User's Manual

TRAKKER Antares®
2455 Vehicle-Mount Terminal

Intermec

A **UNOVA** Company

Manual Change Record

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

Revision	Date	Description of Change
001	9/98	Original release.
002	4/99	Updated the manual as follows:

002 / 4/99 changes:

- Added an index, diagnostics chapter, troubleshooting chapter, and appendix on APPTSK.BIN and EM9560.BIN (used for 95XX terminal emulation).

- Added instructions for replacing the backup battery.

- Updated the instructions for screen mapping to match the DCS 300 enhancements for screen mapping.

- Added three new reader commands: Boot Terminal, Status Lights Control, and Set Time and Date (which includes information on two-digit year values and Year 2000 issues).

- Added a long range laser scanner option to the Scanner Selection configuration command.

- Deleted all mention of viewporting, which is not supported.

- Added a diagram to Appendix A that shows the dimensions of the low-input and high-input DC power supplies.

- Made minor corrections and changes throughout the manual.

Revision	Date	Description of Change
003	8/99	This manual was revised to remove the *TRAKKER Antares Terminal Emulation User's Guide,* Part No. 066694-003, and add the *Important Terminal Emulation Information* sheet, Part No. 069993-001. Also added the dcBrowser™ information sheet, Part No. 070012-001.

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Before You Begin

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

Warranty Information

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

Safety Summary

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

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

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

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

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

Warnings, Cautions, and Notes

The warnings, cautions, ESD procedures, and notes in this manual use the following format.

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

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

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

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

Follow ESD Procedures
This icon appears at the beginning of any procedure in this manual that could cause you to touch components (such as printed circuit boards) that are susceptible to damage from electrostatic discharge (ESD). When you see this icon, you must follow standard ESD guidelines to avoid damaging the equipment you are servicing.

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

About This Manual

This manual contains all of the information necessary to install, configure, and operate the TRAKKER® Antares™ 2455 vehicle-mount terminal.

This manual was written for two audiences:

•   All users who need to know how to use the terminal to collect data.

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

What You Will Find in This Manual

This table summarizes the information in each chapter and appendix.

Chapter	What You Will Find
1	Summarizes the TRAKKER Antares 2455 (T2455) features, functions, and accessories. Explains the terminal ports and how to use the terminal's keyboard, screen, audio signals, power, memory, and drives.
2	Explains how to install the TRAKKER Antares 2455 terminal on your vehicle and in your RF network. Explains how to turn on the terminal and configure the network parameters to start using the terminal.
3	Explains how to configure your terminal.
4	Describes serial communications and the 2.4 GHz radio frequency network and explains how to install and configure your terminal to communicate with other devices.
5	Introduces the TRAKKER Antares 2455 programmable terminal and explains how to download and run applications.
6	Lists solutions for the problems you may have while operating your terminal. Explains how to boot or reset the terminal, perform routine maintenance, and replace the backup battery.
7	Explains how to use the TRAKKER Antares 2455 terminal's built-in diagnostics to research and troubleshoot problems.
8	Describes the commands that you can use to change the TRAKKER Antares 2455 terminal's operation or manage files.
9	Describes the commands that you can scan to configure the TRAKKER Antares 2455 terminal.

Appendix	What You Will Find
A	Lists the TRAKKER Antares 2455 terminal's specifications, configuration command names and syntax, and the terminal's default configuration settings.
B	Contains the full ASCII table and full ASCII bar code chart.
C	Contains a reference table that lists the complete set of English and Western European characters that you can display on a TRAKKER Antares 2455 terminal.
D	Describes how to use the APPTSK.BIN and EM9560.BIN applications, which are included by default on the TRAKKER Antares 2455 terminal.

Note: For information about using IBM 3270, IBM 5250, or VT/100/220/320 and ANSI terminal emulation applications, see the TRAKKER Antares Terminal Emulation User's Guide *that ships with this manual.*

Terminology

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

Term	Description
DCS 300 and Model 200 Controller	The TRAKKER Antares 2455 terminal will communicate with either the DCS 300 or the Model 200 Controller. The DCS 300 is a new data collection server that replaces the Model 200 Controller. The term DCS 300 is used throughout the manual. Unless otherwise noted, you can use either the DCS 300 or the Model 200 Controller.
Host	The term "host" refers to a personal computer or other computer that communicates with the terminal.
T2455	The term "T2455" indicates the specific type of terminal, the TRAKKER Antares 2455 vehicle-mount terminal.
Terminal	The generic term "terminal" indicates the TRAKKER Antares 2455 vehicle-mount terminal.
TRAKKER Antares	The term "TRAKKER Antares" identifies the product family of TRAKKER Antares hand-held, stationary, and vehicle-mount terminals.
TRAKKER Antares terminal	The generic term "TRAKKER Antares terminal" indicates any TRAKKER Antares terminal. More specific terms, such as "TRAKKER Antares 2455" or "T2455," indicate a specific type of terminal.

Conventions for Input From a Keypad or Keyboard

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

Convention	How to Interpret the Convention
`Special text`	Shows the command as you should enter it into the terminal. See "Conventions for Commands" later in this chapter.
Italic text	Indicates that you must replace the parameter with a value. See "Conventions for Commands" later in this chapter.
Bold text	Indicates the keys you must press on a PC or host computer keyboard. For example, "press **Enter**" means you press the key labeled "Enter" on the PC or host computer keyboard.
⏎	Shows the key you must press on the terminal. For example, "press ⏎" directs you to press the Enter key on the terminal keyboard.
⏟f ⏎ 2 4 8	Shows a series of terminal keys you must press and release in the order shown. For example, "Press ⏟f ⏎ 2 4 8 to access the TRAKKER Antares 2400 Menu System."
⏟f – ⏎	Shows a series of terminal keys you must press simultaneously. Also, you must press and hold the keys in the order shown.

Conventions for Bar Codes

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

Change Configuration ———— *Name*

|||||||||||||| ——————— *Bar code (Code 39)*

$+ ——————— *Human-readable interpretation*

2455U.011

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

Conventions for Software Screens and Messages

This manual includes illustrations that represent how the TRAKKER Antares 2455 terminal displays software screens and messages. Here are two examples:

```
     MAIN MENU

Configuration Menu
Diagnostics Menu
System Menu
About TRAKKER 2400


↑↓ Select item
[Enter] Next screen
[F1] Help
[Esc] Exit
```

```
File Name:
```
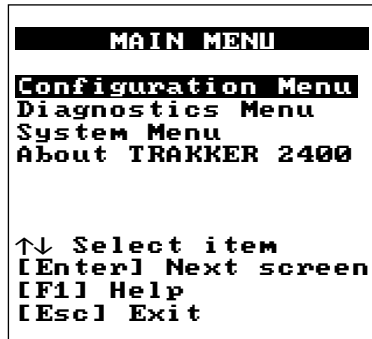
2455U.001

The T2455 has a 25 line by 80 character screen. The TRAKKER Antares 2400 Menu System and the Terminal Emulation Configuration software screens are 16 lines by 20 characters (like the examples shown here). These software screens are centered on the T2455 screen.

Conventions for Commands

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

To send a configuration command from the DCS 300 or the Model 200 Controller, use this syntax:

`$+command[command]...[command n]`

where:

$+   is the Change Configuration command.

command   is a configuration command. For example, BV is the command to set the Beep Volume on the terminal. Enter the command BV0 to turn off the beep volume.

You can include multiple configuration *command* parameters in the command to configure the terminal.

This table defines the conventions used in the example:

Convention	Description
Special font	Commands appear in this font. You enter the command exactly as it is shown.

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

Other Intermec Manuals

You may need to refer to the manuals listed below for additional information about your TRAKKER Antares 2455 terminal, accessories, or the 2.4 GHz radio frequency network.

Manual	Intermec Part No.
0110/0111/0115 Access Point User's Manual	065053
2100 Universal Access Point User's Manual	067150
The Bar Code Book	051241
Data Communications Reference Manual	044737
DCS 300 System Manual	067296
DCS 300 Technical Reference Manual	067717
EZBuilder Getting Started Guide	066450
EZBuilder Tutorial	066449
Model 200 Controller System Manual	063439
T2455 Desktop Mounting Stand Instruction Sheet	067361
TRAKKER Antares 2455 DC Power Supply Installation Guide	067362
TRAKKER Antares 2455 Keyboard Installation Guide	067363
TRAKKER Antares Application Development Tools System Manual	064433
TRAKKER Antares Terminal Emulation User's Guide	066694

You may need additional information when working with the T2455 in a data collection system. Please visit our web site at www.intermec.com to access many of our current manuals in PDF format. To order printed versions of the Intermec manuals, contact your local Intermec representative or distributor.

1

Introducing the TRAKKER Antares 2455 Terminal

This chapter introduces the TRAKKER® Antares™ 2455 vehicle-mount terminal. You will learn about the terminal ports and learn how to use the terminal screen, keyboard, audio signals, power, memory, and drives.

What is the TRAKKER Antares 2455 Terminal?

The TRAKKER Antares 2455 (T2455) is a programmable vehicle-mount data collection terminal that communicates in Intermec's 2.4 GHz radio frequency (RF) network. You use this programmable terminal to run client/server applications or terminal emulation applications. This terminal runs Microsoft C applications.

The T2455 provides wireless communications to a host either through the access points and DCS 300 or directly through the access points. The T2455 also has a serial port to communicate with other devices via RS-232 serial communications.

Note: The T2455 will communicate with either the DCS 300 or the Model 200 Controller. The DCS 300 is a new data collection server that replaces the Model 200 Controller.

2455U.002
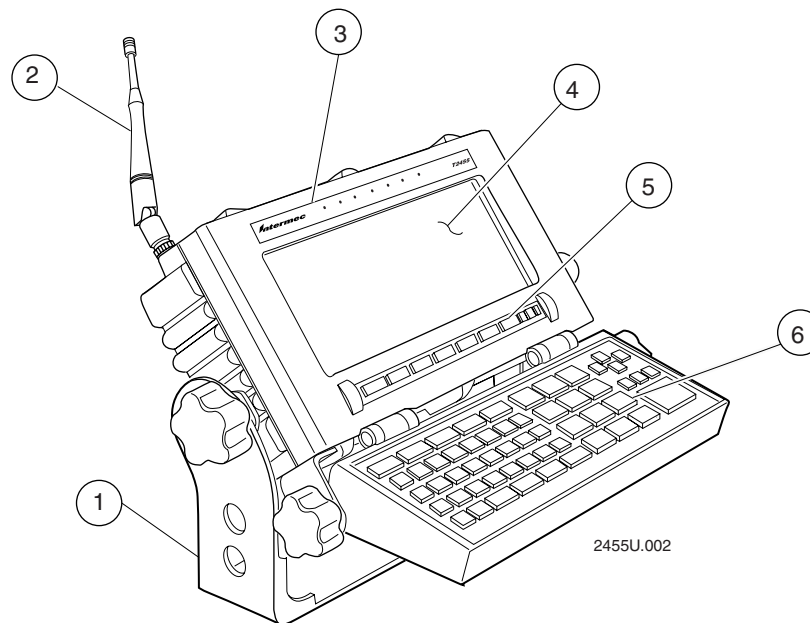
The T2455 terminals are designed to make data collection easy and include these features:

① Mounting bracket lets you mount the terminal on the vehicle in an unlimited number of positions and viewing angles.

② Adjustable antenna supports 2.4 GHz radio frequency communications.

③ Status lights provide power, keyboard, data, network, and scanning information.

④ 25 line by 80 character screen with either an LCD CGA or electroluminescent (EL) CGA display.

⑤ Integrated function keypad provides function keys to support scanned data entry so you can operate the terminal without an accessory keyboard.

⑥ Accessory keyboard (ordered separately) with keyboard overlay that can be mounted to the terminal or mounted in a separate location on the vehicle.

The T2455 ships with these other standard features:

- 512K RAM reserved for applications

- 2MB programmable flash memory, of which 750K is available as a flash drive for storing user applications and files

- Scanner port to attach a laser scanner

- Serial port for RS-232 communications with other RS-232 devices

T2455 Options

These options are available for the T2455:

- Optional 4MB programmable flash memory (the extra 2MB can be configured as drive D or as storage for double-byte fonts)

- Extended SRAM storage drive (2MB or 4MB) to store files

- Cold-temperature terminal (heater installed)

- UDP Plus (DCS 300 or Model 200 Controller network) or TCP/IP communications

- IBM 3270 terminal emulation application and keyboard overlay

- IBM 5250 terminal emulation application and keyboard overlay

- VT100/220/320 and ANSI terminal emulation application and keyboard overlay

Unpacking the Terminal

The T2455 shipping box contains:

2455U.003
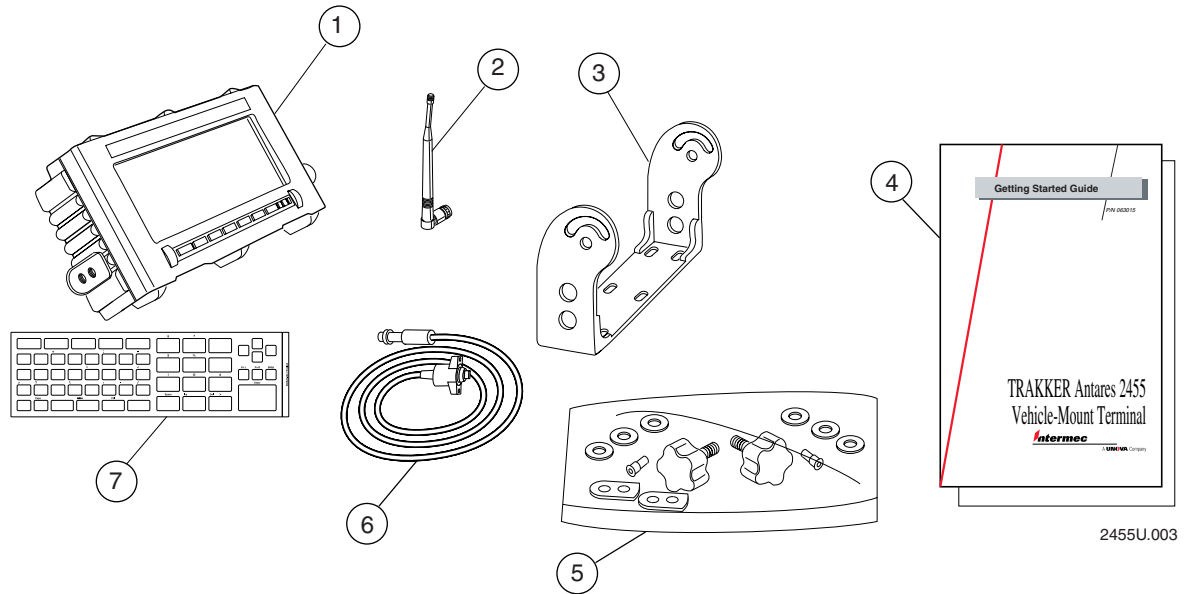
① TRAKKER Antares 2455 vehicle-mount terminal

② Antenna

③ Mounting bracket

④ Getting started guide and safety supplement

⑤ Mounting bracket hardware

⑥ T2455 DC power supply cable, approximately 6 feet (1.8 m) long

⑦ Keyboard overlay

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.

TRAKKER Antares 2455 Vehicle-Mount Terminal User's Manual

Accessories for the Terminal

You can use these accessories (sold and ordered separately) with the TRAKKER Antares 2455 vehicle-mount terminal:

AC power supply   Use the AC power supply (Part No. 065236) to power the terminal when it is in the desktop mounting stand. The AC power supply is only for use in clean, dry office-like environments with temperatures from 50°F to 104°F (10°C to 40°C). The power supply comes with a North American power cord. If you are using the terminal outside North America, you need to purchase the appropriate power cord for your local power supply.

AC power supply adapter cable   Use the AC power supply adapter cable (Part No. 066842) to connect the AC power supply to the T2455.

DC power supply   There are two DC power supply kits that you can use to power the terminal when it is mounted to a vehicle:

- Low-voltage input kit (10 to 36 VDC) (Part No. 067698)

- High-voltage input kit (15 to 96 VDC) (Part No. 067699)

Desktop mounting stand   The desktop mounting stand (Part No. 067431) attaches to your terminal to provide a stable desktop platform. The desktop mounting stand is useful when you have the terminal connected to your PC to develop applications.

Keyboard   The alphanumeric keyboard (Part No. 067028) supports a subset of the keys that are available on a PC-AT keyboard. The terminal ships with a keyboard overlay to match the application or language you ordered. There are five alphanumeric keyboard overlay options: English, Western European, and three terminal emulation options.

Keyboard adapter cable   The adapter cable (Part No. 066848) allows you to use a standard PC-AT keyboard for customer applications and system configuration on the terminal. You can attach the adapter cable to the keyboard cable connector and to the T2455.

Note: You must use the T2455 keyboard accessory with the Intermec 3270, 5250, and VT/ANSI terminal emulation applications.

Laser scanner cables   Use the laser scanner cables to connect a scanning device such as the 1517, 1518, 1519, 1550, 1551, and 1552 laser scanners. For help finding the appropriate laser scanner cable, see Appendix A, "Terminal Specifications."

Portable printer cables   Use the specific portable printer cable to connect a Codewriter 4102 (Part No. 067642) or an O'Neil MicroFlash3 printer (Part No. 067643) to the COM1 serial port.

RS-232 null-modem adapter cable   The adapter cable (Part No. 066847) lets you communicate with other RS-232 devices, such as scales, PCs, and printers, through the COM1 serial port.

COM port adapter cable   The adapter cable (Part No. 061799) lets you communicate with other RS-232 devices, such as scales, PCs, and printers, through the Scanner port. You need this cable if you plan to configure the Scanner port to operate as an additional serial port (COM4).

Getting Started

The T2455 has a flexible two-piece design that allows you to mount the terminal in different locations using three basic configurations:

Mount the T2455 on the vehicle.

Use the T2455 without a keyboard. Attach an accessory laser scanner to input bar code data and use the function keypad below the screen for F1-F10 function keys.

2455U.004

Mount the T2455 and an accessory keyboard as a single unit on the vehicle.

Attach an accessory laser scanner to input bar code data. Use the function keypad below the screen or the accessory keyboard to enter data.

2455U.005

Mount the T2455 and an accessory keyboard separately on the vehicle.

Attach an accessory laser scanner to input bar code data. Use the function keypad below the screen or the accessory keyboard to enter data.

2455U.006

For help installing and mounting the terminal, see Chapter 2, "Installing the Terminal."

How the Terminal Fits Into Your Network

The TRAKKER Antares 2455 vehicle-mount terminal has several communications and network options. The next illustration shows some examples of the different data collection networks in which you can use the terminal.
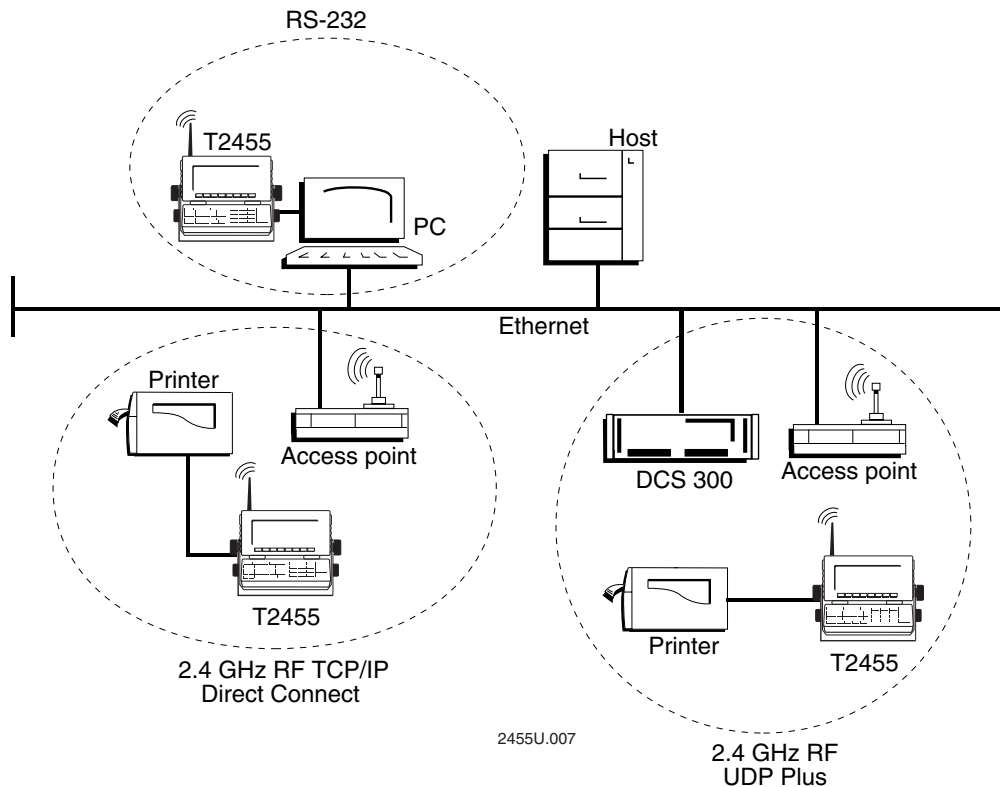
Overview for Installing the Terminal

Use these next steps as a guide to learn about, install, and configure the terminal.

To install your T2455

1. Unpack the terminal and get familiar with the equipment. For help, use the remainder of Chapter 1 to learn about the terminal screen, keyboard, audio signals, power, memory, and drives.

2. Learn about the terminal ports so you can install the terminal. For help, see "Locating the Terminal Ports" later in this chapter.

3. Install the mounting bracket, keyboard, T2455, and DC power supply on the vehicle. For help, see Chapter 2, "Installing the Terminal."

4. Connect power, keyboard, laser scanner, and a serial device to the T2455. For help, see Chapter 2, "Installing the Terminal."

5. Configure the terminal for your RF network. For help, see Chapter 2, "Installing the Terminal," and Chapter 3, "Configuring the Terminal."

Locating the Terminal Ports

You connect power, a keyboard, laser scanner, and RS-232 serial devices to the terminal ports that are located on the bottom back panel of the T2455.

Scanner port   COM1 port   Power supply port   Keyboard port   2455U.008
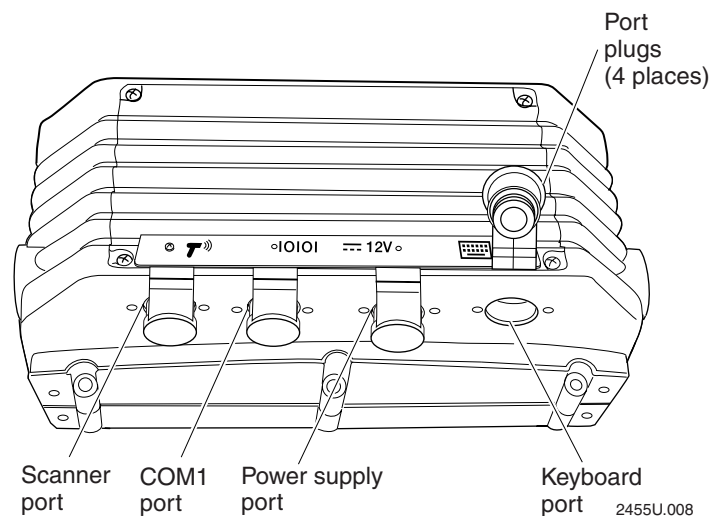
Scanner port   You must use one of the accessory laser scanner cables to connect a scanner to the Scanner port on the terminal. You can attach these Intermec devices:

• 1517, 1518, 1519 laser scanners

• 1550 and 1551 laser scanners

• 1552 cordless laser scanner with 9745 base station

You can also configure the Scanner port to operate as an additional serial port (COM4). For instructions, see "Connecting to Serial Devices" in Chapter 2. Use this port to connect the terminal to other RS-232 devices, such as PCs, scales, and printers.

COM1 port   Use this port to connect the terminal to other RS-232 devices, such as PCs, scales, and printers, using an RS-232 null-modem adapter cable or a portable printer cable. The cables are accessories, which are sold and ordered separately.

Power supply port   Use this port to connect the terminal to one of the DC power supply kits (10 to 36 VDC or 15 to 96 VDC) or to connect the AC power supply when operating the terminal from the desktop mounting stand. You must have a power supply connected to operate the terminal.

Keyboard port   Use this port to connect the T2455 keyboard or to connect a PC-AT keyboard using the T2455 keyboard adapter cable. The keyboard and keyboard adapter cable are accessories, which are sold and ordered separately.

Port plugs   Each port on the T2455 has a port plug to seal the terminal whenever a port is not in use. Make sure that you either have a cable connector or a port plug in every port at all times.

Note: When you insert a cable connector into a port, firmly push the cable connector straight into the appropriate port. The connectors are keyed, so if a connector does not fit, do not force it. Do not wiggle or twist the cable connector—you may damage the connector.

How to Use the Terminal Screen

You can use the T2455 screen to view data, run applications, monitor terminal status, and for many other functions. The terminal screen is CGA compatible.

There are two display options:

- LCD (liquid crystal display)
- Electroluminescent (EL) display

The main difference between the two displays is how the characters appear on the screen and the lighting conditions in which you can use the display. The EL display is viewable under most lighting conditions, especially high ambient light. The EL display uses orange and black for contrast while the LCD uses white and black for contrast. Other than viewing conditions and contrast, the two screen display options function the same.

You can use these features of the screen:

- Use the status lights to monitor the status of backup battery power, RF communications, special keys, and bar code scanning.
- Use the function keypad to enter function keys and adjust the display contrast.
- Customize the font size and screen parameters.

Each screen feature is explained in the next sections.

Using the Status Lights

You can use the terminal's status lights to monitor the status of backup battery power, RF network communications, special keys, and bar code scanning. The status lights only flash or turn on to indicate the current status. The Power status light is amber and all other lights are green. When you have the terminal turned off (Suspend mode), the status lights are also off.

2455U.009
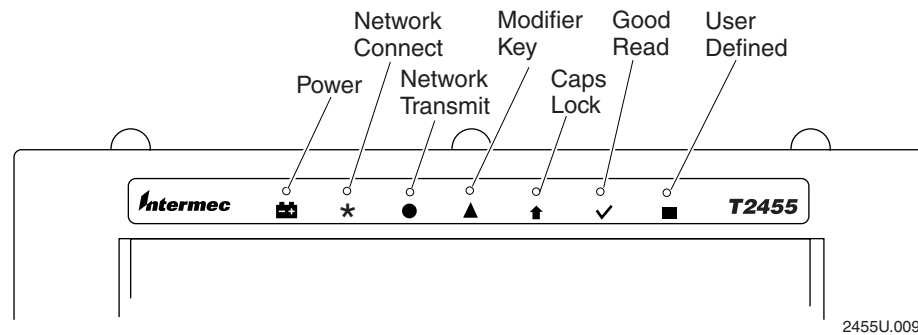
Power   This status light remains off when you have power to the terminal, a charged backup battery, and the terminal is on. The light blinks when the backup battery has a low power charge or if you try to turn on the terminal with no external power supply connected to the terminal. The Power status light turns off once the backup battery is charged. For help, see "Learning About the Power Supplies and Backup Battery" later in this chapter.

Network Connect   This status light tells you if the terminal is connected via RF communications to your 2.4 GHz RF network. The Network Connect status light may be turned off, blinking, or turned on.

Protocol	Status Light Off	Status Light Blinks	Status Light On
TCP/IP	Not connected to an access point.	Not used.	Connected to an access point.
UDP Plus	Not connected to an access point.	Not connected to the DCS 300 (or Model 200 Controller).	Connected to an access point and the DCS 300.

When the Network Connect status light is turned off, you are either not connected to the network or the terminal is not configured. Make sure the Network Activate command is enabled and that the terminal is configured correctly for your network. If your T2455 is configured correctly, you may be out of range of an access point.

In a UDP Plus network, the Network Connect status light is not instantaneously updated but does tell you the communications status the last time data was sent or received from the terminal. For help with network communications, see Chapter 4, "Operating the Terminal in a Network."

Using the Status Lights (continued)

● **Network Transmit**   This status light turns on when data is buffered in the RF network interface. The data is either waiting to be transmitted to the DCS 300 (or Model 200 Controller) or host, or received data has not been accepted by the application on the T2455. When no data is being buffered in the interface, the Network Transmit status light is off.

▲ **Modifier Key**   This status light turns on when you press one of the four modifier keys: ⬦, ⬦, ⬦, or ⬦. The modifier key is stored in the keyboard buffer until you press another key. When you press a second key, the key combination is entered into the terminal and the status light turns off. You can also use the Status Lights Control reader command to turn this status light on and off. For help, see "Status Lights Control" in Chapter 8.

◆ **Caps Lock**   This status light turns on when you press ⬦ ⬦ to enable the Caps Lock feature and enter all alphabetic characters as uppercase letters. When you press ⬦ ⬦ to disable Caps Lock, the light turns off. You can also use the Status Lights Control reader command to turn this status light on and off. For help, see "Status Lights Control" in Chapter 8.

✔ **Good Read**   This status light turns on when you successfully scan a bar code label with a scanner that is connected to the terminal. The status light turns off after 2 seconds. You can also use the Status Lights Control reader command to turn this status light on and off. For help, see "Status Lights Control" in Chapter 8.

■ **User Defined**   This status light is user defined. You can program this status light to turn on and off for any task or error within your application. You can also use the Status Lights Control reader command to turn this status light on and off. For help, see "Status Lights Control" in Chapter 8.

Using the Function Keypad

The T2455 terminal has a function keypad below the screen with these keys:

- ⬦ Display Contrast key

- F1 through F10 function keys

- ⬦ Function Left key

- ⬦ Suspend/Resume key

If your application can receive all data from scanned bar codes and function keys (F1 through F10), you can use the T2455 without a keyboard. For help with the ⬦ key, see "Turning the Terminal On and Off" in Chapter 2.

T2455 Screen and Function Keypad

Status lights

Display Contrast key   Function keys   Function Left key   Suspend/Resume key

2455U.018
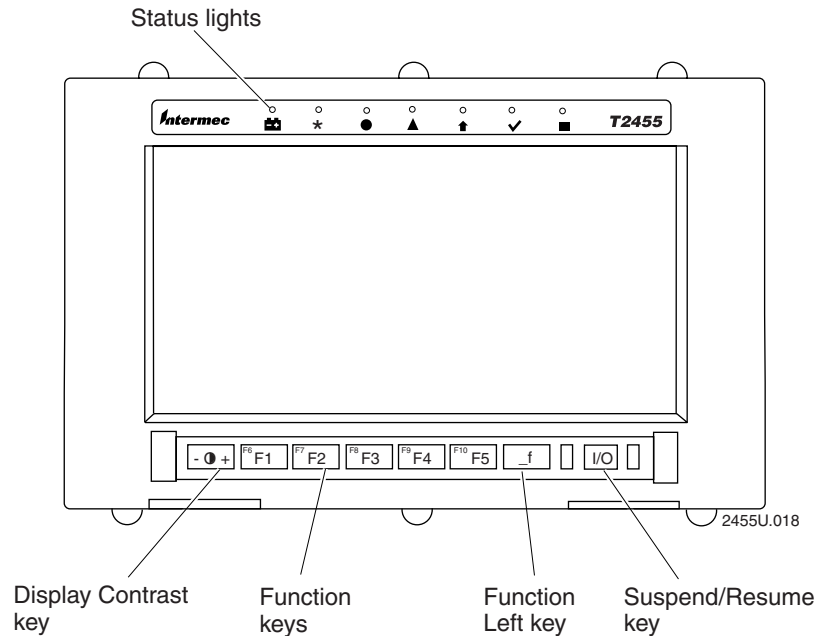
Using the Function Keys

You use the function keys and the Function Left (f) key to enter F1 through F10.

To enter F1 through F5

- Press the function key F1, F2, F3, F4, or F5.

To enter F6 through F10

1. Press f. The Modifier Key status light is turned on.
2. Press the function key. For example, press F1 to enter the F6. The Modifier Key status light is turned off.

When you press f, the key is held in a buffer until you press another key. The Modifier Key status light illuminates on the top of the terminal screen 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 and the light is turned off.

To flush the f key from the buffer without performing any action, press the key again. The status light is turned off.

Adjusting the Contrast From the Function Keypad

You can use the ◐ key on the function keypad or the Display Contrast command to adjust the contrast. For help with the command, see "Display Contrast" in Chapter 9.

Note: When you use the keyboard to change the display contrast, the changes are not saved permanently in flash memory. You can save the changes in flash memory later. For help, see Chapter 3, "Configuring the Terminal."

To change the display contrast

- The ◐ key is on the left side of the function keypad. Press the + side of the key to increase the display contrast and the - side of the key to decrease the display contrast. Each time you press the key, it changes the contrast by one level.

On the LCD, there are eight contrast levels that define the contrast (light or dark) of the characters against the background terminal screen. On the EL display, there are only four contrast or brightness levels. If the contrast or brightness is at the highest level (7 for LCD and 3 for EL) and you press the + side of the ◐ key, the contrast changes to the lowest contrast level (0).

Note: If the internal operating temperature is 140°F (60°C) or greater and the EL display is set to the highest contrast level (3), the T2455 will reset the contrast to the next level down (2) until the internal temperature is lowered.
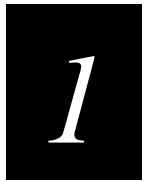
Customizing the Font Size and Screen Parameters

On the T2455, you can customize the font size, row spacing, and video mode to meet your needs. You can configure these options:

Font size   Set the font size to 8x8 (8 pixels by 8 pixels), 8x16, or 16x16. The default for the T2455 is the 8x8 font size (single-width and single-height characters).

Row spacing   Set the row spacing to a value from 0 (default) to 8 on the terminal. Row spacing lets you define the amount of additional space (scan lines) between the lines. The number of scan lines is two times the value you set for the row spacing. A scan line is a row of pixels. A value of 8 adds 16 blank scan lines to increase the space between lines.

Use this next table to determine the font size and row spacing that meets your needs.

Font Size	Row Spacing	Characters Displayed
8x8 (default)	0 (default)	80 characters by 25 lines
	8	80 characters by 9 lines
8x16	0	80 characters by 12 lines
	8	80 characters by 6 lines
16x16	0	40 characters by 12 lines
	8	40 characters by 6 lines

Video mode   Set the Video mode to original, normal, or inverse. The Video mode lets you define the how the characters display against the background. The default is original, but there is a different definition for the LCD and EL display as defined next.

Display Type	Original	Normal	Inverse
LCD	Black characters on a white background	Black characters on a white background	White characters on a black background
EL	Orange characters on a black background	Black characters on an orange background	Orange characters on a black background

Using the Keyboard

You can attach a keyboard to use with the T2455 terminal. There are two options:

• Intermec T2455 accessory keyboard (Part No. 067028)

• PC-AT keyboard (purchased separately) and Intermec keyboard adapter cable (Part No. 066848)

For help installing the keyboard, see Chapter 2, "Installing the Terminal." This section explains how to use the T2455 keyboard and keyboard overlay. You can also use the function keypad below the T2455 screen to enter function keys and change the display contrast. For help, see "Using the Function Keypad" earlier in this chapter.

The T2455 alphanumeric keyboard supports a subset of the keys that are available on a PC-AT keyboard. The keyboard has 55 keys and although it is smaller than a PC keyboard, you can use special keys to access all the keys and functions you need.

You order the keyboard accessory separate from the T2455. However, the T2455 ships with a keyboard overlay to match the application or language you ordered. You attach the overlay to the keyboard and then install the keyboard. For help, see the *TRAKKER Antares 2455 Keyboard Installation Guide* (Part No. 067363).

The alphanumeric keyboard has these overlay options:

• English

• Western European

• IBM 3270 terminal emulation

• IBM 5250 terminal emulation

• VT100/220/320 and ANSI terminal emulation

The Western European overlay with the alphanumeric keyboard has keys to support English and Western European languages, such as French, German, Italian, Portuguese, Spanish, and others. You use special keys and key sequences to access the characters in each language.

If you ordered a T2455 with terminal emulation (TE) software, a TE keyboard overlay comes with the TE option you ordered for the T2455. Each TE keyboard overlay identifies the keys that are available on an IBM 3270 keyboard, IBM 5250 keyboard, or VT/ANSI keyboard.

Note: You must use the T2455 keyboard accessory with the Intermec terminal emulation applications. The terminal emulation keyboards are currently available in English only. However, you can display any character in the terminal font set. For a list of characters, see Appendix C, "International Character Support."

Finding the Special Keys

Before you use the terminal's keyboard, make sure you can find all of the different types of keys on the keyboard. The special keys that you use to type characters or perform functions are explained in the next sections. To see the terminal emulation keyboards, see the *TRAKKER Antares Terminal Emulation User's Guide*.

Backspace key

Shift key   Control key   Function Left key   Function Right key

2455U.020
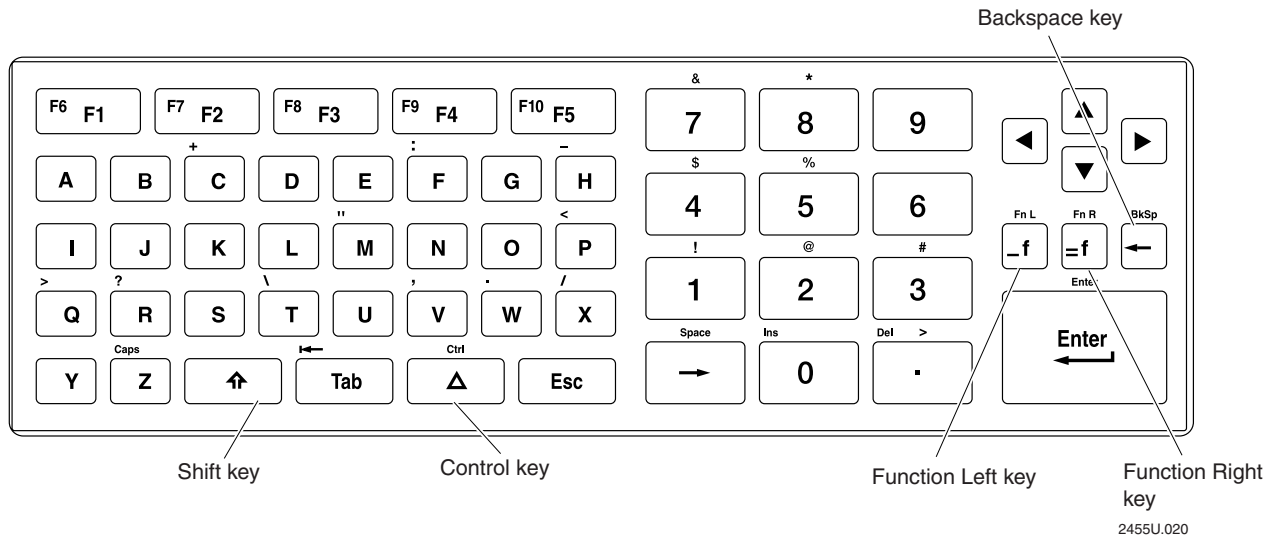
Typing the Characters Printed on the Keyboard

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

Position on the Keyboard	Color	To Type the Character
Middle of the key or centered above the key	Grey	Press the key.
Left side above the key	Orange	Press the orange ⏥f key, then the key.
Centered above a numeric key	Green	Press the green ⏥ key, then the key.
Right side above the key	Blue	Press the blue ⏥f key, then the key.

To learn how to type characters, use these illustrations and examples from the alphanumeric keyboard and the IBM 5250 terminal emulation keyboard.

To type characters using the alphanumeric (English) keyboard

% ———— To type the % character, press ⌂ 5 .

5

To type the number 5, press 5 .

2455U.021
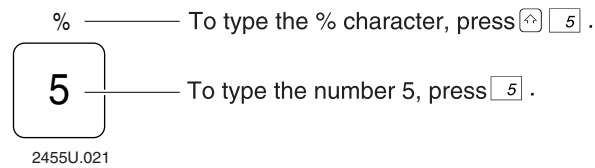
To type characters using the IBM 5250 terminal emulation keyboard

To use the Fld+ function, press f 8 .

To type the asterisk (*) character, press ⌂ 8 .

Fld + * Fld-

To use the Fld- function, press f 8 .

8

To type the number 8, press 8 .

2455U.022
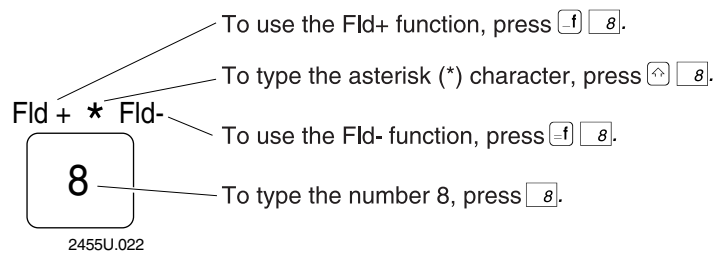
Using the Function Left/Right, Control, and Shift Keys

The T2455 keyboard does not have a physical key for every character and function available. You use the Function Left (FnL), Function Right (FnR), Control (Ctrl), and Shift keys to access characters or perform functions that do not have a physical key on the keyboard. You also use the Shift key to type uppercase alphabetic characters.

When you press f , f , △ , or ⌂ , the key is held in a buffer until you press another key. The Modifier Key status light illuminates on the top of the terminal screen 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 and the light is turned off.

To flush the f , f , △ , or ⌂ key from the buffer without performing any action, press the key again. The status light is turned off.

To use the FnL, FnR, Ctrl, and Shift keys

1. Press f , f , △ , or ⌂ . The Modifier Key status light is turned on. For example, press ⌂ .

2. Press the second key. For example, press A to type the uppercase letter A. The Modifier Key status light is turned off.

Capitalizing All Characters

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

To enable Caps Lock

1. Press ⏺. The Modifier Key status light turns on.

2. Press ⌐z⌐. The Caps Lock status light turns on and the Modifier Key status light turns off.

3. Type an alphabetic character. The letter appears as an uppercase character on the terminal screen. For example, press ⌐F⌐ to type an uppercase letter F. Caps Lock remains enabled until you disable it.

To type a lowercase letter with Caps Lock enabled

• Press ⌃ and an alphabetic character. For example, press ⌃ ⌐F⌐ to type a lowercase letter f.

To disable Caps Lock

1. Press ⏺. The Modifier Key status light turns on.

2. Press ⌐z⌐. The Caps Lock and the Modifier Key status lights turn off.

3. Type an alphabetic character. The letter appears as a lowercase letter on the terminal screen.

Note: You can also use the Keyboard Caps Lock configuration command to enable or disable Caps Lock on the terminal. For help, see "Keypad Caps Lock" in Chapter 9.

Using the Western European Keyboard

The T2455 (non-TE option) comes with either an English or Western European alphanumeric keyboard overlay. The T2455 keyboard with the Western European keyboard overlay supports English and most Western European languages, such as French, German, Italian, Portuguese, Spanish, and others. You use the keyboard to enter all the characters printed on or above the keys. You can also use the accent marks above the ⌐F1⌐ through ⌐F5⌐ keys to enter a character in a Western European language. For example, you can type the character é.

Although the T2455 keyboard with the English alphanumeric keyboard does not show all the characters that are available on the Western European keyboard, you can type the same characters on either keyboard. The next illustration shows the T2455 keyboard with the Western European keyboard overlay.

Western European Keyboard

2455U.023
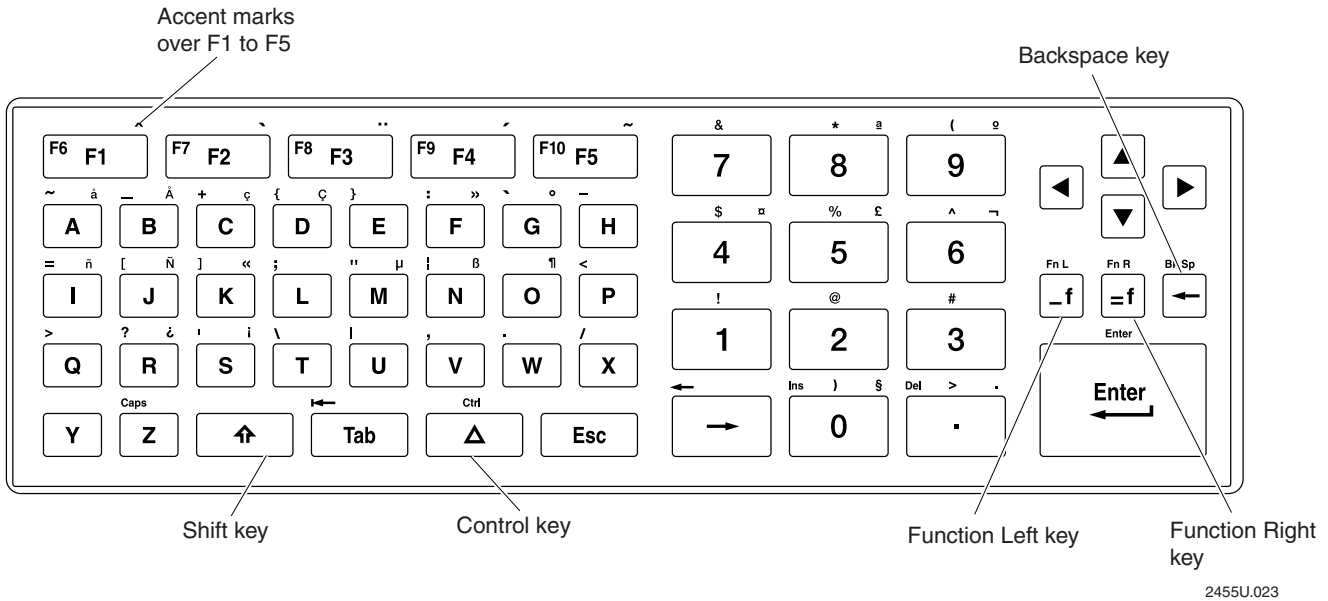
This section explains how to type characters that are not shown on the keyboard. Use the previous sections in this chapter to learn about typing characters that are shown on the keyboard; using the Function Left, Function Right, and Shift keys; or capitalizing all characters.

To type characters with an accent mark

1. Press ⊡. The Modifier Key status light is turned on.

2. Press the function key that the accent mark appears above. For example, press F3 to type the umlaut (¨).

To type	Press
ˆ (circumflex)	F1
` (grave)	F2
¨ (umlaut)	F3
´ (acute)	F4
~ (tilde)	F5

   To flush the accent mark from the keyboard buffer without entering any key, press ⊡ twice. The Modifier Key status light is turned off.

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

   • To accent a lowercase character, press the character. For example, press A to type the ä character.

- To accent an uppercase character, press the ⌂ key. Next, press the character you want to accent. For example, press ⌂ and release the key, and then press A to type the Ä character.

- To type the accent mark by itself, press the → key.

The accented character or accent mark appears on the screen and the Modifier Key status light is turned off.

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

Understanding the Terminal Audio Signals

The T2455 has an internal speaker to sound audio signals and beep sequences as you use the terminal. For example, you hear a low beep tone each time you enter or scan a valid command.

You can change the audio volume to meet the needs of your working environment. There are two ways to change the audio volume:

- Use the Beep Volume command. For help, see "Beep Volume" in Chapter 9.
- Use the TRAKKER Antares 2400 Menu System. For help, see Chapter 3, "Configuring the Terminal."

Note: If the Beep Volume is turned off, you will not hear any audio signals including the keyclick.

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

Beep Sequence	Description
Low beep	You entered a valid command or the data you entered was stored.
High beep	You entered valid data, the terminal decoded a label, or the terminal decoded the last row of a two-dimensional symbology.
Three low beeps	You entered or scanned an invalid command or data.
Four low beeps	When you boot the terminal, you hear four low beeps once the power-on self test (POST) has executed successfully.
Low beep, high beep, low beep, high beep	You hear this beep sequence when POST failed and did not execute successfully.
Click	When you press a key, the terminal sounds a click. You can disable the keyclick. For help, see "Keypad Clicker" in Chapter 9. The terminal also clicks while you are scanning a two-dimensional symbology (Code 16K or Code 49) bar code label.

Learning About the Power Supplies and Backup Battery

The T2455 operates using either a DC or an AC external power supply. It also has a rechargeable NiCad (Nickel-Cadmium) backup battery that is designed to back up all memory and the real-time clock when power is not supplied to the terminal. You must have a power supply connected to operate the terminal.

AC Power Supply

The AC power supply and AC power supply adapter cable are accessories that are ordered separately. You can use the AC power supply to power the terminal when it is in the desktop mounting stand. The AC power supply is only for use in clean, dry office-like environments with temperatures from 32°F to 104°F (0°C to 40°C). The power supply comes with a North American power cord.

Note: If you are using the terminal with the AC power supply outside North America, you need to purchase the appropriate power cable for your local power supply.

DC Power Supply Kits

There are two DC power supply kits (ordered separately) available that meet the electrical requirements of the T2455:

Low-input voltage kit   This power supply kit accepts input voltages from 10 to 36 VDC (typically from gas-powered vehicles that have a battery voltage of 12 or 24 volts). The low-input voltage kit (Part No. 067698) has a 4-pin, keyed connector.

High-input voltage kit   This power supply kit accepts input voltages from 15 to 96 VDC (typically from electric-powered vehicles that have a nominal battery voltage of 24, 36, 48, 72, or 80 volts). The high-input voltage kit (Part No. 067699) has a 2-pin, keyed connector.

Both DC power supplies provide 12 VDC output that is filtered and regulated. The power supplies also provide over-current, over-voltage, over-temperature, and shorted-output protection. For more information about installing the DC power supply, see the *TRAKKER Antares 2455 DC Power Supply Installation Guide* (Part No. 067362).

Backup Battery

The backup battery is a rechargeable NiCad battery that is designed to back up all memory and the real-time clock when power is not supplied. The backup battery provides protection for power surges, sags, spikes, and dropouts.

The features of the backup battery include:

- During a power loss, the terminal uses backup battery power to continue operating for 3 seconds. If power is still not restored, the terminal saves all data and turns off. However, if the backup battery charge is low, the terminal cannot protect the data against a power loss and will turn off immediately.

- The backup battery is rechargeable. The power supply provides the power to charge the backup battery when required with the terminal turned on or off. The terminal continuously monitors the backup battery voltage level and charges the backup battery whenever the voltage level gets low.

- The backup battery will last for a minimum of three years before its capacity is reduced. Battery life depends on the age of the backup battery, your usage, and RF duty cycle factors. If you are using the terminal in extreme environments (very hot or very cold), battery life will be reduced and you may need to replace the backup battery more often.

- The backup battery will provide backup battery power for a minimum of 7 days with a fully-charged backup battery pack installed and no external power. If you plan to store the terminal for a long period of time, save any data stored in RAM to another drive on the terminal.

    If the backup battery is still providing power when you reconnect the power supply and turn the terminal on, the terminal resumes exactly where it was when you turned it off, or restarts your application.

    Note: If the Resume Execution command is set to resume allowed, the terminal will resume the application when you turn on the terminal. Otherwise, the terminal boots and the application restarts. For help, see "Resume Execution" in Chapter 9.

Charging the Backup Battery

The backup battery backs up all memory and the real-time clock in case of a power failure. The backup battery is shipped inside the terminal, but may not be fully charged when you initially unpack your terminal.

Note: To guarantee data retention, you need to fully charge the backup battery after you first install the terminal and before you use the terminal for the first time.

The terminal continuously monitors the backup battery voltage level and charges the backup battery whenever the voltage level gets low. If an external power supply is not connected or powered, the backup battery will not charge. If the Power status light blinks, the backup battery charge is low. You can operate the terminal while the backup battery is charging.

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

- See if the Power status light is blinking on the left side above the screen.

- Check the status of the backup battery using the Backup Battery/PIC Status diagnostic.

The backup battery charger operates when the terminal is in an environment where the temperature is between 14°F and 104°F (-10°C and 40°C). On a T2455 with the cold-temperature option, the charging temperature range extends down to -4°F (-20°C).

If you are continuously using the terminal in an environment that is outside of its temperature range, the backup battery will not charge. You may need to protect the terminal and create an environment that is within the charging temperature range for a few hours every week to keep the backup battery charged.

To charge the backup battery

1. Make sure the terminal is connected to an external power supply. The terminal must be connected to either the DC power supply that is connected to the vehicle battery or the terminal must be connected to the AC power supply and a powered electrical outlet.

2. Let the power supply charge the backup battery for 14 hours to fully charge the backup battery.

Recognizing a Low or Discharged Backup Battery

If you see the Power status light blinking, the terminal is indicating that the backup battery power is low. Make sure the external power supply is connected to the terminal and a powered electrical outlet or the vehicle battery. The backup battery is fully charged within 14 hours.

If the Power status light continues to blink after 24 hours and the power supply is attached, the backup battery may be bad. Use the Battery/PIC Status diagnostic in the TRAKKER Antares 2400 Menu System to check the status of the backup battery. The Backup Battery/PIC screen displays the status (good, low, or bad), the voltage, the temperature, and the charging status of the backup battery.

If the backup battery status is bad or the backup battery will no longer hold a charge (Power status light is always blinking), you may need to replace the backup battery. You need to back up all your data stored in RAM. Any data stored in flash memory or on drive G will be saved. For help, see "Replacing the Backup Battery" in Chapter 6.

Note: If you use the terminal in a very cold or very hot temperature environment, battery life will be reduced or the backup battery may not charge. For more information, see "Backup Battery" earlier in this chapter.

Caution
When you replace the backup battery, all data stored in RAM is lost.

Conseil
Lors du remplacement de la batterie de secours, toutes les données stockées dans la mémoire vive (RAM) sont perdues.

Defining Terminal Memory and Drives

The TRAKKER Antares 2455 terminal comes with the following memory and drives:

2455U.024
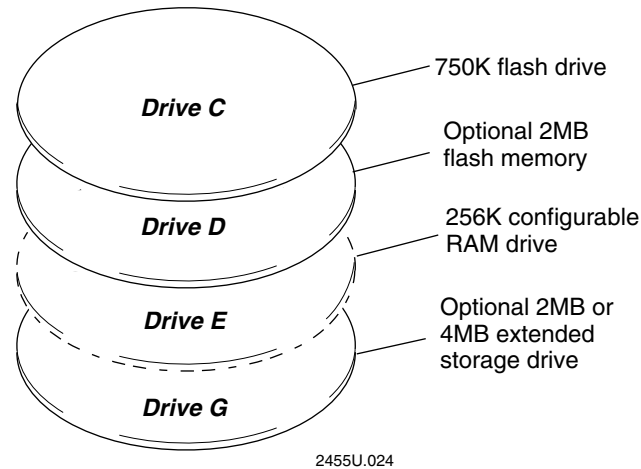
Drive C   is a 750K flash drive. You can store up to 32 files on drive C. Applications must be stored on drive C.

Drive D   is an optional 2MB extended flash memory. If you have the optional 4MB flash memory, you can configure the extra 2MB of the flash memory as a 2MB storage drive or a storage space for double-byte fonts. You can store up to 32 files on drive D or store a 2MB double-byte font set. If you configure the flash memory as drive D, use this drive to store large lookup tables and data files. For help configuring flash memory, see "Configuring Drives and Memory on the Terminal" in Chapter 3.

Note: You can only configure the 2MB (of the total 4MB) flash memory as a drive or to store fonts. You cannot use the space for both. If you configure drive D, you cannot store a font in flash memory.

Drive E   is a configurable RAM drive (up to 256K). 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 9. You can store up to 32 files on drive E. The contents of the RAM drive are erased when you boot or reset the terminal, or change the backup battery.

Drive G   is an optional 2MB or 4MB extended storage drive. You can store up to 32 files on drive G. Use this drive to store large lookup tables and data files.

Note: On each drive, filenames are customer defined using eight characters with a three-character extension.

On the terminal, applications are customer defined. You have 512K total RAM for the application execution space. You can configure up to 256K of the total 512K application execution space as a RAM drive or use it for programmable memory allocations. If the RAM drive is configured, your application execution space is reduced by the amount of the RAM drive.

Application execution space	+	Drive E	≤	512K RAM

2455U.026

Note: The remaining RAM is automatically used as the Malloc/free dynamic memory pool.

For example, if the 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. The application size is not necessarily the size of the *.BIN file. You can use the compiler map file output to determine the application size.

Where Do You Go From Here?

Now that you understand the features and capabilities of your new TRAKKER Antares 2455 terminal, you can use this manual to learn how to perform these tasks:

Task or Feature	See This Chapter
To learn how to install the terminal and connect it to your RF network	Chapter 2, "Installing the Terminal"
To learn how to configure the terminal	Chapter 3, "Configuring the Terminal"
To learn how to use the terminal in your 2.4 GHz RF, connect to wired data collection network devices, and learn about network protocols	Chapter 4, "Operating the Terminal in a Network"
To learn how to download and run custom applications on your programmable terminal	Chapter 5, "Using Custom Applications"
To learn how to respond to error messages, boot the terminal, and replace the backup battery	Chapter 6, "Troubleshooting"
To learn how to run diagnostics and check the backup battery status	Chapter 7, "Running Diagnostics"
To learn how to run the APPTSK.BIN and EM9560.BIN applications	Appendix D, "Using the Default Applications"

2

Installing the Terminal

This chapter explains how to install the TRAKKER Antares 2455 terminal in your RF network or connect to RS-232 serial devices. You will also learn how to turn on the terminal and configure the network parameters to start using the terminal.

Preparing to Install the Terminal

Make sure you have the necessary equipment to install and connect the T2455 to your network. The terminal ships with this equipment:

- Antenna
- Keyboard overlay
- Main mounting bracket and hardware
- T2455 DC power supply cable

In addition, you may need this equipment (not shipped with the T2455) to install the terminal:

- DC power supply (10 to 36 VDC or 15 to 96 VDC kit)
- AC power supply and AC power supply adapter cable
- T2455 keyboard
- Keyboard adapter cable and PC-AT keyboard
- Laser scanner and laser scanner cables
- RS-232 null-modem adapter cable
- Desktop mounting stand

Before you install the terminal, you should follow the guidelines for mounting the terminal. You should also make sure you are familiar with the ports on the bottom panel of the terminal. For help, see "Locating the Terminal Ports" in Chapter 1.

Guidelines for Mounting the T2455

The T2455 is designed to be mounted on a vertical or horizontal surface on a vehicle such as a forklift truck. You use a DC power supply that is connected to the vehicle's battery to power the T2455.

Before you install the mounting bracket, read these guidelines:

- In most cases, you will need to weld or bolt a flat mounting plate to the vehicle to secure the T2455 mounting bracket.
- Mount the T2455 where the operator can easily see the screen and use the function keypad. If possible, you should mount the terminal in a location that avoids glare from overhead lighting and sunlight.

- If you are using an accessory keyboard, determine whether you want to mount the keyboard so that it is attached to the T2455 or mount the keyboard and T2455 separately. Mount the keyboard where the operator can easily use it.

- When you mount the T2455 on metal surfaces, the minimum reinforced thickness should be 10-gauge (.250 inches or 3.4 mm) steel.

- Intermec recommends fastening a bolt (3/8-inch, 10 mm) with a flat washer, lock washer, and nut (3/8-16 UNC-2B) to each of the six holes on the mounting bracket. The bolt length will depend on the thickness of the mounting surface.

- Secure the power cables at least every 18 inches (45 cm) throughout the length of the cable run—use adjustable clamps or tie-wraps to secure the cables.

- Route all cables to minimize exposure to damage. Make sure the cables will not be pinched or rubbed by any moving parts on the vehicle. In some applications, you may need to sheath the cable to prevent it from being pinched.

Note: Mounting hardware (bolts, nuts, and washers) is not supplied with the T2455.

You can mount the T2455 in an office location to program, develop, and test applications. You use an AC power supply and adapter cable to power the T2455. To make it easier to use the T2455, mount the terminal in the desktop mounting stand accessory. For help, see "Using the Desktop Mounting Stand" later in this chapter.

Required Tools and Materials

You need the tools and materials listed next to install your T2455. These tools and materials are not supplied with the terminal.

- Common hand tools and mounting hardware

- Electric drill and drill bits

- Wire crimping and stripping tool

- Heatshrink tubing

- Heat gun

Installing the Terminal and Connecting Devices

The steps to install your T2455 depend on the mounting location and the accessories you want to attach to the terminal.

To install and configure your T2455

1. Attach the antenna to the T2455.

2. Install the mounting bracket on the vehicle.

3. Install the keyboard onto the T2455 or the vehicle (optional).

4. Install the T2455 into the mounting bracket.

5. Install and connect the DC power supply.

6. Attach a scanner

7. Connect to serial devices

8. Fully charge the backup battery.

9. Turn on the T2455 for the first time and configure it to communicate in the RF network and with a serial device.

These procedures are described in detail in the next sections.

Attaching the Antenna

The antenna is shipped with the terminal. Remove the antenna from the shipping box and attach the antenna as shown.
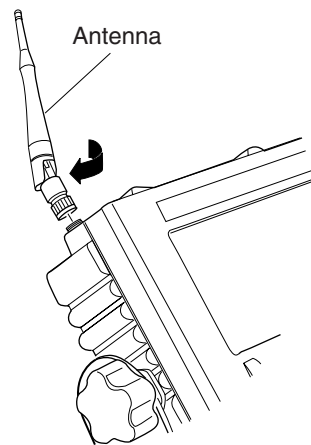
Antenna

2455U.027

You can also use an Intermec-approved accessory antenna to improve RF communications.

Note: See your Intermec sales representative for information about and a list of Intermec-approved accessory antennas for the T2455.

CAUTION

Caution
Make sure all components with antennas are at least 1 foot (0.3 meters) apart when power is applied. Failure to comply could result in equipment damage.

Conseil
Assurez-vous que la distance entre tous les éléments avec antennes soit d'au moins un pied (0.3 mètres) avant de faire la connexion avec l'alimentation électrique, faute de quoi vous risquez d'endommager votre installation.

Installing the Mounting Bracket on the Vehicle

The T2455 is designed to be mounted on a vertical or horizontal surface. Before you install the mounting bracket, read the "Guidelines for Mounting the T2455" earlier in this chapter.

Note: If you are planning the installation and do not have the mounting bracket yet, see "Physical and Environmental Specifications" in Appendix A for the dimensions of the mounting bracket.

To attach the mounting bracket to the vehicle

1. Orient the mounting bracket as follows:

   - If you are mounting the T2455 only, the curved arms of the mounting bracket must point toward you.
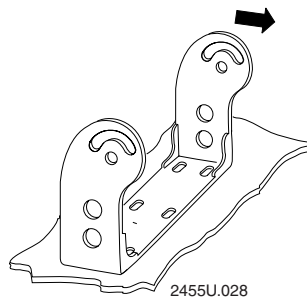
2455U.028

   - If the keyboard is attached to the T2455, the curved arms of the mounting bracket must point away from you.

Installing the Mounting Bracket on the Vehicle

2455U.029
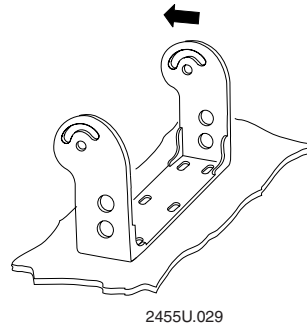
2. Using the mounting bracket as a template, mark and drill six holes in the mounting surface.

3. Attach the mounting bracket using a bolt (3/8-inch, 10 mm) with a flat washer, lock washer, and nut (3/8-16 UNC-2B) through each of the six holes in the mounting bracket and the mounting surface.

2455U.030
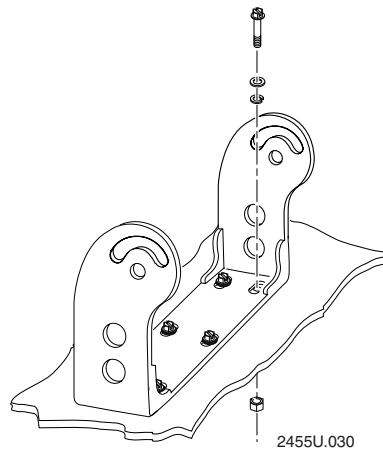
Installing the Keyboard

You can attach a keyboard to use with the T2455. There are two options:

• Intermec T2455 accessory keyboard (Part No. 067028)

• PC-AT keyboard and Intermec keyboard adapter cable (Part No. 066848)

You can mount the keyboard directly to the T2455, or you can mount it to a remote location, such as the dashboard of your vehicle.

To install the keyboard

1. If you are using the T2455 keyboard, install the keyboard overlay that shipped with the terminal. For help, see the *TRAKKER Antares 2455 Keyboard Installation Guide* (Part No. 067363).

2. If you are installing the keyboard separate from the T2455, determine the mounting locations for the terminal and the keyboard.

3. If you are installing a PC-AT keyboard (non-T2455 keyboard), you need to determine how to mount the keyboard to the mounting surface on the vehicle.

4. Install the keyboard on the T2455 or on the vehicle. For help with the T2455 keyboard, see the *TRAKKER Antares 2455 Keyboard Installation Guide* (Part No. 067363).

5. If you are using a PC-AT keyboard, connect the Intermec keyboard adapter cable to the keyboard cable.

6. Unplug the rubber plug from the Keyboard port on the terminal.

7. Insert the keyboard cable connector straight into the Keyboard port on the terminal. The icon on the keyboard cable connector should align with the same icon on the back of the T2455.

   Note: Firmly push the keyboard cable connector straight into the Keyboard port. If the connector doesn't fit, do not force it. Do not wiggle or twist the keyboard cable connector—you may damage the connector.

   Keyboard cable connector

   Keyboard

   2455U.031
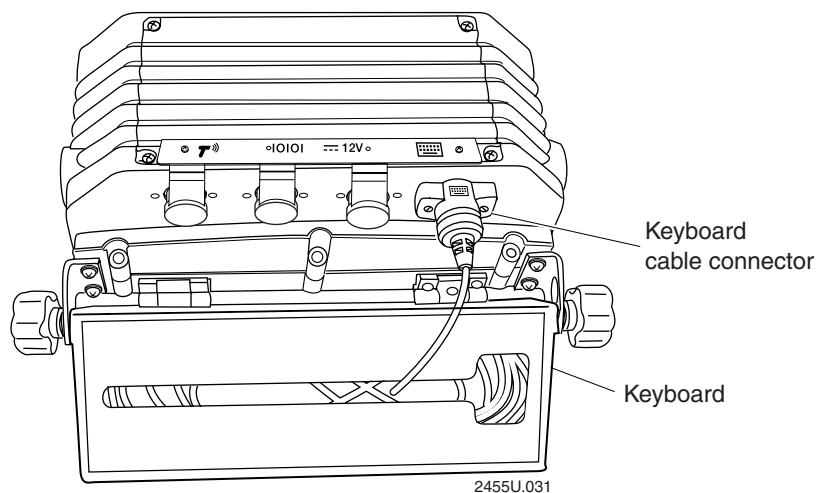
   Note: The Keyboard port plug is not shown for clarity.

8. Use a small straight-slot screwdriver to tighten the two screws in the keyboard cable connector and secure the cable to the T2455.

9. Tuck any excess cable into the back of the keyboard or make sure the cable will not be pinched or rubbed by any moving parts on the vehicle.

Installing the T2455 in the Mounting Bracket

After you have installed the mounting bracket and keyboard (optional), you can attach the T2455 to the mounting bracket.

To attach the T2455 to the mounting bracket

1. Remove the backing from the wear plates.

2. Place the wear plates on the bracket mounting area on each side of the terminal screen. Press firmly on the edges to attach the wear plates to the terminal.

Wear plate

Shoulder screw hole

Knob hole

2455U.033
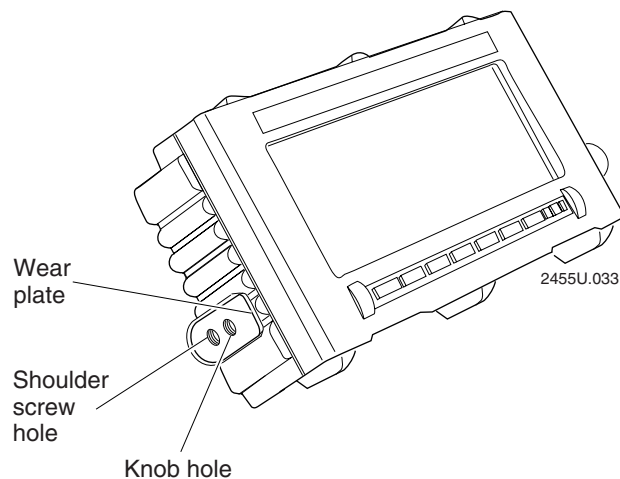
3. Place the terminal between the arms of the mounting bracket. If the keyboard is attached to the T2455, the curved arms of the mounting bracket must point away from you.

4. Insert the two shoulder screws on either side of the mounting bracket to attach the terminal to the bracket. Tighten the shoulder screws with an Allen wrench.

5. Place the lock washer and metal washer on each adjustment knob and then insert the knob through the mounting bracket and thread it into the terminal as shown in the next two illustrations.

Installing the Mounting Bracket Without a Keyboard
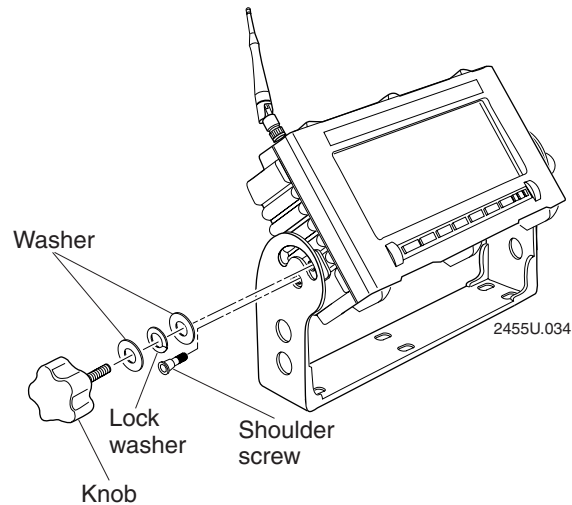
Installing the Mounting Bracket With a Keyboard
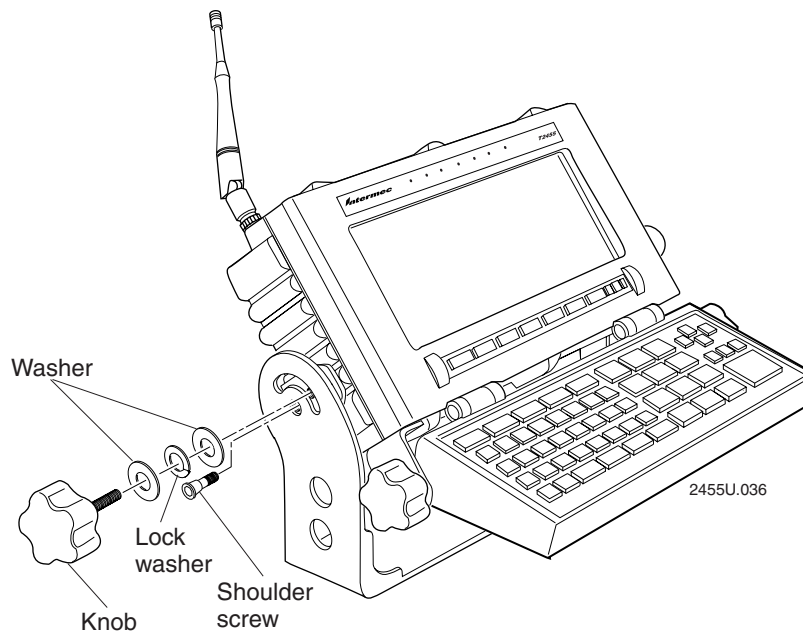
6. Adjust the terminal screen to the best-possible viewing angle for the vehicle operator. Tighten the knob on each side to secure the terminal in the mounting bracket.

7. Periodically inspect the knob on the mounting bracket to make sure they are still tight. Check the mounting bracket for any signs of fatigue, such as cracking, which might develop over extended use in extreme (vibration) environments. Replace any damaged hardware immediately to ensure continued, safe operation.

Installing and Connecting the DC Power Supply

You need to install the DC power supply and connect the power supply to the vehicle battery and to the T2455. You need one of these DC power supply kits:

*   Low-input voltage kit (10 to 36 VDC) (Part No. 067698)

*   High-input voltage kit (15 to 96 VDC) (Part No. 067699)

This illustration shows how the DC power supply and cables are installed with your vehicle battery and the T2455.
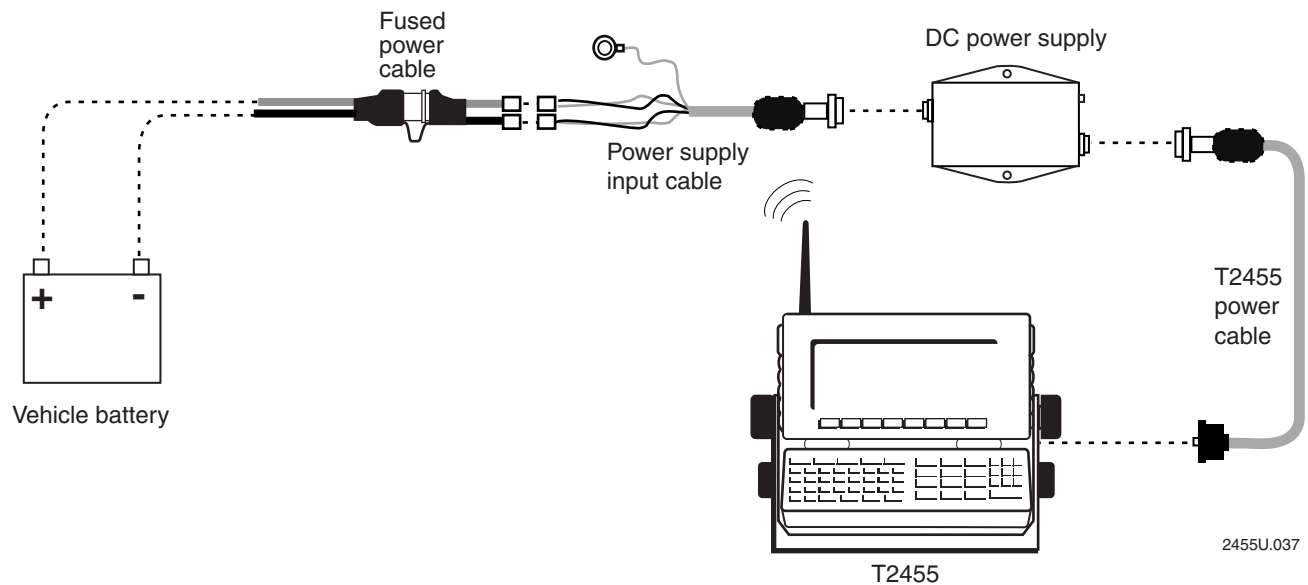
To install and connect the DC power supply

1. Disconnect the vehicle battery cables.

2. (Optional) Wire or add a remote disconnect for the DC power supply on combustion-powered vehicles that have smaller capacity batteries.

3. Connect the fused power cable to the vehicle battery or terminal block.

4. Mount the DC power supply.

5. Connect the power supply input cable to the power supply.

6. Install terminators on the power supply input cable.

7. Attach the power supply input cable to the fused power cable.

8. Attach the T2455 power cable to the power supply and to the terminal.

9. Reconnect the vehicle battery cables.

For detailed instructions on installing the DC power supply, see the *TRAKKER Antares 2455 DC Power Supply Installation Guide* (Part No. 067362).

Attaching a Scanner

You can attach a laser scanner to scan and input bar code data. Use the accessory laser scanner cables to connect a scanner. For help ordering the appropriate laser scanner cable, see Appendix A, "Terminal Specifications."

To attach a scanner

1. Unplug the rubber plug from the Scanner port on the terminal.

2. Insert the scanner cable connector straight into the Scanner port on the terminal. The icon on the scanner cable connector should align with the same icon on the back of the T2455.

    Note: Firmly push the scanner cable connector straight into the Scanner port. If the connector doesn't fit, do not force it. Do not wiggle or twist the scanner cable connector—you may damage the connector.

Scanner
cable
connector

2455U.038
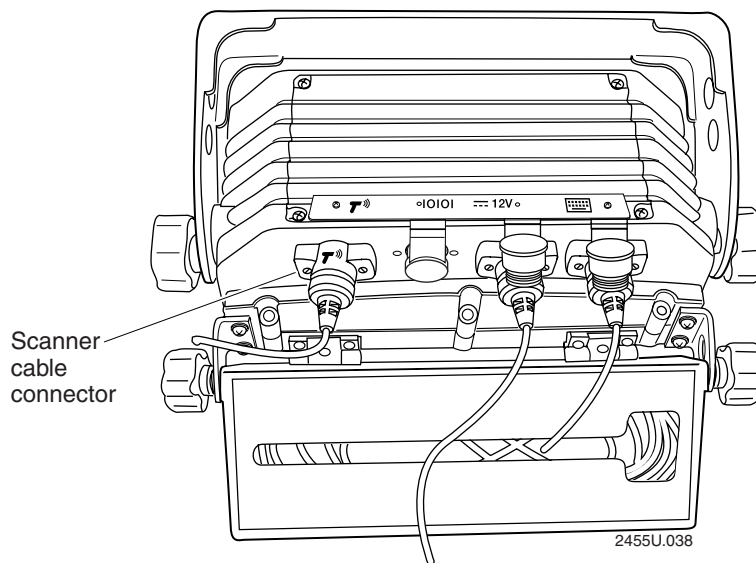
Note: The Scanner port plug is not shown for clarity.

3. Use a small straight-slot screwdriver to tighten the two screws in the scanner cable connector and secure the cable to the T2455.

4. Attach the other end of the scanner cable to your scanner.

5. Make sure the cable will not be pinched or rubbed by any moving parts on the vehicle.

Connecting to Serial Devices

You use the terminal's serial ports to transfer data between the terminal and a serial device using RS-232 communications. The terminal has a dedicated serial port (COM1). A second serial port is available if you configure the Scanner port as COM4.

You need to use an adapter cable to connect a serial device such as a PC, scale, or printer to COM1 and COM4:

• For COM1, you can use one of the adapter cables listed in "Cable Accessories" in Appendix A.

• For COM4, you must use the COM Port Adapter Cable (Part No. 061799).

The next two procedures describe how to connect a serial device to COM1 and COM4.

To connect a serial device to COM1

1. Unplug the rubber plug from the COM1 port on the terminal.

2. Insert the RS-232 adapter cable connector straight into the COM1 port on the terminal. The icon on the RS-232 adapter cable connector should align with the same icon on the back of the T2455.

   Note: Firmly push the RS-232 adapter cable connector straight into the COM1 port. If the connector doesn't fit, do not force it. Do not wiggle or twist the RS-232 adapter cable connector—you may damage the connector.

RS-232
adapter cable
connector

2455U.039
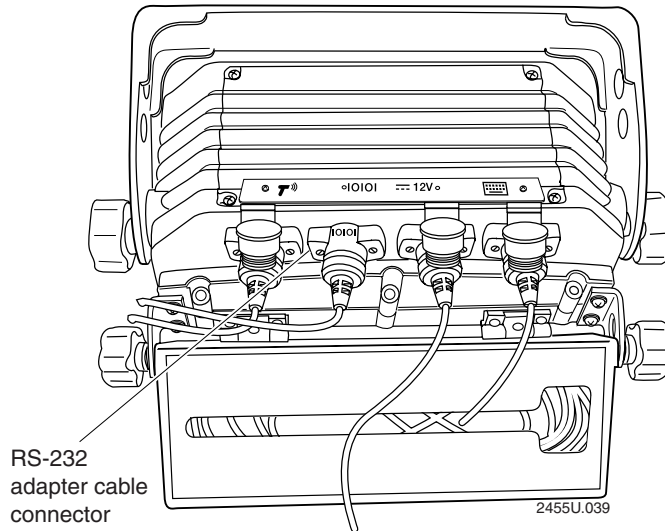
Note: The COM1 port plug is not shown for clarity.

3. Use a small straight-slot screwdriver to tighten the two screws in the RS-232 adapter cable connector and secure the cable to the T2455.

4. Attach the other end of the RS-232 adapter cable to the 9-pin RS-232 connector on your serial device.

5. Make sure the cable will not be pinched or rubbed by any moving parts on the vehicle.

To connect a serial device to COM4

1. Unplug the rubber plug from the Scanner port on the terminal.

2. Insert the COM port adapter cable (Part No. 061799) connector into the Scanner port on the terminal.

   Note: This cable does not provide an environmentally sealed connection to the T2455.

3. Attach the other end of the COM port adapter cable to the 9-pin RS-232 connector on your serial device.

4. Make sure the cable will not be pinched or rubbed by any moving parts on the vehicle.

5. Configure the Scanner Port as COM4. For instructions, see "Scanner Port (COM4)" in Chapter 9.

Charging the Backup Battery

The backup battery backs up all memory and the real-time clock in case of a power failure. The backup battery is shipped inside the terminal, but may not be fully charged. You need to fully charge the backup battery. You can operate the terminal while the backup battery is charging.

For more information about the backup battery, see "Backup Battery" in Chapter 1.

Note: To guarantee data retention, you need to fully charge the backup battery after you first install the terminal and before you use the terminal for the first time.

To charge the backup battery

1. Make sure the terminal is connected to an external power supply. The terminal must be connected to either the DC power supply that is connected to the vehicle battery or the terminal must be connected to the AC power supply and a powered electrical outlet.

2. Let the power supply charge the backup battery for 14 hours to fully charge the backup battery.

Turning On the Terminal for the First Time

Once the power supply is connected and you have installed the terminal, you are ready to turn on the terminal.

To turn on the terminal

1. Press the ⌷ key on the function keypad. The terminal runs POST (power-on self test) and then the Boot Menu appears.

```
        BOOT MENU

    F1 - Boot System

    F2 - Run Loader

    F3 - Power Down



POWER DOWN IN 60 SEC
```

2455U.040

Note: If the backup battery charge is low and the terminal fails POST, a POST results screen appears. If the backup battery is the only failed test, press $\boxed{\text{esc}}$ or $\boxed{\text{F5}}$ to exit the screen. If any other test failed, contact your local service representative before using the terminal.

2. Press $\boxed{\text{F1}}$ to boot the terminal and initialize the firmware. The TRAKKER Antares screen appears.

TRAKKER®
antares™

Initializing
VERSION 4.XX
COPYRIGHT 1996-1998
Intermec

2455U.042

Next, either a sample application screen or a terminal emulation (TE) application welcome screen appears. For example:


```
1996/01/01   12:00:00
```

```
Intermec

TRAKKER Antares
    3270
  Terminal
  Emulation
 Version 5.X
```
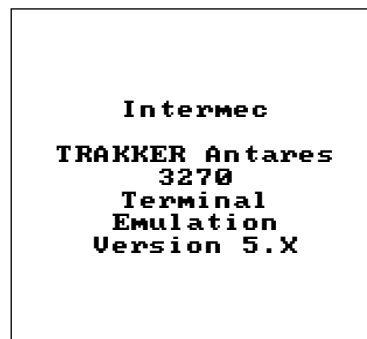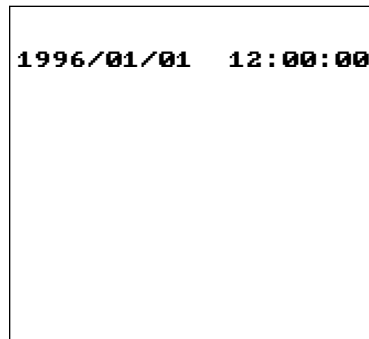
2455U.043

Note: On a T2455 loaded with terminal emulation, you may need to press $\boxed{\hookleftarrow}$ to create the TE configuration file.

3. Configure the RF or serial communications parameters so that you can begin using the terminal. Follow the instructions for "Configuring the Terminal to Communicate in Your Network" in the next section.

Configuring the Terminal to Communicate in Your Network

You need to configure the T2455 to communicate with RF or serial devices in your network. Here are the parameters you need to set:

* Time and Date

* RF communications

* Serial port (COM1)

The next sections list the parameters you need to configure and explain how to use the TRAKKER Antares 2400 Menu System to configure the terminal.

Setting the Time and Date

You need to set the time and date on the terminal so that all transactions are correctly date and timestamped.

To set the time and date

1. Press ⌴ ↵ 2 4 8 or scan this bar code to access the TRAKKER Antares 2400 Menu System:

   Enter Test and Service Mode

   |||||||||||||||||||||||||||||||||||||

   ..-.

   The Main Menu appears.
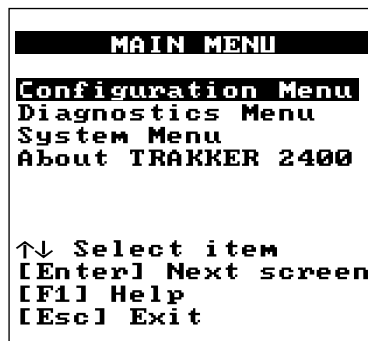
   ```
   ┌──────────────────────────┐
   │      MAIN MENU           │
   │                          │
   │ Configuration Menu       │
   │ Diagnostics Menu         │
   │ System Menu              │
   │ About TRAKKER 2400       │
   │                          │
   │                          │
   │ ↑↓ Select item           │
   │ [Enter] Next screen      │
   │ [F1] Help                │
   │ [Esc] Exit               │
   └──────────────────────────┘
   ```
   2455U.044

2. Press ▼ to choose the System Menu and then press ↵ . The System Menu appears.

System Menu

```
        SYSTEM MENU
File Manager
Load Default Values
Set Time and Date
Store Configuration
Upgrade Firmware



↑↓ Select item
[Enter] Next screen
[F1] Help
[Esc] Exit
```

2455U.046

3. Press ▼ to choose the Set Time and Date command and then press ⏎ . The Time
    and Date screen appears.

```
     TIME AND DATE
Current time is
 12:00:00
New time:
 12:39:00

Current date is
 1996/01/01
New date YYYY/MM/DD:


  OK            CANCEL
```
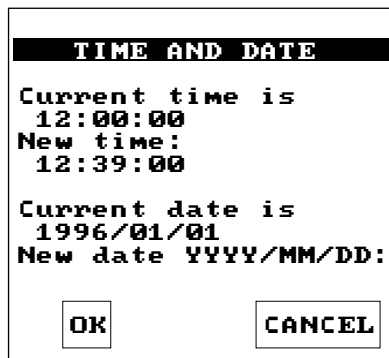
2455U.047

4. Type the current time in the format HH MM SS (hours, minutes, seconds) with a
    space character (→) between each field and then press ▼. The program fills in the
    colon character in the time field.

    For example, to enter the time 04:05:03 P.M., type:

    1 6 → 0 5 → 0 3 ▼

    *Note: The time is not actually updated until you exit the Time and Date screen.
    When you set the time, set the time ahead so that the correct time is saved when you
    exit the screen in Step 6.*

5. Type the current date in the format YYYY MM DD (year, month, day) with a space
    character (→) between each field and then press ▼. The program fills in the slash
    character in the date field.

For example, to enter the date August 9, 1998, type:

1 9 9 8 → 0 8 → 0 9 ▼

6. Press ↵ to save the changes and exit the Time and Date screen.

7. Press esc to exit the System Menu. The Main Menu appears.

8. If you want to configure the terminal for your RF network, continue with the next section, "Configuring RF Communications."

    If you want to configure the serial port, follow the instructions for "Configuring the Serial Port Parameters" later in this chapter.

Configuring RF Communications

The TRAKKER Antares 2455 terminal communicates with a host computer in Intermec's 2.4 GHz RF network through the DCS 300, the Model 200 Controller, or directly through the access points. The terminal uses one of these RF network protocol options to communicate with other devices:

•   UDP Plus

•   TCP/IP

The terminal ships with only one of these RF network protocols. In a UDP Plus network, the terminal communicates through the DCS 300 or Model 200 Controller to a host on an Ethernet, token ring, twinaxial, coaxial, or SDLC network. In a TCP/IP network, the terminal communicates through the access point, which is connected to the host on an Ethernet or token ring network.

Note: The T2455 will communicate with either the DCS 300 or the Model 200 Controller. The DCS 300 is a new data collection server that replaces the Model 200 Controller.
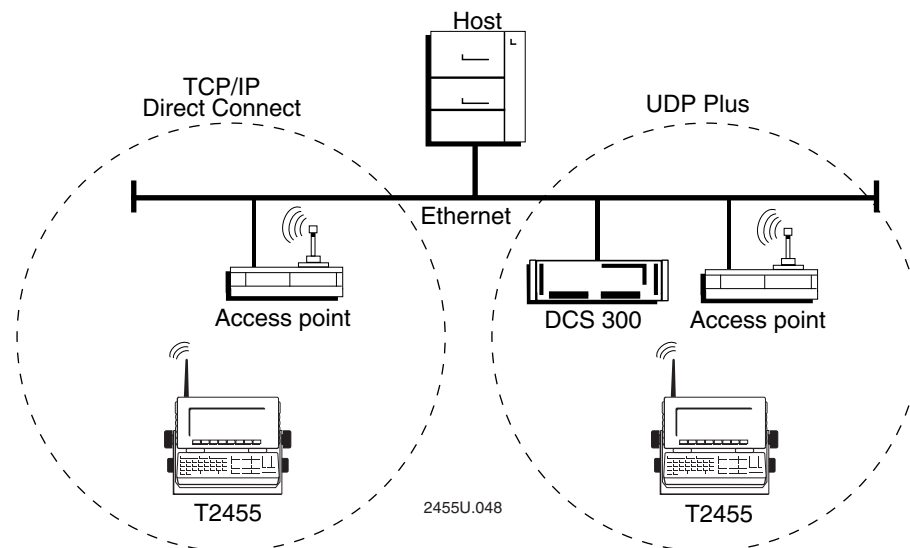
You need to configure these network parameters to begin using RF communications:

Network Parameter	Default Value
Network activate	Disabled
Controller IP address (UDP Plus)	0.0.0.0
Host IP address (TCP/IP)	0.0.0.0
Terminal IP address	0.0.0.0
RF domain	0
RF security identification (ID)	None (not set)
Network port (UDP Plus)	5555
Network port (TCP/IP)	23

Use the TRAKKER Antares 2400 Menu System to set these parameters. For a detailed definition of these parameters, see Chapter 4, "Operating the Terminal in a Network."

Note: If the terminal is on a different IP subnetwork from the DCS 300, controller, or host, you must also configure the default router and subnet mask.

To configure the terminal to use RF communications

1. Configure the DCS 300 (UDP Plus), Model 200 Controller (UDP Plus), or host (TCP/IP). For help, see your server, controller, or host system manual.

2. Configure the access point. For help, see your access point user's manual.

3. Configure the terminal. From the Main Menu, press ▲ or ▼ to choose the Configuration Menu and then press ⏎ . The Configuration Menu appears.

    Note: If you are not in the TRAKKER Antares 2400 Menu System, press [f] [⏎] [2] [4] [8] *to access the Main Menu.*

4. Press ▼ to choose the Communications Menu and then press ⏎ . The Communications Menu appears.

5. Press ⏎ to choose the Primary Network command. The Primary Network screen appears.

UDP Plus Primary Network   TCP/IP Primary Network
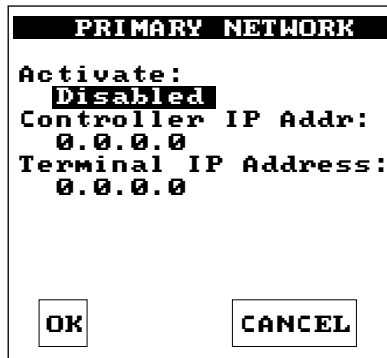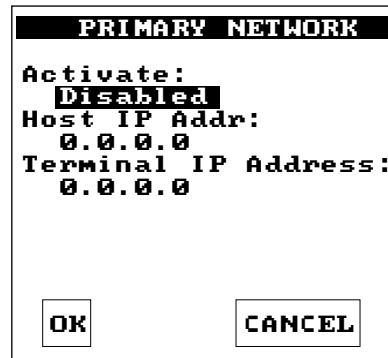
```
┌─────────────────────────┐   ┌─────────────────────────┐
│      PRIMARY NETWORK     │   │      PRIMARY NETWORK     │
│ Activate:                │   │ Activate:                │
│  Disabled                │   │  Disabled                │
│ Controller IP Addr:      │   │ Host IP Addr:            │
│   0.0.0.0                │   │   0.0.0.0                │
│ Terminal IP Address:     │   │ Terminal IP Address:     │
│   0.0.0.0                │   │   0.0.0.0                │
│                          │   │                          │
│                          │   │                          │
│  ┌────┐      ┌────────┐  │   │  ┌────┐      ┌────────┐  │
│  │ OK │      │ CANCEL │  │   │  │ OK │      │ CANCEL │  │
│  └────┘      └────────┘  │   │  └────┘      └────────┘  │
└─────────────────────────┘   └─────────────────────────┘
```
                                              2455U.049

6. Press ▶ to set the Network Activate command to 2.4 GHz RF. Press ▼ to move to
    the next field.

    Enter the Controller IP address for a UDP Plus network. Enter the Host IP address
    for a TCP/IP network. Enter the Terminal IP address.

    IP address fields consist of four separate numbers. Each number in the field is
    separated by a period and can be a number from 0 to 255. Type the address in the
    format *nnn.nnn.nnn.nnn* and then press ▼.

    For example, if your terminal IP address is 192.100.100.3, type:

    ```
    ┌─┐┌─┐┌─┐┌─┐┌─┐┌─┐┌─┐┌─┐┌─┐┌─┐┌─┐┌─┐┌─┐
    │1││9││2││.││1││0││0││.││1││0││0││.││3│
    └─┘└─┘└─┘└─┘└─┘└─┘└─┘└─┘└─┘└─┘└─┘└─┘└─┘
    ```
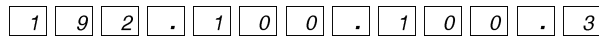
    Note: The network cannot be activated if the first address segment in the IP
    address is set to 0, 127, or a number greater than 223.

7. Press ⏎ to save the changes and exit the Primary Network screen.

8. Press ▼ to choose the Radio command and then press ⏎ . The Radio screen
    appears.

UDP Plus and TCP/IP Radio

```
┌─────────────────────────┐
│          RADIO           │
│ Domain: 00               │
│ Security ID:             │
│  (ID unchanged)          │
│ Wakeup on Broadcast:     │
│  No                      │
│ Roam Flag:               │
│  Allowed                 │
│ Transmit Mode: BFSK      │
│ Inactivity Timeout:      │
│  5 sec                   │
│  ┌────┐      ┌────────┐  │
│  │ OK │      │ CANCEL │  │
│  └────┘      └────────┘  │
└─────────────────────────┘
```
                     2455U.050
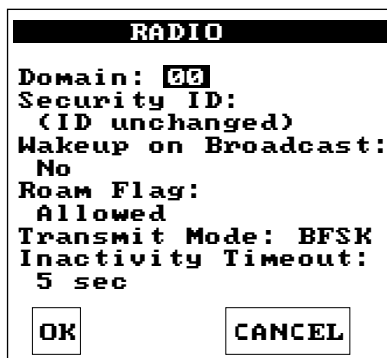
9. In the Domain field, type a number from 0 to 15 and then press ▼. The domain must match the number set on the access point.

    In the Security ID field, type the RF security identification and then press ▼. The Security ID is case-sensitive and can be up to 20 characters long. It must match the security ID set on the access point.

    Press ⏎ to save the changes and exit the Radio screen.

    Note: If the terminal is on a different IP subnetwork from the DCS 300, controller, or host, you must also configure the default router and subnet mask. Choose the Advanced Network command to set these parameters. For help, see Chapter 4, "Operating the Terminal in a Network."

10. For TCP/IP networks, press ▲ to choose the Advanced Network command and then press ⏎ . The Advanced Network screen appears.

    UDP Plus Advanced Network   **TCP/IP Advanced Network**

    ```
    ┌──────────────────────┐    ┌──────────────────────┐
    │  ADVANCED NETWORK    │    │  ADVANCED NETWORK    │
    │                      │    │                      │
    │ Loopback: Disabled   │    │ Network Port: 00023  │
    │ Network Port: 05555  │    │ Subnet Mask:         │
    │ Subnet Mask:         │    │  255.255.255.0       │
    │  255.255.255.0       │    │ Default Router:      │
    │ Default Router:      │    │  0.0.0.0             │
    │  0.0.0.0             │    │ TCP/IP Maximum       │
    │ Controllr Connect Chk│    │  Transmit Timeout:   │
    │  Send Timer:0035 sec │    │  020 sec             │
    │  Recv Timer:0060 sec │    │                      │
    │ Retries: 07          │    │                      │
    │                      │    │ ┌────┐    ┌──────┐   │
    │                      │    │ │ OK │    │CANCEL│   │
    │ ↓ more               │    │ └────┘    └──────┘   │
    └──────────────────────┘    └──────────────────────┘
    ```
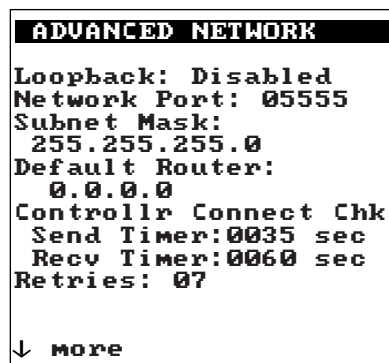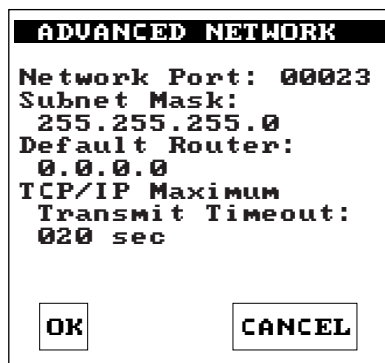
    2455U.051

11. In the Network Port field, type a number from 1 to 65535 and then press ⏎ . The default value is 23, which enables VT/ANSI Telnet communications. If you are not using Telnet communications, enter the port number used by your application.

    Note: For UDP Plus networks, the Network Port default is 5555, which matches the default value set on the DCS 300 and controller.

12. Press ᵉˢᶜ to exit the Communications Menu. The Configuration Menu appears.

13. Press ᵉˢᶜ to exit the Configuration Menu.

14. Press ⏎ to choose Yes and save the new configuration in RAM. Once the changes are saved, the terminal uses the new configuration.

Saving Configuration Changes in RAM Screen

```
Save new
configuration
(in RAM)?

  Yes      No

     CANCEL
```
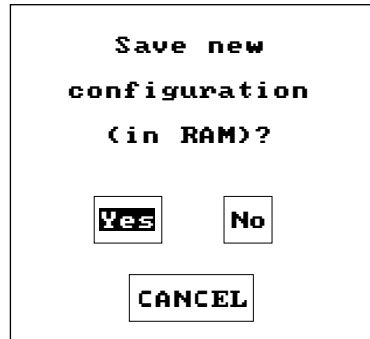
2455U.053

15. Press `esc` to exit the TRAKKER Antares 2400 Menu System.

16. Press `↵` to choose Yes and store your changes permanently in flash memory.

17. Press `↵` to choose OK and exit the TRAKKER Antares 2400 Menu System. The terminal tries to establish communications with the DCS 300, the controller, or the host.

     For terminal emulation applications in a UDP Plus network, you need to configure the host name in the TE Configuration menu to establish communications. For help, see the *TRAKKER Antares Terminal Emulation User's Guide*.

Once the terminal connects, the login or initial screen for your application appears and the Connect status light remains on. You can begin using the terminal to collect data. Follow the instructions in the section, "Starting the Application and Using the Terminal" later in this chapter.

Note: *While the terminal is connecting to the DCS 300, controller, or host, the terminal ignores any input from the keypad, keyboard, or scanner. Wait until the terminal is connected before you try to enter any data.*

Configuring the Serial Port Parameters

You use the terminal serial ports to transfer data between the terminal and a serial device, such as a printer, scale, or PC. The terminal has two serial ports (COM1 and COM4) that support RS-232 communications. For help connecting a serial device to each COM port, see "Connecting to Serial Devices" earlier in this chapter.

You must first select the communications protocol for the COM port. Depending on the protocol, you need to set some or all of these serial port parameters to have the terminal communicate with a serial device:

Serial Port Parameters

Parameter	Default Value
Baud rate	19200
Commands via serial port	Enabled without TMF
Data bits	7
EOM (End of Message)	\x03 (hexadecimal ASCII value for ETX)
Flow control	None
Handshake	Disabled
LRC	Disabled
Parity	Even
Poll (Polling)	Disabled
Serial Port Protocol	Configurable
SOM (Start of Message)	\x02 (hexadecimal ASCII value for STX)
Stop bits	1
Timeout delay	10 seconds

The values you set for the terminal serial port must match the values set for the device's serial port.

You use the TRAKKER Antares 2400 Menu System to set the parameters on the terminal. For a detailed definition of these parameters, see Chapter 4, "Operating the Terminal in a Network."

To set the serial port parameters

1. From the Main Menu, choose the Configuration Menu and then press ⏎ . The Configuration Menu appears.

    Note: If you are not in the TRAKKER Antares 2400 Menu System, press
    f ⏎ 2 4 8 *to access the Main Menu.*

```
┌──────────────────────────┐
│  CONFIGURATION MENU      │
│                          │
│ Symbologies Menu         │
│ Communications Menu      │
│ Terminal Menu            │
│                          │
│                          │
│                          │
│  ↑↓ Select item          │
│ [Enter] Next screen      │
│ [F1] Help                │
│ [Esc] Exit               │
│                          │
└──────────────────────────┘
```
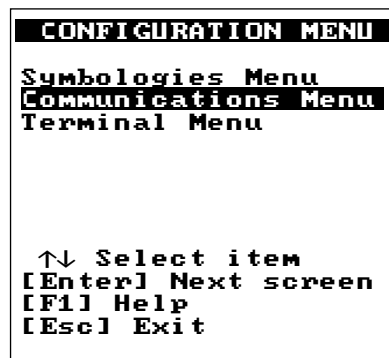
2455U.054

2. Press ▼ to choose the Communications Menu and then press ⏎ . The
    Communications Menu appears.

```
COMMUNICATIONS MENU

Primary Network
Advanced Network
Radio
Serial Port [COM1]
Serial Port [COM4]



 ↑↓ Select item
[Enter] Next screen
[F1] Help
[Esc] Exit
```

2455U.055

3. Choose COM1 or COM4 and press ⏎ . One of these Serial Port screens appears.

```
   SERIAL PORT [COM1]

Protocol:
 Configurable
Baud Rate: 19200
Parity: Even
Data Bits: 7
Stop Bits: 1




↓ more
```

```
   SERIAL PORT [COM4]

Scanner Port:
 Scanner Enabled
Protocol:
 Configurable
Baud Rate:19200
Parity: Even
Data Bits: 7
Stop Bits: 1




↓ more
```

2455U.200

4. To configure COM4, you must first set the Scanner Port field. Press ▶ to toggle
    through the options and select one of the RS-232 values. Press ▼ to move to the
    next field. For help, see "Scanner Port (COM4)" in Chapter 9.

5. You must next select the protocol for the COM port. When you select a protocol,
    the serial port parameters screen changes to display the parameters that you can set
    for each protocol.

    Select one of these protocols:

    *   Configurable
    *   Polling Mode D
    *   Master Polling
    *   Binary

Press ▶ to toggle through the protocol options and select a value. Press ▼ to move to the next field. For more information about protocols, see Chapter 4, "Operating the Terminal in a Network."

6. In each field, press ▶ to toggle through the field options and select a value. Once the correct value is displayed, press ▼ to move to the next field. Or, enter a value in the field.

   You must set each of the terminal serial port parameters to match your serial device settings. Once they match, you can communicate through the terminal serial port.

7. Press ⏎ to save the changes and exit the Serial Port screen. The Communications Menu appears.

8. Press ␛ until you exit the menus.

9. Press ⏎ to choose Yes and save the new configuration in RAM. Once the changes are saved, the terminal uses the new configuration.

10. Press ␛ to exit the TRAKKER Antares 2400 Menu System.

11. Press ⏎ to choose Yes and store your changes permanently in flash memory.

12. Press ⏎ to choose OK and exit the TRAKKER Antares 2400 Menu System.

Starting the Application and Using the Terminal

Your T2455 ships loaded with one of these applications:

- Sample application

- Terminal emulation application (IBM 3270, IBM 5250, or VT/ANSI)

To start the application and use the terminal

1. Press ⏻ to turn on the terminal. The login or initial screen for your application appears.

2. Check the three application screens shown next in the left column. Find the application screen that matches the one on your terminal. Follow the instructions on the right of the screen to use the terminal.

Sample Application Screen

```
1998/01/08  08:10:50
```
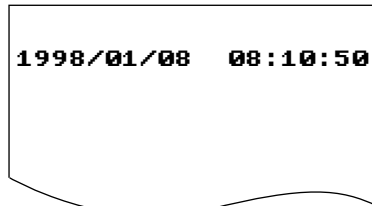
2455U.057

a. Use the sample application to scan bar code labels and test the keyboard.

b. (Optional) Connect the T2455 to a host computer using the COM1 port connector. For help, see "Installing the Terminal and Connecting Devices" earlier in this chapter.

c. Download your data collection application to the terminal either through the serial port or from the DCS 300, Model 200 Controller, or host and run it. For help, see Chapter 5, "Using Custom Applications."

3270/5250 TE Sign-On Screen

```
      Sign on
User..............
Password..........
Program/procedure.
Menu..............
Current Library...
```

2455U.058

a. Configure the terminal emulation application (if necessary). For help, see the *TRAKKER Antares Terminal Emulation User's Guide*.

b. Log in to a terminal emulation session.

c. Start using the terminal to collect and transmit data.

VT/ANSI TE Login Screen

```
<login:
```
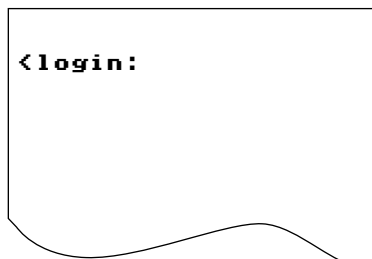
2455U.059

a. Configure the terminal emulation application (if necessary). For help, see the *TRAKKER Antares Terminal Emulation User's Guide*.

b. Log in to a terminal emulation session.

c. Start using the terminal to collect and transmit data.

Turning the Terminal On and Off

The Suspend/Resume key is the Ⅰ/o key on the right side of the function keypad.

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

When you press Ⅰ/o to turn on the terminal, the terminal either resumes exactly where it was when you turned it off, or the terminal boots and restarts your application. Resume is controlled through a parameter or command called Resume Execution. By default, the terminal resumes your application. For help, see "Resume Execution" in Chapter 9.

You can configure the terminal to disable the Ⅰ/o key. When the Ⅰ/o key is disabled, you cannot turn off the terminal. By default, the Ⅰ/o key is enabled so you can turn the terminal on and off. For help, see "Suspend/Resume Control" in Chapter 9.

Using the Desktop Mounting Stand

The desktop mounting stand provides a stable platform if you want to connect the terminal to your PC to develop applications. Use the AC power supply (Part No. 065236) and AC power supply adapter cable (Part No. 066842) to power the terminal when it is in the desktop mounting stand.

Note: The AC power supply is only for use in clean, dry office-like environments with temperatures from 50°F to 104°F (10°C to 40°C). On a T2455 with the cold-temperature option, the heaters are designed to operate the terminal below this range, but only by using a DC power supply.

To use the desktop mounting stand

1. Attach the mounting bracket to the desktop mounting stand using the hardware that shipped with the stand. For help, see the *T2455 Desktop Mounting Stand Instruction Sheet* (Part No. 067361).

2. Attach the T2455 to the mounting bracket. For help, see "Installing the T2455 in the Mounting Bracket" earlier in this chapter.

Using the Desktop Mounting Stand

2455U.062
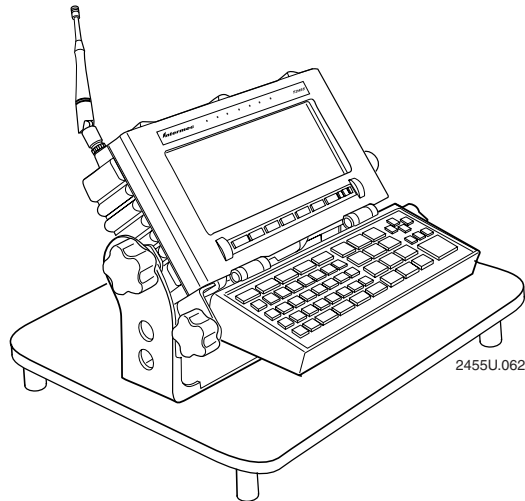
3. Unplug the rubber plug from the Power Supply port on the terminal.

4. Insert the AC power supply adapter cable connector straight into the Power Supply port on the terminal. The icon on the AC power cable connector should align with the same icon on the back of the T2455.

    Note: Firmly push the AC power cable connector straight into the Power Supply port. If the connector doesn't fit, do not force it. Do not wiggle or twist the power cable connector—you may damage the connector.

Power cable
connector

2455U.064
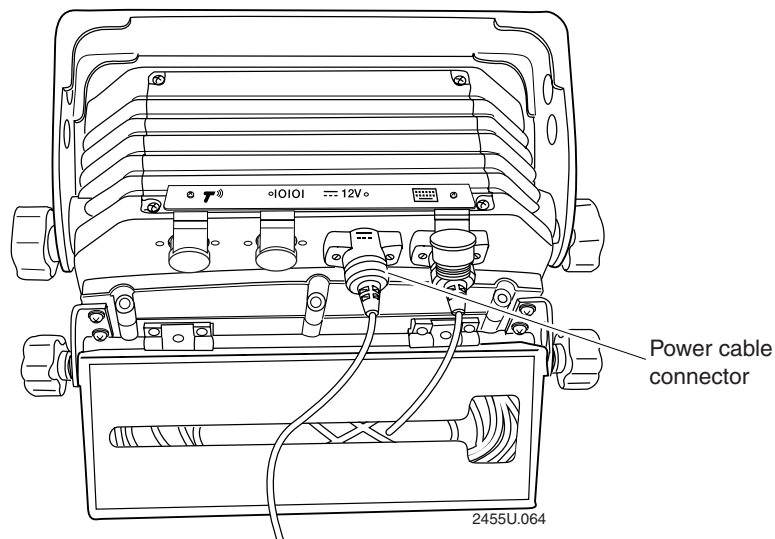
Note: The Power Supply port plug is not shown for clarity.

5. Use a small straight-slot screwdriver to tighten the two screws in the AC power cable connector and secure the cable to the T2455.

6. Attach the other end of the AC power cable to the AC power supply. Next, connect the power cord from the AC power supply to a powered electrical outlet.

Using Input Devices

You use bar code input devices that are connected to the TRAKKER Antares 2455 terminal to scan and enter bar code data. The terminal decodes the bar code label and enters the data or command you scanned. The T2455 has one Scanner port to connect an external scanner.

When you unpack the T2455 and use it, only three bar code symbologies are enabled:

*   Code 39

*   Code 128

*   UPC/EAN

If you are using bar code labels that are encoded in another symbology, you need to enable that symbology on the terminal. For help, see "Scanning Bar Codes to Enable Symbologies" in Chapter 3, or find the symbology in Chapter 9, "Configuration Command Reference."

Using a Laser Scanner

You can attach a laser scanner to the Scanner port on the terminal. Since the Scanner port is a keyed connector, you must use one of the accessory scanner cables to connect an input device.

You can use these Intermec scanners with the T2455:

*   1517, 1518, 1519 laser scanners

*   1550 and 1551 laser scanners

*   1552 cordless laser scanner with 9745 base station

Once you have the scanner attached, you can use the scanning options that are described in the next section to customize bar code input. You may also need to configure the Scanner Selection command to identify the type of scanner. The terminal can optimize the scanning performance by using the scanner you define in the Scanner Selection command. For help, see "Scanner Selection" in Chapter 9.

To use the laser scanner

1. Press |⅛| to turn on the terminal.

2. Scan the bar code. Once the bar code is scanned successfully, the Good Read status light turns on for 2 seconds.

   For help on scanning with your laser scanner, see the instruction sheet for the scanner.

Scanning Options

You can set several configuration command parameters to configure the external scanner to meet your needs. There are several ways to set the scanner commands on the terminal. For help, see Chapter 3, "Configuring the Terminal." For help using the scanner configuration commands, see Chapter 9, "Configuration Command Reference."

The parameters available are:

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

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

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

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

Scanner Selection   Identifies the type of scanner you have connected to the Scanner port on the T2455. The terminal can optimize the scanning performance by using the scanner you define in this command.

Scanner Timeout   Defines the maximum length of time the scanner stays on each time you activate a laser scanner.

Scanner Trigger   Allows you to set the triggering to level or edge triggering. With level triggering, you activate the scanner and the laser turns on and stays on until you release the trigger on a scanner that is connected to the Scanner port. In edge triggering, you activate the scanner and the laser turns on and stays on until you activate the scanner a second time, or the scanner timeout turns it off.

3

Configuring the Terminal

This chapter explains how to configure the terminal, discusses the terminal configuration parameters, and tells you how to restore the default configuration. The table at the end of the chapter lists all the configuration parameters and their options.

How to Configure the Terminal

You can configure the TRAKKER Antares 2455 terminal by using either of the methods described in detail in this chapter:

Using the TRAKKER Antares 2400 Menu System   With menus and screens, the TRAKKER Antares 2400 Menu System lets you view the current configuration and modify configuration parameters.

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

Note: You can also configure the terminal from a remote device, from the DCS 300, from the Model 200 Controller, or from an application on the host. You can also configure the terminal by sending commands from an application through the serial port. For help, see Chapter 4, "Operating the Terminal in a Network."

Learning About Configuration Parameters

You can customize many operating characteristics of the T2455, such as the volume of its audio signals and the bar code symbologies it decodes. These characteristics are controlled by configuration parameters. The values you set for the configuration parameters determine how the terminal operates.

By customizing the terminal configuration, you can set up the terminal to operate easily and efficiently within your data collection system.

Note: To learn the purpose and syntax of each configuration parameter or command, see Chapter 9, "Configuration Command Reference."

The configuration parameters can be organized into three groups, which are discussed in the next sections: bar code symbologies, communications, and general operation. When you configure the terminal, you are performing one or more of these tasks:

- Choosing the Symbologies the Terminal Decodes
- Specifying How the Terminal Will Communicate
- Controlling How the Terminal Will Operate

Choosing the Symbologies the Terminal Decodes

This list contains all the bar code symbologies the terminal can decode:

- Codabar
- Code 11
- Code 128
- Code 16K
- Code 2 of 5
- Code 39

- Code 49
- Code 93
- Interleaved 2 of 5 (I 2 of 5)
- MSI
- Plessey
- UPC/EAN

When the terminal ships, only these three symbologies are enabled:

- Code 39
- Code 128
- UPC/EAN

If you are using one of the other symbologies to encode your bar code labels, you need to configure the terminal and enable the symbology. To quickly enable symbologies, see "Scanning Bar Codes to Enable Symbologies" later in this chapter.

To ensure that the terminal can operate quickly and efficiently, you should enable only the bar code symbologies that you are going to scan. When you enable each bar code symbology, you may need to set a check digit, the length of the bar code label, or other options. For help, see the bar code symbology in Chapter 9, "Configuration Command Reference."

Specifying How the Terminal Will Communicate

The T2455 uses radio frequency (RF) communications to communicate with other devices in Intermec's 2.4 GHz RF network. You can also use the serial port on the terminal to send and receive data to a serial device. Before you can use the T2455 in your wireless network, you must configure the RF network parameters.

You must set the RF network parameters, radio parameters, and address information before the terminal can communicate with other devices in your 2.4 GHz RF network. For example, you must set the Terminal IP Address so the terminal can communicate with other network devices.

To learn how to configure the terminal to fit into your 2.4 GHz RF network, see Chapter 4, "Operating the Terminal in a Network."

Controlling How the Terminal Will Operate

The operating parameters let you adjust the way the terminal operates. By customizing the operating parameters, you can

- set the terminal to automatically shut off after a specified length of time.

- set the terminal to resume applications or restart applications.

- modify bar code data by appending the time.

- modify bar code data by using a preamble and postamble.

- enable or disable specific reader commands.

- configure a RAM drive.

- change the volume of the audio signals (beeper and keyboard clicker).

- control the display contrast, font size, row spacing, and video mode.

- enable or disable the keyboard clicker and keyboard caps lock.

- customize the way the scanner, which is connected to the T2455, operates by selecting scan ahead data buffering, type of scanner device, decode security level, scanner timeout value, and trigger modes.

Configuring the Terminal With the Menu System

The TRAKKER Antares 2400 Menu System is a menu-driven application that lets you configure the T2455, manage files, view system information, and run diagnostics. You can access the TRAKKER Antares 2400 Menu System while running any application.

To access the TRAKKER Antares 2400 Menu System

- Press ⎡f⎤ ⎡↵⎤ ⎡2⎤ ⎡4⎤ ⎡8⎤ or scan this bar code:

  Enter Test and Service Mode

  |||||| |||| ||| ||||| ||||| ||| |||

  ..-.

  Note: You can also press ⎡f⎤ ⎡↵⎤ ⎡T⎤ ⎡2⎤ ⎡M⎤ to access the TRAKKER Antares 2400 Menu System.

The Main Menu appears, displaying four menu options.

```
        MAIN MENU

Configuration Menu
Diagnostics Menu
System Menu
About TRAKKER 2400


↑↓ Select item
[Enter] Next screen
[F1] Help
[Esc] Exit
```
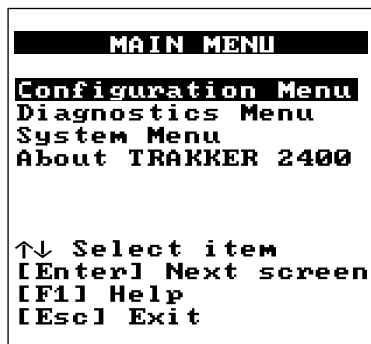
2455U.044

Configuration Menu   Choose the Configuration Menu to configure bar code symbologies, network and communications parameters, serial port parameters, and the terminal's operating characteristics.

Diagnostics Menu   Choose the Diagnostics Menu to run hardware, software, or system diagnostics to help analyze and fix problems on the terminal. You can also view information about the backup battery and the system.

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

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

The TRAKKER Antares 2400 Menu System at a Glance

```
   MAIN MENU
Configuration Menu
Diagnostics Menu
System Menu
About TRAKKER 2400
```

```
   SYSTEM MENU
File Manager
Load Default Values
Set Time and Date
Store Configuration
Upgrade Firmware
```

```
   DIAGNOSTICS MENU
Software Diagnostics
Hardware Diagnostics
System Diagnostics
```

```
   SOFTWARE DIAGNOSTICS
Error Logger
Application Events
Task Status
Clear Task Profiles
```

```
   HARDWARE DIAGNOSTICS
Hardware Config
Battery/PIC Status
Display Test
Keypad Test
Main Board Menu
Radio Test
Scanner Test
```

```
   SYSTEM DIAGNOSTICS
Subsystem Versions
Access Point
App Efficiency
Serial Port Test
Malloc Info Menu
```

```
   CONFIGURATION MENU
Symbologies Menu
Communications Menu
Terminal Menu
```

```
   CONFIGURATION MENU
Symbologies Menu
Communications Menu
Terminal Menu
```

```
   CONFIGURATION MENU
Symbologies Menu
Communications Menu
Terminal Menu
```

```
   SYMBOLOGIES MENU
*Code 39
 Codabar
 Code 11
 Code 49
 Code 93
*Code 128
 Code 16K
 2of5 / I 2of5
 MSI
 Plessey
*UPC / EAN
```

```
   COMMUNICATIONS MENU
Primary Network
Advanced Network
Radio
Serial Port [COM1]
Serial Port [COM4]
```

```
   TERMINAL MENU
Append Time
Beeper
Display
Keypad
Power Management
Preamble/Postamble
RAM Drive
Reader Command Menu
Scanner
```

2455U.066

Exploring the Configuration and System Menus

When you access the TRAKKER Antares 2400 Menu System, the Main Menu appears. You use the Configuration Menu and the System Menu to configure the terminal.

The Configuration Menu contains these commands:

```
┌─────────────────────────────┐
│  CONFIGURATION MENU         │
│                             │
│ Symbologies Menu            │
│ Communications Menu         │
│ Terminal Menu               │
│                             │
│                             │
│                             │
│  ↑↓ Select item             │
│ [Enter] Next screen         │
│ [F1] Help                   │
│ [Esc] Exit                  │
└─────────────────────────────┘
```
                    2455U.054

Symbologies Menu   Choose the Symbologies Menu to configure and activate the bar code symbologies the terminal can decode. An asterisk (*) on the Symbologies Menu indicates that the symbology is active. For help, see "Scanning Bar Codes to Enable Symbologies" later in this chapter.

Communications Menu   Choose the Communications Menu to configure the primary network parameters, the advanced network parameters, the radio parameters, or the serial port parameters. For help, see Chapter 4, "Operating the Terminal in a Network."

Terminal Menu   Choose the Terminal Menu to configure the way the terminal, keyboard, scanner, or screen operate. For help, see "Controlling How the Terminal Will Operate" earlier in this chapter.

The System Menu contains these commands:

```
┌─────────────────────────────┐
│     SYSTEM MENU             │
│                             │
│ File Manager                │
│ Load Default Values         │
│ Set Time and Date           │
│ Store Configuration         │
│ Upgrade Firmware            │
│                             │
│                             │
│ ↑↓ Select item              │
│ [Enter] Next screen         │
│ [F1] Help                   │
│ [Esc] Exit                  │
└─────────────────────────────┘
```
                    2455U.046

File Manager   Lets you manage the files on each drive. You can run an application from drive C, delete a file from any drive, or rename a file on any drive. For help using the File Manager, see "Running the Application on the Terminal" in Chapter 5.

Load Default Values   Lets you load the default configuration values. For help, see "Restoring the Terminal's Default Configuration" later in this chapter.

Set Time and Date   Lets you set the current time and date. For help, see "Setting the Time and Date" in Chapter 2.

Store Configuration   Stores the current configuration in flash memory, including any changes you have made in the menu system. When you exit the TRAKKER Antares 2400 Menu System, you will also be prompted to save your changes. For help, see "Exiting the TRAKKER Antares 2400 Menu System" later in this chapter.

Upgrade Firmware   Lets you upgrade the system firmware on the terminal. For help, see "Upgrading the Firmware" later in this chapter.

You can use the keystrokes described next to move around in the TRAKKER Antares 2400 Menu System, or you can scan bar code labels. For a list of bar code labels, see the "Full ASCII Bar Code Chart" in Appendix B.

Selecting Menus and Commands

Press ▲ or ▼ to choose a menu name from the Main Menu. Then press ↵ to display the commands in the selected menu. In this example, you press ▼▼↵ to display the System Menu:


```
        MAIN MENU                    SYSTEM MENU

Configuration Menu            File Manager
Diagnostics  Menu             Load Default Values
System  Menu                  Set Time and Date
About TRAKKER 2400            Store Configuration
                              Upgrade Firmware


↑↓ Select item                ↑↓ Select item
[Enter] Next screen           [Enter] Next screen
[F1] Help                     [F1] Help
[Esc] Exit                    [Esc] Exit
```

2455U.067

Press ▲ or ▼ to choose a command or option from a menu, and then press ↵ to execute the command or option.

Note: You can press F1 *at any time to display a help screen. Press* Esc *to exit a help screen.*

Filling In Fields and Marking Check Boxes

Screens list the options for each configuration parameter, diagnostic, or system option. Below each option name is either a toggle field or an entry field:

- In a toggle field, you press ◀, ▶, or [→] to view the options for that field.

- In an entry field, you type a value into the field. To edit the data in an entry field, use the ◀, ▶, [←] , or [→] keys. You can also use the Delete ([f] [.]) and Insert ([f] [0]) keys to edit an entry field.

    Note: If you have a T2455 with 5250 terminal emulation (TE), there is no Backspace key ([←]). Use the other keys listed here to edit data in an entry field in the TRAKKER Antares 2400 Menu System or the TE Configuration menu.

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

```
┌─────────────────────────────┐
│ ▐ CODE 49 / CODE 16K ▌       │
│ Code 49: ▐Enabled▌          │
│                             │
│ Code 49                     │
│ Function Codes:             │
│  F1:                        │
│  F2:   \x0D\x0A             │
│  F3:                        │
│                             │
│ Code 16K:                   │
│  Standard                   │
│ ┌────┐       ┌────────┐     │
│ │ OK │       │ CANCEL │     │
│ └────┘       └────────┘     │
└─────────────────────────────┘
```

2455U.068

To move to the next field

- Press ▼ or [Tab].

To move to the previous field

- Press ▲.

Some screens contain check boxes. Check boxes are used when you can select more than one option at a time.

To mark or clear check boxes

- Press ⊖. For example, to disable the Backspace reader command, choose the Backspace check box and press ⊖ to clear the check box.

```
READER COMMAND MENU       [X] Multi-Read
                          [X] Receive File
[Space] to enable or      [X] Rename File
disable a command         [X] Reset
 [X] Abort Program        [X] Run Program
 [X] Backlight            [X] Scanner On
 [X] Backspace            [X] Scanner Off
 [X] Change Config        [X] Test & Service
 [X] Clear                [X] Transmit File
 [X] Default Config
 [X] Delete File
 [X] Enter Accum
 [X] Exit Accum          ┌────┐      ┌────────┐
 [X] List Files          │ OK │      │ CANCEL │
                         └────┘      └────────┘
 ↓ more
```

2455U.069

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 9, "Configuration Command Reference."

You can configure the postamble or preamble to be 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. For a list of the full and extended ASCII characters, see Appendix B, "Full ASCII Charts," or the *TRAKKER Antares Terminal Emulation User's Guide*.

Note: For more help on using the 5250 Field Exit code, see "Auto-Advancing Through Fields on 5250 TE Screens" in the TRAKKER Antares Terminal Emulation User's Guide.

To enter ASCII characters for a preamble or postamble

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

   To enter an extended ASCII character, look up the hexadecimal number for the character in the "TRAKKER Antares Terminal Font Set" in Appendix C. For example, 9A is the hexadecimal value for Ü, the 5250 Field Exit code.

2. Use the TRAKKER Antares 2400 Menu System to configure a preamble or postamble. From the Main Menu, choose Configuration Menu.

3. From the Configuration Menu, choose Terminal Menu.

4. From the Terminal Menu, choose Preamble/Postamble.
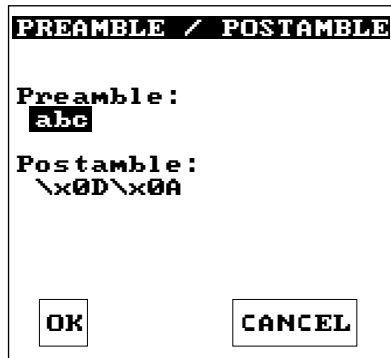
```
┌─────────────────────────┐
│ PREAMBLE / POSTAMBLE    │
│                         │
│ Preamble:               │
│  abc                    │
│                         │
│ Postamble:              │
│  \x0D\x0A               │
│                         │
│                         │
│                         │
│ ┌────┐      ┌────────┐  │
│ │ OK │      │ CANCEL │  │
│ └────┘      └────────┘  │
└─────────────────────────┘
```
2455U.070

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

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

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

     \x*hh*

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

     \x03

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

     \x9A

   • To type an escape character (backslash) in the preamble or postamble field, use the next table. The application ignores the first backslash (\) character and saves the next character(s). For example:

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

7. Press ⏎ or choose OK to save your changes and exit the screen.

8. Choose another menu from the Terminal Menu or press ⌅ to exit. The Configuration Menu appears.

For help exiting the menu system, see "Exiting the Configuration Menu" later in this chapter.

Exiting Screens and Saving Changes

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

Task	**Description**
To exit a screen and save the changes	Choose OK and press ⏎ . Or, press ⏎ with the cursor in any field except the Cancel button.
To exit a screen and discard the changes	Choose Cancel and press ⏎ . Or, press ⌅ with the cursor in any field.

Exiting the Configuration Menu

1. Press ⌅ to exit the Configuration Menu. If you have made any changes to the current configuration, this screen prompts you to save the new configuration in RAM.

   The current configuration (also called the runtime configuration) is the set of parameters currently enabled on the terminal.

2. Choose Yes and press ⏎ to save your changes in RAM and update the current configuration on the terminal. Choose No and press ⏎ to exit without changing the configuration. The Main Menu appears.

3. Choose another menu from the Main Menu or press ⌅ to exit the TRAKKER Antares 2400 Menu System.

   For help exiting the menu system, see the next procedure for "Exiting the TRAKKER Antares 2400 Menu System."

Exiting the TRAKKER Antares 2400 Menu System

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

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

   Note: When you boot or reset the terminal, it uses the configuration you last saved in flash memory.

```
Store configuration
  changes in flash
      memory?

(used when rebooting
    the terminal)

  Yes      No

    CANCEL
```
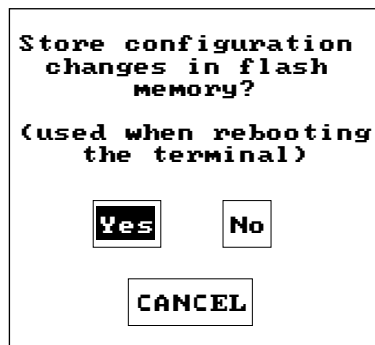
2455U.072

2. Choose Yes and press ⌷⏎⌷ to save your changes in flash memory. Choose No and press ⌷⏎⌷ to exit without saving. The Exiting TRAKKER Antares 2400 Menu System screen appears.

   Note: If you changed the configuration, you were prompted to save your changes in RAM as you exited the Configuration Menu. If you want the configuration changes to be stored in flash memory, you need to choose Yes in this screen.

3. Choose OK and press ⌷⏎⌷ to exit the TRAKKER Antares 2400 Menu System. Choose Cancel and press ⌷⏎⌷ to return to the Main Menu.

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

Configuring the Terminal by Scanning Bar Codes

You can configure the terminal by scanning bar code labels listed in this manual or by creating your own Code 39 or Code 93 bar code labels. For help, see Chapter 9, "Configuration Command Reference."

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

For example, you can use the Beep Volume configuration command to adjust the volume of the terminal's audio signals. You can scan this bar code label to set the beep volume to a quiet audio level:

Set Beep Volume to Quiet

|||█|█|█|||||||█||█|█|█|█|█|█|██|██

$+BV1

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

- One-Shot Scanner mode (SB0)

- Scanner Redundancy set to high (SR2)

- Beep Volume set to very loud (BV4)

- Disable Keypad Clicker (KC0)

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

|█|█||||||█|█|██||█|█|█|█|█||█|██||█|█|█|█||█|██|█|█|█||█|██|█|██

$+SB0SR2BV4KC0

To configure these same four configuration commands, you can scan four separate bar code labels in Chapter 9, "Configuration Command Reference."

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

- The bar code label must be printed using Code 39 or Code 93 symbology.

- The bar code label must include the start and stop character. Most bar code printing utilities automatically include the start and stop character.

- The bar code label must start with $+ (Change Configuration command).

- Each configuration command must include the command syntax and the value for the command. For example, BV is the command syntax for Beep Volume and the value 4 sets the beep volume to very loud.

- If you set one configuration command to a string of ASCII characters and another configuration command follows, you must enclose the value in quotes. If you do not include the quotation marks, the terminal will interpret everything after the first command as data and will not find the second configuration command.

  For example, to set the preamble to BV, use $+ADBV (no quotes are needed). To set the preamble to BV and turn off the beep volume, use $+AD"BV"BV0, or change the order and use $+BV0ADBV. To clear the preamble and postamble from a single label, use $+AD""AE.

  Note: To scan a Code 39 bar code label that includes quotes, you must configure the terminal to use Code 39 in Full ASCII mode. For help, see "Code 39" in Chapter 9.

- To include quotation marks when you set a value, the entire value must be enclosed in quotation marks. Type two sets of quotation marks ("") to include one quotation mark as the value for a command. For example, to set the preamble to ABC"D, use $+AD"ABC""D".

When you scan bar code labels, you change the terminal's current runtime configuration. The changes are not saved in the terminal flash memory. To save the changes in flash memory, scan this bar code label:

Save Configuration in Flash Memory

.+1

You can also use the TRAKKER Antares 2400 Menu System. For help, see "Saving Configuration Changes in Flash Memory" later in this chapter.

Scanning Bar Codes to Enable Symbologies

The TRAKKER Antares 2455 terminal can decode several different types of bar code symbologies. Each symbology, such as Code 39, uses a different scheme for encoding data as bar code. You must configure the terminal to decode the bar code symbology used in your bar code labels. Only enable the bar code symbologies that you need to scan. For more information about each symbology and the configuration options, see Chapter 9, "Configuration Command Reference."

The terminal can decode the bar code symbologies shown in the next table. You can scan the bar code labels in the table to enable a symbology.

Note: Only three symbologies, Code 39, Code 128, and UPC/EAN, are enabled when you unpack the terminal.

Bar Code Symbology	Enabled?	To Enable the Symbology
Codabar	No	Enable Standard Codabar, ABCD Start/Stop Code ||█||| ||| |█▌ ||▌| |▌| |▌| ||| ||| *\$+CD21*
Code 11	No	Enable Code 11 With Two Check Digits ||█||| | |||| |█▌ |||| |█▌ ||| ||| *\$+CG2*
Code 16K	No	Enable Standard Code 16K ||█||| | ||| |█▌ |||▌ |▌| || ||| *\$+CP1*
Code 2 of 5	No	Enable Code 2 of 5, 3 Bar Start/Stop, Label Length of 1 ||█||| | ||| |█▌ |█| |||| |█| |▌|| ||| ||| *\$+CC001*
Interleaved 2 of 5 (I 2 of 5)	No	Enable I 2 of 5, Variable Length With a Check Digit ||█||| | ||| |█▌ ||▌| |█| |█| ||| ||| *\$+CA99*

Scanning Bar Codes to Enable Symbologies (continued)

Bar Code Symbology	Enabled?	To Enable the Symbology
Code 39	**YES**	Enable Code 39 Full ASCII With No Check Digit
		$+CB111
Code 49	No	Enable Code 49
		$+CJ1
Code 93	No	Enable Code 93
		$+CF1
Code 128	**YES**	Enable Standard Code 128
		$+CH1
MSI	No	Enable MSI Without Check Digits
		$+CN10
Plessey	No	Enable Plessey With Reverse Start Code
		$+CI10
UPC/EAN	**YES**	Enable UPC-A/EAN-13, UPC-E, EAN-8
		$+CE1111111

Saving Configuration Changes in Flash Memory

The TRAKKER Antares 2455 terminal uses two copies of the configuration:

Runtime or RAM configuration   This configuration is the current or active set of parameters and options enabled on the terminal. The configuration is stored in RAM and will be lost if you boot or reset the terminal.

Boot or flash configuration   This configuration is the set of parameters and options last saved in flash memory. The configuration is stored in flash memory and will be saved and used if you boot or reset the terminal.

Here are the four ways you can configure the terminal and how the configuration is updated:

Configure the Terminal	Runtime or RAM Configuration Updated?	Boot or Flash Configuration Updated?
Using the TRAKKER Antares 2400 Menu System	Yes (see Note)	Yes (see Note)
Scanning bar code labels	Yes	No
From a host application through the serial port	Yes	No
From the network (DCS 300 or host)	Yes	No

Note: You are prompted to save your changes in RAM and flash as you exit the Configuration Menu and the TRAKKER Antares 2400 Menu System. Your changes are saved if you choose Yes at each screen.

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

- Scan or send the Save Configuration in Flash Memory reader command.

- Use the TRAKKER Antares 2400 Menu System.

To save configuration changes using the reader command

- Scan this bar code label:

Save Configuration in Flash Memory

.+1

Or, send the command `.+1` as the last command from the controller or host application. For help, see Chapter 4, "Operating the Terminal in a Network."

To save configuration changes using the menu system

1. Press ⌐f⌐ ⌐↵⌐ ⌐2⌐ ⌐4⌐ ⌐8⌐ or scan this bar code.

Enter Test and Service Mode

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖

..-.

The Main Menu appears.

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

```
┌─────────────────────────────┐
│      SYSTEM MENU            │
│ File Manager               │
│ Load Default Values        │
│ Set Time and Date          │
│ Store Configuration        │
│ Upgrade Firmware           │
│                            │
│                            │
│ ↑↓ Select item            │
│ [Enter] Next screen        │
│ [F1] Help                  │
│ [Esc] Exit                 │
└─────────────────────────────┘
```
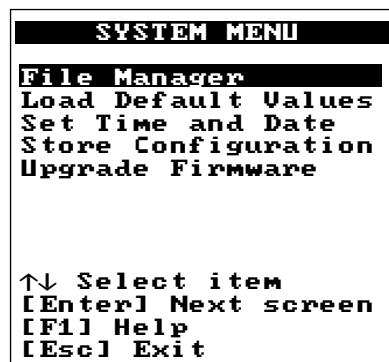
2455U.046

3. Choose the Store Configuration command and press ⌐↵⌐ . The Store Configuration screen appears.

4. Choose OK to save the configuration in flash memory. To exit without saving the configuration, choose Cancel. The System Menu appears.

5. Press ⌐Esc⌐ to exit the System Menu. The Main Menu appears.

6. Choose another menu from the Main Menu or press ⌐Esc⌐ to exit the TRAKKER Antares 2400 Menu System.

Restoring the Terminal's Default Configuration

When you configure the terminal according to the instructions presented in this chapter, the parameters remain in effect until you reconfigure them. If you configure the terminal but do not save your changes in flash memory, the parameters will remain in effect until you boot or reset the terminal.

The default configuration for the terminal is listed in Appendix A. You can use the TRAKKER Antares 2400 Menu System or scan the Default Configuration bar code label to return the terminal to its default configuration.

Note: If you restore the default configuration, you need to set the primary network communications parameters on the terminal to reestablish communications with other devices in the 2.4 GHz RF network. You may also need to reset the serial port parameters to communicate with other serial devices.

To restore the default configuration using the reader command

• Scan this bar code label:

Default Configuration

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖

.+0

To restore the default configuration using the menu system

1. Press ⌈f⌉ ⌈↵⌉ ⌈2⌉ ⌈4⌉ ⌈8⌉ or scan this bar code:

Enter Test and Service Mode

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖

..-.
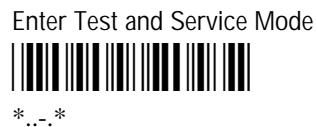
The Main Menu appears.

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

3. Choose the Load Default Values command and press ⌈↵⌉ . The Load Default Values screen appears.

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

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

5. Press ⌈Esc⌉ to exit the System Menu. The Main Menu appears.

```
┌────────────────────────┐
│ LOAD DEFAULT VALUES    │
│                        │
│     Load default       │
│   configuration        │
│   values in RAM?       │
│                        │
│  (Overwrites current   │
│    configuration)      │
│                        │
│                        │
│  ┌────┐      ┌────────┐ │
│  │ OK │      │ CANCEL │ │
│  └────┘      └────────┘ │
└────────────────────────┘
```
2455U.074

6. Choose another menu from the Main Menu or press ⌈Esc⌉ to exit the TRAKKER Antares 2400 Menu System. For help exiting the menu system, see "Exiting the TRAKKER Antares 2400 Menu System" earlier in this chapter.
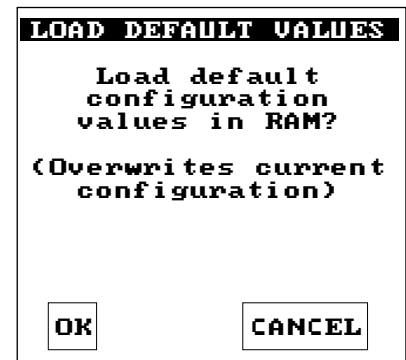
Configuring Drives and Memory on the Terminal

The TRAKKER Antares 2455 terminal comes with a 750K flash drive (C) and 512K RAM reserved for applications. You can also order the T2455 with the 4MB flash memory option, 2MB of which is configurable. 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 total 4MB) to either store double-byte fonts or as a 2MB drive.

The next sections explain how to customize the terminal by configuring RAM and configuring flash memory.

Configuring the RAM Drive

On the T2455, you have 512K total 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 32 files). To configure the RAM drive, you can use either the TRAKKER Antares 2400 Menu System or the RAM Drive Size configuration command. For help using the configuration command, see "RAM Drive Size" in Chapter 9.

Important: 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.

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

To configure the RAM drive

1. Press ⌊f⌋⌊↵⌋ ⌊2⌋ ⌊4⌋ ⌊8⌋ or scan this bar code to access the TRAKKER Antares 2400 Menu System:

   Enter Test and Service Mode

   |||||||||||||||||||||||||||||||||

   ..-.

   The Main Menu appears.

2. Press ▼ to choose the Configuration Menu and then press ⏎ . The Configuration Menu appears.

```
CONFIGURATION MENU
Symbologies Menu
Communications Menu
Terminal Menu



 ↑↓ Select item
[Enter] Next screen
[F1] Help
[Esc] Exit
```
2455U.054

3. Press ▼ to choose the Terminal Menu and then press ⏎ . The Terminal Menu appears.

```
    TERMINAL MENU
Append Time
Beeper
Display
Keypad
Power Management
Preamble/Postamble
RAM Drive
Reader Command Menu
Scanner

↑↓ Select item
[Enter] Next screen
[F1] Help
[Esc] Exit
```
2455U.075

4. Press ▼ to choose the RAM Drive command and then press ⏎ . The RAM Drive screen appears.

5. In the Size field, type the RAM drive size. Enter a value from 16 to 256 to configure RAM as drive E. If you do not want the terminal to create a RAM drive, enter a value of zero (0).

6. Press ⏎ to save the changes and exit the RAM Drive screen.

7. Press *Esc* to exit the Terminal Menu. The Configuration Menu appears.

8. Press *Esc* to exit the Configuration Menu.

9. Press ⏎ to choose Yes and save the new configuration in RAM.

10. Press *Esc* to exit the TRAKKER Antares 2400 Menu System.

11. Press ⏎ to choose Yes and store your changes permanently in flash memory. The RAM drive change must be saved in flash memory for the change to take effect.

12. Press ⏎ to choose OK and exit the TRAKKER Antares 2400 Menu System.

13. Scan this bar code to reset the terminal:

Reset Firmware

||||||| |||||| |||||| |||

-.

You can also send the Reset Firmware command over the network. For help, see Chapter 8, "Reader Command Reference."

Or, if the Resume Execution command is configured to resume "not allowed," turn the terminal off and then back on to reset the terminal. Use the TRAKKER Antares 2400 Menu System to configure the Resume Execution command. Choose Terminal Menu from the Configuration Menu and then choose Power Management.

Configuring Flash Memory

If you have a terminal with the 4MB flash memory option, you can configure the extra 2MB of the flash memory either to store double-byte fonts or as a 2MB drive. By default, the 2MB flash memory is configured to store a double-byte font set (up to 2MB maximum).

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 32 files). To configure flash memory, you use the Flash Memory Configuration command. For help, see "Flash Memory Configuration" in Chapter 9.

Note: You can only configure the 2MB (of the total 4MB) flash memory as a drive or to store fonts. You cannot use the space for both. If you configure drive D, you cannot store a font in flash memory.

To configure flash memory to store double-byte fonts

1. Scan this bar code:

Configure Flash Memory for Double-Byte Fonts

|||||| | ||| ||| || ||||| |||| |||| |||

$+FF0

2. Scan this bar code to save the configuration change in flash memory:

Save Configuration in Flash Memory

|||||| |||||| ||| | ||| ||||| |||

.+1

3. Scan this bar code to boot the terminal and use the 2MB flash memory to store double-byte fonts:

Reset Firmware

||||||||||||||||||||||

-.

Note: When you boot or reset the terminal, all files on drive D are destroyed. Flash memory is now configured to store double-byte fonts.

4. Use the TRAKKER Antares Font Editor to download the double-byte font set to the terminal. See your local Intermec sales representative for information about the TRAKKER Antares Font Editor.

To configure flash memory as drive D

1. Scan this bar code:

Configure Flash Memory as Drive D

||||||||||||||||||||||||||||

$+FF32

Note: A value of 32 configures drive D as a 2MB drive.

2. Scan this bar code to save the configuration change in flash memory:

Save Configuration in Flash Memory

||||||||||||||||||||

.+1

3. Scan this bar code to boot the terminal and use flash memory as drive D:

Reset Firmware

||||||||||||||||||

-.

Note: When you boot or reset the terminal, any fonts in flash memory are erased. Flash memory is now configured as drive D.

Upgrading the Firmware

The terminal firmware includes these items:

- TRAKKER Antares 2400 Menu System

- Terminal emulation or sample application

- TE Configuration Menu (3270, 5250, VT/ANSI terminals only)

- Operating environment, firmware, and drivers

You can upgrade a terminal that has firmware version 2.x or higher to use the latest firmware version without making any hardware changes. There are two upgrade kits:

Firmware Upgrade Kit	Part Number	Description
TRAKKER Antares TCP/IP	066814S	Order this kit for terminals that communicate in a TCP/IP direct connect network or a TCP/IP pass-through network.
TRAKKER Antares UDP Plus	067119S	Order this kit for terminals that communicate with a DCS 300 in a UDP Plus network.

To order a firmware upgrade kit, contact your local Intermec service representative. Each kit comes with a utility and instructions to upgrade the firmware on the terminal. Once you upgrade to the new firmware, you can use all the features described in this manual.

Each kit comes with the new firmware version, the applications, the firmware upgrade utilities (DOS and Windows), and instructions about upgrading the terminal firmware.

You can upgrade the firmware on the T2455 from a host computer or PC using serial communications. For help connecting the terminal, see "Connecting to Serial Devices" in Chapter 2 and "Using Serial Communications on the Terminal" in Chapter 4. Once the terminal is connected, you can upgrade the firmware.

Note: You can also upgrade the firmware on one or more terminals using the Firmware Upgrade Utility on the DCS 300. For help, see the DCS 300 System Manual*.*

To upgrade the firmware with the Windows utility

1. Connect the terminal to your PC.

2. From Program Manager, start the TRAKKER Antares Firmware Installation utility. The Firmware Installation utility screen appears.

   The Firmware Installation utility includes detailed online help. You click the Help button anytime to get more information.

3. Choose the COM port, the Firmware Type (application), and the communications hardware type.

4. Choose OK.

5. On the TRAKKER Antares terminal, press ⌈f⌉ ⌈↵⌉ ⌈2⌉ ⌈4⌉ ⌈8⌉ or scan this bar code label:

Enter Test and Service Mode

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖

..-.

The Main Menu appears.

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

```
┌─────────────────────────┐
│      SYSTEM MENU        │
│                         │
│  File Manager           │
│  Load Default Values    │
│  Set Time and Date      │
│  Store Configuration    │
│  Upgrade Firmware       │
│                         │
│                         │
│                         │
│  ↑↓ Select item         │
│  [Enter] Next screen    │
│  [F1] Help              │
│  [Esc] Exit             │
└─────────────────────────┘
```
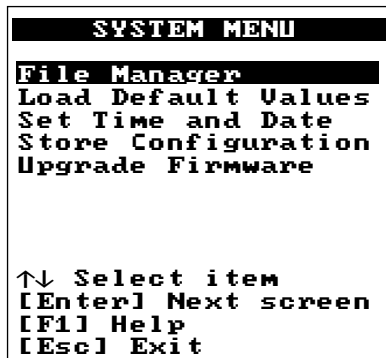
2455U.046

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

```
┌─────────────────────────┐
│   UPGRADE FIRMWARE      │
│                         │
│  Upgrade terminal       │
│  firmware?              │
│                         │
│  Make sure the          │
│  terminal is            │
│  connected to a host.   │
│                         │
│                         │
│                         │
│  ┌────┐      ┌────────┐ │
│  │ OK │      │ CANCEL │ │
│  └────┘      └────────┘ │
└─────────────────────────┘
```

2455U.077

8. Choose OK to continue.

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

   To exit without upgrading the firmware, choose No.

> *Note: If you reach the Loader Waiting screen and cannot upgrade or continue, press* <kbd>Esc</kbd> *or* <kbd>I/O</kbd> *to exit without upgrading the firmware. The Boot Menu appears. Press* <kbd>F1</kbd> *to boot the terminal and continue.*

10. On your PC, make sure you selected the COM port and Firmware Type, and then choose OK. The PC downloads the firmware and application. Once the download is complete, the terminal boots and runs the application. Repeat these instructions to upgrade the firmware on another terminal.

For help with the TRAKKER Antares firmware installation utilities, see the README.TXT instructions that ship with the utility or use the online help.

Recording Your Terminal's Configuration

The tables in this section list all the configuration parameters, their options, and where to find them in the Configuration Menu of the TRAKKER Antares 2400 Menu System. The default setting for each parameter is shown in ***bold italics***.

You should have an accurate record of the terminal's configuration settings in case the terminal's volatile memory and the configuration setup is lost. You can record the configuration on the following pages by circling the option you chose for each parameter or writing the value.

Bar Code Symbologies Table

Parameter (Syntax)	Options	Location in Configuration Menu
Codabar (CD)	***Disabled*** ABC Standard Concatenated	Symbologies Menu, Codabar option
• Start/Stop digit	Discard ***Retain ABCD*** Retain DC1-DC4	
Code 11 (CG)	***Disabled*** One check digit Two check digits	Symbologies Menu, Code 11 option
Code 16K (CP)	***Disabled*** Standard Function code 1	Symbologies Menu, Code 16K option
Code 2 of 5 (CC)	***Disabled*** 3 bar start/stop, label length 2 bar start/stop, label length	Symbologies Menu, 2 of 5, I2 of 5 option

---

Bar Code Symbologies Table (continued)

Parameter (Syntax)	Options	Location in Configuration Menu
Code 39 (CB)	Disabled *No check digit* Check digit HIBC AIAG check digit	Symbologies Menu, Code 39 option
• Check digit	Discard ***Retain***	
• ASCII	Non-full ASCII ***Full ASCII*** Mixed-full ASCII	Symbologies Menu, Code 39 option
Code 49 (CJ)	***Disabled*** Enabled	Symbologies Menu, Code 49 option
• Function Code 1 (CK)	***None (disabled)*** Any two ASCII characters	
• Function Code 2 (CL)	***\x0D\x0A (CR LF)*** Any four ASCII characters	Symbologies Menu, Code 49 option
• Function Code 3 (CM)	***None (disabled)*** Any two ASCII characters	
Code 93 (CF)	***Disabled*** Enabled	Symbologies Menu, Code 93 option
Code 128 (CH)	Disabled ***Standard*** UCC/EAN-128 ISBT	Symbologies Menu, Code 128 option
• ISBT Symbology ID	***Disabled*** Enabled	
• ISBT Concatenation	***Disabled*** Enabled	
Interleaved 2 of 5 (CA)	***Disabled*** Fixed length Variable length, no check digit Case Code, check digit Variable length, check digit	Symbologies Menu, 2 of 5, I2 of 5 option

Bar Code Symbologies Table (continued)

Parameter (Syntax)	Options	Location in Configuration Menu
MSI (CN)	*Disabled* No check digit 1 modulus 10 check digits 2 modulus 10 check digits	Symbologies Menu, MSI option
• Check digits	*Discard* Retain	Symbologies Menu, MSI option
Plessey (CI)	*Disabled* Discard check digit Retain check digit	Symbologies Menu, Plessey option
UPC/EAN (CE)		Symbologies Menu, UPC/EAN option
• UPC-A/EAN-13 (Version A)	Disabled *Enabled* UPC-A only	
• UPC-E (Version E)	Disabled *Enabled*	
• EAN-8	Disabled *Enabled*	Symbologies Menu, UPC/EAN option
• Supplementals	*Yes* No	
• Check digit	Discard *Retain*	
• Number system digit	Discard *Retain*	
• UPC-A leading zero	Discard *Retain*	

RF Network Communications Table

Note: *The network parameters are different for each type of network protocol, TCP/IP or UDP Plus, loaded on the terminal.*

Parameter (Syntax)	Options	Location in Configuration Menu
Acknowledgement Delay Lower Limit (NV)	*300 milliseconds* 200 - 2000 milliseconds	Communications Menu, Advanced Network option
Acknowledgement Delay Upper Limit (NU)	*5000 milliseconds* 2000 - 60000 milliseconds	Communications Menu, Advanced Network option
Controller Connect Check Receive Timer (NP)	*60 seconds* 1 - 3600 seconds	Communications Menu, Advanced Network option
Controller Connect Check Send Timer (NQ)	*35 seconds* 1 - 3600 seconds	Communications Menu, Advanced Network option
Controller IP Address (NC)	*0.0.0.0* The IP address field is four numbers separated by periods.	Communications Menu, Primary Network option
Default Router (NX)	*0.0.0.0* The Router field is four numbers separated by periods.	Communications Menu, Advanced Network option
Host IP Address (NC)	*0.0.0.0* The IP address field is four numbers separated by periods.	Communications Menu, Primary Network option
Maximum Retries (NR)	*7* 0 - 99	Communications Menu, Advanced Network option
Network Activate (NA)	*Disabled* 2.4 GHz RF (enabled)	Communications Menu, Primary Network option
Network Loopback (NL)	*Disabled* Enabled	Communications Menu, Advanced Network option
Network Port (NG)	*00023 (for TCP/IP)* *05555 (for UDP Plus)* 1 - 65535	Communications Menu, Advanced Network option
RF Domain (RW)	*0* 0 - 15	Communications Menu, Radio option
RF Inactivity Timeout (RY)	*5 seconds* 0 - 255 seconds	Communications Menu, Radio option
RF Roaming Flag (RR)	*Allowed* Not allowed	Communications Menu, Radio option

RF Network Communications Table (continued)

Parameter (Syntax)	Options	Location in Configuration Menu
RF Security ID (RS)	*None (no characters)* Any 20 ASCII characters	Communications Menu, Radio option
RF Transmit Mode (RT)	*BFSK* QFSK Auto	Communications Menu, Radio option
RF Wakeup On Broadcast (RB)	*Disabled* Enabled	Communications Menu, Radio option
Subnet Mask (NS)	*255.255.255.0* The Subnet Mask field is four numbers separated by periods. Each number is from 0 to 255.	Communications Menu, Advanced Network option
TCP/IP Maximum Transmit Timeout (NH)	0 (No timeout) 1 - 128 seconds *20 seconds*	Communications Menu, Advanced Network option
Terminal IP Address (ND)	*0.0.0.0* The IP address field is four numbers separated by periods.	Communications Menu, Primary Network option

Serial Network Communications Table

Parameter (Syntax)	Options	Location in Configuration Menu
Baud Rate (YA)	1200 2400 4800 9600 *19200* 38400	Communications Menu, Serial Port options
Configuration Commands Via Serial Port (YT)	Disabled Enabled with TMF *Enabled without TMF*	Communications Menu, Serial Port options
Data Bits (YI)	*7* 8	Communications Menu, Serial Port options
EOM (YZ)	*\x03 (ETX)* Any two ASCII characters	Communications Menu, Serial Port options

Serial Network Communications Table (continued)

Parameter (Syntax)	Options	Location in Configuration Menu
Flow Control (YL)	*No flow control* CTS checking XON/XOFF response XON/XOFF control XON/XOFF response & control CTS/RTS on DTE/DTE	Communications Menu, Serial Port options
Handshake (YJ)	*Disabled* Enabled	Communications Menu, Serial Port options
LRC (YF)	*Disabled* Enabled	Communications Menu, Serial Port options
Parity (YB)	None *Even* Odd	Communications Menu, Serial Port options
Poll (YR)	*Disabled* Enabled	Communications Menu, Serial Port options
Scanner Port [COM4] (IX)	*Scanner enabled* RS-232 RS-232 inverted	Communications Menu, Serial Port [COM4] option
Serial Port Protocol (YU)	*Configurable* Polling Mode D Master Polling Binary	Communications Menu, Serial Port options
SOM (YY)	*\x02 (STX)* Any ASCII character	Communications Menu, Serial Port options
Stop Bits (YC)	*1* 2	Communications Menu, Serial Port options
Timeout Delay (YE)	5 milliseconds 100 milliseconds 500 milliseconds 2 seconds *10 seconds* 20 seconds 40 seconds 60 seconds	Communications Menu, Serial Port options

Terminal Operations Table

Parameter (Syntax)	Options	Location in Configuration Menu
Append Time (DE)	***Disabled*** Enabled	Terminal Menu, Append Time option
Automatic Shutoff (EZ)	***0 (disabled)*** 2 - 75 minutes	Terminal Menu, Power Management option
Beep Volume (BV)	Off Quiet Normal Loud ***Very loud***	Terminal Menu, Beeper option
Decode Security (CS)	Low ***Moderate*** High	Terminal Menu, Scanner option
Display Contrast (DJ)	0 - 7 ***3***	Terminal Menu, Display option
Display Font Type (DT)	***8x8*** 8x16 16x16	Terminal Menu, Display option
Display Row Spacing (DL)	0 - 8 ***0***	Terminal Menu, Display option
Display Video Mode (DN)	***Original*** Normal Inverse	Terminal Menu, Display option
Keypad Caps Lock (KA)	On ***Off***	Terminal Menu, Keypad option
Keypad Clicker (KC)	Disabled ***Enabled***	Terminal Menu, Keypad option
Keypad Table (KT)	***Hardware default*** English ABCD IBM 5250 IBM 3270 ANSI/VT European	Terminal Menu, Keypad option
Postamble (AE)	***None (no characters)*** Any 25 ASCII characters	Terminal Menu, Preamble/Postamble option
Preamble (AD)	***None (no characters)*** Any 25 ASCII characters	Terminal Menu, Preamble/Postamble option
RAM Drive Size (FR)	***0 (disabled)*** 16 - 256K	Terminal Menu, RAM Drive option

Terminal Operations Table (continued)

Parameter (Syntax)	Options	Location in Configuration Menu
Reader Commands (DC)	Disable all reader commands ***Enable all reader commands*** Enable override Disable override	Terminal Menu, Reader Commands option
• Enable/Disable specific Reader Commands	Abort Program Backlight Backspace Change Configuration Clear Default Configuration Delete File Enter Accumulate mode Exit Accumulate mode List Files Multiple-Read Labels Receive File Rename File Reset Run Program Scanner Trigger Off Scanner Trigger On Test & Service mode Transmit File	Terminal Menu, Reader Commands option, Enable single commands option
Resume Execution (ER)	Not Allowed ***Allowed***	Terminal Menu, Power Management option
Scan Ahead (SD)	***Disabled*** Enabled	Terminal Menu, Scanner option
Scanner Mode (SB)	***One-Shot mode*** Automatic mode	Terminal Menu, Scanner option
Scanner Redundancy (SR)	None ***Normal*** High	Terminal Menu, Scanner option
Scanner Selection (SS)	***All compatible scanners*** 146X CCD scanners 151X laser scanners 1545 laser scanner Compatible Symbol scanners 155X laser scanners Long range laser scanner	Terminal Menu, Scanner option

Terminal Operations Table (continued)

Parameter (Syntax)	Options	Location in Configuration Menu
Scanner Timeout (SA)	*Disabled (0)* 1 - 60 seconds	Terminal Menu, Scanner option
Scanner Trigger (SC)	*Level* Edge	Terminal Menu, Scanner option
Time in Seconds (DA)	*Disabled* Enabled	Terminal Menu, Append Time option

4

Operating the Terminal in a Network

This chapter describes serial communications and the 2.4 GHz RF network and explains how the TRAKKER Antares 2455 terminal fits into your network. It also explains how to install and configure the terminal, use serial or network communications, configure the T2455 over the network, and it provides technical details about network connectivity and protocols.

Using Serial Communications on the Terminal

The TRAKKER Antares 2455 vehicle-mount terminal has two RS-232 serial ports to transfer data to and from other devices via serial communications. Before you can use the serial ports, you need to connect and configure the terminal.

The next sections cover these topics:

*   How the T2455 Fits Into Your Serial Network

*   Identifying the COM Ports

*   Choosing a Communications Protocol

*   Configuring the Serial Port Parameters

*   Configuring the Terminal Via the Serial Port

How the T2455 Fits Into Your Serial Network

The TRAKKER Antares 2455 terminal is a versatile terminal that you can easily add to your network or data collection system. You can mount the T2455 on a vehicle and connect a serial device such as a portable printer to the terminal. You can also use the T2455 as a fixed end device in your wired network. The terminal has two serial ports to transmit data to and from a device via RS-232 serial communications.

Mainframe
File server
Terminals
Ethernet
RS-232 cable
Development PC
T2455

2455U.080
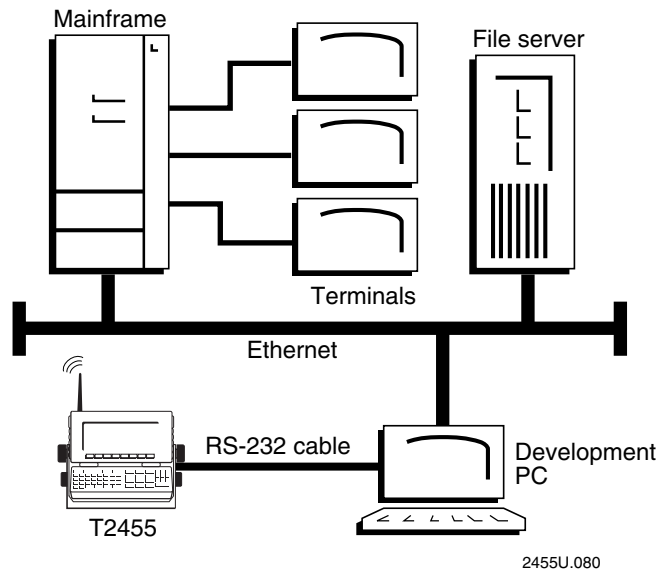
You can use the serial ports to connect to the 900 MHz RF network via the 9189 Gateway. The terminal communicates with the 900 MHz RF network using Polling Mode D protocol.

Identifying the COM Ports

Communications ports, also called COM ports, are locations from which data can be passed into and out of the terminal. The next table explains the COM port designations to use when developing client/server applications.

Port	COM Port Designation for Applications
COM1	Use for RS-232 serial port communications on the T2455.
COM4	Use for RS-232 serial port communications on the T2455. The COM4 port is available when you configure the Scanner port to operate as an additional serial port (COM4). For instructions, see "Scanner Port (COM4)" in Chapter 9.
NET	Use for RF communications on the T2455. The TRAKKER Antares Programmer's Software Kit (PSK) functions use NET to designate the RF network port.

You can physically connect the T2455 to another device (host computer, printer, controller, or other serial device) by using COM1 or COM4. For help connecting a device to a COM port, see "Connecting to Serial Devices" in Chapter 2.

Choosing a Communications Protocol

Once the T2455 is connected to a serial device, you are ready to configure the serial port parameters on the two devices. The terminal uses a communications protocol and XMODEM or YMODEM to handle data communications through the serial port.

You can configure the communications protocol for each COM port. The terminal's built-in file operations use XMODEM 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 on protocols, see the *Data Communications Reference Manual* (Part No. 044737).

The terminal can communicate in these four protocols:

- Binary
- Configurable protocol
- Master Polling
- Polling Mode D

Each protocol is described next.

Binary Protocol

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

Here are the serial port parameters you can define:

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

Configurable Protocol

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

Here are the serial port parameters you can define:

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

Configurable protocol 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.

Once EOM is enabled, you can set a value for these serial port parameters:

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

Once Handshake is enabled, you can set a value for poll and the timeout delay.

Master Polling Protocol

Master Polling Mode D protocol requires the TRAKKER Antares 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).

Baud rate is the only serial port parameter you can define for Master Polling protocol.

Polling Mode D Protocol

Polling Mode D requires the host computer to ask the terminal for data it may have (polling) and to request to send data to the terminal (selecting). Polling Mode D uses an RS-232 interface. Use this protocol if you want to connect to a 900 MHz RF network via the 9189 Gateway.

Here are the serial port parameters you can define:

- Baud rate
- Flow control

Configuring the Serial Port Parameters

The values you set for the terminal serial port must match the values set for the serial port on the connected device. There are three ways to configure the terminal's serial port parameters:

- Use the TRAKKER Antares 2400 Menu System. For help on configuring the parameters, see "Configuring the Serial Port Parameters" in Chapter 2.

- Scan the configuration command from a Code 39 or Code 93 bar code label. The configuration commands are listed alphabetically by command name in Chapter 9, "Configuration Command Reference."

- Send a command from an application through the serial port on the host computer. For help, see the next section, "Configuring the Terminal Via the Serial Port."

If you are configuring the serial port parameters in the TRAKKER Antares 2400 Menu System, you may not see all of the serial port parameters until you set a value for another key field. For example, EOM is a key field when you configure the Configurable protocol. Several fields are invalid (do not appear) until you enable EOM.

If you are configuring the serial port parameters by scanning or sending configuration commands, the terminal will accept and set all serial port commands. However, the terminal only uses the parameters that are valid for the current protocol configuration. For example, if you are using Configurable protocol on COM1, you can set a value for poll, but the terminal will not use it if handshake is not enabled.

Once the terminal is connected and configured, you can transfer data between the terminal and the device that is connected to the serial port. For help transferring files, see Chapter 5, "Using Custom Applications."

Configuring the Terminal Via the Serial Port

You can use an application on the PC or host to configure the T2455 by sending commands through the serial port. For example, you may want to change the Beep Volume command and the Keypad Caps Lock command.

To send and receive configuration data, you need to write an application for the host that can communicate with the terminal through the serial port. Next, you use the COM1 or COM4 serial port to connect the terminal to the host.

Once the terminal is communicating, you can configure it. If you are using the Configurable protocol, you must enable Frame mode and the Configuration Commands Via Serial Port command to configure the terminal through the serial port. You cannot configure the terminal through the serial port if you are using Configurable protocol with no EOM or Binary protocol on that port. For help, see Chapter 9, "Configuration Command Reference."

Note: You can continue running an application on the TRAKKER Antares terminal while configuring the terminal from the host. If you send a configuration command that changes the serial port parameters, you may not be able to continue sending commands unless you also reconfigure your host.

To set up the application

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

[SOM]	[TMF field]	configuration command	EOM

  where:

  [SOM]   is the start of message field.

  [TMF field]   is only used if you are using the Configurable protocol and the Configuration Commands Via Serial Port are enabled with TMF (Terminal Message Format).

Setting Up the Application (continued)

[TMF field] (continued)   TMF field is a 2-byte field containing one of these values:

`CG`   Configuration Get request sent from the host application.

`Cg`   Configuration Get response sent from the terminal to the host.

`CS`   Configuration Set request sent from the host application.

`Cs`   Configuration Set response sent from the terminal to the host.

Note: If the Configuration Commands Via Serial Port are enabled without TMF or you are using a protocol other than Configurable, do not include this field.

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

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

EOM   is the end of message field.

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

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

`CS$+BV4KA1.+1`

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

where:

CS   is a TMF Configuration Set request.

$+   is the Change Configuration reader command.

BV4   sets the Beep Volume configuration command to a value of 4, which is a very loud beep volume.

KA1   enables the Keypad Caps Lock configuration command.

.+1   is the reader command that saves configuration changes to the terminal's flash memory.

The terminal returns this transaction to the host application.

```
Cs$+BV4KA1.+1
```

where:

Cs   is a TMF Configuration Set response.

$+   is the Change Configuration reader command.

BV4   means the Beep Volume configuration command was changed to a value of 4, which is a very loud beep volume.

KA1   means the Keypad Caps Lock configuration command was enabled.

.+1   means the configuration changes were saved in flash memory.

Using RF Communications on the Terminal

Before you can begin using the TRAKKER Antares 2455 terminal to collect data, you need to install and configure each device in the 2.4 GHz RF network:

1. Plan and prepare your network. Make sure you have unique IP addresses for all devices in the network. Make sure you have all the equipment required to use the T2455 in the RF network.

2. For a T2455 with UDP Plus, configure the DCS 300 server or the Model 200 Controller.

   Note: The T2455 will communicate with either the DCS 300 or the Model 200 Controller. The DCS 300 is a new data collection server that replaces the Model 200 Controller.

3. Configure the access points.

4. Configure each T2455 terminal.

Each step is described in detail in the next sections.

Caution
Make sure all components with antennas are at least 1 foot (0.3 meters) apart when power is applied. Failure to comply could result in equipment damage.

Conseil
Assurez-vous que la distance entre tous les éléments avec antennes soit d'au moins un pied (0.3 mètres) avant de faire la connexion avec l'alimentation électrique, faute de quoi vous risquez d'endommager votre installation.

How the T2455 Fits Into Your RF Network

The TRAKKER Antares 2455 terminal is a versatile terminal that you can easily add to your network or data collection system. You can use the T2455 as an end device in Intermec's 2.4 GHz RF network. The illustrations in this section show some examples of the types of network configurations in which you can use the terminal.

TRAKKER Antares 2455 Terminals in a 2.4 GHz RF Network
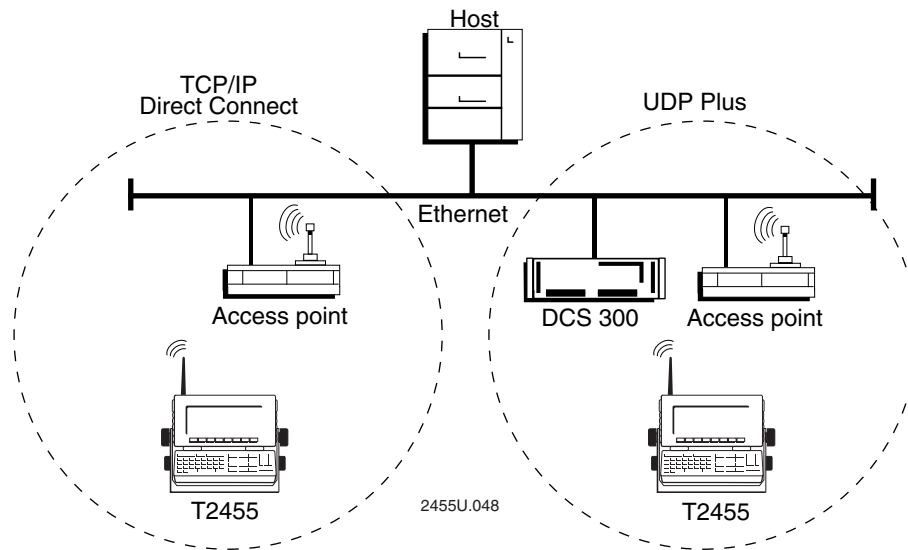
In a UDP Plus network, the T2455 communicates with a host computer through the DCS 300 using UDP Plus for the RF protocol. In a TCP/IP direct connect network, the T2455 communicates with a host computer directly using TCP/IP for the RF protocol. The access point acts as a bridge to allow communications between the Ethernet or token ring network and the wireless T2455 terminals.

TRAKKER Antares 2455 Terminals in Multiple Subnetworks (UDP Plus)

2455U.083
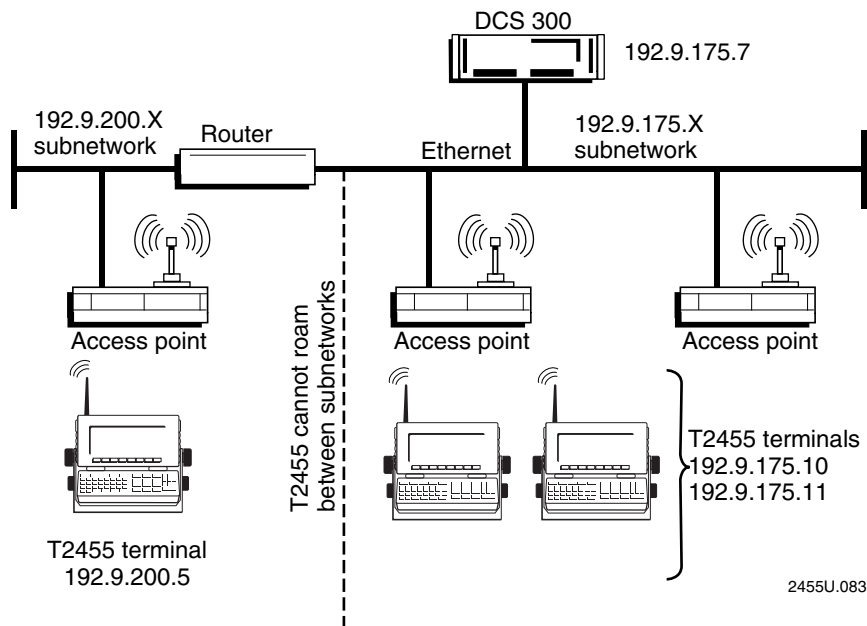
You can install the T2455 terminals, access points, and DCS 300 in your 2.4 GHz RF network as shown in the illustration. The T2455 terminals may only communicate with the access points that are in the same IP subnetwork. In this example, all the terminals and access points communicate with the DCS 300 at IP address 192.9.175.7 using UDP Plus for the RF protocol.

Note: If you are using the 21XX Universal Access Point™ (UAP), the T2455 terminal can roam between subnetworks. If you are using the 01XX access point, the T2455 cannot roam between subnetworks.

TRAKKER Antares 2455 Terminals in Multiple Subnetworks (TCP/IP)

2455U.084
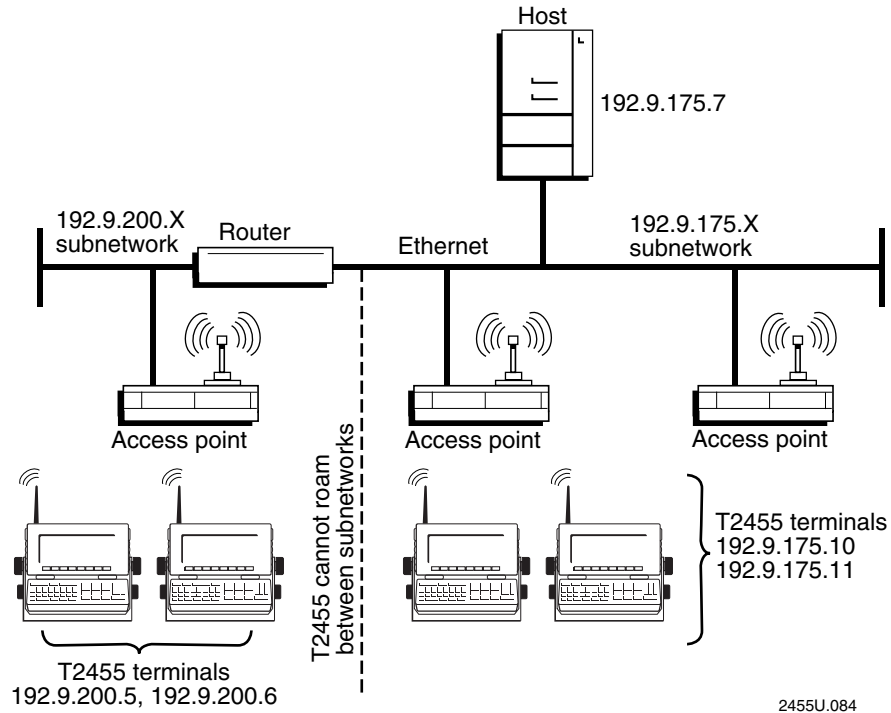
You can install the T2455 terminals and access points in your 2.4 GHz RF network as shown in the illustration. The T2455 terminals may only communicate with the 01XX access points that are in the same IP subnetwork. In this example, all the terminals and access points communicate with the host at IP address 192.9.175.7 using TCP/IP for the RF protocol.

Note: If you are using the 21XX Universal Access Point™ (UAP), the T2455 terminal can roam between subnetworks. If you are using the 01XX access point, the T2455 cannot roam between subnetworks.

TRAKKER Antares 2455 Terminals Communicating Across Subnetworks (UDP Plus)

DCS 300
192.9.200.5

192.9.200.X
subnetwork

Router
192.9.175.1

192.9.175.X
subnetwork

Ethernet

Access point

T2455 terminals
192.9.175.9
192.9.175.10
192.9.175.11

2455U.089
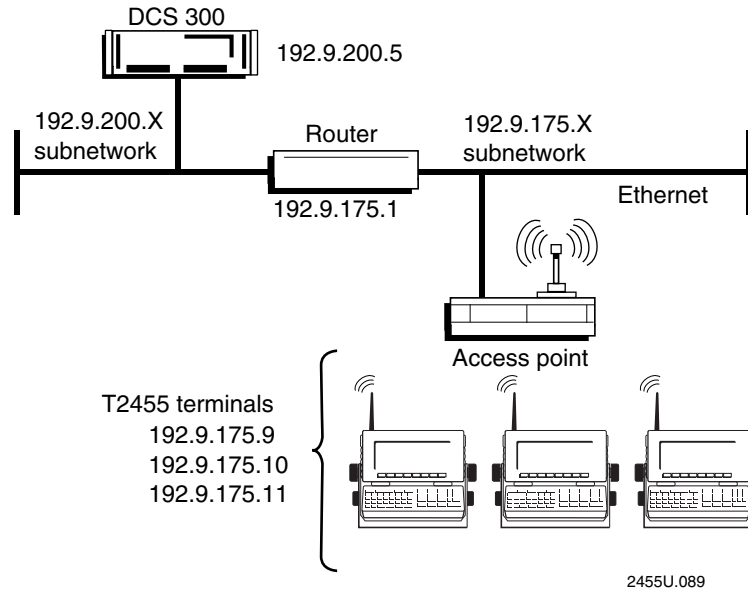
You can install the T2455 terminals and access points in one IP subnetwork and install the DCS 300 in another IP subnetwork as shown in the illustration. In this network, you must configure additional network parameters (default router and subnet mask) as described later in this chapter.

Note: If you are using the 21XX Universal Access Point™ (UAP), the T2455 terminal can roam between subnetworks. If you are using the 01XX access point, the T2455 cannot roam between subnetworks.

Planning the Network Connection

To use the T2455 in the 2.4 GHz RF network, you need these minimum requirements:

- DCS 300 (only T2455 with UDP Plus)
- 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 2.4 GHz RF. You must assign and set the IP address for each access point (RF) and each T2455 terminal. For a T2455 with UDP Plus, you must also assign an IP address to the DCS 300.

Configuring the DCS 300

The DCS 300 server supports and manages communications with other devices in the 2.4 GHz RF network. When you install and configure the DCS 300, you identify the host computer(s) and T2455 terminals in your network. The terminals communicate through the DCS 300 with your host by using UDP Plus protocol. For help installing the DCS 300, see the *DCS 300 System Manual* (Part No. 067296).

Note: You can use a T2455 running TCP/IP protocol and the DCS 300 in a pass-through network. You establish a direct TCP/IP socket connection from the T2455 to the host through the DCS 300. For more information, see the DCS 300 System Manual.

To have the T2455 communicate with the DCS 300, you must configure these parameters on the server:

- Configure the UDP Plus network.
- Assign an IP address to each T2455.
- Enable all T2455 terminals.
- Define the host environment parameters, which includes configuring for terminal emulation, screen mapping, or client/server applications.
- Define the host communications parameters, which includes the physical connection (network adapter cards) to the host.

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

- create the script file using the Script Builder tool on the server.
- create an application using EZBuilder and download it to the T2455.

Configuring the Access Point

The access point acts as a bridge to provide RF communications between the T2455 terminal and the DCS 300 or host. For help, see your access point user's manual.

Note: If you are using the 21XX Universal Access Point™ (UAP), the T2455 terminal can roam between subnetworks. If you are using the 01XX access point, the T2455 cannot roam between subnetworks.

To have the T2455 communicate with the access point, you must know the value of these parameters on the access point:

- RF domain

- RF security identification (ID) (optional)

Configuring the T2455

When you install the T2455 terminal in a network, you must configure a set of network parameters that control how the terminal communicates in the network.

There are two ways to configure the network parameters:

- Use the TRAKKER Antares 2400 Menu System. For help on configuring the network parameters, see Chapter 2, "Installing the Terminal."

- Scan the configuration command from a Code 39 or Code 93 bar code label. The configuration commands are listed alphabetically by command name in Chapter 9, "Configuration Command Reference."

The set of network parameters you must configure depends on whether you install the terminal on the same IP subnetwork as the DCS 300 or host (TCP/IP), or on a different subnetwork. The next table lists the parameters you configure in each type of network.

Network Parameters	Same IP Subnetwork?	Different IP Subnetwork?
Time and date	X	X
Network activate	X	X
Controller IP address (UDP Plus)	X	X
Host IP address (TCP/IP)	X	X
Terminal IP address	X	X
Network port	X	X
RF domain	X	X
RF security ID	Optional	Optional
Default router		X
Subnet mask		X

The network parameters are defined in the next section.

Defining the Network Parameters

This section defines the network parameters you configure when installing the T2455 terminal in an RF network. For each parameter's syntax and options, see Chapter 9, "Configuration Command Reference."

Time and Date   When you turn on the terminal for the first time, you must set the current time and date. You also need to set the time and date any time you lose all power to the terminal. For help, see "Setting the Time and Date" in Chapter 2.

Network Activate   On a T2455, the Network Activate command disables or enables RF communications. If the Network Activate parameter is disabled, the network is disabled, no RF communications are provided, and the radio is turned off. When the Network Activate parameter is enabled, the T2455 will try to connect to the access point or DCS 300.

Controller IP Address   An IP address is a unique network level address you assign to each device in a TCP/IP network. The Controller IP Address identifies the IP address assigned to the DCS 300 or Model 200 Controller in a UDP Plus network.

Host IP Address   An IP address is a unique network level address you assign to each device in a TCP/IP direct connect network. The Host IP Address identifies the IP address assigned to the host in your 2.4 GHz RF network.

Terminal IP Address   An IP address is a unique network level address you assign to each device in a TCP/IP network. The Terminal IP Address identifies the IP address assigned to the T2455. The IP address you set on the terminal must match the address that is set for the terminal on the DCS 300.

Network Port   Defines the network port that the TCP/IP or UDP Plus network protocol uses for communications in your 2.4 GHz RF network. In a UDP Plus network, the network port you set on the T2455 must match the network port that is set on the DCS 300. In a TCP/IP network, set the network port to the appropriate port for the application you are using on the T2455. The default network port of 23 enables VT/ANSI Telnet communications.

RF Domain   The domain defines a logical partition or subnetwork of the network. To establish communications, you must assign the same domain number to every RF device in a wireless network. The domain number you set on the terminal must match the domain that is set on each access point the terminal may communicate with. You can continue to collect data with the terminal as you roam between access points as long as all the devices have the same domain number.

RF Security Identification (ID)   This optional parameter defines the password you can set for secured transmission and receipt of data between devices in the wireless network. To communicate, each access point and terminal must have matching security IDs. If the security ID is set on the access point, you must also set the security ID on each T2455 that may communicate with the access point.

Note: The Network Activate command must be configured to 2.4 GHz RF network before you can save any changes to the RF security ID parameter.

Default Router Provides a software and hardware connection between two or more networks that permits traffic to be routed from one network to another on the basis of the intended destinations of that traffic. When the DCS 300 (UDP Plus) or host (TCP/IP) is on a different subnetwork than the T2455, you need to set the default router IP address. The terminal uses the router address to send packets across the network to the DCS 300 or host. The default router must have an IP address on the same subnetwork as the terminal. The default of 0.0.0.0 means there is no default router.

Subnet Mask The subnet mask is an internal TCP/IP protocol stack variable that is used in IP protocol to identify the subnetwork for an IP address. The IP protocol performs a bit-wise AND on the IP address and the subnet mask. Each address segment represents one byte, where 255 converts to FF hex. This computation is used to find out if the DCS 300 (UDP Plus) or host (TCP/IP) and terminal are on different subnetworks. If the terminal is on a different IP subnetwork than the DCS 300 or host, then you must set the subnet mask and default router.

For example, if the terminal IP address is 192.9.150.184 and the subnet mask is 255.255.255.0, the terminal is on the subnetwork 192.9.150.0.

Using the Status Lights to Monitor Network Communications

Once you have configured the devices in the 2.4 GHz RF network, you can begin using the application on the T2455 to collect and transmit data via network communications. If the T2455 is communicating with your host computer, the terminal will connect and begin running the application that shipped on the terminal. You can begin using the terminal to collect data.

As you use the T2455 to collect data, status lights help you monitor RF and network communications on the terminal. Use the Network Connect and Transmit status lights to monitor communications between the T2455 and other devices in the 2.4 GHz RF network.

Using the Status Lights to Monitor Network Communications

You See These Lights	Status of Communications	What You Need to Do
Network Connect status light is turned off.	No communications. The T2455 is not connected to an access point.	You may need to enable the Network Activate command. Make sure the terminal is configured correctly to communicate in your network. For help, see "Configuring the T2455" earlier in this chapter.
		Make sure the access points are turned on and operating. You may also be using the terminal out of the RF range of an access point. Try moving closer to an access point to re-establish communications.

Using the Status Lights to Monitor Network Communications (continued)

You See These Lights	Status of Communications	What You Need to Do
The Network Connect status light blinks.	Partial communications. The T2455 with UDP Plus is trying to establish communications with the DCS 300, but it is not connected. *Note: The Network Connect status light does not blink on a T2455 with the TCP/IP protocol.*	You may need to configure the terminal to communicate with other devices in the 2.4 GHz RF network. For help, see "Configuring the T2455" earlier in this chapter. If the T2455 is configured, you may be out of range of an access point, you may be about to go out of range of an access point, or the access point may have recently been turned off. You may also need to configure the DCS 300 (UDP Plus) or host. Make sure the terminal is configured correctly and enabled. Make sure the DCS 300 is turned on and data collection is started.
The Network Connect status light remains on.	Normal communications. The T2455 can communicate with the DCS 300 (UDP Plus) or host (TCP/IP).	You can send and receive data between the terminal and the DCS 300 or host.
The Network Transmit status light remains on and the Network Connect status light is turned on.	Normal communications. The T2455 is sending data or has received data for an application from the DCS 300 or host. The data is stored in the terminal network buffer until the application is ready to process the data.	You can send and receive data between the terminal and the DCS 300 or host.

Using the T2455 Between Access Points

The access point acts as a bridge to provide communications between the T2455 terminal and the Ethernet or token ring network. You may have multiple access points in your 2.4 GHz RF network to provide uninterrupted wireless communication at any location within your facility.

To use the terminal between access points and continue sending and receiving data, you must follow these guidelines:

- The radio coverage of each access point must overlap to ensure that the roaming T2455 will always have a connection available.

- You configure each access point with the same RF domain number and security ID.

- You configure the T2455 terminal with the same RF domain and security ID as the access points to which they may communicate.

- When you use the 01XX access point, the T2455 cannot roam between IP subnetworks. All of the 01XX access points that the T2455 may communicate with and roam between must be installed in the same IP subnetwork.

- When you use the 21XX Universal Access Point™ (UAP), the T2455 can roam between IP subnetworks. The 21XX UAPs that the T2455 may communicate with and roam between can be installed on different IP subnetworks.

Once the network is configured, 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 terminal automatically polls the other access points in the same RF domain 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 Transmit status light turns on. 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 network, the session is maintained any time the terminal is out of range or in Suspend mode.

Configuring the T2455 Over the Network

You can remotely configure a T2455 terminal by using one of these methods:

- Send a command from the DCS 300 (UDP Plus network only).

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

You cannot configure any of the RF network parameters, such as terminal IP address, over the network. Once the terminal is communicating, you can configure bar code symbologies and send operating commands.

Note: You can configure the terminal locally by using the TRAKKER Antares 2400 Menu System or by scanning a command from a Code 39 or Code 93 bar code label. For help, see Chapter 3, "Configuring the Terminal."

Configuring the T2455 From the DCS 300

You can use the DCS 300 to configure one or more T2455 terminals in your 2.4 GHz RF network. You can also send reader commands such as Delete File to one or more terminals. Your terminal must be configured with UDP Plus in order to communicate with the DCS 300.

This method is very fast and efficient if you need to change the same configuration parameters for several terminals in one area. For example, you may want to set the Beep Volume to very loud and turn on Keypad Caps Lock for all terminals in one area.

Note: You can configure a T2455 from the DCS 300, but you cannot get configuration data from the terminal.

To send commands from the DCS 300

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

    Note: You can continue running an application on the T2455 while configuring the terminal from the DCS 300.

2. Choose the Command option button.

3. Enter the reader or configuration command and choose Add. The command appears in the Files and Data box. For example, enter this command to set the Beep Volume to very loud:

    ```
    $+BV4
    ```

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

    Note: You can set the Postamble or Preamble command to use characters from the extended ASCII character set such as the Field Exit code for 5250 TE. For help, see "Auto-Advancing Through Fields on 5250 TE Screens" in the TRAKKER Antares Terminal Emulation User's Guide.

4. Repeat Step 3 to add another reader or configuration command, or choose OK.

5. To save the configuration changes in flash memory on the T2455, enter this reader command as the last command and choose Add:

    ```
    .+1
    ```

    Otherwise, the commands only change the runtime configuration. You can also use the TRAKKER Antares 2400 Menu System to save configuration changes in flash memory on the T2455. For help, see "Saving Configuration Changes in Flash Memory" in Chapter 3.

6. Choose Download to download the commands and change the configuration of the terminals selected.

Configuring the T2455 From the Host

You can use an application on the host computer to configure one T2455. For example, you may want to change the Beep Volume command or the Keypad Caps Lock.

To send and receive configuration data or files, you need to write an application for the host that can communicate with the DCS 300 in a UDP Plus network or directly through the access point in a TCP/IP direct connect network. You use the Terminal Message Format (TMF) protocol in the 2.4 GHz RF network to send and receive transactions between the host application and the terminal.

UDP Plus is an Intermec value-added protocol. TCP/IP is an industry standard protocol. For help, see "About Network Connectivity and Protocols" later in this chapter.

Configuring the T2455 in a UDP Plus Network

You can use the host computer to configure one T2455 terminal in your 2.4 GHz RF network. For example, you may want to change the Beep Volume command and the Keypad Caps Lock command.

To send and receive configuration data, you need to write an application for the host that can communicate with the DCS 300. For help, see the *DCS 300 Technical Reference Manual*. You use the Terminal Message Format (TMF) protocol to send and receive transactions between the host application and the terminal.

Note: You can continue running an application on the T2455 while configuring the terminal.

To set up the DCS 300

•   Configure a peer-to-peer destination name for the host application. Create a transaction ID, $NGCFGRSP, that will be routed to this destination name. The DCS 300 uses the transaction ID to route responses from the T2455 back to the host application. $NGCFGRSP is a special transaction ID that the DCS 300 uses to forward configuration response data from a terminal.

All configuration responses will be routed with the $NGCFGRSP transaction ID. The DCS 300 cannot keep track of multiple applications sending reader or configuration commands. If you have two host applications sending reader or configuration commands, they must both be configured to receive the $NGCFGRSP transactions, and therefore both will receive all responses from all T2455 terminals.

To set up the host computer

• Verify that you can communicate with the DCS 300.

To set up the application

• Prepare and write a host application that can communicate with the DCS 300 and send transactions to and receive transactions from the T2455 in this format:

transaction header	*TMF field*	*configuration command*

where:

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

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

CG   Configuration Get request sent from the host application.

Cg   Configuration Get response sent from the T2455 to the host.

CS   Configuration Set request sent from the host application.

Cs   Configuration Set response sent from the T2455 to the host.

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

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

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

Configuring the T2455 in a TCP/IP Direct Connect Network

You can use the host computer to configure one T2455 terminal in your 2.4 GHz RF network. For example, you may want to change the Beep Volume command and the Keypad Caps Lock command.

To send and receive configuration data, you need to write an application for the host that can communicate with a T2455 directly via an access point or through the Ethernet network. You use the Terminal Message Format (TMF) protocol to send and receive transactions between the host application and the terminal. For more about developing an application, see "Transferring Files in a TCP/IP Direct Connect Network" later in this chapter.

Note: You can continue running an application on the T2455 while configuring the terminal from the host.

To set up the host computer

• Verify that you can communicate with the T2455.

To set up the application

• Prepare and write a host application that can communicate with the T2455. Configuration commands must be sent to network port 6000 on the terminal. Message transactions to and receive transactions from the T2455 on network port 6000 must conform to the following format:

TMF field	*configuration command*

where:

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

                     CG   Configuration Get request sent from the host application.

                     Cg   Configuration Get response sent from the T2455 to the host.

                     CS   Configuration Set request sent from the host application.

                     Cs   Configuration Set response sent from the T2455 to the host.

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

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

Example 1

In the host application, you want to get the current values of two configuration commands from the T2455. Send this transaction from the host application:

`CG$+NABV`

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

where:

CG   is a TMF Configuration Get request.

$+   is the Change Configuration reader command.

NA   is the Network Activate configuration command.

BV   is the Beep Volume configuration command.

The T2455 returns this transaction to the host application.

`Cg$+NA1BV4`

where:

Cg   is a TMF Configuration Get response.

$+   is the Change Configuration reader command.

NA1   means the Network Activate configuration command is currently set to a value of 1, which means that the 2.4 GHz RF network is enabled.

BV4   means the Beep Volume configuration command is currently set to a value of 4, which is a very loud beep volume.

Example 2

In the host application, you want to set the value for two configuration commands on the T2455. Send this transaction from the host application:

`CS$+BV3KA1`

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

where:

CS   is a TMF Configuration Set request.

$+   is the Change Configuration reader command.

BV3   sets the Beep Volume configuration command to a value of 3, which is a very loud beep volume.

KA1   sets the Keypad Caps Lock configuration command to a value of 1, which enables the Keypad Caps Lock.

The T2455 returns this transaction to the host application.

`Cs$+BV3KA1`

where:

Cs is a TMF Configuration Set response.

$+ is the Change Configuration reader command.

BV3 means the Beep Volume configuration command has been changed to a value of 3, which is a loud beep volume.

KA1 means the Keypad Caps Lock configuration command has been changed to a value of 1, which enables the Keypad Caps Lock.

Transferring Files in a TCP/IP Direct Connect Network

You can use an application on the host computer to transfer files and send data between the terminal and host in a TCP/IP direct connect network. To initiate file transfers from the host, you need to write a host application that can communicate directly with the T2455. You use the file management reader commands such as Receive File and Transmit File to transfer files between the T2455 and the host. For help, see Chapter 8, "Reader Command Reference."

To initiate file transfers from the terminal, you do not need to develop a host application as described in this section. You can use the Receive File and Transmit File within a terminal application or by scanning bar code labels. For help, see Chapter 8, "Reader Command Reference."

Note: You can continue running an application on the T2455 while configuring the terminal or transferring files from the host.

To use the built-in TFTP client on the T2455, you need the following:

- TFTP (Trivial File Transfer Protocol) server must be running on the host.

- TFTP server must be running on at least a Pentium processor or equivalent.

- T2455 must be communicating with the host that is running the TFTP server.

- The TFTP server or some other application on the host must be able to send the reader command on the network.

To transfer files or send configuration data from the host

1. Make sure the TFTP server is running on the host and the T2455 is communicating with the host.

2. Start the host application that can send reader commands to the terminal.

3. Send the two-character TMF code, CS (Configuration Set request) followed by the reader or configuration command. For help on TMF, see "Configuring the T2455 in a TCP/IP Direct Connect Network" earlier in this chapter.

For example, to send the application INVENTRY.BIN from drive C on the host to drive C on the T2455, enter this command:

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

For command information, see Chapter 8, "Reader Command Reference," or Chapter 9, "Configuration Command Reference."

CLIENT.CPP is the source for a sample application you can run on the host. You can use the CLIENT.CPP application to send reader commands to the T2455 and receive the resulting messages.

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

You run the resulting application (CLIENT.EXE) from the DOS command line. The application expects NCM to be defined as the TRAKKER Antares terminal IP address in the hosts file. Once running, the application prompts you to enter a reader command, which it then sends to the T2455. The application also displays any return messages. Reader commands are handled by the TRAKKER Antares operating system, so you can continue running an application while you use the CLIENT.EXE application to send commands.

To use the sample utility CLIENT.CPP

1. Make sure the TFTP server is running on the host and the T2455 is communicating with the host.

2. In the hosts file on the host, add the terminal IP addresses and the target name, NCM. For example, to send files or data to the T2455 with an IP address of 192.9.200.130, add this line to the hosts file:

```
192.9.200.130 ncm
```

3. Start the CLIENT.EXE application on the host.

4. When the "Enter Command" prompt appears on the host, enter the two-character TMF code, CS (Configuration Set request) followed by the reader or configuration command.

For example, to send the application INVENTRY.BIN from drive C on the host to drive C on the T2455, enter this command:

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

Or, to change the beep volume to very loud, enter this command:

```
CS$+BV4
```

For command information, see Chapter 8, "Reader Command Reference," or Chapter 9, "Configuration Command Reference."

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

```cpp
#include <windows.h>
#include <stdio.h>
#include "Utils.h"

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

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

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

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

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

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

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

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

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

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

```
                Rcount++;
                printf("receive failed %d\n", Rcount);
                ErrorMessage("receive", WSAGetLastError());
                bConnectionAlive = FALSE;
            }
// printf the converted string
            printf("response:%s\n",rz);
            printf("\n> ");
            Sleep(1000);
        }
        else
            bConnectionAlive = FALSE;
    }

// release the resources held by the socket
    error = closesocket(connection);
    if (error != 0)
        ErrorMessage("closesocket", WSAGetLastError());

// release the resources held by the socket library
    error = WSACleanup();
    if (error != 0)
        ErrorMessage("WSACleanup", WSAGetLastError());
    return 0;
}
```

UTILS.H Utility (Used by CLIENT.CPP)

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

About Network Connectivity and Protocols

The TRAKKER Antares 2455 terminal is a data collection terminal with network support. The T2455 communicates with a host computer or other serial device through the COM1 and COM4 serial ports. The T2455 also communicates with a host in the 2.4 GHz RF network either through the DCS 300 or directly through the access points. The access point acts as a bridge between the Ethernet or token ring network and the wireless 2.4 GHz RF network.

Note: The T2455 will communicate with either the DCS 300 or the Model 200 Controller. The DCS 300 is a new data collection server that replaces the Model 200 Controller.

In a UDP Plus network, the terminal communicates through the DCS 300 to a host on an Ethernet, token ring, twinaxial, coaxial, or SDLC network. In a TCP/IP network, the terminal communicates to the host on an Ethernet or token ring network.

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

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

- Terminal Message Format (TMF) is an Intermec proprietary protocol that is used to route data and network management messages between applications on the terminal and peer tasks on the DCS 300 or host.

- UDP Plus is an Intermec protocol built on top of the User Datagram Protocol (UDP). It maximizes the performance of wireless (RF) networks and provides robust data communications.

- Trivial File Transfer Protocol (TFTP) allows efficient file exchange between the terminal and the DCS 300 or host.

- Configurable Serial Port (CSP) protocol allows efficient file exchange between the T2455 and the host through RS-232 serial communications. The terminal uses either the XMODEM or YMODEM protocol to transfer files via reader commands.

- Network management provides network access to the terminal configuration, status, and statistics. Network management uses the Terminal Message Format to receive and send messages.

The remaining layers in the protocol stack are a series of standard protocols that interface with the drivers and hardware needed to support the 2.4 GHz RF network and serial communications.

TRAKKER Antares Terminal Protocol Stack and the OSI Model
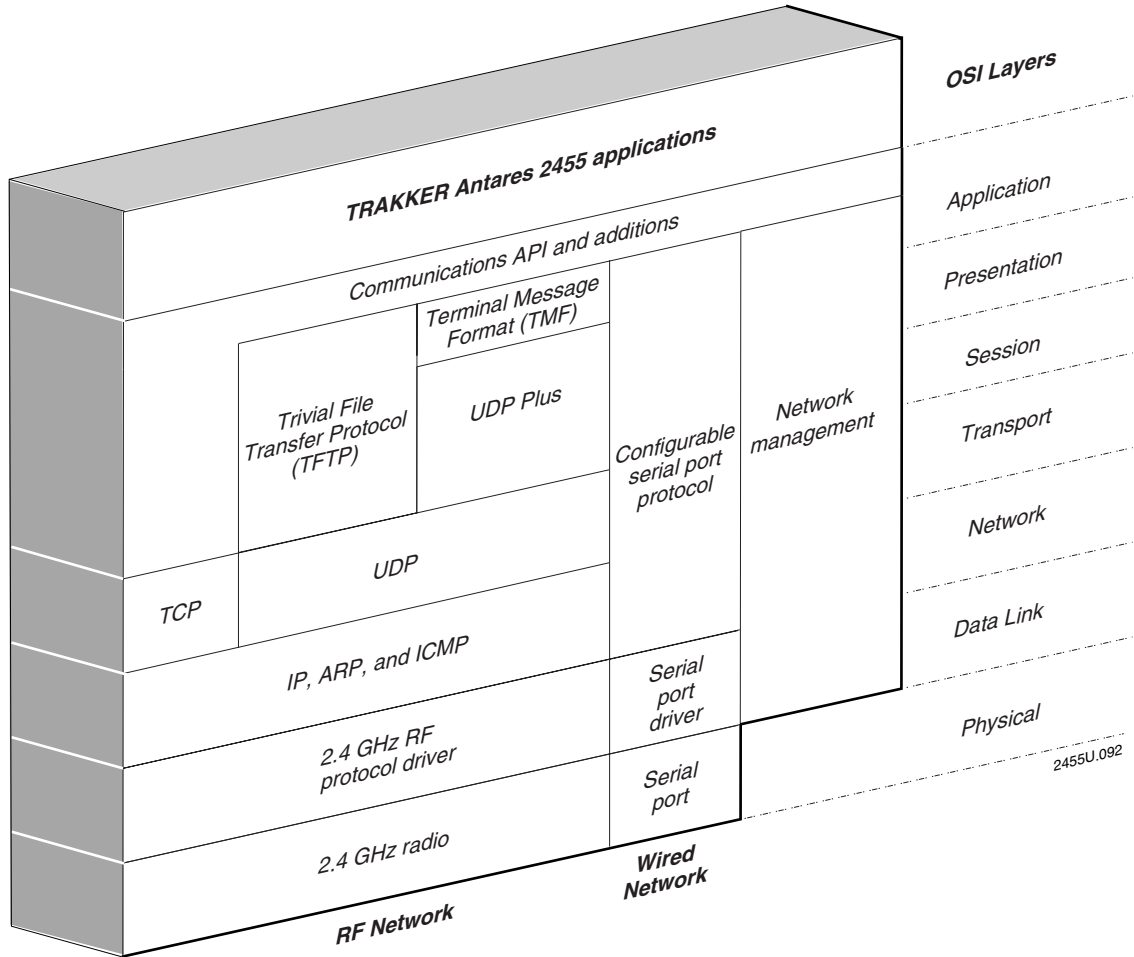
OSI Layers

Application

Presentation

Session

Transport

Network

Data Link

Physical

2455U.092

TRAKKER Antares 2455 applications

Communications API and additions

Terminal Message Format (TMF)

Trivial File Transfer Protocol (TFTP)

UDP Plus

Configurable serial port protocol

Network management

TCP

UDP

IP, ARP, and ICMP

Serial port driver

2.4 GHz RF protocol driver

Serial port

2.4 GHz radio

Wired Network

RF Network

The TRAKKER Antares 2455 terminal uses these protocols:

Layer	Protocol	Description
Physical	2.4 GHz radio	Provides spread spectrum radio signal control.
	Serial Port	Provides RS-232 serial communications.
Data Link	2.4 GHz RF protocol driver	Provides RF media access control.
	Serial port driver	Provides RS-232 (COM1 and COM4) serial communications control that uses CSP and the standard XMODEM or YMODEM protocol for data transfer.
Network	IP, ARP, and ICMP	The Internet Protocol (IP) complies with the standard outlined in RFC 791.
		The Address Resolution Protocol (ARP) complies with the standard outlined in RFC 826.
		The Internet Control Message Protocol (ICMP) complies with the standard outlined in RFC 826.
Transport	UDP	The User Datagram Protocol (UDP) complies with the standard outlined in RFC 768.
	TCP	Transmission Control Protocol (TCP) complies with the standard outlined in RFC 793.
Session and Presentation	UDP Plus	UDP Plus is an Intermec proprietary session layer protocol built on UDP. The UDP Plus session layer provides these services: • guaranteed delivery • duplicated message removal • link connection and status management • network error recovery • congestion control • device error detection
	TFTP	Trivial File Transfer Protocol (TFTP) allows efficient file exchange between the terminal and the DCS 300 or host. TFTP complies with the standard outlined in RFC 1350.
Presentation and Application	TMF	Terminal Message Format is an Intermec proprietary protocol that is used to route data, configuration, and network management messages between applications on the terminal and peer tasks on the DCS 300 or host.

5

Using Custom Applications

This chapter introduces the TRAKKER Antares 2455 programmable terminal and explains how to download and run applications on the terminal.

How to Download and Run Applications

Here's a brief summary of the steps you follow to download applications and files to the programmable TRAKKER Antares 2455 terminal. To learn more about the programmable features, start with the next section, "About the TRAKKER Antares Programmable Terminals."

Use a serial port to download applications and files to the T2455

1. Create your applications using the TRAKKER Antares Programmer's Software Kit (PSK) or EZBuilder™. For help, see page 5-5.

2. Convert each application to a binary file using the PSK utility EXE2ABS.EXE. For help, see page 5-7. Or, use the EZBuilder option to convert each application to a binary file.

3. Connect the T2455 to the development PC or host computer using a serial port. For help, see Chapter 2, "Installing the Terminal."

4. Use the FileCopy utility to download applications and files to the T2455. For help, see page 5-8.

5. Use the System Menu in the TRAKKER Antares 2400 Menu System to load and run an application. For help, see page 5-16.

Use the DCS 300 to download applications and files to the T2455

1. Create your applications using the TRAKKER Antares PSK or EZBuilder. For help, see page 5-5.

2. Convert each application to a binary file using the PSK utility EXE2ABS.EXE. For help, see page 5-7. Or, use the EZBuilder option to convert each application to a binary file.

3. Copy the applications and files to the DCS 300. For help, see page 5-11.

4. Use the Download Server feature on the DCS 300 to download applications and files to the T2455. For help, see page 5-12.

5. Use the System Menu in the TRAKKER Antares 2400 Menu System to load and run an application. For help, see page 5-16.

Use a host application to download applications and files to the T2455

1. Create your applications using the TRAKKER Antares PSK or EZBuilder. For help, see page 5-5.

2. Convert each application to a binary file using the PSK utility EXE2ABS.EXE. For help, see page 5-7. Or, use the EZBuilder option to convert each application to a binary file.

3. Copy the applications and files to the host.

4. Write an application for the host that can communicate with the T2455 directly via an access point. Use the host application to download applications and files to the T2455. For help, see "Transferring Files in a TCP/IP Direct Connect Network" in Chapter 4.

   Note: The host must be running a TFTP server.

5. Use the System Menu in the TRAKKER Antares 2400 Menu System to load and run an application. For help, see page 5-16. Or, use the host application to send the Run Program command.

About the T2455 Programmable Terminals

The TRAKKER Antares 2455 terminal ships loaded with a terminal emulation application or a sample application. You can develop your own data collection application for the T2455 and then download the application to the terminal.

You download applications and files to one or more terminals from the DCS 300 (UDP Plus protocol) or host (TCP/IP protocol) using the 2.4 GHz RF network. You can also download applications and files to one terminal using a serial port.

The next table lists specifications and technical information you need to know to develop applications for the T2455.

T2455 Programming Specifications

Serial Communications	RS-232 serial communications via COM1 and COM4
RF Communications	2.4 GHz (to 2.4835 GHz) radio
Network protocol	There are two options: • UDP Plus protocol provides host connectivity through the DCS 300. • TCP/IP protocol provides host connectivity through an access point.

T2455 Programming Specifications (continued)

Application	Programmed in Microsoft C, customer defined, stored on drive C. Maximum size of a single application is 512K (less the size of the RAM drive, if configured).
Application name	Customer defined, eight characters with three-character extension
Storing applications	Multiple (maximum depends on the drive space)
Developing applications	Using TRAKKER Antares Programmer's Software Kit or EZBuilder
Downloading applications	Via RS-232 serial communications from the PC or host computer.
	Via RF to the terminal flash drive from the DCS 300.
	Via RF and TFTP to the terminal flash drive from a host application.
Drives and File system	Drive C, approximately 750K flash for user, up to 32 files.
	Drive D, optional 2MB (of the total 4MB) configurable flash memory storage, up to 32 files (configurable as a storage drive or a storage space for double-byte fonts).
	Drive E, configurable (up to 256K) RAM disk, up to 32 files.
	Drive G, optional 2MB or 4MB extended SRAM drive, up to 32 files.

Creating Applications for the Terminal

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

To start creating applications

1. Use the PSK or EZBuilder to develop your application.

2. Convert the application to a binary file.

Each step is described in the next sections. Once you have completed these steps, you can download the application to the T2455.

Using the PSK or EZBuilder to Develop Applications

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

The TRAKKER Antares Programmer's Software Kit (Part No. 065332) has a full set of programming tools to help you create applications for the terminal. In addition to the PSK, you also need Microsoft Visual C/C++ version 1.5X (Part No. 590224).

The PSK kit contains:

- Programmer's software libraries

- Application Simulator

- FileCopy utility

- Sample programs and Make files

- *TRAKKER Antares Application Development Tools System Manual*

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

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

EZBuilder (Part No. 066381) is a software code generator product that provides a quick and easy way to create applications for the TRAKKER Antares terminal.

EZBuilder contains:

- EZBuilder software

- Microsoft Visual C++ version 1.5X

- Application Simulator

- PSK libraries

- FileCopy utility

- Sample EZBuilder programs

- *EZBuilder Getting Started Guide*

- *EZBuilder Tutorial*

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

Converting Applications Between JANUS and TRAKKER Antares

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

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

There are several methods you can use to convert applications to and from JANUS devices and TRAKKER Antares terminals. For help on converting applications, see the *TRAKKER Antares Programmer's Software Kit Reference Manual*.

Converting IRL Programs for the TRAKKER Antares

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

You can also convert your IRL program by developing a new C/C++ application using the TRAKKER Antares Programmer's Software Kit (PSK) or EZBuilder and Microsoft C/C++ functions.

Converting the Application to a Binary File

For your application to run on the T2455 it must be stored as an executable binary file (*.BIN) instead of an executable file (*.EXE). Use the EXE2ABS.EXE program that comes with the TRAKKER Antares PSK or EZBuilder to convert the file.

Note: The FileCopy utility or the EZBuilder "download" tool will automatically convert an executable file (.EXE) to an executable binary file (*.BIN) when you download the file. If you download the applications using another method, you need to convert the application to a binary file.*

To convert an executable file to a binary file

1. Use the TRAKKER Antares PSK or EZBuilder to develop the application.

2. Convert the application from an executable file to a binary file by typing this command on your development PC:

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

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

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

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

The conversion application creates the SHIPPING.BIN file.

3. If you plan to download applications and files from the DCS 300 or host via the 2.4 GHz RF network, copy all the binary application files and any data files to a 3.5-inch disk. Continue with the instructions for "Using the DCS 300 to Download Applications" later in this chapter.

Using the Serial Port to Transfer Applications and Files

You can download or upload applications and files between a PC or host computer and the T2455 using serial communications. You connect the terminal to the host through the COM1 or COM4 serial port. For help, see "Connecting to Serial Devices" in Chapter 2. Once the terminal is connected, you can transfer files to or from a terminal.

There are two ways to transfer files:

* Use the FileCopy utility that ships with the TRAKKER Antares Programmer's Software Kit (PSK) and EZBuilder.

  Note: The FileCopy utility is also available on our web site at www.intermec.com.

* Use the Receive File or Transmit File reader commands. For help, see Chapter 8, "Reader Command Reference."

The instructions in this section explain how to use the FileCopy utility to download or upload applications and files to or from the terminal.

To run an application on the terminal, it must be stored as an executable binary file (*.BIN). The FileCopy utility will automatically convert any *.EXE file to a binary file (*.BIN) before downloading the file. With the FileCopy utility, you can download either *.EXE or *.BIN application files.

Note: You can download or upload files to or from the terminal using either the serial port or RF communications through the DCS 300 or host.

To download or upload applications and files to or from the terminal

1. Connect the TRAKKER Antares terminal to your PC.

2. Start Microsoft Windows on your PC
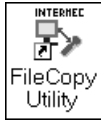
3. From Program Manager, start FileCopy. The TRAKKER Antares FileCopy utility screen appears.

   FileCopy includes detailed online help. You click the Help button or press **F1** anytime to get more information.

```
TRAKKER Antares FileCopy Utility v3.0                    _ □ ×

  FileCopy | COM Port Setup | Serial Communication Setup |

  PC filename and path:

   C:\APPS\INVENTRY.EXE                         ▼       Download

                          Browse . . .                  ☐ Run program

  TRAKKER Antares filename:                             Upload

   C:INVENTRY.EXE                               ▼
                                                      Delete Terminal File
   Use C: for flash drive, E: for RAM drive,
   and G: for extended storage drive.                  ☐ After Upload
   For example, C:example.bin.
                                                        Delete Now


              ✓ Exit                ? Help
```

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

   a. Select the COM Port Setup tab to select and configure the following:

      • PC COM port

      • TRAKKER Antares COM port

      • Communications Protocol

      • File Transfer protocol

      • Baud rate, parity, data bits, and stop bits

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

   c. Use the TRAKKER Antares 2400 Menu System to configure the COM1 or COM4 serial port parameters on the terminal. For help, see "Configuring the Serial Port Parameters" in Chapter 2.

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

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

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

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

      To view a list of available files on your PC, click the Browse button.

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

      Applications must be stored on drive C. Depending on your configuration, you can download other files to drive C, D (if available), E, or G (if available).
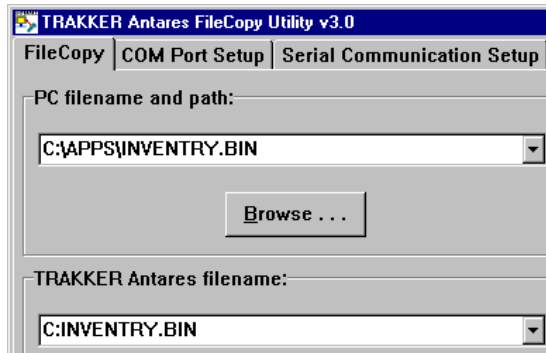
7. If you are downloading an application and want to run it on the terminal immediately after it is downloaded, enable the Run program check box.
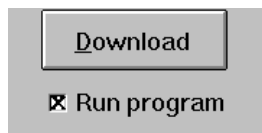
Note: You can also run the application at any time from the terminal. For help, see "Running the Application on the Terminal" later in this chapter.

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

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

9. To download or upload another file, repeat Step 5 through Step 7.

10. Click Exit to close the FileCopy utility.

Using the DCS 300 to Download Applications

You can download applications and files to a T2455 using network communications. The advantage to downloading files via network communications is that you can download multiple files to one or more terminals.

You use RF communications to download applications from the DCS 300 to T2455s running UDP Plus or from the host to T2455s running TCP/IP. This section explains how to use the DCS 300 to download applications and files. For help downloading files in a TCP/IP network, see Chapter 4, "Operating the Terminal in a Network."

Note: The T2455 will communicate with either the DCS 300 or the Model 200 Controller. The DCS 300 is a new data collection server that replaces the Model 200 Controller.

To download applications and files from the DCS 300

1. Copy the applications and files to the DCS 300.

2. Download the applications and files to the T2455.

Each step is described in the next sections. Before you start, make sure the terminal is communicating with the DCS 300. If you need any help installing or configuring the network, see Chapter 4, "Operating the Terminal in a Network."

Copying Files to the DCS 300

You can use these instructions to copy binary applications and files from a 3.5-inch disk to the DCS 300.

To copy applications and files to the DCS 300

1. Insert the 3.5-inch disk that contains the files in the disk drive of the DCS 300.

2. From the main menu sidebar buttons, choose File Handling. The File Handling dialog box appears.

3. In the File Handling list box, select Restore User Files and choose Start. A message box appears telling you to insert the floppy disk in the disk drive of the DCS 300.

4. Choose OK. The Restore User Files dialog box appears. The files on the floppy disk appear in the Available Files list box.

Restore User Files Dialog Box
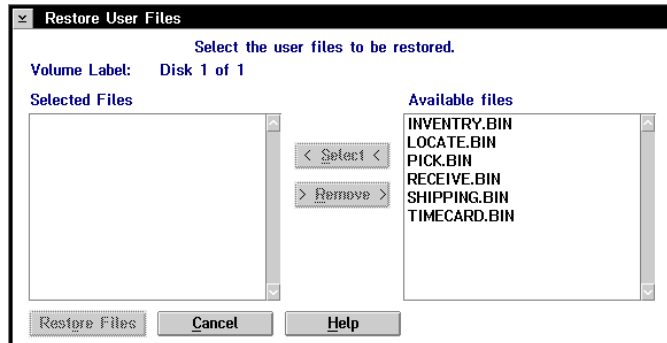
5. In the Available Files list box, add all the files that you want to restore to the Selected Files list box. Select the file and choose Select.
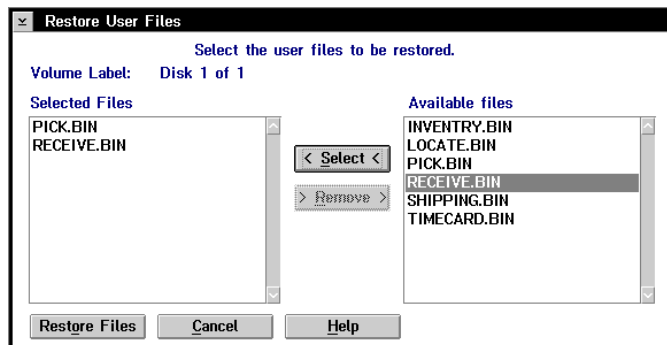
If the Selected Files list box shows any files that you do not want to restore, select the file name and choose Remove.

6. Choose Restore Files. The DCS 300 restores the files you selected to the USERDATA directory.

7. Remove your disk from the disk drive.

Downloading Applications and Files to the T2455

Once the applications and files are stored on the DCS 300, you can download applications and files to a T2455 running UDP Plus.

There are two ways to download files:

- Use the Download Server feature on the DCS 300.

- Use the Receive File or Transmit File reader commands. For help, see Chapter 8, "Reader Command Reference."

The instructions in this section explain how to use the Download Server feature on the DCS 300 to download applications and files to the terminal.

To prepare the terminal

- Make sure the terminal is on and communicating with the DCS 300. Look at the status lights on the top of the terminal screen. If the Network Connect status light is turned on, the terminal is communicating with the DCS 300.

To download applications and files to the T2455

1. If data collection is not started on the DCS 300, choose Start Data Collection from the main menu sidebar buttons.

2. From the main menu sidebar buttons, choose System Maintenance. The System Maintenance dialog box appears.

3. In the System Maintenance dialog box, select Configure Download Server and then choose Start. The Terminal Download Configuration dialog box appears.
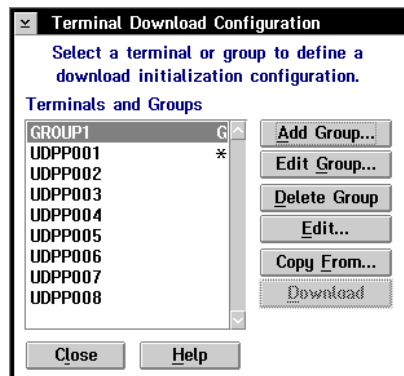
4. From the Terminal Download Configuration dialog box in the Terminals and Groups list box, select a terminal or group of terminals to receive the binary applications and files.

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

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

Configure Device Initialization Download Dialog Box
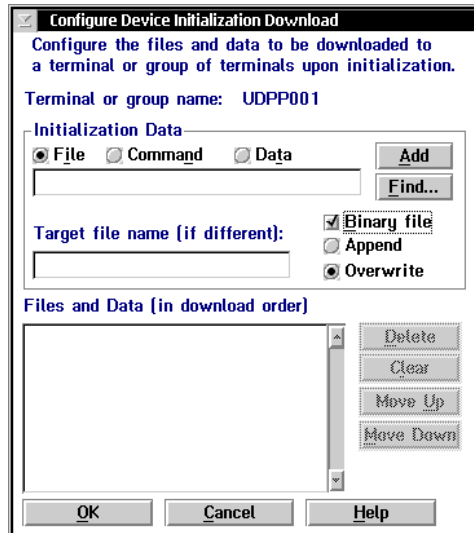
6. Verify that there are no files (or entries) listed in the Files and Data list box. If there are entries, then choose Clear to remove them.

7. In the Initialization Data box, choose File.

8. In the field, type:

    `\filename`

    where *filename* is the name of the executable binary application. Or choose Find, select your application, and choose OK.

9. Enable the Binary file check box.

10. Enable the Overwrite option button to overwrite an existing file with the same name.

11. In the Target file name field, type a name if you want to save the file under a different name on the terminal.

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

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

Configure Device Initialization Download Dialog Box
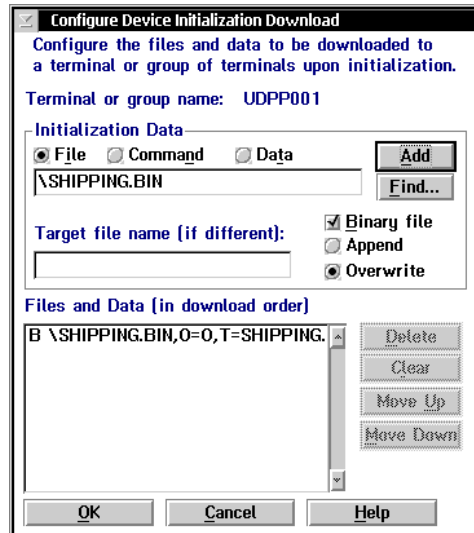
13. Repeat Steps 7 through 12 to select another application.

14. You can also download files used by your application such as an employee list or a part number list.

    To download additional files, choose File in the Initialization Data box. Type in the filename including the backslash. Disable the Binary file check box and then choose Add.

15. Choose OK to save your changes and return to the Terminal Download Configuration dialog box.

16. In the Terminals and Groups list box, choose the terminal or group you configured if it is not already highlighted and marked with an asterisk.

17. Choose Download. A Download initiated message box appears.

18. Choose OK. The executable binary applications and files are downloaded to the terminal or group of terminals usually within a few seconds. If you are downloading the applications and files to many terminals or there is a lot of radio traffic in your 2.4 GHz RF network, the download may take longer. All files are downloaded and stored on the terminal's flash drive C.

19. Choose Close to close the dialog box and return to the System Maintenance dialog box.

To run an application, continue with the instructions in the next section.

Running the Application on the Terminal

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

- Use the FileCopy utility. For help, see "Using the Serial Port to Transfer Applications and Files" earlier in this chapter.

- Use the Run Program reader command. For help, see "Run Program" in Chapter 8.

- Use the TRAKKER Antares 2400 Menu System.

The instructions in this section explain how to use the TRAKKER Antares 2400 Menu System to load and run an application.

To run an application on the terminal

1. Press ⎡f⎤ ⎡↵⎤ ⎡2⎤ ⎡4⎤ ⎡8⎤ or scan this bar code label to access the TRAKKER Antares 2400 Menu System.

   Enter Test and Service Mode

   ||||||||||||||||||||||||||||||

   ..-.

   The Main Menu appears.

   ```
              MAIN MENU
   Configuration Menu
   Diagnostics Menu
   System Menu
   About TRAKKER 2400



   ↑↓ Select item
   [Enter] Next screen
   [F1] Help
   [Esc] Exit
   ```
   2455U.044

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

System Menu

```
┌─────────────────────────┐
│     SYSTEM MENU         │
├─────────────────────────┤
│ File Manager            │
│ Load Default Values     │
│ Set Time and Date       │
│ Store Configuration     │
│ Upgrade Firmware        │
│                         │
│                         │
│                         │
│ ↑↓ Select item          │
│ [Enter] Next screen     │
│ [F1] Help               │
│ [Esc] Exit              │
└─────────────────────────┘
                 2455U.046
```
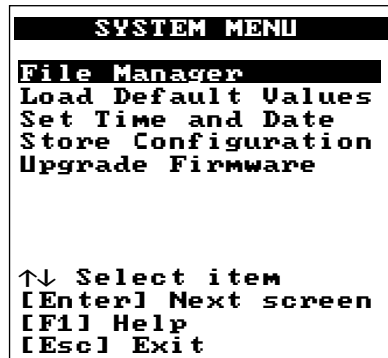
3. Choose File Manager and press ⏎ . The File Manager screen appears prompting you to select a drive.

```
┌─────────────────────────┐
│     FILE MANAGER        │
├─────────────────────────┤
│ Select drive: C         │
│                         │
│                         │
│                         │
│                         │
│                         │
│                         │
│  OK          CANCEL     │
└─────────────────────────┘
                 2455U.094
```

4. Press ⏎ to select drive C or press ▶ to select the drive you want to manage and then press ⏎ . The File Manager screen appears listing all the files stored on the drive.

```
┌─────────────────────────┐
│     FILE MANAGER        │
├─────────────────────────┤
│ C:APPTSK.BIN  06144     │
│ C:VTTCP-D.BIN 0196K     │
│ C:TEANT.CFG   00274     │
│                         │
│                         │
│ 00572654 Bytes Free     │
│ [Enter] Run App         │
│ [F7] Rename             │
│ [DEL] Delete            │
│ [F1] Help [Esc] Exit    │
└─────────────────────────┘
                 2455U.096
```

5. Press ▼ or ▲ to choose an application and then press ⏎ . The terminal boots, resets all firmware, and runs the application.

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

    Note: You can press ⎣f⎦ ⎣F2⎦ to rename a file or ⎣f⎦ ⎣.⎦ to delete a file.

You can begin using the application to collect data. Repeat the instructions in this section to run another application on the terminal. If you have problems running an application, see Chapter 6, "Troubleshooting."

Using Screen Mapping (DCS 300 v1.1)

You can use screen mapping to send screen transactions from a T2455 through the DCS 300 to a host application. First, you create an application for your terminals. To create an application that runs on your terminals, you can use the TRAKKER Antares Programmer's Software Kit (PSK) or EZBuilder and Microsoft C/C++ functions. The terminal runs applications that are programmed in Microsoft C. For help, see "Creating Applications for the Terminal" earlier in this chapter.

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

Make sure you have installed the terminal in your Intermec 2.4 GHz RF network. For help, see Chapter 1, "Getting Started." If you have completed these tasks, you can start running your application and screen mapping.

Note: If you are running DCS 300 v1.0 software or you are using a Model 200 Controller, screen mapping was supported using terminal templates and a terminal template application. For help, contact your local Intermec service representative.

6

Troubleshooting

This chapter lists the problems you may have while using the terminal and gives some possible solutions. You will also find instructions that explain how boot or reset the terminal, clean the terminal screen, and replace the backup battery.

How to Use This Chapter

If you have any problems with the TRAKKER Antares 2455 terminal, use this table as a guide to find the problem and solution in this chapter:

Problem	See This Section to Find a Solution	Page
Screen is blank, terminal is locked up, or message is displayed.	"Problems While Operating the Terminal"	6-5
Configuring the terminal	"Problems While Configuring the Terminal"	6-7
RF communications error	"Terminal Will not Communicate With RF Network Devices"	6-11
Application error	"Problems Transmitting Data Through the DCS 300"	6-13
Scanning labels	"Bar Code Labels Will Not Scan"	6-14
Boot Menu appears or terminal is locked up.	"Booting the Terminal"	6-18
The terminal screen is dirty, or the mounting bracket bolts are loose.	"Maintaining and Cleaning the Terminal"	6-17

Note: If you have problems with the 3270, 5250, or VT/ANSI terminal emulation application, see the TRAKKER Antares Terminal Emulation User's Guide.

Finding and Solving Problems

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

- Problems While Operating the Terminal

- Problems While Configuring the Terminal

- Terminal Will Not Communicate With RF Network Devices

- Problems Transmitting Data Through the DCS 300

- Bar Code Labels Will Not Scan

- Protecting Delicate Electronic Components

- Maintaining and Cleaning the Terminal

- Booting the Terminal

- Troubleshooting a Locked Up Application

- Resetting the Terminal

- Replacing the Backup Battery

Note: You can also use the diagnostics to help analyze and solve problems. For help, see Chapter 7, "Running Diagnostics."

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

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

If you 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.

Problem

Solution

The screen is blank and the Power status light is blinking.

Make sure the external power supply is connected. The terminal cannot operate without an external power supply.

You scan a reader command, such as Backlight On, and nothing happens.

The reader commands are disabled. Scan the Enable Override command shown here to temporarily enable all of the reader commands. You can also enable or disable reader commands with the TRAKKER Antares 2400 Menu System. For help, see "Command Processing" in Chapter 9. When you are finished, remember to disable the override so that your data is not interpreted as a command.

Enable Override

‖‖█‖‖‖‖‖██‖‖‖█‖‖███‖██‖‖‖‖██

$+DC3

You scan a valid bar code label to enter data for your application. The data decoded by the scanner does not match the data encoded in the bar code label.

The terminal may have decoded the bar code label in a symbology other than the label's actual symbology. Try scanning the bar code label again. Make sure you scan the entire label.

To operate the terminal quickly and efficiently, you should enable only the bar code symbologies that you are going to scan. If you enable multiple symbologies, the terminal may on rare occasions decode a bar code according to the wrong symbology and produce erroneous results.

You want to set the terminal back to the default configuration to start over configuring the terminal.

Scan this bar code label:

Default Configuration

‖‖███‖‖███‖‖‖‖█

.+

Or, use the TRAKKER Antares 2400 Menu System. For help, see "Restoring the Terminal's Default Configuration" in Chapter 3.

Note: After you load the default configuration on a T2455, you may need to set the primary network communications parameters to communicate with other devices in the network.

You cannot scan bar code labels with the laser scanner attached to the Scanner port.

See "Bar Code Labels Will Not Scan" later in this chapter.

Problems While Operating the Terminal (continued)

Problem	Solution
The terminal appears to be locked up and you cannot enter data.	Try these possible solutions:
	• Wait at least 10 seconds and try again. If the terminal is in the process of connecting to the DCS 300 or host, the terminal will ignore any input from the keypad or scanner. If the Network Connect status light appears and remains on, you can continue working.
	• Scan any bar code label to see if the terminal responds.
	• Follow the instructions in "Troubleshooting a Locked Up Application" later in this chapter.
The terminal is booting and you see a message that POST failed.	The screen displays the system that failed POST. Report the error message to your supervisor.
	Press ⌷esc⌷ to exit the error message. The Boot Menu appears. Press ⌷F1⌷ to boot the terminal. Your application appears on the screen. If the terminal still will not boot, contact your local Intermec service representative for help.
The terminal displays the Boot Menu.	You will see the Boot Menu in these two situations:
	• You replace the backup battery. Once you replace the battery and turn on the terminal, the Boot Menu appears. Press ⌷F1⌷ to boot the terminal and continue working.
	• You just finished upgrading the firmware on the terminal and POST failed. Press ⌷F1⌷ to boot the terminal. Report the problem to your supervisor.
	For help on the Boot Menu, see "Booting the Terminal" later in this chapter.
The Power status light blinks and an external power supply is connected.	The backup battery charge is low.
	Make sure an external power supply is connected and there is power to the terminal. The backup battery will be fully charged in approximately 14 hours. If you have been using the terminal in a cold temperature environment, move the terminal to a warmer environment to charge the backup battery.
	You can replace the backup battery if it will no longer hold a charge, if the battery status on the Battery/PIC diagnostic screen is bad, or if the battery is dead. For help, see "Replacing the Backup Battery" later in this chapter.

Problems While Configuring the Terminal

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

Problem

On the T2455, you configure the RF security ID and the changes do not appear to be saved.

You see this error message when exiting the Configuration Menu:

```
Network configuration error.
Network is enabled. Terminal IP
address or Controller (Host) IP
address set to an invalid
address of 0.x.x.x or
127.x.x.x. Configuration was
not updated.
```

You see this error message when exiting the Configuration Menu:

```
Network configuration error.
Network is enabled. Terminal IP
address and Default Router
address set to the same
address. Configuration was not
updated.
```

You see this error message when exiting the Configuration Menu:

```
Network configuration error.
Network is enabled. Terminal IP
address or Controller (Host) IP
address set to the same
address. Configuration was not
updated.
```

Solution

You can only set the RF security ID with the 2.4 GHz RF network enabled. The Network Activate configuration command must be configured to 2.4 GHz RF network before you can save any changes to the RF security ID command.

The 2.4 GHz RF network is enabled and there is a problem with the network configuration. You need to change the terminal IP address and/or the controller IP address (host IP address for a TCP/IP network). Choose Primary Network from the Communications Menu.

The terminal IP address or the controller/host IP address is set to 0.x.x.x or 127.x.x.x. These are invalid addresses. Set a valid IP address for the terminal and DCS 300 or host.

For help, see "Using RF Communications on the Terminal" in Chapter 4. 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.

The 2.4 GHz RF network is enabled and there is a problem with the network configuration. You need to change the terminal IP address and/or the default router address. Choose Primary Network or Advanced Network from the Communications Menu.

The terminal IP address and the default router address are both set to the same address. Set a valid IP address for the terminal and the default router.

For help, see "Using RF Communications on the Terminal" in Chapter 4. If you cannot fix the addressing problem, check with your network administrator to get the IP addresses for each RF network device.

The 2.4 GHz RF network is enabled and there is a problem with the network configuration. You need to change the terminal IP address and/or the controller IP address (host IP address for a TCP/IP network). Choose Primary Network from the Communications Menu.

The terminal IP address and the controller/host IP address are both set to the same address. Set a valid IP address for the terminal and DCS 300 or host.

For help, see "Using RF Communications on the Terminal" in Chapter 4. If you cannot fix the addressing problem, check with your network administrator to get the IP address assigned to the terminal and the controller or host.

Problems While Configuring the Terminal (continued)

Problem	Solution

You see this error message when exiting the Configuration Menu:
 	
`Network configuration error.`
`Network is enabled. Default`
`Router address is not on the`
`terminal's network.`
`Configuration was not updated.`
	The 2.4 GHz RF network is enabled and there is a problem with the network configuration. You need to change the default router address. Choose Advanced Network from the Communications Menu.
	
	The terminal and DCS 300 (UDP Plus network) or host (TCP/IP network) are on different networks, and the terminal is not on the same network as the default router. When the terminal is on a different IP subnetwork from the DCS 300 or host, you must set the Default Router and Subnet Mask commands. Set a valid IP address for terminal, DCS 300 or host, and default router.
	
	For help, see "Using RF Communications on the Terminal" in Chapter 4. If you cannot fix the addressing problem, check with your network administrator to get the IP addresses for each RF network device.

You are configuring the serial port and see this error message when exiting the Configuration Menu:
 	
`Serial port configuration`
`error.`
 	
`SOM is set. You must also set`
`EOM.`
 	
`Configuration was not updated.`
	You must configure a value for EOM before you can set SOM or disable SOM. You need to change the value of SOM. Choose Serial Port from the Communications Menu.
	
	The Configurable protocol uses EOM to determine the serial communications mode. When EOM is disabled, the terminal communicates in Character mode. When EOM is enabled, the terminal communicates in Frame mode. To use Frame mode, you need to set EOM first. Next, configure Handshake, Configuration Commands Via Serial Port, LRC, SOM, and then Poll.
	
	For help, see "Using Serial Communications on the Terminal" in Chapter 4.

You are configuring the serial port and see this error message when exiting the Configuration Menu:
 	
`Serial port configuration`
`error.`
 	
`SOM cannot equal EOM.`
 	
`Configuration was not updated.`
	SOM cannot equal the same value that is set for EOM. You cannot set SOM to any of these values: AFF (ACK), DLE, NEG (NAK), Poll, RES (EOT), REQ (ENQ), SEL, XOFF, or XON. You need to change the value of SOM. Choose Serial Port from the Communications Menu.
	
	For help, see "Start of Message (SOM)" in Chapter 9.

You are configuring the serial port and see this error message when exiting the Configuration Menu:
 	
`Serial port configuration`
`error.`
 	
`EOM #1 cannot equal EOM #2.`
`Configuration was not updated.`
	EOM can be one or two ASCII characters, but you cannot set the first and second character to the same character. Also, you cannot set EOM to any of these values: AFF (ACK), DLE, NEG (NAK), Poll, RES (EOT), REQ (ENQ), SEL, XOFF, or XON. You need to change the value of EOM #1 or #2. Choose Serial Port from the Communications Menu.
	
	For help, see "End of Message (EOM)" in Chapter 9.

Problems While Configuring the Terminal (continued)

| Problem	Solution

You are configuring the serial port and see this error message when exiting the Configuration Menu:
 	
`Serial port configuration error. DLE, XON, XOFF are not valid values for either SOM or EOM.`
 	
`Configuration was not updated.`
	You cannot set EOM or SOM to any of these values: AFF (ACK), DLE, NEG (NAK), Poll, RES (EOT), REQ (ENQ), SEL, XOFF, or XON. You need to change the value of EOM or SOM. Choose Serial Port from the Communications Menu.
	
	For help, see "End of Message (EOM)" or "Start of Message (SOM)" in Chapter 9.

You are configuring the serial port and see this error message when exiting the Configuration Menu:
 	
`PG command failed.`
 	
`Configuration was not updated.`
	PG is the Handshake configuration command. You need to change the value of Handshake or set other serial port parameters. Choose Serial Port from the Communications Menu.
	
	The order in which you set serial port protocol configuration commands is important. To use Frame mode, you need to set EOM first. Next, configure Configuration Commands Via Serial Port, Handshake, LRC, and then SOM. To use Character mode, you need to disable these same parameters in reverse order.
	
	For help, see "Using Serial Communications on the Terminal" in Chapter 4.

You are configuring SOM or EOM in the Configuration Menu and cannot set two characters.	You may have a space in the SOM or EOM field. The space does not show, but it is a valid character. To clear a space from the field, put the cursor in the field and press ⬅. Now set the two-character value for SOM or EOM.
You are scanning a configuration command to set one of the serial port parameters and hear three low beeps. For example, you are trying to set EOM or SOM.	The order in which you scan serial port protocol configuration commands is important. The Configurable protocol 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 Configuration Commands Via Serial Port, Handshake, LRC, and then SOM. To use Character mode, you need to disable these same parameters in reverse order. For help, see "Using Serial Communications on the Terminal" in Chapter 4.

Problems While Configuring the Terminal (continued)

Problem	Solution

Problem

You see this error message when exiting the Configuration Menu:

```
Commandname
command failed.

Remainder of configuration not
updated.
```

Solution

The two-character name (syntax) of the configuration command that failed is listed on the first line of the error message. For example, you may see this message:

```
SS
command failed.
```

There may be a problem with the configuration due to a change made with the Scanner Selection (SS) command. Check the command listed in the message. To find the command, use the "Configuration Commands by Syntax" table in Appendix A. Make sure the command is set correctly for the options and network communications you are using with the terminal. For help, see Chapter 9, "Configuration Command Reference."

You scan a configuration command, such as Keypad Caps Lock, and you hear three low beeps.

If you are working in the TRAKKER Antares 2400 Menu System, you cannot scan configuration commands. Use the Configuration Menu to change the terminal's configuration, or exit the menu system to scan configuration commands.

You scan a configuration command, such as Keypad Caps Lock, and nothing happens.

There are two possible solutions:

- You may have one or more reader commands disabled, such as Change Configuration, so that you cannot change the configuration. Enable all of the reader commands and try again.

- The terminal may be waiting for another command to complete the configuration change. If you started by scanning the Enter Accumulate command, you must finish the command by scanning the Exit Accumulate command. For help, see Chapter 9, "Configuration Command Reference."

Scan the Enable Override to temporarily enable all of the reader commands. When you are finished, remember to disable the override so that your data is not interpreted as a command.

Enable Override

$+DC3

Problems While Configuring the Terminal (continued)

Problem	Solution
You scan a configuration command to set one of these parameters and hear three low beeps: • Controller IP Address (UDP Plus) or Host IP Address (TCP/IP) • Terminal IP Address • Default Router • Network Activate	If the Network Activate command is enabled (2.4 GHz RF network enabled) and you are configuring the terminal, these addresses must define a valid network configuration. For example, an invalid network configuration would be a controller (or host) IP address set to 0.0.0.0 with the network enabled. To set these four parameters, follow these steps: 1. Disable the Network Activate (NA) configuration command. 2. Set the terminal IP address and the controller IP address or the host IP address. 3. Set the default router address (if necessary). 4. Enable the Network Activate command. You can change an IP address with the network enabled as long as it still defines a valid network configuration.

Terminal Will Not Communicate With RF Network Devices

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

Problem	Solution
When you turn on the terminal after it was suspended for awhile (10-15 minutes or longer), the terminal can no longer send or receive messages over the network.	The host may have deactivated or lost your current terminal emulation session. In a TCP/IP direct connect network, you need to turn off the "Keep Alive" message (if possible) from the host so that the TCP session is maintained while a terminal is suspended.
The Network Connect status light is turned off. The terminal is not communicating with the access point.	Make sure the Network Activate command is enabled. Also make sure the terminal is configured correctly for your network. To communicate with the access point, the RF domain and RF security ID 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 Terminal" in Chapter 4. Make sure the access point is turned on and operating. You may be using the terminal out of the RF range of an access point. Try moving closer to an access point to re-establish communications. In a TCP/IP direct connect network, you cannot scan or enter data when the terminal is not communicating with an access point or you may lose your TCP session. Try moving closer to an access point to re-establish communications.

Terminal Will Not Communicate With RF Network Devices (continued)

| Problem	Solution
The Network Connect status light blinks.	In a UDP Plus network, the terminal is not connected to the DCS 300. You may need to check the terminal's configuration or make sure the DCS 300 is running and that data collection is started. The terminal may be out of range of an access point or the access point may have recently been turned off. Make sure the access point is still turned on.
	Each device in the 2.4 GHz RF network must have a valid IP address. The IP addresses set on the terminal must match the addresses configured on the DCS 300 or host. For help, see "Using RF Communications on the Terminal" in Chapter 4.
The terminal is connected to the host computer and you move to a new site to collect data. The Network Connect status light 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 Network Connect status light will appear and remain on. Any data you collected while you were out of range will be transmitted over the network.

The Network Connect status light blinks and you see this message:
 	
`Unable to connect to controller. Error 102.`
 	
`Unable to establish connection to host. Session ended.`
	The terminal is connected to the access point, but is trying to establish communications with the DCS 300 and the host computer. Make sure the terminal is correctly configured for your network. Make sure the DCS 300 is configured and running. Make sure the host computer is configured and running.
	
	If you have configured the network correctly, try restarting the DCS 300 to establish communications. You can also try resetting the terminal. For help, see "Resetting the Terminal" later in this chapter.

The Network Connect status light remains on, but the host computer is not receiving any data from the terminal.	There may be a problem with the connection between the DCS 300 and the host computer. Check with your network administrator or use the *DCS 300 System Manual* to troubleshoot any potential problems on the controller. In a TCP/IP network, there may be a problem with the connection between the access point and the host computer. Check with your network administrator or use your access point user's manual.
The Network Connect status light remains on, but you cannot establish a terminal emulation session with the host computer.	There may be a problem with the host computer, a problem with the connection between the DCS 300 and the host computer, or a problem with the connection between the access point and the host (TCP/IP). Check with your network administrator to make sure the host is running and allowing users to login to the system.

Problems Transmitting Data Through the DCS 300

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

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

Bar Code Labels Will Not Scan

If you cannot scan bar code labels or you are having problems with the laser scanner that is attached to the Scanner port, check these possible problems.

Problem	Solution
A laser scanner is not attached to the Scanner port.	Make sure a laser scanner has been attached correctly to the Scanner port. For help, see "Attaching a Scanner" in Chapter 2.
The terminal is turned off.	Make sure the terminal is turned on. Press ⌷ to turn on the terminal.

You cannot see a red beam of light when you aim the scanner at a bar code label and pull the trigger.

There are two possible problems:

- You may be too far away from the bar code label. Try moving closer to the bar code label and scan it again.

- You may be scanning the bar code label "straight on." Try changing the scanning angle until the laser beam is the brightest. This is the best scanning angle.

You can test the effective range of the scanner. Move within 2 feet of a wall and test the scanner. You need to be within the scanning range to scan bar code labels. For help on scanning distances, see the guide that shipped with your laser scanner.

⚠ **WARNING**

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

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

Problem	Solution
You have a laser scanner attached to the Scanner port and cannot read any bar code labels.	You may not be using a laser scanner or cable that is supported for the T2455. For a list of supported scanners and cables, see "Input Devices for the Scanner Port" and "Cable Accessories" in Appendix A. Or, you may have the Scanner port configured for COM4. For help, see "Scanner Port (COM4)" in Chapter 9.
The laser scanner does not appear to work well or read bar code labels very quickly.	Try setting the Scanner Selection command to the specific input device you have attached. Check the bar code symbologies you have enabled on the terminal. Enable only the symbologies that you are using.
The laser 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 scanning window with a solution of ammonia and water. Wipe dry. Do not allow abrasive material to touch the window.

Bar Code Labels Will Not Scan (continued)

Problem	Solution
The laser scanner will not read the bar code label.	Try these solutions: • Make sure you aim the scanner beam so it crosses the entire bar code label in one pass. • The angle you are scanning the bar code label may not be working well, or you may be scanning the label "straight on." Try scanning the bar code label again, but vary the scanning angle. • The bar code label print quality may be poor or unreadable. To check the quality of the bar code label, try scanning a bar code label that you know scans. Compare the two bar code labels to see if the bar code quality is too low. You may need to replace the label that you cannot scan. • Make sure the bar code symbology you are scanning is enabled. Use the TRAKKER Antares 2400 Menu System to check the symbologies. On the Symbologies Menu, each symbology that is enabled has an asterisk (*) next to the name of the symbology. If your bar code symbology is disabled, enable it and then try scanning the bar code label again.
When you pull the trigger, the Good Read status light does not turn on.	Move within 2 feet of a wall and pull the trigger again. Make sure the scanner emits the red laser beam. If the status light does not turn on, there may be a problem with it. For help, contact your local Intermec service representative. If the laser beam does not turn on, check the other problems in this section for a possible solution.
When you release the trigger, the Good Read status light does not turn off.	The status light remains on if you configure the terminal to use edge triggering. If you configure the terminal for level triggering and the Good Read status light remains on, there may be a problem with the status light. Pull the trigger again without scanning a bar code label. If the status light is still on, contact your local Intermec service representative.

Protecting Delicate Electronic Components

As Intermec moves to surface mount technology and smaller components, our products become more vulnerable to damage from electrostatic discharge (ESD). Recently Intermec experienced spare board assembly failures in the field that were traced to improper ESD protection while handling or installing the boards. This is costly and can be easily avoided.

Intermec's Service department recommends that all field personnel follow three guidelines to prevent ESD damage:

• Use an ESD mat and wrist strap when repairing and replacing printed circuit boards.

• Before you open any Intermec product, place that product on an ESD mat and ground the product.

• Follow all standard ESD procedures for your workplace.

Follow ESD Procedures

This icon appears at the beginning of any procedure in this manual that could cause you to touch components (such as printed circuit boards) that are susceptible to damage from electrostatic discharge (ESD). When you see this icon, you must follow standard ESD guidelines to avoid damaging the equipment you are servicing.

The Everett facility uses several vendors for ESD products. One USA vendor is DESCO Industries, Inc., which you can reach at telephone (909) 598-2753 or on the World Wide Web at http://www.desco.com/. This table lists part numbers from DESCO's 1996 catalog. However, you may want to find your own sources for ESD products.

Part Number	Description
7755	Large Service Kit 22 x 24
7780	Standard Service Kit 18 x 22
7790	Pocket Kit 15 x 20
A77115	Work Table Mat 24 x 48

Maintaining and Cleaning the Terminal

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

• Clean the terminal screen.

• Check the mounting bracket.

Each procedure is described in detail in this section.

To order replacement parts, contact your local Intermec service representative or contact Intermec at:

Intermec Corporation
6001 36th Ave. West
P.O. Box 4280
Everett, Washington 98203-9280

Telephone: 1-425-348-2600

Cleaning the Terminal Screen

To keep the terminal in good working order, you need to clean the terminal screen. Clean this surface as often as needed or when it is dirty.

To clean the terminal screen

1. Press $\boxed{\text{I/o}}$ 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 terminal screen. Do not allow any abrasive material to touch this surface.

4. Wipe dry.

Checking the Mounting Bracket

Periodically inspect the knob on the mounting bracket to make sure they are still tight. Check the mounting bracket for any signs of fatigue, such as cracking, which might develop over extended use in extreme (vibration) environments. Replace any damaged hardware immediately to ensure continued, safe operation.

Booting 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 can boot the terminal using these two methods:

- Configure the ⌐I/o key to boot the terminal when you turn on the terminal.

- Use the Boot Menu.

Booting the Terminal on Resume

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

There are two ways to configure the ⌐I/o key using the Resume Execution configuration command:

Resume Execution Not Allowed   Configures the terminal to boot and restart your application each time you press ⌐I/o 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 Chapter 3, "Configuring the Terminal," or "Resume Execution" in Chapter 9.

Resume Execution Not Allowed   Resume Execution Allowed

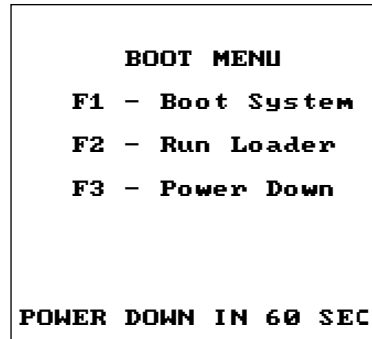|||||||||||||||||||||||||||||| ||||||||||||||||||||||||||||||

$+ER0   *$+ER1*

Using the Boot Menu

The Boot menu appears after you:

- replace the backup battery and turn on the terminal.

- upgrade the firmware.

- reset the terminal.

Boot Menu

```
     BOOT MENU
  F1 - Boot System
  F2 - Run Loader
  F3 - Power Down



POWER DOWN IN 60 SEC
```

2455U.040

The Boot Menu contains these commands:

Boot System   Press F1 to boot the terminal. Once the terminal is finished booting, your application appears on the screen.

Run Loader   Press F2 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 3.

Power Down   Press F3 to turn off the terminal. When you turn on the terminal, the Boot Menu screen appears again if POST passes.

Troubleshooting a Locked Up Application

If the terminal or application appears to be locked up, try these steps in order.

To troubleshoot a locked-up terminal or application

1. Press I/o to turn off the terminal. If it turns off, press I/o to turn on the terminal and continue working.

2. Scan the Reset Firmware label to restart the firmware and application.

Reset Firmware

||| ||||| ||| ||||| |||

-.

You can also send the Reset Firmware command over the network. For help, see Chapter 8, "Reader Command Reference." If it works, you can continue working.

3. Scan the Boot Terminal label to reboot the terminal. If it works, you can continue working.

    Boot Terminal

    ‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖

    -.1

4. Configure the Resume Execution command to resume "not allowed." For help, see "Resume Execution" in Chapter 9. Each time you press ⌷ to turn on the terminal, the terminal boots and restarts your application.

5. If your terminal appears to boot but the application will not run or is locked up, press and hold the ⌷tab key immediately after you scan the Reset Firmware label or press ⌷ to turn on the terminal in Step 3. Continue to hold the ⌷tab key for at least 30 seconds after the TRAKKER Antares welcome screen has cleared.

    The terminal has booted without loading an application. Use the TRAKKER Antares 2400 Menu System to load another application or download a new version of the application before you run it again.

6. If the terminal will not turn off or does not respond to the Reset Firmware command, reset the terminal as described in the next procedure. Make sure you have tried Steps 1 and 2 before you reset the terminal.

Resetting the Terminal

If you performed the steps in "Troubleshooting a Locked Up Application" and the terminal will not turn off or respond to the Reset Firmware command, follow the steps in this section to reset the terminal.

Perform this procedure only in a clean, dry area to avoid trapping any moisture or dirt inside the unit.

Caution
If the terminal is turned on and you push the Reset button, you may lose data and you may have to reload the firmware.

Conseil
Si le terminal est allumé et que vous appuyez sur le bouton de remise à zéro, vous risquez de perdre des données et d'avoir à recharger le microprogramme.

Follow ESD Procedures

1. Use an ESD mat and wear a wrist strap to protect the components from ESD damage. For help, see "Protecting Delicate Electronic Components" earlier in this chapter.

2. Press ⌷ to turn off the terminal. If it will not turn off, continue with the next step.

3. Unplug the port plugs from any terminal ports that do not have a cable connected.

4. Use a Torx screwdriver (size 20) to remove the four screws on the back panel.

Screw
(4 places)

2455U.098
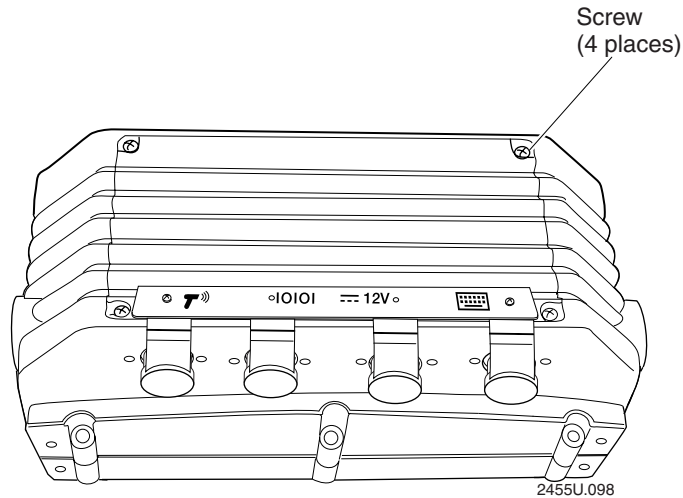
5. Remove the back panel.

6. Press the Reset button. The T2455 will briefly turn on and then turn off.
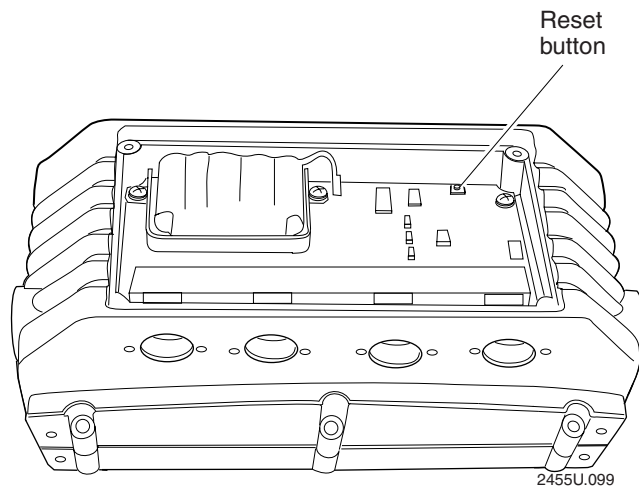
Reset
button

2455U.099

7. Place the back panel on the back of the terminal.

8. Use a Torx screwdriver (size 20) to tighten the four screws to 24 in-lb torque.

9. Insert the rubber port plug into each terminal port that does not have a cable connected.

10. Press ⌷ to turn on the terminal. It boots all the systems and clears RAM memory. The Boot Menu appears.

11. Press F1 to boot the terminal and start your application.

If you keep returning to the Boot Menu or the terminal will not boot, try loading the firmware. For help, see "Upgrading the Firmware" in Chapter 3.

If the terminal will not boot or reset, contact your local Intermec service representative for help.

Replacing the Backup Battery

The backup battery should provide years of backup battery power and you will seldom need to replace it. You can replace the backup battery if it will no longer hold a charge, if the battery status on the Battery/PIC diagnostic screen is bad, or if the battery is dead.

Call your local Intermec service representative to order a new backup battery (Part No. 066900S-001).

Caution
When you replace the backup battery, all data stored in RAM is lost.

Conseil
Lors du remplacement de la batterie de secours, toutes les données stockées dans la mémoire vive (RAM) sont perdues.

Removing the Backup Battery

Perform this procedure only in a clean, dry area to avoid trapping any moisture or dirt inside the unit.

1. Use an ESD mat and wear a wrist strap to protect the components from ESD damage. For help, see "Protecting Delicate Electronic Components" earlier in this chapter.

2. Save all data stored in RAM and exit the application. Any data stored in flash memory or on drive G will be saved automatically.

3. Press I/O to turn off the terminal.

4. Disconnect the power cable.

5. Unplug the port plugs from any terminal ports that do not have a cable connected.

6. Use a Torx screwdriver (size 20) to remove the four screws on the back panel.

7. Remove the back panel. Notice that the foam pad on the inside of the panel was positioned over the backup battery. Later, when you replace the back panel, you must make sure the foam pad returns to that position.

8. Disconnect the battery wire connector from the white connector marked J2 on the input/output (I/O) board.

Backup battery   J2 connector

2455U.132
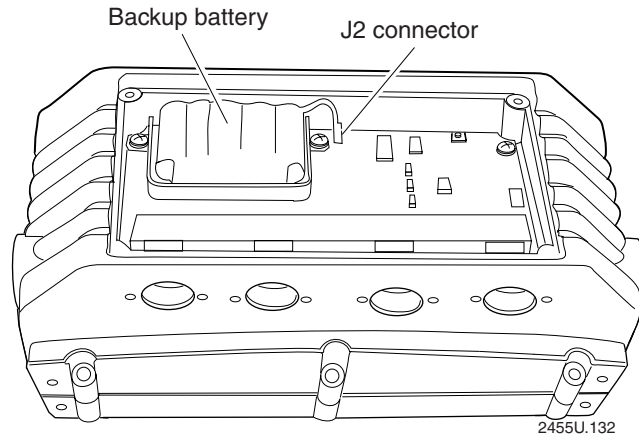
9. Lift the backup battery from its compartment.

10. Set the backup battery aside for disposal as described in "Disposing of the NiCad Backup Battery" later in this chapter.

11. Follow the steps in the next section to install the new backup battery.

Installing the New Backup Battery

Follow ESD Procedures

1. Place the new backup battery into its compartment.

2. Connect the battery wire connector to the white connector marked J2 on the I/O board. Firmly push the two connectors together until they lock. (The connectors are keyed so they cannot be connected incorrectly.)

3. Place the back panel on the back of the terminal. Make sure the foam pad is positioned over the backup battery.

4. Use a Torx screwdriver (size 20) to tighten the four screws to 18 to 24 in-lb torque.

5. Insert the rubber port plug into each terminal port that does not have a cable connected.

6. Reconnect the power supply cable.

7. Press ͥ/o to turn on the terminal. It boots all the systems and clears RAM memory. The Boot Menu appears.

8. Press F1 to boot the terminal and start your application. The backup battery will be fully charged in approximately 14 hours.

Note: The backup battery charges enough within 20 minutes to provide limited backup power.

Disposing of the NiCad Backup Battery

The materials used in the construction of the TRAKKER Antares NiCad backup battery are recyclable. Intermec strongly urges that you recycle the backup batteries when they reach the end of their useful lives. Additionally, the Environmental Protection Agency has classified worn out or damaged NiCad batteries or battery packs to be hazardous waste. Several states have passed legislation that prohibits discarding these batteries into the municipal waste stream.

If you have any question on how to recycle or dispose of the NiCad backup batteries, contact your local, county, or state hazardous waste management office.

7

Running Diagnostics

This chapter explains how to run diagnostics on the terminal to help analyze hardware, application, and firmware problems.

What Diagnostics Are Available?

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

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

Diagnostic Test	Description
Access Point	Lists information about the access point the T2455 is communicating with across the network.
Application Efficiency	Displays the application efficiency percentage to help determine the impact that the application has on the terminal's battery power.
Application Events	Shows the current status of each application event to help debug applications.
Battery/PIC Status	Shows the power level of the backup battery (either GOOD, BAD, or LOW). Also indicates the backup battery's current volts, temperature, and charging status.
	Reports the temperature of the main board and the I/O board, as well as the status of the EEPROM checksum and the master bus.
Beeper Test	Sounds a series of beeps to test the beeper by using a range of beep volumes and beep frequencies.
Clear Task Profiles	Clears the Task Status counters so that you can begin accumulating new task statistics for the Task Status screen and the Application Efficiency screen.
Destructive RAM Test	Extensively tests the RAM.
Display Test	Tests and turns on the pixels on the screen to make sure all areas of the screen are working correctly.
Error Logger	Lists any errors that the firmware did not expect.
Hardware Configuration	Lists the terminal's hardware components that were installed at the Intermec factory, including the RF country code.

Diagnostic Tests (continued)

Diagnostic Test	Description
Keypad Test	Shows the hexadecimal, decimal, and scan code value for any key or key combination on the keyboard.
Malloc Application Information	Shows how memory is allocated and used by the current application.
Malloc Firmware Information	Shows how memory is allocated and used in the terminal firmware.
Radio Test	Tests the radio to make sure it is working.
Serial Loopback	Verifies that the hardware for the RS-232 serial port is functioning correctly.
Scanner Test	Tests the laser scanner to make sure it is working.
Serial Port Test	Tests serial communications between the terminal and the host computer or serial device.
Subsystem Versions	Lists the version of each major firmware subsystem loaded on the terminal.
Task Status	Shows the task name, stack, the percentage of time each subsystem has been running, and the stack usage.

Running Diagnostics From the Menu System

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

To run diagnostics from the TRAKKER Antares 2400 Menu System

1. Press ⎡f⎤ ⎡↵⎤ ⎡T⎤ ⎡2⎤ ⎡M⎤ or scan this bar code:

Enter Test and Service Mode

‖‖‖‖‖‖ ‖‖ ‖‖‖‖ ‖‖‖‖ ‖‖‖‖ ‖‖‖ ‖‖‖

..-.

The Main Menu appears.

```
┌─────────────────────────────┐
│        MAIN MENU            │
│                             │
│ Configuration Menu          │
│ Diagnostics Menu            │
│ System Menu                 │
│ About TRAKKER 2400          │
│                             │
│                             │
│ ↑↓ Select item              │
│ [Enter] Next screen         │
│ [F1] Help                   │
│ [Esc] Exit                  │
└─────────────────────────────┘
```
2455U.101

2. Press ▼ to choose the Diagnostics Menu and press ⏎ . The Diagnostics Menu appears.

```
┌─────────────────────────────┐
│      DIAGNOSTICS MENU       │
│                             │
│ Software Diagnostics        │
│ Hardware Diagnostics        │
│ System Diagnostics          │
│                             │
│                             │
│                             │
│ ↑↓ Select item              │
│ [Enter] Next screen         │
│ [F1] Help                   │
│ [Esc] Exit                  │
└─────────────────────────────┘
```
2455U.102

The Diagnostics Menu contains these commands:

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

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

System Diagnostics Lets you run system diagnostics to help analyze network, system, or application problems on the terminal. For example, you can run diagnostics to check the communications between the T2455 and the access point.

3. Press ▲ or ▼ to choose Software Diagnostics, Hardware Diagnostics, or System Diagnostics and press ⏎ . One of these menus appears.

```
SOFTWARE DIAGNOSTICS
Error Logger
Application Events
Task Status
Clear Task Profiles


↑↓ Select item
[Enter] Next screen
[F1] Help
[Esc] Exit
```
2455U.103

```
HARDWARE DIAGNOSTICS
Hardware Config
Battery/PIC Status
Display Test
Keypad Test
Main Board Menu
Radio Test
Scanner Test

↑↓ Select item
[Enter] Next screen
[F1] Help
[Esc] Exit
```
2455U.104

```
SYSTEM DIAGNOSTICS
Subsystem Versions
Access Point
App Efficiency
Serial Port Test
Malloc Info Menu


↑↓ Select item
[Enter] Next screen
[F1] Help
[Esc] Exit
```
2455U.105

4. Press ▲ or ▼ to choose the diagnostic test you want to run and press ⏎ . The diagnostic screen appears. Use the information on the screen or follow the instructions to run the diagnostic test. For help, see "Defining the Diagnostics Screens" later in this chapter.

5. Press Esc to exit each diagnostic screen and to exit the diagnostics menus.

6. Choose another menu from the Main Menu or press Esc to exit the TRAKKER Antares 2400 Menu System. If you have made any changes, a screen prompts you to store the changes in flash memory. For help, see "Exiting the TRAKKER Antares 2400 Menu System" in Chapter 3.

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

Defining the Diagnostics Screens

You can find the following information about each diagnostic test:

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

The diagnostics are grouped into three categories:

- Software diagnostics
- Hardware diagnostics
- System diagnostics

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

Defining the Software Diagnostics Screens

Each software diagnostic screen is defined in this section.

Application Events

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

Where Available: Software Diagnostics menu.

Sample Screen:

```
     APPLICATION EVENTS              APPLICATION EVENTS
0:0 COM1 RX SELECT              8:0 NET TX SELECT
1:0 COM2 RX SELECT              9:0 TIME SELECT
2:0 RESERVED                   10:0 COM4 RX SELECT
3:0 NET SELECT                 11:0
4:0 LABEL SELECT               12:0
5:0 KEYBOARD SELECT            13:0
6:0 COM3 RX SELECT             14:0
7:0                            15:0




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

2455U.106

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

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

Clear Task Profiles

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

Where Available: Software Diagnostics menu

Sample Screen:

```
┌─────────────────────────┐
│ CLEAR TASK PROFILES     │
│                         │
│ Operating system        │
│ task profile            │
│ counters have been      │
│ cleared.                │
│                         │
│                         │
│                         │
│                         │
│                         │
│                         │
│ [Esc] Exit              │
│                         │
└─────────────────────────┘
```

2455U.107

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

Error Logger

Purpose: If you suspect that your terminal has a problem, you can use the Error Logger to help diagnose the problem.

The terminal posts an entry to the Error Logger whenever it detects an unexpected condition. Each entry does not necessarily indicate a problem. For example, if an application is not waiting for keyboard input and you press enough keys to fill the keyboard queue, the terminal will post a queue full error to the Error Logger.

Note: The Error Logger is not intended to be application debugging tool.

Where Available: Software Diagnostics menu

Sample Screen:

```
        ERROR LOGGER
Current Time:231912
  Time   Err#   Address
024401  0003   90000548
024359  0002   90000548
024358  0001   90000548




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

2455U.108

Definition: The Error Logger screen shows the last 30 errors in three columns:

- The first column displays the time in HHMMSS format.

- The second column displays the error number. To learn which error message is associated with the error number, see "Error Numbers and Messages" later in this chapter.

- The third column displays the internal firmware address, which helps identify why the error occurred.

Press ↵ to see the next screen of errors.

Task Status

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

Where Available: Software Diagnostics menu

Sample Screen:

```
┌──────────────────────────┐   ┌──────────────────────────┐
│      TASK STATUS         │   │      TASK STATUS         │
│ SLOT   TASK NAME   %TIME │   │ SLOT    STACK     UNUSED │
│   0:   ----:----   00.5% │   │   0:   ----:----   ----  │
│   1:   SM          00.1% │   │   1:   1B8F:0010   0381  │
│   2:   UDP+        00.7% │   │   2:   1A48:0010   0010  │
│   3:   ----:----   --.-% │   │   3:   ----:----   ----  │
│   4:   Label Task  00.0% │   │   4:   19F6:0010   029C  │
│   5:   Serial Port 00.0% │   │   5:   19B5:0010   0339  │
│   6:   Menu System 02.0% │   │   6:   1944:0010   03A5  │
│   7:   PM          00.0% │   │   7:   18E3:0010   0394  │
│   8:   APP         00.0% │   │   8:   18C2:0010   011C  │
│   9:   ID          95.6% │   │   9:   18A1:0010   0110  │
│  10:   ----:----   --.-% │   │  10:   ----:----   ----  │
│  11:   ----:----   --.-% │   │  11:   ----:----   ----  │
│                          │   │                          │
│ [Enter] Next screen      │   │ [Enter] Next screen      │
│ [Esc] Exit               │   │ [Esc] Exit               │
└──────────────────────────┘   └──────────────────────────┘
```

2455U.109

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

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

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

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

Defining the Hardware Diagnostics Screens

Each hardware diagnostic screen is defined in this section.

Battery/PIC Status

Purpose: Use the Battery/PIC status screens to get information about the main board and the backup (NiCad) battery.

Where Available: Hardware Diagnostics menu, Battery/PIC Status and then choose either Main Battery/PIC or Backup Battery/PIC

Sample Screen: Main Battery/PIC Screen   Backup Battery/PIC Screen

```
   BATTERY/PIC MONITOR
Main Board Temp:
  -30C (00)

IO Board Temp:
  -30C (00)

EEPROM Checksum: OK

I2C Mstr Bus: OK

PIC Rev.: 0


[Esc] Exit
```
2455U.110

```
   BATTERY/PIC MONITOR
Backup Battery
     Good
Backup Battery Volts
   10.80V     (BC)

Temp:  25C  (A4)

Backup Charging:   NO

PIC Rev.:   8


[Esc] Exit
```
2455U.111

Definition: The Main Battery/PIC screen does not provide information about the main battery because the T2455 does not have a main battery. Instead, this screen reports the temperature of the main board and the I/O board, as well as the status of the EEPROM checksum and the master bus.

The Backup Battery/PIC screen shows the status of the backup battery:

Good The backup battery is operating correctly. No action is required.

Low The backup battery needs to be charged. The power supply can fully charge the backup battery in 14 hours. If you are using the terminal in a cold environment, you may need to move the terminal to a warmer environment to allow it to charge. The battery charger operates only when the temperature is between 14°F and 104°F (-10°C and 40°C). For help, see "Charging the Backup Battery" in Chapter 1.

Bad The backup battery may be disconnected or no longer operating correctly. To check if the backup battery is connected or to replace the backup battery, follow the instructions in "Replacing the Backup Battery" in Chapter 6.

The Backup Battery/PIC screen also shows the current volts, temperature, and charging status. The number in parentheses after the volts and temperature is the hexadecimal value returned from the processor. On both screens, the PIC Rev field is the firmware version that is running on the battery monitory processor.

Beeper Test

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

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

Sample Screen:

```
┌─────────────────────────────┐
│      BEEPER TEST            │
│                             │
│ SELECT BEEP TEST:           │
│ (Hold down any key          │
│ to stop test)               │
│                             │
│ 1-Frequency Up/Down         │
│ 2-Volume Test               │
│ 3-Club 39 Jam               │
│ 4-K. 622                    │
│                             │
│                             │
│                             │
│                             │
│ [Esc] Exit                  │
└─────────────────────────────┘
```

2455U.112

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

Press ☐2 to test the beep volume. The terminal sounds a series of beeps from a quiet beep to a very loud beep.

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

Destructive RAM Test

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

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

Sample Screen:

```
DESTRUCTIVE RAM TEST
The following test
will cause the unit
to reboot, causing
loss of all RAM
resident data.

PROCEED?

PRESS 'Y' to
proceed...


[Esc] Exit
```

```
Memory Test Passed

Pass #: 00037


   Press Key to Reboot
```

2455U.113

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

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

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

> ⚠ **CAUTION**
>
> **Caution**
> *If the Destructive RAM Test fails, stop using the terminal. Contact your local Intermec service representative.*
>
> **Conseil**
> *Si le test Destructive RAM échoue, veuillez ne plus utiliser le terminal. Contactez le représentant du service clientèle Intermec de votre région.*

Display Test

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

Where Available: Hardware Diagnostics menu

Sample Screen:
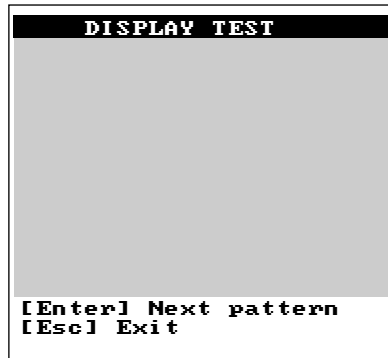
2455U.114

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

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

Hardware Configuration

Purpose: If you are discussing a problem with Intermec, you can use the Hardware Configuration screen to tell the Intermec representative the exact version of hardware that was installed on the terminal at the Intermec factory. You can also use this screen to see the radio frequency and country code that are configured on the T2455.

Where Available: Hardware Diagnostics menu

Sample Screen:

```
    HARDWARE CONFIG
Country Code:
USA          (80,01)

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

Keypad Type :    0
Keypad Rev. :    0
Keypad Table:    0


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

```
    HARDWARE CONFIG
PCMCIA Type:     2
PCMCIA Rev.:     1

PCB Rev.   :     1

Product ID :   2455
Serial #   :
X123456789



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

2455U.115

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

The country code information on the Hardware Configuration screen is only valid when the radio (Network Activate command) is enabled. If the radio is disabled, the country code information is not valid. For help, see "Network Activate" in Chapter 9.

Keypad Test

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

Where Available: Hardware Diagnostics menu

Sample Screen:

```
 KEYPAD TEST

Key   Hex    Dec    Scan
'a'    61     97     1E
'b'    62     98     30
'c'    63     99     2E
'd'    64    100     20
'e'    65    101     12
'f'    66    102     21
'g'    67    103     22
'h'    68    104     23
'i'    69    105     17
'j'    6A    106     24
'k'    6B    107     25
'l'    6C    108     26
'm'    6D    109     32

[Esc] Exit
```

2455U.116

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

Radio Test

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

Where Available: Hardware Diagnostics menu

Sample Screen:

```
┌─────────────────────────────┐
│      RADIO TEST             │
│                             │
│                             │
│        TESTING              │
│ Test: PASSED                │
│                             │
│                             │
│                             │
│                             │
│ [Esc] Exit                  │
└─────────────────────────────┘
```

2455U.117

Definition: Before you start the test, make sure the radio (Network Activate command) is enabled. If the radio is disabled, the test results on the Radio Test screen are not valid. For help, see "Network Activate" in Chapter 9.

Press ⏎ to start the radio test. The results of the test display on the screen once the test is complete. If SUCCESS or PASSED display, the radio is working correctly. If FAILED displays, note the error number. You may have a problem with the radio inside the T2455. For help, contact your local Intermec service representative.

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

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

Scanner Test

Purpose: Use the Scanner Test to make sure the laser scanner that is attached to the Scanner port is operating correctly.

Where Available: Hardware Diagnostics menu

Sample Screen:

```
┌─────────────────────────────┐
│      SCANNER TEST           │
│                             │
│ Press ENTER to turn         │
│ the laser on for 3          │
│ seconds.                    │
│                             │
│ Or, scan a label to         │
│ test the laser.             │
│                             │
│                             │
│                             │
│                             │
│                             │
│                             │
│ [Enter] Execute test        │
│ [Esc] Exit                  │
└─────────────────────────────┘
```
2455U.118

Definition: To start the test, press ⏎ . If the laser scanner turns on, the scanner is working correctly. If the laser scanner does not turn on, you may have a problem with the scanner. Make sure you are using a laser scanner that is supported on the terminal. For a list, see "Physical and Environmental Specifications" in Appendix A.

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

Serial Loopback

Purpose: Use the Serial Loopback test to verify that the hardware for the RS-232 serial port is functioning correctly. To run this diagnostic test, you must connect the terminal to a host computer or other serial device.

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

Sample Screen:

```
SERIAL PORT LOOPBACK

       WAITING

 /CTS
   0

COM Port   :1
Baud Rate  :38400
Parity     :None
Data Bits  :8
Echo RX Data on TX
Echo /CTS on /RTS



[Esc] Exit
```

2455U.119

Definition: The serial port test begins immediately. If the serial port hardware is functioning correctly, the terminal displays WAITING and then RECEIVING. The Serial Loopback test uses the serial communications settings that are listed on the bottom half of the screen.

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

Defining the System Diagnostics Screens

Each system diagnostic screen is defined in this section.

Access Point

Purpose: Use the Access Point screen to get version and address information about the access point the terminal is communicating with across the 2.4 GHz RF network.

Where Available: System Diagnostics menu

Sample Screen:

```
   ACCESS POINT
Radio ROM Ver:
V1.6EB

Radio MAC Addr:
0020A6306510

Access Point Name:
SHIPPING

Access Point MAC:
0020A6301365



[Esc] Exit
```
2455U.120

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

Application Efficiency

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

Where Available: System Diagnostics menu

Sample Screen:

```
  APP EFFICIENCY

Application is
running at 90%

80%▮▮▮▮▮▮▮      100%
    POOR   GOOD

Battery life is
affected by
application
efficiency.

[Esc] Exit
```

2455U.121

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

Malloc Application Information

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

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

Sample Screen:

```
┌─────────────────────┐
│     APPLICATION     │
│ Total Free:         │
│  0000064656         │
│ Largest Free:       │
│  0000064656         │
│ Fragments:          │
│  00001              │
│ Allocated Blocks:   │
│  00001              │
│                     │
│                     │
│        ┌──┐         │
│        │OK│         │
│        └──┘         │
└─────────────────────┘
```
2455U.122

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

Malloc Firmware Information

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

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

Sample Screen:

```
┌─────────────────────┐
│      FIRMWARE       │
│ Total Free:         │
│  0000007040         │
│ Largest Free:       │
│  0000006768         │
│ Fragments:          │
│  00002              │
│ Allocated Blocks:   │
│  00015              │
│                     │
│                     │
│        ┌──┐         │
│        │OK│         │
│        └──┘         │
└─────────────────────┘
```
2455U.123

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

Serial Port Test

Purpose: Use the Serial Port Test screen to test or troubleshoot serial communications between the terminal and the host computer or serial device. To run this diagnostic test, you must connect the terminal to a host or other serial device.

Where Available: System Diagnostics menu

Sample Screen:

```
┌─────────────────────────────┐
│    SERIAL PORT TEST         │
│                             │
│ Select Com. Port:           │
│ 1,4, Esc  : 1               │
│                             │
│ F1:Port Select :1           │
│ F2:Keypad Echo : ON         │
│ F3:Scanner Echo: ON         │
│ F4:Continous TX: OFF        │
│                             │
│ F5:Exit                     │
│                             │
│ _                           │
│                             │
│                             │
└─────────────────────────────┘
```
2455U.124

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

F1 Selects the serial port.

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

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

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

F5 Exits the Serial Port Test diagnostic screen.

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

Subsystem Versions

Purpose: If you are discussing a problem with Intermec, you can use the Subsystem Versions screen to tell the Intermec representative the exact version of firmware subsystems loaded on the terminal.

Where Available: System Diagnostics menu

Sample Screen:

```
       SUBSYSTEM VERSIONS
      Name          Version
UDP+                 031000
RF Driver            031000
Decodes              031000
Scanner              031000
Term Serv            031000
XMODEM               031000
Serial Port          031000
Keypad               031000
Label Task           031000
Menu System          031000


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

2455U.125

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

Error Numbers and Messages

This table lists the error numbers that are posted to the second column on the Error Logger screen and lists the message associated with each number. You can use this information to help you interpret the errors logged for the terminal.

Error Number	Message
0x51	Response larger than buffer
0x52	Reader command is invalid
0x53	Set attribute with bad value
0x54	Write to read-only attribute
0x55	General error not covered
0x56	Incorrect parameter or string length
0x57	Queue or pool empty
0x58	Action not permitted from this origin
0x59	Indicates that a DLE character has been found
0x5A	During configuration parsing, a digit was expected
0x5B	Configuration item is invalid
0x5F	Event out of sync with queue
0x60	Queue is full
0x61	UDP+: Buffer too large to send
0x62	UDP+: NULL buffer was passed
0x63	UDP+: Message received bigger than buffer
0x64	UDP+: Message already transmitted
0x65	UDP+: Invalid parameter block
0x66	Network not active or not configured properly
0x67	NCB pointer is null
0x68	Data pointer is null or data length invalid
0x69	Network error
0x6A	Previous application message occupies send buffer
0x6B	Network error
0x6C	Network error
0x6D	Network error
0x6E	Network error

Error Numbers and Messages Table (continued)

Error Number	Message
0x6F	An attempt was made to establish a new TCP connection
0x70	The Ninit usnet call failed
0x71	The Nportinit usnet call failed
0x72	The Nterm usnet call failed
0x73	The Portterm usnet call failed
0x74	The Nopen usnet call failed
0x75	The Nclose usnet call failed
0x76	The Nread usnet call failed
0x77	The Nwrite usnet call failed
0x78	Invalid group event
0x79	Network PM failed
0x7A	Invalid send buffer
0x7B	The send buff is not empty
0x7C	A failure occurred in UDP timer
0x7D	Maximum number of bad sequences
0x7E	Could not connect to controller
0x80	File open failed
0x81	Read or write request failed
0x82	The getbuf usnet call failed
0x83	Data or ACK receive failed
0x84	File write failed
0x85	File close failed
0x86	Controller denied request
0x87	Network activate off
0x90	Card: unknown command to driver
0x91	Card: invalid code
0x92	Card: process response
0x93	Card: offset too big
0x94	Card: entry not in hash list
0x95	Card: security ID
0xA1	Invalid sub-function request

Error Number	Message
0xA2	Table is full
0xA3	Index out of range
0xA4	Time value at that index is zero
0xA5	Pointers do not match
0xA6	Requested row value not supported
0xA7	Requested column value not supported
0xA8	Invalid command
0xA9	Invalid configuration combination
0xAA	Invalid viewport request
0xAC	No description available
0xAD	Invalid logical key requested
0xAE	Invalid modifier requested
0xB0	Invalid device
0xC0	IP format 0.x.x.x or 127.x.x.x
0xC1	Controller and device IP same
0xC2	Default router and device IP same
0xC3	Default router not on device network
0x110	No TCB slot available
0x111	No RAM available for stack
0x112	Invalid time
0x113	Invalid slot
0x114	Invalid delay type
0x115	Invalid event
0x116	Invalid group event
0x117	Invalid resource
0x118	Invalid mailbox
0x119	Invalid memory release
0x11A	Function timeout expired
0x11B	Periodic event table full
0x11C	Invalid profile_type code
0x11D	Invalid MMU180 page number
0x11E	Device not open
0x11F	Device not open or not device owner

Error Numbers and Messages Table (continued)

Error Number	Message
0x120	Invalid pool ID
0x121	Invalid block size for pool
0x122	Invalid pool type
0x123	No table space available for message
0x134	Invalid file descriptor pointer
0x135	Task not suspended
0x136	Not owner of stream
0x137	Stream access error
0x138	Color requested > NUMCOLORS
0x139	Missed system time required
0x13A	Mtenv table full
0x13B	Acquire/release table full
0x13C	Too small of memory release to MTmeminit
0x13D	Chkmem detects memory chain corrupt
0x13E	MBXLIMIT messages in mailbox
0x13F	Too small of memory passed to MTmeminit
0x140	Memory allocation error
0x141	Null pointer passed to system call
0x142	Error allocating label task resource
0x143	Invalid task name string
0x150	File transfer user abort
0x151	File transfer lost connection
0x152	File transfer receiver canceled
0x153	File transfer transmitter canceled
0x154	File transfer bad protocol character
0x180	File system type errors
0x181	File open error
0x182	File write error
0x183	File with no extension error
0x184	Invalid file extension

Error Number	Message
0x185	Seek not permitted from Append mode
0x186	Read not permitted in write only file
0x191	Duplicate drive letter
0x192	Invalid drive letter
0x193	Duplicate file name
0x194	Invalid file name
0x195	Directory full
0x196	Disk full
0x197	Invalid file control block
0x198	Invalid seek mode
0x199	Different drives
0x19A	End of file
0x19B	Drive table full
0x19C	File system error
0x19D	Invalid seek offset mode combination
0x1D0	Application load error
0x1D1	Application load error
0x1E0	Application load error
0x1E1	Application load error
0x1E0	Application load error
0x1F0	Add Decode - The Decode symbology is already present in the auto-discrimination table.
0x1F1	Drop Decode - The Decode symbology was not found in the auto-discrimination table.
0x1F2	Intermediate row which was already read
0x1F3	Intermediate row successfully decoded
0x1F4	Command symbology (Code 39)
0x1F5	Code39 half-ASCII
0x1F6	Good decode
0x1F7	Label has already been read this trigger pull
0x1F8	Votes aren't all in for the label
0x1F9	Get config character returned a quoted quote
0x200	Decodes auto-discrimination table full

Error Numbers and Messages Table (continued)

Error Number	Message
0x201	Decode Data command error: Not enough resources to attempt to decode the counts.
0x202	Invalid Decodes command
0x203	Invalid Decode symbology specified
0x204	Unable to decode input scan
0x205	Missing start or stop character
0x206	Number of counts less than minimum
0x207	Invalid character found
0x208	Invalid acceleration between characters
0x20A	Label length less than minimum
0x20B	Incorrect check digit
0x20C	Output string too short
0x20D	Leading margin not found
0x20E	Invalid start or stop pattern
0x20F	Not enough counts for whole label
0x210	Missing trailing margin
0x211	Invalid supplement to UPC label
0x212	Parity error while decoding character
0x213	Guard character not found
0x214	Invalid row number (Code 49 or Code 16K)
0x215	Unable to scale counts buffer
0x216	Error in 2 of 5 label
0x217	Wrong length 2 of 5 label
0x218	Longer than maximum 2 of 5 label length
0x219	Valid label region not found
0x21A	Ink spread exceeded threshold
0x21B	The denominator of an expression is 0
0x21C	ASCIIfication of Full ASCII failed
0x21D	Raw scan buffer. No decode attempted yet
0x21E	Field is full no more input allowed until this is returned

Error Number	Message
0x21F	Address not in the application data space range.
0x221	Movement direction parameter invalid, not one of four viewport directions
0x222	End of display block outside virtual display
0x223	A printable keycode was passed in a command to set manual movement
0x224	Both start and end outside of virtual display
0x225	First parameter to function invalid
0x226	Invalid com source number i.e. > E_NET
0x227	Input requested with no valid source to receive it from
0x228	Start of display block outside virtual display
0x22A	PSK coding error
0x22B	Network error
0x22C	No description available
0x22D	Informational: Follow Cursor mode not enabled
0x22E	The cursor detection value in a set follow cursor command is larger than
0x230	The viewport movement value is larger than the viewport size
0x231	Data transmitted before cancel request accepted
0x241	Data entered does not match mask type
0x4233	Informational: returned due to function key 1 pressed
0x4234	Informational: returned due to function key 2 pressed
0x4235	Informational: returned due to function key 3 pressed
0x4236	Informational: returned due to function key 4 pressed
0x4237	Informational: returned due to function key 5 pressed
0x4238	Informational: returned due to function key 6 pressed
0x4239	Informational: returned due to function key 7 pressed
0x423A	Informational: returned due to function key 8 pressed
0x423B	Informational: returned due to function key 9 pressed
0x423C	Informational: returned due to function key 10 pressed
0x423D	Informational: returned due to tab key pressed
0x423E	Informational: returned due to back tab key pressed
0x4240	Informational: returned due to escape key pressed
0x4242	Informational: returned due to Up Arrow key pressed
0x4243	Informational: returned due to Down Arrow key pressed

Error Numbers and Messages Table (continued)

Error Number	Message
0x5220	Both row and column in viewport set XY invalid but adjusted to end
0x5229	Informational browse mode active
0x522F	Attempted to cancel transmit buffer that was never called before
0x5232	Viewporting is turned off-physical and virtual screens same size
0x523F	Informational: Viewport moved as far as possible hitting edge
0x250	NMI for keypad received prior to vector
0x251	NMI for PMU received prior to vector
0x260	SpOpen not previously called successfully
0x261	The port handle is unknown to CSP
0x262	Control block pointer is NULL
0x263	Port is not valid
0x264	Unknown mode
0x265	Another CSP client has called SpOpen
0x266	Data pointer is NULL
0x267	Frame mode configuration error
0x268	SOM configured, but no EOM configured
0x269	SOM = EOM1 or SOM = EOM2, both invalid
0x26A	SOM, EOM1, or EOM2 set to invalid character (DLE, XON, XOFF)
0x26B	EOM1 = EOM2, invalid
0x26C	Suspend Resume cycle occurred.
0x26D	Protocol ran out of retries.
0x26E	Configuration change caused reset.
0x26F	Receive error in packet
0x270	Library does not exist
0x271	BIN not in library
0x272	No relocatable BIN header
0x280	Modem returned OK
0x281	Modem operation failed
0x282	No carrier detected
0x283	No dial tone
0x284	Line is busy

Error Number	Message
0x285	No answer
0x286	No CTS from modem
0x287	Modem returned error
0x288	Modem speed incorrect
0x289	Check modem speed
0x300	Keypad 'HOT KEY' 0 has a NULL pointer to a far routine
0x301	Keypad 'HOT KEY' 1 has a NULL pointer to a far routine
0x302	Keypad 'HOT KEY' 2 has a NULL pointer to a far routine
0x303	Keypad 'HOT KEY' 3 has a NULL pointer to a far routine
0x304	Keypad 'HOT KEY' 4 has a NULL pointer to a far routine
0x305	Keypad 'HOT KEY' 5 has a NULL pointer to a far routine
0x306	Keypad 'HOT KEY' 6 has a NULL pointer to a far routine
0x307	Keypad 'HOT KEY' 7 has a NULL pointer to a far routine
0x308	Keypad 'HOT KEY' 8 has a NULL pointer to a far routine
0x309	Keypad 'HOT KEY' 9 has a NULL pointer to a far routine
0x30A	Keypad 'HOT KEY' 10 has a NULL pointer to a far routine
0x30B	Keypad 'HOT KEY' 11 has a NULL pointer to a far routine
0x30C	Keypad 'HOT KEY' 12 has a NULL pointer to a far routine
0x30D	Keypad 'HOT KEY' 13 has a NULL pointer to a far routine
0x30E	Keypad 'HOT KEY' 14 has a NULL pointer to a far routine
0x30F	Keypad 'HOT KEY' 15 has a NULL pointer to a far routine
0x310	PIC interface error
0x311	Battery value not valid due to charging
0x330	Unexpected interrupt
0x331	Divide by zero
0x332	INT0 detected overflow exception
0x333	Array bounds exception
0x334	Unused opcode exception
0x335	Escape opcode exception
0x336	Unused int 7E subsystem
0x337	Check for powerdown
0x340	MultiDrop or Polling Mode D protocol error
0x341	Bus error

Error Numbers and Messages Table (continued)

Error Number	Message
0x342	Bus not available
0x343	Bus write acknowledge timeout
0x344	XOFF prevents CSP TX
0x345	Reset from master interrupts CSP TX

8
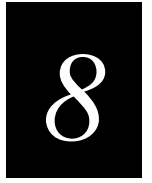
Reader Command Reference

This chapter describes the reader commands that you can use while operating the terminal. Reader commands, such as Change Configuration, allow you to perform a task on the terminal.

Using Reader Commands

A reader command causes the terminal to perform a task. Some reader commands temporarily override the configuration settings and some actually change the configuration settings.

For example, you can reset the terminal to the default configuration or change the configuration. You can execute reader commands by

- scanning a command from a Code 39 or Code 93 bar code label.

- pressing keys on the keyboard or choosing a command from the TRAKKER Antares 2400 Menu System.

- sending a command from a device on the serial or RF network.

There are three general types of reader commands:

- Accumulate mode commands

- Operating commands

- File management commands

The reader commands are listed in alphabetical order within these three categories. You will find the purpose, command syntax, and bar code labels for each reader command in this chapter.

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

Using Accumulate Mode

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

As you accumulate the data from bar code labels, the data is visible on the bottom line of the screen. You can edit the accumulated data with the Backspace, Clear, and Enter commands.

Backspace   This command deletes the last character from the current data record you are accumulating.

Clear   This command deletes the entire data record you are accumulating.

Enter   This command will enter data as a record and leaves the terminal in Accumulate mode.

Note: If you are not in Accumulate mode, the Backspace, Clear, and Enter commands have no effect and you will hear an error beep.

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

To use Accumulate mode

The syntax to use the Enter Accumulate command is:

`+/data`

where:

`+/`   is the syntax for the Enter Accumulate mode command.

data   is the optional data you want to enter. *Data* can be a reader command that is executed when you exit Accumulate mode.

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

Enter Accumulate Mode

+/

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

For example, scan this label to change the terminal's configuration and set the preamble to the characters ABC.

Change Configuration / Set Preamble to ABC

$+ADABC

Or, to edit the accumulated data, scan one of these bar code labels:

Backspace

‖‖‖‖‖‖‖‖‖‖‖‖

-+

Clear

‖‖‖‖‖‖‖‖‖‖‖

- -

Enter

‖‖‖‖‖

**

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

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

Exit Accumulate Mode

‖‖‖‖‖‖‖‖‖‖‖

-/

Enter Accumulate Mode

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

From Network: Not supported

Keyboard: Not supported

Scan: Enter Accumulate Mode

‖‖‖‖‖‖‖‖‖‖

+/

Backspace

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

From Network: Not supported

Keyboard: Not supported

Scan: Backspace

‖‖‖‖‖‖‖‖‖

-+

Clear

Purpose:	Deletes the entire data record you are accumulating. If there is no data in the buffer, the command has no effect.
From Network:	Not supported
Keyboard:	Not supported
Scan:	Clear

_ _

Enter

Purpose:	Enters the current data record and remains in Accumulate mode. If no data exists, a null string is entered.
From Network:	Not supported
Keyboard:	Not supported
Scan:	Enter

**

Exit Accumulate Mode

Purpose:	Exits Accumulate mode and transmits the current data record. If no data has been accumulated, an empty data record is entered.
From Network:	Not supported
Keyboard:	Not supported
Scan:	Exit Accumulate Mode

_/

Operating Reader Commands

The reader commands you can use to operate or change the terminal's configuration are listed in this section. The operating commands are listed in alphabetical order. You will find the purpose, syntax for commands sent from a network device, and bar code labels for these reader commands in this section.

- Boot Terminal

- Change Configuration

- Default Configuration

- Multiple-Read Labels

- Reset Firmware

- Save Configuration in Flash Memory

- Set Time and Date

- Status Lights Control

- Test and Service Mode

Boot Terminal

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

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

From Network: -.1

Scan: Boot Terminal

||||||||||||||||||||||||||||

-.1

Change Configuration

Purpose: This command must precede any configuration command. If you enter a valid string, the terminal configuration is modified and the terminal sounds a high beep. For help on the configuration commands, see Chapter 9, "Configuration Command Reference."

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

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

Keyboard: Press ⨍ ↵ 2 4 8 to access the TRAKKER Antares 2400 Menu System. From the Main Menu, choose the Configuration Menu to change the terminal configuration.

Example: Change Configuration / Turn Off Beep Volume

||||||| ||| |||| || |||| ||| ||||

$+BV0

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

Default Configuration

Purpose: Sets the terminal to its default configuration, resets the firmware, boots the terminal, and runs your application. The default configuration for the terminal is listed in Appendix A. For help, see "Restoring the Terminal's Default Configuration" in Chapter 3.

When you use the Default Configuration command, the default configuration is saved in RAM and flash memory. The runtime and boot configuration are changed to the default configuration.

Note: In the default configuration, the Primary Network parameters are set to the default values. The T2455 will no longer have a valid IP address and cannot communicate with other devices. You need to configure the T2455 again. For help, see Chapter 4, "Operating the Terminal in a Network."

From Network: `.+0`

Keyboard: In the TRAKKER Antares 2400 Menu System, choose System Menu and then choose Load Default Values.

Scan: Default Configuration

|||| |||||| ||| ||| ||||

.+0

Multiple-Read Labels

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

If you use a configuration command or the TRAKKER Antares 2400 Menu System to disable multiple-read labels, the terminal processes the bar code label as a regular label and reads and decodes the space as data.

From Network: Not supported

Keyboard: Not supported

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

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

Example: Multiple-Read Bar Code Label

||||| |||||| ||| |||

* A*

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

Reset Firmware

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

Note: You can also try resetting the hardware if your application or terminal is locked up and the terminal will not respond to any other commands. For help, see Chapter 6, "Troubleshooting."

From Network: – .

Keyboard: Not supported

Scan: Reset Firmware

||||| ||||| ||||| ||||

-.

Save Configuration in Flash Memory

Purpose: Saves the current runtime terminal configuration in flash memory. If you configure the terminal by scanning bar code labels or commands sent from a network device, your configuration changes are only saved in RAM. You can use this reader command to save the changes to flash memory so that they are set the next time you boot or reset the terminal.

From Network: `.+1`

Keyboard: In the TRAKKER Antares 2400 Menu System, choose System Menu and then choose Store Configuration.

Scan: Save Configuration in Flash Memory

```
||||||||||||||||||||||||||
```
.+1

Set Time and Date

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

Use this command only for backward compatibility with the 95XX terminal. If you do not need backward compatibility, use the Time and Date configuration command. For help, see "Time and Date" in Chapter 9.

From Network: */+data*

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

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

Values for yy ranging from 00 to 95 are interpreted as 2000 through 2095. Values for yy ranging from 96 to 99 are interpreted as 1996 through 1999.

Keyboard: Not supported.

Label Syntax: You can create your own bar code labels to set the time and date by creating a bar code in this command format:

/+data

where *data* is one of the formats listed above.

Status Lights Control

Purpose: Controls the Modifier Key, Caps Lock, Good Read, and User Defined status lights on the T2455. For a description of each light, see "Using the Status Lights" in Chapter 1.

From Network: $%*data*

where *data* must be 8 digits, corresponding to:

Digit	Status Light	Value	Meaning
1	Modifier Key	0	Off
		1	On
		X	No change
2	Caps Lock	0	Off
		1	On
		X	No change
3	Good Read	0	Off
		1	On
		X	No change
4	User Defined	0	Off
		1	On
		X	No change
5 to 8	Not used	XXXX	No change

All status lights are turned off when you reset or boot the terminal.

Keyboard: Not supported

Scan: All Status Lights Off

||||||||||||||||||||||||||||||||||||||||||||||

$%0000XXXX

All Status Lights On

||||||||||||||||||||||||||||||||||||||||||||||

$%1111XXXX

Or: To turn a specific status light on or off, follow these steps:

1. Scan this bar code label:

Enter Accumulate Mode / Status Lights Control

|||||||||||||||||||||||||

+/$%

2. Scan one of these labels to set the value for digit 1:

Off	On	No Change
‖‖‖‖‖‖‖‖	‖‖‖‖‖‖‖‖	‖‖‖‖‖‖‖‖
0	*1*	*X*
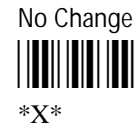
3. Repeat Step 2 to set digits 2, 3, and 4.

4. Scan this bar code label to set digits 5 through 8 as X:

No Change

‖‖‖‖‖‖‖‖‖‖‖‖‖‖

XXXX

5. Scan this bar code label to exit Accumulate mode.

Exit Accumulate Mode

‖‖‖‖‖‖‖‖‖‖

-/
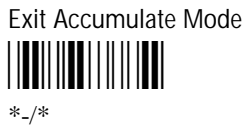
Test and Service Mode

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

From Network: Not supported

Keyboard: [f] [↵] [2] [4] [8] or [f] [↵] [T] [2] [M]

Scan: Test and Service Mode

‖‖‖‖‖‖‖‖‖‖‖‖‖‖

..-.

File Management Reader Commands

The reader commands you can use to manage files and applications are listed in this section. The file management commands are listed in alphabetical order. You will find the purpose, syntax for commands sent from a network device, and bar code labels for these reader commands in this section.

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

Abort Program

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

From Network: `/$`

Keyboard: Not supported

Scan: Abort Program

|||||||||||||||||||

/$

Delete File

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

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

where:

| `..--` | is the command to delete a file. |

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

filename   is the file you want to delete.

Keyboard: In the TRAKKER Antares 2400 Menu System, choose System Menu, and then choose File Manager. Next, choose the drive where you want to delete files.

Scan: 1.   Scan this bar code label:

Enter Accumulate Mode / Delete File

|||||||||||||||||||||||||||||||||||||||

+/..--

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

   drive:filename

3.   Scan this bar code label to exit Accumulate mode and delete the file.

Exit Accumulate Mode

||||||||||||||||||||||||

-/

Or: You can create your own bar code labels to delete files by creating a bar code in this command format:

   ..--drive:filename

Example: To delete the file SHIPPING.BIN from drive C, use this command:

   ..--c:shipping.bin

Receive File

There are two ways to receive files on the T2455:

- Use the serial port.
- Use RF network communications.

For help connecting the terminal to a host computer or the DCS 300, see Chapter 4, "Operating the Terminal in a Network."

Receive File Through the Serial Port

Purpose: Receives a file from the host computer through the serial port and saves it on the terminal. You must have the terminal connected to the host through the serial port. For help, see Chapter 2, "Installing the Terminal."

On the host, you need to transmit the file using a serial communications package (i.e., Windows 3.1 Terminal, Win95 Hyperterminal, Crosstalk, or Procomm) that supports one of these protocols:

- XMODEM
- XMODEM-1K
- YMODEM

XMODEM-1K is a version of XMODEM that supports 1024-byte blocks as well as the standard 128-byte XMODEM data blocks, which increases the throughput. YMODEM has the additional ability to transfer a file name with the file's data and it preserves the length of the file without padding. With YMODEM, you can also receive a batch of files on the T2455.

Note: T2455 filenames are up to eight characters with a three-character extension. Files you transfer from the host need to use the TRAKKER Antares naming conventions.

From Network: `.%X`*n*`,`*drive:filename*   Receives a file using XMODEM protocol

`.%K`*n*`,`*drive:filename*   Receives a file using XMODEM-1K protocol

`.%Y`*n*`,`*drive:filename*   Receives a file using YMODEM protocol

Or: `.%Y`*n*`,`*drive:*   Receives a batch of files using YMODEM

where:

`.%X`   is the command to receive a file using XMODEM protocol.

`.%K`   is the command to receive a file using XMODEM-1K protocol.

`.%Y`   is the command to receive a file using YMODEM protocol.

Receive File Through the Serial Port (continued)

<table>
<tr><td>n</td><td>indicates the terminal's serial port: 1 for COM1, 4 for COM4.</td></tr>
<tr><td>*drive:*</td><td>indicates the drive on the terminal where you want to receive and store the file. You must include the colon (:) after the drive letter.</td></tr>
<tr><td>*filename*</td><td>is the file you want to receive and save on the terminal.</td></tr>
</table>

Keyboard: Not supported

Note: To scan these bar code labels, you must configure the terminal to use Code 39 in Full ASCII mode. For help, see "Code 39" in Chapter 9.

Scan: 1. Scan this bar code label:

Enter Accumulate Mode / Receive File

+/.%

2. Scan the bar code label for the communications protocol you want to use.

XMODEM   XMODEM-1K   YMODEM

X   *K*   *Y*

3. Scan the bar code label for the terminal COM port you are using to receive the file. The label also includes the required comma.

COM1   COM4

1,   *4,*

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

drive:filename

5. Scan this bar code label to exit Accumulate mode and receive the file.

Exit Accumulate Mode

-/

Or: You can create your own bar code labels to receive files by creating a bar code in this command format:

`.%Xn,drive:filename`   (for XMODEM)

`.%Kn,drive:filename`   (for XMODEM-1K)

`.%Yn,drive:filename`   (for YMODEM)

Example: To receive the file SHIPPING.BIN on the terminal's drive C by using the XMODEM protocol through COM1, use this command:

`.%X1,c:shipping.bin`

Batch Transfer: To transfer a batch of files to the terminal by using the YMODEM protocol, use your serial communications package to start the transfer. You usually select a batch of files using a wild card file specification. The host must send only the filename and extension, not the drive and directory path in the data stream.

Next, use this command to receive the files on the T2455:

`.%Yn,drive:`

For example, to receive the files through COM1 to drive G on the T2455, use this command:

`.%Y1,g:`

All files that match the wild card specification are transferred from the host and received to drive G on the T2455. If any file does not transfer, the remainder of the batch transfer is aborted.

Receive File Via RF Network Communications

Purpose: Receives a file from the DCS 300 or host and saves it on the terminal.

From Network: `.%R,fromfilename,drive:tofilename`

where:

`.%R`   is the command to receive a file that is transmitted over the RF network to the T2455.

fromfilename is the name of the file you are transmitting from the DCS 300 or host to the T2455. On the DCS 300, the file must be sent from the D:\USERDATA directory. To receive a file from the host, you need to identify the path and filename.

> *Note: Do not specify the DCS 300 pathname D:\USERDATA in the* fromfilename *field.*

Receive File Via RF Network Communications (continued)

        drive: indicates the drive on the T2455 where you want to receive and store the file. You must include the colon (:) after the drive letter.

        tofilename   is the name of the file you want to save on the T2455.

Keyboard: Not supported

        Note: To scan these bar code labels, you must configure the terminal to use Code 39 in Full ASCII mode. For help, see "Code 39" in Chapter 9.

Scan: 1. Scan this bar code label:

        Enter Accumulate Mode / Receive File

        +/.%R,

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

        `fromfilename,drive:tofilename`

    3. Scan this bar code label to exit Accumulate mode and receive the file.

        Exit Accumulate Mode

        -/

Or: You can create your own bar code labels to receive files by creating a bar code in this command format:

        `.%R,fromfilename,drive:tofilename`

Example: To receive the file SHIPPING.BIN on the terminal's drive C, use this command:

        `.%R,shipping.bin,c:shipping.bin`

Rename File

Purpose:	Renames a file stored on the terminal.

From Network: `...-drive:oldfilename,drive:newfilename`

where:

`...-`	is the command to rename a file.
drive:	indicates the drive where the *oldfilename* is stored. You must include the colon (:) after the drive letter.
oldfilename	is the name of the file you want to rename.
drive:	indicates the drive where the *newfilename* is stored. You must include the colon (:) after the drive letter. The drive letter **MUST** match the drive letter you entered for the *oldfilename*.
newfilename	is the new name of the file.

Keyboard: In the TRAKKER Antares 2400 Menu System, choose System Menu and then choose File Manager. Next, choose the drive where you want to rename files.

Scan: 1.   Scan this bar code label:

Enter Accumulate Mode / Rename File

+/...-

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

`drive:oldfilename,drive:newfilename`

3.   Scan this bar code label to exit Accumulate mode and rename the file.

Exit Accumulate Mode

-/

Or: You can create your own bar code labels to rename files by creating a bar code in this command format:

`...-drive:oldfilename,drive:newfilename`

Example: To rename the file SHIPPING.BIN on drive C to DOCK1.BIN, use this command:

`...-c:shipping.bin,c:dock1.bin`

Run Program

Purpose: Runs the specified program or application that is stored on the terminal. For help, see Chapter 5, "Using Custom Applications."

Note: You cannot store and run applications from the RAM drive (E).

From Network: `//drive:filename`

where:

`//`   is the command to run an application.

drive: indicates the drive where the application is stored. You must include the colon (:) after the drive letter.

filename   is the application you want to run.

Keyboard: In the TRAKKER Antares 2400 Menu System, choose System Menu and then choose File Manager. Next, choose the drive where the application is stored.

Scan: 1. Scan this bar code label:

Enter Accumulate Mode / Run Program

|| ||||||||||||||||||||||||||||

+///

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

`drive:filename`

3. Scan this bar code label to exit Accumulate mode and run the application.

Exit Accumulate Mode

|| |||| ||||||| ||||

-/

Or: You can create your own bar code labels to run applications by creating a bar code in this command format:

`//drive:filename`

Example: To run the application SHIPPING.BIN, use this command:

`//c:shipping.bin`

Transmit File

There are two ways to transmit files from the T2455:

- Use the serial port.

- Use RF network communications.

For help connecting the terminal to a host computer or the DCS 300, see Chapter 4, "Operating the Terminal in a Network."

Transmit File Through the Serial Port

Purpose: Transmits a file from the T2455 through the serial port and saves it on the host computer. You must have the terminal connected to the host through a serial port. For help, see Chapter 2, "Installing the Terminal."

On the host, you need to receive the file using a serial communications package (i.e., Windows 3.1 Terminal, Win95 Hyperterminal, Crosstalk, or Procomm) that supports one of these protocols: XMODEM, XMODEM-1K, and YMODEM.

XMODEM-1K is a version of XMODEM that supports 1024-byte blocks as well as the standard 128-byte XMODEM data blocks, which increases the throughput. YMODEM has the additional ability to transfer a file name with the file's data and it preserves the length of the file without padding.

Note: T2455 filenames are up to eight characters with a three-character extension.

From Network:

`%%Xn,drive:filename`	Transmits a file using XMODEM protocol
`%%Kn,drive:filename`	Transmits a file using XMODEM-1K protocol
`%%Yn,drive:filename`	Transmits a file using YMODEM protocol

where:

`%%X`   is the command to transmit a file using XMODEM protocol.

`%%K`   is the command to transmit a file using XMODEM-1K protocol.

`%%Y`   is the command to transmit a file using YMODEM protocol.

n   indicates the terminal serial port: 1 for COM1, 4 for COM4.

drive: indicates the drive where the file is stored on the terminal. You must include the colon (:) after the drive letter.

filename   is the file you want to transmit.

Keyboard: Not supported

Transmit File Through the Serial Port (continued)

> *Note: To scan these bar code labels, you must configure the terminal to use Code 39 in Full ASCII mode. For help, see "Code 39" in Chapter 9.*

Scan: 1. Scan this bar code label:

Enter Accumulate Mode / Transmit File

+/%%

2. Scan the bar code label for the communications protocol you want to use.

XMODEM   XMODEM-1K   YMODEM

X   *K*   *Y*

3. Scan the bar code label for the terminal COM port you are using to transmit the file. The label also includes the required comma.

COM1   COM4

1,   *4,*

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

```
drive:filename
```

5. Scan this bar code label to exit Accumulate mode and transmit the file.

Exit Accumulate Mode

-/

Or: You can create your own bar code labels to transmit files by creating a bar code in this command format:

```
%%Xn,drive:filename
```
          (for XMODEM)

```
%%Kn,drive:filename
```
          (for XMODEM-1K)

```
%%Yn,drive:filename
```
          (for YMODEM)

Example: To transmit the file SHIPPING.DAT from drive C through COM1 to the host via XMODEM protocol, use this command:

```
%%X1,c:shipping.dat
```

Transmit File Via RF Network Communications

Purpose: Transmits a file from the terminal and saves it on the DCS 300 or host.

From Network: %%R,*drive:fromfilename,tofilename*

where:

%%R   is the command to transmit a file over the RF network from the T2455 to the DCS 300 or host.

drive: indicates the drive where the file is stored on the T2455. You must include the colon (:) after the drive letter.

fromfilename   is the name of the file you are transmitting from the T2455 to the DCS 300 or host.

tofilename   is the name of the file that will be saved on the DCS 300 or host. On the DCS 300, the file is saved on the D:\USERDATA directory. To transmit a file to the host, you need to identify the path and filename where you want to save the file.

Note: *Do not specify the pathname D:\USERDATA in the* tofilename *field.*

Keyboard: Not supported

Note: *To scan these bar code labels, you must configure the terminal to use Code 39 in Full ASCII mode. For help, see "Code 39" in Chapter 9.*

Scan: 1. Scan this bar code label:

Enter Accumulate Mode / Transmit File

||||||||||||||||||||||||||||||||||||||||||||||

+/%%R,

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

drive:fromfilename,tofilename

3. Scan this bar code label to exit Accumulate mode and transmit the file.

Exit Accumulate Mode

||||||||||||||||||

-/

Transmit File Via RF Network Communications (continued)

Or: You can create your own bar code labels to transmit files by creating a bar code in this command format:

`%%R,`*drive:fromfilename,tofilename*

Example: To transmit the file SHIPPING.DAT from drive C to the DCS 300 or host, use this command:

`%%R,c:shipping.dat,shipping.dat`

9

Configuration Command Reference

This chapter is an alphabetical list of all the configuration commands supported on the terminal.

Using Configuration Commands

A configuration command changes the way the terminal operates. For example, you can change the Beep Volume and make the terminal beep very loud in a noisy environment. You can execute configuration commands by

• scanning a command from a Code 39 or Code 93 bar code label. The labels are provided in this chapter. For more help, see Chapter 3, "Configuring the Terminal."

• choosing a command from the TRAKKER Antares 2400 Menu System. For help, see Chapter 3, "Configuring the Terminal."

• sending a command from a device on the serial or RF network. For help, see "Using Serial Communications on the Terminal" and "Using RF Communications on the Terminal" in Chapter 4.

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

You can find the following information about each configuration command in this chapter:

• Command description and purpose

• Command syntax and options

• Default setting

• Bar code labels you can scan to set or change each command

The configuration commands are listed alphabetically by command name. For a list of bar code symbology, operations, RF network communications, or serial network communications commands, use the next table, "Configuration Commands Listed by Category." If you want to look up a command by its syntax, see the "Configuration Commands by Syntax" list in Appendix A.

Some of the bar code labels in this chapter include quotes or other characters from the full ASCII character set. To scan these bar code labels, you must configure the T2455 to use Code 39 in Full ASCII mode. For help, see "Code 39" later in this chapter.

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

Configuration Commands Listed by Category

This chapter lists the configuration commands in alphabetical order. Use this next list to find the configuration commands you may need to set for bar code symbologies, operations, RF network communications, or serial network communications.

RF Network Communications

Serial Network Communications

Entering Variable Data in a Configuration Command

You can enter variable data for many of the configuration commands. For example, you can set a preamble that is up to 25 ASCII characters long. You need to follow these general instructions to enter variable data.

To enter variable data in a configuration command

1. Scan a bar code label with this syntax:

    `+/$+command`

    where:

    +/   is the syntax for the Enter Accumulate Mode command.

    $+   is the syntax for the Change Configuration command.

    command   is the syntax for the command you want to change.

    For example, the command syntax for a preamble is AD*data*. To change or set a preamble, scan this bar code:

    Enter Accumulate Mode / Change Configuration / Set Preamble

    +/$+AD

2. Scan a bar code label from the "Full ASCII Bar Code Chart" in Appendix B. To set the preamble to the character T, scan this label:

    T

    T

    Note: To use the bar code labels in Appendix B, you must configure the T2455 to use Code 39 in Full ASCII mode. For help, see "Code 39" later in this chapter.

3. Scan the Exit Accumulate Mode bar code label to update the terminal's configuration:

    Exit Accumulate Mode

    -/

Acknowledgement Delay Lower Limit

Purpose: When the T2455 sends a message to the DCS 300 or the Model 200 Controller, the terminal waits to receive a response acknowledging the message. If no response is received within the Acknowledgement Delay Lower Limit time, the terminal sends the message again at the time interval set for the lower limit. The terminal will continue to send the data at increasingly longer intervals until it reaches the Acknowledgement Delay Upper Limit time. The terminal continues sending the message at the time interval set for the upper limit until a response is received or a timeout error occurs.

Syntax: NV*data*

Acceptable values for *data* are any number from 200 to 2000 ms.

Default: 300 ms

Scan: To set the default acknowledgement delay lower limit, scan this bar code:

Default Acknowledgement Delay Lower Limit

||||||||||||||||||||||||||||||||||

$+NV300

Or: To set the acknowledgement delay lower limit:

1. Scan this bar code:

Enter Accumulate Mode / Set Acknowledgement Delay Lower Limit

||||||||||||||||||||||||||||||

+/$+NV

2. Scan a numeric value for *data* from these bar codes:

||||||||||||||||| ||||||||||||

0   *1*

||||||||||||||||| ||||||||||||

2   *3*

||||||||||||||||| ||||||||||||

4   *5*

||||||||||||||||| ||||||||||||

6   *7*

Acknowledgement Delay Lower Limit (continued)

||||||||||||
8

||||||||||||
9

3. Scan this bar code:

Exit Accumulate Mode

||||||||||||
-/

Acknowledgement Delay Upper Limit

Purpose: When the T2455 sends a message to the DCS 300 or the Model 200 Controller, the terminal waits to receive a response acknowledging the message. If no response is received within the Acknowledgement Delay Lower Limit time, the terminal sends the message again at the time interval set for the lower limit. The terminal will continue to send the data at increasingly longer intervals until it reaches the Acknowledgement Delay Upper Limit time. The terminal continues sending the message at the time interval set for the upper limit until a response is received or a timeout error occurs.

Syntax: NU*data*

Acceptable values for *data* are any number from 2000 to 60000 ms.

Default: 5000 ms

Scan: To set the default acknowledgement delay upper limit, scan this bar code:

Default Acknowledgement Delay Upper Limit

||||||||||||||||||
$+NU5000

Or: To set the acknowledgement delay upper limit:

1. Scan this bar code:

Enter Accumulate Mode / Set Acknowledgement Delay Upper Limit

||||||||||||||||||
+/$+NU

2. Scan a numeric value for *data* from these bar codes:

|||||| ||||| |||
0

|||||| ||| |||
1

|||||| ||| |||
2

|||||| |||| |||
3

|||||| ||| |||
4

|||||| |||| |||
5

|||||| |||| |||
6

||||| ||| |||
7

|||||| ||| |||
8

|||||| ||| |||
9

3. Scan this bar code:

Exit Accumulate Mode
|||||| ||||| ||||| |||
-/

Append Time

Purpose: Appends the time to bar code labels that are scanned into the terminal. You can also use the Time in Seconds command to append the time in hours and minutes only, or hours, minutes, and seconds. The time is appended to the data in the form HH:MM:SS. For help, see "Time in Seconds" later in this chapter.

Syntax: DE*data*

Acceptable values for *data* are:

0   Disabled
1   Enabled

Default: Disabled

Scan: One of these bar codes:

Disable Append Time
|||||| | ||| ||| |||| |||| |||| |||| ||| |||
$+DE0

Enable Append Time
|||||| | ||| ||| |||| |||| |||| ||| ||| |||
$+DE1

Automatic Shutoff

Purpose: Defines the maximum length of time the terminal remains on when there is no activity. When you do not use the terminal for the length of time set with this command, the terminal automatically turns off as if you had pressed ⃞ to turn it off.

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

Syntax: EZ*data*

Acceptable values for *data* are:

0   Disabled (always on)
02-75   Shutoff time in minutes

Default: 0 (disabled)

Scan: To disable automatic shutoff, scan this bar code:

Disable Automatic Shutoff

|||||||||||||||||||||||||||||||||||

$+EZ0

Or: To set a timeout:

1. Scan this bar code:

   Enter Accumulate Mode / Set Automatic Shutoff

   |||||||||||||||||||||||||||||||||||

   +/$+EZ

2. Scan a numeric value for *data* from these bar codes:

|||||||||||| *0*	||||||||| *1*
||||||||| *2*	||||||||| *3*
||||||||| *4*	||||||||| *5*

|||||||||||||
6

|||||||||||||
7

|||||||||||||
8

|||||||||||||
9

3. Scan this bar code:

Exit Accumulate Mode
|||||||||||||||
-/

Baud Rate

Purpose: Sets the baud rate for the serial port on the terminal. The baud rate must match the baud rate of the device (i.e., the host computer) that the terminal is communicating with through the serial port.

Syntax: YA*n.data*

where *n* is:

1   COM1 serial port
4   COM4 serial port

Acceptable values for *data* are:

3   1200 baud
4   2400 baud
5   4800 baud
6   9600 baud
7   19200 baud
8   38400 baud

Default: 19200

Scan: To set the default baud rate for each serial port, scan these bar codes:

Default Baud Rate for COM1
|||||||||||||||||||||||||||||||||
$+YA1.7

Default Baud Rate for COM4
|||||||||||||||||||||||||||||||||
$+YA4.7

Baud Rate (continued)

Or: To set the baud rate for one serial port:

1. Scan this bar code:

    Enter Accumulate Mode / Set Baud Rate

    ||||||||||||||||||||||||||||||||||

    +/$+YA

2. Scan the serial port from these bar codes:

    COM1   COM4

    ||||||||||||||||||| |||||||||||||||||

    1.   *4.*

3. Scan the baud rate from these bar codes:

    1200 Baud   2400 Baud

    |||||||||||||| ||||||||||||

    3   *4*

    4800 Baud   9600 Baud

    |||||||||||| |||||||||||||

    5   *6*

    19200 Baud   38400 Baud

    ||||||||||| ||||||||||||

    7   *8*

4. Scan this bar code:

    Exit Accumulate Mode

    |||||||||||||||||||

    -/

5. Repeat Steps 1 through 4 to set the baud rate for another serial port.

Notes: For COM1 only, you can use either command syntax listed next:

Syntax: YA1.*data*

  or: IA*data*

where *data* is a value from 3 to 8 for the baud rate. For COM4, you must use the YA configuration command.

Beep Volume

Purpose: Adjusts the volume of the terminal's audio signals. For a list of all the beep sounds and audio signals, see "Understanding the Terminal Audio Signals" in Chapter 1. Set the beep volume and keyclick according to operator preference and work environment.

Note: If the Beep Volume is turned off, you will not hear any audio signals including the keyclick.

Syntax: BV*data*

Acceptable values for *data* are:

0	Off
1	Quiet
2	Normal
3	Loud
4	Very loud
8	Lower volume
9	Raise volume

Default: Very loud

Scan: One of these bar codes:

Beep Volume Off

|||||| ||| ||| || || ||| ||| |||

$+BV0

Beep Volume Quiet

|||||| | ||| ||| || ||| ||| ||| |||

$+BV1

Beep Volume Normal

|||||| | || ||| ||| || || ||| |||

$+BV2

Beep Volume Loud

|||||| | ||| ||| || || |||| |||

$+BV3

Beep Volume Very Loud

|||||| | ||| ||| || || ||| ||| |||

$+BV4

Or: Scan one of these bar codes repeatedly to achieve the desired volume:

Raise Beep Volume

|||||| | ||| ||| || ||| ||| |||

$+BV9

Lower Beep Volume

|||||| | ||| || ||| ||| ||| |||

$+BV8

Codabar

Purpose: Enables or disables decoding of Codabar symbology. Codabar is a self-checking, discrete symbology. The American Blood Commission (ABC) Codabar requires that you retain and transmit the start/stop code digits when processing a Codabar symbol. As a result, configuration CD10 is an illegal configuration.

Syntax: CD*data*

Acceptable values for *data* must be two digits, corresponding to:

Digit	Value	Description
First	0	Disabled
	1	ABC
	2	Standard
	3	Concatenated
Second	0	Discard Start/Stop
	1	Transmit ABCD Start/Stop
	2	Transmit DC1-DC4 Start/Stop

Default: Disabled

Scan: One of these bar codes:

Disabled, Discard Start/Stop

||||||||||||||||||||||||||||||||||

$+CD00

ABC, Transmit ABCD Start/Stop

||||||||||||||||||||||||||||||||||

$+CD11

ABC, Transmit DC1-DC4 Start/Stop

||||||||||||||||||||||||||||||||||

$+CD12

Standard, Discard Start/Stop

||||||||||||||||||||||||||||||||||

$+CD20

Standard, Transmit ABCD Start/Stop

||||||||||||||||||||||||||||||||||

$+CD21

Standard, Transmit DC1-DC4 Start/Stop

||||||||||||||||||||||||||||||||||

$+CD22

Concatenated, Discard Start/Stop

||||||||||||||||||||||||||||||||||

$+CD30

Concatenated, Transmit ABCD Start/Stop

||||||||||||||||||||||||||||||||||

$+CD31

Concatenated, Transmit DC1-DC4 Start/Stop

||||||||||||||||||||||||||||||||||

$+CD32

Code 11

Purpose: Enables or disables decoding of Code 11 symbology. Code 11 is a very high density, discrete numeric bar code. It is most extensively used in labeling telecommunications components and equipment.

Syntax: CG*data*

Acceptable values for *data* are:

0   Disabled
1   Code 11 enabled with one check digit
2   Code 11 enabled with two check digits

Default: Disabled

Scan: One of these bar codes:

Disable Code 11

|||||| | | ||| || | ||| |||| ||| ||| |||
$+CG0

Code 11 Enabled With One Check Digit

|||||| | | ||| || ||| |||| ||| ||| |||
$+CG1

Code 11 Enabled With Two Check Digits

|||||| | | ||| || ||| |||| ||| ||| |||
$+CG2

Code 16K

Purpose: Enables or disables decoding of Code 16K symbology. Code 16K is a two-dimensional (stacked rows), high density bar code. It is based on Code 128 and is used widely to label unit-dose packaging for the healthcare industry.

Syntax: CP*data*

Acceptable values for *data* are:

0   Disabled
1   Standard Code 16K enabled
2   Code 16K enabled with Function Code 1

When you enable Code 16K with Function Code 1, the terminal decodes the bar code label and checks for a Function Code 1 in the first data character position. If a Function Code 1 is the first character, the terminal substitutes this Code 16K symbology identifier string for the Function Code 1 character.

```
]K1
```

Default: Disabled

Scan: One of these bar codes:

Disable Code 16K

$+CP0

Standard Code 16K Enabled

$+CP1

Code 16K Enabled With Function Code 1

$+CP2

Code 2 of 5

Purpose: Enables or disables decoding of Code 2 of 5 symbology. Code 2 of 5 uses the bars to encode information and the spaces to separate the individual bars. This code is discrete and self-checking. You can only enable Code 2 of 5 if the Interleaved 2 of 5 (I 2 of 5) code is disabled. If you enable I 2 of 5, Code 2 of 5 is automatically disabled.

Syntax: CC*data*

where *data* consists of three digits as follows:

| First digit: | 0 | Code 2 of 5, 3 Bar Start/Stop |
| | 1 | Code 2 of 5, 2 Bar Start/Stop |

| Second and | 00 | Disable Code 2 of 5 |
| third digits: | 01-32 | Label Length |

Default: Disabled

Scan: To disable Code 2 of 5, scan this bar code:

Disable Code 2 of 5

||||||||||||||||||||||||||||||||||||||||||||

$+CC000

Or: To enable Code 2 of 5:

1. Scan one of these bar codes:

   Code 2 of 5, 3 Bar Start/Stop

   ||||||||||||||||||||||||||||||||||||||||||||

   +/$+CC0

   Code 2 of 5, 2 Bar Start/Stop

   ||||||||||||||||||||||||||||||||||||||||||||

   +/$+CC1

2. Scan a two-digit numeric value to set the label length (01-32) from these bar codes.

   |||||||||||||||||

   0

   |||||||||||||||||

   1

   |||||||||||||||||

   2

   |||||||||||||||||

   3

Code 2 of 5 (continued)

```
||█||||| ||| |█|
```
4

```
| ||█|| █|| |█|
```
5

```
| |█||| █||| |█|
```
6

```
| |█||| ||| |█|
```
7

```
| |█|| █|| |█|
```
8

```
| |█|| ||| |█|
```
9

3. Scan this bar code:

Exit Accumulate Mode
```
||█||| ||█| ||||| |██|
```
-/

Code 39

Purpose: Enables or disables decoding of Code 39 symbology. Code 39 is discrete, variable length, and self-checking. The character set is uppercase A to Z, 0 to 9, dollar sign ($), period (.), slash (/), percent (%), space ( ), plus (+), and minus (-).

There are three types of ASCII the terminal decodes:

- Code 39 non-full ASCII
- Code 39 full ASCII
- Code 39 mixed-full ASCII

Code 39 non-full ASCII   Non-full ASCII uses a one-character encoding scheme. For example, you encode the data "SAMPLE" as follows:

```
| |██|||| ||| ||█||| |██| |█|| ███| ||| |██|
```
SAMPLE

This label decodes as *SAMPLE*.

Code 39 full ASCII   Full ASCII uses a two-character encoding scheme to extend the character set to 128 characters. You use the dollar sign ($), slash (/), percent (%), or plus (+) followed by an uppercase letter to represent one of the characters in the extended set. You must encode lowercase letters as a plus sign (+) followed by their uppercase equivalents. For a list of ASCII characters and their Code 39 representations, see the "Full ASCII Table" in Appendix B.

Use Code 39 full ASCII to enter ASCII control characters or lowercase characters as data. You should also enable Code 39 full ASCII to use ASCII command characters.

For example, you encode the data "sample" in Code 39 full ASCII as follows:

||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||

+S+A+M+P+L+E

In Code 39 non-full ASCII, this label decodes as *+S+A+M+P+L+E*. In Code 39 full ASCII, this label decodes as *sample*.

Code 39 mixed-full ASCII   Use mixed-full ASCII when printers encode the same label two different ways. For example, if you have a bar code with the data $%a, some printers encode the data as follows:

|||||||||||||||||||||||||||||||||||||||||

/D/E+A

In the Full ASCII Table in Appendix B, /D represents $ and /E represents %. If you configure the terminal for Code 39 full ASCII, the terminal decodes the data as $%a because there are three valid full ASCII character pairs to represent the data.

Other printers encode the data $%a as:

||||||||||||||||||||||||||||

$%+A

The $ and % are valid Code 39 characters in the non-full ASCII character set. However, the terminal will not decode this label if it is configured for full ASCII, because the data is not represented by valid full ASCII character pairs. To decode the label correctly, you need to configure the terminal for mixed-full ASCII.

When you configure the terminal for Code 39 mixed-full ASCII, the terminal will decode both of the labels above as $%a.

Mixed-full ASCII interprets any valid full ASCII character pairs that appear in the label, but does not require that all data be encoded with a valid full ASCII character pair. If you are uncertain how your labels are encoded, configure the terminal for mixed-full ASCII, which decodes all valid Code 39 labels.

If you configure the terminal for Code 39 full ASCII, you should check for Code 39 mixed-full ASCII. Mixed-full ASCII does not apply when you configure the terminal for non-full ASCII.

Note: The interpretive text shown under bar code labels does not always accurately reflect the data that is encoded in the label. The interpretive text represents how the label should be decoded.

Code 39 (continued)

Use this table to help configure your terminal.

Code 39 Option	Bar Code Label	Decodes
Non-full ASCII	$%+A	$%+A
	/D/E+A	/D/E+A
Full ASCII	$%+A	No decode
	/D/E+A	$%a
Mixed-full ASCII	$%+A	$%a
	/D/E+A	$%a

Syntax: CB*data*

Acceptable values for *data* must be three digits, corresponding to:

First digit:	0	Disabled
	1	Enabled with no check digit
	2	Enabled with check digit
	3	HIBC (Health Industry Bar Code)
	4	With AIAG check digit

Second digit:	0	Discard check digit
	1	Transmit check digit

Third digit:	0	Code 39 non-full ASCII
	1	Code 39 full ASCII
	2	Code 39 mixed-full ASCII

Note: Selecting HIBC Code 39 automatically sets the configuration to non-full ASCII with the check digit transmitted.

Default: Enable Code 39 Full ASCII with no check digit (111)

Scan: To disable Code 39:

Disable Code 39

$+CB0

Or: To enable Code 39:

1. Scan this bar code:

Enter Accumulate Mode / Enable Code 39

+/$+CB

2. Scan one of these bar codes to set the first digit:

Without a Check Digit

|||||||||||||||||

1

With a Check Digit

|||||||||||||||

2

HIBC Code 39

|||||||||||||||||

3

With AIAG Check Digit

|||||||||||||

4

3. Scan one of these bar codes to set the second digit:

Discard Check Digit

|||||||||||||||

0

Transmit Check Digit

|||||||||||||

1

4. Scan one of these bar codes to set the third digit:

Code 39 Non-Full ASCII

|||||||||||||||

0

Code 39 Full ASCII

|||||||||||||

1

Code 39 Mixed-Full ASCII

|||||||||||||

2

5. Scan this bar code:

Exit Accumulate Mode

|||||||||||||||||||

-/

Code 49

Purpose: Enables or disables decoding of Code 49 symbology. Code 49 is a multirow symbology for high data density. The last character in each row is used for row checking and the last two characters of the symbol are used for overall checking.

Function codes designate where to place the predefined data string in a Code 49 label. Whenever a terminal encounters a function code, it replaces the function code with the defined string before transmitting the data to the DCS 300 or the Model 200 Controller. A single Code 49 symbol may contain several different variable length data fields. Function Code 1 (F1) identifies a data system. Function Code 2 (F2) indicates the end of a data field.

Syntax:
CJ*data*   Code 49
CK*data*   Function Code 1
CL*data*   Function Code 2
CM*data*   Function Code 3

Acceptable values for *data* are:

Code 49:	0	Disabled
	1	Enabled

Function Code 1:   Any two ASCII characters.

Function Code 2:   Any four ASCII characters

Function Code 3:   Any two ASCII characters

Default: Disabled

Scan: One of these bar codes:

Disable Code 49

$+CJ0

Enable Code 49

$+CJ1

Scan: To disable any of the function codes, scan one of these bar codes:

Disable Function Code 1

$+CK

Disable Function Code 2

$+CL

Disable Function Code 3

$+CM

Or: To set one of the function codes to a character string:

1. Scan one of these bar codes:

Enter Accumulate Mode / Set Function Code 1

||||||||||||||||||||||||||||||

+/$+CK

Enter Accumulate Mode / Set Function Code 2

||||||||||||||||||||||||||||||

+/$+CL

Enter Accumulate Mode / Set Function Code 3

||||||||||||||||||||||||||||||

+/$+CM

2. Scan any character from the "Full ASCII Bar Code Chart" in Appendix B. You can define two characters each for Function Codes 1 and 3, and four characters for Function Code 2.

3. Scan this bar code:

Exit Accumulate Mode

|||||||||||||||||

-/

Code 93

Purpose: Enables or disables decoding of Code 93 symbology. Code 93 is a variable length, continuous symbology that uses four element widths.

Syntax: CF*data*

Acceptable values for *data* are:

0 Disabled
1 Enabled

Default: Disabled

Scan: One of these bar codes:

Disable Code 93

||||||||||||||||||||||||||||||

$+CF0

Enable Code 93

||||||||||||||||||||||||||||||

$+CF1

Code 128

Purpose: Enables or disables decoding of Code 128 symbology. Code 128 is a very high density alphanumeric symbology that supports the extended ASCII character set. It is a variable length, continuous code that uses multiple element widths.

Syntax: CH*data*

Acceptable values for *data* are:

0   Disabled
1   Standard Code 128
2   UCC/EAN Code 128
8   ISBT Code 128

Note: For help configuring ISBT Code 128, see the next section.

Default: Standard

Scan: One of these bar codes:

Disable Code 128

$+CH0

Enable Standard Code 128

$+CH1

Enable UCC/EAN Code 128

$+CH2

Enable ISBT Code 128

$+CH8

Notes: If you configure Standard Code 128, the terminal will not decode Function Code 1 characters in the first position of a bar code label. Any subsequent Function Code 1 characters are translated to the ASCII GS character as a separator for variable length fields.

If you configure UCC/EAN Code 128, the terminal will decode a bar code label as Standard Code 128 unless one of the first two characters are a start character and a Function Code 1. In this case, the bar code label is processed as described next:

1.   The Function Code 1 character is not transmitted.

2.   The three symbology ID characters,]C1, are transmitted.

3.   The remaining Code 128 characters are decoded as Standard Code 128.

ISBT Code 128

Purpose:	Enables and configures decoding of ISBT Code 128 symbology. ISBT Code 128 is the global bar code labeling standard for the blood banking industry. It is used to support the world-wide distribution, tracking and handling of blood bags and blood components.
	For more information on ISBT Code 128, refer to the *ISBT 128 Bar Code Symbology and Application Specification for Labeling of Whole Blood and Blood Components* prepared by the International Council for Commonality in Blood Banking Automation.
Syntax:	CH8*data*

where *data* can be up to 10 digits selected from this list:

Digits	Values	Description
Digit 1:	0	Symbology identifier (ID) disabled.
	1	Symbology identifier enabled. Output of]C0 indicates a single ISBT 128 bar code was read. Output of]C4 indicates that a pair of ISBT Code 128 bar codes was read.
Digit 2:	0	Concatenation disabled.
	1	Restricted concatenation enabled.
Digits 3-4:	See List *	Left Data ID to be matched for restricted concatenation.

       * List of valid combinations are:

=%	Blood Groups and Rh
=>	Expiration Date
&>	Expiration Date and Time
=*	Collection Date
&*	Collection Date and Time
=<	ISBT Product Code
=)	Manufacturer ID
&)	Manufacturer Lot Number
=&	Concatenation Bar Code
&<	National Product Code
&(	National Special Test
&!	Unit Exclusion Status
&;	National Special Donor
=*n*	Donation ID Number where *n* is a value from 0 to 9 or uppercase A through Z
&*n*	National Use Bar Code where *n* is a value from lowercase a through z

---

Digits	Values	Description
Digits 5-6:	See List *	Right Data ID to be matched for restricted concatenation. See the list of valid combinations for digits 3 and 4.
Digits 7-9:	000-999	Bar code concatenation control parameters.
		If digit 10 is "d," digits 7 and 8 refer to the nominal distance in millimeters between the stop characters of two bar code labels that can be concatenated, and digit 9 is the bar code label positioning tolerance. If the distance between the two bar code labels is outside this limit (assuming standard ISBT bar code print size), the bar code labels will not be concatenated.
		If digit 10 is "t," digits 7, 8, and 9 are the decode time limit in milliseconds. If both bar code labels are not decoded in the same beam sweep within this time, the bar code labels are not concatenated. This time parameter is only accurate to a 25-millisecond resolution.
Digit 10:	d or t	Identifies the concatenation control as either the distance "d" between bar code labels or the time "t" in which concatenated bar code labels must be decoded. See the description for Digits 7-9.

Note: The Left Data ID and Right Data ID are used only with the restricted concatenation option. For example, the terminal will concatenate only those bar code labels with data identifiers that match the configured data identifiers. The spacing between bar codes that can be concatenated must be between two and five character widths.

Default: *Digit 1:*   Symbology ID disabled
             Digit 2:   Concatenation disabled

Scan: This bar code to enable ISBT Code 128 with the default settings.

Enable ISBT Code 128

$+CH8

Or: To configure ISBT Code 128:

Note: To scan these bar code labels, you must configure the T2455 to use Code 39 in Full ASCII mode. For help, see "Code 39" earlier in this chapter.

1. Scan this bar code:

Enter Accumulate Mode / Enable ISBT Code 128

||||||||||||||||||||||||||||||||||||||||||||||

+/$+CH8

2. Scan one of these bar codes to disable or enable symbology ID:

Disable Symbology ID

||||||||||||||||||

0

Enable Symbology ID

||||||||||||||

1

Note: Steps 3 through 9 are optional.

3. Scan one of these bar codes to disable or enable concatenation:

Disable Concatenation

||||||||||||||||

0

Enable Concatenation

||||||||||||||

1

If you disabled concatenation, go to Step 10.

4. Scan one of these bar codes to set the Left Data ID:

Blood Groups and Rh

||||||||||||||||||||||||

=%

Expiration Date

||||||||||||||||||||||||

=>

Expiration Date and Time

||||||||||||||||||||||||

&>

Collection Date

||||||||||||||||||||||||

*=**

Collection Date and Time

||||||||||||||||||||||||

*&**

ISBT Product Code

||||||||||||||||||||||||

=<

Manufacturer ID

||||||||||||||||||||||||

=)

Manufacturer Lot Number

||||||||||||||||||||||||

&)

ISBT Code 128 (continued)

Concatenation Bar Code
||||||||||||||||||||||||||||
=&

National Product Code
||||||||||||||||||||||||||||
&<

National Special Test
||||||||||||||||||||||||||||
&(

Unit Exclusion Status
||||||||||||||||||||||||||||
&!

National Special Donor
||||||||||||||||||||||||||||
&;

Donation ID Number (See Note)
||||||||||||||||||||
=

National Use Bar Code (See Note)
||||||||||||||||||
&

Note: If you scan the Donation ID Number or National Use Bar Code, go to Step 5.

5. For the Donation ID Number or the National Use Bar Code, scan an alphanumeric bar code from the "Full ASCII Bar Code Chart" Appendix B.

    •   For the Donation ID Number, scan a value from 0 through 9 or uppercase A through Z.

    •   For the National Use Bar Code, scan a value from lowercase a through z.

6. Scan one of these bar codes to set the Right Data ID:

Blood Groups and Rh
||||||||||||||||||||||||||||
=%

Expiration Date
||||||||||||||||||||||||||||
=>

Expiration Date and Time
||||||||||||||||||||||||||||
&>

Collection Date
||||||||||||||||||||||||||||
*=**

Collection Date and Time
||||||||||||||||||||||||||||
*&***

ISBT Product Code
||||||||||||||||||||||||||||
=<

Manufacturer ID

||█||||| |||█|| ||█|| || |█| |█||█
=)

Manufacturer Lot Number

||██|||| || |█|█ |||| || |█| |█||█
&)

Concatenation Bar Code

||█||||| |||█|| ||| || ||█|| ||| |█||
=&

National Product Code

||█|||| | |█|█ |||| | ||| |█| ██|█
&<

National Special Test

||█||| | |█|█ ||| || |█|| ||| |█||
&(

Unit Exclusion Status

||█|||| | |█|█ ||| || |█|| |█|| |█||
&!

National Special Donor

||█||| | |█|█ ||||| | |█|█ ||| |█||
&;

Donation ID Number (See Note)

||██||| | |█|█ ||| ||█
=

National Use Bar Code (See Note)

||██||| || |█|█ ||| ||█
&

Note: If you scan the Donation ID Number or National Use Bar Code, go to Step 7.

7. For the Donation ID Number or the National Use Bar Code, scan an alphanumeric bar code from the "Full ASCII Bar Code Chart" Appendix B.

   • For the Donation ID Number, scan a value from 0 through 9 or uppercase A through Z.

   • For the National Use Bar Code, scan a value from lowercase a through z.

8. Skip to Step 10 if you want to keep the default concatenation control parameters.

   • The default concatenation distance is 16 mm ± 0 mm.

   • The default concatenation decode time limit is 160 msec.

   If you want to set the concatenation control parameters, follow the next instructions.

   To set the concatenation decode time limit, scan these bar codes to set the time from 001 to 999 ms. To set the concatenation distance, scan these bar codes to set the distance from 00 to 99 mm and the tolerance from ± 1 to 9 mm.

||██||||| ██|| |█||
0

||██||||| ||| |█||
1

ISBT Code 128 (continued)

|||||||||||||||||
2

|||||||||||||||||
3

|||||||||||||||||
4

|||||||||||||||||
5

|||||||||||||||||
6

|||||||||||||||||
7

|||||||||||||||||
8

|||||||||||||||||
9

9. Scan one of these bar codes to set the concatenation distance or time limit:

Distance

|||||||||||||||||
d

Time

|||||||||||||||||
t

10. Scan this bar code to exit accumulate mode:

Exit Accumulate Mode

|||||||||||||||||||||||
-/

Command Processing

Purpose: Command processing allows you to disable or enable reader commands. For example, you can disable the Delete File command. There are two ways to enable or disable reader commands:

- Use the Command Processing configuration command described here.

- Use the Reader Command Menu option in the Configuration Menu of the TRAKKER Antares 2400 Menu System.

You may want to disable reader commands to prevent a user from accidentally entering a command, or to use data that would otherwise be treated as a command. Any Code 39 or Code 93 bar code label that contains the 2 to 4-character commands for Command Processing is treated as a reader command unless the command is disabled.

If you want to disable or enable several commands, it is easier to use the menu system. For help, see Chapter 3, "Configuring the Terminal." For a description of each reader command that you can enable or disable with Command Processing, see Chapter 8, "Reader Command Reference."

Syntax: DC*data*

Acceptable values for *data* are**:**

0	Disable all reader commands
1	Enable all reader commands
2	Disable override
3	Enable override
*command*0	Disable reader command
*command*1	Enable reader command

The override option is a temporary setting that allows you to enable all the reader commands for as long as you need them. When you want to return to the previous configuration, you disable the override.

Note: The Enable Override option is the only bar code label you can scan to enable reader commands if you have disabled all reader commands (DC0). You can also enable reader commands in the TRAKKER Antares 2400 Menu System.

Default: All reader commands enabled

Scan: To enable all the reader commands or override the current settings, scan one of these bar codes:

Disable All Reader Commands

|||||||||||||||||||||||||||

$+DC0

Enable All Reader Commands

|||||||||||||||||||||||||||

$+DC1

Command Processing (continued)

Disable Override

||█|█|█|█||█|█|█|█|█||█|█|█

$+DC2

Enable Override

|█|█||█|█|█|█|█||█|█|█|█|█|█

$+DC3

Or: To disable or enable specific reader commands, perform these steps:

1. Scan this bar code:

   Enter Accumulate Mode / Command Processing

   ||█|█|█|█|█|█|█||█|█|█|█|█

   +/$+DC

2. Scan the bar code to disable or enable one reader command.

   Note: If there are two bar codes for a reader command, you must scan them in order, left to right. Accumulate mode commands are separated into two bar codes so that the command can be accumulated rather than executed as a command.

Abort Program

||█|█|█|█|█|█|█

/$

Backspace

||█|█|█|█

-

(continued)

||█|█|█|█

+

Boot Terminal

||█|█|█|█|█|█

-.1

Change Configuration

||█|█|█|█|█

$+

Clear

||█|█|█|█

-

(continued)

||█|█|█|█

-

Default/Save Configuration

||█|█|█|█

.+

Delete File

||█|█|█|█|█|█|█

..--

Enter Accumulate Mode

||█|█|█|█

+

(continued)

||█|█|█|█

/

Exit Accumulate Mode

||||||||||||||

-

(continued)

||||||||||||||

/

Receive File

||||||||||||||||

.%

Rename File

||||||||||||||||||||||

...-

Reset Firmware

||||||||||||||||

-.

Run Program

||||||||||||||||

//

Set Time and Date

||||||||||||||

/+

Status Lights Control

||||||||||||||

$%

Test and Service Mode

||||||||||||||||||||

..-.

Transmit File

||||||||||||||

%%

3. Scan one of these bar codes:

Disable the Command

||||||||||||

0

Enable the Command

||||||||||||

1

4. Repeat Steps 2 and 3 to disable or enable another reader command.

Note: You can accumulate up to 250 characters in the buffer. If the data accumulated exceeds 250 characters, you will hear an error beep and the terminal will reject the last bar code read.

5. Scan this bar code:

Exit Accumulate Mode

||||||||||||||

-/

Or: To disable or enable the ability to scan multiple-read labels, scan one of these bar codes:

Disable Multiple-Read Labels

||||||||||||||||||||||||

$+DC 0

Enable Multiple-Read Labels

||||||||||||||||||||||||

$+DC 1

Configuration Commands Via Serial Port

Purpose: Allows you to control the data the terminal receives through the serial port. You can set this command to execute reader and configuration commands received through the serial port, or treat all data as data without checking for special command syntax. There are three options:

Disabled   All data received through the serial port is treated as data. The terminal will not execute reader or configuration commands sent or encoded in the data.

Enabled with TMF   If the data is sent with the TMF (Terminal Message Format) header, the terminal will check for and execute the TMF command received through the serial port. With TMF, you can execute reader and configuration commands, or send and receive data about the current terminal configuration.

Enabled without TMF   The terminal will check for and execute all reader and configuration commands (i.e., Receive File reader command or Beep Volume change configuration command).

Note: Before you can enable Configuration Commands Via Serial Port with or without TMF, you must configure the EOM command.

Syntax: YT*n.data*

where *n* is:

1   COM1 serial port
4   COM4 serial port

Acceptable values for *data* are:

0   Disabled
1   Enabled with TMF
2   Enabled without TMF

Default: Enabled without TMF

Scan: To set the default for each serial port, scan these bar codes:

COM1 Commands Via Serial Port Enabled Without TMF

||||||||||||||||||||||||||||||||||||||

$+YT1.2

COM4 Commands Via Serial Port Enabled Without TMF

||||||||||||||||||||||||||||||||||||||

$+YT4.2

Or: To set the configuration commands via serial port for one serial port:

1. Scan this bar code:

   Enter Accumulate Mode / Set Configuration Commands Via Serial Port

   ||||||||||||||||||||||||||||||||||

   +/$+YT

2. Scan the serial port from these bar codes:

   COM1   COM4

   |||||||||||||||||||| ||||||||||||||||||||

   1.   *4.*

3. Scan a numeric value for *data* from these bar codes:

   Disabled   Enabled With TMF

   ||||||||||||||| |||||||||||||||

   0   *1*

   Enabled Without TMF

   |||||||||||||||

   2

4. Scan this bar code:

   Exit Accumulate Mode

   ||||||||||||||||||

   -/

5. Repeat Steps 1 through 4 to set the configuration commands via serial port for another serial port.

Notes: For COM1 only, you can use either command syntax listed next:

Syntax: YT1.*data*

   or: IT*data*

where *data* is a value from 0 to 2. For COM4, you must use the YT configuration command.

Controller Connect Check Receive Timer

Purpose: During periods of inactivity on the T2455, the terminal still sends messages to the DCS 300 or the Model 200 Controller to check the RF connection. If no message is received within the time set for the Controller Connect Check Receive Timer, the terminal is no longer connected to the DCS 300 or the controller and the Network Connect status light blinks. The timer countdown resets each time a valid message is received.

Power Management Tip: Intermec strongly recommends that you use the optimum setting of 60 seconds.

Syntax: NP*data*

Acceptable values for *data* are any number from 1 to 3600 seconds (60 minutes).

Default: 60 seconds

Scan: To set the default controller connect check receive timer, scan this bar code:

Default Controller Connect Check Receive Timer

||||||||||||||||||||||||||||||||||||||

$+NP60

Or: To set the controller connect check receive timer:

1. Scan this bar code:

   Enter Accumulate Mode / Set Controller Connect Check Receive Timer

   ||||||||||||||||||||||||||||||||||||||

   +/$+NP

2. Scan a numeric value for *data* from these bar codes:

0	*1*
2	*3*
4	*5*

|||||||||||||||||||
6

|||||||||||||||||
7

|||||||||||||||||
8

|||||||||||||||||
9

3. Scan this bar code:

Exit Accumulate Mode

|||||||||||||||||||
-/

Controller Connect Check Send Timer

Purpose: During periods of inactivity on the T2455, the terminal still sends messages to the DCS 300 or the Model 200 Controller to check the RF connection. The terminal sends a message at the time interval set for the Controller Connect Check Send Timer. The timer countdown resets each time a valid message is sent or received.

Power Management Tip: Intermec strongly recommends that you use the optimum setting of 35 seconds.

Syntax: NQ*data*

Acceptable values for *data* are any number from 1 to 3600 seconds (60 minutes).

Default: 35 seconds

Scan: To set the default controller connect check send timer, scan this bar code:

Default Controller Connect Check Send Timer

|||||||||||||||||||||||||||||||||
$+NQ35

Or: To set the controller connect check send timer:

1. Scan this bar code:

Enter Accumulate Mode / Set Controller Connect Check Send Timer

|||||||||||||||||||||||||||||||||
+/$+NQ

Controller Connect Check Send Timer (continued)

    2.   Scan a numeric value for *data* from these bar codes:

|||||||||||||||||||
0

|||||||||||||||||||
1

|||||||||||||||||||
2

|||||||||||||||||||
3

|||||||||||||||||||
4

|||||||||||||||||||
5

|||||||||||||||||||
6

|||||||||||||||||||
7

|||||||||||||||||||
8

|||||||||||||||||||
9

    3.   Scan this bar code:

Exit Accumulate Mode

|||||||||||||||||||
-/

Controller IP Address

Purpose: Defines the IP address assigned to the DCS 300 or the Model 200 Controller in your 2.4 GHz RF network. An IP address is a network level address you assign to each device in a TCP/IP network. The controller IP address you set on the T2455 must match the address that is set on the DCS 300 or the controller.

If you plan to enable DHCP (Dynamic Host Configuration Protocol), you can set the controller IP address to any valid IP address. The T2455 will locate and reset the IP address after you enable DHCP. For help, see "Dynamic Host Configuration Protocol" later in this chapter.

Syntax: NC*n.n.n.n*

where each *n* address segment is a number from 0 to 255. The controller IP address field consists of four separate numbers, each separated by a period.

Note: The RF network cannot be activated if the first address segment in the IP address is set to 0, 127, or a number greater than 223.

Default: 0.0.0.0

Scan: To set the default controller IP address, scan this bar code:

Default Controller IP Address

|||||||||||||||||||||||||||||||||||||||||||||||||

$+NC0.0.0.0

Or: To set the controller IP address:

1. Scan this bar code:

   Enter Accumulate Mode / Set Controller IP Address

   ||||||||||||||||||||||||||||||||||

   +/$+NC

2. Scan a numeric value from 0 to 255 to set an *n* field of the controller IP address from these bar codes.

   |||||||||||||||||
   0

   |||||||||||||||||
   1

   |||||||||||||||||
   2

   |||||||||||||||||
   3

Controller IP Address (continued)

|||||||||||||||||||
4

|||||||||||||||||||
5

|||||||||||||||||||
6

|||||||||||||||||||
7

|||||||||||||||||||
8

|||||||||||||||||||
9

3. Scan this bar code:

. (Period)

|||||||||||||||||||
.

4. Repeat Steps 2 and 3 to set the next three numbers in the controller IP address field. After you scan the last address segment, go to Step 5. Do **not** scan the period after the last address segment.

5. Scan this bar code:

Exit Accumulate Mode

|||||||||||||||||||
-/

Data Bits

Purpose: Sets the number of data bits the terminal uses when communicating with another device (i.e., host computer) through the serial port.

Syntax: YI*n.data*

where *n* is:

1   COM1 serial port
4   COM4 serial port

Acceptable values for *data* are:

7   7 data bits
8   8 data bits

Default: 7

Scan: To set the default data bits for each serial port, scan these bar codes:

Data Bits for COM1

||||||| ||| ||| | || |||| |||| |||| |||| ||| |||

$+YI1.7

Data Bits for COM4

||||| | ||| || | || |||| |||| |||| |||| ||| |||

$+YI4.7

Or: To set the data bits for one serial port:

1. Scan this bar code:

    Enter Accumulate Mode / Set Data Bits

    |||||| ||| ||| ||| || | |||| ||| |||

    +/$+YI

2. Scan the serial port from these bar codes:

    COM1   COM4

    ||||| |||| |||| ||| |||||| |||| |||| |||

    1.   *4.*

3. Scan the number of data bits from these bar codes:

    7 Data Bits   8 Data Bits

    ||||||| ||| ||| ||||| ||| |||

    7   *8*

4. Scan this bar code:

    Exit Accumulate Mode

    |||||| |||| | ||| |||

    -/

5. Repeat Steps 1 through 4 to set the data bits for another serial port.

Notes: For COM1 only, you can use either command syntax listed next:

Syntax: YI1.*data*

or: II*data*

where *data* is a value of 7 or 8 data bits. For COM4, you must use the YI configuration command.

Decode Security

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

Note: Only use the low parameter as a temporary solution until you can improve the bar code label print quality.

Syntax: CS*data*

Acceptable values for *data* are:

0   Low
1   Moderate
2   High

Default: Moderate

Scan: One of these bar codes:

Low Decode Security

$+CS0

Moderate Decode Security

$+CS1

High Decode Security

$+CS2

Default Router

Purpose: Defines the IP address assigned to the default router in your 2.4 GHz RF network. The router provides a software and hardware connection between two or more networks that permits traffic to be routed from one network to another on the basis of the intended destinations of that traffic.

When the DCS 300, Model 200 Controller, or host (TCP/IP network) is on a different subnetwork than the T2455, you need to set the IP address assigned to the default router. The terminal uses the router address to send packets across the network to the DCS 300, controller, or host. The default of 0.0.0.0 means there is no default router.

Syntax: NX*n.n.n.n*

where each *n* address segment is a number from 0 to 255. The default router address field consists of four separate numbers, each separated by a period.

Note: The RF network cannot be activated if the first address segment in the IP address is set to 0, 127, or a number greater than 223.

Default: 0.0.0.0

Scan: To set the default value for the default router, scan this bar code:

Default Router

|||||||| | ||| |||||| || |||| ||||| |||| |||| ||||| ||| ||| |||
$+NX0.0.0.0

Or: To set the default router address:

1. Scan this bar code:

Enter Accumulate Mode / Set Default Router

|||||||||||||| ||| || ||||| || |||| |||
+/$+NX

2. Scan a numeric value from 0 to 255 to set an *n* field of the default router address from these bar codes.

|||||| ||| |||
0

||||| ||| |||
1

|||||| ||| |||
2

|||||| |||| |||
3

___

Default Router (continued)

|||||||||||||||||||
4

|||||||||||||||||||
5

|||||||||||||||||||
6

|||||||||||||||||||
7

|||||||||||||||||||
8

|||||||||||||||||||
9

3. Scan this bar code:

. (Period)

|||||||||||||||||||
.

4. Repeat Steps 2 and 3 to set the next three numbers in the default router address field. After you scan the last address segment, go to Step 5. Do **not** scan the period after the last address segment.

5. Scan this bar code:

Exit Accumulate Mode

|||||||||||||||||||
-/

Display Contrast

Purpose: Defines the contrast (light or dark) of the characters against the terminal screen. On the LCD display, there are eight contrast levels that define the contrast (light or dark) of the characters against the background terminal screen. On the EL display, there are only four contrast or brightness levels (0-3).

Note: If the internal operating temperature is 140°F (60°C) or greater and the EL display is set to the highest contrast level (3), the T2455 will reset the contrast to the next level down (2) until the internal temperature is lowered.

Syntax: DJ*data*

Acceptable values for *data* are 0 (light) to 7 (dark).

Default: 3

Scan: One of these bar codes:

0 - Light Display Contrast

|||||||||||||||||||||||||||||||
$+DJ0

1

|||||||||||||||||||||||||||||||
$+DJ1

2

|||||||||||||||||||||||||||||||
$+DJ2

3 - Maximum Display Contrast

|||||||||||||||||||||||||||||||
$+DJ3

4

|||||||||||||||||||||||||||||||
$+DJ4

5

|||||||||||||||||||||||||||||||
$+DJ5

6

|||||||||||||||||||||||||||||||
$+DJ6

7 - Dark Display Contrast

|||||||||||||||||||||||||||||||
$+DJ7

Or: Scan one of these bar codes repeatedly to change the display contrast:

Lighter Display Contrast

|||||||||||||||||||||||||||||||
$+DJ8

Darker Display Contrast

|||||||||||||||||||||||||||||||
$+DJ9

Display Font Type

Purpose: Selects the type or size of font that is used on the terminal screen. You can set a regular size font (8x8), a font with double-height characters (8x16), or a font with double-width and double-height characters (16x16).

Syntax: DT*data*

Acceptable values for *data* are:

0   8 pixels by 8 pixels (8x8) font
1   8 pixels wide by 16 pixels high (8x16) font
2   16 pixels wide by 16 pixels high (16x16) font

Default: 8x8

Scan: One of these bar codes:

Set Display Font Type to 8x8

$+DT0

Set Display Font Type to 8x16

$+DT1

Set Display Font Type to 16x16

$+DT2

9

Display Row Spacing

Purpose: Sets the row spacing on the terminal. Row spacing lets you define the amount of additional space (scan lines) between the lines on the screen. The number of scan lines is two times the value you set for the row spacing. A scan line is a row of pixels. A value of 8 adds 16 blank scan lines to increase the space between lines on the screen.

Syntax: DL*data*

Acceptable values for *data* are any number from 0 to 8.

Default: 0

Scan: One of these bar codes:

Set Row Spacing to 0

|||||||||||||||||||||||||||||||||||

$+DL0

Set Row Spacing to 1

|||||||||||||||||||||||||||||||||||

$+DL1

Set Row Spacing to 2

|||||||||||||||||||||||||||||||||||

$+DL2

Set Row Spacing to 3

|||||||||||||||||||||||||||||||||||

$+DL3

Set Row Spacing to 4

|||||||||||||||||||||||||||||||||||

$+DL4

Set Row Spacing to 5

|||||||||||||||||||||||||||||||||||

$+DL5

Set Row Spacing to 6

|||||||||||||||||||||||||||||||||||

$+DL6

Set Row Spacing to 7

|||||||||||||||||||||||||||||||||||

$+DL7

Set Row Spacing to 8

|||||||||||||||||||||||||||||||||||

$+DL8

Display Video Mode

Purpose: Sets the Display Video mode that is used on the terminal screen. You can set the Display Video mode to original, normal, or inverse. The default is original. There is a different definition for the LCD and EL display as defined next.

Display Type	Original	Normal	Inverse
LCD display	Black characters on a white background	Black characters on a white background	White characters on a black background
EL display	Orange characters on a black background	Black characters on an orange background	Orange characters on a black background

Syntax: DN*data*

Acceptable values for *data* are:

0   Original
1   Normal
2   Inverse

Default: 0 (Original)

Scan: One of these bar codes:

Original Display Video Mode

|||||||||||||||||||||||||||||

$+DN0

Normal Display Video Mode

|||||||||||||||||||||||||||||

$+DN1

Inverse Display Video Mode

|||||||||||||||||||||||||||||

$+DN2

Dynamic Host Configuration Protocol (DHCP)

Purpose: If your DCS 300 or Model 200 Controller is operating as a DHCP client, the server or controller IP address will change each time the server or controller is turned on. By enabling DHCP on the T2455, the terminal can locate and use the server or controller's new IP address. The terminal IP address stays constant and must be assigned to the terminal by your system administrator.

Before you can enable DHCP on the T2455, you need to configure the network parameters for the T2455, including the Controller IP Address. The IP address for the server or controller can be any valid IP address. The IP address does not need to be the actual IP address for the server or controller, since the T2455 will locate and reset the IP address after you enable DHCP.

Important: After you enable or disable DHCP, you must save the configuration in flash memory for the change to take effect.

Syntax: NI*data*

Acceptable values for *data* are:

0   Disable DHCP
1   Enable DHCP

Default: Disabled

Scan: 1.   One of these bar codes to disable or enable DHCP:

Disable DHCP

$+NI0

Enable DHCP

$+NI1

2.   To save the changes in flash memory, scan this bar code:

Save Configuration in Flash Memory

.+1

End of Message (EOM)

Purpose: Attaches an EOM to the end of a data block to indicate the end of data transmission to and from a terminal. When EOM is disabled, the terminal communicates in Character mode. When EOM is enabled, the terminal communicates in Frame mode.

You must configure a value for EOM before you can set these other serial communications commands:

- Configuration Commands Via Serial Port
- Handshake
- LRC
- Start of Message (SOM)

EOM **cannot** equal the same value that is set for SOM. You **cannot** set EOM to any of these values:

- AFF (ACK)
- REQ (ENQ)
- DLE
- SEL
- NEG (NAK)
- XOFF
- Poll
- XON
- RES (EOT)

Syntax: YZ*n.data*

where *n* is:

1   COM1 serial port
4   COM4 serial port

Acceptable values for *data* are one or two ASCII characters.

Default: \x03 (hexadecimal value for ETX)

Scan: To disable EOM for each serial port, scan these bar codes:

Disable EOM for COM1

$+YZ1.

Disable EOM for COM4

$+YZ4.

Or: To set EOM to one or two ASCII characters for one serial port:

Note: To scan these bar code labels, you must configure the T2455 to use Code 39 in Full ASCII mode. For help, see "Code 39" earlier in this chapter.

1.   Scan this bar code:

Enter Accumulate Mode / Set EOM

|||█|||||█||█||█|█||||█|█||█|██|█||█|██

+/$+YZ

2.   Scan the serial port from these bar codes:

COM1   COM4

||█|||||█|||█|█|█| ||█|||█||█|||█|█|█|

1.   *4.*

3.   Scan one or two bar codes for *data* from the "Full ASCII Bar Code Chart" in Appendix B.

4.   Scan this bar code:

Exit Accumulate Mode

||█|||█||█||||█|█||█|

-/

5.   Repeat Steps 1 through 4 to set the EOM for another serial port.

Notes: For COM1 only, you can use either command syntax listed next:

Syntax: YZ1.*data*

   or: PF*data*

where *data* is one or two ASCII characters. For COM4, you must use the YZ configuration command.

Flash Memory Configuration

Purpose: Configures the use of the optional 2MB flash memory. If you have a terminal with the 4MB flash memory option, you can configure the extra 2MB of flash memory either as a drive D or as a storage space for double-byte fonts. You can store up to 32 files on drive D or store a 2MB double-byte font set. If you configure the flash memory as drive D, use this drive to store large lookup tables and data files.

Note: You can only configure 2MB (of the total 4MB) of flash memory as a drive or to store fonts. You cannot use the space for both. If you configure drive D, you cannot store a font in flash memory.

Syntax: FF*data*

Acceptable values for *data* are:

0   Configure flash memory for double-byte fonts
32   Configure flash memory as a 2MB drive D

Default: 0 (flash memory for double-byte fonts)

Scan: 1.   One of these bar codes to configure flash memory:

Configure Flash Memory For Double-Byte Fonts

$+FF0

Configure Flash Memory as Drive D

$+FF32

Note: A value of 32 configures drive D as a 2MB drive.

2.   To save the changes in flash memory, scan this bar code:

Save Configuration in Flash Memory

.+1

3.   Scan this bar code to boot the terminal and use the 2MB flash memory to store double-byte fonts or as drive D:

Reset Firmware

-.

Note: When you boot or reset the terminal, any fonts or files in flash memory on Drive D are erased.

4. If you configured flash memory to store double-byte fonts, use the TRAKKER Antares Font Editor to download the double-byte font set to the terminal. See your local Intermec sales representative for information about the TRAKKER Antares Font Editor.

Flow Control

Purpose: Regulates the data transmission through the serial port. The terminal is a DTE (Data Terminal Equipment) device. There are several flow control options:

- CTS checking where Clear To Send (CTS) is a hardware signal flow control. The terminal sets and clears Request To Send (RTS) when it is ready to receive. The terminal checks CTS when it tries to transmit data.

- XON/XOFF response causes the terminal to respond to XON/XOFF characters received while transmitting.

- XON/XOFF control specifies that the terminal transmits XON/XOFF characters to control the incoming data flow.

- XON/XOFF response and control specify that the terminal responds to and transmits XON/XOFF characters.

- CTS/RTS for DTE-DTE allows for peer connections. Each terminal's RTS output pin is connected to the CTS input pin of the other terminal. Each terminal sets RTS whenever it is ready to receive data and waits for CTS to be set before sending data.

Note: For TRAKKER Antares firmware version 4.X and earlier, you must disable the EOM command (use Character mode) to enable Flow Control with the XON/XOFF options.

Syntax: YL*n.data*

where *n* is:

1   COM1 serial port
4   COM4 serial port

Acceptable values for *data* are:

0   No flow control
1   CTS checking
2   XON/XOFF response
3   XON/XOFF control

Flow Control (continued)

        4   XON/XOFF response and control
        5   CTS/RTS for DTE-DTE

Default: No flow control

Scan: To set the default flow control for each serial port, scan these bar codes:

No Flow Control for COM1

||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||

$+YL1.0

No Flow Control for COM4

||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||

$+YL4.0

Or: To set the flow control for one serial port:

1.   Scan this bar code:

Enter Accumulate Mode / Set Flow Control

||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||

+/$+YL

2.   Scan the serial port from these bar codes:

COM1	COM4
1.	*4.*

3.   Scan the flow control setting from these bar codes:

No Flow Control	CTS Checking
0	*1*

XON/XOFF Response	XON/XOFF Control
2	*3*

XON/XOFF Response and Control	CTS/RTS for DTE-DTE
4	*5*

4. Scan this bar code:

Exit Accumulate Mode

||||||||||||||||||||||||||

-/

5. Repeat Steps 1 through 4 to set the flow control for another serial port.

Notes: For COM1 only, you can use either command syntax listed next:

Syntax: YL1.*data*

or: IL*data*

where *data* is a numeric value from 0 to 5. For COM4, you must use the YL configuration command.

Handshake

Purpose: Enables or disables the handshake event that is an affirmative acknowledge to a message received through the serial port.

Note: Before you can enable Handshake, you must configure the EOM command. Handshake is also referred to as AFF (affirmative acknowledge) on other Intermec data collection devices.

Syntax: YJ*n*.*data*

where *n* is:

1   COM1 serial port
4   COM4 serial port

Acceptable values for *data* are:

Disabled   No ACK or NAK transmitted
Enabled   Set to ACK (Acknowledge, hexadecimal value \x06)

Default: Disabled

Scan: To disable handshake, scan one of these bar codes:

Disable Handshake for COM1

|||||||||||||||||||||||||||||||||||||||

$+YJ1.

Handshake (continued)

Disable Handshake for COM4

||||||| ||||| ||||||||| ||||| |||| |||| |||

$+YJ4.

Or: To enable handshake, scan one of these bar codes:

Note: To scan these bar code labels, you must configure the T2455 to use Code 39 in Full ASCII mode. For help, see "Code 39" earlier in this chapter.

Enable Handshake (Set to ACK) for COM1

|||||| ||| |||| | ||| ||| ||||| ||| ||| || ||||| || || |||| |||| ||| |||

$+YJ1.$F

Enable Handshake (Set to ACK) for COM4

|||||| |||| || ||| ||||| ||||||| |||| ||| || ||||| || || |||| |||| || |||

$+YJ4.$F

Note: ACK is encoded as $F in a Code 39 bar code label.

Notes: For COM1 only, you can use either command syntax listed next:

Syntax: YJ1.*data*

   or: PG*data*

where *data* is disabled or enabled (set to ACK). For COM4, you must use the YJ configuration command.

Host IP Address

Purpose: Defines the IP address assigned to the host computer in your 2.4 GHz RF network. An IP address is a unique network level address you assign to each device in a TCP/IP direct connect network. The host IP address you set on the T2455 must match the address that is set on the host.

Syntax: NC*n.n.n.n*

where each *n* address segment is a number from 0 to 255. The host IP address field consists of four separate numbers, each separated by a period.

Note: The RF network cannot be activated if the first address segment in the IP address is set to 0, 127, or a number greater than 223.

Default: 0.0.0.0

Scan: To set the default host IP address, scan this bar code:

Default Host IP Address

||||||||| || ||| || ||||| |||| ||| |||| ||||| |||| ||||| |||| ||| ||| |||

$+NC0.0.0.0

Or: To set the host IP address:

1. Scan this bar code:

Enter Accumulate Mode / Set Host IP Address

|||||||||| ||||| | ||| || |||| || |||| ||| |||

+/$+NC

2. Scan a numeric value from 0 to 255 to set an *n* field of the host IP address from these bar codes.

|||||| ||| ||| |||||| ||| |||
0   *1*

|||||| ||| ||| |||||| |||| |||
2   *3*

|||||| ||| ||| |||||| ||| |||
4   *5*

Host IP Address (continued)

|||||||||||||||||
6

|||||||||||||||||
7

|||||||||||||||||
8

|||||||||||||||||
9

3. Scan this bar code:

. (Period)

|||||||||||||||||
.

4. Repeat Steps 2 and 3 to set the next three numbers in the host IP address field. After you scan the last address segment, go to Step 5. Do **not** scan the period after the last address segment.

5. Scan this bar code:

Exit Accumulate Mode

|||||||||||||||||
-/

Interleaved 2 of 5

Purpose: Enables or disables decoding of Interleaved 2 of 5 (I 2 of 5) symbology. I 2 of 5 is a high-density, self-checking, continuous numeric symbology. It is mainly used in inventory distribution and the automobile industry.

Enabling I 2 of 5 automatically disables Code 2 of 5.

Syntax: CA*data*

Acceptable values for *data* are:

0	Disabled
2-32	Fixed length (even number only)
97	Variable length without a check digit
98	Case code (6 or 14) with a check digit
99	Variable length with a check digit

Caution
Using the variable length without a check digit configuration option can cause substitution errors.

Conseil
Des erreurs de substitution peuvent survenir si vous utilisez la longueur variable sans option de vérification de configuration de chiffres.

Default: Disabled

Scan: One of these bar codes:

Disable Interleaved 2 of 5

||||||||||||||||||||||||||||||

$+CA0

Enable Variable Length Without a Check Digit

||||||||||||||||||||||||||||||

$+CA97

Enable Variable Length With a Check Digit

||||||||||||||||||||||||||||||

$+CA99

Interleaved 2 of 5 (continued)

Enable Case Code With a Check Digit

||||||||||||||||||||||||||||||||

$+CA98

Or: To set Interleaved 2 of 5 to a fixed length:

1. Scan this bar code:

Enter Accumulate Mode / Set Fixed Length

||||||||||||||||||||||||||||||||

+/$+CA

2. Scan a numeric value for *data* from these bar codes. (Use even numbers 2-32 only.)

|||||||||||||||| ||||||||||||||||

0   *1*

|||||||||||||||| ||||||||||||||||

2   *3*

|||||||||||||||| ||||||||||||||||

4   *6*

||||||||||||||||

8

3. Scan this bar code:

Exit Accumulate Mode

||||||||||||||||

-/

Keypad Caps Lock

Purpose: Turns the caps lock on and off. With the caps lock turned on, all alphabetic characters you type on the T2455 accessory keyboard will be uppercase or capital letters.

Syntax: KA*data*

Acceptable values for *data* are:

0   Caps lock off
1   Caps lock on

Default: Caps lock off

Scan: One of these bar codes:

Caps Lock Off

|||||||||||||||||||||||||

$+KA0

Caps Lock On

|||||||||||||||||||||||||

$+KA1

Keypad Clicker

Purpose: Enables or disables the keyclicks. The terminal sounds a click each time you press a key or decode a row of a two-dimensional symbology.

Note: If the Beep Volume is turned off, you will not hear any audio signals including the keyclick.

Syntax: KC*data*

Acceptable values for *data* are:

0   Disable keypad clicker
1   Enable keypad clicker

Default: Enabled

Scan: One of these bar codes:

Disable Keypad Clicker

|||||||||||||||||||||||||

$+KC0

Enable Keypad Clicker

|||||||||||||||||||||||||

$+KC1

Keypad Type

Purpose: The keypad type is initially configured in the terminal's firmware at the Intermec factory. If you change the keyboard overlay on the T2455 keyboard from a terminal emulation keyboard overlay to a English ABCD keyboard overlay or vice versa, you need to configure the keypad type to match the new keyboard overlay.

Important: After you change the keypad type, you must save the configuration in flash memory and boot the terminal for the change to take effect.

Syntax: KT*data*

Acceptable values for *data* are:

0   Hardware (factory) default
F   English ABCD keyboard overlay
G   IBM 5250 TE keyboard overlay
H   IBM 3270 TE keyboard overlay
I   VT/ANSI TE keyboard overlay
J   European keyboard overlay

Default: Hardware Default

Scan: 1.   Scan one of these bar codes:

Set Keypad Type to Hardware Default

|||||||| ||| ||| ||||| ||||| ||| |||| ||||

$+KT0

Set Keypad Type to English ABCD Keyboard Overlay

|||||||| ||| ||| |||||| ||||| |||| ||| |||

$+KTF

Set Keypad Type to IBM 5250 TE Keyboard Overlay

|||||||| ||| ||| ||||| ||||| |||| ||| ||||

$+KTG

Set Keypad Type to IBM 3270 TE Keyboard Overlay

|||||||| ||| ||||| ||||| ||||| ||| ||| ||||

$+KTH

Set Keypad Type to VT/ANSI TE Keyboard Overlay

|||||||| ||| ||||| |||||| ||||| ||| ||| |||

$+KTI

Set Keypad Type to European Keyboard Overlay

||||||||||||||||||||||||||||||||||||||

$+KTJ

2. Scan this bar code to save the configuration change in flash memory:

Save Configuration in Flash Memory

||||||||||||||||||||||||||

.+1

3. Scan this bar code to boot the terminal and use the new keypad type:

Reset Firmware

|||||||||||||||||||

-.

LRC (Longitudinal Redundancy Check)

Purpose: The Longitudinal Redundancy Check (LRC) character is an error-checking character that you can append to transmitted and received blocks of data.

Note: Before you can enable LRC, you must configure the EOM command.

Syntax: YF*n*.*data*

where *n* is:

1   COM1 serial port
4   COM4 serial port

Acceptable values for *data* are:

0   LRC disabled
1   LRC enabled

Default: Disabled

Scan: To disable LRC, scan one of these bar codes:

Disable LRC for COM1

|||||||||||||||||||||||||||||||||||||||||||||

$+YF1.0

LRC (continued)

Disable LRC for COM4

||||||||||||||||||||||||||||||||||||||||||

$+YF4.0

Or: To enable LRC, scan one of these bar codes:

Enable LRC for COM1

||||||||||||||||||||||||||||||||||||||||||

$+YF1.1

Enable LRC for COM4

||||||||||||||||||||||||||||||||||||||||||

$+YF4.1

Notes: For COM1 only, you can use either command syntax listed next:

Syntax: YF1.*data*

   or: IF*data*

where *data* is a value of 0 or 1. For COM4, you must use the YF configuration command.

Maximum Retries

Purpose: Defines the number of times the T2455 will attempt to send a disconnect request message to the DCS 300 or the Model 200 Controller. The T2455 sends connect and disconnect request messages to the DCS 300 or controller when you turn the terminal on and off.

Tip: Intermec strongly recommends that you use the optimum setting of 7 retries.

Syntax: NR*data*

Acceptable values for *data* are:

0   T2455 retries indefinitely
1-99   Number of retries

Default: 7

Scan: To set the default number of maximum retries, scan this bar code:

Default Maximum Retries

||||||||||||||||||||||||||||||||

$+NR7

Or: To set the maximum retries:

1. Scan this bar code:

Enter Accumulate Mode / Set Maximum Retries

||||||||||||||||||||||||||||||||

+/$+NR

2. Scan a numeric value for *data* from these bar codes:

|||||||||||||||||||| ||||||||||||||||||||
0   *1*

|||||||||||||||||||| ||||||||||||||||||||
2   *3*

|||||||||||||||||||| ||||||||||||||||||||
4   *5*

|||||||||||||||||||| ||||||||||||||||||||
6   *7*

|||||||||||||||||||| ||||||||||||||||||||
8   *9*

3. Scan this bar code:

Exit Accumulate Mode

||||||||||||||||||||||||

-/

MSI

Purpose: Enables or disables decoding of MSI symbology. MSI code is similar to Plessey code. MSI code includes a start pattern, data characters, one or two check digits, and a stop pattern.

Syntax: CN*data*

Acceptable values for *data* are:

First digit:	0	Disabled
	1	No check digits
	2	1 modulus 10 check digit
	3	2 modulus 10 check digit

| Second digit: | 0 | Discard check digit |
| | 1 | Transmit check digit |

Default: Disabled

Scan: One of these bar codes:

Disable MSI

||||||||||||||||||||||||||||||||||||||||

$+CN00

MSI Without Check Digits

||||||||||||||||||||||||||||||||||||||||

$+CN10

MSI With 1 Modulus 10 Check Digit, Discard Check Digit

||||||||||||||||||||||||||||||||||||||||

$+CN20

MSI With 1 Modulus 10 Check Digit, Transmit Check Digit

||||||||||||||||||||||||||||||||||||||||

$+CN21

MSI With 2 Modulus 10 Check Digits, Discard Check Digits

||||||||||||||||||||||||||||||||||||||||

$+CN30

MSI With 2 Modulus 10 Check Digits, Transmit Check Digits

||||||||||||||||||||||||||||||||||||||||

$+CN31

Network Activate

Purpose: Enables or disables network communications between the T2455 and other devices in the 2.4 GHz RF network. When you enable this parameter, the terminal attempts to establish communications with the DCS 300, Model 200 Controller, or host computer. When you disable this parameter, the network is disabled, no RF communications are provided, and the radio is turned off.

Note: You must enable the Network Activate parameter to use the T2455 for RF data collection.

Syntax: NA*data*

Acceptable values for *data* are:

0   Disabled
1   2.4 GHz RF network (enabled)

Default: Disabled

Scan: One of these bar codes:

Disable Network Activate

||||||| | ||| || ||||||| ||| || ||| |||

$+NA0

Enable 2.4 GHz RF Network

||||||| | ||| || |||||| ||| || ||| |||

$+NA1

Network Loopback

Purpose: Transmits all messages received from the DCS 300 (or Model 200 Controller) back to the DCS 300. Messages received by the radio are not passed on to the T2455 applications unless they are configuration commands. Messages continue to be looped back to the DCS 300 as long as this feature is enabled. Messages originating from the T2455 are still transmitted to the DCS 300.

Use the Network Loopback parameter to troubleshoot RF communications problems.

Syntax: NL*data*

Acceptable values for *data* are:

0   Disabled
1   Enabled

Default: Disabled

Scan: One of these bar codes:

Disable Network Loopback

||||||||||||||||||||||||||||

$+NL0

Enable Network Loopback

||||||||||||||||||||||||||||

$+NL1

Network Port

Purpose: Defines the network port that the TCP/IP or UDP Plus network protocol uses for communications in your 2.4 GHz RF network. In a TCP/IP network, set the network port to the appropriate port for the application you are using on the T2455. The default network port of 23 enables VT/ANSI Telnet communications. In a UDP Plus network, the network port you set on the T2455 must match the network port that is set on the DCS 300 or the Model 200 Controller.

Syntax: NG*data*

Acceptable values for *data* are any number from 1 to 65535.

Default:
00023	T2455 with TCP/IP network protocol
05555	T2455 with UDP Plus network protocol

Scan: To set the default network port for a T2455 with TCP/IP, scan this bar code:

Default TCP/IP Network Port

|||||||||||||||||||||||||||||||||||

$+NG23

To set the default network port for a T2455 with UDP Plus, scan this bar code:

Default UDP Plus Network Port

|||||||||||||||||||||||||||||||||||||||

$+NG5555

Or: To set the network port:

1. Scan this bar code:

Enter Accumulate Mode / Set Network Port

|||||||||||||||||||||||||||||||

+/$+NG

2. Scan a numeric value for *data* from these bar codes:

0	*1*
2	*3*

Network Port (continued)

||||||| || |||
4

||||| ||| |||
5

||||| ||| |||
6

||||| ||| |||
7

||||| ||| |||
8

||||| ||| |||
9

3. Scan this bar code:

    Exit Accumulate Mode

    ||||| ||| |||| |||
    -/

Parity

Purpose: Sets the parity for the serial port. The terminal uses parity for error checking in data transmissions.

Syntax: YB*n.data*

where *n* is:

1   COM1 serial port
4   COM4 serial port

Acceptable values for *data* are:

0   No parity
1   Even parity
2   Odd parity

Default: Even

Scan: To set the default parity for each serial port, scan these bar codes:

Even Parity for COM1

||||||| ||||| ||| ||||||| |||||| ||| |||
$+YB1.1

Even Parity for COM4

||||||| ||| || || ||||||| ||| ||| ||||| ||| |||

$+YB4.1

Or: To set the parity for one serial port:

1. Scan this bar code:

Enter Accumulate Mode / Set Parity

|||||| ||| ||| ||| ||| |||||| ||| |||

+/$+YB

2. Scan the serial port from these bar codes:

COM1

||||||| ||| ||| ||| |||

1.

COM4

||||||| ||| ||| ||| |||

4.

3. Scan the parity from these bar codes:

No Parity

||||| ||| |||

0

Even Parity

|||||| ||| |||

1

Odd Parity

|||||| ||| |||

2

4. Scan this bar code:

Exit Accumulate Mode

|||||| ||| ||| |||

-/

5. Repeat Steps 1 through 4 to set the parity for another serial port.

Notes: For COM1 only, you can use either command syntax listed next:

Syntax: YB1.*data*

or: IB*data*

where *data* is a value from 0 to 2 for the parity. For COM4, you must use the YB configuration command.

Plessey

Purpose: Enables or disables decoding of Plessey symbology. Plessey code is pulse-width modulated like most other bar codes. It includes a start character, data characters, an eight-bit cyclic check digit, a termination bar, and usually a reverse start character. The code is continuous and not self-checking. You need to configure two parameters for Plessey code: Start Code and Check Digit.

Syntax: CI*data*

Acceptable values for *data* are:

00   Disabled
10   Plessey with reverse start code
30   Transmit check digit
31   Discard check digit

Default: Disabled

Scan: To disable Plessey:

Disable Plessey

||||||||||||||||||||||||||||||||||||

$+CI00

Or: To set Plessey, complete these steps:

1. Scan this bar code:

Plessey With Reverse Start Code

||||||||||||||||||||||||||||||||||||

$+CI10

2. Scan one of these bar codes to transmit or retain the check digit:

Transmit Check Digit

||||||||||||||||||||||||||||||||||||

$+CI30

Discard Check Digit

||||||||||||||||||||||||||||||||||||

$+CI31

Poll (Polling)

Purpose: Solicits or requests data from a polled device.

Note: Before you can enable Poll, you must configure the EOM and Handshake commands.

Syntax: YR*n*.*data*

where *n* is:

1   COM1 serial port
4   COM4 serial port

Acceptable values for *data* are:

Disabled   No polling
Enabled   Set to FS (File Separator, hexadecimal value \x1c)

Default: Disabled

Scan: To disable poll, scan one of these bar codes:

Disable Poll for COM1

|||||||||||||||||||||||||||||||||||||||

$+YR1.

Disable Poll for COM4

|||||||||||||||||||||||||||||||||||||||

$+YR4.

Or: To enable poll, scan one of these bar codes:

Note: To scan these bar code labels, you must configure the T2455 to use Code 39 in Full ASCII mode. For help, see "Code 39" earlier in this chapter.

Enable Poll (Set to FS) for COM1

|||||||||||||||||||||||||||||||||||||||||||||||||

$+YR1.%B

Enable Poll (Set to FS) for COM4

|||||||||||||||||||||||||||||||||||||||||||||||||

$+YR4.%B

Note: FS is encoded as %B in a Code 39 bar code label.

Poll (continued)

Notes:	For COM1 only, you can use either command syntax listed next:

Syntax: YR1.*data*

or: HB*data*

where *data* is disabled or enabled (set to FS). For COM4, you must use the YR configuration command.

Postamble

Purpose: Sets the postamble that is appended to any data you scan with the terminal. Common postambles include cursor controls such as tabs or carriage return line feeds.

You can set the postamble to use characters from the extended ASCII character set such as the Field Exit code for 5250 TE. However, you cannot scan in extended ASCII characters in the Postamble command. You need to use the TRAKKER Antares 2400 Menu System. For help, see "Entering ASCII Control Characters" in Chapter 3.

Syntax: AE*data*

Acceptable values for *data* are up to 25 ASCII characters. If you enter the AE command without *data*, the postamble is disabled. If you are entering quotation marks as data or grouping configuration commands, you need to enclose the *data* within quotation marks (see the example).

Note: To scan a bar code label that includes quotes, you must configure the T2455 to use Code 39 in Full ASCII mode. For help, see "Code 39" earlier in this chapter.

Default: No characters (disabled)

Scan: To disable the postamble, scan this bar code:

Disable Postamble

$+AE

Or: To set the postamble to an ASCII character string:

1. Scan this bar code:

Enter Accumulate Mode / Set Postamble

+/$+AE

2. Scan a value for *data* from the "Full ASCII Bar Code Chart" in Appendix B. The postamble can be from 1 to 25 characters.

3. Scan this bar code:

Exit Accumulate Mode

||||||||||||||||||||||||

-/

Example: You want to set a postamble that includes quotation marks. Enter the postamble by scanning this full ASCII bar code label:

Set Postamble to "B"

||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||

$+AE"""B"""

You must enclose the data within quotation marks and precede each quotation mark with another quotation mark so that the quotation marks are not treated as the end of the data.

Preamble

Purpose: Sets the preamble that precedes any data you scan with the terminal. Common preambles include a data location number or an operator number.

You can set the preamble to use characters from the extended ASCII character. However, you cannot scan in extended ASCII characters in the Preamble command. You need to use the TRAKKER Antares 2400 Menu System. For help, see "Entering ASCII Control Characters" in Chapter 3.

Syntax: AD*data*

Acceptable values for *data* are up to 25 ASCII characters. When you enter the AD command without *data*, the preamble is disabled. If you are entering quotation marks as data or grouping configuration commands, you need to enclose the *data* within quotation marks (see the example).

Note: To scan a bar code label that includes quotes, you must configure the T2455 to use Code 39 in Full ASCII mode. For help, see "Code 39" earlier in this chapter.

Default: No characters (disabled)

Preamble (continued)

Scan: To disable the preamble, scan this bar code:

Disable Preamble

||||||||||||||||||||||||||||

$+AD

Or: To set the preamble to an ASCII character string:

1. Scan this bar code:

Enter Accumulate Mode / Set Preamble

||||||||||||||||||||||||||||||

+/$+AD

2. Scan a value for *data* from the "Full ASCII Bar Code Chart" in Appendix B. The preamble can be from 1 to 25 characters.

3. Scan this bar code:

Exit Accumulate Mode

|||||||||||||||||||

-/

Example: You want to set a preamble that includes quotation marks. Enter the preamble by scanning this full ASCII bar code label:

Set Preamble to "B"

||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||

$+AD"""B"""

You must enclose the data within quotation marks and precede each quotation mark with another quotation mark so that the quotation marks are not treated as the end of the data.

RAM Drive Size

Purpose: Configures the size and use of the RAM drive (E). You can disable the RAM drive and use the additional 256K for programmable (Malloc) memory allocations or configure the RAM drive to temporarily store data and files.

Important: After you set the RAM drive, you must save the configuration in flash memory and boot the terminal for the change to take effect.

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

Syntax: FR*data*

Acceptable values for *data* are:

0	Disabled, no RAM drive
16-256	RAM drive size in kilobytes (K)

Default: 0

Scan: To disable the RAM drive, scan this bar code:

Disable RAM Drive

||||||||||||||||||||||||||||||||||

$+FR0

Or: To set the RAM drive size:

1. Scan this bar code:

   Enter Accumulate Mode / Set RAM Drive Size

   ||||||||||||||||||||||||||||||||||

   +/$+FR

2. Scan a numeric value for *data* from these bar codes:

   |||||||||||||||||||| ||||||||||||||||||||
   0   *1*

   |||||||||||||||||||| ||||||||||||||||||||
   2   *3*

   |||||||||||||||||||| ||||||||||||||||||||
   4   *5*

RAM Drive Size (continued)

||||| ||||| ||||
6

||||| |||| ||||
7

||||| |||| ||||
8

||||| |||| ||||
9

3. Scan this bar code:

Exit Accumulate Mode

|||| ||||| ||| |||
-/

4. Scan this bar code to save the configuration change in flash memory:

Save Configuration in Flash Memory

||||| |||| || ||| |||| |||
.+1

5. Scan this bar code to boot the terminal and use the RAM drive:

Reset Firmware

|||| ||||| |||| |||
-.

Resume Execution

Purpose: Defines the way in which the terminal resumes when you press ⌷ to turn on the terminal:

- If you set this parameter to resume not allowed, when you press ⌷ to turn on the terminal, the terminal boots and restarts the application that was running when you turned off the terminal.

- If you set this parameter to resume allowed, when you press ⌷ to turn on the terminal, the terminal resumes exactly where it was when you turned off the terminal.

Syntax: ER*data*

Acceptable values for *data* are:

0   Not allowed
1   Allowed

Default: Allowed

Scan: One of these bar codes:

Resume Execution Not Allowed

||||||||||||||||||||||||||||||

$+ER0

Resume Execution Allowed

||||||||||||||||||||||||||||||

$+ER1

RF Domain

Purpose: Defines a logical partition or subnetwork of the network. To establish communications, you must assign the same domain number to every RF device in a wireless network. The domain number you set on the T2455 must match the domain that is set on each access point the T2455 may communicate with. You can continue to collect data with the T2455 as you roam in between access points as long as all the devices have the same domain number.

Syntax: RW*data*

Acceptable values for *data* are any number from 0 to 15.

Default: 0

Scan: 1. Scan this bar code:

Enter Accumulate Mode / Set RF Domain

||||||||||||||||||||||||||||||||||||

+/$+RW

2. Scan a numeric value for *data* from these bar codes:

|||||||||||||||| ||||||||||||||||

0   *1*

|||||||||||||||| ||||||||||||||||

2   *3*

|||||||||||||||| ||||||||||||||||

4   *5*

RF Domain (continued)

‖‖‖‖‖‖‖‖‖	‖‖‖‖‖‖‖‖‖
6	*7*
‖‖‖‖‖‖‖‖‖	‖‖‖‖‖‖‖‖‖
8	*9*

3. Scan this bar code:

Exit Accumulate Mode

‖‖‖‖‖‖‖‖‖

-/

RF Inactivity Timeout

Purpose: Defines the amount of time the radio on the T2455 waits to go into a low power state. If no data is sent or received within the RF inactivity timeout period set, the radio goes into a low power state to conserve power. If you set a high value, the radio stays on longer at a higher power rate and uses power at a faster rate.

Power Management Tip: Intermec strongly recommends that you use the optimum RF inactivity timeout of 5 seconds to preserve power.

Syntax: RY*data*

Acceptable values for *data* are:

0   Radio never turns off
1-51   RF inactivity timeout in seconds multiplied by a value of 5

where *data*=1 sets a timeout delay of 5 seconds, *data*=2 sets a timeout delay of 10 seconds, and so on, up to *data*=51 for a timeout delay of 255 seconds.

Default: 5 seconds

Scan: To set the default RF inactivity timeout to 5 seconds, scan this bar code:

Default RF Inactivity Timeout

‖‖‖‖‖‖‖‖‖‖‖‖‖

$+RY1

Or: To set the RF inactivity timeout:

1. Scan this bar code:

   Enter Accumulate Mode / Set RF Inactivity Timeout

   |||||||||||||||||||||||||||||

   +/$+RY

2. Scan a numeric value for *data* from these bar codes:

   ||||||||||||||| |||||||||||||||
   0   *1*

   ||||||||||||||| |||||||||||||||
   2   *3*

   ||||||||||||||| |||||||||||||||
   4   *5*

   ||||||||||||||| |||||||||||||||
   6   *7*

   ||||||||||||||| |||||||||||||||
   8   *9*

3. Scan this bar code:

   Exit Accumulate Mode

   |||||||||||||||||||||

   -/

RF Roaming Flag

Purpose: Determines whether or not the T2455 radio can roam between access points. All access points are master stations and each master has a unique channel. If you have five access points in one domain, the T2455 will connect to one access point when you turn it on. This access point becomes the master station for the T2455. When you set the RF roaming flag to "Not Allowed," the T2455 will only communicate with the master station (access point) to which it first connects. If you allow roaming, the T2455 can communicate with any access point in the same domain.

Syntax: RR*data*

Acceptable values for *data* are:

0   Allowed
1   Not allowed

Default: Allowed

Scan: One of these bar codes:

RF Roaming Allowed

|||||||||||||||||||||||||||||||||||

$+RR0

RF Roaming Not Allowed

|||||||||||||||||||||||||||||||||||

$+RR1

RF Security Identification

Purpose: Defines the password you can set for secured transmission and receipt of data between devices in the network. To communicate, all access points and T2455 terminals in the subnetwork must have matching security IDs.

Syntax: RS*data*

Acceptable values for *data* are up to 20 ASCII characters. When you enter the RS command without *data*, the RF security ID is disabled or set to no characters (blank).

Note: You can only set the RF security ID with the 2.4 GHz RF network enabled. The Network Activate configuration command must be configured to 2.4 GHz RF Network before you can save any changes to the RF security ID command.

Default: No characters or blank (disabled)

Scan: To disable or set the RF security ID to no characters, scan this full ASCII bar code label:

Disable RF Security ID

||||||| | | ||| || ||||| |||| || |||

$+RS

Or: To set the RF security ID to an ASCII character string:

1. Scan this bar code:

Enter Accumulate Mode / Set RF Security ID

|||||| | | | ||| | | || ||| |||| || |||

+/$+RS

2. Scan a value for *data* from the "Full ASCII Bar Code Chart" in Appendix B. The RF security ID can be from 1 to 20 characters.

3. Scan this bar code:

Exit Accumulate Mode

||||| ||| | ||| |||

-/

Notes: If you view the RF security ID in the TRAKKER Antares 2400 Menu System, the actual security ID does not display on the screen. The words (ID unchanged) indicate that the password has not been changed in the current menu session. If you change the security ID, you see the new password until you exit the Configuration Menu and update the runtime configuration.

Example: You want to set the security ID to the letters ABC. Scan this bar code label:

Set RF Security ID to ABC

||||| | | ||| | ||||| |||| ||| ||||| |||| ||| |||

$+RSABC

RF Transmit Mode

Purpose: Defines the transmit mode that the T2455 radio uses. There are three modes:

BFSK   Binary Frequency Shift Key. A broadcasting method the radio uses that lengthens the range, but halves the throughput. This method is switched when the RF protocol on the terminal determines that communications are degrading.

QFSK   Quad Frequency Shift Key. A broadcasting method the radio uses that shortens the range, but doubles the throughput. QFSK is the method used under standard radio conditions.

Auto   The terminal radio automatically switches modes between BFSK and QFSK as needed.

Note: Even if you set this configuration command, the terminal radio will reset the parameter as needed to maximize the broadcasting range and throughput.

Syntax: RT*data*

Acceptable values for *data* are:

0   BFSK (Binary Frequency Shift Key)
1   QFSK (Quad Frequency Shift Key)
3   Auto

Default: BFSK

Scan: One of these bar codes:

Set RF Transmit Mode to BFSK

||||||||||||||||||||||||||||

$+RT0

Set RF Transmit Mode to QFSK

||||||||||||||||||||||||||||

$+RT1

Set RF Transmit Mode to Auto

||||||||||||||||||||||||||||

$+RT3

RF Wakeup On Broadcast

Purpose: Determines if the T2455 can receive broadcast messages sent from the network. If the wakeup on broadcast is enabled, the T2455 radio will turn on to receive broadcast messages. If this command is disabled, the terminal radio will ignore broadcast messages.

Syntax: RB*data*

Acceptable values for *data* are:

0   Disabled
1   Enabled

Default: Disabled

Scan: One of these bar codes:

Disable RF Wakeup On Broadcast

||||||||||||||||||||||||||||||||

$+RB0

Enable RF Wakeup On Broadcast

||||||||||||||||||||||||||||||||

$+RB1

Scan Ahead

Purpose: Enables or disables scan ahead. If you enable this parameter, you can scan a number of labels that are held in a stack until the terminal can process the data. If you disable this parameter, the terminal processes each label you scan before you can scan the next label.

Syntax: SD*data*

Acceptable values for *data* are:

0   Disabled (scan one label at a time)
1   Enabled (scan many labels at a time)

Default: Disabled

Scan Ahead (continued)

Scan: One of these bar codes:

Disable Scan Ahead

||||||||||||||||||||||||||||||||||||

$+SD0

Enable Scan Ahead

||||||||||||||||||||||||||||||||||||

$+SD1

Scanner Mode

Purpose: Defines how the scanner operates when you activate a laser scanner that is connected to the Scanner port. There are two types of modes:

- In One-Shot mode, you must activate the laser scanner each time you want to scan a bar code. Once you scan a bar code, the scanner turns off.

- In Automatic (Auto-trigger) mode, you activate the laser scanner once to scan a series of bar codes. When you release the trigger, the scanner turns off. To scan the same bar code more than once, you must release the trigger, or scan a different bar code before attempting a second scan.

Syntax: SB*data*

Acceptable values for *data* are:

0   One-Shot mode
1   Automatic mode

Default: One-Shot mode

Scan: One of these bar codes:

Enable One-Shot Mode

||||||||||||||||||||||||||||||||||||

$+SB0

Enable Automatic Mode

||||||||||||||||||||||||||||||||||||

$+SB1

Scanner Port (COM4)

Purpose: Allows you to configure the Scanner port to function either as a Scanner port or as an additional serial port (COM4). There are three options:

Scanner port Allows you to connect a scanner to the Scanner port on the bottom back panel of the T2455.

RS-232 port Allows you to use the Scanner port as COM4 to connect a serial device. In this configuration, the Scanner port supports TTL voltage-level (0-5V) serial devices.

Inverted RS-232 port Allows you to use the Scanner port as COM4 to connect a serial device. In this configuration, the Scanner port supports inverted TTL voltage-level serial devices.

If you plan to use the Scanner port as COM4, you must order the COM Port Adapter Cable (Part No. 061799). You must use this cable to connect a serial device to COM4. This cable does not provide an environmentally sealed connection to the T2455.

Syntax: IX*data*

Acceptable values for *data* are:

0   Scanner port
1   RS-232 (COM4) port
2   Inverted RS-232 (COM4) port

Default: Scanner port enabled

Scan: One of these bar codes:

Enable Scanner Port

|||||||||||||||||||||||||||||||||

$+IX0

Enable RS-232 (COM4) Port

|||||||||||||||||||||||||||||||||

$+IX1

Enable Inverted RS-232 (COM4) Port

|||||||||||||||||||||||||||||||||

$+IX2

Scanner Redundancy

Purpose: Defines the number of scans (voting) the scanner takes of the same label that must decode correctly for a good read of the label. Voting requires the terminal to decode the same bar code multiple times during a single scanner event, and to compare the decoded information a specific number of times before signaling a good read. There are three options:

None   Allows the terminal to accept the first good read, which speeds up terminal performance. This setting is recommended when scanning good quality bar codes.

Normal   The terminal decodes the bar code a minimum number of times in each scanner event. The number of comparisons that are made depends on each bar code symbology.

High   The terminal scans and decodes the bar code a maximum number of times in each scanner event. The specific number of comparisons depends on each bar code symbology. The high setting is recommended when scanning poor quality labels that may cause substitution errors.

For example, when you scan Code 39 labels and the scanner redundancy is set to normal, two successive matching decodes in a single scanner event are required. When scanner redundancy is set to high, three successive matching decodes in a single scanner event are required.

Syntax: SR*data*

Acceptable values for *data* are:

0	None
1	Normal
2	High

Default: Normal

Scan: One of these bar codes:

Scanner Redundancy None

||||||| |||| ||||| ||| |||| |||

$+SR0

Scanner Redundancy Normal

||||||| ||||| |||| ||||| ||| ||||

$+SR1

Scanner Redundancy High

||||||| |||| ||||| |||| |||| |||

$+SR2

Scanner Selection

Purpose: Identifies the type of scanner you have connected to the T2455 scanner port. The terminal can optimize the scanning performance by using the scanner you define in this command. When you select a specific scanner, other scanners may not function properly. Your terminal may not work if you connect an incompatible scanner.

Syntax: SS*data*

Acceptable values for *data* are:

0   All compatible scanners
1   146X CCD scanners
3   151X laser scanners
4   1545 laser scanner
5   Compatible Symbol scanners (with reverse polarity enabled)
6   155X laser scanners
7   Long range laser scanner

Default: All compatible scanners

Scan: One of these bar codes:

All Compatible Scanners

|||||||||||||||||||||||||||||||||||
$+SS0

146X CCD Scanners

|||||||||||||||||||||||||||||||||||
$+SS1

151X Laser Scanners

|||||||||||||||||||||||||||||||||||
$+SS3

1545 Laser Scanner

|||||||||||||||||||||||||||||||||||
$+SS4

Compatible Symbol Scanners

|||||||||||||||||||||||||||||
$+SS5

155X Laser Scanners

|||||||||||||||||||||||||||||||||||
$+SS6

Long Range Laser Scanners

|||||||||||||||||||||||||||||||||
$+SS7

Scanner Timeout

Purpose: Defines the maximum length of time the scanner stays after you activate a laser scanner that is connected to the Scanner port.

Syntax: SA*data*

Acceptable values for *data* are:

0   Disabled
1-60   Shutoff time in seconds

Default: Disabled (no timeout)

Scan: To set the default scanner timeout, scan this bar code:

Disable Scanner Timeout

||||||||||||||||||||||||||||||||||||

$+SA0

Or: To set the scanner timeout:

1. Scan this bar code:

Enter Accumulate Mode / Set Scanner Timeout

||||||||||||||||||||||||||||||||||||

+/$+SA

2. Scan a numeric value for *data* from these bar codes:

||||||||||||||| |||||||||||||||
0   *1*

||||||||||||||| |||||||||||||||
2   *3*

||||||||||||||| |||||||||||||||
4   *5*

||||||||||||||| |||||||||||||||
6   *7*

||||||||||||||| |||||||||||||||
8   *9*

3. Scan this bar code:

Exit Accumulate Mode

||||||||||||||||||||

-/

Scanner Trigger

Purpose: Scanner trigger allows you to set level triggering or edge triggering.

• With level triggering, you activate the scanner and the laser turns on and stays on until you release the trigger on the laser scanner.

• In edge triggering, you activate the scanner and the laser turns on and stays on. When you activate the scanner a second time, the laser turns off. Simply releasing the trigger does not turn the laser off. If the laser is left on, the scanner timeout turns the laser off.

Syntax: SC*data*

Acceptable values for *data* are:

0 Level triggering
1 Edge triggering

Default: Level triggering

Scan: One of these bar codes:

Enable Level Triggering

||||||||||||||||||||||||||

$+SC0

Enable Edge Triggering

||||||||||||||||||||||||||

$+SC1

Serial Port Protocol

Purpose: Allows you to set the protocol that the serial port uses to communicate with the connected device. Communications protocols determine exactly how data is transmitted between the terminal and the RS-232 device. Each protocol has parameters you can set, such as baud rate and parity. Both the terminal and the RS-232 device must use the same protocol and parameter settings to communicate properly. For help on protocols, see the *Data Communications Reference Manual* (Part No. 044737).

The terminal can communicate in these four protocols:

- Binary
- Configurable protocol
- Master Polling
- Polling Mode D

Each protocol is described in Chapter 4, "Operating the Terminal in a Network."

Syntax: YU*n.data*

where *n* is:

1   COM1 port
4   COM4 port

Acceptable values for *data* are:

0   Configurable
2   Polling Mode D
8   Master Polling Mode D
12   Binary

Default: Configurable

Scan: To set the default serial port protocol, scan one of these bar codes:

Configurable Serial Port Protocol for COM1

$+YU1.0

Configurable Serial Port Protocol for COM4

$+YU4.0

Or: To set the serial port protocol for one serial port:

1. Scan this bar code:

Enter Accumulate Mode / Set Serial Port Protocol

||||||||||||||||||||||||||||||||||

+/$+YU

2. Scan one of these bar codes to set the COM port:

COM1

||||||||||||||||||||||

1.

COM4

||||||||||||||||||||||

4.

3. Scan the protocol setting:

Configurable

||||||||||||||||

0

Polling Mode D

||||||||||||||||

2

Master Polling

||||||||||||||||

8

Binary

||||||||||||||||||||

12

4. Scan this bar code:

Exit Accumulate Mode

||||||||||||||||||||

-/

5. Repeat Steps 1 through 4 to set the serial port protocol for another serial port.

Start of Message (SOM)

Purpose: SOM is the first character in a message sent to or received from the host computer through the terminal's serial port. SOM **cannot** equal the same value that is set for EOM. You **cannot** set SOM to any of these values:

- AFF (ACK)
- DLE
- NEG (NAK)
- Poll
- RES (EOT)

- REQ (ENQ)
- SEL
- XOFF
- XON

Note: Before you can enable SOM, you must configure the EOM command.

Syntax: YY*n.data*

where *n* is:

1   COM1 port
4   COM4 port

An acceptable value for *data* is any ASCII character**.**

Default: \x02 (hexadecimal value for STX)

Scan: To disable SOM, scan one of these bar codes:

Disable SOM for COM1

||| ||||| ||| ||| | |||| ||||| ||| |||| |||

$+YY1.

Disable SOM for COM4

||| ||||| ||| | ||| ||||| |||| ||| |||| |||

$+YY4.

Or: To set SOM to an ASCII character for one serial port:

Note: To scan these bar codes, you must configure the T2455 to use Code 39 in Full ASCII mode. For help, see "Code 39" earlier in this chapter.

1. Scan this bar code:

Enter Accumulate Mode / Set SOM

|||| ||| ||| | ||| ||||| |||| |||| || ||||| ||| |||

+/$+YY

2. Scan one of these bar codes to set the COM port:

COM1

||||||| ||| ||||| ||| ||||
1.

COM4

||||||| ||| ||| ||||| ||||
4.

3. Scan a bar code for *data* from the "Full ASCII Bar Code Chart" in Appendix B.

4. Scan this bar code:

Exit Accumulate Mode

|||||| ||| ||||| ||| ||||| ||| |||
-/
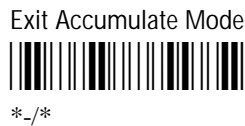
5. Repeat Steps 1 through 4 to set the SOM for another serial port.

Notes: For COM1 only, you can use either command syntax listed next:

Syntax: YY1.*data*

or: PE*data*

where *data* is any ASCII character. For COM4, you must use the YY command.

Stop Bits

Purpose: Sets the number of stop bits on the serial port.

Syntax: YC*n*.*data*

where *n* is:

1   COM1 port
4   COM4 port

Acceptable values for *data* are:

1   1 stop bit
2   2 stop bits

Default: 1

Scan: One of these bar codes:

1 Stop Bit for COM1

|||||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
$+YC1:1

Stop Bits *(continued)*

2 Stop Bits for COM1

||||||||||||||||||||||||||||||||||||||

$+YC1.2

1 Stop Bit for COM4

||||||||||||||||||||||||||||||||||||||

$+YC4.1

2 Stop Bits for COM4

||||||||||||||||||||||||||||||||||||||

$+YC4.2

Notes: For COM1 only, you can use either command syntax listed next:

Syntax: YC1.*data*

or: IC*data*

where *data* is a value of 1 or 2. For COM4, you must use the YC configuration command.

Subnet Mask

Purpose: Defines the subnet mask, an internal TCP/IP protocol stack variable that is used to separate the subnetwork address from the local IP address. The TCP/IP protocol stack performs a bit-wise AND on the IP address and the subnet mask. Each address segment represents one byte, where 255 converts to FF hex.

This computation is used to find out if the DCS 300 (UDP Plus) or host (TCP/IP) and terminal are on different subnetworks. If the terminal is on a different IP subnetwork than the DCS 300 or host, you must set the subnet mask. The default subnet mask 255.255.255.0 means the T2455 uses a standard IP network mask.

For example, if the IP address is 192.009.150.184 and the subnet mask is 255.255.255.0, the subnetwork address is 192.009.150.0.

Syntax: NS*n.n.n.n*

where each *n* address segment is a number from 0 to 255. The subnet mask field consists of four separate numbers, each separated by a period.

Default: 255.255.255.0

Scan: To set the default subnet mask address, scan this bar code:

Default Subnet Mask

||||||||||||||||||||||||||||||||||||||||||||||||||||||

$+NS255.255.255.0

Or: To set the subnet mask:

1. Scan this bar code:

Enter Accumulate Mode / Set Subnet Mask

|||||||||||||||||||||||||||||

+/$+NS

2. Scan a numeric value from 0 to 255 to set an *n* field of the subnet mask address from these bar codes.

|||||||||||||||
0

|||||||||||||||
1

|||||||||||||||
2

|||||||||||||||
3

|||||||||||||||
4

|||||||||||||||
5

|||||||||||||||
6

|||||||||||||||
7

|||||||||||||||
8

|||||||||||||||
9

3. Scan this bar code:

. (Period)

|||||||||||||||

.

4. Repeat Steps 2 and 3 to set the next three numbers in the subnet mask address field. After you scan the last address segment, go to Step 5. Do **not** scan the period after the last address segment.

5. Scan this bar code:

Exit Accumulate Mode

|||||||||||||||

-/

Suspend/Resume Control

Purpose: Controls the operation of the ⌑ key (suspend/resume). You can enable or disable the ⌑ key. When the ⌑ key is disabled, you cannot turn off the terminal. By default, the ⌑ key is enabled so you can turn the terminal on and off.

Syntax: EF*data*

Acceptable values for *data* are:

0 Enabled
1 Disabled

Default: Enabled

Scan: One of these bar codes:

Enable ⌑ Key

||||||||||||||||||||||||||||||||

$+EF0

Disable ⌑ Key

||||||||||||||||||||||||||||||||

$+EF1

TCP Maximum Retries

Purpose: Defines the maximum number of times TCP will attempt to transmit data before giving up and terminating the TCP connection.

Syntax: NJ*data*

Acceptable values for *data* are any number from 5 to 50.

Default: 12

Scan: To set the default TCP maximum retries, scan this bar code:

Default TCP Maximum Retries

||||||||||||||||||||||||||||||||

$+NJ12

Or: To set the TCP maximum retries:

1. Scan this bar code:

Enter Accumulate Mode / Set TCP Maximum Retries

|||||||||||||||||||||||||||||||||||

+/$+NJ

2. Scan a numeric value for *data* from these bar codes:

||||||||||||||||||||| *0*

||||||||||||||||| *1*

||||||||||||||||||| *2*

||||||||||||||||| *3*

||||||||||||||||||| *4*

||||||||||||||||| *5*

||||||||||||||||||| *6*

||||||||||||||||| *7*

||||||||||||||||||| *8*

||||||||||||||||| *9*

3. Scan this bar code:

Exit Accumulate Mode

|||||||||||||||||||||||||

-/

TCP/IP Maximum Transmit Timeout

Purpose: Defines the maximum timeout that TCP will allow between retries of a transmission in a TCP/IP direct connect network before it gives up. For example, 20 means that the timeout between retries is never longer than 20 seconds. Intermec has determined that the optimum setting is 20 seconds.

Syntax: NH*data*

Acceptable values for *data* are:

0	No timeout
1-128	Transmit timeout in seconds

TCP/IP Maximum Transmit Timeout (continued)

Default: 20 seconds

Scan: To set the default TCP/IP maximum transmit timeout, scan this bar code:

Default TCP/IP Maximum Transmit Timeout

|||||||||||||||||||||||||||||||||||

$+NH20

Or: To set the TCP/IP maximum transmit timeout:

1. Scan this bar code:

Enter Accumulate Mode / Set TCP/IP Maximum Transmit Timeout

|||||||||||||||||||||||||||||||||||

+/$+NH

2. Scan a numeric value for *data* from these bar codes:

|||||||||||||||||||
0

|||||||||||||||||||
1

|||||||||||||||||||
2

|||||||||||||||||||
3

|||||||||||||||||||
4

|||||||||||||||||||
5

|||||||||||||||||||
6

|||||||||||||||||||
7

|||||||||||||||||||
8

|||||||||||||||||||
9

3. Scan this bar code:

Exit Accumulate Mode

|||||||||||||||||||||||

-/

Terminal IP Address

Purpose: Defines the IP address assigned to the T2455 in your 2.4 GHz RF network. An IP address is a unique network level address you assign to each device in a TCP/IP network. The IP address you set on the T2455 must match the address that is set on the DCS 300, Model 200 Controller, or host computer.

Syntax: ND*n.n.n.n*

where each *n* address segment is a number from 0 to 255. The terminal IP address field consists of four separate numbers, each separated by a period.

Note: The RF network cannot be activated if the first address segment in the IP address is set to 0, 127, or a number greater than 223.

Default: 0.0.0.0

Scan: To set the default terminal IP address, scan this bar code:

Default Terminal IP Address

||||||||||||||||||||||||||||||||||||||||||||||||||||||

$+ND0.0.0.0

Or: To set the terminal IP address:

1. Scan this bar code:

Enter Accumulate Mode / Set Terminal IP Address

|||||||||||||||||||||||||||||||||||||

+/$+ND

2. Scan a numeric value from 0 to 255 to set an *n* field of the terminal IP address from these bar codes.

||||||||||||||||||| |||||||||||||||||

0   *1*

||||||||||||||||||| |||||||||||||||||

2   *3*

||||||||||||||||||| |||||||||||||||||

4   *5*

Terminal IP Address (continued)

6   *7*

8   *9*

3. Scan this bar code:

. (Period)

* . *

4. Repeat Steps 2 and 3 to set the next three numbers in the terminal IP address field. After you scan the last address segment, go to Step 5. Do **not** scan the period after the last address segment.

5. Scan this bar code:

Exit Accumulate Mode

-/

Time and Date

Purpose: Sets the time and date on the terminal.

Syntax: DB*data*

Acceptable values for *data* are 12 digits corresponding to:

yy	00-99	Year
mm	01-12	Month of the year
dd	01-31	Day of the month
hh	00-23	Hour
mm	00-59	Minutes
ss	00-59	Seconds

Values for *yy* ranging from 00 to 95 are interpreted as 2000 through 2095. Values for *yy* ranging from 96 to 99 are interpreted as 1996 through 1999.

Default: 960101120000

Scan: To set the time and date:

1. Scan this bar code:

Enter Accumulate Mode / Set Time and Date

|||||||||||||||||||||||||||||||||||||||

+/\$+DB

2. Scan a numeric value for each digit from these bar codes:

|||||||||||||||||||||| ||||||||||||||||
0   *1*

|||||||||||||||||| ||||||||||||||||
2   *3*

|||||||||||||||||| ||||||||||||||||
4   *5*

|||||||||||||||||| ||||||||||||||||
6   *7*

|||||||||||||||||| ||||||||||||||||
8   *9*

3. Scan this bar code:

Exit Accumulate Mode

|||||||||||||||||||||||||||||

-/

Time in Seconds

Purpose: If you enable the Append Time command, you can enable the Time in Seconds command to append the seconds to each bar code label that is scanned into the terminal. To append the time in hours and minutes, disable the Time in Seconds command.

Syntax: DA*data*

Acceptable values for *data* are:

0   Disabled
1   Enabled

Default: Disabled

Scan: One of these bar codes:

Disable Time in Seconds

||||||||||||||||||||||||||||||||

$+DA0

Enable Time in Seconds

||||||||||||||||||||||||||||||||

$+DA1

Timeout Delay

Purpose: If handshaking is enabled, the terminal expects a response to each message that is sent to the host through the serial port. The timeout delay is the amount of time the terminal waits to receive a response. When the timeout expires, the terminal tries sending the message again. If no response is received, a timeout error occurs.

Note: Before you enable Timeout Delay, you must configure EOM and Handshake.

Syntax: YE*n*.*data*

where *n* is:

1   COM1 port
4   COM4 port

Acceptable values for *data* are:

0   5 ms
1   100 ms
2   500 ms

3	2 sec
4	10 sec
5	20 sec
6	40 sec
7	60 sec

Default: 10 seconds

Scan: To set the default timeout delay, scan one of these bar codes:

Timeout Delay 10 sec for COM1

||||||| ||| ||| | ||||| |||||| ||| ||| |||||| ||| |||

$+YE1.4

Timeout Delay 10 sec for COM4

||||||| ||| ||| | ||||| |||||| |||| ||| |||| |||||| ||| |||

$+YE4.4

Or: To set the timeout delay for one serial port:

1. Scan this bar code:

Enter Accumulate Mode / Set Timeout Delay

||||||| ||||||| ||| ||| | ||||||| ||| |||

+/$+YE

2. Scan the serial port from these bar codes:

COM1   COM4

||||||| ||| |||| ||| ||||||| ||| ||| ||||

1.   *4.*

3. Scan the timeout delay from these bar codes:

Timeout Delay 5 ms   Timeout Delay 100 ms

|||||| ||| ||| ||||| ||| |||

0   *1*

Timeout Delay 500 ms   Timeout Delay 2 sec

||||||| ||| ||| ||||||| |||| |||

2   *3*

Timeout Delay 10 sec   Timeout Delay 20 sec

|||||| ||| ||| |||||| ||| |||

4   *5*

Timeout Delay (continued)

Timeout Delay 40 sec

‖‖‖‖‖‖‖‖‖‖‖

6

Timeout Delay 60 sec

‖‖‖‖‖‖‖‖‖‖‖

7

4. Scan this bar code:

Exit Accumulate Mode

‖‖‖‖‖‖‖‖‖‖‖

-/

5. Repeat Steps 1 through 4 to set the timeout delay for another serial port.

Notes: For COM1 only, you can use either command syntax listed next:

Syntax: YE1.*data*

or: IE*data*

where *data* is a value from 0 to 7. For COM4, you must use the YE configuration command.

UPC/EAN

Purpose: Enables or disables the decoding of Universal Product Code (UPC)/European Article Numbering (EAN) symbology. UPC/EAN are fixed length, numeric, continuous symbologies that use four element widths. A terminal that is configured to decode EAN bar codes can decode UPC, but the reverse is not true. UPC code is a subset of EAN code.

To define the UPC/EAN symbology, you set up to seven digits. The fifth, sixth, and seventh digits are optional. To set the sixth digit, you must set the fifth digit. To set the seventh digit, you must set all seven digits.

Syntax: CE*data*

where *data* must be 4 to 7 digits selected from this list:

First digit:	0	UPC-A/EAN-13 disabled
	1	UPC-A/EAN-13 enabled
	2	UPC-A only enabled
Second digit:	0	UPC-E disabled
	1	UPC-E enabled

Third digit:	0	EAN-8 disabled	
	1	EAN-8 enabled	
Fourth digit:	0	Supplementals are not allowed	
	1	Supplementals are allowed	
	2	Supplementals are required	
Fifth digit:	0	Discard check digit	
	1	Transmit check digit	
Sixth digit:	0	Discard number system digit	
	1	Transmit number system digit	
Seventh digit:	0	Discard the leading zero for UPC-A	
	1	Retain the leading zero for UPC-A	

Default: 1111111

First digit:	UPC-A/EAN-13 enabled
Second digit:	UPC-E enabled
Third digit:	EAN-8 enabled
Fourth digit:	Supplementals allowed
Fifth digit:	Transmit check digit
Sixth digit:	Transmit number system digit
Seventh digit:	Retain leading zero for UPC-A

Scan: To disable UPC/EAN, scan this bar code:

Disable UPC/EAN

|| ||||| | ||| | ||| | |||| ||||| |||| |||||| |||||| | |||| ||||| | |||| | ||| || ||||

\$+CE0000000

Or: To enable UPC/EAN:

1. Scan this bar code:

Enter Accumulate Mode / Enable UPC/EAN

||||||||||||||||||||| ||| |||| |||||| ||| ||||

+/\$+CE

2. Scan one of these bar codes to set the first digit:

Disable UPC/EAN-13	Enable UPC/EAN-13
0	*1*

UPC/EAN (continued)

Enable UPC-A Only

||||||||||||||||||

2

3. Scan one of these bar codes to set the second digit:

Disable UPC-E

||||||||||||||||||

0

Enable UPC-E

||||||||||||||||||

1

4. Scan one of these bar codes to set the third digit:

Disable EAN-8

||||||||||||||||||

0

Enable EAN-8

||||||||||||||||||

1

5. Scan one of these bar codes to set the fourth digit:

Supplementals Not Allowed

||||||||||||||||||

0

Supplementals Allowed

||||||||||||||||||

1

Supplementals Required

||||||||||||||||||

2

6. (Optional) Scan one of these bar codes to set the fifth digit:

Discard Check Digit

||||||||||||||||||

0

Transmit Check Digit

||||||||||||||||||

1

7. (Optional) Scan one of these bar codes to set the sixth digit:

Discard Number System Digit

||||||||||||||||||

0

Transmit Number System Digit

||||||||||||||||||

1

Note: If you discard the number system digit, one leading digit is discarded from UPC-A, UPC-E, and EAN-8, and two leading digits are discarded from EAN-13.

8. (Optional) Scan one of these bar codes to set the seventh digit:

Discard Leading Zero for UPC-A

‖‖‖‖‖‖‖‖‖

0

Transmit Leading Zero for UPC-A

‖‖‖‖‖‖‖‖‖

1

Note: This option applies only when you enable UPC-A/EAN-13.

9. Scan this bar code:

Exit Accumulate Mode

‖‖‖‖‖‖‖‖‖

-/

A

Terminal Specifications

This appendix lists the terminal's physical and environmental specifications, the serial port pin assignments, and the default configuration. This appendix also lists the configuration commands in alphabetical order by command syntax.

Physical and Environmental Specifications

You can use the tables in this section to find technical information about these features and options:

- Terminal Dimensions

- T2455 Keyboard Dimensions

- Mounting Bracket Dimensions

- Power Specifications

- Electrical Specifications

- Temperature and Environmental Specifications

- Screen

- T2455 Keyboard and Overlays

- Application Options

- Memory

- Bar Code Symbologies

- RF Communications

- RF Network Support Options

- Wired Data Communications

- Input Devices for the Scanner Port

- Cable Accessories

Note: For programming and file system specifications, see Chapter 5, "Using Custom Applications."

Terminal Dimensions

Length: 11.2 in (28.4 cm)

Height: 6.0 in (15.2 cm)

Depth: 4.2 in (10.7 cm)

Weight: 8.9 lbs (4.04 kg)

Note: The T2455 dimensions are for the T2455 only without a keyboard.

T2455 Keyboard Dimensions

Length: 11.2 in (28.4 cm)

Height: 4.1 in (10.4 cm)

Depth: 1.7 in (4.3 cm)

Weight: 2.2 lbs (1.0 kg)

Mounting Bracket Dimensions

Length of the base: 12.16 in (30.88 cm)

Width of the base: 2.5 in (6.35 cm)

Radius of holes on the base: .203 in (.52 cm)

Location of holes on the base: .5 in (1.270 cm) from edge

Power Specifications

Operating (with power supply):   10V to 36 VDC or 15V to 96 VCD universal power supply

Memory Backup: Rechargeable NiCd 700 mA battery pack

Use the measurements in this illustration to prepare a mounting location on the vehicle for the DC power supply. The low-input and high-input DC power supplies have the same dimensions.
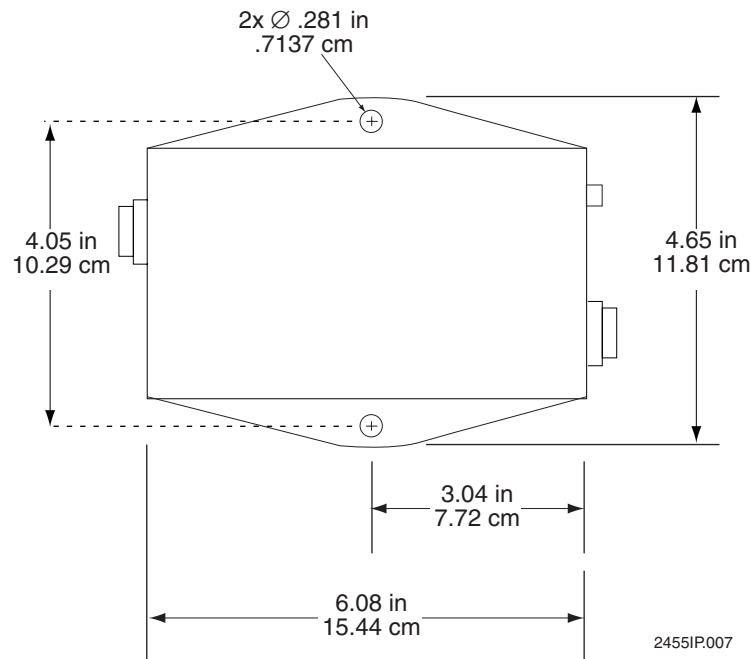
Electrical Specifications

Model: T2455

Electrical rating: --- 12V, 4A

Temperature and Environmental Specifications

Operating the terminal:
    Standard T2455   14°F to +122°F   -10°C to +50°C
    Cold-Temperature T2455   -22°F to +122°F   -30°C to +50°C

Storing the terminal: -4°F to +122°F   -20°C to +50°C

Charging the backup battery:
    Standard T2455   14°F to +104°F   -10°C to +40°C
    Cold-Temperature T2455   -4°F to +104°F   -20°C to +40°C

Relative humidity: 0 to 95% non-condensing

Screen

- 25 lines by 80 characters

- CGA-compatible, backlit LCD or electroluminescent (EL)

T2455 Keyboard and Overlays

- Alphanumeric keyboard with 55 keys, 5 separate function keys, ABCD key layout

- 5 separate function keys also available on T2455 function keypad

- Keyboard overlays available in English, Western European, IBM 3270 terminal emulation, IBM 5250 terminal emulation, and VT100/220/320 and ANSI terminal emulation

Application Options

- Programmable terminal

- IBM 3270 terminal emulation

- IBM 5250 terminal emulation

- VT100/220/320 and ANSI terminal emulation

Memory

- 2MB programmable flash memory, of which 750K is available as a flash drive for storing user applications and files

- 1MB battery-backed RAM, 512K available for user

- Optional 4MB programmable flash memory (the extra 2MB can be configured as drive D or as storage for double-byte fonts)

- Extended memory option for an additional 2MB or 4MB SRAM storage drive

Bar Code Symbologies

- Codabar
- Code One
- Code 11
- Code 16K
- Code 2 of 5
- Code 39
- Code 49

- Code 93
- Code 128
- Interleaved 2 of 5
- MSI
- PDF 417
- Plessey
- UPC/EAN

RF Communications

- 2.4 GHz (to 2.4835 GHz) radio (frequency range varies by country)

- WLI Forum OpenAir™ compatible frequency hopping spread spectrum radio

- 100 mW maximum output power

- 1.6 Mbits per second data speed, 800 Kbps fallback rate for extended range

- Coverage ≥ 500 feet (152 meters) indoors; ≥ 1,500 feet (457 meters) outdoors

- RF network protocol options: TCP/IP or UDP Plus

RF Network Support Options

- Connectivity to a host on an Ethernet, token ring, twinaxial, coaxial, or SDLC network through an access point and DCS 300 using UDP Plus protocol

- Connectivity to a host on an Ethernet or token ring network through an access point using TCP/IP protocol

Wired Data Communications

- RS-232C serial ports (COM1, COM4)

- XMODEM/YMODEM protocol for data transfer

- Protocols: Configurable Serial Protocol, Polling Mode D, Master Polling, Binary

Input Devices for the Scanner Port

You can attach these Intermec input devices to the Scanner port:

- 1517, 1518, and 1519 laser scanners

- 1550 and 1551 laser scanners

- 1552 cordless laser scanner with 9745 base station

You must use a laser scanner adapter cable to connect the input device to the Scanner port. For help, use the list in "Cable Accessories" or contact your local Intermec service representative.

Cable Accessories

- 151X laser scanner cable, 6 feet (Part No. 066845)

- 151X laser scanner cable, 25 feet (Part No. 067540)

- 1550 laser scanner cable, 6 feet (Part No. 067541)

- 1550 laser scanner cable, 25 feet (Part No. 067542)

- 1551 laser scanner cable, 6 feet (Part No. 067730)

- 1551 laser scanner cable, 25 feet (Part No. 067731)

- 9745 base station wand emulation cable for T2455 (Part No. 067364-016)

  Note: This cable does not provide an environmentally sealed connection to the T2455.

- COM port adapter cable (Part No. 061799) for COM4

  Note: This cable does not provide an environmentally sealed connection to the T2455.

- RS-232 null-modem adapter cable (Part No. 066847)

- Codewriter 4102 printer cable (Part No. 067642)

- O'Neil MicroFlash3 printer cable (Part No. 067643)

Serial Port Pin Assignments

Use these serial port pin assignments to make your own serial cables or troubleshoot problems.

Pin Assignments for Scanner, COM1, and Keyboard Ports

This illustration shows the type of connector used for the Scanner port, COM1 port, and Keyboard port. The following tables list the pin assignments for each port.

Pin 10   Pin 1
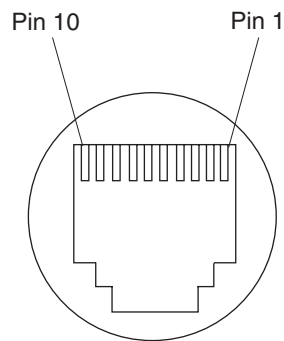
2455U.130

Scanner Port Pin Assignments

Pin	Description
1	+5 VDC
2	Ground
3	Trigger
4	Laser Enable/Ready to Send
5	Beeper
6	Ground
7	Video/Received
8	Start of Scan/Clear to Send
9	Good Read / Transmitted
10	Reserved

COM1 Port Pin Assignments

Pin	Description
1	Data Carrier Detect
2	Received
3	Transmitted
4	Data Terminal Ready
5	Ground
6	Data Set Ready
7	Ready to Send
8	Clear to Send
9	Reserved
10	Reserved

Keyboard Port Pin Assignments

Pin	Description
1	Ground
2	Keyboard Clock
3	Reserved
4	Keyboard Data
5	Reserved
6	+5V Keyboard
7	Reserved
8	Ground
9	Reserved
10	Reserved

Pin Assignments for Power Supply Port

This illustration shows the Power Supply port connector and its pin assignments.

Pin 4: Chassis ground   Pin 3: -DC

Pin 2: +DC   Pin 1: Chassis ground
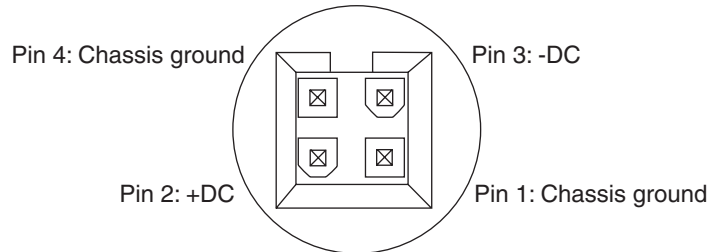
2455U.131

Default Configuration

The next tables show the terminal's default configuration. You can use the TRAKKER Antares 2400 Menu System to set the terminal to the default configuration. For help, see "Restoring the Terminal's Default Configuration" in Chapter 3.

Default Configuration for Bar Code Symbologies

Parameter	Default
Codabar	Disabled
Code 11	Disabled
Code 16K	Disabled
Code 2 of 5	Disabled
Code 39	Full ASCII Code 39 enabled with no check digit
Code 49	Disabled
Code 93	Disabled
Code 128	Standard
Interleaved 2 of 5	Disabled
MSI	Disabled
Plessey	Disabled
UPC/EAN	UPC-A/EAN-13 enabled, UPC-E and EAN-8 enabled, supplementals allowed, transmit check digit, transmit number system digit, and retain leading zero for UPC-A

Default Configuration for Operations

Parameter	Default
Append Time	Disabled
Automatic Shutoff	0 minutes (disabled)
Beep Volume	Very loud
Command Processing	All reader commands enabled
Decode Security	Moderate
Display Contrast	3 (maximum contrast or brightness)
Display Font Type	8x8 font
Display Row Spacing	0
Display Video Mode	Original
Flash Memory Configuration	Flash memory for double-byte fonts
Keypad Caps Lock	Caps lock off
Keypad Clicker	Enabled
Keypad Type	Hardware default
Postamble	No characters (disabled)
Preamble	No characters (disabled)
RAM Drive Size	0 (no RAM drive)
Resume Execution	Allowed
Scan Ahead	Disabled
Scanner Mode	One-Shot mode
Scanner Redundancy	Normal
Scanner Selection	All compatible scanners
Scanner Timeout	Disabled (no timeout)
Scanner Trigger	Level triggering
Suspend/Resume Control	Enabled
Time and Date	960101120000
Time in Seconds	Disabled

Default Configuration for RF Network Communications

Parameter	Default
Acknowledgement Delay Lower Limit	300 ms
Acknowledgement Delay Upper Limit	5000 ms
Controller Connect Check Receive Timer	60 seconds
Controller Connect Check Send Timer	35 seconds
Controller IP Address	0.0.0.0
Default Router	0.0.0.0
Dynamic Host Configuration Protocol (DHCP)	Disabled
Host IP Address	0.0.0.0
Maximum Retries	7
Network Activate	Disabled
Network Loopback	Disabled
Network Port	23 (Telnet) for a TCP/IP network 5555 for a UDP Plus network
RF Domain	0
RF Inactivity Timeout	5 seconds
RF Roaming Flag	Allowed
RF Security Identification (ID)	None
RF Transmit Mode	BFSK
RF Wakeup On Broadcast	No (disabled)
Subnet Mask	255.255.255.0
TCP Maximum Retries	12
TCP/IP Maximum Transmit Timeout	20 seconds
Terminal IP Address	0.0.0.0

Default Configuration for Serial Network Communications

Parameter	Default
Baud Rate	19200
Configuration Commands Via Serial Port	Enabled without TMF
Data Bits	7
End of Message (EOM)	\x03 (hexadecimal value for ETX)
Flow Control	None
Handshake	Disabled
LRC (Longitudinal Redundancy Check)	Disabled
Parity	Even
Poll (Polling)	Disabled
Scanner Port (COM4)	Scanner enabled
Serial Port Protocol	Configurable
Start of Message (SOM)	\x02 (hexadecimal value for STX)
Stop Bits	1
Timeout Delay	10 seconds

Note: The defaults listed in this table apply to all COM ports.

Configuration Commands by Syntax

The next table lists all of the configuration commands that are available on the TRAKKER Antares 2455 terminal. The configuration commands are listed in alphabetic order by syntax.

Syntax	Command	For Help, See Page
AD*data*	Preamble	9-75
AE*data*	Postamble	9-74
BV*data*	Beep Volume	9-13
CA*data*	Interleaved 2 of 5 Code (I 2 of 5)	9-59
CB*data*	Code 39	9-18
CC*data*	Code 2 of 5 (2 of 5)	9-17
CD*data*	Codabar	9-14
CE*data*	UPC/EAN	9-106
CF*data*	Code 93	9-23
CG*data*	Code 11	9-15
CH*data*	Code 128	9-24
CI*data*	Plessey	9-72
CJ*data*	Code 49	9-22
CK*data*	Code 49 Function Code 1	9-22
CL*data*	Code 49 Function Code 2	9-22
CM*data*	Code 49 Function Code 3	9-22
CN*data*	MSI	9-66
CP*data*	Code 16K	9-16
CS*data*	Decode Security	9-42
DA*data*	Time in Seconds	9-104
DB*data*	Time and Date	9-102
DC*data*	Command Processing	9-31
DE*data*	Append Time	9-9
DJ*data*	Display Contrast	9-45
DL*data*	Display Row Spacing	9-47
DN*data*	Display Video Mode	9-48
DT*data*	Display Font Type	9-46
EF*data*	Suspend/Resume Control	9-98

Configuration Commands by Syntax (continued)

Syntax	Command	For Help, See Page
ER*data*	Resume Execution	9-78
EZ*data*	Automatic Shutoff	9-10
FF*data*	Flash Memory Configuration	9-52
FR*data*	RAM Drive Size	9-77
HB*data*	Poll (Polling) (COM1 only)	9-73
IA*data*	Baud Rate (COM1 only)	9-11
IB*data*	Parity (COM1 only)	9-70
IC*data*	Stop Bits (COM1 only)	9-95
IE*data*	Timeout Delay (COM1 only)	9-104
IF*data*	LRC (Longitudinal Redundancy Check) (COM1 only)	9-63
II*data*	Data Bits (COM1 only)	9-40
IL*data*	Flow Control (COM1 only)	9-53
IT*data*	Configuration Commands Via Serial Port (COM1 only)	9-34
IX*data*	Scanner Port (COM4)	9-87
KA*data*	Keypad Caps Lock	9-61
KC*data*	Keypad Clicker	9-61
KT*data*	Keypad Type	9-62
NA*data*	Network Activate	9-67
NC*data*	Controller IP Address (UDP Plus network)	9-39
NC*data*	Host IP Address (TCP/IP network)	9-57
ND*data*	Terminal IP Address	9-101
NG*data*	Network Port	9-69
NH*data*	TCP/IP Maximum Transmit Timeout	9-99
NI*data*	Dynamic Host Configuration Protocol (DHCP)	9-49
NJ*data*	TCP Maximum Retries	9-98
NL*data*	Network Loopback	9-68
NP*data*	Controller Connect Check Receive Timer	9-36
NQ*data*	Controller Connect Check Send Timer	9-37
NR*data*	Maximum Retries	9-64
NS*data*	Subnet Mask	9-96

Configuration Commands by Syntax (continued)

Syntax	Command	For Help, See Page
NU*data*	Acknowledgement Delay Upper Limit	9-8
NV*data*	Acknowledgement Delay Lower Limit	9-7
NX*data*	Default Router	9-43
PE*data*	Start of Message (SOM) (COM1 only)	9-94
PF*data*	End of Message (EOM) (COM1 only)	9-50
PG*data*	Handshake (COM1 only)	9-55
RB*data*	RF Wakeup On Broadcast	9-85
RR*data*	RF Roaming Flag	9-82
RS*data*	RF Security Identification	9-82
RT*data*	RF Transmit Mode	9-84
RW*data*	RF Domain	9-79
RY*data*	RF Inactivity Timeout	9-80
SA*data*	Scanner Timeout	9-90
SB*data*	Scanner Mode	9-86
SC*data*	Scanner Trigger	9-91
SD*data*	Scan Ahead	9-85
SR*data*	Scanner Redundancy	9-88
SS*data*	Scanner Selection	9-89
YA*data*	Baud Rate	9-11
YB*data*	Parity	9-70
YC*data*	Stop Bits	9-95
YE*data*	Timeout Delay	9-104
YF*data*	LRC (Longitudinal Redundancy Check)	9-63
YI*data*	Data Bits	9-40
YJ*data*	Handshake (also known as AFF)	9-55
YL*data*	Flow Control	9-53
YR*data*	Poll (Polling)	9-73
YT*data*	Configuration Commands Via Serial Port	9-34
YU*data*	Serial Port Protocol	9-92
YY*data*	Start of Message (SOM)	9-94
YZ*data*	End of Message (EOM)	9-50

B
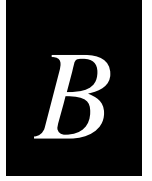
Full ASCII Charts

This appendix contains a full ASCII chart and charts of Code 39 bar code labels that you can scan with an input device connected to the TRAKKER Antares 2455 terminal.

Full ASCII Table

This table lists the ASCII characters and their binary, hexadecimal, and Code 39 equivalents.

Full ASCII Table

Binary[0]	Hex[1]	Decimal	Code 39	ASCII[2]	Binary[0]	Hex[1]	Decimal	Code 39	ASCII[2]
00000000	00	00	%U	NUL	00100000	20	32	SP	SP[3]
00000001	01	01	$A	SOH	00100001	21	33	/A	!
00000010	02	02	$B	STX	00100010	22	34	/B	"
00000011	03	03	$C	ETX	00100011	23	35	/C	#
00000100	04	04	$D	EOT	00100100	24	36	/D	$
00000101	05	05	$E	ENQ	00100101	25	37	/E	%
00000110	06	06	$F	ACK	00100110	26	38	/F	&
00000111	07	07	$G	BEL	00100111	27	39	/G	'
00001000	08	08	$H	BS	00101000	28	40	/H	(
00001001	09	09	$I	HT	00101001	29	41	/I	)
00001010	0A	10	$J	LF	00101010	2A	42	/J	*
00001011	0B	11	$K	VT	00101011	2B	43	/K	+
00001100	0C	12	$L	FF	00101100	2C	44	/L	,
00001101	0D	13	$M	CR	00101101	2D	45	/M	-
00001110	0E	14	$N	SO	00101110	2E	46	/N	.
00001111	0F	15	$O	SI	00101111	2F	47	/O	/
00010000	10	16	$P	DLE	00110000	30	48	/P[4]	0
00010001	11	17	$Q	DC1	00110001	31	49	/Q	1
00010010	12	18	$R	DC2	00110010	32	50	/R	2
00010011	13	19	$S	DC3	00110011	33	51	/S	3
00010100	14	20	$T	DC4	00110100	34	52	/T	4
00010101	15	21	$U	NAK	00110101	35	53	/U	5
00010110	16	22	$V	SYN	00110110	36	54	/V	6
00010111	17	23	$W	ETB	00110111	37	55	/W	7
00011000	18	24	$X	CAN	00111000	38	56	/X	8
00011001	19	25	$Y	EM	00111001	39	57	/Y	9
00011010	1A	26	$Z	SUB	00111010	3A	58	/Z	:
00011011	1B	27	%A	ESC	00111011	3B	59	%F	;
00011100	1C	28	%B	FS	00111100	3C	60	%G	<
00011101	1D	29	%C	GS	00111101	3D	61	%H	=
00011110	1E	30	%D	RS	00111110	3E	62	%I	>
00011111	1F	31	%E	US	00111111	3F	63	%J	?

Full ASCII Table (continued)

Binary[0]	Hex[1]	Decimal	Code 39	ASCII[2]	Binary[0]	Hex[1]	Decimal	Code 39	ASCII[2]
01000000	40	64	%V	@	01100000	60	96	%W	`
01000001	41	65	A	A	01100001	61	97	+A	a
01000010	42	66	B	B	01100010	62	98	+B	b
01000011	43	67	C	C	01100011	63	99	+C	c
01000100	44	68	D	D	01100100	64	100	+D	d
01000101	45	69	E	E	01100101	65	101	+E	e
01000110	46	70	F	F	01100110	66	102	+F	f
01000111	47	71	G	G	01100111	67	103	+G	g
01001000	48	72	H	H	01101000	68	104	+H	h
01001001	49	73	I	I	01101001	69	105	+I	i
01001010	4A	74	J	J	01101010	6A	106	+J	j
01001011	4B	75	K	K	01101011	6B	107	+K	k
01001100	4C	76	L	L	01101100	6C	108	+L	l
01001101	4D	77	M	M	01101101	6D	109	+M	m
01001110	4E	78	N	N	01101110	6E	110	+N	n
01001111	4F	79	O	O	01101111	6F	111	+O	o
01010000	50	80	P	P	01110000	70	112	+P	p
01010001	51	81	Q	Q	01110001	71	113	+Q	q
01010010	52	82	R	R	01110010	72	114	+R	r
01010011	53	83	S	S	01110011	73	115	+S	s
01010100	54	84	T	T	01110100	74	116	+T	t
01010101	55	85	U	U	01110101	75	117	+U	u
01010110	56	86	V	V	01110110	76	118	+V	v
01010111	57	87	W	W	01110111	77	119	+W	w
01011000	58	88	X	X	01111000	78	120	+X	x
01011001	59	89	Y	Y	01111001	79	121	+Y	y
01011010	5A	90	Z	Z	01111010	7A	122	+Z	z
01011011	5B	91	%K	[	01111011	7B	123	%P	{
01011100	5C	92	%L	\	01111100	7C	124	%Q	|
01011101	5D	93	%M	]	01111101	7D	125	%R	}
01011110	5E	94	%N	^	01111110	7E	126	%S	~
01011111	5F	95	%O	_	01111111	7F	127	%T[5]	n[6]

Notes for the Full ASCII Table

0	Bit positions are 76543210.
1	This column lists the hexadecimal value.
2	This column lists the ASCII character.
3	SP is the SPACE character.
4	The Code 39 characters /P through /Y may be interchanged with the numbers 0 through 9.
5	%T may be interchanged with %X or %Y or %Z.
6	n is the Delete character.

Full ASCII Control Characters Table

Control Character	Definition	Control Character	Definition
NUL	Null or all zeroes	DC1	Device Control 1 (XON)
SOH	Start of Heading	DC2	Device Control 2
STX	Start of Text	DC3	Device Control 3 (XOFF)
ETX	End of Text	DC4	Device Control
EOT	End of Transmission	NAK	Negative Acknowledge
ENQ	Enquiry	SYN	Synchronous Idle
ACK	Acknowledgment	ETB	End Transmission Block
BEL	Bell	CAN	Cancel
BS	Backspace	EM	End of Medium
HT	Horizontal Tab	SUB	Substitute
LF	Line Feed	ESC	Escape
VT	Vertical Tab	FS	File Separator
FF	Form Feed	GS	Group Separator
CR	Carriage Return	RS	Record Separator
SO	Shift Out	US	Unit Separator
SI	Shift In	SP	Space
DLE	Data Link Escape	DEL	Delete

Full ASCII Bar Code Chart

The charts in this section list the Code 39 bar code label for each ASCII character. To use these bar code labels, you must configure the TRAKKER Antares 2455 terminal to use Code 39 in Full ASCII mode. For help, see "Code 39" in Chapter 9.

Control Characters

NUL	SOH	STX
%U	*$A*	*$B*

ETX	EOT	ENQ
$C	*$D*	*$E*

ACK	BEL	BS
$F	*$G*	*$H*

HT	LF	VT
$I	*$J*	*$K*

FF	CR	SO
$L	*$M*	*$N*

SI	DLE	DC1
$O	*$P*	*$Q*

DC2	DC3	DC4
$R	*$S*	*$T*

NAK	SYN	ETB
$U	*$V*	*$W*

Control Characters (continued)

CAN

||||||||||||||||||

$X

EM

||||||||||||||||||

$Y

SUB

||||||||||||||||||

$Z

ESC

||||||||||||||||||

%A

FS

||||||||||||||||||

%B

GS

||||||||||||||||||

%C

RS

||||||||||||||||||

%D

US

||||||||||||||||||

%E

DEL

||||||||||||||||||

%T

Symbols and Punctuation Marks

! (exclamation point)

||||||||||||||||||

/A

" (quotation marks)

||||||||||||||||||

/B

#

||||||||||||||||||

/C

$

||||||||||||||||||

/D

%

||||||||||||||||||

/E

&

||||||||||||||||||

/F

' (apostrophe)

||||||||||||||||||

/G

(

||||||||||||||||||

/H

)

||||||||||||||||||

/I

* (asterisk)

||||||||||||||||||

/J

+

||||||||||||||||||

/K

- (dash)

||||||||||||||||||

/M

/

||||||||||||||||||

/O

=

||||||||||||||||||

%H

. (period)

||||||||||||||||||

/N

, (comma)

||||||||||||||||||

/L

: (colon)

||||||||||||||||||

/Z

; (semicolon)

||||||||||||||||||

%F

Symbols and Punctuation Marks (continued)

?

||||||||||||||||||||||

%J

<

||||||||||||||||||||||

%G

>

||||||||||||||||||||||

%I

@

||||||||||||||||||||||

%V

[

||||||||||||||||||||||

%K

]

||||||||||||||||||||||

%M

~ (tilde)

||||||||||||||||||||||

%S

^

||||||||||||||||||||||

%N

_ (underline)

||||||||||||||||||||||

%O

\

||||||||||||||||||||||

%L

` (left single quote)

||||||||||||||||||||||

%W

¦ (pipe)

||||||||||||||||||||||

%Q

{

||||||||||||||||||||||

%P

}

||||||||||||||||||||||

%R

Space

||||||||||||||||||||||

* *

Numbers

0

||||||||||||||||||||

0

1

||||||||||||||||||||

1

2

||||||||||||||||||||

2

3

||||||||||||||||||||

3

4

||||||||||||||||||||

4

5

||||||||||||||||||||

5

6

||||||||||||||||||||

6

7

||||||||||||||||||||

7

8

||||||||||||||||||||

8

9

||||||||||||||||||||

9

Uppercase Letters

A
A

B
B

C
C

D
D

E
E

F
F

G
G

H
H

I
I

J
J

K
K

L
L

M
M

N
N

O
O

P
P

Q
Q

R
R

S
S

T
T

U
U

V
V

W
W

X
X

Y
Y

Z
Z

Lowercase Letters

a

+A

b

+B

c

+C

d

+D

e

+E

f

+F

g

+G

h

+H

i

+I

j

+J

k

+K

l

+L

m

+M

n

+N

o

+O

p

+P

q

+Q

r

+R

s

+S

t

+T

u

+U

v

+V

w

+W

x

+X

y

+Y

z

+Z

C
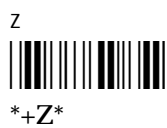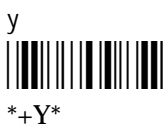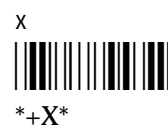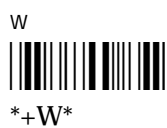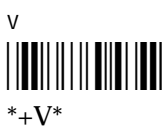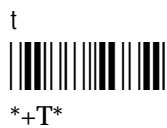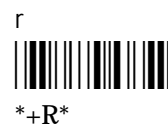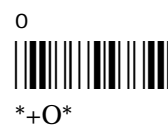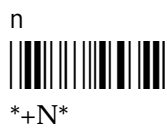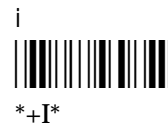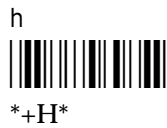
International Character Support
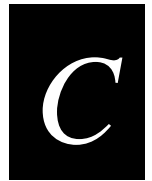
This appendix lists the complete set of English and Western European characters you can display on a TRAKKER Antares 2455 terminal.

TRAKKER Antares Terminal Font Set

The TRAKKER Antares terminal uses a font set that supports English and Western European languages, such as French, German, Italian, Portuguese, Spanish, and others. You can develop applications that display any character in the terminal font set. Depending on the type of keyboard overlay, you can also enter many of the characters. For help, see "Using the Keyboard" in Chapter 1.

The next table lists the characters that you can display on the terminal and lists the decimal and hexadecimal index values.

Note: The terminal character set is similar to Microsoft's DOS Code Page 850 with the exception of decimal characters 1 through 6 and 10 through 13. These characters were replaced to provide additional line draw capability.

Character	Decimal	Hexadecimal	Character	Decimal	Hexadecimal
Space	0	00	◄	17	11
⊥	1	01	↕	18	12
⊥⊥	2	02	‼	19	13
⊤⊤	3	03	¶	20	14
⫟	4	04	§	21	15
⊩	5	05	▬	22	16
╘	6	06	↨	23	17
•	7	07	↑	24	18
◘	8	08	↓	25	19
o	9	09	→	26	1A
◙	10	0A	←	27	1B
╟	11	0B	∟	28	1C
╥	12	0C	↔	29	1D
╫	13	0D	▲	30	1E
╪	14	0E	▼	31	1F
☼	15	0F	Space	32	20
►	16	10	!	33	21

English and Western European Character Set (continued)

Character	Decimal	Hexadecimal	Character	Decimal	Hexadecimal
"	34	22	?	63	3F
#	35	23	@	64	40
$	36	24	A	65	41
%	37	25	B	66	42
&	38	26	C	67	43
'	39	27	D	68	44
(	40	28	E	69	45
)	41	29	F	70	46
*	42	2A	G	71	47
+	43	2B	H	72	48
, (comma)	44	2C	I	73	49
- (dash)	45	2D	J	74	4A
. (period)	46	2E	K	75	4B
/	47	2F	L	76	4C
0	48	30	M	77	4D
1	49	31	N	78	4E
2	50	32	O	79	4F
3	51	33	P	80	50
4	52	34	Q	81	51
5	53	35	R	82	52
6	54	36	S	83	53
7	55	37	T	84	54
8	56	38	U	85	55
9	57	39	V	86	56
:	58	3A	W	87	57
;	59	3B	X	88	58
<	60	3C	Y	89	59
=	61	3D	Z	90	5A
>	62	3E	[	91	5B
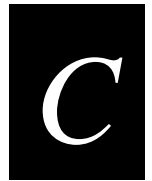
English and Western European Character Set (continued)

Character	Decimal	Hexadecimal	Character	Decimal	Hexadecimal
\	92	5C	y	121	79
]	93	5D	z	122	7A
^	94	5E	{	123	7B
_ (underline)	95	5F	| (solid pipe)	124	7C
`	96	60	}	125	7D
a	97	61	~	126	7E
b	98	62	△	127	7F
c	99	63	Ç	128	80
d	100	64	ü	129	81
e	101	65	é	130	82
f	102	66	â	131	83
g	103	67	ä	132	84
h	104	68	à	133	85
i	105	69	å	134	86
j	106	6A	ç	135	87
k	107	6B	ê	136	88
l	108	6C	ë	137	89
m	109	6D	è	138	8A
n	110	6E	ï	139	8B
o	111	6F	î	140	8C
p	112	70	ì	141	8D
q	113	71	Ä	142	8E
r	114	72	Å	143	8F
s	115	73	É	144	90
t	116	74	æ	145	91
u	117	75	Æ	146	92
v	118	76	ô	147	93
w	119	77	ö	148	94
x	120	78	ò	149	95

TRAKKER Antares 2455 Vehicle-Mount Terminal User's Manual

English and Western European Character Set (continued)

Character	Decimal	Hexadecimal	Character	Decimal	Hexadecimal
û	150	96	│	179	B3
ù	151	97	┤	180	B4
ÿ	152	98	Á	181	B5
Ö	153	99	Â	182	B6
Ü	154	9A	À	183	B7
ø	155	9B	©	184	B8
£	156	9C	╣	185	B9
Ø	157	9D	║	186	BA
×	158	9E	╗	187	BB
ƒ	159	9F	╝	188	BC
á	160	A0	¢	189	BD
í	161	A1	¥	190	BE
ó	162	A2	┐	191	BF
ú	163	A3	└	192	C0
ñ	164	A4	┴	193	C1
Ñ	165	A5	┬	194	C2
ª	166	A6	├	195	C3
º	167	A7	─	196	C4
¿	168	A8	┼	197	C5
®	169	A9	ã	198	C6
¬ (not symbol)	170	AA	Ã	199	C7
½	171	AB	╚	200	C8
¼	172	AC	╔	201	C9
¡	173	AD	╩	202	CA
«	174	AE	╦	203	CB
»	175	AF	╠	204	CC
░	176	B0	═	205	CD
▒	177	B1	╬	206	CE
▓	178	B2	¤	207	CF
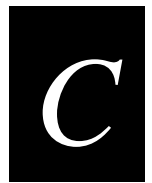
English and Western European Character Set (continued)

Character	Decimal	Hexadecimal	Character	Decimal	Hexadecimal
ð	208	D0	þ	232	E8
Đ	209	D1	Ú	233	E9
Ê	210	D2	Û	234	EA
Ë	211	D3	Ù	235	EB
È	212	D4	ý	236	EC
│	213	D5	Ý	237	ED
Í	214	D6	¯	238	EE
Î	215	D7	´	239	EF
Ï	216	D8	-	240	F0
┘	217	D9	±	241	F1
┌	218	DA	=	242	F2
█	219	DB	¾	243	F3
▄	220	DC	¶	244	F4
¦ (broken pipe)	221	DD	§	245	F5
Ì	222	DE	÷	246	F6
▀	223	DF	¸	247	F7
Ó	224	E0	° (degree)	248	F8
β	225	E1	¨	249	F9
Ô	226	E2	• (dot)	250	FA
Ò	227	E3	¹ (superscript)	251	FB
õ	228	E4	³ (superscript)	252	FC
Õ	229	E5	² (superscript)	253	FD
µ	230	E6	■	254	FE
Þ	231	E7	Space	255	FF

D

Using the Default Applications

This appendix defines the APPTSK.BIN and EM9560.BIN applications that are shipped on the TRAKKER Antares 2455 terminal and explains how to use each application.

About the Applications Shipped on the Terminal

The TRAKKER Antares 2455 terminal ships loaded with at least these two applications:

- APPTSK.BIN

- EM9560.BIN

Both applications are stored on drive C. In addition to these two applications, your terminal may have a 3270, 5250, or VT/ANSI terminal emulation application stored on drive C. This section explains how to use the APPTSK.BIN and EM9560.BIN applications. For help with your terminal emulation applications, see the *TRAKKER Antares Terminal Emulation User's Guide*.

Defining APPTSK.BIN and EM9560.BIN

You can run and use APPTSK.BIN or EM9560.BIN at any time. The two applications are defined as follows:

APPTSK.BIN   This application is the default application on all terminals. In some error conditions or if you exit an application, the terminal resets and runs APPTSK.BIN. You can use APPTSK.BIN to scan, enter, transmit, and display data.

EM9560.BIN   This application emulates a subset of the functionality available on the Intermec 95XX terminals, such as the 9512 and 9560. You can use EM9560.BIN to scan, enter, transmit, and display data.

APPTSK.BIN and EM9560.BIN include these features:

- Works with any protocol that is supported on the terminal. Both the terminal and the device you are communicating with must use the same protocol (serial or RF) and parameter settings.

- Displays the time and date, which can be toggled on and off.

- Sends scanned or keyboard data out all serial or RF ports.

- Buffers the keyboard data until you press Enter.

- Receives data from any serial or RF port, displays the data on the terminal screen, and parses the data for commands.

- Receives data through any serial port and transmits it out the RF port.

- Receives data through the RF port and transmits it out all serial ports.

The main difference between the two applications is that you can use the EM9560.BIN application to emulate specific functions of the 95XXs.

Defining the Emulation Features of EM9560.BIN

The T2455 is a programmable terminal that runs C/C++ applications. With the EM9560.BIN application, you can use the terminal as a remote input/output terminal in which all prompts and commands are controlled by the host computer. With this application, the terminal is similar to a 95XX in Data Entry mode with no application running.

Note: For the 95XXs, Data Entry mode with no application running is also referred to as an unprogrammed state or 95XX dumb terminal mode.

The EM9560.BIN application lets you use the terminal to emulate these specific 95XX features:

- An Enter key without any preceding data transmits an empty data packet.

- The T2455 display is similar to but not identical to the 9560 buffered display mode.

- All function keys transmit the corresponding characters `F1`, `F2`, and so on.

- When Code 128 is configured for Standard Code 128 symbology and you scan a UCC/EAN label, the terminal will discard the Function 1 characters. Although this does not meet the industry standard for Code 128, it does emulate the 95XX, which was manufactured before the current standard was established. Other Code 128 configurations work as defined in this user's manual.

- The Set Time and Date reader (data entry) command is supported. When the terminal receives a time broadcast command (/+) from the 9154 or 9161 controller, the command sets the clock on the terminal.

  Note: With Version 5.X firmware or later, the Set Time and Date reader command is supported through the firmware and not just in the EM9560.BIN application.

- The High Beep reader command is supported. When a backslash character (\) is sent to the terminal through any serial or network port, the terminal sounds a high beep.

- The Low Beep reader command is supported. When the BEL character is sent to the terminal through any serial or network port, the terminal sounds a low beep.

- When control codes (ANSI escape sequences) are sent to the terminal through any serial or network port, the terminal formats the display. For a list of control codes, see "Using Display Control Codes" later in this appendix.

- Preamble A, Preamble B, and Postamble C are supported through the AA, AB, and AC configuration commands or through the reader commands +., ++, and +%. For help, see "Setting Preambles and Postambles" later in this appendix.

- Full ASCII mode for Code 39 can be configured through the CB or RB configuration commands or through the reader commands +$ and -$. For help, see "Full ASCII Mode for Code 39" later in this appendix.
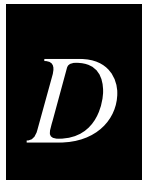
- The Exit Configuration Mode, Save Settings configuration command ($-) is not required, but bar code labels with this command scan correctly.

Using Display Control Codes

You can use control codes to position the cursor or to format the terminal display. The EM9560.BIN application recognizes the display control codes listed next.

Command	Control Code	Description or Action
Backspace	BS (08 Hex)	Moves the cursor one position to the left until the cursor reaches the first column. If the cursor is in the first column of any row except the first row, a Backspace command moves the cursor to the last column of the previous row.
Cursor Position	ESC[$n;v$H	Moves the cursor to the position specified by the n and v parameters where:
		n specifies the row or line number.
		v specifies the column number.
		If you enter zero or no parameter, n and v are set to one. If n or v exceeds the maximum row or column number on the display, the parameters are set to the screen's maximum.
Erase Display	ESC[2J	Erases the entire display and returns the cursor to the home position (row 1, column 1). This command also erases the entire virtual display image (buffer with up to four rows of the most recently displayed data).
Home	CR (0D Hex)	Returns the cursor to the first column of the current row.
Next Line	LF (0A Hex)	Moves the cursor down one row in the current column position. If the cursor is already in the last row, a new line is added.
Restore Cursor Position	ESC[u	Restores the cursor position saved with a Save Cursor Position command. Each Restore Cursor Position command must be paired with a preceding Save Cursor Position command. If a Save Cursor Position command has not been previously entered, the cursor position will not change.
Save Cursor Position	ESC[s	Saves the current cursor position. Successive Save Cursor Position commands overwrite the previous position that was saved.

Setting Preambles and Postambles

With the EM9560.BIN application, you can set Preamble A, Preamble B, and Postamble C on the T2455 and make the terminal compatible with the 95XXs. The preambles are prepended and the postamble is appended to the data that is transmitted through all the serial ports.

Preamble A, Preamble B, and Postamble C can each be up to 25 ASCII characters in length. If you enter a preamble or postamble command without entering data, the preamble or postamble buffer is cleared.

Syntax: Preamble A   AA*data*   or   +.*data*
Preamble B   AB*data*   or   ++*data*
Postamble C   AC*data*   or   +%*data*

Scan: To set the preamble or postamble using the AA, AB, or AC configuration commands:

1. Scan one of these bar code labels:

    Enter Accumulate Mode / Set Preamble A

    +/$+AA

    Enter Accumulate Mode / Set Preamble B

    +/$+AB

    Enter Accumulate Mode / Set Postamble C

    +/$+AC

2. Scan a value for *data* from the "Full ASCII Bar Code Chart" in Appendix B. The preamble or postamble can be from 1 to 25 characters.

3. Scan this bar code:

    Exit Accumulate Mode

    -/

4. Repeat Steps 1 to 3 to set another preamble or postamble.
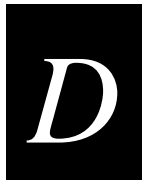
Or: To set the preamble or postamble using the +., ++, or +% reader commands:

1. Scan one of these bar code labels:

Enter Accumulate Mode / Set Preamble A

||||||||||||||||||||||||

+/+.

Enter Accumulate Mode / Set Preamble B

||||||||||||||||||||||||

+/++

Enter Accumulate Mode / Set Postamble C

||||||||||||||||||||||||

+/+%

2. Scan a value for *data* from the "Full ASCII Bar Code Chart" in Appendix B. The preamble or postamble can be from 1 to 25 characters.

3. Scan this bar code:

Exit Accumulate Mode

||||||||||||||||

-/

4. Repeat Steps 1 to 3 to set another preamble or postamble.

Full ASCII Mode for Code 39

With the EM9560.BIN application, you can configure Full ASCII mode for Code 39 using any of these commands:

*   Code 39 configuration command (CB)

*   Full ASCII configuration command (RB)

*   Enter Full ASCII Mode reader command (+$) and the Exit Full ASCII Mode reader command (-$)

The last two commands are compatible with the 95XXs. Each command is described next. For help with the Code 39 configuration command (CB), see Chapter 9, "Configuration Command Reference."

Note: Use the CB configuration command unless your terminals need to be compatible with the 95XXs in your data collection network.

Command: Full ASCII configuration command (RB)

Purpose: Configures the terminal to use Code 39 Full ASCII mode (enabled) or Code 39 Non-Full ASCII mode (disabled). For a list of ASCII characters, see the "Full ASCII Table" in Appendix B.

Syntax: RB*data*

Acceptable values for *data* are:

0   Disabled
1   Enabled

Scan: One of these bar code labels:

Disable Full ASCII Mode

||||| ||| ||| ||||| ||| ||| |||

$+RB0

Enable Full ASCII Mode

||||| ||| ||||| ||| ||| ||| |||

$+RB1

Command: Enter Full ASCII Mode reader command

Purpose: Enables Code 39 Full ASCII mode so the terminal decodes Code 39 bar code labels by using a two-character encoding scheme to extend the character set to 128 characters. For a list of ASCII characters, see the "Full ASCII Table" in Appendix B.

Syntax: +$

Scan: Full ASCII

|||||||||||||||||||

+$

Command: Exit Full ASCII Mode reader command

Purpose: Exits Code 39 Full ASCII mode and puts the terminal in Code 39 Non-Full ASCII mode (one-character encoding scheme).

Syntax: -$

Scan: Exit Full ASCII

|||||||||||||||||||

-$

Unsupported 95XX Features

These 95XX features are **not** supported by the EM9560.BIN application on the T2455:

- Display Setting configuration command (OD) (buffered or transparent display).

- Command Override reader (data entry) command (DLE).

- Right Host Message reader command (HT).

- Preamble A Required configuration command (OA).

- Computer Response Required Mode (CRRM) configuration command (PB), Enter CRRM reader command (./), and Exit CRRM reader command (.-).

- Resume IRL configuration command (XG).

- Separate transmit and receive EOM characters (PI and PJ). The configurable EOM (PF, YZ) is used for both transmit and receive EOM.

- Capacity reader command (%$).

- Forward and Review reader commands (%+ and %/).

- Download Program command from the 9154 or 9161 controller. Use the Transmit File reader command. For help, see Chapter 8, "Reader Command Reference."

*Note: Although these 95XX features are **not** supported, the T2455 does have many additional features (RF communications) that are not available on the 95XXs.*

Running APPTSK.BIN and EM9560.BIN

There are two ways to run APPTSK.BIN or EM9560.BIN:

- Use the Run Program reader command.

- Use the TRAKKER Antares 2400 Menu System.

The instructions in this section explain how to use the Run Program reader command. For help using the TRAKKER Antares 2400 Menu System to run an application, see Chapter 5, "Using Custom Applications."

Running APPTSK.BIN and EM9560.BIN (continued)

To run APPTSK.BIN or EM9560.BIN on the terminal

1. Scan one of these bar code labels:

Run APPTSK.BIN

|||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||

//C:APPTSK.BIN

Run EM9560.BIN

|||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||

//C:EM9560.BIN

The terminal boots, resets all firmware, and runs the application. The initial screen for the application appears. You see one of these screens:

APPTSK.BIN Screen   **EM9560.BIN Screen**

```
┌────────────────────────┐   ┌────────────────────────┐
│                        │   │  \ | /                 │
│ 1998/01/00   12:00:00  │   │ ─ ─ ─                  │
│                        │   │  / | \                 │
│                        │   │                        │
│                        │   │                        │
│                        │   │                        │
│                        │   │                        │
│                        │   │                        │
└────────────────────────┘   └────────────────────────┘
```
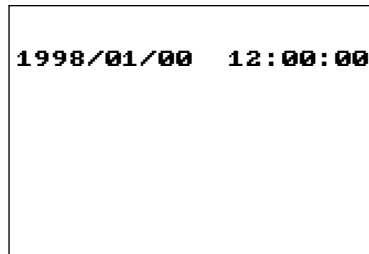
2. Scan this bar code label to toggle the clock display on or off.

Toggle Clock Display

|||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||

CLOCKDISPLAY

3. Use the application to scan bar code labels, enter data through the keyboard, and transmit data. The next section lists some examples of how you can use the applications.
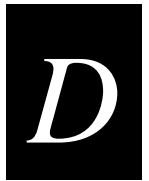
Example 1

Use the application to troubleshoot and test communications before loading and running your data collection application. Connect the terminal to your network. Type data ("Hello World") on the TRAKKER Antares terminal keyboard or scan a bar code label. The data is sent out all serial and network ports and should be received by the host if your terminal is installed and configured correctly. Send data from the host and verify that the data displays on the terminal screen.

Example 2

Connect a serial input device, such as a 2D scanner, to a serial port on the TRAKKER Antares terminal. Data from the input device is displayed on the terminal screen and transmitted out the network (RF) port.

Example 3

Connect the TD2400 communications dock to a serial port on the T2485. Use a T2420 to collect data. Use the TD2400 communications dock to upload data from the T2420 to the T2485. Data is transmitted to the T2485 and out the RF port to the connected network devices.

Example 4

Use the T248X as a gateway between the CrossBar network and the Ethernet or RF network. Connect the T248X as a downline device in your CrossBar network. Connect the T2480/1 with the Ethernet option to your Ethernet network, or connect the T2485/6 to your RF network. While running the APPTSK.BIN or EM9560.BIN application, you can send data from the Ethernet or RF network through the T248X to the 9154 or 9161 and vice versa.

Example 5

Connect the COM1 serial port to the COM2 serial port on a T246X or T248X terminal. Use the terminal to configure itself by typing and entering configuration commands on the keypad or keyboard.

Example 6

Connect the serial port on the T248X to the serial port on the T246X terminal. Use the T248X to configure the T246X by typing and entering configuration commands on the T248X keypad.

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