



Read This First!

This manual contains information about the terminal's features, installing the terminal, learning about the menu system, operating the terminal in a network, and troubleshooting problems.

If you need to learn how to configure the terminal, develop and use applications, run diagnostics, use reader commands and configuration commands, or use default and optional applications, you also need to download the [*Trakker Antares 2400 Family System Manual*](#) (P/N 071389).

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Intermec



User's Manual



**Trakker Antares[®]
241X Handheld
Terminal**

The logo for Intermec, featuring the word "Intermec" in a bold, italicized sans-serif font. The letter "I" is stylized with a diagonal slash through it. The logo is positioned on the left side of the cover, partially overlapping a large, light gray circular graphic that resembles an orbital path.

Intermec



User's Manual

**Trakker Antares[®]
241X Handheld
Terminal**

Intermec Technologies Corporation

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This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit. (<http://www.openssl.org/>).

This product includes cryptographic software written by Eric Young (EAY@cryptsoft.com).

Document Change Record

This page records changes to this document. The document was originally released as version 001.

Version	Date	Description of Change
002	8/1999	This manual was revised to add the Important Data Collection Browser Information sheet, P/N 070012-001.
003	2/2000	This manual was revised to update the IEEE 802.11 radio parameters and make other minor changes to support firmware v6.12. Addendum (P/N 070450-001), which contains information about running DOS *.EXE applications on the terminal was also added.
004	7/2002	<p>Removed system level information that is already included in the <i>Trakker Antares® 2400 Family System Manual</i> (P/N 071389). The user's manual now contains information about how to operate the 241X, and the 2400 Family system manual contains configuration and reader commands and other information that applies across the Trakker Antares 2400 Family.</p> <p>Removed and discontinued these documents, because this information is included in the system manual: the <i>Important Terminal Emulation Information Sheet</i> (P/N 069993-001) and the <i>Important Data Collection Browser Information Sheet</i> (P/N 070012-002).</p> <p>Removed these documents, because this information is included in the system manual: the <i>Trakker Antares 2400 Family User's Manual Addendum</i> (P/N 070451), the <i>Trakker Antares 2400 Family Firmware V6.15 Instruction Sheet</i> (P/N 071388), and the <i>Trakker Antares 2400 Family Firmware V6.20 Instruction Sheet</i> (P/N 071867).</p> <p>Explained the new features and changes for firmware versions 4.X through 7.12:</p> <ul style="list-style-type: none">• Changed all references from the Model 200 Controller to the DCS 30X, the data collection server that replaces the Model 200.• Added information about the IEEE 802.11b radio parameters.• Included information about the PDF 417 and advanced long range scanner options.• Added information to support Wireless Transport Protocol (WTP).• Removed Trakker Antares native terminal emulation. <p>Made minor corrections and changes throughout the manual to support firmware version 7.12.</p>
005	12/2002	Added information to support the 802.1x security option in firmware version 7.14.
006	02/2004	<p>Incorporated information from the <i>Trakker Antares 2400 Family System Manual Addendum</i> (P/N 073395-001).</p> <p>Referenced the following new feature for firmware version 8.01:</p> <ul style="list-style-type: none">• Trakker Antares support on the Wavelink Avalanche client management system.

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Contents

Before You Begin

This section provides you with safety information, technical support information, and sources for additional product information.

Safety Summary

Your safety is extremely important. Read and follow all warnings and cautions in this document 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.

Safety Icons

This section explains how to identify and understand dangers, warnings, cautions, and notes that are in this document. You may also see icons that tell you when to follow ESD procedures and when to take special precautions for handling optical parts.



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 manipulant l'équipement.



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.

Attention: 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.



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

Global Services and Support

Warranty Information

To understand the warranty for your Intermec product, visit the Intermec web site at <http://www.intermec.com> and click **Service & Support**. The **Intermec Global Sales & Service page appears**. From the **Service & Support** menu, move your pointer over **Support**, and then click **Warranty**.

Disclaimer of warranties: The sample code included in this document is presented for reference only. The code does not necessarily represent complete, tested programs. The code is provided “as is with all faults.” All warranties are expressly disclaimed, including the implied warranties of merchantability and fitness for a particular purpose.

Web Support

Visit the Intermec web site at <http://www.intermec.com> to download our current documents in PDF format. To order printed versions of the Intermec manuals, contact your local Intermec representative or distributor.

Visit the Intermec technical knowledge base (Knowledge Central) at <http://intermec.custhelp.com> to review technical information or to request technical support for your Intermec product.

Telephone Support

These services are available from Intermec Technologies Corporation.

Service	Description	In the U.S.A. and Canada call 1-800-755-5505 and choose this option
Factory Repair and On-site Repair	Request a return authorization number for authorized service center repair, or request an on-site repair technician.	1
Technical Support	Get technical support on your Intermec product.	2
Service Contract Status	Inquire about an existing contract, renew a contract, or ask invoicing questions.	3
Schedule Site Surveys or Installations	Schedule a site survey, or request a product or system installation.	4
Ordering Products	Talk to sales administration, place an order, or check the status of your order.	5

Outside the U.S.A. and Canada, contact your local Intermec representative. To search for your local representative, from the Intermec web site, click **Contact**.

Who Should Read This Document?

This manual provides you with information about the features of the Trakker Antares[®] 2410 and 2415 handheld terminals, and how to install, configure, operate, maintain, and troubleshoot them. Use this manual in conjunction with the *Trakker Antares 2400 Family System Manual* (P/N 071389), which contains detailed information about configuring, operating, and programming all terminals in the 2400 Family.

Before you install and configure the 241X, you should be familiar with your network and general networking terms, such as IP address.

Related Documents

The Intermec web site at <http://www.intermec.com> contains our current documents that you can download in PDF format.

To order printed versions of the Intermec manuals, contact your local Intermec representative or distributor.



1 Learning About the Terminals

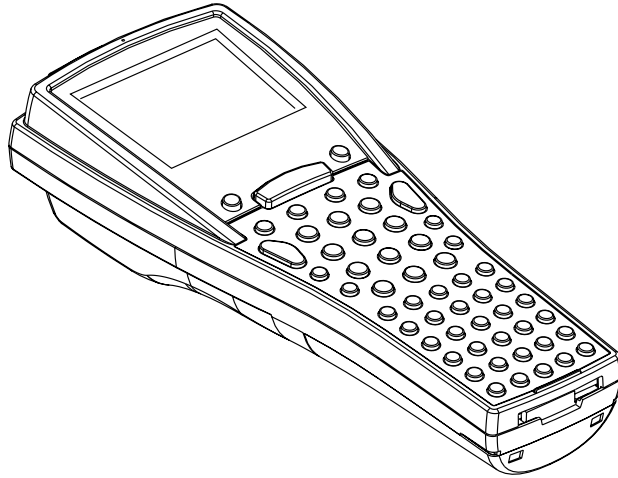
This chapter introduces the Trakker Antares[®] 2410 and 2415 handheld terminals and their features including the batteries, memory, drives, and input devices. It also describes how to start using the 241X.

This chapter covers these topics:

- What are the Trakker Antares 241X terminals
- What's new
- Using the terminal for the first time
- Unpacking the terminal
- Using the terminal's battery pack
- Using the keypad
- Using the screen
- Learning about the status LEDs
- Learning about the audio signals
- Using the terminal's serial port
- Using the terminal's scanner
- Defining the terminal's drives

What Are the Trakker Antares 241X Terminals?

The Trakker Antares 2410 and 2415 terminals are small, lightweight, handheld data collection terminals 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 Intermec Gateway or DCS 30X, or directly through the access points. The 2415 can also run client/server applications, TE 2000™ terminal emulation applications and Data Collection Browser™ (dcBrowser™), which lets you run web-based applications.

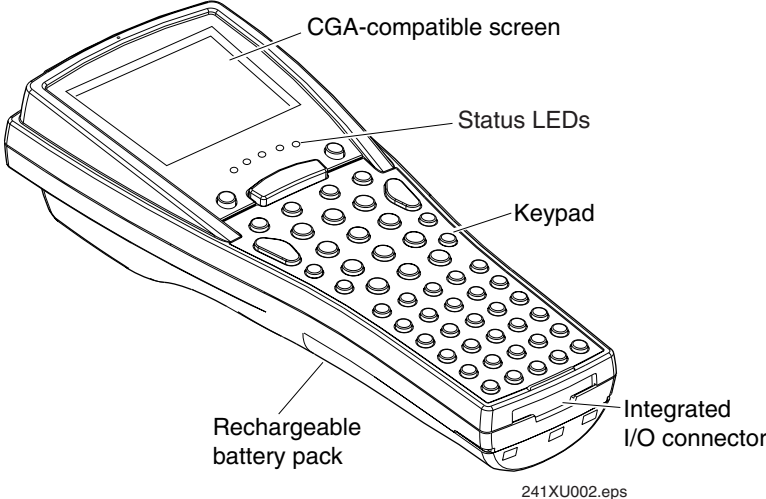
The 2415 is also supported by the Wavelink Avalanche client management system. For more information, see Chapter 2, “Configuring and Managing the Terminals,” in the *Trakker Antares 2400 Family System Manual* (P/N 071389).



The 2415 with an IEEE 802.11b radio installed is Wi-Fi certified for interoperability with other 802.11b wireless LAN devices.

Learning About the Terminal's Features

The 241X is designed to make data collection easy and includes the following features.



241X features: This illustration points out the key features of the 241X. See the next table for a description of each feature.

241X Features

Feature	Description
CGA-compatible screen	The terminal screen is a backlit LCD that is 16 lines by 20 characters. 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 battery charge levels, network communications, special keys, and bar code scanning. A beeper provides 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.

Options for the Terminals

Use the next table to determine which options are available for the 2410 and 2415.

2410 and 2415 Options

Terminal	Options
2410	<ul style="list-style-type: none"> • 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, advanced long-range, linear imager, or PDF417 capable). • 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
2415	<ul style="list-style-type: none"> • 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, advanced long-range, linear imager, or PDF417 capable). • 4MB flash memory configured as an additional 2MB flash drive for custom applications (except .BIN files) and files, pre-loaded with different Asian fonts, or configured for 802.1x TTLS security. • IBM 3270 and IBM 5250 TE 2000 application with 55-key alphanumeric and 37-key function key with large numeric keypads • VT100/220/320/340 and ANSI TE 2000 application with 55-key alphanumeric, 37-key alphanumeric with large numeric, and 37-key function key with large numeric keypads • Data Collection Browser (dcBrowser) application with 55-key alphanumeric and 37-key function key with large numeric keypads • Trakker Antares ROM-DOS™ support • UDP Plus (Intermec Gateway or DCS 30X to host), WTP (Intermec Gateway or DCS 30X to host), or TCP/IP (direct connect to host) communication protocols • WLI Forum OpenAir radio or IEEE 802.11b radio

This manual explains how to use the features and options available on the Trakker Antares 2410 and 2415 terminals.

For additional help using terminal emulation, see the appropriate TE 2000 guide:

- *TE 2000 5250 Terminal Emulation Programmer's Guide* (P/N 977-055-004)
- *TE 2000 3270 Terminal Emulation Programmer's Guide* (P/N 977-055-003)
- *TE 2000 VT/ANSI Terminal Emulation Programmer's Guide* (P/N 977-055-005)

For additional help using dcBrowser, see the online help that ships with the dcBrowser gateway software, or see the *Data Collection Browser Client User's Guide* (P/N 070011).

Accessories for the Terminals

You can use the following accessories (sold and ordered separately) with the terminals.

241X Accessories

Accessory	Description
Standard (single-cell) or High Performance (dual-cell) battery packs	These lithium-ion battery packs (P/N 069428, P/N 069429, P/N 073929, and P/N 073930) provide the main power to the terminal.
Battery chargers	The 2-pack charger (P/N 069582) lets you charge up to two battery packs at one time. The 4-pack charger (P/N TZ2410A) 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 (P/N TD2410A), 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.
AC power supply	The AC power supply (P/N 065236 or P/N 073941) allows you to power the terminal and charge the battery pack. P/N 065236 comes with a North American power cord. If you are using the terminal outside North America, you need to order P/N 073941 and purchase the appropriate power cord.
Handstrap	The elastic handstrap (P/N 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 (P/N 069588) provides a convenient way to hold the terminal.

241X Accessories (continued)

Accessory	Description
Belt clip	The belt clip (P/N 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 (P/N 069583) are a convenient way for you to carry the terminal when you are not using it.

What's New?


With this user's manual revision, the following changes were made to support software on Trakker Antares 241X terminals with firmware version 8.01:

- Software was added to the Trakker Antares terminals to support the Wavelink Avalanche client management system. For more information, see Chapter 2, “Configuring and Managing the Terminals,” in the 2400 Family System manual.
- Information from the *Trakker Antares 2400 Family System Manual Addendum* was incorporated: 802.1X security enhancements to provide new functionality to the current TTLS security and support for Cisco's LEAP security. For more information, see “Configuring the 802.1x Security Parameters” on page 52.

Using the Terminal for the First Time

Before you can use the terminal for the first time, you must perform certain steps, such as charging and installing the battery pack. 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 Handheld Terminal Quick Start Guide* (P/N 069540) that ships with the terminal.

To use the terminal for the first time

- 1 Unpack the terminal and documentation.
- 2 Charge and install the battery pack. For more information on batteries, see “Using the Terminal's Battery Pack” on page 7.
- 3 Press  to turn on the terminal. For more information on the keypad, see “Using the Keypad” on page 11.
- 4 (Optional) Set the time and date. For help using the TRAKKER Antares 2400 Menu System, see “Configuring the Terminal With the Menu System” on page 27.

- 5 (Optional) Configure the serial port parameters. For more information, see “Using Serial Communications on the Terminal” on page 44.
- 6 (2415 only) Configure the RF parameters. For more information, see “Using RF Communications on the 2415” on page 48.
- 7 (2415 with 802.1x security only) Configure the 802.1x security parameters. For help, see “Configuring the 802.1x Security Parameters” on page 52.
- 8 Enable the bar code symbologies that you want to be able to scan. For more information, see Chapter 6, “Configuration Command Reference,” in the 2400 Family system manual.
- 9 Exit the menu system and save your configuration changes to flash memory. For help, see “Exiting the Menu System” on page 33.

When you are done with these steps, the default application or TE 2000 application that is loaded on your terminal will start. You are ready to use the terminal.

Unpacking the Terminal

When you remove the terminal from its box, save the box and shipping material in case you need to ship or store the terminal. Check the contents of the box against the invoice for completeness and contact your local Intermec service representative if there is a problem.

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 100°C (212°F) or incinerate it.

Attention Danger: Le paquet de piles d’ions de lithium qui est utilisé dans cet appareil peut présenter 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 100° C (212° 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 charge, do not turn the terminal back on. Replace or charge the battery pack before you continue using the terminal.



Note: Do not press $\text{\textcircled{V}}$ when there is no battery pack installed in the terminal.

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 4, “Running Diagnostics,” in the 2400 Family system manual.



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 and Installing the Battery Pack

You must fully charge the battery pack before you can use the terminal.

To charge the battery pack

- Place the battery pack in an empty slot in the battery charger. 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 documentation that came with your charger.
- Install the battery pack in the 241X. For help, see the next procedure, “To install the battery pack.” Place the terminal in the communications dock and connect the communications dock to an external power supply. The standard battery pack takes about 1.25 hours to charge and the high performance battery pack takes about 2.5 hours. For help, see the *Trakker Antares TD2410 Communications Dock Quick Reference Guide* (P/N 069552).



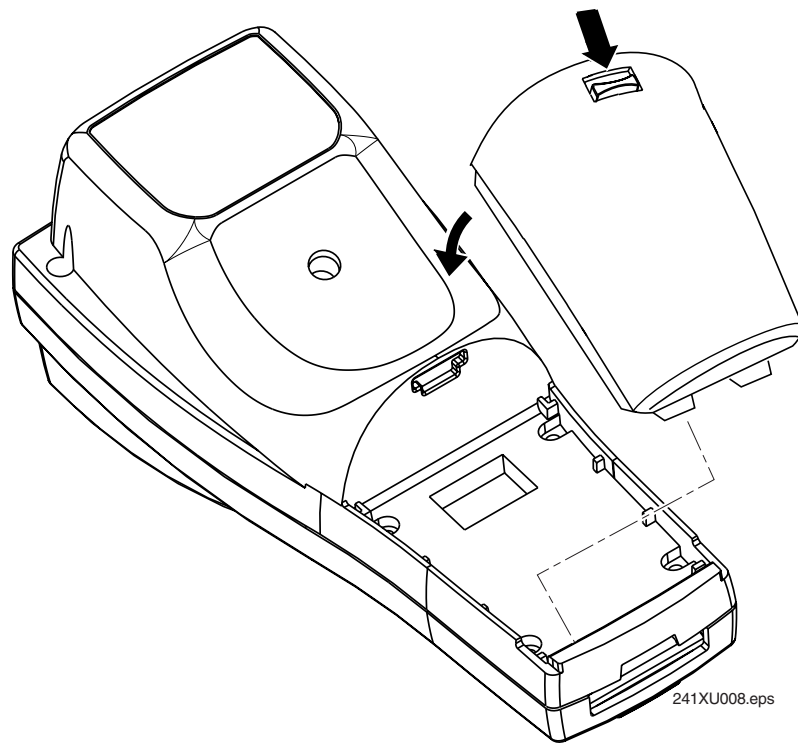
Replace the battery pack with P/N 069428, P/N 069429, P/N 073929, or P/N 073930 only. The use of any other battery pack may present a risk of fire or explosion.

Attention Danger: Remplacez le bloc-batterie par la pièce réf. n° 069428, réf. n° 069429, réf. n° 073929, ou réf. n° 073930 seulement. L'utilisation de tout autre bloc-batterie présente un risque d'incendie ou d'explosion.

Contact your local Intermec sales representative for a replacement battery pack. DISPOSE OF USED BATTERY PACKS PROMPTLY. KEEP THEM AWAY FROM CHILDREN.

To install 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

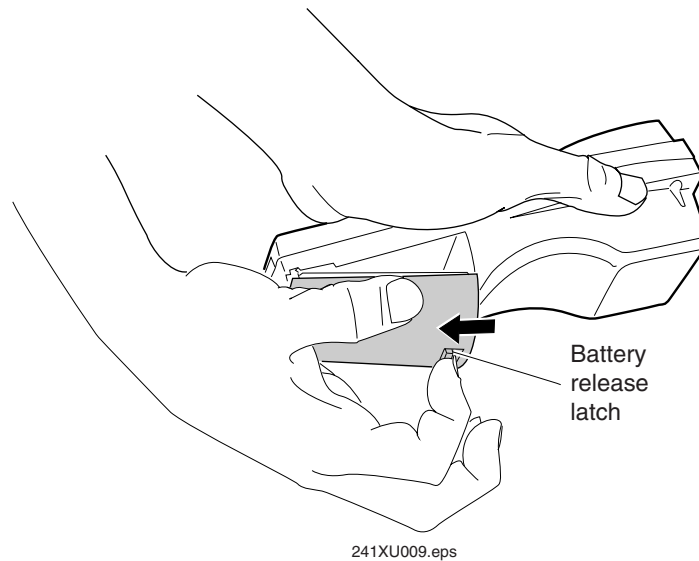


Removing the battery pack while the terminal is on may cause loss of data.

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

To remove the battery pack

- 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.



Managing Battery Power

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

Managing Battery Power

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. Be sure the dock is connected to an external power supply.

Managing Battery Power (continued)

Situation	Ways to Save Battery Power
You are not using the terminal for 5 minutes or longer.	Make sure the Battery LED is not on. Press $\text{\textcircled{V}}$ to turn off the terminal. Or, use the Automatic Shutoff feature, which turns off the terminal when there is no activity for the length of time you set. For help, see “Automatic Shutoff” in Chapter 6 of the 2400 Family system manual.
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 $\text{\textcircled{V}}$ to turn off the terminal. Insert a fully charged battery pack before you store the terminal.

Using the Keypad

This table lists the 241X’s keypad options and overlays.

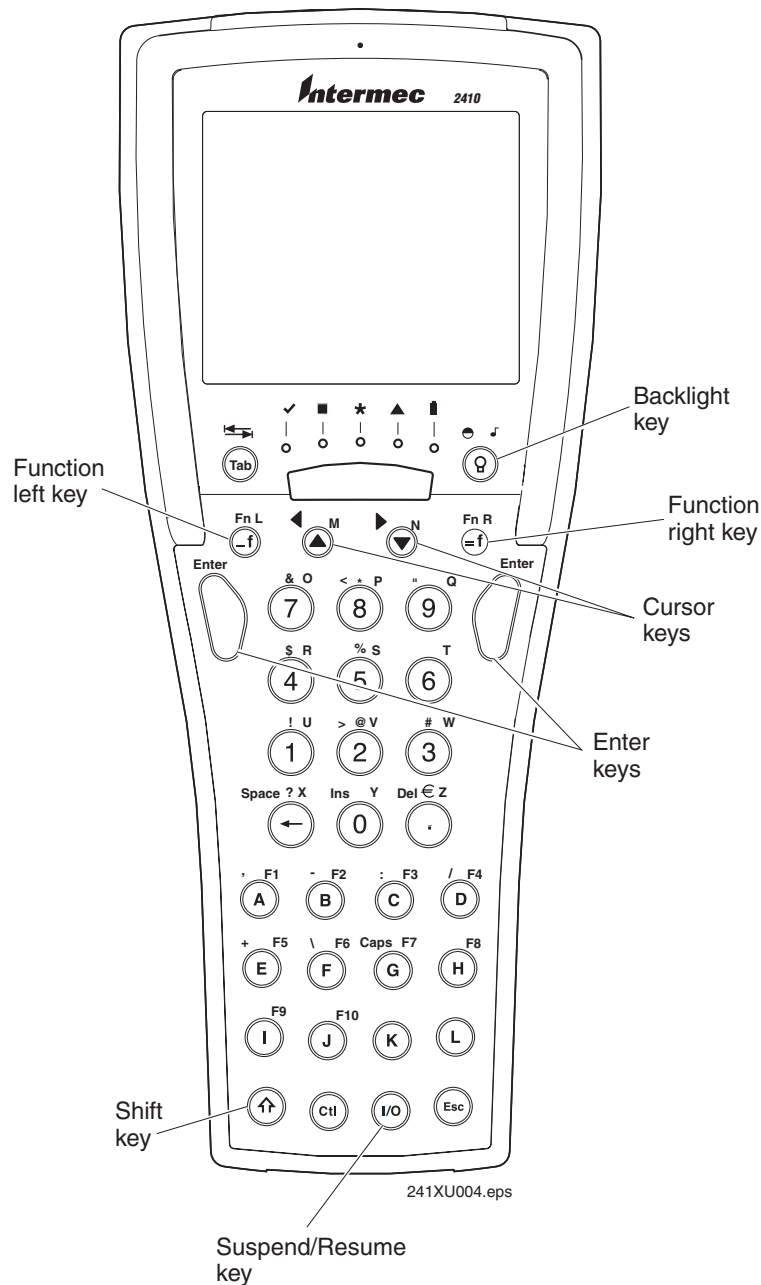
241X Keypad Options and Overlays

	55-Key Alphanumeric	37-Key Alphanumeric With Large Numeric	37-Key Function Key With Large Numeric
Programmable	X	X	X
International	X	X	X
5250 TE	X		X
3270 TE	X		X
VT/ANSI TE	X	X	X
dcBrowser	X	X	X

Although the keypads are smaller than a standard PC or terminal keyboard, you can use special keys to access all the characters and functions that you need.

Finding the Special Keys

Before you use the 241X’s keypad, make sure you are familiar with the different types of keys on the keypad. You need to use these special keys on all keypad options. 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

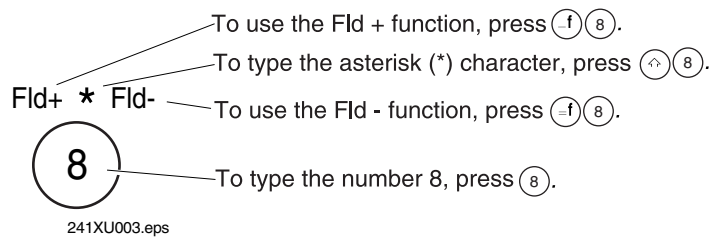
Typing the Characters Printed on the Keypad

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.

Typing Characters on the Keypad

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

You can also use the arrow keys to move the cursor around an application screen. To go up or down the screen, press (▲) or (▼). To go left or right, press (f) (▲) or (f) (▼).



Typing Characters Using the Keypad

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. If you are using 802.1x security, the terminal may reauthenticate before it starts your application. Resume is controlled through the Resume Execution command. For help, see “Resume Execution” in Chapter 6 of the 2400 Family system manual.



Note: The terminal displays the boot menu the first time you turn it on. At the boot menu, press (1) to initialize the firmware and boot the terminal.

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 Modifier Keys

The keypad does not have a physical key for every character and function available. You use the Function Left (Ⓛ), Function Right (Ⓡ), 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 Ⓛ, Ⓡ, 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 Ⓛ, Ⓡ, or ⇧ key from the buffer without performing any action, press the key again. The Modifier LED turns off.

To use the modifier keys

- 1 Press Ⓛ, Ⓡ, 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 ⓐ. The Modifier LED turns off and an A appears on the screen.

Capitalizing All Characters

To type all alphabetic characters as uppercase letters, you can

- press ⇧ before every letter you type.
- enable the Caps Lock feature. For help, continue with the next procedure.
- use the Keypad Caps Lock configuration command. For help, see “Keypad Caps Lock” in Chapter 6 of the 2400 Family system manual.

To enable Caps Lock

- 1 Press Ⓛ. The Modifier LED turns on.
- 2 (37-key function key/numeric) Press Ⓡ7.
(37-key alphanumeric/numeric) Press ⓐ.
(55-key alphanumeric) Press Ⓡ.
- 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 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 “Typing the Characters Printed on the Keypad” on page 12. This keypad also comes with the same special keys that are on the programmable overlay. For help, see “Finding the Special Keys” on page 11.



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 **(Ctrl)** key and then the key.

To type characters with a diacritical mark

- 1 (37-key) Press **(Ctrl)**. 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	Press	Press
` (grave)	(1)	(F2)
´ (acute)	(3)	(F4)
^ (circumflex)	(4)	(F1)
~ (tilde)	(5)	(1)
¨ (umlaut)	(6)	(F8)

- 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/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,” in the 2400 Family system manual.

Using the TE 2000 Keypads

The 2415 supports TE 2000 VT100/220/320/340 and ANSI, TE 2000 5250, and TE 2000 3270. When you order a TE 2000 application, you also receive the corresponding keypad overlay. TE 2000 keypad overlays let you enter the same keys that you can enter from a VT/ANSI keyboard, an IBM 5250 keyboard, or an IBM 3270 keyboard.

Like the programmable keypad overlays, the TE 2000 keypad overlay lets you enter all the characters printed on or above the keys. The TE keypad overlays also come with the same special keys that are on the programmable overlay. For help, see “Finding the Special Keys” on page 11.

For more help, see the appropriate TE 2000 guide.

Using the Screen

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

To make the screen easier to see, you can adjust the backlight and contrast from the keypad. For help, see the next section.

Adjusting the Screen With the Backlight Key



The Backlight key is a multifunction control that you can use to



- turn the screen backlight on and off.
- adjust the screen contrast.

You can also adjust the beep volume with the Backlight key. For help, see “Learning About the Audio Signals” on page 18.



Note: When you use this key to change the backlight or contrast, 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 6 of the 2400 Family system manual.



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

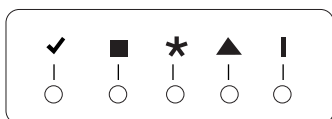
To change the screen contrast

- Press  . Each time you press  , it makes the display contrast one level darker.

There are 8 contrast levels. If the contrast is at the darkest level and you press  , the contrast changes to the lightest contrast level.

Learning About the Status LEDs



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



241XU007.eps

241X LEDs: This illustration shows the position of the LEDs on the 241X. See the next table for a description of each LED.

Status LED Descriptions

LED	Name	Description
	Good Read	This LED turns on when you successfully scan a bar code label. This LED turns off after two seconds.
	User Defined	This LED is user defined. You can use the Trakker Antares Programmer's Software Kit (PSK) to program this icon to turn on and off for any task or error within your application. For help, see the <i>Trakker Antares Application Development Tools System Manual</i> (P/N 064433).

Status LED Descriptions (continued)

LED	Name	Description										
✱	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.										
		<table border="1"> <thead> <tr> <th>Network Protocol</th> <th>LED Off</th> <th>LED Blinks</th> <th>LED On</th> </tr> </thead> <tbody> <tr> <td>TCP/IP</td> <td>Not connected.</td> <td>Nothing.</td> <td>Connected to an access point.</td> </tr> <tr> <td>UDP Plus or WTP</td> <td>Not connected.</td> <td>Connected to an access point, but not to an Intermec Gateway or DCS 30X.</td> <td>Connected to an Intermec Gateway or DCS 30X.</td> </tr> </tbody> </table> <p>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.</p> <p>In a UDP Plus or WTP network, this LED is not instantaneously updated, but does tell you the communications status the last time data was sent or received from the terminal.</p>	Network Protocol	LED Off	LED Blinks	LED On	TCP/IP	Not connected.	Nothing.	Connected to an access point.	UDP Plus or WTP	Not connected.
Network Protocol	LED Off	LED Blinks	LED On									
TCP/IP	Not connected.	Nothing.	Connected to an access point.									
UDP Plus or WTP	Not connected.	Connected to an access point, but not to an Intermec Gateway or DCS 30X.	Connected to an Intermec Gateway or DCS 30X.									
▲	Modifier	<p>This LED indicates that one of the modifier keys, such as Ⓜ, is enabled. 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.</p> <p>If Caps Lock is enabled, this LED remains on until you disable Caps Lock.</p>										
▮	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.										

Learning About the Audio Signals

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 and the beep duration 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 you hear when you press a key on the terminal.

There are three ways to change the beep volume:

- Use the Backlight key (press Ⓜ Ⓟ) on the keypad. Each time you press Ⓜ Ⓟ , 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 Ⓜ Ⓟ , the beep volume is turned off. If you press Ⓜ Ⓟ again, the volume changes to the quietest level.



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

- 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 6 of the 2400 Family system manual.

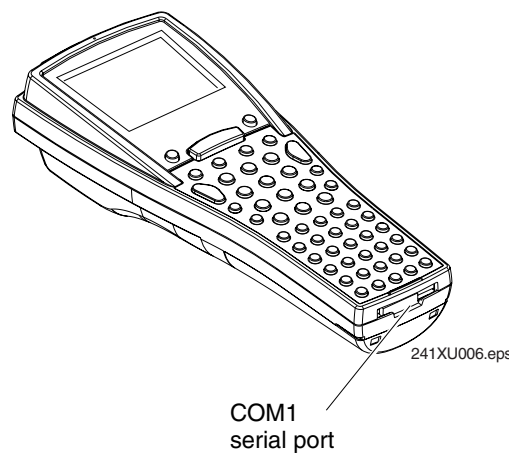
The next table explains the purpose of the audio signals you may hear.

Audio Signals

Audio Signal	Situation
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” on page 58.
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” on page 7.
Low beep, high beep	Your 802.1x terminal has been authenticated.
High beep, low beep	Your 802.1x terminal is not authenticated. For help, see “Problems While Configuring 802.1x Security” on page 64.
Click	You have pressed a key and the Keypad Clicker command is enabled. To disable the keyclick, see “Keypad Clicker” in Chapter 6 of the 2400 Family system manual.

Using the Terminal’s Serial Port

The 241X supports RS-232 serial communications through the serial port.



COM port: This illustrations shows the location of the physical COM port on the 241X.

COM Port Descriptions

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 <i>Trakker Antares TD2410 Communications Dock Quick Reference Guide</i> (P/N 069552).
RF (NET)	Use for RF communications on the 2415. The Trakker Antares PSK functions use NET to designate the RF network port.

You can also connect input devices to the serial port using special cables. For help, see “Connecting an Input Device” on page 22.

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.

Attention Danger: 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
- PDF417 (241X terminals with the integrated PDF417 scanner option only)

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 6, “Configuration Command Reference,” in the 2400 Family system manual.



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

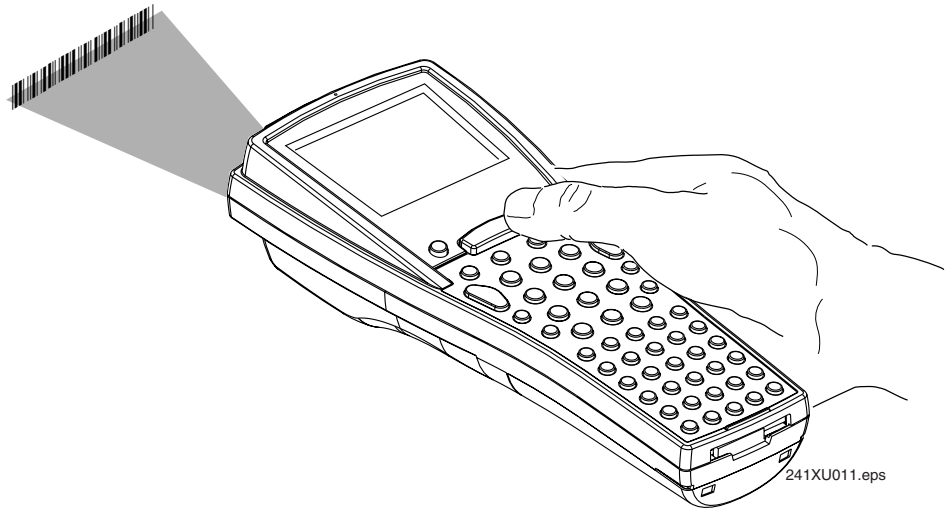
To scan a bar code label with the scanner

- 1 Press $\text{\textcircled{0}}$ 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.



Note: If you are scanning a PDF417 label, point the terminal slightly above or below the label and press the Scan button. Pass the beam over the label in a steady sweeping motion. The 241X emits an audible crackling sound indicating that the terminal is successfully scanning the bar code.

When the terminal successfully reads the label, you will hear a high beep.

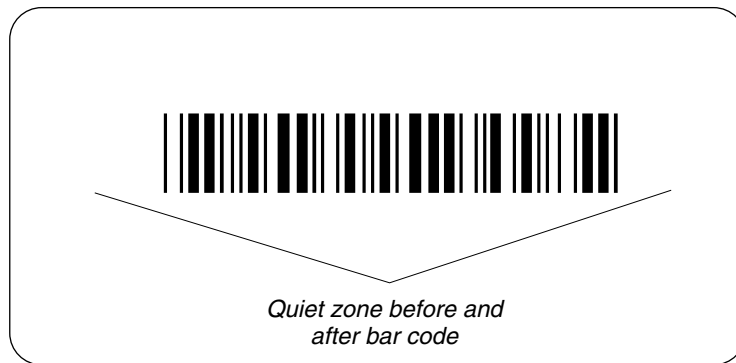


The Good Read LED turns on when you successfully scan a bar code label with the scanner or the input device that is connected to the terminal. This LED turns off after 2 seconds unless you start scanning another label.



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” on page 22.

- 4 Release the Scan button.



241XU012.eps

Quiet zone: To successfully read a bar code label, the laser beam in the scan module must see all the bars in a label and a clean, non-printed space, or “quiet zone,” at each end of the label.

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). 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.

Connecting an Input Device

You connect an input device (such as a wand scanner) to the serial port. You can either use the special cable for the input device or you can use a standard cable with special adapter cables (P/N 069591 or P/N 069589). For an updated list of available input devices, contact your local Intermecc representative.

Once you have connected the input device to the terminal, you may need to configure the Scanner Selection command to optimize the scanning performance. For help, see “Scanner Selection” in Chapter 6 of the 2400 Family system manual.

Scanning Options

After you connect an input device to the 241X, you can modify the following scanner command options to meet your needs:

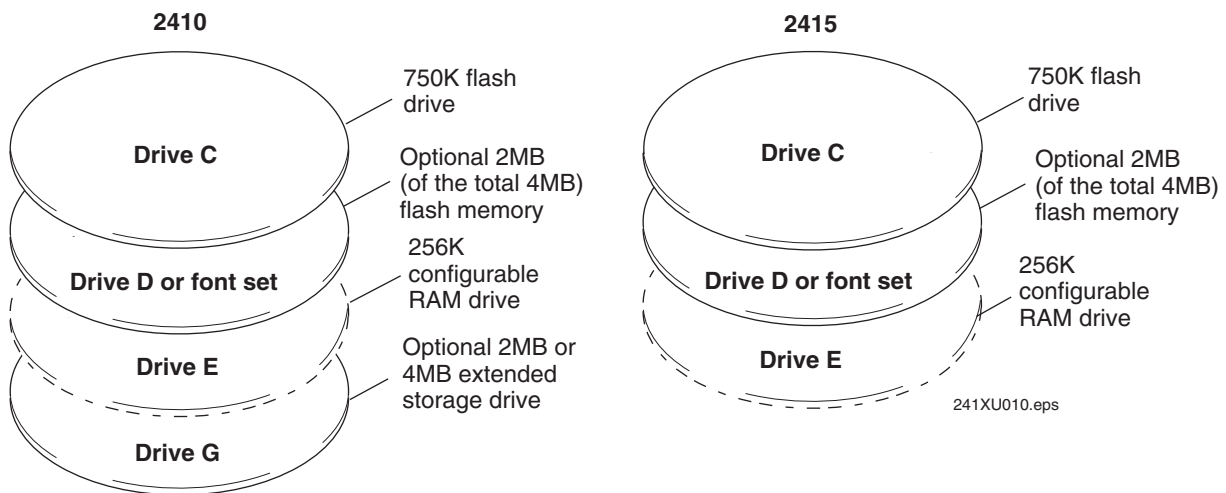
- Decode Security
- Scan Ahead
- Scanner Mode

- Scanner Redundancy
- Scanner Selection
- Scanner Timeout
- Scanner Trigger

For more information on these commands, see Chapter 6, “Configuration Command Reference,” in the 2400 Family system manual.

Defining the Terminal’s Drives

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



2410 and 2415 Terminal Drives

Drive C

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

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 on drive D. You can also use the 4MB flash memory option to store double-byte fonts. To configure this flash memory, see “Configuring Drives and Memory on the Terminal” on page 35.



Note: : If you have a terminal with the 802.1x TTLS security option, drive D is not available to store files or double-byte fonts. For more information about configuring 802.1x TTLS security, see “Configuring 802.1x TTLS Security” on page 53.

Drive E

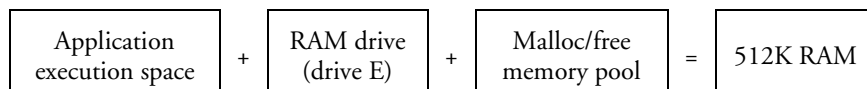
Drive E is a configurable RAM drive (up to 256K). The contents of this drive are erased when you boot or reset the terminal. You use standard ANSI C functions to access the files on this drive. You can store up to 128 files on drive E. By default, the RAM drive is not configured, and the memory is available for programmable (Malloc) memory allocations. To configure the RAM drive, see “RAM Drive Size” in Chapter 6 of the 2400 Family system manual.

Drive G

Drive G (optional) is a 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.

Malloc or Free Memory

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.





2 Configuring the Terminals

This chapter explains the different methods that you can use to configure the 241X and its memory and drives. It also explains how to configure the terminals using the TRAKKER Antares 2400 Menu System.

This chapter covers these topics:

- How to configure the terminal
- Configuring the terminal with the menu system
- Configuring drives and memory on the terminal

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 parameters determine how the terminal operates. To learn about each configuration parameter, see Chapter 6, “Configuration Command Reference,” in the *Trakker Antares 2400 Family System Manual* (P/N 071389).

You can configure the terminals by using any of the following methods.

Use the TRAKKER Antares 2400 Menu System

You can use the menus and screens of the TRAKKER Antares 2400 Menu System to view the current configuration and change the configuration parameters. For help, see “Configuring the Terminal With the Menu System” on page 27.

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 and the 2400 Family system manual, or you can create your own bar code labels. For help, see Chapter 2, “Configuring and Managing the Terminals,” in the 2400 Family system manual.

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. For help, see Chapter 2, “Configuring and Managing the Terminals,” in the 2400 Family system manual.

Send Commands Through the RF Port (2415 Only)

You can change the terminal’s configuration parameters by sending commands through the UDP Plus or TCP/IP network. This method lets you configure one or more terminals at the same time. For help, see Chapter 2, “Configuring and Managing the Terminals,” in the 2400 Family system manual.

Use the Clone Application

You can set the terminal’s configuration parameters by using the clone application to copy parameters from one 241X to another 241X. This method is a fast, easy way to configure a new 241X with the same parameters as an existing 241X. For help, see Chapter 2, “Configuring and Managing the Terminals,” in the 2400 Family system manual.

Use the Wavelink Avalanche Manager

You can send configuration information to multiple terminals in your RF network using the Wavelink Avalanche client management system and the Intermec Settings application. For help, see Chapter 2, “Configuring and Managing the Terminals,” in the 2400 Family system manual.

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.

Configuration Descriptions

Configuration	Description
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 Intermec Gateway or DCS 30X, 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. To restore the default configuration, see “Restoring the Terminal’s Default Configuration” in Chapter 2 of the 2400 Family system manual.

Configuring the Terminal With the Menu System

The TRAKKER Antares 2400 Menu System 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

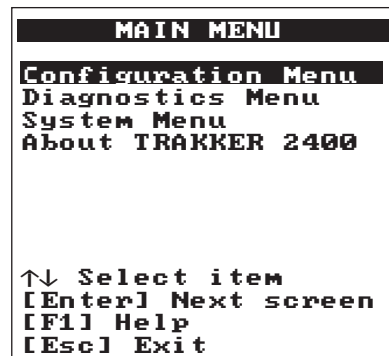
- Press (f) 1 2 4 8 or scan this bar code:

TRAKKER Antares 2400 Menu System



..

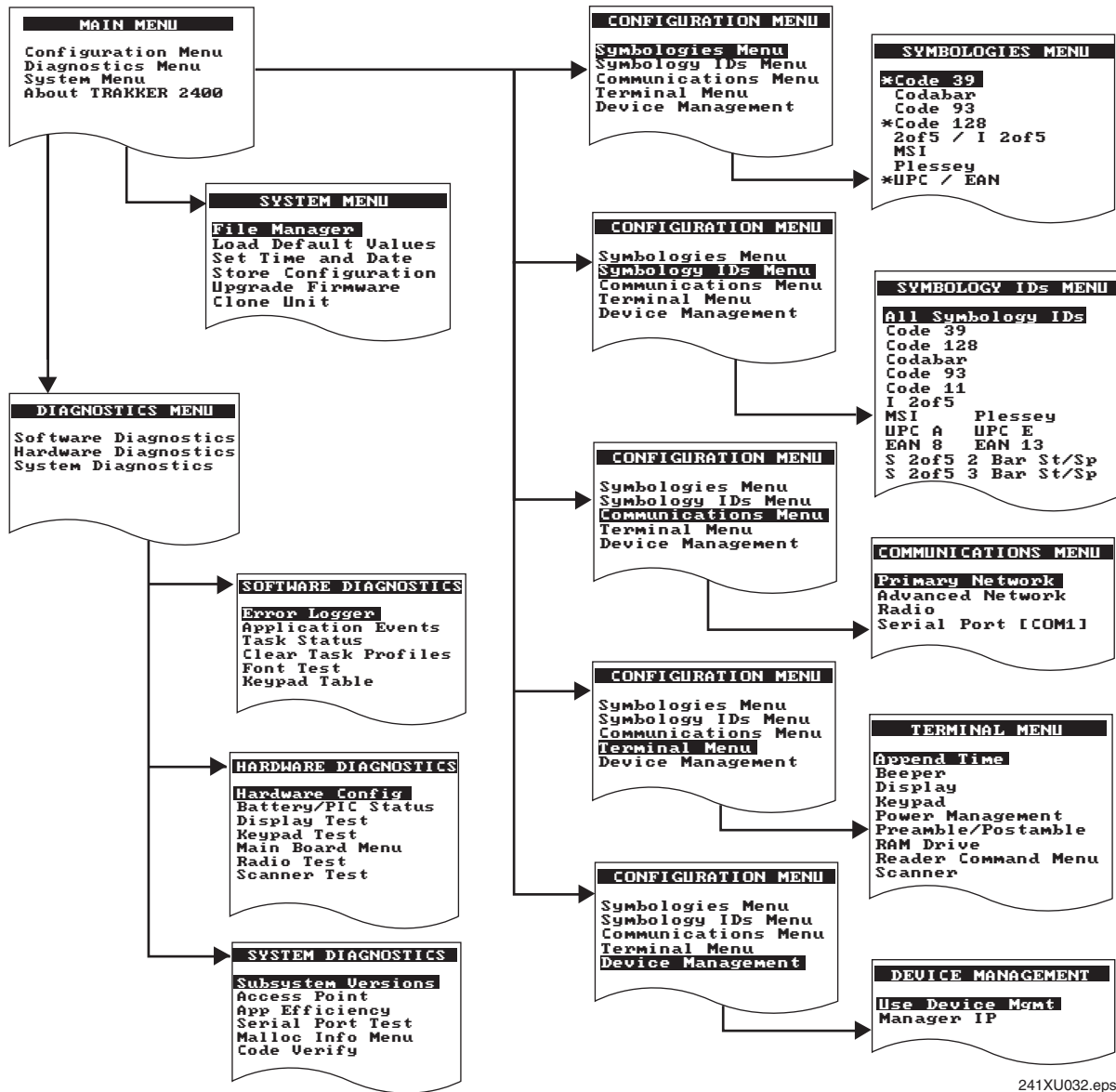
The Main Menu appears, displaying four menu options.



241XU050.eps

Main Menu Options

Menu	Description
Configuration	Choose this menu to configure bar code symbologies, network and communications parameters, serial port parameters, and the terminal's operating characteristics. In the Symbologies Menu, active symbologies are noted with an asterisk (*).
Diagnostics	Choose this menu to run hardware, software, or system diagnostics to help analyze and fix problems. You can also view battery and system information. For help, see Chapter 4, "Running Diagnostics," in the 2400 Family system manual.
System	Choose this 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, WTP, or TCP/IP), and security (WEP, 802.1x TTLS, or 802.1x LEAP) that is loaded on the terminal. You may need this information if you are working a problem with an Intermec representative. If you are using a DHCP server, this menu option also displays the DHCP-assigned IP address.



241XU032.eps

The TRAKKER Antares 2400 Menu System at a Glance

Accessing Online Help

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

To access a help screen

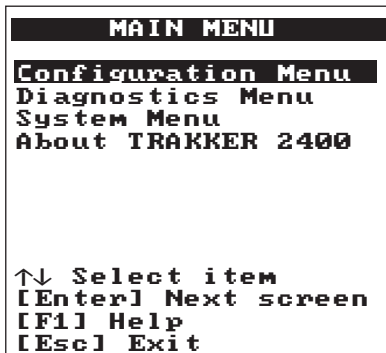
- Press **F1** to access a help screen.

To exit a help screen

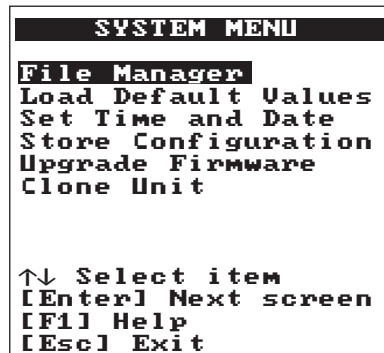
- Press **Esc** to exit the help screen.

Selecting Menus and Commands

A menu consists of a list of secondary menu items or commands. From the Main Menu, you can press \uparrow or \downarrow or Tab to select a menu and then press O or O .



241XU050.eps



241XU034.eps

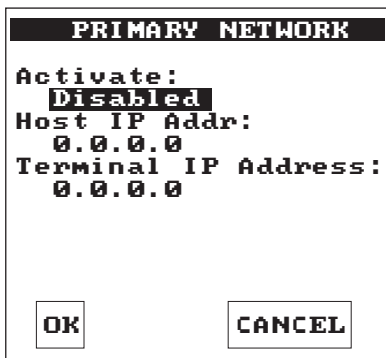
Selecting Menus and Commands: For example, from the Main Menu, press \downarrow \downarrow O to display the System Menu.

Filling In Fields

Screens contain fields into which you can enter data. In the TRAKKER Antares 2400 Menu System, this data configures the terminal. You can press \uparrow or \downarrow or Tab to choose a field on a screen and then enter the data.

There are two types of fields: entry fields and toggle fields.

- In a toggle field, press f \uparrow or f \downarrow 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 (\leftarrow) or Space (f \leftarrow) keys. You can also use the Delete (f O) and Insert (f O) keys to edit an entry field.



241XU037.eps

Toggle and Entry Fields: For example, the Primary Network screen has toggle and entry fields. The Activate field is a toggle field. Press f \uparrow to toggle between Disabled and 802.11 DS or OpenAir. The Host IP Address and Terminal IP Address fields are entry fields. You type a value into the field for each IP address.

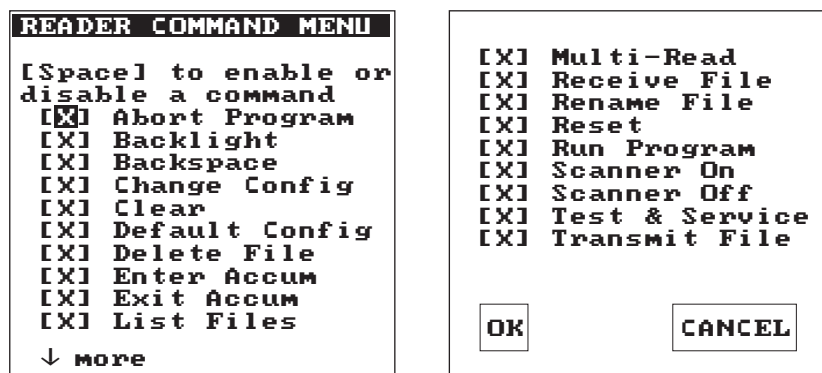
To exit a screen

- To save the changes to the current configuration file, press \blacktriangle or \blacktriangledown or Tab to choose OK and press O . Or, press O with the cursor in any field except the Cancel button.

Or, to discard the changes, press \blacktriangle or \blacktriangledown or Tab to choose Cancel and press O . Or, press Esc with the cursor in any field.

Marking Check Boxes

Screens may contain check boxes. Check boxes are used when you can select more than one option at one time. To mark or clear check boxes, press f \leftarrow .



241XU038.eps

Marking Check Boxes: For example, press \blacktriangle or \blacktriangledown or Tab to choose the Abort Program check box and press f \leftarrow to clear the check box. The Abort Program reader command is now disabled.

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 6, “Configuration Command Reference,” in the 2400 Family system manual.

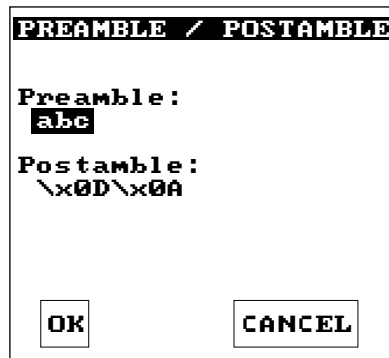
You can configure the postamble or preamble to characters from the full or extended ASCII character sets. For example, the Field Exit code (Ü) for 5250 terminal emulation is an extended ASCII character that is often configured as the postamble.

To enter ASCII characters for a preamble or postamble

- 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 of the 2400 Family system manual and find the two-digit hexadecimal number. For example, ETX in the Full ASCII Table is the hexadecimal value 03.

To enter an extended ASCII character, look up the character in the “Trakker Antares Terminal Font Set” in Appendix C of the 2400 Family system manual 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. Choose **Main Menu > Configuration Menu > Terminal Menu > Preamble/Postamble**.



241XU040.eps

- 3 Move the cursor to the field for the preamble or postamble.
- 4 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:

`\xhh`

where *hh* is the two-digit hexadecimal number for the control character or the extended ASCII character. For example, to enter ETX as a preamble, type:

`\x03`

To enter Ü (the 5250 TE Field Exit code) as the postamble, type:

`\x9A`

- 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 characters. For example:

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

- 5 Press `⏎` or choose **OK** to save your changes and exit the screen.

For help exiting the menu system, see the next two sections, “Exiting Screens and Saving Changes” and “Exiting the Menu System.”

Exiting Screens and Saving Changes

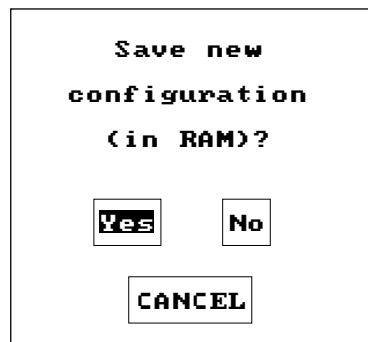
When you exit a screen, you can save or discard your changes:

Exiting Screens and Saving Changes

Task	Description
To exit a screen and save the changes	Choose OK and press ↵ . You can also press ↵ with the cursor positioned anywhere except on the Cancel button.
To exit a screen and discard the changes	Choose Cancel and press ↵ . You can also press ↵ with the cursor in any field.

Exiting the Menu System

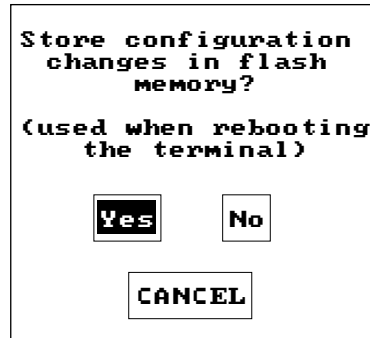
- 1 Press **Esc** until you exit the TRAKKER Antares 2400 Menu System. If you have made any changes to the current configuration, this screen prompts you to save the configuration parameters that are currently enabled on the terminal to RAM.



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

Or, choose **No** and press **↵** to exit without changing the configuration. The Main Menu appears.

Or, 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.



241XU051.eps



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” in Chapter 2 of the 2400 Family system manual.

- 4 Choose **Yes** and press \square to save your changes in RAM and update the current configuration on the terminal. The Main Menu appears.
- 5 Choose **Yes** and press \square 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.

Or, choose **No** and press \square to exit without saving. The terminal continues to use your changes until you boot or reset the terminal. The Exiting TRAKKER Antares 2400 Menu System screen appears.

Or, choose **Cancel** and press \square to return to the Main Menu.



241XU042.eps

- 6 Choose **OK** and press \square to exit the TRAKKER Antares 2400 Menu System.

Or, choose **Cancel** and press \square 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 Drives and Memory on the Terminal

The 241X comes with a 750K flash drive(C), 512K RAM reserved for applications, and an additional 2MB extended flash memory. You can customize the terminal to your needs by configuring

- up to 256K of the 512K RAM as a RAM drive.
- the additional 2MB flash memory of the 4MB flash memory option to either store double-byte fonts or to use as a 2MB drive.

Configuring the RAM Drive

The 241X has a total of 512K RAM for the application execution space. You can configure up to 256K of the total 512K application execution space as a RAM drive. If the RAM drive is configured, your application execution space is reduced by the amount of the RAM drive.

For example, if your application size is 64K and drive E is configured as a 256K RAM drive, you are using 320K of the 512K application execution space. The application uses the remaining 192K of RAM as a Malloc/free dynamic memory pool.

By default, the RAM drive is not configured and the memory is available for applications. You can configure the size of the RAM drive (E) and use drive E to temporarily store data and files (up to 128 files).

After you disable or configure the RAM drive, you must save the configuration in flash memory and boot the terminal for the change to take effect. For help, see “Saving Configuration Changes in Flash Memory” in Chapter 2 of the 2400 Family system manual.



Note: When you boot or reset the terminal, all files on the RAM drive are destroyed.

For help configuring the RAM drive, see “RAM Drive Size” in Chapter 6 of the 2400 Family system manual.

Configuring Flash Memory

If you ordered the optional 4MB flash memory drive, you have an additional 2MB of extended flash memory. You can use this flash memory either to store double-byte fonts or to use as a 2MB drive. By default, the additional 2MB of flash memory is configured to store a double-byte font set (up to 2MB maximum).



Note: The 4MB flash memory is required for 802.1x TTLS security and is not available to store files or double-byte fonts. For more information about configuring 802.1x TTLS security, see “Configuring 802.1x TTLS Security” on page 53.

If you are not using double-byte fonts, you can configure the 2MB flash memory as a storage drive (D). If you configure the flash memory as drive D, use this drive to store large lookup tables and data files (up to 128 files).

You can only configure the 2MB flash memory as a drive or to store fonts. You cannot use the space for both. If you configure drive D, you cannot also store a font in flash memory.

For help configuring flash memory, see “Flash Memory Configuration” in Chapter 6 of the 2400 Family system manual. For help loading double-byte fonts, see “Loading Double-Byte Fonts” in Chapter 2 of the 2400 Family system manual.



3 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.

This chapter covers these topics:

- How the terminals fit into your network
- Using serial communications on the terminal
- Using RF communications on the 2415
- Enabling 802.1x TTLS or LEAP security

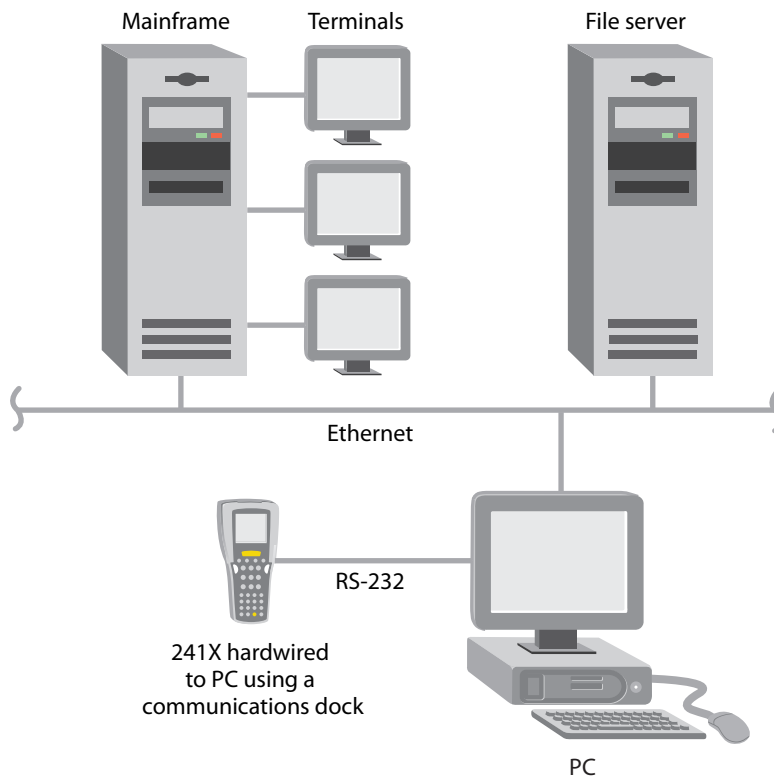
How the Terminals Fit Into Your Network

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.

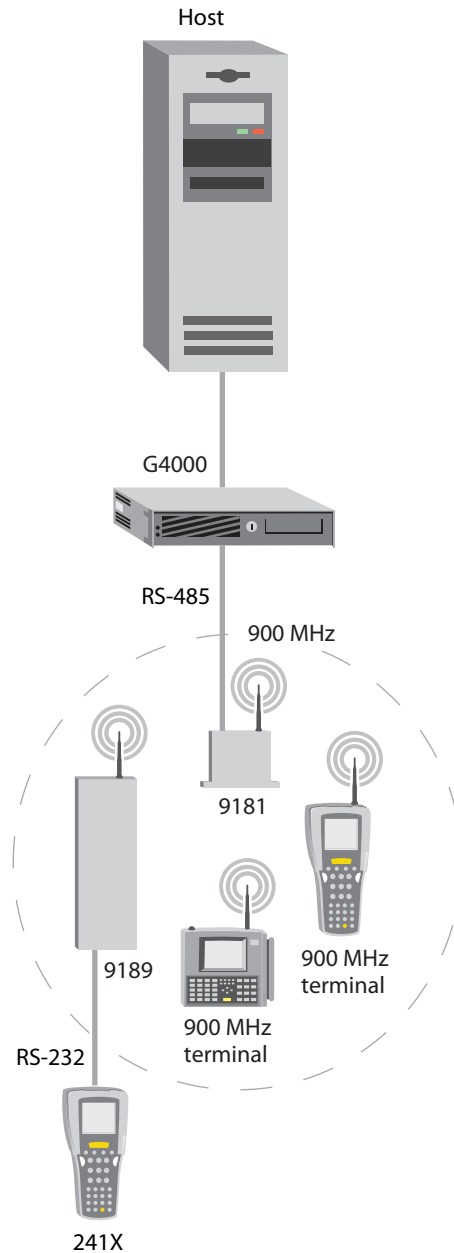


Note: If you insert the terminal into a communications dock, you can transmit data to and receive data from a host computer or PC via RS-232 serial communications.



241X in a Wired Network

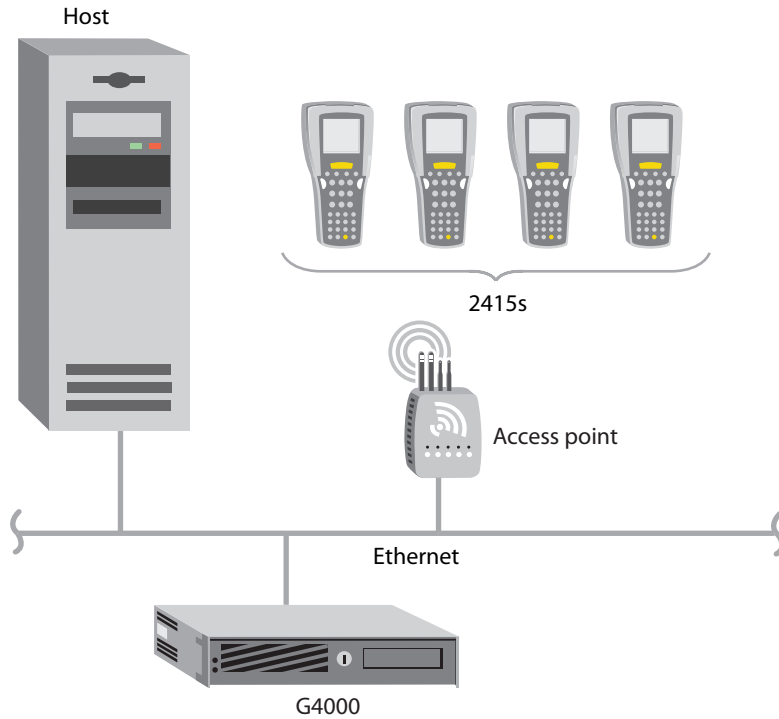
You can also use the serial port to connect to a 900 MHz RF network via the 9189 RF Gateway. The terminal communicates with the 900 MHz RF network using Polling Mode D protocol.



241X in a 900 MHz RF Network

UDP Plus or WTP Network

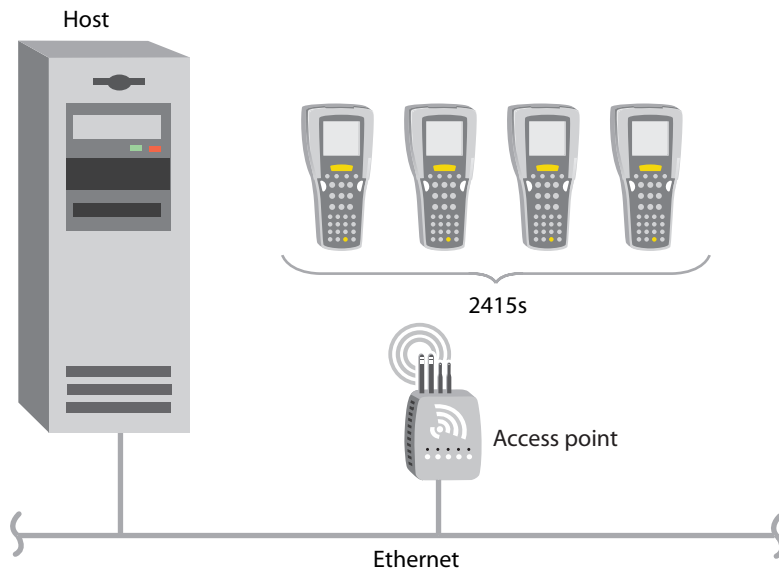
In a UDP Plus or WTP network, 2415s communicate with a host computer through the G4000. The UDP Plus or WTP packets are translated on the RF network into TCP/IP packets on the wired network and vice versa. The access point acts as a bridge between the wired network and the RF network.



2415s in a UDP Plus or WTP Network

TCP/IP Direct Connect 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.

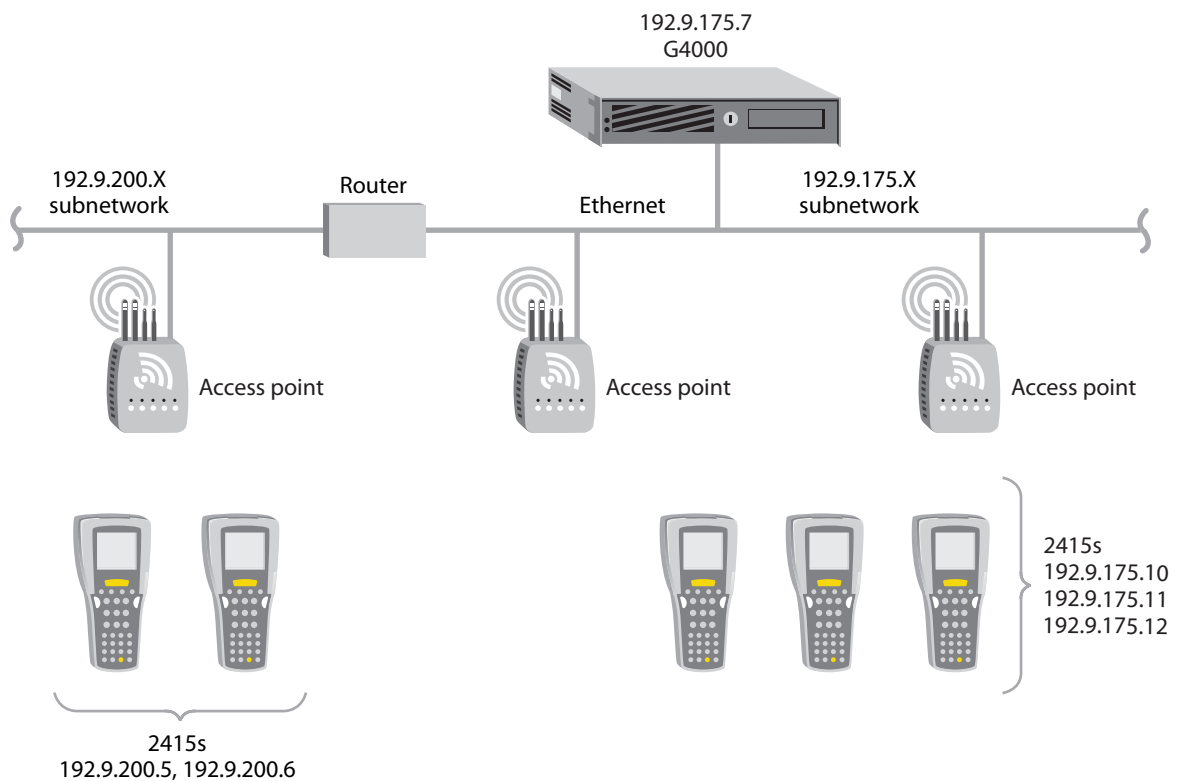


2415s in a TCP/IP Direct Connect Network

Multiple Subnetworks (UDP Plus)

In a UDP Plus network, you can install 2415s, access points, and the G4000 as shown in the next illustration. All the terminals and access points in this illustration communicate with the G4000 at IP address 192.9.175.7.

If you are using MobileLAN™ access points, a terminal can roam across subnetworks. However, to roam across subnetworks, all terminal IP addresses must belong to the root IP subnet. In this illustration, if the root IP subnet is 192.9.175.X and all terminals had a terminal IP address of 192.9.175.X, they could roam across subnetworks. For more information, see the *MobileLAN access System Manual* (P/N 067150).

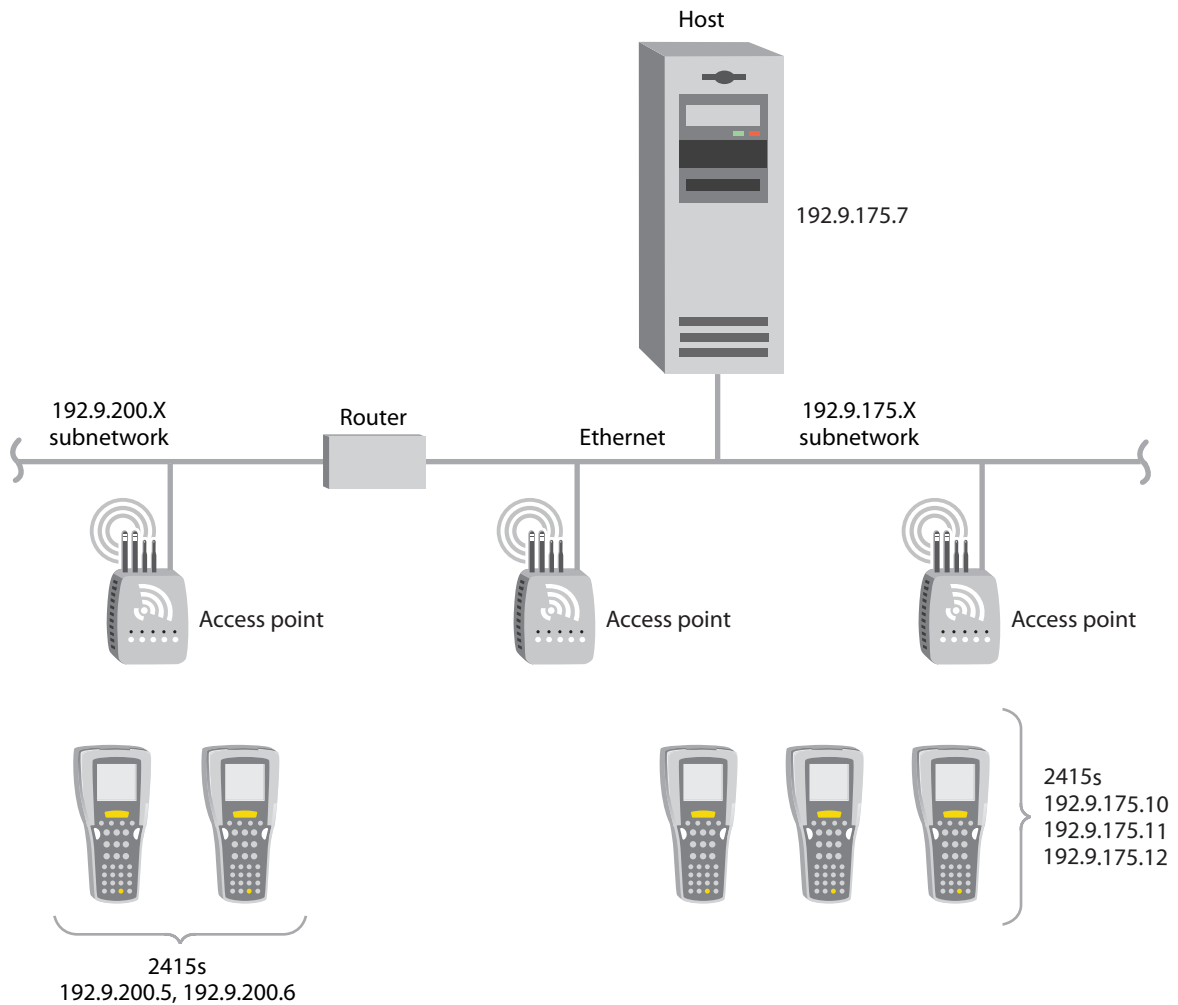


2415s in Multiple Subnetworks (UDP Plus)

Multiple Subnetworks (TCP/IP)

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.

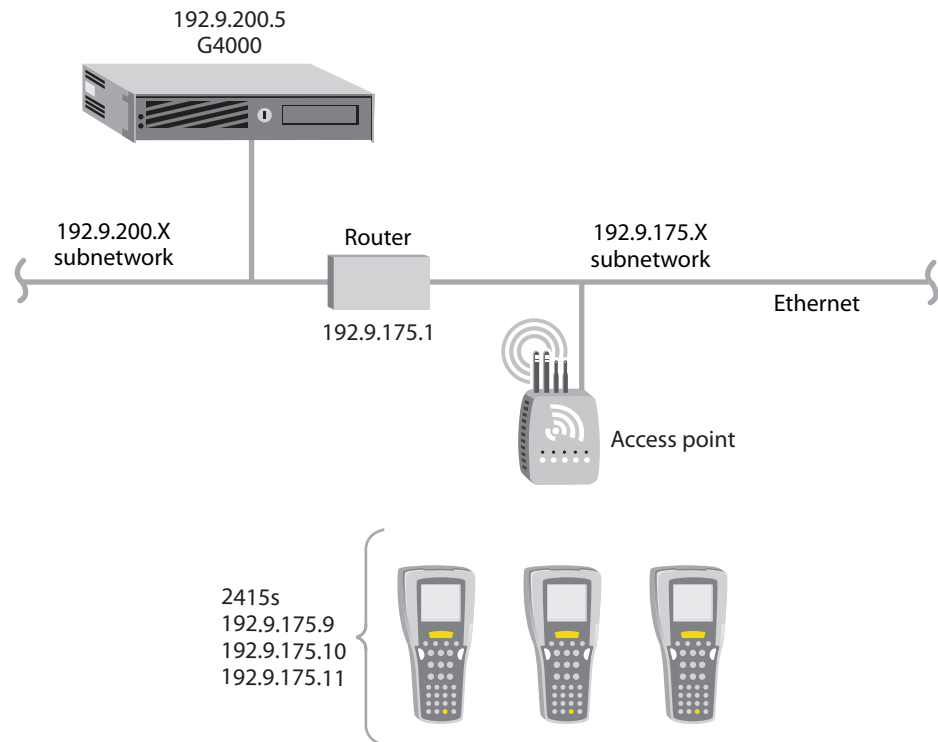
If you are using MobileLAN access points, a terminal can roam across subnetworks. However, to roam across subnetworks, all terminal IP addresses must belong to the root IP subnet. In this illustration, if the root IP subnet is 192.9.175.X and all terminals had a terminal IP address of 192.9.175.X, they could roam across subnetworks. For more information, see the *MobileLAN access System Manual*.



2415s in Multiple Subnetworks (TCP/IP)

Communicating Across Subnetworks (UDP Plus)

You can install 2415s and access points in one subnetwork and install the G4000 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 G4000 in another subnetwork from the terminals.



2415s Communicating Across Subnetworks (UDP Plus)

Using Serial Communications on the Terminal

The terminals have a serial port (COM1) to transfer data to and receive data from another device via RS-232 serial communications. You can also insert the terminal into a communications dock to transmit data to and receive data from a host computer or PC via 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” on page 19.

Or, insert the terminal into the communications dock. For help, see the *Trakker Antares TD2410 Communications Dock Quick Reference Guide* (P/N 069552).

- 2 Choose a communications protocol. For help, see the next section, “Choosing a Communications Protocol.”
- 3 Configure the serial port parameters. For help, see Chapter 2, “Configuring the Terminals.”

Depending on the protocol you chose in Step 2, you must set some or all of the serial port parameters to have the terminal communicate with a host computer or serial device in a wired network. The values you set for the terminal’s serial port parameters must match the values set for the host’s (or other device’s) serial port parameters.

Choosing a Communications Protocol

After you connect the 241X to a host computer or other serial device, you are ready to configure the serial port parameters on the two devices. The terminal uses a communications protocol and XMODEM, XMODEM1K, or YMODEM to handle data communications through the serial ports.

You can configure a different communications protocol for each COM port. The terminal’s built-in file operations use XMODEM, XMODEM1K, or YMODEM for file transfer.

Communications protocols determine exactly how data is transmitted between the terminal and the connected device. Each protocol has parameters you can set, such as baud rate and parity. Both the terminal and the connected device must use the same protocol and parameter settings to communicate properly. For help with protocols, see the *Data Communications Reference Manual* (P/N 044737).

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, and DLE characters are not stripped out of the incoming data stream. No protocol characters, such as EOM or SOM, are added. Binary mode supports CTS/RTS flow control.

You can configure the following serial port parameters:

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

Configurable Protocol

Configurable protocol is based on Intermecc'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.

You can configure the following serial port parameters:

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

Configurable protocol uses EOM to determine one of the following serial communications modes.

Character Mode

When EOM is disabled, the terminal communicates in Character mode processing each character. Character mode supports both XON/XOFF and CTS/RTS flow control.

Frame Mode

When EOM is enabled, the terminal communicates in Frame mode. When a terminal sends a packet, it adds a protocol character. 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 configure the following serial port parameters:

- Configuration commands via serial port
- Handshake
- LRC
- SOM

After you enable Handshake, 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 poll sequence and waits for data or the RES character (no data is available to send).

You can configure the following serial port parameter:

- 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)

With 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 the host computer to ask the terminal for data it may have (polling) and to request to send data to the terminal (selecting). This protocol uses an RS-232 interface and implements the user interface through reader commands. Polling Mode D also supports XON/XOFF and CTS/RTS flow control.

You can configure the following serial port parameters:

- Baud rate
- Flow control

Using RF Communications on the 2415



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.

Attention: 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.

The 2415 has an internal antenna to transfer data using RF communications. Before you can use RF communications, you need to perform these steps:

- 1 Plan and prepare your network. For help, see the next section, “Planning the Network Connection.”
- 2 (UDP Plus or WTP network only) Configure the Intermec Gateway or DCS 30X. For help, see “Configuring the Intermec Gateway or DCS 30X” on page 49.
- 3 Configure the access points and radios. For help, see “Configuring the Access Points” on page 50.
- 4 Configure the network parameters on each terminal in the network. For help, see “Configuring the 2415 Network Parameters” on page 51.
- 5 (802.1x security) Configure the 802.1x security parameters on each terminal in the network. For help, see “Configuring the 802.1x Security Parameters” on page 52.



Note: You can also configure parameters for multiple terminals in your RF network using the Wavelink Avalanche client management system and the Intermec Settings application. For help, see Chapter 2, “Configuring and Managing the Terminals,” in the *Trakker Antares 2400 Family System Manual* (P/N 071389).

The set of network parameters you need to configure depends on whether you install the terminal on the same subnetwork as the Intermec Gateway or DCS 30X (UDP Plus or WTP) or host (TCP/IP) or on a different subnetwork. For help determining which network parameters you must configure, see “Configuring the 2415 Network Parameters” on page 51.

When you begin using the 2415, you need to understand how to use the LEDs to monitor the RF communications. For help, see “Monitoring RF Communications Using the Status LEDs” on page 56.

Planning the Network Connection

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

- Intermec Gateway or DCS 30X (UDP Plus or WTP network)
- 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. This manual assumes that a site survey is complete and the access points are installed in your facility.

You need to work with your network administrator to plan and assign the IP address for each device in the RF network. You need to assign and set the IP address for each access point (RF) and each 2415. If you are using a UDP Plus or WTP network, you also need to assign an IP address to the Intermec Gateway or DCS 30X.

Configuring the Intermec Gateway or DCS 30X



Note: The Intermec Gateway is pre-installed on the G4000 Server Appliance.

The Intermec Gateway and DCS 30X support and manage communications with other devices in the UDP Plus or WTP network. When you install and configure the Intermec Gateway or DCS 30X, you identify the host computers and 2415 terminals in your network.

In a UDP Plus network, the terminals communicate using a reliable RF protocol (UDP Plus) through the access points to the Intermec Gateway or DCS 30X. The Intermec Gateway or DCS 30X translates UDP Plus to a reliable wired protocol (TCP/IP) and sends the data to the host. For more information, see the *Intermec Gateway User's Guide* (P/N 072245) or the user's manual for the DCS 30X.

In a WTP network, the terminals communicate to the Intermec Gateway or DCS 30X through the access points connected to the Ethernet network. For more information, see the appropriate TE 2000 manual.



Note: You can use a 2415 running TCP/IP and the Intermec Gateway or DCS 30X in a pass-through network. You establish a direct TCP/IP socket connection from the 2415 to the host through the server.

To allow the 2415 to communicate with the Intermec Gateway or DCS 30X, you need to perform these tasks on the server:

- Define the host communications parameters, which includes the physical connection (network adapter cards) to the host.
- Define the host environment parameters, which includes configuring for terminal emulation or client/server applications.
- Configure the UDP Plus or WTP network.
- Assign an IP address to each 2415.

If you are using a DHCP (Dynamic Host Configuration Protocol) server in a UDP Plus or TCP/IP network, you can leave the default terminal IP address as 0.0.0.0 to enable the 2415 as a DHCP client. For help, see “DHCP (Terminal)” in Chapter 6 of the 2400 Family system manual.

- Enable all 2415 terminals.

To use dcBrowser, you do not define the host environment parameters. You need to:

- create an HTML application.
- configure the dcBrowser gateway.

Configuring the Access Points

Access points act as bridges to provide communications between the wired network and the RF (UDP Plus, WTP, or TCP/IP) networks. After you configure the network, you can collect data anywhere within range of the access points in the wireless network. When you move out of range of one access point, the 2415 automatically searches for other access points to continue the network connection.

If you are out of range of all access points in the network, the data is stored in the terminal’s radio buffer. The Network Connect status icon 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 terminal 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. In a UDP Plus or WTP network, the session is maintained any time the terminal is out of range or in Suspend mode.

To communicate through the network, all RF terminals and access points must contain the same type of radio, either a WLI Forum OpenAir or an

IEEE 802.11b radio. Depending on the radio in the terminal, you must set certain parameters to the same configuration on both the terminal and the access points.

OpenAir Radio

To use OpenAir radios in your network, you need to configure:

- Domain. On the access points, the Domain parameter is called the LAN ID (Domain) parameter.
- Security Identification (ID). The Network Activate command must be configured to 2.4 GHz RF network before you can save any changes to the Security ID parameter.

These parameters must be set to the same values on the terminals and the access points. Each access point is configured with a different channel/subchannel combination.

802.11b Radio

To use 802.11b radios in your network, you need to configure:

- Network Name. On the access points, the Network Name parameter is called the SSID (Network Name) parameter. This parameter is case-sensitive.

On the terminal, you can also set the Network Name parameter to “ANY” or leave the field blank, allowing the terminal to communicate with any access point that has the same radio and is within range. However, Intermec recommends that you define a unique network name.

- WEP Encryption. If you are using 802.1x security, you do not configure WEP Encryption.
- (802.1x security) User Name and Password. For more information about configuring the terminal for 802.1x security, see “Configuring the 802.1x Security Parameters” on page 52.

The Network Name and WEP Encryption parameters must be set to the same value on the terminals and the access points.

Configuring the 2415 Network Parameters

When you install the 2415 in a network, you need to configure the network parameters that control how the terminal communicates in the network.

The set of network parameters you need to configure depends on whether you install the terminal on the same subnetwork as the Intermec Gateway, DCS 30X, or host (TCP/IP) or on a different subnetwork.

You need to configure:

- Network Activate.

If you are operating the 2415 in a WTP network, you only need to configure the Network Activate parameter.

If you are operating the 2415 in a TCP/IP or UDP Plus network, make sure that 2.4 GHz RF (OpenAir radio) or 802.11 DS (802.11b radio) appears in the Activate field.

- (UDP Plus) Controller IP Address.
- (TCP/IP) Host IP Address.
- Terminal IP Address (Non-DHCP environment only).
- Network Port.
- Default Router (Intermec Gateway, DCS 30X, or host on different subnetwork).
- Subnet Mask (Intermec Gateway, DCS 30X, or host on different subnetwork).

For help understanding these parameters and their syntax, see Chapter 6, “Configuration Command Reference,” in the 2400 Family system manual. For more information about network connectivity and protocols, see “About Network Connectivity and Protocols” in Chapter 1 of the 2400 Family system manual.

Configuring the 802.1x Security Parameters

Trakker Antares terminals with the 802.1x security option can operate in a protected network that provides secure data transmission. Authentication and authorization is provided using one of these Extensible Authentication Protocol (EAP) types:

- Tunnelled Transport Layer Security (TTLS) is a standards-based authentication type with multiple vendor support.
- Lightweight Extensible Access Protocol (LEAP) is Cisco’s proprietary authentication type.

This section describes how to configure both 802.1x TTLS and LEAP security. It also describes how the BASEDATE.TXT file is used.

Learning About BASEDATE.TXT

During authentication, TTLS security uses the date that is set on your Trakker Antares terminal to make sure that the terminal falls within the valid date range of the certificate received from the authentication server. Your terminal uses the BASEDATE.TXT file to set the current date. BASEDATE.TXT is originally set to the release date of the most recent version of firmware; however, it is now updated in these situations:

- When you download the latest version of firmware to your PC, BASEDATE.TXT is updated to reflect the current time and date on your PC.

- If BASEDATE.TXT is not loaded on your terminal, it will be created:
 - when you download the latest version of firmware to your PC. It will reflect the current time and date on your PC.
 - when you set the current time and date on your terminal.
- If BASEDATE.TXT is loaded on your terminal, the BASEDATE.TXT text is updated when you set the current time and date on your terminal.

Configuring 802.1x TTLS Security

To use 802.1x TTLS security, you need:

- a PC with the Funk Odyssey™ server software version 1.1 or later. This PC must also be configured with the current date and time, because the server uses these values when it authenticates the terminal.



Note: You can also use a MobileLAN access point with software release 1.80 or later as an authentication server. For help, see the *MobileLAN access System Manual*.

- an Intermec MobileLAN access point with an 802.11b radio and software release 1.80 or later that serves as an authenticator. The authenticator knows the IP address and secret key of the authentication server and translates EAP-TTLS frames to RADIUS frames and vice versa.
- a Trakker Antares terminal. Your terminal must have an 802.11b radio, the 802.1x TTLS security option (includes additional 4MB memory), and firmware version 7.14 or later.



Note: The CACERT.PEM file on the terminal's C drive is used for 802.1x TTLS security. Do **not** delete this file from your terminal. If this file is deleted, you will need to download the latest version of firmware to your terminal. For help, see “Upgrading the Firmware” in Chapter 2 of the 2400 Family system manual.

To enable 802.1x TTLS security on the terminal

1 Make sure that:

- your Funk Odyssey authentication server and MobileLAN access point are properly configured. For help, see the documentation for your authentication server and MobileLAN access point.
- the PC that the authentication server is loaded on is configured with the current date and time.
- your terminal is configured with the primary network, advanced network, and radio parameters.

2 Set the **User Name** and **Password** parameters.

- a** Scan this bar code label to access the TRAKKER Antares 2400 Menu System:

TRAKKER Antares 2400 Menu System



..

The Main Menu appears.

- b** Choose **Configuration Menu > Communications Menu > Radio**.

- c** Scroll to the 802.1x TTLS screen and set the **User Name** and **Password** parameters.

If you just want to make sure that your terminal can be authenticated, you can use the default values of “anonymous” and “anonymous.” However, Intermec recommends that you set your permanent user name and password to unique values.

3 Exit the menu system and save all changes.

- 4** Turn the terminal off and then on again. If you have an application loaded on your terminal, an application screen appears. If you do not have an application loaded on your terminal, a cursor appears in the top left corner of the screen. An AUTHENTICATING message appears on the terminal screen.



Note: The terminal takes up to 60 seconds to authenticate; however, this process may take longer if there is interference in RF communications.

When the terminal is authenticated, it emits a low beep and then a high beep. The application that was running on the terminal, if any, resumes.

If authentication fails, the terminal emits a high beep and then a low beep. The terminal will wait 60 seconds and restart the authentication process. For help, see “Problems While Configuring 802.1x Security” on page 64.

Once you have successfully authenticated your terminal, you need to configure a unique user name, password, and at least one server certificate common name. For help, see Chapter 6, “Configuration Command Reference,” in the 2400 Family system manual.

Configuring 802.1x LEAP Security

To use LEAP security on your terminal, you need:

- an authentication server that supports LEAP.
- a Cisco access point.
- a Trakker Antares terminal. Your terminal must have an 802.11b radio, the 802.1x LEAP security option, and firmware version 7.15 or later.



Note: Unlike TTLS security, LEAP security only requires the standard 2MB of memory on the terminal. It does not require the additional 4MB memory option.

To enable 802.1x LEAP security on the terminal

1 Make sure that:

- your authentication server is properly configured. For help, see the documentation for your authentication server.
- your Cisco access point is properly configured for LEAP security. For help, see the documentation for your Cisco access point.
- your terminal is configured with the primary network, advanced network, and radio parameters.

2 Configure your Cisco access point to communicate with your Trakker Antares terminal using LEAP security.

- a Access the AP Radio Data Encryption screen. For help, see the documentation for your Cisco access point.

swt-shasta AP Radio Data Encryption CISCO SYSTEMS

Cisco 350 Series AP 12.02T1 Uptime: 17 days, 19:23:40

[Map](#) [Help](#)

If VLANs are *not* enabled, set Radio Data Encryption on this page. If VLANs *are* enabled, Radio Data Encryption is set independently for each enabled VLAN through [VLAN Setup](#).

Use of Data Encryption by Stations is: Full Encryption

Accept Authentication Type:	<input checked="" type="checkbox"/> Open	<input type="checkbox"/> Shared	<input checked="" type="checkbox"/> Network-EAP
Require EAP:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

	Transmit With Key	Encryption Key	Key Size
WEP Key 1:	<input checked="" type="radio"/>	<input type="text"/>	128 bit
WEP Key 2:	<input type="radio"/>	<input type="text"/>	128 bit
WEP Key 3:	<input type="radio"/>	<input type="text"/>	not set
WEP Key 4:	<input type="radio"/>	<input type="text"/>	not set

Enter 40-bit WEP keys as 10 hexadecimal digits (0-9, a-f, or A-F).
 Enter 128-bit WEP keys as 26 hexadecimal digits (0-9, a-f, or A-F).
 This radio supports Encryption for all Data Rates.

[Apply](#) [OK](#) [Cancel](#) [Restore Defaults](#)

[Map](#)[Login](#)[Help](#)

Cisco 350 Series AP 12.02T1 © Copyright 2002 Cisco Systems, Inc. [credits](#)



Note: The AP Radio Data Encryption screen for your Cisco access point may look different than the one shown here.

- b Check the **Open** check box for both **Accept Authentication Type** and **Require EAP**.

c Click **OK**.

3 On your Trakker Antares terminal, set the **User Name** and **Password** parameters.

a Scan this bar code to access the TRAKKER Antares 2400 Menu System:

TRAKKER Antares 2400 Menu System



..

The Main Menu appears.

b Choose **Configuration Menu > Communications Menu > Radio**.

c Use the arrow keys to scroll to the LEAP screen and set the **User Name** and **Password** parameters.

If you just want to make sure that your terminal can be authenticated, you can use the default values of “anonymous” and “anonymous.” However, Intermec recommends that you set your permanent user name and password to unique values. For help, see Chapter 6, “Configuration Command Reference,” in the 2400 Family system manual.

4 Exit the menu system and save all changes.

5 When the terminal is authenticated, it emits a low beep and then a high beep. The application that was running on the terminal, if any, resumes.

If authentication fails, the terminal emits a high beep and then a low beep. The terminal will wait 60 seconds and restart the authentication process. For help, see “Problems While Configuring 802.1x Security” on page 64.

Monitoring RF Communications Using the Status LEDs

After you configure the 2415 in the RF network, you can use the application on the 2415 to collect and transmit data through network communications. If the 2415 is communicating with your host computer, it will connect to your host computer and begin running the application that shipped on the terminal.

As you use the 2415 to collect data, the Connect status LED helps you monitor network communications between the 2415 and other devices in the RF network. To learn how to use the Connect status icon, see “Learning About the Status LEDs” on page 17.



4 Troubleshooting and Maintenance

This chapter explains how to solve problems while using the terminals. You will also find information on booting and resetting the terminals and keeping the scanner window clean.

This chapter covers these topics:

- Problems and solutions
- Booting and resetting the terminal
- Cleaning the scanner window and terminal screen

Problems and Solutions

If you have any problems using the 241X, look in this chapter to find a possible solution. This chapter consists of the following sections:

Sections	Page
Problems While Operating the Terminal	58
Problems While Configuring the Terminal	60
Problems While Configuring 802.1x Security	64
Problems With RF Connectivity (2415 only)	66
Problems While Running Applications	68
Problems Transmitting Data Through the Serial Port	69
Problems Transmitting Data Through the Intermec Gateway or DCS 30X	69
Problems While Scanning Bar Codes	70
Booting and Resetting the Terminal	71
Cleaning the Scanner Window and Terminal Screen	74

You can also use the error numbers and messages table and the terminal diagnostics to help analyze and solve problems. For help, see Chapter 4, “Running Diagnostics,” in the *Trakker Antares 2400 Family System Manual* (P/N 071389).


If you have problems with the TE 2000 terminal emulation applications, see the appropriate TE 2000 guide.

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.

Problems While Operating the Terminal

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

Problems While Operating the Terminal

Problem	Solution
You press  to turn on the terminal and nothing happens.	Make sure a charged battery pack is installed correctly on the 241X. For help, see “Charging and Installing the Battery Pack” on page 8. 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 (continued)

Problem	Solution
The Battery LED is on and 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.
The terminal is booting and you see a message that POST failed.	<p>The screen displays the system that failed POST. Report the error message to your supervisor.</p> <p>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.</p>
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” on page 71.
The terminal appears to be locked up and you cannot enter data.	<p>Try these possible solutions:</p> <ul style="list-style-type: none"> • Scan a bar code label to see if the terminal responds. • Press ⓪ to turn off the terminal. If it turns off, press ⓪ to turn on the terminal. You can continue working. • If the terminal will not turn off, reset the terminal. Press and hold ⓪ for approximately 12 seconds to reset the terminal. The Good Read LED blinks once and the terminal turns off. Press ⓪ 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 ⓪ to turn on the terminal. • (2415 only) Wait at least 10 seconds and try again. If the 2415 is still connecting to the Intermec Gateway or DCS 30X or the host, it ignores any input from the keypad or scanner. Make sure the Connect LED is on before continuing. • If you keep returning to the Boot Menu, try reloading the firmware. For help, see “Upgrading the Firmware” in Chapter 2 of the 2400 Family system manual. • If the terminal will not boot or reset, contact your local Intermec service representative for help.
You are sending and receiving information through the network, and the terminal appears to be operating slowly.	The terminal may be configured for the 5x6, 6x8, or 12x16 font type. These font type values may cause the 241X to scroll, and therefore operate, more slowly when it displays information on the screen. Change the font type to a value other than 5x6, 6x8, or 12x16. For help, see “Display Font Type” or “Display Spacing” in Chapter 6 of the 2400 Family system manual. If the terminal continues to operate slowly, contact your local Intermec service representative for help.


Problems While Configuring the Terminal

If you have problems configuring the terminal, check these possible problems and solutions.

Problems While Configuring the Terminal

Problem	Solution
<p>You are configuring the serial port and see this error message when exiting the Configuration Menu:</p> <pre>Serial port configuration error. SOM is set. You must also set EOM. Configuration was not updated.</pre>	<p>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.</p> <p>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.</p> <p>For help, see “Using Serial Communications on the Terminal” on page 44.</p>
<p>You are configuring the serial port and see this error message when exiting the Configuration Menu:</p> <pre>Serial port configuration error. SOM cannot equal EOM. Configuration was not updated.</pre>	<p>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.</p> <p>For help, see “Start of Message (SOM)” in Chapter 6 of the 2400 Family system manual.</p>
<p>You are configuring the serial port and see this error message when exiting the Configuration Menu:</p> <pre>Serial port configuration error. DLE, XON, XOFF are not valid values for either SOM or EOM. Configuration was not updated.</pre>	<p>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.</p> <p>For help, see “End of Message (EOM)” or “Start of Message (SOM)” in Chapter 6 of the 2400 Family system manual.</p>
<p>You are configuring the serial port and see this error message when exiting the Configuration Menu:</p> <pre>Serial port configuration error. EOM #1 cannot equal EOM #2. Configuration was not updated.</pre>	<p>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.</p> <p>For help, see “End of Message (EOM)” in Chapter 6 of the 2400 Family system manual.</p>
<p>You are configuring SOM or EOM in the Configuration Menu and cannot set two characters.</p>	<p>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 \ominus. Now set the two-character value for SOM or EOM.</p>

Problems While Configuring the Terminal (continued)

Problem	Solution
<p>You scan a configuration command, such as Keypad Caps Lock, and nothing happens.</p>	<p>There are two possible solutions:</p> <ul style="list-style-type: none"> • 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 6, “Configuration Command Reference,” in the 2400 Family system manual. <p>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.</p> <p>Enable Override</p>  <p>*\$+DC3*</p>
<p>You are configuring the serial port and see this error message when exiting the Configuration Menu:</p> <pre>PG command failed. Configuration was not updated.</pre>	<p>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.</p> <p>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.</p> <p>For help, see “Using Serial Communications on the Terminal” on page 44.</p>
<p>You scan or enter an option for the Scanner Selection configuration command and you hear three low beeps.</p>	<p>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.</p>
<p>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.</p>	<p>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.</p> <p>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.</p> <p>For help, see “Using Serial Communications on the Terminal” on page 44.</p>

Problems While Configuring the Terminal (continued)

Problem	Solution
<p>You see this error message when exiting the Configuration Menu:</p> <pre>Commandname command failed. Remainder of configuration not updated.</pre>	<p>The two-character name (syntax) of the configuration command that failed is listed on the first line of the error message.</p> <p>Check the command listed in the message. To find the command, use the “Configuration Commands by Syntax” table in Appendix A of the 2400 Family system manual. Make sure the command is set correctly for the options and network communications you are using with the terminal. For help, see Chapter 6, “Configuration Command Reference,” in the 2400 Family system manual.</p> <p>For example, you may see this message:</p> <pre>SS command failed.</pre> <p>There may be a problem with the configuration due to a change made with the Scanner Selection (SS) command.</p>
<p>On a 2415, you see this error message when exiting the Configuration Menu:</p> <pre>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.</pre>	<p>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.</p> <p>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.</p> <p>For help, see “Using RF Communications on the 2415” on page 48. If you cannot fix the addressing problem, check with your network administrator to get the IP address assigned to the terminal and the Intermec Gateway or DCS 30X or the host.</p>
<p>On a 2415, you configure the security ID and the changes do not appear to be saved.</p>	<p>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.</p>
<p>You scan a configuration command, such as Keypad Caps Lock, and you hear three low beeps.</p>	<p>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.</p>
<p>On a 2415, you see this error message when exiting the Configuration Menu:</p> <pre>Network configuration error. Network is enabled. Terminal IP address and Default Router address set to the same address. Configuration was not updated.</pre>	<p>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.</p> <p>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.</p> <p>For help, see “Using RF Communications on the 2415” on page 48. If you cannot fix the addressing problem, check with your network administrator to get the IP addresses for each RF network device.</p>

Problems While Configuring the Terminal (continued)


Problem	Solution
<p>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.</p>	<p>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.</p> <p>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 Intermec Gateway, DCS 30X, or host.</p> <p>For help, see “Using RF Communications on the 2415” on page 48. 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.</p>
<p>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.</p>	<p>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.</p> <p>The terminal and Intermec Gateway or DCS 30X (UDP Plus or WTP 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 Intermec Gateway, DCS 30X, or host, you must set the Default Router and Subnet Mask commands. Set a valid IP address for terminal, Intermec Gateway or DCS 30X or host, and default router.</p> <p>For help, see “Using RF Communications on the 2415” on page 48. If you cannot fix the addressing problem, check with your network administrator to get the IP addresses for each RF network device.</p>
<p>On a 2415, you scan a configuration command to set one of these parameters and hear three low beeps:</p> <ul style="list-style-type: none"> • Controller IP Address (UDP Plus) or Host IP Address (TCP/IP) • Terminal IP Address • Default Router • Network Activate 	<p>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.</p> <p>To set these four parameters, follow these steps:</p> <ol style="list-style-type: none"> 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. <p>You can change an IP address with the network enabled as long as it still defines a valid network configuration.</p>
<p>On the 241X with an integrated PDF417 scanner, you configure the Scanner Trigger command to enable pulse triggering, and the changes do not appear to be saved.</p>	<p>Earlier versions of PDF417 scanners do not support pulse triggering. For help upgrading your scanner, consult your local Intermec service representative.</p>
<p>You are configuring a 241X with the clone application and see an error message.</p>	<p>The server terminal and the client terminal may not have the same hardware or software configuration. Make sure that both terminals have the same hardware configuration, firmware version, and clone application version. For help, see Chapter 2, “Configuring and Managing the Terminals,” in the 2400 Family system manual.</p>

Problems While Configuring 802.1x Security

If you have trouble configuring the terminal for 802.1x security, check these problems and possible solutions. For more error numbers and messages, see “802.1x Security Error Numbers and Messages” in Chapter 4 of the 2400 Family system manual.

This section references error numbers that are displayed on the Error Logger screen in the TRAKKER Antares 2400 Menu System. To view the Error Logger screen, from the Main Menu, choose Diagnostics Menu, Software Diagnostics, and then Error Logger.

Problems While Configuring 802.1x Security

Problem	Possible Solution
<p>The terminal indicates that it is authenticated by emitting a low beep and a high beep, but it does not communicate with the host.</p>	<p>Make sure that the terminal IP address, host IP address, subnet mask, and default router are properly configured for your network.</p> <p> Note: Do not cold boot the terminal. Cold booting the terminal resets the time and date.</p>
<p>The “AUTHENTICATING” message does not appear on the screen, and the Network Connect status LED is not on.</p>	<p>The terminal may not be communicating with your MobileLAN access point. Make sure that</p> <ul style="list-style-type: none"> • the network name on the terminal is the same as the network name (SSID) of the access point that you are trying to communicate with. The default network name is “INTERMEC.” • the Network Activate command is enabled on your terminal. <p>The 802.1x security network may not be active. Make sure that the Odyssey™ server software is properly loaded and configured on the server PC. For help, see the documentation that shipped with your server software.</p>
<p>The terminal indicates that it is not authenticated by emitting a high beep and a low beep.</p> <p>This error code appears on the Error Logger screen: 0x377</p>	<p>Make sure that:</p> <ul style="list-style-type: none"> • the User Name and Password parameters on your terminal match the user name and password on your Odyssey server. You may need to re-enter the password on both your terminal and Odyssey server. • on your Odyssey server, the user and group are allowed and the group policy is allowed to log in to the Odyssey server. For help, see the documentation that shipped with your Odyssey server software. • the IP address and secret key for your MobileLAN access point must match the IP address and secret key on your Odyssey server. You may need to re-enter the IP address and secret key on both your MobileLAN access point and Odyssey server. • your Odyssey server is active and that it can communicate with your MobileLAN access point. You can use the PING command to determine communications. • the Odyssey server software is running on the server PC. • the UDP port (standard RADIUS port, 1812) on your Odyssey server is active. For help, see the documentation that shipped with your Odyssey server software.

Problems While Configuring 802.1x Security (continued)

Problem	Possible Solution
<p>The “AUTHENTICATING” message does not appear on the screen. The Network Connect status LED turns on, but it does not stay on.</p>	<p>The terminal may not be communicating with the MobileLAN access point that you want it to communicate with. Make sure that the network name on the terminal is the same as the network name of the access point that you are trying to communicate with. The default network name is “INTERMEC.”</p> <p>The MobileLAN access point that you are trying to communicate with may not be communicating with the Odyssey server. Make sure your MobileLAN access point is turned on, properly configured, and has 802.1x security enabled.</p>
<p>The “AUTHENTICATING” message appears on the screen, but the terminal does not emit a low beep and a high beep to indicate that it is authenticated.</p>	<p>The terminal takes up to 60 seconds to authenticate; however, this process may take longer if there is interference in RF communications. You may need to wait for the authentication process to finish.</p> <p>You may be out of range of the MobileLAN access point you are trying to communicate with. Try moving closer to the MobileLAN access point.</p>
<p>The “AUTHENTICATING” message appears on the screen, but the terminal does not emit a low beep and a high beep to indicate that it is authenticated.</p> <p>This error code appears on the Error Logger screen:</p> <p>0x37B</p>	<p>The authentication process timed out. You may be out of range of the MobileLAN access point that you are trying to communicate with. Try moving closer to the MobileLAN access point.</p>
<p>The terminal indicates that it is not authenticated by emitting a high beep and a low beep.</p> <p>One of these error codes appears on the Error Logger screen:</p> <p>0x50A or 0x509</p>	<p>The time and date on your terminal does not fall within the range of valid dates indicated on the server certificate. Modify the time and date so that it falls within the range of valid dates. For help, see “Time and Date” in Chapter 6 of the 2400 Family system manual.</p> <p>If this is a recurring problem, you may want to update the BASEDATE.TXT file on your terminal.</p> <ol style="list-style-type: none"> 1 Make sure that your PC is configured with the correct date and time and that you have BASEDATE.TXT and LOADER.EXE on your PC. These files are available as part of the firmware upgrade that can be downloaded at no charge from the Intermec Web site at www.intermec.com. 2 Follow Steps 1 through 5 of the procedure To transfer applications and files to the terminal using LOADER.EXE in Chapter 3, “Developing and Using Applications” in the 2400 Family system manual. 3 On your PC, type: <pre>LOADER pathname\BASEDATE.TXT</pre> <p>where <i>pathname</i> is the path to the location of BASEDATE.TXT on your PC.</p> <p>The Loader screen appears. BASEDATE.TXT is set to the current time and date on your PC and is transferred to your terminal.</p>

Problems While Configuring 802.1x Security (continued)

Problem	Possible Solution
<p>The terminal indicates that it is not authenticated by emitting a high beep and a low beep.</p> <p>This error code appears on the Error Logger screen: 0x513</p>	<p>The root Certificate Authority certificate on your terminal cannot validate the server certificate.</p> <ul style="list-style-type: none"> • Make sure your Odyssey server is using a server certificate that matches the root certificate loaded on your terminal. • Verify the root certificate in the CACERT.PEM file on your terminal's C drive. <p>For help, see the documentation that shipped with your Odyssey server software.</p>
<p>The terminal indicates that it is not authenticated by emitting a high beep and a low beep.</p> <p>This error code appears on the Error Logger screen: 0x542</p>	<p>Neither of the server certificate common names configured on your terminal match the server certificate common name in the active server certificate on your Odyssey server.</p> <ul style="list-style-type: none"> • Delete both server certificate common names on your terminal to see if you can authenticate without checking the server certificate common name. • Change one or both server certificate common names on your terminal so that they match the server certificate common names in the active server certificate on your Odyssey server. <p>For help, see “Server Certificate Common Name” in Chapter 6 of the 2400 Family system manual.</p>

Problems With RF Connectivity (2415 only)

If the 2415 is not communicating with other devices in the RF network, check these possible solutions.

Problems With RF Connectivity

Problem	Solution
<p>You are having problems with your 802.11b RF network coverage.</p>	<p>Make sure that the Medium Density Distribution (MDD) command on your access point is not enabled. When MDD is enabled, the access point distributes values for these RF coverage parameters to your terminal: AP Density, Medium Reservation, and Microwave Robustness. Changes made by your access point are not reflected in the terminal menu system.</p>
<p>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.</p>	<p>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.</p>
<p>You are sending and receiving information through the network, and the terminal appears to be operating slowly.</p>	<p>The terminal may be configured for the 5x6, 6x8, or 12x16 font type. These font type values may cause the 241X to scroll, and therefore operate, more slowly when it displays information on the screen. Change the font type to a value other than 5x6, 6x8, or 12x16. For help, see “Display Font Type” or “Display Spacing” in Chapter 6 of the 2400 Family system manual. If the terminal continues to operate slowly, contact your local Intermec service representative for help.</p>

Problems With RF Connectivity (continued)

Problem	Solution
The Connect LED is off. The 2415 is not communicating with the access point.	<p>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. If you are using a MobileLAN™ access point with software release 1.34 or earlier, it may not be able to communicate with the terminal. For help upgrading your access point software, see the <i>MobileLAN access System Manual</i> (P/N 067150).</p> <p>Make sure the Network Activate command is enabled. For help, see “Network Activate” in Chapter 6 of the 2400 Family system manual.</p> <p>Make sure the 2415 is configured correctly for your network. The radio parameters on the terminal must match the values set for all access points the terminal may communicate with. For help, see “Using RF Communications on the 2415” on page 48.</p> <p>If you have an 802.11b radio, the radio initialization process may have failed. Try resetting the terminal. see “Booting and Resetting the Terminal” on page 71.</p> <p>If you have tried these possible solutions and the Connect LED is still off, you may have a defective radio card. For help, contact your local Intermec service representative.</p>
The 2415 is connected to the Intermec Gateway, DCS 30X, 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 out of range will be transmitted over the network.
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 Intermec Gateway or DCS 30X 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.
The Connect LED blinks.	<p>In a UDP Plus or WTP network, the terminal is communicating with an access point, but it is not connected to the Intermec Gateway or DCS 30X. You may need to check the 2415 configuration, or make sure the Intermec Gateway or DCS 30X is running and that data collection is started.</p> <p>Each device in the RF network must have a valid IP address. The IP addresses set on the terminal must match the addresses configured on the Intermec Gateway, DCS 30X, or host. For help, see “Using RF Communications on the 2415” on page 48.</p>
The Connect LED is on, but the host computer is not receiving any data from the 2415.	<p>In a UDP Plus or WTP network, there may be a problem with the connection between the Intermec Gateway or DCS 30X and the host computer. Check with your network administrator or see the documentation that shipped with the Intermec Gateway or the user’s manual for the DCS 30X.</p> <p>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.</p>

Problems While Running Applications

If you are running applications on the terminal and have trouble, check these possible problems and solutions.

Problems While Running Applications

Problem	Solution
<p>The Connect LED blinks and you see this message: Unable to connect to controller. Error 102.</p> <p>Unable to establish connection to host. Session ended.</p>	<p>The 2415 is connected to the access point, but is trying to establish communications with the Intermecc Gateway or DCS 30X and the host computer. Make sure the terminal is correctly configured for your network. In a UDP Plus or WTP network, make sure the Intermecc Gateway or DCS 30X is configured and data collection is started. In a TCP/IP network, make sure the host computer is configured and running.</p> <p>If you have configured the network correctly, try shutting down and restarting the Intermecc Gateway or DCS 30X to establish communications. You can also try resetting the terminal. For help resetting the terminal, see “Booting and Resetting the Terminal” on page 71.</p>
<p>You see one of these error messages while running a PSK or EZBuilder application: SCREEN ERROR: 30 Code: 9 Hit any key To exit!</p> <p>SCREEN ERROR: 31 Code: 3 Hit any key To exit!</p>	<p>You must set the RAM Drive Size configuration command. For help, see “RAM Drive Size” in Chapter 6 of the 2400 Family system manual.</p>
<p>You see this error message when trying to load a program: ERROR LOADING MODULE LIBRARY NAME: <libraryname></p> <p>FILENAME: <filename></p> <p>where <i>libraryname</i> and <i>filename</i> are the library and file names of the program.</p>	<p>You need to free conventional memory by removing files or applications from Drive C. For help, see “Delete File” in Chapter 5 of the 2400 Family system manual.</p>
<p>A DOS command does not work.</p>	<p>The command is invalid. For a list of valid DOS commands, see “Using ROM-DOS Commands” in Appendix D of the 2400 Family system manual.</p>
<p>You try to run a DOS application in the TRAKKER Antares 2400 Menu System and see this message: Not a valid application.</p>	<p>You tried to run a DOS .EXE application from the TRAKKER Antares 2400 Menu System. You can only run .BIN applications in the menu system. To run a DOS .EXE application, enter the filename at the DOS prompt. For help, see “Running DOS Applications and Using ROM-DOS Commands” in Appendix D of the 2400 Family system manual.</p>
<p>The terminal does not boot after you modified the CONFIG.SYS file to configure a ROM-DOS drive.</p>	<p>Correct the error in CONFIG.SYS and use the DOS software tools to recreate Drive A with the corrected CONFIG.SYS file.</p>

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 appropriate cable.
- If the terminal is in a communications dock, make sure that the communications dock is connected to the serial device using the appropriate cable.
- 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 "Using Serial Communications on the Terminal" on page 44.

Problems Transmitting Data Through the Intermec Gateway or DCS 30X

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

Problems Transmitting Data Through the Intermec Gateway or DCS 30X

Problem	Solution
Transaction Buffer Full.	The buffer holding transactions to be sent to the Intermec Gateway or DCS 30X is full. Stop collecting data with this terminal. Make sure the terminal is communicating with the Intermec Gateway or DCS 30X 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 Intermec Gateway or DCS 30X. You can begin collecting data again once the message clears.
Transaction Aborted.	The transaction just sent to the Intermec Gateway or DCS 30X was not received. Try sending the transaction again.
Transmit Error XX, press Enter.	There is an error transmitting data to the Intermec Gateway or DCS 30X. XX represents the status code error. Note the error code listed in the message and contact your local Intermec service representative for help. Press <input type="button" value="O"/> to continue.
Receive Error XX, press Enter.	There is an error receiving data from the Intermec Gateway or DCS 30X. XX represents the status code error. Note the error code listed in the message and contact your local Intermec service representative for help. Press <input type="button" value="O"/> to continue.
Shutting down.	The Intermec Gateway or DCS 30X is shutting down. You may continue collecting data and buffer the transactions in the terminal until the Intermec Gateway or DCS 30X starts again, or stop collecting data with the terminal.
Controller Shutdown.	The Intermec Gateway or DCS 30X has shut down. You may continue collecting data and buffer the transactions in the terminal until the Intermec Gateway or DCS 30X starts again, or stop collecting data with the terminal.


Problems While Scanning Bar Codes

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

Problems While Scanning Bar Codes

Problem	Solution
<p>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.</p>	<p>There are two possible problems:</p> <ul style="list-style-type: none"> • 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.” Change the scanning angle and try again. <p>You can test the effective range of the scanner. Move within 0.6 meters (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 “Specifications” in Appendix A.</p>
<p>When you release the Scan button, the Good Read LED does not turn off.</p>	<p>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.</p>
<p>You have an input device attached to the terminal and it cannot read any bar codes.</p>	<p>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.</p>
<p>The input device attached to the terminal does not appear to work well or read bar code labels very quickly.</p>	<p>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 you are using.</p>
<p>The scanner will not read the bar code label.</p>	<p>If you are using the advanced long-range scanner, you may not be able to scan the bar codes in this manual. However, you can still send commands through the serial port or network. For help, see Chapter 2, “Configuring and Managing the Terminals,” in the 2400 Family system manual.</p> <p>Make sure you aim the scanner beam so it crosses the entire bar code label in one pass.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p>

Problems While Scanning Bar Codes (continued)

Problem	Solution
You scan a reader command, such as Backlight On, and nothing happens.	<p>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 6 of the 2400 Family system manual. When you are finished, remember to disable the override so that your data is not interpreted as a command.</p> <p>Enable Override</p>  <p>*\$+DC3*</p>
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.
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.	<p>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.</p> <p>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.</p>

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 is 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 $\text{\textcircled{0}}$ key to boot the terminal when you turn on the terminal.
- Use the Boot Menu.

Booting the Terminal on Resume

When you press $\text{\textcircled{0}}$ to turn off the terminal, it turns off and goes into Suspend mode. When you press $\text{\textcircled{0}}$ to turn on the terminal, it resumes or boots depending on the terminal configuration.

There are two ways to configure the $\text{\textcircled{0}}$ key using the Resume Execution configuration command:

- Resume Execution Not Allowed configures the terminal to boot and restart your application each time you press $\text{\textcircled{0}}$ 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 6 of the 2400 Family system manual.

Resume Execution Not Allowed



\$+ER0

Resume Execution Allowed

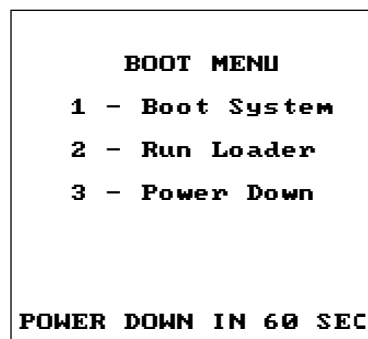


\$+ER1

Using the Boot Menu

To access the Boot menu you can:

- 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” in Chapter 2 of the 2400 Family system manual.



241XU058.eps

Boot Menu

The next table describes the Boot Menu options.

Boot Menu Options

Option	Description
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” in Chapter 2 of the 2400 Family system manual.
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, try the following steps in order:

To reset the terminal

- Scan the Boot Terminal bar code to reset the terminal.



If the terminal will not scan the Boot Terminal bar code, try a warm boot to reset the terminal as described next.

To warm boot the terminal

- 1 Press ⓪ to turn off the terminal. Press ⓪ to turn on the terminal.
- 2 Use the TRAKKER Antares 2400 Menu System to reboot the terminal.
 - a Press ⓕ ⓪ 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 ⓔ . The Boot Menu appears.
 - d Press ① to boot the terminal.
- 3 Scan the Reset Firmware bar code to restart the firmware and application.



If the terminal or application still will not respond, perform a cold boot to reset the terminal.

To cold boot the terminal

- 1 If possible, press ⓪ to turn off the terminal.
- 2 Press and hold the ⓪ key for approximately 12 seconds. The Good Read LED blinks once and the terminal turns off.
- 3 Press ⓪ to turn on the terminal. The Boot Menu appears.
- 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” on page 27.

Cleaning the Scanner Window and Terminal Screen



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

Attention: 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.

To keep the terminal in good working order, you may need to perform these minor maintenance tasks:

- 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 ⓪ 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.



A Specifications

This appendix lists the terminal's physical and environmental specifications and contains these topics:

- Terminal dimensions
- Power and electrical specifications
- Temperature specifications
- Screen
- Keypad options
- Application options
- Connectivity options
- Memory
- Radio specifications
- Integrated I/O connector (serial communications)
- Bar code symbologies
- Scanner and imager optical parameters
- Pin assignments for COM1
- Cables for the terminal
- Cables for the communications dock

Physical and Environmental Specifications

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:	standard battery
2410	374 g (13.2 oz)
2415	422 g (14.9 oz)
	add 43 g (1.5 oz) for high performance battery

Power and Electrical Specifications

Operating	Standard: Rechargeable lithium-ion 1350 mAh or 2400 mAh battery pack High Performance: Rechargeable lithium-ion 2700 mAh or 4800 mAh battery pack
Backup	Rechargeable capacitor
Electrical Rating	≡ 4V; 1A

Temperature Specifications

Type of Operation	Range (°C)	Range (°F)
Charging the battery pack	0°C to 40°C	32°F to 104°F
Operating the terminal	-20°C to 50°C	-4°F to 122°F
Storing the terminal (with or without batteries installed)	-20°C to 60°C	-4°F to 140°F
Relative Humidity	0 to 95% non-condensing	

Screen

- CGA compatible
- 16 lines x 20 columns (128 x 160 dot matrix), backlit LCD

Keypad Options

- (55-key) Alphanumeric keypad, available with programmable, international, VT/ANSI TE, 5250 TE, or dcBrowser 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, 5250 TE, 3270 TE, VT/ANSI TE, or dcBrowser overlays

Application Options

- Programmable
- (2415) TE 2000
- (2415) Data Collection Browser (dcBrowser)

Connectivity Options

- RS-232
- (2415) TCP/IP with DHCP and TFTP support
- (2415) TCP/IP with DHCP and TFTP support and 802.1x TTLS or LEAP security
- (2415) UDP Plus or WTP with 802.1x TTLS or LEAP security
- (2415) UDP Plus with DHCP support
- (2415) WTP

Memory

- 2MB programmable flash memory, 750K available
- 4MB flash memory, configured as a 2MB flash drive, pre-loaded with double-byte fonts, or used for 802.1x TTLS security
- 1MB battery-backed RAM, 512K available
- (2410 option) 2MB or 4MB extended storage drive

802.11b Radio Specifications (2415 only)

Radio type	Direct sequence, spread spectrum
Channels	11 (North America), 13 (Europe), 4 (France), 1 (Japan)
Data rate	11 Mbps (High), 5.5 Mbps (Medium), 2 Mbps (Standard), 1 Mbps (Low)
Range (11 Mbps)	160 m (525 ft) open environment 50 m (165 ft) semi-open environment 24 m (80 ft) closed environment
Frequency band	2.4 to 2.5 GHz worldwide

OpenAir Radio Specifications (2415 only)

Radio type	Frequency hopping, spread spectrum
Channels	15
Data rate	1.6 Mbps, 0.8 Mbps fallback
Range	Up to 150 m (500 ft) indoors Up to 300 m (1,000 ft) outdoors
Frequency band	2.4 to 2.5 GHz worldwide

Integrated I/O Connector (Serial Communications)

- 16-pin AMP pocket phone connector
- RS-232C, up to 38400 baud
- full-duplex asynchronous
- XMODEM, XMODEM1K, or YMODEM protocol for data transfer
- Protocols: Binary, Configurable Serial Protocol, Master Polling, and Polling Mode D

Bar Code Symbolologies

- Codabar
- Code 11
- Code 2 of 5
- Code 39
- Code 93
- Code 128
- Interleaved 2 of 5
- MSI
- PDF417
- Plessey
- UPC/EAN



Note: The Code 11 symbology is only supported on 241X terminals configured for non-decoded scanning. The PDF417 symbology is only supported on 241X terminals configured for decoded scanning. For more information, see “Code 11” or “PDF417” in Chapter 6 of the *Trakker Antares 2400 Family System Manual* (P/N 071389).

Standard Range Scanner Optical Parameters

Bar Code Specification	Depth of Field / Scanning Range	
5.0 mil code	9.4 to 15.7 cm	3.7 to 6.2 in
10 mil code	7.4 to 30.5 cm	2.9 to 12.0 in
20 mil code	10.2 to 63.5 cm	4.0 to 25.0 in
30 mil code	10.2 to 86.4 cm	4.0 to 34.0 in
40 mil code	12.7 to 99.0 cm	5.0 to 39.0 in
55 mil code	19.1 to 126 cm	7.5 to 49.0 in
55 mil code, retroreflective	105 to 151 cm	41.0 to 59.0 in
100 mil code, retroreflective	113 to 227 cm	44.0 to 89.0 in

Long-Range Scanner Optical Parameters (650 nm)

Bar Code Specification	Depth of Field/Scanning Range	
10 mil code	29.9 to 49.8 cm	11.6 to 19.6 in
20 mil code	21.8 to 98.0 cm	8.6 to 38.6 in
30 mil code	24.4 to 192.0 cm	9.6 to 75.6 in
40 mil code	24.4 to 204.7 cm	9.6 to 80.6 in
70 mil code, retroreflective	192 to 410.5 cm	75.6 to 161.7 in
100 mil code, retroreflective	212.3 to 532.4 cm	83.6 to 209.6 in

Advanced Long-Range Scanner Optical Parameters

Bar Code Specification	Depth of Field / Scanning Range	
13 mil code**	73.66 to 99.06 cm	2.42 to 3.25 ft
15 mil code	60.96 to 114.3 cm	2.0 to 3.75 ft
30 mil code	106.68 to 228.6 cm	3.5 to 7.5 ft
55 mil code	68.58* to 256.54 cm	2.25* to 8.42 ft
70 mil code, retroreflective	289.56* to 584.2 cm	9.5* to 19.17 ft
100 mil code, retroreflective	317.5* to 822.96 cm	10.42* to 27 ft

*Near fields are governed by the width of the bar code. This number is based on a single digit Code 39 label.

**UPC only.



Note: If you are using the advanced long-range scanner, you may not be able to scan the bar codes in this manual. However, you can still send commands through the serial port or network. For help, see Chapter 2, “Configuring and Managing the Terminals,” in the 2400 Family system manual.

High-Visibility Scanner 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 Scanner 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

PDF417 Scanner Optical Parameters

Bar Code Specification	Depth of Field/Scanning Range	
5 mil code	6.83 to 7.39 cm	2.69 to 2.91 in
7.5 mil code	6.83 to 13.74 cm	2.69 to 5.41 in
10 mil code	6.83 to 16.28 cm	2.69 to 6.41 in
20 mil code	* to 36.60cm	* to 14.41 in
40 mil code	* to 45.49 cm	* to 17.91 in
6.6 mil code**	6.83 to 10.95 cm	2.69 to 4.31 in
15 mil code, retroreflective**	18.26 to 24.92 cm	7.19 to 9.81 in

*Not specified. These fields are governed by the width of the bar code. This number is based on a single digit Code 39 label.

**PDF417 only, where the maximum swipe is 44 mm/sec (1.77 in/sec).

Linear Imager (E1022) Optical Parameters

Bar Code Specification	Code 39		All Other Symbologies	
	Depth of Field/Scanning Range		Depth of Field/Scanning Range	
2 mil code	6.58 to 11.2 cm	2.59 to 4.41 in	N/A	
5 mil code	6.58 to 26.44cm	2.59 to 10.41 in	6.58 to 18.82 cm	2.59 to 7.41 in
10 mil code	6.07 to 34.06 cm	2.39 to 13.41 in	6.07 to 23.9 cm	2.39 to 9.41 in
12 mil code	5.31 to 36.6 cm	2.09 to 14.41 in	5.31 to 34.06 cm	2.09 to 13.41 in
20 mil code	5.31 to 39.14 cm	2.09 to 15.41 in	5.31 to 39.14 cm	2.09 to 15.41 in
40 mil code	5.31 to 48.54 cm	2.09 to 19.11 in	5.31 to 48.54 cm	2.09 to 19.11 in

Pin Assignments for COM1

The next table lists the pin assignments for COM1 using the TD2410 communications dock.

Pin Assignments for COM1

Pin	Signal	Direction From Terminal
1	Ground (GND)	
2	Scan	
3	Good Read	
4	Trigger	
5	LASEN	
6	VBATF	
7	SOS	
8	Video	
9	RTS	Outgoing
10	VCC-EXT	5V@200 mA
11	CTS	Incoming
12	RXD	Incoming
13	TXC	Outgoing
14	Auxiliary 1	
15	Auxiliary 2	
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, 183 cm (6 ft) cable	9-pin	069589
16-pin, adapter cable	9-pin	069591
1550C cable, 183 cm (6 ft)	N/A	069813
1551C cable, 183 cm (6 ft)	N/A	068414-060

Cables for the Communications Dock

To connect the communications dock to a host computer or another RS-232 serial device, use this cable:

- 9-pin, null modem RS-232 connector (P/N 059167)



Symbols and Numbers

- Ⓛ key, *See* Function Left key
- Ⓡ key, *See* Function Right key
- ⇧ key, *See* Shift key
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Trakker Antares 241X Handheld Terminal User's Manual



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