



RC4030E Gateway

USER'S GUIDE

.....

P/N 961-047-087
Revision B
June 1998

" NOTICE

This publication contains information proprietary to Intermec Technologies Corporation. It is being supplied to you with the express understanding that the information contained herein is for the benefit of the contracting party only, and may not be copied, distributed, or displayed to third parties without the express written consent of Intermec Technologies Corporation, and shall be returned to Intermec Technologies Corporation upon written request. If a purchase, license, or nondisclosure agreement has been executed, the terms of that agreement shall govern this document.

This publication is furnished for information only, and the information in it is subject to change without notice. Although every effort has been made to provide complete and accurate information, Intermec Technologies Corporation assumes no responsibility or liability for any errors or inaccuracies that may appear in this document.

We welcome your comments concerning this publication. Although every effort has been made to keep it free of errors, some may occur. When reporting a specific problem, please describe it briefly and include the book title and part number, as well as the paragraph or figure number and the page number.

Send your comments to:
Intermec Technologies Corporation
Publications Department
550 Second Street SE
Cedar Rapids, IA 52401

INTERMEC, NORAND, and PEN*KEY are registered trademarks of Intermec Technologies Corporation.



1996 Intermec Technologies Corporation. All rights reserved.



This publication printed on recycled paper.

Acknowledgments

Portions of this product contain software which is licensed from and is copyright by Epilogue Technology Corporation, 1988-1995, all rights reserved.

DataStorm and *PROCOMM PLUS* are registered trademarks of DataStorm Technologies, Inc.

Ethernet is a trademark of Xerox Corporation.

IBM is a registered trademark of International Business Machines Corporation.

HP is a registered trademark, and *HP OpenView* is a trademark of Hewlett-Packard Company.

Telephone Installation Warning Notices

The following notices apply to equipment that may be connected to telephone lines or systems. For your personal safety, and to protect this equipment from potential electrical or physical damage, do NOT connect equipment to telephone lines or data communication equipment unless the following warnings have been read, understood, and complied with.

- " Never install telephone wiring during a lightning storm.
- " Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
- " Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
- " Use caution when installing or modifying telephone lines.
- " Avoid using telephone (other than cordless type) during an electrical storm. There may be a remote risk of electric shock from lightning.
- " Do not use the telephone to report a gas leak in the vicinity of the leak.

Installation du téléphone : avertissements

Les avertissements qui suivent s'appliquent à tout équipement qui peut être branché aux lignes ou systèmes téléphoniques. Pour votre sécurité personnelle et pour protéger l'équipement de tout dommage électrique ou physique potentiel, NE PAS brancher un ordinateur tablette électronique ou ses périphériques aux lignes téléphoniques ou équipements avant que les avertissements suivants aient été lus, compris et observés :

- " Ne jamais installer de câblage téléphonique pendant un orage électrique.
- " Ne jamais installer de prise téléphonique dans un endroit humide à moins que la prise ait été spécifiquement conçue pour être utilisée dans les endroits humides.
- " Ne jamais toucher les fils de téléphone ou de l'équipement terminal non isolés à moins que la ligne téléphonique n'ait été débranchée de l'interface réseau.
- " User de prudence lors de l'installation ou de la modification de lignes téléphoniques.
- " Éviter d'utiliser un téléphone (autre qu'un appareil téléphonique sans fil) pendant un orage électrique. Il pourrait y avoir un faible risque d'électrocution par la foudre.
- " Ne pas utiliser le téléphone afin de signaler une fuite de gaz à proximité de la fuite.

B CAUTION:

Intermec Technologies Corporation suggests you buy cables from us to connect with other devices. Our cables are safe, meet FCC rules, and suit our products. Other cables may not be tested. They may cause problems from electrostatic discharge or induced energy. Our warranties do not cover loss, injury, or damage from other cables.

CONTENTS

.. .. .

SECTION 1

Preface	1-1
About This Guide	1-1
Intended Audience	1-2
Related Publications	1-2
Customer Support	1-4

SECTION 2

Introduction	2-1
Operation	2-1
Terminal Emulation	2-2
Network Management	2-3
Connectivity	2-3
Sample Open Wireless LAN	2-4
LEDs	2-5
Ports	2-6
Switches	2-7
Command Interpreter (Switch 11)	2-8
Reset (Switch 12)	2-8
Changing a Switch Setting	2-9

SECTION 3

Preparation	3-1
Preparing Your Site	3-1
Inspecting the Shipment's Contents	3-2
Collecting the Equipment	3-2
Ethernet LAN Components	3-2
10BASE2 Components	3-3
10BASE-T Component	3-3

Host Computer Cable	3-4
Communication Equipment	3-4
Local DIAG Port Access	3-4
Telnet	3-5
Web Browser	3-5
System Management Tools	3-5
Selecting the Best Location	3-6
Power Supply	3-6
Hardware	3-7
Cabling	3-7
Specifications	3-8
Physical	3-8
Environmental	3-8
Power Supply (United States)	3-8
SECTION 4	
Configuration	4-1
Creating a Local DIAG Port Session	4-2
Creating a Telnet Session	4-4
Default and Site Settings	4-5
Gateway Options	4-5
TCP/IP Options	4-6
Security Options	4-6
Notes:	4-6
Configuring the RC4030E Gateway	4-7
Main Menu	4-8
Using the View Command	4-9
Gateway Options	4-11
Name	4-11
Gateway.Compression	4-13
Host Type	4-14
[Async Parms]	4-14
Baud Rate	4-15
Stop Bits	4-15
Parity	4-15
Data Bits	4-16
Host Timeout	4-16
Address Type	4-16
Enhanced R Polling	4-17
Multiple Buffering	4-18
Full Duplex	4-18

[Sync Parms]	4-19
Type	4-19
Baud Rate	4-19
NRZI	4-20
Max Frame	4-20
Host Timeout	4-20
Mirroring	4-21
Auto Reconnect	4-21
Term Timeout	4-22
XID	4-22
SDLC Address.AD0	4-23
[SDLC Address]	4-23
5294 Host Type	4-23
5394 Host Type	4-25
TCP/IP Options	4-26
IP Address	4-26
IP Subnet Mask	4-27
IP Router	4-28
IP Frame Type	4-29
DHCP	4-29
DHCP Server Name	4-30
Bootp Operation	4-31
Networks With DHCP and Bootp Servers	4-31
Handshaking	4-31
Infinite Leases	4-32
Auto ARP Minutes	4-32
Security Options	4-33
Password	4-33
Service Password	4-34
Program Part Numbers	4-34
Creating a Web Browser Session	4-35
Uploading New Versions	4-39
Checking the FLASH and ROM Versions	4-43
 SECTION 5	
Installation	5-1
Mounting the RC4030E Gateway	5-1
Vertical Mount	5-2
Horizontal Mount	5-3

10BASE2 Ethernet	5-3
End of Segment	5-3
Middle of Segment	5-5
10BASE-T Ethernet	5-6
Connecting to the Host	5-8
Verifying Operation	5-10
PWR (Power)	5-10
STAT (Status)	5-10
NET (Network)	5-11
RF (Radio Frequency)	5-11
ETHERNET (Ethernet Connection)	5-11

SECTION 6

Troubleshooting	6-1
Network Analysis Tools	6-1
LEDs	6-1

APPENDIX A

Cable and Port Pin-Outs	A-1
DIAG Port Cables	A-1
Host Cables	A-4
Port Pinouts	A-9
HOST Port	A-9
DIAG Port	A-10

APPENDIX B

MIB	B-1
Product Contents	B-1
About This Product	B-1
Getting Started	B-2
MIB-II Information	B-2
RC4030E Gateway MIB Information	B-3
Access to Management Information	B-4
MIB-II Notes	B-6
MIB Directory	B-6

MIB Outline	B-8
Product OIDs	B-8
System Information	B-9
SNMP Configuration Group	B-11
Transport Groups	B-12
Application Layer Group	B-16
Control Group	B-21
MIB Definitions	B-21

FIGURES

Figure 2-1 RC4030E Gateway	2-1
Figure 2-2 Sample Open Wireless LAN	2-4
Figure 2-3 LEDs	2-5
Figure 2-4 Ports	2-6
Figure 2-5 Switches	2-7
Figure 2-6 Switches, Enlarged View	2-7
Figure 3-1 T-connector	3-3
Figure 3-2 Cable Terminator	3-3
Figure 3-3 Cable With RJ45 Plugs	3-3
Figure 4-1 Local Session	4-2
Figure 4-2 Telnet Session	4-4
Figure 4-3 Host Names	4-12
Figure 4-4 RC4030E Gateway Emulating 5294 Control Unit for System/36 or System/38 Host	4-24
Figure 4-5 RC4030E Gateway Emulating 5394 Control Unit for AS/400 Host	4-25
Figure 4-6 Web Browser Session	4-35
Figure 5-1 Vertical Mount	5-2
Figure 5-2 Horizontal Mount	5-3
Figure 5-3 Wiring RC4030E Gateway to End of 10BASE2	5-4
Figure 5-4 Wiring RC4030E Gateway to Middle of 10BASE2	5-5
Figure 5-5 Wiring RC4030E Gateway to 10BASE-T	5-7
Figure 5-6 Connecting RC4030E Gateway to Host	5-9

TABLES

Table 6-1 Problems and Solutions	6-3
Table B-1 MIB-II Information	B-3
Table B-2 MIB Information	B-4
Table B-3 MIB Directory	B-7
Table B-4 products GROUP	B-8
Table B-5 hw GROUP	B-9
Table B-6 dir GROUP	B-10
Table B-7 criticalErrors GROUP	B-10
Table B-8 community TABLE	B-11
Table B-9 trapTarget TABLE	B-11
Table B-10 wst GROUP	B-12
Table B-11 hlit GROUP	B-14
Table B-12 webst GROUP	B-14
Table B-13 gs GROUP	B-16
Table B-14 rcbs GROUP	B-18
Table B-15 hd GROUP	B-19
Table B-16 td GROUP	B-19
Table B-17 ahost GROUP	B-20
Table B-18 powerUp GROUP	B-21

Preface

About This Guide

This user's guide contains information about the INTERMEC[®] RC4030E Gateway. Section 2 describes the RC4030E Gateway and how it operates on the open wireless local area network (LAN). The remaining sections describe how to do the following:

- Prepare your site before you configure the RC4030E Gateway's system software and install the gateway (Section 3)
- Configure the RC4030E Gateway's system software with your site's host computer and system characteristics (Section 4)
- Install the RC4030E Gateway by wiring it to 10BASE2 or 10BASE-T Ethernet media (Section 5)
- Troubleshoot RC4030E Gateway operation (Section 6)

Appendix A contains diagrams of cable and port pin-outs. Appendix B is the RC4030E Gateway Management Information Base (MIB).

Norand Corporation is now part of Intermec Technologies Corporation. As part of our continuing efforts to offer the broadest range of system solutions in the industry, the 6710 Access Point and other open wireless LAN components have been merged into the INTERMEC Integrated Network Communications Architecture (INCA). Where appropriate, we have continued to use the Norand name in references to the open wireless LAN to maintain continuity with existing product in the field.

Intended Audience

This user's guide is intended for the network administrator who is familiar with computer networks and configurations, data communications, and network terminology. It is also intended for the hardware installer who is connecting the RC4030E Gateway to the Ethernet medium and host.

Related Publications

For information beyond the scope of this user's guide, refer to the appropriate INTERMEC publication and its part number (P/N).

2100 Universal Access Point User's Manual (P/N 067150)

The manual for the 2100 Universal Access Point (UAP) describes how to install, configure, and troubleshoot this access point.

***3270 Terminal Emulation Programmer's Reference Guide
(P/N 977-047-040)***

This publication describes how INTERMEC wireless stations emulate IBM products that communicate through the 3270 data stream. It also describes the commands the wireless stations can accept from a host.

***5250 Terminal Emulation Programmer's Reference Guide
(P/N 977-047-039)***

This publication describes how INTERMEC wireless stations emulate IBM products that communicate through the 5250 data stream. It also contains line generations for host computers, and the commands and orders the wireless stations can accept from a host.

6710 Access Point User's Guide (P/N 961-047-081)

The user's guide for the 6710 Access Point describes how to install, configure, and troubleshoot this access point.

***Application Developer's Kit Programmer's Reference
Manual (P/N 977-051-004 Volume A, and 977-051-005
Volume B)***

This manual covers the commands that programmers can use to write various applications for INTERMEC wireless stations.

***Native Terminal Emulation Asynchronous Programmer's
Reference Guide (P/N 977-047-038)***

This publication describes components in the radio network using asynchronous Native communications. It also describes the commands and orders the wireless stations can accept from a host.

Norand Open Wireless LAN with HP OpenView for Windows User's Guide (P/N 961-051-009)

This publication describes how to install and use the OpenView network management platform by Hewlett-Packard.

Wireless Station User's Guides

User's guides for INTERMEC wireless stations describe how to set up, operate, and maintain the stations. Specific manuals are:

1100 Series Data Terminal (P/N 961-047-069)

PEN*KEY^R 6400 Computer User's Guide (P/N 961-028-093)

RT1700 Series (P/N 961-047-068)

RT5900 Series (P/N 961-047-121)

Section 2

Introduction

.....

This section describes how the RC4030E Gateway operates on the open wireless LAN. It also describes the RC4030E Gateway's LEDs, ports, and switches, which are located on the bottom panel of the device.

Operation

The RC4030E Gateway (Figure 2-1) is a protocol-dependent, fixed-end device on the open wireless LAN. The RC4030E Gateway operates as a protocol translator between the host computer and the mobile, hand-held wireless stations on the radio network. Wireless stations are INTERMEC[®] RT1100, RT1700, and RT5900 Radio Terminals; and PEN*KEY[®] 6400 Computers.



Figure 2-1
RC4030E Gateway

On the open wireless LAN, the RC4030E Gateway works in conjunction with the radio-independent and protocol-independent INTERMEC 6710 Access Point or 2100 Universal Access Point. The access point provides radio coverage through the Wireless LAN Interoperability Forum (WLIF) 2.4 GHz, 900 MHz, or synthesized UHF radio option.

As a network bridge, the access point provides the radio link by forwarding Open NORAND[®] Network layer (ONNL) packets between the RC4030E Gateway on the wired Ethernet medium and the wireless stations on the radio network. For more information about 6710 Access Point operation, refer to the *6710 Access Point User's Guide* (P/N 961-047-081). For more information about the 2100 Universal Access Point, refer to the *2100 Universal Access Point User's Manual* (P/N 067150).

The RC4030E Gateway picks up — via the access point — ONNL packets from the wireless stations. The RC4030E Gateway translates the packets into the appropriate host protocol and sends the data to the host through the RC4030E Gateway's HOST port (RS-232 or V.35 interface).

Terminal Emulation

You can configure an RC4030E Gateway as one of these controllers:

- " IBM 3174 or 3274 Cluster Controller.

To the host, the wireless station configured for 3270 terminal emulation appears to be an IBM 3278 Model 2 terminal. For more information, refer to the *3270 Terminal Emulation Programmer's Reference Guide* (P/N 977-047-040).

- " IBM 5294 or 5394 Control Unit.

To the host, the wireless station configured for 5250 terminal emulation appears to be an IBM 5291 Display Station. For more information, refer to the *5250 Terminal Emulation Programmer's Reference Guide* (P/N 977-047-039).

- " Asynchronous controller.

To the host, the wireless station configured for Native emulation appears to be an ASCII terminal. For more information about asynchronous terminal emulation, refer to the *Native Terminal Emulation Asynchronous Programmer's Reference Guide* (P/N 977-047-038) and the *Application Developer's Kit Programmer's Reference Manual* (P/N 977-051-004 Volume A, and 977-051-005 Volume B).

Network Management

The Simple Network Management Agent (SNMP) agent resident in the RC4030E Gateway complies with MIB-II as outlined in RFC (Request for Comments) 1156 and RFC 1213.

Connectivity

The RC4030E Gateway connects directly to 10BASE2 (thin coax). It connects to other forms of Ethernet through industry-standard extension cables and transceivers. The RC4030E Gateway generates packets that meet all Ethernet DIX (Version 2.0) and ANSI/IEEE 802.3 specifications.

Sample Open Wireless LAN

Figure 2-2 shows a sample open wireless LAN with a 3270 Systems Network Architecture/Synchronous Data Link Control (SNA/SDLC) host, 5250 SNA/SDLC host, 6710 Access Point, two RC4030E Gateways, and two wireless stations. Two or more RC4030E Gateways provide multiple host connectivity options and support multiple simultaneous protocols on the wired and wireless infrastructure.

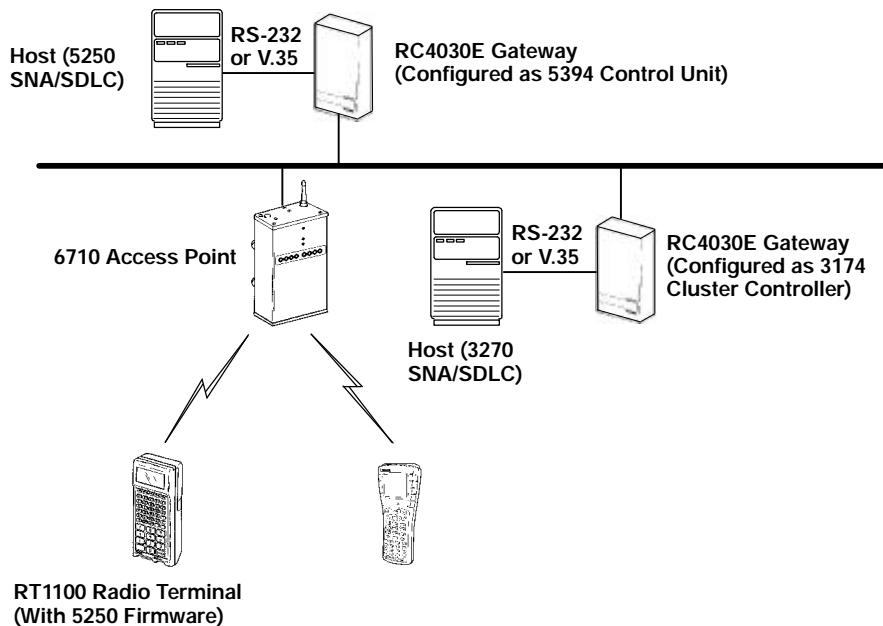


Figure 2-2
Sample Open Wireless LAN

LEDs

The RC4030E Gateway's LEDs continuously indicate the device's operating status and are helpful troubleshooting aids. Figure 2-3 shows where the LEDs are located on the bottom panel.

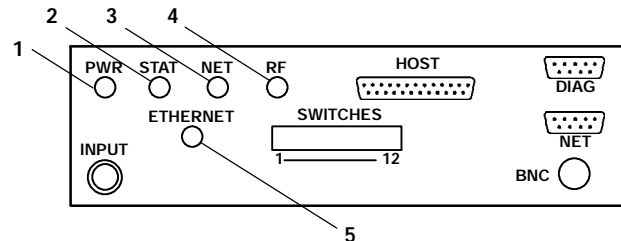


Figure 2-3
LEDs

The following chart describes the LEDs. The first column in the chart refers to the number identifying the LED in Figure 2-3.

#	LED	Description
1	PWR	Green LED that indicates whether or not the RC4030E Gateway is receiving power.
2	STAT	Yellow LED that indicates the RC4030E Gateway's operational status.
3	NET	(Not used on the RC4030E Gateway.)
4	RF	(Not used on the RC4030E Gateway.)
5	ETHERNET	Green LED that indicates the RC4030E Gateway is connected to the Ethernet LAN and packets are being transmitted or received.

Ports

The RC4030E Gateway's ports provide host, network, and diagnostic connectivity. Figure 2-4 shows where the ports are located on the bottom panel.

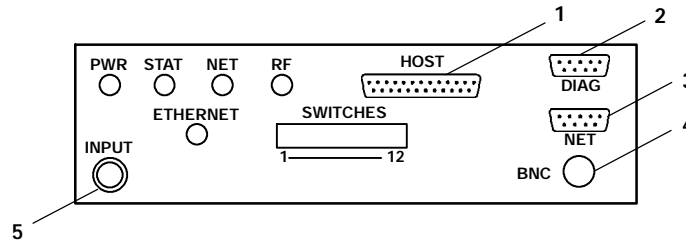


Figure 2-4
Ports

The following chart describes the ports. The first column in the chart refers to the number identifying the port in Figure 2-4.

#	Port	Description
1	HOST	25-pin port through which the RC4030E Gateway connects to the host computer.
2	DIAG	9-pin female D-sub port through which local management tasks are done. The port is an RS-232/V.24 interface that connects to a PC and supports only asynchronous communications.
3	NET	(Not used on the RC4030E Gateway.)
4	BNC	Port through which the RC4030E Gateway connects to 10BASE2 Ethernet.
5	INPUT	Connection port for the RC4030E Gateway's NC3100 Power Supply.

Switches

The RC4030E Gateway's switches are centrally located on the bottom panel (Figure 2-5).

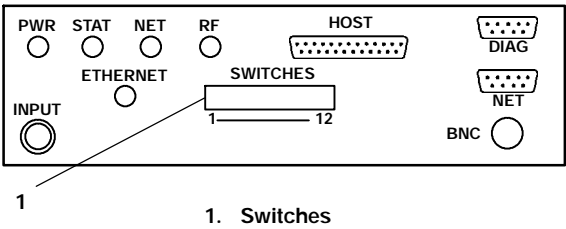


Figure 2-5
Switches

Figure 2-6 shows the switches in detail. In the figure, an asterisk (*) after the switch name indicates that the switch is **not** operational.

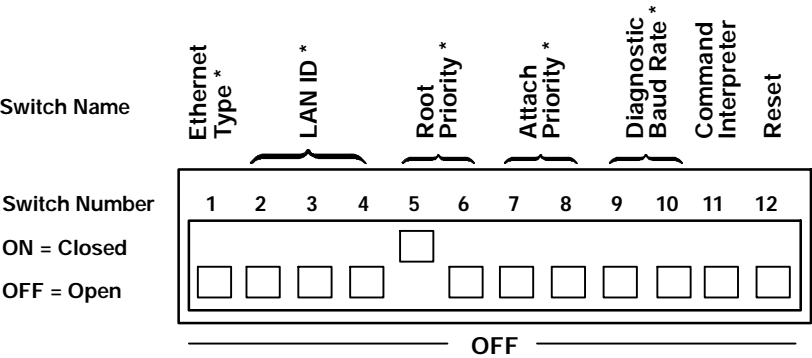


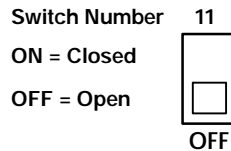
Figure 2-6
Switches, Enlarged View

Page 2-8 describes the operational command interpreter and reset switches.

Command Interpreter (Switch 11)

If the command interpreter switch is in the OFF (open) position when the RC4030E Gateway is power cycled, the gateway boots into the configuration program (where the system software parameters are located). If the switch is in the ON (closed) position when the gateway is power cycled, the gateway boots into ROM mode. For normal operation the switch must be in the OFF (open) position.

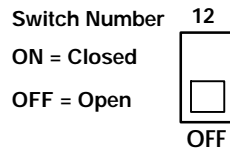
Default = OFF



Reset (Switch 12)

The reset switch power cycles the RC4030E Gateway. If this switch is ON (closed), the gateway will reset every five seconds. The switch must be OFF (open) for normal operation.

Default = OFF



Changing a Switch Setting

To change a switch setting, use a long pointed object (such as a straightened paper clip) to press the rocker switch up or down. Do not use a pencil because the lead may break off inside the RC4030E Gateway.

A new setting takes effect after the RC4030E Gateway powers up or is reset. Whenever you change a switch setting, you must power cycle or reset the RC4030E Gateway. To reset the gateway, do one of the following:

- " Unplug the RC4030E Gateway's power supply from the outlet and then plug it back into the outlet.
- " Set switch 12 (reset) to ON for about 5 seconds (or until the LEDs flash).

[illegible]

- " Preparing your site
- " Inspecting the shipment's contents
- " Collecting the equipment you need
- " Assigning network addresses
- " Selecting the best location for the RC4030E Gateway

—

Intermec strongly recommends that Intermec or certified providers conduct a site survey to determine the ideal locations for all of your network components. A proper site survey requires special equipment and training. A site survey provides an installation recommendation that addresses various factors, which can affect the performance of your wireless LAN system.

Inspecting the Shipment's Contents

Unpack the RC4030E Gateway and check your shipment for damage or missing parts. The shipment contains the RC4030E Gateway and the following items for the United States market (items are in kit P/N 225-537-001):

- " NC3100 Power Supply
- " Mounting bracket
- " *RC4030E Gateway User's Guide*
- " Warranty card

" NOTE:

The power supply is not included in the kit for the international market. The international kit's part number is 225-537-002.

Inspect the RC4030E Gateway for physical damage that may have occurred during shipment or storage. If you need to return a part for repair, ship it to the nearest Customer Service Center.

When an RC4030E Gateway must be returned, pack it in the original shipping carton if possible. Complete and return the Product Service Information card packaged with the gateway.

Collecting the Equipment

Before you install the RC4030E Gateway, collect the equipment you will need so it will be close at hand.

Ethernet LAN Components

The RC4030E Gateway is designed for direct connection to 10BASE2 Ethernet.

10BASE2 Components

10BASE2 components include a T-connector and cable terminator. The 10BASE2 **T-connector** (Figure 3-1) attaches to the RC4030E Gateway's 10BASE2 port, and connects the gateway to the middle or end of 10BASE2 cable.

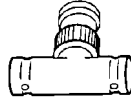


Figure 3-1
T-connector

A **cable terminator** (Figure 3-2) attaches to the T-connector. It is required for an RC4030E Gateway connected to the end of 10BASE2 cable. The terminator properly terminates the network cable to maintain proper impedance. Proper termination is necessary for reliable network communications.

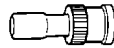


Figure 3-2
Cable Terminator

10BASE-T Component

The 10BASE-T component is a cable that can extend up to 328 feet (100 meters) in length. The cable has an RJ45 plug at each end (Figure 3-3).

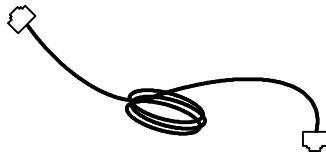


Figure 3-3
Cable With RJ45 Plugs

Host Computer Cable

The cable you need to connect the RC4030E Gateway to the host depends on the type of host interface (RS-232 or V.35). Appendix A, "Cable and Port Pin-Outs," lists host cables, their part numbers, and pin-outs.

Communication Equipment

You can access the RC4030E Gateway's system software configuration menus locally through its DIAG port, or remotely through a Telnet session or Web browser.

Local DIAG Port Access

For local access, you need the following:

- Third-party communications software terminal emulation package with Y-modem capability (such as PROCOMM PLUS by DataStorm Technologies, Inc.). Install the program according to its user guide.
- PC (personal computer), which should meet the requirements outlined in the user guide for the terminal emulation program.
- Cables to connect the PC to the RC4030E Gateway's DIAG port. The following chart lists cables.

For This PC Port	Use Cable Part Number
9-pin	216-842-00X*
25-pin	216-841-00X*

* x = 6, 25, or 50 feet

Telnet

You need the following to access the configuration menus through a Telnet session:

- " PC or workstation with an installed and configured network interface card and a Telnet application. You can also use a host capable of acting as a Telnet client.
- " Telnet VT emulator (TNVT) installed on the PC.
- " IP address for the RC4030E Gateway. For more information about IP addresses, see Section 4, "Configuration."

Web Browser

The RC4030E Gateway's configuration menus are designed for HTML Level 2.0 or higher. You need the following to access the configuration menus through a Web browser:

- " Graphical browser application
- " Internet or local network connection
- " IP address for the RC4030E Gateway. For more information about IP addresses, see Section 4.

System Management Tools

To manage the system through a network management platform, you need the platform (such as OpenView for Windows by Hewlett-Packard) installed on a network management station using SNMP. The station must meet the requirements outlined in the platform's user guide.

Selecting the Best Location

The RC4030E Gateway does not have a radio module or antenna. Because it does not use radio transmissions to communicate with the wireless stations, it does not require a clear line of site to them. Therefore, Intermec strongly suggests that the RC4030E Gateway be located next to the host computer in a computer room. The cable from the RC4030E Gateway to the host is available in 6, 25, and 50-foot lengths.

Power Supply

The RC4030E Gateway is powered by an NC3100 Power Supply, which has the following characteristics for the United States market:

- " Domestic 120 V ac
- " 60 Hz power, UL and CSA approval
- " Required filtration to meet FCC emissions requirements

" NOTE:

A different NC3100 Power Supply is used in Europe and other areas having 230 V ac, 50 Hz power with TUV approval. Another type of NC3100 Power Supply is used in Japan and other areas having 100 V ac, 50 or 60 Hz power with MITI approval. Contact your Intermec representative for more information about power supplies for international markets.

The power supply must be located within 6 feet of the gateway and 6 1/2 feet of the power outlet. These distances ensure that the power supply's cables will reach the gateway and outlet. If an outlet cannot be located within 6 feet of the gateway, the dc power cable can be extended. Because of the voltage drop in these cables the extension should not exceed 25 feet.

Assembled dc power extension cables are available from Intermec in lengths of 6, 12, and 25 feet. The following chart lists part numbers.

Extension Cable Length	P/N
6 feet	216-886-001
12 feet	216-886-002
25 feet	216-886-003

Another outlet should be available near the RC4030E Gateway for LAN test equipment if troubleshooting is necessary.

Hardware

You can mount the RC4030E Gateway vertically on a wall or post, or horizontally on a tabletop. If mounting the gateway vertically, determine what hardware is needed. Different surfaces (for example, drywall, wood, concrete block) require different types of screws. For this reason, Intermec provides only a mounting bracket with the gateway.

For an RC4030E Gateway mounted vertically, the power supply is usually placed on the gateway's wall mounting bracket. If this is not feasible you may want to install an extra mounting bracket to hold the power supply.

Cabling

Ensure that your site's coaxial or twisted pair cabling will be able to reach the RC4030E Gateway after it is mounted vertically or horizontally.

Specifications

Physical

Dimension	Measurement
Length	12.0 in (30.48 cm)
Width	6.4 in (16.25 cm)
Height	2.5 in (6.35 cm)
Weight	4.30 lbs (1.95 kg)

Environmental

Parameter	Value
Operating temperature	-22 to 122 °F (-30 to 50 °C)
Storage temperature	-22 to 140 °F (-30 to 60 °C)
Humidity	5 to 95 percent noncondensing
ESD protection	±8 kV, per IEC 801-2(E)-1991
Package vibration	6g rms, quasi-random

Power Supply (United States)

Parameter	Value
Input voltages	120 V ac
Output voltages	+9.0 V dc, +13.5 V dc
Power consumption	30 watts
Approval	UL/CSA

Section 4

Configuration

.....

This section describes how to do the following:

- Create a local DIAG port, Telnet, or Web browser session with the RC4030E Gateway
- Configure the gateway's system software with your site's host characteristics and communication requirements
- Upload a new version of system software
- Check the FLASH and ROM versions

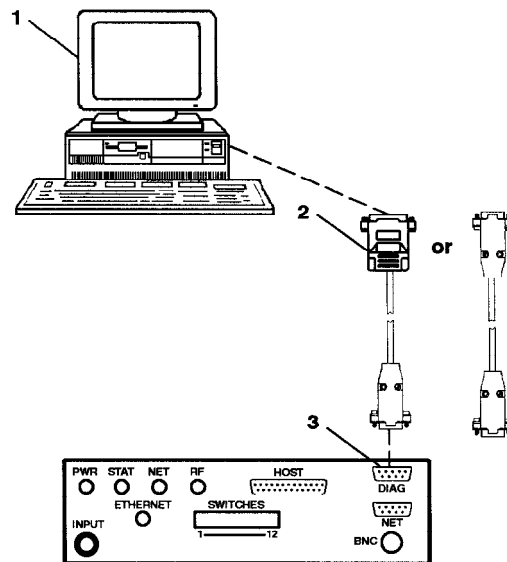
You can configure the RC4030E Gateway through its DIAG port, or remotely through Telnet or a Web browser. The following chart shows the sessions you can use to do other tasks.

Task	DIAG Port	Telnet	Browser
Change configuration passwords	✓	✓	✓
Modify the configuration	✓	✓	✓
Upgrade FLASH	✓		
Check the FLASH version	✓		
Access ROM	✓		
Check the ROM version	✓		
Use online help	✓	✓	✓

Only one type of session can be running at a time. For example, if someone starts a Telnet session while someone else is configuring the RC4030E Gateway through its DIAG port, the configuration through the DIAG port will terminate.

Creating a Local DIAG Port Session

To configure the RC4030E Gateway through its DIAG port, refer to Figure 4-1 and the procedure following it.



1. PC with VT100 terminal emulation program (such as PROCOMM PLUS)
2. Cable P/N 216-841-00X for 25-pin COM port; P/N 216-842-00X for 9-pin COM port
3. RC4030E Gateway DIAG port

Figure 4-1
Local Session

1. Ensure the VT100 terminal emulation program is installed on the PC.
2. Turn the PC off and unplug the RC4030E Gateway's power supply from the outlet.
3. Plug the 9-pin male connector on the cable into the female DIAG port on the bottom panel of the gateway.
4. Plug the 9-pin or 25-pin female connector on the other end of the cable into the designated COM port on the PC.
5. Turn the PC on and start the terminal emulation program. Communication parameters should be set to:
19200, 8N1, half duplex, incoming CR to CR/LF
6. To use the configuration menus, see the following instructions. To upload a new version of software, see page 4-39. To check the current FLASH and ROM versions, see page 4-43.

To use the configuration menus, do the following:

1. Make sure the command interpreter switch (switch #11) is in the OFF (open) position. (OFF is the factory-set default.)
2. With the terminal emulation program running on the PC, power cycle the RC4030E Gateway by plugging its power supply into an outlet.
When you power cycle the gateway, it reboots into the configuration program, where the menus are located.
3. See "Configuring the RC4030E Gateway" on page 4-7.

Creating a Telnet Session

Before you can configure the RC4030E Gateway through Telnet, you must connect the gateway to the Ethernet cable. (See Section 5, "Installation," for help.) You must also perform initial configuration through the DIAG port to set an IP address or DHCP server name. You should also configure a subnet mask and IP router address.

The RC4030E Gateway must go through its boot sequence before you can create a Telnet session. If you reboot it while in a session, the session terminates. You can create a new session after the gateway reboots.

To create a Telnet session, see Figure 4-2 and the procedure following it.

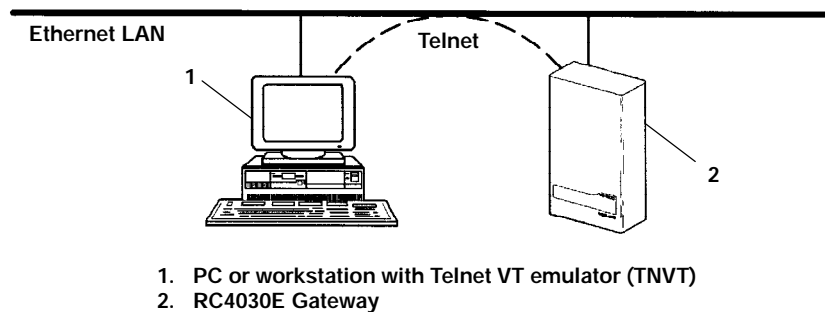


Figure 4-2
Telnet Session

1. Ensure the RC4030E Gateway is connected to the Ethernet cable and has an assigned IP address.
2. Ensure the PC or workstation has an installed and configured Ethernet interface card.

3. Ensure the Telnet VT emulator is installed on the PC or workstation.
4. Open a new Telnet session on the PC or workstation.
5. Enter the RC4030E Gateway's IP address in the host name or IP address field.
6. See "Configuring the RC4030E Gateway," page 4-7.

Default and Site Settings

Gateway Options

Options	Default	Site Setting
Name	HOST	
Gateway.Compression	Disabled	
Host Type	Async	
[Async Parm's]		
Baud Rate	19200	
Stop Bits	1	
Parity	None	
Data Bits	8	
Host Timeout	0	
Address Type	Normal	
Enhanced R Polling	Disabled	
Multiple Buffering	Disabled	
Full Duplex	Disabled	

TCP/IP Options

Option	Default	Site Setting
IP Address	0.0.0.0	
IP Subnet Mask	255.255.255.0	
IP Router	0.0.0.0	
IP Frame Type	DIX	
DHCP	Enabled, if IP Address is zero	
DHCP Server Name	Norand DHCP Server	
Auto ARP Minutes	5	

Security Options

Option	Default	Site Setting
Password	CR52401	
Service Password	Enabled	

Notes:

Configuring the RC4030E Gateway

When you connect to the RC4030E Gateway through its DIAG port or through a Telnet session, the configuration program's password screen appears:

```
Configuration of Gateway
Copyright (c) 1995-1998 Intermec Technologies Corporation. All rights
reserved.

Portions copyright Epilogue Technology Corporation, 1988-1995.

IP:          0. 0. 0. 0
Gateway:     HOST

Password:
```

" NOTE:

A different screen appears when you create a session through a Web browser. See page 4-35 for information about Web browser sessions.

The password screen shows the current settings for the IP address and RC4030E Gateway host name. It also shows the prompt for the top-level password. Enter the password (case insensitive) to display the Main Menu. The default password is CR52401.

" NOTE:

If you forget what the password is, you can access the RC4030E Gateway by connecting to its DIAG port (no modem) and power cycling it. When the PC displays this message:

Rebooting

Quickly press a key to perform configuration before startup

Press any key on the PC's keyboard within the next 3 seconds to bypass the password screen and access the command screen. You can then view or change the password through the View command.

Main Menu

After you enter the top-level password, the Main Menu appears:

Loading configuration from EEPROM	
<u>Command</u>	<u>Description</u>
View	View/modify the configuration
Clear	Set the configuration to default values
Read	Read the configuration from EEPROM
Write	Write the configuration to EEPROM
Reboot	Restart using last written configuration
Exit	Disconnect
?	Display this help
>	

The menu lists the commands you can use to do various tasks, described on the following pages. The screen also displays the command screen prompt (>). At the prompt, type the name of the command you want to perform and press [Enter]. (Commands are case insensitive.) The Main Menu redisplayes when you enter an invalid command.

The following chart describes how to use the commands.

Use	To
View	View or modify configuration program settings. See "Using the View Command" on page 4-9.
Clear	Reset the RC4030E Gateway's configuration to the factory-set default settings, which start on page 4-5.
Read	Load the most recent configuration from EEPROM. The configuration that was written to EEPROM since the RC4030E Gateway was last rebooted becomes the new configuration.

Use	To
Read (Continued)	The RC4030E Gateway's configuration is stored in EEPROM. You reprogram the EEPROM whenever you change the configuration, write (save) the new configuration to EEPROM, and reboot the RC4030E Gateway.
Write	Write (save) a new configuration to EEPROM. This command overwrites the previous configuration. You must write the new configuration to EEPROM and reboot the RC4030E Gateway for any changes to take effect.
Reboot	Reboot the RC4030E Gateway. You must reboot the gateway for any changes you made to the configuration to take effect.
Exit	Quit the configuration program. If you exit a new configuration without writing it to EEPROM, any changes you made are not saved.
?	Display online help for a command, option, or setting.

Using the View Command

To view or modify the RC4030E Gateway's configuration, type View at the command prompt. The Main Options Menu appears:

[Gateway]
[Tcp i p]
[Securi ty]

The following chart describes how to use the options.

Use	To
[Gateway] <i>Page 4-11</i>	Set communications from the RC4030E Gateway to the wireless stations and to the host.
[Tcip] <i>Page 4-26</i>	Set options necessary for communications with the RC4030E Gateway. The options apply to all TCP/IP ports. Telnet, SNMP, and HTTP communications are supported.
[Security] <i>Page 4-33</i>	Set the configuration program's top-level and service passwords.

The following chart shows how to navigate the View command's menus and edit data.

Press	To
[↑] or [-]	Scroll up through items in a list.
[↓], [+], [=], or [Tab]	Scroll down through items in a list.
[→], [Enter], or [Spacebar]	Display an option's settings or prompt after you highlight the option. Also use these keys to select the desired setting.
[←], [Esc], or [Backspace]	Exit a menu or prompt.
[Esc]	Cancel editing.
[Enter]	Complete editing.

Gateway Options

Use [Gateway] to set up communications from the RC4030E Gateway to the wireless stations and to the host. Options and their default settings are:

Name	"HOST"
Gateway. Compression	<Disabled>
Host Type	<Async>
[Async Params]	

" NOTE:

*[Async Params] appears on the menu if Host Type is set to Async.
[Sync Params] appears if Host Type is set to 3270, 5294, or 5394.*

Name

The Name option is an arbitrary name that identifies this RC4030E Gateway. Wireless stations use the arbitrary name to connect to this RC4030E Gateway. Note that Name is **not** your application's host server name.

The setting for Name must match the host name specified for each wireless station communicating with the host through this RC4030E Gateway. The names must match so that the wireless stations can communicate with the host. Refer to the wireless station's user's guide for more information about specifying host names.

The setting for Name is **case sensitive**. For example, if the host name specified for the wireless stations is typed in all uppercase, the name for the RC4030E Gateway must also be typed in all uppercase. Figure 4-3 shows an example of how host name HOST1 is set on an RC4030E Gateway and wireless station.

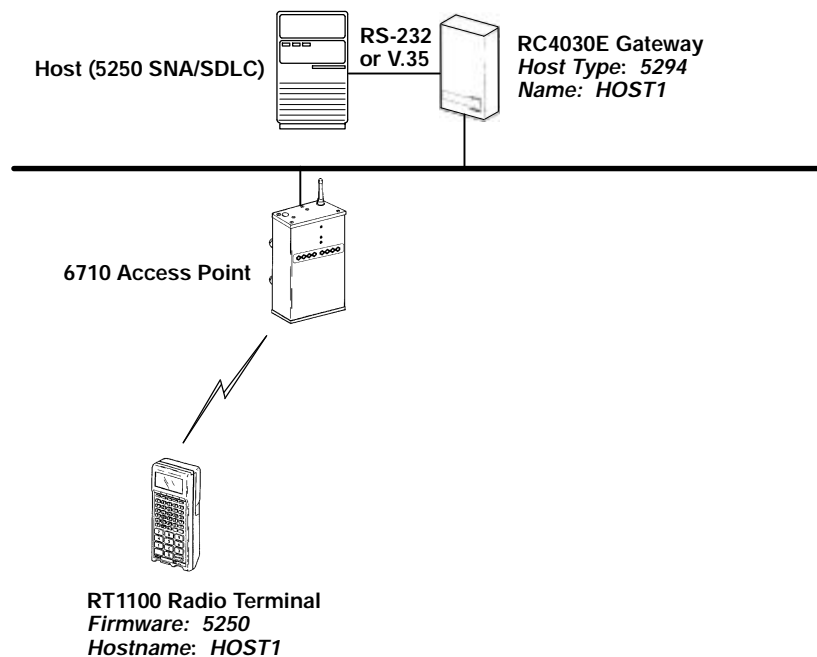


Figure 4-3
Host Names

The prompt for Name is:

Range is: 16 chars

Type 16 or fewer alphanumeric characters for the name.
The program inserts quotation marks around your entry.

Gateway.Compression

Gateway.Compression uses a general data compression algorithm to reduce the size of data sent to a wireless station. Settings are:

Enabl ed
Di sabl ed

Setting	Description
Enabled	Compresses most outbound data from the RC4030E Gateway to the wireless stations. Inbound data sent from the wireless station is not compressed. Compression takes place on a client-by-client basis as allowed by each client.
Disabled (<i>default</i>)	Does not compress data.

On most systems, compression reduces the RF (radio frequency) load by compressing most of the outbound data from the host to the wireless station. It is strongly recommended that you enable Gateway.Compression.

Compression does not significantly increase wireless station counts or supported transaction rates. It does improve response time consistency in applications where the same data or screens are frequently repeated. The effectiveness of compression varies with the size and number of unique screens.

While compression may reduce the amount of data being sent through the RF system, it increases the RC4030E Gateway's processing load. Therefore, it may be beneficial to disable compression for some systems.

Host Type

Use Host Type to set the type of communication the host uses. Options are:

Async
3270
5294
5394

Setting	Description
Async (default)	Sets host type to asynchronous. One host is connected via RS-232 and uses a proprietary protocol to multiplex all wireless stations. Use Async for 3270 asynchronous, 5250 asynchronous, and NORAND ^R Native communications. Options start on page 4-14.
3270	Sets host type to IBM 3270 SNA/SDLC emulation. Options start on page 4-19.
5294	Sets host type to IBM 5294 Control Unit (5250 SNA/SDLC) emulation. Options start on page 4-19.
5394	Sets host type to IBM 5394 Control Unit (5250 SNA/SDLC) emulation. Options start on page 4-19.

[Async Parms]

Use [Async Parms] to configure RS-232 options for the asynchronous multiplexing protocol. Options and their default settings are:

Baud Rate	<19200>
Stop Bits	<1>
Parity	<None>
Data Bits	<8>
Host Timeout	0
Address Type	<Normal >
Enhanced R Polling	<Disabled>
Multiple Buffering	<Disabled>
Full Duplex	<Disabled>

Baud Rate

Baud Rate is the serial communications speed in bits per second. Settings are: 300, 1200, 2400, 4800, 9600, 19200 (default), 38400, and 57600.

Stop Bits

Use this option to set the number of stop bits to be sent with each character:

1
2

The default is 1 stop bit.

Parity

Parity options are:

None
Odd
Even

The default is None.

Data Bits

Use this option to set the number of data bits per character:

7
8

The default is 8 data bits.

Host Timeout

Host Timeout is the number of seconds of host inactivity before the host is considered down. The prompt is:

Range is: 0. . 255

The range is zero (default) to 255. A setting of zero means the RC4030E Gateway never assumes that the host has timed out. Intermec recommends 10 or more seconds.

The default of zero means the RC4030E Gateway never times out the host. Ten or more seconds is recommended. Do not set Host Timeout to zero if the wireless station is configured to communicate with up to three hosts through the wireless station's Advanced Setup firmware option.

After the host timeout value has been exceeded, the wireless station displays "Host is Down." The user can then reboot the wireless station. The RC4030E Gateway tries to connect with the next host defined for the wireless station.

Address Type

For each frame sent to the host, the originating station can be fixed at one or three characters. Settings are:

Normal Old

Setting	Description
Normal <i>(default)</i>	Wireless station addresses consist of three octets.
Old	RC4030E Gateway is backward compatible to the INTERMEC [®] RM2216 series of multiplexers. Wireless station addresses consist of one octet instead of three, and RC4030E Gateway responses are in the MUX (RM2216-compatible) response format.

Enhanced R Polling

Enhanced R Polling determines how the RC4030E Gateway responds to host commands with data (if available). Settings are:

Enabled Disabled

Setting	Description
Enabled	RC4030E Gateway responds to host commands with data without sending acknowledgments (the wireless station response is the acknowledgment). This reduces the number of polls generated by the host.
Disabled <i>(default)</i>	RC4030E Gateway responds to host commands with data by sending acknowledgments.

Multiple Buffering

Multiple Buffering determines how the RC4030E Gateway stores messages. Settings are:

Enabl ed
Di sabl ed

Setting	Description
Enabled	RC4030E Gateway stores more than one wireless station message from the host while it sends previous messages to the wireless station.
Disabled (default)	RC4030E Gateway buffers only one wireless station message from the host.

Full Duplex

Full Duplex is a communications method where messages flow in two directions at the same time. The host application must be written to specifically support full duplex.

Enabl ed
Di sabl ed

Setting	Description
Enabled	RC4030E Gateway and host transmit and receive at the same time.
Disabled (default)	Either the RC4030E Gateway or the host transmits or receives at one time (half duplex).

[Sync Params]

Use [Sync Params] to set options for the 3270, 5294, or 5394 host type. Options and their default settings are:

Type	<RS232>
Baud Rate	<External >
NRZI	<Disabled>
Max Frame	<256>
Host Timeout	0
Mirroring	<Disabled>
Auto Reconnect	<Disabled>
Term Timeout	0
XID	0. 0. 0. 0
SDLC Address. AD0	1
[SDLC Address]	

" NOTE:

The XID and SDLC Address.AD0 options appear if the host type is 3270. The [SDLC Address] option appears if the host type is 5294 or 5394.

Type

Use Type to set the type of electrical connection between the RC4030E Gateway and the host. Settings are:

RS232
V. 35

The default is RS232.

Baud Rate

Baud Rate is the speed setting for the serial communications port. Settings are External (default), 1200, 2400, 4800, 9600, 19200, 38400, 56000, and 64000.

NRZI

NRZI is “nonreturn to zero inverted,” a signaling mode for V.35. The setting must match the host’s setting:

Enabl ed
Di sabl ed

Setting	Description
Enabled	Signaling is NRZI.
Disabled (default)	Signaling is NRZ.

Max Frame

Max Frame is the number of octets in the largest SDLC frame:

256
512

The default is 256. The 5294 Control Unit can support a frame size of 256 bytes of data. The 5394 Control Unit can support a frame size of 512 bytes of data.

Host Timeout

Host Timeout is the number of seconds of host inactivity before the host is considered down. The prompt is:

Range i s: 0 . . 255

The default of zero means the RC4030E Gateway never times out the host. Ten or more seconds is recommended. Do not set Host Timeout to zero if the wireless station is configured to communicate with up to three hosts through the wireless station’s Advanced Setup firmware option.

After the host timeout value has been exceeded, the wireless station displays "Host is Down." The user can then reboot the wireless station. The RC4030E Gateway tries to connect with the next host defined for the wireless station.

Mirroring

" NOTE:

Mirroring is supported only on the SST (Spread Spectrum Transmission) RC4030E Gateway. Mirroring is not supported on the RC4030E Gateway on the open wireless LAN.

Mirroring optimizes the data sent to the wireless stations by keeping a screen image for each wireless station. Only the changes from one image to the next are sent to the wireless station. Settings are:

Enabl ed
Di sabl ed

Setting	Description
Enabled	RC4030E Gateway optimizes data sent to the wireless stations. This shortens communication time because only the screen changes are updated.
Disabled (<i>default</i>)	RC4030E Gateway does not optimize data.

Auto Reconnect

" NOTE:

Auto Reconnect is supported only on the SST (Spread Spectrum Transmission) RC4030E Gateway. Auto Reconnect is not supported on the RC4030E Gateway on the open wireless LAN.

Auto Reconnect allows reconnection to the host. Settings are:

Enabl ed
Di sabl ed

Setting	Description
Enabled	All wireless stations communicating with this RC4030E Gateway return to the SNA session they were at before they were turned off. This avoids logging back onto the SNA host.
Disabled (disabled)	User must log onto the host when they turn the wireless station on. For security, Auto Reconnect should be set to Disabled. Or, the user can log off the wireless station before turning it off.

Term Timeout

Term Timeout indicates how long a wireless station may remain idle before being disconnected. The prompt is:

Range i s:
0. . 255

The default is zero.

XID

XID is the exchange ID that applies only to 3270 communications. The prompt is:

Range i s:
4 hex pai rs

The default is 0.0.0.0. The setting must match the host's setting.

SDLC Address.AD0

SDLC Address.AD0 is the address table for 3270 SNA/SDLC communications. The prompt is:

Range i s: 1 hex pai rs

The default is 1 hex pair. Set the option according to the SDLC address of the host.

[SDLC Address]

[SDLC Address] is the address table for 5250 SNA/SDLC communications. The settings for [SDLC Address] depend on the host type (5294 or 5394).

5294 Host Type

Settings for the 5294 host type are as follows:

AD0	1
AD1	0
AD2	0
AD3	0
AD4	0
AD5	0
AD6	0
AD7	0

The RC4030E Gateway can emulate eight multidrop IBM 5294 Control Units, which works best for IBM System/36 and System/38 hosts. The RC4030E Gateway supports 64 logical units (LUs) which correspond with wireless station network addresses 0 to 63.

Figure 4-4 shows how the RC4030E Gateway emulates eight 5294 Control Units with 8 logical units (LUs) each. The LUs are located at SDLC addresses 1 through 8. This provides up to 64 LUs.

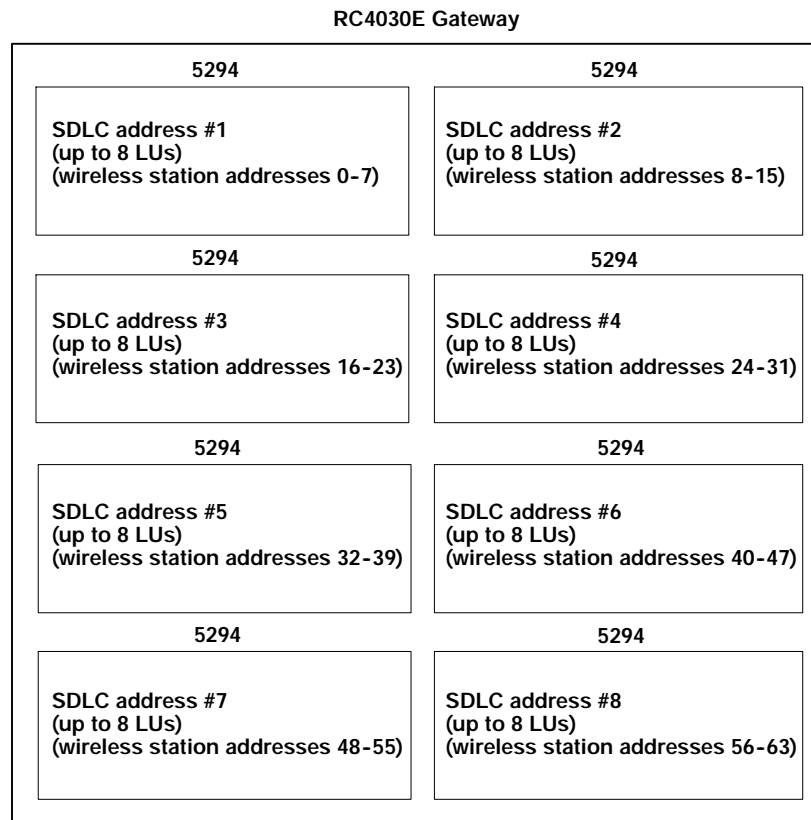


Figure 4-4
**RC4030E Gateway Emulating 5294 Control Unit
for System/36 or System/38 Host**

5394 Host Type

Settings for the 5394 host type are as follows:

AD0	1
AD1	0
AD2	0
AD3	0

The RC4030E Gateway can emulate four multidrop IBM 5394 Control Units, which works best for IBM AS/400 hosts. The RC4030E Gateway supports 64 LUs which correspond with wireless station network addresses 0 to 63.

When emulating four 5394 Control Units, each logical RC4030E Gateway handles 16 LUs. A group of 16 LUs is linked to each SDLC address, numbers 1 through 4. Figure 4-5 shows a logical representation of four 5394 Control Units emulated by the RC4030E Gateway.

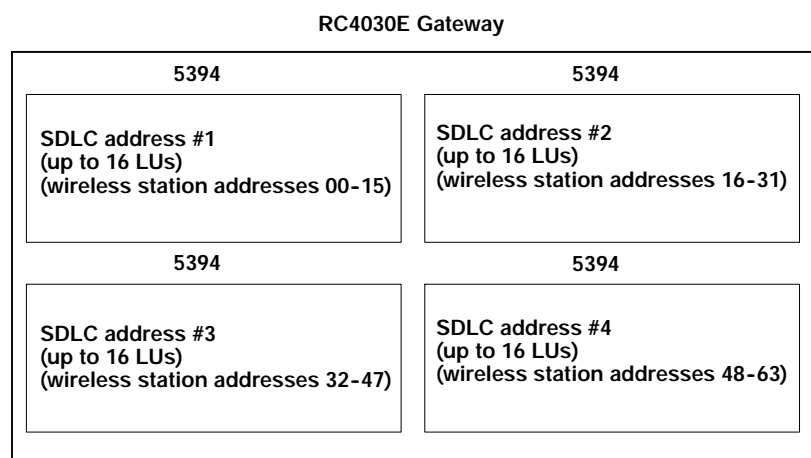


Figure 4-5
**RC4030E Gateway Emulating 5394 Control Unit
 for AS/400 Host**

TCP/IP Options

Use [Tcpi] to set options necessary for communications with this RC4030E Gateway, such as IP addresses. Addresses are required for remote setup or SNMP network management. Options and their default settings are:

IP Address	0. 0. 0. 0
IP Subnet Mask	255. 255. 255. 0
IP Router	0. 0. 0. 0
IP Frame Type	<DIX>
DHCP	<Enabled, if IP address is zero>
DHCP Server Name	"Norand DHCP Server"
Auto ARP Minutes	5

IP Address

IP Address is the unique address locally assigned to this RC4030E Gateway. The prompt is:

Range is: 4 nums 0. . 255

The default is 0.0.0.0, which disables the ability to use TCP/IP. Following are suggestions for setting the address:

- " If you are installing this RC4030E Gateway on an existing Ethernet segment, you should allocate the IP address from the same pool as the existing computers on the segment.
- " If you are installing this RC4030E Gateway on a new Ethernet segment that is not going to connect to the Internet, try using this Class B address:
172.16.h.h

The host number is "h.h." This Class B network address is reserved by the numbering authority for a company's internal use. If the Class B address appears on the Internet, routers drop the data.

Note the following:

- " If the IP address is 0.0.0.0 *and* DHCP is enabled, this IP address is obtained through DHCP.
- " If the IP address is 0.0.0.0 *and* DHCP is disabled, TCP/IP access to this RC4030E Gateway is disabled.

A discussion of DHCP starts on page 4-29.

IP Subnet Mask

IP subnets partition traffic and are connected by routers. The subnet mask indicates how many bits of the IP address represent a network number and how many indicate a host number. The prompt is:

Range is: 4 nums 0. . 255

The default is 255.255.255.0. Following are suggestions for setting the subnet mask:

- " If you are installing this RC4030E Gateway on an existing Ethernet segment, the subnet mask should match the other computers on the segment.
- " If you are using the 172.16.h.h address suggested for IP Address, you may want to use a subnet mask of 255.255.248.0. This mask provides the network 172.16 with 30 subnets of 2046 computers each.

The IP address breakdown is:

- " 16 bits of network address.
- " 5 bits of subnet address. Do not use all 0's or all 1's.
- " 11 bits of host address. Do not use all 0's or all 1's.

The following chart lists IP addresses when the submask is 255.255.248.0.

Subnet	First Address	Last Address
1	172.16.8.1	172.16.15.254
2	172.16.16.1	172.16.23.254
3	172.16.24.1	172.16.31.254
.		
.		
.		
30	172.16.240.1	172.16.247.254

If you are using DHCP to obtain an IP subnet mask for this RC4030E Gateway, the subnet mask obtained from DHCP overrides the setting for the IP Subnet Mask option.

IP Router

" NOTE:

The IP address of the router is required only if this RC4030E Gateway will communicate with devices on the other side of the router.

IP Router identifies the default router used to forward data frames to addresses on another subnet. The prompt is:

Range i s:
4 nums 0. . 255

The default is 0.0.0.0, which disables the ability to exchange TCP/IP traffic with another subnet or network.

A router that connects subnet 1 to subnet 2 might have the address 172.16.8.1 on subnet 1 and 172.16.16.1 on subnet 2. A host with IP address 172.16.16.5 would specify an IP router address of 172.16.16.1 to reach host 172.16.8.10.

IP routers are usually configured so a computer only needs to know one router's address. This is true even if several routers on the segment connect to several other segments.

If you are using DHCP to obtain an IP router address, and the DHCP server specifies a default IP router, the DHCP server specification overrides the setting for IP Router.

IP Frame Type

IP Frame Type sets the type of frame containing IP traffic:

DIX
802.3

Setting	Description
DIX (<i>default</i>)	Sets Ethernet type to DIX (Ethernet 2.0) for IP frames.
802.3	Sets Ethernet type to 802.3 with a SNAP header for IP frames. Select 802.3 if other network computers use SNAP encapsulation for IP frames.

DHCP

DHCP provides a way for this RC4030E Gateway (the client) to obtain IP addresses from a DHCP server on the network.

Settings for DHCP are:

Enabl ed
Enabl ed, i f IP address i s zero
Di sabl ed

Setting	Description
Enabled	Instructs DHCP to obtain the IP address, subnet mask, and (optional) default IP router address when the RC4030E Gateway reboots.
Enabled, if IP address is zero (default)	Retrieves IP addresses for the RC4030E Gateway, subnet mask, and default router, and the lease expiration time, from the DHCP server. The RC4030E Gateway ignores other configuration options. Note that if you enable DHCP, you must set IP Address to 0.0.0.0.
Disabled	Disables DHCP. You must manually set the IP addresses before the TCP/IP stack is enabled.

The RC4030E Gateway responds only to address offers from DHCP or Bootp servers. In either case the server is specified in the DHCP server name field.

DHCP Server Name

The prompt for the DHCP server name is:

Range i s: 31 chars

The RC4030E Gateway responds only to the named server. The default server name is "Norand DHCP Server." This name prevents the RC4030E Gateway from inadvertently obtaining an IP configuration from existing servers on the network. If the DHCP server name is configured with a null string (""), the RC4030E Gateway responds to offers from any server.

The class identifier string for the RC4030E Gateway is "Norand Gateway." Servers use this string to identify the RC4030E Gateway.

Bootp Operation

The RC4030E Gateway can also accept addresses from a Bootp server identified in the DHCP server name field. An address offer from a Bootp server is treated as if it were an infinite lease from a DHCP server.

Networks With DHCP and Bootp Servers

If the DHCP server name is configured as "", the RC4030E Gateway responds to either DHCP or Bootp servers. The RC4030E Gateway gives preference to DHCP offers. If a Bootp reply arrives at the RC4030E Gateway before any DHCP offers are received, the gateway waits an additional 4 seconds for a DHCP offer before responding. If a DHCP offer is received within the 4-second period, the Bootp reply is ignored and the DHCP offer is accepted.

Handshaking

When the RC4030E Gateway responds to a DHCP or Bootp server, it broadcasts a single ARP request to the address offered. If no ARP response is received within 3 seconds, the RC4030E Gateway assumes the IP address is unique and completes the negotiation for that address. If an ARP reply is received before the timeout, the RC4030E Gateway assumes the address is a duplicate and declines the offer.

Infinite Leases

A DHCP server may be configured to grant an infinite lease to the RC4030E Gateway. A Bootp grant is always treated as an infinite lease. The RC4030E Gateway stores the IP address, subnet mask, and default router in the EEPROM configuration register and disables DHCP. These settings are maintained if the RC4030E Gateway is powered off or rebooted through the ROM command monitor. To restore DHCP client operation, reconfigure the IP address to 0.0.0.0.

" NOTE:

DHCP is documented in RFCs 1533, 1534, and 1541. Bootp is documented in RFC 951.

Auto ARP Minutes

The RC4030E Gateway periodically sends an unsolicited ARP response so routers can update their routing tables. The response enables a network management platform to learn about the RC4030E Gateway on the network by querying routers.

Auto ARP Minutes is the number of minutes between periodic ARP requests. The prompt is:

Range i s: 0. . 120

The default is 5 minutes. A setting of 0 disables Auto ARP Minutes.

If the default router's address is 0, the ARP request is sent to the IP address of this RC4030E Gateway. Without the Auto ARP Minutes option, an RC4030E Gateway might not use its IP address for extended periods of time and expire from the router's ARP table.

Auto ARP Minutes enhances the discovery of the network architecture by network management tools, such as OpenView by Hewlett-Packard. The network management tool queries IP router ARP tables to locate the active IP addresses for the subnet.

IP addresses for RC4030E Gateways should not be allowed to expire. The network management program would then need to ping all potential addresses on a subnet to locate active IP addresses, or require the user to enter a list.

Security Options

Use [Security] to set these passwords:

Password	"*****"
Service Password	<Enabled>

Password

This option is the top-level password you need to access the configuration menus. The prompt is:

Range is: 16 chars

Enter 16 or fewer alphanumeric characters for this password. It is case insensitive and can be any combination of letters, numbers, and symbols. For security, the password appears as asterisks on the screen.

Service Password

Intermec maintains a service password so its Customer Response Center can configure this RC4030E Gateway if necessary. For example, if you forget what the configuration menus' top-level password is, the Customer Response Center can access the menus through the service password.

By default, the Service Password is enabled. If setting a service password violates your security guidelines, you can disable it. If it is already disabled and you forget the top-level password, you may need to send this RC4030E Gateway to a Service Center to be reconfigured.

Contact the Customer Response Center for more information about the service password. See the Preface for contact information.

Program Part Numbers

Following are program part numbers. The software is a combination of the 3270, 5250, and NORAND Native programs.

Description	Contents	P/N
RCCOMBO FLASH	FLASH memory RCCOMBO program Disk holder	209-215-001
RCCOMBO kit	RCCOMBO program Disk holder	215-534-001
Media	RCCOMBO program	210-693-001

Creating a Web Browser Session

NOTE: *The RC4030E Gateway's configuration menus are designed for HTML Level 2.0 or higher.*

Before you can configure the RC4030E Gateway through a Web browser, you must connect the gateway to the Ethernet cable. (See Section 5, "Installing the Gateway," for help.) You must also perform initial configuration through the DIAG port to set an IP address or DHCP server name. You should also configure a subnet mask and IP router address.

The gateway must go through its boot sequence before you can configure it through the browser. If you reboot it while you configuring it through the browser, the session terminates. You can create a new session after the gateway reboots. To configure the RC4030E Gateway through a Web browser, see Figure 4-6 and the procedure following it.

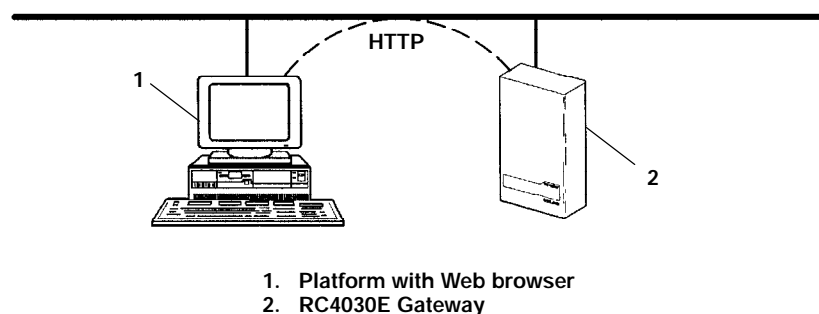


Figure 4-6
Web Browser Session

1. Ensure the RC4030E Gateway is connected to the Ethernet cable and has an assigned IP address.
2. Ensure the Web browser is installed on the platform.
3. Start the browser application.
4. Enter the RC4030E Gateway's IP address in the browser's Uniform Resource Locator (URL) field. For example:

http: //192. 168. 17. 10

After you enter the correct IP address, the Enter Network Password screen appears:

Enter Network Password		OK
Please enter your authentication information.		Cancel
Resource:	<i>(resource number)</i>	
User name:	<input data-bbox="574 831 932 863" type="text" value="<i>(resource number)</i>"/>	
Password:	<input data-bbox="574 894 932 926" type="password" value="*****"/>	
<input type="checkbox"/> Save this password in your password list.		

5. Enter the user name and password. Refer to the following chart for help.

Setting	Description
Resource	A number assigned to this session. The number changes every time you access the Enter Network Password screen.
User name	The Resource number. For example, if the Resource number is 3550, the user name is 3550.
Password	Configuration menus' top-level password. The default password is CR52401 (case insensitive). For security, the password appears as asterisks on the screen.
Save this password in your password list	If you check this option, the browser saves the password. You do not need to select this option because the Resource number changes every time you access this screen.

" NOTE: *Only one computer at a time can access the configuration menus. If you unexpectedly receive a request for the user name and password, another user may be trying to view or modify the configuration through Telnet or the DIAG port. If a different computer tries to start another Web browser session, it is refused until the current session logs out.*

Following is the initial screen that appears after you enter the correct user name and password. Configure the RC4030E Gateway by following the directions provided on this screen and the help screens. In addition, this user guide's Index lists the page numbers for all menu options.



Gateway Configuration

- F Configuration Menus
- F Review/write Changes
- F Logout

- F Reboot

Security

Once you've successfully entered the user name and password into your browser, you are authorized to access the configuration. If five (5) minutes elapses without configuration activity, you will become unauthorized again.

Only one computer at a time is allowed to be authorized for access to the configuration menus. If you unexpectedly receive a request for user name and password, it's possible that another user is currently attempting to view or modify the configuration via telnet or the serial port. An attempt to start another HTTP session from another computer will be refused until this session has been logged out.

How to use the Configuration Menu

1. Select *Review/write changes* to see the existing changes from the defaults. Optionally select an *Undo* option to remove changes.
2. Locate and change configuration items by navigating in the *Configuration Menu*.
3. Select the *Submit Changes* button to submit the changes on each form.
4. Repeat the above steps until all changes have been submitted.
5. Select *Review/write changes* and review the changes you have made.
6. Select *Commit* to write the changes.

Note: Some early browser versions can't be convinced by the server to always get a fresh copy of a document that was previously fetched. This might cause old and misleading information to be displayed. Updating the browser, pressing the reload button, or disabling the browser's cache may be helpful.

Copyright © 1996-1998 Intermec Technologies Corporation. All rights reserved.

Uploading New Versions

You would normally upload RC4030E Gateway software from a PC into the RC4030E Gateway when you are installing a new version of software. "Upload" is an appropriate term because, to the local PC, the RC4030E Gateway appears as a remote host computer. (A communications software package on a local PC is designed to upload data to a remote host computer.)

Your Service Representative or Systems Engineer orders a disk containing the new version, or arranges for you to download it onto your PC through the bulletin board at Norand. The software is usually located in a directory named **a**. The directory contains a "gateway" file and four "host" files. You can copy the directory onto your PC's hard drive or leave it on the disk.

Before you begin the upload process do the following:

1. Establish a local session with the RC4030E Gateway.
2. Write down the DOS pathnames of the FLASH files because you will need to enter the pathnames during the upload process. The following pathname applies if the files in directory **a** are located on hard drive **c**:

`c: \a*`

where **c** is the hard drive, **\a** is the directory in which the "gateway" and "host" files are located, and ***** selects all files in directory **a**.

3. Read your communications software user guide to find out how your package uploads files. For example, PROCOMM PLUS for DOS uploads the FLASH files after you press [PAGE UP], select "Y-modem batch protocol" from a list of options, enter the DOS pathnames, and then press [Enter].
4. Start the communications program.

5. To upload files into the RC4030E Gateway, refer to the following procedure. It lists the steps you need to follow and the commands to type.

" NOTE:

The following procedure applies to RC4030E Gateway ROM Version 1.14 and above.

1. Reboot the RC4030E Gateway into ROM (command interpreter) mode. To do this, set switch #11 to ON, and then power cycle the RC4030E Gateway by unplugging it from the outlet and then plugging it back in. The gateway responds with:

RB4030 ROM <Version> <Date> <Time>

2. Ensure the RC4030E Gateway rebooted into ROM mode:

Command	RC4030E Response
---------	------------------

v	RB4030 ROM <Version> <Date> <Time>
---	------------------------------------

3. Upload the RAM drive "gateway" file and "host" files from the PC and into the RC4030E Gateway's RAM drive (c:):

Command	RC4030E Response
---------	------------------

fx (and then upload procedure for your terminal emulation program)	C (RC4030E Gateway is waiting for upload to begin) and then 00 (after successful upload)
--	--

You can list the contents of the RAM drive by typing:

fdc:

If the files loaded successfully, the RAM drive directory will resemble the following sample screen. The "RB4030" header file always appears first in the directory.

The “gateway” and “host” files can be in any order:

```
01 RB4030 1ffffbc 0
02 3270 1f8d70 25084 03-24-96 10:54:50 V2.10
03 AH0ST 1efff8 36159 05-11-96 13:18:26 v2.10
04 GATEWAY 19f498 330534 03-24-96 10:54:00 V0.03
05 SDLC 19b338 16679 04-18-96 15:16:14 V2.10
06 5250 193d68 30101 04-18-96 12:53:46 V2.10
00
```

4. Erase the outdated FLASH files (512 KB), which are located in RC4030E Gateway directory **a:**:

Command	RC4030E Response
f e a:	00 (after FLASH files are erased, in about 2 minutes)

5. Copy the “gateway” file into FLASH memory so that it will correctly load into the first memory location:

Command	RC4030E Response
f c gateway a:	00 (after successful copy, in about 2 minutes)

The “gateway” file must load at absolute base address 500000h, the start address of FLASH. Therefore, the “gateway” file *must* be the first file loaded into FLASH. If the “gateway” file is not loaded first, the RC4030E Gateway will *not* work. Do not use a wildcard copy command (such as **fc c: a:**) to copy the files from the RAM drive into FLASH.

A wildcard command loads the “RB4030” header file into FLASH first, which causes the “gateway” file to load after the “RB4030” header file. Besides, the “RB4030” header file does not need to be loaded into FLASH.

6. After you copy the "gateway" file, individually copy the four "host" files into FLASH. They can be copied in any order:

Commands	RC4030E Response
f c ahost a:	00 (after successful copy, in about 2 minutes)
f c sdl c a:	
f c 3270 a:	
f c 5250 a:	

" NOTE:

You can copy just the host files that apply to your system. For example, for 3270 SNA/SDLC communications, you need to copy only the "3270" host file and the "sdlc" host file.

You can list the contents of the FLASH drive by typing:

fda:

If the "host" files loaded successfully, your FLASH drive directory will resemble the following sample screen. Note that because the "gateway" file was copied first, it is the first file loaded into FLASH and the first file listed in the directory. The remaining files - the "host" files - can be in any order:

```
01 GATEWAY 500000 330534 03-24-96 11:54:00 V0.03
02 AHOST 550b4c 36159 05-11-96 13:39:27 V2.10
03 SDLC 5598b0 16679 04-18-96 16:16:14 v2.10
04 3270 55d9fc 25084 04-18-96 14:46:50 V2.10
05 5250 563c20 30101 04-18-96 14:53:46 V2.10
00
```

7. Reboot the RC4030E Gateway into FLASH mode by resetting switch #11 to OFF and power cycling the RC4030E Gateway again.

Checking the FLASH and ROM Versions

The RC4030E Gateway has two operating modes: FLASH and ROM. To check the current versions of FLASH and ROM installed in your RC4030E Gateway, you need a local PC with a terminal emulation program installed on it (for example, PROCOMM PLUS), the gateway, and one of these cables:

- " An industry-standard null modem cable
- " For a 9-pin PC COM port, P/N 216-841-00X
- " For a 25-pin PC COM port, P/N 216-842-00X

Use the following procedure to check the current FLASH and ROM versions.

1. Ensure the RC4030E Gateway's power supply is unplugged from the outlet.
2. Set switch #11 (command interpreter) to ON (closed).
3. Plug the 9-pin male connector on the cable into the female DIAG port on the bottom panel of the RC4030E Gateway.
4. Plug the 9-pin or 25-pin female connector on the other end of the cable into the designated COM port on the PC.
5. Start the terminal emulation program on the PC.
6. Power cycle the RC4030E Gateway by plugging its power supply into an outlet.

7. The RC4030E Gateway displays current ROM information when it starts its power-up sequence (visible on the PC screen):

RB4030 ROM <Version> <Date> <Time>

<Version> is the current ROM version.

<Date> is the date this version of ROM was released.

<Time> is the time this version was released.

8. To list the FLASH files with their date and version, type:
fd a:
9. To resume normal operation set switch #11 (command interpreter) to OFF.
10. Power cycle the RC4030E Gateway by unplugging it from the outlet and then plugging it back in.

[illegible]

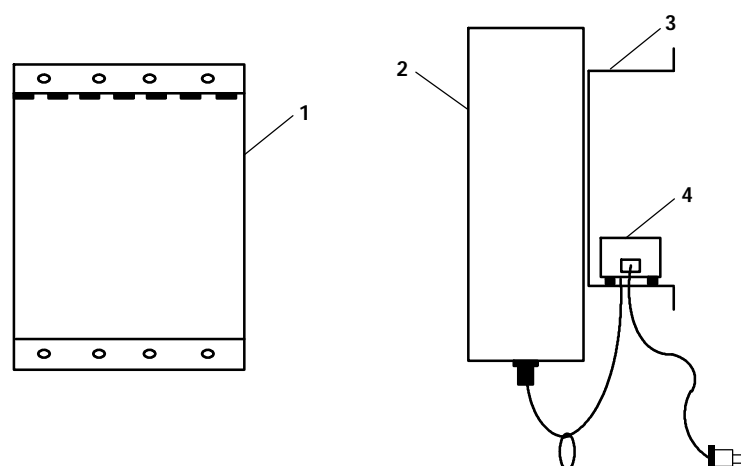
- " Mount the RC4030E Gateway
- " Wire the gateway to 10BASE2 and 10BASE-T cable
- " Connect the gateway to the host
- " Verify gateway operation

Then mounting the gateway, do the following:

Vertical Mount

Use the mounting bracket (P/N 699-612-002) provided with the RC4030E Gateway to mount it on a wall or post (Figure 5-1). Because the RC4030E Gateway does not require a clear line of site to the wireless stations, it can be mounted at any height. You can place the power supply on the mounting bracket behind the RC4030E Gateway.

Use the appropriate hardware to attach the mounting bracket to the wall or post.



1. Mounting bracket (front view)
2. RC4030E Gateway
3. Mounting bracket (side view)
4. NC3100 Power Supply

Figure 5-1
Vertical Mount

Horizontal Mount

You can place the RC4030E Gateway on a table or shelf. Place the four self-adhesive rubber feet provided with the gateway on the back panel (Figure 5-2). The feet keep the gateway from slipping out of place.

The LEDs on the bottom panel of the gateway are helpful troubleshooting aids. They should not be hidden by cables or other objects.

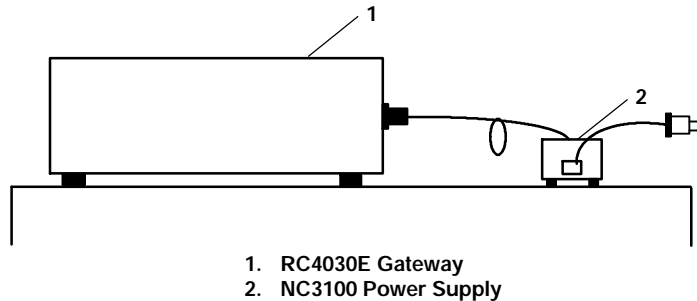


Figure 5-2
Horizontal Mount

10BASE2 Ethernet

The RC4030E Gateway can be wired to the end or middle of 10BASE2 cable.

NOTE:

The cable length between each network device on 10BASE2 must be at least 1.64 feet (.5 meters).

End of Segment

Refer to Figure 5-3 and the procedure following it.

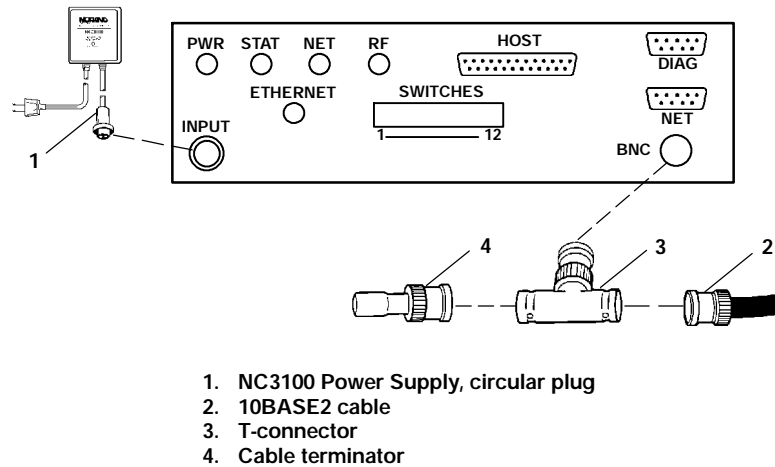


Figure 5-3
Wiring RC4030E Gateway to End of 10BASE2

" NOTE:

The 10BASE2 port is rugged. However, it can be damaged if it is forced to mate to the T-connector at an odd angle or if it is not properly aligned. Therefore, care should be taken when connecting the T-connector to the 10BASE2 port on the RC4030E Gateway.

1. Plug the T-connector (P/N 311-579-301) into the BNC port.
2. Plug one end of the Ethernet coaxial cable into an open end of the T-connector. Align the notches in the cable end with the posts on the T-connector, push the cable in, and twist one-quarter turn.
3. Plug the cable terminator (P/N 311-579-401) into the other open end of the T-connector.
4. Plug the circular plug on the power supply cable into the INPUT port, and tighten the threaded collar.

5. Plug the power supply into an ac outlet. The LEDs should do the following:
 - " PWR LED comes ON.
 - " STAT LED flashes three times within about 20 seconds.
 - " ETHERNET LED flashes two 1-second dashes (for Ethernet Version 2.0).

Middle of Segment

Refer to Figure 5-4 and the procedure following it.

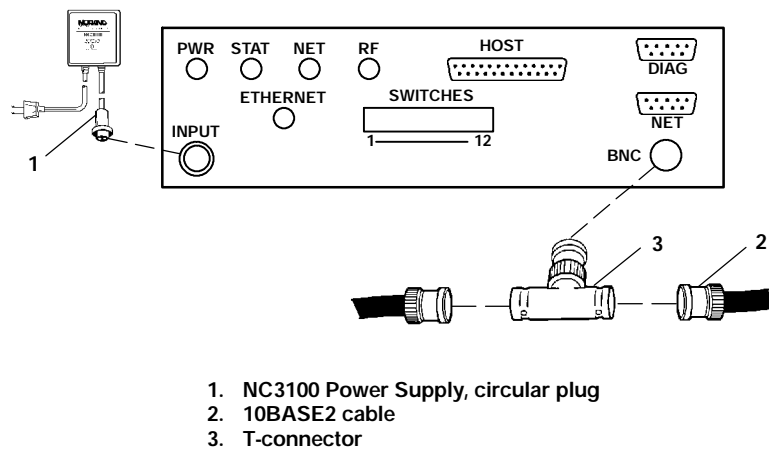


Figure 5-4
 Wiring RC4030E Gateway to Middle of 10BASE2

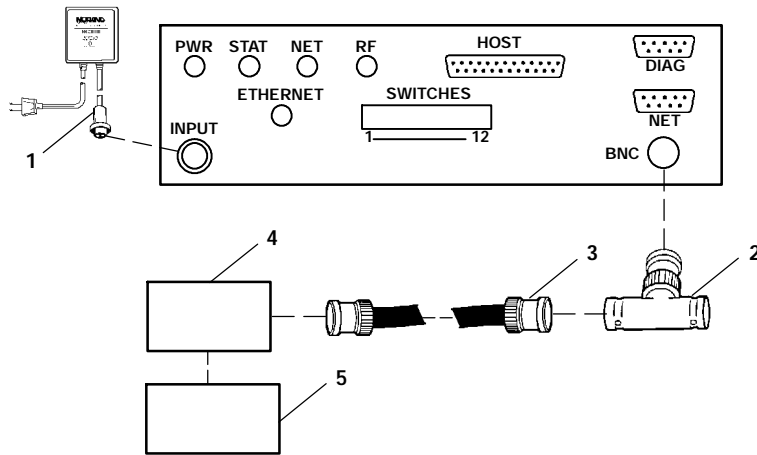
" NOTE:

The 10BASE2 port is rugged. However, it can be damaged if it is forced to mate to the T-connector at an odd angle or if it is not properly aligned. Therefore, care should be taken when connecting the T-connector to the 10BASE2 port on the RC4030E Gateway.

1. Plug the T-connector (P/N 311-579-301) into the BNC port.
2. Plug one end of the Ethernet coaxial cable into an open end of the T-connector. Align the notches in the cable end with the posts on the T-connector, push the cable in, and twist about one-quarter turn.
3. Plug the end of another Ethernet coaxial cable segment into the other open end of the T-connector.
4. Plug the circular plug on the power supply cable into the INPUT port, and tighten the threaded collar.
5. Plug the power supply into an ac outlet. The LEDs should do the following:
 - " PWR LED comes ON.
 - " STAT LED flashes three times within about 20 seconds.
 - " ETHERNET LED flashes two 1-second dashes (for Ethernet Version 2.0).If your RC4030E Gateway's LEDs are not flashing correctly see Section 6, "Troubleshooting."

10BASE-T Ethernet

Refer to Figure 5-5 and the procedure following it.



1. NC3100 Power Supply, circular plug
2. T-connector
3. 10BASE2 cable
4. 10BASE2 to 10BASE-T converter
5. 10BASE-T hub

Figure 5-5
Wiring RC4030E Gateway to 10BASE-T

1. Plug one end of the coaxial cable into the designated port on the converter. Align the notches in the cable end with the posts on the T-connector, push the cable in, and twist about one-quarter turn.
2. Plug the other end of the coaxial cable into an open end of the T-connector.
3. Plug the circular plug on the power supply cable into the INPUT port, and tighten the threaded collar.

4. Plug the power supply into an ac outlet. The LEDs should do the following:

- " PWR LED comes ON.
- " STAT LED flashes three times within about 20 seconds.
- " ETHERNET LED flashes two 1-second dashes (for Ethernet Version 2.0).

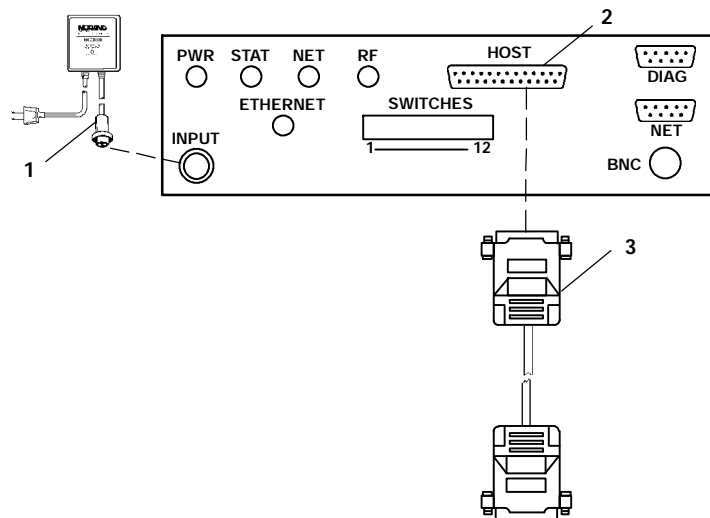
If your RC4030E Gateway's LEDs are not flashing correctly see Section 6, "Troubleshooting."

" **NOTE:** *Unshielded, 10BASE-T twisted-pair cable gets its electrical characteristics from its twisted form. When installing 10BASE-T, use twisted pair cable and keep the pairs twisted (about one twist per inch). Otherwise, 10BASE-T is not affected by the distortions that affect coaxial cable.*

Connecting to the Host

The RC4030E Gateway communicates with the host computer through the gateway's HOST port. To connect the gateway to the host refer to Figure 5-6 and the following procedure.

" **NOTE:** *The host cable you use depends on whether the interface is RS-232 or V.35, and whether the host has a male or female port. Cables and pin-outs are listed in Appendix A, "Cable and Port Pin-Outs."*



1. NC3100 Power Supply, circular plug
2. HOST port
3. Host cable

Figure 5-6
Connecting RC4030E Gateway to Host

1. Plug the 25-pin male connector on the host cable into the 25-pin female HOST port on the bottom panel of the RC4030E Gateway.
2. Plug the connector on the other end of the host cable into the designated port on the host computer.

Verifying Operation

The LEDs on the bottom panel of the RC4030E Gateway continuously indicate the gateway's operating status after it is installed. Figure 2-3 on page 2-5 shows where the LEDs are located.

LEDs that flash do so in one of two modes:

- Normal mode: LED flashes at a random rate with varied intensity to indicate the activity level during normal operation.
- Error mode: LED flashes at a constant rate and intensity to indicate an error.

PWR (Power)

The green PWR LED is ON when the RC4030E Gateway is receiving power. If the LED is OFF, make sure the power supply is plugged into a "live" 120 V ac outlet and the power supply cable is firmly inserted into the INPUT port on the RC4030E Gateway.

STAT (Status)

The yellow STAT LED is normally OFF. It is ON if the RC4030E Gateway fails. Usually, within about 20 seconds of resetting or power connection, the LED flashes three times to indicate that initialization is complete and the RC4030E Gateway is operational.

NET (Network)

The green NET LED is not used on the RC4030E Gateway. It should always be OFF.

RF (Radio Frequency)

The yellow RF LED is not used on the RC4030E Gateway. It should always be OFF.

ETHERNET (Ethernet Connection)

The green ETHERNET LED is ON when the RC4030E Gateway is directly connected to the Ethernet LAN. During normal operation, the ETHERNET LED flashes for one second when the gateway receives or sends an Ethernet packet. Frequent packets keep the ETHERNET LED turned ON continuously.

If the ETHERNET LED is constantly flashing there is a physical problem with the network. See Section 6, "Troubleshooting," for help with solving the problem.

Section 6

Troubleshooting

.....

This section describes how to use network analysis tools and the RC4030E Gateway's LEDs to troubleshoot problems.

Network Analysis Tools

The RC4030E Gateway meets all Ethernet specifications. If you are familiar with how to troubleshoot an Ethernet LAN, you can use standard network analysis tools to troubleshoot the gateway.

If an external system is available to send a standard Ethernet Version 2 type loopback packet (type = 0x9000), the RC4030E Gateway responds if it is operating properly.

LEDs

The LEDs on the bottom panel of the RC4030E Gateway continuously show the device's status. The LEDs also help you diagnose problems. After the gateway powers up and completes its self-test, the LEDs indicate whether the device is operating properly.

If the gateway is operating properly on power-up, the LEDs do the following during the self-test.

LED Activity	Meaning
PWR LED comes ON	RC4030E Gateway is receiving power.
STAT LED flashes three times within about 20 seconds	Initialization is complete and the gateway is operational.
ETHERNET LED flashes two 1-second dashes (Ethernet 2.0) or three 1-second dashes (802.3)	Ethernet port is enabled.

If the LEDs are not operating properly at power-up, run the self-test again to see if the problem repeats itself. To run the self-test, reset the RC4030E Gateway by unplugging its ac power cord from the outlet and then plugging it back into the outlet.

If resetting the RC4030E Gateway does not help, see Table 6-1 for assistance.

*Table 6-1
Problems and Solutions*

If	This Means	Try This
PWR LED is OFF	RC4030E Gateway is not receiving power.	Ensure the NC3100 Power Supply is plugged into the RC4030E Gateway and into the outlet.
STAT LED is ON	RC4030E Gateway is not initializing and is not operational.	Reset the RC4030E Gateway by unplugging its power supply from the outlet, and then plugging it back in. If the LED is still ON, try reloading the FLASH. If these solutions do not work, send the gateway to an Intermec Customer Service Center for repair.
RC4030E Gateway resets every 5 seconds, or STAT LED flashes every 5 seconds	RC4030E Gateway is receiving reset instructions.	Ensure switch 12 (reset) is OFF. It must be OFF for normal operation.
STAT LED does not flash after power is applied or after the RC4030E Gateway is reset	RC4030E Gateway cannot read FLASH memory.	Reload FLASH memory. If the LED still fails to flash, return the RC4030E Gateway to an Intermec Customer Service Center for repair.
STAT LED does not flash three times within about 20 seconds of when power is applied	RC4030E Gateway is receiving conflicting signals.	Ensure switch 11 (command interpreter) is OFF. It must be OFF for normal operation.

Table 6-1 (Continued)
Problems and Solutions

If	This Means	Try This
ETHERNET LED is constantly flashing	There is a physical problem with the network.	Ensure the T-connector is firmly inserted into the RC4030E Gateway's BNC port. Ensure all cables are properly grounded and are firmly plugged into the equipment.
ETHERNET LED does not flash when power is applied to the RC4030E Gateway	RC4030E Gateway is not connecting to the Ethernet LAN.	Ensure the T-connector is firmly inserted into the RC4030E Gateway's BNC port. Ensure cable terminators are attached to the T-connectors for RC4030E Gateways at both ends of the 10BASE2 (thin) Ethernet cable. The RC4030E Gateway's Ethernet network interface card may not be operating properly. Return the gateway to an Intermec Customer Service Center for repair.

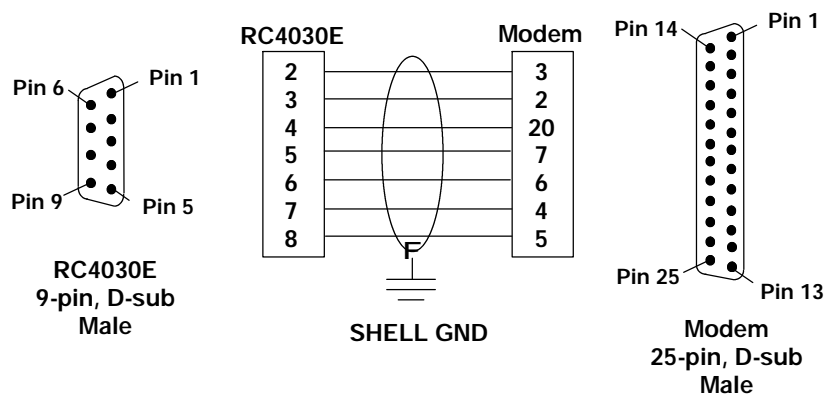
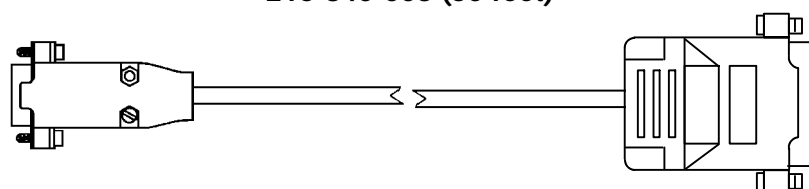
Appendix A

Cable and Port Pin-Outs

DIAG Port Cables

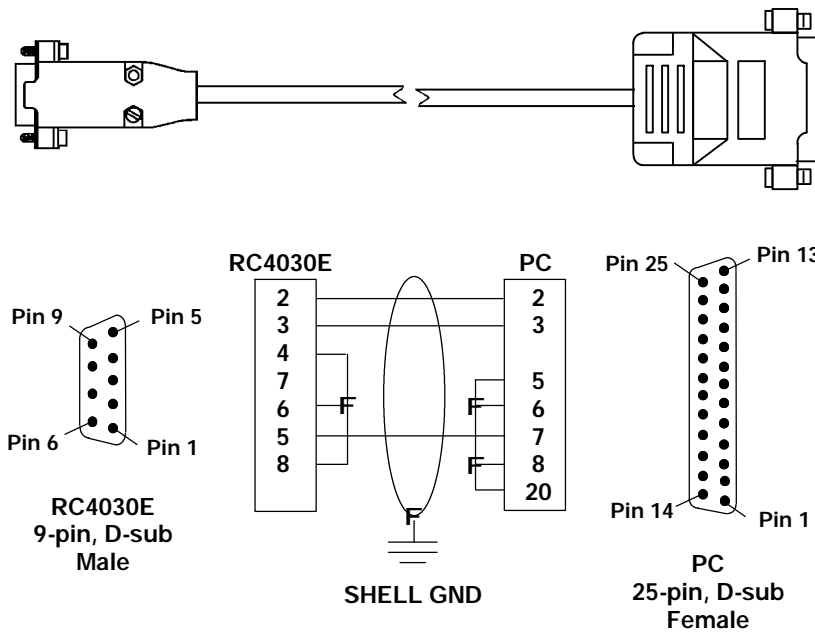
DIAG Port
to Data Communication Equipment (Modem)

216-840-001 (6 feet)
216-840-002 (25 feet)
216-840-003 (50 feet)



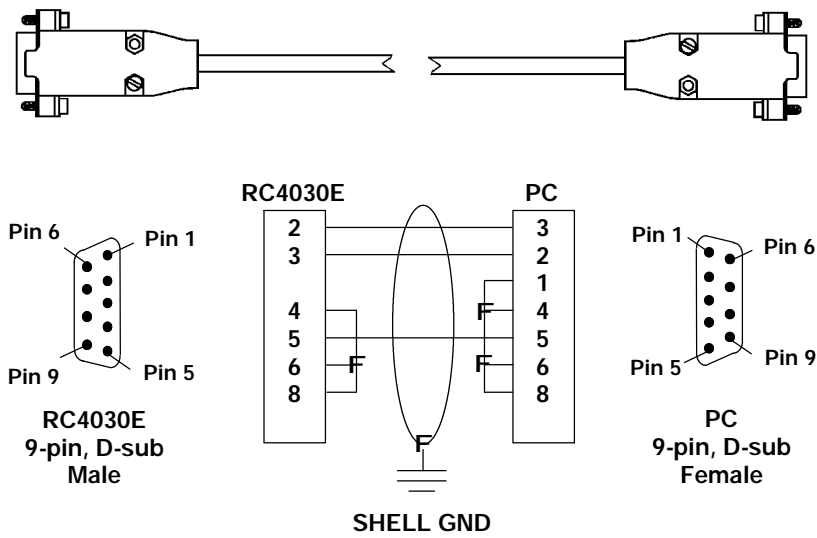
**DIAG Port
to 25-pin PC Port**

216-841-001 (6 feet)
216-841-002 (25 feet)
216-841-003 (50 feet)



DIAG Port
to 9-pin PC Port

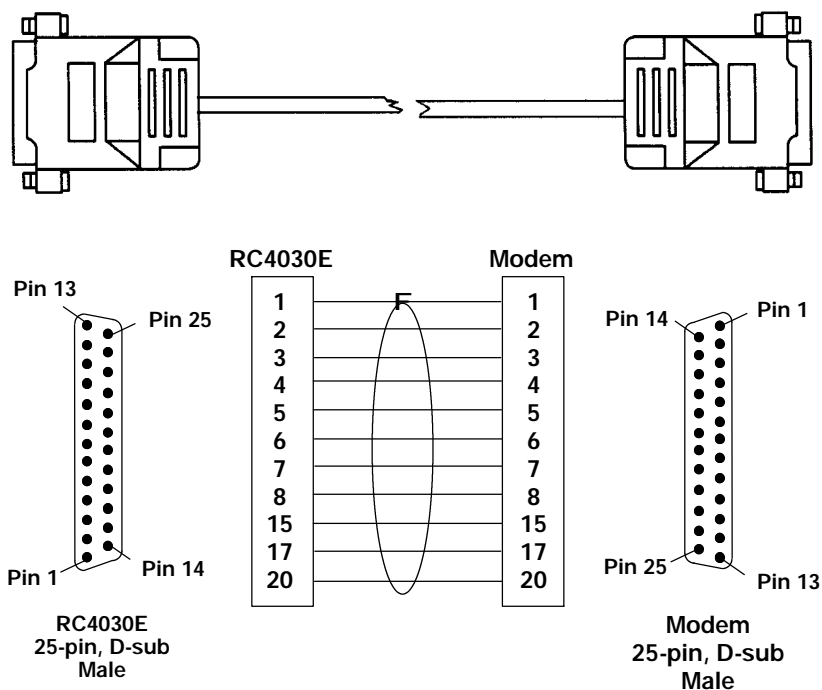
- 216-842-001 (6 feet)
- 216-842-002 (25 feet)
- 216-842-003 (50 feet)



Host Cables

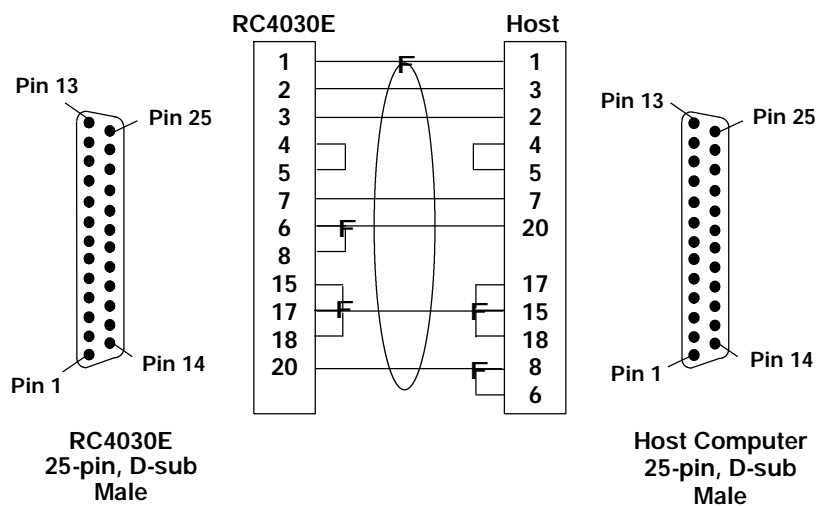
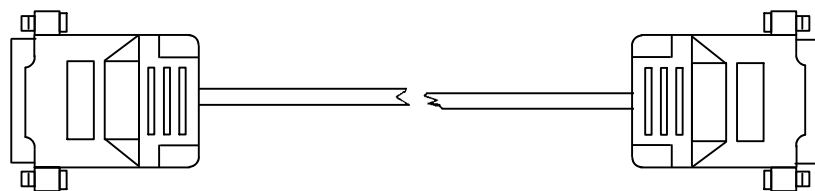
RS-232 Cable Between RC4030E Gateway and Data Communication Equipment (Modem)

216-771-001 (6 feet)
216-771-002 (25 feet)
216-771-003 (50 feet)



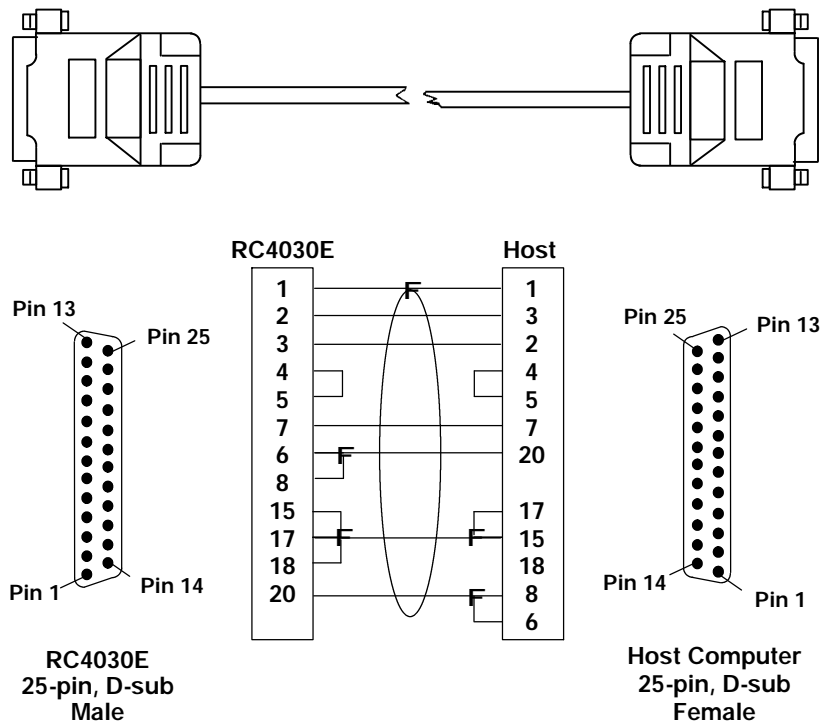
**RS-232 Cable Between
RC4030E Gateway and
25-pin Female Data Terminal Equipment
(Host Computer)**

216-772-001 (6 feet)
216-772-002 (25 feet)
216-772-003 (50 feet)



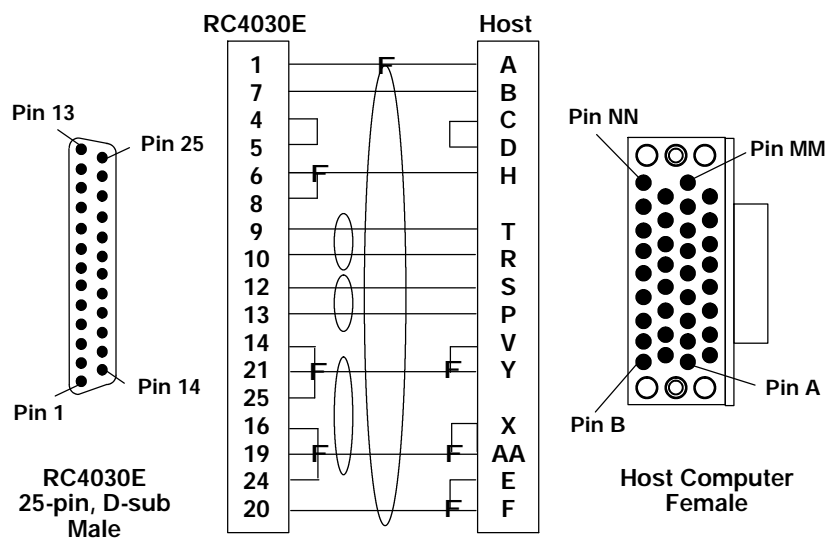
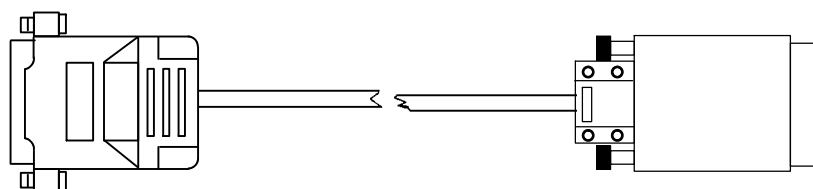
RS-232 Cable Between RC4030E Gateway and 25-pin Male Data Terminal Equipment (Host Computer)

216-773-001 (6 feet)
216-773-002 (25 feet)
216-773-003 (50 feet)



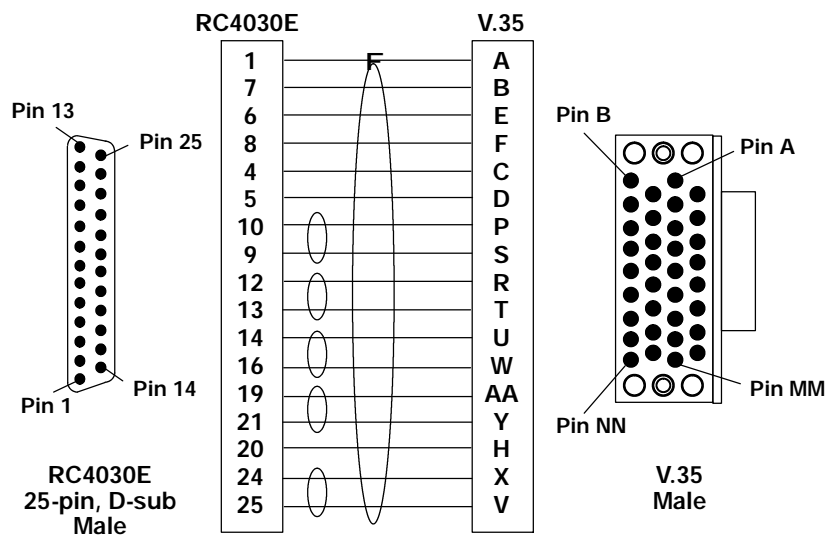
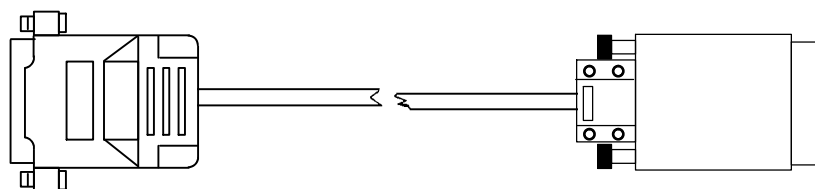
V.35 Direct Connect Cable Between RC4030E Gateway and Data Terminal Equipment (Host Computer)

216-774-001 (6 feet)
216-774-002 (25 feet)
216-774-003 (50 feet)



V.35 Data Communication Equipment (Modem or DSU/CSU) Cable to RC4030E Gateway

216-775-001 (6 feet)
216-775-002 (25 feet)
216-775-003 (50 feet)



Port Pinouts

Following are the port pin-outs for the HOST and DIAG ports. In the charts, N/A means "not applicable."

HOST Port

Connector: DE25 female *Type:* Data Terminal Equipment

Clocking: Asynchronous or synchronous

Interface: RS-232 or V.35

" NOTE:

Do not connect anything to pin 22.

Pin	Type	Direction	Name	Function
1	GND	N/A	FGND	Frame Ground
2	RS-232	OUT	TXD	Transmit Data
3	RS-232	IN	RXD	Receive Data
4	RS-232	OUT	RTS	Request to Send
5	RS-232	IN	CTS	Clear to Send
6	RS-232	IN	DSR	Data Set Ready
7	GND	N/A	SGND	Signal Ground
8	RS-232	IN	DCD	Data Carrier Detect
9	V.35	OUT	TXDB	Transmit Data -
10	V.35	OUT	TXDA	Transmit Data +
11	TEST	OUT	+DCV	+10 Vdc, 10 mA maximum
12	V.35	IN	RXDA	Receive Data +
13	V.35	IN	RXDB	Receive Data -
14	V.35	OUT	ETCA	External Transmit Clock +
15	RS-232	IN	TC	Transmit Clock
16	V.35	OUT	ETCB	External Transmit Clock -
17	RS-232	IN	RC	Receiver clock
18	RS-232	OUT	ETC	External Transmit Clock
19	V.35	IN	TCB	Transmit Clock -
20	RS-232	OUT	DTR	Data Terminal Ready
21	V.35	IN	TCA	Transmit Clock +
22	RS-232	OUT	ARTS	Alternate Request to Send (Nonstandard)
23	TEST	OUT	-DCV	-10 Vdc, 10mA maximum
24	V.35	IN	RCB	Receiver Clock -
25	V.35	IN	RCA	Receiver Clock +

DIAG Port

Connector: DE9 female *Type:* Data Terminal Equipment
Clocking: Asynchronous *Interface:* RS-232

Pin	Type	Direction	Name	Function
1				No connection
2	RS-232	IN	RXD	Receive Data
3	RS-232	OUT	TXD	Transmit Data
4	RS-232	OUT	DTR	Data Terminal Ready
5	GND	N/A	SGND	Signal Ground
6	RS-232	IN	DSR	Data Set Ready
7	RS-232	OUT	RTS	Request to Send
8	RS-232	IN	CTS	Clear to Send
9				No connection

Appendix B

MIB

Product Contents

The RC4030E Gateway MIB is on disk part number 215-897-001. Order the MIB through your Sales Representative.

The following products are available for management of the open wireless LAN/INCA LAN:

- HP OpenView for Windows
- OWLView for HP OpenView for UNIX
- OWLView for HP OpenView for Windows

About This Product

The RC4030E Gateway MIB is packaged to provide basic network management capability for the open wireless LAN. The RC4030E Gateway maintains the following management objects, which are specific to its operation:

- **4030MIB.MIB** — contains all of the Intermec management objects supported on the RC4030E Gateway.
- **RFC1213.MIB** — is the standard MIB-II.
- **RFC1398.MIB** — is the standard Ethernet MIB.

The MIBs are on the RC4030E Gateway's MIB disk. You need to load the MIBs onto your management platform to query the RC4030E Gateway for these management objects.

Getting Started

Install the MIBs onto your management platform *in this order*:

1. **RFC1213.MIB**
2. **RFC1398.MIB**
3. **4030MIB.MIB**

" **NOTE:** *If you are using HP OpenView for Windows, use the OpenView Control/SNMP Manager/Manage Database menu items to add the previous listed MIBs to the HP OpenView MIB database. If you are **not** using HP OpenView for Windows, consult your network management station user's guide for instructions on adding MIBs.*

MIB-II Information

MIB-II is for use with network management protocols in TCP/IP-based internets. The RC4030E Gateway supports most of MIB-II. Table B-1 contains the major groups.

Table B-1
MIB-II Information

MIB Family	OID	Purpose	Groups
System	1.3.6.1.2.1.1	Model and device type	dot3 (Ethernet)
Interfaces	1.3.6.1.2.1.2	I/O ports	
AT	1.3.6.1.2.1.3	Table of IP to MAC/DLC address	
IP	1.3.6.1.2.1.4	IP process	
ICMP	1.3.6.1.2.1.5	ICMP process	
TCP	1.3.6.1.2.1.6	TCP process	
UDP	1.3.6.1.2.1.7	UDP process	
EGP *	1.3.6.1.2.1.8	EGP process	
CMOT *	1.3.6.1.2.1.9	Historical inclusion for OSI support	
Transmission	1.3.6.1.2.1.10	Allows for data based on I/O port type	
SNMP	1.3.6.1.2.1.11	Allows data to be collected about SNMP devices	

* The RC4030E Gateway does not support EGP and CMOT.

RC4030E Gateway MIB Information

Intermec has structured its proprietary management information similar to MIB-II. In addition to MIB-II, the RC4030E Gateway supports information specific to its operation.

EXAMPLE: Device system information is found under **nSystem**, similar to MIB-II System. The OID for the nSystem group ends in "1," just as the OID for MIB-II system ends in "1."

Table B-2 shows the RC4030E Gateway MIB.

*Table B-2
MIB Information*

MIB Family	OID	Purpose	Groups
nSystem	1.3.6.1.4.1.469.1000.2.1	Model, device type, software, file system	hw, file, dir, sysErrors, criticalErrors
nSNMP	1.3.6.1.4.1.469.1000.2.11	SNMP	community, trapTarget
nTransport	1.3.6.1.4.1.469.1000.2.102	Transport	wst, hlit, wcbst
nApplication	1.3.6.1.4.1.469.1000.2.104	Device applications	gw Session (gs, rcbs, hd, td, ahost)
nControl	1.3.6.1.4.1.469.1000.2.105	Device control	powerUp

Access to Management Information

Access to INTERMEC management information is obtained with the proper COMMUNITY name. Intermec provides three levels of access. This table outlines the levels with the required community name.

" NOTE: *Community strings are case-sensitive.*

Community String	Access Type	Description of Access Type
public	READ-ONLY	May read MIB objects, but not write or change values. EXCLUSIONS: Will not be able to read or write the Community Table.
CR52401	READ-WRITE	May read MIB objects. May write to MIB objects that have read-write access. EXCLUSIONS: Will not be able to read or write the Community Table.
secret	SUPER-USER	May read MIB objects. May write to MIB objects that have read-write access. Can read and write the Community Table.

The names of the community strings for each community or access group are stored in (**norand. manage. norandNet. nSNMP. v1Config. communityTable**) stores . These three records may be viewed and modified if used with the SUPER-USER community. There is a maximum, allowing for three levels of access.

Records may be added or deleted via setting the **communityStatus** object to enable, disable, or delete. The first row in the **CommunityTable** is reserved for the SUPER-USER community definition. This record is not removable. This is a fixed record to ensure read-write access to the MIBs on the RC4030E Gateway. Note the **communityName** for the first record can be changed to ensure end-user control of security for the RC4030E Gateway.

MIB-II Notes

System Group	<p>Three fields in the MIB-II system group are writable. Those fields are: sysContact, sysName, and sysLocation. It is important that these values be preserved in case the RC4030E Gateway is powered (off and on) or rebooted. The following lists the number of characters for each field that will be preserved in the event of a power (off and on) or reboot.</p> <p>sysContact: 31 characters sysName: 31 characters sysLocation: 39 characters</p>
Interfaces Group	<p>The ifTable.ifAdminStatus object is read-write accessible. However, this functionality has not been enabled.</p>
IP Forwarding	<p>IP Forwarding is disabled for this release of the RC4030E Gateway. Therefore, the MIB-II ipForwarding object is not changeable.</p>

MIB Directory

The following pages describe the various groups the RC4030E Gateway supports. Table B-3 lists groups, their meaning, and page numbers where each group's table summary and definitions appear.

Table B-3
MIB Directory

Group	Meaning	Group Summary	MIB Definition
Product OIDs			
products	INTERMEC [®] Products	B-8	B-22
System Information			
hw	Hardware Information	B-9	B-22
dir	Software Directory Listing	B-10	B-23
criticalErrors	Critical Errors Information	B-10	B-25
SNMP Version 1 Configuration			
community	Community Table	B-11	B-25
trapTarget	Trap Target Table	B-11	B-30
Transport Groups			
wst	Wireless Transport Protocol (WTP) Status Table	B-12	B-31
hlit	High Level Interface Table	B-14	B-38
wcbst	WTP Control Block Status Table	B-14	B-39
Application Layer Groups			
gs	Gateway Statistics	B-16	B-45
rcbs	Radio Terminal Control Block Statistics	B-18	B-52
hd	Host Delay Statistics	B-19	B-61
td	Terminal Transaction Delay Statistics	B-19	B-62
ahost	Asynchronous Host application	B-20	B-64
Control Group			
powerUp	Power Up Objects	B-21	B-68

MIB Outline

Product OIDs

This group contains an Object IDentification (OID) for each INTERMEC device.

Table B-4
products GROUP

Device Products
norand.manage.products.x
(1.3.6.1.4.1.469.1000.1.x)

OID	Object Name	Object Type	Access
1	ap6710	OBJECT ID	Not Applicable (N/A)
2	gw4030	OBJECT ID	(N/A)
3	wnas	OBJECT ID	(N/A)
4	ts6950	OBJECT ID	(N/A)
5	gwap6910	OBJECT ID	(N/A)
6	uap2100	OBJECT ID	(N/A)
7	msd6710	OBJECT ID	(N/A)

System Information

The following groups contain system level objects describing hardware and filesystem configuration properties. The groups also contain information about critical errors.

" NOTE:

The MIB definition for each group starts on the page given below.

- | | |
|------------------|--|
| " hw | Hardware Information (page B-22) |
| " dir | Software Directory Listing (page B-23) |
| " criticalErrors | Critical Errors Information
(page B-25) |

Table B-5
hw GROUP

Device Hardware Information
norand.manage.norandNet.nSystem.hw.x
(1.3.6.1.4.1.469.1000.2.1.1.x)

OID	Object Name	Object Type	Access
1	hwPartNo	INTEGER	read
2	hwDescription	DisplayString	read
3	hwRevision	INTEGER	read
4	hwSerialNo	INTEGER	read
5	hwID	INTEGER	read

Table B-6
dir GROUP

Device Software Directory Listing
norand.manage.norandNet.nSystem.file.dir.x
(1.3.6.1.4.1.469.1000.2.1.3.3.x)

OID	Object Name	Object Type	Access
2.1.1	dirIndex	INTEGER	read
2.1.2	dirName	DisplayString	read
2.1.3	dirSegment	INTEGER	read
2.1.4	dirType	INTEGER	read
2.1.5	dirSize	INTEGER	read
2.1.6	dirDate	DisplayString	read
2.1.7	dirTime	DisplayString	read
2.1.8	dirVersion	DisplayString	read

Table B-7
criticalErrors GROUP

Device Critical Errors Information
norand.manage.norandNet.nSystem.sysErrors.criticalErrors.x
(1.3.6.1.4.1.469.1000.2.1.4.1.x)

OID	Object Name	Object Type	Access
1	ceEnabled	INTEGER	read
2	ceOverflow	INTEGER	read
3	ceReset	INTEGER	write
4.1.1	ceLogErrorCode	INTEGER	read
4.1.2	ceLogErrorCount	Counter	read

SNMP Configuration Group

This group contains objects that configure the version 1 SNMP agent.

" NOTE:

The MIB definition for each group starts on the page given below.

- " community Community Table (page B-27)
- " trapTarget Trap Target Table (page B-30)

Table B-8
community TABLE

Device SNMP v1 Configurations
norand.manage.norandNet.nSNMP.v1Config.x
(1.3.6.1.4.1.469.1000.2.11.1.x)

OID	Object Name	Object Type	Access
2.1.1	communityIndex	INTEGER	read
2.1.2	communityStatus	INTEGER	write
2.1.3	communityName	DisplayString	write
2.1.4	communityPrivileges	INTEGER	write

Table B-9
trapTarget TABLE

Device SNMP v1 Configurations
norand.manage.norandNet.nSNMP.v1Config.x
(1.3.6.1.4.1.469.1000.2.11.1.x)

OID	Object Name	Object Type	Access
3.1.1	trapTargetIndex	INTEGER	read
3.1.2	trapTargetStatus	INTEGER	write
3.1.3	trapTargetName	DisplayString	write
3.1.4	trapTargetIpAddress	IpAddress	write

Transport Groups

The following groups contain objects that relate active transport layers information.

" NOTE:

The MIB definition for each group starts on the page given below.

- " wst Wireless Transport Protocol (WTP) Status Table (page B-31)
- " hlit High Level Interface Table (page B-38)
- " wcbst WTP Control Block Status Table (page B-39)

Table B-10
wst GROUP

WTP Status Table
norand.manage.norandNet.nTransport.wst.x
(1.3.6.1.4.1.469.1000.2.102.2.x)

OID	Object Name	Object Type	Access
1	wstReset	INTEGER	read
2	wstLastReset	TimeTicks	read
3	wstClockTicks	TimeTicks	read
4	wstInternalErrorCount	Counter	read
5	wstSessionsLost	Counter	read
6	wstFrmrCount	Counter	read
7	wstDataBytesXmit	Counter	read
8	wstDataBytesRecv	Counter	read
9	wstIframesXmit	Counter	read
10	wstIframesRecv	Counter	read
11	wstIframesRetransmitted	Counter	read

Table B-10 (Continued)
wst GROUP

WTP Status Table
 norand.manage.norandNet.nTransport.wst.x
 (1.3.6.1.4.1.469.1000.2.102.2.x)

OID	Object Name	Object Type	Access
12	wstChecksumErrors	Counter	read
13	wstHIDiscardCount	Counter	read
14	wstState	INTEGER	read
15	wstBrgBusy	INTEGER	read
16	wstT1Timeouts	Counter	read
17	wstT1Bucket1	Counter	read
18	wstT1Bucket2	Counter	read
19	wstT1Bucket3	Counter	read
20	wstT1Bucket4	Counter	read
21	wstSABMCount	Counter	read
22	wstDiscCount	Counter	read
23	wstDMCount	Counter	read
24	wstRNRCCount	Counter	read
25	wstRejectCount	Counter	read
26	wstSessionsReset	Counter	read
27	wstBrgSrvTime	TimeTicks	read
28	wstBrgSrvCount	Counter	read
29	wstBrgSrvThreshold	TimeTicks	read
30	wstBrgSrvThreshCount	Counter	read
31	wstBrgSrvLongest	TimeTicks	read
32	wstBrgTxErrors	Counter	read
33	wstFatalBrgErrors	Counter	read

Table B-11
hlit GROUP

High Level Interface Table
norand.manage.norandNet.nTransport.hlit.x
(1.3.6.1.4.1.469.1000.2.102.3.x)

OID	Object Name	Object Type	Access
1	hlitReset	INTEGER	write
2	hlitLastReset	TimeTicks	read
3	hlitTime	TimeTicks	read
4	hlitCount	Counter	read
5	hlitThreshold	TimeTicks	write
6	hlitThreshCount	Counter	read
7	hlitLongest	Counter	read

Table B-12
wcbst GROUP

WTP Control Block Status Table
norand.manage.norandNet.nTransport.wcbst.x
(1.3.6.1.4.1.469.1000.2.102.4.x)

OID	Object Name	Object Type	Access
1	wcbstReset	INTEGER	write
2	wcbstLastReset	TimeTicks	read
3.1.1	wcbstIndex	INTEGER	read
3.1.2	wcbstInUse	INTEGER	read
3.1.3	wcbstH1State	INTEGER	read
3.1.4	wcbstDsap	INTEGER	read

Table B-12 (Continued)
wcbst GROUP

WTP Control Block Status Table
 norand.manage.norandNet.nTransport.wcbst.x
 (1.3.6.1.4.1.469.1000.2.102.4.x)

OID	Object Name	Object Type	Access
3.1.5	wcbstSsap	INTEGER	read
3.1.6	wcbstNet16ADDR	INTEGER	read
3.1.7	wcbstT1Value	INTEGER	read
3.1.8	wcbstT1Average	INTEGER	read
3.1.9	wcbstT1Deviation	INTEGER	read
3.1.10	wcbstT1Timeouts	Counter	write
3.1.11	wcbstT2Timeouts	Counter	write
3.1.12	wcbstTiTimeouts	Counter	write
3.1.13	wcbstFramesRecv	Counter	write
3.1.14	wcbstIframesRecv	Counter	write
3.1.15	wcbstIframesDiscarded	Counter	write
3.1.16	wcbstDataBytesRecv	Counter	write
3.1.17	wcbstFramesXmit	Counter	write
3.1.18	wcbstIframesXmit	Counter	write
3.1.19	wcbstDataBytesXmit	Counter	write
3.1.20	wcbstIframesRetransmitted	Counter	write
3.1.21	wcbstState	INTEGER	read

Application Layer Group

The following groups relate resident applications information. Gateway application:

" NOTE:

The MIB definition for each group starts on the page given below.

- " gs Gateway Statistics (page B-45)
- " rcbs Radio Terminal Control Block Statistics (page B-52)
- " hd Host Delay Statistics (page B-61)
- " td Terminal Transaction Delay Statistics (page B-62)

Asynchronous host:

- " ahost Asynchronous Host application (page B-64)

Table B-13
gs GROUP

Gateway Statistics
norand.manage.norandNet.nApplication.gwSession.gs.x
(1.3.6.1.4.1.469.1000.2.104.1.1.x)

OID	Object Name	Object Type	Access
1	gsReset	INTEGER	write
2	gsLastReset	TimeTicks	read
3	gsClockTicks	TimeTicks	read
4	gsNetworkErrors	Counter	read
5	gsHostDataCount	Counter	read
6	gsHostHaltCount	Counter	read
7	gsHostInvalidCount	Counter	read
8	gsHostDiscardCount	Counter	read
9	gsConnectCount	Counter	read
10	gsCloseCount	Counter	read
11	gsBlocksXmit	Counter	read

Table B-13 (Continued)
gs GROUP

Gateway Statistics
 norand.manage.norandNet.nApplication.gwSession.gs.x
 (1.3.6.1.4.1.469.1000.2.104.1.1.x)

OID	Object Name	Object Type	Access
12	gsDataXmit	Counter	read
13	gsBlocksRecv	Counter	read
14	gsDataRecv	Counter	read
15	gsTermResetCount	Counter	read
16	gsTermContinueCount	Counter	read
17	gsTermInvalidCount	Counter	read
18	gsConnectionErrors	Counter	read
19	gsConnectionResets	Counter	read
20	gsRetransmissions	Counter	read
21	gsRecvSeqErrors	Counter	read
22	gsXmitErrors	Counter	read
23	gsTermDiscardCount	Counter	read
24	gsHostDelayMax	INTEGER	write
25	gsHostDelayTotal	Counter	read
26	gsHostTransactions	Counter	read
27	gsRecvErrors	Counter	read
28	gsTermDelayMax	INTEGER	write
29	gsTermDelayThreshold	INTEGER	write
30	gsTermDelayTotal	Counter	read
31	gsTermTransactions	Counter	read
32	gsTermThresholdCount	Counter	read
33	gsTermMaxCount	Counter	read
34	gsHostMaxCount	Counter	read
35	gsTermDelayTraceOn	INTEGER	write
36	gsHostActive	INTEGER	read

Table B-14
rcbs GROUP

Gateway (Terminal Emulation) Session Table
(each record is a terminal session)
norand.manage.norandNet.nApplication.gwSession.rcbs.x
(1.3.6.1.4.1.469.1000.2.104.1.2.x)

OID	Object Name	Object Type	Access
4.1.1	rcbsIndex	INTEGER	read
4.1.2	rcbsTerminal	INTEGER	read
4.1.3	rcbsType	INTEGER	read
4.1.4	rcbsState	INTEGER	read
4.1.5	rcbsLLCIndex	INTEGER	read
4.1.6	rcbsHostDataCount	Counter	read
4.1.7	rcbsBlocksXmit	Counter	read
4.1.8	rcbsDataXmit	Counter	read
4.1.9	rcbsBlocksRecv	Counter	read
4.1.10	rcbsDataRecv	Counter	read
4.1.11	rcbsTermResetCount	Counter	read
4.1.12	rcbsTermContinueCount	Counter	read
4.1.13	rcbsCloseCount	Counter	read
4.1.14	rcbsHostTransactions	Counter	read
4.1.15	rcbsHostDelayTotal	Counter	read
4.1.16	rcbsHostDelayLast	INTEGER	read
4.1.17	rcbsTermResetTime	INTEGER	read
4.1.18	rcbsTermInactTime	INTEGER	read
4.1.19	rcbsHostInactTime	INTEGER	read
4.1.20	rcbsConnectionErrors	Counter	read
4.1.21	rcbsNetAddress	PhysAddress	read
4.1.22	rcbsSeqErrors	Counter	read
4.1.23	rcbsTermTransactions	Counter	read
4.1.24	rcbsTermDelayTotal	Counter	read
4.1.25	rcbsTermDelayLast	INTEGER	read

Table B-14 (Continued)
rcbs GROUP

Gateway (Terminal Emulation) Session Table
(each record is a terminal session)
norand.manage.norandNet.nApplication.gwSession.rcbs.x
(1.3.6.1.4.1.469.1000.2.104.1.2.x)

OID	Object Name	Object Type	Access
4.1.26	rcbsTermDelayLongest	INTEGER	read
4.1.27	rcbsTermThresholdCount	Counter	read
4.1.28	rcbsTermMaxCount	Counter	read
4.1.29	rcbsTermDelayTraceOn	INTEGER	write
4.1.30	rcbsHostAlias	DisplayString	read

Table B-15
hd GROUP

Host Delay Statistics
norand.manage.norandNet.nApplication.gwSession.hd.x
(1.3.6.1.4.1.469.1000.2.104.1.3.x)

OID	Object Name	Object Type	Access
4.1.1	hdHostDelay	INTEGER	write
4.1.2	hdCount	Counter	read
4.1.3	hdBucket	INTEGER	read

Table B-16
td GROUP

Terminal Transaction Delay Statistics
norand.manage.norandNet.nApplication.gwSession.td.x
(1.3.6.1.4.1.469.1000.2.104.1.4.x)

OID	Object Name	Object Type	Access
4.1.1	tdTrxnTime	INTEGER	write
4.1.2	tdCount	Counter	read
4.1.3	tdBucket	INTEGER	read

Table B-17
ahost GROUP

Asynchronous Host
norand.manage.norandNet.nApplication.ahost.x
(1.3.6.1.4.1.469.1000.2.104.2.x)

OID	Object Name	Object Type	Access
1	ahstReset	INTEGER	write
2	ahstLastReset	TimeTicks	read
3	ahstFramesOut	Counter	read
4	ahstFramesIn	Counter	read
5	ahstIdleDetected	Counter	read
6	ahstNoErrors	Counter	read
7	ahstSyntaxErrors	Counter	read
8	ahstLengthErrors	Counter	read
9	ahstDisabledErrors	Counter	read
10	ahstGapErrors	Counter	read
11	ahstCheckErrors	Counter	read
12	ahstNoBuffersErrors	Counter	read
13	ahstSequenceErrors	Counter	read
15	ahstParityErrors	Counter	read
16	ahstFrameErrors	Counter	read
17	ahstNoiseErrors	Counter	read
18	ahstBreakErrors	Counter	read

Control Group

The objects in the following group exerts control over the RC4030E Gateway. Present functions include rebooting.

" NOTE:

The MIB definition for this group starts on the page given below.

" powerUp Power Up Objects (page B-68)

Table B-18
powerUp GROUP

Device Power Up Objects
norand.manage.norandNet.nControl.powerUp.x
(1.3.6.1.4.1.469.1000.2.105.1.x)

OID	Object Name	Object Type	Access
1	pwrPowerUpCount	Counter	read
2	pwrNextPowerUpTime	TimeTicks	write

MIB Definitions

Following are the MIB definitions for the RC4030E Gateway.

```

-- *****
-- *
-- *                               4030MIB. MIB Versi on 1.32
-- *
-- *****

OWL DEFINITIONS ::= BEGIN

    IMPORTS
        enterprises, IPAddress, Counter, Gauge, TimeTicks
            FROM RFC1155-SM
        PhysAddress, DisplayString
            FROM RFC1213-MIB
        OBJECT-TYPE
            FROM RFC-1212;

    -- This MIB module uses the extended OBJECT-TYPE macro as
    -- defined in RFC-1212;

    norand
        manage
            products
                ap6710
                gw4030
                wnas
                ts6950
                gwap6910
                uap2100
                msd6710
            norandNET
            nSystem
                hw
                    OBJECT IDENTIFIER ::= { enterprises 469 }
                    OBJECT IDENTIFIER ::= { norand 1000 }
                    OBJECT IDENTIFIER ::= { manage 1 }
                    OBJECT IDENTIFIER ::= { products 1 }
                    OBJECT IDENTIFIER ::= { products 2 }
                    OBJECT IDENTIFIER ::= { products 3 }
                    OBJECT IDENTIFIER ::= { products 4 }
                    OBJECT IDENTIFIER ::= { products 5 }
                    OBJECT IDENTIFIER ::= { products 6 }
                    OBJECT IDENTIFIER ::= { products 7 }
                    OBJECT IDENTIFIER ::= { manage 2 }
                    OBJECT IDENTIFIER ::= { norandNET 1 }
                    OBJECT IDENTIFIER ::= { nSystem 1 }

    -- The Hardware Parameters Group
    hwPartNo
        OBJECT-TYPE
        SYNTAX INTEGER (0..2147483647)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "The Norand part number of the hardware device."
        ::= { hw 1 }

```

```

hwDescription OBJECT-TYPE
    SYNTAX DisplayString (SIZE (0..40))
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "The description of the hardware device."
    ::= { hw 2 }

hwRevision OBJECT-TYPE
    SYNTAX INTEGER (0..2147483647)
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "The revision level of the hardware device."
    ::= { hw 3 }

hwSerialNo OBJECT-TYPE
    SYNTAX INTEGER (0..2147483647)
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "The serial number of the hardware device."
    ::= { hw 4 }

hwID OBJECT-TYPE
    SYNTAX INTEGER (0..2147483647)
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "The device identifier of the hardware device.
        Values = 3250, 4000, 4020, 4030, 4033, 3240, 1000,
        1100, 1700, 5940, 4650, 100 (ACE process),
        200 (DOSNMS), 300 (Norand Proxy Agent), 6710 (Access
        Point)."
    ::= { hw 5 }

file OBJECT IDENTIFIER ::= { nSystem 3 }
dir OBJECT IDENTIFIER ::= { file 3 }

-- The File Directory Table
-- Table Definition
dirTable OBJECT-TYPE
    SYNTAX SEQUENCE OF DREntry
    ACCESS not-accessible
    STATUS mandatory
    DESCRIPTION
        "The FileSystem Directory"
    ::= { dir 2 }

```

```
-- Row Definition

dirEntry OBJECT-TYPE
    SYNTAX DIREntry
    ACCESS not-accessible
    STATUS mandatory
    INDEX { dirIndex }
    ::= { dirTable 1 }

-- Columnar Object Definitions

DIREntry ::=
    SEQUENCE {
        dirIndex    INTEGER,
        dirName     DisplayString,
        dirSegment  INTEGER,
        dirType     INTEGER,
        dirSize     INTEGER,
        dirDate     DisplayString,
        dirTime     DisplayString,
        dirVersion  DisplayString
    }

dirIndex OBJECT-TYPE
    SYNTAX INTEGER
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "Directory Index"
    ::= { dirEntry 1 }

dirName OBJECT-TYPE
    SYNTAX DisplayString (SIZE (0..14))
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "File name"
    ::= { dirEntry 2 }

dirSegment OBJECT-TYPE
    SYNTAX INTEGER
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "File segment (1 - (NUM_SEGMENTS + 1)).
        The segment ID which identifies the segment
        containing the file."
    ::= { dirEntry 3 }
```

```

dirType      OBJECT-TYPE
    SYNTAX INTEGER { executable(1),
                    data(2),
                    invalid(3) }
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "File type:
         executable = 1,
         data       = 2,
         invalid    = 3 "
    ::= { dirEntry 4 }

dirSize      OBJECT-TYPE
    SYNTAX INTEGER
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "The file size in bytes"
    ::= { dirEntry 5 }

dirDate      OBJECT-TYPE
    SYNTAX DisplayString (SIZE (0..12))
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "The file date in MM-DD-YYYY display format."
    ::= { dirEntry 6 }

dirTime      OBJECT-TYPE
    SYNTAX DisplayString (SIZE (0..10))
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "The file time in HH:MM:SS display format."
    ::= { dirEntry 7 }

dirVersion   OBJECT-TYPE
    SYNTAX DisplayString (SIZE (0..8))
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "The file version in v99.99 display format."
    ::= { dirEntry 8 }

sysErrors    OBJECT IDENTIFIER ::= { nSystem 4 }

criticalErrors OBJECT IDENTIFIER ::= { sysErrors 1 }

```

ceEnabled OBJECT-TYPE
SYNTAX INTEGER { true(1), false(2) }
ACCESS read-only
STATUS mandatory
DESCRIPTION
"A value of true(1) signifies that the critical error log was successfully initialized as part of the power-up sequence. Any errors in that initialization process result in a value of false(2)."
::= { criticalErrors 1 }

ceOverflow OBJECT-TYPE
SYNTAX INTEGER
ACCESS read-only
STATUS mandatory
DESCRIPTION
"Overflow error code. If the overflow code is non-zero, it indicates that the log has overflowed and the overflow code contains the last displaced value."
::= { criticalErrors 2 }

ceReset OBJECT-TYPE
SYNTAX INTEGER { true(1), false(2) }
ACCESS read-write
STATUS mandatory
DESCRIPTION
"A user can reset the critical error log by setting ceReset to true(1). Valid values are true(1) or false(2)."
::= { criticalErrors 3 }

ceLogTable OBJECT-TYPE
SYNTAX SEQUENCE OF CILogEntry
ACCESS not-accessible
STATUS mandatory
DESCRIPTION
"Critical Error Log Table"
::= { criticalErrors 4 }

ceLogEntry OBJECT-TYPE
SYNTAX CILogEntry
ACCESS not-accessible
STATUS mandatory
INDEX { ceLogErrorCode }
::= { ceLogTable 1 }


```

CELogEntry ::=
    SEQUENCE {
        ceLogErrorCode  INTEGER,
        ceLogErrorCount Counter
    }

ceLogErrorCode OBJECT-TYPE
    SYNTAX INTEGER
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "Critical error code.  A 16-bit value which
        uniquely indentifies a system software error.
        The error codes are intended for internal
        Norand use."
    ::= { ceLogEntry 1 }

ceLogErrorCount OBJECT-TYPE
    SYNTAX Counter
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "Error count for the associated ceLogErrorCode"
    ::= { ceLogEntry 2 }

nSNMP                OBJECT IDENTIFIER ::= { norandNET 11 }

v1Config              OBJECT IDENTIFIER ::= { nSNMP 1 }

--Norand Community table defines the accepted
--community strings and their access privileges
-- The Community Table

```

```
communityTable          OBJECT-TYPE
    SYNTAX  SEQUENCE OF CommunityEntry
    ACCESS  not-accessible
    STATUS  mandatory
    DESCRIPTION
        "The community table is used to define communities
        and their access privileges. Norand's
        implementation of the community table has some
        special considerations:

        1) GETs and SETs to the community table can only be
        accomplished using the SUPER-USER community
        string which Norand has defined;
        2) This SUPER-USER community string, or password,
        is defined in the first row of the community
        table. The communityName contained in the first
        row of the community table is always the
        SUPER-USER community string. This community
        string (communityName) may be modified.
        3) All rows of the community table are modifiable
        (SET) when using the SUPER-USER community
        string. However, for the first row of the
        community table, only the communityName object
        is modifiable.
        This ensures that the SUPER-USER will always
        have maximum access to the MIB data. All other
        rows in the community Table are accessible as
        defined in the MIB definition.
        4) The SUPER-USER and other default community
        string values can be found in Norand's User's
        Guide."
    ::= { v1Config 2 }
```

-- Row Definition

```
communityEntry          OBJECT-TYPE
    SYNTAX  CommunityEntry
    ACCESS  not-accessible
    STATUS  mandatory
    DESCRIPTION
        "Each entry relates to a specific community
        & associates to it access privileges."
    INDEX   { communityIndex }
    ::= { communityTable 1 }
```

-- Columnar Object Definition

```

CommunityEntry ::=
    SEQUENCE {
        communityIndex      INTEGER,
        communityStatus      INTEGER,
        communityName        DisplayString,
        communityPrivileges  INTEGER
    }

-- Leaf Definition

communityIndex      OBJECT-TYPE
    SYNTAX  INTEGER
    ACCESS  read-only
    STATUS  mandatory
    DESCRIPTION
        "Identifies the community row"
    ::= { communityEntry 1 }

communityStatus      OBJECT-TYPE
    SYNTAX  INTEGER { enabled(1),
                      disabled(2),
                      deleted(3) }
    ACCESS  read-write
    STATUS  mandatory
    DESCRIPTION
        "Status of a community record.
        Alterations to the table may only be performed by
        a manager using the SUPER-USER community name.
        Status types:
            Enabled = Community record active
            Disabled = Community record not active
            Deleted = Disables and nulls objects in record"
    ::= { communityEntry 2 }

communityName        OBJECT-TYPE
    SYNTAX  DisplayString (SIZE (0..15))
    ACCESS  read-write
    STATUS  mandatory
    DESCRIPTION
        "The authoritative name for the community. Unless
        the Norand SUPER-USER community name is employed, a
        GET from this column yields an access violation."
    ::= { communityEntry 3 }

```

```
communityPrivileges    OBJECT-TYPE
    SYNTAX  INTEGER {      get-only(1),
                          set-and-get(3) }
    ACCESS  read-write
    STATUS  mandatory
    DESCRIPTION
        "SET and GET privileges of community."
    ::= { communityEntry 4 }
-- Norand trap table defines all trap target IP addresses

-- Table Definition

trapTargetTable    OBJECT-TYPE
    SYNTAX  SEQUENCE OF TrapTargetEntry
    ACCESS  not-accessible
    STATUS  mandatory
    DESCRIPTION
        "The trap target table specifies
        the IP address of SNMPv1 managers
        that expect trap notifications."
    ::= { v1Config 3 }

-- Row Definition

trapTargetEntry    OBJECT-TYPE
    SYNTAX  TrapTargetEntry
    ACCESS  not-accessible
    STATUS  mandatory
    DESCRIPTION
        "Each entry relates to a specific named manager
        at a given IP address & belonging to given
        community."
    INDEX   { trapTargetIndex }
    ::= { trapTargetTable 1 }

-- Columnar Object Definition

TrapTargetEntry ::=
    SEQUENCE {
        trapTargetIndex    INTEGER,
        trapTargetStatus    INTEGER,
        trapTargetName      DisplayString,
        trapTargetIpAddress IpAddress
    }

-- Leaf Definition
```

```

trapTargetIndex      OBJECT-TYPE
    SYNTAX  INTEGER
    ACCESS  read-only
    STATUS  mandatory
    DESCRIPTION
        "Identifies the trapTarget row"
    ::= { trapTargetEntry 1 }

trapTargetStatus      OBJECT-TYPE
    SYNTAX  INTEGER { enabled(1),
                      disabled(2),
                      deleted(3) }
    ACCESS  read-write
    STATUS  mandatory
    DESCRIPTION
        "Status of a trapTarget record."
    ::= { trapTargetEntry 2 }

trapTargetName        OBJECT-TYPE
    SYNTAX  DisplayString (SIZE (0..16))
    ACCESS  read-write
    STATUS  mandatory
    DESCRIPTION
        "The authoritative name for the trapTarget."
    ::= { trapTargetEntry 3 }

trapTargetIpAddress   OBJECT-TYPE
    SYNTAX  IpAddress
    ACCESS  read-write
    STATUS  mandatory
    DESCRIPTION
        "IP Address of manager (which is assumed to be
        bound to & listening on port 162)."
    ::= { trapTargetEntry 4 }

nTransport             OBJECT IDENTIFIER ::= { norandNET 102 }

wst                    OBJECT IDENTIFIER ::= { nTransport 2 }

wstReset              OBJECT-TYPE
    SYNTAX  INTEGER { true(1), false(2) }
    ACCESS  read-write
    STATUS  mandatory
    DESCRIPTION
        "Reset variable for the wst group"
    ::= { wst 1 }

```

wstLastReset OBJECT-TYPE
SYNTAX TimeTicks
ACCESS read-only
STATUS mandatory
DESCRIPTION
"Elapsed time since the wst group was last reset"
::= { wst 2 }

wstClockTicks OBJECT-TYPE
SYNTAX TimeTicks
ACCESS read-only
STATUS mandatory
DESCRIPTION
"WTP clock ticks in hundredths of seconds."
::= { wst 3 }

wstInternalErrorCount OBJECT-TYPE
SYNTAX Counter
ACCESS read-only
STATUS mandatory
DESCRIPTION
"Number of internal WTP errors"
::= { wst 4 }

wstSessionsLost OBJECT-TYPE
SYNTAX Counter
ACCESS read-only
STATUS mandatory
DESCRIPTION
"Number of active WTP connections which were terminated."
::= { wst 5 }

wstFrmmrCount OBJECT-TYPE
SYNTAX Counter
ACCESS read-only
STATUS mandatory
DESCRIPTION
"Number of WTP Frame Rejects which were transmitted"
::= { wst 6 }

wstDataBytesXmit OBJECT-TYPE
SYNTAX Counter
ACCESS read-only
STATUS mandatory
DESCRIPTION
"Total number of bytes transmitted."
::= { wst 7 }

```

wstDataBytesRecv          OBJECT-TYPE
    SYNTAX Counter
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "Total number of bytes received"
        ::= { wst 8 }

wstIframesXmit            OBJECT-TYPE
    SYNTAX Counter
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "Total number of WTP data frames transmitted."
        ::= { wst 9 }

wstIframesRecv            OBJECT-TYPE
    SYNTAX Counter
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "Total number of WTP data frames received."
        ::= { wst 10 }

wstIframesRetransmitted OBJECT-TYPE
    SYNTAX Counter
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "Total number of WTP data frames which were lost
        and retransmitted."
        ::= { wst 11 }

wstCheckSumErrors         OBJECT-TYPE
    SYNTAX Counter
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "The number of WTP information frames which were
        discarded to WTP check sum errors."
        ::= { wst 12 }

```

wstHlDiscardCount OBJECT-TYPE
SYNTAX Counter
ACCESS read-only
STATUS mandatory
DESCRIPTION
"The number of received WTP information frames
which were discarded without being read by a higher
layer application. Received information frames are
queued per connection and should normally not be
discarded."
 ::= { wst 13 }

wstState OBJECT-TYPE
SYNTAX INTEGER (0..2147483647)
ACCESS read-only
STATUS mandatory
DESCRIPTION
"The internal software state of the WTP module."
 ::= { wst 14 }

wstBrgBusy OBJECT-TYPE
SYNTAX INTEGER (0..1)
ACCESS read-only
STATUS mandatory
DESCRIPTION
"The value of wstBrgBusy is 1 if the WTP
currently has an outstanding network transmit
request. The value is otherwise 0."
 ::= { wst 15 }

wstT1Timeouts OBJECT-TYPE
SYNTAX Counter
ACCESS read-only
STATUS mandatory
DESCRIPTION
"The total number of times the WTP T1 timer has
expired (i.e. due to lost frames)."
 ::= { wst 16 }

wstT1Bucket1 OBJECT-TYPE
SYNTAX Counter
ACCESS read-only
STATUS mandatory
DESCRIPTION
"The total number of times that 2 consecutive T1
errors have occurred."
 ::= { wst 17 }


```

wstT1Bucket2          OBJECT-TYPE
    SYNTAX Counter
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "The total number of times that 3 consecutive T1
        errors have occurred."
    ::= { wst 18 }

wstT1Bucket3          OBJECT-TYPE
    SYNTAX Counter
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "The total number of times that 5 consecutive T1
        errors have occurred."
    ::= { wst 19 }

wstT1Bucket4          OBJECT-TYPE
    SYNTAX Counter
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "The total number of times that 6 or more
        consecutive T1 errors have occurred."
    ::= { wst 20 }

wstSABMCount          OBJECT-TYPE
    SYNTAX Counter
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "The total SABM frames received by the local WTP
        entity."
    ::= { wst 21 }

wstDiscCount          OBJECT-TYPE
    SYNTAX Counter
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "The number of DISC frames received by the local
        WTP entity."
    ::= { wst 22 }

```

wstDMCount	OBJECT- TYPE
SYNTAX Counter	
ACCESS read-only	
STATUS mandatory	
DESCRIPTION	
"The number of DM frames received by the local WTP entity."	
::= { wst 23 }	
wstRNRCount	OBJECT- TYPE
SYNTAX Counter	
ACCESS read-only	
STATUS mandatory	
DESCRIPTION	
"The number of RNR frames received by the local WTP entity."	
::= { wst 24 }	
wstRejectCount	OBJECT- TYPE
SYNTAX Counter	
ACCESS read-only	
STATUS mandatory	
DESCRIPTION	
"The number of REJECT frames received by the local WTP entity."	
::= { wst 25 }	
wstSessionsReset	OBJECT- TYPE
SYNTAX Counter	
ACCESS read-only	
STATUS mandatory	
DESCRIPTION	
"The number of active WTP sessions which have been reset in the local WTP entity."	
::= { wst 26 }	
wstBrgSrvTime	OBJECT- TYPE
SYNTAX TimeTicks	
ACCESS read-only	
STATUS mandatory	
DESCRIPTION	
"The total bridge service time for WTP transmissions in hundredths of seconds."	
::= { wst 27 }	

wstBrgSrvCount OBJECT-TYPE
 SYNTAX Counter
 ACCESS read-only
 STATUS mandatory
 DESCRIPTION
 "The total number of WTP bridge transmissions.
 The average service time is
 $wstBrgSrvTime/wstBrgSrvCount$."
 ::= { wst 28 }

wstBrgSrvThreshold OBJECT-TYPE
 SYNTAX TimeTicks
 ACCESS read-write
 STATUS mandatory
 DESCRIPTION
 "A threshold bridge service time for WTP
 transmissions. Service times which exceed the
 threshold are counted in wstBrgSrvThreshCount."
 ::= { wst 29 }

wstBrgSrvThreshCount OBJECT-TYPE
 SYNTAX Counter
 ACCESS read-only
 STATUS mandatory
 DESCRIPTION
 "A count of the number of times the bridge service
 time has exceeded the threshold time defined by
 wstBrgSrvThreshold."
 ::= { wst 30 }

wstBrgSrvLongest OBJECT-TYPE
 SYNTAX TimeTicks
 ACCESS read-only
 STATUS mandatory
 DESCRIPTION
 "The longest network service time measured for an
 WTP transmission."
 ::= { wst 31 }

wstBrgTxErrors OBJECT-TYPE
 SYNTAX Counter
 ACCESS read-only
 STATUS mandatory
 DESCRIPTION
 "The number of transmission errors reported to the
 WTP layer by the network layer."
 ::= { wst 32 }

wstFatalBrgErrors OBJECT-TYPE
SYNTAX Counter
ACCESS read-only
STATUS mandatory
DESCRIPTION
"The number of fata errors reported to the WTP
layer by the network layer. A fatal error
indicates that the network root node has changed."
 ::= { wst 33 }

hlit OBJECT IDENTIFIER ::= { nTransport 3 }

hlitReset OBJECT-TYPE
SYNTAX INTEGER { true(1), false(2) }
ACCESS read-write
STATUS mandatory
DESCRIPTION
"Reset variable for the HLIT group"
 ::= { hlit 1 }

hlitLastReset OBJECT-TYPE
SYNTAX TimeTicks
ACCESS read-only
STATUS mandatory
DESCRIPTION
"Elapsed time since the HLIT group was reset"
 ::= { hlit 2 }

hlitTime OBJECT-TYPE
SYNTAX TimeTicks
ACCESS read-only
STATUS mandatory
DESCRIPTION
"This is the cumulative time that the WTP took to
service transmit requests. Time is in hundredths
of seconds."
 ::= { hlit 3 }

hlitCount OBJECT-TYPE
SYNTAX Counter
ACCESS read-only
STATUS mandatory
DESCRIPTION
"This is the number of times the WTP was sent a
transmit request."
 ::= { hlit 4 }

hlitThreshold OBJECT-TYPE
 SYNTAX TimeTicks
 ACCESS read-write
 STATUS mandatory
 DESCRIPTION
 "When the WTP exceeds this time while servicing a
 transmit request, the hlitThreshCount will be
 incremented. Time is in hundredths of seconds."
 ::= { hlit 5 }

hlitThreshCount OBJECT-TYPE
 SYNTAX Counter
 ACCESS read-only
 STATUS mandatory
 DESCRIPTION
 "When the WTP exceeds the time in hlitThreshold,
 this count is incremented. Time in hundreths of
 seconds."
 ::= { hlit 6 }

hlitLongest OBJECT-TYPE
 SYNTAX Counter
 ACCESS read-only
 STATUS mandatory
 DESCRIPTION
 "This is the maximum time that the WTP took to
 service transmit requests. Time is in hundreths
 of seconds."
 ::= { hlit 7 }

wcbst OBJECT IDENTIFIER ::= { nTransport 4 }

wcbstReset OBJECT-TYPE
 SYNTAX INTEGER { true(1), false(2) }
 ACCESS read-write
 STATUS mandatory
 DESCRIPTION
 "Reset variable for the wcbst table"
 ::= { wcbst 1 }

wcbstLastReset OBJECT-TYPE
 SYNTAX TimeTicks
 ACCESS read-only
 STATUS mandatory
 DESCRIPTION
 "Elapsed time since the wcbst table was reset"
 ::= { wcbst 2 }

wcbsTable OBJECT-TYPE
SYNTAX SEQUENCE OF WcbsEntry
ACCESS not-accessible
STATUS mandatory
DESCRIPTION
"WTP connection control block statistics table.
Each entry is for an WTP connection statistics
object. Statistics are per WTP connection."
::= { wcbst 3 }

wcbsEntry OBJECT-TYPE
SYNTAX WcbsEntry
ACCESS not-accessible
STATUS mandatory
INDEX { wcbstIndex }
::= { wcbsTable 1 }

WcbsEntry ::=

SEQUENCE {	
wcbstIndex	INTEGER,
wcbstInUse	INTEGER,
wcbstHlState	INTEGER,
wcbstDsap	INTEGER,
wcbstSsap	INTEGER,
wcbstNet16Addr	INTEGER,
wcbstT1Value	INTEGER,
wcbstT1Average	INTEGER,
wcbstT1Deviation	INTEGER,
wcbstT1Timeouts	Counter,
wcbstT2Timeouts	Counter,
wcbstTlTimeouts	Counter,
wcbstFramesRecv	Counter,
wcbstIframesRecv	Counter,
wcbstIframesDiscarded	Counter,
wcbstDataBytesRecv	Counter,
wcbstFramesXmit	Counter,
wcbstIframesXmit	Counter,
wcbstDataBytesXmit	Counter,
wcbstIframesRetransmitted	Counter,
wcbstState	INTEGER
}	

```

wcbstIndex                OBJECT-TYPE
    SYNTAX INTEGER (1..999)
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "Connection control block identifier"
    ::= { wcbEntry 1 }

wcbstInUse                OBJECT-TYPE
    SYNTAX INTEGER (0..1)
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "This variable is 1 if the control block is
        in use."
    ::= { wcbEntry 2 }

wcbstHlState              OBJECT-TYPE
    SYNTAX INTEGER (0..9999)
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "The control block state. 0=closed, 1=busy,
        2=connect, 3=listen, 4=unitdata, 5=unitdata listen,
        6=open, 7=send, 8=closing, 9=disconnect."
    ::= { wcbEntry 3 }

wcbstDsap                 OBJECT-TYPE
    SYNTAX INTEGER (0..255)
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "Destination service access point."
    ::= { wcbEntry 4 }

wcbstSsap                 OBJECT-TYPE
    SYNTAX INTEGER (0..255)
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "Source service access point"
    ::= { wcbEntry 5 }

```

wcbstNet16Addr OBJECT-TYPE
SYNTAX INTEGER (2048..9192)
ACCESS read-only
STATUS mandatory
DESCRIPTION
"The 16-bit network address of the remote node
which is active on the connection, if the control
block is in an active state."
::= { wcbEntry 6 }

wcbstT1Value OBJECT-TYPE
SYNTAX INTEGER (0..999)
ACCESS read-only
STATUS mandatory
DESCRIPTION
"The current response time-out value in
tenths of seconds."
::= { wcbEntry 7 }

wcbstT1Average OBJECT-TYPE
SYNTAX INTEGER (0..999)
ACCESS read-only
STATUS mandatory
DESCRIPTION
"The average response time-out value in
tenths of seconds."
::= { wcbEntry 8 }

wcbstT1Deviation OBJECT-TYPE
SYNTAX INTEGER (0..999)
ACCESS read-only
STATUS mandatory
DESCRIPTION
"The average deviation from the T1Average values in
tenths of seconds."
::= { wcbEntry 9 }

wcbstT1Timeouts OBJECT-TYPE
SYNTAX Counter
ACCESS read-only
STATUS mandatory
DESCRIPTION
"Number of T1 timeouts. A T1 timeout occurs when
an expected response is lost."
::= { wcbEntry 10 }

wcbstT2Timeouts OBJECT-TYPE
 SYNTAX Counter
 ACCESS read-only
 STATUS mandatory
 DESCRIPTION
 "Number of T2 timeouts. A T2 timeout occurs if
 the higher layer does not have data ready to send
 before an WTP supervisory response is required."
 ::= { wcbEntry 11 }

wcbstTiTimeouts OBJECT-TYPE
 SYNTAX Counter
 ACCESS read-only
 STATUS mandatory
 DESCRIPTION
 "Number of Ti timeouts. A Ti timeout occurs when
 a connection is idle for an INACTIVE TIMEOUT
 period."
 ::= { wcbEntry 12 }

wcbstFramesRecv OBJECT-TYPE
 SYNTAX Counter
 ACCESS read-only
 STATUS mandatory
 DESCRIPTION
 "Total number of WTP frames received."
 ::= { wcbEntry 13 }

wcbstIframesRecv OBJECT-TYPE
 SYNTAX Counter
 ACCESS read-only
 STATUS mandatory
 DESCRIPTION
 "Total number of WTP data frames received."
 ::= { wcbEntry 14 }

wcbstIframesDiscarded OBJECT-TYPE
 SYNTAX Counter
 ACCESS read-only
 STATUS mandatory
 DESCRIPTION
 "Total number of WTP data frames which were
 discarded as duplicates."
 ::= { wcbEntry 15 }

wcbstDataBytesRecv OBJECT-TYPE
SYNTAX Counter
ACCESS read-only
STATUS mandatory
DESCRIPTION
"Total number of data bytes received."
::= { wcbEntry 16 }

wcbstFramesXmit OBJECT-TYPE
SYNTAX Counter
ACCESS read-only
STATUS mandatory
DESCRIPTION
"Total number of WTP frames transmitted."
::= { wcbEntry 17 }

wcbstIframesXmit OBJECT-TYPE
SYNTAX Counter
ACCESS read-only
STATUS mandatory
DESCRIPTION
"Total number of WTP data frames transmitted."
::= { wcbEntry 18 }

wcbstDataBytesXmit OBJECT-TYPE
SYNTAX Counter
ACCESS read-only
STATUS mandatory
DESCRIPTION
"Total number of WTP data frames transmitted."
::= { wcbEntry 19 }

wcbstIframesRetransmitted OBJECT-TYPE
SYNTAX Counter
ACCESS read-only
STATUS mandatory
DESCRIPTION
"Total number of data frames which were lost and
had to be retransmitted."
::= { wcbEntry 20 }

wcbstState OBJECT-TYPE
SYNTAX INTEGER (0..2147483647)
ACCESS read-only
STATUS mandatory
DESCRIPTION
"The internal software state of the
LLC control block."
::= { wcbEntry 21 }

```

nApplication      OBJECT IDENTIFIER ::= { norandNET 104 }
  gwSession       OBJECT IDENTIFIER ::= { nApplication 1 }
    gs            OBJECT IDENTIFIER ::= { gwSession 1 }
      gsReset      OBJECT-TYPE
        SYNTAX INTEGER { true(1), false(2) }
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
          "Reset variable for the gs group"
        ::= { gs 1 }
      gsLastReset   OBJECT-TYPE
        SYNTAX TimeTicks
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
          "The time elapsed since the last reset of gs
          group"
        ::= { gs 2 }
      -- The Gateway Statistics group
      gsClockTicks  OBJECT-TYPE
        SYNTAX TimeTicks
        ACCESS read-only --read-reset
        STATUS mandatory
        DESCRIPTION
          "Number of .01 second timer ticks since
          the timer was reset."
        ::= { gs 3 }
      gsNetworkErrors OBJECT-TYPE
        SYNTAX Counter
        ACCESS read-only --read-reset
        STATUS mandatory
        DESCRIPTION
          "Number of times the network has been lost."
        ::= { gs 4 }
      gsHostDataCount OBJECT-TYPE
        SYNTAX Counter
        ACCESS read-only --read-reset
        STATUS mandatory
        DESCRIPTION
          "Number of data blocks received from the
          host computer."
        ::= { gs 5 }

```

gsHostHal tCount OBJECT- TYPE
SYNTAX Counter
ACCESS read-only --read-reset
STATUS mandatory
DESCRIPTION
"Number of HALT commands received from the
host task."
::= { gs 6 }

gsHostInvalidCount OBJECT- TYPE
SYNTAX Counter
ACCESS read-only --read-reset
STATUS mandatory
DESCRIPTION
"Number of invalid messages received from
the host task."
::= { gs 7 }

gsHostDi scardCount OBJECT- TYPE
SYNTAX Counter
ACCESS read-only --read-reset
STATUS mandatory
DESCRIPTION
"Number of blocks from the host computer
which were discarded."
::= { gs 8 }

gsConnectCount OBJECT- TYPE
SYNTAX Counter
ACCESS read-only --read-reset
STATUS mandatory
DESCRIPTION
"The total number of transport connections."
::= { gs 9 }

gsCl oseCount OBJECT- TYPE
SYNTAX Counter
ACCESS read-only --read-reset
STATUS mandatory
DESCRIPTION
"Number of times a transport connection
was closed."
::= { gs 10 }

gsBlocksXmit OBJECT-TYPE
SYNTAX Counter
ACCESS read-only --read-reset
STATUS mandatory
DESCRIPTION
"Number of blocks passed to the network"
 ::= { gs 11 }

gsDataXmit OBJECT-TYPE
SYNTAX Counter
ACCESS read-only --read-reset
STATUS mandatory
DESCRIPTION
"Number of data blocks passed to the network"
 ::= { gs 12 }

gsBlocksRecv OBJECT-TYPE
SYNTAX Counter
ACCESS read-only --read-reset
STATUS mandatory
DESCRIPTION
"Number of blocks received from the network"
 ::= { gs 13 }

gsDataRecv OBJECT-TYPE
SYNTAX Counter
ACCESS read-only --read-reset
STATUS mandatory
DESCRIPTION
"Number of data blocks received from the network."
 ::= { gs 14 }

gsTermResetCount OBJECT-TYPE
SYNTAX Counter
ACCESS read-only --read-reset
STATUS mandatory
DESCRIPTION
"Number of times a session was reset by a terminal"
 ::= { gs 15 }

gsTermContinueCount OBJECT-TYPE
SYNTAX Counter
ACCESS read-only --read-reset
STATUS mandatory
DESCRIPTION
"Number of times a session was continued
after a transport connection was lost."
::= { gs 16 }

gsTermInvalidCount OBJECT-TYPE
SYNTAX Counter
ACCESS read-only --read-reset
STATUS mandatory
DESCRIPTION
"Number of invalid blocks received from
terminals."
::= { gs 17 }

gsConnectionErrors OBJECT-TYPE
SYNTAX Counter
ACCESS read-only --read-reset
STATUS mandatory
DESCRIPTION
"Number of transport connection errors."
::= { gs 18 }

gsConnectionResets OBJECT-TYPE
SYNTAX Counter
ACCESS read-only --read-reset
STATUS mandatory
DESCRIPTION
"Number of times an active transport
connection was reset."
::= { gs 19 }

gsRetransmissions OBJECT-TYPE
SYNTAX Counter
ACCESS read-only --read-reset
STATUS mandatory
DESCRIPTION
"Number of data blocks which were
retransmitted."
::= { gs 20 }

```

gsRecvSeqErrors      OBJECT-TYPE
    SYNTAX Counter
    ACCESS read-only -- read-reset
    STATUS mandatory
    DESCRIPTION
        "Number of data blocks which were discarded
        due to receive sequence errors."
    ::= { gs 21 }

gsXmitErrors         OBJECT-TYPE
    SYNTAX Counter
    ACCESS read-only -- read-reset
    STATUS mandatory
    DESCRIPTION
        "Number of transport transmission errors."
    ::= { gs 22 }

gsTermDiscardCount   OBJECT-TYPE
    SYNTAX Counter
    ACCESS read-only -- read-reset
    STATUS mandatory
    DESCRIPTION
        "Number of discarded blocks received from
        terminals."
    ::= { gs 23 }

gsHostDelayMax        OBJECT-TYPE
    SYNTAX INTEGER (0..9999)
    ACCESS read-write
    STATUS mandatory
    DESCRIPTION
        "The maximum host delay time. Host delay is
        the time a message is received from a
        terminal until the host responds. Times less
        than the maximum host delay time are
        counted as transactions times. Host delay
        time is measured in hundredths of seconds."
    ::= { gs 24 }

gsHostDelayTotal      OBJECT-TYPE
    SYNTAX Counter
    ACCESS read-only -- read-reset
    STATUS mandatory
    DESCRIPTION
        "The total host delay time in hundredths of
        seconds, not including delay times which
        exceeded the maximum host delay."
    ::= { gs 25 }

```

gsHostTransactions OBJECT-TYPE
SYNTAX Counter
ACCESS read-only --read-reset
STATUS mandatory
DESCRIPTION
"The total number of times the host
responded to a terminal message in a time
less than the maximum host delay time."
::= { gs 26 }

gsRecvErrors OBJECT-TYPE
SYNTAX Counter
ACCESS read-only --read-reset
STATUS mandatory
DESCRIPTION
"The number of transport layer receive
errors."
::= { gs 27 }

gsTermDelayMax OBJECT-TYPE
SYNTAX INTEGER
ACCESS read-write
STATUS mandatory
DESCRIPTION
"The maximum terminal transaction time in
hundredths of seconds. Round-trip times
which exceed the maximum delay are not
included as terminal transactions."
::= { gs 28 }

gsTermDelayThreshold OBJECT-TYPE
SYNTAX INTEGER
ACCESS read-write
STATUS mandatory
DESCRIPTION
"Terminal transactions which take longer
than the value set in **gsTermDelayThreshold**
are counted in **gsTermThresholdCount**. This
threshold is specified in 1/100th seconds."
::= { gs 29 }

gsTermDelayTotal OBJECT-TYPE
SYNTAX TimeTicks
ACCESS read-only --read-reset
STATUS mandatory
DESCRIPTION
"The total time for all terminal
transactions."
::= { gs 30 }

gsTermTransactions OBJECT-TYPE
SYNTAX Counter
ACCESS read-only --read-reset
STATUS mandatory
DESCRIPTION
"The total number of terminal transactions.
Terminal transaction information is sent to
the controller from terminals."
 ::= { gs 31 }

gsTermThresholdCount OBJECT-TYPE
SYNTAX Counter
ACCESS read-only --read-reset
STATUS mandatory
DESCRIPTION
"The number of terminal transactions which
exceed the threshold value set in
gsTermDelayThreshold."
 ::= { gs 32 }

gsTermMaxCount OBJECT-TYPE
SYNTAX Counter
ACCESS read-only --read-reset
STATUS mandatory
DESCRIPTION
"The number of terminal transactions which
exceed the maximum transaction time set in
gsTermDelayMax."
 ::= { gs 33 }

gsHostMaxCount OBJECT-TYPE
SYNTAX Counter
ACCESS read-only --read-reset
STATUS mandatory
DESCRIPTION
"The number of transactions which exceed the
maximum host delay time set in
gsHostDelayMax."
 ::= { gs 34 }

```
gsTermDelayTraceOn    OBJECT-TYPE
    SYNTAX INTEGER { true(1), false(2) }
    ACCESS read-write
    STATUS mandatory
    DESCRIPTION
        "Terminal transaction delay diagnostics are
        enabled by setting gsTermDelayTraceOn to a
        non-zero value. The results of this trace
        are found in the tdTable."
    ::= { gs 35 }

gsHostActive           OBJECT-TYPE
    SYNTAX INTEGER { true(1), false(2) }
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "Indicates whether the host is active and
        communicating with the controller. A value
        of 1 = active, a value of 0 = inactive. The
        default is 0. Once the host has
        communicated with the controller, this value
        will always show 'active' (1) UNLESS the
        cpctPortInactTimeout value in the cpcTable
        is set to a non-zero value. If the
        controller has not received a response from
        the host in the time (in seconds) specified
        by cpctPortInactTimeout, gsHostActive will
        get set to 0."
    ::= { gs 36 }

rcbs                   OBJECT IDENTIFIER ::= { gwSession 2 }

-- The RCBS Table

rcbsTableReset         OBJECT-TYPE
    SYNTAX INTEGER { true(1), false(2) }
    ACCESS read-write
    STATUS mandatory
    DESCRIPTION
        "Reset variable for the rcbsTable table"
    ::= { rcbs 2 }
```

```
rcbsTableLastReset      OBJECT-TYPE
    SYNTAX TimeTicks
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "The time elapsed since
        the last reset of rcbsTable table"
    ::= { rcbs 3 }

-- Table Definition

rcbsTable                OBJECT-TYPE
    SYNTAX SEQUENCE OF RcbsEntry
    ACCESS not-accessible
    STATUS mandatory
    DESCRIPTION
        "SESSION control block status table.
        Each entry corresponds to a terminal
        session."
    ::= { rcbs 4 }

-- Row Definition

rcbsEntry                OBJECT-TYPE
    SYNTAX RcbsEntry
    ACCESS not-accessible
    STATUS mandatory
    INDEX { rcbsIndex }
    ::= { rcbsTable 1 }

-- Columnar Object Definition
```

```

RcbsEntry ::=
SEQUENCE {
    rcbsIndex                INTEGER,
    rcbsTerminal             INTEGER,
    rcbsType                 INTEGER,
    rcbsState                INTEGER,
    rcbsLLCIndex             INTEGER,
    rcbsHostDataCount        Counter,
    rcbsBlocksXmit           Counter,
    rcbsDataXmit             Counter,
    rcbsBlocksRecv           Counter,
    rcbsDataRecv             Counter,
    rcbsTermResetCount       Counter,
    rcbsTermContinueCount    Counter,
    rcbsCloseCount           Counter,
    rcbsHostTransactions     Counter,
    rcbsHostDelayTotal       Counter,
    rcbsHostDelayLast        INTEGER,
    rcbsTermResetTime        INTEGER,
    rcbsTermInactTime        INTEGER,
    rcbsHostInactTime        INTEGER,
    rcbsConnectionErrors     Counter,
    rcbsNetAddress           PhysAddress,
    rcbsSeqErrors             Counter,
    rcbsTermTransactions     Counter,
    rcbsTermDelayTotal       TimeTicks,
    rcbsTermDelayLast        INTEGER,
    rcbsTermDelayLongest     INTEGER,
    rcbsTermThresholdCount   Counter,
    rcbsTermMaxCount         Counter,
    rcbsTermDelayTraceOn     INTEGER,
    rcbsHostAlias            DisplayString
}

-- Leaf Definition

rcbsIndex OBJECT-TYPE
    SYNTAX INTEGER (1..65535)
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "Non zero table index."
    ::= { rcbsEntry 1 }

```

```

rcbsTerminal          OBJECT-TYPE
    SYNTAX INTEGER (0..127)
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "Terminal session identifier"
    ::= { rcbsEntry 2 }

rcbsType              OBJECT-TYPE
    SYNTAX INTEGER (0..255)
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "The terminal power up type as passed by the
        terminal at the beginning of an RTC session.
        (Unused until V4.16 of terminal software).
        Values: 11, 21, 46, 47, 61 indicate 3270
        emulation; 62 = 5250 emulation; 63 = VT220;
        Any other value indicates Native mode."
    ::= { rcbsEntry 3 }

rcbsState             OBJECT-TYPE
    SYNTAX INTEGER (0..99)
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "Session state. 0=reset state, 1=active
        state."
    ::= { rcbsEntry 4 }

rcbsLLCIndex          OBJECT-TYPE
    SYNTAX INTEGER (0..65535)
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "Transport connection control block
        identifier. Corresponds to an lcbstIndex
        value."
    ::= { rcbsEntry 5 }

rcbsHostDataCount     OBJECT-TYPE
    SYNTAX Counter
    ACCESS read-only -- read-reset
    STATUS mandatory
    DESCRIPTION
        "Number of data blocks received from the
        host."
    ::= { rcbsEntry 6 }

```

```
rcbsBlocksXmit          OBJECT-TYPE
    SYNTAX Counter
    ACCESS read-only -- read-reset
    STATUS mandatory
    DESCRIPTION
        "Total number of blocks passed to the
        network."
    ::= { rcbsEntry 7 }

rcbsDataXmit            OBJECT-TYPE
    SYNTAX Counter
    ACCESS read-only -- read-reset
    STATUS mandatory
    DESCRIPTION
        "Number of data blocks passed to the
        network."
    ::= { rcbsEntry 8 }

rcbsBlocksRecv          OBJECT-TYPE
    SYNTAX Counter
    ACCESS read-only -- read-reset
    STATUS mandatory
    DESCRIPTION
        "Total number of blocks received from the
        terminal"
    ::= { rcbsEntry 9 }

rcbsDataRecv            OBJECT-TYPE
    SYNTAX Counter
    ACCESS read-only -- read-reset
    STATUS mandatory
    DESCRIPTION
        "Number of data blocks received from the
        terminal."
    ::= { rcbsEntry 10 }

rcbsTermResetCount      OBJECT-TYPE
    SYNTAX Counter
    ACCESS read-only -- read-reset
    STATUS mandatory
    DESCRIPTION
        "Number of times the terminal has reset the
        session."
    ::= { rcbsEntry 11 }
```

rcbsTermContinueCount OBJECT-TYPE
SYNTAX Counter
ACCESS read-only --read-reset
STATUS mandatory
DESCRIPTION
"Number of times a terminal has continued a session after the transport connection was lost and re-established."
 ::= { rcbsEntry 12 }

rcbsCloseCount OBJECT-TYPE
SYNTAX Counter
ACCESS read-only --read-reset
STATUS mandatory
DESCRIPTION
"Number of times an active transport connection used by the terminal session was closed."
 ::= { rcbsEntry 13 }

rcbsHostTransactions OBJECT-TYPE
SYNTAX Counter
ACCESS read-only --read-reset
STATUS mandatory
DESCRIPTION
"The total number of times the host responded to a message from the terminal in a time less than the maximum host delay time."
 ::= { rcbsEntry 14 }

rcbsHostDelayTotal OBJECT-TYPE
SYNTAX Counter
ACCESS read-only --read-reset
STATUS mandatory
DESCRIPTION
"The total host delay for the terminal in hundredths of seconds, not including times which exceeded the maximum host delay time."
 ::= { rcbsEntry 15 }

rcbsHostDelayLast OBJECT-TYPE
SYNTAX INTEGER
ACCESS read-only --read-reset
STATUS mandatory
DESCRIPTION
"The host response time, in hundredths of
seconds, for the last message sent from the
terminal."
::= { rcbsEntry 16 }

rcbsTermResetTime OBJECT-TYPE
SYNTAX INTEGER (0..2147483647)
ACCESS read-only --read-reset
STATUS mandatory
DESCRIPTION
"The time, in seconds, since the terminal
reset its session."
::= { rcbsEntry 17 }

rcbsTermInactTime OBJECT-TYPE
SYNTAX INTEGER (0..2147483647)
ACCESS read-only --read-reset
STATUS mandatory
DESCRIPTION
"The time, in seconds, since a message was
received from the terminal."
::= { rcbsEntry 18 }

rcbsHostInactTime OBJECT-TYPE
SYNTAX INTEGER (0..2147483647)
ACCESS read-only --read-reset
STATUS mandatory
DESCRIPTION
"The time, in seconds, since a message was
received from the host for the terminal."
::= { rcbsEntry 19 }

rcbsConnectionErrors OBJECT-TYPE
SYNTAX Counter
ACCESS read-only --read-reset
STATUS mandatory
DESCRIPTION
"The number of times the terminal session
lost a transport connection."
::= { rcbsEntry 20 }

rcbsNetAddress OBJECT-TYPE
SYNTAX PhysAddress
ACCESS read-only
STATUS mandatory
DESCRIPTION
"The network address of the remote terminal
defined by rcbsTerminal."
::= { rcbsEntry 21 }

rcbsSeqErrors OBJECT-TYPE
SYNTAX Counter
ACCESS read-only --read-reset
STATUS mandatory
DESCRIPTION
"The number of messages discarded due to
receive sequence errors."
::= { rcbsEntry 22 }

rcbsTermTransactions OBJECT-TYPE
SYNTAX Counter
ACCESS read-only --read-reset
STATUS mandatory
DESCRIPTION
"The total number of terminal transactions
for the terminal defined by rcbsTerminal."
::= { rcbsEntry 23 }

rcbsTermDelayTotal OBJECT-TYPE
SYNTAX TimeTicks
ACCESS read-only --read-reset
STATUS mandatory
DESCRIPTION
"The total time for all transactions for the
terminal defined by rcbsTerminal."
::= { rcbsEntry 24 }

rcbsTermDelayLast OBJECT-TYPE
SYNTAX INTEGER
ACCESS read-only --read-reset
STATUS mandatory
DESCRIPTION
"The time for the last transaction for the
terminal defined by rcbsTerminal, in 1/100th
seconds."
::= { rcbsEntry 25 }

rcbsTermDelayLongest OBJECT-TYPE
SYNTAX INTEGER
ACCESS read-only -- read-reset
STATUS mandatory
DESCRIPTION
"The time for the longest transaction for
the terminal defined by rcbsTerminal, in
1/100th seconds."
::= { rcbsEntry 26 }

rcbsTermThresholdCount OBJECT-TYPE
SYNTAX Counter
ACCESS read-only -- read-reset
STATUS mandatory
DESCRIPTION
"The total number of transactions which
exceeded the value specified by
gsTermDelayThreshold."
::= { rcbsEntry 27 }

rcbsTermMaxCount OBJECT-TYPE
SYNTAX Counter
ACCESS read-only
STATUS mandatory
DESCRIPTION
"The total number of transactions which
exceeded the value specified by
gsTermDelayMax."
::= { rcbsEntry 28 }

rcbsTermDelayTraceOn OBJECT-TYPE
SYNTAX INTEGER { true(1), false(2) }
ACCESS read-write
STATUS mandatory
DESCRIPTION
"Terminal delay tracing is enabled for the
terminal defined by rcbsTerminal if
rcbsTermDelayTraceOn is set to a non-zero
value. The results of the trace will be
found in the tdTable. For this to work,
global terminal delay trace must be
turned off - to do this set
gsTermDelayTraceOn to 0 (this value is
found in the gsTable)."
::= { rcbsEntry 29 }

```

rcbsHostAlias          OBJECT-TYPE
    SYNTAX DisplayString (SIZE (0..16))
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "The alias of the host computer associated
        with the RCB."
    ::= { rcbsEntry 30 }
hd          OBJECT IDENTIFIER ::= { gwSession 3 }
-- The HD Table
hdTableReset          OBJECT-TYPE
    SYNTAX INTEGER { true(1), false(2) }
    ACCESS read-write
    STATUS mandatory
    DESCRIPTION
        "Reset variable for the host delay table"
    ::= { hd 2 }
hdTableLastReset      OBJECT-TYPE
    SYNTAX TimeTicks
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "The time elapsed since the last reset of
        the host delay table"
    ::= { hd 3 }
-- Table Definition
hdTable               OBJECT-TYPE
    SYNTAX SEQUENCE OF HdEntry
    ACCESS not-accessible
    STATUS mandatory
    DESCRIPTION
        "Host delay table. Host delay is defined as
        the time from when a terminal message is
        received until the host replies. Each entry
        represents a bucket in the host delay
        table."
    ::= { hd 4 }
-- Row Definition
hdEntry               OBJECT-TYPE
    SYNTAX HdEntry
    ACCESS not-accessible
    STATUS mandatory
    INDEX { hdBucket }
    ::= { hdTable 1 }

```

```
-- Columnar Object Definition

HdEntry ::=
    SEQUENCE {
        hdHostDelay INTEGER,
        hdCount      Counter,
        hdBucket      INTEGER
    }

-- Leaf Definition

hdHostDelay      OBJECT-TYPE
    SYNTAX INTEGER
    ACCESS read-write
    STATUS mandatory
    DESCRIPTION
        "The host delay time. The value in each row
        defines a host delay bucket bounded by the
        value in the preceeding row (or 0) and the
        value in the row. Delay times are defined in
        1/100th seconds."
    ::= { hdEntry 1 }

hdCount          OBJECT-TYPE
    SYNTAX Counter
    ACCESS read-only -- read-reset
    STATUS mandatory
    DESCRIPTION
        "The total number of times the host
        responded to a message from the terminal in
        a time bounded by the associated host delay
        time."
    ::= { hdEntry 2 }

hdBucket         OBJECT-TYPE
    SYNTAX INTEGER (1..20)
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "The bucket number used to identify a bucket
        in the host delay table (hdTable)."
    ::= { hdEntry 3 }

td              OBJECT IDENTIFIER ::= { gwSession 4 }

-- The TD Table
```

```

tdTableReset      OBJECT-TYPE
SYNTAX INTEGER { true(1), false(2) }
ACCESS read-write
STATUS mandatory
DESCRIPTION
"Reset variable for the tdTable"
::= { td 2 }

tdTableLastReset  OBJECT-TYPE
SYNTAX TimeTicks
ACCESS read-only
STATUS mandatory
DESCRIPTION
"The time elapsed since last reset of
tdTable"
::= { td 3 }

-- Table Definition

tdTable           OBJECT-TYPE
SYNTAX SEQUENCE OF TdEntry
ACCESS not-accessible
STATUS mandatory
DESCRIPTION
"Terminal delay table. Terminal delay is the
time used to send a message from a terminal
to a host plus the time used to send a
response. Host processing and queueing time
is not included. Each entry in the table
contains a response time bucket and an
associated count. Set gsTermDelayTraceOn=1
to enable for all terminals. Set
rcbsTermDelayTraceOn=1 and
gsTermDelayTraceOn=0 to enable for single
terminal." ::= { td 4 }

-- Row Definition

tdEntry           OBJECT-TYPE
SYNTAX TdEntry
ACCESS not-accessible
STATUS mandatory
INDEX { tdBucket }
::= { tdTable 1 }

-- Columnar Object Definition

```

```
TdEntry ::=
SEQUENCE {
    tdTrxnTime  INTEGER,
    tdCount     Counter,
    tdBucket    INTEGER
}

-- Leaf Definition

tdTrxnTime      OBJECT-TYPE
SYNTAX INTEGER
ACCESS read-write
STATUS mandatory
DESCRIPTION
"The round trip transaction time. The value
in each row defines a terminal delay bucket
bounded by the value in the preceeding row
(or 0) and the value in the row. Delay times
are defined in 1/100th seconds."
::= { tdEntry 1 }

tdCount         OBJECT-TYPE
SYNTAX Counter
ACCESS read-only -- read-reset
STATUS mandatory
DESCRIPTION
"The total number of times the terminal
delay fell within the time interval bounded
by the associated tdTrxnTime time."
::= { tdEntry 2 }

tdBucket        OBJECT-TYPE
SYNTAX INTEGER (1..20)
ACCESS read-only
STATUS mandatory
DESCRIPTION
"The bucket number used to identify a bucket
in the terminal delay table (tdTable)."
::= { tdEntry 3 }

ahost           OBJECT IDENTIFIER ::= { nApplication 2 }

ahstReset       OBJECT-TYPE
SYNTAX INTEGER { true(1), false(2) }
ACCESS read-write
STATUS mandatory
DESCRIPTION
"Reset variable for the ahost group"
::= { ahost 1 }
```

```

ahstLastReset      OBJECT-TYPE
    SYNTAX TimeTicks
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "The time elapsed since the last reset of ahost
        group"
    ::= { ahost 2 }

ahstFramesOut      OBJECT-TYPE
    SYNTAX Counter
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "Number of frames from the gateway sent to the
        host."
    ::= { ahost 3 }

ahstFramesIn       OBJECT-TYPE
    SYNTAX Counter
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "Number of frames received from the host."
    ::= { ahost 4 }

ahstIdleDetected   OBJECT-TYPE
    SYNTAX Counter
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "The number of times that the host went
        inactive. The time out is set in the gateway
        from the user interface."
    ::= { ahost 5 }

ahstNoErrors       OBJECT-TYPE
    SYNTAX Counter
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "The number of host interface errors detected
        by the gateway."
    ::= { ahost 6 }

```

ahstSyntaxErrors OBJECT-TYPE
 SYNTAX Counter
 ACCESS read-only
 STATUS mandatory
 DESCRIPTION
 "Number of invalid commands received.
 Incremented whenever a ?1 error is sent to the
 host."
 ::= { ahost 7 }

ahstLengthErrors OBJECT-TYPE
 SYNTAX Counter
 ACCESS read-only
 STATUS mandatory
 DESCRIPTION
 "Number of host frames that are too long.
 Increments whenever a ?4 is issued by the
 gateway."
 ::= { ahost 8 }

ahstDisabledErrors OBJECT-TYPE
 SYNTAX Counter
 ACCESS read-only
 STATUS mandatory
 DESCRIPTION
 "Number of commands sent to disabled terminals.
 Increments whenever the gateway issues a ?5
 response."
 ::= { ahost 9 }

ahstGapErrors OBJECT-TYPE
 SYNTAX Counter
 ACCESS read-only
 STATUS mandatory
 DESCRIPTION
 "Number of times the Gap time out is exceeded.
 The time out value is set with the CMF5 command
 and is measured by the start of a command and
 the receipt of a carriage return <CR>.
 Increments whenever the gateway issues a ?6
 response."
 ::= { ahost 10 }


```

ahstCheckErrors      OBJECT-TYPE
    SYNTAX Counter
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "Number of times the host command fails the LRC
        or CRC-16 check. LRC/CRC error checking is
        enabled by the CMT8 command. Increments
        whenever the controller sends a ?8 response."
    ::= { ahost 11 }

ahstNoBuffersErrors  OBJECT-TYPE
    SYNTAX Counter
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "Number of times the gateway can not receive a
        command from the host because of the lack of
        local buffers. Increments when the gateway
        sends a ?10 response."
    ::= { ahost 12 }

ahstSequenceErrors   OBJECT-TYPE
    SYNTAX Counter
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "Number of times the host sends an R command
        before the host initialized the gateway with
        CMT commands. Increments when the gateway
        sends a ?11 response."
    ::= { ahost 13 }

-- ahstOtherErrors { ahost 14 }
-- is obsolete and has been deleted.

ahstParityErrors      OBJECT-TYPE
    SYNTAX Counter
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "Number of async parity errors"
    ::= { ahost 15 }

```

```
    ahstFrameErrors      OBJECT-TYPE
        SYNTAX Counter
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Number of async character framing errors"
        ::= { ahost 16 }

    ahstNoiseErrors      OBJECT-TYPE
        SYNTAX Counter
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Number of UART signal samples with ambiguous
            results"
        ::= { ahost 17 }

    ahstBreakErrors      OBJECT-TYPE
        SYNTAX Counter
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Number of async break characters received"
        ::= { ahost 18 }

nControl                OBJECT IDENTIFIER ::= { norandNET 105 }
    powerUp              OBJECT IDENTIFIER ::= { nControl 1 }

        pwrPowerUpCount  OBJECT-TYPE
            SYNTAX Counter
            ACCESS read-only
            STATUS mandatory
            DESCRIPTION
                "Power-up count"
            ::= { powerUp 1 }

        pwrNextPowerUpTime OBJECT-TYPE
            SYNTAX TimeTicks
            ACCESS read-write
            STATUS mandatory
            DESCRIPTION
                "Next power-up time (Used to reboot the device)"
            ::= { powerUp 2 }
```

END

INDEX

SYMBOLS

? command, 4-9

NUMBERS

10BASE-T (UTP) Ethernet
connecting to, 5-6
network component, 3-3
troubleshooting, 6-1
types supported, 2-3

10BASE2 (thin) Ethernet
connecting to, 5-3
network components, 3-3
port, 2-6
troubleshooting, 6-1
types supported, 2-3

10BASE5 (thick) Ethernet, 2-3, 6-1

3174 Cluster Controller, 2-2

3270 communications
3174 Cluster Controller, 2-2
3274 Cluster Controller, 2-2
address table, 4-23
menu option, 4-23
program part numbers, 4-34
publication for, 1-3
setting host type, 4-14
terminal emulation, 2-2
uploading host files, 4-39

3274 Cluster Controller, 2-2

4030MIB.MIB, B-1, B-2

5250 communications
5294 Control Unit
address table, 4-23
frame size, 4-20
overview, 2-3
setting host type, 4-14
5394 Control Unit
address table, 4-25
frame size, 4-20
overview, 2-3
setting host type, 4-14

5250 communications (*Continued*)
address tables, 4-23
menu options, 4-23
overview, 2-3
program part numbers, 4-34
publication for, 1-3
setting host type, 4-14
uploading host files, 4-39

5294 Control Unit
address table, 4-23
frame size, 4-20
overview, 2-3
setting host type, 4-14

5394 Control Unit
address table, 4-25
frame size, 4-20
overview, 2-3
setting host type, 4-14

802.3, 4-29

802.3 frames, 2-3

A

Address Resolution Protocol, 4-31

Address type, 4-15, 4-16

Addresses
3270 SNA/SDLC, 4-23
5294 Control Unit, 4-23
5394 Control Unit, 4-25
Class B, 4-26
format for wireless stations, 4-16
IP, 4-26
router, 4-28
subnet mask, 4-27
through DHCP, 4-30

Application layer MIB groups, B-7, B-16

ARP, 4-31, 4-32

Async, 4-14

[Async Parms], 4-11, 4-14

Asynchronous communications
clocking, A-9, A-10
menu options, 4-14
program part numbers, 4-34
publications for, 1-3
setting host type, 4-14
terminal emulation, 2-3
uploading host files, 4-39

AT MIB family, B-3

Attach priority switches, 2-7

Auto ARP minutes, 4-26, 4-32

Auto reconnect, 4-19, 4-21

Automatic reconnection to session, 4-21

B

Baud rate
asynchronous option, 4-15
switches, 2-7
synchronous option, 4-19

BNC port, 2-6, 5-3, 5-5

Bootp
client, 4-31
handshaking, 4-31
infinite leases, 4-32
network with servers, 4-31
operation, 4-31
RFC, 4-32
server, 4-31

Bootstrap Protocol. *See* Bootp

Bracket, 3-7, 5-2

Browser, 3-5, 4-35

Buffering data, 4-18

C

Cable terminator, 3-3, 5-3

- Cables
 - dc extension, 3-6
 - DIAG port, 3-4, A-1
 - HOST port, A-4
 - modem, A-1, A-4, A-8
- Changing passwords, 4-7, 4-33
- Changing the configuration, 4-8, 4-9
- Checking FLASH and ROM versions, 4-43
- Class B address, 4-26
- Class identifier string, 4-31
- Clear command, 4-8
- Clearing the configuration, 4-8
- Clients, DHCP, 4-29, 4-32
- Clocking, A-9, A-10
- CMOT MIB family, B-3
- Command interpreter (ROM)
 - mode, 4-40, 4-43
- Command interpreter switch, 2-7, 2-8
- Commands
 - ?, 4-9
 - Clear, 4-8
 - Exit, 4-9
 - Read, 4-8, 4-9
 - Reboot, 4-9
 - View, 4-8, 4-9
 - Write, 4-9
- Community name, B-4
- Community string, B-5
- Components
 - 10BASE-T, 3-3
 - 10BASE2, 3-3
 - communication equipment, 3-4
 - Ethernet LAN, 3-2
 - Telnet, 3-5
 - Web browser, 3-5
- Compression, 4-13
- Configuring the gateway
 - DIAG port, 4-2
 - passwords, 4-33
 - procedure, 4-7
 - Telnet, 4-4, 4-7
 - Web browser, 4-35
- Control MIB group, B-7, B-21
- Creating
 - DIAG port session, 4-2
 - Telnet session, 4-4
 - Web browser session, 4-35
- D**
 - Data bits, 4-15, 4-16
 - Dc extension cables, 3-6
 - Default settings
 - changing configuration to, 4-8
 - list of, 4-5
 - switches, 2-7
 - DHCP
 - client, 4-29
 - menu option, 4-26, 4-29
 - RFCs, 4-32
 - server name, 4-26, 4-30
 - DIAG port
 - cables, A-1
 - connecting to PC, 4-2
 - description, 2-6
 - interface type, A-10
 - pin-outs, A-10
 - Diagnostic baud rate switches, 2-7
 - Dimensions, 3-8
 - Disabling
 - auto reconnect, 4-22
 - buffering, 4-18
 - compression, 4-13
 - DHCP, 4-30
 - full duplex, 4-18
 - mirroring, 4-21
 - NRZI, 4-20
 - polling, 4-17
 - DIX, 4-29
 - Downloading software, 4-39
- E**
 - EEPROM, 4-9
 - EGP MIB family, B-3
 - Electrostatic discharge protection, 3-8
 - Enabled, if IP address is zero, 4-30
- Enabling
 - auto reconnect, 4-22
 - buffering, 4-18
 - compression, 4-13
 - DHCP, 4-30
 - full duplex, 4-18
 - mirroring, 4-21
 - NRZI, 4-20
 - polling, 4-17
- Enhanced R polling, 4-15, 4-17
- Enter Network Password
 - screen, 4-36
- Environmental characteristics, 3-8
- ESD protection, 3-8
- ETHERNET LED, 2-5, 5-11
- Ethernet type switch, 2-7
- Exit command, 4-8, 4-9
- Extension cables, 3-6
- F**
 - FLASH, 4-39, 4-43
 - FLASH mode, rebooting gateway into, 4-42, 4-44
 - Frame types, 4-29
 - Full duplex, 4-15, 4-18
- G**
 - [Gateway], 4-9, 4-11
 - Gateway compression, 4-13
 - Gateway Configuration screen, 4-38
 - Gateway.Compression, 4-11, 4-13
- H**
 - Half duplex, 4-18
 - Handshaking, 4-31
 - Height, 3-8
 - Help, online, 4-1
 - Horizontal mount, 5-3

- HOST port
 - cables, A-4
 - connecting to host, 5-8
 - description, 2-6
 - pin-outs, A-9
 - Host timeout
 - asynchronous option, 4-15, 4-16
 - synchronous option, 4-19, 4-20
 - Host type, 4-11, 4-14
 - Hosts
 - asynchronous options, 4-14
 - names, 4-11
 - setting host type, 4-14
 - supported by gateway, 2-4
 - synchronous options, 4-19
 - HP OpenView for Windows, B-1
 - Humidity, 3-8
- I**
- ICMP MIB family, B-3
 - Identifier string, 4-31
 - Illustrations
 - 5294 Control Unit addresses, 4-24
 - 5394 Control Unit addresses, 4-25
 - connecting gateway to
 - 10BASE-T, 5-7
 - 10BASE2, 5-4, 5-5
 - host, 5-9
 - horizontal mount, 5-3
 - host names, 4-12
 - LEDs, 2-5
 - Web browser session, 4-35
 - local session, 4-2
 - ports, 2-6
 - sample open wireless LAN, 2-4
 - switches, 2-7
 - Telnet session, 4-4
 - vertical mount, 5-2
 - Infinite leases, 4-31, 4-32
 - INPUT port, 2-6
- Installation
 - connecting to 10BASE-T, 5-6
 - connecting to 10BASE2, 5-3
 - connecting to host, 5-8
 - MIBs, B-2
 - mounting the gateway, 5-1
 - verifying gateway operation, 5-10
 - Interface types, A-9, A-10
 - Interfaces MIB family, B-3
 - IP addresses
 - ARP requests, 4-32
 - Bootp, 4-29
 - DHCP, 4-29
 - RC4030E Gateway, 4-26, 4-32
 - router, 4-26, 4-28, 4-32
 - subnet mask, 4-26, 4-27
 - Telnet session, 4-5
 - Web browser, 4-35
 - IP frame type, 4-26, 4-29
 - IP MIB family, B-3
- K**
- Kits, 3-2
- L**
- LAN ID switches, 2-7
 - Leases, 4-30, 4-31, 4-32
 - LEDs, 2-5, 5-10, 6-1
 - Length, 3-8
 - Loading (reading) the previous configuration, 4-9
 - Local session, 4-2
 - Locating the gateway, 3-6
- M**
- Main Options Menu, 4-9
 - Management Information Base, B-1
 - Max frame, 4-19, 4-20
 - MIB, B-1
 - MIB definition, B-21
 - MIB directory, B-6
 - MIB families, B-3
- MIB groups
 - application layer
 - ahost, B-20, B-64
 - gs, B-16, B-45
 - hd, B-19, B-61
 - rcbs, B-18, B-52
 - td, B-19, B-62
 - control, B-21, B-68
 - products, B-8, B-22
 - SNMP
 - community, B-11, B-27
 - trapTarget, B-11, B-30
 - system information
 - criticalErrors, B-10, B-25
 - dir, B-10, B-23
 - hw, B-9, B-22
 - transport
 - hlit, B-14, B-38
 - wcbst, B-14, B-39
 - wst, B-12, B-31
 - MIB outline, B-8
 - MIB-II, B-2, B-3, B-6
 - Minutes between ARPs, 4-32
 - Mirroring, 4-19, 4-21
 - Modem cables, A-1, A-4, A-8
 - Modifying the configuration, 4-8, 4-9
 - Mounting bracket, 3-7, 5-2
 - Mounting the gateway, 5-1
 - Multiple buffering, 4-15, 4-18
 - MUX response format, 4-17
- N**
- Name, 4-11
 - nApplication, B-4
 - Native communications
 - menu options, 4-14
 - program part numbers, 4-34
 - publication for, 1-3
 - setting host type, 4-14
 - uploading host files, 4-39
 - Navigating the menus, 4-10
 - NC3100 Power Supply, 3-6, 3-8
 - nControl, B-4
 - NET LED, 2-5, 5-11
 - NET port, 2-6
 - Norand DHCP Server, 4-31

- NORAND Native communications. *See* Native communications
- Normal, 4-17
- NRZ, 4-20
- NRZI, 4-19, 4-20
- nSNMP, B-4
- nSystem, B-4
- nTransport, B-4
- Number of octets, 4-20

- O**
- Object Identification, B-4, B-8
- Objects, management, B-1
- Octets, 4-20
- OIDs, B-4, B-8
- Old, 4-17
- Online help, 4-1
- Operating temperature, 3-8

- P**
- Parity, 4-15
- Part numbers
 - cable terminator, 3-3
 - cables
 - dc extension, 3-6
 - DIAG port, A-1
 - HOST port, A-4
 - gateway kits, 3-2
 - mounting bracket, 5-2
 - power supply (NC3100), 3-6
 - publications, 1-2
 - system software, 4-34
 - T-connector, 3-3
- Password screen, 4-7
- Passwords
 - changing, 4-33
 - configuration menus, 4-7, 4-33
 - Enter Network Password screen, 4-37
 - forgetting, 4-7
 - service, 4-33, 4-34
 - top-level, 4-7, 4-33
- Physical characteristics, 3-8
- Pin-outs, A-1, A-9

- Polling, 4-17
- Ports
 - 10BASE2, 2-6
 - BNC, 5-3, 5-5
 - DIAG
 - cables, A-1
 - connecting to PC, 4-2
 - description, 2-6
 - interface type, A-10
 - pin-outs, A-10
 - HOST
 - cables, A-4
 - connecting to host, 5-8
 - description, 2-6
 - pin-outs, A-9
 - INPUT, 2-6
 - NET, 2-6
- Power consumption, 3-8
- Power supply (NC3100), 3-6, 3-8
- Preparing for the installation, 3-1
- PROCOMM PLUS, 3-4, 4-39
- Product OIDs MIB group, B-7, B-8
- Publications, 1-2
- PWR LED, 2-5, 5-10

- R**
- Radio terminals. *See* Wireless stations
- Ranges
 - auto ARP minutes, 4-32
 - DHCP server name, 4-30
 - host name, 4-12
 - host timeout, 4-16, 4-20
 - IP address, 4-26
 - IP router, 4-28
 - IP subnet mask, 4-27
 - password, 4-33
 - SDLC address table, 4-23
 - term timeout, 4-22
 - XID, 4-22
- Read command, 4-8, 4-9
- Reading the configuration, 4-9
- Reboot command, 4-8, 4-9
- Rebooting the gateway
 - into FLASH mode, 4-42, 4-44
 - into ROM mode, 4-40, 4-43
 - reboot command, 4-8, 4-9
- Reconnecting to host, 4-21
- Remote session, 4-4, 4-35
- Reset switch, 2-7, 2-8
- Resetting the configuration, 4-8
- Resource number, 4-37
- RF LED, 2-5, 5-11
- RFC 1533, 4-32
- RFC 1534, 4-32
- RFC 1541, 4-32
- RFC 951, 4-32
- RFC1213.MIB, B-1, B-2
- RFC1398.MIB, B-1, B-2
- RM2216, 4-17
- ROM mode, 4-40, 4-43
- Root priority switches, 2-7
- Routers
 - ARP tables, 4-33
 - auto ARP minutes, 4-32
 - Class B addresses, 4-27
 - infinite leases, 4-32
 - menu option, 4-26, 4-28
 - obtaining address through DHCP, 4-30
 - Telnet session, 4-4
 - updating routing tables, 4-32
- RS-232
 - DIAG port interface, 2-6, A-10
 - HOST port interface, A-9
 - menu option, 4-19

- S**
- Save this password in your password list, 4-37
- Saving the configuration, 4-9
- [SDLC Address], 4-19, 4-23
- SDLC Address.AD0, 4-19, 4-23
- [Security], 4-9, 4-33
- Server name field, 4-31
- Servers, 4-29, 4-30, 4-31
- Service password, 4-33, 4-34
- Sessions
 - automatic reconnection to, 4-21
 - DIAG port, 3-4, 4-2
 - Telnet, 3-5, 4-4
 - Web browser, 3-5, 4-35
- Simple Network Management Protocol, 3-5, B-1

- Sname field, 4-31
 - SNAP, 4-29
 - SNMP, 3-5, B-1
 - SNMP configuration MIB groups, B-7, B-11
 - SNMP MIB family, B-3
 - Software
 - configuring, 4-7
 - part numbers, 4-34
 - uploading FLASH files, 4-39
 - Specifications, 3-8
 - STAT LED, 2-5, 5-10
 - Stop bits, 4-15
 - Storage temperature, 3-8
 - Subnet mask
 - infinite leases, 4-32
 - menu option, 4-27
 - obtaining through DHCP, 4-28, 4-30
 - Telnet session, 4-4
 - Web browser session, 4-35
 - Subnets
 - Auto ARP minutes, 4-33
 - connected by router, 4-28
 - subnet mask, 4-4, 4-27, 4-30
 - Switches, 2-7
 - [Sync Parms], 4-19
 - Synchronous communications
 - 3270 options, 4-23
 - 5294 options, 4-23
 - 5394 options, 4-25
 - clocking, A-9
 - menu options, 4-19
 - program part numbers, 4-34
 - publications for, 1-3
 - setting host type, 4-14
 - terminal emulation, 2-2
 - uploading host files, 4-39
 - System information MIB groups, B-7, B-9
 - System MIB family, B-3
 - System software
 - configuring, 4-7
 - part numbers, 4-34
 - uploading FLASH files, 4-39
- T**
- T-connector, 3-3, 5-3
 - TCP MIB family, B-3
 - [Tcpip], 4-9, 4-26
 - Telnet, 3-5, 4-4
 - Temperature, 3-8
 - Term timeout, 4-19, 4-22
 - Thick Ethernet. *See* 10BASE5 (thick) Ethernet
 - Thin Ethernet. *See* 10BASE2 (thin) Ethernet
 - Timeouts
 - host, 4-16, 4-20
 - wireless station, 4-19, 4-22
 - Top-level password, 4-7, 4-33
 - Transmission MIB family, B-3
 - Transport MIB groups, B-7, B-12
 - Troubleshooting, 6-1
 - Type, 4-19
- U**
- UDP MIB family, B-3
 - Uploading new FLASH, 4-39
 - User name, 4-37
- UTP Ethernet. *See* 10BASE-T (UTP) Ethernet
- V**
- V.35, 2-6, 4-19, A-9
 - Verifying gateway operation, 5-10
 - Versions
 - checking FLASH and ROM, 4-43
 - Ethernet, 4-29
 - ROM, 4-40
 - uploading new, 4-39
 - Vertical mount, 5-2
 - View command, 4-8, 4-9
 - Viewing the configuration, 4-9
- W**
- Web browser, 3-5, 4-35
 - Weight, 3-8
 - Width, 3-8
 - Wireless stations
 - address type, 4-16
 - autoreconnection to session, 4-21
 - buffering messages, 4-18
 - compressing data to, 4-13
 - host name, 4-11
 - mirroring data, 4-21
 - model names, 2-1
 - Write command, 4-8, 4-9
 - Writing the configuration, 4-9
- X**
- XID, 4-19, 4-22

