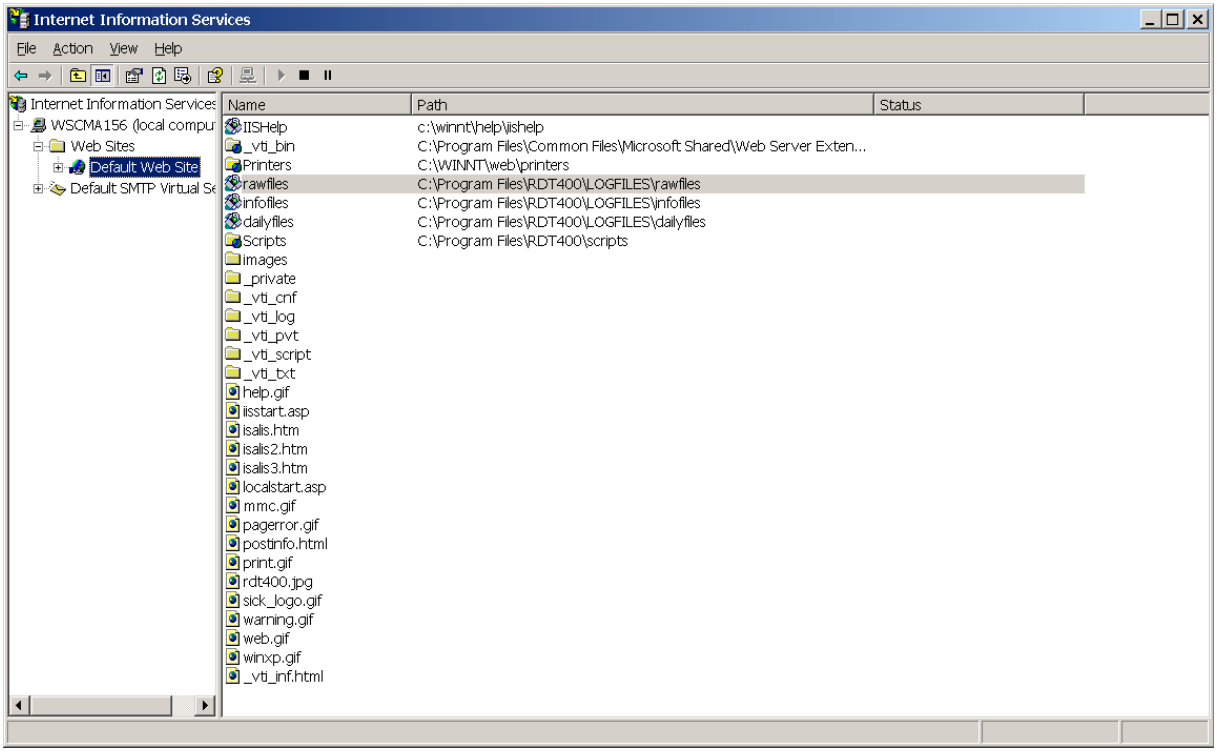


Fig. 40. Windows XP: Internet Information Services/ Default Web Site

14. Carry out a restart of the WWW Service by selecting the ‘Standard Web Site’ and using the Stop symbol in the Toolbar. Then activate the Start symbol.

This completes the configuration of the WWW service for the RDT400 Display.

2.8 Potential problems installing the Web Server or IIS

If you cannot install the WWW Service of the Microsoft Peer Web Server or IIS, first check whether this service has already been installed on the computer. Carry out the following steps if this is not the case.

Please note:
This chapter contains information on editing the registration file. Read "regedit.exe" under "Help topics" before editing the registration file to find out how the file can be restored if there is a problem.

1. Select the "regedit" program in the Start menu under "Start / Run" and confirm with OK.

Fig. 41. Windows NT: call up the Registry Editor

2. Switch to the following directory in the Registry Editor:

   „HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC"

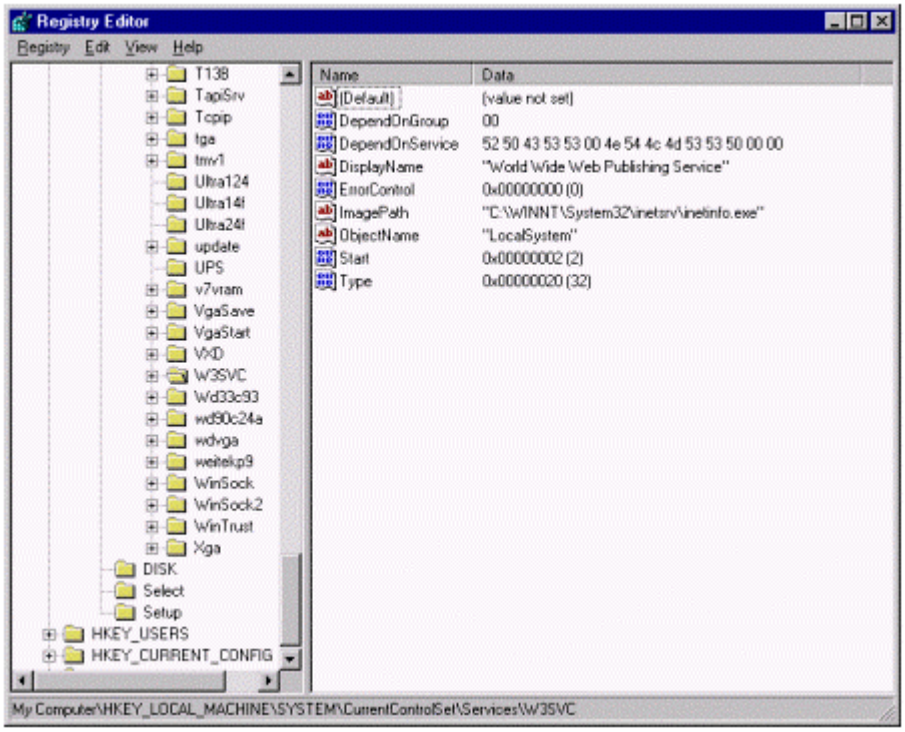


Fig. 42. Windows NT: the Registry Editor

3. Select the "W3SVC" entry and call up the "Export Registry File" function from the "Registry" menu.
4. Enter "w3svc" as the file name and note the path under which the file is saved.
5. Select the other settings as shown in *Fig. 9*.
6. Click on the "Save" button to save the file.
7. Remove the "W3SVC" key using the "Delete" function in the "Edit" menu.
8. Close the Registry Editor using "Registry / Exit" from the menu.

9. Repeat the installation of Microsoft Peer Web Services as described in Chapter 2.1.1.
10. After successful installation of Peer Web Services, use Windows NT Explorer to switch to the directory in which the "w3svc.reg" registration file was saved earlier. Double-clicking on this file re-adds the settings deleted before. This finishes the installation.

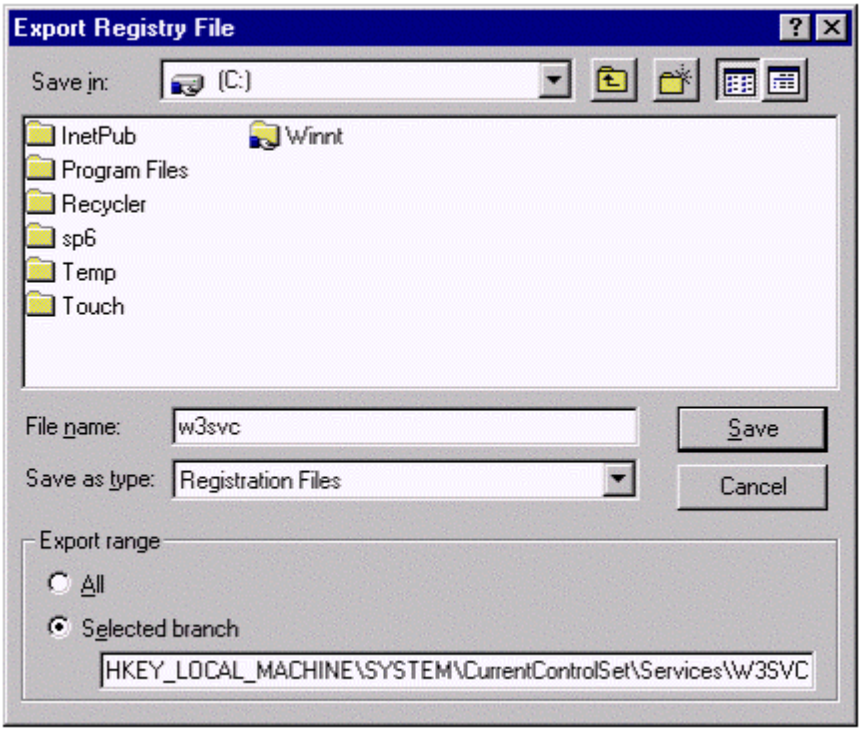


Fig. 43. Windows NT: exporting the registration file

2.9 Autostart of the RDT400 Recorder

Under certain circumstances it may be necessary to start the RDT400 Recorder program automatically after a computer restart in order to be able to listen for new connections. This means that no interaction with the user should be required in order to get the program into this mode. RDT400 Recorder supports this Autostart Mode.

The Autostart function can be activated in the RDT400 Recorder Setup.

The Set-up program carries out the following settings to set up the Autostart function:

a. Automatic Windows NT log-in: four entries in the registry file in the path

   HKEY_LOCAL_MACHINE/SOFTWARE/Microsoft/Windows NT/CurrentVersion/Winlogon

   All values are **of string type**:

DefaultDomainName	d*omainname*
DefaultUserName	u*sername*
DefaultPassword	p*assword*
AutoAdminLogon	1

b. Insert a linkage for the RDT400 Recorder in the "Autostart" program group.

c. Activate the "Automatically activate acceptance of new connections at program start" field in the RDT400 Recorder configuration on the "Recorder" dialogue page.

The RDT400 Recorder Autostart function will be activated when the computer is next restarted.

Logging in under a different user name

1. To log in under a user name different from the *DefaultUserName* keep the <Shift> key pressed while Windows NT is starting.
   The Windows NT Login dialogue box appears.
   - or -

2. When log-in has already taken place press the <CTRL>+<ALT>+<DEL> keys.

3. Select "Logout" and immediately afterwards keep the <Shift> key pressed.
   The Windows NT Login dialogue box reappear

3 The RDT400 Recorder

The RDT400 Recorder program receives data strings from the OTC (Omni Tracking Controller) via the RS-232 serial interface or via TCP/IP. The data are evaluated and saved in various log files. The log files are organised on a daily basis per system, i.e. there is one log file of each file type for each day and each system. The various file types are raw data files, info files and daily statistics files. The raw data file is a text file containing data strings in lines. The info file is also a text file and contains all the data that cannot be assigned to a data string. The daily statistics file is a binary file containing statistics that are constantly updated.

3.1 Listing error numbers

Number	Description
100	Scanner hardware problem (summary for sup. System)
313	No primary OTC detected
314	No secondary OTC detected
322	Two secondary OTCs found
323	Two primary OTCs found
324	Encoder failure at primary OTC
325	Encoder A failure at primary OTC
326	Encoder B failure at primary OTC
327	Encoder failure at secondary OTC
328	Encoder A failure at secondary OTC
329	Encoder B failure at secondary OTC
330	Trigger failure at primary OTC
331	Trigger A failure at primary OTC
332	Trigger B failure at primary OTC
333	Trigger failure at secondary OTC
334	Trigger A failure at secondary OTC
335	Trigger B failure at secondary OTC
336	CAN bus A failure at scanner
337	CAN bus B failure at scanner
338	Primary OTC failure
339	Secondary OTC failure
340	Primary power supply failure
341	Secondary power supply failure

Number	Description
502	CLV01 does not respond in the CAN network
503	CLV02 does not respond in the CAN network
504	CLV03 does not respond in the CAN network
505	CLV04 does not respond in the CAN network
506	CLV05 does not respond in the CAN network
507	CLV06 does not respond in the CAN network
508	CLV07 does not respond in the CAN network
509	CLV08 does not respond in the CAN network
510	CLV09 does not respond in the CAN network
511	CLV10 does not respond in the CAN network
512	CLV11 does not respond in the CAN network
513	CLV12 does not respond in the CAN network
514	CLV13 does not respond in the CAN network
515	CLV14 does not respond in the CAN network
516	CLV15 does not respond in the CAN network
517	CLV16 does not respond in the CAN network
518	CLV17 does not respond in the CAN network
519	CLV18 does not respond in the CAN network
520	CLV19 does not respond in the CAN network
521	CLV20 does not respond in the CAN network
522	CLV21 does not respond in the CAN network
523	CLV22 does not respond in the CAN network
524	CLV23 does not respond in the CAN network
525	CLV24 does not respond in the CAN network
527	CLV01 hardware failure
528	CLV02 hardware failure
529	CLV03 hardware failure
530	CLV04 hardware failure
531	CLV05 hardware failure
532	CLV06 hardware failure
533	CLV07 hardware failure
534	CLV08 hardware failure
535	CLV09 hardware failure

Number	Description
536	CLV10 hardware failure
537	CLV11 hardware failure
538	CLV12 hardware failure
539	CLV13 hardware failure
540	CLV14 hardware failure
541	CLV15 hardware failure
542	CLV16 hardware failure
543	CLV17 hardware failure
544	CLV18 hardware failure
545	CLV19 hardware failure
546	CLV20 hardware failure
547	CLV21 hardware failure
548	CLV22 hardware failure
549	CLV23 hardware failure
550	CLV24 hardware failure
572	CLV01 does not respond in the CAN network B
573	CLV02 does not respond in the CAN network B
574	CLV03 does not respond in the CAN network B
575	CLV04 does not respond in the CAN network B
576	CLV05 does not respond in the CAN network B
577	CLV06 does not respond in the CAN network B
578	CLV07 does not respond in the CAN network B
579	CLV08 does not respond in the CAN network B
580	CLV09 does not respond in the CAN network B
581	CLV10 does not respond in the CAN network B
582	CLV11 does not respond in the CAN network B
583	CLV12 does not respond in the CAN network B
584	CLV13 does not respond in the CAN network B
585	CLV14 does not respond in the CAN network B
586	CLV15 does not respond in the CAN network B
587	CLV16 does not respond in the CAN network B
588	CLV17 does not respond in the CAN network B
589	CLV18 does not respond in the CAN network B

Number	Description
590	CLV19 does not respond in the CAN network B
591	CLV20 does not respond in the CAN network B
592	CLV21 does not respond in the CAN network B
593	CLV22 does not respond in the CAN network B
594	CLV23 does not respond in the CAN network B
595	CLV24 does not respond in the CAN network B

Table 7. Listing Error numbers

3.2 Assignment of the error numbers in the additional telegrams

The error numbers are transmitted within a telegram with three bytes. The error numbers are included in the data strings and in the heartbeat strings. If more than one error appear at the same time, the different errors are repeated cyclically after each other.

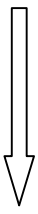
A error is set as soon as the fault number will transfer. All faults are cleared if no more fault is existing in the system (fault number 000). A reset of the fault is done, too, when another fault number with a smaller fault number for the second time is transferred and a set fault was not transferred in the telegram/s between this any more.

Faults will only transfer with the help of the fault number, an entry into the six bytes of the device error is not done any more.

Remark:

Only the device error bytes transferred in the six bytes as faults in the RDT are represented at the assignment of the "old" data string (see 3.2.1) (fault numbers 502-525).

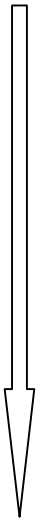
Example 1:



Telegram no.	Fault number	Remark
45	000	
46	000	
47	502	Fault 502 is set
48	502	
49	502	
50	000	Reset fault 502
51	000	

Table 8. Example 1 Telegram handling

Example 2:



Telegram no.	Fault number	Remark
136	000	
137	503	Fault 503 is set
138	503	
139	503	
140	505	Fault 505 is set
141	541	Fault 541 is set
142	503	
143	505	
144	541	
145	503	
146	541	
147	503	Reset fault 505
148	541	
149	503	
150	503	Reset fault 541
151	503	
152	000	Reset fault 503

Table 9. Example 2 Telegram handling

3.2.1 Availability in devices

These strings are available in following devices (SW-version):

OTC400 V3.00 or later version

CLV490 V3.00 or later version

CLV480 V3.00 or later version

3.3 Communication

Communication between the OTC and the RDT400 Recorder can take place either via the RS 232 serial interface or via TCP/IP.

3.3.1 RS 232

The RDT400 Recorder can receive data from up to two OTCs that are connected to the computer via the serial interface (RS 232). For each interface, the COM port number and baud rate can be set in the configuration. The baud rate for the OTC must be set to 9600 baud. The configured interfaces are opened on acceptance of the new connections. The RDT400 Recorder is then ready for the receipt of OTC data. As soon as the first valid data string has been received the transmitter's device ID is determined from it and log files laid down on the basis of this ID. If log files are already present because of an earlier connection on the same day, the existing log files are updated.

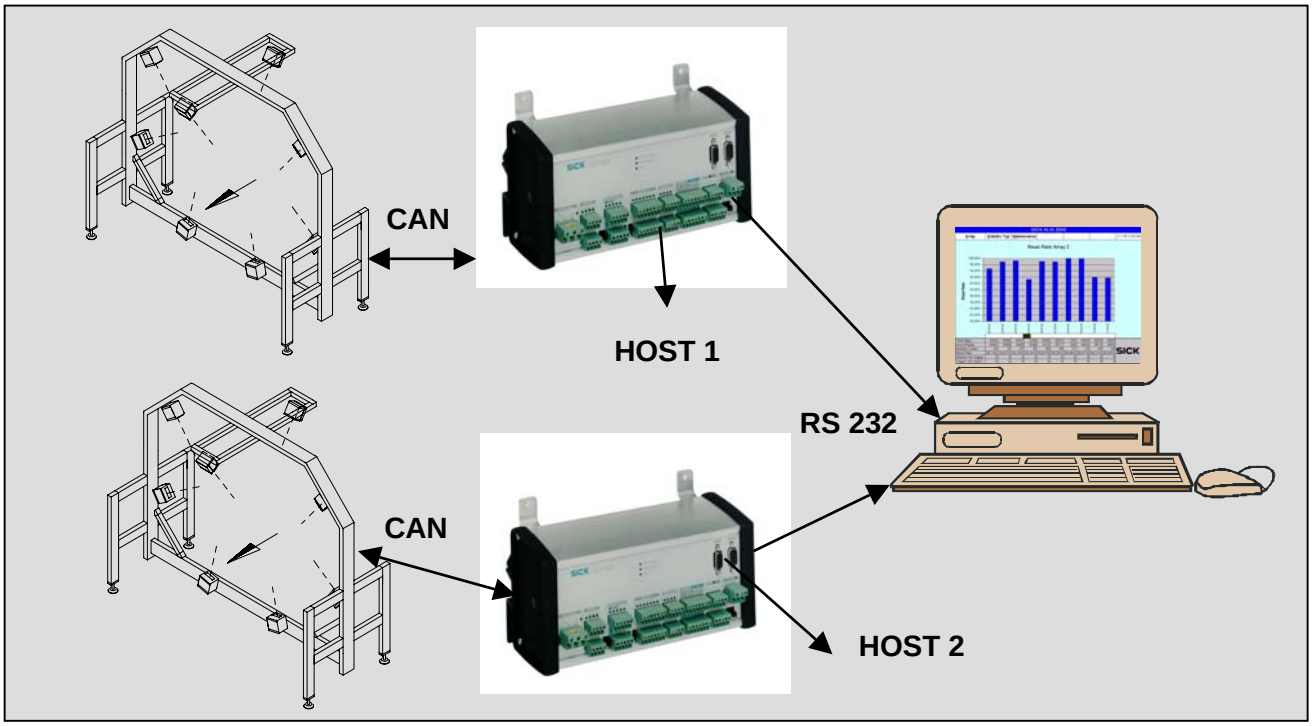


Fig. 44. Serial configuration of an RDT400 system

3.3.2 TCP/IP

The RDT400 Recorder can receive data from a maximum of 64 OTCs via the Ethernet network (TCP/IP). The computer must be equipped with a network card. The individual OTCs must be linked to one another via an Ethernet converter. The Ethernet converters are operated in TCP/IP Client Mode, i.e. as soon as data from an OTC is present at the serial interface, the Ethernet converter constructs a TCP/IP connection to the RDT400 Server and sends the data strings (see *Chapter 5:* Configuration of the Ethernet converter). The RDT400 Recorder constructs a new connection with the incoming data. As soon as the first valid data string has been received, the transmitter's device ID is determined from it and log files laid down on the basis of this ID. If log files are already present because of an earlier connection on the same day, the existing log files are updated.

The connection is ended if the RDT400 Recorder receives no data from an OTC for a period of time that can be configured. For this reason the "Timeout for connections" in the RDT400 Recorder configuration should be selected to be slightly longer than the "Heartbeat telegram" interval for the OTC.

The Server Service that the RDT400 Recorder contains for the receipt of data via TCP/IP is contacted by the clients via the TCP/IP address and the TCP/IP port number. The TCP/IP address is configured in the network settings of Windows NT. The TCP/IP port number is set in the RDT400 Recorder configuration. These two settings are necessary for configuration of the Ethernet converter.

A TCP/IP filter can be activated in the RDT400 Recorder configuration for test purposes. This filter can be used to define that only the data from **one** OTC (specified by its TCP/IP address) can be received. Data from OTCs with a different TCP/IP address are not accepted. The filter should **not** be activated during normal operation.

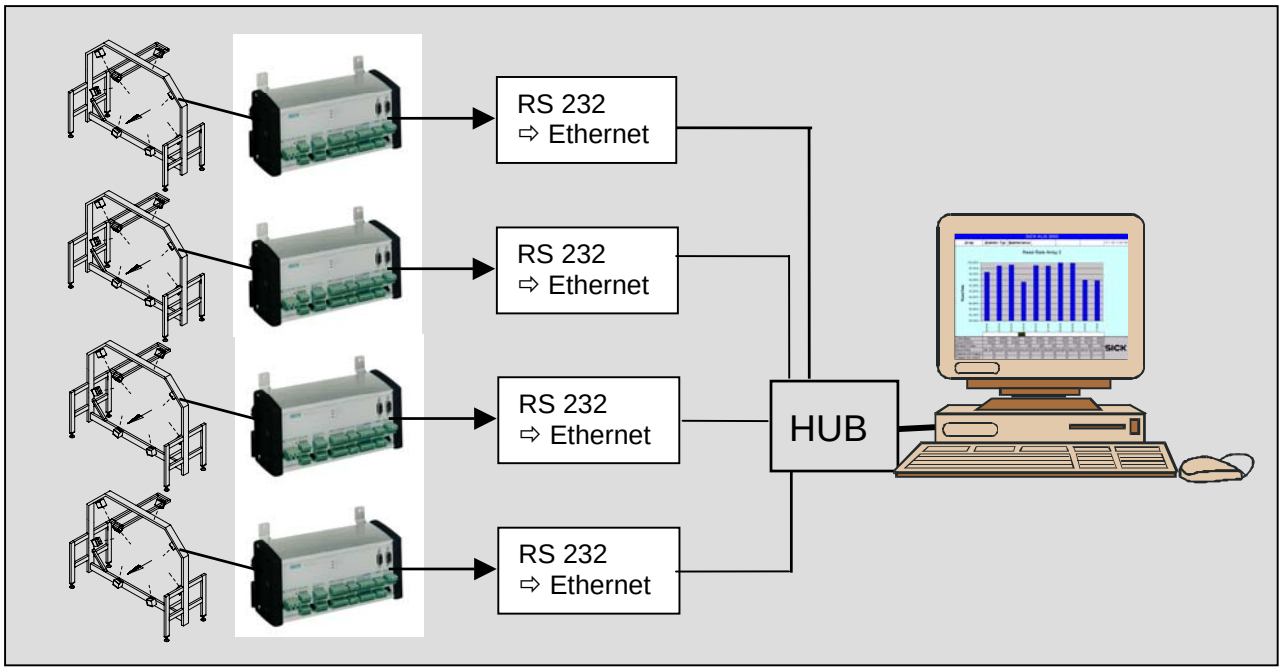


Fig. 45. Network configuration of an RDT400 system

3.4 Log files

The RDT400 Recorder generates four different log files for each connected OTC per day. The raw data file is a text file and contains data strings in lines. The info file is also a text file and contains all the data that could not be assigned a data string. The daily statistics file is a binary file containing the continuously updated statistics. In order to prevent the hard disk from becoming full over time, the RDT400 Recorder provides a log file administration system. This means that a time interval can be set for each file type, after which log files are automatically deleted. The permissible range of values for the raw file interval is from 1 to 90 days, while for the other log file types it is from 1 to 360 days.

Please note:
On setting up a system it is essential to determine the maximum amounts of data that could be received depending on the number of connected OTCs and the data generated. The maximum possible log file interval based on this result and the size of the hard disk may not be exceeded.

3.4.1 Raw data files

The raw data file is a text file and can be opened with any text editor. A header containing the product name and the version with which the raw data file was created is always inserted at the beginning. The company name, definable in the RDT400 Recorder configuration, is contained in the second line. The third line contains the name of the system from which the data was transmitted. The fourth line contains the date and time of the creation of the raw data file.

The raw data strings follow after one empty line. Each line then consists of the data of a telegram together with the time at the moment of receipt. The data fields are given out in the same order as the fields of the OTC data strings (see *Chapter 3.1*), though a semi-colon is inserted between each of the fields. The Hex-coded lists (device list, error list, read list) are given out decoded, i.e. one character is given out for each scanner. The field starts on the left with scanner 1.

This format requires somewhat more disk space than the original data strings but the data can easily be imported and evaluated in table calculation programs such as MS Excel.

3.4.2 Info files

The info file is a text file. It contains all the data that does not correspond to the format of an OTC data string (see *Chapter 3.1*). However, these data are only saved in an info file when at least one valid OTC data string has been received first. This is necessary, as otherwise the transmitter's device ID would not be known and the data could thus not be assigned to any system.

The info file contains a header at the start with the same format as the header for the raw data file (see *Chapter 3.3.1*). The data follow after an empty line. The time at the moment of receipt is inserted before each entry.

3.4.3 Daily statistics files

The daily statistical file is a binary file. This file cannot be evaluated using a text editor. It contains the current read data from the OTC as well as statistical values that are updated with every data string received. This file serves the RDT400 Display (Web Interface) for displaying the statistical data. The advantage is that the large amount of data from the raw data files are not required for display so that display takes place much more quickly.

3.4.4 Readable statistic files

The readable statistics file contents in text form the statistics data of the last n days. (File size 2kB/day resp. 700kB/365days). The file could imported directly in MS Excel. For each day one line is added to this file. This file is in English language and is not adapted according to the language chosen.

The readable daily statistics file is created with the first telegram of a system. This file is not created every day newly as opposed to the other logging files. At the beginning the file is created with the name "sysIDstatistics.dat" (***ID***, corresponds, of the two-digit number of the OTC ID) and is updated every day.

3.4.4.1 Updating the file

The file is updated respectively shortly after midnight, i.e. the statistics data of the previous day are stored. The entry is saved as a line and is appended to the end of the file.

If the recording program is exited, the data of the current day are saved up to closing the connection.

If the record program is started again on the same day, these data are updated with the statistics data of the complete day shortly after midnight again.

When updating the data the time period of the recorded days is checked. If statistics data are outside this time period, these lines are deleted. How long the time period of the days the data are stored, is parameterized in the record program. The parameter is identical to the already existing for the daily statistics data files.

3.4.4.2 Deleting / creating the file

The file is usually created at the first telegram of a system and only updated after this. The file will write-protected to prevent a changing the file inadvertently.

If it is noticed when updating the file that the file was changed externally, it is created newly. This means that registered day statistics are already lost and only the headings and the statistics data of the previous or current day are saved.

Are reasons for deleting the file:
- wrong number of lines at the beginning
- wrong date format

If in the record program a change code combination choice is changed, the readable statistics file also is created newly.

3.4.4.3 Contents of the file

The file contains system and configuration information at the beginning. The column headings then follow for the day statistics data saved.

Line contents:

1st line:	Version information
2nd line:	Server information
3rd line:	System information
4th line:	Blank line
5th line:	Description of the combination "ALL"
6th line:	Description of the configurable code combination "COMB"
7th line:	Blank line
8th line:	Column headings, separated by semicolon
as of 9th line:	Statistics data, separated by semicolon

Column no.	Name	# of character	Description
1	Date	10	Date of YYYY-MM-DD
2	Total	8	Number of objects
3	ALL	4	Separator
4	GoodRead	8	Number of good readings
5	ReadRate	8	Per cent value with 2 fractional digits
6	COMB	5	Separator
7	GoodRead	8	Number of good readings
8	ReadRate	8	Per cent value with 2 fractional digits
9	CODE1	6	Separator
10	Type	4	Code type
11	GoodRead	8	Number of good readings
12	ReadRate	8	Per cent value with 2 fractional digits
13	MultCode	8	Number of multiple code readings
14	Sc1	5	Number of readings scanner 1
...	Sc2 ... Sc23		
37	Sc24	5	Number of readings scanner 24
38	CODE1	6	Separator
39	Type	4	Code type
40	GoodRead	8	Number of good readings
41	ReadRate	8	Per cent value with 2 fractional digits
42	MultCode	8	Number of multiple code readings
43	Sc1	5	Number of readings scanner 1
...	Sc2 ... Sc23		
66	Sc24	5	Number of readings scanner 24
67	CODE1	6	Separator
68	Type	4	Codetype
69	GoodRead	8	Number of good readings
70	ReadRate	8	Per cent value with 2 fractional digits
71	MultCode	8	Number of multiple code readings
72	Sc1	5	Number of readings scanner 1
...	Sc2 ... Sc23		
95	Sc24	5	Number of readings scanner 24

Table 9. Column contents

Example:

File name:

OTC-ID = 5 → File name: sys05statistics.dat

File contents:

```
RDT400 Server V2.00
Site: Testcenter PC0001
System: ALIS LCB750/12 Primary

Any Combination 'ALL': Code 1 OR 2 OR 3
Codetype Combination 'COMB': Code 1 OR 2

Date      ;   Total; ALL;GoodRead;ReadRate; COMB;GoodRead;ReadRate; CODE1;Type;GoodRead;ReadRate;...
2003-02-07;   28801; ALL;   24675;  85.67%; COMB;   24675;  85.67%; CODE1;  e ;   19311;  67.05%;...
2003-02-08;  115570; ALL;  115570; 100.00%; COMB;  115570; 100.00%; CODE1;  e ;   86678;  75.00%;...
```

3.5 Algorithms for the statistical calculation

The following statistical values are determined by the RDT400 Recorder and saved in the daily statistical file.

a. General statistical values:

Total number of packages:	Increases incrementally with each OTC data string.
Total number of packages per hour:	The corresponding hour counter increases incrementally with each OTC data string (24 hour-counters).
Total number of good reads (Code1 | Code 2 | Code 3):	Increases incrementally if at least one code is read (independent of type of code).
Frequency of object lengths per length range:	For lengths of 0 ...1200 mm there are counters for each 50 mm range (e.g. 100 ...149 mm). The corresponding counter is increased incrementally with each read cycle.
Frequency of object gaps per distance range:	For distances of 0 ...1200 mm there are counters for each 50 mm range (e.g. 100 ... 149 mm). The corresponding counter is increased incrementally with each read cycle.
Sum of all exact object lengths:	All object length values are added up (for arithmetical mean).
Sum of all exact object gaps:	All object gap values are added up (for arithmetical mean).
Total of good reads per switching output:	There is a counter for each switching output. The corresponding counter is increased incrementally, if the condition for the switching output defined in the OTC is fulfilled.

b. Statistical values per type of code:

Number of good reads:	Increases incrementally if one or two codes are read.
Number of good reads per hour:	The corresponding hour counter increases incrementally if one or two codes are read (24 hour-counters).
Number of multiple codes:	Increases incrementally if 2 codes are read.
Frequency of code safety values:	From 1 ... 49 there are counters for each CS value. From 50 ... 499 there are counters for every range of ten CS values (e.g. 50 ... 59) The corresponding counter increases incrementally with each code read.
Frequency of X-values:	For X-values from 0 ...1200 mm there are counters for each 50 mm range (e.g. 100 …149 mm). The corresponding counter increases incrementally with each code read.
Frequency of Y-values:	For Y-values from 0 ...1200 mm there are counters for each 50 mm range (e.g. 100 ...149 mm). The corresponding counter increases incrementally with each code read.
Frequency of Z-values:	For Z-values of 0 ...1200 mm there are counters for each 50 mm range (e.g. 100 ...149 mm). The corresponding counter increases incrementally with each code read.
Number of all codes read:	Increases incrementally with each code read (for calculating arithmetical means)
Sum of all CS values:	All code safety values are added up (for arithm. mean).
Sum of all X-positions:	All X-positions are added up (for arithm. mean).
Sum of all Y-positions:	All Y-positions are added up (for arithm. mean).
Sum of all Z-positions:	All Z-positions are added up (for arithm. mean).

c. Statistical values per bar-code scanner and per code type:

Number of good reads:	Increases incrementally if code reader has read one or two codes.
Number of exclusive good reads:	Increases incrementally if only this code reader has read the code(s).

d. Statistical values per 100 read cycles and per code type:

Number of good reads:	There is one good-read counter per 100 reading cycles. The corresponding counter increases incrementally if one or two codes are read. The corresponding start time of each block of 100 read cycles is also saved. The next counter is used after 100 read cycles.

3.6 Configuration

Recorder settings, system settings, display settings and general settings can all be carried out in RDT400 Recorder using the appropriate register cards. The settings are saved in the Windows NT Registry file.

As RDT400 Display (Web Interface) is in the form of an ISAPI-DLL and thus does not possess its own user interface, display settings must be carried out in RDT400 Recorder. **A restart of the WWW Service must be carried out after changing settings affecting display** (see *Chapter 2.3 Section c*). The altered settings for the Web Interface are only activated after the restart.

In RDT400 Recorder the settings can be exported to a data carrier (hard disk, diskette, etc.) under the menu option "Settings / Export settings". Exported data can be imported again with the menu option "Settings / Import settings". All current settings are overwritten in the process. Thus it is possible to save settings that have been made or transfer them to other systems.

3.6.1 Recorder settings

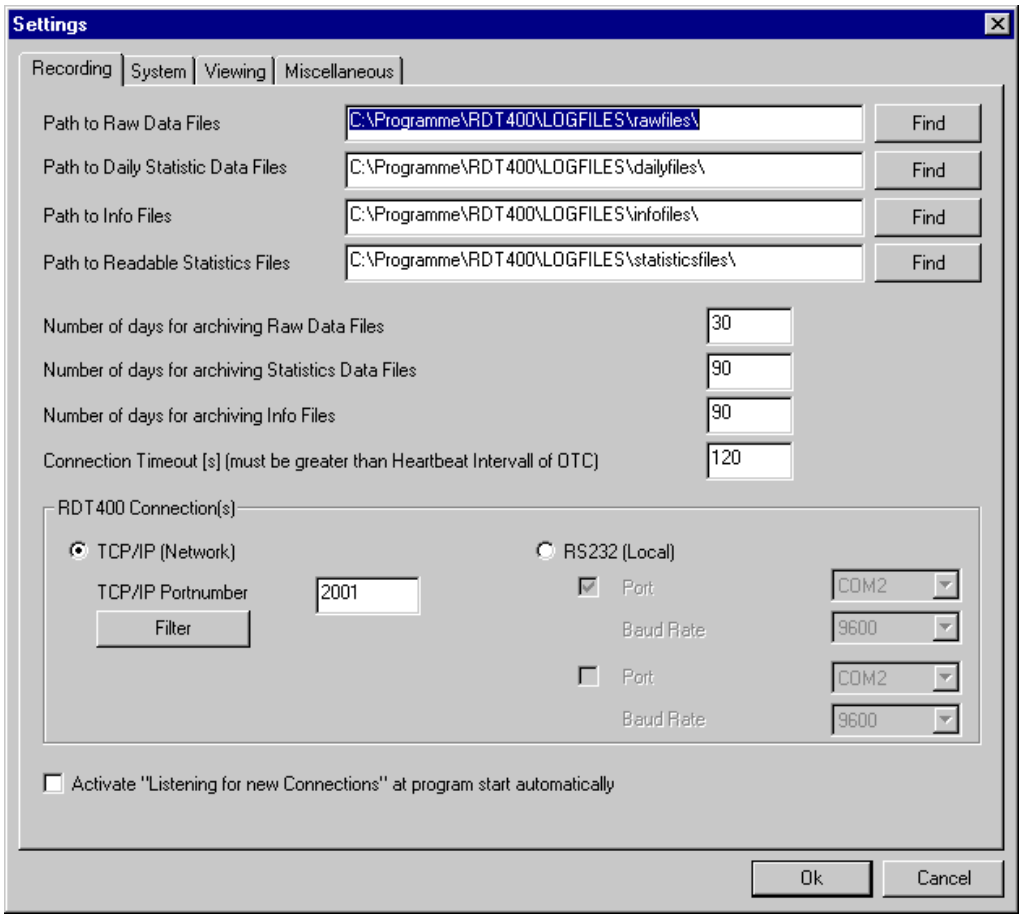


Fig. 46. RDT400: the "Recording Settings" register card

Path to xxx files:

The particular log files are saved in this directory. The entry of a backslash sign "\" after the directory name is necessary. The directory must exist. *(Default: empty)*

Number of days for archiving xxx files:

This setting allows separate definition, according to the file type, of how long the particular log files should be saved on the hard disk. The log files are automatically deleted after the particular interval has elapsed. The deletion process takes place at midnight of the day in question when the RDT400 Recorder program is in the "Listening for new connections" state or after the activation of the "Listening for new connections" menu option.
(Default: raw data files = 30, statistics files = 90, info files = 90)

Connection Timeout(s):

This setting is only valid in association with TCP/IP Reception Mode. It is of no significance for RS-232. With a TCP/IP connection, if after the defined timeout (in seconds) has elapsed without any data being sent from the client (OTC) to the server (RDT400) then the server breaks the connection. The connection is restored if the client renews data transfer to the server after this. The timeout must be greater than the Heartbeat Interval of the OTC.
(Default: 120)

TCP/IP:

Activation of this field activates the RDT400 Recorder for TCP/IP reception.
(Default: activated)

TCP/IP port number:

Defines the port number with which the RDT400 Server Service can be contacted by the client. Port numbers up to 1024 should not be used as these are reserved.
(Default: 2001)

Filter:

The Filter dialogue box is called up. The filter function can be activated in the Filter dialogue box and the corresponding IP address of the system from which data is to be exclusively received can be entered. This setting may not be activated during normal operation.
(Default: deactivated)

RS 232:

Activation of this field sets the RDT400 Recorder to RS 232 reception. A maximum of two OTCs can be directly connected via the RS 232 interfaces on the PC.
(Default: deactivated)

Port:

The COM port to which the OTC is connected.
(Default: COM1 or COM2)

Baud rate:

The baud rate of the connected device. With OTC set the baud rate to 9600 baud.
(Default: 9600)

Activate "Listening for new connections" at program start automatically:

The "Listening for new connections" command is automatically carried out when the RDT400 Recorder program is started. Must be activated at the Autostart option (see *Chapter 2.4*).
(Default: deactivated)

3.6.2 System Settings

The system IDs, the names, and the expected read rates for the connected systems (OTCs) can be configured with System Settings. **The system IDs (1 to 99) for the connected systems must be configured so that the received data can be displayed via the Web Interface.** All other system settings are optional.

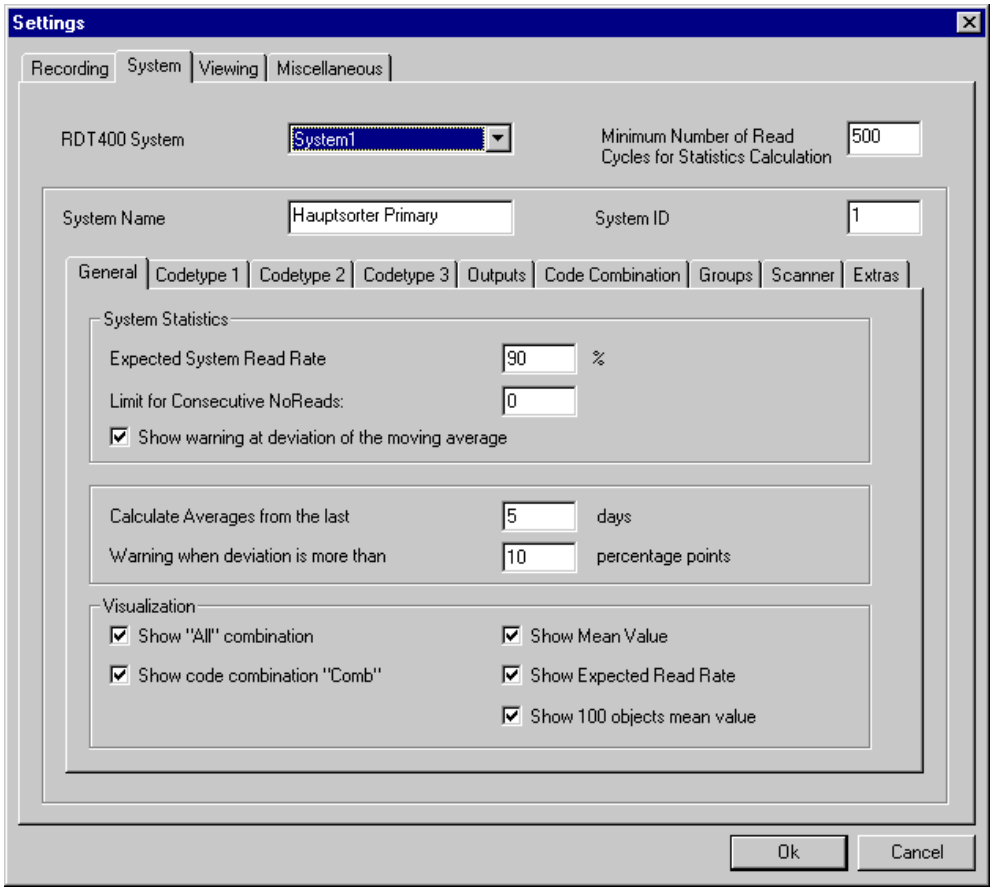


Fig. 47. RDT400: the "System Settings/ General" register card

RDT400 System:

The system for which the settings are to be carried out can be chosen from a selection list. The system-dependent settings in the frame below change according to the choice made here.

Minimum number of read cycles for statistical calculation:

The minimum number of read cycles before which failure to reach the expected read rate is shown in RDT400 Display (by coloured marking in graphics and tables).
(Default: 500)

System name:

The name of the connected system. If no name is entered here the default name (SystemX) is shown in RDT400 Display.

System ID:

The device ID of the connected OTC. **This must be unique in the entire RDT400 Recorder system**. Each of the 64 configurable systems must have its own ID. The allocation of received data to the log files takes place according to this ID. If two connected OTCs have the same ID the data cannot be received from either system. System ID equals 0 means that no data is displayed with the Web Interface. Valid system IDs are in a range from 1 to 99.
(Default: 0)

3.6.2.1 System - General

Expected System Read Rate:

The expected system read rate for display. This value applies to all three types of code. Any underachievement of this expected system read rate per type of code is shown in the display on the "System list" and on the "Daily statistics" page.
(Default: 0)

Limit for Consecutive No Reads:

Here the limit for consecutive no reads for the general system can be defined.

Show warning at deviation of the moving average:

Here it can be chosen if a warning should be set if the moving average decreases.

Calculate Averages from the last x days:

Here the number of days for the average calculation calculation can be defined.

Warning when deviation is more than xx percentage points:

Here the limit in percentage points for the deviation can be defined.

Limit for Consecutive No Reads:

Here the limit for consecutive no reads for the general system can be defined.

Visualisation:

Here for the RDT400 Display the visualisation of different statistic information can be chosen.

3.6.2.2 System - Codetype

For 3 different codetypes specific settings can be done.

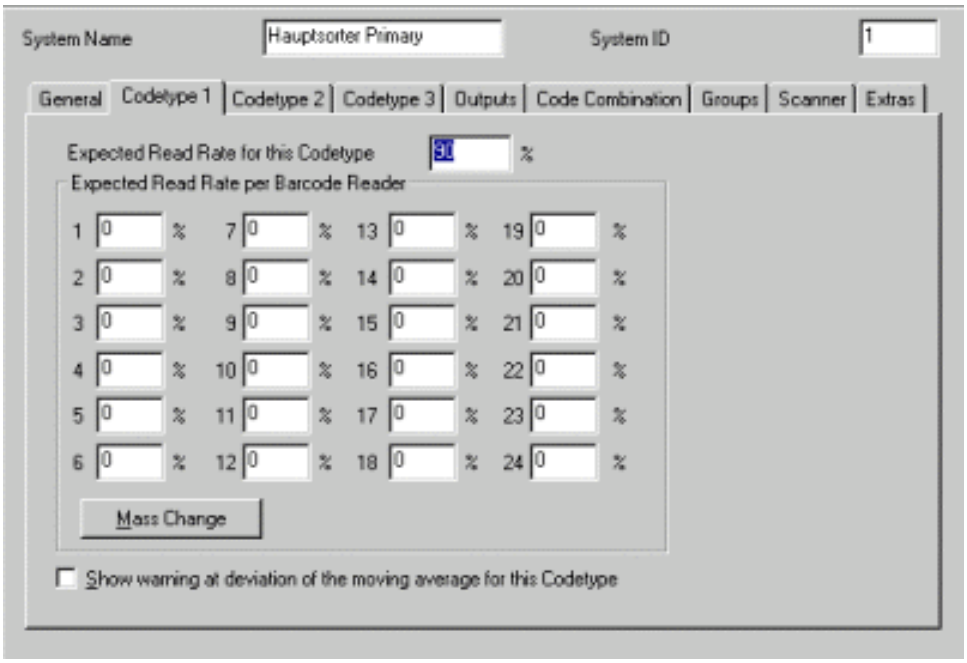


Fig. 48. RDT400: the "System Settings/ Codetype 1" register card

Expected Read Rate for this Codetype:

The expected Read Rate for this specific Codetype for display. This value applies only for this type of code. Any underachievement of this expected read rate for this code type is shown in the display on the "System list" and on the "Daily statistics" page. *(Default: 0)*

Expected Read Rate per Barcode Reader:

The expected read rate per bar-code reader for display. This value applies to this codetype. Any under-cutting of this expected read rate is shown for each bar-code scanner on the "Daily statistics" page in the display. *(Default: 0)*

3.6.2.2.1 Mass Change

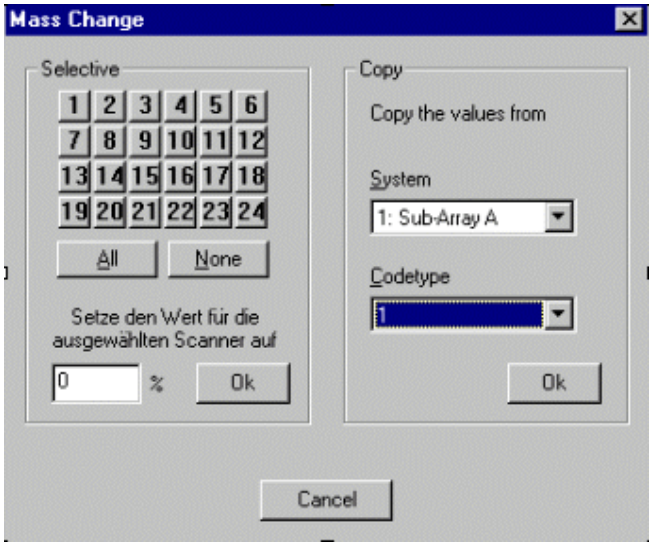


Fig. 49. RDT400: the "Mass Change" register card

With this register card the value for the Expected Read Rate for different barcode scanner can be set. As a option this settings can be copied from another system and/ or codetype for all 24 scanner.

3.6.2.3 System - Outputs

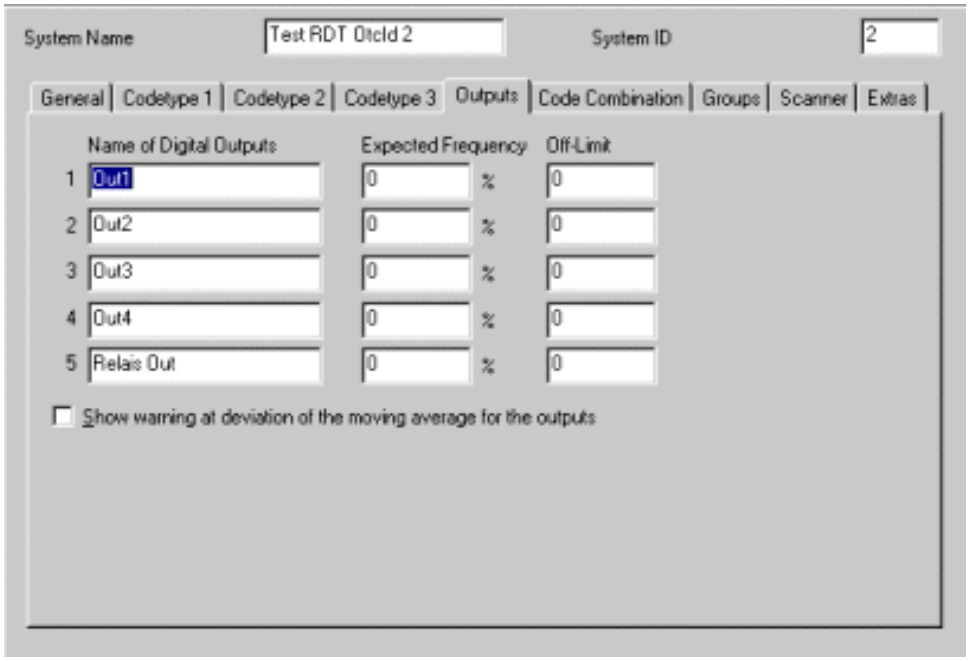


Fig. 50. RDT400: the "System Settings/ Outputs" register card

Name of digital outputs:

For the naming of the switching outputs of the OTC, the default names "Relay out" and "Out 1" to "Out 4", depending on parameter setting in the OTC, can be overwritten with names of your choice. The names are shown on the "Switching outputs" page in the display.

Expected Frequency:

Here the expected frequency for example the expected read rate can be chosen.

In this case it is to observe that an “On” status of a Digital Output could have as well a positive meaning (e.g. „GoodRead“) as a negative meaning (e.g. „NoRead“). It only make sense to specify an expected frequency, a Limit for consecutive “Off” status and also to observe averages, if there are digital outputs with “positive” meaning!

In the dialog “Outputs” the order of the outputs was changed. The relay output is the number 5 at the end of the outputs (was in the previous versions in first place).

3.6.2.4 System – Code Combination

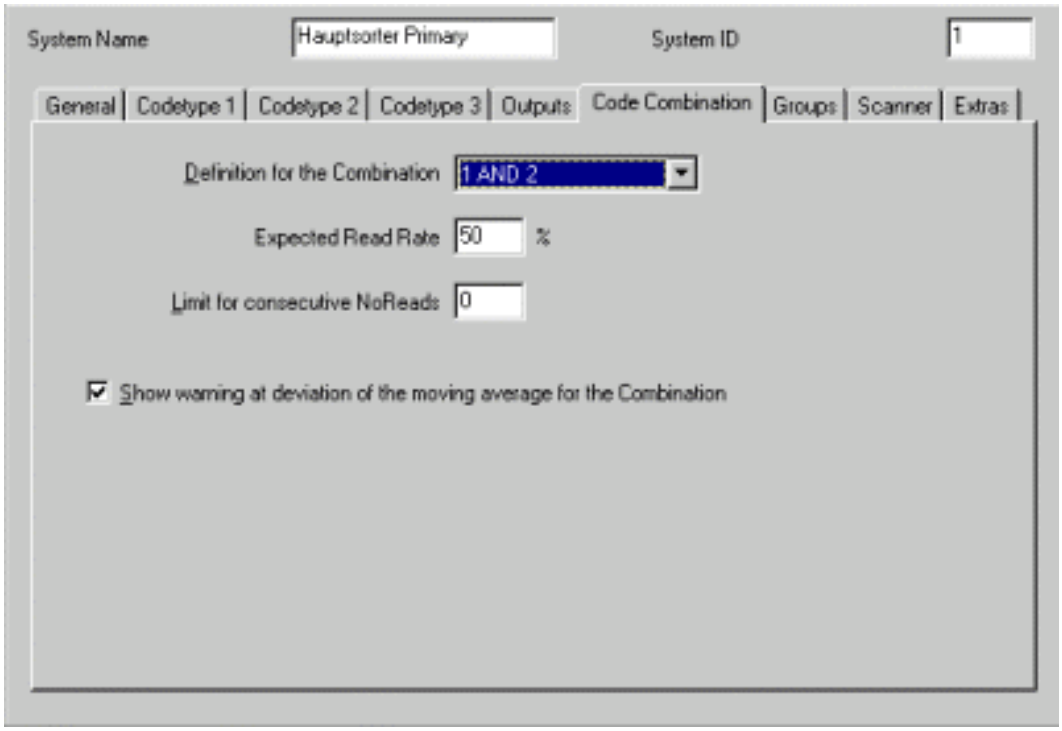
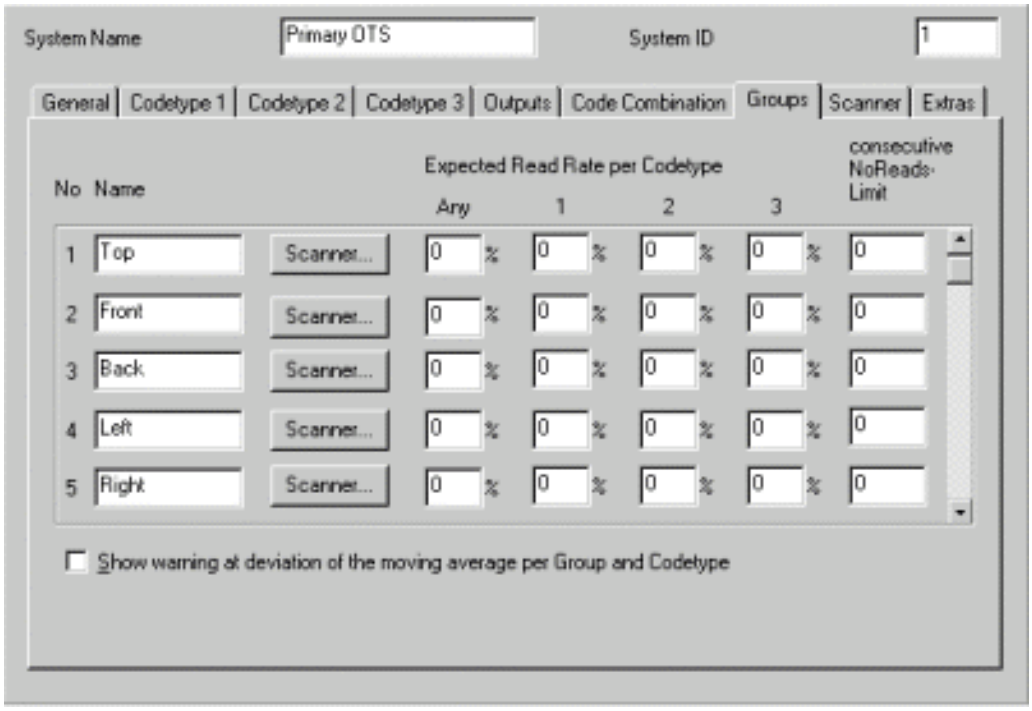


Fig. 51. RDT400: the "System Settings/ Code Combination" register card

With this register card different combination between the 3 code types could be defined.



3.6.2.5 System – Groups

Fig. 52. RDT400: the "System Settings/ Groups" register card

Here up to 10 groups can be defined. By doing this independent from the complete system read rates from different scanner in groups can be generated.

3.6.2.6 System – Scanner

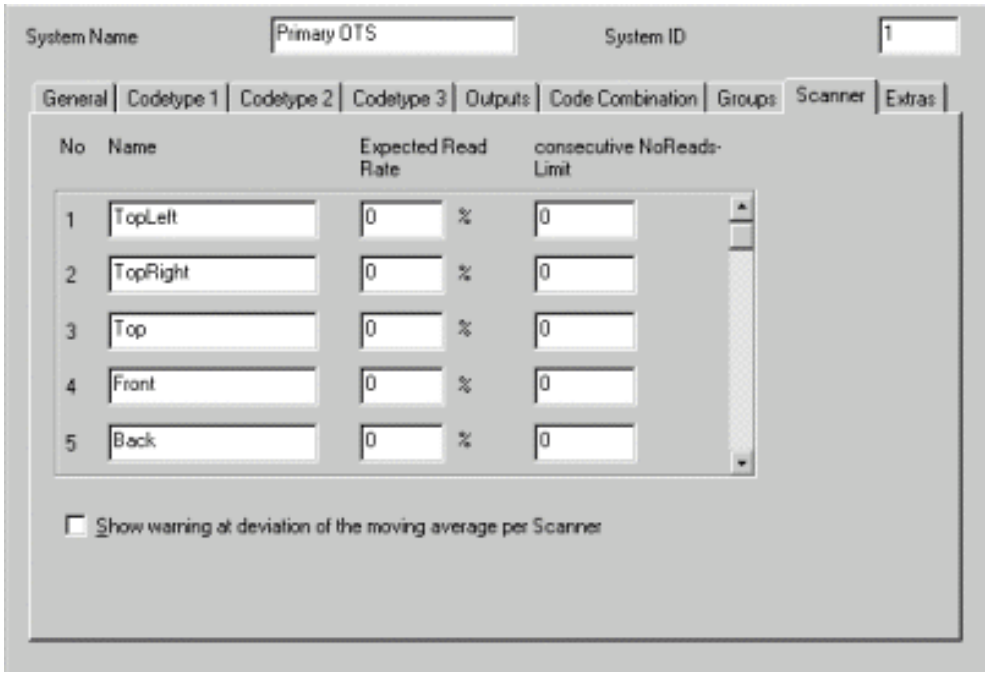


Fig. 53. RDT400: the "System Settings/ Scanner" register card

For every scanner the Expected Read Rate and the consecutive NoReads Limit (independent of code-type) can be set.

3.6.2.7 System – Extras

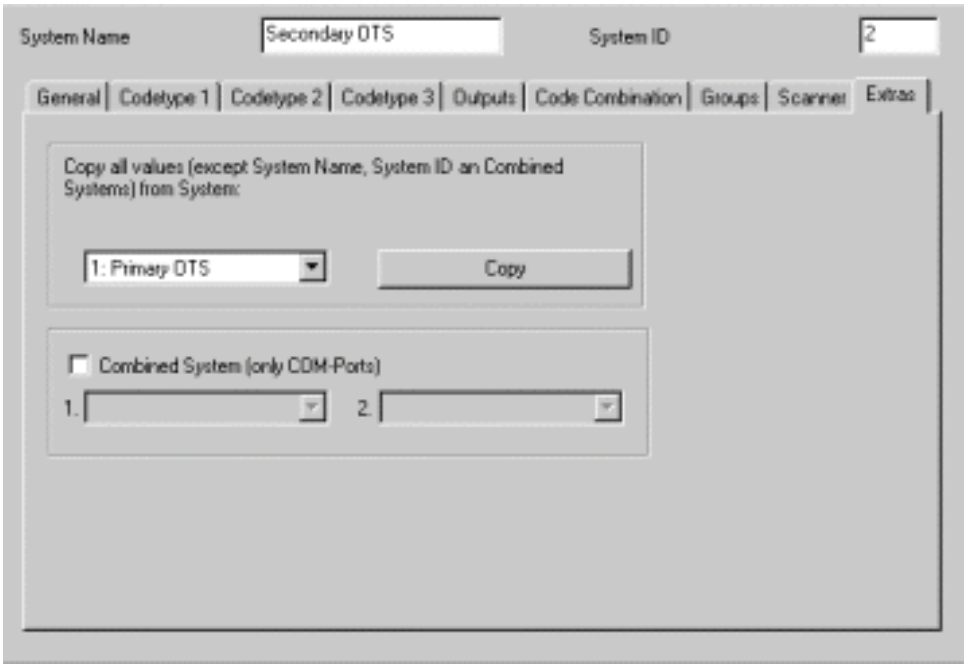


Fig. 54. RDT400: the "System Settings/ Extras" register card

The dialog "Extras" were added. He consists of two group fields.

The configuration of another system can be copied in the first group field. Apart from the product name, the system ID (e.g. OTC ID) and the settings for the combined system, all other settings being copied.

3.6.3 Display settings

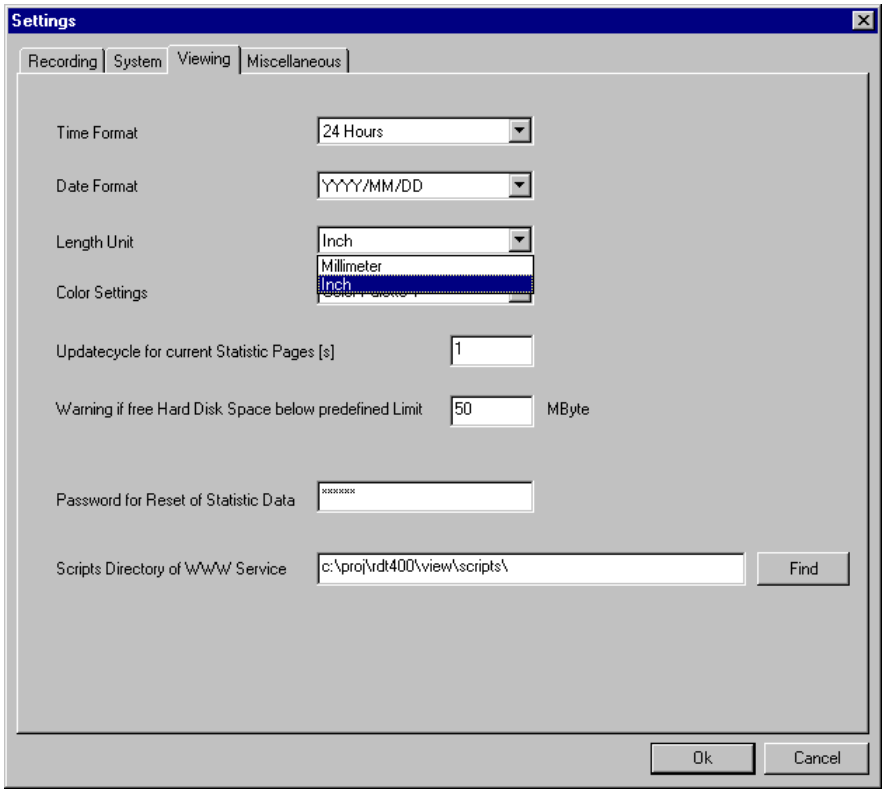


Fig. 55. RDT400: the "Viewing settings" register card

Time format:

12-hour or 24-hour times can be shown in the display.
(Default: 24-hour)

Date format:

The following date formats are available for showing the date in the display:

TT.MM.JJJJ, MM/TT/JJJJ or JJJJ/MM/TT (TT = day, MM = month, JJJJ = year)

(Default: TT.MM.JJJJ)

Length Settings:

It can be chosen, if the dimensions are shown in Millimeter or Inch

Colour settings:

One of three colour settings can be selected for the graphics in the display.
(Default: Palette 1)

Update cycle for current statistic pages:

This period in seconds defines how often the statistics pages are updated in the display. After this period has elapsed the page in question is automatically reloaded and displayed. This setting only applies to the statistics pages of the current day – those of past days are not automatically updated.
(Default: 10)

Warning of free hard disk space below predefined limit:

A warning is given in the display if the free storage space on the hard disk of the RDT400 Recorder computer falls below the defined value in megabytes.
(Default: 50 MB)

Password for reset of statistic data:

In the display it is possible to reset the statistical data of the current day. A password is required to reset the data in order to protect the statistical data and prevent unauthorised users from access to this process. The password is saved uncoded in the registry file with the other settings. **The default reset password after installation of the RDT400 is "RDT400"**.

Scripts directory of WWW Service:

The script directory of the WWW Service is set during installation of the RDT400 Display (Web Interface) and should not be changed. It shows the directory in which the ISAPI-DLL for the RDT400 Display is saved. This directory is known to the WWW Service as the "scripts" directory.

3.6.4 Miscellaneous settings

The general settings apply for both the RDT400 Recorder and RDT400 Display.

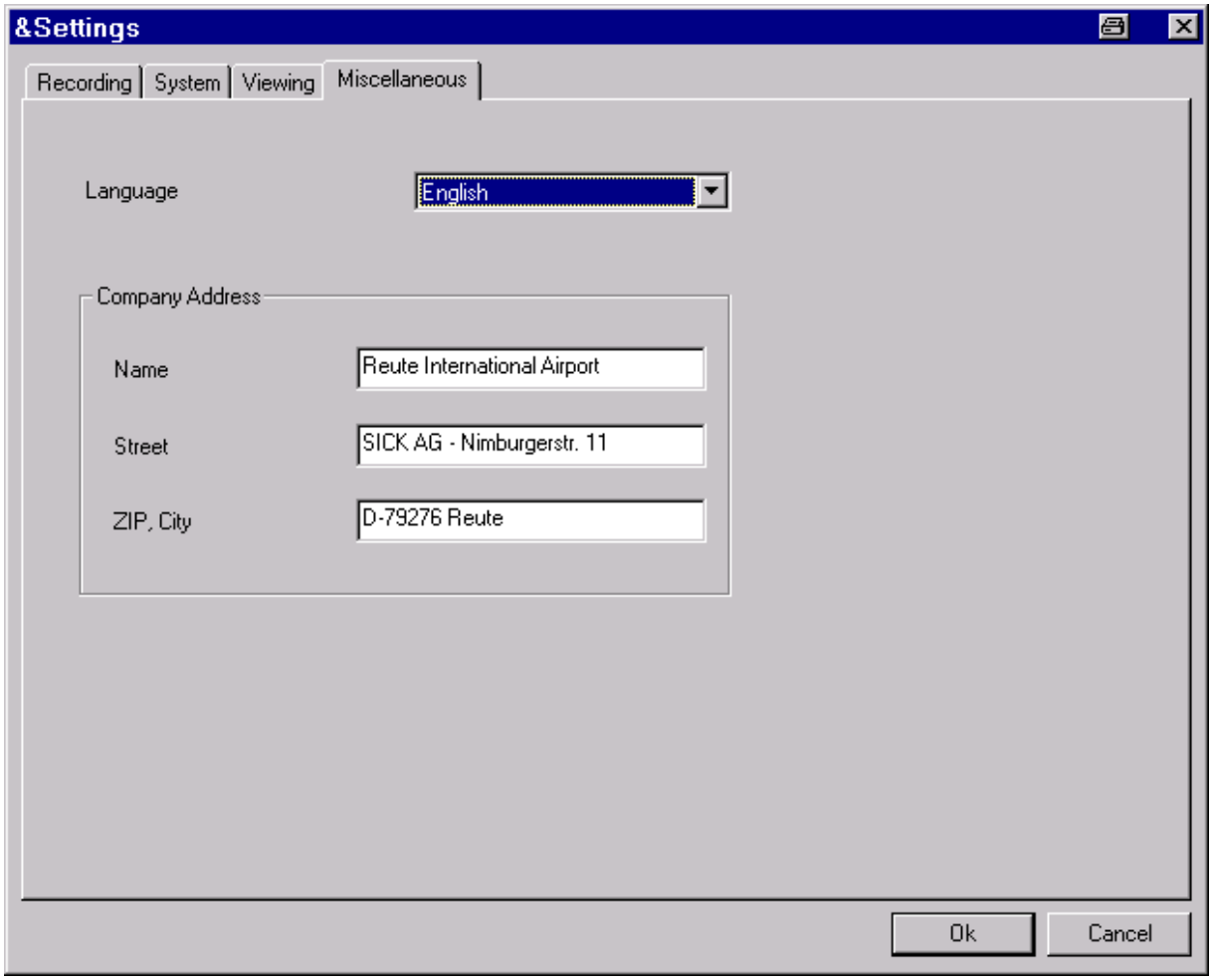


Fig. 56. RDT400: the "Miscellaneous settings" register card

Language:

The following languages are supported by RDT400 Recorder and RDT400 Display:

English, German, French, local language.

The local dictionary (containing English as default) is loaded for the "Local language" selection. This dictionary can be translated to support other languages (see *Chapter 3.6: The language concept and dictionaries*).
(Default: German

Company address:

The company address is entered in the header of the log files and shown on the "System list" page in the display.
(Default: empty)

3.6.5 System structure

The performance of the RDT400 system principally depends on the following factors:

- the computer hardware
- the number of connected clients (OTCs)
- the data rate at which the clients transmit
- the number of daily statistics files saved on the hard disk (their length and how long they are stored)

Sufficient performance means, above all, that all the data from the Recorder program can be received and processed and, secondly, that the response pages of the Web Server move at a level acceptable to the user.

Table 3 shows the relationship between the individual factors and can be used as a guideline for the structure of an RDT400 System. The values were determined during tests using a PC (Pentium III with 667 MHz, 256 MB RAM, Windows NT 4.0, NTFS file system) at the continuous data rates quoted.

Data rate (number of read cycles/second)	**Number of clients (OTCs) sending data**	**Storage time for daily statistical files in days**
2 Hz	max. 48	max. 90
2 Hz	max. 24	max. 180
2 Hz	max. 12	max. 360
≤ 1 Hz	max. 64	max. 90
≤ 1 Hz	max. 32	max. 180
≤ 1 Hz	max. 16	max. 360

Table 10. Performance

Please note:
Slower or faster hardware must be taken into account when designing a system.

3.7 The language concept and dictionaries

The RDT400 supports English, German, French and a local language, each of which are saved in a text file. The following language files are available for this purpose:

German:	word_d.lex
English:	word_e.lex
French:	word_f.lex
Local language:	word_l.lex

The appropriate language file for the selected language is loaded when the program is started. The dictionary for the local language is intended for translation into other languages. The local dictionary contains English as the default local language. The language files are standard text files and can be edited with programs such as Windows Notepad (a Windows Editor with a Windows set of characters is required).

Lines beginning with two slashes "//" are commentary lines and must not be translated. Each entry in the dictionary begins with a five-digit ID that is identical for all languages. After a blank there is a three-digit number that defines the maximum length of the text that can follow on that line. The text to be translated follows after the next blank space.

Example:

10001 030 Longterm Read Rate

The ID of the dictionary entry is 10001 and the maximum text length of the subsequent text is 30 characters.

Translating the user interface of the RDT400 into another language:

1. Start an editing program for translating the user interface of the RDT400 into another language.
2. Load one of the available language files (English, German or French).
3. Overwrite the text with the new language and save the new language file under the name "WORD_L.LEX" (the existing file "WORD_L.LEX" can be overwritten).

Carry out this process separately for the language files of the RDT400 Recorder and RDT400 Display (in the particular program or script directory).

➢ Select "Local language" in the language settings in order to activate the new language.

3.8 Differences between the server & workstation versions

The RDT400 Recorder program can be started as a workstation version or as a server version.

In the workstation version, data from the client (OTC) can only be received locally via the serial interface. Configuration of TCP/IP communication is blocked and cannot be activated.

In the server version, data from the client (OTC) can be received either via the network (TCP/IP) or via the local serial interface.

4 RDT400 Display (Web Interface)

RDT400 Display shows statistical data determined by the RDT400 Recorder and saved in the daily statistical files both graphically and in tables.

RDT400 Display can be started from any computer in the network by entering the IP address of the RDT400 Web Server or the computer name as the address in the browser. The RDT400 start page is then displayed and, after a few seconds, the display switches to the "System list" page automatically.

Individual pages can be printed using the browser's standard print function.

Here a overview for the most important pages is given. This overview is not complete!

4.1 The "System list" page

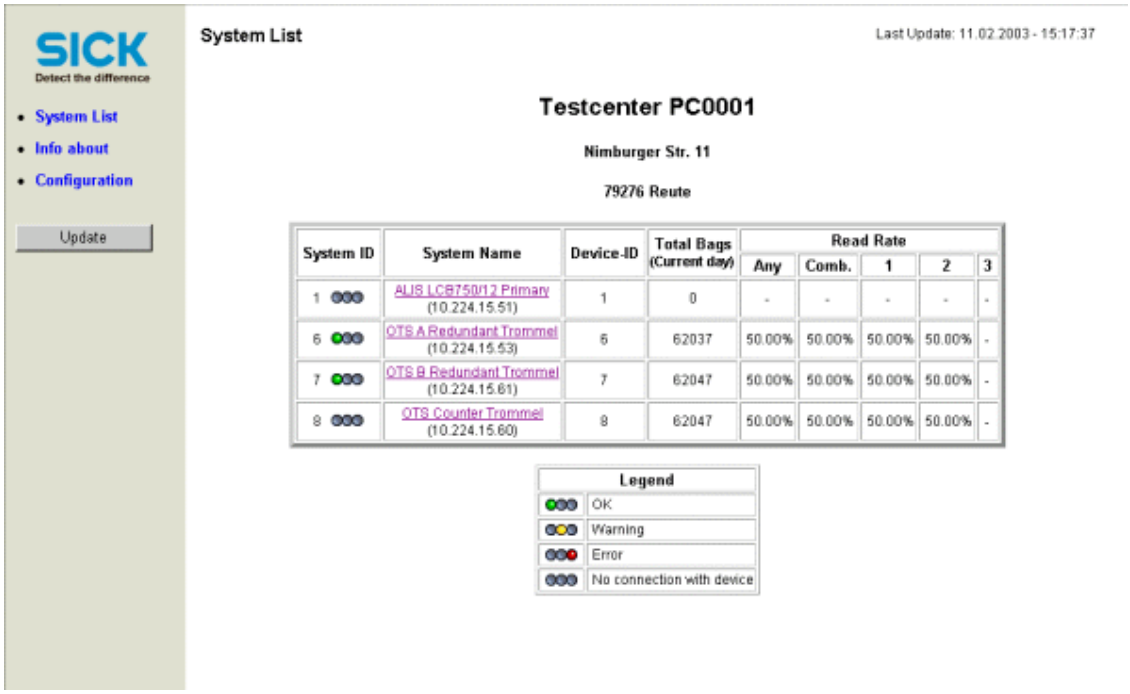
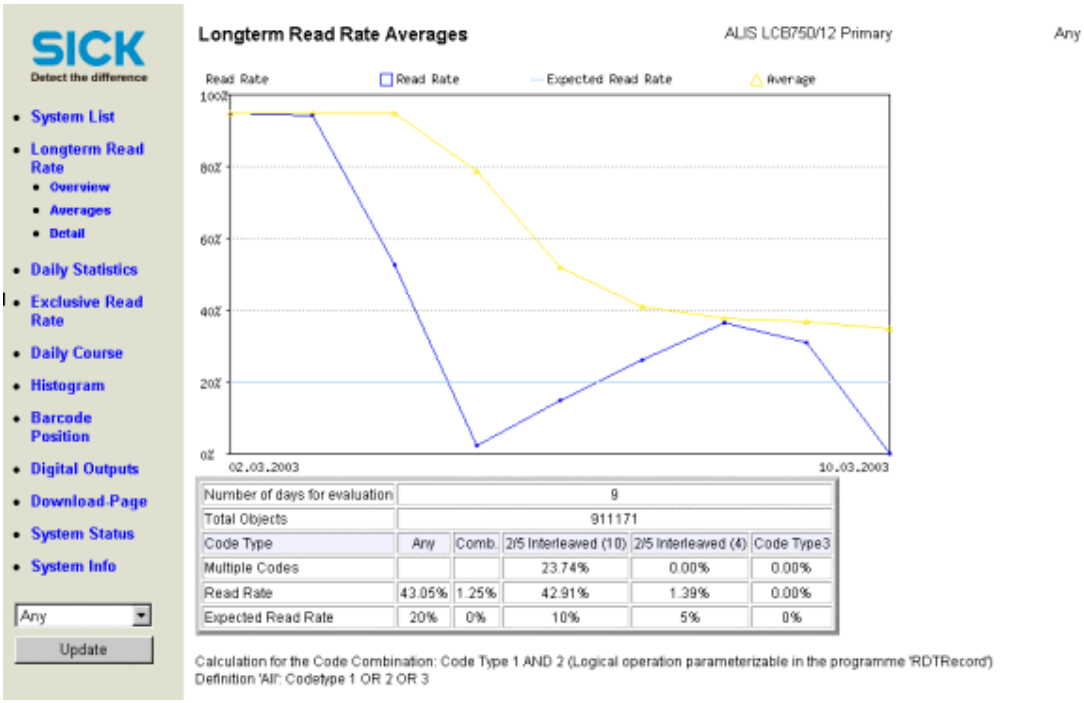


Fig. 57. RDT400: the "System list" page

All the systems for which daily statistical files are available in the corresponding directory are shown in the system list. The current read rates of the three types of code are shown if statistical data has been saved for the current day. Failure to achieve the expected read rates (per system or bar-code scanner) is signalled by the activated yellow traffic light. The red traffic light indicates that a scanner fault or other hardware failure has occurred in a particular system. The red traffic light is only activated when at least 5 read cycles in a row report the scanner fault is mentioned. This page is automatically updated at 5-minute intervals.
The time when the page was last updated is shown in the top right-hand corner. The page can be updated manually at any time by means of the "Update" button.

Clicking on a system name calls up the "Long-term read rate overview" page for the system.



4.2 The "Long-term read rate overview" page

Fig. 58. RDT400: the "Longterm Read Rate Averages" page

All the available statistical data (maximum 360 days) is evaluated on the "Long-term read rate overview" page. The read rates for the three types of code are shown graphically. Statistical values for this period are shown in the table.

Clicking on the graph results in a switch to the "Long-term read rate detail" page for the corresponding point in time.

Clicking on the "Daily statistics" menu option calls up the daily statistics page with the read data for the current day.

4.3 The "Long-term read rate detail" page

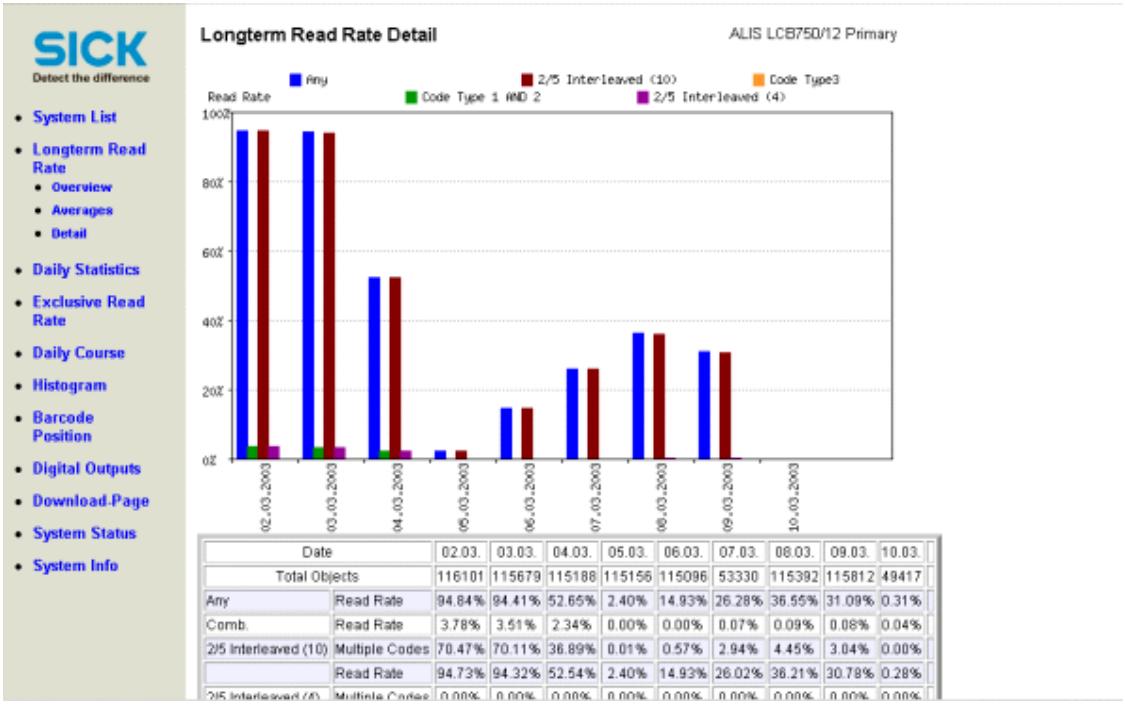


Fig. 59. RDT400: the "Long-term read rate detail" page

The read rates of all three types of code over a period of ten days are shown graphically and as a table on this page. The browsing buttons in the table can be used to look through the entire available time period.

Clicking on the desired day in the graph results in a switch to the "Daily statistics" page.

4.4 The "Daily statistics" page

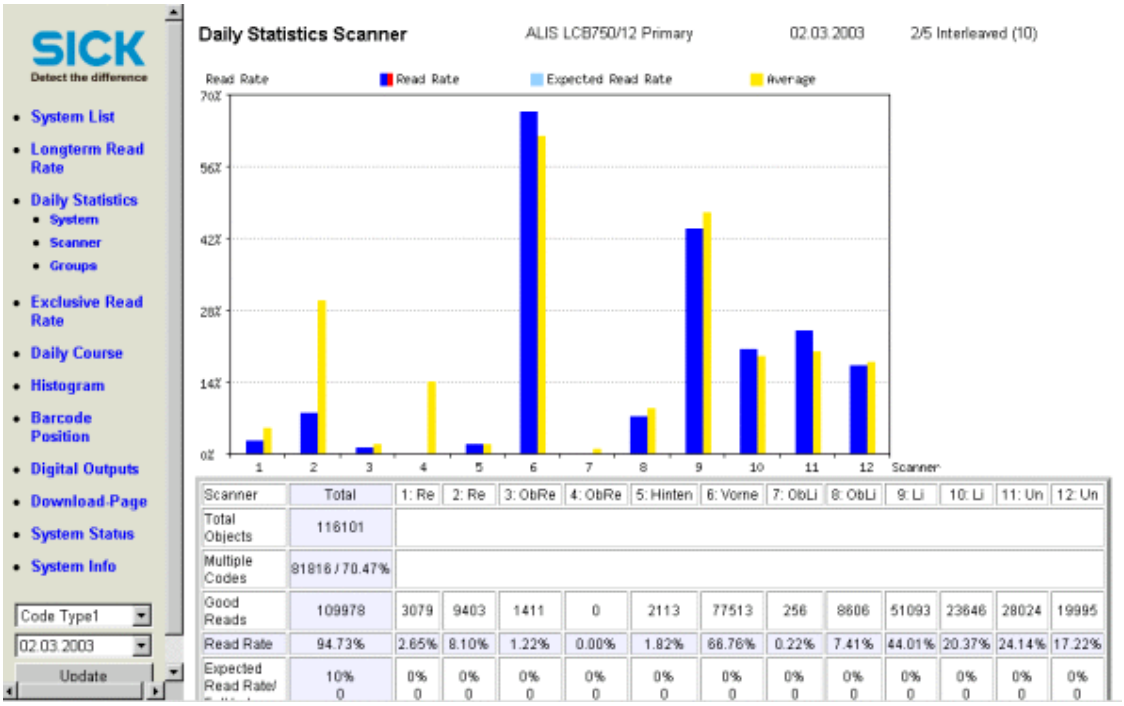


Fig. 60. RDT400: the "Daily statistics" page

The daily statistics page shows the read rates of the individual bar-code scanners and the total read rates. The numbers of the code reader in the graphic / table are dynamic and depend on the device list transferred from the OTC. The code read number fields in green show which code reader the current code has read. If a field is red this indicates a code reader fault. The code reader fault indicator is only activated when at least five consecutive read cycles report the error.

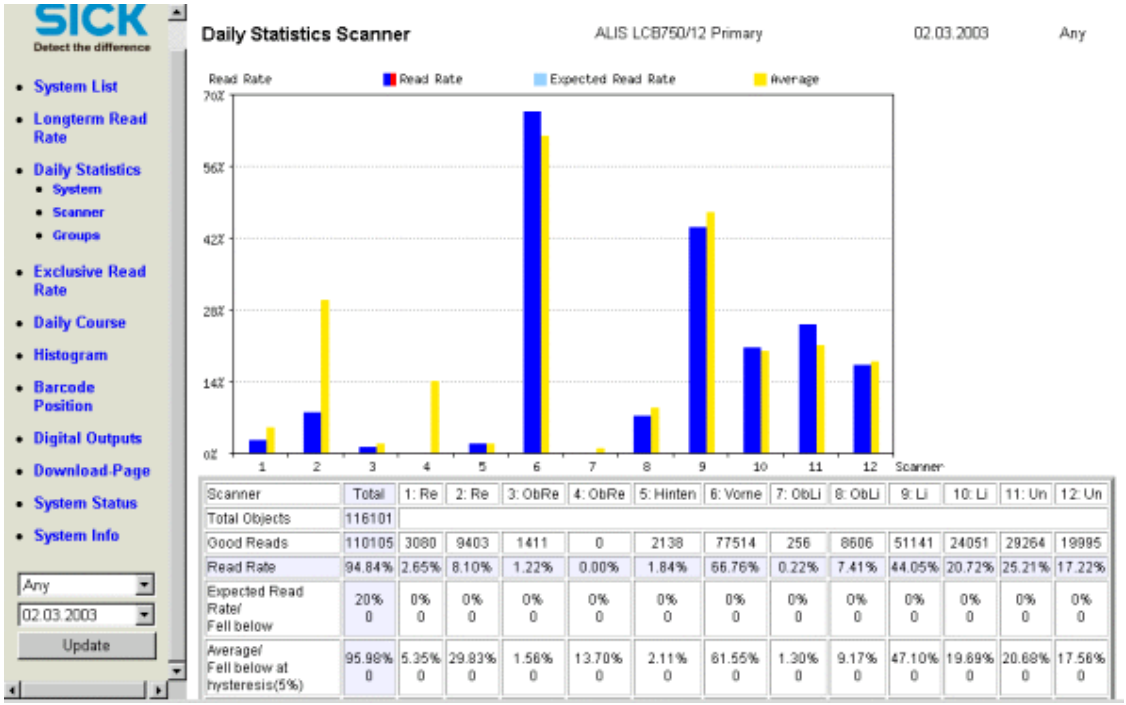
Display takes place according to the type of code. Switching between the code types or to other days takes place with the help of the selection lists in the menu frame.

The file name of the selected daily statistics file is shown in the last line, together with the last time that the file was updated.

The "Stop update" button can be used to interrupt the time-dependent updating of the page. Renewed use of the button reactivates the function. This button is only shown when the current day is displayed.

The "Reset" button allows the current statistical data to be reset. The reset password must be entered to permit reset. The button is only shown when the current day is displayed.

Please note:
The reset function results in the statistical data (the daily statistics file only) of the current day being overwritten irreversibly. If the data is still required, the appropriate daily statistics file must be saved before carrying out a reset.



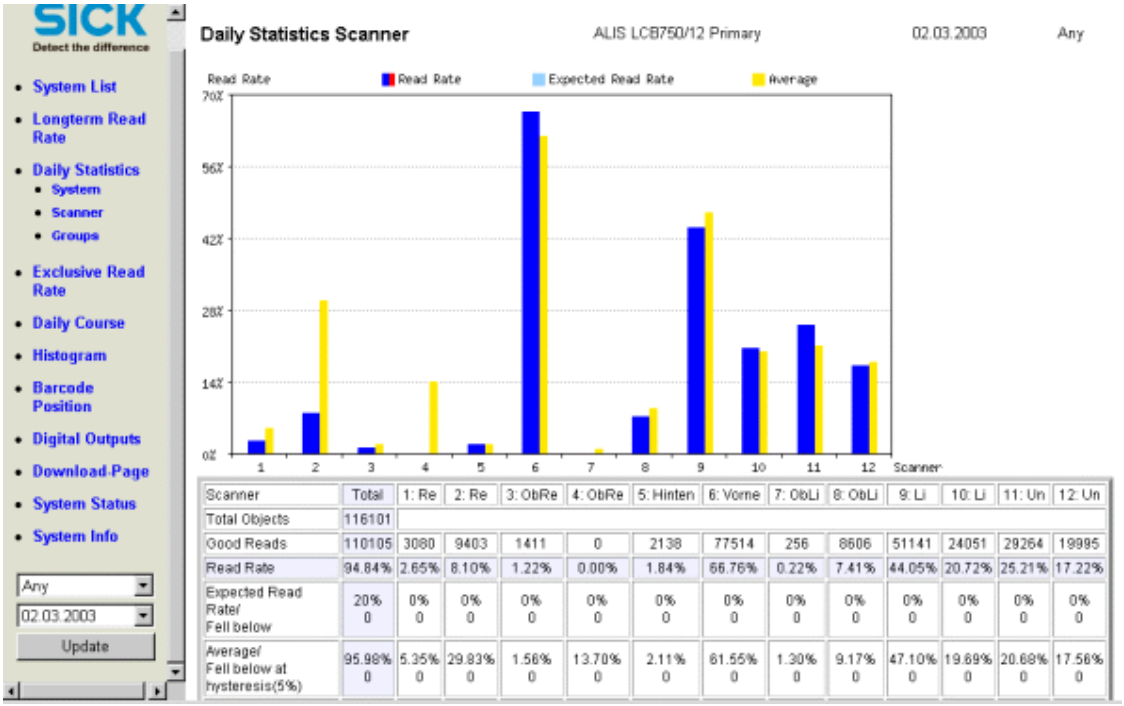
Scanner	Total	1: Re	2: Re	3: ObRe	4: ObRe	5: Hinten	6: Vorne	7: ObLi	8: ObLi	9: Li	10: Li	11: Un	12: Un
Total Objects	116101												
Good Reads	110105	3080	9403	1411	0	2138	77514	256	8606	51141	24051	29264	19995
Read Rate	94.84%	2.65%	8.10%	1.22%	0.00%	1.84%	66.76%	0.22%	7.41%	44.05%	20.72%	25.21%	17.22%
Expected Read Rate/ Fell below	20% 0	0% 0	0% 0	0% 0	0% 0	0% 0	0% 0	0% 0	0% 0	0% 0	0% 0	0% 0	0% 0
Average/ Fell below at hysteresis(5%)	95.98% 0	5.35% 0	29.83% 0	1.56% 0	13.70% 0	2.11% 0	61.55% 0	1.30% 0	9.17% 0	47.10% 0	19.89% 0	20.68% 0	17.56% 0

4.5 The "Exclusive read rate" page

Fig. 61. RDT400: the "Exclusive read rate" page

Display of the exclusive read rate for each bar-code scanner. The number of code readers shown is dynamic (see *Daily statistics page*). The coloured marking of the "Code reader numbers" fields also corresponds to that of the daily statistics page.

4.6 The "Hourly read rate" page



Scanner	Total	1: Re	2: Re	3: ObRe	4: ObRe	5: Hinten	6: Vorne	7: ObLi	8: ObLi	9: Li	10: Li	11: Un	12: Un
Total Objects	116101												
Good Reads	110105	3080	9403	1411	0	2138	77514	256	8606	51141	24051	29264	19995
Read Rate	94.84%	2.65%	8.10%	1.22%	0.00%	1.84%	66.76%	0.22%	7.41%	44.05%	20.72%	25.21%	17.22%
Expected Read Rate/ Fell below	20% 0	0% 0	0% 0	0% 0	0% 0	0% 0	0% 0	0% 0	0% 0	0% 0	0% 0	0% 0	0% 0
Average/ Fell below at hysteresis(5%)	95.98% 0	5.35% 0	29.83% 0	1.56% 0	13.70% 0	2.11% 0	61.55% 0	1.30% 0	9.17% 0	47.10% 0	19.69% 0	20.68% 0	17.56% 0

Fig. 62. RDT400: the "Hourly read rate" page

The read rate during the course of the day can take place on a time basis as on the "Hourly read rate" page or in blocks of 100 read cycles each, as on the "Per 100 cycles" page. Display is carried out for each type of code.

4.7 Histogram pages

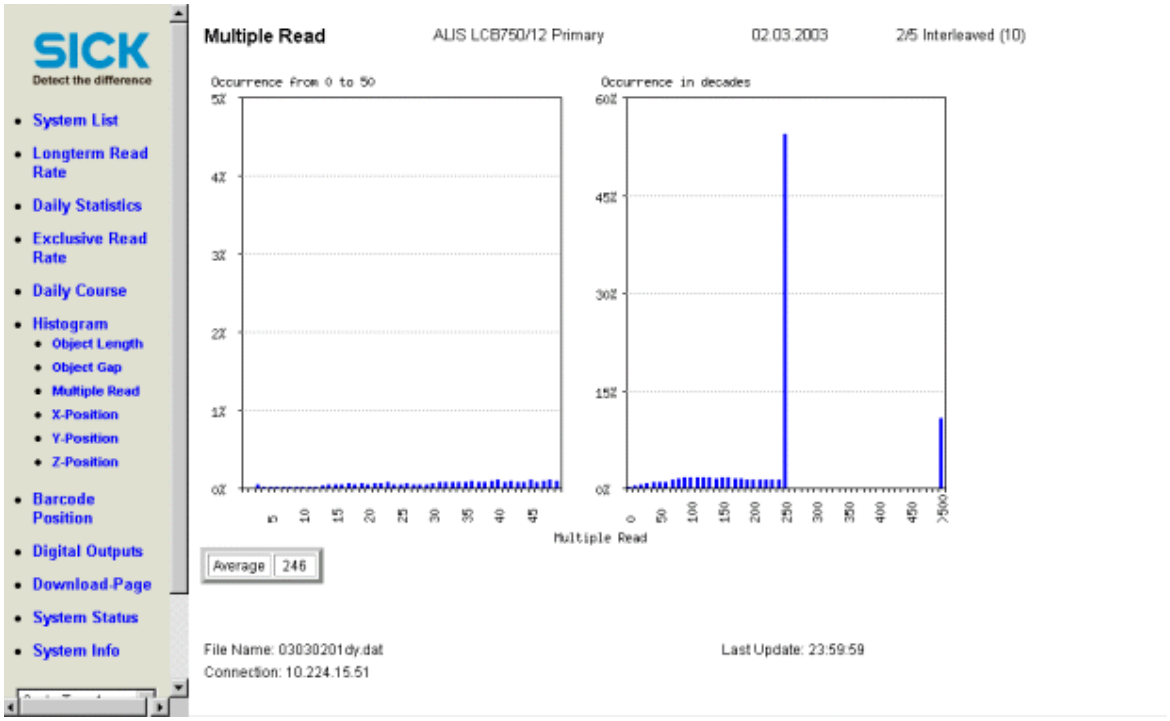


Fig. 63. RDT400: the histogram pages

The following histogram pages are available with RDT400 Display:

- Object length
- Object gap
- X-position
- Y-position
- Z-position
- Code safety

Display takes place in per cent. The absolute numbers are shown in the particular bars. The corresponding arithmetical mean is shown on each page.

Please note:
The dividing line in the code safety histogram with an x-scale of 50 marks a change of scale from single steps to increments of ten.

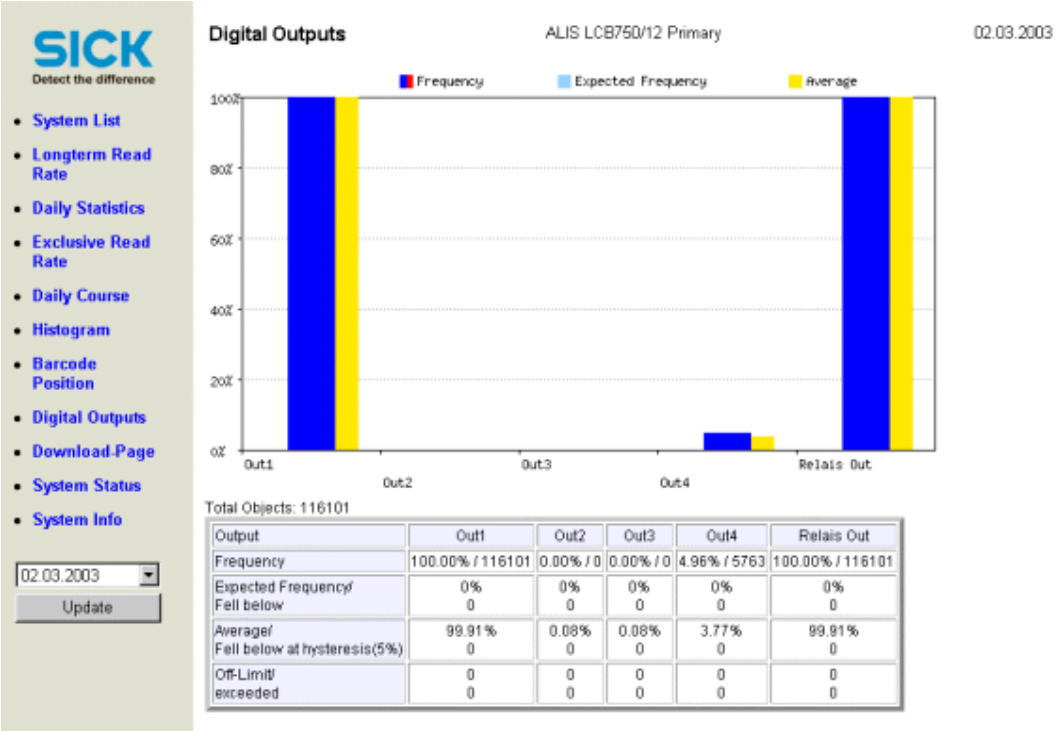
4.8 The "Bar-code position" page

Fig. 64. RDT400: the "Bar-code position" page

The X-, Y-, and Z-values of the bar codes read, as well as object length, are shown on the "Bar-code position" page. The object contours in the graphic are formed from the object length and the maximum height Z of the bar codes read.

This page is is only displayed when data is available for the current day.

4.9 The "Digital outputs" page



Output	Out1	Out2	Out3	Out4	Relais Out
Frequency	100.00% / 116101	0.00% / 0	0.00% / 0	4.96% / 5763	100.00% / 116101
Expected Frequency/ Fell below	0% 0	0% 0	0% 0	0% 0	0% 0
Average/ Fell below at hysteresis(5%)	99.91% 0	0.08% 0	0.08% 0	3.77% 0	99.91% 0
Off-Limit/ exceeded	0 0	0 0	0 0	0 0	0 0

Fig. 65. RDT400: the "Digital outputs" page

Displays the read rates for the OTC's switching outputs.

4.10 The "Download" page

Fig. 66. RDT400: the "Download" page

Each of the four log file types – raw data files, info files, statistics files and readable statistics files – has its own page for downloading. Clicking on the appropriate file name downloads the log file to the local computer.

- The "Raw files" page: all available raw files of the selected system are displayed.
- The "Info files" page: only those info files of the selected system containing further entries in addition to the header information are displayed.
- The "Statistics files" page: all available daily statistics files of the selected system are displayed except the file for the current day.
- The "Readable statistics files" page: overview with the most important data in one line per day.

Please note:
Raw files may be several MB large.

➢ Download times vary according to the Intranet or Internet connection.

5 The RS-232 – TCP/IP Converter

An RS 232 – TCP/IP Converter, that converts data from the OTC's RS 232 auxiliary interface for the Ethernet network, is required for the connection of an OTC to the RDT400 Recorder via the network (TCP/IP connection).

This chapter describes the settings for the Lantronix Converter "UDS 100".
The Handbook for the Converter contains a detailed description of its installation.

Fig. 67. The RS-232 – TCP/IP Converter from Lantronix

The Converter is operated in TCP/IP Client Mode. This means that when data is present at the serial interface, the Converter tries to form a TCP/IP connection to the RDT400 Recorder server and transmit the data.

Typically this converter is included in the OTS housing, for this the following parts are used:

Part No. SICK	
6 024 931	TCP/IP Converter Lantronix
2 025 894	Connection cable Converter – AUX Interface and Power supply OTC
4 037 002	Mechanical bracket for Converter Lantronix

The following list shows the RS 232 and TCP/IP settings for the Lantronix Converter:

**** Lantronix Universal Device Server ****

Serial Number 6102352 MAC address 00:20:4A:61:09:30

Software Version V04.1 (000522)

**** basic parameters*

Hardware: Ethernet Autodetect

IP addr 172.017.003.130, no gateway set, netmask 255.255.000.000

***************** Channel 1 *****************

Baudrate 9600, I/F Mode 4C, Flow 00

Port 14001

Remote IP Addr: 172.017.000.060, Port 02001

Connect Mode: C1 Disconn Mode: 00

Flush Mode: F7

Pack Cntrl: 00

The IP address, Gateway address and Netmask (basic parameters) for the Converter must be adapted for the particular network. The remote IP address (channel 1) is the IP address of the RDT400 Recorder server. This address must also be adapted to the particular network. The default setting in the RDT400 Recorder program is Remote Port 2001.

Parameters which may added in future should be set to defaults.

6 Troubleshooting

This chapter lists some of the problems that could occur with the RDT400 and describes possible solutions.

6.1 The RDT400 Recorder

Description of the problem	Solution
No data is received from the OTC via the TCP/IP.	- Check the remote IP address and port number in the configuration of the RS 232 – TCP/IP Converter. - Switch off the TCP/IP Filter in the Recorder settings of the RDT400 Recorder.
"Double OTC-ID" error message for the RDT400 Recorder	- Two OTCs, connected to the same RDT400 Recorder server, have the same device ID → Give each OTC a unique device ID.

Table 11. Troubleshooting for the RDT400 Recorder

6.2 RDT400 Display (Web Interface)

Description of the problem	Solution
On clicking on a log file on the Download page an error message appears instead of the Download dialogue box.	- Reading rights for the log file directories must be granted in the configuration of the WWW Service (see *Chapter 2.3 "Configuration of the Web Server for RDT400*").
The display settings have been changed in the RDT400 Recorder and are inactive in the display.	- After changing settings, the WWW Service must be closed and restarted again. This results in the IS-API.DLL and thus also the settings being reloaded (see *Chapter 2.3 "Configuration of the Web Server for RDT400"*).
The password for resetting the statistics data is no longer known.	- Enter a new reset password in the display settings of the RDT400 Recorder. Then restart the WWW Service so that the settings become effective.
Unsuccessful call-up of RDT400 Display in the Intranet from a WWW browser.	- In the browser's Intranet settings define that no proxy server is to be used for the RDT400 Server.

Table 12. Troubleshooting for RDT400 Display

Australia
Phone +61 3 9497 4100
1800 33 48 02 – tollfree
E-Mail sales@sick.com.au

Belgium/Luxembourg
Phone +32 (0)2 466 55 66
E-Mail info@sick.be

Brasil
Phone +55 11 3215-4900
E-Mail sac@sick.com.br

Ceská Republika
Phone +420 2 57 91 18 50
E-Mail sick@sick.cz

China
Phone +852-2763 6966
E-Mail ghk@sick.com.hk

Danmark
Phone +45 45 82 64 00
E-Mail sick@sick.dk

Deutschland
Phone +49 211 5301-270
E-Mail info@sick.de

España
Phone +34 93 480 31 00
E-Mail info@sick.es

France
Phone +33 1 64 62 35 00
E-Mail info@sick.fr

Great Britain
Phone +44 (0)1727 831121
E-Mail info@sick.co.uk

India
Phone +91–22–2822 7084
E-Mail info@sick-india.com

Italia
Phone +39 02 27 43 41
E-Mail info@sick.it

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E-Mail support@sick.jp

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E-Mail info@sick.nl

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E-Mail austefjord@sick.no

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E-Mail office@sick.at

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E-Mail info@sick.pl

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