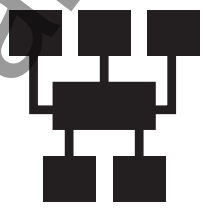
ERL PHASE
Power Technologies Ltd

RecordBase

Central Station



User Manual

Version 1.4 Rev 1

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Preface

This manual is part of a complete set of product documentation that includes detailed drawings and operation. Users should evaluate the information in the context of the complete set of product documentation and their particular applications. ERLPhase assumes no liability for any incidental, indirect, or consequential damages arising from the use of this documentation.

While all information presented is believed to be reliable and in accordance with accepted engineering practices, ERLPhase makes no warranties as to the completeness of the information.

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Version Descriptions

RecordBase Central Station Version Compatibility

This chart indicates compatibility between versions of RecordBase Central Station and RecordBase View

Release Date	RecordBase Central Station Version	Compatible RecordBase View Version
2007 Apr 13	v1.4	v1.5
2005 Aug 31	v1.3	v1.3
2003 Apr 17	v1.2	v1.5
2002 Oct 30	v1.1b	v1.1 – v1.4
2002 May 06	v1.1a	v1.1 – v1.3
2001 May 04	v1.1	v1.1
2001 Feb 13	v1.0	v1.0

RecordBase Central Station Version Summary

Release Date	RecordBase Central Station Version	Change Summary (for details, see the Release Description)
2007 Apr 13	v1.4	Supports TESLA 3000 Cooperative Mode and improvements to running under Windows limited user accounts
2005 Aug 31	v1.3	Supports TESLA 3000 and 2000
2003 Apr 17	v1.2	Adds LAN support to TESLA communication. Supports systems with up to 100 TESLA recorders.
2002 Oct 30	v1.1b	Supports the latest version of record produced by the TESLA recorder.
2002 May 06	v1.1a	Increased maximum size of the IED phone number to 50 characters. Corrected handling of records with >100 events.
2001 May 04	v1.1	Uses RecordBase View as the Server's record user interface.
2001 Feb 13	v1.0	First release.

RecordBase Central Station User Manual Revision History		
Date	**Manual Version**	**Changes from Previous Version**
2008 Feb 29	v1.4 Rev1	Branded to ERLPhase.
2007 Apr 13	v1.4	Update to RecordBase v1.4
2005 Aug 31	v1.3	Update to RecordBase v1.3
2003 Apr 17	v1.2	Update to RecordBase v1.2.
2002 Oct 30	v1.1 Rev 4	Update to include new features and new format.
2002 May	v1.1 Rev 3	Add to version description tables.
2002 May 09	v1.1 Rev 2	Incorporate Addendum 1 into manual.
2001 May 04	v1.1	Manual reflects software changes.
2001 Feb 13	v1.0	First release.

Using This Guide

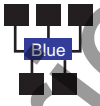
This User Manual describes the installation and operation of RecordBase Central Station software. It is intended to support the first time user and clarify the details of the equipment.

RecordBase View, the record database and graphics tool, is described in a separate user manual.

The manual uses a number of conventions to denote special information:

Example	Describes
Start>Settings>Control Panel	Choose the Control Panel submenu in the Settings submenu on the Start menu.
Right-click	Click the right mouse button.
Recordings	Menu items and tabs are shown in italics.
APT_RB_1	User input or keystrokes are shown in bold.
Text boxes similar to this one	Relate important notes and information.

Different coloured icons denote the different program sections.

	RecordBase System Manager (blue)
	RecordBase Collector (green)
	RecordBase Administrator (red)
	RecordBase Monitor (yellow)

1 System Overview

The RecordBase Central Station software provides automated collection, storage and network-wide access to fault and disturbance data produced by TESLA Model 2000 and 3000 recorders. RecordBase ensures your recorder data is automatically brought to a secure central location and is made available to staff throughout your company for display and analysis.

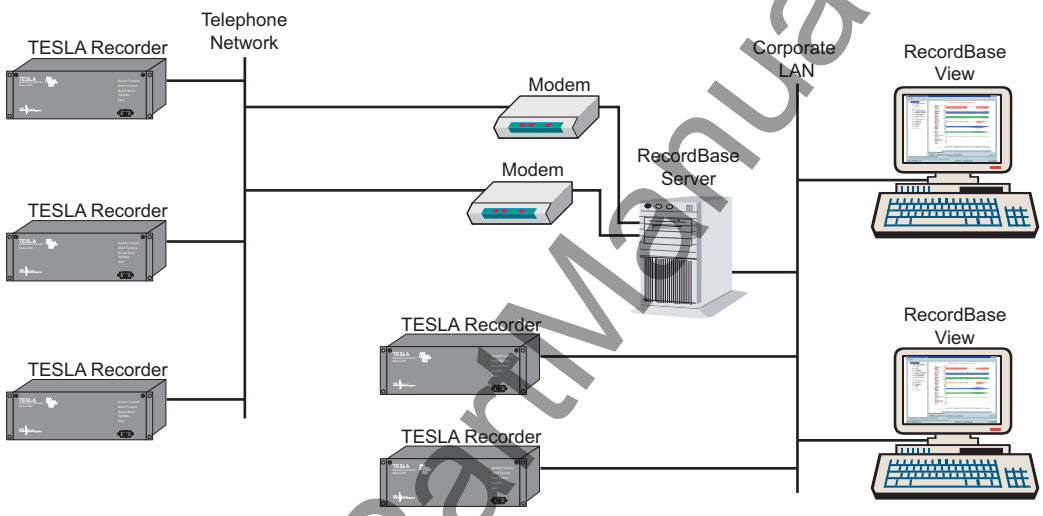


Figure 1.1: System Overview

RecordBase Features

- Provides automated record transfer from TESLA recorders on a call-out schedule or by a recorder initiation
- Allows central cross-triggering of TESLA recorders for system-wide dynamic swing recording
- Includes integrated record database with search, sort and filter functions
- Access company-wide records on existing Windows Computers through the corporate LAN
- Provides a graphical, interactive record display with timebase, phasor, harmonic and impedance analysis tools
- Provides record summaries with classification and shared commentary work space
- Provides graphical and numeric export to support generation and special analysis
- Supports systems with up to 100 recorders
- Supports both modem and LAN communication
- Supports TESLA 3000 Cooperative Mode

System Description

RecordBase consists of two main components:

- RecordBase Central Station is a set of modules which handle record collection and storage
- RecordBase View provides access to the data on existing desktop computers over the corporate LAN

Central Station Software

The Central Station handles record acquisition and cross-triggering with TESLA recorders and maintains the central database of records. RecordBase Central Station communicates with TESLA recorders using modems and/or LAN. RecordBase Central Station runs on a PC with , Windows 2000 or Windows XP operating systems, and that PC should be dedicated to this purpose only.

You can configure RecordBase Central Station to call TESLA recorders through a modem or LAN and automatically download new records. You can also set the call order and the call time.

RecordBase Central Station accepts incoming calls from a recorder through a modem or LAN. You can set the recorder to notify RecordBase Central Station of a dynamic swing trigger or a new high priority record produced by the recorder.

RecordBase Central Station maintains a database of information from the records it collects. The database, as well as the downloaded record files, may be located on the server's hard disk or on another drive on the network. This allows you to place your data in a more secure location managed by your company's information systems staff (if available).

RecordBase Central Station is configured and managed using RecordBase Tools (Collector and Monitor) to control and to monitor its operation. These tools can be run on the server itself or remotely on another computer on the network.

RecordBase View

RecordBase View is a separate software client program (for details see RecordBase View User Manual). It is the primary tool for those who work with the data collected from the recorders. RecordBase View provides database search and sort functions, a summary display of each record, report tools and interactive display graphics.

RecordBase View can run on existing desktop PCs running Windows 2000 or XP operating systems, and can access data on the RecordBase Central Station computer over the existing corporate LAN. You can also run RecordBase View on the same computer as RecordBase Central Station.

RecordBase Database

The RecordBase database is based on Microsoft Access. Data is stored in a single central Access database file maintained by RecordBase Central Station and RecordBase Administrator. RecordBase View is implemented using a run-time version of Microsoft Access. It provides access to the RecordBase database. Multiple access to the central database file is controlled through record locking to ensure data integrity. Because RecordBase View uses a run-time version of Access, you do not need to have Access installed on either the Cen-

tral Station or any computer running RecordBase View. If you do have a copy of Access, you can use it to create your own reports and displays.

What You Need To Set Up RecordBase

RecordBase Central Station

For RecordBase Central Station

- A Pentium PC running Windows 2000 or Windows XP

For Modem Communication

- One or two Windows-compatible modems (internal or external) with telephone lines
  - One modem for outgoing calls to recorders (required)
  - Second modem for incoming calls from recorders (only required if incoming calls via modem are to be supported)

For LAN Communication

- LAN card with the operating system and hardware in use
- Storage space suitable for records and the database. (A typical TESLA record is from 100 KB–1 MB.) Alternatively, the database and records can be located on a network drive
- Network connection that supports the TCP/IP protocol—required only if the database and records are stored on a network drive. LAN communication with TESLA is required.
- Data backup facility recommended, if you are storing TESLA records on the server and there is no network-based backup facility

To display records on the Server, the computer should also meet the requirements for RecordBase View:

- Pentium class processor at 200 MHz or better is recommended
- Display adapter that supports 800 x 600, small fonts mode is the minimum
- 64 MB or greater is recommended
- Printer (optional)

RecordBase View and RecordBase Tools (optional)

- Pentium class processor at 200 MHz or better is recommended
- Windows 2000 or XP
- Network connection to the Server that supports the TCP/IP protocol
- Display adapter that supports 800 x 600, small fonts mode is the minimum
- 64 MB or greater is recommended
- Printer (optional), but a print driver is required to view the report summary

TESLA Recorders

- TESLA 2000 Recorders with Firmware v2.1 or higher are required to work with RecordBase using modem communication
- TESLA 2000 Recorders with Firmware v3.6 or higher are required to work with RecordBase using LAN communication
- RecordBase supports all versions of TESLA 3000

RecordBase Modules

RecordBase Central Station consists of a number of software modules that work together. In addition to the modules that provide the underlying communication and data acquisition functions, there are user interface modules used to manage the system.

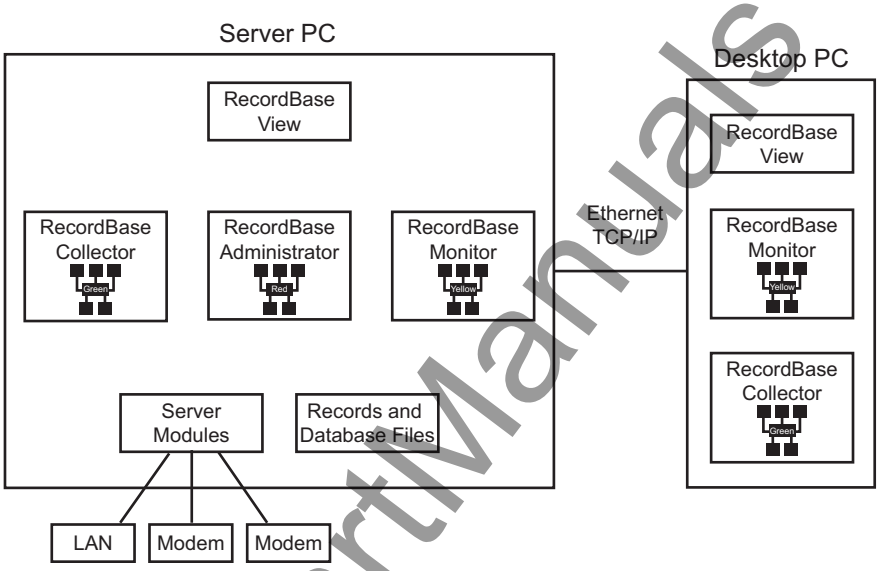


Figure 1.2: RecordBase Modules

RecordBase Monitor

RecordBase Monitor displays the type and result of the last communication session with each TESLA recorder. It provides access to the system's communication activity and diagnostic logs. The Monitor also has controls to initiate an immediate cross-trigger of all recorders or to initiate a record collection call-around. The Monitor is used by the system administrator or by general RecordBase users who need basic status information and the ability to initiate exceptional record acquisition action. It can be run on the Server or an another PC on the network.

RecordBase Collector

RecordBase Collector provides control over the system's record collection function. It identifies the TESLA recorders and specifies the record collection and cross-trigger rules. RecordBase Collector is a system administrator's tool and is typically run on the Server, although it can be run from any network computer.

RecordBase Administrator

RecordBase Administrator provides database management tools including record deletion, modification and import. The Administrator is a system administrator's tool and must be run on the Server.

Server Modules

The Server Modules are a set of software components that control the automated record collection and communication functions. They run continuously on the Server machine and form the core of the RecordBase system.

RecordBase Versus TESLA Control Panel

TESLA Control Panel software is the basic user interface for the TESLA recorders to configure and control the recorder. RecordBase does not replace this function.

> TESLA Control Panel version 2.1 or greater is required to configure a TESLA to work with RecordBase via modem. This version contains settings to control TESLA calls to RecordBase to report swing triggers or to initiate record transfer.
>
> TESLA Control Panel version 3.6 or greater is required to configure TESLA to work with RecordBase via LAN.
>
> As an alternative to the above, TESLA 3000 Control Panel v1.0 or above can be used.

Running Control Panel on the RecordBase Central Station

Control Panel may be run on the RecordBase Central Station computer and make use of the Server's outgoing modem or LAN card to communicate with recorders.

If using a modem, the Server must have an APT_MODEM dial-up network configuration for TESLA Control Panel to use (refer to TESLA User Manual for further details). Set it up to use the same modem as RecordBase uses for dial-out.

When Control Panel is using the modem, RecordBase is unable to use it. RecordBase treats this as a failed call attempt and follows its configured call retry rules. If the maximum number of retries is reached, RecordBase abandons the call attempt.

If RecordBase is using the call-out modem when you try to connect to a recorder using Control Panel, Control Panel reports a communication error. You can try again when RecordBase has finished with the modem.

> If your system is set up to receive modem calls from recorders, extended use of the outgoing Server modem by Control Panel could result in missed cross-triggers or record transfers. If your system is set up to receive LAN calls from recorders, this is not an issue.

Adding Records from Control Panel

It is possible to manually add a record that has been transferred from a recorder using Control Panel to RecordBase. In Control Panel, select the desired record from the Records List and use the *Save As* button to place the file on a diskette or a shared directory. Use RecordBase Administrator to add the record to the database.

You can also use RecordBase View to add records to the RecordBase Central Station database. To add a record run RecordBase View and select *File>Open*. From the drop-down menu select the RecordBase database (*C:\Program Files\NxtPhase\RecordBase\Database\RecordBase.mdb*) and *OK*. Select *Add* and choose the record to be added. The Records Found number should be updated showing that you have added a new record. For more information refer to the RecordBase View User Manual.

2 RecordBase Central Station and Tools Installation

The section “Planning Your Installation” is common to both Windows 2000 and Windows XP.

For Windows 2000 server setup details and installation instructions refer to “RecordBase Central Station Setup Overview (for Windows 2000)” on page 2-3 and “Detailed Server Installation (for Windows 2000)” on page 2-4.

For Windows XP server setup details and installation instructions refer to “RecordBase Central Station Setup Overview (for Windows XP)” on page 2-14 and “Detailed Server Installation (for Windows XP)” on page 2-15.

Planning Your Installation

This section describes RecordBase installation and the available choices. For system requirements see “What You Need To Set Up RecordBase” on page 1-3.

During Server software installation there are two options—Full Server Installation and RecordBase Tools Only.

Full Server

Full Server installation installs the core server/database files and RecordBase Tools. You should install only one instance of Full Server on your entire network. This computer must have TCP/IP capability.

RecordBase Tools

RecordBase Tools consists of two modules—RecordBase Collector and RecordBase Monitor. These modules may be installed on the server or any network computer to allow the administration of RecordBase Central Station remotely. The network computer must have a TCP/IP link with the Server. You may run approximately 15 simultaneous instances of Collector and Monitor.

The table below summarizes the functionality of RecordBase Tools, for details see “Record Collection” on page 4-1 and “Communication Monitoring” on page 5-1.

Module	Functionality
RecordBase Monitor	Monitors communication with recorders. Manually initiates system-wide swing trigger. Initiates manual collection of records from a recorder.
RecordBase Collector	Defines recorders and communication parameters. Sets record collection times and rules. Provides a way to shut down RecordBase. Sets the number of logfile entries.

Selection of a Server Computer

To use RecordBase's automatic record collection capability, we recommend that you either dedicate a computer to run RecordBase Central Station or ensure that other programs that run on the shared computer are known and predictable.

> We do not recommend installing RecordBase Central Station on a computer that runs numerous different software packages or one that is used for general day-to-day tasks.

Modems and Telephone Lines

The Server can be set up to use one or two modems to communicate with the recorders. The first modem (outgoing) is used exclusively for outgoing calls to the recorders to collect records or initiate a swing recording. The second modem (incoming) is optional and is used for incoming calls from the recorders to report new records or initiate swing cross-triggering. The need for the incoming modem depends on which communication features you plan to use.

Modem Required	Communication Feature
Outgoing	Schedule polling calls to recorders to collect records. Manually initiate calls to recorders to collect records. Manually initiate swing triggering to all recorders.
Incoming	Allows new record notification from recorders. Allows cross-trigger notification from recorders.

Network Connection

A connection to your LAN is required if you plan to do any of the following:

- Store your database on a computer other than RecordBase Central Station
- Analyze records from a computer other than RecordBase Central Station
- Configure and monitor the record collection process from a computer other than RecordBase Central Station
- Use RecordBase Central Station to fetch records or to initiate swing triggering over the LAN
- Allow new record notification or cross trigger notification for recorders over the LAN

You do not need a network connection if you plan to store the data on the server machine and you work with record data only on that machine.

TCP/IP

RecordBase Central Station requires TCP/IP in order to communicate with recorders, for details see "Remote Access Service (RAS) Setup" on page 2-5 for Windows 2000 and "Remote Access Service (RAS) Setup" on page 2-16 for Windows XP. RecordBase Tools require TCP/IP to communicate with RecordBase Central Station.

RecordBase View does not require TCP/IP to access RecordBase Database; but the client machine (the PC that runs RecordBase View) must be in the same network domain as RecordBase Central Station.

Data Storage

Full Server installation creates a default folder for RecordBase Database in "C:\Program Files\NxtPhase\RecordBase Server\Database." The database folder contains the file rb.mdb and all record files. Record files can range from about 100 KB to 1 MB each, so make sure your hard disk has sufficient storage space. We recommend that you do a regular backup of the database folder.

RecordBase Central Station Setup Overview (for Windows 2000)

This section provides an overview of the steps involved in setting up RecordBase Central Station. Detailed instructions appear in following sections.

Decide first whether you wish RecordBase to use one modem (for calling TESLA recorders), two modems (one for calling TESLA recorders and another for accepting calls from TESLA recorders) or LAN. RecordBase can also use a combination of modems and LAN.

RecordBase with One Modem Overview

In this case RecordBase calls TESLA recorders for record collection.

1 Install Server software from the CD-ROM.

2 Define IEDs, for details see "Adding a Recorder to the List" on page 4-3.

3 If desired, allow remote computers to access the RecordBase Database by creating a share on the database folder (C:\ProgramFiles\NxtPhase\RecordBase\database).

4

5 Ensure Windows 2000 Service Pack 2 or later is applied.

RecordBase with Two Modems Overview

In this case RecordBase is not only able to call TESLA recorders, but is also able to receive calls from them. In addition to the above steps, perform the following:

1 Create a new user account on the server machine for the TESLA recorders, for details see "New User Account Setup" on page 2-4.

2 In Control Panel, Administrative Tools, Services ensure that the Routing and Remote Access service is set to run automatically and modems are configured and functional, for details see "Remote Access Service (RAS) Setup" on page 2-5.

RecordBase with LAN Overview

In addition to (or instead of) modems, RecordBase has the ability to call TESLA Recorders and receive calls from them over the LAN.

1 Follow the steps according to "RecordBase with One Modem Overview" on page 2-3, starting with step 1.

Detailed Server Installation (for Windows 2000)

New User Account Setup

New User Account setup is only necessary for installations with two modems (IEDs are allowed to call in and out).

1 In Control Panel *Administrative Tools/Computer Management,* open the *Local Users and Groups* branch and right-click *Users*.

2 Choose *New User...* from the pop-up menu.

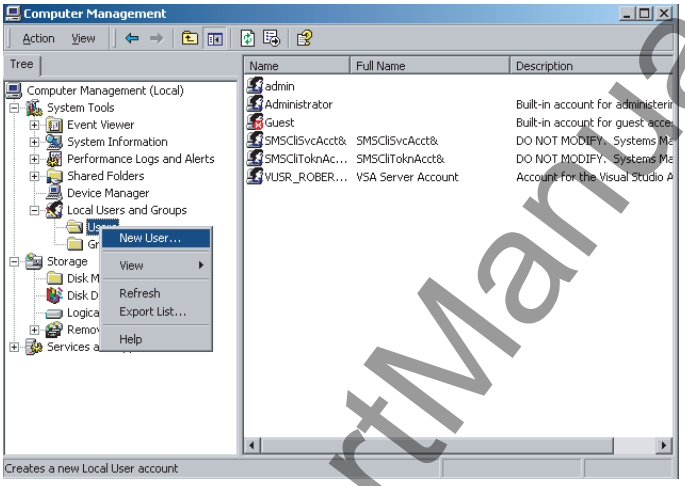


Figure 2.3: New User

3 Create a new user account with the name **tesla2000**, type password as **T3S5A3720** and confirm.

4 Uncheck *User must change password at next logon.*

5 Check *User cannot change password.*

6 Check *Password never expires.*

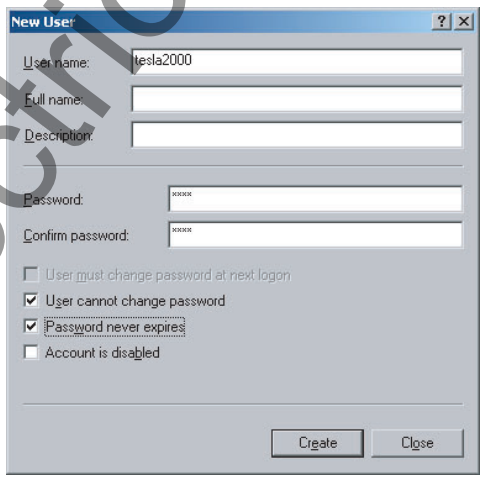


Figure 2.4: New Account Information

7 Click the *Create* button and close the New User dialog box.

Remote Access Service (RAS) Setup

Remote Access Service (RAS) Setup is only necessary for installations with two modems (IEDs are allowed to call in and out). Skip this section if you don't need modem access to/from recorders.

1 Go to *Control Panel/Administrative Tools/Services*.

2 Check the status of *Routing and Remote Access* service. The start-up type should be set to *Automatic* and its status should be *Started*.

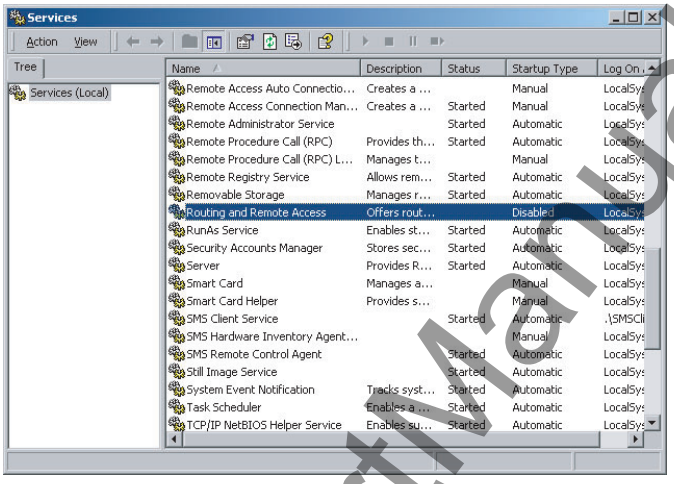


Figure 2.5: RAS Setup

3 If it is not, double-click it to bring up *Properties*, set the *Start-up Type* to *Automatic* and start the service.

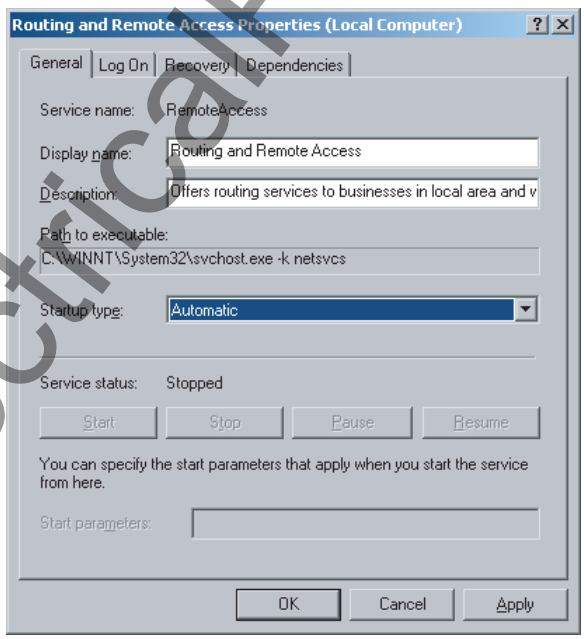


Figure 2.6: RAS Properties

4 Go to *Control Panel/Network* and *Dial-up Connections*.

5 Double-click *Incoming Connections*.

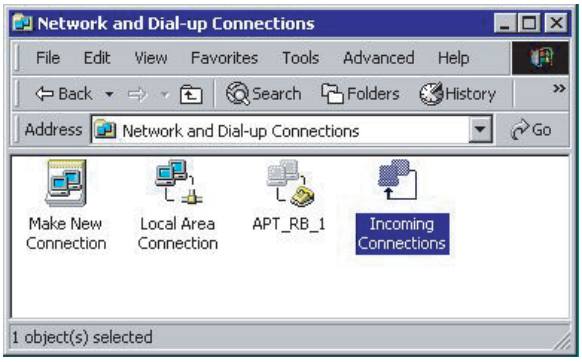


Figure 2.7: Network and Dial-up Connection

6 Choose the dial-in modem to allow incoming calls.

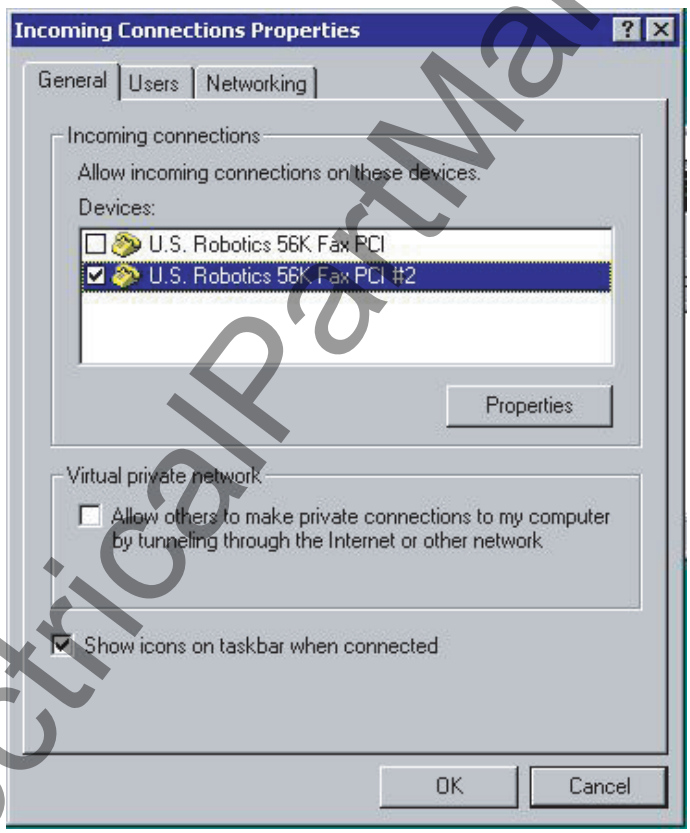


Figure 2.8: Incoming Connections Properties

7 Go to the Users tab and allow the “tesla2000” user to connect

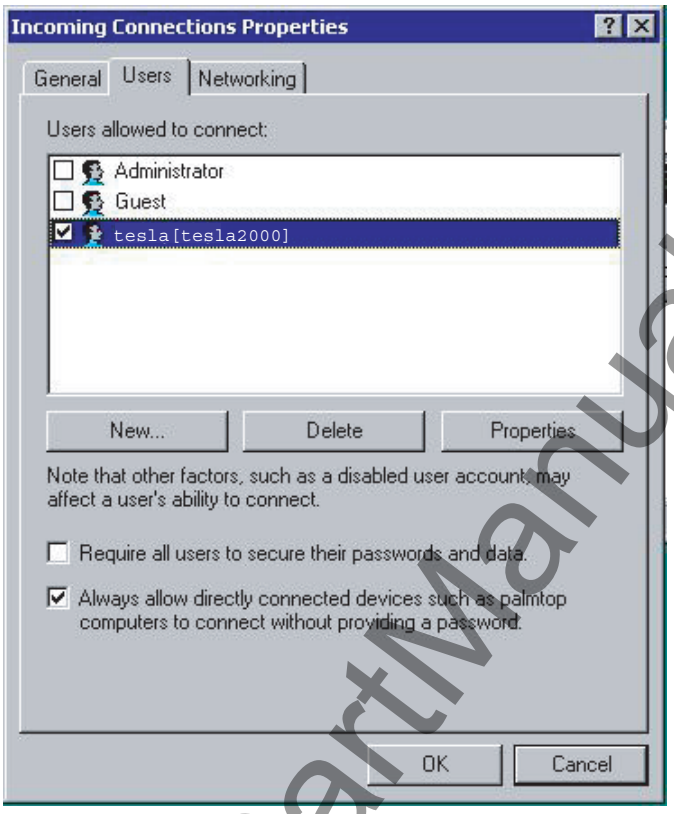


Figure 2.9: TESLA User Connection

8 Go to the Networking tab, ensure Internet Protocol (TCP/IP) is checked, select it and click *Properties*.

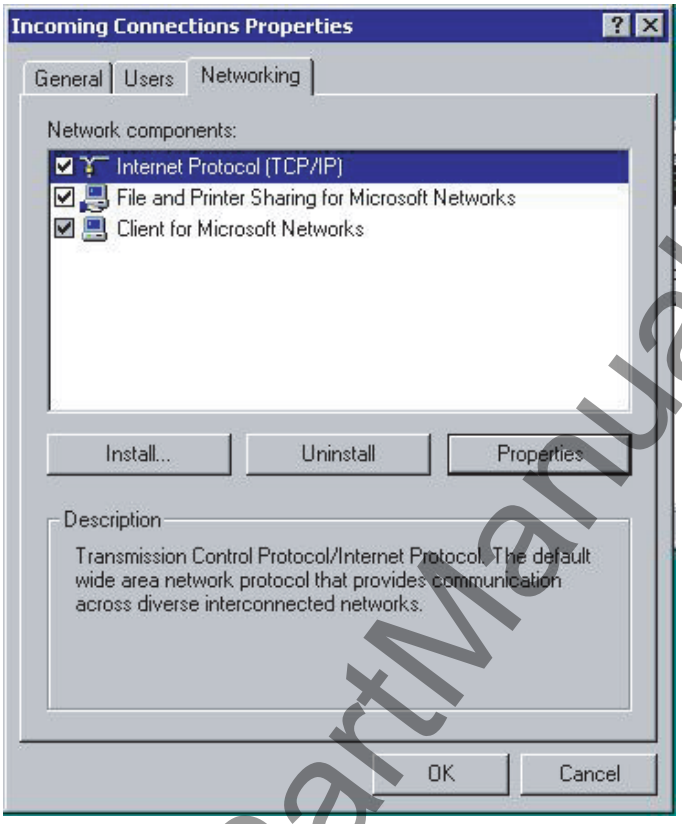


Figure 2.10: Networking Properties

9 Uncheck the *Allow callers to access my local area network.*

10 Check the *Specify TCP/IP addresses* and enter a *From* address of **192.168.102.160** and a *To* address of **192.168.102.180.**

11 Uncheck the *Allow calling computer to specify its own IP address*.

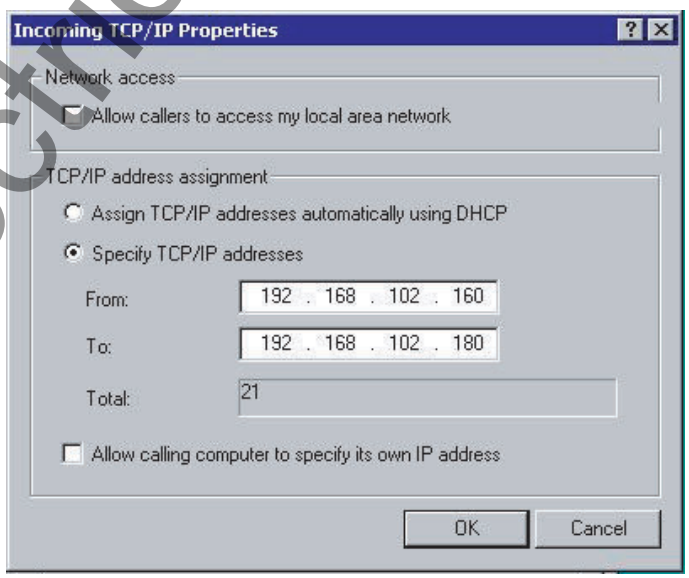


Figure 2.11: TCP/IP Address

12 Click *OK* to close the Incoming TCP/IP Properties dialog box.

13 Click *OK* to close the Incoming Connections Properties dialog box.

Skip this section if you don't need modem access to recorders.

Phone Book Entry Setup

1 First manually copy the file "c:/program files/accessories/RBtesla.scp" to the "c:/winnt/system32/ras/" directory.

2 Go to Control Panel, Network and Dial-up Connections.

3 Double-click *Make New Connection* to open the Network Connection Wizard.

Figure 2.12: Create a Connection

4 Choose Network Connect Type as *Dial-up to private network* and click *Next*.

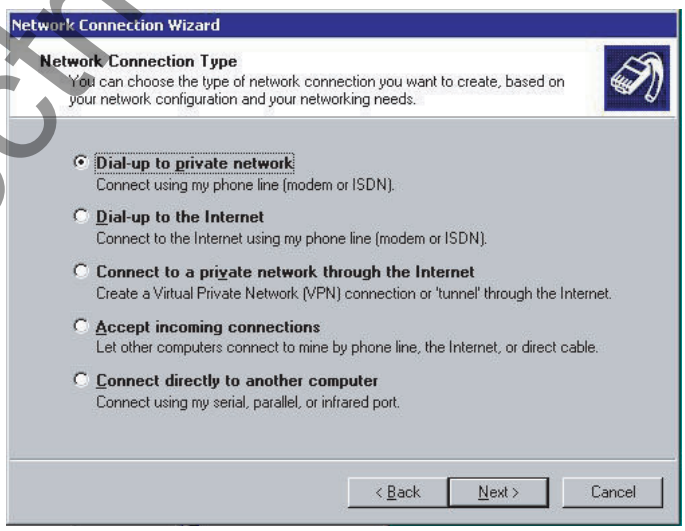


Figure 2.13: Network Connection

5 Select the modem to be used for dial-out. Click *Next*.

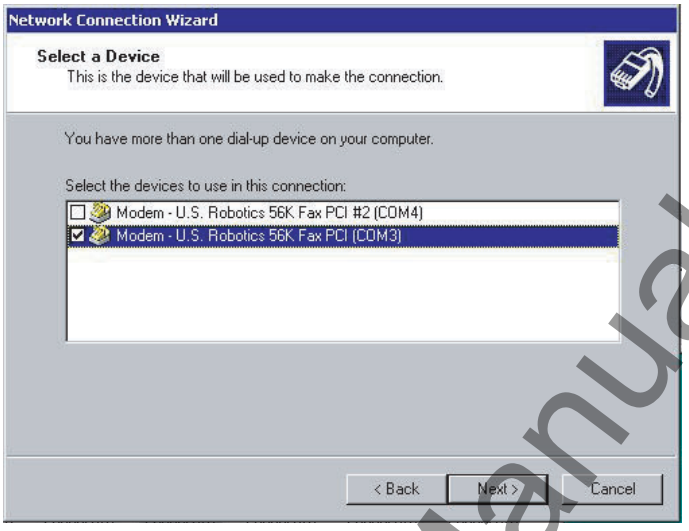


Figure 2.14: Choose Modem

6 Leave the *Phone Number to Dial* as blank. Click *Next*.

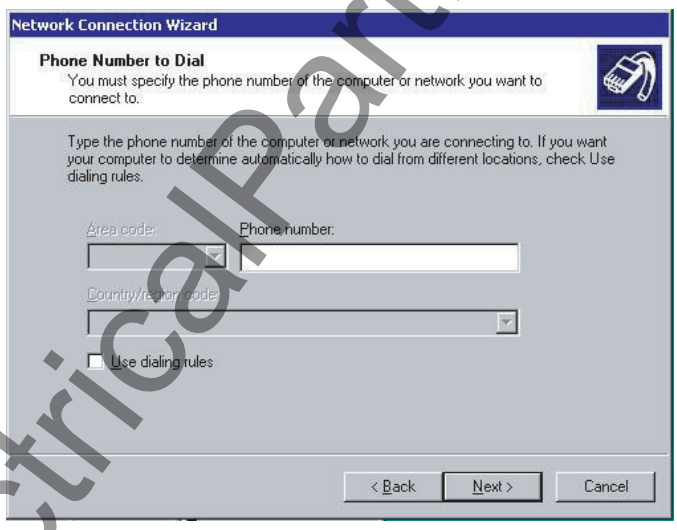


Figure 2.15: Dialin Telephone Number

7 Choose Connection Availability as *For all users*. Click *Next*.

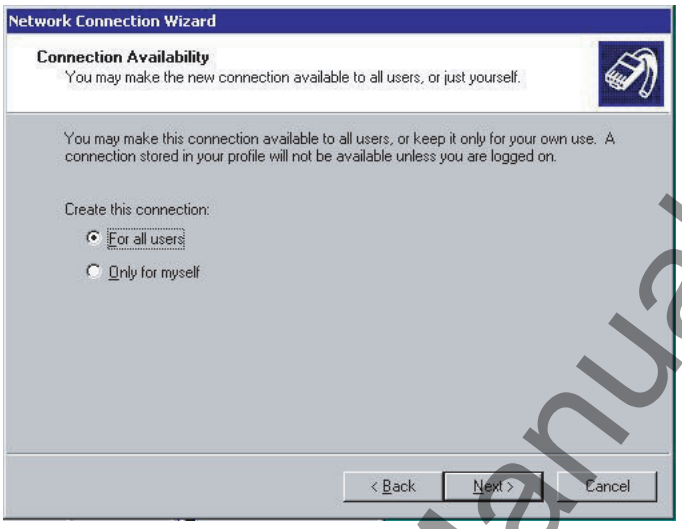


Figure 2.16: Connection Availability

8 Call this connection exactly as **APT_RB_1** (must be exactly as shown). Click *Finish*.

Figure 2.17: Connection Name

9 Click *Properties* in the Connect APT_RB_1 dialog box that opens.

Figure 2.18: Connect APT_RB_1

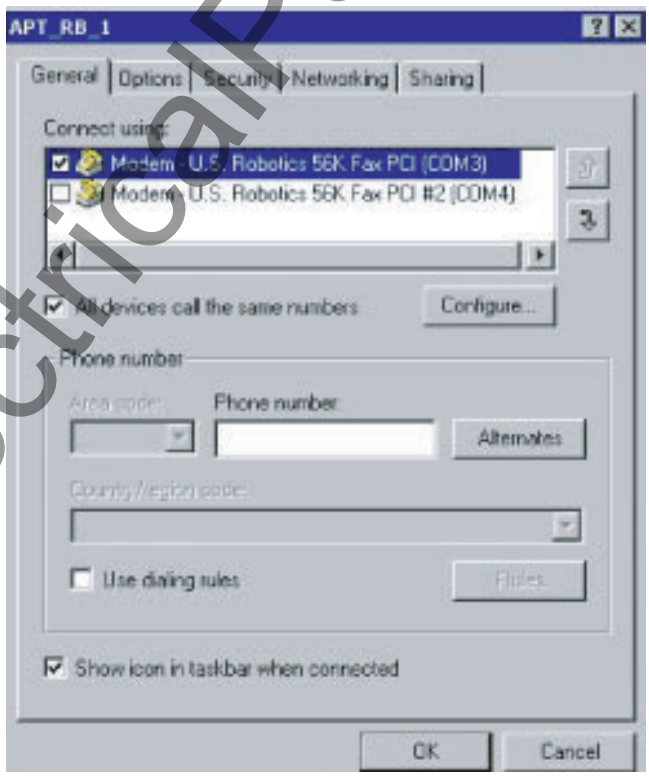


Figure 2.19: Choose Modem

10 Select the Security tab and set it to run the script “RBtesla.scp”. Click *OK*.

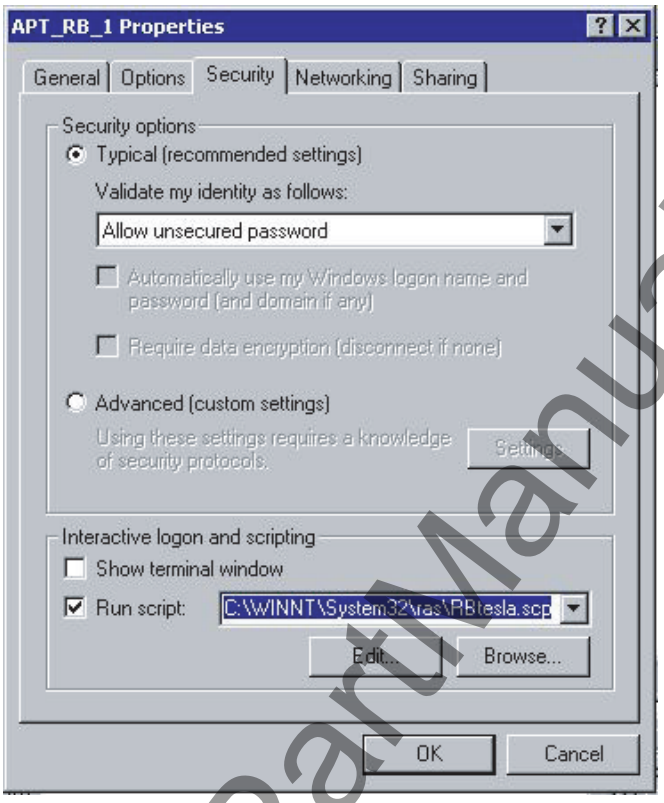


Figure 2.20: Security Properties

11 Cancel the *Connect APT_RB_1* dialog box that appears.

RecordBase Central Station Setup Overview (for Windows XP)

This section provides an overview of the steps involved in setting up RecordBase Central Station. Detailed instructions appear in following sections.

Decide first whether you wish RecordBase to use one modem (for calling TESLA recorders) or two modems (one for calling TESLA recorders and another for accepting calls from TESLA recorders). The latter case involves more installation steps.

RecordBase with One Modem Overview

In this case RecordBase calls TESLA recorders for record collection.

1 Install Server software from the CD-ROM.

2 Define IEDs, for details see “Adding a Recorder to the List” on page 4-3.

3 If desired, allow remote computers to access the RecordBase Database by creating a share on the database folder (C:\ProgramFiles\NxtPhase\RecordBase\database).

4 Ensure Windows XP Service Pack 1 or later is applied.

RecordBase with Two Modems Overview

In this case RecordBase is not only able to call TESLA recorders, but also able to receive calls from them. In addition to the above steps, perform the following:

1 Create a new user account on the server machine for the TESLA recorders, for details see for details see Figure 2.22: New Account Information on page 2-15.

2 In Control Panel, Administrative Tools, Services ensure that the Routing and Remote Access service is set to run automatically and modems are configured and functional, for details see “Remote Access Service (RAS) Setup” on page 2-16.

3 Continue as in the section “RecordBase with One Modem Overview” starting with Step 2.

RecordBase with LAN Overview

In addition to (or instead of) modems, RecordBase has the ability to call TESLA Recorders and receive calls from them over the LAN.

1 Follow the steps according to “RecordBase with One Modem Overview” on page 2-14 starting with step 1.

Detailed Server Installation (for Windows XP)

New User Account Setup

New User Account setup is only necessary for installations with two modems (IEDs are allowed to call in and out).

1 In Control Panel *Administrative Tools/Computer Management,* open the *Local Users and Groups* branch and right-click *Users*.

2 Choose *New User...* from the pop-up menu.

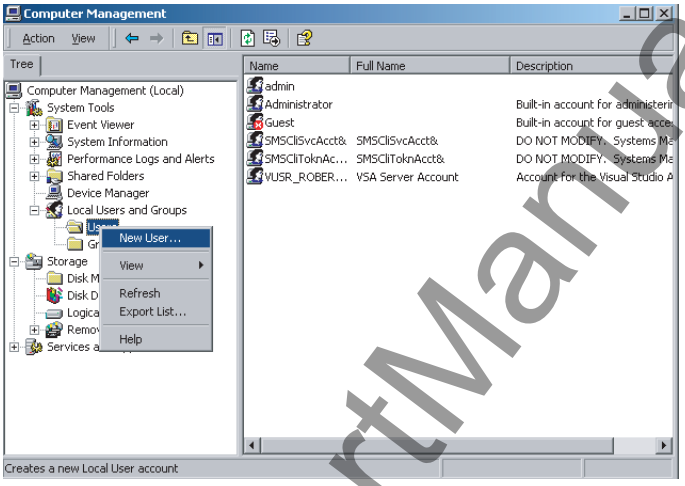


Figure 2.21: New User

3 Create a new user account with the name **tesla2000**, type password as **T3S5A3720** and confirm.

4 Uncheck *User must change password at next logon.*

5 Check *User cannot change password.*

6 Check *Password never expires.*

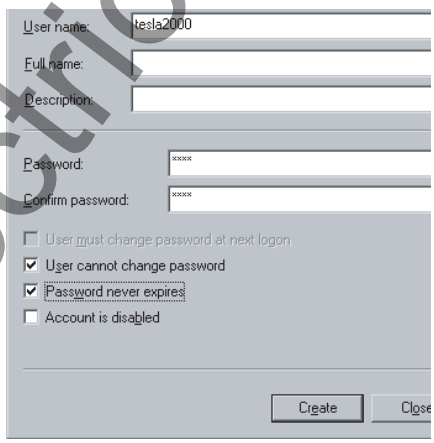


Figure 2.22: New Account Information

7 Click the *Create* button and close the New User dialog box.

Remote Access Service (RAS) Setup

Remote Access Service (RAS) Setup is only necessary for installations with two modems (IEDs are allowed to call in and out). Skip this section if you don't need modem access to/from recorders.

1 Go to *Control Panel/Administrative Tools/Services*.

2 Check the status of *Routing and Remote Access* service. The start-up type should be set to *Automatic* and its status should be *Started*.

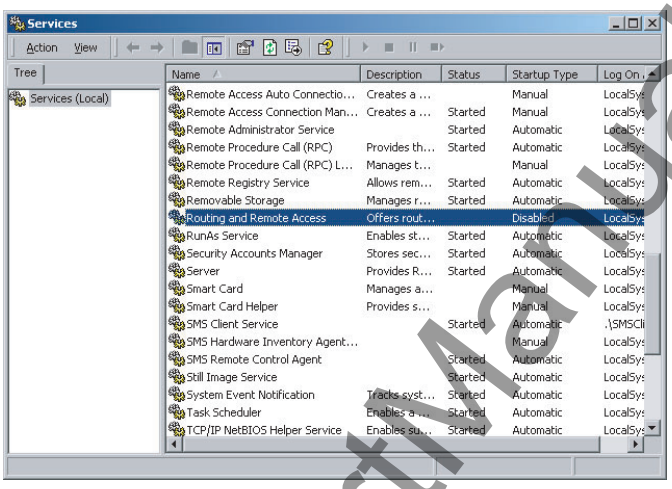


Figure 2.23: RAS Setup

3 If it is not, double-click it to bring up *Properties*, set the *Start-up Type* to *Automatic* and start the service.

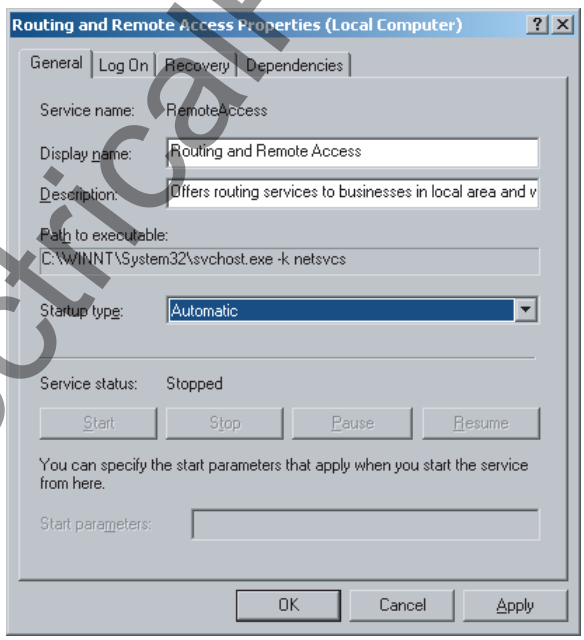


Figure 2.24: RAS Properties

4 Go to *Control Panel/Network Connections*.

5 Double-click *Incoming Connections*.

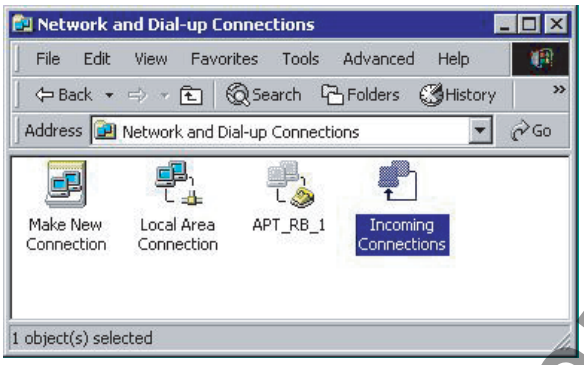


Figure 2.25: Network Connections

6 Choose the dial-in modem to allow incoming calls.

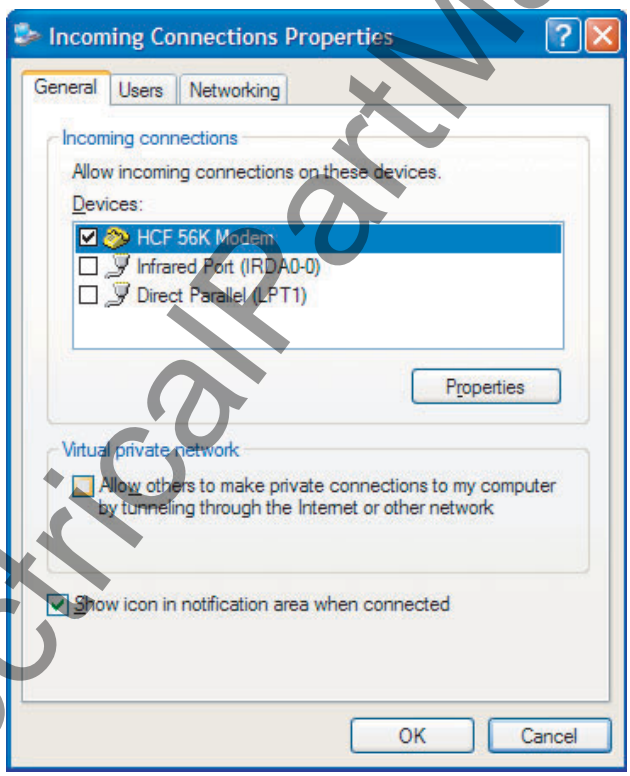


Figure 2.26: Incoming Connections Properties

7 Go to the Users tab and allow the “tesla2000” user to connect

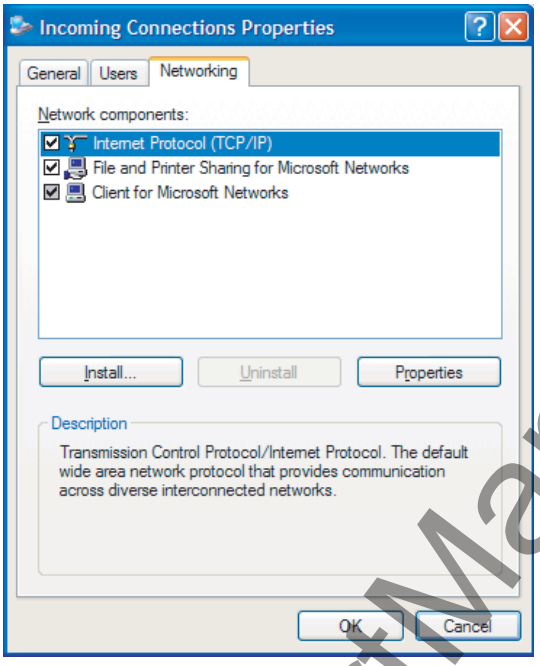


Figure 2.27: TESLA User Connection

8 Go to the Networking tab, ensure Internet Protocol (TCP/IP) is checked, select it and click *Properties*.

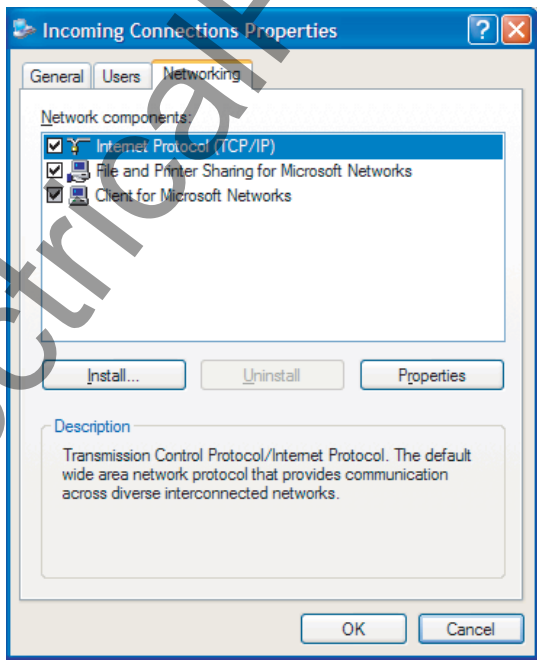


Figure 2.28: Networking Properties

9 Uncheck the *Allow callers to access my local area network.*

10 Check the *Specify TCP/IP addresses* and enter a *From* address of **192.168.102.160** and a *To* address of **192.168.102.180.**

11 Uncheck the *Allow calling computer to specify its own IP address*.

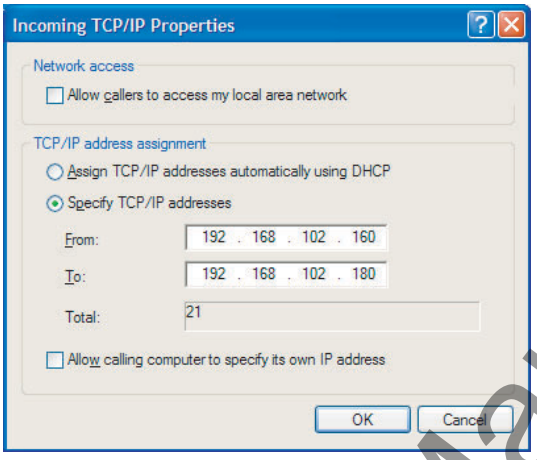


Figure 2.29: TCP/IP Address

12 Click *OK* to close the Incoming TCP/IP Properties dialog box.

13 Click *OK* to close the Incoming Connections Properties dialog box.

Skip this section if you don't need modem access to recorders.

Phone Book Entry Setup

1 First manually copy the file "c:/program files/accessories/RBtesla.scp" to the "c:/winnt/system32/ras/" directory.

2 Go to Control Panel, Network Connections.

3 Double-click *New Connection Wizard* to open the New Connection Wizard.

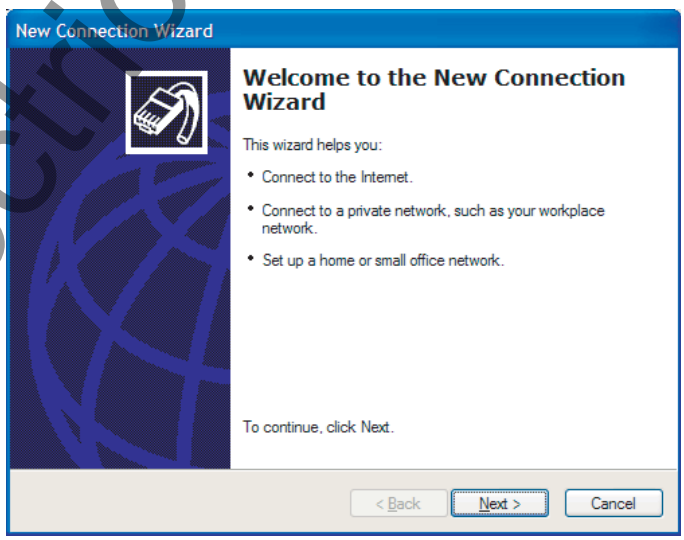


Figure 2.30: Create a Connection

4 Choose Network Connect Type as *Connect to the network at my workplace* and click *Next*.

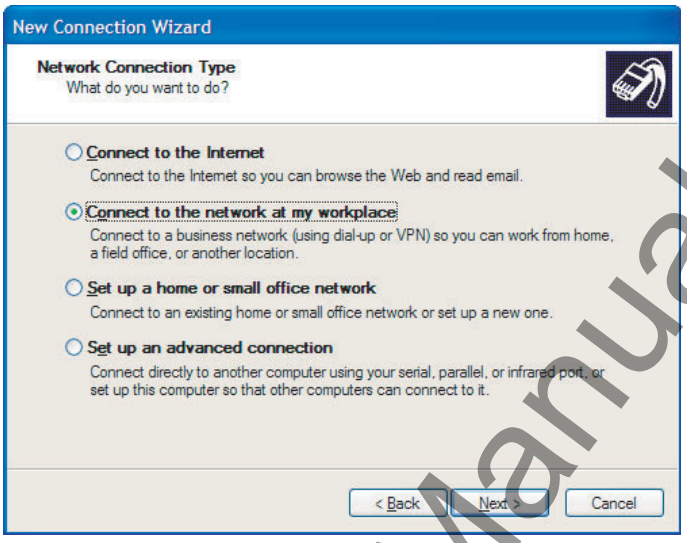


Figure 2.31: Network Connection Type

5 Choose *Dial-up Connection* and click *Next*.

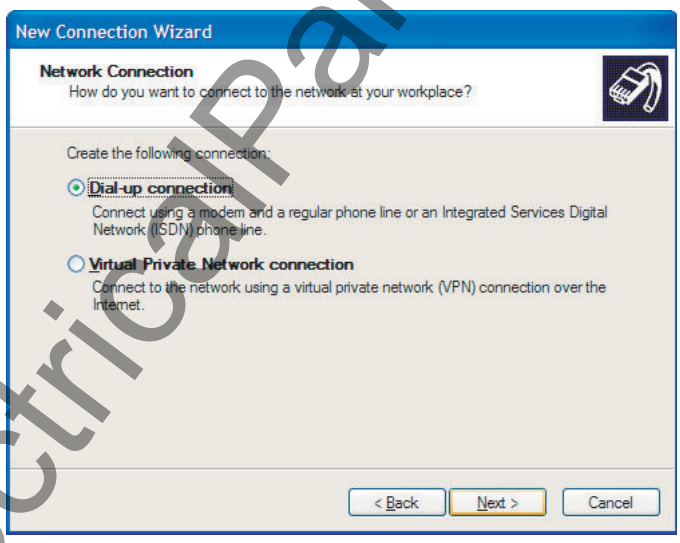


Figure 2.32: Network Connection

6 Type in the name **APT_RB_1** exactly as shown. Click *Next*.

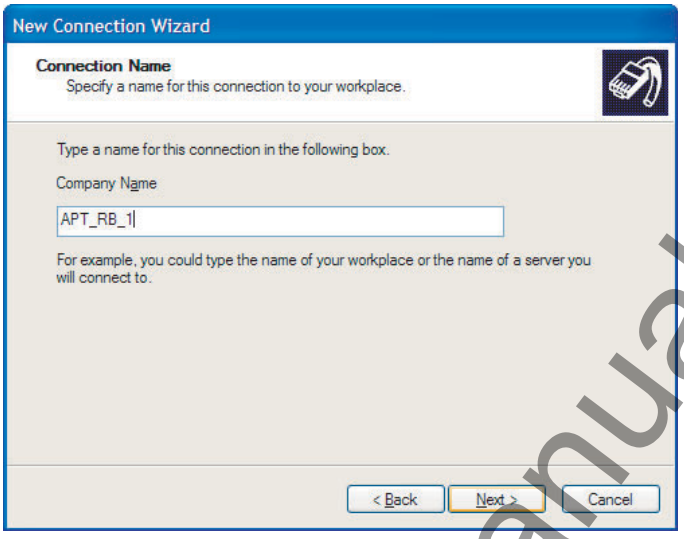


Figure 2.33: Connection Name

7 Leave the *Phone Number to Dial* as blank. Click *Next*.

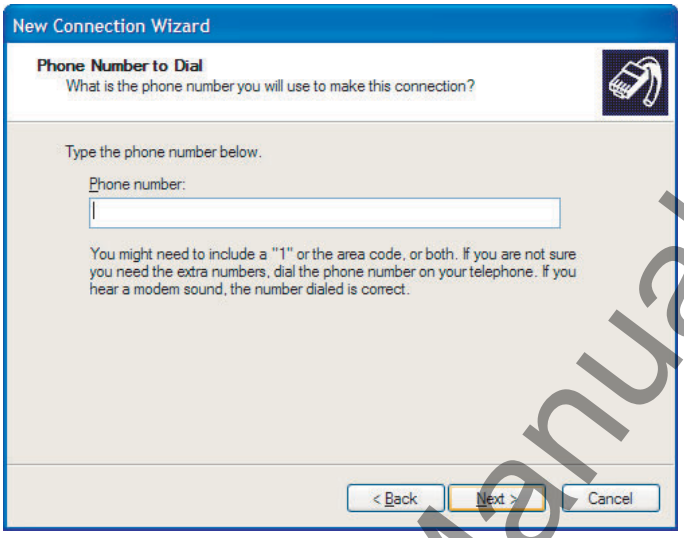


Figure 2.34: Dialin Telephone Number to Dial

8 Click *Finish*.

Figure 2.35: Completing the New Connection Wizard

9 Click *Properties* in the Connect APT_RB_1 dialog box that opens.

Figure 2.36: Connect APT_RB_1

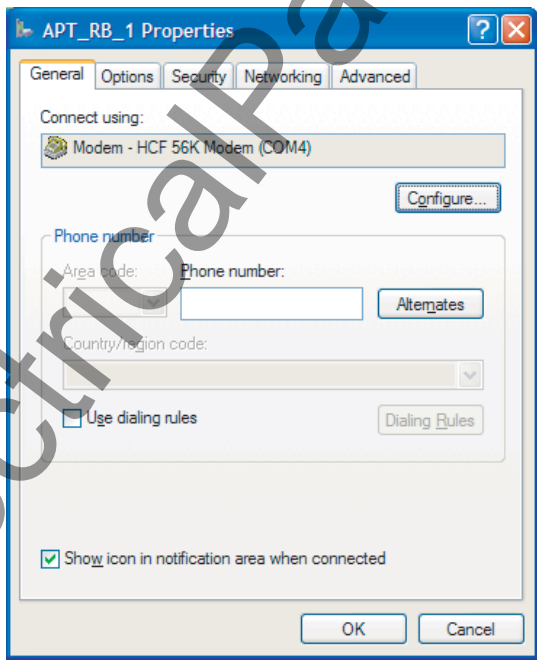


Figure 2.37: Choose Modem

10 Select the *Options* tab and ensure the Settings match for details see Figure 2.38: Options Properties on page 2-24.

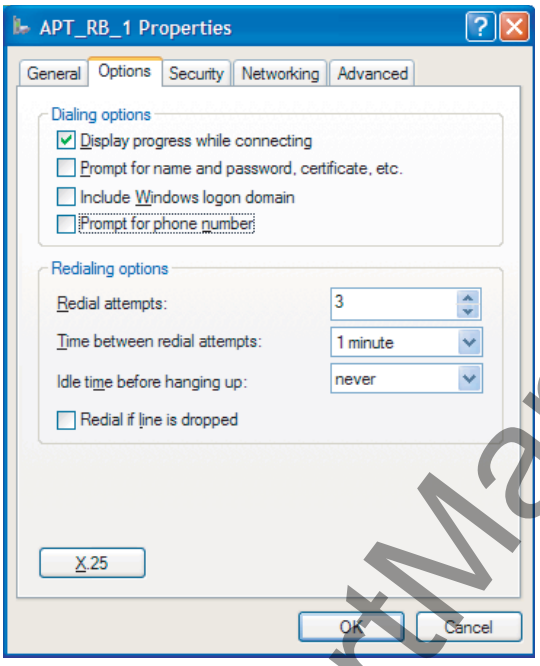


Figure 2.38: Options Properties

11 Select the *Security* tab and set it to run the script “RBtesla.scp”. Click *OK*.

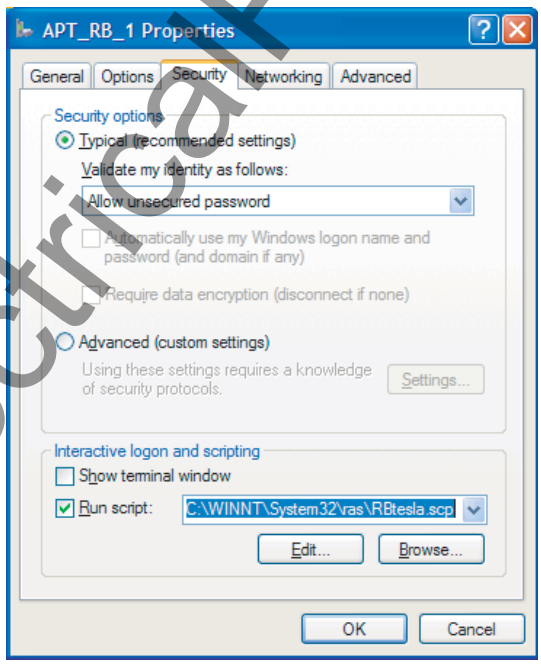


Figure 2.39: Security Properties

12 Cancel the *Connect APT_RB_1* dialog box that appears.

Commissioning and Verification of RecordBase

Communication must be tested to verify that RecordBase is configured properly. Before RecordBase can communicate with a remote TESLA recording system, the recorders must have Firmware version 2.1 or greater (for modem communication) or version 3.6 or greater (for LAN communication) and RecordBase Central Station must be running during the verification process. To run RecordBase Central Station, select *Start>Program Files>NxtPhase>RecordBase> RecordBase System Manager*. Since the Server modules run invisibly in the background, the blue RecordBase icon at the bottom right corner indicates a running RecordBase Central Station.

Testing the Dial-Out and/or Outgoing LAN Connection

This procedure verifies that RecordBase is able to dial out and communicate with remote TESLA recorders. It applies whether your RecordBase system communicates with TESLA recorders using modems or LAN.

Requirements

- TESLA recorder
- RecordBase Collector
- RecordBase Monitor

Procedure Overview

- Define a TESLA recorder to RecordBase.
- Initiate a call from RecordBase to the TESLA recorder. If the call succeeds, RecordBase automatically fetches its UnitID and Serial Number.

Procedure Details

1 Run RecordBase Collector and create a New IED by selecting the *New* button and input its Location and Phone Number or IP address. Select *OK* to exit the *New* dialog box.

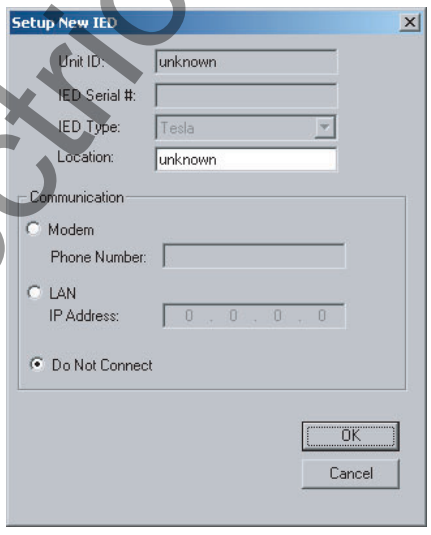


Figure 2.40: Set Up New IED

2 Select the newly created IED from the list and the *Edit* button. Ensure the phone number or IP address is correct and select the *Get Information From IED* button. RecordBase should start calling the IED within ten seconds.

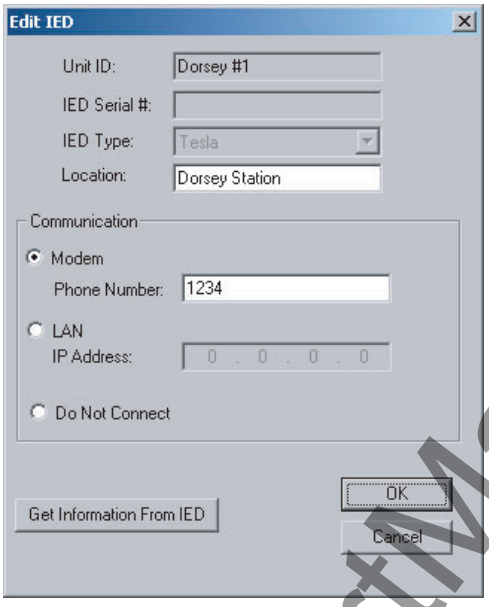


Figure 2.41: Edit IED

3 During the call, use RecordBase Monitor to view the status. When the call ends, if all goes well, the *Call Status* column should say *successful* and the unit's *UnitID* field should have been automatically filled in. There will also be an entry for this operation in Monitor's Activity Log view.

Testing the Dial-In and/or Incoming LAN Connection

This procedure verifies that TESLA recorders can successfully dial into RecordBase and communicate with it. This step is only applicable if RecordBase has been set up with two modems or if it communicates with TESLA recorders over LAN. If your RecordBase system only has one modem, skip this section.

Requirements

- TESLA recorder
- TESLA Control Panel
- RecordBase Monitor

Procedure Overview

- Configure the TESLA recorder to notify RecordBase of new records.
- Trigger the recorder and allow it to call RecordBase.
- Use RecordBase Monitor to view the call status and activity.

Procedure Details

1 Verify the Dial-Out Connection by checking the preceding instructions. RecordBase only accepts calls from IEDs that are known to it (known IEDs appear in RecordBase Monitor's IED list), so you must first establish a working connection with an IED.

2 Configure the TESLA recorder (using TESLA Control Panel) to notify RecordBase when it has new records.

3 Trigger the TESLA to generate a record (using Control Panel). This should force it to call RecordBase.

4 Monitor the activity using RecordBase Monitor (on the main IED Status screen). After the call is complete, the Call Type for that IED should be *incoming*, and the Call Status should be *new records*. An entry also appears in the RecordBase Monitor's Activity Log view.

Testing Database Operation

This procedure helps to verify that TESLA recorders can successfully contact RecordBase and communicate with it. This step is only applicable if RecordBase has been set up with two modems. If your RecordBase system only has one modem, skip this section.

Requirements

- TESLA recorder
- TESLA Control Panel
- RecordBase Monitor
- RecordBase Administrator (part of RecordBase Central Station installation)

Procedure Overview

- This procedure extends the Dial-Out test to actually fetch records and ensure they are entered into the RecordBase Database.

Procedure Details

1 Verify the Dial-Out Connection by using the preceding instructions.

2 Configure the TESLA recorder (using TESLA Control Panel) not to notify RecordBase.

3 Create one or more records on the TESLA recorder (using TESLA Control Panel).

4 In RecordBase Monitor, select the IED from the list and select the *Collect Now* button. This queues a call to that IED for record collection.

5 Use RecordBase Monitor's Activity Log and Diagnostic Log views to watch the process. When the call begins, the Diagnostic Log view shows the name of each record as it is transferred.

6 Wait until at least one record is transferred and then run RecordBase Administrator. Verify that an entry for the transferred record appears in its record list.

3 RecordBase Central Station Details

RecordBase Central Station software consists of a set of cooperative software modules to handle communication, record collection and the central database.

This chapter describes the software modules and how to start, stop and monitor the RecordBase Central Station.

RecordBase Central Station Modules

The RecordBase Central Station modules run together on the designated Server computer providing the core RecordBase functionality.

Server Module	Function
RecordBase System Manager	Main Server module. Handles start-up and shutdown, monitors the other modules, handles inter-module communication.
RecordBase Collection Manager	Record collection and cross-triggering.
RecordBase Session Manager	Communication with recorder via modem.
RecordBase LAN Session Manager	Communication with recorder via LAN.
RecordBase Logfile Manager	Activity and diagnostic logs.
RecordBase Database Manager	Interface to database.

The Server modules run invisibly as background processes on your computer; they do not have a user interface window.

You interact with them using the RecordBase Monitor and RecordBase Collector modules on the server or on another computer that has a TCP/IP link with the server.

Starting, Monitoring and Stopping the Server Software

Starting RecordBase Modules

The RecordBase System Manager module handles system start-up and shut-down, automatically starting or stopping other server modules as required.

To start the server software, run RecordBase System Manager by launching it through the Start menu *(Start>Program Files>NxtPhase>RecordBase Server>RecordBase SystemManager)*.

You can configure your computer to automatically start RecordBase System Manager by placing a short-cut to RecordBase System Manager in the Start Menu**.**

> At present, RecordBase System Manager does not support running as a Windows service.

Checking RecordBase

The RecordBase Central Station modules are monitored continuously by the RecordBase System Manager. It ensures that the other modules are running and restarts them if required.

When you run either RecordBase Monitor or RecordBase Collector, the status of their link with RecordBase System Manager is shown at the bottom of their window. If the status says "Connected," then you know that all the Server modules are up and running.

Figure 3.1: RecordBase Tray Icon

On the Server machine, if RecordBase Central Station is running, there is a small RecordBase icon at the lower right corner of the screen.

Alternatively, you can use the Windows Task Manager to determine if the RecordBase modules are running. Use the Ctrl, Alt and Del keys to bring up this box. Select the *Task Manager* button and go to the *Processes* tab. SystemManager.exe should be one of the processes running.

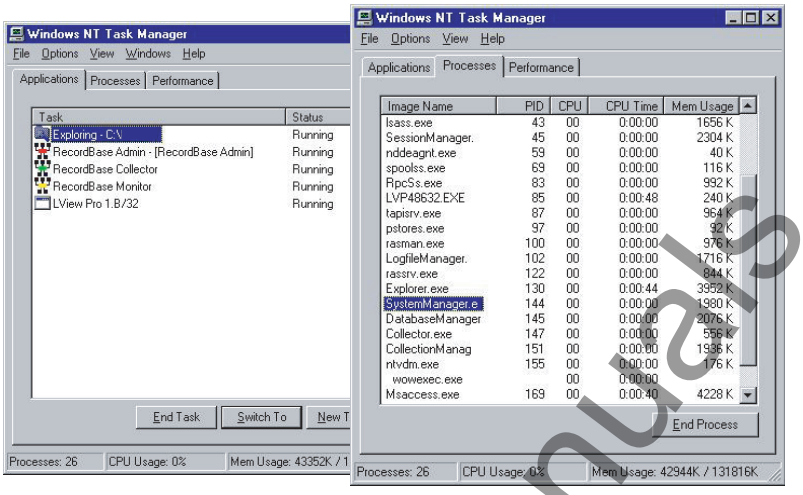


Figure 3.2: Task Manager

Check if Remote Access Server is running, using NT's Remote Access Admin (*Start>Programs>Administrative Tools>Remote Access Admin)*.

Stopping RecordBase

To shutdown RecordBase Central Station, use RecordBase Collector's *Shutdown* button under it's *Server Info* tab.

RecordBase Central Station Database

RecordBase System Manager module starts, stops and adds new records to the database automatically.

The central database is maintained in a Microsoft Access data file called RB.mdb in the default directory C:\Program Files\NxtPhase\RecordBase Server\database. The records uploaded from the recorders are stored here.

The RecordBase Central Station database is a shared database allowing access by multiple users on the network through RecordBase View. Database access by multiple users is fully supported.

4 Record Collection

RecordBase automatically retrieves records from TESLA recorders through its modem or LAN and adds them to its database. Record retrieval can be configured to occur on a scheduled polled basis initiated by RecordBase or on a report-by-exception basis initiated by a recorder.

When RecordBase is collecting from a TESLA 3000 recorder that is part of a Cooperative group, RecordBase will attempt to fetch record fragments from each member of the Cooperative group and automatically combine them into a single record.

It is assumed that before using RecordBase Central Station with Cooperative group units, the user is familiar with, and has verified proper operation of, the Cooperative group using TESLA Control Panel.

RecordBase Collector Module

RecordBase Collector is a utility program used to configure RecordBase's record retrieval and cross-triggering services.

Figure 4.1: Collector Module

RecordBase Collector can be run on the Server or on any computer on the LAN that has a TCP/IP link with the server.

Running RecordBase Collector the First Time

If RecordBase Collector is running on the same computer as RecordBase Central Station, then skip this section.

The first time you run the RecordBase Collector you need to set the Server ID under the *Server Info* tab to the name of the computer running RecordBase Central Station. Alternatively you can type in the IP address of the computer running RecordBase System Manager if you know it.

To determine the name of the computer running RecordBase Central Station:

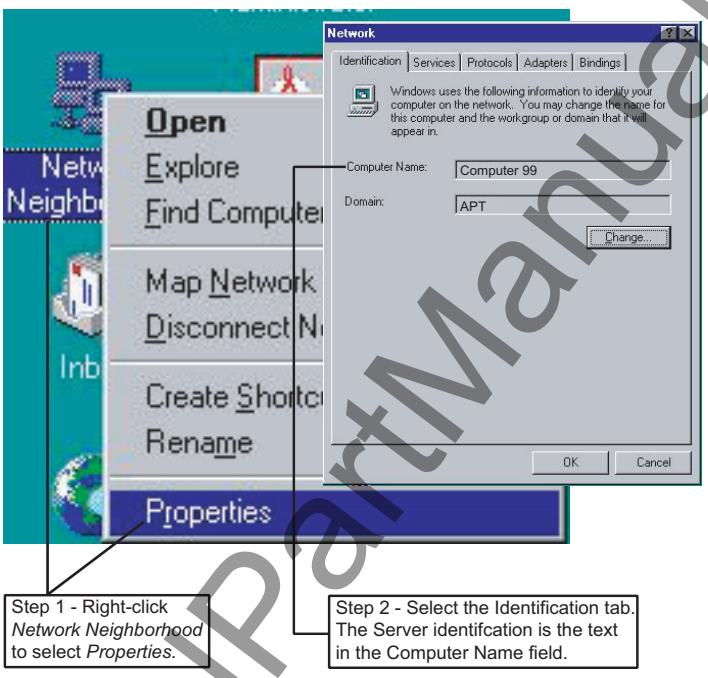


Figure 4.2: Identify Server Computer

1 On the computer running RecordBase Central Station, in Windows Explorer, right-click *Network Neighborhood* to select *Properties* from the drop-down menu.

2 Select the *Identification* tab. The Server ID is the text in the Computer Name field.

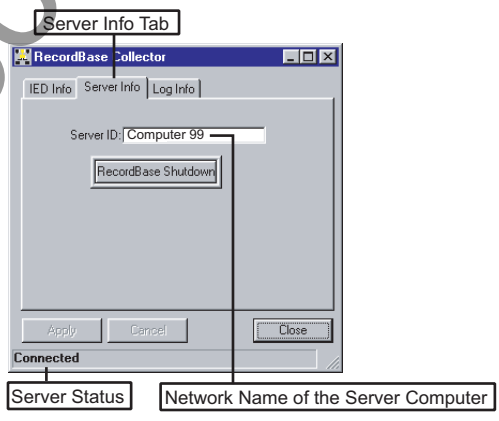


Figure 4.3: Collector Module - Server Info tab

Collector Collection Status

The Collector shows the status of its communication link with the server in its Status Bar at the bottom of its window.

If the communication with the server is working, the status says “Connected.” If it says “Not Connected,”

1 Check that the correct *Server ID* name (or IP address) has been entered in the *Server Info* tab, for details see for details see Figure 4.3: Collector Module - Server Info tab on page 4-2.

2 Check that the server computer is accessible on the network by using Windows Network Neighborhood and/or Explorer.

3 Check that the computer you are working on and the Server have established a TCP/IP connection by running *ping Server ID*. You can do this in the Run service available through the Windows Start menu. The TCP/IP link is working if the server responds to the ping.

4 Check that the server is running the RecordBase application by bringing up Task Manager on the server (Ctrl, Alt and Del keys simultaneously) and checking for SystemManager.exe in the Processes view.

Adding a Recorder to the List

Use RecordBase Collector to add each TESLA recorder to RecordBase’s list.

1 The recorder list is shown under the Collector’s *IED Info* tab.

2 To add a new recorder to the list, use the *New...* button.

Figure 4.4: Collector Module Record List

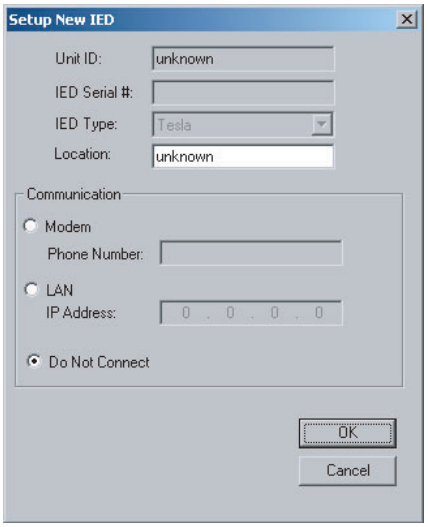


Figure 4.5: Setup New IED

3 Enter the phone number or IP address and the location of the TESLA you are adding.

Note that the *UnitID* and *IED Serial #* fields are read-only. They are automatically filled in with information gathered from the recorder when a connection is established. You can manually collect this information using the *Get Information from IED* button, after pressing the Edit button on RecordBase Collector's main screen.

4 Select the *OK* button.

> Before RecordBase will accept a call from an IED, the IED Serial # must be known.

TESLA 3000 Cooperative Mode

When adding a TESLA 3000 recorder that is part of a Cooperative group, it is important to add only one of the group members to the list. Typically, this will be the one recorder that is the 'gateway' to the Cooperative group. When RecordBase contacts this recorder it will automatically detect that it is part of a Cooperative group and will fetch/combine record fragments appropriately

Note that if multiple TESLA 3000 recorders from the same Cooperative group are mistakenly added to the list and RecordBase performs cross-triggering, those recorders will be cross-triggered multiple times for the same event, resulting in undesirable behavior.

> If RecordBase is to contact a TESLA 3000 recorder that is part of a Cooperative group via dial-out (modem), the Windows User Account that it is running under must have Administrative privileges. This is because RecordBase must temporarily modify the Windows routing table during the connection.

Polled Record Collection

RecordBase can be set to poll its recorders on a scheduled basis and automatically transfer new records to the central database.

To configure record collection for a recorder, select the unit in the RecordBase Collector's *IED Info* tab, then select the *Collection Rules* button.

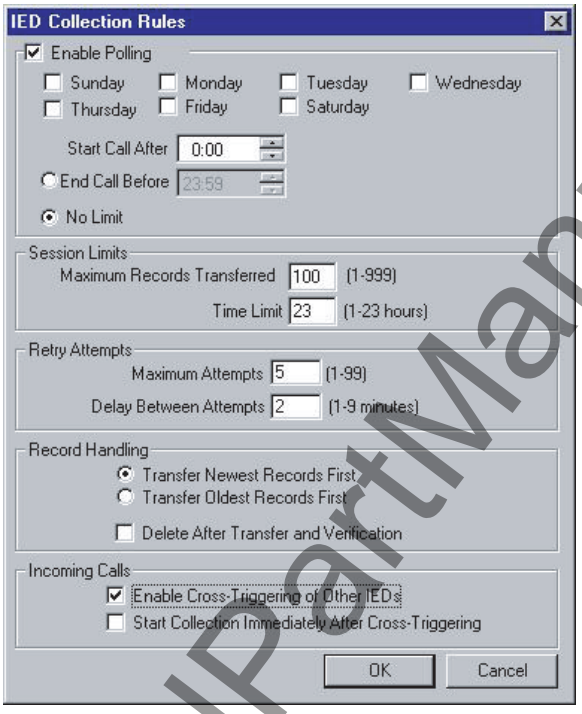


Figure 4.6: Collection Rules

Enable Collection

To enable scheduled polling for new records for this recorder, select the *Enable Collection* box.

Collection Time

Each recorder can be called at a specified time, on any day of the week to poll and retrieve new records.

Only records that are not already contained in the RecordBase database are transferred.

Call Order

You can control the order in which recorders are called through the *Start Call After* field. The first recorder to be called is the one with the earliest Start Call After time. When that first call is complete, a call is placed to the recorder with the next earliest Start Call After time even if it is presently later than that time due to a long call with the first recorder. If an attempt to communicate with a recorder fails, RecordBase will reschedule the call and go on to the next in the queue.

Limiting Late Calls

A call window can be defined with the *End Call Before* parameter which limits how late a call can take place. If *No Limit* is selected, the call can take place any time after the *Start Call After* time.

Limiting Record Transfers

You can limit the call session by the *Maximum Records Transferred* settings. This limits the number of records that can be transferred during the call and Time Limit of each call.

Call Scheduling

If a call to a recorder is unsuccessful (for example, due to a busy signal), the call will be rescheduled. If a call to another recorder can be made, RecordBase will automatically switch to that call. If not, RecordBase will try the same recorder again. The *Delay Between Attempts* setting can be used to ensure a minimum interval between call attempts to the same recorder. The *Maximum Attempts* setting limits the number of times a call is retried.

Record Transfer Order

The *Transfer Newest/Oldest Records First* selection lets you determine how RecordBase should sequence record transfer when there are multiple records available. This is important if you have placed limits on the number of records that can be transferred in a session or on the duration of a call.

Erasing Records from the Recorder after Transfer

You have the option of automatically erasing records from a recorder after they have been transferred and verified to be whole and error-free. Deletion of the record on the recorder takes place only after the integrity of the transferred record has been verified using an error detecting CRC embedded in TESLA records. If an error is detected in the transferred file the problem is reported in the Diagnostic log, for details see “Diagnostic Log” on page 5-4.

RecordBase determines which records to transfer from a recorder by comparing the record list on the recorder with the contents of the RecordBase database. If you choose not to delete records on the recorder, RecordBase will still only transfer the new records.

Selecting the *Delete After Transfer* and *Verification* option is recommended. It speeds up the check for new records and makes it easier to manage the recorders.

If this option is selected and RecordBase Central Station is connected to a TESLA that is part of a Cooperative group, the corresponding record fragments (partial records) will be deleted from each recorder after a successful transfer.

Manually-Initiated Record Collection

You can manually initiate a record collection call to one or more recorders in addition or as an alternative to scheduled poll calls. Use the RecordBase Monitor utility to do this. In the *IED Status* tab select one or more recorders and the *Collect Now* button to initiate the calls, for details see "RecordBase Collector Module" on page 4-1.

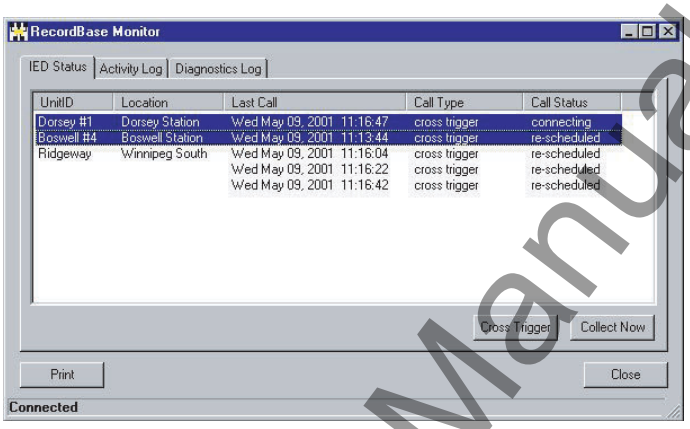


Figure 4.7: RecordBase Monitor

The call order for manually-initiated calls follows the order in which the recorders appear in the list.

The collection rules in place for each recorder are followed, for details see "Polled Record Collection" on page 4-5, except that the start and end times do not apply.

Recorder-Initiated Record Collection

Record transfer can also be initiated by the recorder. TESLA recorders can be configured to call RecordBase when new records are created.

A recorder must be in RecordBase's list (for details see "Adding a Recorder to the List" on page 4-3), for an incoming call from it to be accepted. If a call is received from a recorder that is not in the list, the call is declined and the error is logged in the Diagnostic Log.

> RecordBase must have a separate dial-in modem or LAN connection to receive incoming calls from a recorder.

RecordBase responds to incoming calls by checking for cross-trigger events in the recorder's log and checking for new records. If new records are available, RecordBase hangs up and calls back on its dial-out modem or LAN to handle the record transfer ensuring that the dial-in modem is available to receive incoming calls. If the dial-out modem is busy, the call is queued. RecordBase transfers all new records from the recorder, except where limited by settings.

It uses the same settings to limit the session, manage retry attempts and control the transfer process as a RecordBase initiated poll call, for details see “Polled Record Collection” on page 4-5.

When setting up recorder-initiated record collection on a Cooperative group, it is important that only the 'gateway' member be set to notify RecordBase. The other members of the Cooperative group should not notify; when RecordBase receives notification from the 'gateway' member, it will automatically fetch recordings from all of the Cooperative group's members.

Central Cross-Triggering

RecordBase can be set to trigger dynamic swing records (via modem or LAN on all its recorders in response to an appropriate trigger from one recorder. The result is a set of records that gives a synchronized system-wide snapshot of the disturbance. Any of a recorder’s detectors can be set to initiate a notification call to RecordBase when triggered.

A recorder must be in RecordBase’s list to accept an incoming call, for details see “Adding a Recorder to the List” on page 4-3. A call received from a recorder not on the list is declined and the error is logged in the Diagnostic Log.

> RecordBase must have a LAN connection or a separate dial-in modem to receive incoming calls from a recorder, for details see “Modems and Telephone Lines” on page 2-2 and “Network Connection” on page 2-2.

Cross Trigger Process

When the incoming call is received, RecordBase checks the recorder’s event log. If a new central cross-trigger event is found, RecordBase initiates recording on the other recorders by calling them and issuing swing trigger commands.

The swing trigger command includes the time stamp of the initiating event. Each recorder goes back in its 20 minute swing data running buffer and captures a record for the same time frame using the time stamp as its trigger time and including pre-trigger and post-trigger data according to the recorder’s configured recording parameters.

If the swing trigger command cannot be delivered to a recorder while the data is still present in the 20 minute buffer, that unit will not be able to provide a recording.

Trigger Rejection Window

To avoid needless loading of the communication channels, RecordBase ignores triggers whose time stamp is within 10 seconds of any previous trigger. Ignored triggers are reported in the Diagnostic Log.

Cross-Trigger Settings

Settings to control the RecordBase swing cross-trigger handling are available as part of the collection rules, for details see for details see Figure 4.6: Collection Rules on page 4-5.

The *Enable Cross-Triggering of Other IEDs* selector allows or prevents trigger reports of a recorder from initiating records on other units.

The *Retrieve Cross-Triggered Records Immediately* setting tells RecordBase to call each recorder to pick up the records. If this is not enabled, the record won't be picked up until the next scheduled poll or until a recorder-initiated record transfer call is received.

TESLA 3000 Cooperative Mode

When RecordBase cross-triggers a TESLA 3000 that is part of a Cooperative group, all recorders participating in that group will be automatically triggered.

It is important that only the 'gateway' TESLA be set to notify (cross-trigger) RecordBase. The other members of the Cooperative group should not be set to do this.

Manual Cross-Triggering

You can manually initiate time-coordinating cross-triggering of dynamic swing records on all the recorders.

Use the *Cross-Trigger* button under the *IED Status* of the RecordBase Monitor utility to do this, for details see "RecordBase Monitor Module" on page 5-1.

The *Cross-Trigger* button initiates a call to each recorder and issues a command to captures a dynamic swing record.

The trigger time for all the records is the time at which the Cross-Trigger button was selected. All recorders are called, regardless of any selections made in the record list.

Note that manual cross-triggers generate swing recordings having a status of 'IRIG-B unsynchronized', regardless of the state of the unit's IRIG-B input.

5 Communication Monitoring

RecordBase provides information on the current communication status of each recorder and a log of communications activity and problems through the RecordBase Monitor module.

RecordBase Monitor Module

RecordBase Monitor is a utility program that provides information on the communication between RecordBase and the TESLA recorders. It provides:

- Time and result of last call made with each recorder
- Communication Activity Log
- Diagnostic Log
- Manual cross-triggering of recorders
- Manual collection of records from recorders

RecordBase Monitor can be run on the Server or on another computer on the network that has a TCP/IP connection with the server.

Monitor shows the status of its communication link with the server in its Status Bar at the bottom of its window. The Status Bar should say "Connected." If it says "Not Connected," for details see "RecordBase Monitor Module" on page 5-1.

> Before you can run RecordBase Monitor on a computer for the first time, you must first identify the network name of the RecordBase Central Station by using the RecordBase Collector to set the *Server ID* field.

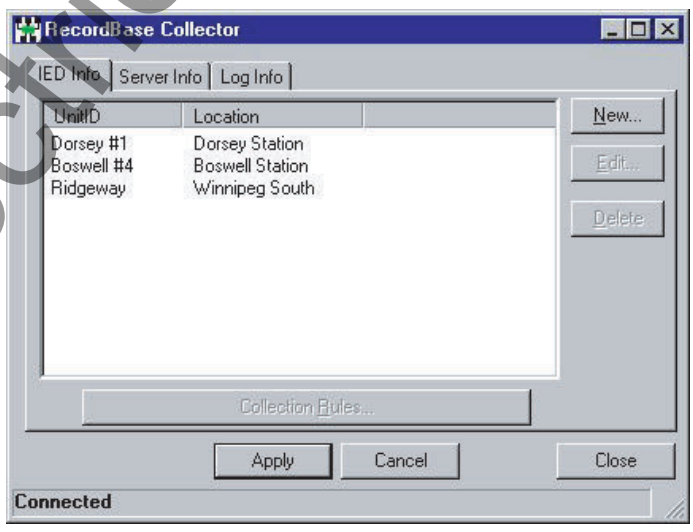


Figure 5.1: RecordBase Collector

IED Status

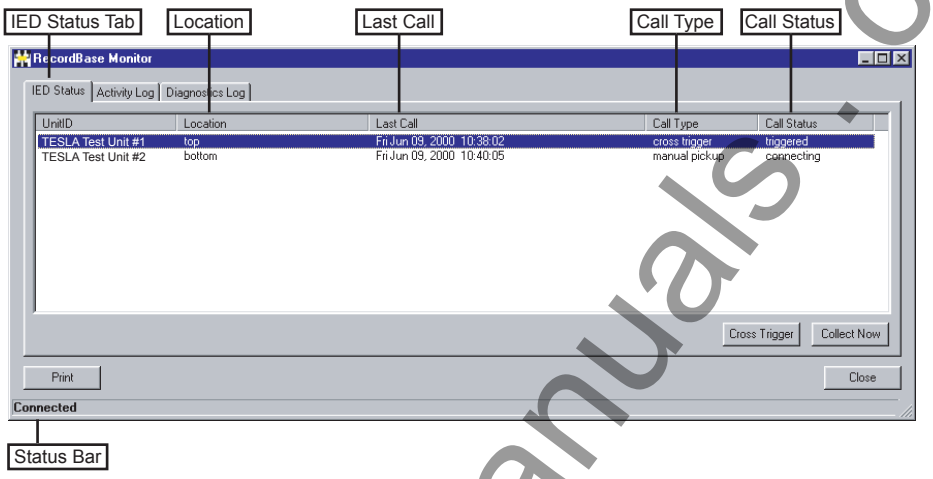


Figure 5.2: IED Status

The status of the last call made with each recorder is shown under the *IED Status* tab of RecordBase Monitor. The *Last Call* column indicates the reason for the most recent call with the recorder. The *Call Result* column shows dynamic status information during a call. When the call is over, it indicates the outcome of the call. See table following.

Call Type	Call Status	Application
Scheduled Pick-up	Connecting, fetching ID, fetching list, re-scheduled, failed, successful, fetching records	A scheduled record pick-up
New Record Pick-up	Connecting, fetching ID, fetching list, re-scheduled, failed, successful, fetching records	A record pick-up in response to “New Records” notification from an IED
Xtrig Record Pick-up	Connecting, fetching ID, fetching list, re-scheduled, failed, successful, fetching records	A record pick-up after a cross trigger
Manual Pick-up	Connecting, fetching ID, fetching list, re-scheduled, failed, successful fetching records	A manual record pick-up (user pressed the “Collect Now” button)
Cross Trigger	Connecting, fetching ID, re-scheduled, failed, triggering, triggered	A call to cross trigger an IED
Incoming	Fetching ID, failed, successful, cross-trigger, new records	An incoming call from an IED
Synchronization	Connecting, fetching ID, re-scheduled, failed, successful	A call to fetch an IED’s identification

Activity Log

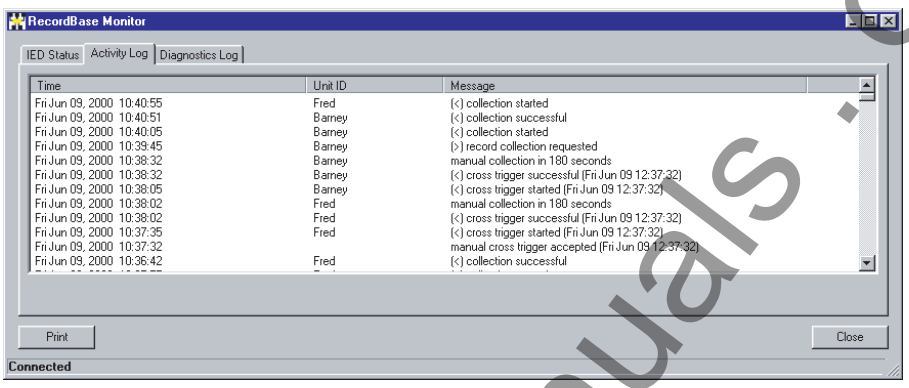


Figure 5.3: Activity Log

A communication activity log provides a history of the calls made to and from each recorder. The log is available under the *Activity Log* tab of the RecordBase Monitor utility. The log specifies the date and time of the call, the name of the recorder, the call direction (incoming or outgoing) and the call type. The log display can show communication with all recorders.

The activity log is circular, the oldest entries are automatically over written when its maximum size is reached. The size of the RecordBase logs is set through the *Log Info* tab of the RecordBase Collector module.

Changing the Activity Log size clears all log entries.

Diagnostic Log

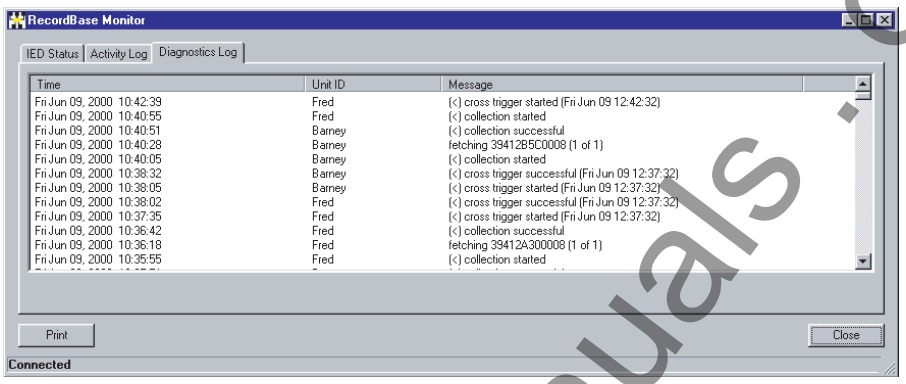


Figure 5.4: Diagnostic Log

Communication difficulties between RecordBase and the recorders are logged. The log is available under the *Diagnostic Log* tab of the RecordBase Monitor utility. The log provides details of communication difficulties, such as repeated busy signals, loss of connection and data errors. The log display can be set to show messages about communication with all recorders or be filtered to messages pertaining to a single recorder.

The activity log is circular, the oldest entries are automatically over written when its maximum size is reached. The size of RecordBase logs is set through the *Log Info* tab of the RecordBase Collector module.

Changing the Diagnostic Log size clears all log entries.

6 RecordBase Administrator

The RecordBase Administrator module is a tool that lets you manage the RecordBase Central Station database. RecordBase Administrator is identical to RecordBase View, except for the addition of:

RecordBase Administrator	RecordBase View
Records->Delete option is available	Records->Delete option is available (with an exception to delete record(s) from the server database)
Options->Record Classification option is available	Options->Record Classification option is not available
File->Open option is not available	File->Open option is available
Records->Transfer records option is not available	Records->Transfer records option is available

Refer to RecordBase View User Manual for further instructions.

Record Classification System

RecordBase Administrator lets you define a record classification system for labelling records. Each record can be manually assigned a classification when it has been analyzed. The class is assigned using the *Classification* pick list. Up to 10 classes can be defined. Enter the text for each class in the *Name* column.

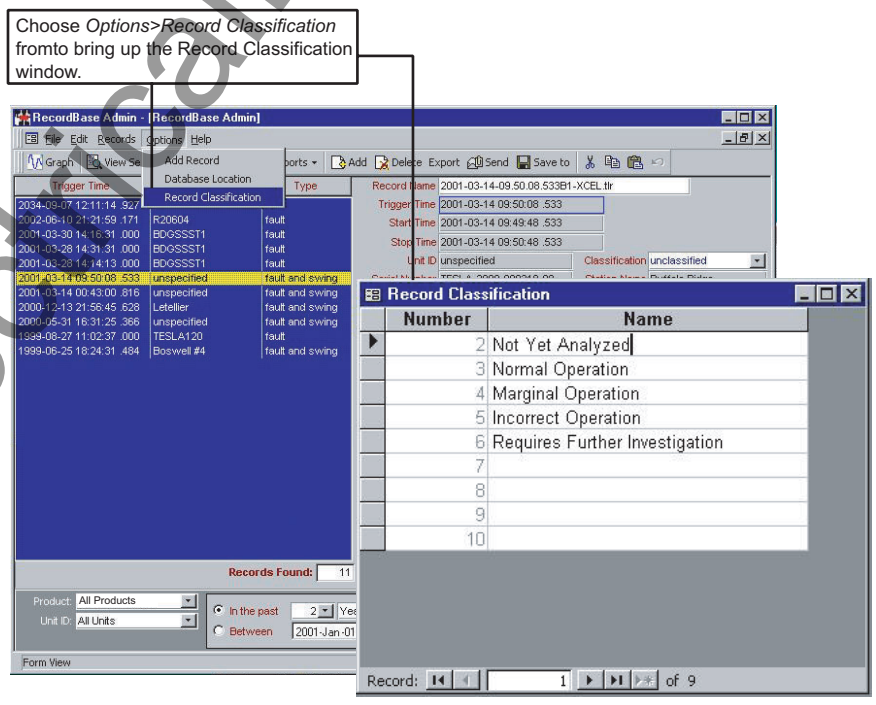


Figure 6.1: Record Classification Window

1 Open the *Record Classification* window by selecting the menu *Options*> *Record Classification*.

2 Close the *Record Classification* window when done. Changes are automatically saved.

Deleting Records

To delete a record, select the record from the record list using the mouse and select the *Delete* button in the main Windows toolbar, or pressing the *Delete* key. You are prompted for confirmation before deleting. Multiple records can be selected by using the mouse while holding down the shift key (for a continuous block of records) or the Ctrl key (for a non-continuous block of records).

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Software Installation Instructions

The CD-ROM contains software and the User Manual for RecordBase Central Station.

Software is installed directly from the CD-ROM to a Windows PC.

The CD-ROM contains the following:

- RecordBase Central Station interface software
- RecordBase Central Station User Manual in PDF format

To Install Software on your Computer

Before attempting to install the software, you must ensure you are logged in to an account with Administrator privileges.

Insert the CD-ROM in your drive; the CD-ROM should open automatically. If the it does not, go to Windows Explorer and find the CD-ROM (usually on D drive). Open the CD.exe file to launch the CD-ROM.

To install the software on your computer, click the desired item on the screen. The installation program launches automatically. Installation may take a few minutes to start.

To view the User Manual you must have Adobe Acrobat on your computer. If you need a copy, download a copy by clicking on Download Adobe Acrobat.