User's Manual

P/N 069538-002

Trakker Antares®
241X Hand-Held Terminal

Intermec

A UNOVA Company

Intermec Technologies Corporation
6001 36th Avenue West
P.O. Box 4280
Everett, WA 98203-9280

U.S. service and technical support: 1.800.755.5505
U.S. media supplies ordering information: 1.800.227.9947

Canadian service and technical support: 1.800.688.7043
Canadian media supplies ordering information: 1.800.268.6936

Outside U.S. and Canada: Contact your local Intermec service supplier.

The information contained herein is proprietary and is provided solely for the purpose of allowing customers to operate and/or service Intermec manufactured equipment and is not to be released, reproduced, or used for any other purpose without written permission of Intermec.

Information and specifications in this manual are subject to change without notice.

© 1999 by Intermec Technologies Corporation
All Rights Reserved

The word Intermec, the Intermec logo, JANUS, IRL, Trakker Antares, EZBuilder, Universal Access Point, and CrossBar are either trademarks or registered trademarks of Intermec.

Throughout this manual, trademarked names may be used. Rather than put a trademark (™ or ®) symbol in every occurrence of a trademarked name, we state that we are using the names only in an editorial fashion, and to the benefit of the trademark owner, with no intention of infringement.

Manual Change Record

This page records changes to the manual. The manual was released at Revision 001.

Revision	Date	Description of Change
002	8/99	This manual was revised to add the dcBrowser™ information sheet, Part No. 070012-001.

Contents

Before You Begin xv
Warranty Information xv
Safety Summary xv
Warnings and Cautions xvi
About This Manual xvi
Other Intermec Manuals xix

1 **Learning About the Terminals**

What Are the Trakker Antares 241X Terminals? 1-3
Options for the Terminals 1-4
Accessories for the Terminals 1-5

Understanding the Terminal's Features 1-6

Using the Terminal's Keypad 1-7
How to Type the Characters Printed on the Keypad 1-7
Finding the Special Keys 1-8
Using the Suspend/Resume Key 1-9
Using the Function Left, Function Right, and Shift Keys 1-9
Capitalizing All Characters 1-10
Using the Cursor Keys 1-10
Using the International Keypad 1-11
Using the TE Keypads 1-12

Using the Terminal's Serial Port 1-13

Using the Terminal's Screen 1-14

Understanding the Terminal's Status LEDs 1-15

Understanding the Terminal's Status Beeps 1-16

Connecting an Input Device to the Terminal 1-17

Using the Terminal's Battery Pack 1-18
Determining When the Battery Pack is Low 1-18
Charging the Battery Pack 1-19
Installing the Battery Pack 1-19
Removing the Battery Pack 1-20
Managing Battery Power 1-21

Defining the Terminal's Drives 1-22

Using the Terminal's Scanner 1-23
Scanning Options 1-26

Using the Terminal for the First Time 1-27

2 ***Operating the Terminals in a Network***

How the Terminals Fit Into Your Network 2-3

Connecting the Terminal to a Wired Network 2-10
Choosing a Communications Protocol 2-10
Binary Protocol 2-11
Configurable Protocol 2-11
Master Polling Protocol 2-12
Point-to-Point Protocol 2-12
Polling Mode D Protocol 2-12

Connecting the 2415 to an RF Network 2-13
Planning the Network Connection 2-13
Configuring the DCS 300 2-14
Configuring the Access Point 2-14
2.4 GHz OpenAir Network 2-15
IEEE 802.11 DS Network 2-15
About the Network Parameters 2-16
Monitoring RF Communications Using the Status LEDs 2-17

About Network Connectivity and Protocols 2-18

3 ***Configuring the Terminals***

How to Configure the Terminal 3-3
About the Configurations 3-3

Configuring the Terminal With the Menu System 3-4
Accessing Online Help 3-6
Selecting Menus and Commands 3-6
Filling In Fields 3-7
Marking Check Boxes 3-8
Entering ASCII Control Characters 3-9
Exiting the Menu System 3-11

Configuring the Terminal by Scanning Bar Code Labels 3-13

Configuring the Terminal Through the Serial Port 3-15

Configuring the 2415 Through the Network 3-17
Sending a Command From the DCS 300 3-17
Sending a Command From the Host 3-19
Configuring the 2415 in a UDP Plus Network 3-19
Configuring the 2415 in a TCP/IP Direct Connect Network 3-20

Transferring Files in a TCP/IP Direct Connect Network 3-23

Saving Configuration Changes to Flash Memory 3-28

Restoring the Terminal's Default Configuration 3-29

4 ***Using Custom Applications***

How To Download and Run Applications 4-3

About the Trakker Antares Programmable Terminals 4-4

Creating Applications for the Terminal 4-6
Using the PSK or EZBuilder to Develop Applications 4-6
Converting Applications Between JANUS and Trakker Antares 4-7
Converting IRL Programs 4-7
Converting the Application to a Binary File 4-8

Using the Serial Port to Transfer Applications and Files 4-9

Using the DCS 300 to Download Applications and Files 4-14
Copying Applications and Files to the DCS 300 4-14
Downloading Applications and Files to the 2415 4-16

Running the Application on the Terminal 4-19

Using Screen Mapping (DCS 300 v1.1) 4-21

5 ***Troubleshooting and Maintaining the Terminals***

How to Use This Chapter 5-3

Finding and Solving Problems 5-4
Terminal Will Not Turn On 5-5
Problems While Operating the Terminal 5-5
Problems While Configuring the Terminal 5-7
2415 Will Not Communicate With RF Network Devices 5-12
Problems Transmitting Data Through the Serial Port 5-14

Problems Transmitting Data Through the DCS 300 5-15
Bar Code Labels Will Not Scan 5-16

Booting and Resetting the Terminal 5-18
Booting the Terminal 5-18
Booting the Terminal on Resume 5-18
Using the Boot Menu 5-19
Resetting the Terminal 5-20

Cleaning the Scanner Window and Terminal Screen 5-21

Upgrading the Terminal 5-22
Upgrading the Firmware 5-22
Loading Double-Byte Fonts 5-25

6 **Running Diagnostics**

What Diagnostics Are Available? 6-3
Running Diagnostics From the Menu System 6-5

Defining the Diagnostics Screens 6-7
Defining the Software Diagnostics Screens 6-7
Application Events 6-7
Clear Task Profiles 6-8
Error Logger 6-9
Task Status 6-10
Defining the Hardware Diagnostics Screens 6-11
Battery/PIC Status 6-11
Beeper Test 6-12
Destructive RAM Test 6-13
Display Test 6-14
Hardware Configuration 6-15
Keypad Test 6-16
Radio Test 6-17
Scanner Test 6-18
Serial Port Loopback Test 6-19
Defining the System Diagnostics Screens 6-20
Access Point 6-20
Application Efficiency 6-21
Malloc Application Information 6-22
Malloc Firmware Information 6-23
Serial Port Test 6-24
Subsystem Versions 6-25

7 Reader Command Reference

Using Reader Commands 7-3

Using Accumulate Mode 7-4
- Backspace 7-5
- Clear 7-5
- Enter 7-6
- Enter Accumulate Mode 7-6
- Exit Accumulate Mode 7-6

Operating Reader Commands 7-7
- Backlight On and Off 7-7
- Boot Terminal 7-8
- Change Configuration 7-8
- Default Configuration 7-9
- Multiple-Read Labels 7-9
- Reset Firmware 7-10
- Save Configuration in Flash Memory 7-10
- Scanner Trigger On and Off 7-11
- Set Time and Date 7-12
- Test and Service Mode 7-12

File Management Reader Commands 7-13
- Abort Program 7-13
- Delete File 7-14
- List Files 7-15
- Receive File 7-15
  - Receive File Through the Serial Port 7-15
  - Receive and Convert 7-Bit ASCII Files to 8-Bit Binary Files 7-17
  - Receive File Via RF Communications 7-19
- Rename File 7-21
- Run Program 7-22
- Transmit File 7-23
  - Transmit File Through the Serial Port 7-23
  - Transmit and Convert 8-Bit Binary Files to 7-Bit ASCII Files 7-25
  - Transmit File Via RF Communications 7-27

8 Configuration Command Reference

Using Configuration Commands 8-3

Configuration Commands Listed by Category 8-4

Entering Variable Data in a Configuration Command 8-6

Acknowledgement Delay Lower Limit 8-7

Acknowledgement Delay Upper Limit 8-9

AP Density 8-11

Append Time 8-12

Automatic Shutoff 8-13

Baud Rate 8-15

Beep Volume 8-17

Codabar 8-19

Code 11 8-21

Code 16K 8-22

Code 2 of 5 8-23

Code 39 8-25

Code 49 8-29

Code 93 8-31

Code 128 8-32

ISBT Code 128 8-33

Command Processing 8-39

Configuration Commands Via Serial Port 8-43

Controller Connect Check Receive Timer 8-45

Controller Connect Check Send Timer 8-47

Controller IP Address 8-49

Data Bits 8-51

Decode Security 8-52

Default Router 8-53

Display Backlight Timeout 8-55

Display Contrast 8-57

Display Font Grid Type 8-58

Display Row Spacing 8-59

Display Video Mode 8-60

Domain 8-61

Dynamic Host Configuration Protocol (DHCP) 8-63

End of Message (EOM) 8-64

Flash Memory Configuration 8-66

Flow Control 8-68

Handshake 8-70

Host IP Address 8-71

Inactivity Timeout 8-73

Interleaved 2 of 5 8-75

Keypad Caps Lock 8-77

Keypad Clicker 8-78

Keypad Type 8-79

LRC (Longitudinal Redundancy Check) 8-81

Maximum Retries 8-82

Maximum Sleep Duration 8-84

MSI 8-86

Network Activate 8-88

Network Loopback 8-89

Network Name 8-90

Network Port 8-92

Parity 8-94

Plessey 8-95

Poll (Polling) 8-96

Postamble 8-97

Power Management 8-99

Preamble 8-100

RAM Drive Size 8-102

Receive All Multicast 8-104

Reservation 8-105

Reservation Enable 8-107

Resume Execution 8-108

Roaming Flag 8-109

Scan Ahead 8-110

Scanner Mode 8-111

Scanner Redundancy 8-112

Scanner Selection 8-113

Scanner Timeout 8-114

Scanner Trigger 8-116

Security Identification 8-117

Serial Port Protocol 8-118

Start of Message (SOM) 8-120

Station Name 8-122

Stop Bits 8-123

Subnet Mask 8-124

Suspend/Resume Control 8-126

TCP Maximum Retries 8-127

TCP/IP Maximum Transmit Timeout 8-129

Terminal IP Address 8-131

Time and Date 8-133

Time in Seconds 8-135

Timeout Delay 8-136

Transmit Mode 8-138

Transmit Rate 8-139

UPC/EAN 8-140

Wakeup On Broadcast 8-143

A

Specifications and Other Helpful Information

Specifications A-3

Default Configuration A-9

Configuration Commands by Syntax A-13

B

Full ASCII Charts

Full ASCII Table B-3

Full ASCII Bar Code Chart B-6

Control Characters B-6
Symbols and Punctuation Marks B-7
Numbers B-8
Uppercase Letters B-9
Lowercase Letters B-10

C

International Character Support

Trakker Antares Terminal Font Set C-3

English and Western European Font Set C-3
Japanese Katakana Font Set C-13

D

Using the Default Applications

About the Applications Shipped on the Terminal D-3
Defining APPTSK.BIN and EM9560.BIN D-3
Defining the Emulation Features of EM9560.BIN D-4
Using Display Control Codes D-5
Setting Preambles and Postambles D-6
Full ASCII Mode for Code 39 D-7
Unsupported 95XX Features D-9
Running APPTSK.BIN and EM9560.BIN D-9

I

Index

Before You Begin

This section introduces you to standard warranty provisions, safety precautions, warnings and cautions, document formatting conventions, and sources of additional product information. A list of Intermec manuals is also provided to guide you in finding the appropriate information.

Warranty Information

To receive a copy of the standard warranty provision for this product, contact your local Intermec support services organization. In the U.S. call 1-800-755-5505, and in Canada call 1-800-688-7043. Otherwise, refer to the Worldwide Sales & Service list that ships with this manual for the address and telephone number of your Intermec sales organization.

Safety Summary

Your safety is extremely important. Read and follow all warnings and cautions in this book before handling and operating Intermec equipment. You can be seriously injured, and equipment and data can be damaged if you do not follow the safety warnings and cautions.

Do not repair or adjust alone Do not repair or adjust energized equipment alone under any circumstances. Someone capable of providing first aid must always be present for your safety.

First aid Always obtain first aid or medical attention immediately after an injury. Never neglect an injury, no matter how slight it seems.

Resuscitation Begin resuscitation immediately if someone is injured and stops breathing. Any delay could result in death. To work on or near high voltage, you should be familiar with approved industrial first aid methods.

Energized equipment Never work on energized equipment unless authorized by a responsible authority. Energized electrical equipment is dangerous. Electrical shock from energized equipment can cause death. If you must perform authorized emergency work on energized equipment, be sure that you comply strictly with approved safety regulations.

Note: For laser compliance and safety information, refer to the manual supplement that shipped with your Trakker Antares® 241X hand-held terminal.

Warnings and Cautions

The warnings and cautions in this manual use the following format.

Warning
A warning alerts you of an operating procedure, practice, condition, or statement that must be strictly observed to avoid death or serious injury to the persons working on the equipment.

Avertissement
Un avertissement vous avertit d'une procédure de fonctionnement, d'une méthode, d'un état ou d'un rapport qui doit être strictement respecté pour éviter l'occurrence de mort ou de blessures graves aux personnes manupulant l'équipement.

Caution
A caution alerts you to an operating procedure, practice, condition, or statement that must be strictly observed to prevent equipment damage or destruction, or corruption or loss of data.

Conseil
Une précaution vous avertit d'une procédure de fonctionnement, d'une méthode, d'un état ou d'un rapport qui doit être strictement respecté pour empêcher l'endommagement ou la destruction de l'équipement, ou l'altération ou la perte de données.

Notes: Notes are statements that either provide extra information about a topic or contain special instructions for handling a particular condition or set of circumstances.

About This Manual

This manual contains all of the information necessary to install, configure, operate, and troubleshoot the Trakker Antares 2410 and 2415 terminals.

This manual was written for two audiences:

- All users who need to know how to use the terminal to collect data.
- MIS personnel, operations personnel, analysts, and programmers who need to know how to install, configure, test, and use the terminal to operate in a network. You should have a good knowledge of your company's network and data collection software. You should be familiar with data communications and network protocols.

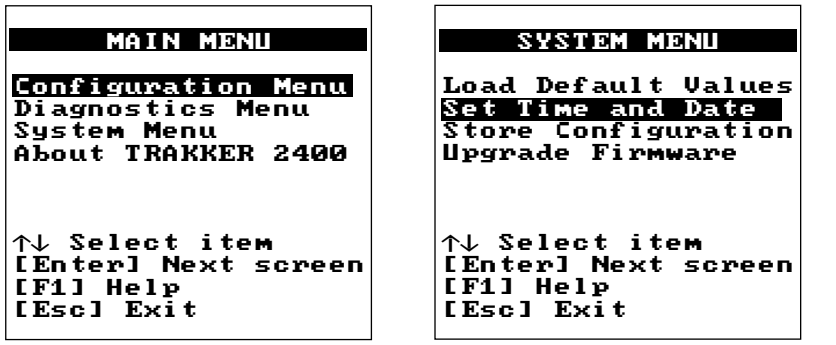
Terminology

You should be aware of how these terms are being used in this manual:

Term	Description
Host	The term “host” refers to a personal computer or other computer that communicates with the terminal.
DCS 300	The term “DCS 300” refers to the new data collection server that replaces the Model 200 Controller. Unless otherwise noted, you can use either the DCS 300 or the Model 200 Controller.
2410	The term “2410” indicates the specific type of terminal, the Trakker Antares 2410 terminal.
2415	The term “2415” indicates the specific type of terminal, the Trakker Antares 2415 terminal.
Terminal	The generic term “terminal” indicates either the Trakker Antares 2410 terminal or the Trakker Antares 2415 terminal.
Trakker Antares	The term “Trakker Antares” identifies the product family of Trakker Antares terminals, which includes the hand-held terminals, vehicle-mount terminals, stationary terminals, and light industrial terminals.

Conventions for Software Screens and Messages

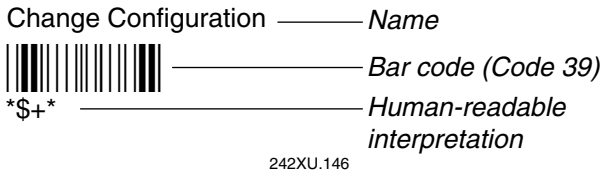
This manual includes illustrations that represent how the terminals display software screens and messages. Here are two examples:



241XU034.eps

Conventions for Bar Codes

You can scan the bar codes listed in this manual to enter data or perform a command. The bar code labels in this manual are printed in the Code 39 symbology. Each bar code includes the name and human-readable interpretation. For example:



The asterisks (*) at the beginning and end of the human-readable interpretation are the start and stop codes for a Code 39 bar code label. If you are using a bar code printing utility, it may automatically supply the asterisks as the start and stop code, so that you only need to type the actual text of the command. You can also create and print configuration labels and reader command labels in Code 93, which has its own start and stop codes.

Conventions for Input From a Keypad or Keyboard

This table describes the formatting conventions for input from PC keyboards, host computer keyboards, and terminal keypads:

Convention	How to Interpret the Convention
Bold text	Indicates the keys you must press on a PC or host computer keyboard. For example, "press **Enter**" means you press the key labeled "Enter" on the PC or host computer keyboard.
Ⓐ	Shows the key you must press on the terminal. For example, "press Ⓐ" directs you to press the A key on the terminal keypad.
ⓕ ⓢ ② ④ ⑧	Shows a series of terminal keys you must press and release in the order shown. For example, "Press ⓕ ⓢ ② ④ ⑧ to run the TRAKKER Antares 2400 Menu System."

Conventions for Commands

This manual includes sample commands that are shown exactly as you should type them on your terminal or network device. The manual also describes the syntax for many commands, defining each parameter in the command. This table defines the conventions that are used in this manual.

Convention	Description
`Special font`	Commands appear in Courier font. You enter the command exactly as it is shown.
Required parameters	If a parameter is not enclosed in brackets [ ], the parameter is required. You **must** include the parameter in the command; otherwise, the command will not execute correctly.
[ ]	Brackets enclose a parameter that you may omit from the command. Do not include the brackets in the command.
Italic text	Italics indicate a variable, which you must replace with a real value, such as a number, filename, keyword, or command.
Where	This word introduces a list of the command's parameters and explains the values you can specify for them.

Other Intermec Manuals

You may need additional information when working with the terminal in a data collection system. Please visit our Web site at www.intermec.com, which provides many of our current manuals in PDF format that you can download. To order printed versions of the Intermec manuals, contact your local Intermec representative or distributor.

Manual	Intermec Part No.
Trakker Antares 241X Hand-Held Terminal Getting Started Guide	069540
Trakker Antares 241X Battery Pack Instruction Sheet	069547
Trakker Antares 2-Pack Charger Instruction Sheet	069548
Trakker Antares TZ2410 Battery Charger Instruction Sheet	069549
Trakker Antares TD2410 Communications Dock Quick Reference Guide	069552
Trakker Antares 241X Belt Clip Instruction Sheet	069553
Trakker Antares 241X Handle Instruction Sheet	069557
Trakker Antares 241X Handstrap Instruction Sheet	069554
Trakker Antares 241X Holster Instruction Sheet	069556
TE 2000 VT/ANSI Terminal Emulation Programmer's Guide	977-055-005
TE 2000 5250 Terminal Emulation Programmer's Guide	977-055-004

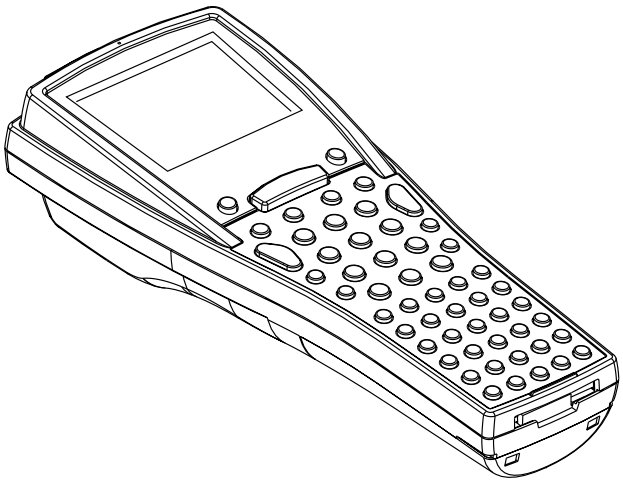
1

Learning About the Terminals

This chapter explains the terminals' features, including the status LEDs, status beeps, battery pack, and drives. It also lists the options and accessories you can order.

What Are the Trakker Antares 241X Terminals?

The Trakker Antares 2410 and 2415 terminals are small, lightweight, hand-held data collection terminals that are designed for a range of applications, including commercial applications such as in-store retail.



241X001.eps

2410 The Trakker Antares 2410 terminal is a programmable data collection terminal that runs custom batch applications. The terminal has a flash drive to store applications and files. The 2410 has an integrated I/O port to transmit data to and accept data from a host or PC via RS-232 serial communications.

2415 The Trakker Antares 2415 terminal has all of the capabilities of the 2410 and it can also communicate in a radio frequency (RF) network. Because it can communicate using RF, the 2415 provides real-time communications to a host either through the access points and the DCS 300 or directly through the access points. The 2415 can also run client/server applications and TE 2000™ terminal emulation applications.

Options for the Terminals

These options are available for the 2410:

- Programmable terminal with 55-key alphanumeric, 37-key alphanumeric with large numeric, or 37-key function key with large numeric keypads. Each keypad supports overlays for English or international languages.
- Laser scanner (standard, long range, high density, high visibility)
- 4MB flash memory, configured as an additional 2MB flash drive for custom applications (except .BIN files) and files or pre-loaded with different Asian fonts
- 2MB or 4MB extended storage drive, used for custom applications or files

These options are available for the 2415:

- Programmable terminal with 55-key alphanumeric, 37-key alphanumeric with large numeric, and 37-key function key with large numeric keypads available. Each keypad supports overlays for English or international languages.
- IBM 5250 TE application and alphanumeric keypad
- VT100/220/320/340 and ANSI TE application and 55-key alphanumeric, 37-key alphanumeric with large numeric, or 37-key function key with large numeric keypads
- Laser scanner (standard, long range, high density, high visibility)
- 4MB flash memory, configured as an additional 2MB flash drive for custom applications (except .BIN files) and files or pre-loaded with different Asian fonts
- UDP Plus (DCS 300 to host) or TCP/IP (direct connect to host)
- 2.4 GHz OpenAir radio or IEEE 802.11 DS radio

Accessories for the Terminals

You can use these accessories (sold and ordered separately) with the terminals:

Standard (Single-Cell) or High Performance (Dual-Cell) Battery Packs These lithium-ion battery packs (Part No. 069428 and Part No. 069429) provide the main power to the terminal.

Battery Chargers The 2-pack charger (Part No. 069582) lets you charge up to two battery packs at one time. The 4-pack charger (TZ2410) lets you charge up to four battery packs at one time. The battery charger senses when a battery pack is fully charged and will not overcharge it, ensuring long and consistent battery pack life.

Communications Dock When you place the terminal in the communications dock (TD2410), the terminal can communicate with a host computer or PC via RS-232 serial communications. If you connect a power supply to the dock, you can also charge the battery pack.

Handstrap The elastic handstrap (Part No. 069580) attaches to the back of the terminal to let you hold the terminal easily and securely for long periods of use.

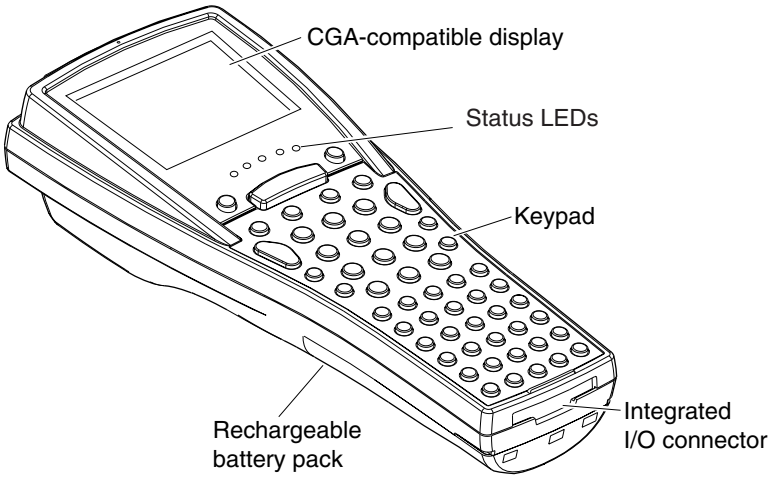
Handle The pistol-grip handle (Part No. 069588)provides a convenient way to hold the terminal.

Belt Clip The belt clip (Part No. 069581) lets you attach the terminal to your belt and have it hang at your side so you can have both hands free.

Holster and Belt The holster and belt (Part No. 069583) are a convenient way for you to carry the terminal when you are not using it.

Understanding the Terminal's Features

This section provides an overview of the terminal's features. The next sections provide detailed descriptions of how to use these features.



CGA-compatible display The terminal screen is a backlit LCD that is 16 lines by 20 characters. Depending on the application, you can use the viewport feature to move around a full 25 line by 80 character screen. The terminal screen also supports double-byte characters, user programmable fonts, and bit-mapped graphics.

Status LEDs and beeps The status LEDs let you monitor the status of the battery, of network communications, of special keys, and of bar code scanning. There is one amber LED and four green LEDs. The terminal also has a beeper that provides you with audio feedback as you use the terminal.

Keypad There are three keypad options with different overlays. The terminal ships with a keypad and an overlay that supports the type of terminal and application that you ordered.

Integrated I/O connector This 16-pin connector acts as a serial port or as a connector for input devices, such as a wand. When you use this connector as a serial port, you can either connect the terminal directly to another serial device or you can insert the terminal into a communications dock. You connect the communications dock to another serial device.

Rechargeable battery pack and backup power source The terminal uses a rechargeable lithium-ion battery pack and it has a backup power source that maintains the terminal's status, memory, and real-time clock (for up to 15 minutes) when the battery pack is changed.

Internal Antenna (2415 only) The 2415 uses an internal antenna that supports RF communications.

Using the Terminal's Keypad

The terminal has three keypad options:

- (55-key) Alphanumeric keypad
- (37-key) Alphanumeric with large numeric keypad
- (37-key) Function keys with large numeric keypad

Each of these keypads has overlay options:

- Programmable
- International
- (2415 only) VT100/220/320/340 and ANSI keypad
- (2415, 55-key only) 5250 TE keypad

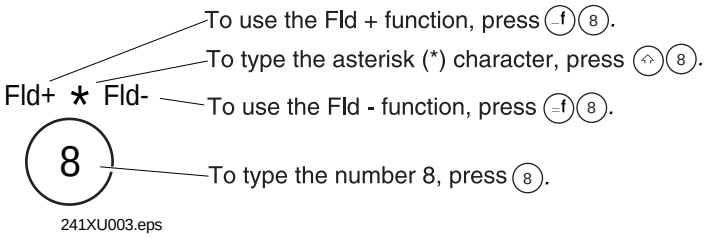
Although the keypads are smaller than a standard PC or terminal keyboard, you can use special keys to access all the keys and functions that you need. For a complete list of all of the keys that you can type, see the "Quick Reference Keypad Chart" in Appendix A.

How to Type the Characters Printed on the Keypad

The keypads are easy to use. Characters, symbols, and functions are printed in four places on or above the keys. The keys are also color-coded to make it easier to remember key combinations.

Position on the Keypad	Color	To Type the Character
Middle of the key	White	Press the key.
Left side above the key	Orange	Press the orange (f) key, then the key.
Centered above the key	Pink	Press the pink (⇧) key, then the key.
Right side above the key	Green	Press the green (=f) key, then the key.

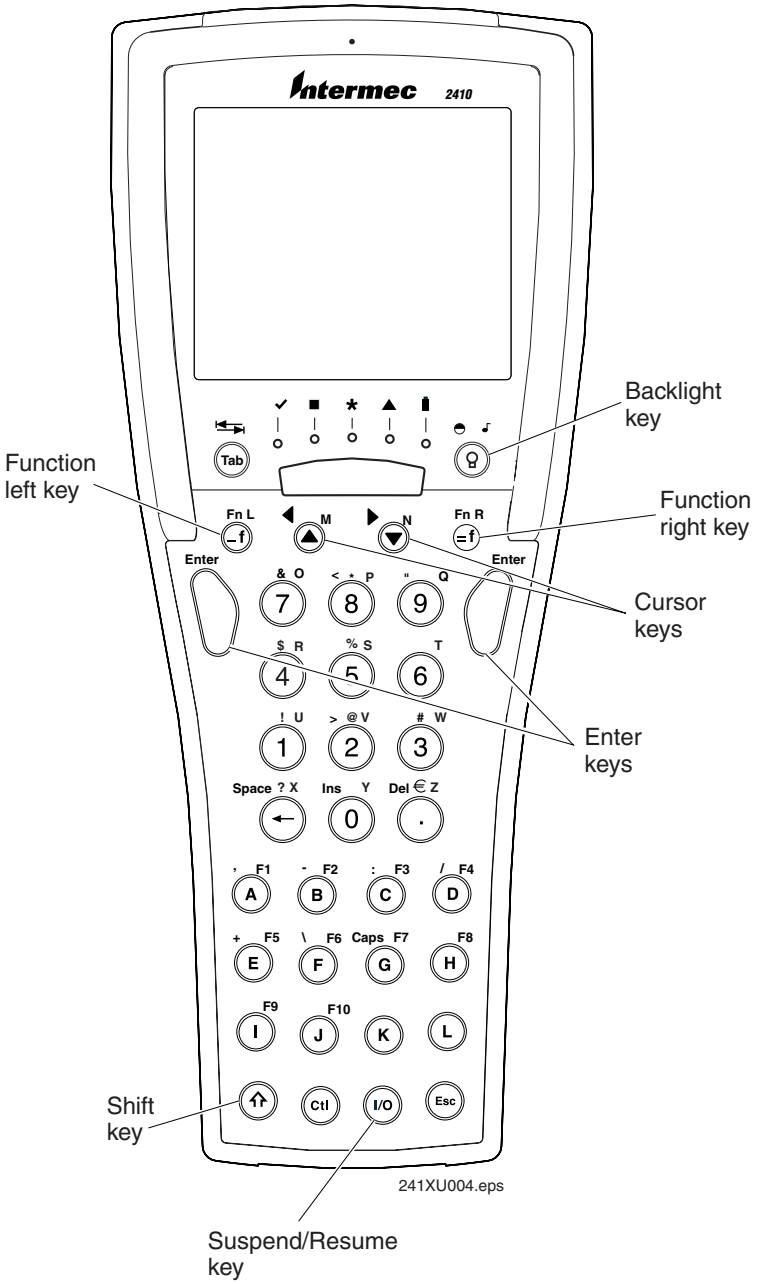
To type characters using the keypad



Finding the Special Keys

There are some special keys that are on the keypads. You will need to use these special keys with all keypad overlays. The special keys that you use to type characters or perform functions are explained in the next sections.

241X With 37-Key Alphanumeric Keypad and Programmable Overlay



Using the Suspend/Resume Key

The Suspend/Resume key is the ⏻ key in the middle of the bottom row of the keypad. When you press ⏻ to turn off the terminal, the terminal does not actually shut off, but goes into a Suspend mode. In Suspend mode, the terminal continues to power all memory and turns off the power to most of the hardware. This mode is referred to as "off" in the rest of this manual.

When you press ⏻ to turn on the terminal, the terminal either resumes exactly where it was when you turned it off, or the terminal boots and restarts your application. Resume is controlled through a parameter or command called Resume Execution. For help, see "Resume Execution" in Chapter 8.

Even if you change the battery pack while the terminal is turned off, the terminal resumes or boots the next time the terminal is turned on.

Using the Function Left, Function Right, and Shift Keys

The keypad does not have a physical key for every character and function available. You use the Function Left (FnL), Function Right (FnR), and Shift keys to access characters or perform functions that do not have a physical key on the keypad. You also use the Shift key to type uppercase alphabetic characters.

When you press f, f, or ⇧, the key is held in a buffer until you press another key. The Modifier LED turns on to remind you that the key is being held in the buffer. When you press another key, the key combination is entered into the terminal. The Modifier LED turns off, unless the second key that you pressed is another modifier key that is different from the first one that you pressed.

To flush the f, f, or ⇧ key from the buffer without performing any action, press the key again. The Modifier LED turns off.

To use the FnL, FnR, and Shift keys

1. Press f, f, or ⇧. The Modifier LED turns on.
2. Press the second key. The Modifier LED turns off.

For example, to type the uppercase letter A, press ⇧. The Modifier LED turns on. Press A. The Modifier LED turns off and an A appears on the screen.

Capitalizing All Characters

To type all alphabetic characters as uppercase letters, you either press ⇧ before every letter you type or you enable the Caps Lock feature.

Note: You can also use the Keypad Caps Lock configuration command to enable or disable Caps Lock on the terminal. For help, see "Keypad Caps Lock" in Chapter 8.

To enable Caps Lock

1. Press f. The Modifier LED turns on.
2. (37-key function key/numeric) Press F7.

   (37-key alphanumeric/numeric) Press G.

   (55-key alphanumeric) Press U.
3. Type an alphabetic character. The letter appears as an uppercase character on the terminal's screen. The Modifier LED remains on until you disable Caps Lock.

To type a lowercase letter with Caps Lock enabled

- Press ⇧ and an alphabetic character.

To disable Caps Lock

1. Press f.
2. (37-key function key/numeric) Press F7.

   (37-key alphanumeric/numeric) Press G.

   (55-key alphanumeric) Press U.
3. Type an alphabetic character. The letter appears as a lowercase letter on the terminal's screen. The Modifier LED turns off.

Using the Cursor Keys

You can press the cursor keys to move the cursor around an application screen. The cursor keys work the same as cursor keys on a regular keyboard.

To Use This Cursor Key	Press	Description
Arrow up	▲	Moves the cursor up one row or line.
Arrow down	▼	Moves the cursor down one row or line.
Arrow left	f ▲	Moves the cursor one character to the left.
Arrow right	f ▼	Moves the cursor one character to the right.

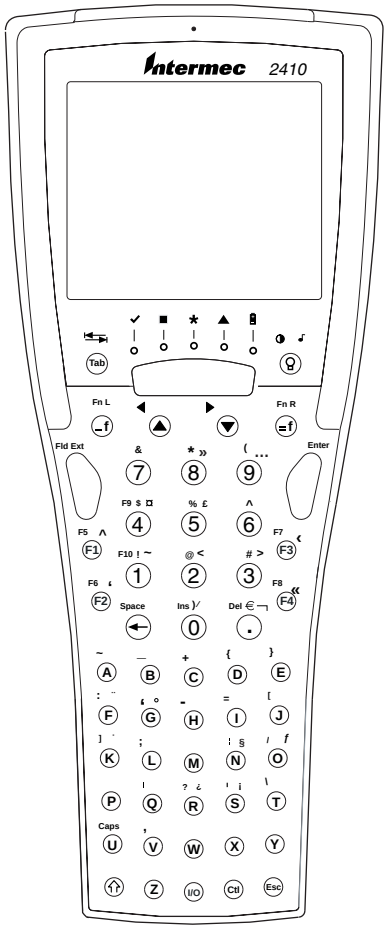
Using the International Keypad

Whether your terminal has an alphanumeric or a numeric keypad, you can order it with an international overlay. This overlay supports English and most Western European languages, such as French, German, Italian, Portuguese, Spanish, and others.

Like the programmable keypads, you use the international keypad to enter all the characters printed on or above the keys. For help, see "How to Type the Characters Printed on the Keypad" earlier in this chapter. This keypad also comes with the same special keys that are on the programmable overlay. For help, see "Finding the Special Keys" earlier in this chapter.

Note: Some keys on the 37-key international keypads let you access five different keys. To type the light green character that is printed on the far right side above the key, press the Ctl key and then the key.

241X With 55-Key Alphanumeric Keypad and International Overlay



241XU005.eps

To type characters with a diacritical mark

1. (37-key) Press Ctl. The Modifier LED turns on.

   (55-key) Press f. The Modifier LED turns on.

2. Press the key that the diacritical mark appears above.

To Type	37-Key	55-Key
` (grave)	1	F2
´ (acute)	3	F4
^ (circumflex)	4	F1
~ (tilde)	5	1
¨ (umlaut)	6	F3

3. There are three types of characters you can enter:

   - To mark a lowercase character, press the character.
   - To mark an uppercase character, press the ⇧ key and then press the character that you want to accent.
   - To type the diacritical mark by itself, press the f ← key.

   The character or diacritical mark appears on the screen and the Modifier LED turns off.

If you try to mark a character and the resulting character is not supported on the terminal, the plain (unmarked) character displays on the terminal screen. For a complete list of the English and International characters available in the terminal font, see Appendix C, "International Character Support."

Using the TE Keypads

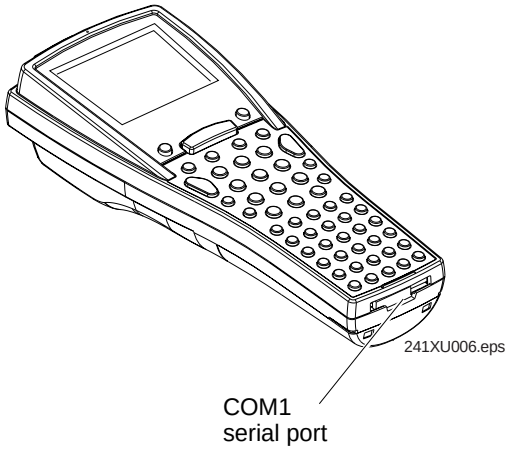
The 2415 supports VT100/220/320/340 and ANSI TE and 5250 TE. When you order a TE 2000™ application, you also receive the appropriate TE keypad overlay. TE keypad overlays let you enter the same keys that you can enter from a VT/ANSI keyboard or on an IBM 5250 keyboard.

Like the programmable keypad overlays, the TE keypad overlay lets you enter all the characters printed on or above the keys. For help, see "How to Type the Characters Printed on the Keypad" earlier in this chapter. The TE keypad overlays also come with the same special keys that are on the programmable overlay. For help, see "Finding the Special Keys" earlier in this chapter.

For more help, see the *TE 2000 VT/ANSI Terminal Emulation Programmer's Guide* or the *TE 2000 5250 Terminal Emulation Programmer's Guide*.

Using the Terminal's Serial Port

Serial ports, also called COM (communications) ports, are locations from which data can be passed into and out of the terminal. The terminal supports RS-232 serial communications.



Port	COM Port Designation for Applications
COM1	Use for serial port communications on the terminal. You can use a serial port adapter or a special cable to connect this terminal to another serial device, such as a modem, a PC, or a printer. You can also insert the terminal into a communications dock and use a special cable (RS-232) to connect the dock to another serial device. For help, see the *Trakker Antares TD2410 Communications Dock Quick Reference Guide*.
RF (NET)	Use for RF communications on the 2415. The Trakker Antares PSK functions use NET to designate the RF network port.

Using the Terminal's Screen

You can use the terminal's screen to view data, run applications, monitor the terminal's status, and for many other functions. The screen is a backlit LCD that is CGA compatible and it has a maximum of 16 lines by 20 characters. The screen also supports double-byte characters and user-programmable fonts.

Depending on the application, you can also use the viewport feature to move around a full 25 line by 80 character screen.

The Backlight key is built into the terminal's keypad. You can use the Backlight key to:

- Turn the backlight on and off.
- Adjust the display contrast.
- Change the beep volume. For help, see "Understanding the Terminal's Audio Signals" later in this chapter.

When you use this key to change the backlight, contrast, or beep volume, these changes are not saved permanently in flash memory.

To turn the backlight on and off

- Press ⓛ.

Turn the backlight on to see the terminal's screen more easily in dimly-lit environments. The backlight stays on for the length of time set in the Display Backlight Timeout command as long as there is no keypad or scanning activity or until you press ⓛ again. For more information, see "Display Backlight Timeout" in Chapter 8.

Note: You use the battery power at a faster rate with the backlight turned on.

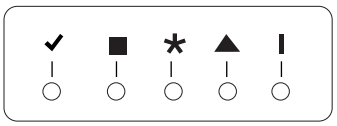
To change the display contrast

- Press ⓕ ⓛ.

Each time you press ⓕ ⓛ, it makes the display contrast one level darker. There are eight contrast levels. If the contrast is at the darkest level and you press ⓕ ⓛ, the contrast changes to the lightest contrast level.

Understanding the Terminal's Status LEDs

You can use the status LEDs to monitor the status of bar code scanning, of network communications, of special keys, and of battery power. The status LEDs only flash or turn on to indicate the current status. The Battery LED is amber and all other LEDs are green. When the terminal is off, the LEDs are also off.



241XU007.eps

✓ **Good Read** This LED turns on when you successfully scan a bar code label with the scanner or the input device that is connected to the terminal. This LED turns off after two seconds.

■ **User Defined** This LED is user defined. You can program this LED to turn on and off for any task or error within your application.

* **Network Connect** This LED tells you if the 2415 is connected to your network. The Network Connect status light may be off, blinking, or on.

	LED Off	LED Blinks	LED On
TCP/IP	Not connected.	Nothing	Connected to an access point.
UDP Plus	Not connected.	Connected to an access point, but not to a DCS 300.	Connected to a DCS 300.

When this LED is off, you are not connected to the network. Make sure the Network Activate command is enabled and that the terminal is configured correctly for your RF network. Make sure that you are in range of an access point.

In a UDP Plus network, this LED is not instantaneously updated, but it does tell you the communications status the last time data was sent or received from the terminal.

▲ **Modifier** This LED indicates that one of the modifier keys, such as Ctrl, is active. When you press another key, the key combination is available to the application. The Modifier LED turns off unless the second key that you pressed is another modifier key that is different from the first one that you pressed.

If Caps Lock is enabled, this LED remains on until you disable Caps Lock.

❙ **Battery** This LED remains off when you have a charged battery pack in the terminal. The light turns on when there is a low battery charge and the terminal is on. When the terminal beeps once every 15 seconds, replace the battery pack with a charged battery pack or charge the battery pack as soon as possible.

Understanding the Terminal's Status Beeps

The terminal has a beeper that provides you with audio feedback as you use the terminal. For example, you hear a beep tone each time you enter or scan a valid command. You can change the beep volume to meet the needs of your working environment.

When you change the beep volume, you will also change the keyclick volume if the Keypad Clicker command is enabled. The keyclick is the sound that you hear when you press a key on the terminal.

There are three ways to change the beep volume:

- Use the Backlight key (press f ☼) on the keypad. Each time you press f ☼, it makes the beep volume one level louder. On the 241X, there are three beep volume levels including off. If the volume is at the loudest level and you press f ☼, the beep volume is turned off. If you press f ☼ again, the volume changes to the quietest level.
- Use the TRAKKER Antares 2400 Menu System. From the Main Menu, choose Configuration Menu, then Terminal Menu, and then Beeper.
- Use the Beep Volume command. For help, see "Beep Volume" in Chapter 8.

This table explains the purpose of each beep sequence you may hear.

Beep Sequence	Description
High beep	You entered valid data, you entered a valid command, the terminal decoded a label, or the terminal decoded the last row of a two-dimensional bar code.
Three low beeps	You entered or scanned an invalid command or data.
Four low beeps	The terminal has booted and the power-on self test (POST) has executed successfully.
Low beep, high beep, low beep, high beep	You have booted the terminal and the POST failed. For help, see "Problems While Operating the Terminal" in Chapter 4.
Click	You have pressed a key and the Keypad Clicker command is enabled. To disable the keyclick, see "Keypad Clicker" in Chapter 8. The terminal also clicks while you are scanning a two-dimensional (Code 16K or Code 49) bar code label.
Low beep (every 15 seconds)	The battery pack is low. You need to replace or recharge the battery pack. For help, see "Using the Terminal's Battery Pack" later in this chapter.

Connecting an Input Device to the Terminal

The terminal has an integrated I/O connector that lets you connect input devices to the terminal using special cables.

Intermec Input Device	Cable Part No.
1280B wand	
1550B laser scanners with software v1.9 or later	069813
1551B laser scanners with software v1.1 or later	069814

You can either use the special cable for the input device or you can use a standard cable with special adapter cables (Part No. 069591 or Part No. 069589). For an updated list of available input devices,contact your local Intermec representative.

Once you have connected the input device to the teminal, you may want to configure the Scanner Selection command to optimize the scanning performance. For more information, see “Scanning Options” later in this chapter.

Using the Terminal's Battery Pack

Warning
The lithium-ion battery pack that is used in this device may present a fire or chemical burn hazard if it is mistreated. Do not disassemble it, heat it above 100ºC (212ºF) or incinerate it.

Avertissement
Le paquet de piles d'ions de lithium qui est utilisé dans cet appareil peut presenter un risque feu ou un risque chimique de brûlure s'il est maltraité. Il ne faut pas le désassembler, le réchauffer à une température plus élevée que 100º C (212º F) ou l'incinérer.

The main power source for the terminal is a lithium-ion battery pack. When you change the battery pack, a backup power source maintains the terminal status, memory, and real-time clock for at least 15 minutes. Follow these tips to get the best battery performance and life possible:

- Keep a spare, fully charged battery pack on hand.
- Keep a charged battery pack installed in the terminal to maximize the backup power source's life and so you can continue to operate the terminal without interruption.
- If the terminal turns off due to a low battery, do not turn the terminal back on. Replace or charge the battery pack before you continue using the terminal.
- Do not press ⏻ when the battery pack is removed.

Replace the battery pack with Part No. 069428 or Part No. 069429 only. Contact your local Intermec sales representative for a replacement battery pack. DISPOSE OF USED BATTERY PACKS PROMPTLY. KEEP THEM AWAY FROM CHILDREN.

Determining When the Battery Pack is Low

The battery pack is the main power source for the terminal and it charges the backup power source, when required. If the main battery charge goes low, you need to replace it with a charged battery pack or charge the battery pack as soon as possible.

There are two ways to find out if the battery pack is low:

- The Battery LED turns on and the terminal beeps once every 15 seconds.
- Check the status of the battery pack using the Battery/PIC Status diagnostic test. For help, see Chapter 6, "Running Diagnostics."

Note: While the battery is charging, do not use this diagnostic test to determine when the battery is fully charged. To determine when the battery is fully charged, use the status LEDs on the battery chargers or communications dock.

Charging the Battery Pack

You can charge the battery pack using any of these Trakker Antares accessories:

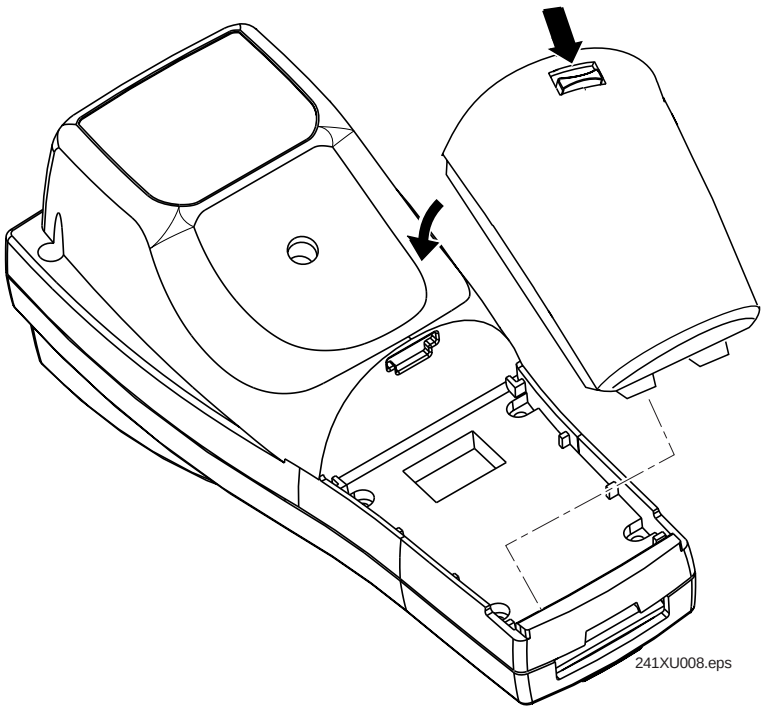
- Battery charger (2-pack or 4-pack)
- Communications dock connected to an external power supply

The charger uses a charging method that maximizes battery life. Charge the battery pack until the Charge Status LED turns green to ensure that it is fully charged. The standard battery pack takes about 2 hours to charge and the high performance battery pack takes about 4 hours. For help, see the instruction sheet that ships with your charger.

You can also charge the battery pack while continuing to use the terminal by using a communications dock that is connected to a power supply. For help, see the *Trakker Antares TD2410 Communications Dock Quick Reference Guide*.

Installing the Battery Pack

1. Hold the battery pack with the flat side facing the terminal. Orient the battery pack as shown in the illustration.
2. While holding the battery pack at an angle, hook the bottom edge of the battery pack into the notches on the terminal.



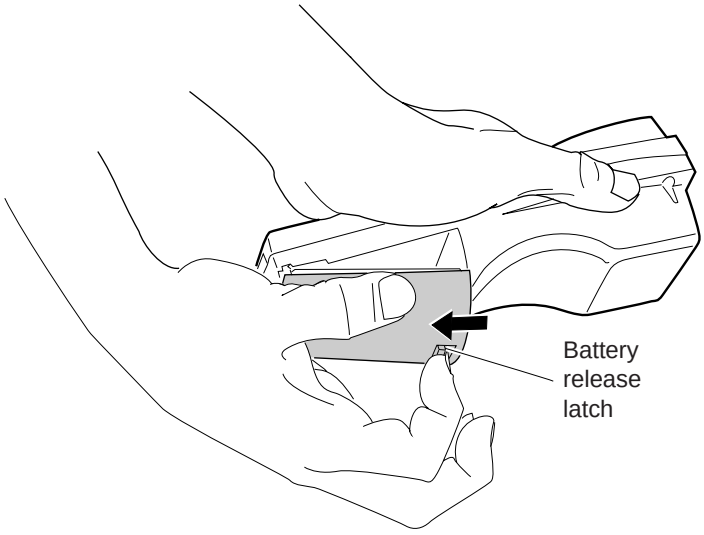
3. Lower the battery pack toward the terminal until the battery pack clicks into place.

Removing the Battery Pack

Caution
Removing the battery pack while the terminal is on may cause loss of data.

Conseil
Ne détachez pas le paquet de piles pendant que le terminal est actif car cela pourrait entraîner la perte de données.

1. Press ⏻ to turn off the terminal.
2. While holding the terminal in one hand, grasp the battery pack on both sides.
3. Pull down on the battery release latch to release the battery pack and remove the battery pack.



241XU009.eps

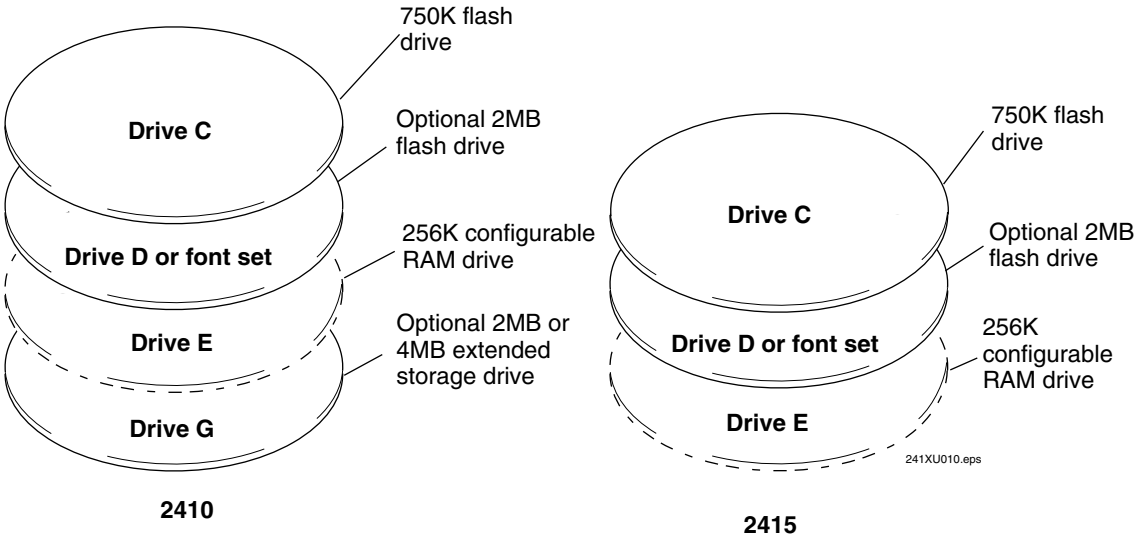
Managing Battery Power

To maximize the life of the battery pack, use these power management features.

Situation	Ways to Save Battery Power
You are operating the terminal and the Battery LED turns on.	Press ⏻ to turn off the terminal. Remove the battery pack and insert another fully charged battery pack. You must insert another fully charged battery pack within 15 minutes of removing the old battery pack or you may lose data. Or, if you want to continue using the terminal and you do not have another battery pack, insert the terminal into a communications dock. The dock must be connected to an external power supply.
You are not using the terminal for 5 minutes or longer.	Make sure the Battery LED is not on. Press ⏻ to turn off the terminal. Or, use the Automatic Shutoff feature. Automatic shutoff turns off the terminal when there is no activity on the terminal for the length of time you set. For help, see "Automatic Shutoff" in Chapter 8.
You are going to store the terminal for more than a day.	Save your data and end your terminal session to minimize the risk of data loss. Press ⏻ to turn off the terminal. Insert a fully charged battery pack before you store the terminal.

Defining the Terminal's Drives

The terminal comes with two flash drives and a configurable RAM drive. On the 2410 you can purchase an optional extended storage drive. On each drive, filenames are customer defined using eight characters with a three-character extension. You cannot define any subdirectories.



Drive C is a 2MB flash drive. You can use up to 750K of this flash drive to store up to 128 files on drive C. Applications must be stored on drive C. You use standard ANSI C library interface definitions to access the information on this drive.

Drive D or font set is an optional 2MB of flash memory. If you order the 4MB flash memory option, you can configure 2MB as drive D. Use this flash drive to store large lookup tables and data files. You can store up to 128 files. You can also order the 4MB flash memory option to come pre-loaded with an Asian font set. To configure this flash memory, see "Flash Memory Configuration" in Chapter 8.

Drive E is a configurable RAM drive (up to 256K). The contents of this drive are erased when you boot or reset the terminal. You use standard ANSI C functions to access the files on this drive. You can store up to 128 files on drive E. By default, the RAM drive is not configured and the memory is available for programmable (Malloc) memory allocations. To configure the RAM drive, see "RAM Drive Size" in Chapter 8.

Drive G is an optional 2MB or 4MB extended storage drive that is only available on the 2410. Use this PC card drive to store large lookup tables and data files. You can store up to 128 files on drive G.

On the terminals, applications are customer defined. You have 512K total RAM that you can use for the application execution space. You can also configure this RAM to be the RAM drive (up to 256K). The remaining RAM is the Malloc/free memory pool.

Application execution space	+	RAM drive (drive E)	+	Malloc/free memory pool	=	512K RAM

Using the Terminal's Scanner

Warning
Do not look directly into the window area or at a reflection of the laser beam while the laser is scanning. Long-term exposure to the laser beam can damage your vision.

Avertissement
Ne regardez pas directement la réflexion d'un rayon laser ou dans la fenêtre du laser lorsque celui-ci est en opération. Si vous regardez trop longtemps un rayon laser, cela peut endommager votre vue.

You use the scanner to scan and enter bar code data. When you press the Scan button, the scanner emits a beam of laser light that is visible on a bar code label as you scan it. The terminal decodes the bar code label and enters the data or command you scanned.

When you unpack the terminal, these three bar code symbologies are enabled:

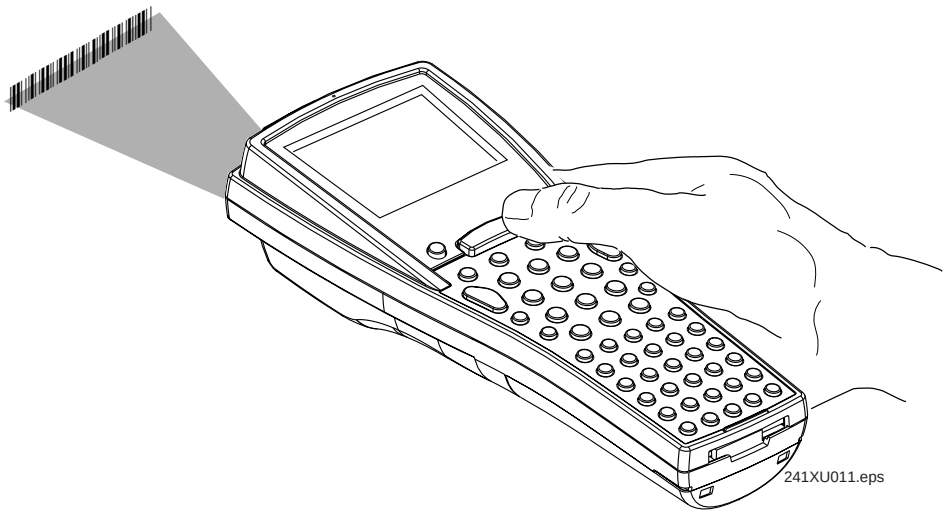
- Code 39
- Code 128
- UPC/EAN

If you are using bar code labels that are encoded in another symbology, you need to enable that symbology on the terminal. For help, find the symbology in Chapter 8, "Configuration Command Reference."

Note: The Scan button on the keypad does not activate the tethered input device that may be connected to the terminal.

To scan a bar code label with the scanner

1. Press ⏻ to turn on the terminal.
2. Hold the terminal at a slight angle a few inches from the bar code label. The scanner must be pointing toward the label.
3. Push the Scan button on the keypad. Direct the beam so that it falls across all bars in the bar code label. When the terminal successfully reads the label, you will hear a high beep.

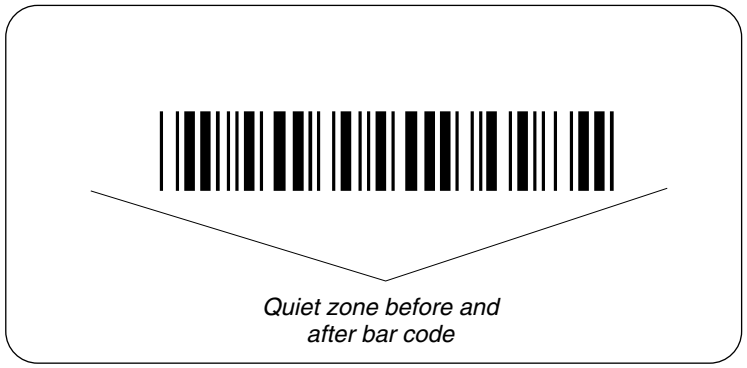


The Good Read LED turns on when you successfully scan a bar code label with the scanner or the input device that is connected to the terminal. This LED turns off after 2 seconds unless you start scanning another label.

Note: Some of the scanning options let you scan multiple bar code labels without having to press the Scan button each time. For help, see "Scanning Options" later in this chapter.

4. Release the Scan button.

To successfully read a bar code label, the laser beam in the scan module must see all the bars in a label and a "quiet zone" at each end of the label. A quiet zone is a clean, non-printed space.



241XU012.eps

You will have the best success if you hold the terminal so that the horizontal reading angle is near zero and the vertical reading angle is near 20 degrees. To get the best scan angle, hold the terminal so that the scanner is pointing toward the bar code label. Tilt the terminal up or down slightly (20 degrees). You can also watch the laser beam. The laser beam becomes the brightest at the best scan angle. Optimum scan angles vary with the type and print quality of the bar code label, the distance of the scanner from the label, and the lighting in the area.

Do not scan the bar code label "straight on." In a 2-degree conical "dead zone" directly above the label, the laser beam may reflect back into the scanner window and prevent the terminal from reading the label. At certain angles and straight on, you may not see the laser beam.

Scanning Options

You can set several configuration commands to configure the scanner to meet your needs. For help understanding the scanner configuration commands, see Chapter 8, "Configuration Command Reference." The commands that are available are:

Decode Security Defines the security level to use when decoding bar codes. When you select a lower decode security level, the terminal can decode bar codes with poorer print quality.

Scan Ahead Lets you scan a number of bar code labels at one time. The labels are held in a stack until the terminal can process the data.

Scanner Mode Defines how the scanner operates when you press the Scan button or activate a tethered input device. In One-Shot mode, the laser turns on and stays on until you release the button or scanner trigger, or a label is decoded. In Automatic mode, you can continuously scan bar code labels without having to release the button or scanner trigger between labels.

Scanner Redundancy Defines the number of scans (voting) the scanner takes of the same label. When set, voting requires the terminal to decode the same bar code label multiple times during a single scanner event, and compare the decoded information for a match before signaling a good read.

Scanner Selection Identifies the type of scanner that is on the terminal or that you have connected to the terminal. The terminal can optimize the scanning performance by using the scanner you define in this command. If you have a long-range, high-density, or high-visibility scanner, this parameter lets you configure the spotting beam.

Scanner Timeout Defines the maximum length of time the scanner stays on each time you press the Scan button or activate the tethered input device.

Scanner Trigger Lets you set the triggering to level or edge triggering. With level triggering, you activate the scanner and the laser turns on and stays on until you release the Scan button or the trigger on a tethered input device. In edge triggering, you activate the scanner and the laser turns on and stays on until you activate the scanner a second time, or the scanner timeout turns it off.

Using the Terminal for the First Time

Before you can use the terminal for the first time, you must perform certain steps, such as setting the time and date. You can find this information throughout this user's manual. However, if you want to start using the terminal immediately, see the *Trakker Antares 241X Hand-Held Terminal Getting Started Guide.*

To use the terminal for the first time

1. Unpack the terminal and documentation.
2. Charge and install the battery pack (sold separately). For more information on batteries, see "Using the Terminal's Battery Pack" earlier in this chapter.
3. Press ⏻ to turn on the terminal. For more information on the keypad, see "Using the Keypad" earlier in this chapter.
4. (Optional) Set the time and date. For help using the TRAKKER Antares 2400 Menu System, see "Configuring the Terminal With the Menu System" in Chapter 3.
5. Configure the serial port parameters. For more information, see "Connecting the Terminal to a Wired Network" in Chapter 2.
6. (2415 only) Configure the RF parameters. For more information, see "Connecting the 2415 to an RF Network" in Chapter 2.
7. Enable the bar code symbologies that you want to be able to scan. For more information, see Chapter 8, "Configuration Command Reference."
8. Exit the menu system and save your configuration changes to flash memory. For help, see "Exiting the Menu System" in Chapter 3.

When you are done with these steps, the default application or TE application that is loaded on your terminal will start. You are ready to use the terminal.

2

Operating the Terminals in a Network

This chapter explains how the terminals fit into a data collection network and what parameters to configure for your serial or RF network.

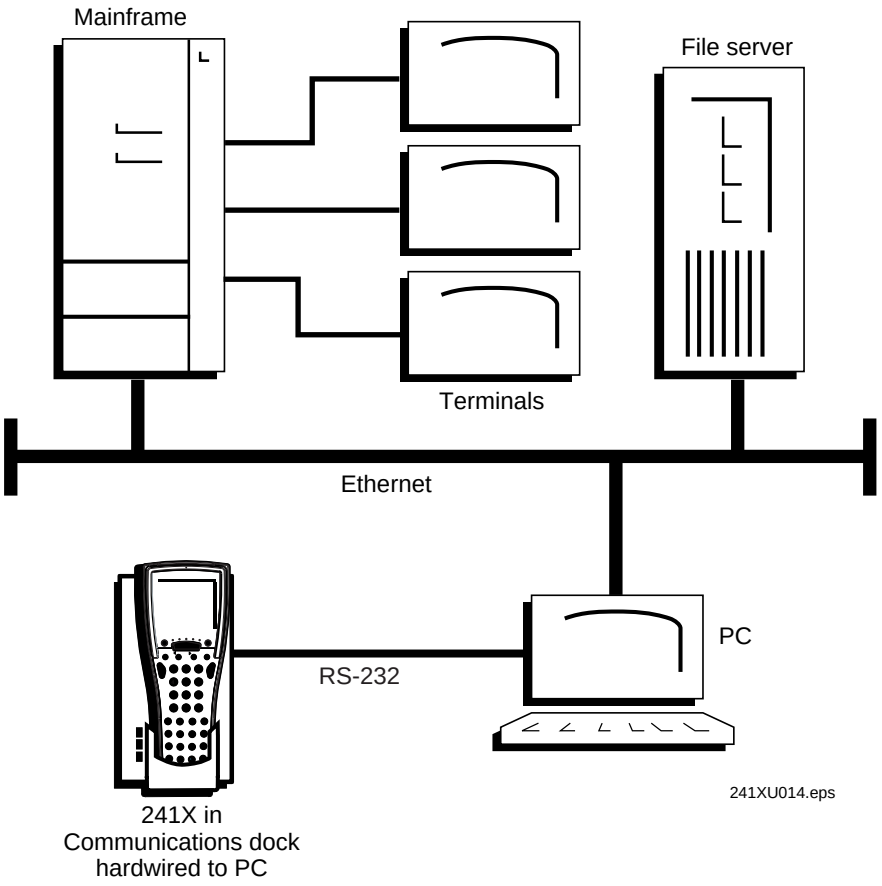
How the Terminals Fit Into Your Network

The Trakker Antares 2410 and 2415 terminals are versatile hand-held terminals that you can easily add to your network or distributed data collection system. You use these terminals as end devices in your wired or RF network.

The terminals have a serial port that lets them transmit data to and receive data from a host computer or PC via RS-232 serial communications. The terminal can communicate with the RS-232 device using one of these protocols: Binary, Configurable, Master Polling, Polling Mode D, or Point-to-Point.

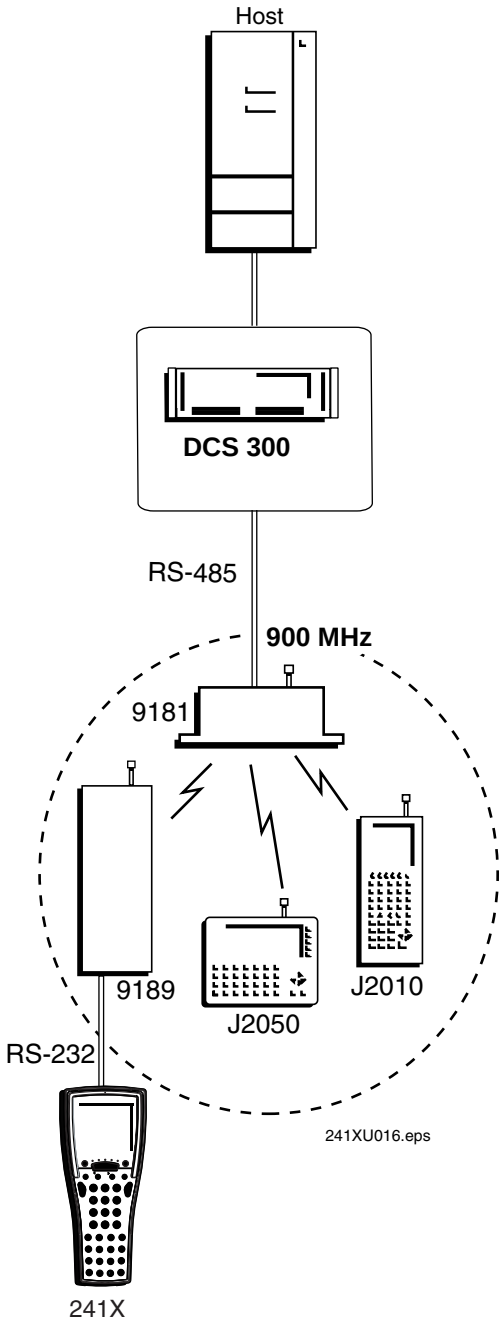
Note: If you insert the terminal into a communications dock, you can transmit data to and receive data from a host computer or PC via RS-232 serial communications.

241Xs in a Wired Network



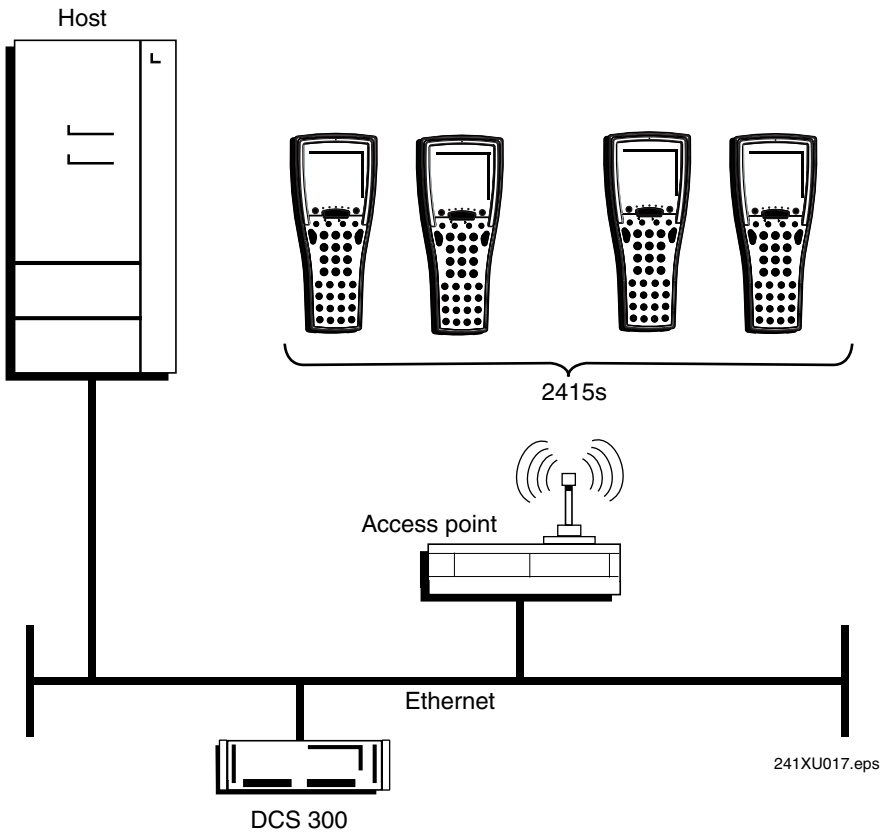
You can also use the serial port to connect to a 900 MHz RF network via the 9189 RF Gateway. The terminal communicates with the 900 MHz RF network using Polling Mode D protocol.

2410s in a 900 MHz RF Network



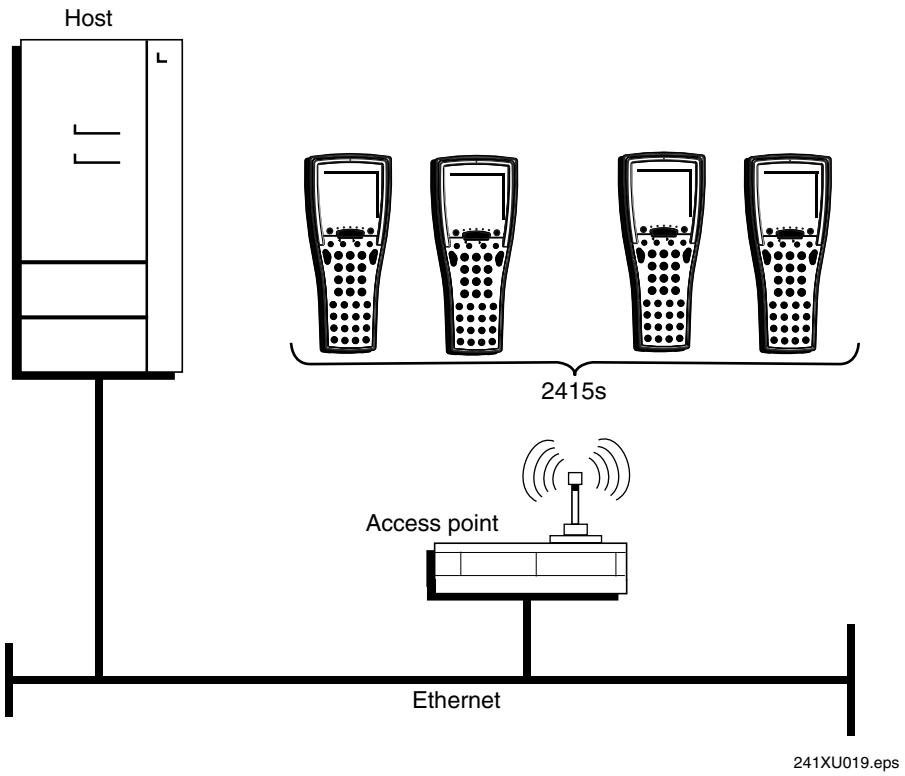
In a UDP Plus network, 2415s communicate with a host computer through the DCS 300. The DCS 300 translates UDP Plus packets on the RF network into TCP/IP packets on the wired network and vice versa. The access point acts as a bridge between the wired network and the RF network.

2415s in a UDP Plus Network



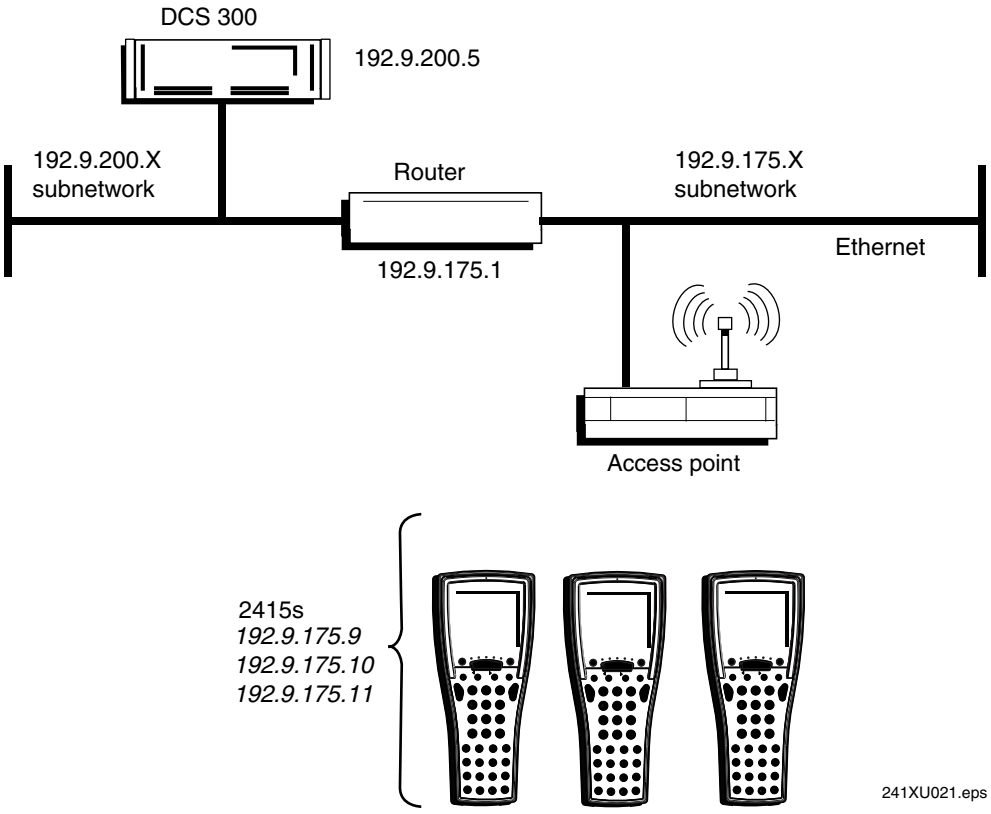
In a TCP/IP network, 2415s communicate with a host computer directly using TCP/IP for the RF protocol. The access point acts as a bridge between the wired network and the RF network.

2415s in a TCP/IP Direct Connect Network



You can install 2415s and access points in one subnetwork and install the DCS 300 or host in another subnetwork. If the 2415s are communicating across a subnetwork, you must configure additional network parameters (subnet mask and default router). The illustration below shows the DCS 300 in another subnetwork from the terminals.

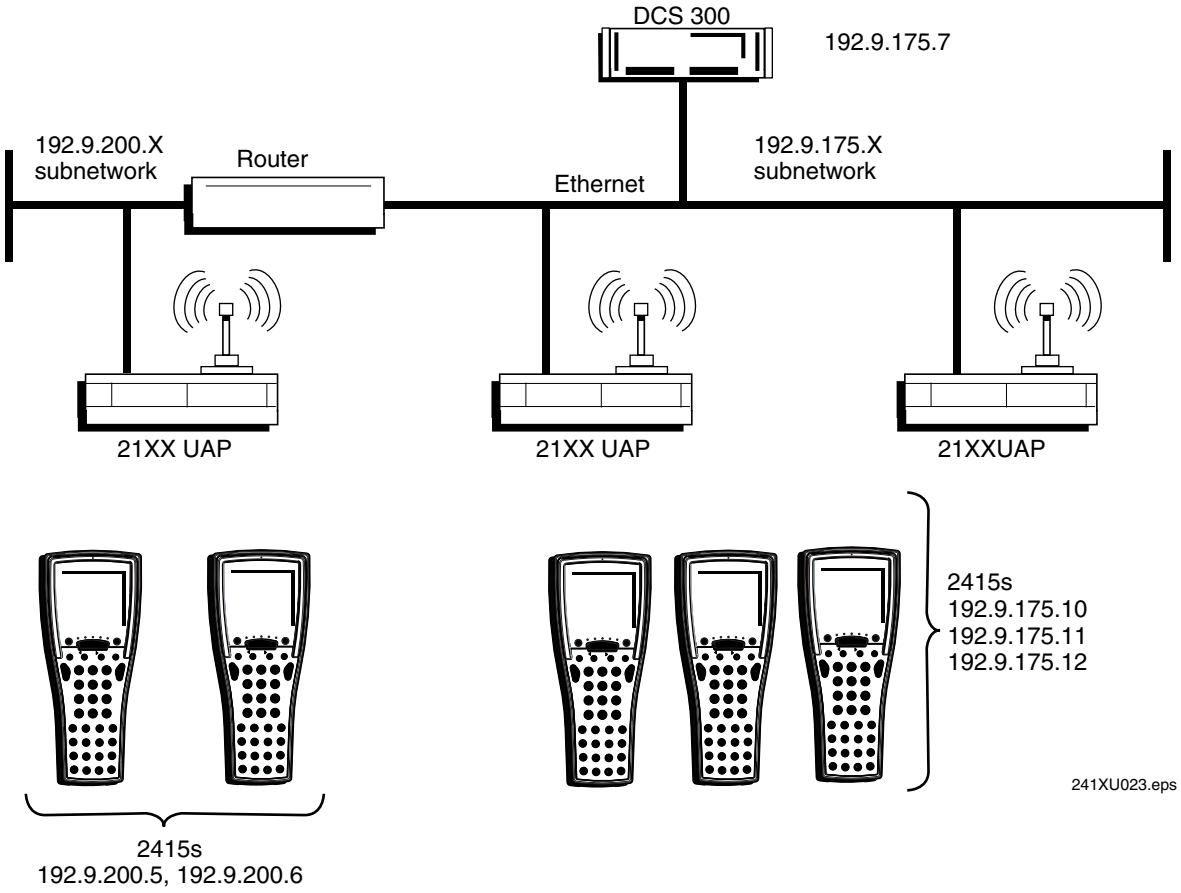
2415s Communicating Across Subnetworks (UDP Plus)



In a UDP Plus network, you can install 2415s, access points, and DCS 300 as shown in the next illustration. All the terminals and access points in this illustration communicate with the DCS 300 at IP address 192.9.175.7. If you are using 21XX Universal Access Points™ (UAPs), a terminal can roam across subnetworks.

If you are using the 011X Access Points, a terminal can only communicate with the access points that are in the same subnetwork. In this illustration, if you substituted the 011X Access Points for the UAPs, the terminal at IP address 192.9.200.5 could not communicate with DCS 300 on the 192.9.175.X subnetwork.

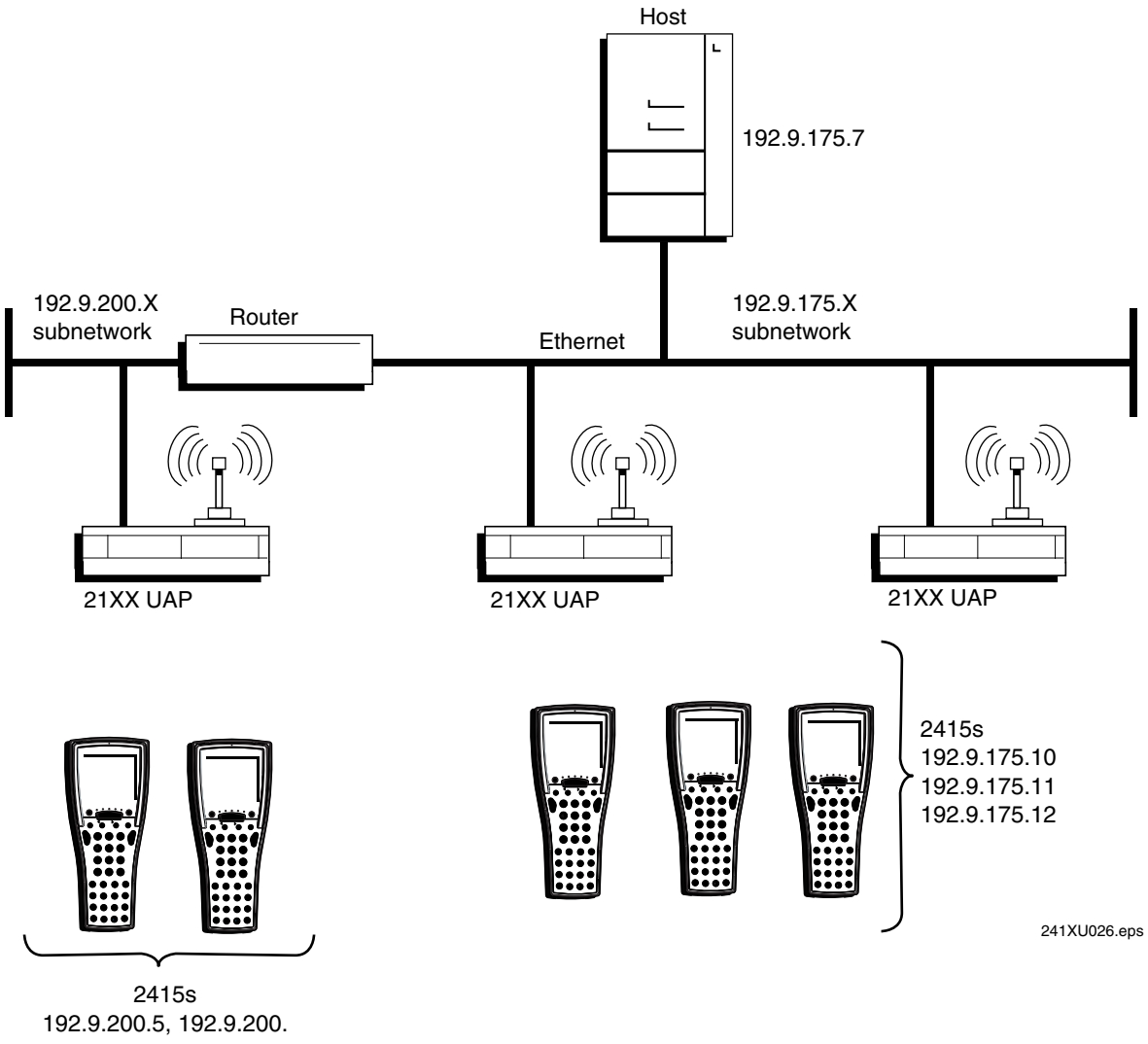
2415s in Multiple Subnetworks (UDP Plus)



In a TCP/IP network, you can install the 2415s and access points as shown in the illustration below. All the terminals and access points in this illustration communicate with the host at IP address 192.9.175.7. If you are using UAPs, a terminal can roam across subnetworks.

If you are using the 011X Access Points, a terminal can only communicate with access points that are in the same subnetwork. In this illustration, if you substituted the 011X Access Points for the UAPs, the terminal at IP address 192.9.200.5 could not communicate with the host on the 192.9.175.X subnetwork.

2415s in Multiple Subnetworks (TCP/IP)



Connecting the Terminal to a Wired Network

The terminals have a serial port (COM1) that lets them transfer data to and receive data from another device via RS-232 serial communications. If you insert the terminal into a communications dock, you can transmit data to and receive data from a host computer or PC via RS-232 serial communications.

Before you can use serial communications, you must perform these steps:

1. Connect COM1 to the serial port of the other device. For help, see "Using the Terminal's Serial Port" in Chapter 1.

   Or, insert the terminal into the communications dock. For help, see the *Trakker Antares TD2410 Communications Dock Quick Reference Guide*.

2. Choose a communications protocol. For help, see the next section "Choosing a Communications Protocol."

3. Configure the serial port parameters. For help, see the Chapter 3, "Configuring the Terminals."

Once the terminal is connected and configured, you can transfer data between the terminal and the device that is connected to the serial port. For help transferring files, see Chapter 4, "Using Custom Applications."

Choosing a Communications Protocol

Once the terminal is connected to a host computer, PC, or other serial device, you are ready to choose a communications protocol and set its parameters. Communications protocols determine exactly how data is transmitted between the terminal and the connected serial device. Both the terminal and the connected device must use the same protocol and parameter settings.

The terminal uses a communications protocol and XMODEM or YMODEM to handle data communications through the serial port. The terminal's built-in file operations use XMODEM or YMODEM for file transfer.

The terminal can communicate in these five protocols:

- Binary
- Configurable
- Master Polling
- Point-to-Point
- Polling Mode D

Binary Protocol

Binary protocol has no protocol. Characters are sent and received without being altered. The Data Link Escape character (DLE) is not inserted before any character. DLE characters are not stripped out of the incoming data stream and no protocol characters, such as EOM or SOM, are added. Binary protocol supports CTS/RTS flow control only.

Here are the serial port parameters you can define:

- Baud rate
- Data bits
- Parity
- Stop bits
- Flow control

Configurable Protocol

Configurable protocol is based on Intermec's Polling Mode D protocol except that you have the option to change some of the serial port protocol parameters or remove specific events from the protocol, such as Poll or Handshake.

Here are the serial port parameters you can define:

- Baud rate
- Data bits
- Parity
- Stop bits
- Flow control
- EOM (End of Message)
    - Configuration commands via serial port
    - LRC
    - SOM (Start of Message)
    - Handshake
        - Poll (Polling)
        - Timeout Delay

This protocol uses EOM to determine the serial communications mode. When EOM is disabled, the terminal communicates in Character mode. The terminal processes each character. Character mode supports both XON/XOFF and CTS/RTS flow control.

When EOM is enabled, the terminal communicates in Frame mode. When a terminal sends a packet, it adds protocol characters. When a terminal receives a packet, it strips any protocol characters before it sends the information to the terminal application. Frame mode supports both XON/XOFF and CTS/RTS flow control. In Frame mode, you can also define these serial port parameters: Configuration commands via serial port, LRC, SOM, Handshake. Once Handshake is enabled, you can define poll and timeout delay.

Master Polling Protocol

Master Polling Mode D protocol requires the terminal to ask the downline serial device for data it may have (polling) and to request to send data to the serial device (selecting). There is no automatic polling, so your application must poll periodically for data.

Before each transmit operation, the terminal issues the SEL sequence for the device addressed and sends the data if an acknowledge is received. Before each receive operation, the terminal issues a POL sequence and waits for data or the RES character (no data is available to send).

Here is the serial port parameter you can define:

- Baud rate

Point-to-Point Protocol

Point-to-Point protocol is not directly supported on the terminals. However, you can simulate this protocol by setting the protocol to Configurable and configuring these parameters:

- Baud rate
- Data bits
- Parity
- Stop bits
- Flow control
- EOM (Set EOM1 to \x0D, which is <CR> and set EOM2 to \x0A, which is <LF>)
- LRC (Disable)
- Handshake (Disable)

If you use this protocol, you cannot configure values for intercharacter delay, turnaround delay, and timeout delay. This protocol supports CTS/RTS flow control only.

Polling Mode D Protocol

Polling Mode D protocol requires a host application to ask the terminal for data it may have (polling) and to request to send data to the terminal (selecting). This protocol implements the user interface through reader commands. Polling Mode D uses an RS-232 interface. Use this protocol if you want to connect to a 900 MHz RF network via the 9189 RF Gateway. This protocol supports XON/XOFF and CTS/RTS flow control.

Here are the serial port parameters you can define:

- Baud rate
- Flow control

Connecting the 2415 to an RF Network

Caution
Make sure all components with antennas are at least 30 centimeters (1 foot) apart when power is applied. Failure to comply could result in equipment damage.

Conseil
Assurez-vous que la distance entre tous les éléments avec antennes soit d'au moins 30 centimètres (un pied) avant de faire la connexion avec l'alimentation électrique, faute de quoi vous risquez d'endommager votre installation.

Before you can begin using the 2415 to collect data, you need to install and configure each device in the RF network by performing these steps:

1. Plan and prepare your network. For help, see "Planning the Network Connection" in the next section.
2. (UDP Plus network only) Configure the DCS 300. For help, see "Configuring the DCS 300" later in this chapter and the *DCS 300 System Manual* (Part No. 067296).
3. Configure the access points. For help, see "Configuring the Access Points" later in this chapter and your access point user's manual.
4. Configure each terminal. For help, see "About the Network Parameters" later in this section and Chapter 3, "Configuring the Terminal."

When you begin using the 2415, you must understand how to use the LEDs to monitor the RF communications. For help, see "Monitoring RF Communications Using the Status LEDs" later in this chapter.

Planning the Network Connection

To use the 2415 in the RF network, you need these minimum requirements:

- (UDP Plus network) DCS 300
- Access point

When you first consider purchasing a wireless data collection system, an Intermec representative works with you to perform a site survey at your facility. The site survey analyzes the range of radio frequency devices in your facility and determines the placement of the access points. The site survey ensures that the coverage of each access point overlaps to provide uninterrupted wireless access at any location within the building.

You must work with your network administrator to plan and assign the network parameters for each device in the RF network. For example, you must assign and set the IP address for each access point and each terminal. If you are using a UDP Plus network, you must also assign an IP address to the DCS 300.

Configuring the DCS 300

The DCS 300 supports and manages communications with other devices in the UDP Plus network. When you install and configure the DCS 300, you identify the host computer(s) and 2415s in your network. The terminals communicate using a reliable RF protocol (UDP Plus) to the DCS 300. The DCS 300 translates UDP Plus to a reliable wired protocol (TCP/IP) and sends the data on to the host. For more information, see the *DCS 300 System Manual* (Part No. 067296).

Note: You can use a 2415 that is communicating using UDP Plus and the DCS 300 in a pass-through network. You establish a direct TCP/IP socket connection from the 2415 to the host through the server.

To have the 2415 communicate with the DCS 300, you must configure these parameters on the server:

- Define the host communications parameters, which includes the physical connection (network adapter cards) to the host.
- Configure the UDP Plus network.
- Assign an IP address to each 2415. This IP address matches the IP address that you will set on your terminals.
- Enable all 2415 terminals.
- Define the host environment parameters, which includes configuring hosts for terminal emulation, peer-to-peer applications, or screen mapping sessions.

To do screen mapping on the DCS 300, you must also:

- Create the script file using the Script Builder Tool on the server.
- Create an application using EZBuilder and download it to the 2415.

Configuring the Access Point

The access point acts as a bridge that provides communications between the wired network and the RF (UDP Plus or TCP/IP) networks. Once the network is configured, you can collect data anywhere within range of the access points. When you move out of range of one access point, the 2415 automatically searches for other access points to continue the network connection. To ensure that the roaming 2415 will always have a connection available, the radio coverage of each access point must overlap. For more help, see your access point user's manual.

If you go out of range of all access points in the network, the data is stored in the terminal's radio buffer. The Network Status LED turns off. You can continue to collect data until the radio buffer is full. When the buffer is full, the application displays a communication timeout status. When you move back into range and network communications are re-established, the data in the radio buffer is transmitted to the access point and you can once again transmit data.

In a TCP/IP direct connect network with a 2415 running a terminal emulation application, the application may disconnect from the host if you remain out of communications range too long or if the host sends "Keep Alive" messages while the terminal is in Suspend mode. You may need to restart the application and log back into the host to re-establish a terminal emulation session. For help, see Chapter 5, "Troubleshooting and Maintaining the Terminals." In a UDP Plus network, the session is maintained any time the terminal is out of range or in Suspend mode.

All RF devices must contain the same radios (2.4 GHz OpenAir or IEEE 802.11 DS) to communicate with each other. Depending on the radio that is in the devices, you must set certain parameters that match on the 2415s and on the access points.

2.4 GHz OpenAir Network

If the 2415s and the access points have 2.4 GHz OpenAir radios, you must know the value of these parameters on the access points that you want to communicate with:

- RF domain
- (Optional) RF security identification (ID)

The values that are set for these parameters must match the values on each terminal. Each access point is configured with a different channel/subchannel combination.

IEEE 802.11 DS Network

If the 2415s and the access points have IEEE 802.11 DS radios, you must know the value of this parameter on the access points that you want to communicate with:

- Network name

The value that you set for this parameter must match the value on each terminal. However on the terminal, you can set this parameter to "any" or "ANY" and the terminal will be able to communicate with any access point that has the same radio and is within range. This parameter is case-sensitive.

You can also set these parameters on both the access points and the 2415s:

- Reservation enable
- Reservation
- Transmit rate
- AP density

The values that you set for these parameters do not have to match the values on each terminal. However on the terminal, you may improve network performance if these values match.

About the Network Parameters

When you install the 2415 in a network, you must configure the network parameters that control how the terminal communicates in the network. The set of network parameters you must configure depends on whether you install the terminal on the same subnetwork as the DCS 300 or host (TCP/IP), or if you install the terminal on a different subnetwork.

Here are the network parameters you must define:

- Network activate
- (UDP Plus) Controller IP address
- (TCP/IP) Host IP address
- Terminal IP address
- Network port
- (DCS 300 or host on different subnetwork) Default router
- (DCS 300 or host on different subnetwork) Subnet mask

For help understanding these parameters and their syntax, see Chapter 8, "Configuration Command Reference."

Monitoring RF Communications Using the Status LEDs

Once you have configured the devices in the RF network, you can begin using the application on the 2415 to collect and transmit data via RF communications. If the terminal is communicating with your host computer, the terminal will connect and begin running the application that shipped on the terminal.

* As you use the 2415 to collect data, the Network Connect status LED may light or blink to help you monitor RF and network communications on the terminal

	LED Off	LED Blinks	LED On
TCP/IP	Not connected.	Connected to an access point, but not to a host.	Connected to a host.
UDP Plus	Not connected.	Connected to an access point, but not to a DCS 300.	Connected to a DCS 300.

If you are not connected to an access point

1. Verify that the Network Activate command is enabled.
2. Verify that the access points are turned on and operating.
3. Verify that you are using the terminal within the range of an access point. Try moving closer to an access point to re-establish communications.
4. Verify that the terminal is configured properly for RF communications.
5. You may have a problem with the radio. Contact Intermec Technical Support.

If you are connected to an access point, but not to a host or a DCS 300

1. Verify that the terminal has the correct host IP address or controller IP address.
2. Verify that the DCS 300 or host has been configured properly. Verify that the DCS 300 is turned on and that data collection is started.

About Network Connectivity and Protocols

The Trakker Antares 2410 and 2415 terminals are hand-held data collection terminals with network support. The terminals communicate with a host computer or other serial device through the terminal's serial port. The 2415 also communicates with a host either through the DCS 300 or directly through the access points. The access point acts as a bridge between the wired network and the RF network.

In a UDP Plus network, the terminal communicates through an access point via the DCS 300 to a host on a wired network. In a TCP/IP network, the terminal communicates through the access point directly to a host on a wired network.

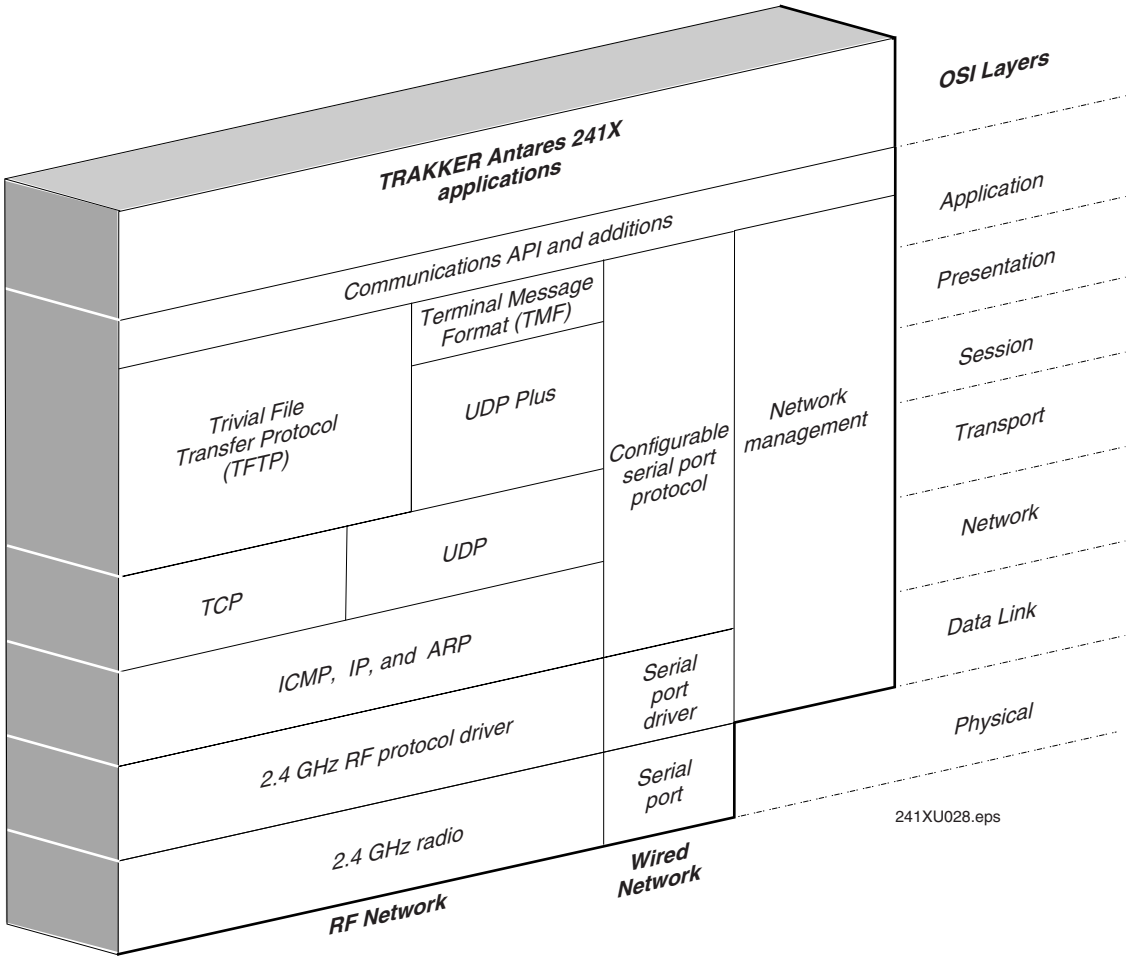
The communications protocol stack for the terminal is developed using the Open Systems Interconnection (OSI) seven layer model. The illustration on the next page shows how the 2.4 GHz RF network and RS-232 serial port map into the OSI model.

The terminal applications including terminal emulation and screen mapping are on top of the protocol stack. Intermec provides a terminal communications API (application program interface) to interface to the protocol stack. The API provides a common interface to these Intermec value-added protocols:

- Terminal Message Format (TMF) is an Intermec proprietary protocol that is used to route data and network management messages between applications on the terminal and peer tasks on the DCS 300 or host.
- UDP Plus is an Intermec protocol built on top of the User Datagram Protocol (UDP). It maximizes the performance of wireless (RF) and hardwired networks and provides robust data communications.
- Trivial File Transfer Protocol (TFTP) allows efficient file exchange between the terminal and the DCS 300 or host.
- Configurable Serial Port (CSP) protocol allows efficient file exchange between the terminal and the host through RS-232 serial communications. The terminal uses either the XMODEM or the YMODEM protocol to transfer files via reader commands.
- Network management provides network access to the terminal configuration, status, and statistics. Network management uses the Terminal Message Format to receive and send messages.

The remaining layers in the protocol stack are a series of standard protocols that interface with the drivers and hardware needed to support the RF network and RS-232 serial communications.

Trakker Antares Terminal Protocol Stack and the OSI Model



The terminals use these protocols:

Layer	Protocol	Description
Physical	2.4 GHz radio	Provides spread spectrum radio signal control.
	Serial Port	Provides serial communications.
Data Link	2.4 GHz RF protocol driver	Provides RF media access control. The default hardwired media access control (MAC) protocol used with TCP/IP supports the Ethernet II standard.
	Serial port driver	Provides serial communications control that uses CSP and the standard XMODEM or the YMODEM protocol for data transfer.
Network	ICMP, IP, and ARP	The Internet Control Message Protocol (ICMP) complies with the standard outlined in RFC 826. The Internet Protocol (IP) complies with the standard outlined in RFC 791. The Address Resolution Protocol (ARP) complies with the standard outlined in RFC 826.
Transport	UDP	The User Datagram Protocol (UDP) complies with the standard outlined in RFC 768.
	TCP	Transmission Control Protocol (TCP) complies with the standard outlined in RFC 793.
Session and Presentation	UDP Plus	UDP Plus is an Intermec proprietary session layer protocol built on UDP. The UDP Plus session layer provides these services: • guaranteed delivery • duplicated message removal • link connection and status management • network error recovery • congestion control • device error detection
	TFTP	Trivial File Transfer Protocol (TFTP) allows efficient file exchange between the terminal and the DCS 300 or host. TFTP complies with the standard outlined in RFC 1350.
Presentation and Application	TMF	Terminal Message Format is an Intermec proprietary protocol that is used to route data, configuration, and network management messages between applications on the terminal and peer tasks on the DCS 300 or host.

3

Configuring the Terminals

This chapter explains the different methods that you can use to configure the terminals. It also explains how to transfer files in a TCP/IP network, how to save configuration changes to flash memory, and how to restore the default configuration.

How to Configure the Terminal

You can customize many operating characteristics of the Trakker Antares 2410 and 2415 terminals, such as the volume of their audio signals and the bar code symbologies they decode. These characteristics are controlled by configuration parameters. The values you set for the configuration parameters determine how the terminal operates. To learn about each configuration parameter, see Chapter 8, "Configuration Command Reference." You can configure the terminals by using any of these methods:

Use the TRAKKER Antares 2400 Menu System Using menus and screens, the TRAKKER Antares 2400 Menu System, which is on every terminal, lets you view the current configuration and change the configuration parameters.

Scan bar codes You can change the terminal's configuration parameters by scanning Code 39 or Code 93 bar code labels that contain configuration commands. This method is a fast, easy way to change the terminal's configuration. You can scan the bar code labels in this manual, or you can create your own bar code labels.

Send commands through the serial port You can change the terminal's configuration parameters by sending commands from a host computer or PC that is connected to the terminal's serial port.

Send commands through the RF port (2415 only) You can change the terminal's configuration parameters by sending commands from a DCS 300 or a host application. This method lets you configure one or more terminals at the same time.

About the Configurations

The terminal uses three configurations: current, active, and default. Having separate current and active configurations lets you control the active configuration while letting each operator make some changes to the current configuration, such as scanning a bar code to change the beep volume.

Current This configuration, also called the runtime configuration, uses the configuration that is saved in RAM. When you change a parameter by using the menu system, by scanning a bar code, by sending it from a host application, or by sending it from the DCS 300, the terminal updates the current configuration. The changes to the current configuration are lost when you boot or reset the terminal.

Active When you update the flash memory, the terminal copies the current configuration to the active configuration. The active configuration is the configuration that the terminal uses when you boot or reset the terminal.

Default This configuration is the factory default configuration. You may want to restore the default configuration. For help, see "Restoring the Terminal's Default Configuration" later in this chapter.

Configuring the Terminal With the Menu System

The TRAKKER Antares 2400 Menu System is a menu-driven application that lets you configure the terminal, manage files, view system information, and run diagnostics. You can access the TRAKKER Antares 2400 Menu System while running any application.

When you are using the menu system, you may not see a parameter until you set a value for another key field. For example, EOM is a key field when you configure the Configurable protocol. That is, several fields are invalid (do not appear) until you enable EOM. You also may not see a parameter if your terminal does not support a feature.

To access the TRAKKER Antares 2400 Menu System

- Press f) T 2 M or press f) 2 4 8 or scan this bar code label:

Note: You must press the) (Left Enter) key in this key sequence.

Enter Test and Service Mode

..-.

The Main Menu appears, displaying four menu options.

241XU050.eps

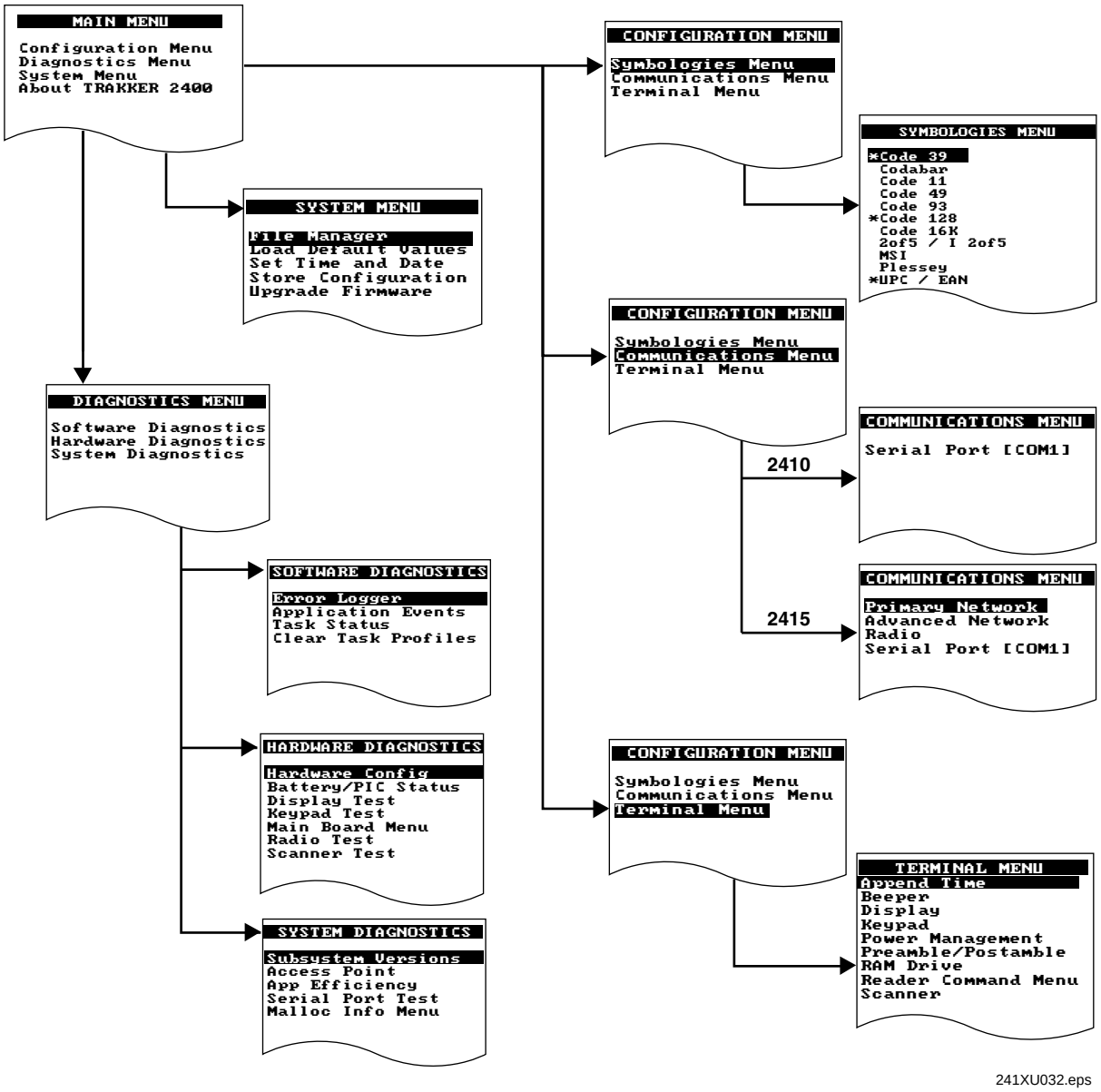
Configuration Menu Choose the Configuration Menu to configure bar code symbologies, network and communications parameters, serial port parameters, and the terminal's operating characteristics. In the Symbologies Menu, an asterisk (*) next to the symbology indicates that the symbology is active.

Diagnostics Menu Choose the Diagnostics Menu to run hardware, software, or system diagnostics to help analyze and fix problems on the terminal. You can also view information about batteries and the system. For help, see Chapter 5, "Running Diagnostics."

System Menu Choose the System Menu to manage files, load the default configuration, set the time and date, store the terminal's configuration in flash memory, and upgrade the firmware.

About TRAKKER 2400 Choose this option to see the part number, firmware version, radio, and RF protocol (UDP Plus or TCP/IP) that is loaded on the terminal. You may need this information if you are working a problem with an Intermec representative.

The TRAKKER Antares 2400 Menu System at a Glance



241XU032.eps

Accessing Online Help

The TRAKKER Antares 2400 Menu System provides online help for the menus and commands.

To access a help screen

- Press F1 to access a help screen.

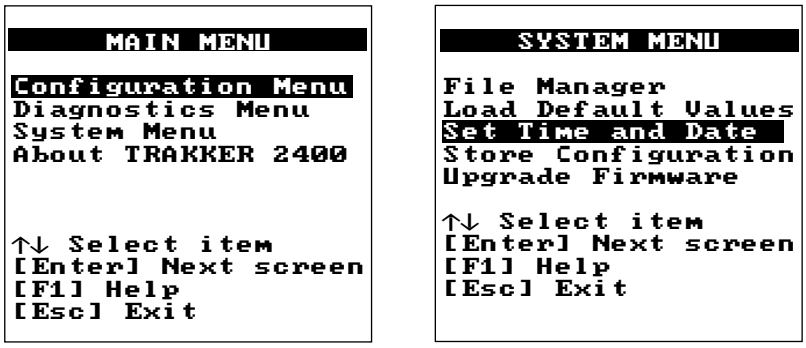
To exit a help screen

- Press Esc to exit the help screen.

Selecting Menus and Commands

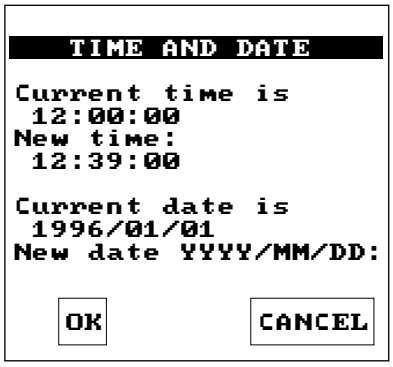
A menu is a list of menus or commands. From the main menu, press ▲ or ▼ or Tab to choose a menu and then press (or).

For example from the Main Menu, press ▼ ▼ (to display the System Menu:



241XU034.eps

A command, when it is executed, performs a task or displays a screen. Press ▲ or ▼ or Tab to choose a command from a menu and then press (or). For example from the System Menu, press ▼ ▼ (to set the time and date.



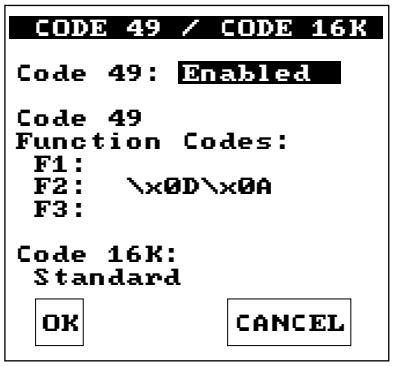
241XU036.eps

Filling In Fields

Screens contain fields into which you can enter data. In the TRAKKER Antares 2400 Menu System, this data configures the terminal. Press ▲ or ▼ or Tab to choose a field in a screen and then enter the data. There are two types of fields: entry fields and toggle fields.

- In a toggle field, press f ▲ or f ▼ to view the options for that field.
- In an entry field, type a value into the field. To edit the data in an entry field, use the Backspace (←) or Space (f ←) keys. You can also use the Delete (f .) and Insert (f .) keys to edit an entry field.

For example, the Code 49/Code 16K screen has toggle and entry fields. The Code 49 field is a toggle field. Press f ▼ to toggle between Enabled and Disabled. The Function Codes field for F1, F2, and F3 are entry fields. You type a value into the field for each function code.



241XU037.eps

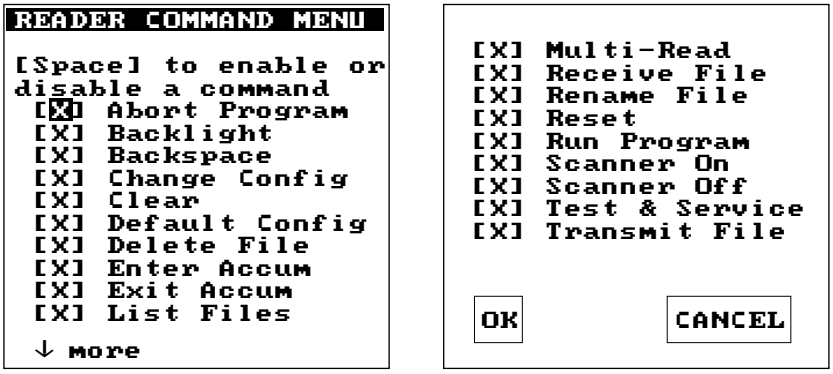
To exit a screen

- To save the changes to the current configuration file, press ▲ or ▼ or Tab to choose OK and press ↵. Or, press ↵ with the cursor in any field except the Cancel button.

  Or, to discard the changes, press ▲ or ▼ or Tab to choose Cancel and press ↵. Or, press Esc with the cursor in any field.

Marking Check Boxes

Screens may contain check boxes when you can select more than one option at one time. To mark or clear check boxes, press ←. For example, the Reader Command Menu has many check boxes. Press ▲ or ▼ or Tab to choose the Abort Program check box and press ← to clear the check box. The Abort Program reader command is now disabled.



241XU038.eps

To exit a screen

- To save the changes to the current configuration file, press ▲ or ▼ or Tab to choose OK and press ↵. Or, press ↵ with the cursor in any field except the Cancel button.

  Or, to discard the changes, press ▲ or ▼ or Tab to choose Cancel and press ↵. Or, press Esc with the cursor in any field.

Entering ASCII Control Characters

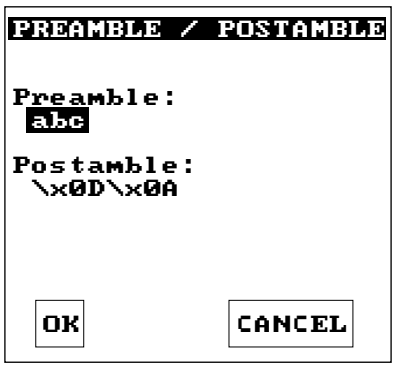
You can include ASCII control characters in a postamble or preamble by using the TRAKKER Antares 2400 Menu System. For a definition of the postamble or preamble, see Chapter 8, “Configuration Command Reference.”

You can configure the postamble or preamble to characters from the full or extended ASCII character sets. For example, the Field Exit code (Ü) for 5250 TE is an extended ASCII character that is often configured as the postamble.

To enter ASCII characters for a preamble or postamble

1. Decide which ASCII control character you want to set for the preamble or postamble. Look up the control character in the “Full ASCII Table” in Appendix B and find the two-digit hexadecimal number. For example, ETX in the Full ASCII Table has the hexadecimal value 03.

   To enter an extended ASCII character, look up the character in the “Trakker Antares Terminal Font Set” in Appendix C and find the two-digit hexadecimal number. For example, Ü (the 5250 Field Exit code) in the table has the hexadecimal value 9A.
2. Use the TRAKKER Antares 2400 Menu System to configure a preamble or postamble. From the Main Menu, choose Configuration Menu.
3. From the Configuration Menu, choose Terminal Menu.
4. From the Terminal Menu, choose Preamble/Postamble.



241XU040.eps

5. Move the cursor to the field for the preamble or postamble.

6. Type the control character, extended ASCII character, or escape character sequence in the preamble or postamble field.

   - To type a control character or extended ASCII character in the preamble or postamble field, use this syntax:

     \x*hh*

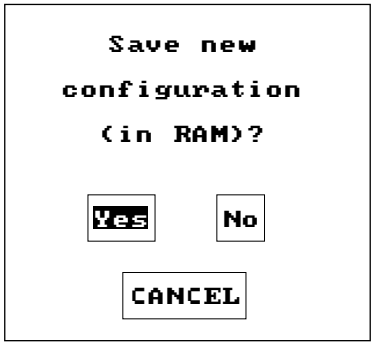
     where *hh* is the two-digit hexadecimal number for the control character or the extended ASCII character.

   - To type an escape character (backslash) in the preamble or postamble field, you must type two backslashes. The application ignores the first backslash (\) character and saves the next character(s). For example:

Enter These Characters	Preamble/Postamble Saved
\\	\
\\k	\k
\	no data

Exiting the Menu System

1. Press Esc until you exit the TRAKKER Antares 2400 Menu System. If you have made any changes to the current configuration, this screen prompts you to save the configuration parameters that are currently enabled on the terminal to RAM.



241XU053.eps

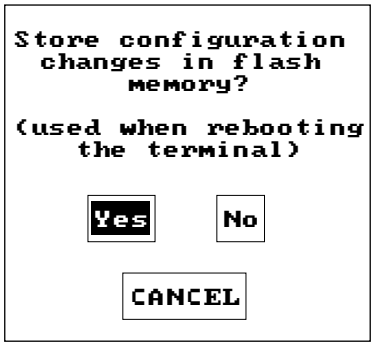
2. Choose Yes and press ⏎ to save your changes in RAM and update the current configuration on the terminal. The Main Menu appears.

   Choose No and press ⏎ to exit without changing the configuration. The Main Menu appears.

   Choose Cancel and press ⏎ to return to the previous menu or screen.

3. From the Main Menu, press Esc. If you have made any changes, the next screen prompts you to store the changes in flash memory.

Note: You can also save the current configuration to flash memory by choosing the Store Configuration command from the System Menu. For help, see "Saving Configuration Changes in Flash Memory" later in this chapter.



241XU051.eps

4. Choose Yes and press ⓔ to save your changes to flash memory. The terminal saves the current configuration as the active configuration. The Exiting TRAKKER Antares 2400 Menu System screen appears.

   Choose No and press ⓔ. The terminal continues to use your changes until you boot or reset the terminal. The Exiting TRAKKER Antares 2400 Menu System screen appears.

   Choose Cancel and press ⓔ to return to the Main Menu.

241XU042.eps

5. Choose OK and press ⓔ to exit the TRAKKER Antares 2400 Menu System.

   Choose Cancel and press ⓔ to return to the Main Menu.

After you exit the menu system, the terminal will resume the application you were running when you started the menu system.

Configuring the Terminal by Scanning Bar Code Labels

You can configure the terminal by scanning bar code labels that are listed in this manual or by creating your own Code 39 or Code 93 bar code labels. For example, you can scan this bar code label to set the beep volume to a quiet audio level:

Set Beep Volume to Quiet

$+BV1

If you are using a different symbology to encode your bar code labels, you must enable the symbology on your terminal. To ensure that the terminal can operate quickly and efficiently, you should enable only the bar code symbologies that you are going to scan. When you enable each bar code symbology, you may need to set a check digit, the length of the bar code label, or other options. For help, see the bar code symbology in Chapter 8, "Configuration Command Reference."

As you scan bar code labels that configure the terminal, the terminal accepts and sets all commands. However, the terminal only uses the parameters that are valid for the current configuration. For example, if you are configuring COM1 to use the Configurable protocol and you disable Handshake and you set a value for Poll, the terminal will set the value for Poll, but it will not use this value since Handshake is disabled.

If you want your changes to exist after you boot or reset the terminal, you must save your changes in the terminal's flash memory. For help, see "Saving Configuration Changes in Flash Memory" later in this chapter.

Note: If you are working in the TRAKKER Antares 2400 Menu System, you cannot scan configuration commands. Exit the menu system to scan configuration commands.

To configure the terminal, you can scan four separate bar code labels or you can create bar code labels that contain more than one configuration command. For example, you can create one bar code label to configure the terminal for:

- One-Shot Scanner mode (SB0)
- Scanner Redundancy set to high (SR2)
- Beep Volume set to very loud (BV4)
- Disable Keypad Clicker (KC0)

One-Shot Scanner Mode, Set Scanner Redundancy to High, Set Beep Volume to Very Loud, Disable Keypad Clicker

$+SB0SR2BV4KC0

When you create a bar code label to set several configuration commands, follow these rules:

- The bar code label must be printed using Code 39 or Code 93 symbology. If you need to scan a Code 39 bar code label that includes quotes or periods, you must configure the terminal to use Code 39 in Full ASCII mode.
- The bar code label must include the start and stop character. Most bar code printing utilities automatically include the start and stop character.
- The bar code label must start with $+ (Change Configuration command).
- Each configuration command must include the command syntax and the value for the command. For example, BV is the command syntax for Beep Volume and the value 4 sets the beep volume to very loud.
- If you set one configuration command to a string of ASCII characters and another configuration command follows, you must enclose the value in quotes. If you do not include the quotation marks, the terminal may interpret everything after the first command as data and will not find the second configuration command.

  For example, to set the preamble to BV, use $+ADBV (no quotes are needed). To set the preamble to BV and turn off the beep volume, use $+AD"BV"BV0, or change the order and use $+BV0ADBV. To clear the preamble and postamble from a single label, use $+AD""AE.
- To include quotation marks when you set a value, the entire value must be enclosed in quotation marks. Type two sets of quotation marks ("") to include one quotation mark as the value for a command. For example, to set the preamble to ABC"D, use $+AD"ABC""D".

Configuring the Terminal Through the Serial Port

You can write a host application that configures the terminal by sending reader and configuration commands through the serial port. You must connect the terminal to the host by either using a special cable or a communications dock and a special cable. The terminal and the host must be communicating. On the terminal you must enable Frame mode and the Configuration Commands Via Serial Port command.

For a list of reader commands, see Chapter 7, "Reader Command Reference." For a list of configuration commands, see Chapter 8, "Configuration Command Reference."

Note: You can continue running an application on the terminal while configuring the terminal from the host.

To set up the application

- Write a host application that can send transactions to and receive transactions from the terminal in this format:

SOM	*TMF field*	*reader/configuration commands*	EOM

where:

SOM is the start of message field.

TMF field is only used if the Configuration Commands Via Serial Port are enabled with TMF. It is a 2-byte field containing one of these values:

- CG Configuration Get request sent from the host application.
- Cg Configuration Get response sent from the terminal to the host.
- CS Configuration Set request sent from the host application.
- Cs Configuration Set response sent from the terminal to the host.

Note: If the Configuration Commands Via Serial Port are enabled without TMF, leave this field blank.

commands are the reader and configuration commands that you want to set on the terminal or get the current value of from the terminal.

EOM is the end of message field.

Note: To send data to an application instead of sending configuration commands, use the letter A followed by a space in the TMF field. If the TMF field does not contain CG, Cg, CS, Cs, or A, the terminal ignores the transaction.

Example with TMF

In the host application, you want to set the values for the beep volume and the display backlight timeout on the terminal. Send this transaction from the host application:

```
CS$+BV4DF30.+1
```

Note: SOM and EOM are not shown in this example.

where:

CS	is a TMF Configuration Set request.
$+	is the Change Configuration reader command.
BV4	sets the Beep Volume command to a value of 4, which is a very loud beep volume.
DF30	sets the Display Backlight Timeout command to a value of 30 seconds.
.+1	saves the configuration changes to the terminal's flash memory.

The terminal returns this transaction to the host application.

```
Cs$+BV4DF30.+1
```

where:

Cs	is a TMF Configuration Set response.
$+	is the Change Configuration reader command.
BV4	means the Beep Volume command has been changed to a value of 4, which is a very loud beep volume.
DF30	means the Display Backlight Timeout command has been changed to a value of 30 seconds.
.+1	means the configuration changes have been saved in flash memory.

Configuring the 2415 Through the Network

You can configure the 2415 by using one of these methods:

- Send a command from the DCS 300 (UDP Plus network only).
- Send a command from an application on the host computer (UDP Plus and TCP/IP networks).

The terminal must be communicating with the RF network. You must have already installed and configured the access points. If you are using a UDP Plus network, you must have installed and configured the DCS 300. You cannot configure any of the RF network parameters, such as terminal IP address, over the network; you must have already configured these parameters on each terminal.

For a list of reader commands, see Chapter 8, "Reader Command Reference." For a list of configuration commands, see Chapter 9, "Configuration Command Reference."

Note: You can continue running an application on the terminal while configuring the terminal from the network.

Sending a Command From the DCS 300

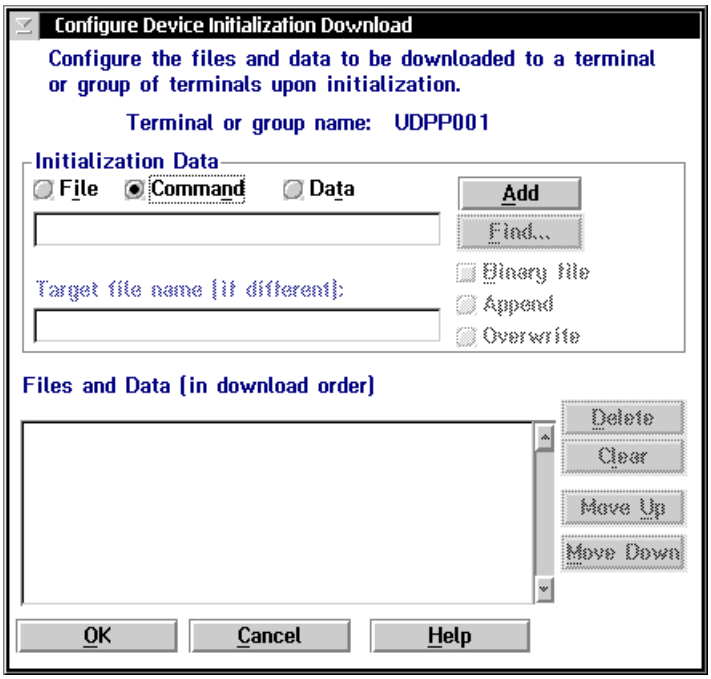
If your 2415s are communicating using UDP Plus, you can use the DCS 300 to send reader and configuration commands to one or more of these terminals. The DCS 300 lets you group terminals together that you want to receive the same commands. For example, you may want to set the Beep Volume to very loud and turn on Keypad Caps Lock for all the terminals in one area.

Note: You can configure a 2415 from the DCS 300, but you cannot get configuration data from the terminal.

To send commands from the DCS 300

1. Using the Download Server feature on the server, select the terminal or group to which you want to download the reader and configuration commands and then choose Edit. For help on configuring a group of terminals, see the *DCS 300 System Manual*.

2. In the Initialization Data box, choose the Command option button.



3. In the Initialization Data box field, enter the reader or configuration command and then choose Add. The command appears in the Files and Data box.

   For example, enter this command to set the Beep Volume to very loud:

   `$+BV4`

Note: You can set the Postamble or Preamble configuration command to use characters from the extended ASCII character set such as the Field Exit code for 5250 TE.

4. Repeat Step 3 to add another reader or configuration command, or choose OK.
5. To save the configuration changes in flash memory, enter `.+1` as the last command.

   If you do not save the configuration changes in flash memory, the commands only change the current configuration.
6. Choose OK to go to the Terminal Download Configuration dialog box.
7. Choose Download to download the commands and change the configuration of the terminals selected.

Sending a Command From the Host

You can write a host application that configures the terminal. This host application must be able to communicate with the DCS 300 in a UDP Plus network or be able to communicate directly through the access point in a TCP/IP direct connect network.

Configuring the 2415 in a UDP Plus Network

You can use the host computer to configure a 2415 in your UDP Plus network. To send and receive configuration data or files, you need to write a host application that can communicate with the DCS 300. For help, see the *DCS 300 Technical Reference Manual*. You use the Terminal Message Format (TMF) protocol in the RF network to send and receive transactions between the host application and the terminal.

To set up the DCS 300

- Configure a peer-to-peer destination name for the host application. Create a transaction ID, $NGCFGRSP, that will be routed to this destination name. The DCS 300 uses the transaction ID to route responses from the 2415 back to the host application. $NGCFGRSP is a special transaction ID that the server uses to forward configuration response data from a terminal.

  All configuration responses will be routed with the $NGCFGRSP transaction ID. The DCS 300 cannot keep track of multiple applications sending reader or configuration commands. If you have two host applications sending reader or configuration commands, they must both be configured to receive the $NGCFGRSP transactions, and therefore both will receive all responses from all 2415s.

To set up the host computer

- Verify that the host computer can communicate with the DCS 300.

To set up the application

- Prepare and write a host application that can communicate with the DCS 300 and send transactions to and receive transactions from the 2415 in this format:

transaction header	*TMF field*	*reader/configuration commands*

  where:

  transaction header is a 96-byte field containing the message number, date and time, source application ID, destinations application ID, transaction ID, and other information. You must set the system message (SYS$MSG) flag to E in the transaction header. For help, see the *DCS 300 Technical Reference Manual*.

TMF field is a 2-byte field containing one of these values:

- `CG` Configuration Get request sent from the host application.
- `Cg` Configuration Get response sent from the 2415 to the host.
- `CS` Configuration Set request sent from the host application.
- `Cs` Configuration Set response sent from the 2415 to the host.

commands are the reader and configuration commands that you want to set on the terminal, or the current value you want to retrieve from the terminal. To save configuration changes in flash memory, send the reader command `.+1` as the last command.

For a list of commands, see Chapter 7, "Reader Command Reference," or Chapter 8, "Configuration Command Reference."

To see examples of the host application transactions, see "Example 1" and "Example 2" later in this chapter.

Configuring the 2415 in a TCP/IP Direct Connect Network

You can use the host computer to configure a 2415 in your TCP/IP network. To send and receive configuration data, you need to write a host application that can communicate with a 2415 directly via an access point. You use the Terminal Message Format (TMF) protocol in the RF network to send and receive transactions between the host application and the terminal. For more about developing an application, see "Transferring Files in a TCP/IP Direct Connect Network" later in this chapter.

Note: You can continue running an application on the 2415 while configuring the terminal from the host.

To set up the host computer

- Verify that you can communicate with the 2415.

To set up the application

- Prepare and write a host application that can communicate with the 2415. Configuration commands must be sent to network port 6000 on the terminal. Message transactions to and receive transactions from the 2415 on network port 6000 must conform to the following format:

TMF field	*reader/configuration commands*

where:

TMF field is a 2-byte field containing one of these values:

- `CG` Configuration Get request sent from the host application.
- `Cg` Configuration Get response sent from the 2415 to the host.
- `CS` Configuration Set request sent from the host application.
- `Cs` Configuration Set response sent from the 2415 to the host.

commands are the reader and configuration commands that you want to set on the terminal, or the current value you want to retrieve from the terminal. To save configuration changes in flash memory, send the reader command `.+1` as the last command.

For a list of commands, see Chapter 7, "Reader Command Reference," or Chapter 8, "Configuration Command Reference."

Example 1

In the host application, you want to get the current values of two configuration commands from the 2415. Send this transaction from the host application:

```
CG$+NADF
```

Note: The transaction header is not shown in this example. You do not need a transaction header for a host application in a TCP/IP network.

where:

- CG is a TMF Configuration Get request.
- $+ is the Change Configuration reader command.
- NA is the Network Activate configuration command.
- DF is the Display Backlight Timeout configuration command.

The 2415 returns this transaction to the host application.

```
Cg$+NA1DF60
```

where:

- Cg is a TMF Configuration Get response.
- $+ is the Change Configuration reader command.
- NA1 means the Network Activate configuration command is currently set to a value of 1, which means that the 2.4 GHz RF network is enabled.
- DF60 means the Display Backlight Timeout configuration command is currently set to a value of 60 seconds.

Example 2

In the host application, you want to set the value for two configuration commands on the 2415. Send this transaction from the host application:

```
CS$+BV4DF30
```

Note: The transaction header is not shown in this example. You do not need a transaction header for a host application in a TCP/IP network.

where:

CS	is a TMF Configuration Set request.
$+	is the Change Configuration reader command.
BV4	sets the Beep Volume configuration command to a value of 4, which is a very loud beep volume.
DF30	sets the Display Backlight Timeout configuration command to a value of 30 seconds.

The 2415 returns this transaction to the host application.

```
Cs$+BV4DF30
```

where:

Cs	is a TMF Configuration Set response.
$+	is the Change Configuration reader command.
BV4	means the Beep Volume configuration command has been changed to a value of 4, which is a very loud beep volume.
DF30	means the Display Backlight Timeout configuration command has been changed to a value of 30 seconds.

Transferring Files in a TCP/IP Direct Connect Network

In a TCP/IP direct connect network, you can use a host application to transfer files and to send data between the terminal and a host.

To initiate file transfers from the host, you must write a host application that can communicate directly with a 2415. You use the file management reader commands, such as Receive File and Transmit File, to transfer files between the 2415 and the host. For help, see Chapter 7, "Reader Command Reference."

To initiate file transfers from the terminal, you do not need to develop a host application as described in this section. You can use the file management reader commands Receive File and Transmit File within a terminal application or by scanning bar code labels. For help, see Chapter 7, "Reader Command Reference."

To use the built-in TFTP client on the 2415, the:

- TFTP (Trivial File Transfer Protocol) server must be running on the host.
- TFTP server must be running on at least a Pentium processor or equivalent.
- 2415 must be communicating with the host that is running the TFTP server.
- TFTP server or some other application on the host must be able to send the reader command on the network.

Note: You can continue running any application, except TE, on the 2415 while transferring files from the host.

To transfer files or send configuration data from the host

1. Make sure the TFTP server is running on the host and the 2415 is communicating with the host.
2. Start the host application that can send reader commands to the terminal.
3. Send the two-character TMF code, CS (Configuration Set request) followed by the reader or configuration command. For help, see "Configuring the 2415 in a TCP/IP Direct Connect Network" earlier in this chapter.

   For example, to send the application INVENTRY.BIN from drive C on the host to drive C on the 2415, enter this command:

   ```
   CS.%R,c:inventry.bin,c:inventry.bin
   ```

CLIENT.CPP is the source for a sample application you can run on the host. You can use CLIENT.CPP to send reader commands to the 2415 and receive the resulting messages.

The source code for the sample utilities CLIENT.CPP and the include file UTILS.H is shown on the next pages. You can build the application using Microsoft Visual C++ version 4.0 (or higher) and the Windows sockets library that is included with Microsoft Visual C++. You can also develop your own application to meet the needs of your host environment.

You run the resulting application (CLIENT.EXE) from the DOS command line. The application expects NCM to be defined as the terminal IP address in the hosts file. Once running, the application prompts you to enter a reader command, which it then sends to the 2415. The application also displays any return messages. Reader commands are handled by the Trakker Antares operating system, so you can continue running an application while you use the CLIENT.EXE application to send commands.

CLIENT.CPP Sample Application for a TCP/IP Direct Connect Network

```
#include <windows.h>
#include <stdio.h>
#include "d:\class\Utils.h"

// our application uses a fixed port number
const unsigned short SERVER_PORT = 6000;
const unsigned short CLIENT_PORT = 6001;
// we will default to the local host machine
// unless argv[1] has a hostname
const char SERVER_HOSTNAME[] = "ncm";

int main(int argc, char *argv[])
{
// turn on the socket library for this process
    WSADATA wsad;
    int error = WSAStartup(MAKEWORD(1,1), &wsad);
    if (error != 0)
        ErrorMessage("WSAStartup", WSAGetLastError());

// create an unitialized connection-oriented socket
    SOCKET connection;
    connection = socket(PF_INET, SOCK_DGRAM, 0);
    if (connection == INVALID_SOCKET)
        ErrorMessage("socket", WSAGetLastError());

// lookup the IP address of the requested host
    HOSTENT *phostent = gethostbyname(argc == 2 ? argv[1] : SERVER_HOSTNAME);
    if (phostent == 0)
        ErrorMessage("gethostbyname", WSAGetLastError());

// define a SOCKADDR to contain the IP address of the
// server and the port number of our application
    SOCKADDR_IN serverAddress;
    memset(&serverAddress, 0, sizeof(serverAddress));
    serverAddress.sin_family = PF_INET;
    serverAddress.sin_port   = htons(SERVER_PORT);
    memcpy(&serverAddress.sin_addr, phostent->h_addr_list[0], phostent->h_length);
// Bind a well known port of 6000 to the socket
      SOCKADDR_IN clientAddress;
      memset(&clientAddress, 0, sizeof(clientAddress));
      clientAddress.sin_family = PF_INET;
      clientAddress.sin_port = htons(CLIENT_PORT);
      clientAddress.sin_addr.s_addr = htonl(INADDR_ANY);
      if(!(bind(connection, (LPSOCKADDR)&clientAddress, sizeof(clientAddress))
      ==0))
      {
           ErrorMessage("bind", WSAGetLastError());
      }
```

CLIENT.CPP Sample Application for a TCP/IP Direct Connect Network (continued)

```
// attempt to connect to the server
    error = connect(connection, (const SOCKADDR *)&serverAddress,
    sizeof(serverAddress));
    if (error != 0)
        ErrorMessage("connect", WSAGetLastError());

// check the local name for the socket
      SOCKADDR_IN localName;
      memset(&localName, 0, sizeof(localName));
      int localNameLength = sizeof(localName);
      error = getsockname(connection, (LPSOCKADDR)&localName, &localNameLength);
// run the user-interface
    char sz[1024];
      char rz[1024];
    BOOL bConnectionAlive = TRUE;
    printf("> ");
      int Scount, Rcount;
    int cbRecv, cbSend;
    Scount = Rcount = 0;
    int cbLen, rcLen;
    unsigned char *psend = (unsigned char *)sz;

// continue while not EOF on the console and the connection is alive
   while (bConnectionAlive)
   {
// send the string entered by the user
         printf("Enter Command:\n");
         printf("> ");
         gets(sz);
         if(sz[0] != 'q')
         {
               cbLen = strlen(sz);
               cbSend = send(connection, (const char *)psend, cbLen, 0);
               if (cbSend < 0)
               {
                    Scount++;
                    printf("send failed %d\n", Scount);
                    bConnectionAlive = FALSE;
                    ErrorMessage("send", WSAGetLastError());
               }
              Sleep(2000);
// receive the converted string from the server
               memset(&rz, 0, sizeof(rz));
               rcLen = sizeof(rz);
               cbRecv = recv(connection, rz, rcLen, 0);
               if (cbRecv < 0)
               {
```

CLIENT.CPP Sample Application for a TCP/IP Direct Connect Network (continued)

```
                    Rcount++;
                    printf("receive failed %d\n", Rcount);
                    ErrorMessage("receive", WSAGetLastError());
                    bConnectionAlive = FALSE;
                }
// printf the converted string
                printf("response:%s\n",rz);
                printf("\n> ");
                Sleep(1000);
          }
          else
               bConnectionAlive = FALSE;
    }
// release the resources held by the socket
    error = closesocket(connection);
    if (error != 0)
        ErrorMessage("closesocket", WSAGetLastError());
// release the resources held by the socket library
    error = WSACleanup();
    if (error != 0)
        ErrorMessage("WSACleanup", WSAGetLastError());
    return 0;
}
```

UTILS.H Utility (Used by CLIENT.CPP)

```
#include <windows.h>
inline void ErrorMessage(LPCTSTR szFn, DWORD dwError = GetLastError())
{
    TCHAR szTitle[1024];
    TCHAR szPrompt[1024];
    BOOL bRet = FormatMessage(FORMAT_MESSAGE_FROM_SYSTEM,
              0, dwError,
              0,
              szPrompt,
              sizeof(szPrompt),
              0);
    if (!bRet)
        lstrcpy(szPrompt, __TEXT("Unknown Error"));
    wsprintf(szTitle, __TEXT("%s failed with error code (0x%x)!"), szFn, dwError);
    int id = MessageBox(HWND_DESKTOP, szPrompt, szTitle,
MB_ABORTRETRYIGNORE|MB_SETFOREGROUND);
    if (id != IDIGNORE)
        ExitProcess(0);
}
```

Saving Configuration Changes to Flash Memory

If you configure the terminal by scanning bar code labels, through the serial port, or from the network, you may want to save the changes in flash memory using one of these methods.

To save configuration changes using the menu system

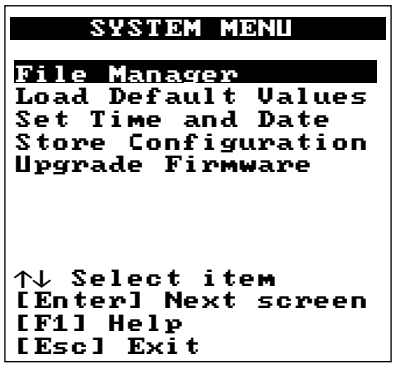
1. Press f ( ) T 2 M or press f ( ) 2 4 8 or scan this bar code label:

   Enter Test and Service Mode

   ..-.

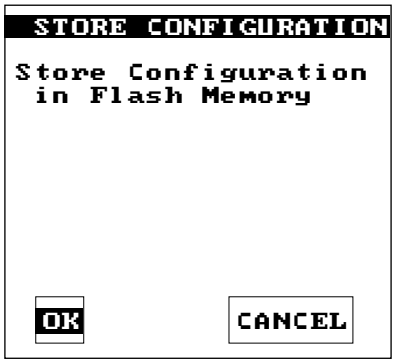
   The Main Menu appears.

2. Choose System Menu and press ( ). The System Menu appears.



241XU044.eps

3. Choose the Store Configuration command and press ( ). The Store Configuration screen appears.



241XU045.eps

4. Choose OK to save the configuration in flash memory. To exit without saving the configuration, choose Cancel. The System Menu appears.
5. Press Esc to exit the System Menu. The Main Menu appears.
6. Choose another menu from the Main Menu or press Esc to exit the TRAKKER Antares 2400 Menu System.

To save configuration changes by scanning a bar code label

- Scan this bar code label:

  Save Configuration in Flash Memory

  .+1

To save configuration changes by sending a command through the network

- Send `.+1` as the last command from the host application or the DCS 300.

Restoring the Terminal's Default Configuration

The default configuration for the terminal is listed in Appendix A. You can restore the terminal's default configuration by using the TRAKKER Antares 2400 Menu System, by scanning the Default Configuration bar code label, or by sending a command from the network.

Note: If you restore the default configuration, you must set the primary network communications parameters on the 2415 to reestablish communications with other devices in the RF network. You may also need to reset the serial port parameters to communicate with another device through the serial port.

To restore the default configuration using the menu system

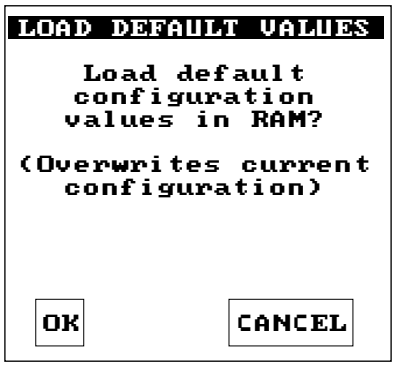
1. Press f (T 2 M or press f (2 4 8 or scan this bar code label:

   Enter Test and Service Mode

   ..-.

   The Main Menu appears.
2. Choose System Menu and press (. The System Menu appears.

3. Choose the Load Default Values command and press ⓔ. The Load Default Values screen appears.



241XU048.eps

4. Choose OK and press ⓔ to load the default configuration values. The default values will override the current runtime configuration on the terminal.

   To exit without loading the default values, choose Cancel and press ⓔ. The System Menu appears.

5. Press Esc to exit the System Menu. The Main Menu appears.
6. Choose another menu from the Main Menu or press Esc to exit the TRAKKER Antares 2400 Menu System. For help exiting the menu system, see "Exiting the TRAKKER Antares 2400 Menu System" earlier in this chapter.

To restore the default configuration by scanning a bar code label

- Scan this bar code label:

  Default Configuration

  .+0

To restore the default configuration by sending a command through the network

- Send `.+0` from the host application or the DCS 300.

4

Using Custom Applications

This chapter explains how to create, download, and run custom applications on the programmable terminals.

How To Download and Run Applications

Here's a brief summary of the steps you follow to download applications and files to the programmable terminals. To learn more about the programmable features, start with the next section, "About the Trakker Antares Programmable Terminals."

Use the serial port to download applications and files to the terminal

1. Create your applications using the Trakker Antares Programmer's Software Kit (PSK) or EZBuilder™. For help, see page 4-6.
2. Convert each application to a binary file using the PSK utility EXE2ABS.EXE. For help, see page 4-8. Or, use FileCopy or EZBuilder to convert each application to a binary file.
3. Connect the terminal's serial port to the host computer or PC. For help, see "Using the Terminal's Serial Port" in Chapter 1.

   Or, insert the terminal into a communications dock and connect the dock to the host computer or PC. For help, see the *Trakker Antares TD2410 Communications Dock Quick Reference Guide*.
4. Use the FileCopy utility or LOADER.EXE on the host computer or PC to download applications and files to the terminal. For help, see page 4-9.
5. Use the TRAKKER Antares 2400 Menu System to load and run an application. For help, see page 4-19.

Use the DCS 300 to download applications and files to the 2415

1. Create your applications using the Trakker Antares PSK or EZBuilder. For help, see page 4-6.
2. Convert each application to a binary file using the PSK utility EXE2ABS.EXE. For help, see page 4-8. Or, use FileCopy or EZBuilder to convert each application to a binary file.
3. Copy the applications and files to the DCS 300. For help, see page 4-14.
4. Use the Download Server feature on the DCS 300 to download applications and files to the 2415. For help, see page 4-16.
5. Use the TRAKKER Antares 2400 Menu System to load and run an application. For help, see page 4-19.

Use a host application to download applications and files to the 2415

1. Create your applications using the Trakker Antares PSK or EZBuilder. For help, see page 4-6.
2. Convert each application to a binary file using the PSK utility EXE2ABS.EXE. For help, see page 4-8. Or, use FileCopy or EZBuilder to convert each application to a binary file.
3. Copy the applications and files to the host.
4. Write a host application that can communicate with the 2415 directly via an access point. Use the host application to download applications and files to the 2415. For help, see "Transferring Files in a TCP/IP Direct Connect Network" in Chapter 3.
5. Use the TRAKKER Antares 2400 Menu System to load and run an application. For help, see page 4-19. Or, use the host application to send the Run Program command.

About the Trakker Antares Programmable Terminals

A sample application was installed on your programmable terminals at the factory. Use this sample application to verify that your terminals are communicating with your network. You can develop your own data collection application for the terminal and then download the application and any associated files to the terminal. Each terminal completes the download task differently:

2410 You connect the host computer or PC to the terminal's serial port and then download applications and files.

2415 You download applications and files from the DCS 300 or host to one or more terminals through the RF network. You can also download applications and files through the terminal's serial port.

The next table lists specifications and technical information you need to know to develop applications for the terminals.

Trakker Antares Programmable Terminal Specifications

Products:	2410 2415
Serial communications:	RS-232 serial communications via the terminal's serial port or the terminal in a communications dock.
RF communications:	2.4 GHz (to 2.4835 GHz)
RF network support:	There are two options: • host connectivity through an access point and DCS 300 using UDP Plus • host connectivity through an access point using TCP/IP
Flash drive C:	Approximately 750K for user, up to 128 files
Flash drive D or font set:	Optional 2MB flash memory can be configured as an extended drive (up to 128 files) or used as storage for a double-byte font set
RAM drive E:	256K reserved for user application (configurable), up to 128 files
Extended drive G:	(2410 option only) 2MB or 4MB extended drive, up to 128 files
Application:	Programmed in Microsoft C, customer defined, stored on drive C. Maximum size of a single application is 512K (less the size of the RAM drive, if configured).
Application name:	Customer defined, eight characters with three-character extension
Storing applications:	Multiple (maximum depends on the drive space)
Developing applications:	Using Trakker Antares Programmer's Software Kit (PSK) or EZBuilder
Downloading applications:	Via RS-232 serial communications from the PC or host computer Via RF to the 2415's flash drive from the DCS 300 Via RF and TFTP to the 2415's flash drive from a host application

Creating Applications for the Terminal

You create applications for the terminal using the Trakker Antares Programmer's Software Kit (PSK) or EZBuilder and Microsoft C/C++ functions.The terminal runs applications that are programmed in Microsoft C.

To start creating applications

1. Use the PSK or EZBuilder to develop your application.
2. Convert the application to a binary file.

Each step is described in the next sections. Once you have completed these steps, you can download the application to the terminals.

Using the PSK or EZBuilder to Develop Applications

Intermec has two development tools, Trakker Antares PSK and EZBuilder, that you can use to create applications for the terminals.

You can download the latest version of the PSK for free from the Intermec Web site at www.intermec.com. This kit has a full set of programming tools to help you create applications for the terminal, including:

- Programmer's Software Kit (PSK)
- Application Simulator
- FileCopy utility
- Sample programs and Make files

The PSK is a library of C functions that control the programmable terminals. You can program the terminal to display prompts and error messages, to collect and display data, and to transmit data to an upline DCS 300 or host computer. The PSK functions work with most standard Microsoft C functions. You can create complex applications that collect, store, manipulate, and transmit data to meet your system needs.

The Application Simulator is a terminate-and-stay resident (TSR) program that lets you debug and run Trakker Antares applications on a DOS or Windows PC. The Simulator captures the PSK and C functions and makes the PC mimic a terminal.

You can also download the *Trakker Antares Application Development Tools System Manual* (Part No. 064433) in PDF format for free from the Intermec Web site. Or, you can order a manual from your local Intermec representative.

EZBuilder (Part No. 066381) is a software code generator product that provides programmers and technically-oriented non-programmers with a quick and easy way to create applications for the terminal. EZBuilder v2.1 supports the 2410 and the 2415 terminals. It contains:

- EZBuilder software
- Microsoft Visual C++ version 1.5X
- Application Simulator
- PSK libraries
- FileCopy utility
- Sample EZBuilder programs
- *EZBuilder Getting Started Guide* (Part No. 066450)
- *EZBuilder Tutorial* (Part No. 066449)

When you use EZBuilder, you enter simple commands to create menus, screens, and transactions and to define menu items, labels, and data fields. You can also set attributes, define function keys, and specify other processing, such as calculations, for the application. Once you have defined the application, EZBuilder generates the application program code. The Application Simulator Editor mimics a terminal and lets you test the application on your computer.

Converting Applications Between JANUS and Trakker Antares

You can develop applications that run on both the JANUS® devices and the Trakker Antares terminals. However, there are some differences that you need to plan for in your applications. The Trakker Antares terminal is an intelligent terminal. A JANUS device is a DOS-compatible computer. Because of these differences, there are some features and functions that are different between the JANUS PSK and the Trakker Antares PSK.

In general, a C/C++ application written for Trakker Antares terminals requires minor changes to run on a JANUS device. However, an application written for a JANUS device may require more changes to work properly on a Trakker Antares terminal. JANUS applications developed with the JANUS PSK and compiler libraries are relatively easy to convert to an application for the Trakker Antares terminals.

There are several methods you can use to convert applications to and from JANUS devices and Trakker Antares terminals. For help on converting applications, see the *Trakker Antares PSK Reference Manual*.

Converting IRL Programs

The terminals support IRL (Intermec Reader Language) by using IRL to C conversion programs. You can convert IRL programs to Microsoft C/C++ applications that use the Trakker Antares PSK functions. For information about converting IRL programs, contact your local Intermec service representative.

Converting the Application to a Binary File

For your application to run on the terminal, it must be stored as an executable binary file (*.BIN) instead of an executable file (*.EXE). You can use the EXE2ABS.EXE program that comes with the Trakker Antares PSK or EZBuilder to convert the file.

Note: The EZBuilder "download" tool will automatically convert an executable file (*.EXE) to an executable binary file (*.BIN) when you download the file.

The FileCopy utility can automatically convert an executable file (*.EXE) to an executable binary file (*.BIN) if you check the Convert.EXE check box before you download the file.

To convert an executable file to a binary file

1. Use the Trakker Antares PSK or EZBuilder to develop the application.
2. Convert the application from an executable file to a binary file by typing this command on your development PC:

   drive:\intermec\imt24\lib\exe2abs *filename*.exe

   The conversion application (EXE2ABS.EXE) creates an executable binary file named *filename*.BIN.

   For example, if your application is named SHIPPING.EXE and the Intermec directory is on drive C, type this command on your PC:

   ```
   c:\intermec\imt24\lib\exe2abs shipping.exe
   ```

   The conversion application creates the SHIPPING.BIN file.
3. If you have a 2415 and plan to download applications and files from the DCS 300 or host, copy all the binary application files and any data files to a 3.5-inch disk.

Using the Serial Port to Transfer Applications and Files

You can download or upload applications and files between a host computer or PC and the terminal through the terminal's serial port. Once the terminal is connected, there are three ways to transfer files:

- Use the FileCopy utility that ships with the Trakker Antares PSK and EZBuilder.
- Use the LOADER.EXE program that comes with the firmware upgrade kits.
- Use the Receive File or Transmit File reader commands. For help, see Chapter 7, "Reader Command Reference."

This section explains how to use the FileCopy utility to download or upload applications and files to or from the terminal. FileCopy includes online help. Click the Help button or press **F1** anytime to get more information.

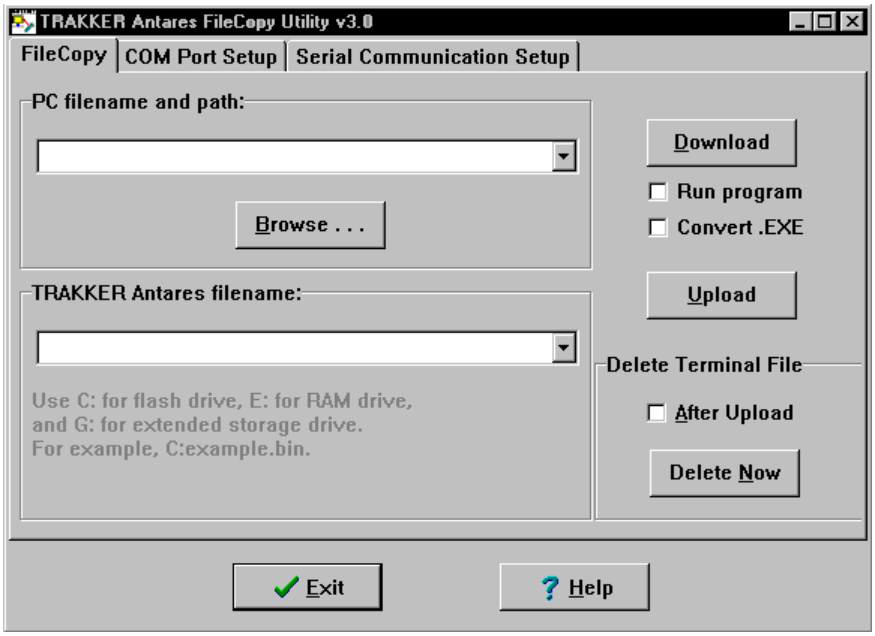
This section also explains how to use the LOADER.EXE program to download applications to the terminal.

To run an application on the terminal, it must be stored as an executable binary file (.BIN). The FileCopy utility can automatically convert any .EXE file to a .BIN file if you check the Convert.EXE check box before you download the file. With the FileCopy utility, you can download either .EXE or .BIN application files. If you are using LOADER.EXE to download an application, you need to use EXE2ABS.EXE to convert the .EXE file to a .BIN file.

To transfer applications and files to or from the terminal using the FileCopy utility

1. Connect the terminal to your host computer or PC.
2. Start Microsoft Windows on your host computer or PC.
3. Run FileCopy. The TRAKKER Antares FileCopy Utility dialog box appears.

Trakker Antares FileCopy Utility Dialog Box



4. Check the serial port and serial communications parameters to verify that the settings for your PC match the values that are set for the terminal's serial port.

   a. Select the COM Port Setup tab to verify and configure the PC's serial port parameters.

   b. Select the Serial Communications Setup tab to verify and configure the PC's serial communications parameters.

   c. Use the TRAKKER Antares 2400 Menu System to configure the serial port parameters on the terminal. For help, see "Using Serial Communications on the Terminals" in Chapter 2.

5. Make sure that the terminal is running an application that will not be updated during the file transfer. If you are in the TRAKKER Antares 2400 Menu System, exit the menu system.

   You can run APPTSK.BIN application while transferring files. For help, see "Running the Application on the Terminal" later in this chapter.

6. Select the FileCopy tab to download or upload applications and files.

   a. In the PC filename and path field, type the path and filename (*filename*.EXE or *filename*.BIN) for the file on your PC. You can select a previously used filename from a list by clicking on the down arrow.

      To view the files on your PC, click the Browse button.

   b. In the TRAKKER Antares filename field, type the drive and filename on the terminal. You can select a previously used filename from a list by clicking on the down arrow.

      You can only download applications to drive C. On the 2415, you can download files to drive C, D, or E. On the 2410, you can download files to drive C, D, E, or G (if available).

7. If you are downloading a *.BIN file and want to run it on the terminal immediately after it is downloaded, check the Run program check box.

   If you are downloading an *.EXE file and want to convert it to a *.BIN so you can run it on the terminal immediately after it is downloaded, check the Run program check box and check the Convert.EXE check box.

8. Click Download to copy the file from the PC to the terminal. If you turned on the Run program check box, the terminal boots, resets, and runs the application you downloaded. Otherwise, the current application continues to run on the terminal.

   Or, click Upload to copy the file from the terminal to the PC.

9. To download or upload another file, repeat Step 5 through Step 7.
10. Click Exit to close the FileCopy utility.

You are ready to run the application from the terminal. For help, see "Running the Application on the Terminal" later in this chapter.

To transfer applications and files to the terminal using LOADER.EXE

Note: Before you can transfer applications and files, open the MS-DOS window. Then, open the MS-DOS Prompt Properties dialog box. In the Memory tab, set the Initial Environment field to 4096. Close the MS-DOS window and re-open it.

1. Connect the terminal to your PC. For help connecting the terminal, see "Using Serial Communications on the Terminals" in Chapter 2.
2. On your PC, load the application or file that you want to download.
3. Access the MS-DOS window.
4. Change to the directory that contains the LOADER.EXE program.

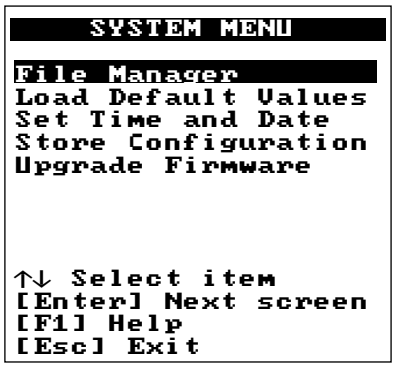
5. On the terminal, press f ↵ T 2 M or press f ↵ 2 4 8 or scan this bar code label:

   Enter Test and Service Mode

   ..-.

   The Main Menu appears.

6. Choose System Menu and press ↵. The System Menu appears.

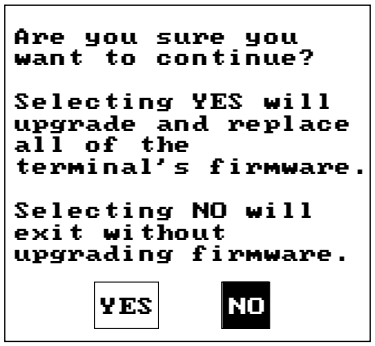


241XU044.eps

7. Choose Upgrade Firmware and press ↵. The Upgrade Firmware screen appears.

241XU060.eps

8. Choose OK to continue. The next screen appears.



241XU091.eps

9. Choose Yes to continue and upgrade the firmware. The terminal reboots and then displays the Loader Waiting screen.

Note: If you reach the Loader Waiting screen and cannot upgrade or continue, press Esc once or ⏻ twice to exit without upgrading the firmware. The Boot Menu appears. Press 1 to boot the terminal and continue.

10. On your PC, type:

    `LOADER` *`pathname\filename`*

    where:

    pathname is the path to the application or file that you want to download.

    filename is the name of the application or file that you want to download.

The Loader screen appears and the file or application is transferred to the terminal.

Using the DCS 300 to Download Applications and Files

You can download applications and files to a 2415 using either the serial port or RF communications. For help downloading via the serial port, see the previous section. The advantage to downloading files via RF communications is that you can download multiple files to one or more terminals.

You use RF communications to download applications and files from the DCS 300 to 2415s in a UDP Plus network or from the host to 2415s in a TCP/IP network. This section explains how to use the DCS 300. Before you start, make sure the 2415 is communicating with the DCS 300. If you need any help installing or configuring the network, see "Using RF Communications on the 2415s" in Chapter 2.

For help downloading applications and files in a TCP/IP network, see "Transferring Files in a TCP/IP Direct Connect Network" in Chapter 3.

To download applications and files from the DCS 300

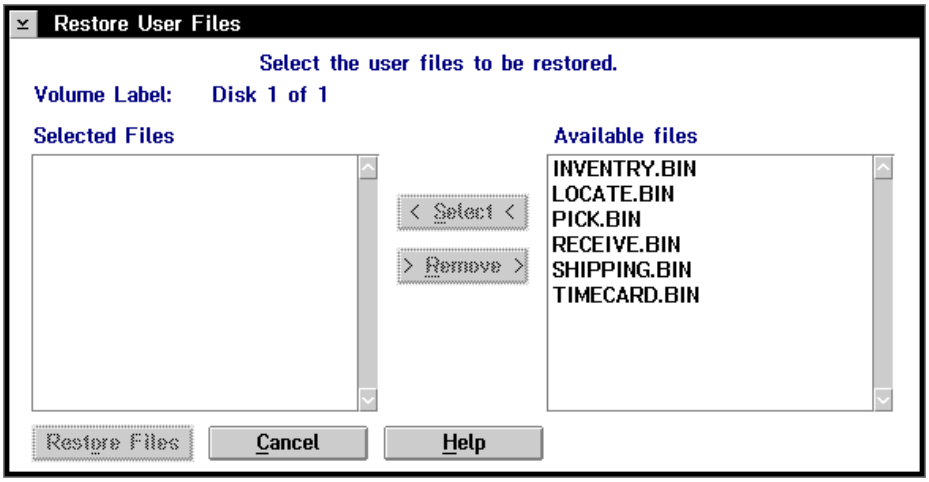
1. Copy the applications and files to the DCS 300. For help, see "Copying Applications and Files to the DCS 300" in the next section.
2. Use the Download Server feature on the DCS 300 to download the applications and files to the 2415. For help, see "Downloading Applications and Files to the 2415" later in this chapter.

   Or, use the Receive File or Transmit File reader commands to download the applications and files to the 2415. For help, see Chapter 7, "Reader Command Reference."

Copying Applications and Files to the DCS 300

1. Copy the applications and files to a 3.5-inch disk.
2. Insert the disk into the disk drive of the DCS 300.
3. From the main menu sidebar buttons, choose File Handling. The File Handling dialog box appears.
4. In the File Handling list box, select Restore User Files and choose OK. A message box appears telling you to insert the disk in the disk drive of the DCS 300.
5. Choose OK. The Restore User Files dialog box appears. The files on the floppy disk appear in the Available Files list box.

Restore User Files Dialog Box



6. In the Available Files list box, add all the files that you want to restore to the Selected Files list box.

   a. Select the file name.

   b. Choose Select. The file name appears in the Selected Files list box.

   If the Selected Files list box shows any files that you do not want to restore, select the file name and choose Remove.

7. Choose Restore Files. The DCS 300 restores the files you selected to the D:\USERDATA directory.

8. Remove your disk from the disk drive.

Downloading Applications and Files to the 2415

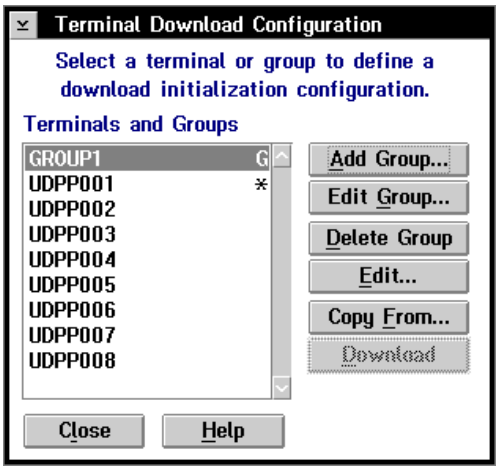
Once the applications and files are stored on the DCS 300, you can use the Download Server feature on the DCS 300 to download applications and files to one or more 2415s.

To prepare the terminal

1. Make sure the terminal is on and communicating with the DCS 300. The Connect LED must be on.
2. Make sure the main battery pack is fully charged.

To download applications and files to the 2415

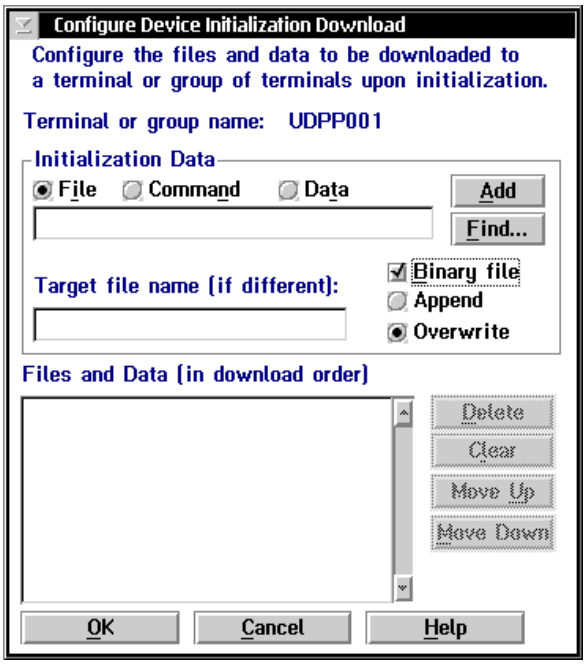
1. If data collection is not started on the DCS 300, choose Start Data Collection from the main menu sidebar buttons.
2. From the main menu sidebar buttons, choose System Maintenance. The System Maintenance dialog box appears.
3. In the System Maintenance dialog box, select Configure Download Server and then choose Start. The Terminal Download Configuration dialog box appears.



4. From the Terminal Download Configuration dialog box in the Terminals and Groups list box, select a terminal or group of terminals to receive the binary applications and files.

   For help defining a group of terminals, see the *DCS 300 System Manual*.

5. Choose Edit. The Configure Device Initialization Download dialog box appears.



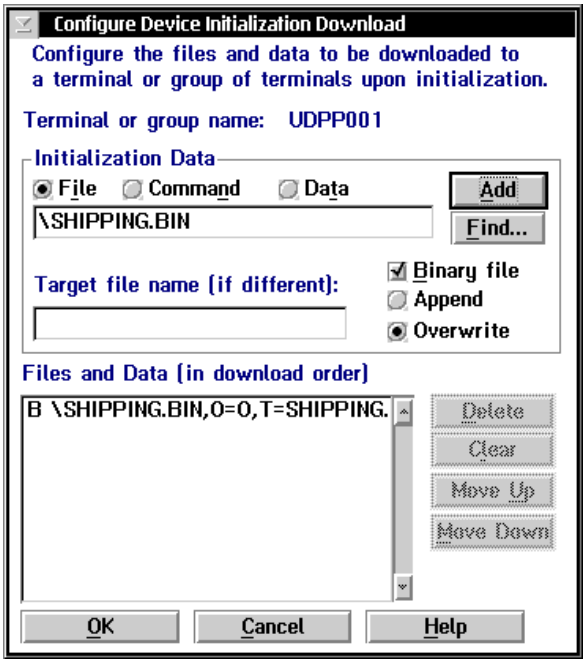
6. Verify that there are no files (or entries) listed in the Files and Data list box. If there are entries, then choose Clear to remove them.
7. In the Initialization Data box, choose the File option button.
8. In the Initialization Data field, type:

   `\filename`

   where *filename* is the name of the executable binary application. Or choose Find, select your application, and choose OK.
9. Check the Binary file check box.
10. Choose the Overwrite option button to overwrite an existing file with the same name.
11. In the Target file name field, type a name if you want to save the file under a different name on the terminal.

    Do NOT enter a slash or backslash character before the target filename.

12. Choose Add. The file appears in the Files and Data list box with a B for binary in the leftmost column.



13. Repeat Steps 7 through 12 to select another application.
14. You can also download files used by your application such as an employee list or a part number list.

    To download additional files, choose File in the Initialization Data box. Type in the filename including the backslash. Disable the Binary file check box and then choose Add.
15. Choose OK to save your changes and return to the Terminal Download Configuration dialog box.
16. In the Terminals and Groups list box, choose the terminal or group you configured if it is not already highlighted and marked with an asterisk.
17. Choose Download. A Download initiated message box appears.
18. Choose OK. The executable binary applications and files are downloaded to the terminal or group of terminals. If you are downloading the applications and files to many terminals or there is a lot of radio traffic in your RF network, the download may take longer. All files are downloaded and stored on the terminal's flash drive C.

To run an application, continue with the instructions in the next section. If you have problems downloading files, see Chapter 5, "Troubleshooting."

Running the Application on the Terminal

Once you have downloaded an application to the terminal, you are ready to run and use it. There are three ways to run an application:

- Use the FileCopy utility. For help, see "Using the Serial Port to Transfer Applications and Files" earlier in this chapter.
- Use the Run Program reader command. For help, see Chapter 7, "Reader Command Reference."
- Use the TRAKKER Antares 2400 Menu System. For help, continue with this section.

To run an application on the terminal

1. Press f T 2 M or press f 2 4 8 or scan this bar code label:

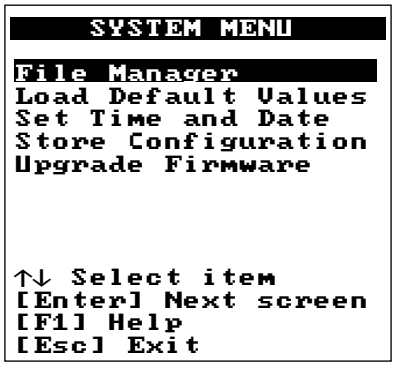
   Enter Test and Service Mode

   ..-.

   The Main Menu appears.

242XU030.eps

2. Choose System Menu and press ↵. The System Menu appears.

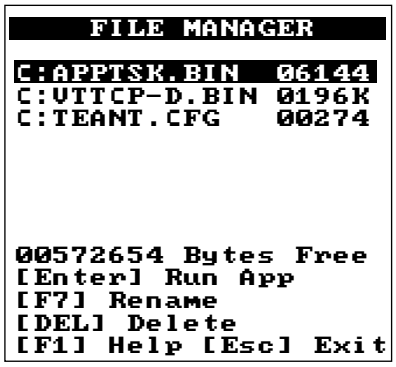


241XU044.eps

3. Choose File Manager and press ↵. The File Manager screen appears prompting you to select a drive.

241XU054.eps

4. Press Alt ▲ or Alt ▼ to toggle to the drives that you can manage and then press ↵. The File Manager screen appears listing all the files stored on the drive.



241XU056.eps

5. Choose an application and then press ⓞ. The terminal boots, resets all firmware, and runs the application.

   If you also made configuration changes while you were working in the menu system, you will be prompted to store your changes in flash memory. Once you save or discard the changes, the terminal boots, resets all firmware, and runs the application.

Using Screen Mapping (DCS 300 v1.1)

You can use screen mapping to send screen transactions from a 2415 through the DCS 300 to a host application. First, you create an application for your terminals. To create an application that runs on your terminals, you can use the Trakker Antares PSK or EZBuilder and Microsoft C/C++ functions. The terminal runs applications that are programmed in Microsoft C. For help, see "Creating Applications for the Terminal" earlier in this chapter.

Then on the DCS 300, you use the Script Builder Tool to create script files that map transaction fields from the terminal to host application fields. Using this tool, you can also create logon and logoff sequences in host screens, handle regions (such as error messages) on host screens, and send messages back to the source of the transaction, such as the terminal. For help, see the *DCS 300 System Manual*.

On the DCS 300, you also need to create screen mapping sessions that define specific transactions to be sent to a specific host terminal session using a specific script file. Screen mapping sessions allow multiple terminal sessions on the server to simultaneously communicate with multiple terminal emulator sessions running on different hosts. For help, see the *DCS 300 System Manual*.

Make sure you have installed the terminal in your RF network. For help, see Chapter 2, "Operating the Terminal in a Network." If you have completed these tasks, you can start running your application and screen mapping.

Note: If you are running DCS 300 v1.0 software or you are using a Model 200 Controller, screen mapping was supported using terminal templates and a terminal template application. For more information, contact Intermec Technical Support.

5

Troubleshooting and Maintaining the Terminals

This chapter explains how to troubleshoot and maintain the terminals. It also explains how to upgrade the terminal's firmware.

How to Use This Chapter

If you have any problems with the Trakker Antares 2410 and 2415 terminals, use this table as a guide to find the problem and solution in this chapter:

Problem	See This Section to Find a Solution	Page
Screen is blank.	"Terminal Will Not Turn On"	5-5
Terminal locked up or message is displayed.	"Problems While Operating the Terminal"	5-5
Configuring the terminal	"Problems While Configuring the Terminal"	5-7
RF communications error	"2415 Will not Communicate With RF Network Devices"	5-12
Serial port communications error	"Problems Transmitting Data Through the Serial Port"	5-14
Application error	"Problems Transmitting Data Through the DCS 300"	5-15
Scanning labels	"Bar Code Labels Will Not Scan"	5-16
Boot Menu appears or terminal is locked up.	"Booting and Resetting the Terminal"	5-18
The scanner window or the terminal screen is dirty.	"Cleaning the Scanner Window and Terminal Screen"	5-21

Note: If you have problems with the VT/ANSI or the 5250 TE application, see the appropriate terminal emulation programmer's guide.

Finding and Solving Problems

Caution
There are no user-serviceable parts inside the terminal. Opening the unit will void the warranty and may cause damage to the internal components.

Conseil
La terminal ne contient pas de pièces révisibles par l'utilisateur. Le fait d'ouvrir l'unité annule la garantie et peut endommager les pièces internes.

If you have a problem while configuring or using the terminal, use the tables in this section to find a solution. For easy reference, problems are grouped into these topics:

- Terminal Will Not Turn On
- Problems While Operating the Terminal
- Problems While Configuring the Terminal
- 2415 Will Not Communicate With RF Network Devices
- Problems Transmitting Data Through the Serial Port
- Problems Using the Screen Mapping Application
- Bar Code Labels Will Not Scan

Note: You can also use the diagnostics to help analyze and solve problems. For help, see Chapter 6, "Running Diagnostics."

If you send the terminal in for service, it is your responsibility to save the terminal data and configuration. Intermec is responsible only for ensuring that the keypad and other hardware features match the original configuration when repairing or replacing your terminal.

Terminal Will Not Turn On

If you press ⏻ to turn on the terminal and nothing happens, check the terminal for these possible problems.

Problem	Solution
A battery pack is not installed. The Battery LED is on.	Make sure the battery pack is installed correctly. For help, see "Installing the Battery Pack" in Chapter 1.
The battery pack is not charged. The Battery LED is on.	The battery pack may be discharged. Replace the battery pack with a spare charged battery pack, or charge the battery pack and try again.

Problems While Operating the Terminal

If you are operating the terminal and have trouble, check these possible problems and solutions.

Problem	Solution
You notice both these symptoms: • The Battery LED is on. • The terminal beeps once every 15 seconds.	The battery pack charge is low. You have a few minutes of power left. Replace the battery pack with a spare charged battery pack, or charge the battery pack.
You cannot scan bar code labels.	See "Bar Code Labels Will Not Scan" later in this chapter.
You scan a reader command, such as Backlight On, and nothing happens.	The reader commands are disabled. Scan the Enable Override command shown here to temporarily enable all of the reader commands. You can also enable or disable reader commands with the TRAKKER Antares 2400 Menu System. For help, see "Command Processing" in Chapter 8. When you are finished, remember to disable the override so that your data is not interpreted as a command. Enable Override *$+DC3*
You scan a valid bar code label to enter data for your application. The data decoded by the scan module does not match the data encoded in the bar code label.	The terminal may have decoded the bar code label in a symbology other than the label's actual symbology. Try scanning the bar code label again. Make sure you scan the entire label. To operate the terminal quickly and efficiently, you should enable only the bar code symbologies that you are going to scan. If you enable multiple symbologies, the terminal may on rare occasions decode a bar code according to the wrong symbology and produce erroneous results.

Problems While Operating the Terminal (continued)

Problem	Solution
The terminal appears to be locked up and you cannot enter data.	Try these possible solutions: • (2415 only) Wait at least 10 seconds and try again. If the 2415 is still connecting to the DCS 300 or the host, it ignores any input from the keypad or scanner. Make sure the Connect LED is on before continuing. • Scan a bar code label to see if the terminal responds. • Press ⏻ to turn off the terminal. If it turns off, press ⏻ to turn on the terminal. You can continue working. • If the terminal will not turn off, reset the terminal. Press and hold the ⏻ for approximately 12 seconds to reset the terminal. The Good Read LED blinks once and the terminal turns off. Press ⏻ to turn on the terminal. The terminal boots all the systems, clears RAM memory, and starts the application. • Remove the battery pack. Let the terminal sit for 1 minute. Install the battery pack. Press ⏻ to turn on the terminal. • If you keep returning to the Boot Menu, try reloading the firmware. For help, see "Upgrading the Firmware" later in this chapter. • If the terminal will not boot or reset, contact your local Intermec service representative for help.
The terminal is booting and you see a message that POST failed.	The screen displays the system that failed POST. Report the error message to your supervisor. Press Esc to exit the error message. The Boot Menu appears. Press 1 to boot the terminal. Your application appears on the screen. If the terminal still will not boot, contact your local Intermec service representative for help.
The terminal displays the Boot Menu.	You remove the battery pack and do not replace it within 15 minutes. Once you replace the battery pack and turn on the terminal, the Boot Menu appears. Press 1 to boot the terminal and continue working. For help on the Boot Menu, see "Booting and Resetting the Terminal" later in this chapter.

Problems While Configuring the Terminal

You can configure the terminal by using the TRAKKER Antares 2400 Menu System or by scanning configuration commands. If you have problems configuring the terminal, check these possible problems and solutions.

Problem	Solution
On the 2415, you configure the security ID and the changes do not appear to be saved.	You can only set the security ID with the 2.4 GHz RF network enabled. The Network Activate command must be set to the 2.4 GHz RF network before you can save any changes to the security ID command.
On a 2415, you see this error message when exiting the Configuration Menu: `Network configuration error. Network is enabled. Terminal IP address or Controller (Host) IP address set to an invalid address of 0.x.x.x or 127.x.x.x. Configuration was not updated.`	The 2.4 GHz RF network is enabled and there is a problem with the network configuration. You need to change the terminal IP address and/or the controller IP address (host IP address for a TCP/IP network). Choose Primary Network from the Communications Menu. The terminal IP address or the controller/host IP address is set to 0.x.x.x or 127.x.x.x. These are invalid addresses. Set a valid IP address for the terminal and controller or host. For help, see "Connecting the 2415 to an RF Network" in Chapter 2. If you cannot fix the addressing problem, check with your network administrator to get the IP address assigned to the terminal and the DCS 300 or the host.
On a 2415, you see this error message when exiting the Configuration Menu: `Network configuration error. Network is enabled. Terminal IP address and Default Router address set to the same address. Configuration was not updated.`	The 2.4 GHz RF network is enabled and there is a problem with the network configuration. You need to change the terminal IP address and/or the default router address. Choose Primary Network or Advanced Network from the Communications Menu. The terminal IP address and the default router address are both set to the same address. Set a valid IP address for the terminal and the default router. For help, see "Connecting the 2415 to an RF Network" in Chapter 2. If you cannot fix the addressing problem, check with your network administrator to get the IP addresses for each RF network device.
On a 2415, you see this error message when exiting the Configuration Menu: `Network configuration error. Network is enabled. Terminal IP address and Controller (Host) IP address set to the same address. Configuration was not updated.`	The 2.4 GHz RF network is enabled and there is a problem with the network configuration. You need to change the terminal IP address and/or the controller IP address (host IP address for a TCP/IP network). Choose Primary Network from the Communications Menu. The terminal IP address and the controller/host IP address are both set to the same address. Set a valid IP address for the terminal and DCS 300 or host. For help, see "Connecting the 2415 to an RF Network" in Chapter 2. If you cannot fix the addressing problem, check with your network administrator to get the IP address assigned to the terminal and the controller or host.

Problems While Configuring the Terminal (continued)

Problem	Solution
On a 2415, you see this error message when exiting the Configuration Menu: `Network configuration error. Network is enabled. Default Router address is not on the terminal's network. Configuration was not updated.`	The 2.4 GHz RF network is enabled and there is a problem with the network configuration. You need to change the default router address. Choose Advanced Network from the Communications Menu. The terminal and DCS 300 (UDP Plus network) or host (TCP/IP network) are on different networks, and the terminal is not on the same network as the default router. When the terminal is on a different IP subnetwork from the DCS 300 or host, you must set the Default Router and Subnet Mask commands. Set a valid IP address for terminal, DCS 300 or host, and default router. For help, see "Connecting the 2415 to an RF Network" in Chapter 2. If you cannot fix the addressing problem, check with your network administrator to get the IP addresses for each RF network device.

You are configuring the serial port and see this error message when exiting the Configuration Menu:
 	
`Serial port configuration error.`
 	
`SOM is set. You must also set EOM.`
 	
`Configuration was not updated.`
	You must configure a value for EOM before you can set SOM or disable SOM. You need to change the value of SOM. Choose Serial Port from the Communications Menu.
	
	The configurable serial protocol (CSP) uses EOM to determine the serial communications mode. When EOM is disabled, the terminal communicates in Character mode. When EOM is enabled, the terminal communicates in Frame mode. To use Frame mode, you need to set EOM first. Next, configure Handshake, Configuration Commands Via Serial Port, LRC, SOM, and then Poll.
	
	For help, see "Using Serial Communications on the Terminals" in Chapter 2.

You are configuring the serial port and see this error message when exiting the Configuration Menu:
 	
`Serial port configuration error.`
 	
`SOM cannot equal EOM.`
 	
`Configuration was not updated.`
	SOM cannot equal the same value that is set for EOM. You cannot set SOM to any of these values: AFF (ACK), DLE, NEG (NAK), Poll, RES (EOT), REQ (ENQ), SEL, XOFF, or XON. You need to change the value of SOM. Choose Serial Port from the Communications Menu.
	
	For help, see "Start of Message (SOM)" in Chapter 8.

You are configuring the serial port and see this error message when exiting the Configuration Menu:
 	
`Serial port configuration error.`
 	
`EOM #1 cannot equal EOM #2. Configuration was not updated.`
	EOM can be one or two ASCII characters, but you cannot set the first and second character to the same character. Also, you cannot set EOM to any of these values: AFF (ACK), DLE, NEG (NAK), Poll, RES (EOT), REQ (ENQ), SEL, XOFF, or XON. You need to change the value of EOM #1 or #2. Choose Serial Port from the Communications Menu.
	
	For help, see "End of Message (EOM)" in Chapter 8.

Problems While Configuring the Terminal (continued)

Problem	Solution

You are configuring the serial port and see this error message when exiting the Configuration Menu:
`Serial port configuration error. DLE, XON, XOFF are not valid values for either SOM or EOM.`
`Configuration was not updated.`
	You cannot set EOM or SOM to any of these values: AFF (ACK), DLE, NEG (NAK), Poll, RES (EOT), REQ (ENQ), SEL, XOFF, or XON. You need to change the value of EOM or SOM. Choose Serial Port from the Communications Menu.
	For help, see "End of Message (EOM)" or "Start of Message (SOM)" in Chapter 8.

You are configuring the serial port and see this error message when exiting the Configuration Menu:
`PG command failed.`
`Configuration was not updated.`
	PG is the Handshake configuration command. You need to change the value of Handshake or set other serial port parameters. Choose Serial Port from the Communications Menu.
	The order in which you set serial port protocol configuration commands is important. To use Frame mode, you need to set EOM first. Next, configure Handshake, LRC, SOM, and then Poll. To use Character mode, you need to disable these same parameters in reverse order.
	For help, see "Connecting the Terminal to a Wired Network" in Chapter 2.

You are configuring SOM or EOM in the Configuration Menu and cannot set two characters.	You may have a space in the SOM or EOM field. The space does not show, but it is a valid character. To clear a space from the field, put the cursor in the field and press ⊖. Now set the two-character value for SOM or EOM.
You are scanning a configuration command to set one of the serial port parameters and hear three low beeps. For example, you are trying to set EOM or SOM.	The order in which you scan serial port protocol configuration commands is important. The configurable serial protocol (CSP) uses EOM to determine the serial communications mode. When EOM is disabled, the terminal communicates in Character mode. When EOM is enabled, the terminal communicates in Frame mode. To use Frame mode, you need to set EOM first. Next, configure Handshake, Configuration Commands Via Serial Port, LRC, SOM, and then Poll. To use Character mode, you need to disable these same parameters in reverse order. For help, see "Connecting the Terminal to a Wired Network" in Chapter 2.

Problems While Configuring the Terminal (continued)

Problem	Solution

You see this error message when exiting the Configuration Menu:
Commandname
`command failed.`
`Remainder of configuration not updated.`
	The two-character name (syntax) of the configuration command that failed is listed on the first line of the error message.
	Check the command listed in the message. To find the command, use the "Configuration Commands by Syntax" table in Appendix A. Make sure the command is set correctly for the options and network communications you are using with the terminal. For help, see Chapter 8, "Configuration Command Reference."
	For example, you may see this message:
	`SS`
	`command failed.`
	There may be a problem with the configuration due to a change made with the Scanner Selection (SS) command.

You scan a configuration command, such as Keypad Caps Lock, and you hear three low beeps.	If you are working in the TRAKKER Antares 2400 Menu System, you cannot scan configuration commands. Use the Configuration Menu to change the terminal's configuration, or exit the menu system to scan configuration commands.
You scan a configuration command, such as Keypad Caps Lock, and nothing happens.	There are two possible solutions: • You may have one or more reader commands disabled, such as Change Configuration, so that you cannot change the configuration. Enable all of the reader commands and try again. • The terminal may be waiting for another command to complete the configuration change. If you started by scanning the Enter Accumulate command, you must finish the command by scanning the Exit Accumulate command. For help, see Chapter 8, "Configuration Command Reference." Scan the Enable Override to temporarily enable all of the reader commands. When you are finished, remember to disable the override so that your data is not interpreted as a command. Enable Override *$+DC3*

Problems While Configuring the Terminal (continued)

Problem	Solution
On the 2415, you scan a configuration command to set one of these parameters and hear three low beeps: • Controller IP Address (UDP Plus) or Host IP Address (TCP/IP) • Terminal IP Address • Default Router • Network Activate	If the Network Activate command is enabled (2.4 GHz RF network enabled) and you are configuring the 2415, these IP addresses must be valid. To set these four parameters, follow these steps: 1. Disable the Network Activate (NA) configuration command. 2. Set the terminal IP address. 3. Set the controller IP address or the host IP address. 4. Set the default router address (if necessary). 5. Enable the Network Activate command. You can change an IP address with the network enabled as long as it still defines a valid network configuration.
You scan or enter an option for the Scanner Selection configuration command and you hear three low beeps.	You may have scanned or entered a Scanner Selection command that does not apply to the type of scanner that you have installed. Try scanning or entering the Scanner Selection command again and select an option for the type of module you have installed.

2415 Will Not Communicate With RF Network Devices

If you cannot get the 2415 to communicate with other devices in the 2.4 GHz RF network, check these possible problems.

Problem	Solution
The Connect LED is off. The 2415 is not communicating with the access point.	The 2415 is not connected to the access point. Make sure the access point is turned on and operating. You may also be using the terminal out of range of an access point. Try moving closer to an access point to re-establish communications. The Network Activate command may be disabled. Make sure the Network Activate command is enabled. Use the TRAKKER Antares 2400 Menu System or scan the Network Activate command to enable the 2.4 GHz RF network and turn on the radio. For help, see "Network Activate" in Chapter 8. Make sure the 2415 is configured correctly for your network. In a 2.4 GHz OpenAir network, the domain and the security ID on the terminal must match the values set for all access points the terminal may communicate with. In an IEEE 802.11 DS network, the network name on the terminal must match the values set for all access points the terminal may communicate with. For help, see "Connecting the 2415 to an RF Network" in Chapter 2. If you are within range of an access point, the Network Activate command is enabled, and the Connect LED is still off, you may have a defective radio card. For help, contact your local Intermec service representative.
The Connect LED blinks.	In a UDP Plus network, the terminal is communicating with an access point, but it is not connected to the DCS 300. You may need to check the 2415 configuration, or make sure the DCS 300 is running and that data collection is started. Each device in the 2.4 GHz RF network must have a valid IP address. The IP addresses set on the terminal must match the addresses configured on the DCS 300 or host. For help, see "Connecting the 2415 to an RF Network" in Chapter 2.
The 2415 is connected to the DCS 300 or host computer and you move to a new site to collect data. The Connect LED was on and now begins to blink or turns off.	You may have gone out of range of an access point. Try moving closer to an access point or to a different location to re-establish communications. Once you are in range again, the Connect LED will turn on. Any data you collected while you were out of range will be transmitted over the network.

2415 Will Not Communicate With RF Network Devices (continued)

Problem	Solution

The Connect LED blinks and you see this message:
`Unable to connect to controller. Error 102.`
`Unable to establish connection to host. Session ended.`
	The 2415 is connected to the access point, but is trying to establish communications with the DCS 300 and the host computer. Make sure the terminal is correctly configured for your network. In a UDP Plus network, make sure the DCS 300 is configured and data collection is started. In a TCP/IP network, make sure the host computer is configured and running.
	If you have configured the network correctly, try shutting down and restarting the DCS 300 to establish communications. You can also try resetting the terminal. For help resetting the terminal, see "Booting and Resetting the Terminal" later in this chapter.

The Connect LED is on, but the host computer is not receiving any data from the 2415.	In a UDP Plus network, there may be a problem with the connection between the DCS 300 and the host computer. Check with your network administrator or use the *DCS 300 System Manual*. In a TCP/IP network, there may be a problem with the connection between the access point and the host computer. Check with your network administrator or use your access point user's manual.
The Connect LED is on, but you cannot establish a terminal emulation session with the host computer.	There may be a problem with the host computer, a problem with the connection between the DCS 300 and the host computer, or a problem with the connection between the access point and the host computer. Check with your network administrator to make sure the host is running and allowing users to login to the system.
When you turn on the terminal after it was suspended for awhile (10-15 minutes or longer), the terminal can no longer send or receive messages over the network.	The host may have deactivated or lost your current terminal emulation session. In a TCP/IP direct connect network, you need to turn off the "Keep Alive" message (if possible) from the host so that the TCP session is maintained while a terminal is suspended.

Problems Transmitting Data Through the Serial Port

If you are having problems sending or receiving data through the integrated I/O port on the terminal, check these possible problems:

- Make sure the terminal is connected to the PC, host computer, or RS-232 serial device using the proper cable.

  For help, see Appendix A, "Terminal Specifications and Other Helpful Information."

- If the terminal is in a communications dock, make sure that the communications dock is connected to the serial device using the proper cable.

  For help, see Appendix A, "Terminal Specifications and Other Helpful Information" or the *Trakker Antares TD2410 Communications Dock Quick Reference Guide*.

- Make sure the terminal's serial port parameters are configured to match the serial port configuration on the PC, host computer, or serial device.

  For help, see "Connecting the Terminal to a Wired Network" in Chapter 2.

Problems Transmitting Data Through the DCS 300

If you have a problem while running the application on the terminal in a UDP Plus network, check these possible communications problems.

Problem	Solution
Transaction Buffer Full.	The buffer holding transactions to be sent to the DCS 300 is full. Stop collecting data with this terminal. Make sure the terminal is communicating with the DCS 300 and let the terminal send all the transactions in the buffer before you continue collecting data.
Sending Buffer Transactions.	This is an information message to tell you that buffered transactions are now being sent to the DCS 300. You can begin collecting data again once the message clears.
Transaction Aborted.	The transaction just sent to the DCS 300 was not received. Try sending the transaction again.
Transmit Error XX, press Enter.	There is an error transmitting data to the DCS 300. XX represents the status code error. Note the error code listed in the message and contact your local Intermec service representative for help. Press ↵ to continue.
Receive Error XX, press Enter.	There is an error receiving data from the DCS 300. XX represents the status code error. Note the error code listed in the message and contact your local Intermec service representative for help. Press ↵ to continue.
Shutting down.	The DCS 300 is shutting down. You may continue collecting data and buffer the transactions in the terminal until the DCS 300 starts again, or stop collecting data with the terminal.
Controller Shutdown.	The DCS 300 has shut down. You may continue collecting data and buffer the transactions in the terminal until the DCS 300 starts again, or stop collecting data with the terminal.

Bar Code Labels Will Not Scan

If you cannot scan bar code labels or you are having problems with the scan module, check these possible problems.

Problem	Solution
The terminal is turned off.	Make sure the terminal is turned on. Press ⏻ to turn on the terminal.
You cannot see a red beam of light from the scanner when you press the Scan button and aim the scanner at a bar code label.	There are two possible problems: • You may be too far away from the bar code label. Try moving closer to the bar code label and scan it again. • You may be scanning the bar code label "straight on." Try changing the scanning angle until the laser beam is the brightest. This is the best scanning angle. You can test the effective range of the scanner. Move within 2 feet of a wall and test the scanner. You need to be within the scanning range to scan bar code labels. For help on scanning distances, see "Physical and Environmental Specifications" in Appendix A.
When you release the Scan button, the Good Read LED does not turn off.	The Good Read LED will remain on if you configure the terminal to use edge triggering. If you configure the terminal for level triggering and the Good Read LED remains on, there may be a problem. Press the Scan button again without scanning a bar code label. If the LED is still on, contact your local Intermec service representative.
You have an input device attached to the terminal and it cannot read any bar code labels.	You may not be using an input device that is supported with the terminal. Make sure you are using one of the supported input devices
The input device attached to the terminal does not appear to work well or read bar code labels very quickly.	Try setting the Scanner Selection command to the specific input device you have attached. Check the bar code symbologies you have enabled on the terminal. Enable only the symbologies that you are using.

Bar Code Labels Will Not Scan (continued)

Problem	Solution
The scanner will not read the bar code label.	Try one of these solutions: • Make sure you aim the scanner beam so it crosses the entire bar code label in one pass. • The angle you are scanning the bar code label may not be working well, or you may be scanning the label "straight on." Try scanning the bar code label again, but vary the scanning angle. • The bar code label print quality may be poor or unreadable. To check the quality of the bar code label, try scanning a bar code label that you know scans. Compare the two bar code labels to see if the bar code quality is too low. You may need to replace the label that you cannot scan. • Make sure the bar code symbology you are scanning is enabled. Use the TRAKKER Antares 2400 Menu System to check the symbologies. On the Symbologies Menu, each symbology that is enabled has an asterisk (*) next to the name of the symbology. If your bar code symbology is disabled, enable it and then try scanning the bar code label again. • Make sure that the application you are running on the terminal is expecting input from a bar code. You may need to type this information instead of scanning it.
The scanner does not read the bar code labels quickly, or the scanning beam seems to be faint or obscured.	The scanner window may be dirty. Clean the window with a solution of ammonia and water. Wipe dry. Do not allow abrasive material to touch the window.

Booting and Resetting the Terminal

You seldom need to boot or reset the terminal. When you boot the terminal, it runs through power-on self test (POST) to test each major subsystem. The terminal uses the configuration currently saved in flash memory. Once the terminal is finished booting, your application appears on the screen.

You only need to reset the terminal when the terminal or an application are locked up and will not respond. The terminal also boots and resets after a firmware upgrade or if you remove the battery pack for more than 15 minutes and the backup power source runs out. The next instructions explain how you boot and reset the terminal.

Booting the Terminal

You can boot the terminal using these two methods:

- Configure the ⏻ key to boot the terminal when you turn on the terminal.
- Use the Boot Menu.

Booting the Terminal on Resume

When you press ⏻ to turn off the terminal, it turns off and goes into Suspend mode. When you press ⏻ to turn on the terminal, it resumes or boots depending on the terminal configuration.

Use the Resume Execution configuration command to configure the ⏻ key:

Resume Execution Not Allowed Configures the terminal to boot and restart your application each time you press ⏻ to turn on the terminal. Use this option if you want to restart your application every time you turn on the terminal.

Resume Execution Allowed Configures the terminal to resume exactly where it was when you turned off the terminal. Use this option to resume working each time you turn on the terminal.

You can configure the Resume Execution command by using the TRAKKER Antares 2400 Menu System or by scanning these bar code labels. For help, see "Resume Execution" in Chapter 8.

Resume Execution Not Allowed

$+ER0

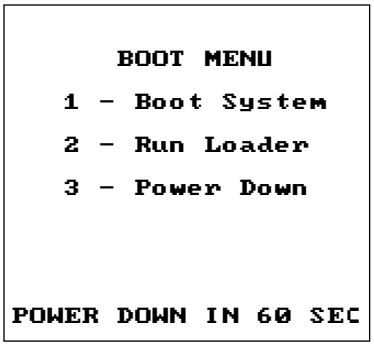
Resume Execution Allowed

$+ER1

Using the Boot Menu

The Boot menu appears after you

- reset the terminal.
- remove the battery pack and wait longer than 15 minutes to install a charged battery pack. This procedure also performs a destructive reset, which can have unpredictable results.
- upgrade the firmware. For help, see "Upgrading the Firmware" later in this chapter.



241XU058.eps

The Boot Menu contains these commands:

Boot System If you did remove the batteries, make sure you install a charged main battery pack or the terminal will not turn on. Press ① to boot the terminal. Once the terminal is finished booting, your application appears on the screen.

Run Loader Press ② to load the terminal firmware. To upgrade or load the firmware, you should use the Firmware Upgrade option in the TRAKKER Antares 2400 Menu System. For help, see "Upgrading the Firmware" later in this chapter.

Power Down Press ③ to turn off the terminal. When you turn on the terminal, the Boot Menu screen appears again if POST passes.

Resetting the Terminal

If the terminal or application is locked up and the terminal will not respond to any key sequences, try the following steps in order:

1. Press ⏻ to turn off the terminal. Press ⏻ to turn on the terminal.
2. Use the TRAKKER Antares 2400 Menu System to reboot the terminal.
   a. Press f T 2 M or press f 2 4 8 to enter the TRAKKER Antares 2400 Menu System.
   b. Choose System Menu and then Upgrade Firmware.
   c. Choose OK, then YES, then press Esc. The Boot Menu appears.
   d. Press 1 to boot the terminal.
3. Scan the Reset Firmware label to restart the firmware and application.

   Reset Firmware

   -.

If the terminal or application still will not respond, reset the terminal.

To reset the terminal

- Scan the Boot Terminal label to reboot the terminal.

  Boot Terminal

  -.1

Or if the terminal will not scan, you can perform a destructive reset. A destructive reset can have unpredictable results.

1. If possible, press ⏻ to turn off the terminal.
2. Press and hold the ⏻ key for approximately 12 seconds. The Good Read LED blinks once and the terminal turns off.
3. Press ⏻ to turn on the terminal. The Boot Menu appears. Refer to the illustration on the previous page.
4. Press 1 to boot the terminal. Once the terminal has finished booting, your application appears.
5. Set the time and date. For help using the TRAKKER Antares 2400 Menu System, see "Configuring the Terminal With the Menu System" in Chapter 3.

Cleaning the Scanner Window and Terminal Screen

The terminals are built for use in a light industrial working environment. You may need to perform these minor maintenance tasks to keep the terminal in good working order:

- Clean the scanner window.
- Clean the terminal screen.

Clean the scanner window and terminal screen as often as needed for the environment in which you are using the terminal.

To clean the scanner window and terminal screen

1. Press ⏻ to turn off the terminal.
2. Use a solution of ammonia and water.
3. Dip a clean towel or rag in the ammonia solution and wring out the excess solution. Wipe off the scanner window and terminal screen. Do not allow any abrasive material to touch these surfaces.
4. Wipe dry.

Upgrading the Terminal

This section explains how to upgrade the firmware on the terminal and how to load double-byte fonts, if you choose to order them after you receive your terminal.

You can also upgrade the terminal for:

- TE 2000 (new releases)
- dcBrowser Client™

For pricing and availability, check with your local Intermec representative.

Upgrading the Firmware

Note: When you upgrade the firmware, you restore the terminal's default configuration. You will need to set the primary network communications parameters on the 2415 to reestablish communications with other devices in the RF network. You also need to reset the serial port parameters to communicate with another device through the serial port.

To order a firmware upgrade kit, contact your local Intermec service representative. Each kit comes with the latest firmware version, the default applications, the DOS firmware upgrade utility, a README.TXT file, and a WHATSNEW.TXT file.

Note: You can also upgrade the firmware on one or more 2415s using the DCS 300 firmware upgrade utility. For help, see the *DCS 300 System Manual*.

To upgrade the firmware using the DOS utility

Note: Before you can upgrade the firmware, open the MS-DOS window. Then, open the MS-DOS Prompt Properties dialog box. In the Memory tab, set the Initial Environment field to 4096. Close the MS-DOS window and re-open it.

1. Connect the terminal to your PC. For help connecting the terminal, see "Using Serial Communications on the Terminals" in Chapter 2.
2. Create a new directory on your PC.
3. Copy these five upgrade files to the directory that you created in Step 2:
   - INSTALL.BAT
   - INSTALL.INF
   - TKANT*xxx*.EXE, where *xxx* is the firmware revision number.
   - README.TXT
   - WHATSNEW.TXT
4. Access the MS-DOS window.

5. Change to the directory where the upgrade files are located.
6. Type:

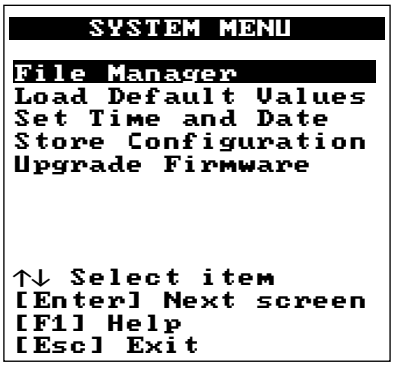
   `INSTALL`

   The batch file explodes the TKANT*xxx*.EXE file to a new directory. This new directory contains all the files you need to perform an upgrade.
7. On the terminal, press f ↵ T 2 M or press f ↵ 2 4 8 or scan this bar code label:

   Enter Test and Service Mode

   ..-.

   The Main Menu appears.
8. Choose System Menu and press ↵. The System Menu appears.

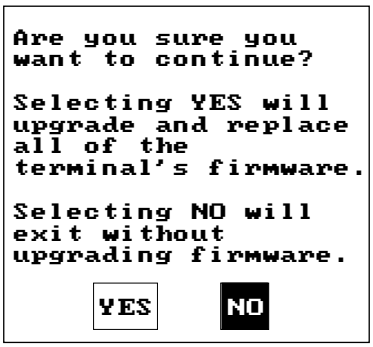


241XU044.eps

9. Choose Upgrade Firmware and press ↵. The Upgrade Firmware screen appears.

241XU060.eps

10. Choose OK to continue. The next screen appears.



241XU091.eps

11. Choose Yes to continue and upgrade the firmware. The terminal reboots and then displays the Loader Waiting screen.

Note: If you reach the Loader Waiting screen and cannot upgrade or continue, press Esc once or I/O twice to exit without upgrading the firmware. The Boot Menu appears. Press 1 to boot the terminal and continue.

12. On your PC in the MS-DOS window, change to the directory that contains the upgrade files in Step 6.
13. Type:

    UPGRADE

    A menu appears asking you to select a communications port.
14. Choose 1 to select COM1. A menu appears asking you to select a download speed.
15. Choose a download speed. A menu appears asking you to select which protocol stack to use.
16. Choose a protocol stack. A menu appears asking you to select the communication hardware for your terminal.
17. Choose the communication hardware. The Loader screen appears and begins downloading the firmware and application to the terminal.
18. When you are done upgrading the firmware, the terminal returns to its default configuration. You will need to reconfigure the terminal. For help, see "Using the Terminal for the First Time" in Chapter 1.

If you are using Windows NT, follow the above procedure through Step 12. Print the UPGRADE.BAT file. Identify the numbers that are associated with the menu selections in Steps 14 through 17. When you get to Step 13, type:

UPGRADE X X X X

where the Xs represent the menu selection numbers.

Loading Double-Byte Fonts

You can order the terminal pre-loaded with different Asian fonts. If you did not order your terminal pre-loaded with a double-byte font, but you did order the optional 4MB flash drive (drive D), you can load the font yourself. To order a double-byte font, contact your local Intermec representative.

Use this table to determine which file name you need.

			Keypad Overlay		
Language	**File Name**	**Basic**	**International**	**5250**	**VT/ANSI**
Simplified Chinese	24DBCSCT.fon	X	X		X
Simplified Chinese	24DBCSCL.fon			X	
Japanese EUC (unix)	24DBCSJT.fon	X	X		X
Japanese	24DBCSJL.fon			X	
Korean	24DBCSKT.fon	X	X		X
Korean	24DBCSKL.fon			X	
Big 5	24DBCSTT.fon	X	X		X
Big 5	24DBCSTL.fon			X	

To load a double-byte font

1. Connect the terminal to your PC. For help connecting the terminal, see "Using Serial Communications on the Terminals" in Chapter 2.
2. On your PC, copy the FLOADER.EXE application and the double-byte font file into a directory.
3. On the terminal, press Alt ( ) T 2 M or press Alt ( ) 2 4 8 or scan this bar code label:

   Enter Test and Service Mode

   ..-.

   The Main Menu appears.
4. Choose System Menu and press ( ). The System Menu appears.
5. Choose Upgrade Firmware and press ( ). The Upgrade Firmware screen appears.
6. Choose OK to continue.

7. Choose Yes to continue and upgrade the firmware. The terminal reboots and then displays the Loader Waiting screen.

Note: If you reach the Loader Waiting screen and cannot upgrade or continue, press Esc once or I/O twice to exit without upgrading the firmware. The Boot Menu appears. Press 1 to boot the terminal and continue.

8. On your PC, access the MS-DOS window.
9. At the prompt, change to the directory that contains the double-byte font.
10. Type:

    `FLOADER / COM1 / baudrate filename.FON`

    where:

    baudrate is b9600, b19200, b38400, b57600, or b115200

    filename is one of the file names in the table.

6

Running Diagnostics

This chapter explains how to run the diagnostics that are on the terminal.

What Diagnostics Are Available?

You can run diagnostics on the Trakker Antares 2410 and 2415 terminals to help you analyze hardware and firmware problems, fix application problems, and view system information. You use the TRAKKER Antares 2400 Menu System to run diagnostics.

Use this table to determine the diagnostic you want to run on the terminal.

Diagnostic Test	Description	Page No.
Access Point	(2415 only) Lists information about the access point the 2415 is communicating with across the network.	6-20
Application Efficiency	Displays the application efficiency percentage to help determine the impact that the application has on the terminal's battery power.	6-21
Application Events	Shows the current status of each application event to help debug applications.	6-7
Battery/PIC Status	Shows the power remaining in the battery pack. It also shows the voltage, temperature, and charging status for the battery pack.	6-11
Beeper Test	Sounds a series of beeps to test the beeper by using a range of beep volumes and beep frequencies.	6-12
Clear Task Profiles	Clears the Task Status counters so that you can begin accumulating new task statistics for the Task Status screen and the Application Efficiency screen.	6-8
Destructive RAM Test	Extensively tests the RAM.	6-13
Display Test	Tests and turns on the pixels on the screen to make sure all areas of the screen are working correctly.	6-14
Error Logger	Lists any errors that the firmware did not expect.	6-9
Hardware Configuration	Lists the terminal's hardware components that were installed at the Intermec factory. On 2415s, this diagnostic test also includes the RF country code.	6-15

Diagnostic Tests (continued)

Diagnostic Test	Description	Page No.
Keypad Test	Shows the hexadecimal, decimal, and scan code value for any key or key combination on the keypad.	6-16
Malloc Application Information	Shows how memory is allocated and used by the current application.	6-22
Malloc Firmware Information	Shows how memory is allocated and used in the terminal firmware.	6-23
Radio Test	(2415 only) Tests the radio to make sure it is working.	6-17
Scanner Test	Tests the laser scanner to make sure it is working.	6-18
Serial Port Loopback	Verifies that the hardware for the RS-232 serial port is functioning correctly.	6-19
Serial Port Test	Tests serial communications between the terminal and the host computer or serial device.	6-24
Subsystem Versions	Lists the version of each major firmware subsystem loaded on the terminal.	6-25
Task Status	Shows the task name, stack, the percentage of time each subsystem has been running, and the stack usage.	6-10

Running Diagnostics From the Menu System

The TRAKKER Antares 2400 Menu System is a menu-driven application that lets you configure the terminal, view system information, and run diagnostics. You can access the TRAKKER Antares 2400 Menu System and run diagnostics while running any application.

To run diagnostics from the TRAKKER Antares 2400 Menu System

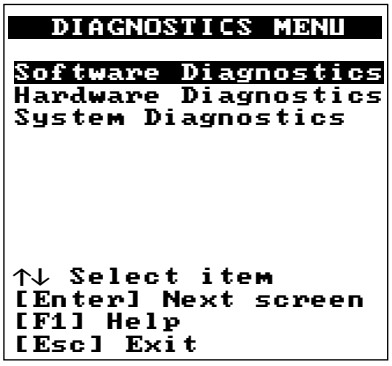
1. Press f) T 2 M or press f) 2 4 8 or scan this bar code label:

   Enter Test and Service Mode

   ..-.

   The Main Menu appears.

2. Choose the Diagnostics Menu and press). The Diagnostics Menu appears.



241XU062.eps

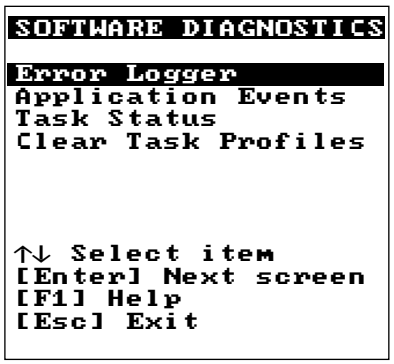
The Diagnostics Menu contains these commands:

Software Diagnostics Lets you run software diagnostics to help analyze software problems on the terminal. For example, you can view the Error Logger file to view system errors.

Hardware Diagnostics Lets you run hardware diagnostics to help analyze hardware problems on the terminal. For example, you can check the power remaining and the condition of the battery pack.

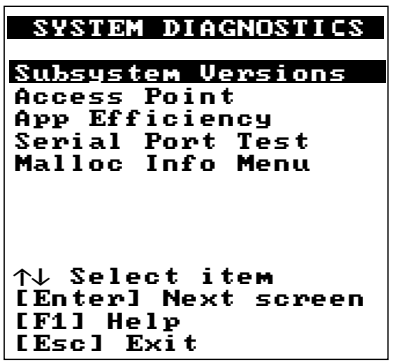
System Diagnostics Lets you run system diagnostics to help analyze network, system, or application problems on the terminal. For example, you can run diagnostics to check the communications between the 2415 and the access point.

3. Choose Software Diagnostics, Hardware Diagnostics, or System Diagnostics and press ↵. One of these menus appears.



241XU065.eps

241XU066.eps



241XU068.eps

Note: The Radio Test and Access Point diagnostics are only available for a 2415. You will not see these options on a 2410 since it does not have a radio.

4. Choose the diagnostic test you want to run and press ↵. The diagnostic screen appears. Use the information on the screen or follow the instructions to run the diagnostic test. For help, see "Defining the Diagnostics Screens" later in this chapter.
5. Press Esc to exit each diagnostic screen and to exit the diagnostics menus and return to the Main Menu.
6. Choose another menu from the Main Menu or press Esc to exit the TRAKKER Antares 2400 Menu System. If you have made any changes, a screen prompts you to store the changes in flash memory. For help, see "Exiting the TRAKKER Antares 2400 Menu System" in Chapter 3.

After you exit the menu system, the terminal resumes the application you were running when you started the menu system.

Defining the Diagnostics Screens

You can find the following information about each diagnostic test:

- Description and purpose
- Menu where the diagnostic is available
- Sample diagnostic screen
- Definition and explanation of the diagnostic screen

The diagnostics are grouped into three categories:

- Software diagnostics
- Hardware diagnostics
- System diagnostics

Within each category, the diagnostics are listed alphabetically by name.

Defining the Software Diagnostics Screens

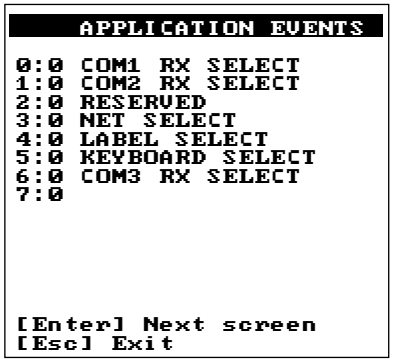
Each software diagnostic screen is defined in this section.

Application Events

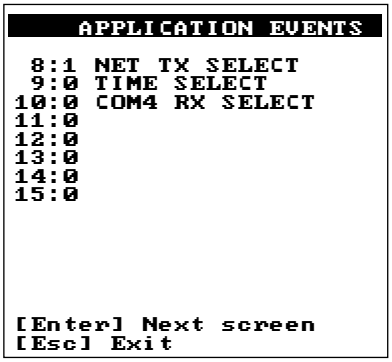
Purpose: A programmer can use the current status of each event to help debug applications running on the terminal.

Where Available: Software Diagnostics menu.

Sample Screen:



241XU069.eps



241XU067.eps

Definition: The terminal uses an event-driven architecture. All inputs to the terminal, such as from the keypad or from the network, arrive in the form of an event. You can check the status of each event using the Application Events screen. When an event is serviced by the application, the event is cleared.

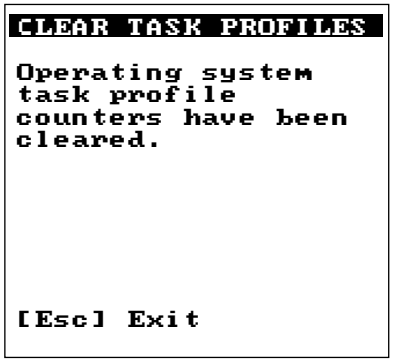
0 means the event is cleared. 1 means the event has occurred (or is set).

Clear Task Profiles

Purpose: Clears the task profile counters so that you can begin accumulating statistics on the firmware subsystem tasks from a known point in time.

Where Available: Software Diagnostics menu

Sample Screen:



241XU070.eps

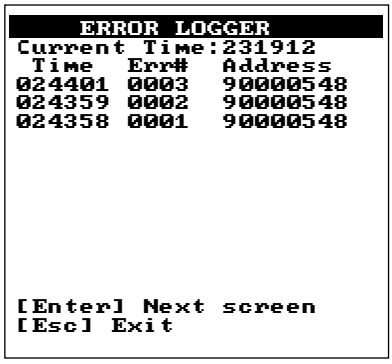
Definition: When you select the Clear Task Profiles option, the terminal clears the %Time field on the Task Status screen. It also resets all counters that are used to calculate the Application Efficiency screen.

Error Logger

Purpose: You can use the Error Logger screen to display any errors that the system detected while you were using the terminal. For help solving an error, contact your local Intermec service representative.

Where Available: Software Diagnostics menu

Sample Screen:



241X064.eps

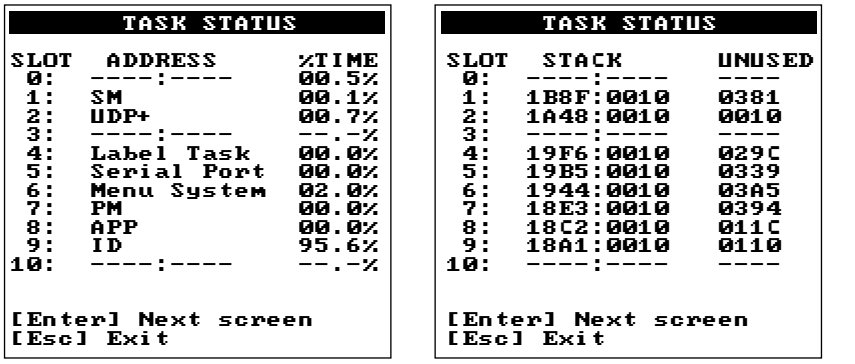
Definition: The Error Logger screen shows the last 30 errors. Press enter to see the next screen of errors. The first column displays the time in HHMMSS. The second column displays the error number. The third column displays the internal firmware address, which helps identify why the error occurred.

Task Status

Purpose: A programmer can use the Task Status screens to view the task name, stack, and the percentage of time a task has been running. You can also use the Task Status screen to determine the type of RF network protocol, TCP/IP or UDP Plus, loaded on the terminal.

Where Available: Software Diagnostics menu

Sample Screen:



241XU071.eps

Definition: The %Time field measures the relative amount of time that a given software task or component is active. For example, Idle Task (ID) in the Power Management software is a component. The %Time that Idle Task is active is directly proportional to battery life.

The ID (idle) address should have the largest %Time field. If any other address (task) is also large, you probably have a problem.

You can also check the task list to determine the RF network protocol loaded on the terminal. Check the list of task names for UDP+ or TCP/IP. A task name of UDP+ means the terminal uses UDP Plus for RF communications. A task name of TCP/IP means the terminal uses TCP/IP for RF communications.

To refresh the statistics and start from a known point in time, use the Clear Task Profiles diagnostic option to clear the task status counters.

Defining the Hardware Diagnostics Screens

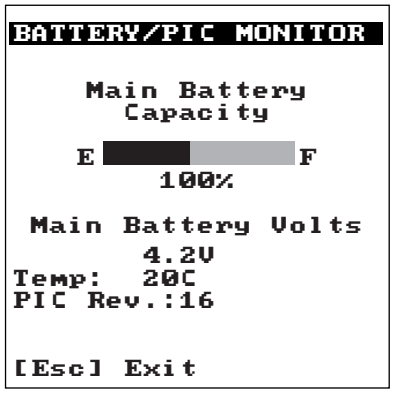
Each hardware diagnostic screen is defined in this section.

Battery/PIC Status

Purpose: Use the Battery/PIC status screen to get information about the lithium-ion battery pack.

Where Available: Hardware Diagnostics menu, Battery/PIC Status, Main Battery/PIC

Sample Screen:



241XU073.eps

Definition: Main Battery Capacity tells you the percentage of battery power remaining in the battery pack. You can continue using the battery pack until the Battery LED turns on to indicate a low battery.

Note: While the battery is charging, do not use this screen to determine when the battery is fully charged. To determine when the battery is fully charged, use the status LEDs on the battery chargers or communications dock.

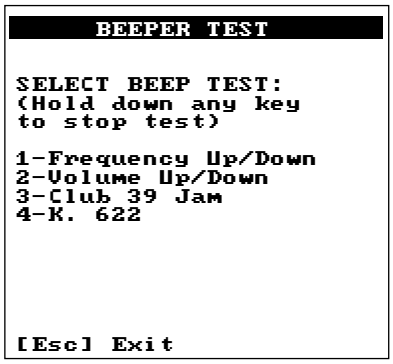
You can also use this screen to find out the current volts and temperature. The PIC Rev field is the firmware version that is running on the battery monitor processor.

Beeper Test

Purpose: You can test the terminal beeper to make sure the entire beep volume range and beep frequency range are available and working correctly. The Beeper Test can also help you distinguish the different beep volumes to choose a level that you can hear in your working environment.

Where Available: Choose the Main Board Menu from the Hardware Diagnostics menu.

Sample Screen:



241XU076.eps

Definition: Press ① to test the beep frequency range. The terminal will sound a series of beeps starting from a low frequency beep through the range to a high frequency beep, and then back to a low frequency beep.

Press ② to test the beep volume. The terminal sounds a series of beeps from a quiet beep to a very loud beep. On the 241X, the quiet and normal beep volumes sound the same and the loud and very loud beep volumes sound the same.

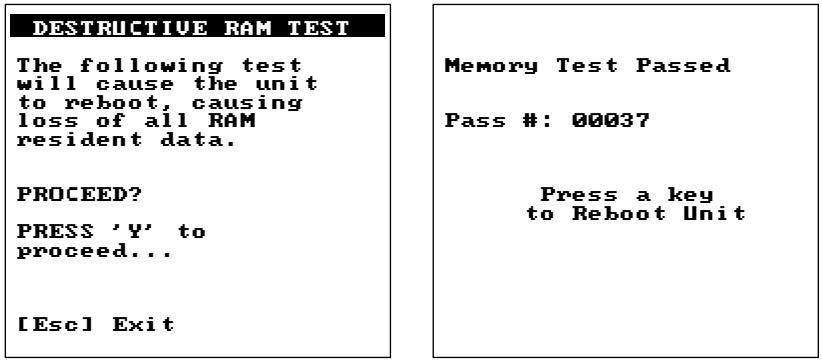
Tests 3 and 4 also test the beep volume and frequency by playing a short tune. If you do not hear any beeps during any of these tests, you may have a problem with the beeper or internal speakers. For help, contact your local Intermec service representative.

Destructive RAM Test

Purpose: Use the Destructive RAM Test if you have any problems storing files on the RAM drive or running an application that uses RAM memory.

Where Available: Choose the Main Board Menu from the Hardware Diagnostics menu.

Sample Screen:



2421XU078.eps

Definition: Before you run this test, save your data. If you are running a TE application, end your current TE session. Press Ⓨ to start the test. All data in RAM will be lost. The terminal starts the RAM test and clears the screen. You hear a beep after a successful test of each 64K block of data. After 15 beeps, a test pass is complete and the results appear. The sample screen shows a successful test pass.

To run another test pass, do not press a key and the next test begins after a 5 second pause. You may let the test continue and test the RAM several times to get a test over time. To exit the test, press ⓪ once a test pass is complete. The terminal reboots and restarts your application.

If an error is found, the Destructive RAM Test stops and displays the error address, the data written to RAM, and the data read from RAM. Note this information and contact your local Intermec service representative.

CAUTION

Caution
If the Destructive RAM Test fails, stop using the terminal. Contact your local Intermec service representative.

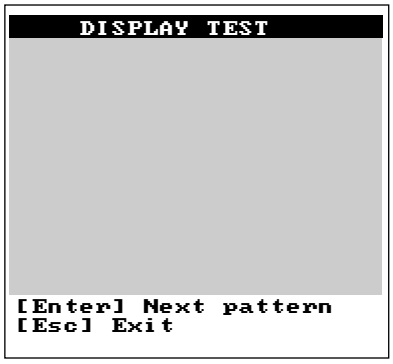
Conseil
Si le test Destructive RAM échoue, veuillez ne plus utiliser le terminal. Contactez le représentant du service clientèle Intermec de votre région.

Display Test

Purpose: Use the Display Test to make sure that every pixel on the terminal screen is working correctly. For example, you may want to test the screen if you do not see complete characters on the screen.

Where Available: Hardware Diagnostics menu

Sample Screen:



241XU080.eps

Definition: Press ⓔ to display each of the four patterns. After 5 seconds, the entire screen is filled with the current test pattern. Press ⓔ to display the next pattern. The first two patterns appear as a shaded pattern and turn off every other pixel. The third pattern turns on every pixel and appears as a black square. The fourth pattern turns off every pixel and appears as a clear square.

If any of these patterns do not display correctly, you may have a problem with the LCD. For help, contact your local Intermec service representative.

Hardware Configuration

Purpose: If you are discussing a problem with Intermec, you can use the Hardware Configuration screen to tell the Intermec representative the exact version of hardware that was installed on the terminal at the Intermec factory. You can also use this screen to see the country code that is configured on the 2415.

Where Available: Hardware Diagnostics menu

Sample Screen:

```
HARDWARE CONFIG

Country Code :
USA            (028)

Display Type :   0
Display Rev  :   0
Display Cont :   32

Keypad Type  :   0
Keypad Rev   :   2
Keypad Table :   21

[Enter] Next screen
[Esc] Exit
```

```
HARDWARE CONFIG

PCMCIA TYPE:     2
PCMCIA REV :     1

PCB Rev    :     1

Product ID :     2415

Serial #   :
123456789

[Enter] Next screen
[Esc] Exit
```

```
HARDWARE CONFIG

Digital IO   :   255

Icon Led     :   1

COM1 type    :   1
COM2 type    :   0
COM3 type    :   0
COM4 type    :   0

PCMCIA B Type:   0
PCMCIA B Rev :   0

[Enter] Next screen
[Esc] Exit
```

```
HARDWARE CONFIG

ASIC B     :   0

Eeprom     :   0

Flash Size :   0

[Enter] Next screen
[Esc] Exit
```

241XU082.eps

Definition: Press 0 to display the next screen of hardware information. If you are having a specific problem with one system, such as the radio, note the hardware versions on the terminal before contacting your local Intermec service representative.

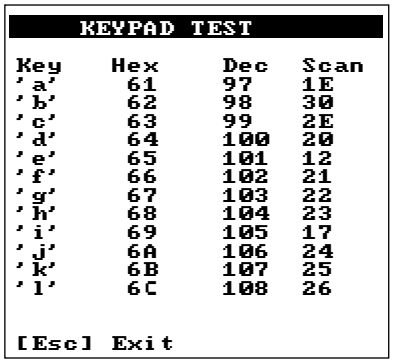
The country code information on the Hardware Configuration screen is only valid when the radio (Network Activate command) is enabled. If the radio is disabled, the country code information is not valid. For help, see “Network Activate” in Chapter 8.

Keypad Test

Purpose: An application programmer can use the Keypad Test screen to quickly find the hexadecimal key code value, the decimal key code value, and the scan code for any key on the keypad. You can also use the test to make sure the keypad is operating correctly.

Where Available: Hardware Diagnostics menu

Sample Screen:



241XU084.eps

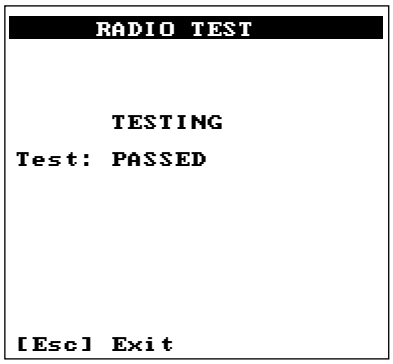
Definition: Press any key or key combination on the keypad to display the hexadecimal, decimal, and scan code value of the key. When you press Esc, the terminal pauses for a few seconds to display the values before you exit the screen. For a complete list of key codes, see the "Trakker Antares Terminal Font Set" in Appendix C or refer to the *Trakker Antares Application Development Tools System Manual (*Part No. 064433).

Radio Test

Purpose: Use the Radio Test screen on a 2415 to verify that you have a working radio.

Where Available: Hardware Diagnostics menu

Sample Screen:



241XU086.eps

Definition: Before you start the test, make sure the radio (Network Activate command) is enabled. If the radio is disabled, the test results on the Radio Test screen are not valid. For help, see "Network Activate" in Chapter 8.

Press ⓞ to start the radio test. The results of the test display on the screen once the test is complete. If SUCCESS or PASSED display, the radio is working correctly. If FAILED displays, note the error number. You may have a problem with the radio inside the 2415. For help, contact your local Intermec service representative.

Caution
If the Radio Test fails, stop using the terminal. Contact your local Intermec service representative.

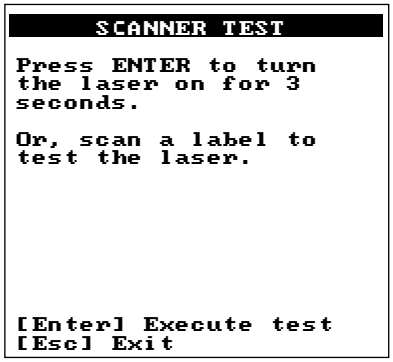
Conseil
Si le test Radio échoue, veuillez ne plus utiliser le terminal. Contactez le représentant du service clientèle Intermec de votre région.

Scanner Test

Purpose: Use the Scanner Test to make sure the laser scanner and Scan button are operating correctly.

Where Available: Hardware Diagnostics menu

Sample Screen:



241XU088.eps

Definition: To start the test, press ⏎. If the laser scanner turns on, the scanner is working correctly. If the laser scanner does not turn on, you may have a problem with it.

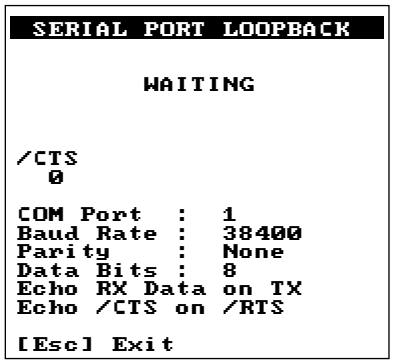
If the laser scanner did turn on in the first test, try scanning a bar code label. To scan a label, press the Scan button on the terminal. If the laser scanner turns on, the Scan button is working correctly. If the laser scanner does not turn on, you may have a problem with the Scan button on the terminal. For help with scanner problems, contact your local Intermec service representative.

Serial Port Loopback Test

Purpose: Use the Serial Port Loopback test to verify that the hardware for the serial port is functioning correctly. To run this diagnostic test, you must connect the terminal to a host computer or other serial device via a special cable (Part No. 069589) or the communications dock.

Where Available: Choose the Main Board Menu from the Hardware Diagnostics menu.

Sample Screen:



241XU144.eps

Definition: The serial port test begins immediately. You may need to disconnect the terminal from the current session. If the serial port hardware is functioning correctly, the terminal displays WAITING. When the host computer or other serial devices are transmitting, the terminal displays RECEIVING. The Serial Port Loopback test uses the serial communications settings that are listed on the bottom half of the screen.

On the host, you can use a serial communications package to send data to the terminal. If the terminal is communicating with the host, the data is echoed back. If there is a problem, an error message appears on the terminal screen. The status information on the screen is updated every 500 ms. For help with serial port errors, contact your local Intermec service representative.

Defining the System Diagnostics Screens

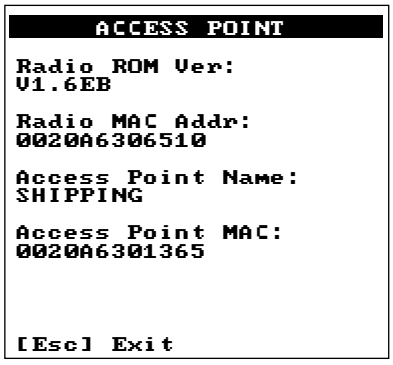
Each system diagnostic screen is defined in this section.

Access Point

Purpose: Use the Access Point screen to get version and address information about the access point the terminal is communicating with across the RF network. This diagnostic applies only to the 2415.

Where Available: System Diagnostics menu

Sample Screen:



241XU090.eps

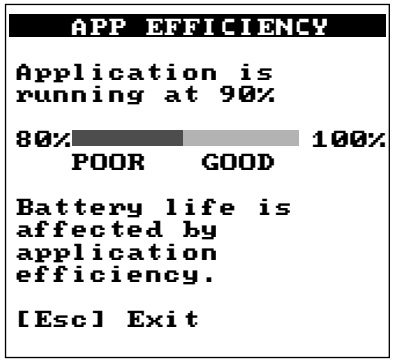
Definition: The screen displays the radio ROM firmware version and the radio MAC (machine) address for the terminal. It also displays the access point name and the access point MAC. If you have a problem with the radio or the connection to the access point, use the information on this screen to troubleshoot your network configuration.

Application Efficiency

Purpose: Use the Application Efficiency screen to find out if your application is making the best use of and maximizing battery life on the terminal.

Where Available: System Diagnostics menu

Sample Screen:



241XU092.eps

Definition: The screen displays the application efficiency percentage. The closer the percentage is to 100%, the more efficient the application is at using battery power. The terminal automatically goes into an internal Standby mode to draw power at a lower level when less power is required. An efficient application uses the Trakker Antares PSK functions to wait for events to occur and it does not poll in an infinite loop. When programmed correctly with the PSK or EZBuilder, the application does not prevent the terminal from going into Standby mode and uses the terminal's battery power as efficiently as possible.

Malloc Application Information

Purpose: A programmer or application developer can use the Malloc Application Information screen to see how memory is allocated and used by the current application.

Where Available: Choose the Malloc Info Menu from the System Diagnostics menu.

Sample Screen:

241XU094.eps

Definition: The screen displays the memory allocation used by the application. You can view the total free memory, the largest block of free memory, number of memory fragments, and the total number of allocated blocks of memory. You can use this diagnostic screen to troubleshoot a memory leak where the application is mallocing memory, but not freeing memory.

Malloc Firmware Information

Purpose: A programmer or application developer can use the Malloc Firmware Information screen to see how memory is allocated and used in the terminal firmware. The firmware includes the operating environment, firmware, drivers, and TRAKKER Antares 2400 Menu System.

Where Available: Choose the Malloc Info Menu from the System Diagnostics menu.

Sample Screen:

241XU096.eps

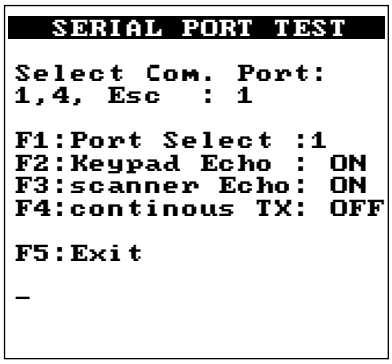
Definition: The screen displays the memory allocation for the terminal firmware. You can view the total free memory, the largest block of free memory, number of memory fragments, and the total number of allocated blocks of memory.

Serial Port Test

Purpose: Use the Serial Port Test screen to test or troubleshoot serial communications between the terminal and the host computer or serial device. To run this diagnostic test, you must connect the terminal to a host or other serial device via a special cable (Part No. 069589) or the communications dock.

Where Available: System Diagnostics menu

Sample Screen:



241XU097.eps

Definition: Press ① to test the RS-232 serial communications port. The screen displays the function key options you can use in this diagnostic screen. You may see the message "Port Not Available" if your application is currently using the serial port. You need to run an application that does not use the serial port for this diagnostic test.

F1 Selects the serial port.

F2 Toggles the keypad echo on and off. If you turn the keypad echo on, characters you type on the keypad are displayed on the bottom line of the screen and transmitted to the host.

F3 Toggles the scanner echo on and off. If you turn the scanner echo on, the bar code label you scan is displayed on the bottom line of the screen and transmitted to the host.

F4 Toggles the Continuous Transmit mode on and off. If you turn continuous transmit on, the terminal continuously sends out a string of 10 characters.

F5 Exits the Serial Port Test diagnostic screen.

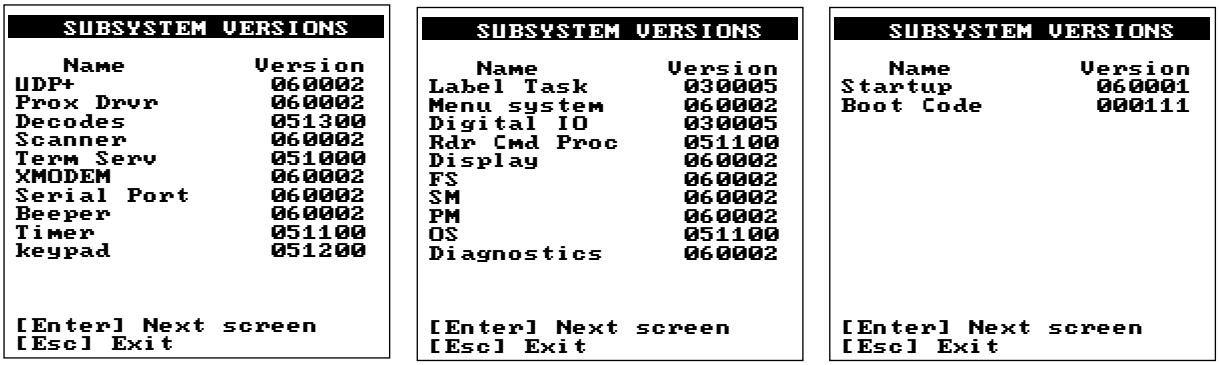
On the host, you use an RS-232 serial communications package to receive data from the terminal. To test serial communications, enter or scan data on the terminal. If the terminal is communicating with the host, you will see the data. If there is a problem, check the serial port parameters and make sure they match the host settings. For help with serial port errors, see Chapter 5, "Troubleshooting," or contact your local Intermec service representative.

Subsystem Versions

Purpose: If you are discussing a problem with Intermec, you can use the Subsystem Versions screen to tell the Intermec representative the exact version of firmware subsystems loaded on the terminal. Radio driver, network, or radio subsystem information apply only to the 2415.

Where Available: System Diagnostics menu

Sample Screen:



241XU098.eps

Definition: Press ↵ to display the next screen of subsystem information. If you are having a specific problem with one system, note the version loaded on the terminal before contacting your local Intermec service representative.

7

Reader Command Reference

Using Reader Commands

A reader command causes the Trakker Antares 2410 and 2415 terminals to perform a task. For example, you can turn the backlight on to easily view the terminal's screen when you are working in a dimly lit environment. Some reader commands temporarily override the configuration settings and some actually change the configuration settings.

You can execute reader commands by

- pressing keys on the keypad or choosing a command from the TRAKKER Antares 2400 Menu System.
- sending a command from a device (such as the DCS 300) on the serial or RF network.
- scanning a command from a Code 39 or Code 93 bar code label.

There are three general types of reader commands:

- Accumulate mode commands
- Operating commands
- File management commands

These commands are listed in alphabetical order within these three categories. For each command, you will find the purpose, command syntax, and bar code labels.

Note: The Code 39 bar code labels in this chapter show an asterisk (*) at the beginning and end of the human-readable interpretation to represent the start and stop codes. If you are creating your own Code 39 bar code labels, your bar code printing utility may automatically supply the asterisks as the start/stop code.

Using Accumulate Mode

You can use Accumulate mode to collect data from a series of bar code labels and enter them as a single label. When you put the terminal in Accumulate mode, the terminal will collect all scanned bar code labels in the terminal's buffer until you scan either the Enter or Exit Accumulate mode command.

As you accumulate the data from bar code labels, the data is visible on the bottom line of the screen. You can edit the accumulated data with the Backspace, Clear, and Enter commands. If you are not in Accumulate mode, the Backspace, Clear, and Enter commands have no effect and you will hear an error beep.

When you exit Accumulate mode, the collected data is "entered" as a data record. Up to 250 characters can be held in the buffer. If the data record count exceeds 250 characters, the data is truncated. If you reset the terminal (software or hardware reset), you exit Accumulate mode, the entire buffer is cleared, and all data accumulated is lost.

The syntax to use the Enter Accumulate command is:

`+/data`

where:

+/	is the syntax for the Enter Accumulate mode command.
data	is the data you want to enter. This data can be a configuration command or it can be a reader command that is executed when you exit Accumulate mode.

To use Accumulate mode

1. Scan this bar code label to Enter Accumulate Mode:

   Enter Accumulate Mode

   +/

2. Scan the bar code label(s) for the data you want to enter. You can scan labels from the "Full ASCII Bar Code Chart" in Appendix B.

Note: You can create one bar code label by combining Steps 1 and 2 above. Most of the examples in this manual use one bar code label.

3. If necessary, edit the accumulated data by scanning these bar code labels:

Backspace

-+

Clear

- -

Enter

**

4. Scan this bar code label to exit Accumulate mode and enter the data record.

Exit Accumulate Mode

-/

Backspace

Purpose: Deletes the last character from the current data record being accumulated. If there is no data in the buffer, the command has no effect.

From Network: Not supported

Keypad or Menu: Not supported

Scan: Backspace

-+

Clear

Purpose: Deletes the entire data record you are accumulating. If there is no data in the buffer, the command has no effect.

From Network: Not supported

Keypad or Menu: Not supported

Scan: Clear

- -

Enter

Purpose: Enters the current data record and remains in Accumulate mode. If no data exists, a null string is entered.

From Network: Not supported

Keypad or Menu: Not supported

Scan: Enter

**

Enter Accumulate Mode

Purpose: Enters Accumulate mode. You can accumulate data from a series of bar code labels and enter them as a single label.

From Network: Not supported

Keypad or Menu: Not supported

Scan: Enter Accumulate Mode

+/

Exit Accumulate Mode

Purpose: Exits Accumulate mode and transmits the current data record. If no data has been accumulated, an empty data record is entered.

From Network: Not supported

Keypad or Menu: Not supported

Scan: Exit Accumulate Mode

-/

Operating Reader Commands

This section explains the reader commands that you can use to operate or change the terminal's configuration. The commands are:

- Backlight On and Off
- Boot Terminal
- Change Configuration
- Default Configuration
- Multiple-Read Labels
- Reset Firmware
- Save Configuration in Flash Memory
- Scanner Trigger On and Off
- Set Time and Date
- Test and Service Mode

Backlight On and Off

Purpose: Turns the backlight on to easily view the terminal screen in dimly lit environments.

From Network: `%.1`

Keypad or Menu: Press ⓘ to turn the backlight on or off.

Scan: Backlight On

%.1

Purpose: Turns the backlight off.

From Network: `%.0`

Keypad or Menu: Press ⓘ to turn the backlight on or off.

Scan: Backlight Off

%.0

Note: You can use the command %. to toggle the backlight on and off.

Boot Terminal

Purpose: Boots the terminal. The terminal runs through power-on self test (POST) to test each major subsystem. The terminal uses the configuration currently saved in flash memory to boot and then your application appears on the screen.

Use this command when you upgrade the firmware on the terminal or if your terminal locks up and will not respond.

From Network: `-.1`

Keypad or Menu: From the Main Menu, choose System Menu and then Upgrade Firmware. Choose OK, then YES, then press Esc. The Boot Menu appears. Press 1 to boot the terminal.

Scan: Boot Terminal

-.1

Change Configuration

Purpose: This command must precede any configuration command. If you enter a valid string, the terminal configuration is modified and the terminal sounds a high beep. For help on the configuration commands, see Chapter 8, "Configuration Command Reference."

From Network: `$+command[command]...[command n]`

where *command* is a configuration command with the value you want to set.

Keypad or Menu: From the Main Menu, choose Configuration Menu.

Example: Change Configuration / Turn Off Beep Volume

$+BV0

The Change Configuration command is followed by the configuration command to turn off the beep volume (BV0).

Default Configuration

Purpose: Sets both the current and active configurations on the terminal to the default configuration, resets the firmware, boots the terminal, and runs your application. However, it does not reset the time and date. The default configuration for the terminal is listed in Appendix A. For help, see "Restoring the Terminal's Default Configuration" in Chapter 3.

Note: When you use this reader command, the Primary Network parameters are set to the default values. The 2415 will no longer have an IP address and will not be able to communicate with other devices. You must set these network parameters again. For help, see Chapter 2, "Operating the Terminals in a Network."

From Network: `.+0`

Keypad or Menu: From the Main Menu, choose System Menu and then choose Load Default Values.

Scan: Default Configuration

.+0

Multiple-Read Labels

Purpose: A multiple-read label is a Code 39 or Code 93 bar code label that has a space as the first character after the start code. The terminal stores a multiple-read label in the buffer until you execute a command to transmit the label or scan a regular label.

If you disable multiple-read labels, the terminal processes the bar code label as a regular label and reads and decodes the space as data. A regular bar code label is executed as soon as you scan it.

From Network: Not supported

Keypad or Menu: Not supported

Label Syntax: <Start Code><SP>*data*<Stop Code>

where <SP> is the ASCII space character and *data* is the content of the label.

Example: Multiple-Read Bar Code Label

* A*

After you scan a multiple-read bar code label, the accumulated data appears on the bottom line of the terminal screen. You can use the Accumulate mode commands, such as Backspace, to edit the data.

Reset Firmware

Purpose: Resets all firmware on the terminal, resets the application, and runs the application. You can use this command to restart your application if you are having problems.

From Network: `--.`

Keypad or Menu: From the Main Menu, choose System Menu and then Upgrade Firmware.

Scan: Reset Firmware

-.

Save Configuration in Flash Memory

Purpose: Saves the current configuration in flash memory. When you configure the terminal by scanning bar code labels or by sending commands from a network device, the configuration changes are saved in RAM. When you save the configuration to flash memory, the current configuration becomes the active configuration and it will be used the next time you boot or reset the terminal.

From Network: `.+1`

Keypad or Menu: From the Main Menu, choose System Menu and then Store Configuration.

Scan: Save Configuration in Flash Memory

.+1

Scanner Trigger On and Off

The Scanner Trigger On and the Scanner Trigger Off commands are the same as pushing and releasing the Scan button on the keypad. The Scan button and scanner trigger commands control the integrated scanner.

After a Scanner Trigger On command, the scanner operates differently depending on the Scanner mode and scanner trigger configuration settings:

- If you configure the terminal to use One-Shot Scanner mode and level triggering, the scanner automatically turns off after a good read of a bar code label, or after the scanner timeout period elapses.
- If you configure the terminal to use Automatic Scanner mode and level triggering, the scanner remains on after a good read of a bar code label. You can use the Scanner Trigger Off command to turn off the scanner or you can set the Scanner Timeout command to automatically turn off the scanner after it stays on for the period of time set.

For help on configuring the Scanner Mode or Scanner Trigger commands, see Chapter 8, "Configuration Command Reference."

Note: Intermec does not recommend that you use a Scanner Trigger On or Scanner Trigger Off command with the Scanner Trigger command set to edge triggering.

Purpose: The Scanner Trigger On command is the same as pushing the Scan button.

From Network: `/.`

Keypad or Menu: Press the Scan button on the keypad.

Scan: Not supported

Purpose: The Scanner Trigger Off command is the same as releasing the Scan button.

From Network: `/%`

Keypad or Menu: Release the Scan button on the keypad.

Scan: Not supported

Set Time and Date

Purpose: Sets the time and date on the terminal. When the terminal receives the time broadcast command from the 9154 or 9161 controller, the command sets the clock on the terminal. You can configure the clock with seconds or without seconds.

Use this command **only** for backward compatibility with the 95XX terminal. In the 95XX terminal documentation, this command was called Enable Clock. If you do not need backward compatibility, use the Time and Date configuration command. For help, see "Time and Date" in Chapter 8.

From Network: */+data*

Acceptable formats for data to set the time and date are:

yy/mm/dd:hh:mm:ss
yy/mm/dd:hh:mm
hh:mm:ss
hh:mm

Year values (*yy*) from 00 to 95 are interpreted as 2000 through 2095. Year values from 96 to 99 are interpreted as 1996 through 1999.

Keypad or Menu: Not supported.

Example: Set Time and Date to 1:30

/+1/Z30

Note: To use this reader command, you must configure the terminal to use Code 39 in Full ASCII mode. For help, see "Code 39" in Chapter 8.

Test and Service Mode

Purpose: Starts the TRAKKER Antares 2400 Menu System. From the Main Menu, the Diagnostics Menu is the Test and Service mode you can use to run software, hardware, and system diagnostics on the terminal. For help, see Chapter 6, "Running Diagnostics."

From Network: Not supported

Keypad or Menu: ⓕ ⓣ ② Ⓜ or ⓕ ② ④ ⑧

Scan: Test and Service Mode

..-.

File Management Reader Commands

This section lists the reader commands that you can use to manage files and applications. The commands are:

- Abort Program
- Delete File
- List Files
- Receive File
- Rename File
- Run Program
- Transmit File

Abort Program

Purpose: Aborts or exits the application that is running. The terminal exits the current application and starts running the default sample application (APPTSK.BIN).

From Network: `/$`

Keypad or Menu: Not supported

Scan: Abort Program

/$

Delete File

Purpose: Deletes a file from a drive on the terminal.

From Network: `...--drive:filename`

where:

`..--`	is the command to delete a file.
drive	indicates the drive where you want to delete a file. You must include the colon (:) after the drive letter.
filename	is the file you want to delete.

Note: You cannot use wildcard characters with this reader command. For example, you cannot send the command "`..c:*.*`" to the terminal.

Keypad or Menu: From the Main Menu, choose System Menu and then choose File Manager. Choose the drive where you want to delete files.

Scan:

1. Scan this bar code label:

   Enter Accumulate Mode / Delete File

   +/..--

2. Scan the bar code label(s) for the file you want to delete. You can scan labels from the "Full ASCII Bar Code Chart" in Appendix B. The label must use this format:

   `drive:filename`

Note: To use the bar code labels in Appendix B, you may need to configure the terminal to use Code 39 in Full ASCII mode. For help, see "Code 39" in Chapter 8.

3. Scan this bar code label to exit Accumulate mode and delete the file.

   Exit Accumulate Mode

   -/

Or: You can create your own bar code labels to delete files by creating a bar code in this command format:

`...--drive:filename`

List Files

Purpose: A list files reader command is not available in the current release. However, if you want to see a list of files on the terminal, you can use the TRAKKER Antares 2400 Menu System.

Keypad or Menu: From the Main Menu, choose System Menu and then choose File Manager. Choose the drive where you want to list the files.

Receive File

There are two ways to receive files on the terminals:

- Use the serial port to receive files on the terminal.
- Use RF communications to receive files on the 2415.

For help connecting the terminal to a host computer or the DCS 300, see Chapter 2, "Operating the Terminals in a Network."

Receive File Through the Serial Port

Purpose: Receives a file from the host computer through the serial port and saves it on the terminal.

On the host, you must transmit the file using a serial communications package (i.e., Windows 3.1 Terminal, Win95 Hyperterminal, Crosstalk, or Procomm) that supports one of these protocols:

- XMODEM
- XMODEM-1K
- YMODEM

XMODEM-1K is a version of XMODEM that supports 1024-byte blocks and the standard 128-byte XMODEM data blocks, which increases the throughput. YMODEM has the additional ability to transfer a file name with the file's data and it preserves the length of the file without padding. With YMODEM, you can also receive a batch of files on the terminal.

Note: Terminal filenames are up to eight characters with a three-character extension. Files you transfer from the host must use the Trakker Antares naming conventions.

From Network:	`.%X`*`n`*`,`*`drive`*`:`*`filename`*	Receives a file using XMODEM protocol
	`.%K`*`n`*`,`*`drive`*`:`*`filename`*	Receives a file using XMODEM-1K protocol
	`.%Y`*`n`*`,`*`drive`*`:`*`filename`*	Receives a file using YMODEM protocol

Receive File Through the Serial Port (continued)

Or: `.%Yn,drive:` Receives a batch of files using YMODEM

where:

`.%X`	is the command to receive a file using XMODEM protocol.
`.%K`	is the command to receive a file using XMODEM-1K protocol.
`.%Y`	is the command to receive a file using YMODEM protocol.
n	indicates the terminal's serial port: 1.
drive	indicates the drive on the terminal where you want to receive and store the file. You must include the colon (:) after the drive letter.
filename	is the file you want to receive and save on the terminal.

Keypad or Menu: Not supported

Scan: 1. Scan this bar code label:

Enter Accumulate Mode / Receive File

+/.%

2. Scan the bar code label for the communications protocol you want to use.

XMODEM *X*

XMODEM-1K *K*

YMODEM *Y*

3. Scan the bar code label for the terminal COM port you are using to receive the file. The label also includes the required comma.

COM1

1,

4. Scan the bar code label(s) for the file you want to receive. You can scan labels from the "Full ASCII Bar Code Chart" in Appendix B. The label must use this format:

`drive:filename`

Note: To use the bar code labels in Appendix B, you may need to configure the terminal to use Code 39 in Full ASCII mode. For help, see "Code 39" in Chapter 8.

Receive File Through the Serial Port (continued)

5. Scan this bar code label to exit Accumulate mode and receive the file.

Exit Accumulate Mode

-/

Or: You can create your own bar code labels to receive files by creating a bar code in this command format:

`.%Xn,drive:filename` (for XMODEM)

`.%Kn,drive:filename` (for XMODEM-1K)

`.%Yn,drive:filename` (for YMODEM)

Batch Transfer: To transfer a batch of files to the terminal by using the YMODEM protocol, use your serial communications package to start the transfer. You usually select a batch of files using a wild card file specification. The host must send only the filename and extension, not the drive and directory path in the data stream.

Next, use this command to receive the files on the 2410 or 2415:

`.%Yn,drive:`

For example, to receive the files through COM1 to drive C on the terminal, use this command:

```
.%Y1,c:
```

All files that match the wild card specification are transferred from the host and received to drive C on the terminal. If any file does not transfer, the remainder of the batch transfer is aborted.

Receive and Convert 7-Bit ASCII Files to 8-Bit Binary Files

Purpose: Receives a file from the host computer through the serial port, converts the file from a 7-bit ASCII hexadecimal file to an 8-bit binary file, and saves the file on the terminal. You must have the terminal connected to the host through a serial port. For help, see Chapter 2, "Operating the Terminals in a Network."

241X applications are 8-bit binary files. Some network protocols like the Intermec Multi-Drop protocol in a CrossBar network use 7-bit ASCII files. When you send 8-bit binary files across a 7-bit system without converting the files, the files are not compatible and will not run on the terminal.

Receive and Convert 7-Bit ASCII Files to 8-Bit Binary Files (continued)

On the host, you use a hexadecimal conversion utility to convert the 8-bit binary file to a 7-bit ASCII hexadecimal file. Intermec has a DOS utility called HEX.EXE to convert files. The source code for HEX.EXE is also available. For help, see your Intermec service representative. Once the file is converted to a 7-bit ASCII hexadecimal file, you use the Receive File command and a host utility to transfer the 7-bit file to the terminal and convert it back to an 8-bit file.

Note: Trakker Antares filenames are up to eight characters with a three-character extension. Files you transfer from the host need to use the Trakker Antares naming conventions.

From Network: `.%H`*`n`*`,`*`drive`*`:`*`filename`*

where:

`.%H`	is the command to receive a file that was converted from 7-bit ASCII hexadecimal and convert it back to an 8-bit binary file. The terminal uses the current serial port configuration (protocol, baud rate, etc.) for the file transfer.
n	indicates the terminal's serial port: 1.
drive	indicates the drive on the terminal where you want to receive and store the file. You must include the colon (:) after the drive letter.
filename	is the file you want to receive and save on the terminal.

Keypad or Menu: Not supported

Scan: 1. Scan this bar code label:

Note: To scan these bar code labels, you must configure the terminal to use Code 39 in Full ASCII mode. For help, see "Code 39" in Chapter 8.

Enter Accumulate Mode / Receive File

+/.%H

2. Scan the bar code label for the terminal COM port you are using to receive the file. The label also includes the required comma.

COM1

1,

Receive and Convert 7-Bit ASCII Files to 8-Bit Binary Files (continued)

3. Scan the bar code label(s) for the file you want to receive. You can scan labels from the "Full ASCII Bar Code Chart" in Appendix B. The label must use this format:

   drive:*filename*

4. Scan this bar code label to exit Accumulate mode and receive the file.

   Exit Accumulate Mode

   -/

Or: You can create your own bar code labels to receive files by creating a bar code in this command format:

.%H*n*,*drive*:*filename*

Example: You want to send an application from the host in your CrossBar network to the terminal. On the host, use HEX.EXE to convert the application from SHIPPING.BIN to SHIPPING.HEX. On the host, use a utility such as InterScan to transmit SHIPPING.HEX through the 9154 or 9161 to the terminal. Enter this command to receive the file SHIPPING.BIN on the terminal's drive C through COM2:

.%H2,c:shipping.bin

The file SHIPPING.HEX is transferred, converted from 7-bit ASCII hexadecimal to 8-bit binary, and stored as SHIPPING.BIN on the terminal.

Receive File Via RF Communications

Purpose: Receives a file from the DCS 300 or host and saves it on the 2415.

From Network: .%R,*fromfilename*,*drive*:*tofilename*

where:

.%R	is the command to receive a file that is transmitted over the RF network. The "R" indicates a file transmitted via RF communications to the 2415.
fromfilename	is the name of the file you are transmitting from the DCS 300 or host to the 2415. On the DCS 300, the file must be sent from the D:\USERDATA directory. To receive a file from the host, you must identify the path and filename.

Note: Do not type D:\USERDATA in this field.

Receive File Via RF Communications (continued)

drive	indicates the drive on the 2415 where you want to receive and store the file. You must include the colon (:) after the drive letter.
tofilename	is the name of the file you want to save on the 2415.

Keypad or Menu: Not supported

Scan: 1. Scan this bar code label:

Enter Accumulate Mode / Receive File

+/.%R,

2. Scan the bar code label(s) for the file you want to receive. You can scan labels from the "Full ASCII Bar Code Chart" in Appendix B. The label must use this format:

   fromfilename,drive:*tofilename*

Note: To use the bar code labels in Appendix B, you may need to configure the terminal to use Code 39 in Full ASCII mode. For help, see "Code 39" in Chapter 8.

3. Scan this bar code label to exit Accumulate mode and receive the file.

Exit Accumulate Mode

-/

Or: You can create your own bar code labels to receive files by creating a bar code in this command format:

.%R,*fromfilename,drive*:*tofilename*

Rename File

Purpose: Renames a file stored on the terminal.

From Network: `...-drive:oldfilename,drive:newfilename`

where:

`...-`	is the command to rename a file.
drive	indicates the drive where the *oldfilename* is stored. You must include the colon (:) after the drive letter.
oldfilename	is the name of the file you want to rename.
drive	indicates the drive where the *newfilename* is stored. You must include the colon (:) after the drive letter. The drive **MUST** be the same drive where the *oldfilename* is stored.
newfilename	is the new name of the file.

Keypad or Menu: From the Main Menu, choose System Menu and then File Manager. Choose the drive where you want to rename files.

Scan:

1. Scan this bar code label:

   Enter Accumulate Mode / Rename File

   +/...-

2. Scan the bar code label(s) for the file you want to rename. You can scan labels from the "Full ASCII Bar Code Chart" in Appendix B. The label must use this format:

   `drive:oldfilename,drive:newfilename`

   Note: To use the bar code labels in Appendix B, you may need to configure the terminal to use Code 39 in Full ASCII mode. For help, see "Code 39" in Chapter 8.

3. Scan this bar code label to exit Accumulate mode and rename the file.

   Exit Accumulate Mode

   -/

Or: You can create your own bar code labels to rename files by creating a bar code in this command format:

`...-drive:oldfilename,drive:newfilename`

Run Program

Purpose: Runs the specified program or application that is stored on the terminal. For help, see Chapter 4, "Using Custom Applications."

Note: You cannot store and run applications from the RAM drive (E).

From Network: `//drive:filename`

where:

`//`	is the command to run an application.
drive	indicates the drive where the application is stored. You must include the colon (:) after the drive letter.
filename	is the application you want to run.

Keypad or Menu: From the Main Menu, choose System Menu and then File Manager. Choose the drive where the application is stored.

Scan:

1. Scan this bar code label:

   Enter Accumulate Mode / Run Program

   +///

2. Scan the bar code label(s) for the application you want to run. You can scan labels from the "Full ASCII Bar Code Chart" in Appendix B. The label must use this format:

   `drive:filename`

   Note: To use the bar code labels in Appendix B, you may need to configure the terminal to use Code 39 in Full ASCII mode. For help, see "Code 39" in Chapter 8.

3. Scan this bar code label to exit Accumulate mode and run the application.

   Exit Accumulate Mode

   -/

Or: You can create your own bar code labels to run applications by creating a bar code in this command format:

`//drive:filename`

Transmit File

There are two ways to transmit files from the terminals:

- Use the serial port to transmit files from the terminal.
- Use RF communications to transmit files from the 2415.

For help connecting the terminal to a host computer or the DCS 300, see Chapter 2, "Operating the Terminals in a Network."

Transmit File Through the Serial Port

Purpose: Transmits a file from the terminal through the serial port and saves it on the host computer.

On the host, you must receive the file using a serial communications package (i.e., Windows 3.1 Terminal, Win95 Hyperterminal, Crosstalk, or Procomm) that supports one of these protocols:

- XMODEM
- XMODEM-1K
- YMODEM

XMODEM-1K is a version of XMODEM that supports 1024-byte blocks and the standard 128-byte XMODEM data blocks, which increases the throughput. YMODEM has the additional ability to transfer a file name with the file's data and it preserves the length of the file without padding.

Note: Terminal filenames are up to eight characters with a three-character extension. Files you transfer from the host must use the Trakker Antares naming conventions.

From Network:

%%X*n*,*drive*:*filename*	Transmits a file using XMODEM protocol
%%K*n*,*drive*:*filename*	Transmits a file using XMODEM-1K protocol
%%Y*n*,*drive*:*filename*	Transmits a file using YMODEM protocol

where:

%%X	is the command to transmit a file using XMODEM protocol.
%%K	is the command to transmit a file using XMODEM-1K protocol.
%%Y	is the command to transmit a file using YMODEM protocol.
n	indicates the terminal's serial port: 1.
drive	indicates the drive where the file is stored on the terminal. You must include the colon (:) after the drive letter.
filename	is the file you want to transmit.

Keypad or Menu: Not supported

Transmit File Through the Serial Port (continued)

Scan: 1. Scan this bar code label:

Enter Accumulate Mode / Transmit File

+/%%

2. Scan the bar code label for the communications protocol you want to use.

XMODEM	XMODEM-1K	YMODEM
X	*K*	*Y*

3. Scan the bar code label for the terminal COM port you are using to transmit the file. The label also includes the required comma.

COM1

1,

4. Scan the bar code label(s) for the file you want to transmit. You can scan labels from the "Full ASCII Bar Code Chart" in Appendix B. The label must use this format:

`drive:filename`

Note: To use the bar code labels in Appendix B, you may need to configure the terminal to use Code 39 in Full ASCII mode. For help, see "Code 39" in Chapter 8.

5. Scan this bar code label to exit Accumulate mode and transmit the file.

Exit Accumulate Mode

-/

Or: You can create your own bar code labels to transmit files by creating a bar code in this command format:

%%X*n*,*drive*:*filename*	(for XMODEM)
%%K*n*,*drive*:*filename*	(for XMODEM-1K)
%%Y*n*,*drive*:*filename*	(for YMODEM)

Transmit and Convert 8-Bit Binary Files to 7-Bit ASCII Files

Purpose: Converts the file from an 8-bit binary file to a 7-bit ASCII hexadecimal file, transmits the file from the terminal through the serial port, and saves the file on the host computer. You must have the terminal connected to the host through a serial port. For help, see Chapter 2, "Operating the Terminals in a Network."

241X applications are 8-bit binary files. Some network protocols like the Intermec Multi-Drop protocol in a CrossBar network use 7-bit ASCII files. When you send 8-bit binary files across a 7-bit system without converting the files, the files are not compatible and will not run.

You use the Transmit File command and a host utility to convert the 8-bit binary file to a 7-bit ASCII hexadecimal file and transfer it from the terminal. On the host, you use a hexadecimal conversion utility to convert the 7-bit ASCII hexadecimal file to an 8-bit binary file. Intermec has a DOS utility called HEX.EXE to convert files. The source code for HEX.EXE is also available. For help, see your Intermec service representative.

Note: Trakker Antares filenames are up to eight characters with a three-character extension.

From Network: `%%Hn,drive:filename`

where:

`%%H`	is the command to convert an 8-bit binary file to a 7-bit ASCII hexadecimal file and transmit it. The terminal uses the current serial port configuration (protocol, baud rate, etc.) for the file transfer.
n	indicates the terminal's serial port: 1.
drive	indicates the drive where the file is stored on the terminal. You must include the colon (:) after the drive letter.
filename	is the file you want to transmit.

Keypad or Menu: Not supported

Transmit and Convert 8-Bit Binary Files to 7-Bit ASCII Files (continued)

Scan: 1. Scan this bar code label:

Note: To scan these bar code labels, you must configure the terminal to use Code 39 in Full ASCII mode. For help, see "Code 39" in Chapter 8.

Enter Accumulate Mode / Transmit File

+/%%H

2. Scan the bar code label for the terminal COM port you are using to transmit the file. The label also includes the required comma.

COM1

1,

3. Scan the bar code label(s) for the file you want to transmit. You can scan labels from the "Full ASCII Bar Code Chart" in Appendix B. The label must use this format:

   `drive:filename`

4. Scan this bar code label to exit Accumulate mode and transmit the file.

Exit Accumulate Mode

-/

Or: You can create your own bar code labels to transmit files by creating a bar code in this command format:

`%%Hn,drive:filename`

Example: You want to upload an application from the terminal in your CrossBar network to the host. On the host, you need to receive the file using a utility such as InterScan. Enter this command to transmit the file SHIPPING.BIN from the terminal's drive C through COM2:

```
%%H2,c:shipping.bin
```

The file is converted from 8-bit binary to 7-bit ASCII hexadecimal and transmitted to the host. Use HEX.EXE to convert the application back to its original 8-bit binary format.

Transmit File Via RF Communications

Purpose: Transmits a file from the 2415 and saves it on the DCS 300 or host.

From Network: %%R,*drive*:*fromfilename*,*tofilename*

where:

%%R	is the command to transmit a file over the RF network. The "R" indicates a file transmitted via RF communications from the 2415 to the DCS 300 or host.
drive	indicates the drive where the file is stored on the 2415. You must include the colon (:) after the drive letter.
fromfilename	is the name of the file you are transmitting from the 2415 to the DCS 300 or host.
tofilename	is the name of the file that will be saved on the DCS 300 or host. On the DCS 300, the file is saved on the D:\USERDATA directory. To transmit a file to the host, you must identify the path and filename where you want to save the file.

Note: Do not type D:\USERDATA in this field.

Keypad or Menu: Not supported

Scan:

1. Scan this bar code label:

   Enter Accumulate Mode / Transmit File

   +/%%R,

2. Scan the bar code label(s) for the file you want to transmit. You can scan labels from the "Full ASCII Bar Code Chart" in Appendix B. The label must use this format:

   drive:*fromfilename*,*tofilename*

   Note: To use the bar code labels in Appendix B, you may need to configure the terminal to use Code 39 in Full ASCII mode. For help, see "Code 39" in Chapter 8.

3. Scan this bar code label to exit Accumulate mode and transmit the file.

   Exit Accumulate Mode

   -/

Transmit File Via RF Communications (continued)

Or: You can create your own bar code labels to transmit files by creating a bar code in this command format:

`%%R,drive:fromfilename,tofilename`

8

Configuration Command Reference

This chapter is an alphabetical list of all the configuration commands supported on the terminal.

Using Configuration Commands

A configuration command changes the way the Trakker Antares 2410 and 2415 terminals operate. For example, you can change the Beep Volume command and make the terminal beep very loudly in a noisy environment. You can execute configuration commands by

- scanning a command from a Code 39 or Code 93 bar code label. These labels are provided in this chapter. For more help, see Chapter 3, "Configuring the Terminal."
- choosing a command from the TRAKKER Antares 2400 Menu System. For help using the menu system, see Chapter 3, "Configuring the Terminal."
- sending a command from a device on the serial or RF network. For help, see "Using Serial Communications on the Terminals" and "Connecting the 2415 to an RF Network" in Chapter 2.

You can find this information about each configuration command in this chapter:

- Command description and purpose
- Command syntax and options
- Default setting
- Location within the TRAKKER Antares 2400 Menu System
- Bar code labels you can scan to set or change each command

The configuration commands are listed alphabetically by command name. For a list of bar code symbology, operations, serial network communications, or RF network communications commands, use the next table, "Configuration Commands Listed by Category." If you want to look up a command by its syntax, see the "Configuration Commands by Syntax" list in Appendix A.

Note: The Code 39 bar code labels in this chapter show an asterisk (*) at the beginning and end of the human-readable interpretation to represent the start and stop codes. If you are creating your own Code 39 bar code labels, your bar code printing utility may automatically supply the asterisks as the start/stop code.

Configuration Commands Listed by Category

This chapter lists the configuration commands in alphabetical order. Use this next list to find the configuration commands you may need to set for bar code symbologies, operations, serial network communications, or RF network communications.

Operations

Append Time, 8-12
Automatic Shutoff, 8-13
Beep Volume, 8-17
Command Processing, 8-39
Decode Security, 8-52
Display Backlight Timeout, 8-55
Display Contrast, 8-57
Display Font Type, 8-58
Display Row Spacing, 8-59
Display Video Mode, 8-60
Flash Memory Configuration, 8-66
Keypad Caps Lock, 8-77
Keypad Clicker, 8-78
Keypad Type, 8-79
Postamble, 8-97
Preamble, 8-100
RAM Drive Size, 8-102
Resume Execution, 8-108
Scan Ahead, 8-110
Scanner Mode, 8-111
Scanner Redundancy, 8-112
Scanner Selection, 8-113
Scanner Timeout, 8-114
Scanner Trigger, 8-116
Suspend/Resume Control, 8-126
Time and Date, 8-133
Time in Seconds, 8-135

Bar Code Symbologies

Codabar, 8-19
Code 11, 8-21
Code 16K, 8-22
Code 2 of 5, 8-23
Code 39, 8-25
Code 49, 8-29
Code 93, 8-31
Code 128, 8-32
Interleaved 2 of 5, 8-75
MSI, 8-86
Plessey, 8-95
UPC/EAN, 8-140

Configuration Commands Listed by Category (continued)

RF Network Communications

Acknowledgement Delay Lower Limit, 8-7
Acknowledgement Delay Upper Limit, 8-9
AP Density, 8-11
Controller Connect Check Receive Timer, 8-45
Controller Connect Check Send Timer, 8-47
Controller IP Address, 8-49
Default Router, 8-53
Domain, 8-61
Dynamic Host Configuration Protocol (DHCP), 8-63
Host IP Address, 8-71
Inactivity Timeout, 8-73
Maximum Retries, 8-82
Maximum Sleep Duration, 8-84
Network Activate, 8-88
Network Loopback, 8-89
Network Name, 8-90
Network Port, 8-92
Power Management, 8-99
Receive All Multicast, 8-104
Reservation, 8-105
Reservation Enable, 8-107
Roaming Flag, 8-109
Security Identification (ID), 8-117
Station Name, 8-122
Subnet Mask, 8-124
TCP/IP Maximum Retries, 8-127
TCP/IP Maximum Transmit Timeout, 8-129
Terminal IP Address, 8-131
Transmit Mode, 8-138
Transmit Rate, 8-139
Wakeup On Broadcast, 8-143

Serial Network Communications

Baud Rate, 8-15
Configuration Commands Via Serial Port, 8-43
Data Bits, 8-51
End of Message (EOM), 8-64
Flow Control, 8-68
Handshake, 8-70
LRC (Longitudinal Redundancy Check), 8-81
Parity, 8-94
Poll (Polling), 8-96
Serial Port Protocol, 8-118
Start of Message (SOM), 8-120
Stop Bits, 8-123
Timeout Delay, 8-136

Entering Variable Data in a Configuration Command

You can enter variable data for many of the configuration commands. For example, you can set a preamble that is up to 25 ASCII characters long. You need to follow these general instructions to enter variable data.

To enter variable data in a configuration command

1. Scan a bar code label with this syntax:

   `+/$+command`

   where:

+/	is the syntax for the Enter Accumulate Mode command.
$+	is the syntax for the Change Configuration command.
command	is the syntax for the command you want to change.

   For example, the command syntax for a preamble is AD*data*. To change or set a preamble, scan this bar code:

   Enter Accumulate Mode / Change Configuration / Set Preamble

   +/$+AD

2. Scan a bar code label from the "Full ASCII Bar Code Chart" in Appendix B. To set the preamble to the character T, scan this label:

   T

   T

Note: To use the bar code labels in Appendix B, you may need to configure the terminal to use Code 39 in Full ASCII mode. For help, see "Code 39" later in this chapter.

3. Scan the Exit Accumulate Mode bar code label to update the terminal's configuration:

   Exit Accumulate Mode

   -/

Acknowledgement Delay Lower Limit

Purpose: When the 2415 sends a message to the DCS 300, the terminal waits to receive a response acknowledging the message. If no response is received within the Acknowledgement Delay Lower Limit time, the terminal sends the message again at the time interval set for the lower limit. The terminal will continue to send the data at increasingly longer intervals until it reaches the Acknowledgement Delay Upper Limit time. The terminal continues sending the message at the time interval set for the upper limit until a response is received or a timeout error occurs.

Syntax: NV*data*

Acceptable values for *data* are any number from 200 to 2000 ms.

Default: 300 ms

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Advanced Network.

Scan: To set the default acknowledgement delay lower limit, scan this bar code:

Default Acknowledgement Delay Lower Limit

$+NV300

Or: To set the acknowledgement delay lower limit:

1. Scan this bar code:

Enter Accumulate Mode / Set Acknowledgement Delay Lower Limit

+/$+NV

Acknowledgement Delay Lower Limit (continued)

2. Scan a numeric value for *data* from these bar codes:

0

1

2

3

4

5

6

7

8

9

3. Scan this bar code:

Exit Accumulate Mode

-/

Acknowledgement Delay Upper Limit

Purpose: When the 2415 sends a message to the DCS 300, the terminal waits to receive a response acknowledging the message. If no response is received within the Acknowledgement Delay Lower Limit time, the terminal sends the message again at the time interval set for the lower limit. The terminal will continue to send the data at increasingly longer intervals until it reaches the Acknowledgement Delay Upper Limit time. The terminal continues sending the message at the time interval set for the upper limit until a response is received or a timeout error occurs.

Syntax: NU*data*

Acceptable values for *data* are any number from 2000 to 60000 ms.

Default: 5000 ms

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Advanced Network.

Scan: To set the default acknowledgement delay upper limit, scan this bar code:

Default Acknowledgement Delay Upper Limit

$+NU5000

Or: To set the acknowledgement delay upper limit:

1. Scan this bar code:

Enter Accumulate Mode / Set Acknowledgement Delay Upper Limit

+/$+NU

Acknowledgement Delay Upper Limit (continued)

2. Scan a numeric value for *data* from these bar codes:

0

1

2

3

4

5

6

7

8

9

3. Scan this bar code:

Exit Accumulate Mode

-/

AP Density

Purpose: (IEEE 802.11 DS radio parameter) Controls the roaming sensitivity of the radios. You can use this parameter to virtually reduce the range of the radio. When you increase the AP density, you do not reduce the absolute range of the radio, but the roaming algorithms are modified to allow significant overlap of the radio coverage. Increasing the AP density lets you create a higher performance radio network, but you will need significantly more access points to cover a given area.

Syntax: LF*data*

Acceptable values for *data* are:

0 Low density
1 Medium density
2 High density

Default: Low density

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Radio.

Scan: One of these bar codes:

Low AP Density

$+LF0

Medium AP Density

$+LF1

High AP Density

$+LF2

Append Time

Purpose: Appends the time to bar code labels that are scanned on the terminal. You can also use the Time in Seconds command to append the time in hours and minutes only, or hours, minutes, and seconds. The time is appended to the data in the form HH:MM:SS. For help, see "Time in Seconds" later in this chapter.

Syntax: DE*data*

Acceptable values for *data* are:

0 Disabled
1 Enabled

Default: Disabled

Menu System: From the Main Menu, choose Configuration Menu, then Terminal Menu, and then Append Time.

Scan: One of these bar codes:

Disable Append Time

$+DE0

Enable Append Time

$+DE1

Automatic Shutoff

Purpose: Defines the maximum length of time the terminal remains on when there is no activity. When you do not use the terminal for the length of time set with this command, the terminal automatically turns off as if you had pressed ⏻ to turn it off.

When you press ⏻ to turn on the terminal, the terminal either resumes exactly where it was when you turned it off or the terminal boots and restarts your application. Resume is controlled through the Resume Execution command. For help, see "Resume Execution" later in this chapter.

Power Management Tip: You should use the Automatic Shutoff feature to preserve battery pack power.

Syntax: EZ*data*

Acceptable values for *data* are:

0	Disabled (always on)
02-75	Shutoff time in minutes

Default: Disabled

Menu System: From the Main Menu, choose Configuration Menu, then Terminal Menu, and then Power Management.

Scan: To disable automatic shutoff, scan this bar code:

Disable Automatic Shutoff

$+EZ0

Or: To set a timeout:

1. Scan this bar code:

   Enter Accumulate Mode / Set Automatic Shutoff

   +/$+EZ

Automatic Shutoff (continued)

2. Scan a numeric value for *data* from these bar codes:

0

1

2

3

4

5

6

7

8

9

3. Scan this bar code:

Exit Accumulate Mode

-/

Baud Rate

Purpose: Sets the baud rate for the serial port on the terminal. The baud rate must match the baud rate of the device (i.e., the host computer) that the terminal is communicating with through the serial port.

Syntax: YA*n.data*

where *n* is:

1 COM1 port

Acceptable values for *data* are:

3 1200 baud
4 2400 baud
5 4800 baud
6 9600 baud
7 19200 baud
8 38400 baud

Default: 19200

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Serial Port.

Scan: To set the default baud rate, scan this bar code:

Default Baud Rate for COM1

$+YA1.7

Or: To set the baud rate for one serial port:

1. Scan this bar code:

   Enter Accumulate Mode/Set Baud Rate

   +/$+YA

2. Scan the serial port from these bar codes:

   COM1

   1.

Baud Rate (continued)

3. Scan the baud rate from these bar codes:

1200 Baud

3

2400 Baud

4

4800 Baud

5

9600 Baud

6

19200 Baud

7

38400 Baud

8

4. Scan this bar code:

Exit Accumulate Mode

-/

Other: For COM1 only. To provide compatibility with earlier Trakker Antares firmware versions, you can also use this syntax:

IA*data*

where *data* is a value from 3 to 8.

Beep Volume

Purpose: Adjusts the volume of the terminal's audio signals. Set the beep and keyclick volume according to operator preference and work environment. If you set the Beep Volume command to off, you will not hear any audio signals including the keyclick.

Syntax: BV*data*

Acceptable values for *data* are:

0 Off
1 Quiet
2 Normal
3 Loud
4 Very loud
8 Lower volume
9 Raise volume

Note: On the 241X, the quiet and normal beep volumes sound the same and the loud and very loud beep volumes sound the same.

Default: Very loud

Menu System: From the Main Menu, choose Configuration Menu, then Terminal Menu, and then Beeper.

Scan: One of these bar codes:

Beep Volume Off

$+BV0

Beep Volume Quiet

$+BV1

Beep Volume Normal

$+BV2

Beep Volume Loud

$+BV3

Beep Volume Very Loud

$+BV4

Beep Volume (continued)

Or: Scan one of these bar codes repeatedly to achieve the desired volume:

Raise Beep Volume

$+BV9

Lower Beep Volume

$+BV8

Codabar

Purpose: Enables or disables decoding of Codabar symbology. Codabar is a self-checking, discrete symbology. The American Blood Commission (ABC) Codabar requires that you retain and transmit the start/stop code digits when processing a Codabar symbol. As a result, configuration CD10 is an illegal configuration.

Syntax: CD*data*

Acceptable values for *data* must be two digits, corresponding to:

Digit	Value	Description
First	0	Disabled
	1	ABC
	2	Standard
	3	Concatenated
Second	0	Discard Start/Stop
	1	Transmit ABCD Start/Stop
	2	Transmit DC1-DC4 Start/Stop

Default: Disabled

Menu System: From the Main Menu, choose Configuration Menu, then Symbologies Menu, and then Codabar.

Scan: One of these bar codes:

Disabled, Discard Start/Stop

$+CD00

ABC, Transmit ABCD Start/Stop

$+CD11

ABC, Transmit DC1-DC4 Start/Stop

$+CD12

Codabar (continued)

Standard, Discard Start/Stop

$+CD20

Standard, Transmit ABCD Start/Stop

$+CD21

Standard, Transmit DC1-DC4 Start/Stop

$+CD22

Concatenated, Discard Start/Stop

$+CD30

Concatenated, Transmit ABCD Start/Stop

$+CD31

Concatenated, Transmit DC1-DC4 Start/Stop

$+CD32

Code 11

Purpose: Enables or disables decoding of Code 11 symbology. Code 11 is a very high density, discrete numeric bar code. It is most extensively used in labeling telecommunications components and equipment.

Syntax: CG*data*

Acceptable values for *data* are:

0 Disabled
1 Code 11 enabled with one check digit
2 Code 11 enabled with two check digits

Default: Disabled

Menu System: From the Main Menu, choose Configuration Menu, then Symbologies Menu, and then Code 11.

Scan: One of these bar codes:

Disable Code 11

$+CG0

Code 11 Enabled With One Check Digit

$+CG1

Code 11 Enabled With Two Check Digits

$+CG2

Code 16K

Purpose: Enables or disables decoding of Code 16K symbology. Code 16K is a two-dimensional (stacked rows), high density bar code. It is based on Code 128 and is used widely to label unit-dose packaging for the healthcare industry.

Syntax: CP*data*

Acceptable values for *data* are:

0 Disabled
1 Standard Code 16K enabled
2 Code 16K enabled with Function Code 1

When you enable Code 16K with Function Code 1, the terminal decodes the bar code label and checks for a Function Code 1 in the first data character position. If a Function Code 1 is the first character, the terminal substitutes this Code 16K symbology identifier string for the Function Code 1 character.

`]K1`

Default: Disabled

Menu System: From the Main Menu, choose Configuration Menu, then Symbologies Menu, and then Code 16K.

Scan: One of these bar codes:

Disable Code 16K

$+CP0

Standard Code 16K Enabled

$+CP1

Code 16K Enabled With Function Code 1

$+CP2

Code 2 of 5

Purpose: Enables or disables decoding of Code 2 of 5 symbology. Code 2 of 5 uses the bars to encode information and the spaces to separate the individual bars. This code is discrete and self-checking. You can only enable Code 2 of 5 if the Interleaved 2 of 5 (I 2 of 5) code is disabled. If you enable I 2 of 5, Code 2 of 5 is automatically disabled.

Syntax: CC*data*

where *data* consists of three digits as follows:

First digit:	0	Code 2 of 5, 3 Bar Start/Stop
	1	Code 2 of 5, 2 Bar Start/Stop
Second and third digits:	00	Disable Code 2 of 5
	01-32	Label Length

Default: Disabled

Menu System: From the Main Menu, choose Configuration Menu, then Symbologies Menu, and then 2 of 5/I 2 of 5.

Scan: To disable Code 2 of 5, scan this bar code:

Disable Code 2 of 5

$+CC000

Or: To enable Code 2 of 5:

1. Scan one of these bar codes:

Code 2 of 5, 3 Bar Start/Stop

+/$+CC0

Code 2 of 5, 2 Bar Start/Stop

+/$+CC1

Code 2 of 5 (continued)

2. Scan a two-digit numeric value to set the label length (01-32) from these bar codes.

0

1

2

3

4

5

6

7

8

9

3. Scan this bar code:

Exit Accumulate Mode

-/

Code 39

Purpose: Enables or disables decoding of Code 39 symbology. Code 39 is discrete, variable length, and self-checking. The character set is uppercase A to Z, 0 to 9, dollar sign ($), period (.), slash (/), percent (%), space ( ), plus (+), and minus (-).

There are three types of ASCII the terminal decodes:

- Code 39 non-full ASCII
- Code 39 full ASCII
- Code 39 mixed-full ASCII

Code 39 non-full ASCII Non-full ASCII uses a one-character encoding scheme. For example, you encode the data “SAMPLE” as follows:

SAMPLE

This label decodes as *SAMPLE*.

Code 39 full ASCII Full ASCII uses a two-character encoding scheme to extend the character set to 128 characters. You use the dollar sign ($), slash (/), percent (%), or plus (+) followed by an uppercase letter to represent one of the characters in the extended set. You must encode lowercase letters as a plus sign (+) followed by their uppercase equivalents. For a list of ASCII characters and their Code 39 representations, see the “Full ASCII Table” in Appendix B.

Use Code 39 full ASCII to enter ASCII control characters or lowercase characters as data. You should also enable Code 39 full ASCII to use ASCII command characters.

For example, you encode the data “sample” in Code 39 full ASCII as follows:

+S+A+M+P+L+E

In Code 39 non-full ASCII, this label decodes as *+S+A+M+P+L+E*. In Code 39 full ASCII, this label decodes as *sample*.

Code 39 mixed-full ASCII Use mixed-full ASCII when printers encode the same label two different ways. For example, if you have a bar code with the data $%a, some printers encode the data as follows:

/D/E+A

In the Full ASCII Table in Appendix B, /D represents $ and /E represents %. If you configure the terminal for Code 39 full ASCII, the terminal decodes the data as $%a because there are three valid full ASCII character pairs to represent the data.

Code 39 (continued)

Other printers encode the data $%a as:

$%+A

The $ and % are valid Code 39 characters in the non-full ASCII character set. However, the terminal will not decode this label if it is configured for full ASCII, because the data is not represented by valid full ASCII character pairs. To decode the label correctly, you need to configure the terminal for mixed-full ASCII.

When you configure the terminal for Code 39 mixed-full ASCII, the terminal will decode both of the labels above as $%a.

Mixed-full ASCII interprets any valid full ASCII character pairs that appear in the label, but does not require that all data be encoded with a valid full ASCII character pair. If you are uncertain how your labels are encoded, configure the terminal for mixed-full ASCII, which decodes all valid Code 39 labels.

If you configure the terminal for Code 39 full ASCII, you should check for Code 39 mixed-full ASCII. Mixed-full ASCII does not apply when you configure the terminal for non-full ASCII.

Note: The interpretive text shown under bar code labels does not always accurately reflect the data that is encoded in the label. The interpretive text represents how the label should be decoded.

Use this table to help configure your terminal.

Code 39 Option	Bar Code Label	Decodes
Non-full ASCII	$%+A /D/E+A	$%+A /D/E+A
Full ASCII	$%+A /D/E+A	No decode $%a
Mixed-full ASCII	$%+A /D/E+A	$%a $%a

Syntax: CB*data*

Acceptable values for *data* can be up to three digits, corresponding to:

First digit:	0	Disabled
	1	Enabled with no check digit
	2	Enabled with check digit
	3	HIBC (Health Industry Bar Code)
	4	With AIAG check digit

Code 39 (continued)

Second digit:	0	Discard check digit
	1	Transmit check digit
Third digit:	0	Code 39 non-full ASCII
	1	Code 39 full ASCII
	2	Code 39 mixed-full ASCII

Note: Selecting HIBC Code 39 automatically sets the configuration to non-full ASCII with the check digit transmitted.

Default: Enable Code 39 Full ASCII with no check digit (111)

Menu System: From the Main Menu, choose Configuration Menu, then Symbologies Menu, and then Code 39.

Scan: To disable Code 39, scan this bar code:

Disable Code 39

$+CB0

Or: To enable Code 39:

1. Scan this bar code:

   Enter Accumulate Mode / Enable Code 39

   +/$+CB

2. Scan one of these bar codes to set the first digit:

   Without a Check Digit

   1

   With a Check Digit

   2

   HIBC Code 39

   3

   With AIAG Check Digit

   4

Code 39 (continued)

3. Scan one of these bar codes to set the second digit:

Discard Check Digit

0

Transmit Check Digit

1

4. Scan one of these bar codes to set the third digit:

Code 39 Non-Full ASCII

0

Code 39 Full ASCII

1

Code 39 Mixed-Full ASCII

2

5. Scan this bar code:

Exit Accumulate Mode

-/

Code 49

Purpose: Enables or disables decoding of Code 49 symbology. Code 49 is a multirow symbology for high data density. The last character in each row is used for row checking and the last two characters of the symbol are used for overall checking.

Function codes designate where to place the predefined data string in a Code 49 label. Whenever a terminal encounters a function code, it replaces the function code with the defined string before transmitting the data to the DCS 300. A single Code 49 symbol may contain several different variable length data fields. Function Code 1 (F1) identifies a data system. Function Code 2 (F2) indicates the end of a data field**.**

Syntax:

CJ*data*	Code 49
CK*data*	Function Code 1
CL*data*	Function Code 2
CM*data*	Function Code 3

Acceptable values for *data* are:

Code 49 (CJ):	0	Disabled
	1	Enabled
Function Code 1 (CK):		Any two ASCII characters.
Function Code 2 (CL):		Any four ASCII characters
Function Code 3 (CM):		Any two ASCII characters

Default:

Disable	
Function Code 1:	None
Function Code 2:	\x0D\x0A (hexadecimal value for CR LF)
Function Code 3:	None

Menu System: From the Main Menu, choose Configuration Menu, then Symbologies Menu, and then Code 49.

Scan: One of these bar codes:

Disable Code 49

$+CJ0

Enable Code 49

$+CJ1

Code 49 (continued)

Scan: To disable any of the function codes, scan one of these bar codes:

Disable Function Code 1

$+CK

Disable Function Code 2

$+CL

Disable Function Code 3

$+CM

Or: To set one of the function codes to a character string:

1. Scan one of these bar codes:

   Enter Accumulate Mode / Set Function Code 1

   +/$+CK

   Enter Accumulate Mode / Set Function Code 2

   +/$+CL

   Enter Accumulate Mode / Set Function Code 3

   +/$+CM

2. Scan any character from the "Full ASCII Bar Code Chart" in Appendix B. You can define two characters each for Function Codes 1 and 3, and four characters for Function Code 2.

3. Scan this bar code:

   Exit Accumulate Mode

   -/

Code 93

Purpose: Enables or disables decoding of Code 93 symbology. Code 93 is a variable length, continuous symbology that uses four element widths.

Syntax: CF*data*

Acceptable values for *data* are:

0 Disabled
1 Enabled

Default: Disabled

Menu System: From the Main Menu, choose Configuration Menu, then Symbologies Menu, and then Code 93.

Scan: One of these bar codes:

Disable Code 93

$+CF0

Enable Code 93

$+CF1

Code 128

Purpose: Enables or disables decoding of Code 128 symbology. Code 128 is a very high density alphanumeric symbology that supports the extended ASCII character set. It is a variable length, continuous code that uses multiple element widths.

Syntax: CH*data*

Acceptable values for *data* are:

0 Disabled
1 Standard Code 128
2 UCC/EAN Code 128
8 ISBT Code 128

Note: For help configuring ISBT Code 128, see the next section.

Default: Standard

Menu System: From the Main Menu, choose Configuration Menu, then Symbologies Menu, and then Code 128.

Scan: One of these bar codes:

Disable Code 128

$+CH0

Enable Standard Code 128

$+CH1

Enable UCC/EAN Code 128

$+CH2

Enable ISBT Code 128

$+CH8

Other: If you configure Standard Code 128, the terminal will not decode Function Code 1 characters in the first position of a bar code label. Any subsequent Function Code 1 characters are translated to the ASCII GS character as a separator for variable length fields.

If you configure UCC/EAN Code 128, the terminal will decode a bar code label as Standard Code 128 unless one of the first two characters are a start character and a Function Code 1. In this case, the bar code label is processed as described next:

1. The Function Code 1 character is not transmitted.
2. The three symbology ID characters,]C1, are transmitted.
3. The remaining Code 128 characters are decoded as Standard Code 128.

ISBT Code 128

Purpose: Enables and configures decoding of ISBT Code 128 symbology. ISBT Code 128 is the global bar code labeling standard for the blood banking industry. It is used to support the world-wide distribution, tracking, and handling of blood bags and blood components.

For more information on ISBT Code 128, see the *ISBT 128 Bar Code Symbology and Application Specification for Labeling of Whole Blood and Blood Components* prepared by the International Council for Commonality in Blood Banking Automation.

Syntax: CH8*data*

where *data* can be up to 10 digits selected from this list:

Digits	Values	Description
1	0	Symbology identifier (ID) disabled.
	1	Symbology ID enabled. Output of]C0 indicates a single ISBT Code 128 bar code was read. Output of]C4 indicates that a pair of ISBT Code 128 bar codes was read.
2	0	Concatenation disabled.
	1	Restricted concatenation enabled.
3-4	See List*	Left Data ID to be matched for restricted concatenation. * List of valid combinations are: =% Blood Groups and Rh => Expiration Date &> Expiration Date and Time =* Collection Date &* Collection Date and Time =< ISBT Product Code =) Manufacturer ID &) Manufacturer Lot Number =& Concatenation Bar Code &< National Product Code &(National Special Test &! Unit Exclusion Status &; National Special Donor =*n* Donation ID Number where *n* is a value from 0 to 9 or uppercase A through Z &*n* National Use Bar Code where *n* is a value from lowercase a through z
5-6	See List*	Right Data ID to be matched for restricted concatenation. See the list of valid combinations for digits 3 and 4.

ISBT Code 128 (continued)

Digits	Values	Description
7-9	000-999	Bar code concatenation control parameters. If digit 10 is "d," digits 7 and 8 refer to the nominal distance in millimeters between the stop characters of two bar code labels that can be concatenated, and digit 9 is the bar code label positioning tolerance. If the distance between the two bar code labels is outside this limit (assuming standard ISBT bar code print size), the bar code labels will not be concatenated. If digit 10 is "t," digits 7, 8, and 9 are the decode time limit in milliseconds. If both bar code labels are not decoded in the same beam sweep within this time, the bar code labels are not concatenated. This time parameter is only accurate to a 25-millisecond resolution.
10	d or t	Identifies the concatenation control as either the distance "d" between bar code labels or the time "t" in which concatenated bar code labels must be decoded. See description for Digits 7-9.

Note: The Left Data ID and Right Data ID are used only with the restricted concatenation option. For example, the terminal will concatenate only those bar code labels with data identifiers that match the configured data identifiers. The spacing between bar codes that can be concatenated must be between two and five character widths.

Default: Digit 1: Symbology ID disabled
Digit 2: Concatenation disabled

Scan: To enable ISBT Code 128, scan this bar code:

Enable ISBT Code 128

$+CH8

Note: To scan the following bar codes, you must configure the terminal to use Code 39 in Full ASCII mode. For help, see "Code 39" earlier in this chapter.

Or: To configure ISBT Code 128:

1. Scan this bar code:

Enter Accumulate Mode/Enable ISBT Code 128

+/$+CH8

ISBT Code 128 (continued)

2. Scan one of these bar codes to disable or enable symbology ID:

Symbology ID Disabled
0

Symbology ID Enabled
1

Note: Steps 3 through 9 are optional.

3. Scan one of these bar codes to disable or enable concatenation:

Disable Concatenation
0

Enable Concatenation
1

If you disabled concatenation, go to Step 10.

4. Scan one of these bar codes to set the Left Data ID:

Blood Groups and Rh
=%

Expiration Date
=>

Expiration Date and Time
&>

Collection Date
*=**

Collection Date and Time
*&**

ISBT Product Code
=<

Manufacturer ID
=)

Manufacturer Lot Number
&)

Concatenation Bar Code
=&

National Product Code
&<

ISBT Code 128 (continued)

National Special Test

&(

Unit Exclusion Status

&!

National Special Donor

&;

Donation ID Number (See Note)

=

National Use Bar Code (See Note)

&

5. For the Donation ID Number or the National Use Bar Code, scan an alphanumeric bar code from Appendix B.
   - For the Donation ID Number, scan a value from 0 through 9 or uppercase A through Z.
   - For the National Use Bar Code, scan a value from lowercase a through z.
6. Scan one of these bar codes to set the Right Data ID:

Blood Groups and Rh

=%

Expiration Date

=>

Expiration Date and Time

&>

Collection Date

*=**

Collection Date and Time

*&**

ISBT Product Code

=<

Manufacturer ID

=)

Manufacturer Lot Number

&)

Concatenation Bar Code

=&

National Product Code

&<

ISBT Code 128 (continued)

National Special Test

&(

Unit Exclusion Status

&!

National Special Donor

&;

Donation ID Number (See Note)

=

National Use Bar Code (See Note)

&

7. For the Donation ID Number or the National Use Bar Code, scan an alphanumeric bar code from Appendix B.
   - For the Donation ID Number, scan a value from 0 through 9 or uppercase A through Z.
   - For the National Use Bar Code, scan a value from lowercase a through z.
8. Skip to Step 10 if you want to keep the default concatenation control parameters.
   - The default concatenation distance is 16 mm ± 0 mm.
   - The default concatenation decode time limit is 160 ms.

   To set the concatenation decode time limit, scan these bar codes to set the time from 001 to 999 ms. To set the concatenation distance, scan these bar codes to set the distance from 00 to 99 mm and the tolerance from ± 1 to 9 mm.

0

1

2

3

4

5

6

7

8

9

ISBT Code 128 (continued)

9. Scan one of these bar codes to set distance or time:

Distance

d

Time

t

10. Scan this bar code to exit accumulate mode:

Exit Accumulate Mode

-/

Command Processing

Purpose: Command processing lets you disable or enable reader commands. For example, you can disable the Backlight command. There are two ways to enable or disable reader commands:

- Use the Command Processing configuration command described here.
- Use the Reader Command Menu option in the Configuration Menu of the TRAKKER Antares 2400 Menu System.

You may want to disable reader commands to prevent a user from accidentally entering a command, or to use data that would otherwise be treated as a command. Any Code 39 or Code 93 bar code label that contains the 2-character to 4-character commands for Command Processing is treated as a reader command unless the command is disabled.

If you want to disable or enable several commands, it is easier to use the menu system. For help, see Chapter 3, "Configuring the Terminal." For a description of each reader command that you can enable or disable with Command Processing, see Chapter 8, "Reader Command Reference."

Syntax: DC*data*

Acceptable values for *data* are**:**

0	Disable all reader commands
1	Enable all reader commands
2	Disable override
3	Enable override
*command*0	Disable reader command
*command*1	Enable reader command

The override option is a temporary setting that lets you enable all the reader commands for as long as you need them. When you want to return to the previous configuration, you disable the override.

Note: The Enable Override option is the only bar code label you can scan to enable reader commands if you have disabled all reader commands (DC0). You can also enable reader commands in the TRAKKER Antares 2400 Menu System.

Default: All reader commands enabled

Menu System: From the Main Menu, choose Configuration Menu, then Terminal Menu, and then Reader Commands.

Command Processing (continued)

Scan: To enable all the reader commands or override the current settings, scan one of these bar codes:

Disable All Reader Commands

$+DC0

Enable All Reader Commands

$+DC1

Disable Override

$+DC2

Enable Override

$+DC3

Or: To disable or enable specific reader commands, perform these steps:

1. Scan this bar code:

   Enter Accumulate Mode / Command Processing

   +/$+DC

2. Scan the bar code to disable or enable one reader command.

Note: If there are two bar codes for a reader command, you must scan them in order, left to right. Accumulate mode commands are separated into two bar codes so that the command can be accumulated rather than executed as a command.

Abort Program

/$

Backlight

%.

Backspace

-

(continued)

+

Change Configuration

$+

Clear

-

(continued)

-

Command Processing (continued)

Default/Save Configuration

.+

Delete File

..--

Enter Accumulate Mode

+

(continued)

/

Exit Accumulate Mode

-

(continued)

/

Receive File

.%

Rename File

...-

Reset Firmware

-.

Run Program

//

Scanner Trigger Off

/%

Scanner Trigger On

/.

Set Time and Date

/+

Test and Service Mode

..-.

Transmit File

%%

3. Scan one of these bar codes:

Disable the Command

0

Enable the Command

1

Command Processing (continued)

4. Repeat Steps 2 and 3 to disable or enable another reader command.

Note: You can accumulate up to 250 characters in the buffer. If the data accumulated exceeds 250 characters, you will hear an error beep and the terminal will reject the last bar code read.

5. Scan this bar code:

Exit Accumulate Mode

-/

Or: To disable or enable the ability to scan multiple-read labels, scan one of these bar codes:

Disable Multiple-Read Labels

$+DC 0

Enable Multiple-Read Labels

$+DC 1

Configuration Commands Via Serial Port

Purpose: Lets you control the data the terminal receives through the serial port. You can set this command to execute reader and configuration commands received through the serial port, or treat all data as data without checking for special command syntax. There are three options:

Disabled All data received through the serial port is treated as data. The terminal will not execute reader or configuration commands sent or encoded in the data.

Enabled with TMF If the data is sent with the TMF (Terminal Message Format) header, the terminal will check for and execute reader or configuration commands received through the serial port. With TMF, you can execute reader and configuration commands, or send and receive data about the current terminal configuration.

Enabled without TMF The terminal will check for and execute all reader and configuration commands (i.e., Receive File reader command or Beep Volume change configuration command).

Note: Before you can enable Configuration Commands Via Serial Port with or without TMF, you must enable the EOM command.

Syntax: YT*n.data*

where *n* is:

1 COM1 port

Acceptable values for *data* are:

0 Disabled
1 Enabled with TMF
2 Enabled without TMF

Default: Enabled without TMF

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Serial Port.

Configuration Commands Via Serial Port (continued)

Scan: One of these bar codes:

COM1 Commands Via Serial Port Disabled

$+YT1.0

COM1 Commands Via Serial Port Enabled With TMF

$+YT1.1

COM1 Commands Via Serial Port Enabled Without TMF

$+YT1.2

Other: For COM1 only. To provide compatibility with earlier Trakker Antares firmware versions, you can also use this syntax:

IT*data*

where *data* is a value from 0 to 2.

Controller Connect Check Receive Timer

Purpose: During periods of inactivity on the 2415, the terminal still sends messages to the DCS 300 to check the RF connection. If no message is received within the time set for the Controller Connect Check Receive Timer, the terminal is no longer connected to the DCS 300 and the Connect LED blinks. The timer countdown resets each time a valid message is received.

Power Management Tip: Intermec strongly recommends that you use the optimum setting of 60 seconds to preserve the battery pack power.

Syntax: NP*data*

Acceptable values for *data* are any number from 1 to 3600 seconds (60 minutes).

Default: 60 seconds

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Advanced Network.

Scan: To set the default controller connect check receive timer, scan this bar code:

Default Controller Connect Check Receive Timer

$+NP60

Or: To set the controller connect check receive timer:

1. Scan this bar code:

   Enter Accumulate Mode / Set Controller Connect Check Receive Timer

   +/$+NP

Controller Connect Check Receive Timer (continued)

2. Scan a numeric value for *data* from these bar codes:

0

1

2

3

4

5

6

7

8

9

3. Scan this bar code:

Exit Accumulate Mode

-/

Controller Connect Check Send Timer

Purpose: During periods of inactivity on the 2415, the terminal still sends messages to the DCS 300 to check the RF connection. The terminal sends a message at the time interval set for the Controller Connect Check Send Timer. The timer countdown resets each time a valid message is sent or received.

Power Management Tip: Intermec strongly recommends that you use the optimum setting of 35 seconds to preserve the battery pack's power.

Syntax: NQ*data*

Acceptable values for *data* are any number from 1 to 3600 seconds (60 minutes).

Default: 35 seconds

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Advanced Network.

Scan: To set the default controller connect check send timer, scan this bar code:

Default Controller Connect Check Send Timer

$+NQ35

Or: To set the controller connect check send timer:

1. Scan this bar code:

   Enter Accumulate Mode / Set Controller Connect Check Send Timer

   +/$+NQ

Controller Connect Check Send Timer (continued)

2. Scan a numeric value for data from these bar codes:

0

1

2

3

4

5

6

7

8

9

3. Scan this bar code:

Exit Accumulate Mode

-/

Controller IP Address

Purpose: Defines the IP address assigned to the DCS 300 in your network. You assign a unique IP address to each device in a TCP/IP network. The controller IP address you set on the 2415 must match the address that is set on the DCS 300.

If you plan to enable DHCP (Dynamic Host Configuration Protocol), you can set the controller IP address to any valid IP address. The terminal will locate and reset the IP address after you enable DHCP. For help, see "Dynamic Host Configuration Protocol" later in this chapter.

Syntax: NC*n.n.n.n*

where each *n* address segment is a number from 0 to 255. The controller IP address field consists of four separate numbers, each separated by a period.

Note: The RF network cannot be activated if the first address segment in the IP address is set to 0, 127, or a number greater than 223.

Default: 0.0.0.0

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Primary Network.

Scan: To set the default controller IP address, scan this bar code:

Default Controller IP Address

$+NC0.0.0.0

Or: To set the controller IP address:

1. Scan this bar code:

   Enter Accumulate Mode / Set Controller IP Address

   +/$+NC

Controller IP Address (continued)

2. Scan a numeric value from 0 to 255 to set an *n* field of the controller IP address from these bar codes.

0

1

2

3

4

5

6

7

8

9

3. Scan this bar code:

. (Period)

.

4. Repeat Steps 2 and 3 to set the next three numbers in the controller IP address field. After you scan the last address segment, go to Step 5. Do **not** scan the period after the last address segment.

5. Scan this bar code:

Exit Accumulate Mode

-/

Data Bits

Purpose: Sets the number of data bits the terminal uses when communicating with another device (i.e., host computer) through the serial port.

Syntax: YI*n.data*

where *n* is:

1 COM1 port

Acceptable values for *data* are:

7 7 data bits
8 8 data bits

Default: 7

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Serial Port.

Scan: One of these bar codes:

7 Data Bits for COM1

$+YI1.7

8 Data Bits for COM1

$+YI1.8

Other: For COM1 only. To provide compatibility with earlier Trakker Antares firmware versions, you can also use this syntax:

II*data*

where *data* is a value or 7 or 8.

Decode Security

Purpose: Defines the security level to use when decoding bar codes. When you select a lower decode security level, the terminal can decode bar codes with poorer print quality.

Note: Only use the low parameter as a temporary solution until you can improve the bar code label print quality.

Syntax: CS*data*

Acceptable values for *data* are:

0 Low
1 Moderate
2 High

Default: Moderate

Menu System: From the Main Menu, choose Configuration, then Terminal Menu, and then Scanner.

Scan: One of these bar codes:

Low Decode Security

$+CS0

Moderate Decode Security

$+CS1

High Decode Security

$+CS2

Default Router

Purpose: Defines the IP address that is assigned to the default router in the network. The router provides a software and hardware connection between two or more subnetworks that permits traffic to be routed from one subnetwork to another on the basis of the intended destinations of that traffic.

When the DCS 300 or host (TCP/IP network) is on a different subnetwork than the 2415, you must set this parameter. The default router must be on the same subnetwork as the terminal. The terminal uses the router address to send packets across the network to the DCS 300.

Syntax: NX*n.n.n.n*

where each *n* address segment is a number from 0 to 255. The default router address field consists of four separate numbers, each separated by a period.

Note: The RF network cannot be activated if the first address segment in the IP address is set to 0, 127, or a number greater than 223.

Default: No default router

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Advanced Network.

Scan: To set the default value for the default router, scan this bar code:

No Default Router

$+NX0.0.0.0

Or: To set the default router address:

1. Scan this bar code:

Enter Accumulate Mode / Set Default Router

+/$+NX

Default Router (continued)

2. Scan a numeric value from 0 to 255 to set an *n* field of the default router address from these bar codes.

0

1

2

3

4

5

6

7

8

9

3. Scan this bar code:

. (Period)

.

4. Repeat Steps 2 and 3 to set the next three numbers in the default router address field. After you scan the last address segment, go to Step 5. Do **not** scan the period after the last address segment.

5. Scan this bar code:

Exit Accumulate Mode

-/

Display Backlight Timeout

Purpose: Defines the amount of time the backlight stays on as long as there is no keypad or scanning activity on the terminal. The backlight timeout resets each time there is activity. This setting significantly affects the terminal's battery life. If you set a longer backlight timeout value, you will use the power in the main battery pack at a faster rate.

Syntax: DF*data*

Acceptable values for *data* are:

00	Disabled
01-60	Timeout in seconds

Default: 10 seconds

Menu System: From the Main Menu, choose Configuration Menu, then Terminal Menu, and then Display.

Scan: To disable the backlight timeout, scan this bar code:

Disable Backlight Timeout

$+DF00

Or: To set the backlight timeout:

1. Scan this bar code:

   Enter Accumulate Mode / Set Backlight Timeout

   +/$+DF

Display Backlight Timeout (continued)

2. Scan a two-digit numeric value for *data* from these bar codes.

0

1

2

3

4

5

6

7

8

9

3. Scan this bar code:

Exit Accumulate Mode

-/

Display Contrast

Purpose: Defines the contrast (low or high) of the characters against the terminal screen. When the contrast is set to 0, the characters are bright against a bright background. When the contrast is set to 7, the characters are dark against a dark background.

Syntax: DJ*data*

Acceptable values for *data* are 0 (low) to 7 (high).

Default: 3

Menu System: From the Main Menu, choose Configuration Menu, then Terminal Menu, and then Display.

Scan: One of these bar codes:

0 - Light Display Contrast

$+DJ0

1

$+DJ1

2

$+DJ2

3 - Maximum Display Contrast

$+DJ3

4

$+DJ4

5

$+DJ5

6

$+DJ6

7 - Dark Display Contrast

$+DJ7

Or: Scan one of these bar codes repeatedly to change the display contrast:

Lighter Display Contrast

$+DJ8

Darker Display Contrast

$+DJ9

Display Font Grid Type

Purpose: Sets the number of rows and columns that are on the terminal screen. You can set a regular size font grid (8x8), a font grid with double-height characters (8x16), or a font grid with double-width and double-height characters (16x16).

Syntax: DT*data*

Acceptable values for *data* are:

0 8 pixels by 8 pixels (8x8) font grid
1 8 pixels wide by 16 pixels high (8x16) font grid
2 16 pixels wide by 16 pixels high (16x16) font grid

Default: 8x8

Menu System: From the Main Menu, choose Configuration Menu, then Terminal Menu, and then Display.

Scan: One of these bar codes:

Set Display Font Grid Type to 8x8

$+DT0

Set Display Font Grid Type to 8x16

$+DT1

Set Display Font Grid Type to 16x16

$+DT2

Display Row Spacing

Purpose: Sets the row spacing on the terminals. Row spacing lets you define the amount of additional space (scan lines) between the lines on the screen. The number of scan lines is two times the value you set for the row spacing. A scan line is a row of pixels. For example, a row spacing of 8 adds 16 blank scan lines between lines on the screen

Syntax: DL*data*

Acceptable values for *data* are any number from 0 to 8.

Default: 0

Menu System: From the Main Menu, choose Configuration Menu, then Terminal Menu, and then Display.

Scan: One of these bar codes:

Set Row Spacing to 0

$+DL0

Set Row Spacing to 1

$+DL1

Set Row Spacing to 2

$+DL2

Set Row Spacing to 3

$+DL3

Set Row Spacing to 4

$+DL4

Set Row Spacing to 5

$+DL5

Set Row Spacing to 6

$+DL6

Set Row Spacing to 7

$+DL7

Set Row Spacing to 8

$+DL8

Display Video Mode

Purpose: Sets the Display Video mode that is used on the terminal screen. You can set the Display Video mode to original, normal, or inverse. Original displays black characters on a white background. Normal displays black characters on a white background. Inverse displays white characters on a black background.

Syntax: DN*data*

Acceptable values for *data* are:

0 Original
1 Normal
2 Inverse

Default: Original

Menu System: From the Main Menu, choose Configuration Menu, then Terminal Menu, and then Display.

Scan: One of these bar codes:

Original Display Video Mode

$+DN0

Normal Display Video Mode

$+DN1

Inverse Display Video Mode

$+DN2

Domain

Purpose: (OpenAir radio parameter) Defines an RF subnetwork. To communicate, all access points and 2415s in the subnetwork must have the same domain number. You can roam between access points as long as all of the RF devices have the same domain number.You can assign different domain numbers if you want to establish different RF subnetworks in the same area.

Syntax: RW*data*

Acceptable values for *data* are any number from 0 to 15.

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Radio.

Default: 0

Scan: To set the default domain, scan this bar code:

Default Domain

*$+RW0

Or: 1. Scan this bar code:

Enter Accumulate Mode / Set Domain

+/$+RW

Domain (continued)

2. Scan a numeric value for *data* from these bar codes:

0

1

2

3

4

5

6

7

8

9

3. Scan this bar code:

Exit Accumulate Mode

-/

Dynamic Host Configuration Protocol (DHCP)

Purpose: If your DCS 300 is operating as a DHCP client, its IP address will change each time it is turned on. By enabling DHCP on the 2415, the terminal can locate and use the DCS 300's new IP address. The terminal's IP address stays constant and must be assigned to the terminal by your system administrator.

Before you can enable DHCP on the 2415, you need to configure the network parameters for the 2415, including the Controller IP Address. The IP address does not need to be the actual IP address for the DCS 300, since the 2415 will locate and reset the IP address after you enable DHCP.

Syntax: NI*data*

Acceptable values for *data* are:

0 Disable DHCP
1 Enable DHCP

Default: Disabled

Menu System: Not supported

Scan: 1. One of these bar codes to disable or enable DHCP:

Disable DHCP

$+NI0

Enable DHCP

$+NI1

2. To save the changes in flash memory, scan this bar code:

Save Configuration in Flash Memory

.+1

End of Message (EOM)

Purpose: Attaches an EOM to the end of a data block to indicate the end of data transmission to and from a terminal. When EOM is disabled, the terminal communicates in Character mode. When EOM is enabled, the terminal communicates in Frame mode.

You must configure a value for EOM before you can set these other serial communications commands:

- Configuration Commands Via Serial Port
- Handshake
- LRC
- Start of Message (SOM)

EOM **cannot** equal the same value that is set for SOM. You **cannot** set EOM to any of these values:

- AFF (ACK)
- DLE
- NEG (NAK)
- Poll
- RES (EOT)
- REQ (ENQ)
- SEL
- XOFF
- XON

Syntax: YZ*n.data*

where *n* is:

1 COM1 port

Acceptable values for *data* are one or two ASCII characters.

Default: \x03 (hexadecimal value for ETX)

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Serial Port.

Scan: To set the default EOM, scan this bar code:

Note: To scan these bar code labels, you must configure the terminal to use Code 39 in Full ASCII mode. For help, see "Code 39" earlier in this chapter.

Default EOM for COM1

$+YZ1.$C

End of Message (continued)

Or: To disable EOM, scan this bar code:

Disable EOM for COM1

$+YZ1.

Or: To set EOM to one or two ASCII characters for one serial port:

1. Scan this bar code:

   Enter Accumulate Mode / Set EOM

   +/$+YZ

2. Scan one of these bar codes to set the COM port:

   COM1

   1.

3. Scan one or two bar codes for *data* from the "Full ASCII Bar Code Chart" in Appendix B.
4. Scan this bar code:

   Exit Accumulate Mode

   -/

Other: For COM1 only. To provide compatibility with earlier Trakker Antares firmware versions, you can also use this syntax:

PF*data*

where *data* is one or two ASCII characters.

Flash Memory Configuration

Purpose: Configures the use of the optional 2MB flash memory. If you have a terminal with the 4MB flash memory option, you can configure the extra 2MB of flash memory either as a drive D or you can use it to store a 2MB double-byte font. If you configure the flash memory as drive D, use this drive to store large lookup tables and data files. You can store up to 128 files.

After you configure the flash memory, you must save the configuration in flash memory and boot the terminal for the change to take effect.

Syntax: FF*data*

Acceptable values for data are:

0 Configure flash memory for double-byte fonts
32 Configure flash memory as drive D

Default: Configure flash memory for double-byte fonts

Menu System: Not supported

Scan: 1. Scan one of these bar codes:

Configure Flash Memory for Double-Byte Fonts

$+FF0

Configure Flash Memory as Drive D

$+FF32

2. Scan this bar code to save the configuration change in flash memory:

Save Configuration in Flash Memory

.+1

3. Scan this bar code to boot the terminal and use the flash memory to store double-byte fonts or as drive D:

Reset Firmware

-.

Flash Memory Configuration (continued)

Note: When you boot or reset the terminal, any fonts or files in flash memory are erased.

4. If you configured the flash memory to store double-byte fonts, use the Trakker Antares Font Editor to download the double-byte font set to the terminal. See your local Intermec sales representative for information about the Trakker Antares Font Editor.

Flow Control

Purpose: Regulates the data transmission through the serial port. The terminal is a DTE (Data Terminal Equipment) device. There are several flow control options:

- CTS checking where Clear To Send (CTS) is a hardware signal flow control. The terminal sets and clears Request To Send (RTS) when it is ready to receive. The terminal checks CTS when it tries to transmit data.
- XON/XOFF response causes the terminal to respond to XON/XOFF characters received while transmitting.
- XON/XOFF control specifies that the terminal transmits XON/XOFF characters to control the incoming data flow.
- XON/XOFF response and control specify that the terminal responds to and transmits XON/XOFF characters.
- CTS/RTS for DTE-DTE allows for peer connections. Each terminal's RTS output pin is connected to the CTS input pin of the other terminal. Each terminal sets RTS whenever it is ready to receive data and waits for CTS to be set before sending data.

Syntax: YL*n*.*data*

where *n* is:

1 COM1 port

Acceptable values for *data* are:

0 No flow control
1 CTS checking
2 XON/XOFF response
3 XON/XOFF control
4 XON/XOFF response and control
5 CTS/RTS for DTE-DTE

Default: No flow control

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Serial Port.

Scan: To set the default flow control, scan this bar code:

No Flow Control for COM1

$+YL1.0

Flow Control (continued)

Or: To set the flow control for one serial port:

1. Scan this bar code:

   Enter Accumulate Mode / Set Flow Control

   +/$+YL

2. Scan one of these bar codes to set the COM port:

   COM1

   1.

3. Scan the flow control setting:

   No Flow Control

   0

   CTS Checking

   1

   XON/XOFF Response

   2

   XON/XOFF Control

   3

   XON/XOFF Response and Control

   4

   CTS/RTS for DTE-DTE

   5

4. Scan this bar code:

   Exit Accumulate Mode

   -/

Other: For COM1 only. To provide compatibility with earlier Trakker Antares firmware versions, you can also use this syntax:

IL*data*

where *data* is a numeric value from 0 to 5.

Handshake

Purpose: Enables or disables the handshake event that is an affirmative acknowledge to a message received through the serial port.

Note: Before you can enable Handshake, you must configure the EOM command. Handshake is also referred to as AFF (affirmative acknowledge) on other Intermec devices.

Syntax: YJ*n.data*

where *n* is:

1 COM1 port

Acceptable values for *data* are:

Disabled	No ACK or NAK transmitted
Enabled	\x06 (hexadecimal value for ACK)

Default: Disabled

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Serial Port.

Scan: One of these bar codes:

Note: To scan these bar code labels, you must configure the terminal to use Code 39 in Full ASCII mode. For help, see "Code 39" earlier in this chapter.

Disable Handshake for COM1

$+YJ1.

Enable Handshake (Set to ACK) for COM1

$+YJ1.$F

Other: For COM1 only. To provide compatibility with earlier Trakker Antares firmware versions, you can also use this syntax:

PG*data*

where *data* is disabled or enabled (set to ACK).

Host IP Address

Purpose: Defines the IP address assigned to the host computer in the TCP/IP network. You assign an IP address to each device in a TCP/IP direct connect network. The host IP address you set on the 2415 must match the address that is set on the host.

Syntax: NC*n.n.n.n*

where each *n* address segment is a number from 0 to 255. The host IP address field consists of four separate numbers, each separated by a period.

Note: The RF network cannot be activated if the first address segment in the IP address is set to 0, 127, or a number greater than 223.

Default: 0.0.0.0

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Primary Network.

Scan: To set the default host IP address, scan this bar code:

Default Host IP Address

$+NC0.0.0.0

Or: To set the host IP address:

1. Scan this bar code:

   Enter Accumulate Mode / Set Host IP Address

   +/$+NC

Host IP Address (continued)

2. Scan a numeric value from 0 to 255 to set an *n* field of the host IP address from these bar codes.

0

1

2

3

4

5

6

7

8

9

3. Scan this bar code:

. (Period)

.

4. Repeat Steps 2 and 3 to set the next three numbers in the host IP address field. After you scan the last address segment, go to Step 5. Do **not** scan the period after the last address segment.

5. Scan this bar code:

Exit Accumulate Mode

-/

Inactivity Timeout

Purpose: (OpenAir radio parameter) Defines the amount of time the radio on the 2415 waits to go into a low power state. If no data is sent or received within the inactivity timeout period set, the radio goes into a low power state to conserve battery power. If you set a high value, the radio stays on longer at a higher power rate and uses battery power at a faster rate.

Power Management Tip: Intermec strongly recommends that you use the optimum inactivity timeout of 5 seconds to preserve the battery pack power.

Syntax: RY*data*

Acceptable values for *data* are:

0	Radio never turns off
1-51	RF inactivity timeout in seconds multiplied by a value of 5

where *data*=1 sets a timeout delay of 5 seconds, *data*=2 sets a timeout delay of 10 seconds, and so on, up to *data*=51 for a timeout delay of 255 seconds.

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Radio.

Default: 5 seconds

Scan: To set the default inactivity timeout to 5 seconds, scan this bar code:

Default Inactivity Timeout

$+RY1

Or: To set the inactivity timeout:

1. Scan this bar code:

Enter Accumulate Mode / Set Inactivity Timeout

+/$+RY

Inactivity Timeout (continued)

2. Scan a numeric value for *data* from these bar codes:

0

1

2

3

4

5

6

7

8

9

3. Scan this bar code:

Exit Accumulate Mode

-/

Interleaved 2 of 5

Purpose: Enables or disables decoding of Interleaved 2 of 5 (I 2 of 5) symbology. I 2 of 5 is a high-density, self-checking, continuous numeric symbology. It is mainly used in inventory distribution and the automobile industry.

Enabling I 2 of 5 automatically disables Code 2 of 5.

Syntax: CA*data*

Acceptable values for *data* are:

0	Disabled
2-32	Fixed length (even number only)
97	Variable length without a check digit
98	Case code (6 or 14) with a check digit
99	Variable length with a check digit

Caution
Using the variable length without a check digit configuration option can cause substitution errors.

Conseil
Des erreurs de substitution peuvent survenir si vous utilisez la longueur variable sans option de vérification de configuration de chiffres.

Default: Disabled

Menu System: From the Main Menu, choose Configuration Menu, then Symbologies Menu, and then 2 of 5/I 2 of 5.

Scan: One of these bar codes:

Disable Interleaved 2 of 5

$+CA0

Enable Variable Length Without a Check Digit

$+CA97

Enable Variable Length With a Check Digit

$+CA99

Enable Case Code With a Check Digit

$+CA98

Interleaved 2 of 5 (continued)

Or: To set Interleaved 2 of 5 to a fixed length:

1. Scan this bar code:

   Enter Accumulate Mode / Set Fixed Length

   +/$+CA

2. Scan a numeric value for *data* from these bar codes. (Use even numbers 2-32 only.)

   0

   1

   2

   3

   4

   6

   8

3. Scan this bar code:

   Exit Accumulate Mode

   -/

Keypad Caps Lock

Purpose: Turns the caps lock on and off. With the caps lock turned on, all alphabetic characters you type on the keypad will be uppercase or capital letters.

Syntax: KA*data*

Acceptable values for *data* are:

0 Caps lock off
1 Caps lock on

Default: Caps lock off

Menu System: From the Main Menu, choose Configuration Menu, then Terminal Menu, and then Keypad.

Scan: One of these bar codes:

Caps Lock Off

$+KA0

Caps Lock On

$+KA1

Keypad Clicker

Purpose: Enables or disables the keypad clicker. The terminal sounds a click each time you press a key or decode a row of a two-dimensional symbology.

Note: If the Beep Volume command is set to off, you will not hear any audio signals including the keyclick.

Syntax: KC*data*

Acceptable values for *data* are:

0 Disable keypad clicker
1 Enable keypad clicker

Default: Enabled

Menu System: From the Main Menu, choose Configuration Menu, then Terminal Menu, and then Keypad.

Scan: One of these bar codes:

Disable Keypad Clicker

$+KC0

Enable Keypad Clicker

$+KC1

Keypad Type

Purpose: The keypad type is initially configured in the terminal's firmware at the Intermec factory. If you change the keypad overlay, you must configure the keypad type to match the new keypad overlay.

After you change the keypad type, you must save the configuration in flash memory and boot the terminal for the change to take effect.

Note: With the programmable or international keypad, you can access all the characters in the "Trakker Antares Terminal Font Set" in Appendix C.

Syntax: KT*data*

Acceptable values for *data* are:

55-Key		37-Key	
0	Hardware (factory default)	0	Hardware (factory default)
L	Programmable/international keypad	P	Programmable/international keypad
M	TE keypad	Q	TE keypad

Default: Hardware default

Menu System: From the Main Menu, choose Configuration Menu, then Terminal Menu, and then Keypad.

Scan: 1. Scan one of these bar codes:

Set Keypad Type to Hardware Default

$+KT0

Set 55-Key Keypad Type to Programmable/International Keypad

$+KTL

Set 55-Key Keypad Type to TE Keypad

$+KTM

Keypad Type (continued)

Set 37-Key Keypad Type to Programmable/International Keypad

$+KTP

Set 37-Key Keypad Type to TE Keypad

$+KTQ

2. Scan this bar code to save the configuration change in flash memory:

Save Configuration in Flash Memory

.+1

3. Scan this bar code to boot the terminal and use the new keypad type:

Reset Firmware

-.

LRC (Longitudinal Redundancy Check)

Purpose: The Longitudinal Redundancy Check (LRC) character is an error-checking character that you can append to transmitted and received blocks of data.

Note: Before you can enable LRC, you must enable the EOM command.

Syntax: YF*n.data*

where *n* is:

1 COM1 port

Acceptable values for *data* are:

0 LRC disabled
1 LRC enabled

Default: Disabled

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Serial Port.

Scan: One of these bar codes:

Disable LRC for COM1

$+YF1.0

Enable LRC for COM1

$+YF1.1

Other: For COM1 only. To provide compatibility with earlier Trakker Antares firmware versions, you can also use this syntax:

IF*data*

where *data* is a value of 0 or 1.

Maximum Retries

Purpose: Defines the number of times the 2415 will attempt to send a disconnect request message to the DCS 300. The 2415 sends connect and disconnect request messages to the DCS 300 when you turn the terminal on and off.

Tip: Intermec strongly recommends that you use the optimum setting of 7 retries.

Syntax: NR*data*

Acceptable values for *data* are:

0	2415 retries indefinitely
1-99	Number of retries

Default: 7

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Advanced Network.

Scan: To set the default number of maximum retries, scan this bar code:

Default Maximum Retries

$+NR7

Or: To set the maximum retries:

1. Scan this bar code:

Enter Accumulate Mode / Set Maximum Retries

+/$+NR

Maximum Retries (continued)

2. Scan a numeric value for *data* from these bar codes:

0

1

2

3

4

5

6

7

8

9

3. Scan this bar code:

Exit Accumulate Mode

-/

Maximum Sleep Duration

Purpose: (IEEE 802.11 DS radio parameter) Specifies the maximum amount of time the radio is allowed to sleep.

Note: Before you set the reservation, you must set the Power Management command to enable.

Syntax: LH*data*

Default: 100

Acceptable values for *data* are from 0 to 65535 Kusecs. A Kusec is approximately 1 ms.

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Radio.

Scan: To set the default maximum sleep duration, scan this bar code:

Default Max Sleep Duration

*$+LH100

Or: To set the maximum sleep duration:

1. Scan this bar code:

Enter Accumulate Mode / Set Max Sleep Duration

+/$+LH

Maximum Sleep Duration (continued)

2. Scan a numeric value for *data* from these bar codes:

0

1

2

3

4

5

6

7

8

9

3. Scan this bar code:

Exit Accumulate Mode

-/

MSI

Purpose: Enables or disables decoding of MSI symbology. MSI code is similar to Plessey code in that it includes a start pattern, data characters, 1 or 2 check digits, and a stop pattern.

Syntax: CN*data*

Acceptable values for *data* are:

First digit:	0	Disabled
	1	No check digits
	2	1 modulus 10 check digit
	3	2 modulus 10 check digit
Second digit:	0	Discard check digit
	1	Transmit check digit

Default: Disabled

Menu System: From the Main Menu, choose Configuration Menu, then Symbologies Menu, and then MSI.

Scan: One of these bar codes:

Disable MSI

$+CN00

MSI Without Check Digits

$+CN10

MSI With 1 Modulus 10 Check Digit, Discard Check Digit

$+CN20

MSI With 1 Modulus 10 Check Digit, Transmit Check Digit

$+CN21

MSI (continued)

MSI With 2 Modulus 10 Check Digits, Discard Check Digits

$+CN30

MSI With 2 Modulus 10 Check Digits, Transmit Check Digits

$+CN31

Network Activate

Purpose: Enables or disables network communications between the 2415 and other devices in the RF network. When you enable this parameter, the terminal attempts to establish communications with the DCS 300 or host computer. You must enable this parameter for RF data collection. When you disable this parameter, the network is disabled, no RF communications are provided, and the radio is turned off.

Syntax: NA*data*

Acceptable values for *data* are:

0 Disabled
1 Enabled (RF network communications)

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Primary Network.

Default: Disabled

Scan: One of these bar codes:

Disable RF Network Communications

$+NA0

Enable RF Network Communications

$+NA1

Network Loopback

Purpose: Transmits all messages received from the DCS 300 back to the DCS 300. Messages received by the radio are not passed on to the 2415 applications unless they are configuration commands. Messages continue to be looped back to the DCS 300 as long as this feature is enabled. Messages originating from the 2415 are still transmitted to the DCS 300.

Use the Network Loopback parameter to troubleshoot RF communications problems.

Syntax: NL*data*

Acceptable values for *data* are:

0 Disabled
1 Enabled

Default: Disabled

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Advanced Network.

Scan: One of these bar codes:

Disable Network Loopback

$+NL0

Enable Network Loopback

$+NL1

Network Name

Purpose: (IEEE 802.11 DS radio parameter) Defines an RF subnetwork. To communicate, all access points and 2415s in the subnetwork must have the same network name, which is case-sensitive. You can roam between access points as long as all of the RF devices have the same network name.You can assign different network names if you want to establish different RF subnetworks in the same area.

If you set this parameter to ANY, then any 2415s can associate with any access point, regardless of the access point network name.

Syntax: LA*data*

Acceptable values for *data* are up to 32 ASCII characters.

Default: INTERMEC

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Radio.

Scan: To set the default network name, scan this bar code:

Default Network Name

$+LAINTERMEC

Or: To set the network name to "ANY," scan this bar code label:

Set Network Name to ANY

$+LAANY

Or: To set the network name to an ASCII character string:

1. Scan this bar code:

   Enter Accumulate Mode / Set Network Name

   +/$+LA

2. Scan a value for *data* from the "Full ASCII Bar Code Chart" in Appendix B. The network name can be from 1 to 32 characters.

Network Name (continued)

3. Scan this bar code:

Exit Accumulate Mode

-/

Network Port

Purpose: Defines the network port that the TCP/IP or UDP Plus network protocol uses for communications in the RF network. In a TCP/IP network, set the network port to the appropriate port for the application you are using on the 2415. The default network port of 23 enables VT/ANSI Telnet communications. In a UDP Plus network, set the network port to match the network port that is set on the DCS 300.

Syntax: NG*data*

Acceptable values for *data* are any number from 1 to 65535.

Default: 00023 2415 with TCP/IP
05555 2415 with UDP Plus

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Advanced Network.

Scan: To set the default network port for a 2415 with TCP/IP, scan this bar code:

Default TCP/IP Network Port

$+NG23

To set the default network port for a 2415 with UDP Plus, scan this bar code:

Default UDP Plus Network Port

$+NG5555

Or: To set the network port:

1. Scan this bar code:

   Enter Accumulate Mode / Set Network Port

   +/$+NG

Network Port (continued)

2. Scan a numeric value for *data* from these bar codes:

0

1

2

3

4

5

6

7

8

9

3. Scan this bar code:

Exit Accumulate Mode

-/

Parity

Purpose: Sets the parity for the serial port. The terminal uses parity for error checking in data transmissions.

Syntax: YB*n.data*

where *n* is:

1 COM1 port

Acceptable values for *data* are:

0 No parity
1 Even parity
2 Odd parity

Default: Even

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Serial Port.

Scan: One of these bar codes:

No Parity for COM1

$+YB1.0

Even Parity for COM1

$+YB1.1

Odd Parity for COM1

$+YB1.2

Other: For COM1 only. To provide compatibility with earlier Trakker Antares firmware versions, you can also use this syntax:

IB*data*

where *data* is a value from 0 to 2.

Plessey

Purpose: Enables or disables decoding of Plessey symbology. Plessey code is pulse-width modulated like most other bar codes. It includes a start character, data characters, an eight-bit cyclic check digit, a termination bar, and usually a reverse start character. The code is continuous and not self-checking. You need to configure two parameters for Plessey code: Start Code and Check Digit.

Syntax: CI*data*

Acceptable values for *data* are:

00 Disabled
10 Plessey with reverse start code
30 Transmit check digit
31 Discard check digit

Default: Disabled

Menu System: From the Main Menu, choose Configuration Menu, then Symbologies Menu, and then Plessey.

Scan: To disable Plessey:

Disable Plessey

$+CI00

Or: To set Plessey, complete these steps:

1. Scan this bar code:

   Plessey With Reverse Start Code

   $+CI10

2. Scan one of these bar codes to transmit or retain the check digit:

   Transmit Check Digit

   $+CI30

   Discard Check Digit

   $+CI31

Poll (Polling)

Purpose: Solicits or requests data from a polled device.

Note: Before you can enable Poll, you must configure the EOM and Handshake commands.

Syntax: YR*n*.*data*

where *n* is:

1 COM1 port

Acceptable values for *data* are:

Disabled	No polling
Enabled	\x1C (hexadecimal value for FS)

Default: Disabled

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Serial Port.

Scan: To disable poll, scan one of these bar codes:

Note: To scan these bar code labels, you must configure the terminal to use Code 39 in Full ASCII mode. For help, see "Code 39" earlier in this chapter.

Disable Poll for COM1

$+YR1.

Enable Poll (Set to FS) for COM1

$+YR1.%B

Other: For COM1 only. To provide compatibility with earlier Trakker Antares firmware versions, you can also use this syntax:

HB*data*

where *data* is disabled or enabled (set to FS).

Postamble

Purpose: Sets the postamble that is appended to any data you scan with the terminal. Common postambles include cursor controls such as a tab or a carriage return line feed.

You can set the postamble to use characters from the extended ASCII character set such as the Field Exit code for 5250 TE. However, you cannot scan in extended ASCII characters in the Postamble command. You must use the TRAKKER Antares 2400 Menu System. For help, see "Entering ASCII Control Characters" in Chapter 3.

Syntax: AE*data*

Acceptable values for *data* are up to 25 ASCII characters. If you are entering quotation marks as data or grouping configuration commands, you must enclose the *data* within quotation marks (see the example).

Default: No characters (disabled)

Menu System: From the Main Menu, choose Configuration Menu, then Terminal Menu, and then Preamble/Postamble.

Scan: To disable the postamble, scan this bar code:

Disable Postamble

$+AE

Or: To set the postamble to an ASCII character string:

1. Scan this bar code:

   Enter Accumulate Mode / Set Postamble

   +/$+AE

2. Scan a value for *data* from the "Full ASCII Bar Code Chart" in Appendix B. The postamble can be from 1 to 25 characters.
3. Scan this bar code:

   Exit Accumulate Mode

   -/

Postamble (continued)

Example: You want to set a postamble that includes quotation marks. To scan a bar code label that includes quotation marks, you must configure the terminal to use Code 39 in Full ASCII mode. For help, see "Code 39" earlier in this chapter.

Enter the postamble by scanning this full ASCII bar code label:

Set Postamble to "B"

$+AE"""B"""

You must enclose the data within quotation marks and precede each quotation mark with another quotation mark so that the quotation marks are not treated as the end of the data.

Power Management

Purpose: (IEEE 802.11 DS radio parameter) Determines if power management is enabled for the radio. If you enable power management, the radio conserves power by sleeping between messages. Enabling power management decreases the performance of the RF network, but it increases the life of battery-powered devices.

Syntax: LG*data*

Acceptable values for *data* are:

0 Disabled
1 Enabled

Default: Enabled

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Radio.

Scan: One of these bar codes:

Disable Power Management

$+LG0

Enable Power Management

$+LG1

Preamble

Purpose: Sets the preamble that precedes any data you scan with the terminal. Common preambles include a data location number or an operator number.

You can set the preamble to use characters from the extended ASCII character set. However, you cannot scan in extended ASCII characters in the Preamble command. You need to use the TRAKKER Antares 2400 Menu System. For help, see "Entering ASCII Control Characters" in Chapter 3.

Syntax: AD*data*

Acceptable values for *data* are up to 25 ASCII characters. If you are entering quotation marks as data or grouping configuration commands, you need to enclose the *data* within quotation marks (see the example).

Default: No characters (disabled)

Menu System: From the Main Menu, choose Configuration Menu, then Terminal Menu, and then Preamble/Postamble.

Scan: To disable the preamble, scan this bar code:

Disable Preamble

$+AD

Or: To set the preamble to an ASCII character string:

1. Scan this bar code:

   Enter Accumulate Mode / Set Preamble

   +/$+AD

2. Scan a value for *data* from the "Full ASCII Bar Code Chart" in Appendix B. The preamble can be from 1 to 25 characters.
3. Scan this bar code:

   Exit Accumulate Mode

   -/

Preamble (continued)

Example: You want to set a preamble that includes quotation marks. To scan a bar code label that includes quotation marks, you must configure the terminal to use Code 39 in Full ASCII mode. For help, see "Code 39" earlier in this chapter.

Enter the preamble by scanning this full ASCII bar code label:

Set Preamble to "B"

$+AD"""B"""

You must enclose the data within quotation marks and precede each quotation mark with another quotation mark so that the quotation marks are not treated as the end of the data.

RAM Drive Size

Purpose: Configures the size and use of the RAM drive. You can use the RAM drive (drive E) to temporarily store data and files. You can also disable the RAM drive and use the additional 256K for application execution space or programmable (Malloc) memory allocations.

After you set the RAM drive, you must save the configuration in flash memory and boot the terminal for the change to take effect.

Syntax: FR*data*

Acceptable values for *data* are:

0	Disabled, no RAM drive
16-256	RAM drive size in kilobytes (K)

Default: Disabled, no RAM drive

Menu System: From the Main Menu, choose Configuration Menu, then Terminal Menu, and then RAM Drive.

Scan: To disable the RAM drive, scan this bar code:

Disable RAM Drive

$+FR0

Or: To set the RAM drive size:

1. Scan this bar code:

   Enter Accumulate Mode / Set RAM Drive Size

   +/$+FR

RAM Drive Size (continued)

2. Scan a numeric value for *data* from these bar codes:

0

1

2

3

4

5

6

7

8

9

3. Scan this bar code:

Exit Accumulate Mode

-/

4. Scan this bar code to save the configuration change in flash memory:

Save Configuration in Flash Memory

.+1

5. Scan this bar code to boot the terminal and use the RAM drive:

Reset Firmware

-.

Note: When you boot or reset the terminal, all files on the RAM drive are destroyed.

Receive All Multicast

Purpose: (IEEE 802.11 DS radio parameter) Determines if the 2415 needs to receive all multicast messages. If you enable this parameter, the radio will stay awake to receive all multicast messages that are forwarded by the access point. If you disable this parameter, the radio sleeps more often, thus conserving battery power.

Note: Before you set the reservation, you must set the Power Management command to enable.

Syntax: LI*data*

Acceptable values for *data* are:

0 Disabled
1 Enabled

Default: Enabled

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Radio.

Scan: One of these bar codes:

Disable Receive All Multicast

$+LI0

Enable Receive All Multicast

$+LI1

Reservation

Purpose: (IEEE 802.11 DS radio parameter) Specifies the maximum packet size that the 2415 can send before it uses medium reservation (RTS/CTS). That is, packets that are greater than or equal to this packet size use the medium reservation mechanism to help prevent collisions with packets from other devices.

Note: Before you set the reservation, you must set the Reservation Enable command to enable.

Syntax: LD*data*

Acceptable values of data are from 0 to 2346.

Default: 500

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Radio.

Scan: To set the default reservation, scan this bar code:

Default Reservation

*$+LD500

Or: To set the reservation:

1. Scan this bar code:

   Enter Accumulate Mode / Set Reservation

   +/$+LD

Reservation (continued)

2. Scan a numeric value for *data* from these bar codes:

0

1

2

3

4

5

6

7

8

9

3. Scan this bar code:

Exit Accumulate Mode

-/

Reservation Enable

Purpose: (IEEE 802.11 DS radio parameter) Determines if the 2415 uses medium reservation (RTS/CTS). You should enable this parameter when you expect that your network will have hidden stations. When you enable this parameter, you also need to set the Reservation command. You may want to disable this parameter to improve network response time if the 2415 usually sends very small packets and the network does not have any hidden stations.

Syntax: LC*data*

Acceptable values for *data* are:

0 Disabled
1 Enabled

Default: Enabled

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Radio.

Scan: One of these bar codes:

Enable Reservation

$+LC1

Disable Reservation

$+LC0

Resume Execution

Purpose: Defines the way in which the terminal resumes when you press ⏻ to turn on the terminal. If you set this parameter to resume execution not allowed and you press ⏻ to turn on the terminal, the terminal will boot and restart the application that was running when you turned off the terminal. If you set this parameter to resume execution allowed and press ⏻ to turn on the terminal, the terminal resumes exactly where it was when you turned off the terminal.

Syntax: ER*data*

Acceptable values for *data* are:

0 Not allowed
1 Allowed

Default: Allowed

Menu System: From the Main Menu, choose Configuration Menu, then Terminal Menu, and then Power Management.

Scan: One of these bar codes:

Resume Execution Not Allowed

$+ER0

Resume Execution Allowed

$+ER1

Roaming Flag

Purpose: (OpenAir radio parameter) Determines whether or not the 2415 can roam between access points. All access points are master stations and each master has a unique channel. If you have five access points in one domain, the 2415 will connect to one access point when you turn it on. This access point becomes the master station for the 2415. When you set the roaming flag to "Not Allowed," the 2415 will only communicate with the access point to which it first connects. If you allow roaming, the 2415 can communicate with any access point in the same domain.

Syntax: RR*data*

Acceptable values for *data* are:

0 Allowed
1 Not allowed

Default: Allowed

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Radio.

Scan: One of these bar codes:

Roaming Allowed

$+RR0

Roaming Not Allowed

$+RR1

Scan Ahead

Purpose: Enables or disables scan ahead. If you enable this parameter, you can scan a number of labels that are held in a stack until the terminal can process the data. If you disable this parameter, the terminal processes each label you scan before you can scan the next label.

Syntax: SD*data*

Acceptable values for *data* are:

0 Disabled (scan one label at a time)
1 Enabled (scan many labels at a time)

Default: Disabled

Menu System: From the Main Menu, choose Configuration Menu, then Terminal Menu, and then Scanner.

Scan: One of these bar codes:

Disable Scan Ahead

$+SD0

Enable Scan Ahead

$+SD1

Scanner Mode

Purpose: Defines how the scanner operates when you press the Scan button or activate a cabled laser scanner. There are two types of modes:

- In One-Shot mode, you must press the Scan button or activate the cabled laser scanner each time you want to scan a bar code. Once you scan a bar code, the scanner turns off.
- In Automatic (Auto-trigger) mode, you press the Scan button once or activate the cabled laser scanner once to scan a series of bar codes. When you release the button or trigger, the scanner turns off. To scan the same bar code more than once, you must release the Scan button or trigger, or scan a different bar code before attempting a second scan.

Syntax: SB*data*

Acceptable values for *data* are:

0 One-Shot mode
1 Automatic mode

Default: One-Shot mode

Menu System: From the Main Menu, choose Configuration Menu, then Terminal Menu, and then Scanner.

Scan: One of these bar codes:

Enable One-Shot Mode

$+SB0

Enable Automatic Mode

$+SB1

Scanner Redundancy

Purpose: Defines the number of scans (voting) of a bar code label that must decode correctly for a good read of the label. Voting requires the terminal to decode the same bar code multiple times during a single scanner event, and to compare the decoded information a specific number of times before signaling a good read. There are three options:

None Lets the terminal accept the first good read. This setting speeds up terminal performance and is recommended when scanning good quality bar code labels.

Normal The terminal decodes the bar code a minimum number of times in each scanner event. The number of comparisons that are made depends on each bar code symbology.

High The terminal decodes the bar code a maximum number of times in each scanner event. The number of comparisons depends on each bar code symbology. The high setting is recommended when scanning poor quality labels that may cause substitution errors.

Syntax: SR*data*

Acceptable values for *data* are:

0 None
1 Normal
2 High

Menu System: From the Main Menu, choose Configuration Menu, then Terminal Menu, and then Scanner.

Default: Normal

Scan: One of these bar codes:

Scanner Redundancy None

$+SR0

Scanner Redundancy Normal

$+SR1

Scanner Redundancy High

$+SR2

Scanner Selection

Purpose: Identifies the type of scanner you have connected to the terminal. The terminal can optimize the scanning performance by using the scanner you define in this command. When you select a specific scanner, other scanners may not function properly. Your terminal may not work if you connect an incompatible scanner.

Syntax: SS*data*

Acceptable values for *data* are:

0 All compatible scanners (including wands)
6 155x laser scanners
11 241X scanner, including normal, long range, high density, or high visibility (long-range or high-visibility with no aim)
12 Long-range, high-density, or high-visibility scanner with short aim
13 Long-range, high-density, or high-visibility scanner with long aim

Default: All compatible scanners

Menu System: From the Main Menu, choose Configuration Menu, then Terminal Menu, and then Scanner.

Scan: One of these bar codes:

All Compatible Scanners

$+SS0

155X Laser Scanners

$+SS6

241X Scanner (No Aim)

$+SS11

241X Scanner (Short Aim)

$+SS12

241X Scanner (Long Aim)

$+SS13

Scanner Timeout

Purpose: Defines the maximum length of time the scanner stays after you press the Scan button or activate a cabled laser scanner.

Syntax: SA*data*

Acceptable values for *data* are:

0	Disabled
1-60	Shutoff time in seconds

Default: Disabled (no timeout)

Menu System: From the Main Menu, choose Configuration Menu, then Terminal Menu, and then Scanner.

Scan: To disable the scanner timeout, scan this bar code:

Disable Scanner Timeout

$+SA0

Or: To set the scanner timeout:

1. Scan this bar code:

   Enter Accumulate Mode / Set Scanner Timeout

   +/$+SA

Scanner Timeout (continued)

2. Scan a numeric value for *data* from these bar codes:

0

1

2

3

4

5

6

7

8

9

3. Scan this bar code:

Exit Accumulate Mode

-/

Scanner Trigger

Purpose: Scanner trigger lets you set level triggering or edge triggering.

- With level triggering, you activate the scanner and the laser turns on and stays on until you release the button or the trigger on a cabled scanner.
- In edge triggering, you activate the scanner and the laser turns on and stays on. When you activate the scanner a second time, the laser turns off. Simply releasing the button or the trigger does not turn the laser off. If the laser is left on, the scanner timeout turns the laser off.

Syntax: SC*data*

Acceptable values for *data* are:

0 Level triggering
1 Edge triggering

Default: Level triggering

Menu System: From the Main Menu, choose Configuration Menu, then Terminal Menu, and then Scanner.

Scan: One of these bar codes:

Enable Level Triggering

$+SC0

Enable Edge Triggering

$+SC1

Security Identification

Purpose: (OpenAir radio parameter) Defines a password for secured transmission and receipt of data between devices in the RF network. To communicate, all access points and 2415s in the subnetwork must have the same security ID.

Note: The Network Activate command must be configured to 2.4 GHz RF network before you can save any changes to this parameter.

Syntax: RS*data*

Acceptable values for *data* are up to 20 ASCII characters.

Default: No characters or blank (disabled)

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Radio.

The security ID does not display on the screen. The words (ID unchanged) indicate that the password has not been changed in the current menu session. If you change the security ID, you see the new password until you exit the Configuration Menu and update the current (runtime) configuration.

Scan: To disable or set the security ID to no characters, scan this bar code:

Disable Security ID

$+RS

Or: To set the security ID to an ASCII character string:

1. Scan this bar code:

   Enter Accumulate Mode / Set Security ID

   +/$+RS

2. Scan a value for *data* from the "Full ASCII Bar Code Chart" in Appendix B. The security ID can be from 1 to 20 characters.
3. Scan this bar code:

   Exit Accumulate Mode

   -/

Serial Port Protocol

Purpose: Lets you set the protocol that the serial port uses to communicate with the connected device. Communications protocols determine exactly how data is transmitted between the terminal and the serial device. Each protocol has parameters that you can set, such as baud rate and parity. Both the terminal and the serial device must use the same protocol and parameter settings to communicate properly. Each protocol is described in "Using Serial Communications on the Terminals" in Chapter 2.

Syntax: YU*n.data*

where *n* is:

1 COM1 port

Acceptable values for *data* are:

0 Configurable
2 Polling mode D
8 Master polling mode D
12 Binary

Default: Configurable

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Serial Port.

Scan: To set the default serial port protocol, scan this bar code:

Configurable Protocol for COM1

$+YU1.0

Or: To set the serial port protocol for one serial port:

1. Scan this bar code:

   Enter Accumulate Mode / Set Serial Port Protocol

   +/$+YU

2. Scan one of these bar codes to set the COM port:

   COM1

   1.

Serial Port Protocol (continued)

3. Scan the protocol setting:

Configurable

0

Polling Mode D

2

Master Polling

8

Binary

12

4. Scan this bar code:

Exit Accumulate Mode

-/

Start of Message (SOM)

Purpose: SOM is the first character in a message sent to or received from the host computer through the terminal's serial port. SOM **cannot** equal the same value that is set for EOM. You **cannot** set SOM to any of these values:

- AFF (ACK)
- DLE
- NEG (NAK)
- Poll
- RES (EOT)
- REQ (ENQ)
- SEL
- XOFF
- XON

Note: Before you can enable SOM, you must enable the EOM command.

Syntax: YY*n.data*

where *n* is:

1 COM1 port

An acceptable value for *data* is any ASCII character.

Default: \x02 (hexadecimal value for STX)

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Serial Port.

Scan: To set the default SOM, scan this bar code:

Note: To scan these bar code labels, you must configure the terminal to use Code 39 in Full ASCII mode. For help, see "Code 39" earlier in this chapter.

Default SOM for COM1

*$+YY1.$B *

Or: To disable SOM, scan this bar code:

Disable SOM for COM1

$+YY1.

Start of Message (continued)

Or: To set SOM to an ASCII character for one serial port:

1. Scan this bar code:

   Enter Accumulate Mode / Set SOM

   +/$+YY

2. Scan the serial port from these bar codes:

   COM1

   1.

3. Scan a bar code for *data* from the "Full ASCII Bar Code Chart" in Appendix B.
4. Scan this bar code:

   Exit Accumulate Mode

   -/

Other: For COM1 only. To provide compatibility with earlier Trakker Antares firmware versions, you can also use this syntax:

PE*data*

where *data* is an ASCII character.

Station Name

Purpose: (IEEE 802.11 DS radio parameter) Identifies the 2415 to the network. For example, you may want to define station names so that you can identify 2415s when using site survey tools.

Syntax: LB*data*

Acceptable values for *data* are up to 30 ASCII characters.

Default: No characters (no name)

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Radio.

Scan: To set the default station name, scan this bar code:

Default Station Name

$+LB

Or: To set the network name to an ASCII character string:

1. Scan this bar code:

   Enter Accumulate Mode / Set Station Name

   +/$+LB

2. Scan a value for *data* from the "Full ASCII Bar Code Chart" in Appendix B. The station name can be from 1 to 30 characters.

3. Scan this bar code:

   Exit Accumulate Mode

   -/

Stop Bits

Purpose: Sets the number of stop bits on the serial port.

Syntax: YC*n.data*

where *n* is:

1 COM1 port

Acceptable values for *data* are:

1 1 stop bit
2 2 stop bits

Default: 1

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Serial Port.

Scan: One of these bar codes:

1 Stop Bit for COM1

$+YC1.1

2 Stop Bits for COM1

$+YC1.2

Other: For COM1 only. To provide compatibility with earlier Trakker Antares firmware versions, you can also use this syntax:

IC*data*

where *data* is a value of 1 or 2.

Subnet Mask

Purpose: Defines the mask that is used to separate the subnetwork address from the local IP address. The TCP/IP protocol stack performs a bit-wise AND on the mask and the IP address. Each address segment represents one byte, where 255 converts to FF hex.

This computation is used to find out if the DCS 300 or host and terminal are on different subnetworks. If the terminal is on a different subnetwork than the DCS 300 or host, you must set the subnet mask and the default router.

For example, if the IP address is 192.009.150.184 and the subnet mask is 255.255.255.0, the subnetwork address is 192.009.150.0.

Syntax: NS*n.n.n.n*

where each *n* address segment is a number from 0 to 255. The subnet mask field consists of four separate numbers, each separated by a period.

Default: 255.255.255.0

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Serial Port.

Scan: To set the default subnet mask address, scan this bar code:

Default Subnet Mask

$+NS255.255.255.0

Or: To set the subnet mask:

1. Scan this bar code:

   Enter Accumulate Mode / Set Subnet Mask

   +/$+NS

Subnet Mask (continued)

2. Scan a numeric value from 0 to 255 to set an *n* field of the subnet mask address from these bar codes.

0

1

2

3

4

5

6

7

8

9

3. Scan this bar code:

. (Period)

.

4. Repeat Steps 2 and 3 to set the next three numbers in the subnet mask address field. After you scan the last address segment, go to Step 5. Do **not** scan the period after the last address segment.

5. Scan this bar code:

Exit Accumulate Mode

-/

Suspend/Resume Control

Purpose: Controls the operation of the ⏻ key (suspend/resume). When the ⏻ key is enabled, you can turn the terminal on and off. When the ⏻ key is disabled, you cannot turn off the terminal.

Syntax: EF*data*

Acceptable values for *data* are:

0 Enabled
1 Disabled

Default: Enabled

Menu System: Not supported

Scan: One of these bar codes:

Enable ⏻ Key

$+EF0

Disable ⏻ Key

$+EF1

TCP Maximum Retries

Purpose: Defines the maximum number of times that TCP will attempt to transmit data before giving up and terminating the TCP connection.

Syntax: NJ*data*

Acceptable values for *data* are any number from 5 to 50.

Default: 12

Menu System: Not supported

Scan: To set the default TCP maximum retries, scan this bar code:

Default TCP Maximum Retries

$+NJ12

Or: To set the TCP maximum retries:

1. Scan this bar code:

   Enter Accumulate Mode / Set TCP Maximum Retries

   +/$+NJ

2. Scan a numeric value for data from these bar codes:

0

1

2

3

4

5

6

7

8

9

TCP Maximum Retries (continued)

3. Scan this bar code:

Exit Accumulate Mode

-/

TCP/IP Maximum Transmit Timeout

Purpose: Defines the maximum timeout that TCP will allow between retries of a transmission in a TCP/IP direct connect network before it gives up. Intermec has determined that the optimum setting is 20 seconds.

Syntax: NH*data*

Acceptable values for *data* are:

0	No timeout
1-128	Transmit timeout in seconds

Default: 20 seconds

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Advanced Network.

Scan: To set the default TCP/IP Maximum Transmit Timeout, scan this bar code:

Default TCP/IP Maximum Transmit Timeout

$+NH20

Or: To set the TCP/IP maximum transmit timeout:

1. Scan this bar code:

   Enter Accumulate Mode / Set TCP/IP Maximum Transmit Timeout

   +/$+NH

TCP Maximum Transmit Timeout (continued)

2. Scan a numeric value for *data* from these bar codes:

0

1

2

3

4

5

6

7

8

9

3. Scan this bar code:

Exit Accumulate Mode

-/

Terminal IP Address

Purpose: Defines the IP address that is assigned to the 2415 in your network. This IP address must match the address that is set for this terminal on the DCS 300 or host computer.

Syntax: ND*n.n.n.n*

where each *n* address segment is a number from 0 to 255. The terminal IP address field consists of four separate numbers, each separated by a period.

Note: The RF network cannot be activated if the first address segment in the IP address is set to 0, 127, or a number greater than 223.

Default: 0.0.0.0

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Primary Network.

Scan: To set the default terminal IP address, scan this bar code:

Default Terminal IP Address

$+ND0.0.0.0

Or: To set the terminal IP address:

1. Scan this bar code:

   Enter Accumulate Mode / Set Terminal IP Address

   +/$+ND

Terminal IP Address (continued)

2. Scan a numeric value from 0 to 255 to set an *n* field of the terminal IP address from these bar codes.

0

1

2

3

4

5

6

7

8

9

3. Scan this bar code:

. (Period)

.

4. Repeat Steps 2 and 3 to set the next three numbers in the terminal IP address field. After you scan the last address segment, go to Step 5. Do **not** scan the period after the last address segment.

5. Scan this bar code:

Exit Accumulate Mode

-/

Time and Date

Purpose: Sets the time and date on the terminal.

Syntax: DB*data*

Acceptable values for *data* are 12 digits corresponding to:

yy	00-99	Year
mm	01-12	Month of the year
dd	01-31	Day of the month
hh	00-23	Hour
mm	00-59	Minutes
ss	00-59	Seconds

Year values (*yy*) from 00 to 95 are interpreted as 2000 through 2095. Year values from 96 to 99 are interpreted as 1996 through 1999.

Default: 960101120000

Menu System: From the Main Menu, choose System Menu.

Scan: To set the time and date:

1. Scan this bar code:

   Enter Accumulate Mode / Set Time and Date

   +/$+DB

2. Scan a numeric value for each digit from these bar codes:

   0

   1

   2

   3

   4

   5

   6

   7

   8

   9

Time and Date (continued)

3. Scan this bar code:

Exit Accumulate Mode

-/

Time in Seconds

Purpose: If you enable the Append Time command, you can enable the Time in Seconds command to append the seconds to each bar code label that is scanned on the terminal. To append the time in only hours and minutes, disable the Time in Seconds command.

Syntax: DA*data*

Acceptable values for *data* are:

0 Disabled
1 Enabled

Default: Disabled

Menu System: From the Main Menu, choose Configuration Menu, then Terminal Menu, and then Append Time.

Scan: One of these bar codes:

Disable Time in Seconds

$+DA0

Enable Time in Seconds

$+DA1

Timeout Delay

Purpose: If handshaking is enabled, the terminal expects a response to each message that is sent to the host through the serial port. The timeout delay is the amount of time the terminal waits to receive a response. When the timeout expires, the terminal tries sending the message again. If no response is received after the terminal tries to send the message three times, a timeout error occurs. In polling mode D, the terminal sends another poll sequence when it resends the message.

Note: Before you can enable Timeout Delay, you must configure the EOM and Handshake commands.

Syntax: YE*n.data*

where *n* is:

1 COM1 port

Acceptable values for *data* are:

0 5 ms
1 100 ms
2 500 ms
3 2 sec
4 10 sec
5 20 sec
6 40 sec
7 60 sec

Default: 10 seconds

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Serial Port.

Scan: To set the default timeout delay, scan this bar code:

Timeout Delay 10 sec for COM1

$+YE1.4

Timeout Delay (continued)

Or: To set the timeout delay for one serial port:

1. Scan this bar code:

   Enter Accumulate Mode / Set Timeout Delay

   +/$+YE

2. Scan the serial port from these bar codes:

   COM1

   1.

3. Scan the timeout delay from these bar codes:

   Timeout Delay 5 ms

   0

   Timeout Delay 100 ms

   1

   Timeout Delay 500 ms

   2

   Timeout Delay 2 sec

   3

   Timeout Delay 10 sec

   4

   Timeout Delay 20 sec

   5

   Timeout Delay 40 sec

   6

   Timeout Delay 60 sec

   7

4. Scan this bar code:

   Exit Accumulate Mode

   -/

Other: For COM1 only. To provide compatibility with earlier Trakker Antares firmware versions, you can also use this syntax:

IE*data*

where *data* is a value from 0 to 7.

Transmit Mode

Purpose: (OpenAir radio parameter) Defines the transmit mode that the 2415 radio uses. There are three modes:

BFSK Binary Frequency Shift Key. A broadcasting method the radio uses that lengthens the range, but halves the throughput. This method is switched when the RF protocol on the terminal determines that communications are degrading.

QFSK Quad Frequency Shift Key. A broadcasting method the radio uses that shortens the range, but doubles the throughput. QFSK is the method used under standard radio conditions.

Auto The terminal radio automatically switches modes between BFSK and QFSK as needed.

Note: Even if you set this configuration command, the 2415 radio will reset the parameter as needed to maximize the broadcasting range and throughput.

Syntax: RT*data*

Acceptable values for *data* are:

0 BFSK (Binary Frequency Shift Key)
1 QFSK (Quad Frequency Shift Key)
3 Auto

Default: BFSK

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Radio.

Scan: One of these bar codes:

Set Transmit Mode to BFSK

$+RT0

Set Transmit Mode to QFSK

$+RT1

Set Transmit Mode to Auto

$+RT3

Transmit Rate

Purpose: (IEEE 802.11 DS radio parameter) Sets the bit rate for data transmissions. The slower transmit rate provides a better range. You should configure the terminals that are on the perimeter of the access point coverage area to the slower transmit rate. The faster transmit rate provides better throughput. You should configure most of the terminals to the faster transmit range.

Note: If the 21XX Universal Access Points are set to 2 Mbit/s with auto fallback, the 2415s can transmit at any bit rate. If the 21XX UAPs are not set to this bit rate, the transmit rate that is set on the 2415s must match the transmit rate of the 21XX UAPs.

Syntax: LE*data*

Acceptable values for *data* are:

0 1 Mbit/s
1 2 Mbit/s
2 2 Mbit/s with auto fallback

Default: 2 Mbit/s with auto fallback

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Radio.

Scan: One of these bar codes:

Set Transmit Rate to 1 Mbit/s

$+LE0

Set Transmit Rate to 2 Mbit/s

$+LE1

Set Transmit Rate to 2 Mbit/s With Auto Fallback

$+LE2

UPC/EAN

Purpose: Enables or disables the decoding of Universal Product Code (UPC)/European Article Numbering (EAN) symbology. UPC/EAN are fixed length, numeric, continuous symbologies that use four element widths. A terminal that is configured to decode EAN bar codes can decode UPC, but the reverse is not true. UPC code is a subset of EAN code.

To define the UPC/EAN symbology, you set up to seven digits. The supplemental portion of a UPC or EAN label is a weak symbology and can be missed by the scanner for several reasons. In situations where supplementals are known to be present, reading just the main symbol can be prevented until a valid supplemental is found. When using a laser scanner, performance degradation is not noticeable.

The fifth, sixth, and seventh digits are optional. To set the sixth digit, you must set the fifth digit. To set the seventh digit, you must set all seven digits.

Syntax: CE*data*

where *data* must be 4 to 7 digits selected from this list:

First digit:	0	UPC-A/EAN-13 disabled
	1	UPC-A/EAN-13 enabled
	2	UPC-A only enabled
Second digit:	0	UPC-E disabled
	1	UPC-E enabled
Third digit:	0	EAN-8 disabled
	1	EAN-8 enabled
Fourth digit:	0	Supplementals not allowed
	1	Supplementals allowed
	2	Supplementals required
	3	Two-digit supplementals required
	4	Five-digit supplementals required
Fifth digit:	0	Discard check digit
	1	Transmit check digit
Sixth digit:	0	Discard number system digit
	1	Transmit number system digit
Seventh digit:	0	Discard the leading zero for UPC-A
	1	Retain the leading zero for UPC-A

Default: 1111111

First digit:	UPC-A/EAN-13 enabled
Second digit:	UPC-E enabled
Third digit:	EAN-8 enabled

UPC/EAN (continued)

Fourth digit: Supplementals allowed
Fifth digit: Transmit check digit
Sixth digit: Transmit number system digit
Seventh digit: Retain leading zero for UPC-A

Menu System: From the Main Menu, choose Configuration Menu, then Symbologies Menu, and then UPC/EAN.

Scan: To disable UPC/EAN, scan this bar code:

Disable UPC/EAN

$+CE0000000

Or: To enable UPC/EAN:

1. Scan this bar code:

   Enter Accumulate Mode / Enable UPC/EAN

   +/$+CE

2. Scan one of these bar codes to set the first digit:

   Disable UPC/EAN-13

   0

   Enable UPC/EAN-13

   1

   Enable UPC-A Only

   2

3. Scan one of these bar codes to set the second digit:

   Disable UPC-E

   0

   Enable UPC-E

   1

4. Scan one of these bar codes to set the third digit:

   Disable EAN-8

   0

   Enable EAN-8

   1

UPC/EAN (continued)

5. Scan one of these bar codes to set the fourth digit:

Supplementals Not Allowed

0

Supplementals Allowed

1

Supplementals Required

2

Two-Digit Supplementals Required

3

Five-Digit Supplementals Required

4

6. (Optional) Scan one of these bar codes to set the fifth digit:

Discard Check Digit

0

Transmit Check Digit

1

7. (Optional) Scan one of these bar codes to set the sixth digit:

Discard Number System Digit

0

Transmit Number System Digit

1

Note: If you discard the number system digit, one leading digit is discarded from UPC-A, UPC-E, and EAN-8, and two leading digits are discarded from EAN-13.

8. (Optional) Scan one of these bar codes to set the seventh digit:

Discard Leading Zero for UPC-A

0

Transmit Leading Zero for UPC-A

1

Note: This option applies only when you enable UPC-A/EAN-13.

9. Scan this bar code:

Exit Accumulate Mode

-/

Wakeup On Broadcast

Purpose: (OpenAir radio parameter) Determines if the 2415 can receive broadcast messages sent from the network. If the wakeup on broadcast is enabled, the 2415 radio will turn on to receive broadcast messages. If this command is disabled, the terminal radio will ignore broadcast messages.

Power Management Tip: If your network has many broadcast messages, you may want to disable the wakeup on broadcast command to preserve the battery pack power.

Syntax: RB*data*

Acceptable values for *data* are:

0 Disabled
1 Enabled

Default: Disabled

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Radio.

Scan: One of these bar codes:

Disable Wakeup On Broadcast

$+RB0

Enable Wakeup On Broadcast

$+RB1

A

Specifications and Other Helpful Information

This appendix provides the physical and environmental specifications for the terminals. It also provides a quick reference keypad chart, the default configuration, and the configuration commands by syntax.

Specifications

This section lists the physical and environmental specifications for the Trakker Antares 2410 and 2415 terminals.

Note: For programming and file system specifications, see Chapter 4, "Using Custom Applications."

Terminal Dimensions

Length:	19.3 cm (7.6 in)
Height:	5.6 cm (2.2 in) at scanner 3.0 cm (1.2 in) at grip
Width:	8.4 cm (3.3 in) at scanner 5.1 cm (2.0 in) at grip
Weight:	
2410	340 g (12 oz)
2415	397 g (14 oz)

Power Specifications

Operating	Standard: Rechargeable lithium-ion 1350 mAh battery pack High Performance: Rechargeable lithium-ion 2700 mAh battery pack
Backup	Rechargeable capacitor

Electrical Specifications

Electrical Rating	⎓4V; 1A

Temperature Specifications

Type of Operation	Celsius Temperature Range	Fahrenheit Temperature Range
Charging the battery pack	0 to 40°C	32 to 104°F
Operating the terminal	0 to 50°C	32 to 122°F
Storing the terminal (with or without batteries installed)	-20 to 50°C	-4 to 122°F

Relative Humidity Specifications

0 to 95% non-condensing

Application Options

- Programmable
- TE 2000

Keypad Options

- (55-key) Alphanumeric keypad, available with programmable, international, VT/ANSI TE, or 5250 TE overlays
- (37-key) Alphanumeric with large numeric keypad, available with programmable, international, or VT/ANSI TE overlays.
- (37-key) Function keys with large numeric keypad, available with programmable, international, or VT/ANSI TE overlays.

Connectivity Option

- RS-232
- (2415) TCP/IP
- (2415) UDP Plus

Radio Options

- 2.4 GHz (to 2.4835 GHz) OpenAir, frequency hopping spread spectrum radio
- 2.4 GHz (to 2.4835 GHz) IEEE 802.11, direct sequence spread spectrum radio

Memory

- 2MB programmable flash memory, 750K available
- 4MB flash memory, configured as a 2MB flash drive or pre-loaded with double-byte fonts
- 1MB battery-backed RAM, 512K available
- (2410 option) 2MB or 4MB extended storage drive

Screen

- CGA compatible
- 16 lines x 20 columns (128 x 160 dot matrix), backlit LCD
- 25 lines x 80 columns, virtual display with viewport feature

Integrated I/O Connector (Serial Communications)

- 16-pin AMP pocket phone connector
- RS-232C, up to 38400 baud
- full-duplex asynchronous
- XMODEM protocol for data transfer
- Supports Configurable Serial Protocol and XON/XOFF

Pin Assignments for COM1

Use a PC/AT compatible 16-pin D-Sub connector for the RS-232 serial cable with these pin assignments.

Pin	Signal	Direction From Terminal
1	Ground (GND)	
2	Auxiliary 1	
3	Auxiliary 2	
4	Received Data (RX)	Incoming
5	Transmitted Data (TX)	Outgoing
6	Clear to Send (CTS)	Incoming
7	VCC-ext	5V @ 200mA
8	Request to Send (RTS)	Outgoing
9	Video	
0	SOS	
10	Reserved, do not use	
11	LASEN	
12	Trigger	
13	Good	
14	Read	
15	SCAN	
16	Ground (GND)	

Cables for the Terminal

To connect the terminal to a PC, host computer, or another RS-232 serial device, use these cables.

Cable/Adapter	RS-232 Connector	Part Number
16-pin, 5-wire, 6 ft cable	9-pin	069589
16-pin, adapter cable	9-pin	069591

Cables for the Communications Dock

To connect the communications dock to a host computer or another RS-232 serial device, use this cable.

Cable	RS-232 Connector	Part Number
9-pin, null modem	9-pin	059167

Bar Code Symbologies

- Codabar
- Code 11
- Code 16K
- Code 2 of 5
- Code 39, including HIBC option
- Code 49
- Code 93
- Code 128, including ISBT option
- Interleaved 2 of 5
- MSI
- Plessey
- UPC/EAN

Standard Range Scanner Optical Parameters

Bar Code Specification	Depth of Field / Scanning Range	
5.0 mil code	12.7 to 17.8 cm	5 to 7 in
7.5 mil code	12.7 to 27.9 cm	5 to 11 in
10 mil code	10.2 to 38.1 cm	4 to 15 in
15 mil code	10.2 to 53.3 cm	4 to 21 in
20 mil code	10.2 to 61 cm	4 to 24 in
40 mil code	12.7 to 71.1 cm	5 to 28 in
55 mil code	15.2 to 76.2 cm	6 to 30 in
55 mil code, retroreflective	61 cm to 2.1 m	2 to 7 ft
100 mil code, retroreflective	91.4 cm to 3.96 m	3 to 13 ft

Long-Range Scan Module Optical Parameters

Bar Code Specification	Depth of Field/Scanning Range	
10 mil code	29.5 to 49.8 cm	11.6 to 19.6 in
15 mil code	21.8 to 85.3 cm	8.6 to 33.6 in
20 mil code	21.8 to 98.0 cm	8.6 to 38.6 in
40 mil code	24.4* cm to 1.92 m	9.6* in to 6.3 ft
55 mil code	24.4* cm to 2.04 m	9.6* in to 6.7 ft
70 mil code, retroreflective	1.92 to 4.10 m	6.3 to 13.5 ft
100 mil code, retroreflective	2.12 to 5.32 m	7 to 17.5 ft

*Near fields are governed by the width of the bar code. This number is based on a single digit Code 39 label.

High-Visibility Scan Module Optical Parameters

Bar Code Specification	Depth of Field/Scanning Range	
5 mil code	8.8 to 12.5 cm	3.5 to 5.0 in
7.5 mil code	6.2 to 20.0 cm	2.5 to 8.0 in
10 mil code	6.0 to 24.0 cm	2.4 to 9.6 in
15 mil code	5.3 to 36.5 cm	2.1 to 14.6 in
20 mil code	6.5 to 49.0 cm	2.6 to 19.6 in
40 mil code	11.5 to 79.0 cm	4.6 to 31.6 in
55 mil code	17.7 to 89.0 cm	7.1 to 35.6 in

High-Density Scan Module Optical Parameters

Bar Code Specification	Depth of Field/Scanning Range	
2 mil code	3.9 to 6.1 cm	1.5 to 2.4 in
3 mil code	5.3 to 8.5 cm	2.1 to 3.3 in
4 mil code	5.8 to 10.2 cm	2.3 to 4.0 in
5 mil code	5.3 to 13.5 cm	2.1 to 5.3 in
7.5 mil code	5.3 to 13.6 cm	2.1 to 5.3 in
13 mil code	5.3 to 16.3 cm	2.1 to 6.4 in

Default Configuration

The next tables show the terminal's default configuration. You can use the TRAKKER Antares 2400 Menu System to set the terminal to the default configuration. For help, see "Restoring the Terminal's Default Configuration" in Chapter 3.

Default Configuration for Bar Code Symbologies

Parameter	Default
Codabar	Disabled
Code 11	Disabled
Code 16K	Disabled
Code 2 of 5	Disabled
Code 39	Enabled, full ASCII Code 39 enabled with no check digit
Code 49	Disabled
Code 93	Disabled
Code 128	Enabled, standard
Interleaved 2 of 5	Disabled
ISBT Code 128	Disabled
MSI	Disabled
Plessey	Disabled
UPC/EAN	Enabled, UPC-A/EAN-13 enabled, UPC-E and EAN-8 enabled, supplementals allowed, transmit check digit, transmit number system digit, and retain leading zero for UPC-A

Default Configuration for Operations

Parameter	Default
Append Time	Disabled
Automatic Shutoff	Disabled
Beep Volume	Very Loud
Command Processing	All reader commands enabled
Decode Security	Moderate
Display Backlight Timeout	10 seconds
Display Contrast	3 (maximum contrast)
Display Font Grid Type	8x8 (8 pixels wide by 8 pixels high)
Display Row Spacing	0 (one scan line)
Display Video Mode	Original
Flash Memory Configuration	Configure for double-byte fonts
Keypad Caps Lock	Caps lock off
Keypad Clicker	Enabled
Keypad Type	Hardware default
Postamble	No characters (disabled)
Preamble	No characters (disabled)
RAM Drive Size	No RAM drive
Resume Execution	Allowed
Scan Ahead	Disabled
Scanner Mode	One-Shot mode
Scanner Redundancy	Normal
Scanner Selection	All compatible scanners
Scanner Timeout	Disabled (no timeout)
Scanner Trigger	Level triggering
Suspend/Resume Control	Enabled
Time and Date	960101120000 (See note below.)
Time in Seconds	Disabled

Note: When you restore the default configuration, the Time and Date is not reset to the default. Time and Date only returns to its default when you boot the system, upgrade the firmware, or perform a destructive reset.

Default Configuration for RF Network Communications (2415 Only)

Parameter	Default
Acknowledgement Delay Lower Limit	300 ms
Acknowledgement Delay Upper Limit	5000 ms
AP Density (IEEE 802.11 DS)	Low
Controller Connect Check Receive Timer	60 seconds
Controller Connect Check Send Timer	35 seconds
Controller IP Address	0.0.0.0
Default Router	0.0.0.0
Domain (2.4 GHz OpenAir)	0
Dynamic Host Configuration Protocol	Disabled
Host IP Address	0.0.0.0
Inactivity Timeout (2.4 GHz OpenAir)	5 seconds
Maximum Retries	7
Max Sleep Duration (IEEE 802.11 DS)	100 Kusecs (0.1 seconds)
Network Activate	Disabled
Network Loopback	Disabled
Network Name (IEEE 802.11 DS)	INTERMEC
Network Port	23 (Telnet) for a TCP/IP network 5555 for a UDP Plus network
Power Management (IEEE 802.11 DS)	Enabled
Rcv All Multicast (IEEE 802.11 DS)	Enabled
Reservation (IEEE 802.11 DS)	500
Reservation Enable (IEEE 802.11 DS)	Enabled
Roaming Flag (2.4 GHz OpenAir)	Allowed
Security Identification (2.4 GHz OpenAir)	No characters
Station Name (IEEE 802.11 DS)	None
Subnet Mask	255.255.255.0
TCP Maximum Retries	12
TCP/IP Maximum Transmit Timeout	20 seconds
Terminal IP Address	0.0.0.0
Transmit Mode (2.4 GHz OpenAir)	BFSK
Transmit Rate (IEEE 802.11 DS)	2 Mbit/s fallback
Wakeup On Broadcast (2.4 GHz OpenAir)	Disabled

Default Configuration for Serial (RS-232) Network Communications

Parameter	Default
Baud Rate	19200
Configuration Commands Via Serial Port	Enabled without TMF
Data Bits	7
End of Message (EOM)	\x03 (hexadecimal value for ETX)
Flow Control	None
Handshake	Disabled
LRC (Longitudinal Redundancy Check)	Disabled
Parity	Even
Poll (Polling)	Disabled
Serial Port Protocol	Configurable
Start of Message (SOM)	\x02 (hexadecimal value for STX)
Stop Bits	1
Timeout Delay	10 seconds

Configuration Commands by Syntax

The next table lists all of the configuration commands that are available on the Trakker Antares 2410 and 2415 terminals. The configuration commands are listed in alphabetic order by syntax.

Syntax	Command
AD*data*	Preamble
AE*data*	Postamble
BV*data*	Beep Volume
CA*data*	Interleaved 2 of 5 Code (I 2 of 5)
CB*data*	Code 39
CC*data*	Code 2 of 5 (2 of 5)
CD*data*	Codabar
CE*data*	UPC/EAN
CF*data*	Code 93
CG*data*	Code 11
CH*data*	Code 128
CH8*data*	ISBT Code 128
CI*data*	Plessey
CJ*data*	Code 49
CK*data*	Code 49 Function Code 1
CL*data*	Code 49 Function Code 2
CM*data*	Code 49 Function Code 3
CN*data*	MSI
CP*data*	Code 16K
CS*data*	Decode Security
DA*data*	Time in Seconds
DB*data*	Time and Date
DC*data*	Command Processing
DE*data*	Append Time
DF*data*	Display Backlight Timeout
DJ*data*	Display Contrast
DL*data*	Display Row Spacing
DN*data*	Display Video Mode

Configuration Commands by Syntax (continued)

Syntax	Command
DT*data*	Display Font Grid Type
EF*data*	Suspend/Resume Control
ER*data*	Resume Execution
EZ*data*	Automatic Shutoff
FF*data*	Flash Memory Configuration
FR*data*	RAM Drive Size
KA*data*	Keypad Caps Lock
KC*data*	Keypad Clicker
KT*data*	Keypad Type
LA*data*	Network Name
LB*data*	Station Name
LC*data*	Reservation Enable
LD*data*	Reservation
LE*data*	Transmit Rate
LF*data*	AP Density
LG*data*	Power Management
LH*data*	Max Sleep Duration
LI*data*	Rcv All Multicast
NA*data*	Network Activate
NC*data*	Controller IP Address (UDP Plus network)
NC*data*	Host IP Address (TCP/IP network)
ND*data*	Terminal IP Address
NG*data*	Network Port
NH*data*	TCP/IP Maximum Transmit Timeout
NI*data*	Dynamic Host Configuration Protocol (DHCP)
NJ*data*	TCP Maximum Retries
NL*data*	Network Loopback
NP*data*	Controller Connect Check Receive Timer
NQ*data*	Controller Connect Check Send Timer
NR*data*	Maximum Retries
NS*data*	Subnet Mask

Configuration Commands by Syntax (continued)

Syntax	Command
NU*data*	Acknowledgement Delay Upper Limit
NV*data*	Acknowledgement Delay Lower Limit
NX*data*	Default Router
RB*data*	Wakeup On Broadcast
RR*data*	Roaming Flag
RS*data*	Security Identification
RT*data*	Transmit Mode
RW*data*	Domain
RY*data*	Inactivity Timeout
SA*data*	Scanner Timeout
SB*data*	Scanner Mode
SC*data*	Scanner Trigger
SD*data*	Scan Ahead
SR*data*	Scanner Redundancy
SS*data*	Scanner Selection
YA*n.data*	Baud Rate
YB*n.data*	Parity
YC*n.data*	Stop Bits
YE*n.data*	Timeout Delay
YF*n.data*	LRC (Longitudinal Redundancy Check)
YI*n.data*	Data Bits
YJ*n.data*	Handshake (also know as AFF)
YL*n.data*	Flow Control
YR*n.data*	Poll (Polling)
YT*n.data*	Configuration Commands Via Serial Port
YU*n.data*	Serial Port Protocol
YY*n.data*	Start of Message (SOM)
YZ*n.data*	End of Message (EOM)

B

Full ASCII Charts

This appendix contains the full ASCII table and the full ASCII chart of Code 39 bar code labels.

Full ASCII Table

This table lists the ASCII characters and their binary, hexadecimal, and Code 39 equivalents.

Full ASCII Table

Binary[0]	Hex[1]	Decimal	Code 39	ASCII[2]	Binary[0]	Hex[1]	Decimal	Code 39	ASCII[2]
00000000	00	00	%U	NUL	00100000	20	32	SP	SP[3]
00000001	01	01	$A	SOH	00100001	21	33	/A	!
00000010	02	02	$B	STX	00100010	22	34	/B	"
00000011	03	03	$C	ETX	00100011	23	35	/C	#
00000100	04	04	$D	EOT	00100100	24	36	/D	$
00000101	05	05	$E	ENQ	00100101	25	37	/E	%
00000110	06	06	$F	ACK	00100110	26	38	/F	&
00000111	07	07	$G	BEL	00100111	27	39	/G	'
00001000	08	08	$H	BS	00101000	28	40	/H	(
00001001	09	09	$I	HT	00101001	29	41	/I	)
00001010	0A	10	$J	LF	00101010	2A	42	/J	*
00001011	0B	11	$K	VT	00101011	2B	43	/K	+
00001100	0C	12	$L	FF	00101100	2C	44	/L	,
00001101	0D	13	$M	CR	00101101	2D	45	/M	-
00001110	0E	14	$N	SO	00101110	2E	46	/N	.
00001111	0F	15	$O	SI	00101111	2F	47	/O	/
00010000	10	16	$P	DLE	00110000	30	48	/P[4]	0
00010001	11	17	$Q	DC1	00110001	31	49	/Q	1
00010010	12	18	$R	DC2	00110010	32	50	/R	2
00010011	13	19	$S	DC3	00110011	33	51	/S	3
00010100	14	20	$T	DC4	00110100	34	52	/T	4
00010101	15	21	$U	NAK	00110101	35	53	/U	5
00010110	16	22	$V	SYN	00110110	36	54	/V	6
00010111	17	23	$W	ETB	00110111	37	55	/W	7
00011000	18	24	$X	CAN	00111000	38	56	/X	8
00011001	19	25	$Y	EM	00111001	39	57	/Y	9
00011010	1A	26	$Z	SUB	00111010	3A	58	/Z	:
00011011	1B	27	%A	ESC	00111011	3B	59	%F	;
00011100	1C	28	%B	FS	00111100	3C	60	%G	<
00011101	1D	29	%C	GS	00111101	3D	61	%H	=
00011110	1E	30	%D	RS	00111110	3E	62	%I	>
00011111	1F	31	%E	US	00111111	3F	63	%J	?

Full ASCII Table (continued)

Binary[0]	Hex[1]	Decimal	Code 39	ASCII[2]	Binary[0]	Hex[1]	Decimal	Code 39	ASCII[2]
01000000	40	64	%V	@	01100000	60	96	%W	`
01000001	41	65	A	A	01100001	61	97	+A	a
01000010	42	66	B	B	01100010	62	98	+B	b
01000011	43	67	C	C	01100011	63	99	+C	c
01000100	44	68	D	D	01100100	64	100	+D	d
01000101	45	69	E	E	01100101	65	101	+E	e
01000110	46	70	F	F	01100110	66	102	+F	f
01000111	47	71	G	G	01100111	67	103	+G	g
01001000	48	72	H	H	01101000	68	104	+H	h
01001001	49	73	I	I	01101001	69	105	+I	i
01001010	4A	74	J	J	01101010	6A	106	+J	j
01001011	4B	75	K	K	01101011	6B	107	+K	k
01001100	4C	76	L	L	01101100	6C	108	+L	l
01001101	4D	77	M	M	01101101	6D	109	+M	m
01001110	4E	78	N	N	01101110	6E	110	+N	n
01001111	4F	79	O	O	01101111	6F	111	+O	o
01010000	50	80	P	P	01110000	70	112	+P	p
01010001	51	81	Q	Q	01110001	71	113	+Q	q
01010010	52	82	R	R	01110010	72	114	+R	r
01010011	53	83	S	S	01110011	73	115	+S	s
01010100	54	84	T	T	01110100	74	116	+T	t
01010101	55	85	U	U	01110101	75	117	+U	u
01010110	56	86	V	V	01110110	76	118	+V	v
01010111	57	87	W	W	01110111	77	119	+W	w
01011000	58	88	X	X	01111000	78	120	+X	x
01011001	59	89	Y	Y	01111001	79	121	+Y	y
01011010	5A	90	Z	Z	01111010	7A	122	+Z	z
01011011	5B	91	%K	[	01111011	7B	123	%P	{
01011100	5C	92	%L	\	01111100	7C	124	%Q	|
01011101	5D	93	%M	]	01111101	7D	125	%R	}
01011110	5E	94	%N	^	01111110	7E	126	%S	~
01011111	5F	95	%O	_	01111111	7F	127	%T[5]	n[6]

Notes for the Full ASCII Table

0 Bit positions are 76543210.

1 This column lists the hexadecimal value.

2 This column lists the ASCII character.

3 SP is the SPACE character.

4 The Code 39 characters /P through /Y may be interchanged with the numbers 0 through 9.

5 %T may be interchanged with %X or %Y or %Z.

6 n is the Delete character.

Full ASCII Control Characters Table

Control Character	Definition	Control Character	Definition
NUL	Null or all zeroes	DC1	Device Control 1 (XON)
SOH	Start of Heading	DC2	Device Control 2
STX	Start of Text	DC3	Device Control 3 (XOFF)
ETX	End of Text	DC4	Device Control
EOT	End of Transmission	NAK	Negative Acknowledge
ENQ	Enquiry	SYN	Synchronous Idle
ACK	Acknowledgment	ETB	End Transmission Block
BEL	Bell	CAN	Cancel
BS	Backspace	EM	End of Medium
HT	Horizontal Tab	SUB	Substitute
LF	Line Feed	ESC	Escape
VT	Vertical Tab	FS	File Separator
FF	Form Feed	GS	Group Separator
CR	Carriage Return	RS	Record Separator
SO	Shift Out	US	Unit Separator
SI	Shift In	SP	Space
DLE	Data Link Escape	DEL	Delete

Full ASCII Bar Code Chart

The charts in this section list the Code 39 bar code label for each ASCII character. To use these bar code labels, you must configure the Trakker Antares 2410 or 2415 terminal to use Code 39 in Full ASCII mode. For help, see "Code 39" in Chapter 8.

Control Characters

NUL *%U*	SOH *$A*	STX *$B*
ETX *$C*	EOT *$D*	ENQ *$E*
ACK *$F*	BEL *$G*	BS *$H*
HT *$I*	LF *$J*	VT *$K*
FF *$L*	CR *$M*	SO *$N*
SI *$O*	DLE *$P*	DC1 *$Q*
DC2 *$R*	DC3 *$S*	DC4 *$T*
NAK *$U*	SYN *$V*	ETB *$W*

Control Characters (continued)

CAN

$X

EM

$Y

SUB

$Z

ESC

%A

FS

%B

GS

%C

RS

%D

US

%E

DEL

%T

Symbols and Punctuation Marks

! (exclamation point)

/A

" (quotation marks)

/B

#

/C

$

/D

%

/E

&

/F

' (apostrophe)

/G

(

/H

)

/I

* (asterisk)

/J

+

/K

- (dash)

/M

/

/O

=

%H

. (period)

/N

, (comma)

/L

: (colon)

/Z

; (semicolon)

%F

Symbols and Punctuation Marks (continued)

?

%J

<

%G

>

%I

@

%V

[

%K

]

%M

~ (tilde)

%S

^

%N

_ (underline)

%O

\

%L

` (left single quote)

%W

¦ (pipe)

%Q

{

%P

}

%R

Space

* *

Numbers

0

0

1

1

2

2

3

3

4

4

5

5

6

6

7

7

8

8

9

9

Uppercase Letters

A

A

B

B

C

C

D

D

E

E

F

F

G

G

H

H

I

I

J

J

K

K

L

L

M

M

N

N

O

O

P

P

Q

Q

R

R

S

S

T

T

U

U

V

V

W

W

X

X

Y

Y

Z

Z

Lowercase Letters

a

+A

b

+B

c

+C

d

+D

e

+E

f

+F

g

+G

h

+H

i

+I

j

+J

k

+K

l

+L

m

+M

n

+N

o

+O

p

+P

q

+Q

r

+R

s

+S

t

+T

u

+U

v

+V

w

+W

x

+X

y

+Y

z

+Z

C

International Character Support

This appendix lists some of the international characters that the terminal can display.

Trakker Antares Terminal Font Set

The Trakker Antares 2410 and 2415 terminals use an English and Western European font set that supports languages such as French, German, Italian, Portuguese, and Spanish. The terminal can also use a Japanese Katakana font set. You can develop applications that display the characters in either of the terminal font sets.

English and Western European Font Set

This table lists the characters that you can display on the terminal. The decimal, scan code, and hexadecimal values are the same for all keypads and overlays. The terminal keys that are listed in the table are an example of the terminal keys that you press to display the character using the 55-key alphanumeric keypad with the international overlay. Other keypads and overlays may require that you press different terminal keys to display the character.

Note: The terminal character set is similar to Microsoft's DOS Code Page 850 with the exception of decimal characters 1 through 6 and 10 through 13. These characters were replaced to provide additional line draw capability.

Character	Terminal Keys	Decimal	Scan Code	Hexadecimal
Space	Ctl 0	0	03	00
╧	Ctl A	1	1E	01
╨	Ctl B	2	30	02
╤	Ctl C	3	2E	03
╥	Ctl D	4	20	04
╙	Ctl E	5	12	05
╘	Ctl F	6	21	06
·	Ctl G	7	22	07
◘		8	0E	08
o	Ctl I	9	0F	09
◙		10	24	0A
╒	Ctl K	11	25	0B
╓	Ctl L	12	26	0C
╫		13	32	0D

English and Western European Character Set (continued)

Character	Terminal Keys	Decimal	Scan Code	Hexadecimal
╪	Ctl N	14	31	0E
☼	Ctl O	15	18	0F
►	Ctl P	16	19	10
◄	Ctl Q	17	10	11
↕	Ctl R	18	13	12
‼	Ctl S	19	1F	13
¶	Ctl T	20	14	14
§	Ctl U	21	16	15
▬	Ctl V	22	2F	16
↨	Ctl W	23	11	17
↑	Ctl X	24	2D	18
↓	Ctl Y	25	15	19
→	Ctl Z	26	2C	1A
←	Ctl Esc	27	01	1B
└	Ctl F1	28	2B	1C
↔	Ctl F2	29	1B	1D
▲	Ctl F3 / Ctl 6	30	07	1E
▼	Ctl F4	31	0C	1F
Space	f ←	32	39	20
!	⇧ 1	33	02	21
"	f M	34	28	22
#	⇧ 3	35	04	23
$	⇧ 4	36	05	24
%	⇧ 5	37	06	25
&	⇧ 7	38	08	26
’	f S	39	28	27
(	⇧ 9	40	0A	28
)	⇧ 0	41	0B	29
*	⇧ 8	42	09	2A

English and Western European Character Set (continued)

Character	Terminal Keys	Decimal	Scan Code	Hexadecimal
+	f C	43	0D	2B
, (comma)	f V	44	33	2C
- (dash)	f H	45	0C	2D
. (period)	. / f W	46	34	2E
/	f O / f X	47	3F	2F
0	0	48	0B	30
1	1	49	02	31
2	2	50	03	32
3	3	51	04	33
4	4	52	05	34
5	5	53	06	35
6	6	54	07	36
7	7	55	08	37
8	8	56	09	38
9	9	57	0A	39
:	f F	58	27	3A
;	f L	59	27	3B
<	f P / f 2	60	33	3C
=	f I	61	0D	3D
>	f 3	62	34	3E
?	f R	63	35	3F
@	⇧ 2	64	03	40
A	⇧ A	65	1E	41
B	⇧ B	66	30	42
C	⇧ C	67	2E	43
D	⇧ D	68	20	44
E	⇧ E	69	12	45
F	⇧ F	70	21	46
G	⇧ G	71	22	47

English and Western European Character Set (continued)

Character	Terminal Keys	Decimal	Scan Code	Hexadecimal
H	⇧ H	72	23	48
I	⇧ I	73	17	49
J	⇧ J	74	24	4A
K	⇧ K	75	25	4B
L	⇧ L	76	26	4C
M	⇧ M	77	32	4D
N	⇧ N	78	31	4E
O	⇧ O	79	18	4F
P	⇧ P	80	19	50
Q	⇧ Q	81	10	51
R	⇧ R	82	13	52
S	⇧ S	83	1F	53
T	⇧ T	84	14	54
U	⇧ U	85	16	55
V	⇧ V	86	2F	56
W	⇧ W	87	11	57
X	⇧ X	88	2D	58
Y	⇧ Y	89	15	59
Z	⇧ Z	90	2C	5A
[	f J	91	1A	5B
\	f T	92	2B	5C
]	f K	93	1B	5D
^	⇧ 6	94	07	5E
_ (underline)	f B	95	0C	5F
`	f G	96	29	60
a	A	97	1E	61
b	B	98	30	62
c	C	99	2E	63
d	D	100	20	64

English and Western European Character Set (continued)

Character	Terminal Keys	Decimal	Scan Code	Hexadecimal
e	Ⓔ	101	12	65
f	Ⓕ	102	21	66
g	Ⓖ	103	22	67
h	Ⓗ	104	23	68
i	Ⓘ	105	17	69
j	Ⓙ	106	24	6A
k	Ⓚ	107	25	6B
l	Ⓛ	108	26	6C
m	Ⓜ	109	32	6D
n	Ⓝ	110	31	6E
o	Ⓞ	111	18	6F
p	Ⓟ	112	19	70
q	Ⓠ	113	10	71
r	Ⓡ	114	13	72
s	Ⓢ	115	1F	73
t	Ⓣ	116	14	74
u	Ⓤ	117	16	75
v	Ⓥ	118	2F	76
w	Ⓦ	119	11	77
x	Ⓧ	120	2D	78
y	Ⓨ	121	15	79
z	Ⓩ	122	2C	7A
{	ⓕ Ⓓ	123	1A	7B
| (solid pipe)	ⓕ Ⓠ	124	2B	7C
}	ⓕ Ⓔ	125	1B	7D
~	ⓕ Ⓐ	126	29	7E
⌂		127	53E0	7F
Ç	ⓕ Ⓓ	128	2E	80
ü	ⓕ F8 Ⓤ	129	16	81

English and Western European Character Set (continued)

Character	Terminal Keys	Decimal	Scan Code	Hexadecimal
é	f F4 E	130	12	82
â	f F1 A	131	1E	83
ä	f F3 A	132	1E	84
à	f F2 A	133	1E	85
å	f A	134	1A	86
ç	f C	135	2E	87
ê	f F1 E	136	12	88
ë	f F3 E	137	12	89
è	f F2 E	138	12	8A
ï	f F3 I	139	17	8B
î	f F1 I	140	17	8C
ì	f F2 I	141	17	8D
Ä	f F3 ⇧ A	142	1E	8E
Å	f B	143	1A	8F
É	f F4 ⇧ E	144	12	90
æ		145	4F00	91
Æ		146	7100	92
ô	f F1 O	147	18	93
ö	f F3 O	148	18	94
ò	f F2 O	149	18	95
û	f F1 U	150	16	96
ù	f F2 U	151	16	97
ÿ	f F3 Y	152	15	98
Ö	f F3 ⇧ O	153	18	99
Ü	f F3 ⇧ U	154	16	9A
ø		155	E00D	9B
£	f 5	156	08	9C
Ø		157	50E0	9D
×		158	4BE0	9E

English and Western European Character Set (continued)

Character	Terminal Keys	Decimal	Scan Code	Hexadecimal
ƒ		159	4DE0	9F
á	=f F4 A	160	1E	A0
í	=f F4 I	161	17	A1
ó	=f F4 O	162	18	A2
ú	=f F4 U	163	16	A3
ñ	=f I	164	27	A4
Ñ	=f J	165	27	A5
a	=f 8	166	29	A6
o	=f 9	167	29	A7
¿	=f R	168	0D	A8
®		169	1C0A	A9
¬ (not symbol)	=f 6	170	29	AA
½	=f X	171	06	AB
¼	=f W	172	05	AC
¡	=f S	173	0D	AD
«	=f K	174	2C	AE
»	=f F	175	2D	AF
░		176	04F5	B0
▒		177	78E0	B1
▓		178	7900	B2
│		179	7A00	B3
┤		180	1BCF	B4
Á	=f F4 ⇧ A	181	1E	B5
Â	=f F1 ⇧ A	182	1E	B6
À	=f F2 ⇧ A	183	1E	B7
©		184	29A6	B8
╣		185	29A7	B9
║		186	0100	BA
╗		187	A500	BB

English and Western European Character Set (continued)

Character	Terminal Keys	Decimal	Scan Code	Hexadecimal
╝		188	6000	BC
¢		189	6100	BD
¥		190	6200	BE
┐		191	6300	BF
└		192	A600	C0
┴		193	1A86	C1
┬		194	1A8F	C2
├		195	2E87	C3
─		196	2E80	C4
┼		197	0DF8	C5
Ã		198	1E	C6
Ã		199	1E	C7
╚		200	2300	C8
╔		201	27A4	C9
╩		202	27A5	CA
╦		203	2CAE	CB
╠		204	2600	CC
═		205	32E6	CD
╬		206	1FE1	CE
¤	(=f) (4)	207	1B	CF
ð		208	1900	D0
Ð		209	1000	D1
Ê	(=f) (F1) (⇧) (E)	210	12	D2
Ë	(=f) (F3) (⇧) (E)	211	12	D3
È	(=f) (F2) (⇧) (E)	212	12	D4
€	(⇧) (.) / (=f) (U)	213	5C	D5
Í	(=f) (F4) (⇧) (I)	214	17	D6
Î	(=f) (F1) (⇧) (I)	215	17	D7
Ï	(=f) (F3) (⇧) (I)	216	17	D8

English and Western European Character Set (continued)

Character	Terminal Keys	Decimal	Scan Code	Hexadecimal
┘		217	07F3	D9
┌		218	2C00	DA
▉		219	6D00	DB
■		220	0F00	DC
¦ (broken pipe)	f N	221	56	DD
Ì	f F2 ↑ I	222	17	DE
■		223	5A00	DF
Ó	f .	224	52 / 78	E0
β	f N	225	1F	E1
Ô	f F1 ↑ O	226	18	E2
Ò	f F2 ↑ O	227	18	E3
õ		228	18	E4
Õ		229	18	E5
µ	f M	230	32	E6
Þ		231	4100	E7
þ		232	4200	E8
Ú	f F4 ↑ U	233	16	E9
Û	f F1 ↑ U	234	16	EA
Ù	f F2 ↑ U	235	16	EB
ý	f F4 Y	236	15	EC
Ý	f F4 ↑ Y	237	15	ED
¯		238	2EBD	EE
´	f S	239	2EEE	EF
-	f .	240	None	F0
±		241	None	F1
=	f I	242	None	F2
¾	f Y	243	07	F3
¶	f O	244	13	F4
§	f 0	245	04	F5

English and Western European Character Set (continued)

Character	Terminal Keys	Decimal	Scan Code	Hexadecimal
÷		246	None	F6
¸		247	None	F7
° (degree)	ⓕ Ⓔ / ⓕ Ⓖ	248	0D	F8
¨		249	None	F9
• (dot)		250	None	FA
^{1} (superscript)	ⓕ Ⓣ	251	02	FB
^{3} (superscript)	ⓕ Ⓥ	252	04	FC
^{2} (superscript)		253	None	FD
■		254	None	FE
Space		255	None	FF

Japanese Katakana Font Set

This table lists the characters that you can display on the terminal using the 8x16 font grid type or the 16x16 font grid type. To display these characters, you create an application and use the Trakker Antares PSK functions im_putchar_kana_8x16 and im_puts_kana_8x16. You cannot enter these characters from the keypad. For help, see the *Trakker Antares PSK Reference Manual*.

Note: The terminal character set is similar to Microsoft's DOS Code Page 897, Japanese #1.

Character	Decimal	Hexadecimal
Space	0	00
｜	1	01
┤	2	02
┐	3	03
└	4	04
┴	5	05
┬	6	06
├	7	07
─	8	08
┼	9	09
┘	10	0A
┌	11	0B
▒ (horiz. lines)	12	0C
▒ (vert. lines)	13	0D
■	14	0E
	15	0F
▶	16	10
◀	17	11
↗	18	12
✕	20	14
🕓	21	15
	22	16

Japanese Katakana Character Set (continued)

Character	Decimal	Hexadecimal
	23	17
¢	25	19
→	26	1A
←	27	1B
	28	1C
¬	29	1D
▲	30	1E
!	33	21
"	34	22
#	35	23
$	36	24
%	37	25
&	38	26
’	39	27
(	40	28
)	41	29
*	42	2A
+	43	2B
,	44	2C
-	45	2D
.	46	2E
/	47	2F
0	48	30
1	49	31
2	50	32
3	51	33
4	52	34
5	53	35
6	54	36

Japanese Katakana Character Set (continued)

Character	Decimal	Hexadecimal
7	55	37
8	56	38
9	57	39
:	58	3A
;	59	3B
<	60	3C
=	61	3D
>	62	3E
?	63	3F
@	64	40
A	65	41
B	66	42
C	67	43
D	68	44
E	69	45
F	70	46
G	71	47
H	72	48
I	73	49
J	74	4A
K	75	4B
L	76	4C
M	77	4D
N	78	4E
O	79	4F
P	80	50
Q	81	51
R	82	52
S	83	53

Japanese Katakana Character Set (continued)

Character	Decimal	Hexadecimal
T	84	54
U	85	55
V	86	56
W	87	57
X	88	58
Y	89	59
Z	90	5A
[	91	5B
¥	92	5C
]	93	5D
^	94	5E
_	95	5F
‘	96	60
a	97	61
b	98	62
c	99	63
d	100	64
e	101	65
f	102	66
g	103	67
h	104	68
I	105	69
j	106	6A
k	107	6B
l	108	6C
m	109	6D
n	110	6E
o	111	6F
p	112	70

Japanese Katakana Character Set (continued)

Character	Decimal	Hexadecimal
q	113	71
r	114	72
s	115	73
t	116	74
u	117	75
v	118	76
w	119	77
x	120	78
y	121	79
z	122	7A
{	123	7B
¦ (broken pipe)	124	7C
}	125	7D
~	126	7E
	161	A1
	162	A2
	163	A3
	164	A4
･	165	A5
ｦ	166	A6
ｧ	167	A7
ｨ	168	A8
ｩ	169	A9
ｪ	170	AA
ｫ	171	AB
ｬ	172	AC
ｭ	173	AD
ｮ	174	AE
ｯ	175	AF

Japanese Katakana Character Set (continued)

Character	Decimal	Hexadecimal
―	176	B0
ア	177	B1
イ	178	B2
ウ	179	B3
エ	180	B4
オ	181	B5
カ	182	B6
キ	183	B7
ク	184	B8
ケ	185	B9
コ	186	BA
サ	187	BB
シ	188	BC
ス	189	BD
セ	190	BE
ソ	191	BF
タ	192	C0
チ	193	C1
ツ	194	C2
テ	195	C3
ト	196	C4
ナ	197	C5
ニ	198	C6
ヌ	199	C7
ネ	200	C8
ノ	201	C9
ハ	202	CA
ヒ	203	CB
フ	204	CC

Japanese Katakana Character Set (continued)

Character	Decimal	Hexadecimal
ヘ	205	CD
ホ	206	CE
マ	207	CF
ミ	208	D0
ム	209	D1
メ	210	D2
モ	211	D3
ヤ	212	D4
ユ	213	D5
ヨ	214	D6
ラ	215	D7
リ	216	D8
ル	217	D9
レ	218	DA
□	219	DB
ワ	220	DC
ン	221	DD
"	222	DE
º	223	DF

D

Using the Default Applications

This appendix explains the APPTSK.BIN and EM9560.BIN applications that are shipped on the terminals. It also explains how to use each application.

About the Applications Shipped on the Terminal

The Trakker Antares 2410 and 2415 terminals ship loaded with at least these two applications:

- APPTSK.BIN
- EM9560.BIN

Both applications are stored on drive C. In addition to these two applications, your terminal may have a TE 2000 application stored on drive C. This section explains how to use the APPTSK.BIN and EM9560.BIN applications. For help with your terminal emulation applications, see the appropriate terminal emulation programmer's reference guide.

Defining APPTSK.BIN and EM9560.BIN

You can run and use APPTSK.BIN or EM9560.BIN at any time. The two applications are defined as follows:

APPTSK.BIN This application is the default application on all terminals. In some error conditions or if you exit an application, the terminal resets and runs APPTSK.BIN. You can use APPTSK.BIN to scan, enter, transmit, and display data.

EM9560.BIN This application emulates a subset of the functionality available on the Intermec 95XX terminals, such as the 9512 and 9560. You can use EM9560.BIN to scan, enter, transmit, and display data.

APPTSK.BIN and EM9560.BIN include these features:

- Works with any protocol that is supported on the terminal. Both the terminal and the device you are communicating with must use the same protocol (serial or RF) and parameter settings.
- Sends scanned or keyboard data out all serial or RF ports.
- Buffers the keyboard data until you press Enter.
- Receives data from any serial or RF port, displays the data on the terminal screen, and parses the data for commands.
- Receives data through any serial port and transmits it out the RF port.
- Receives data through the RF port and transmits it out all serial ports.
- (APPTSK.BIN only) Displays the time and date, which can be toggled on and off.

The main difference between the two applications is that you can use the EM9560.BIN application to emulate specific functions of the 95XXs.

Defining the Emulation Features of EM9560.BIN

These programmable terminals run C/C++ applications. With the EM9560.BIN application, you can use the terminal as a remote input/output terminal in which all prompts and commands are controlled by the host computer. With this application, the terminal is similar to a 95XX in Data Entry mode with no application running.

Note: For the 95XXs, Data Entry mode with no application running is also referred to as an unprogrammed state or 95XX dumb terminal mode.

The EM9560.BIN application lets you use the terminal to emulate these specific 95XX features:

- An Enter key without any preceding data transmits an empty data packet.
- The 241X display is similar to but not identical to the 9560 buffered display mode.
- All function keys transmit the corresponding characters `F1`, `F2`, and so on.
- When Code 128 is configured for Standard Code 128 symbology and you scan a UCC/EAN label, the terminal will discard the Function 1 characters. Although this does not meet the industry standard for Code 128, it does emulate the 95XX, which was manufactured before the current standard was established. Other Code 128 configurations work as defined in this user's manual.
- The Set Time and Date reader (data entry) command is supported. When the terminal receives a time broadcast command (/+) from the 9154 or 9161 controller, the command sets the clock on the terminal.
- The High Beep reader command is supported. When a backslash character (\) is sent to the terminal through any serial or network port, the terminal sounds a high beep.
- The Low Beep reader command is supported. When the BEL character is sent to the terminal through any serial or network port, the terminal sounds a low beep.
- When control codes (ANSI escape sequences) are sent to the terminal through any serial or network port, the terminal formats the display. For a list of control codes, see "Using Display Control Codes" later in this appendix.
- Preamble A, Preamble B, and Postamble C are supported through the AA, AB, and AC configuration commands or through the reader commands +., ++, and +%. For help, see "Setting Preambles and Postambles" later in this appendix.
- Full ASCII mode for Code 39 can be configured through the CB or RB configuration commands or through the reader commands +$ and -$. For help, see "Full ASCII Mode for Code 39" later in this appendix.
- The Exit Configuration Mode, Save Settings configuration command ($-) is not required, but bar code labels with this command scan correctly.

Using Display Control Codes

You can use control codes to position the cursor or to format the terminal display. The EM9560.BIN application recognizes the display control codes listed next.

Command	Control Code	Description or Action
Backspace	`BS (08 Hex)`	Moves the cursor one position to the left until the cursor reaches the first column. If the cursor is in the first column of any row except the first row, a Backspace command moves the cursor to the last column of the previous row.
Cursor Position	`ESC[`*`n`*`;`*`v`*`H`	Moves the cursor to the position specified by the *n* and *v* parameters where: *n* specifies the row or line number. *v* specifies the column number. If you enter zero or no parameter, *n* and *v* are set to one. If *n* or *v* exceeds the maximum row or column number on the display, the parameters are set to the screen's maximum.
Erase Display	`ESC[2J`	Erases the entire display and returns the cursor to the home position (row 1, column 1). This command also erases the entire virtual display image (buffer with up to four rows of the most recently displayed data).
Home	`CR (0D Hex)`	Returns the cursor to the first column of the current row.
Next Line	`LF (0A Hex)`	Moves the cursor down one row in the current column position. If the cursor is already in the last row, a new line is added.
Restore Cursor Position	`ESC[u`	Restores the cursor position saved with a Save Cursor Position command. Each Restore Cursor Position command must be paired with a preceding Save Cursor Position command. If a Save Cursor Position command has not been previously entered, the cursor position will not change.
Save Cursor Position	`ESC[s`	Saves the current cursor position. Successive Save Cursor Position commands overwrite the previous position that was saved.

Setting Preambles and Postambles

With the EM9560.BIN application, you can set Preamble A, Preamble B, and Postamble C on the 241X and make the terminal compatible with the 95XXs. The preambles are prepended and the postamble is appended to the data that is transmitted through all the serial ports.

Preamble A, Preamble B, and Postamble C can each be up to 25 ASCII characters in length. If you enter a preamble or postamble command without entering data, the preamble or postamble buffer is cleared.

Syntax:

Preamble A	AA*data*	or	+.*data*
Preamble B	AB*data*	or	++*data*
Postamble C	AC*data*	or	+%*data*

Scan: To set the preamble or postamble using the AA, AB, or AC configuration commands:

1. Scan one of these bar code labels:

   Enter Accumulate Mode / Set Preamble A

   +/$+AA

   Enter Accumulate Mode / Set Preamble B

   +/$+AB

   Enter Accumulate Mode / Set Postamble C

   +/$+AC

2. Scan a value for *data* from the "Full ASCII Bar Code Chart" in Appendix B. The preamble or postamble can be from 1 to 25 characters.
3. Scan this bar code:

   Exit Accumulate Mode

   -/

4. Repeat Steps 1 to 3 to set another preamble or postamble.

Or: To set the preamble or postamble using the +., ++, or +% reader commands:

1. Scan one of these bar code labels:

   Enter Accumulate Mode / Set Preamble A

   +/+.

   Enter Accumulate Mode / Set Preamble B

   +/++

   Enter Accumulate Mode / Set Postamble C

   +/+%

2. Scan a value for *data* from the "Full ASCII Bar Code Chart" in Appendix B. The preamble or postamble can be from 1 to 25 characters.
3. Scan this bar code:

   Exit Accumulate Mode

   -/

4. Repeat Steps 1 to 3 to set another preamble or postamble.

Full ASCII Mode for Code 39

With the EM9560.BIN application, you can configure Full ASCII mode for Code 39 using any of these commands:

- Code 39 configuration command (CB)
- Full ASCII configuration command (RB)
- Enter Full ASCII Mode reader command (+$) and the Exit Full ASCII Mode reader command (-$)

The last two commands are compatible with the 95XXs. Each command is described next. For help with the Code 39 configuration command (CB), see Chapter 8, "Configuration Command Reference."

Note: Use the CB configuration command unless your terminals need to be compatible with the 95XXs in your data collection network.

Command: Full ASCII configuration command (RB)

Purpose: Configures the terminal to use Code 39 Full ASCII mode (enabled) or Code 39 Non-Full ASCII mode (disabled). For a list of ASCII characters, see the "Full ASCII Table" in Appendix B.

Syntax: RB*data*

Acceptable values for *data* are:

0 Disabled
1 Enabled

Scan: One of these bar code labels:

Disable Full ASCII Mode

$+RB0

Enable Full ASCII Mode

$+RB1

Command: Enter Full ASCII Mode reader command

Purpose: Enables Code 39 Full ASCII mode so the terminal decodes Code 39 bar code labels by using a two-character encoding scheme to extend the character set to 128 characters. For a list of ASCII characters, see the "Full ASCII Table" in Appendix B.

Syntax: +$

Scan: Full ASCII

+$

Command: Exit Full ASCII Mode reader command

Purpose: Exits Code 39 Full ASCII mode and puts the terminal in Code 39 Non-Full ASCII mode (one-character encoding scheme).

Syntax: -$

Scan: Exit Full ASCII

-$

Unsupported 95XX Features

These 95XX features are **not** supported by the EM9560.BIN application on the 241X.

- Display Setting configuration command (OD) (buffered or transparent display).
- Command Override reader (data entry) command (DLE).
- Right Host Message reader command (HT).
- Preamble A Required configuration command (OA).
- Computer Response Required Mode (CRRM) configuration command (PB), Enter CRRM reader command (./), and Exit CRRM reader command (.-).
- Resume IRL configuration command (XG).
- Separate transmit and receive EOM characters (PI and PJ). The configurable EOM (PF, YZ) is used for both transmit and receive EOM.
- Capacity reader command (%$).
- Forward and Review reader commands (%+ and %/).
- Download Program command from the 9154 or 9161 controller. Use the Transmit File reader command. For help, see Chapter 7, "Reader Command Reference."

Note: Although these 95XX features are **not** supported, the 241X does have many additional features (RF communications) that are not available on the 95XXs.

Running APPTSK.BIN and EM9560.BIN

There are two ways to run APPTSK.BIN or EM9560.BIN:

- Use the Run Program reader command.
- Use the TRAKKER Antares 2400 Menu System.

The instructions in this section explain how to use the Run Program reader command. For help using the TRAKKER Antares 2400 Menu System to run an application, see Chapter 4, "Using Custom Applications."

To run APPTSK.BIN or EM9560.BIN on the terminal

1. Scan one of these bar code labels:

Run APPTSK.BIN

//C:APPTSK.BIN

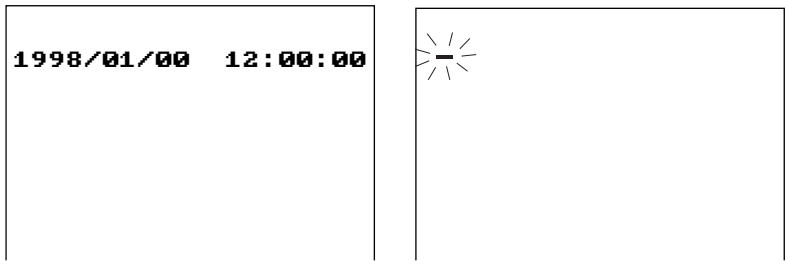
Run EM9560.BIN

//C:EM9560.BIN

Running APPTSK.BIN and EM9560.BIN (continued)

The terminal boots, resets all firmware, and runs the application. The initial screen for the application appears. You see one of these screens:

APPTSK.BIN Screen **EM9560.BIN Screen**



2. Scan this bar code label to toggle the clock display on or off.

   Toggle Clock Display

   CLOCKDISPLAY

3. Use the application to scan bar code labels, enter data through the keyboard, and transmit data. The next section lists some examples of how you can use the applications.

Example 1

Use the application to troubleshoot and test communications before loading and running your data collection application. Connect the terminal to your network. Type data ("Hello World") on the Trakker Antares terminal keyboard or scan a bar code label. The data is sent out all serial and network ports and should be received by the host if your terminal is installed and configured correctly. Send data from the host and verify that the data displays on the terminal screen.

Example 2

Connect a serial input device, such as a 2D scanner, to a serial port on the Trakker Antares terminal. Data from the input device is displayed on the terminal screen and transmitted out the network (RF) port.

Example 3

Connect the TD2400 communications dock to a serial port on the T2485. Use a T2420 to collect data. Use the TD2400 communications dock to upload data from the T2420 to the T2485. Data is transmitted to the T2485 and out the RF port to the connected network devices.

Example 4

Use the T248X as a gateway between the CrossBar network and the Ethernet or RF network. Connect the T248X as a downline device in your CrossBar network. Connect the T2480/1 with the Ethernet option to your Ethernet network, or connect the T2485/6 to your RF network. While running the APPTSK.BIN or EM9560.BIN application, you can send data from the Ethernet or RF network through the T248X to the 9154 or 9161 and vice versa.

Example 5

Connect the COM1 serial port to the COM2 serial port on a T246X or T248X terminal. Use the terminal to configure itself by typing and entering configuration commands on the keypad or keyboard.

Example 6

Connect the serial port on the T248X to the serial port on the T246X terminal. Use the T248X to configure the T246X by typing and entering configuration commands on the T248X keypad.

I

Index

Symbols

(f) key, *See* Function Left key
(f) key, *See* Function Right key
(☼) key, *See* backlight, key
(⇧) key, *See* Shift key
(▲), (▼) keys, *See* cursor keys
(⏻) key
  configuring, 8-126
  configuring to boot the terminal, 5-18
  turning the terminal on and off, 1-32
  See also Suspend/Resume key

Numbers

2.4 GHz RF network
  activating, 8-88
  equipment required, 2-13
  installing, overview, 2-13
  protocols, defined, 2-17 to 2-20
  terminal, configuring, 2-16
2410
  described, 1-3
  drives, described, 1-22
  network, illustrated, 2-3, 2-4
  options, described, 1-4
2415
  applications, downloading, 4-16
  configuring
    from host, 3-18 to 3-22
    using DCS 300, 3-17
  configuring through network, 3-17 to 3-22
  described, 1-3
  drives, described, 1-22
  installing, overview, 2-13
  network parameters, configuring, 2-16
  network protocols, defined, 2-17 to 2-20
  network, illustrated, 2-3, 2-5, 2-6, 2-7, 2-8, 2-9
  options, described, 1-4
  RF communications, troubleshooting, 5-12
5250 terminal emulation, *See TE 2000 5250 Terminal Emulation Programmer's Guide*
8-bit binary files
  converting to 7-bit ASCII files and transmitting, 7-25
  receiving as 7-bit ASCII files and converting, 7-17
900 MHz RF network, illustrated, 2-4
95XX terminals, Set Time and Date reader command, 7-12

A

ABC Codabar, 8-19
Abort Program reader command, 7-13
About TRAKKER Antares 2400 screen, defined, 3-5
Access Point screen, defined, 6-20
accessories, described, 1-5
Accumulate mode, using reader commands, 7-4
Acknowledgement Delay Lower Limit command, 8-7
Acknowledgement Delay Upper Limit command, 8-9
active configuration, 3-3
AFF command, 8-70
Affirmative Acknowledge command, *See* Handshake command
AIAG check digit, Code 39, 8-26
alphanumeric keypads, options, described, 1-7
American Blood Commission, *See* ABC Codabar
antenna, internal, 1-6
AP Density command, 8-11
Append Time command, 8-12
Application Efficiency screen, defined, 6-21
Application Events screen, defined, 6-7
Application Simulator, 4-6
Application Simulator, defined, 4-6
applications
  APPTSK.BIN, default application, D-3
  converting binary files, 4-8
  converting JANUS and Trakker Antares, 4-7
  developing, 4-6
  downloading
    from DCS 300, 4-16
    from host in a TCP/IP network, 3-23
  EM9560.BIN, default application, D-3
  exiting, 7-13
  EZBuilder, developing with, 4-6
  Malloc diagnostic screen, defined, 6-22
  options, described, A-4
  PSK,developing with, 4-6
  restarting, 7-10
  running, 4-19, 7-22
  running APPTSK.BIN, D-9
  running EM9560.BIN, D-9
  TRAKKER Antares 2400 Menu System, using, 3-4 to 3-12
APPTSK.BIN application
  defined, D-3
  running, D-9
ARP, defined, 2-20
ASCII
  bar code chart, B-6 to B-10
  Code 39, full, 8-25
  Code 39, mixed-full, 8-25
  Code 39, non-full, 8-25
  control characters
    list of, B-5
    postamble and preamble, entering, 3-9
  extended characters, configuring, 3-9
  table of character equivalents, B-3 to B-5
Asian fonts, loading, 5-25
audio signals
  keypad clicks, enabling or disabling, 8-78
  list of, 1-16
  testing, 6-12
auto-advancing through fields, configuring, 3-9

Automatic mode, configuring the scanner, 8-111
Automatic Shutoff command, 8-13
  managing battery power, 1-21

B

backlight
  configuring the timeout, 8-55
  key, using, 1-14
  turning on and off, 1-14
Backlight On and Off reader command, 7-7
Backspace reader command, 7-5
backup power source, 1-6
  specifications, A-3
  understanding, 1-18
bar code labels
  ASCII chart, B-6 to B-10
  conventions, defined, xvi
  decode security, configuring, 8-52
  Multiple-Read labels, 7-9
  quiet zone, defined, 1-25
  reader commands, troubleshooting, 5-5, 5-10
  regular labels, 7-9
  rules for creating, 3-13 to 3-14
  scanning, 1-24
    accumulating data, 7-4
    configuring the terminal, 3-3, 3-13 to 3-14
    troubleshooting, 5-16 to 5-17
  using to configure terminal, 8-3
  using to execute reader commands, 7-3
bar code symbologies
  Codabar, configuring, 8-19
  Code 11, configuring, 8-21
  Code 128, configuring, 8-32
  Code 16K, configuring, 8-22
  Code 2 of 5, configuring, 8-23
  Code 39, configuring, 8-25
  Code 49, configuring, 8-29
  Code 93, configuring, 8-31
  configuration commands, list of, 8-4, A-9
  list of, A-7
  MSI, configuring, 8-86
  Plessey, configuring, 8-95
  troubleshooting bad decode, 5-5
  UPC/EAN, configuring, 8-140
battery chargers
  terminal accessory, 1-5
  using, 1-19
Battery LED
  described, 1-15
  remains on, low battery power, 5-5
  using, 1-18
battery pack, 1-6
  charging, 1-19
    temperature range, A-4
  determining when low, 1-18
  installing, 1-19
  low battery charge, 5-5
  managing power, 1-18, 1-21
  power specifications, A-3
  removing, 1-20
  terminal accessory, 1-5
  using, 1-18
battery pack, power capacity remaining, 6-11
Battery/PIC Monitor screen, defined, 6-11
Baud Rate command, 8-15
beep
  battery power low, 5-5
  testing, using diagnostics, 6-12
  three low beeps, troubleshooting, 5-9, 5-10, 5-11
Beep Volume command, 1-16, 8-17
Beeper Test screen, defined, 6-12
beeps, *See* status beeps
belt clip, terminal accessory, 1-5
BFSK, defined, 8-138
binary files, converting, 4-8, 7-17, 7-25
Binary protocol, 2-11
binary, table of ASCII characters, B-3 to B-5
Boot Menu
  troubleshooting, 5-6
  using, 5-19
Boot Terminal reader commands, 7-8
booting the terminal, 5-17 to 5-20
  cold boot, 5-20
  configuring the ⏻ key, 5-18, 8-108
  POST failed, error message, 5-6
  warm boot, 5-20, 7-10

C

cables, specifications, A-6, A-7
capitalizing characters
  ⇧ key, using, 1-9
  Caps Lock feature, using, 1-10
  Keypad Caps Lock command, using, 1-10, 8-77
Caps Lock feature, using, 1-10
cautions, defined, xiv
CGA-compatible display, 1-6, A-5
Change Configuration reader commands, 7-8
changing configuration, configuration commands, using, 8-6
Character mode
  EOM, described, 2-11, 8-64
  troubleshooting, 5-8
characters, table of, C-3 to C-12, C-13 to C-19
charging the battery pack, 1-19
  temperature range, A-4
choosing a communications protocol, 2-10
cleaning
  scanner window, 5-21
  terminal screen, 5-21
Clear reader command, 7-5
Clear Task Profiles screen, defined, 6-8

CLIENT.CPP sample application, 3-25
Codabar command, 8-19
Code 11 command, 8-21
Code 128 command, 8-32
Code 16K command, 8-22
Code 2 of 5 command, 8-23
  disabled with Interleaved 2 of 5, 8-75
Code 39
  configuration command, 8-25
  table of ASCII characters, B-3 to B-5
Code 49 command, 8-29
Code 93 command, 8-31
cold boot, 5-20
COM ports, *See* serial ports
COM1, 1-13
  pin assignments, A-6
  See also serial port
Command Processing command, 8-33 to 8-42
commands
  configuration commands, using, 8-3
  conventions, defined, xvii
  reader commands, using, 7-3
  TRAKKER Antares 2400 Menu System, selecting, 3-6
communications
  cable specifications, A-6, A-7
  LEDs, using to monitor, 2-17
  network protocols, defined, 2-17 to 2-20
  radio options, A-5
  RF configuration commands, list of, A-11
  serial port configuration commands, list of, A-12
  troubleshooting, 5-14
communications dock, 1-13
  cable specifications, A-7
  charging batteries, 1-19
  network, illustrated, 2-3
  terminal accessory, 1-5
communications protocols
  Binary, 2-11
  choosing, 2-10
  Configurable, 2-11
  Master Polling, 2-12
  Point-to-Point, 2-12
  Polling Mode D, 2-12
computer, *See* host computer
Configurable protocol, 2-11
Configurable Serial Protocol, defined, 2-18
configuration command
  Beep Volume, 1-16
  Keypad Caps Lock, 1-10
configuration commands
  Acknowledgement Delay Lower Limit, 8-7
  Acknowledgement Delay Upper Limit, 8-9
  AFF, 8-70
  AP Density, 8-11
  Append Time, 8-12
Automatic Shutoff, 1-21, 8-13
Baud Rate, 8-15
Beep Volume, 8-17
category, listed by, 8-4
Codabar, 8-19
Code 11, 8-21
Code 128, 8-32
Code 16K, 8-22
Code 2 of 5, 8-23
Code 39, 8-25
Code 49, 8-29
Code 93, 8-31
Command Processing, 8-33 to 8-42
Configuration Commands Via Serial Port, 8-43
configuring, overview of, 3-3
Controller Connect Check Receive Timer, 8-45
Controller Connect Check Send Timer, 8-47
Controller IP Address, 8-49
Data Bits, 8-51
Decode Security, 1-26, 8-52
Default Router, 8-53
default settings, list of, A-9 to A-12
Display Backlight Timeout, 1-14, 8-55
Display Contrast, 8-57
Display Font Grid Type, 8-58
Display Row Spacing, 8-59
Display Video Mode, 8-60
Domain, 8-61
Dynamic Host Configuration Protocol, 8-63
EOM, 8-64
Flash Memory Configuration, 8-66
Flow Control, 8-68
Handshake, 8-70
host application, using to configure, 3-15 to 3-16
Host IP Address, 8-71
Inactivity Timeout, 8-73
Interleaved 2 of 5, 8-75
Keypad Caps Lock, 8-77
Keypad Clicker, 1-16, 8-78
Keypad Type, 8-79
LRC, 8-81
Maximum Retries, 8-82
Maximum Sleep Duration, 8-84
MSI, 8-86
Network Activate, 8-88
Network Loopback, 8-89
Network Name, 8-90
Network Port, 8-92
Parity, 8-94
Plessey, 8-95
Poll, 8-96
Postamble, 8-97
Power Management, 8-99
Preamble, 8-100
RAM Drive Size, 8-102

configuration commands (*continued*)
Receive All Multicast, 8-104
Reservation, 8-105
Reservation Enable, 8-107
Resume Execution, 8-108
Roaming Flag, 8-109
Scan Ahead, 1-26, 8-110
Scanner Mode, 1-26, 8-111
Scanner Redundancy, 1-26, 8-112
Scanner Selection, 1-26, 8-113
Scanner Timeout, 1-26, 8-114
Scanner Trigger, 1-26, 8-116
scanning labels to configure the terminal, 3-13 to 3-14
Security ID, 8-117
sending from host, 3-18 to 3-22
sending from the DCS 300, 3-17
Serial Port Protocol, 8-118
SOM, 8-120
Station Name, 8-122
Stop Bits, 8-123
Subnet Mask, 8-124
Suspend/Resume Control, 8-126
syntax, listed by, A-13
TCP Maximum Retries, 8-127
TCP/IP Maximum Transmit Timeout, 8-129
Terminal IP Address, 8-131
Time and Date, 8-133
Time in Seconds, 8-135
Timeout Delay, 8-136
Transmit Mode, 8-138
Transmit Rate, 8-139
troubleshooting, 5-9, 5-10, 5-11
UPC/EAN, 8-140
using, 8-3
variable data, entering, 8-6
Wakeup On Broadcast, 8-143
Configuration Commands Via Serial Port command, 8-43
configuration files
active, 3-3
current, 3-3
default, 3-3
Configuration Menu
exiting and saving changes, 3-11
problems while exiting, 5-6 to 5-11
Configure Device Initialization Download dialog box, 4-17
configuring
2.4 GHz RF network, overview, 2-13
bar code labels, scanning, 3-13 to 3-14
booting the terminal on resume, 5-18
Change Configuration command, using, 7-8
Default Configuration command, using, 7-9
default settings, list of, A-9 to A-12
host application, using, 3-15 to 3-16
remotely
2415 from DCS 300, 3-17
2415 from host, 3-18 to 3-22
Save Configuration command, using, 7-10
serial port parameters, 2-11, 2-12
summary of methods, 3-3
TRAKKER Antares 2400 Menu System, using, 3-4 to 3-12
troubleshooting, 5-6 to 5-11
configuring, overview of configuration parameters, 3-3
Connect LED
blinks, troubleshooting, 2-17, 5-12
off, troubleshooting, 5-12
connecting an input device, 1-17
connectivity options, described, A-4
contrast, adjusting, 8-57
control characters
bar code labels to scan, B-6
full ASCII, list of, B-5
Controller Connect Check Receive Timer command, 8-45
Controller Connect Check Send Timer command, 8-47
Controller IP Address command, 8-49
conventions
bar codes, defined, xvi
commands, defined, xvii
keypad, defined, xvi
screens and messages, defined, xv
warnings and cautions, defined, xiv
converting applications
between JANUS and Trakker Antares, 4-7
from IRL, 4-7
to binary, 4-8
copying files
network communications, using, 3-23
RF communications, using, 4-14
to the 2415, 3-23, 4-16
to the DCS 300, 4-14
country code, displayed, 6-15
creating applications, 4-6
CrossBar network
receiving and converting files, 7-17
transmitting and converting files, 7-25
CTS/RTS, set by flow control, 8-68
current configuration, 3-3
cursor keys, using, 1-10
customizing the terminal, 3-3

D

Data Bits command, 8-51
data, accumulating in commands, 7-4, 8-6
date, configuring, 8-133
DCS 300
applications, downloading to terminal, 4-16
copying applications and files, 4-14

DCS 300 (*continued*)
transaction ID, creating, 3-19
troubleshooting, 5-15
using to configure terminal, 3-17
using to transfer applications, 4-14
decimal
Japanese Katakana characters, values, C-13 to C-19
key code values, displaying, 6-16
table of ASCII characters, B-3 to B-5
Western European characters, values, C-3 to C-12
Decode Security command, 1-26, 8-52
default configuration, 3-3
list of, A-9 to A-12
Default Configuration reader command, 7-9
Default Router command, 8-53
determining when to configure, 2-16
defining
APPTSK.BIN, D-3
EM9560.BIN, D-3
terminal's drives, 1-22
defining EM9560.BIN, D-4
Delete File reader command, 7-14
Destructive RAM Test screen, defined, 6-13
determining when the battery pack is low, 1-18
developing applications, 4-6
DHCP, *See* Dynamic Host Protocol Configuration command
diacritical marks, typing, 1-12
diagnostics
Access Point screen, defined, 6-20
Application Efficiency screen, defined, 6-21
Application Events screen, defined, 6-7
Battery/PIC Monitor screen, defined, 6-11
Beeper Test screen, defined, 6-12
Clear Task Profiles screen, defined, 6-8
Destructive RAM Test screen, defined, 6-13
Diagnostics Menu, using, 6-5
Display Test screen, defined, 6-14
Error Logger screen, defined, 6-9
Hardware Configuration screen, defined, 6-15
Keypad Test screen, defined, 6-16
Malloc Application Information screen, defined, 6-22
Malloc Firmware Information screen, defined, 6-23
Radio Test screen, defined, 6-17
Scanner Test screen, defined, 6-18
Serial Port Loopback screen, defined, 6-19
Serial Port Test screen, defined, 6-24
Subsystem Versions screen, defined, 6-25
summary of, 6-3
Task Status screen, defined, 6-10
tests and screens, defined, 6-7 to 6-25
TRAKKER Antares 2400 Menu System, using, 6-5
dimensions, of the terminal, A-3
display, 1-6
backlight on and off, 7-7
Display Backlight Timeout command, 1-14, 8-55
Display Contrast command, 8-57
Display Font Grid Type command, 8-58
Display Row Spacing command, 8-59
Display Test screen, defined, 6-14
Display Video Mode command, 8-60
documentation
bar code conventions, defined, xvi
command conventions, defined, xvii
keypad conventions, defined, xvi
screen and message conventions, defined, xv
warnings and cautions, defined, xiv
Domain command, 8-61
double-byte fonts, loading, 5-25
downloading applications
network communications, using, 3-23
overview, 4-3
RF communications, using, 4-16
using reader commands, 4-9
using the DCS 300, 4-14
using the FileCopy utility, 4-9
using the LOADER.EXE program, 4-11
drive C, described, 1-22
drive D, described, 1-22, 8-66
drive E, described, 1-22
drive G, described, 1-22
Dynamic Host Configuration Protocol command, 8-63

E

EAN-8, enabling, 8-140
edge triggering, configuring the scanner, 8-116
electrical specifications, A-3
EM9560.BIN application
defined, D-3
display control codes, using, D-5
emulation features, D-4
full ASCII mode for Code 39, configuring, D-7
preambles/postambles, setting, D-6
running, D-9
unsupported features, D-9
End of Message, *See* EOM command
Enter Accumulate Mode reader command, 7-6
using, 8-6
Enter reader command, 7-6
entering data
configuration commands, using, 8-6
keypad, using, 1-7
reader commands, using, 7-4
terminal locked up, 5-6
EOM command, 2-11, 8-64
equipment, required for network, 2-13
Error Logger screen, defined, 6-9
error messages
audio signals, list of, 1-16
DCS 300, 5-15
EOM or SOM configuration error, 5-8, 5-9

error messages (*continued*)
network configuration error, 5-7, 5-8
PG command failed error, 5-9
POST failed, 5-6
unable to connect to controller, 5-13
escape characters, entering in screens, 3-10
Ethernet network
downloading files, 3-23
illustrated, 2-4, 2-5, 2-6, 2-7, 2-8, 2-9
European Article Numbering, *See* UPC/EAN command
European languages, table of characters, C-3 to C-12
examples
2415, remotely configuring, 3-21, 3-22
serial port, remotely configuring the terminal, 3-16
EXE2ABS.EXE program, using, 4-8
Exit Accumulate Mode reader command, 7-6
using, 8-6
exiting
applications, 7-13
Configuration Menu, 3-11
TRAKKER Antares 2400 Menu System, 3-11
extended ASCII characters, configuring, 3-9
extended memory, specifications, A-5
EZBuilder
binary files, converting, 4-8
developing applications, 4-6

F

features, described, 1-3, 1-6
file management, using reader commands, 7-13
File Manager, using to run applications, D-9
FileCopy utility, 4-6, 4-7
using to run application, 4-19
using to transfer applications, 4-9
files
converting 7-bit to 8-bit, 7-17, 7-25
deleting, 7-14
naming conventions, described, 1-22
renaming, 7-21
transmitting, 7-23
network communications, using, 3-23
RF communications, using, 4-16
finding the special keys, 1-8
firmware
applications, restarting, 7-10
checking the version loaded, 3-5
Malloc diagnostic screen, defined, 6-23
upgrading, 5-22
Boot Menu, using, 5-19
versions, listed, 6-25
flash memory
default configuration, saving, 7-9
saving configuration changes, 3-11, 7-10
specifications, A-5
Flash Memory Configuration command, 8-66
Flow Control command, 8-68
font grid type, configuring, 8-58
Frame mode
described, 2-11
EOM, described, 8-64
troubleshooting, 5-8
French, *See* European languages
full ASCII
bar code chart of characters, B-6 to B-10
Code 39, described, 8-25
table of characters, B-3 to B-5
Function Code 1
Code 128, using with, 8-32
Code 16K, enable with, 8-22
Code 49, enable with, 8-29
Function Code 2, Code 49, 8-29
Function Code 3, Code 49, 8-29
Function Left key, using, 1-9
Function Right key, using, 1-9

G

German, *See* European languages
Good Read status LED
described, 1-15
troubleshooting, 5-16
green keys, using, 1-7

H

handle, terminal accessory, 1-5
Handshake command, 8-70
handstrap, terminal accessory, 1-5
Hardware Configuration screen, defined, 6-15
hardware diagnostics
Battery/PIC Monitor screen, defined, 6-11
Beeper Test screen, defined, 6-12
Destructive RAM Test screen, defined, 6-13
Display Test screen, defined, 6-14
Hardware Configuration screen, defined, 6-15
Keypad Test screen, defined, 6-16
Radio Test screen, defined, 6-17
Scanner Test screen, defined, 6-18
Serial Port Loopback Test screen, defined, 6-19
Hardware Diagnostics menu
diagnostic tests, defined, 6-11
using, 6-6
Health Industry Bar Code, *See* HIBC, Code 39
hexadecimal
Japanese Katakana characters, values, C-13 to C-19
key code values, displaying, 6-16
table of ASCII characters, B-3 to B-5
Western European characters, values, C-3 to C-12
HIBC, Code 39, 8-26
high-density scanner, optical parameters, A-8
high-visibility scanner, optical parameters, A-8

holster and belt, terminal accessory, 1-5
horizontal reading angle for scanning, 1-25
host computer
  not receiving data, troubleshooting, 5-13
  transferring files, 3-23
  transmitting files, 7-19, 7-27
  using to configure 2415, 3-18 to 3-22
Host IP Address command, 8-71
humidity, operating and storage range, A-4

I

I 2 of 5, *See* Interleaved 2 of 5 command
IEEE 802.11 DS network communications
  AP density, configuring, 8-11
  maximum sleep duration, configuring, 8-84
  network name, configuring, 8-90
  power management, configuring, 8-99
  receive all multicast, configuring, 8-104
  reservation enable, configuring, 8-107
  reservation, configuring, 8-105
  station name, configuring, 8-122
  transmit rate, configuring, 8-139
Inactivity Timeout command, 8-73
input devices
  configuring for scanner, 8-113
  connecting to terminal, 1-17
  list of, 1-17
  troubleshooting, 5-16 to 5-17
installing
  2.4 GHz RF network, overview, 2-13
  serial port network, overview, 2-10
installing the battery pack, 1-19
integrated I/O connector, 1-6
  connecting input devices, 1-17
  specifications, A-5
  using, 1-13
Interactive Reader Language, *See* IRL
Interleaved 2 of 5 command, 8-75
  disabled with Code 2 of 5, 8-23
Intermec support services, xiii
international languages
  diacritical marks, typing, 1-12
  keypad, using, 1-11
  table of characters, C-3 to C-12, C-13 to C-19
IP address
  controller, configuring, 8-49
  default router, configuring, 8-53
  host, configuring, 8-71
  terminal, configuring, 8-131
  using with DHCP, 8-49
IRL programs, converting, 4-7
ISBT Code 128, enabling, 8-32
Italian, *See* European languages

J

Japanese Katakana font set, using, C-13 to C-19

K

Katakana font set, using, C-13 to C-19
key, conventions, defined, xvi
keyclick, volume, adjusting from the keypad, 1-16
keypad, 1-6
  ⓘ key, using, 1-14
  characters, capitalizing, 1-10
  conventions, defined, xvi
  cursor keys, using, 1-10
  international, using, 1-11
  key code values, displaying, 6-16
  options, described, 1-7, A-4
  special keys, finding, 1-8
  TE, using, 1-12
  typing characters, 1-7
  using, 1-6 to 1-16
Keypad Caps Lock command, 1-10, 8-77
Keypad Clicker command, 1-16, 8-78
Keypad Test screen, defined, 6-16
Keypad Type command, 8-79
keys
  ⓕ, using, 1-9
  ⓐ, using, 1-9
  ⓒ, using, 1-9
  ⓑ, using, 1-9
  ⓘ, using, 1-14
  diacritical marks, typing, 1-12
  Scan button, 1-23

L

languages, table of characters, C-3 to C-12, C-13 to C-19
laser scanner, *See* scanner
LEDs, *See* status LEDs
letters, bar code labels to scan, B-9, B-10
level triggering, configuring the scanner, 8-116
List Files reader command, 7-15
Load Default Values screen, using, 3-30
loader, using the Boot Menu, 5-19
LOADER.EXE program
  using to transfer applications, 4-11
  using to upgrade firmware, 5-22
lock up, troubleshooting, 5-6
Longitudinal Redundancy Check, *See* LRC command
long-range scanner, optical parameters, A-8
lowercase letters, bar code labels to scan, B-10
LRC command, 8-81

M

Main Board Menu, using, 6-12, 6-13
Main Menu, options defined, 3-4
Malloc Application Information screen, defined, 6-22
Malloc Firmware Information screen, defined, 6-23
managing battery power, 1-21
manual
  audience and purpose, described, xiv
  bar code conventions, xvi
  command conventions, xvii
  keypad conventions, xvi
  software screens and messages conventions, xv
  terminology, defined, xv
Master Polling protocol, 2-12
Maximum Retries command, 8-82
Maximum Sleep Duration command, 8-84
memory
  flash, saving configuration changes, 3-11
  RAM, saving configuration changes, 3-11
  specifications, A-5
  troubleshooting, 6-13
menu system, *See* TRAKKER Antares 2400 Menu System
menus
  Diagnostics Menu, defined, 6-5
  Main Menu, defined, 3-4
  TRAKKER Antares 2400 Menu System, selecting, 3-6
messages, conventions defined, xv
mixed-full ASCII, Code 39, 8-25
Modifier status LED, 1-9, 1-10
  described, 1-15
MSI command, 8-86
Multi-Drop protocol
  receiving and converting files, 7-17
  transmitting and converting files, 7-25
Multiple-Read Labels reader command, 7-9

N

NET port, 1-13
network
  equipment required for 2.4 GHz, 2-13
  illustrated, 2-4, 2-5, 2-6, 2-7, 2-8, 2-9
  installing, overview, 2-13
  protocols, defined, 2-17 to 2-20
Network Activate command, 8-88
network communications, troubleshooting, 5-12, 5-14
Network Connect status LED, described, 1-15, 2-17
Network Loopback command, 8-89
Network Name command, 8-90
Network Port command, 8-92
non-full ASCII, Code 39, 8-25
notes, defined, xiv
numbers, bar code labels to scan, B-8
numeric keypads, options, described, 1-7

O

One-Shot mode, configuring the scanner, 8-111
OpenAir network communications
  domain, configuring, 8-61
  inactivity timeout, configuring, 8-73
  roaming flag, configuring, 8-109
  security ID, configuring, 8-117
  Transmit mode, configuring, 8-138
  wakeup on broadcast, configuring, 8-143
  See also 2.4 GHz RF network
operating the terminal
  configuration commands, list of, 8-4, A-10
  humidity range, A-4
  reader commands
    enabling or disabling, 8-33 to 8-42
    using, 7-3, 7-7
  temperature range, A-4
  troubleshooting, 5-5 to 5-6
options, described, 1-4
orange keys, using, 1-7
OSI model, network protocols, defining, 2-17 to 2-20

P

parameters, overview for configuration, 3-3
Parity command, 8-94
pin assignments, A-6
pink keys, using, 1-7
Plessey command, 8-95
Point-to-Point protocol, 2-12
Poll command, 8-96
Polling Mode D protocol, 2-12
Portuguese, *See* European languages
POST
  failed, error message, 5-6
  failed, status beeps, 1-16
  success, status beeps, 1-16
postamble
  ASCII control characters, entering, 3-9
  EM9560.BIN application, setting, D-6
  Field Exit, configuring to auto-advance, 3-9
Postamble command, 8-97
power
  backup power source, A-3
  battery pack specifications, A-3
power management
  automatic shutoff, using, 8-13
  battery capacity remaining, 6-11
  battery pack, using, 1-18
  guidelines for, 1-21
  resume, suspend, and boot, 8-108
  Wakeup On Broadcast, disabling, 8-143
Power Management command, 8-99

preamble
ASCII control characters, entering, 3-9
EM9560.BIN application, setting, D-6
Field Exit, configuring to auto-advance, 3-9
Preamble command, 8-100
Preamble/Postamble screen, using, 3-9
print quality, bar code, 8-52, 8-112
problems, finding and solving, 5-4
program, *See* applications
Programmer's Software Kit, *See* PSK
protocol stack
checking the protocol loaded, 3-5, 6-10
OSI model, defined, 2-17 to 2-20
PSK
applications, developing, 4-6
binary files, converting, 4-8
IRL programs, converting, 4-7
JANUS and Trakker Antares, converting applications, 4-7
punctuation marks, bar code labels to scan, B-7

Q

QFSK, defined, 8-138
quiet zone, bar code labels, 1-25
quotation marks in commands, using, 3-14

R

radio
country code, displayed, 6-15
troubleshooting, 5-12, 6-17
options, A-5
Radio Test screen, defined, 6-17
RAM
default configuration, saving, 7-9
saving configuration changes, 3-11
specifications, A-5
troubleshooting, 6-13
RAM Drive Size command, 8-102
Reader Command Menu, using, 3-8
reader commands
Abort Program, 7-13
Accumulate mode, using, 7-4
Backlight On and Off, 7-7
Backspace, 7-5
Boot Terminal, 7-8
Change Configuration, 7-8
Clear, 7-5
Default Configuration, 7-9
Delete File, 7-14
enabling or disabling, 8-33 to 8-42
Enter, 7-6
Enter Accumulate mode, 7-6
Exit Accumulate mode, 7-6
file management commands, 7-13
host application, using to configure, 3-15 to 3-16
List Files, 7-15
Multiple-Read Labels, 7-9
operating commands, 7-7
Receive File, 7-15
Rename File, 7-21
Reset Firmware, 7-10
Run Program, 7-22
Save Configuration, 7-10
Scanner Trigger On and Off, 7-11
scanning labels to configure the terminal, 3-13 to 3-14
sending from host, 3-18 to 3-22
sending from the DCS 300, 3-17
Set Time and Date, 7-12
Test and Service Mode, 7-12
Transmit File, 7-23
troubleshooting, 5-5, 5-10
using, 7-3
using to transfer applications, 4-9
Receive All Multicast command, 8-104
Receive File reader command, 7-15
relative humidity specifications, A-4
removing the battery pack, 1-20
Rename File reader command, 7-21
Reservation command, 8-105
Reservation Enable command, 8-107
Reset Firmware reader command, 7-10
resetting the terminal, 5-17 to 5-20, 7-10
Restore User Files dialog box, 4-15
Resume Execution command, 8-108
resume, booting the terminal, 5-18
RF communications
acknowledgement delay lower limit, configuring, 8-7
acknowledgement delay upper limit, configuring, 8-9
activating the 2.4 GHz RF network, 8-88
configuration commands, list of, 8-5, A-11
controller connect check receive timer, configuring, 8-45
controller connect check send timer, configuring, 8-47
controller IP address, configuring, 8-49
default router, configuring, 8-53
DHCP, configuring, 8-63
downloading files, 3-23
downloading files to the 2415, 4-16
host IP address, configuring, 8-71
maximum retries, configuring, 8-82
network port, configuring, 8-92
overview, 2-13
radio options, A-5
Receive File reader command, 7-19
site survey, planning, 2-13
status LEDs, using to monitor, 2-17
subnet mask, configuring, 8-124
TCP maximum retries, configuring, 8-127
TCP maximum transmit timeout, configuring, 8-129
terminal IP address, configuring, 8-131
transferring files, 4-14

RF communications (*continued*)
Transmit File reader command, 7-27
troubleshooting, 5-12
RF network
illustrated, 2-4, 2-5, 2-6, 2-7, 2-8, 2-9
using to configure terminal, 8-3
RF network protocol, terminal, checking the protocol loaded, 3-5, 6-10
RF port, 1-13
Roaming Flag command, 8-109
row spacing, configuring, 8-59
Run Program reader command, 4-19, 7-22
running applications, 4-3, 4-19
runtime configuration, defined, 3-11

S

safety procedures, xiii
Save and Activate sidebar button, 3-3
Save Configuration sidebar button, 3-3
saving configuration changes
Configuration Menu, exiting, 3-11
reader command, using, 7-10
TRAKKER Antares 2400 Menu System, exiting, 3-11
Scan Ahead command, 1-26, 8-110
Scan button, using, 1-23
scan codes, Western European characters, values, C-3 to C-12
scanner
configuring for input devices, 8-113
connecting to terminal, 1-17
high-density opticial parameters, A-8
high-visibility opticial parameters, A-8
long-range opticial parameters, A-8
standard range opticial parameters, A-7
troubleshooting, 5-16 to 5-17
Scanner Mode command, 1-26, 8-111
Scanner Redundancy command, 1-26, 8-112
Scanner Selection command, 1-26, 8-113
Scanner Test screen, defined, 6-18
Scanner Timeout command, 1-26, 8-114
Scanner Trigger command, 1-26, 8-116
On and Off reader command, 7-11
scanning
ASCII characters, list of labels, B-6 to B-10
bar code labels, 1-24
button/trigger operation, configuring, 8-111
options, defined, 1-26
reader commands, using, 7-11
Scan Ahead command, configuring, 8-110
timeout, configuring, 8-114
troubleshooting, 5-16 to 5-17
screen
cleaning, 5-21
contrast, adjusting from the keypad, 1-14
conventions, defined, xv
specifications, A-5
troubleshooting, 6-14
screen mapping, using, 4-21
Security ID command, 8-117
ID not being saved, 5-7
Serial Port Loopback screen, defined, 6-19
serial port, 1-6
cable specifications, A-6
communications, troubleshooting, 5-14
configuration commands, list of, 8-5, A-12
configuring parameters, 2-11
network, illustrated, 2-3, 2-4
Receive File reader command, 7-15, 7-17
specifications, A-5
Transmit File reader command, 7-23, 7-25
transmitting files, 7-15, 7-23
troubleshooting, 5-6 to 5-11
using, 1-13
using to configure terminal, 8-3
using to configure the terminal, 3-15 to 3-16
using to transfer applications, 4-9
serial port communications
baud rate, configuring, 8-15
configuration commands via serial port, configuring, 8-43
LRC, configuring, 8-81
parity, configuring, 8-94
poll, configuring, 8-96
postamble, configuring, 8-97
preamble, configuring, 8-100
serial port protocol, configuring, 8-118
stop bits, configuring, 8-123
timeout delay, configuring, 8-136
Serial Port Protocol command, 8-118
Serial Port Test screen, defined, 6-24
Set Time and Date reader command, 7-12
Shift key, using, 1-9
sidebar buttons
Save and Activate, 3-3
Save Configuration, 3-3
Simulator, *See* Application Simulator
site survey, planning, 2-13
software diagnostics
Application Events screen, defined, 6-7
Clear Task Profiles screen, defined, 6-8
Error Logger screen, defined, 6-9
Task Status screen, defined, 6-10
Software Diagnostics menu
diagnostic tests, defined, 6-7
using, 6-6
SOM command, 8-120
Spanish, *See* European languages
special keys, finding, 1-8
specifications, A-3

standard range scanner
optical parameters, A-7
troubleshooting, 6-18
Start of Message, *See* SOM command
start/stop codes conventions, defined, xvi
starting
applications, 4-19, D-9
steps for using the terminal, 1-27
TRAKKER Antares 2400 Menu System, 3-4, 3-28, 3-29
Station Name command, 8-122
status beeps, 1-6
understanding, 1-16
volume, adjusting from the keypad, 1-16
status LEDs, 1-6
Battery, 1-15
communications, using to monitor, 2-17
Good Read, 1-15
Modifier, 1-15
Network Connect, 1-15, 2-17
troubleshooting, 5-12
understanding, 1-15
User Defined, 1-15
Stop Bits command, 8-123
Store Configuration screen, using, 3-28
storing the terminal
humidity range, A-4
temperature range, A-4
Subnet Mask command, 8-124
determining when to configure, 2-16
subnetworks
terminal, using across, 2-7, 2-8, 2-9
See also network
Subsystem Versions screen, defined, 6-25
Suspend mode
automatic shutoff, using, 8-13
managing battery power, 1-21
Suspend/Resume Control command, 8-126
Suspend/Resume key, using, 1-9
symbols, bar code labels to scan, B-7
syntax, configuration commands listed by, A-13
system diagnostics
Access Point screen, defined, 6-20
Application Efficiency screen, defined, 6-21
Malloc Application Information screen, defined, 6-22
Malloc Firmware Information screen, defined, 6-23
Serial Port Test screen, defined, 6-24
Subsytem Versions screen, defined, 6-25
System Diagnostics menu
diagnostic tests, defined, 6-20
using, 6-6
system message flag, defined, 3-19

T

Task Status screen, defined, 6-10
TCP Maximum Retries command, 8-127
TCP/IP direct connect network
checking the protocol loaded, 3-5, 6-10
CLIENT.CPP sample application, 3-25
file management commands, using, 7-13
firmware, upgrading, 5-22
illustrated, 2-6, 2-9
protocols, defined, 2-17 to 2-20
reader commands, using, 7-3
RF parameters, default values, 2-16
transmitting files, 3-23, 7-19, 7-27
TCP/IP Maximum Transmit Timeout command, 8-129
TCP/IP port, *See* Network Port command
TD2410 Communications Dock, *See* communications dock
TE keypad
options, described, 1-7
using, 1-12
temperature
charging range, A-4
operating and storage range, A-4
terminal
accessories, list of, 1-5
applications, downloading, 3-23
booting and resetting, 5-17 to 5-20
characters, table of, C-3 to C-12, C-13 to C-19
configuring
from host, 3-18 to 3-22
summary of methods, 3-3
using bar code labels, 3-13 to 3-14
using serial port, 3-15 to 3-16
using TRAKKER Antares 2400 Menu System, 3-4
configuring from DCS 300, 3-17
default configuration, list of, A-9 to A-12
diagnostics, using, 6-3 to 6-25
dimensions, A-3
double-byte fonts, loading, 5-25
drives, described, 1-22
features, described, 1-3, 1-6
firmware, upgrading, 5-22
getting started, list of steps, 1-27
keypad options, described, 1-7
managing power, 1-21
manual, audience and purpose, xiv
operating, troubleshooting, 5-5 to 5-6
options, described, 1-4
scanner, using, 1-23
terminology, defined, xv
troubleshooting, guide to, 5-3, 5-4
Terminal Download Configuration dialog box, 4-16

terminal emulation
application options, A-4
keypad options, 1-7, A-4
session, problems establishing, 5-13
status LEDs, using to monitor, 2-17
Terminal IP Address command, 8-131
terminology, defined, xv
Test and Service Mode reader command, 7-12
TFTP
defined, 2-17 to 2-20
server, using, 3-23
Time and Date command, 8-133
Time in Seconds command, 8-135
time, configuring, 8-133
Timeout Delay command, 8-136
TMF protocol
defined, 2-17 to 2-20
fields, defined, 3-15, 3-20, 3-21
TRAKKER Antares 2400 Menu System
application, running, D-9
ASCII control characters, entering, 3-9
configuring the terminal, 3-4 to 3-12
Diagnostics Menu, using, 6-5
exiting, 3-11
illustrated, 3-5
menus and commands, selecting, 3-6
starting, 3-4, 3-28, 3-29, 7-12
using to configure terminal, 8-3
using to execute reader commands, 7-3
using to run application, 4-19
Trakker Antares FileCopy utility, *See* FileCopy utility
Trakker Antares Programmer's Software Kit, *See* PSK
transaction header, defined, 3-19
transaction ID, creating, 3-19
transferring applications and files
using reader commands, 4-9
using the DCS 300, 4-14
using the FileCopy utility, 4-9
using the LOADER.EXE program, 4-11
Transmit File reader command, 7-23
Transmit Mode command, 8-138
Transmit Rate command, 8-139
troubleshooting
audio signals, list of, 1-16
bar code symbologies, 5-5
Boot Menu, using, 5-19
configuring the terminal, 5-6 to 5-11
DCS 300, 5-15
diagnostics, using, 6-3 to 6-25
guide to finding problems, 5-3, 5-4
Intermec support services, xiii
network loopback, using, 8-89
operating the terminal, 5-5 to 5-6
preventive maintenance, 5-21
RF communications, 2-17
RF network communications, 5-12
scanning bar code labels, 5-16 to 5-17
serial communications, 5-14
terminal locked up, 5-6
terminal will not turn on, 5-5
turning on the terminal
troubleshooting, 5-5
using the ⏻ key, 1-9
typing characters on the keypad, 1-7
TZ2410 Battery Charger, *See* battery chargers

U

UCC/EAN Code 128, enabling, 8-32
UDP Plus network
file management commands, using, 7-13
firmware, upgrading, 5-22
illustrated, 2-5, 2-7, 2-8
protocol, defined, 2-17 to 2-20
reader commands, using, 7-3
RF parameters, default values, 2-16
terminal, checking the protocol loaded, 3-5, 6-10
transmitting files, 4-16, 7-19, 7-27
UDP port, *See* Network Port command
understanding
features, 1-6
status beeps, 1-16
status LEDs, 1-15
Universal Product Code, *See* UPC/EAN command
UPC/EAN command, 8-140
UPC-A/EAN-13, enabling, 8-140
UPC-E, enabling, 8-140
upgrading the firmware
using the Boot Menu, 5-19
using the DCS 300, 5-22
using the DOS utility, 5-22
upgrading the terminal, loading double-byte fonts, 5-25
uppercase letters, bar code labels to scan, B-9
User Defined status LED, described, 1-15
using
f1 key, 1-9
f2 key, 1-9
Ctrl key, 1-9
⏻ key, 1-9
☼ key, 1-14
battery pack, 1-18
cursor keys, 1-10
integrated I/O port, 1-13
international keypad, 1-11
screen mapping, 4-21
serial port, 1-13
TE keypads, 1-12
terminal for the first time, 1-27
terminal scanner, 1-23
terminal screen, 1-14
using the terminal's keypad, 1-7

V

variable data, entering in commands, 7-4, 8-6
vertical reading angle for scanning, 1-25
video mode, configuring, 8-60
voting, Scanner Redundancy command, 8-112
VT/ANSI terminal emulation, *See TE 2000 VT/ANSI Terminal Emulation Programmer's Guide*

W

Wakeup On Broadcast command, 8-143
wands,
  configuring for scanner, 8-113
  connecting to terminal, 1-17
warm boot, 5-20, 7-10
warnings, defined, xiv
warranty information, xiii
Western European languages, *See* European languages
white keys, using, 1-7

X

XMODEM protocol, defined, 2-18
XON/XOFF, set by flow control, 8-68