

User's Manual

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TRAKKER[®] Antares[™] 246X Stationary Terminal

 **ntermec**

A **UNOVA** Company

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

U.S. service and technical support: 1-800-755-5505
U.S. media supplies ordering information: 1-800-227-9947

Canadian service and technical support: 1-800-688-7043
Canadian media supplies ordering information: 1-800-268-6936

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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	3/99	Updated the manual as follows: <ul style="list-style-type: none">• Added information about using the TRAKKER Antares CrossBar adapter to connect the 2460 to a 9154/9161 controller.• Revised the Receive File and Transmit File reader commands to include information on converting 7-bit ASCII files to/from 8-bit binary files during the file transfer.• Added the Status Lights Control reader command.• Added a long range laser scanner option to the Scanner Selection configuration command.• Made minor corrections and changes throughout the manual.

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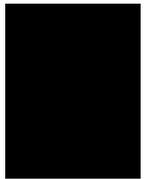
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Before You Begin

This section introduces you to standard warranty provisions, safety precautions, warnings and cautions, document formatting conventions, and sources of additional product information.

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 and Cautions

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



Warning

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

Avertissement

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



Caution

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

Conseil

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

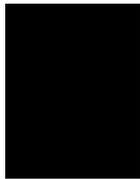
Notes: Notes are statements that either provide extra information about a topic or contain special instructions for handling a particular condition or set of circumstances.

About This Manual

This manual contains all of the information necessary to install, configure, and operate the TRAKKER® Antares™ 2460 and 2461 stationary terminals.

This manual was written for two audiences:

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



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 246X terminal features, functions, and accessories. Explains the back panel connectors and how to use the status lights, status beeps, power, memory, and drives.
2	Explains how to install the 246X terminal in your serial or Ethernet 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, Ethernet communications, and explains how to install and configure your terminal to communicate with other devices.
5	Introduces the 246X programmable terminals and explains how to download and run applications.
6	Lists problems you may encounter while operating the terminal and possible solutions. It also includes information on how to reset and boot the terminal.
7	Describes the commands that you can use to change the 246X terminal's operation or manage files.
8	Describes the commands that you can use to configure the 246X terminal.
A	Lists the specifications, configuration command names and syntax, and the default configuration settings for the 246X terminal.
B	Contains reference tables including the full ASCII table and full ASCII bar code chart.
C	Explains how to use the default applications and 95XX emulation on the 246X terminal.

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Terminology

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

Term	Description
DCS 300	The 246X terminals 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.
2460	The term “2460” indicates the specific type of terminal, the TRAKKER Antares 2460 terminal.
2461	The term “2461” indicates the specific type of terminal, the TRAKKER Antares 2461 terminal.
246X	The generic term “246X” indicates either the TRAKKER Antares 2460 or 2461 stationary terminal.
Terminal	The generic term “terminal” indicates any TRAKKER Antares 246X stationary terminal.
TRAKKER Antares	The term “TRAKKER Antares” identifies the product family of TRAKKER Antares stationary terminals.

Conventions for Keyboard Input

This table describes the formatting conventions for input from PC, host computer, or terminal 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.
<i>Italic text</i>	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.



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	————	<i>Name</i>
	————	<i>Bar code (Code 39)</i>
\$+	————	<i>Human-readable interpretation</i>

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 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 server, 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.

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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.
<i>Italic text</i>	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 other manuals for additional information about your 246X stationary terminal, accessories, or the data collection network. 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 246X Stationary Terminal

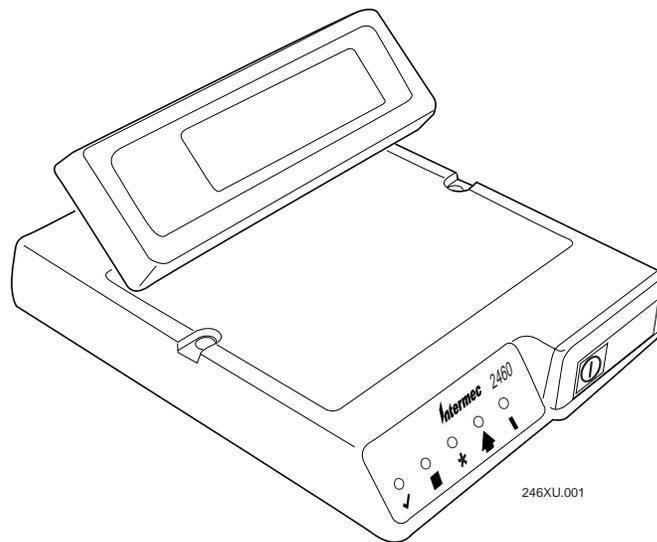
This chapter introduces the TRAKKER[®] Antares[™] 246X stationary terminals. You will learn about the terminal connectors and learn how to understand the terminal's status lights, status beeps, power, memory, and drives.

What Are the 246X Stationary Terminals?

The TRAKKER Antares 246X stationary terminals (2460 and 2461) are desktop data collection terminals. You can use these programmable terminals to run client/server applications such as work-in-process, time and attendance, or document tracking.

You use the 2460 and 2461 terminals to collect and upload data to a host computer via serial or Ethernet communications. You can configure the terminal by scanning bar codes or by downloading configuration commands from your host.

***Note:** The 246X terminals communicate with either the DCS 300 or the Model 200 Controller. The DCS 300 is a data collection server that replaces the Model 200 Controller.*



Models and Options for the 246X Terminals

The 246X terminals include these models:

2460 The 2460 is a programmable data collection terminal that uses serial ports to transmit data to and receive data from a host or PC. The 2460 has two serial ports, COM1 and COM2.

2461 The 2461 is a programmable data collection terminal that has both a serial port and an Ethernet connector to transmit data and receive data. You can choose either UDP Plus (DCS 300 network) or TCP/IP network protocol.

Standard Features

The 246X terminal ships with these standard features:

- 512K of RAM reserved for applications
- 2MB flash memory, of which 750K is available as a flash drive for storing user applications and files
- Scanner connector to attach a wand, laser scanner, or CCD scanner
- Serial port (COM1) for RS-232 communications between the terminal and host

Options

- Optional 4MB programmable flash memory (the extra 2MB can be configured as drive D)

Accessories for the Terminal

You can use these accessories (sold and ordered separately) with the 246X terminals:

Main Power Supply The main power supply (Part No. 065236) provides 12V to the 246X terminal. The power supply ships with a North American power cable (Part No. 586105). You must purchase power cables for other countries separately.

Power Cables The main power supply supports these international power cables:

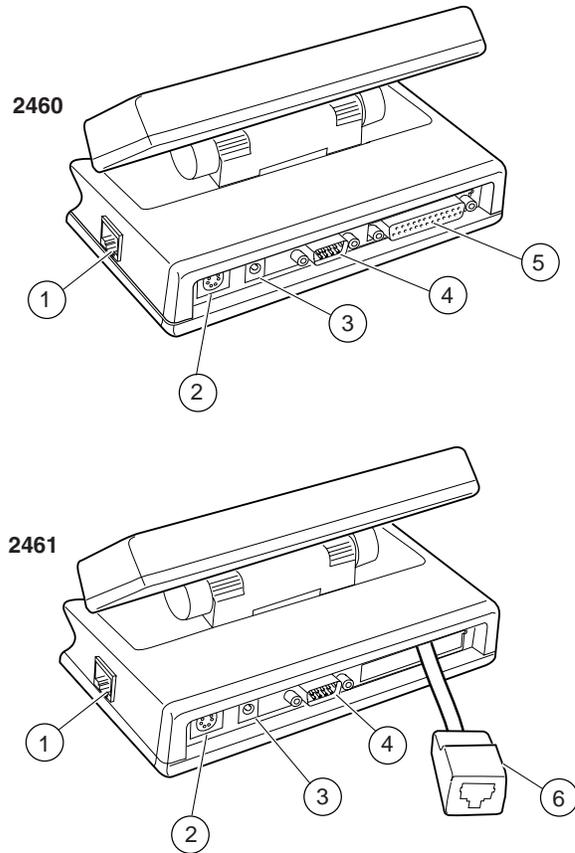
Country	Intermec Part Number
UK	586266
Europe	586267
Switzerland	586276
China	586281
Chile, Italy	586282
Denmark	586283

Keyboard There are two keyboard accessories available for the terminal:

- Alphanumeric keyboard (Part No. 068662) is a compact QWERTY-style and supports a subset of keys that are available on a standard PC-AT keyboard.
- Numeric keyboard (Part No. 069113) supports 10-key numeric entry.

TRAKKER Antares CrossBar adapter You must use this adapter (Part No. 069447) when adding the 2460 terminal to CrossBar network. This adapter connects the 9154 or 9161 to the Multi-Drop cable (Part No. 047653), which connects to the terminal. For help, see “Connecting to an Intermec CrossBar Network” in Chapter 2.

Understanding the Terminal Connectors



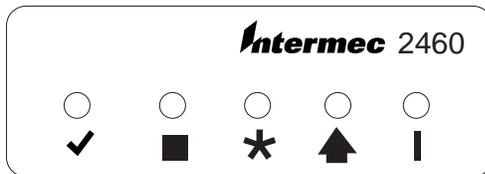
246XG.002

Each connector on the back panel of the 2460 and 2461 is defined next.

- 1 **Scanner (Stewart 10-pin) connector** The scanner connector lets you connect an input device to the terminal.
- 2 **Keyboard connector** The keyboard connector lets you attach the keyboard accessory to the 246X terminal.
- 3 **12V power supply connector** The terminal operates using an external power supply. You must have a power supply connected to operate the terminal.
- 4 **COM1** You can communicate with other RS-232 devices, such as scales, PCs, 9189 RF gateways, and printers, through the COM1 serial port.
- 5 **COM2 (2460 only)** You can use the COM2 serial port for:
 - RS-232, RS-422, or RS-485 serial communications
 - Multi-Drop (CrossBar) network connectivity
- 6 **Ethernet connector (2461 only)** The 10BaseT Ethernet connector lets you connect the 2461 directly to an Ethernet network.

Using the Status Lights

You can use the terminal's status lights to monitor the status of backup battery power, 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.



- ✓
Good Read This status light turns on when you successfully scan a bar code label with an input device (badge scanner, laser scanner, and so on) 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 7.
- **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 7.
- ✱
Network Connect This status light tells you if the 2461 is connected to your Ethernet network. The Network Connect status light may be off, blinking, or on.

	Status Light Off	Status Light Blinks	Status Light On
Ethernet & TCP/IP	Not connected to the Ethernet network	Not used	Connected to the Ethernet network
Ethernet & UDP Plus	Not connected to the Ethernet network	Not connected to the DCS 300	Connected to 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.

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.”



Modifier This status light indicates that one of the modifier keys on the keyboard is active. 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. Examples of modifier keys include **Ctrl**, **Alt**, and **Shift**. 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 7.



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 charges. For help, see "Learning About the Power Supply and Backup Battery" later in this chapter.

Understanding the Terminal’s Status Beeps

The 246X terminal has an internal speaker to emit beep sequences as you use the terminal. You can change the audio volume to meet the needs of your working environment by scanning bar code labels.

To raise or lower the beep volume, scan one of these bar codes repeatedly

Lower Beep Volume



\$+BV8

Raise Beep Volume



\$+BV9

Note: If the Beep Volume is turned off, you will not hear any status beeps or keyclicks.

For more information on changing the beep volume, see the Beep Volume command in Chapter 8, “Configuration Command Reference.” Use this table to understand the meaning of each beep sequence:

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 (Code 16K or code 49) label.
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 after 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.
Click	You pressed a key on the keyboard or scanned a two-dimensional bar code label. You can disable the keyclick. For help, see “Keypad Clicker” in Chapter 8.

Learning About the Power Supply and Backup Battery

The 246X terminal operates using an external power supply. It has a rechargeable NiCd (Nickel-Cadmium) backup battery that is designed to back up all memory and the real-time clock during a power loss. You must connect a power supply to the terminal for it to operate. You must purchase the power supply separately.

Understanding the Backup Battery

The backup battery is a rechargeable NiCd battery that is designed to back up all memory and the real-time clock during a power loss. The backup battery provides protection for sags and dropouts.

Here are the features of the backup battery:

- During a power loss, the terminal uses backup battery power to continue operating for 10 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 terminal continuously monitors the backup battery voltage level and charges the backup battery whenever the voltage level gets low. The power supply provides the power to charge the backup battery whether the terminal is turned on or off.
- 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 and your usage. Using the terminal in extreme environments (very hot or very cold), reduces battery life and will require you to replace the backup battery more often.
- The backup battery provides backup battery power for a minimum of 2 weeks if the battery is fully charged and no AC power is supplied. 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 has remaining power when you reconnect it to the power supply and turn it on, the terminal resumes exactly where it was when you turned it off, or it 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.*

Recognizing a Low or Discharged Backup Battery

You can operate the terminal while the backup battery is charging.

If the Power status light continues to blink after charging and the power supply is attached, the backup battery may be bad. If the backup battery will no longer hold a charge (Power status light is always blinking), you need to replace it. You need to back up all of your data stored in RAM. Any data stored in flash memory will be saved. For help, contact your local Intermec Service Representative.

Note: The NiCd backup battery is NOT user-serviceable. You must return the 246X terminal to Intermec to replace the backup battery.



Caution

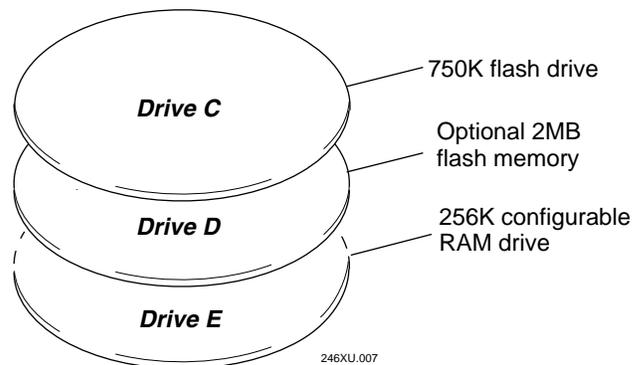
When you replace the backup battery, all data stored in RAM is lost.

Conseil

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

Defining the Terminal's Memory and Drives

The 246X stationary terminals come with the following memory and drives. You can store up to 32 files on each drive.



Drive C is a 750K flash drive on the 246X. Applications must be stored on drive C.

Drive D is an optional 2MB extended flash memory drive. If you have the optional 4MB flash memory, you can configure the extra 2MB of the flash memory as a 2MB drive (D). You may want to use this drive to store large lookup tables and data files. For help configuring the drive, see “Flash Memory Configuration” in Chapter 8.

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. The contents of the RAM drive are erased when you boot or reset the terminal, or change the backup battery. For help configuring the drive, see “RAM Drive Size” in Chapter 8.

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

Where Do You Go From Here?

Now that you understand the features and capabilities of your new 246X terminal, you can use this manual to learn how to perform these tasks:

Task	See This Chapter
Learn how to install the terminal and connect it to your network	Chapter 2, “Installing the Terminal”
Learn how to change the terminal's configuration	Chapter 3, “Configuring the Terminal”
Learn how to use the terminal in your data collection system and learn about network protocols	Chapter 4, “Operating the Terminal in a Network”
Learn how to download and run custom applications on your programmable terminal	Chapter 5, “Programming the Terminal”

2

Installing the Terminal

This chapter explains how to install the 246X terminal in your serial or Ethernet network. 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 246X terminal to your network:

- Power supply
- Power cord
- Input device (badge scanner, wand, laser scanner, CCD scanner)
- Optional keyboard
- RS-232 or RS-232/422/485 serial communications cables
- Multi-Drop cable (2460 only)
- Ethernet (10BaseT) cable (2461 only)

Installing the Terminal and Connecting External Devices

The steps to install your 246X terminal depend on the options that you purchased and the type of network or devices to which you want to connect the terminal.

To install and configure your 246X terminal, you need to

- mount the terminal.
- connect the power supply.
- connect input devices.
- connect a keyboard (optional).
- connect the 246X terminal to a serial devices or network.
- connect the 2460 to an existing Intermecc CrossBar[®] network.
- connect the 2461 directly to an Ethernet network.
- charge the backup battery.
- turn on the terminal.
- configure the terminal for your serial, CrossBar, or Ethernet network.

These procedures are described in detail in the next sections.

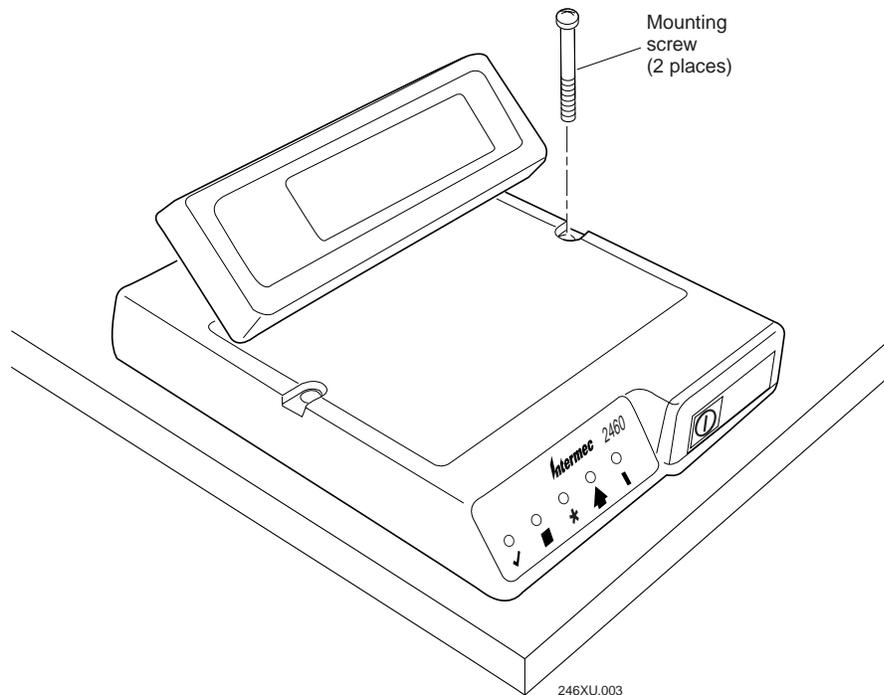
Mounting the Terminal

You can mount the terminal on any horizontal or vertical surface. The sloping front panel of the 246X terminal makes reading the status lights easy at any angle and you can rotate the screen to accommodate any viewing angle. The terminal is designed for use in an indoor environment. Make sure that the location that you select is relatively dust-free, stable, and dry.

Note: Make sure that you mount the terminal so that you can easily connect the power supply to the back of the terminal.

To mount the 246X terminal

1. Select a flat surface. Make sure that you have easy access to the connectors, On/Off (ⓘ) button, status lights, and screen.
2. Use the mounting template in Appendix A to mark the placement of the mounting holes on the mounting surface.
3. Drill two mounting holes in your mounting surface.
4. Place the terminal over the mounting holes and install a screw (not provided) through each mounting hole in the 246X terminal.

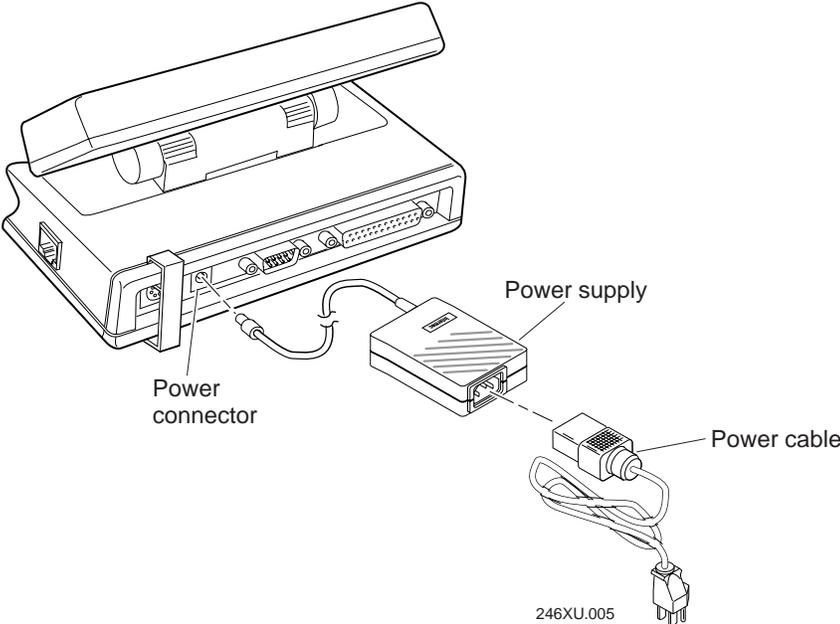


Connecting the Power Supply

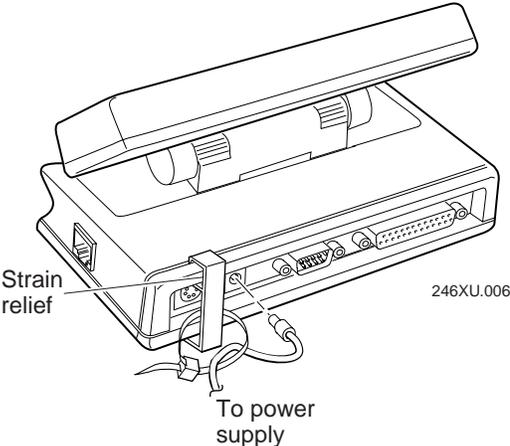
You connect power to the terminal using the main power supply.

To connect the power supply

1. Connect the power supply to the power connector on the terminal. Connect the power cable from the power supply to a powered electrical outlet.



2. To make sure that you keep the power supply cable connected to the terminal, take a loop of the power supply cable and secure it to the strain relief using a tie-wrap.



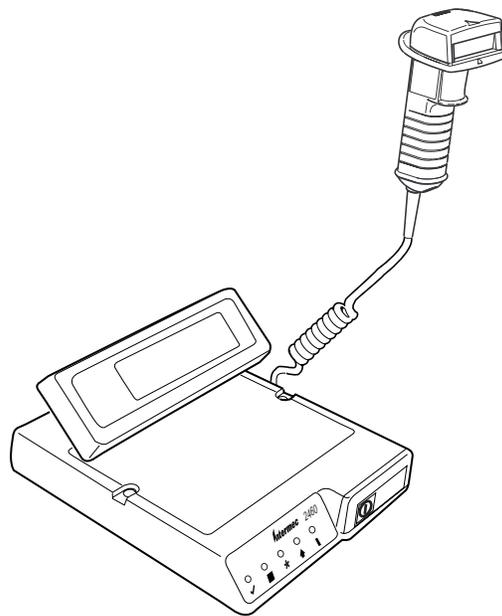
Connecting Input Devices

The 246X terminal supports wands, badge scanners, laser scanners, and CCD scanners. You can use these input devices to collect data with the 246X terminal:

- 126X, 127X, and 128X wands
- 1354 and 1355 badge scanners
- 1517, 1518, 1519, and 1545 laser scanners
- 1550A, 1551A, 1550C and 1551C laser scanners
- 1550B laser scanner with software version 1.9 or later
- 1551B laser scanner with software version 1.1 or later
- 1552 cordless laser scanner with 9745 base station
- 1463 CCD scanner

To connect input devices

- Connect the 10-pin Stewart connector from the input device to the scanner connector on the 246X terminal.



When you turn on the terminal and scan a bar code, the Good Read status light turns on for 2 seconds if the bar code was scanned successfully.

For help on scanning with your input device, see the documentation for the input device.

Connecting a Keyboard

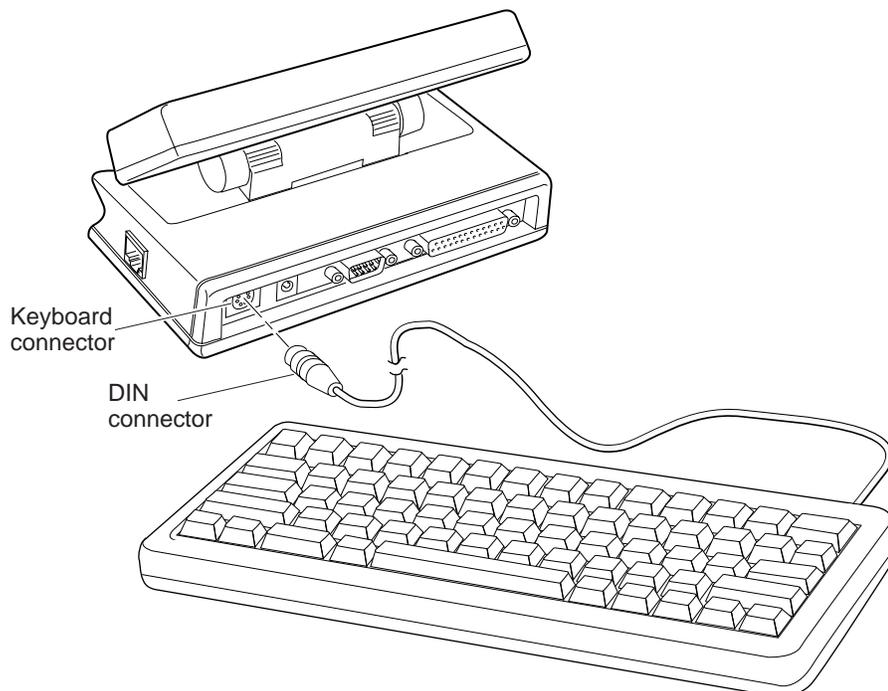
You can connect a keyboard to the 246X terminal. There are two keyboard accessories available for the terminal:

- Alphanumeric keyboard (Part No. 068662)
- Numeric keyboard (Part No. 069113)

You can also attach a standard PC-AT keyboard to the terminal. However, you will find that not all of the keys on the keyboard work the same as if the keyboard were attached to your PC.

To connect a keyboard

- Insert the keyboard DIN connector into the keyboard connector on the 246X terminal.



246XU.008

If you are using the alphanumeric keyboard accessory:

- Intermec recommends that you use the numeric keys that run across the top of the keyboard.
- Pressing the **Num Lock** and **Caps Lock** keys perform the same function. If you press **Caps Lock** and then press **Num Lock**, you cancel the function of the **Caps Lock** key.

- Access the 10-key built-in keypad by pressing the **Fn** (Function) key followed by the numeric key.
- The left and right **Alt** keys are mapped to Function Left and Function Right supported by other TRAKKER Antares products.

If you are using the numeric keyboard accessory:

- Press **Num Lock** to access the cursor and paging keys.

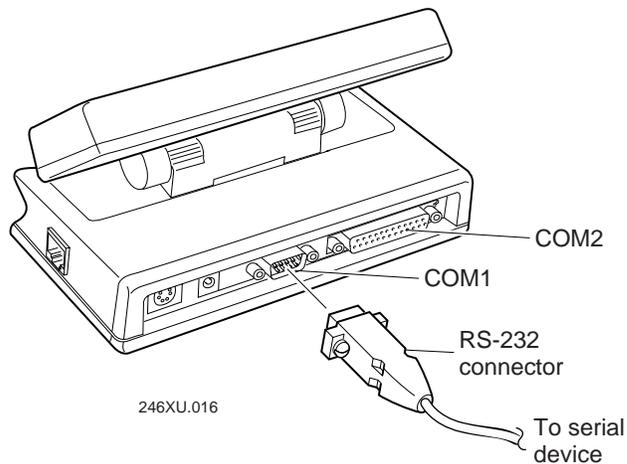
Connecting to Serial Devices and Networks

You use the terminal's serial ports to transfer data between the terminal and a serial device. Every 246X terminal has one serial port (COM1) that supports RS-232 communications. You can use COM1 to connect to a serial device, such as a printer, a scale, a 9189, or a PC.

The 2460 comes with two serial ports: COM1 and COM2. COM2 supports RS-232/422/485 communications. You can use COM2 to connect to a serial device, a wired network, or an Intermec CrossBar network.

To connect the 246X terminal to a serial device or network

1. Insert the 9-pin RS-232 connector into the COM1 port on the back of the terminal.



2. Insert the 25-pin serial or multi-drop connector from a serial device or network to the COM2 port on the back of the terminal. For help connecting to a CrossBar network, see the next section, "Connecting to an Intermec CrossBar Network."
3. Use a small straight-slot screwdriver to tighten the two screws in the each connector.
4. Attach the other end of the RS-232 cable to the serial device or network.

Connecting to an Intermec CrossBar Network

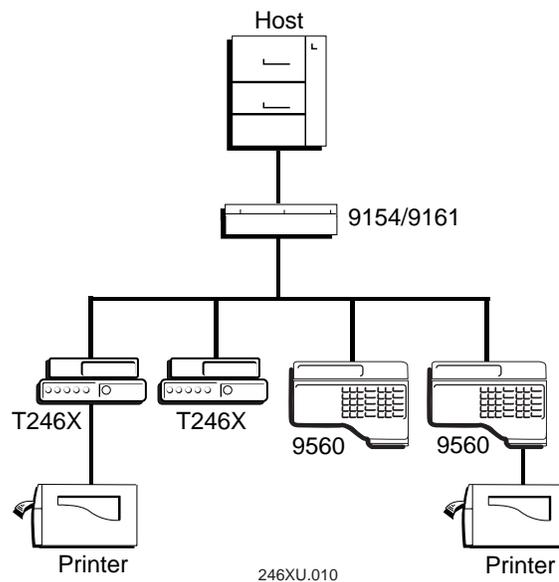
If you have a 2460, you have a second serial port (COM2) that supports RS-232/422/485 communications. With COM2, you can install the 2460 in an existing CrossBar network. The 2460 can communicate with a 9154 or 9161 controller using Multi-Drop protocol.

One main difference between the 2460 and the 9560 stationary terminal is the type of program or application you can run on the terminal. The 2460 can run a C/C++ application while the 9560 terminal runs IRL programs. You need to prepare your IRL data collection program for the 2460 by converting it to a Microsoft C/C++ application.

There are two options for converting an IRL program:

- Use an IRL-to-C conversion program. For help, contact your local Intermec service representative.
- Write a new C/C++ application. You can use either the TRAKKER Antares Programmer's Software Kit (Part No. 065332) with Microsoft Visual C/C++ version 1.5X (Part No. 590224) or EZBuilder (Part No. 066381). For help, see "Creating Applications for the Terminal" in Chapter 5.

The application needs to send and receive data through COM2. Once your application is converted, you can download the application to the 2460 and begin using it in your CrossBar network. Follow the next instructions to install and configure the terminal for a CrossBar network.



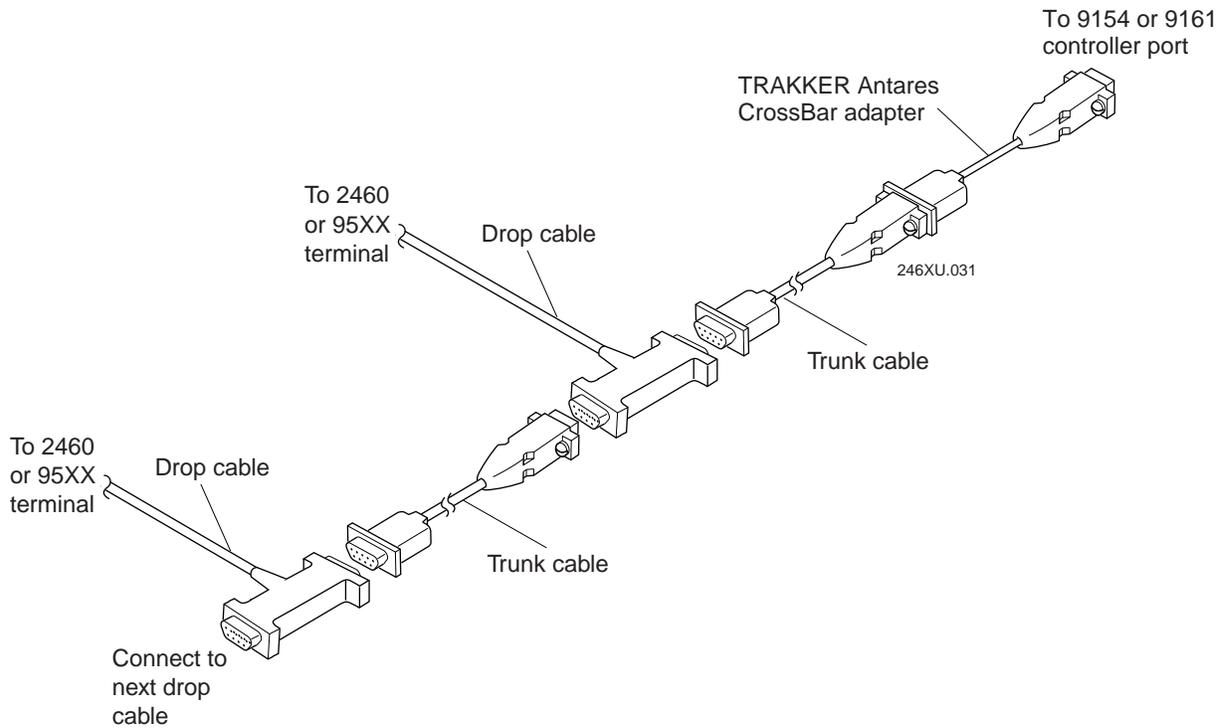
Equipment you need to install the 2460 in a CrossBar network

Make sure you have this equipment before you begin:

- One Multi-Drop (or Drop) cable (Part No. 047653) for each 2460 terminal
- One TRAKKER Antares CrossBar adapter (Part No. 069447) for each 9154 or 9161 controller

To install the TRAKKER Antares CrossBar adapter

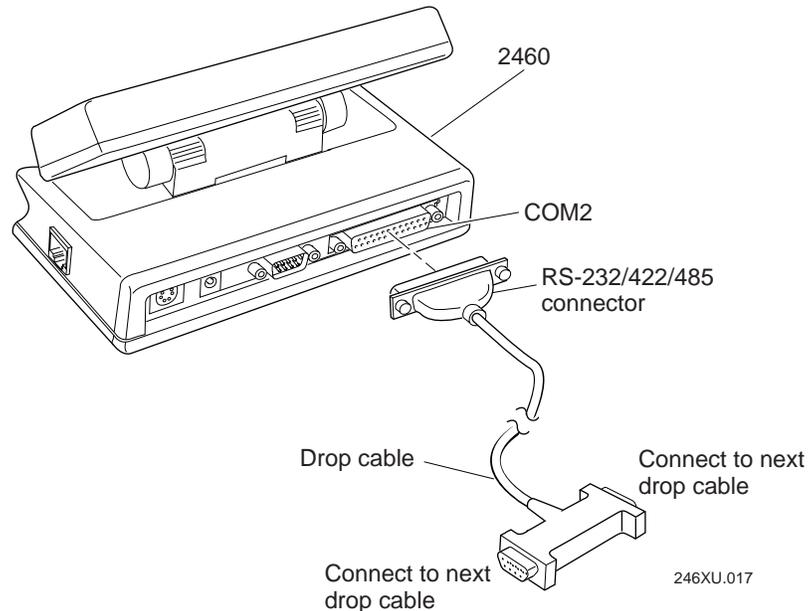
1. On the 9154 or 9161 controller, disconnect the Multi-Drop network cable.
2. Connect the Multi-Drop network cable to one end of the TRAKKER Antares CrossBar adapter.
3. Connect the other end of the TRAKKER Antares CrossBar adapter to the 9154 or 9161 controller.



To install the 2460 in an existing CrossBar network

1. Insert the 25-pin multi-drop connector of the Drop cable (Part No. 047653) into the COM2 port on the back of the terminal.
2. Use a small straight-slot screwdriver to tighten the two screws in the multi-drop connector.

3. Attach the 9-pin connectors on the other end of the Drop cable into your multi-drop network.



4. Download an application to the 2460. The procedure you follow depends on the COM port you choose for the download.
 - If you use COM1 and RS-232 communications, follow these steps:
 - a. Connect the 9-pin RS-232 cable from the PC to the COM1 connector on the back of the terminal.
 - b. Turn on the 2460.
 - c. Configure the COM1 serial port parameters to match your PC serial port. For help, see “Configuring the Serial Port Parameters” later in this chapter.
 - d. Use the FileCopy utility that ships with the PSK and EZBuilder to download your C/C++ application (converted from IRL) from a PC to the 2460. For help, see Chapter 5, “Programming the Terminal.”
 - If you use COM2 through the CrossBar network, follow these steps:
 - a. Turn on the 2460.
 - b. Configure the COM2 serial port parameters. You need to set Multi-Drop protocol, baud rate, and multi-drop address that you assigned for the 2460. For help, see “Configuring the Serial Port Parameters” later in this chapter.
 - c. Use the “Receive and Convert 7-Bit ASCII Files to 8-Bit Binary Files” command or the “Transmit and Convert 8-Bit Binary Files to 7-Bit ASCII Files” command to download an application through the 9154 or 9161 controller to the 2460. For help, see Chapter 7, “Reader Command Reference.”

5. Load and run an application. For help, see “Run Program” in Chapter 7.

Once the 2460 is installed, configured, and loaded with your C/C++ application, you can begin using the terminal in your CrossBar network. The 2460 will run the C/C++ application and send data to the 9154 or 9161 controller. If you have existing terminals like the 9560 or 9512, these terminals will run the equivalent IRL program and send data to the controller.

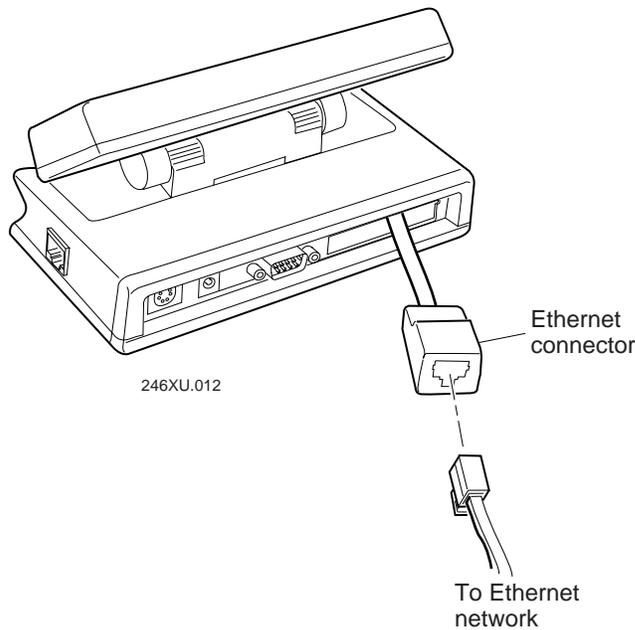
Note: You can use COM1 to connect to another RS-232 serial device once you have downloaded the application.

Connecting Directly to an Ethernet Network

The 2461 terminals come with an Ethernet (10BaseT) card that allows your terminal to communicate with a host or any device on an Ethernet network.

To connect to an Ethernet network

1. Configure your host computer and network. Assign an IP address for the 2461.
2. Connect the Ethernet jack to the Ethernet connector on the back of the terminal.



3. Plug the other end of the Ethernet cable into an Ethernet connector on your network.

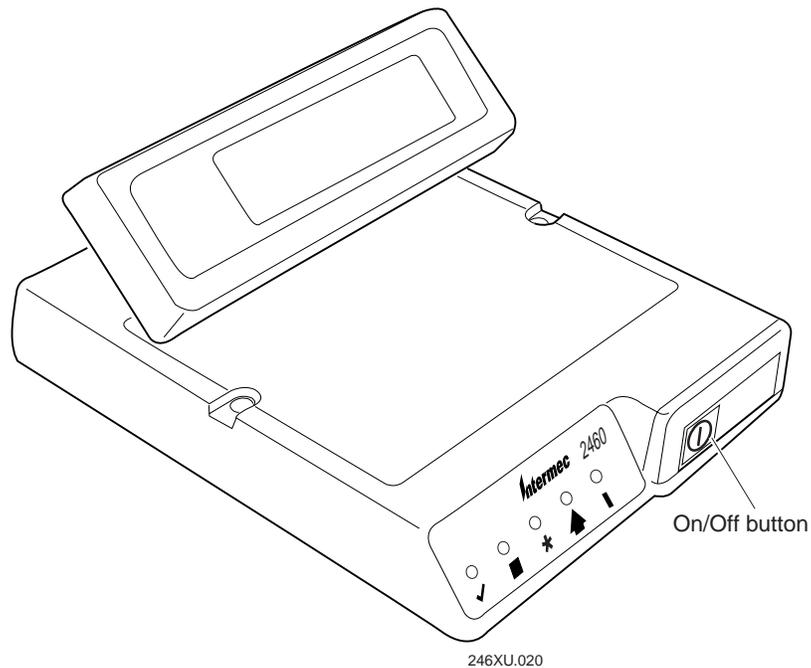
Turning On the Terminal for the First Time

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

To turn on the terminal

- Press the On/Off (ⓘ) button on the terminal. The terminal runs POST (power-on self-test), displays the version number, and then displays the date and time.

Note: If the backup battery charge is low and the terminal fails POST, a POST results screen appears and the terminal shuts off. Contact your local service representative before using the terminal.



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 after you install the terminal.

The terminal continuously monitors the backup battery voltage level and charges the backup battery whenever the voltage level gets low. You can operate the terminal while the backup battery is charging.

To charge the backup battery

1. Make sure the power supply is connected to the terminal and a powered electrical outlet.
2. Let the power supply charge the backup battery for 24 hours to fully charge the backup battery.

Note: For more information about the backup battery, see “Learning About the Power Supply and Backup Battery” in Chapter 1.

Configuring the Terminal to Communicate in Your Network

You need to configure the 246X terminal to communicate with serial or Ethernet devices in your network. The parameters you configure depend on the type of network or devices to which you want to connect the terminal.

Here are the parameters you need to set:

- Time and Date
- Serial port (COM1, COM2)
- Ethernet (2461 only)

The next sections list the parameters you need to configure and explain how to use bar code labels to configure the terminal.

Setting the Time and Date

You need to set the time and date on the terminal. You use bar code labels to set the time and date.

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. Acceptable values for *data* are 12 digits corresponding to:

<i>yy</i>	00-99	Year
<i>mm</i>	01-12	Month of the year
<i>dd</i>	01-31	Day of the month
<i>hh</i>	00-23	Hour
<i>mm</i>	00-59	Minutes
<i>ss</i>	00-59	Seconds



0



1



2



3



4



5



6



7



8



9

3. Scan this bar code:

Exit Accumulate Mode



_/

4. If you want to configure a serial port, continue with the next section, “Configuring the Serial Port Parameters.”

If you want to configure a 2461, follow the instructions for “Configuring the Ethernet Parameters” later in this chapter.

Configuring the Serial Port Parameters

You must first select the communications protocol for each 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 host computer or serial device in a wired network:

Serial Port 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
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's serial port must match the values set for the host's (or other device's) serial port. In a CrossBar network, you also need to configure your 9154 or 9161 controller to add the new multi-drop 2460 device. For help, see your controller user's manual.

You set the serial port parameters by scanning bar codes. For help, see Chapter 8, "Configuration Command Reference."

Configuring the Ethernet Parameters

The 2461 terminals contain an Ethernet card. With this option, your terminal can communicate to a host or any device on an Ethernet network.

You need to configure these network parameters:

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
Network port (UDP Plus)	5555
Network port (TCP/IP)	23

You scan bar code labels to set these parameters. For a detailed definition of these parameters, see Chapter 4, “Operating the Terminal in a Network.” For more information on scanning the bar codes, see Chapter 8, “Configuration Command Reference.”

***Note:** If the 2461 is on a different IP subnetwork from the DCS 300 or host, you must also configure the default router and subnet mask.*

To configure the T2461 for an Ethernet network

1. Configure the DCS 300 (UDP Plus) or host (TCP/IP). For help with the server, see the *DCS 300 System Manual* (Part No. 067296).
2. Configure the terminal. Scan the appropriate bar codes from Chapter 8, “Configuration Command Reference.” You will find a table listing the page numbers of all of the Ethernet network communications that you need to configure on page 8-4.

The 2461 will now try to establish communications with the DCS 300 or the host.

Once the terminal connects, the login or initial screen for your application appears and the Network Connect status light remains on. You can begin using the terminal to collect data.

Starting the Application and Using the Terminal

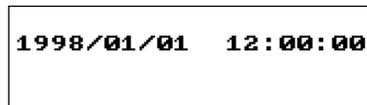
Your 246X terminal ships with these applications already loaded:

- Sample application (APPTSK.BIN)
- 9560 emulation application (EM9560.BIN)

To start the application and use the terminal

- Press **I** to turn on the terminal. The login or initial screen for your application appears.

Sample Application



9560 Emulation Application



246XU.014

For help on downloading custom applications, see Chapter 5, “Programming the Terminal.”

The 9560 application emulates a subset of the functionality available on the 95XX terminals. You can use the application to scan, enter, and display data. For help using the default application or the 9560 emulation application, see Appendix C, “Using the Default Applications.”

Turning the Terminal On and Off

The **I** button on the front of the terminal acts as a Suspend/Resume key. When you press **I** 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** 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 8.

You can configure the terminal to disable the **I** button. When the **I** button is disabled, you cannot turn off the terminal. By default, the **I** key is enabled so that you can turn the terminal on and off. For help, see “Suspend/Resume Control” in Chapter 8.

3

Configuring the Terminal

This chapter explains how to configure the terminal, discusses the terminal's configuration parameters, and tells you how to restore the default configuration.

How to Configure the Terminal

You can configure the TRAKKER Antares 246X terminal 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.

You can also configure the terminal from a remote device. For example, you can configure the 2461 from another device on the Ethernet network. Or, you can use the DCS 300 or an application from the host to configure the 2461. You can configure any 246X 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 246X terminals, such as the volume of its status beeps 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's 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 8, "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 8, “Configuration Command Reference.”

Specifying How the Terminal Will Communicate

The 246X terminals use serial communications to send data to and from another serial device. With the Ethernet option, the 2461 can communicate to a host or device on an Ethernet network.

To learn how to configure the terminal to fit into your wired or Ethernet 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 keypad clicker).
- enable or disable the keypad clicker and keypad caps lock.
- customize the way the scanner connected to the 246X operates by selecting scan ahead data buffering, type of scanner device, decode security level, scanner timeout value, and trigger modes.

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 8, “Configuration Command Reference.”

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

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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.

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 8.*

- 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’s flash memory. To save the changes in flash memory, scan this bar code label:

Save Configuration in Flash Memory



.+1

Scanning Bar Codes to Enable Symbologies

The TRAKKER Antares 246X terminals 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 8, “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 Code 39, Code 128, and UPC/EAN symbologies 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*

Bar Code Symbology Table (continued)

Bar Code Symbology	Enabled?	To Enable the Symbology
Interleaved 2 of 5 (I 2 of 5)	No	Enable I 2 of 5, Variable Length With a Check Digit  *\${CA99*
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  *\${CE11111111*

Note: You can enable either Code 2 of 5 or Interleaved 2 of 5. If you enable I 2 of 5, Code 2 of 5 is automatically disabled and vice versa.

Saving Configuration Changes in Flash Memory

The 246X terminals use 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 three ways that you can configure the terminal and how the configuration is updated:

Configure the Terminal	Runtime or RAM Configuration Updated?	Boot or Flash Configuration Updated?
Scanning bar code labels	Yes	No
From a host application through the serial port	Yes	No
2461 terminal from the network (DCS 300 or host)	Yes	No

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 by scanning or sending the Save Configuration in Flash Memory reader command.

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 DCS 300 or host application. For help, see Chapter 4, “Operating the Terminal in a Network.”

Restoring the Terminal's Default Configuration

When you configure the 246X 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 scan the Default Configuration bar code label to return the terminal to its default configuration.

Note: If you restore the default configuration, you may need to reset the serial port or Ethernet parameters to communicate with other devices in your network.

To restore the default configuration using the reader command

- Scan this bar code label:

Default Configuration



.+0

Upgrading the Firmware

The terminal firmware includes these items:

- Sample application
- Operating environment, firmware, and drivers

You can upgrade a terminal 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.

For the 2461, order the kit that works with your protocol. For the 2460, order either kit.

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 246X terminal from a host computer or PC using serial communications. For help connecting the terminal, see “Connecting to Serial Devices and Networks” in Chapter 2 and “Using Serial Communications on the Terminal” in Chapter 4. Once the terminal is connected, you can upgrade the firmware.

Note: On the 2461, 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.

Click the Help button on the installation utility at anytime to get more information.

3. Choose the COM port, the application (firmware type), and the communications hardware type.
4. Choose OK.
5. Scan this bar code:

Boot Terminal



-1

Once the upgrade is complete, the terminal boots and runs the default application.

4

Operating the Terminal in a Network

This chapter describes serial networks and the Ethernet network and explains how the 246X terminal fits into your network. It also explains how to install and configure the terminal, use serial or network communications, configure the 246X terminal over the network, and it provides technical details about network connectivity and protocols.

Using Serial Communications on the Terminal

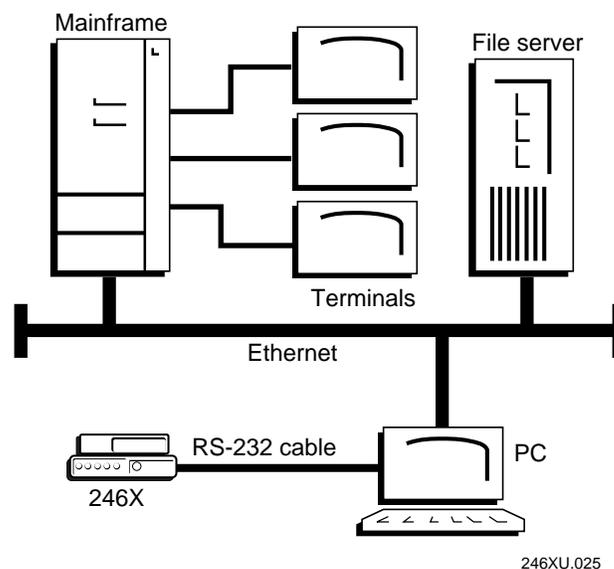
The 246X stationary terminals have one or more serial ports to transfer data to and from another device via serial communications. Before you can use the serial port, you need to connect and configure the terminal.

The next sections cover these topics:

- How the 246X Terminal Fits Into Your Serial or CrossBar Network
- Identifying the COM Ports
- Choosing a Communications Protocol
- Configuring the Serial Port Parameters
- Configuring the Terminal Via the Serial Port

How the 246X Fits Into Your Serial or CrossBar Network

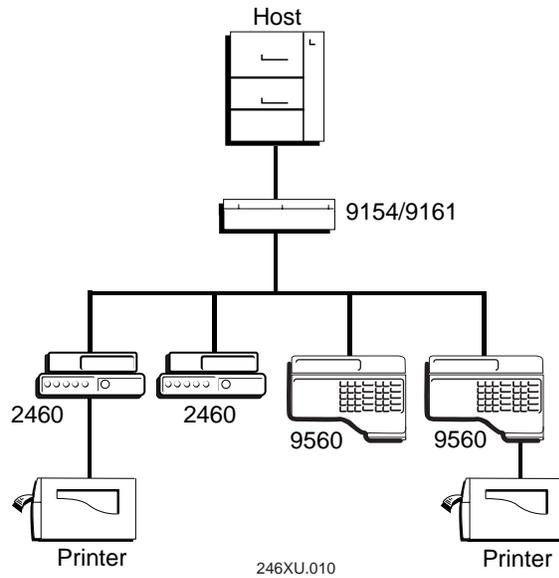
The 246X terminal is a versatile terminal that you can easily add to your network or distributed data collection system. You can use the 2460 or 2461 as an end device in your wired network. Every terminal has one serial port (COM1) to transmit data to and from a PC via RS-232 serial communications.



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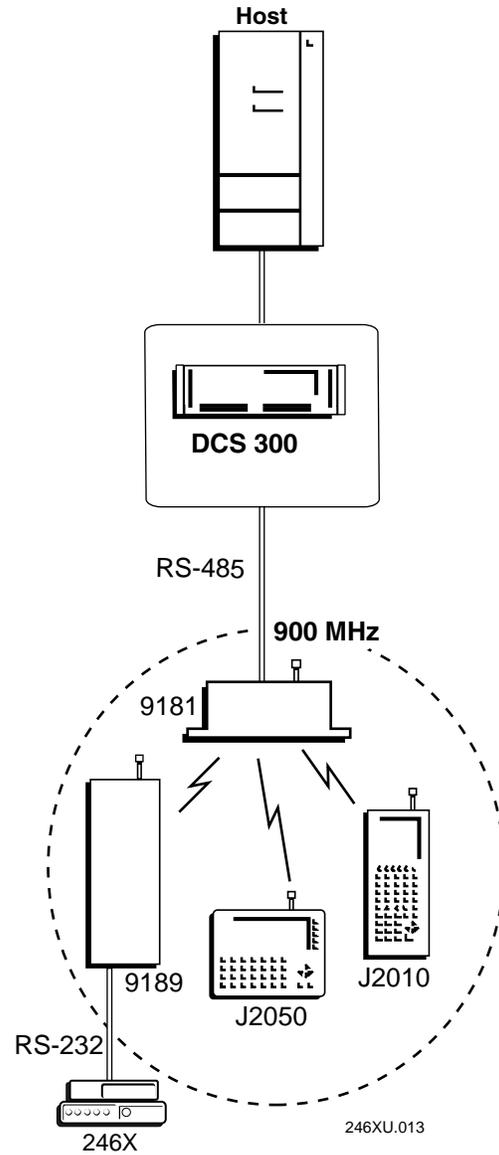
The 2460 terminal has an additional serial port (COM2) that supports RS-232/422/485 communications. You can use COM2 to connect to a serial device (for example, a printer), a wired network, or an Intermec CrossBar network. In a CrossBar network, the 2460 transfers data to the 9154 or 9161 controller using Multi-Drop protocol.

2460 Terminals in an Intermec CrossBar Network



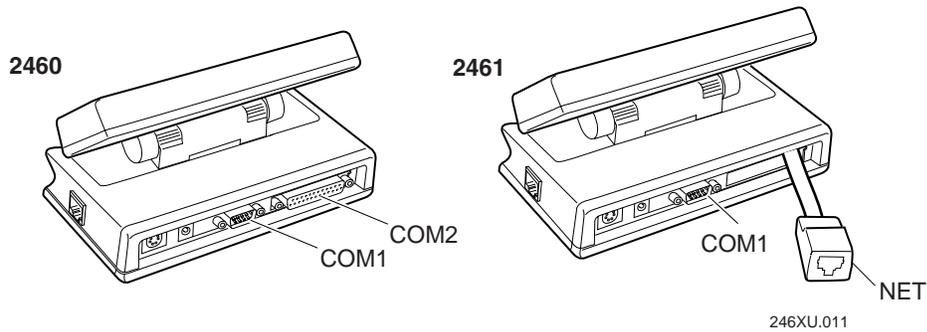
You can also use the serial port to connect to a 900 MHz network via the 9189 RF Gateway. The 246X terminal communicates with the 900 MHz network using Polling Mode D protocol.

246X Stationary Terminal in a 900 MHz Network



Identifying the COM Ports

Communications ports, also called COM ports, are locations from which data can be passed into and out of the terminal. This illustration identifies the COM ports on the terminals.



This table explains the COM port designations to use when developing client/server applications for the terminal.

Port	COM Port Designation for Applications
COM1	Use for RS-232 serial port communications on the 2460 and 2461.
COM2	Use for RS-232/422/485 serial port communications on the 2460.
NET	Use for Ethernet communications on the 2461. The TRAKKER Antares PSK functions use NET to designate the Ethernet network port.

You can physically connect the 246X to another device (host computer, printer, controller, or other serial device) by using one of the COM ports. For help connecting to a serial port, see Chapter 2, "Installing the Terminal."

Choosing a Communications Protocol

After you connect the 246X terminal to a host computer or other serial device, you are ready to configure the serial port parameters on the two devices. The terminal uses a communications protocol and XMODEM or YMODEM to handle data communications through the serial ports.

You can configure a different communications protocol for each COM port. The terminal's built-in file transfer 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 five protocols:

- Binary
- Configurable
- Multi-Drop (2460 only)
- Master Polling
- Polling Mode D

Each protocol is described in the following sections. For information on compatibility with 95XX communications protocols, see “Compatibility with 95XX Communications Protocols” in Appendix A.

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)

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- 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.

After you enable EOM, you can set a value for these serial port parameters:

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

After you enable Handshake, you can set a value for poll and the timeout delay.

Master Polling Protocol

Master Polling Mode D protocol requires the 246X 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.

Multi-Drop Protocol

Multi-drop uses protocol sequences similar to Polling Mode D with the extension of device addressing, which allows up to 32 devices on one 4-wire RS-485 line.

Multi-Drop protocol is typically used in CrossBar networks. Due to timeout parameters, the baud rate must be 2400 or higher. Multi-Drop protocol is only available for the 2460 (COM2).

When you configure COM2 for Multi-Drop protocol, the serial port is automatically configured to communicate via RS-422/485.

Here are the serial port parameters you can define:

- Baud rate
- Multi-drop device address

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 or RS-422 interface. Use Polling Mode D if you want to connect to a 900 MHz network via the 9189 RF 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 two ways to configure the terminal's serial port parameters:

- Scan the configuration command from a Code 39 or Code 93 bar code label.
- Send a command from a host application. For help, see the next section, "Configuring the Terminal Via the Serial Port."

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, "Programming the Terminal."

Configuring the Terminal Via the Serial Port

You can use an application on the PC or host to configure the TRAKKER Antares 246X terminal by sending commands through the serial port. For example, you may want to change the Beep Volume 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. You must connect the terminal to the host by using one of the serial ports.

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.

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). It is a 2-byte field containing one of these values:

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

Note: If the Configuration Commands Via Serial Port are enabled without TMF 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 7, “Reader Command Reference” or Chapter 8, “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.
- KAI* 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.
- KAI* means the Keypad Caps Lock configuration command was enabled.
- .+1* means the configuration changes were saved in flash memory.

Using Ethernet Communications on the Terminal

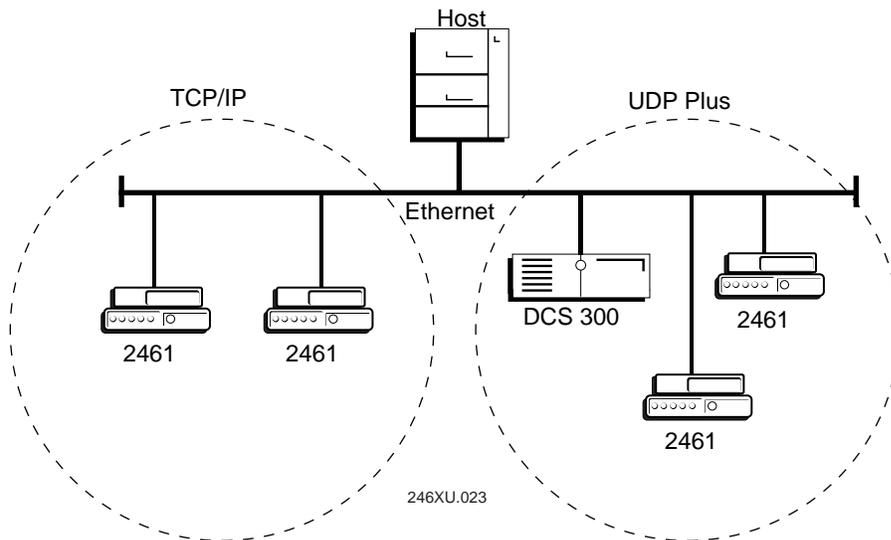
Before you can begin using the 2461 terminal to collect data, you need to install and configure each device in the Ethernet network by performing these steps:

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 2461.
2. Configure the DCS 300 (2461 with UDP Plus).
3. Configure each 2461 terminal.

Each step is described in detail in the next sections.

How the 2461 Fits Into Your Ethernet Network

The 2461 terminal is a versatile terminal that you can easily add to your network or distributed data collection system. You can use the 2461 as an end device in your Ethernet network.



In a UDP Plus network, the 2461 communicates with a host computer through the DCS 300 using UDP Plus for the network protocol. In a TCP/IP network, the 2461 communicates with a host computer directly using TCP/IP for the network protocol.

Planning the Network Connection

To use the 2461 in the Ethernet network, you need these minimum requirements:

- DCS 300 (2461 with UDP Plus)
- Ethernet connector in your network

You need to work with your network administrator to plan and assign the IP address for each device in the Ethernet network. For a 2461 with UDP Plus, you must also assign an IP address to the DCS 300.

Configuring the DCS 300

The DCS 300 supports and manages communications with other devices in the Ethernet network. When you install and configure the server, you identify the host computer(s) and 2461 terminals in your network. The terminals communicate through the server with your host by using UDP Plus protocol. For help installing the server, see the *DCS 300 System Manual* (Part No. 067296).

Note: You can use a 2461 running TCP/IP protocol and the DCS 300 in a pass-through network. You establish a direct TCP/IP socket connection from the 2461 to the host through the server. For more information, see the DCS 300 System Manual.

To have the 2461 communicate with the server, you must configure these parameters on the server:

- Configure the Ethernet network.
- Configure the UDP Plus network.
- Enter the IP address for each 2461.
- Enable all 2461 terminals.
- Define the host environment parameters, which includes configuring for screen mapping or client/server applications.

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 T2461.

Configuring the 2461 Terminal

When you install the 2461 terminal in a network, you must configure a set of network parameters that control how the terminal communicates in the network.

Configure the network parameters by scanning the configuration command from a Code 39 or Code 93 bar code label. The configuration commands are listed alphabetically by command name in Chapter 8, "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 (UDP Plus) 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
Default router		X
Subnet mask		X

Using the Status Lights to Monitor Network Communications

After you have configured the devices in the Ethernet network, you can begin using the application on the 2461 terminal to collect and transmit data. If the 2461 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 2461 terminal to collect data, status lights help you monitor network communications on the terminal. Use the Network Connect light to monitor communications between the 2461 and other devices in the Ethernet 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 2461 is not connected to the Ethernet network.	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 2461 Terminal” earlier in this chapter.
 The Network Connect status light blinks.	Partial communications. The 2461 with UDP Plus is trying to establish communications with the DCS 300, but it is not connected. <i>Note: The Network Connect status light does not blink on a 2461 with the TCP/IP protocol.</i>	You may need to configure the terminal to communicate with other devices in the Ethernet network. For help, see “Configuring the 2461 Terminal” earlier in this chapter. You may also need to configure the server (UDP Plus) or host. Make sure the terminal is configured correctly and enabled. Make sure the server is turned on and data collection is started.
 The Network Connect status light remains on.	Normal communications. The 2461 can communicate with the DCS 300 (UDP Plus) or host (TCP/IP).	You can send and receive data between the terminal and the server or host.

Configuring the 2461 Over the Network

You can remotely configure a 2461 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.

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

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

Configuring the 2461 From the DCS 300

If your terminal is configured for UDP Plus, you can use the DCS 300 to configure one or more 2461 terminals in your Ethernet network. You can also send reader commands such as Delete File to one or more terminals.

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 for all the terminals in one area.

Note: You can configure a 2461 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 2461 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 7, “Reader Command Reference.” For a list of configuration commands, see Chapter 8, “Configuration Command Reference.”

Note: You can set the Postamble or Preamble command to use characters from the extended ASCII character set.

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 2461, enter this reader command as the last command and choose Add:

```
. +1
```

Otherwise, the commands only change the runtime configuration.
6. Choose Download to download the commands and change the configuration of the terminals selected.

Configuring the 2461 From the Host

You can use an application on the host computer to configure one 2461 terminal. For example, you may want to change the Beep Volume command.

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 in a TCP/IP direct connect network.

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 2461 in a UDP Plus Network

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* (Part No. 067717). 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 2461 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 server uses the transaction ID to route responses from the 2461 back to the host application. \$NGCFGRSP is a special transaction ID that the server uses to forward configuration response data from a terminal.

All configuration responses will be routed with the \$NGCFGRSP transaction ID. The server 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 2461 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 server and send transactions to and receive transactions from the 2461 in this format:

<i>transaction header</i>	<i>TMF field</i>	<i>configuration command</i>
---------------------------	------------------	------------------------------

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 2461 to the host.
CS	Configuration Set request sent from the host application.
Cs	Configuration Set response sent from the 2461 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 7, “Reader Command Reference” or Chapter 8, “Configuration Command Reference.”

To see examples of the host application transactions, see “Example 1” and “Example 2” later in this section.

Configuring the 2461 in a TCP/IP Direct Connect Network

To send and receive configuration data, you need to write an application for the host that can communicate with a 2461 directly 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 information on sending and receiving files in 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 2461 while configuring the terminal from the host.

To set up the host computer

- Verify that you can communicate with the 2461 terminal.

To set up the application

- Prepare and write a host application that can communicate with the 2461. Configuration commands must be sent to network port 6000 on the terminal. Message transactions to and receive transactions from the 2461 on network port 6000 must conform to the following format:

<i>TMF field</i>	<i>configuration command</i>
------------------	------------------------------

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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 2461 to the host.
- CS Configuration Set request sent from the host application.
- Cs Configuration Set response sent from the 2461 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 7, "Reader Command Reference" or Chapter 8, "Configuration Command Reference."

Example 1

In the host application, you want to get the current values of two configuration commands from the 2461. 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 2461 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 Ethernet 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 2461. 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 2461 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 a 2461. You use the file management reader commands such as Receive File and Transmit File to transfer files between the 2461 and the host. For help, see Chapter 7, "Reader Command Reference."

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

Note: You can continue running an application on the 2461 while configuring the terminal or transferring files from the host.

To use the built-in TFTP client on the 2461, 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.
- 2461 terminal 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 2461 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 2461 in a TCP/IP Direct Connect Network" earlier in this chapter.

For example, to send the application INVENTORY.BIN from drive C on the host to drive C on the 2461, enter this command:

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

For command information, see Chapter 7, "Reader Command Reference" or Chapter 8, "Configuration Command Reference."

CLIENT.CPP is the source for a sample application you can run on the host. You can use CLIENT.CPP to send reader commands to the 2461 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 socket library that is included with Windows Visual C++. You can also develop your own application to meet the needs of your host environment.

You run the resulting application (CLIENT.EXE) from the DOS command line. The application expects NCM to be defined as the terminal IP address in the hosts file. Once running, the application prompts you to enter a reader command, which it then sends to the 2461. The application also displays any return messages. Reader commands are handled by the 2461 terminal 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 2461 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 2461 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 INVENTORY.BIN from drive C on the host to drive C on the 2461, enter this command:

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

Or, to change the beep volume to very loud, enter this command:

```
CS$+BV4
```

For command information, see Chapter 7, “Reader Command Reference” or Chapter 8, “Configuration Command Reference.”

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

```
#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 = WSASStartup(MAKEWORD(1,1), &wsad);
    if (error != 0)
        ErrorMessage("WSASStartup", WSAGetLastError());

// create an uninitialized 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 246X stationary terminals are data collection terminals with network support. The 2460 and 2461 communicate with a host computer or other serial device through the terminal's serial ports. The 2461 communicates with a host directly through the Ethernet network.

In a UDP Plus network, the terminal communicates through the DCS 300 to a host on an Ethernet network. In a TCP/IP network, the terminal communicates to the host on an Ethernet network.

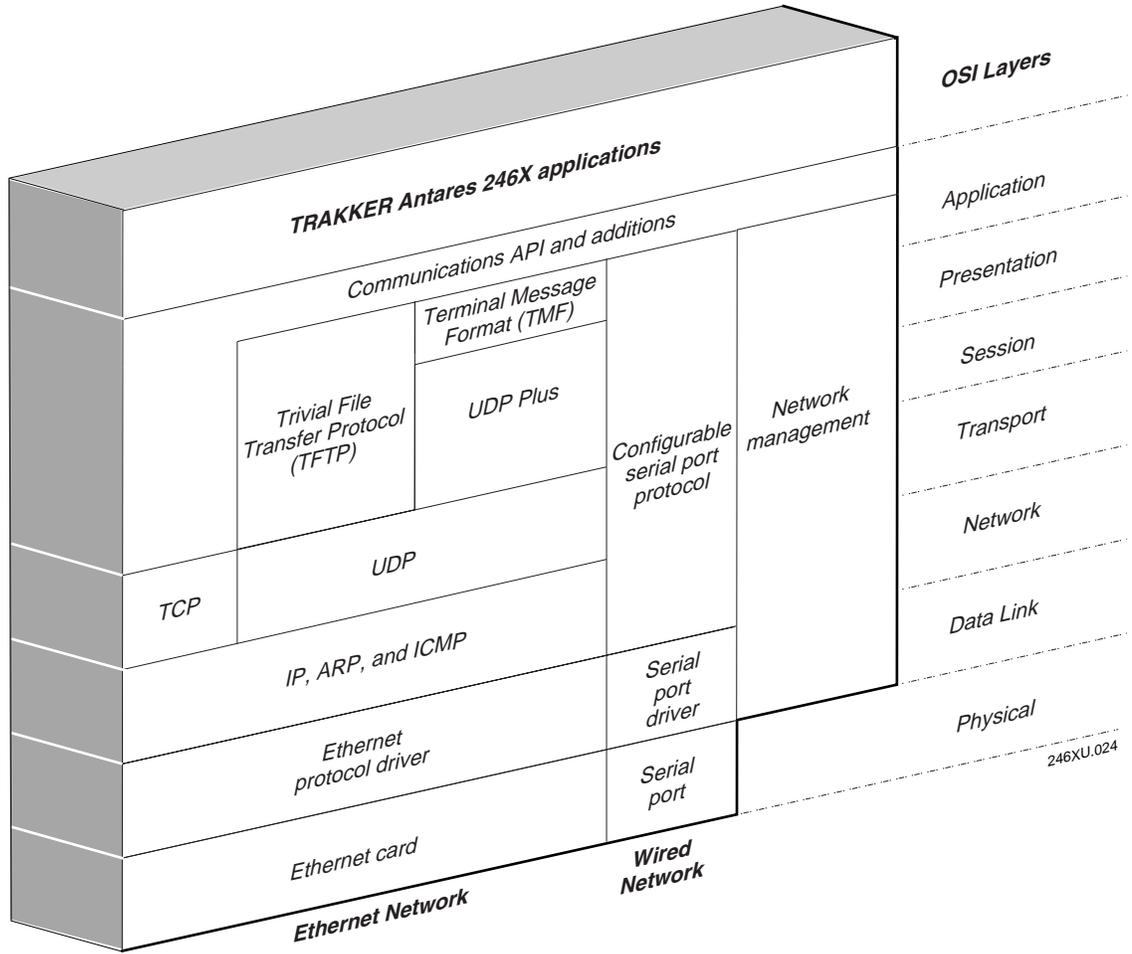
The communications protocol stack for the 246X terminal is developed using the Open Systems Interconnection (OSI) seven layer model. The illustration on the next page shows how the Ethernet network and the serial ports map into the OSI model.

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 server or host.
- UDP Plus is an Intermec protocol built on top of the User Datagram Protocol (UDP). It maximizes the performance of Ethernet 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 246X and the host through RS-232 and RS-232/422/485 (2460 only) 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 Ethernet network and serial communications.

246X Stationary Terminal Protocol Stack and the OSI Model



The 246X stationary terminals use these protocols:

Layer	Protocol	Description
Physical	Ethernet card	Provides Ethernet communications.
	Serial port	Provides RS-232 serial communications.
Data Link	Ethernet protocol driver	Provides Ethernet media access control. The default hardwired media access control (MAC) protocol used with TCP/IP supports the Ethernet II standard.
	Serial port driver	Provides RS-232 (COM1) or RS-232/422/485 (COM2) 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: <ul style="list-style-type: none"> • 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 server or host.

5

Programming the Terminal

This chapter introduces the TRAKKER Antares 246X programmable terminals and explains how to download and run applications on the terminals.

How to Download and Run Applications

Here is a brief summary of the steps you follow to download applications and files to the programmable TRAKKER Antares 246X terminals. To learn more about the features, start with the next section, “About the TRAKKER Antares Programmable Terminals.”

Use a serial port to download applications and files to the 246X terminal

1. Create your applications using the TRAKKER Antares Programmer’s Software Kit (PSK) or EZBuilder. For help, see page 5-6.
2. Connect the 246X terminal to the development PC or host computer using a serial port. For help, see Chapter 2, “Installing the Terminal.”
3. Use the FileCopy utility to download applications and files to the 246X terminal and then run an application. For help, see page 5-9.

Use the DCS 300 to download applications and files to the 2461

1. Create your applications using the TRAKKER Antares PSK or EZBuilder. For help, see page 5-6.
2. Convert each application to a binary file using the PSK utility EXE2ABS.EXE. For help, see page 5-8. 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 5-12.
4. Use the Download Server feature on the DCS 300 to download applications and files to the 2461 and then run an application. For help, see page 5-14.

Use a host application to download applications and files to the 2461

1. Create your applications using the TRAKKER Antares PSK or EZBuilder. For help, see page 5-6.
2. Convert each application to a binary file using the PSK utility EXE2ABS.EXE. For help, see page 5-8. 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 2461 directly via an Ethernet network. Use the host application to download applications and files to the 2461 and then run an application. For help, see “Transferring Files in a TCP/IP Direct Connect Network” in Chapter 4.

Note: The host must be running a TFTP server.

About the TRAKKER Antares Programmable Terminals

The TRAKKER Antares 246X stationary terminals ship loaded with a sample application and the 9560 emulation application. You can develop your own data collection application for the 246X terminal and then download the application to the terminal.

You download files to the 2460 and 2461 using these methods:

2460 and 2461 You can download applications and files from a host computer to one terminal that is directly connected through one of the serial ports.

2461 You can download applications and files from the DCS 300 (UDP Plus) or host (TCP/IP) to one or more terminals.

The next table lists specifications and technical information you need to know to develop applications for the 246X terminals.

246X Stationary Terminal Specifications

Products	TRAKKER Antares 2460 and 2461 stationary terminals
Serial communications	RS-232 serial communications via COM1 RS-232/422/485 serial communications via COM2 (2460 only)
Network protocol	There are two options for the 2461: <ul style="list-style-type: none">• UDP Plus provides host connectivity through the DCS 300• TCP/IP provides host connectivity through the Ethernet network
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-232/422/485 serial communications from the PC or host computer Via Ethernet to the 2461 terminal's flash drive from the DCS 300 Via Ethernet and TFTP to the 2461 terminal's 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 Drive E, configurable (up to 256K) RAM disk, 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.

Note: You can download the latest version of PSK from the Intermec Web site.

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 246X terminals.

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 246X 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 246X terminal.

EZBuilder (Part No. 066381) is a software code generator product that provides a quick and easy way to create applications for the 246X 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.

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 Between the 95XX and 246X Terminal

One main difference between the 246X stationary terminal and the 95XX terminal is the type of program or application that you can run on the terminal. The 246X terminal can run a Microsoft C/C++ application while the 9560 terminal runs IRL (Intermec Reader Language) programs.

The 246X 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.

If you are using the 2460 in a CrossBar network, the application needs to send and receive data through COM2. Once your application is converted, you can download the application to the 2460 and begin using it in your network.

Converting the Application to a Binary File

For your application to run on the 246X terminal, you must store it 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 have a 2461 and plan to download applications and files from the DCS 300 or host via the Ethernet network, copy all of 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 246X terminal using serial communications. You connect the terminal's serial port to the host by using:

- COM1
- COM2 (2460 only)

For help connecting the terminal, see Chapter 2, "Installing the Terminal." 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.
- Use the Receive File or Transmit File reader commands. For help, see Chapter 7, "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. You can also use FileCopy to run an application.

To transfer applications and files to or from the terminal and run an application

1. Connect the 246X 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 Screen



4. Check the serial port and serial communications parameters to verify that the settings for your PC match the values that are set for the terminal's serial port.
 - a. Select the COM Port Setup tab to select and configure the following:
 - PC COM port
 - 246X terminal 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. Scan bar code labels to configure the COM1 or COM2 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.

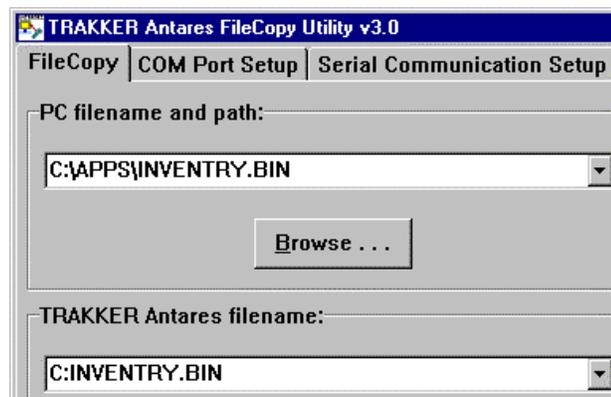
You can run the APPTSK.BIN application while transferring files. For help, see “How to Download and Run Applications” earlier in this chapter.
6. Select the FileCopy tab to download or upload applications and files.

- 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.

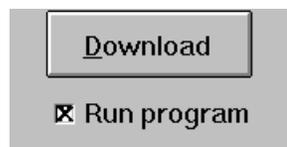
To view a list of available files on your PC, click the Browse button.

- 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 246X terminal options and configuration, you can download other files to drive C, D, or E.



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 “How to Download and Run Applications” earlier 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 2461 terminal using network communications. The advantage to downloading files via network (Ethernet) communications is that you can download multiple files to one or more terminals.

You use Ethernet communications to download applications from the DCS 300 to 2461 terminals running UDP Plus or from the host to 2461 terminals 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."

To download applications and files from the DCS 300

1. Copy the applications and files to the server.
2. Download the applications and files to the 2461.

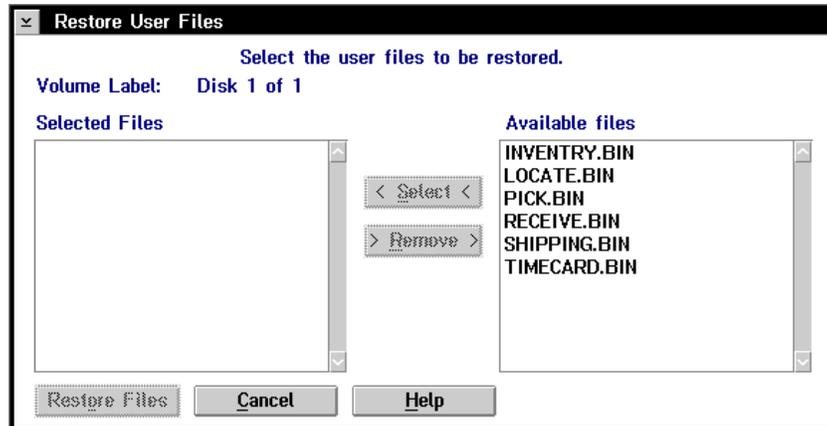
Each step is described in the next sections. Before you start, make sure the 2461 is communicating with the DCS 300. If you need any help installing or configuring the network, see Chapter 4, "Operating the Terminal in a Network."

Copying Files to the DCS 300

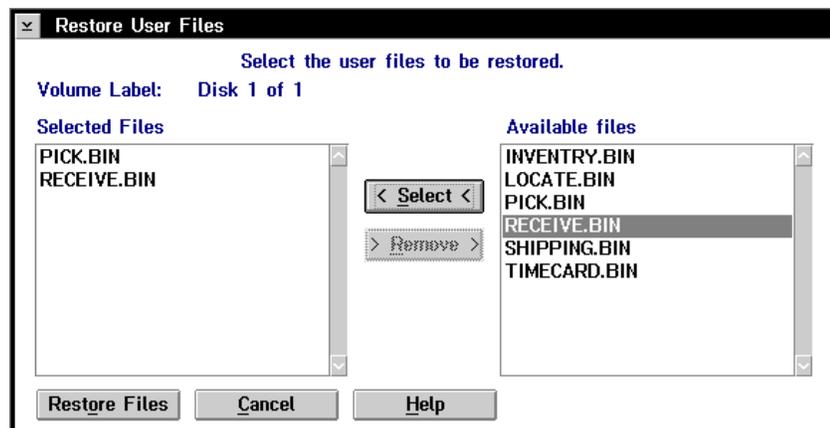
You can use these instructions to copy binary applications and files from a 3.5-inch disk to the DCS 300.

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



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

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 2461

Once the applications and files are stored on the DCS 300, you can download applications and files to a 2461 running UDP Plus.

There are two ways to download files:

- Use the Download Server feature on the server.
- Use the Receive File or Transmit File reader commands. For help, see Chapter 7, "Reader Command Reference."

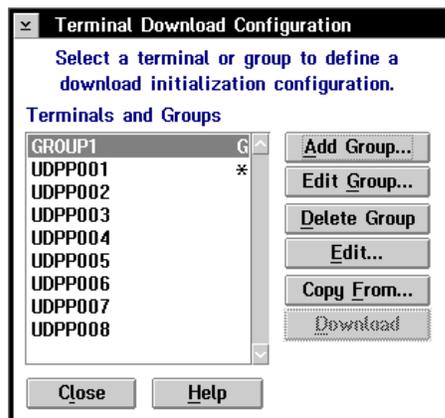
The instructions in this section explain how to use the Download Server feature on the server to download applications and files to the terminal.

To prepare the terminal

- Make sure the terminal is on and communicating with the server. Look at the status lights on the left side of the terminal's front panel. If the Network Connect status light is turned on, the terminal is communicating with the server. For help, see Chapter 6, "Troubleshooting."

To download applications and files to the 2461

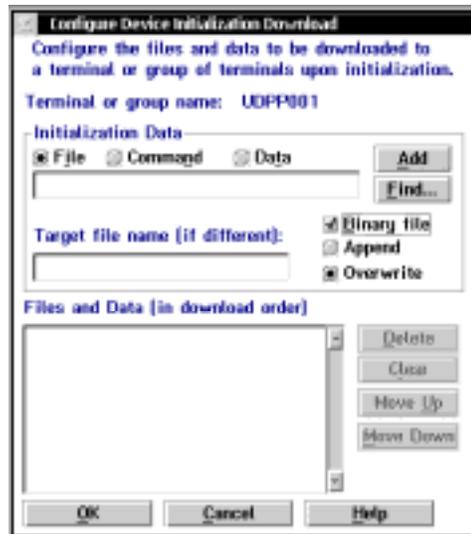
1. If data collection is not started on the DCS 300, choose Start Data Collection from the main menu sidebar buttons.
2. From the main menu sidebar buttons, choose System Maintenance. The System Maintenance dialog box appears.
3. In the System Maintenance dialog box, select Configure Download Server 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 “Adding a Group in the Download Server” in Appendix C of the *DCS 300 System Manual*.

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



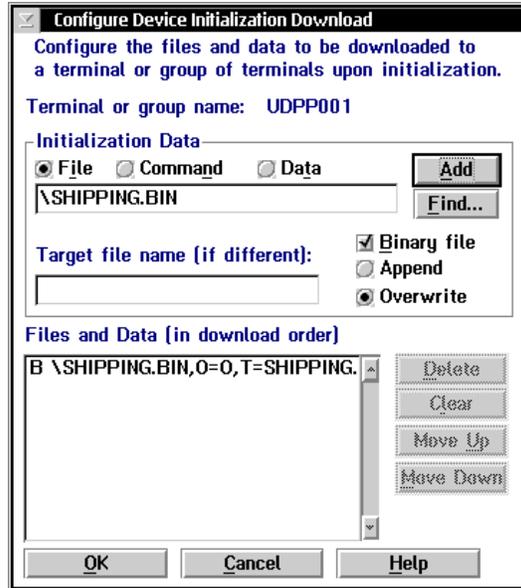
6. Verify that there are no files (or entries) listed in the Files and Data list box. If there are entries, then choose Clear to remove them.
7. In the Initialization Data box, choose File.
8. In the field, type:


```
\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. To run an application on the 246X, choose Command in the Initialization Data box. Enter the Run Program reader command and choose Add. The command appears in the Files and Data box.

For example, to run the application SHIPPING.BIN, enter this command:

```
//c:shipping.bin
```

16. Choose OK to save your changes and return to the Terminal Download Configuration dialog box.
17. 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.
18. Choose Download. A Download initiated message box appears.
19. 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, the download may take longer. All files are downloaded and stored on the terminal's flash drive C.

If you downloaded the command to run an application, the terminal boots, resets, and runs the application.

For help running an application, see “Run Program” in Chapter 7. If you have problems downloading files, see Chapter 6, “Troubleshooting.”

Troubleshooting Applications

Once you download a new application to the terminal, you are ready to test it before you start collecting data. If the terminal or application appears to be locked up and you cannot enter data, try these steps in order.

To troubleshoot a locked-up terminal or application

1. Press **Ⓜ** to turn off the terminal. If it turns off, press **Ⓜ** to turn on the terminal. You can 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 7, “Reader Command Reference.”

3. Scan a bar code to configure the Resume Execution command to resume “not allowed.” See the “Resume Execution” command in Chapter 8. Each time you press **Ⓜ** to turn on the terminal, the terminal boots and restarts your application.
4. 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 after you press **Ⓜ** to turn on the terminal. Continue to hold the **Tab** until you hear a click and the screen clears.

The terminal has booted without loading an application. Load and run another application or download a new version of the application before you run it again.

5. If the terminal will not turn off or does not respond to the Reset Firmware command, boot the terminal. Make sure you have tried Steps 1 and 2 before you boot the terminal.
 - a. Press **Ⓜ** to turn off the terminal. If it will not turn off, continue with the next step.
 - b. Scan this bar code:

Boot Terminal



_1

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6. If 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.



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 to boot and reset the terminal.

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 Ethernet Network
- Problems While Configuring the Serial Network
- Problems While Scanning Configuration Commands
- 2461 Will Not Communicate With Ethernet Network Devices
- Problems Transmitting Data Through the Serial Port
- Problems Transmitting Data Through the DCS 300
- Bar Code Labels Will Not Scan



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 hardware features match the original configuration when repairing or replacing your terminal.

Problems While Operating the Terminal

If you are operating the 246X terminal and have trouble, check these possible problems and solutions.

Problem

You press ① to turn on the 246X terminal and nothing happens.

You scan a reader command, such as Change Configuration, and nothing happens.

You scan a valid bar code label to enter data for your application. The data decoded by the input device does not match the data encoded in the bar code label.

You want to set the terminal back to the default configuration to start over configuring the terminal.

Solution

Make sure that you have plugged the power cable into the terminal and the outlet. For help, see Chapter 2, "Installing the Terminal." Replace the power cable if damaged.

The reader commands are disabled. Scan the Enable Override command shown here to temporarily enable all of the reader commands. For help, see "Command Processing" in Chapter 8. When you are finished, remember to disable the override so that your data is not interpreted as a command.

Enable Override



\$+DC3

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 incorrect results.

Scan this bar code label:

Default Configuration



. +

Note: After you load the default configuration, you may need to set the network communications parameters on a 2461 to communicate with other devices in the Ethernet network.

Problems While Operating the Terminal (continued)

Problem

The terminal appears to be locked up and you cannot enter data.

Solution

Try these possible solutions:

- (2461 only) Wait at least 10 seconds and try again. If the 2461 is still connecting to the DCS 300 or host, the 2461 ignores any input from the keyboard or input device. Make sure the Network Connect status light remains on before continuing.
- Scan any bar code label to see if the terminal responds.
- Press **Ⓜ** to turn off the terminal. If it turns off, press **Ⓜ** to turn on the terminal. You can continue working.
- If the terminal will not turn off, reboot the terminal. Scan this bar code:

Boot Terminal



-.1

The system boots, clears RAM memory, and starts your application.

- If the terminal will not boot or reset, contact your local Intermec service representative for help.

The terminal is booting and you see a message that POST failed.

Report the error message to your supervisor. Press or scan Esc to exit the error message. Scan this bar code:

Boot Terminal



-.1

Your application appears on the screen. If the terminal still will not boot, contact your local Intermec service representative for help.

The Power status light blinks.

The backup battery charge is low. Make sure that the power supply is connected to the terminal and a powered electrical outlet. Let the power supply charge the backup battery. The backup battery will be fully charged in approximately 24 hours.

If the backup battery will not charge, you may need to replace it. For help, contact your local Intermec service representative.

Problems While Configuring the Ethernet Network

You can configure the Ethernet network on the terminal by scanning configuration commands. If you receive an error beep sequence (three low beeps) while configuring the terminal, check these possible problems and solutions.

Problem

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.

The terminal IP address and the default router address are both set to the same address.

The terminal IP address and the controller/host IP address are both set to the same address.

The terminal and DCS 300 or host (TCP/IP network) are on different networks, and the terminal is not on the same network as the default router.

On the 2461, you scan a configuration command to set one of these parameters and hear three low beeps:

- Controller IP Address or Host IP Address (TCP/IP)
- Terminal IP Address
- Default Router
- Network Activate

Solution

Set a valid IP address for the terminal and DCS 300 or host.

For help, see “Using Ethernet 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 DCS 300 or host.

You need to change the terminal IP address and/or the default router address. Set a valid IP address for the terminal and the default router.

For help, see “Using Ethernet 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 network device.

Set a valid IP address for the terminal and DCS 300 or host.

For help, see “Using Ethernet 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 DCS 300 or host.

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 Ethernet 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 network device.

If the Network Activate command is enabled (Ethernet network enabled) and you are configuring the 2461, 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 for a TCP/IP network).
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.

Problems While Configuring the Serial Network

You can configure the serial network on the terminal by scanning configuration commands. If you receive an error beep sequence while configuring the terminal, check these possible problems and solutions. For help, see “Using Serial Communications on the Terminal” in Chapter 4.

Problem

The terminal is configured for Configurable protocol. You are scanning or entering a configuration command to set a serial port parameter and hear three low beeps. For example, you are trying to configure EOM, SOM, or Handshake.

You are configuring SOM and hear three low beeps.

You are configuring EOM and hear three low beeps.

Solution

The order in which you set serial port commands is important. 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. Follow these rules to configure the serial port for Configurable protocol.

To use Frame mode, you need to set EOM first. Next configure Configuration Commands Via Serial Port, Handshake, LRC, SO, and then Poll. To use Character mode, you need to disable these same parameters in reverse order.

You have configured SOM to an invalid value. SOM cannot equal the same value as 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 EOM or SOM.

For help, see “Start of Message (SOM)” in Chapter 8.

You have configured EOM to an invalid value. 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 or SOM.

For help, see “End of Message (EOM)” in Chapter 8.

Problems While Scanning Configuration Commands

You configure the terminal by scanning configuration commands. If you receive an error beep sequence while configuring the terminal, check these possible problems and solutions.

Problem

You receive the error beep sequence while scanning a configuration command.

You scan a configuration command, such as Keypad Caps Lock, and nothing happens.

Solution

Check the command you are trying to scan. Make sure the command is set correctly for the options and network communications you are using with the terminal. For help, see Chapter 8, "Configuration Command Reference."

There are two possible solutions:

- You may have one or more reader commands disabled, such as Change Configuration, so that you cannot change the configuration. Enable all of the reader commands and try again.
- The terminal may be waiting for another command to complete the configuration change. If you started by scanning the Enter Accumulate command, you must finish the command by scanning the Exit Accumulate command. For help, see Chapter 8, "Configuration Command Reference."

Scan the Enable Override to temporarily enable all of the reader commands. When you are finished, remember to disable the override so that your data is not interpreted as a command.

Enable Override



\$+DC3

2461 Will Not Communicate With Ethernet Network Devices

If you cannot get the 2461 terminal to communicate with other devices in the Ethernet network, check these possible problems.

Problem

The Network Connect status light is not lit. The 2461 is not communicating with the Ethernet network.

The Network Connect status light blinks on the terminal screen.



The Network Connect status light remains on, but the host computer is not receiving any data from the 2461.



Solution

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 2461 Terminal” in Chapter 4.

In a UDP Plus network, the terminal is trying to establish communications with the DCS 300.

You may need to configure the terminal to communicate with other devices in the Ethernet network. For help, see “Configuring the 2461 Terminal” in Chapter 4.

You may also need to configure the server (UDP Plus) or host. Make sure the terminal is configured correctly and enabled. Make sure the server is turned on and data collection is started.

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 server. In a TCP/IP network, there may be a problem with the connection between the 2461 and the host computer. Check with your network administrator.

Problems Transmitting Data Through the Serial Port

If you are having problems sending or receiving data through the serial port on the 246X terminal, check these possible problems:

- Make sure the terminal is connected to the host computer or serial device.
- Make sure you are using a null-modem RS-232 cable to connect the serial device to COM1.
- Make sure you are using the appropriate cable to connect the serial device to COM2.
- Make sure the terminal’s serial port parameters are configured to match the serial port configuration on the host computer or serial device

For help connecting and configuring the serial port, see Chapter 2, “Installing the Terminal.”

Problems Transmitting Data Through the DCS 300

If you have a problem while running the application on the 2461 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 Intermecc 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 Intermecc 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, check these possible problems.

Problem

The terminal is turned off.

An input device is not attached to the terminal.

The input device does not read the bar code labels quickly, or the scanning beam seems to be faint or obscured.

You have an input device attached to the terminal and it cannot read any bar code labels.

Solution

Make sure the terminal is turned on. Press **ⓘ** to turn on the terminal.

Make sure an input device, such as a 1550 laser scanner, is attached correctly to the terminal. You must install an input device before scanning bar code labels.

The input device, such as a 1550 laser scanner, window may be dirty. Clean the scanning window of the scan module with a solution of ammonia and water. Wipe dry. Do not allow abrasive material to touch the window.

You may not be using an input device that is supported by the 246X terminal. Make sure you are using one of the supported input devices:

- 126X, 127X, and 128X wands
- 1354 and 1355 badge scanners
- 1517, 1518, 1519, and 1545 laser scanners
- 1550A, 1551A, 1550C, and 1551C laser scanners
- 1550B laser scanner with software version 1.9 or later
- 1551B laser scanner with software version 1.1 or later
- 1552 decoding laser scanner with 9745 base station
- 1463 CCD scanner

Bar Code Labels Will Not Scan (continued)

Problem

The input device will not read the bar code label.

Solution

Try one of these solutions:

- Make sure you aim the scanner beam so it crosses the entire bar code label in one pass.
- The angle you are scanning the bar code label may not be working well, or you may be scanning the label "straight on." Try scanning the bar code label again, but vary the scanning angle.
- The bar code label print quality may be poor or unreadable. To check the quality of the bar code label, try scanning a bar code label that you know scans. Compare the two bar code labels to see if the bar code quality is too low. You may need to replace the label that you cannot scan.
- Make sure the bar code symbology you are scanning is enabled. If your bar code symbology is disabled, enable it and then try scanning the bar code label again. For help, see "Scanning Bar Codes to Enable Symbologies" in Chapter 3.

The input device 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.

Booting and Resetting the Terminal

You seldom need to boot or reset the 246X terminal. When you boot the terminal, it runs through power-on self test (POST) to test each major subsystem. The terminal uses the configuration currently saved in flash memory. Once the terminal is finished booting, your application appears on the screen.

You only need to reset the terminal when the terminal or an application are locked up and will not respond to any key sequences. The terminal also boots and resets after a firmware upgrade or if you remove both batteries. The next instructions explain how you boot and reset the terminal.

Booting the Terminal

You can boot the terminal using these two methods:

- Configure the **ⓘ** key to boot the terminal when you turn on the terminal.
- Use the Boot Terminal bar code.

Booting the Terminal on Resume

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

There are two ways to configure the **ⓘ** button using the Resume Execution configuration command:

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

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

You can configure the Resume Execution command by scanning these bar code labels. For help, see “Resume Execution” in Chapter 8.

Resume Execution Not Allowed



\$+ER0

Resume Execution Allowed



\$+ER1

Using the Boot Terminal Bar Code

The terminal will boot after you scan this bar code:

Boot Terminal



-.1

Resetting the Terminal

If the terminal or application is locked up and the terminal will not respond to any key sequences, you can reset the terminal. Before you reset the terminal, try the following in order:

- Press **⏻** to turn off the terminal.
- Scan the Reset Firmware label to restart the firmware and application.

Reset Firmware



-.

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



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.
- sending a command from a device on the serial or Ethernet 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.

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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 a low 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



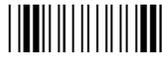
_/

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

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

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

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

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

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 these reader commands detailed in this section:

- Boot Terminal
- Change Configuration
- Default Configuration
- Multiple-Read Labels
- Reset Firmware
- Save Configuration in Flash Memory
- Scanner Trigger On and Off
- Set Time and Date
- Status Lights Control

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.

From Network: `$(command[command]...[command n])`

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

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 Network parameters are set to the default values. The 2461 terminal will no longer have a valid IP address and cannot communicate with other devices. You need to configure the 2461 terminal again. For help, see Chapter 4, “Operating the Terminal in a Network.”

From Network: `+.0`

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 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

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.

From Network: - .

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 sending commands 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

Scan: Save Configuration in Flash Memory



.+1

Scanner Trigger On and Off

The Scanner Trigger On and Off commands are the same as pulling and releasing the scanner trigger. This command is valid on a 246X terminal only when you have an Intermec 1545 laser scanner attached to the scanner connector.

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

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

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

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

Purpose: The Scanner Trigger On command is the same as pulling the trigger on the 1545 laser scanner.

From Network: / .

Scan: Not supported

Purpose: The Scanner Trigger Off command is the same as releasing the trigger on the 1545 laser scanner. Its effect depends on the Scanner mode and Scanner Trigger mode configuration settings as described earlier.

From Network: /%

Scan: Not supported

Set Time and Date

Purpose: Sets the time and date on the terminal. When the terminal receives the time broadcast command from the 9154 or 9161 controller, the command sets the clock on the terminal. You can configure the clock with 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 8.

Note: The Set Time and Date command was called Enable Clock for the 95XX terminals.

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* that range from 00 to 95 are interpreted as 2000 through 2095. Values for *yy* that range 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, Good Read, and User Defined status lights on the 246X. 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	0	Off
		1	On
		X	No change
2	Not used	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



\$%0X00XXXX

All Status Lights On



\$%1X11XXXX

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



0

On



1

No Change



X

3. Scan this bar code label to set digit 2 to X:

No Change



X

4. Repeat Step 2 to set digits 3 and 4.
5. Scan this bar code label to set digits 5 through 8 as X:

No Change



XXXX

6. Scan this bar code label to exit Accumulate mode.

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

From Network: /\$

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.

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 three ways to receive files on the TRAKKER Antares terminals:

- Use the serial port to receive files on the 246X terminal.
- Use the serial port to receive and convert 7-bit ASCII files to 8-bit binary files on the 246X terminal.
- Use network communications to receive files on the 2461 terminal.

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 246X terminal. 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 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. The larger block size 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 246X terminal.

Note: 246X terminal 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.

Receive File Through the Serial Port (continued)

From Network:	<code>.%Xn,drive:filename</code>	Receives a file using XMODEM protocol
	<code>.%Kn,drive:filename</code>	Receives a file using XMODEM-1K protocol
	<code>.%Yn,drive:filename</code>	Receives a file using YMODEM protocol
	<code>.%Yn,drive:</code>	Receives a batch of files using YMODEM

where:

- `.%X` is the command to receive a file using XMODEM protocol.
- `.%K` is the command to receive a file using XMODEM-1K protocol.
- `.%Y` is the command to receive a file using YMODEM protocol.
- `n` indicates the terminal's serial port: 1 or 2.
- `drive:` indicates the drive on the terminal where you want to receive and store the file. You must include the colon (:) after the drive letter.
- `filename` is the file you want to receive and save on the terminal.

Keypad: 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 8.

Scan: 1. Scan this bar code label:

Enter Accumulate Mode / Receive File



+/.%

2. Scan the bar code label for the communications protocol you want to use.

XMODEM



X

XMODEM-1K



K

YMODEM



Y

3. Scan the bar code label for the terminal COM port you are using to receive the file. The label also includes the required comma.

COM1



1,

COM2 (2460 only)



2,

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 246X 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 246X terminal:

`.%Yn,drive:`

For example, to receive the files through COM1 to drive D on the 246X terminal, use this command:

`.%Y1,d:`

All files that match the wild card specification are transferred from the host and received to drive D on the 246X terminal. If any file does not transfer, the remainder of the batch transfer is aborted.

Receive and Convert 7-Bit ASCII Files to 8-Bit Binary Files

Purpose: Receives a file from the host computer through the serial port, converts the file from a 7-bit ASCII hexadecimal file to an 8-bit binary file, and saves the file on the 246X terminal. You must have the terminal connected to the host through a serial port. For help, see Chapter 2, "Installing the Terminal."

246X applications are 8-bit binary files. Some network protocols like the Intermec Multi-Drop protocol in a CrossBar network use 7-bit ASCII files. When you send 8-bit binary files across a 7-bit system without converting the files, the files are not compatible and will not run on the 246X terminal.

Receive and Convert 7-Bit ASCII Files to 8-Bit Binary Files (continued)

On the host, you use a hexadecimal conversion utility to convert the 8-bit binary file to a 7-bit ASCII hexadecimal file. Intermec has a DOS utility called HEX.EXE to convert files. The source code for HEX.EXE is also available. For help, see your Intermec service representative. Once the file is converted to a 7-bit ASCII hexadecimal file, you use the Receive File command and a host utility to transfer the 7-bit file to the 246X terminal and convert it back to an 8-bit file.

Note: 246X 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: .`%Hn,drive:filename`

where:

`.%H` is the command to receive a file that was converted from 7-bit ASCII hexadecimal and convert it back to an 8-bit binary file. The terminal uses the current serial port configuration (protocol, baud rate, etc.) for the file transfer.

`n` indicates the terminal's serial port: 1 or 2.

`drive:` indicates the drive on the terminal where you want to receive and store the file. You must include the colon (:) after the drive letter.

`filename` is the file you want to receive and save on the terminal.

Keypad: 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 8.

Scan: 1. Scan this bar code label:

Enter Accumulate Mode / Receive File



+/.%H

2. Scan the bar code label for the terminal COM port you are using to receive the file. The label also includes the required comma.

COM1



1,

COM2



2,

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

`drive:filename`

4. Scan this bar code label to exit Accumulate mode and receive the file.

Exit Accumulate Mode



_/

Or: You can create your own bar code labels to receive files by creating a bar code in this command format:

*.*Hn,drive:filename*

Example: You want to send an application from the host in your CrossBar network to the 246X terminal. On the host, use HEX.EXE to convert the application from SHIPPING.BIN to SHIPPING.HEX. On the host, use a utility such as InterScan to transmit SHIPPING.HEX through the 9154 or 9161 to the 246X terminal. Enter this command to receive the file SHIPPING.BIN on the terminal's drive C through COM2:

*.*H2,c:shipping.bin*

The file SHIPPING.HEX is transferred, converted from 7-bit ASCII hexadecimal to 8-bit binary, and stored as SHIPPING.BIN on the 246X terminal.

Receive File Via Network Communications

Purpose: Receives a file from the DCS 300 or host and saves it on the 2461 terminal.

From Network: *.*R,fromfilename,drive:tofilename*

where:

*.*R* is the command to receive a file that is transmitted over the Ethernet network to the 2461 terminal.

fromfilename is the name of the file you are transmitting from the DCS 300 or host to the 2461 terminal. 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.

drive: indicates the drive on the 2461 terminal 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 2461 terminal.

Keypad: 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 8.

Receive File Via Network Communications (continued)

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.

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, "Programming the Terminal."

Note: You cannot store and run applications from the RAM drive (E).

From Network: `//drive:filename`

where:

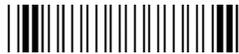
`//` is the command to run an application.

`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.

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 three ways to transmit files from the TRAKKER Antares terminals:

- Use the serial port to transmit files from the 246X terminal.
- Use the serial port to convert and transmit 8-bit binary files to 7-bit ASCII files from the 246X terminal.
- Use network communications to transmit files from the 2461 terminal.

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 246X terminal 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
- 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: 246X terminal filenames are up to eight characters with a three-character extension.

From Network:	<code>%%Xn,drive:filename</code>	Transmits a file using XMODEM protocol
	<code>%%Kn,drive:filename</code>	Transmits a file using XMODEM-1K protocol
	<code>%%Yn,drive:filename</code>	Transmits a file using YMODEM protocol

where:

<code>%%X</code>	is the command to transmit a file using XMODEM protocol.
<code>%%K</code>	is the command to transmit a file using XMODEM-1K protocol.
<code>%%Y</code>	is the command to transmit a file using YMODEM protocol.
<code>n</code>	indicates the terminal’s serial port: 1 or 2.

Transmit File Through the Serial Port (continued)

drive: indicates the drive where the file is stored on the terminal. You must include the colon (:) after the drive letter.

filename is the file you want to transmit.

Keypad: 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 8.

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



X

XMODEM-1K



K

YMODEM



Y

3. Scan the bar code label for the terminal COM port you are using to transmit the file. The label also includes the required comma.

COM1



1,

COM2 (2460 only)



2,

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 and Convert 8-Bit Binary Files to 7-Bit ASCII Files

Purpose: Converts the file from an 8-bit binary file to a 7-bit ASCII hexadecimal file, transmits the file from the 246X terminal through the serial port, and saves the file on the host computer. You must have the terminal connected to the host through a serial port. For help, see Chapter 2, “Installing the Terminal.”

246X applications are 8-bit binary files. Some network protocols like the Intermec Multi-Drop protocol in a CrossBar network use 7-bit ASCII files. When you send 8-bit binary files across a 7-bit system without converting the files, the files are not compatible and will not run.

You use the Transmit File command and a host utility to convert the 8-bit binary file to a 7-bit ASCII hexadecimal file and transfer it from the 246X terminal. On the host, you use a hexadecimal conversion utility to convert the 7-bit ASCII hexadecimal file to an 8-bit binary file. Intermec has a DOS utility called HEX.EXE to convert files. The source code for HEX.EXE is also available. For help, see your Intermec service representative.

Note: 246X filenames are up to eight characters with a three-character extension.

From Network: `%%Hn,drive:filename`

where:

`%%H` is the command to convert an 8-bit binary file to a 7-bit ASCII hexadecimal file and transmit it. The terminal uses the current serial port configuration (protocol, baud rate, etc.) for the file transfer.

`n` indicates the terminal’s serial port: 1 or 2.

`drive:` indicates the drive where the file is stored on the terminal. You must include the colon (:) after the drive letter.

`filename` is the file you want to transmit.

Keypad: Not supported

Transmit and Convert 8-Bit Binary Files to 7-Bit ASCII Files (continued)

Scan: 1. Scan this bar code label:

Note: To scan these bar code labels, you must configure the terminal to use Code 39 in Full ASCII mode. For help, see "Code 39" in Chapter 8.

Enter Accumulate Mode / Transmit File

+/%%H

2. Scan the bar code label for the terminal COM port you are using to transmit the file. The label also includes the required comma.

COM1  *1,*	COM2  *2,*
---	---

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

drive:filename

4. Scan this bar code label to exit Accumulate mode and transmit the file.

Exit Accumulate Mode

_/

Or: You can create your own bar code labels to transmit files by creating a bar code in this command format:

%%Hn,drive:filename

Example: You want to upload an application from the 246X terminal in your CrossBar network to the host. On the host, you need to receive the file using a utility such as InterScan. Enter this command to transmit the file SHIPPING.BIN from the terminal's drive C through COM2:

%%H2,c:shipping.bin

The file is converted from 8-bit binary to 7-bit ASCII hexadecimal and transmitted to the host. Use HEX.EXE to convert the application back to its original 8-bit binary format.

Transmit File Via Network Communications

Purpose: Transmits a file from the 2461 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 Ethernet network from the 2461 terminal to the DCS 300 or host.

`drive:` indicates the drive where the file is stored on the 2461 terminal. You must include the colon (:) after the drive letter.

`fromfilename` is the name of the file you are transmitting from the 2461 terminal 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.

Keypad: 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 8.

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 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`



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. These labels are provided in this chapter. For more help, see Chapter 3, “Configuring the Terminal.”
- sending a command from a device on the serial or Ethernet network. For help, see “Using Serial Communications on the Terminal” and “Using Ethernet Communications on the Terminal” in Chapter 4.

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, serial network communications, or Ethernet 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 terminal 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, serial network communications, or Ethernet network communications.

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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 `ADdata`. 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 terminal to use Code 39 in Full ASCII mode. For help, see “Code 39” later in this chapter.

3. Scan the Exit Accumulate Mode bar code label to update the terminal's configuration:

Exit Accumulate Mode



`*_/*`

Append Time

Purpose: Appends the time to bar code labels when they 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: *DEdata*

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: *EZdata*

Acceptable values for *data* are:

0 Disabled (always on)
02-75 Shutoff time in minutes

Automatic Shutoff (continued)

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(s) 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: *YAn.data*

where *n* is:

- 1 COM1 serial port
- 2 COM2 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, scan one of these bar codes:

Default Baud Rate for COM1



\$+YA1.7

Default Baud Rate for COM2



\$+YA2.7

Or: To set the baud rate:

1. Scan this bar code:

Enter Accumulate Mode/Set Baud Rate



+/\$+YA

Baud Rate (continued)

2. Scan one of these bar codes to set the COM port:

COM1



1.

COM2



2.

3. Scan the baud rate:

1200 Baud



3

2400 Baud



4

4800 Baud



5

9600 Baud



6

19200 Baud



7

38400 Baud



8

4. Scan this bar code:

Exit Accumulate Mode



_/

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 COM2, 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's Status Beeps" in Chapter 1. Set the beep and keyclick volume 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: BVdata

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

Character Set

Purpose: Determines the language used to display characters.

Syntax: *DXdata*

Acceptable values for *data* are:

- 0 U.S. ASCII
- 1 French
- 2 German
- 3 United Kingdom
- 4 Danish
- 5 Swedish
- 6 Italian
- 7 Spanish

Default: U.S. ASCII

Scan: One of these bar code labels:

U.S. ASCII Character Set



\$+DX0

German Character Set



\$+DX2

Danish Character Set



\$+DX4

Italian Character Set



\$+DX6

French Character Set



\$+DX1

United Kingdom Character Set



\$+DX3

Swedish Character Set



\$+DX5

Spanish Character Set



\$+DX7

The next table lists the ASCII characters that change for the seven European languages. Only these 11 characters change in any character set. All other characters in the ASCII chart remain as defined in the “Full ASCII Table” in Appendix B.

Country	Hexadecimal Value										
	23	40	5B	5C	5D	5E	60	7B	7C	7D	7E
United States	#	@	[	\	\]	^	'	{	|	}	~
England	£	@	[	\	\]	^	'	{	|	}	~
Germany	#	§	Ä	Ö	Ü	^	'	ä	ö	ü	ß
Denmark	#	@	Æ	Ø	Å	^	'	æ	ø	å	~
France	#	à	°	ç	§	^	'	é	ù	è	¨
Sweden	#	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
Italy	#	@	°	ç	é	^	ù	à	ò	è	ì
Spain	¶	@	¡	Ñ	¿	^	'	¨	ñ	}	~

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: *CDdata*

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: *CGdata*

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: *CPdata*

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: *CCdata*

where *data* consists of three digits as follows:

First digit:	0	Code 2 of 5, 3 Bar Start/Stop
	1	Code 2 of 5, 2 Bar Start/Stop
Second and third digits:	00	Disable Code 2 of 5
	01-32	Label Length

Default: Disabled

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



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.

Code 39 (continued)

Note: The interpretive text shown under bar code labels does not always accurately reflect the data that is encoded in the label. The interpretive text represents how the label should be decoded.

Use this table to help configure your terminal.

Code 39 Option	Bar Code Label	Decodes
Non-full ASCII	\$%+A /D/E+A	\$%+A /D/E+A
Full ASCII	\$%+A /D/E+A	No decode \$% a
Mixed-full ASCII	\$%+A /D/E+A	\$% a \$% a

Syntax: CBdata

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. 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: CJdata Code 49
CKdata Function Code 1
CLdata Function Code 2
CMdata 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: *CFdata*

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 “ISBT Code 128” later in this chapter.

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.



Command Processing

Purpose: Command processing allows you to disable or enable reader commands. Use the Command Processing configuration command described here to configure the reader commands.

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.

For a description of each reader command that you can enable or disable with Command Processing, see Chapter 7, “Reader Command Reference.”

Syntax: *DCdata*

Acceptable values for *data* are:

- 0 Disable all reader commands
- 1 Enable all reader commands
- 2 Disable override
- 3 Enable override
- command0* Disable reader command
- command1* 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).

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

Disable Override



\$+DC2

Enable Override



\$+DC3

Command Processing (continued)

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



_

Change Configuration



\$+

Clear



_

(continued)



_

Default/Save Configuration



_

Delete File



_--

Enter Accumulate Mode



+

(continued)



/

Exit Accumulate Mode



_

(continued)



/



Receive File



.%

Rename File



...

Reset



_.

Run Program



//

Scanner Trigger Off



./%

Scanner Trigger On



./.

Set Time and Date



/+

Status Lights Control



\$%

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



_/

Command Processing (continued)

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: YTn.data

where *n* is:

- 1 COM1 port
- 2 COM2 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 configuration, scan one of these bar codes:

Default Configuration for COM1



\$+YT1.2

Default Configuration for COM2



\$+YT2.2

Or: To set the configuration commands:

1. Scan this bar code:

Enter Accumulate Mode / Set Configuration Commands Via Serial Port



+/\$+YT

2. Scan one of these bar codes to set the COM port:

COM1



1.

COM2



2.

3. Scan the configuration command:

Disabled



0

Enabled With TMF



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.

Configuration Commands Via Serial Port (continued)

Notes: For COM1 only, you can use either command syntax listed next:

Syntax: YT1.data

Or: ITdata

where *data* is a value from 0 to 2. For COM2, you must use the YT configuration command.

Controller IP Address

Purpose: Defines the IP address assigned to the DCS 300 server in your Ethernet 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 2461 terminal must match the address that is set on the DCS 300.

If you plan to enable DHCP (Dynamic Host Configuration Protocol), you can set the controller IP address to any valid IP address. The T2461 will locate and reset the IP address after you enable DHCP. For help, see “Dynamic Host Configuration Protocol (DHCP)” later in this chapter.

Syntax: NCn.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 Ethernet 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

- Scan a numeric value from 0 to 255 to set an *n* field of the controller IP address from these bar codes.



0



1



2



3



4



5



6



7



8



9

- Scan this bar code:

. (Period)



.

- 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.
- 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: *YIn.data*

where *n* is:

- 1 COM1 port
- 2 COM2 port

Acceptable values for *data* are:

- 7 7 data bits
- 8 8 data bits

Default: 7

Scan: To set the default data bits, scan one of these bar codes:

Default Data Bits for COM1



\$+YI1.7

Default Data Bits for COM2



\$+YI2.7

Or: To set the data bits:

1. Scan this bar code:

Enter Accumulate Mode / Set Data Bits



+/\$+YI

2. Scan one of these bar codes to set the COM port:

COM1



1.

COM2



2.

- Scan the number of data bits:

7 Data Bits



7

8 Data Bits



8

- Scan this bar code:

Exit Accumulate Mode



_/

- 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: I1*data*

where *data* is a value of 7 or 8 data bits. For COM2, 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

Decode Security (continued)

Moderate Decode Security



\$+CS1

High Decode Security



\$+CS2

Default Router

Purpose: Defines the IP address assigned to the default router in your Ethernet 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 server or host (TCP/IP network) is on a different subnetwork than the 2461 terminal, 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 server. 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 Ethernet 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



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



-/

Dynamic Host Configuration Protocol (DHCP)

Purpose: If your DCS 300 is operating as a DHCP (dynamic host configuration protocol) client, the server's IP address will change each time the server is turned on. By enabling DHCP on the 2461 terminal and saving the changes in flash memory, the terminal can locate and use the server's new IP address. The terminal's IP address stays constant and must be assigned to the terminal by your system administrator.

Before you can enable DHCP on the 2461, you need to configure the network parameters for the 2461 terminal, including the Controller IP Address. The IP address for the server can be any valid IP address. The IP address does not need to be the actual IP address for the server, because the 2461 terminal 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: *Nldata*

Acceptable values for *data* are:

0 Disable DHCP
1 Enable DHCP

Default: Disabled

Scan: One of these bar codes to disable or enable DHCP:

Disable DHCP



\$+N10

Enable DHCP



\$+N11

To save the changes in flash memory, scan the following 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: *YZn.data*

where *n* is:

- | | |
|---|-----------|
| 1 | COM1 port |
| 2 | COM2 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 one of these bar codes:

Disable EOM for COM1



\$+YZ1.

Disable EOM for COM2



\$+YZ2.

End of Message (continued)

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 terminal 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 one of these bar codes to set the COM port:

COM1



1.

COM2



2.

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 COM2, you must use the YZ configuration command.

Flash Memory Configuration

Purpose: Configures the use of the optional 2MB flash memory. Every 246X terminal has 2MB of flash memory, 750K of which is available to store user applications and files. If you have a 246X with the 4MB flash memory option, you can configure the extra 2MB of the flash memory as a 2MB drive (D). You can store up to 32 files on drive D. If you configure the flash memory as drive D, use this drive to store large lookup tables and data files.

Syntax: *FFdata*

The acceptable values for *data* are:

0 No drive D
32 2MB drive D

Default: 2MB drive D

Scan: 1. Scan this bar code:

Configure Flash Memory as Drive D



\$+FF32

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

Save Configuration in Flash Memory



.+1

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

Reset Firmware



_.

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:
- 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. Then each terminal sets RTS whenever it is ready to receive data and waits for CTS to be set before sending data.

Syntax: YLn.data

where *n* is:

- 1 COM1 port
- 2 COM2 port

Acceptable values for *data* are:

- 0 No flow control
- 1 CTS checking
- 2 XON/XOFF response
- 3 XON/XOFF control
- 4 XON/XOFF response and control
- 5 CTS/RTS for DTE-DTE

Default: No flow control

Scan: To set the default flow control, scan one of these bar codes:

No Flow Control for COM1



\$+YL1.0

No Flow Control for COM2



\$+YL2.0



Or: To set the flow control:

1. Scan this bar code:

Enter Accumulate Mode / Set Flow Control



+/\$+YL

2. Scan one of these bar codes to set the COM port:

COM1



1.

COM2



2.

3. Scan the flow control setting:

None



0

CTS Checking



1

XON/XOFF Response



2

XON/XOFF Control



3

XON/XOFF Response and Control



4

CTS/RTS for DTE-DTE



5

4. Scan this bar code:

Exit Accumulate Mode



_/

Notes: For COM1 only, you can use either command syntax listed next:

Syntax: YL1.*data*

Or: IL*data*

Where *data* is one or two ASCII characters. For COM2, 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: YJn.data

where *n* is:

- 1 COM1 port
- 2 COM2 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.

Disable Handshake for COM2



\$+YJ2.

Or: To enable handshake, scan one of these bar codes:

Note: To scan the following bar codes, you must configure the terminal to use Code 39 in Full ASCII mode. For help, see "Code 39" earlier in this chapter.

Enable Handshake (Set to ACK) for COM1



\$+YJ1.\$F

Enable Handshake (Set to ACK) for COM2



\$+YJ2.\$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: PGdata

where *data* is disabled or enabled (set to ACK). For COM2, you must use the YJ configuration command.

Host IP Address

Purpose: Defines the IP address assigned to the host computer in your Ethernet 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 2461 must match the address that is set on the host.

Syntax: NCn.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 Ethernet 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

Host IP Address (continued)

2. Scan a numeric value from 0 to 255 to set an *n* field of the host IP address from these bar codes.



0



1



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3



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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: *CAdata*

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



-/

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: CH8data

where data can be up to 10 digits selected from this list:

Digit	Values	Description
Digit 1:	0	Symbology identifier (ID) disabled.
	1	Symbology ID enabled. Output of JC0 indicates a single ISBT Code 128 bar code was read. Output of JC4 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 <i>n</i> is a value from 0 to 9 or uppercase A through Z
&n	National Use Bar Code where <i>n</i> is a value from lowercase a through z

ISBT Code 128 (continued)

Digit	Values	Description
<i>Digits 5-6:</i>	See List*	Right Data ID to be matched for restricted concatenation. See the list for digits 3 and 4 for valid combinations.
<i>Digits 7-9:</i>	000-999	Bar code concatenation control parameters. If digit 10 (see below) is “d,” digits 7 and 8 refer to the nominal distance in millimeters between the stop characters of two labels subject to concatenation, and digit 9 is the label positioning tolerance. If the distance between the two labels is outside this limit (assuming standard ISBT bar code print size), the labels will not be concatenated. If digit 10 is “t,” digits 7, 8, and 9 are the decode time limit in milliseconds. If both labels are not decoded in the same beam sweep within this time, concatenation is not performed. This time parameter is only accurate to a 25-millisecond resolution.
<i>Digit 10:</i>	d or t	See the description for the previous three digits.

***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 the following bar codes, you must configure the terminal to use Code 39 in Full ASCII mode. For help, see “Code 39” earlier in this chapter.

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:

Symbology ID Disabled	Symbology ID Enabled
	
0	*1*

Note: Steps 3 through 9 are optional.

3. Scan one of these bar codes to disable or enable concatenation:

Disable Concatenation	Enable Concatenation
	
0	*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 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 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 setting the concatenation decode time limit, scan these bar codes to set the time from 001 to 999 msec. If setting the concatenation distance, scan these bar codes to set the distance from 00 to 99 mm and the tolerance from ± 1 to 9 mm.



0



1



2



3

ISBT Code 128 (continued)



4



5



6



7



8



9

9. Scan one of these bar codes to set distance or time:

Distance



d

Time



t

10. Scan this bar code to exit accumulate mode:

Exit Accumulate Mode



-/

Keypad Caps Lock

Purpose: Turns the caps lock on and off. With the caps lock turned on, all alphabetic characters you type on the keypad will be uppercase or capital letters.

Syntax: *KAdata*

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 keypad clicks. 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: `KCdata`

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

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: YFn.data

where *n* is:

- 1 COM1 port
- 2 COM2 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

Disable LRC for COM2



\$+YF2.0

Or: To enable LRC, scan one of these bar codes:

Enable LRC for COM1



\$+YF1.1

Enable LRC for COM2



\$+YF2.1

Notes: For COM1 only, you can use either command syntax listed next:

Syntax: YF1.data

Or: IFdata

Where data is a value of 0 or 1. For COM2, you must use the YF configuration command.



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: *CNdata*

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

Multi-Drop Address

Purpose: Defines the address of the communications port when you are using Multi-Drop protocol on COM2. Each multi-drop address has unique POL and SEL characters that are automatically set when you configure the address. The POL and SEL combination for each address is listed next.

Address	POL	SEL	Address	POL	SEL
A	FS	GS	Q	<	=
B	RS	US	R	>	?
C	SP	!	S	@	A
D	"	#	T	B	C
E	\$	%	U	D	E
F	&	'	V	F	G
G	(	)	W	H	I
H	*	+	X	J	K
I	'	-	Y	L	M
J	.	/	Z	N	O
K	0	1	0	P	Q
L	2	3	1	R	S
M	4	5	2	T	U
N	6	7	3	V	W
O	8	9	4	X	Y
P	:	;	5	Z	[

Syntax: YN2.*data*

where *data* can be an alphanumeric value from A through Z or 0 to 5.

Default: A

Scan: To set the default multi-drop address:

Default Multi-Drop Address (A) for COM2



\$+YN2.A

Or: To set the multi-drop address:

1. Scan this bar code:

Enter Accumulate Mode / Set Multi-Drop Address



+/\$+YN2.

2. Scan a value for *data* from the “Full ASCII Bar Code Chart” in Appendix B. The address is a single alphanumeric character from A through Z or 0 to 5.
3. Scan this bar code:

Exit Accumulate Mode



-/

Network Activate

Purpose: Enables or disables network communications between the 2461 terminal and other devices in the Ethernet network. When you enable this parameter, the terminal attempts to establish communications with the DCS 300 server or host computer. When you disable this parameter, the network is disabled.

Note: You must enable the Network Activate parameter to use the 2461 for data collection in your Ethernet network.

Syntax: NA*data*

Acceptable values for *data* are:

- 0 Disabled
- 1 Ethernet network (enabled)

Default: Disabled

Scan: One of these bar codes:

Disable Network Activate



\$+NA0

Enable Ethernet Network



\$+NA1

Network Port

Purpose: Defines the network port that the TCP/IP or UDP Plus network protocol uses for communications in your Ethernet network. In a TCP/IP network, set the network port to the appropriate port for the application you are using on the 2461 terminal. In a UDP Plus network, the network port you set on the 2461 must match the network port that is set on the DCS 300 server.

Syntax: *NGdata*
Acceptable values for *data* are any number from 1 to 65535.

Default: 00023 2461 with TCP/IP network protocol
05555 2461 with UDP Plus network protocol

Scan: To set the default network port for a 2461 with TCP/IP, scan this bar code:

Default TCP/IP Network Port



\$+NG23

To set the default network port for a 2461 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



4



5



6



7



8



9

3. Scan this bar code:

Exit Accumulate Mode



/

Parity

Purpose: Sets the parity for the serial port. The terminal uses parity for error checking in data transmissions.

Syntax: YB*n.data*

where *n* is:

- 1 COM1 port
- 2 COM2 port

Acceptable values for *data* are:

- 0 No parity
- 1 Even parity
- 2 Odd parity

Default: Even

Scan: To set the default parity, scan one of these bar codes:

Even Parity for COM1



\$+YB1.1

Even Parity for COM2



\$+YB2.1

Or: To set the parity:

1. Scan this bar code:

Enter Accumulate Mode / Set Parity



+/\$+YB

2. Scan one of these bar codes to set the COM port:

COM1



1.

COM2



2.



- Scan the parity setting:

No Parity



0

Even Parity



1

Odd Parity



2

- Scan this bar code:

Exit Accumulate Mode



_/

- 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 COM2, 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: C*data*

Acceptable values for *data* are:

00	Disabled
10	Plessey with reverse start code
30	Transmit check digit
31	Discard check digit

Default: Disabled

Plessey (continued)

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: YRn.data

where *n* is:

- 1 COM1 port
- 2 COM2 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 COM2



\$+YR2.

Or: To enable poll, scan one of these bar codes:

Note: To scan the following bar codes, you must configure the terminal to use Code 39 in Full ASCII mode. For help, see “Code 39” earlier in this chapter.

Enable Poll (Set to FS) for COM1



\$+YR1.%B

Enable Poll (Set to FS) for COM2



\$+YR2.%B

Note: FS is encoded as %B in a Code 39 bar code label.

Notes: For COM1 only, you can use either command syntax listed next:

Syntax: YR1.data

Or: HBdata

where *data* is disabled or enabled (set to FS). For COM2, 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.

Syntax: AEdata

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 terminal 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.

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 terminal 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 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.

Preamble (continued)

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: FRdata

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



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 and you press **ⓘ** to turn on the terminal, the terminal will boot and restart the application that was running when you turned off the terminal. If you set this parameter to resume allowed and press **ⓘ** to turn on the terminal, the terminal resumes using the application exactly where it was when you turned off the terminal.

Syntax: ERdata

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

RS-232 or RS-422/485 COM2 Interface

Purpose: Defines the interface for the communications port. If you have a 2460 terminal, you can use COM2 for either RS-232 or RS-422/485 communications.

Syntax: YK2.*data*

Acceptable values for *data* are:

0 RS-232
1 RS-422/485

Default: RS-232

Scan: To set the interface for COM2, scan one of these bar codes:

Enable RS-232 Interface



\$+YK2.0

Enable RS-422/485 Interface



\$+YK2.1

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: *SDdata*

Acceptable values for *data* are:

- 0 Disabled (scan one label at a time)
- 1 Enabled (scan many labels at a time)

Default: Disabled

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 terminal. 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: *SBdata*

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 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: *SRdata*

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

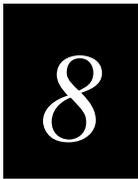


\$+SR1

Scanner Redundancy High



\$+SR2



Scanner Selection

Purpose: Identifies the type of scanner you have connected to the 246X terminal. The terminal can optimize the scanning performance by using the scanner you define in this command. When you select a specific scanner, other scanners may not function properly. Your terminal may not work if you connect an incompatible scanner.

Syntax: *SSdata*

Acceptable values for *data* are:

- 0 All compatible scanners (including wands)
- 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 on after you activate a laser scanner that is connected to the terminal.

Syntax: *SAdata*

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: *SCdata*

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 a host or PC. Communications protocols determine exactly how data is transmitted between the terminal and the host or PC. Each protocol has parameters you can set, such as baud rate and parity. Both the terminal and the host or PC must use the same protocol and parameters settings to communicate properly. For help on protocols, see the *Data Communications Reference Manual* (Part No. 044737).

The terminal can communicate in these five protocols:

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

Note: You can only use Multi-Drop protocol on COM2 of the 2460.

Each protocol is described in Chapter 4, "Operating the Terminal in a Network."

Syntax: YUn.data

where *n* is:

- 1 COM1 port
- 2 COM2 port

Acceptable values for *data* are:

- 0 Configurable
- 2 Polling mode D
- 3 Multi-drop
- 8 Master polling mode D
- 12 Binary

Default: Configurable

Scan: To set the default serial port protocol, scan one of these bar codes:

Configurable Protocol for COM1



\$+YU1.0



Configurable Protocol for COM2



\$+YU2.0

Or: To set the serial port protocol:

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.

COM2



2.

3. Scan the protocol setting:

Configurable



0

Polling Mode D



2

Multi-Drop



3

Master Polling



8

Binary



12

4. Scan this bar code:

Exit Accumulate Mode



-/

Start of Message (SOM)

Purpose: SOM is the first character in a message sent to or received from the host computer through the terminal's serial port. SOM **cannot** equal the same value that is set for EOM. You **cannot** set SOM to any of these values:

- AFF (ACK)
- DLE
- NEG (NAK)
- Poll
- RES (EOT)
- REQ (ENQ)
- SEL
- XOFF
- XON

Note: Before you can enable SOM, you must configure the EOM command.

Syntax: YYn.data

where *n* is:

- 1 COM1 port
- 2 COM2 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 COM2



\$+YY2.

Or: To set SOM to an ASCII character:

Note: To scan the following bar codes, you must configure the terminal to use Code 39 in Full ASCII mode. For help, see "Code 39" earlier in this chapter.

1. Scan this bar code:

Enter Accumulate Mode / Set SOM



+/\$+YY



- Scan one of these bar codes to set the COM port:

COM1



1.

COM2



2.

- Scan a bar code for *data* from the “Full ASCII Bar Code Chart” in Appendix B.
- Scan this bar code:

Exit Accumulate Mode



_/

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 COM2, you must use the YY configuration command.

Stop Bits

Purpose: Sets the number of stop bits on the serial port.

Syntax: YC*n.data*

where *n* is:

- COM1 port
- COM2 port

Acceptable values for *data* are:

- 1 stop bit
- 2 stop bits

Default: 1

Scan: To set the number of stop bits to 1, scan one of these bar codes:

1 Stop Bit for COM1



\$+YC1.1

Stop Bits (continued)

1 Stop Bit for COM2



\$+YC2.1

Or: To set the number of stop bits to 2, scan one of these bar codes:

2 Stop Bits for COM1



\$+YC1.2

2 Stop Bits for COM2



\$+YC2.2

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 COM2, 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 2461 terminal 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.

Subnet Mask (continued)

5. Scan this bar code:

Exit Accumulate Mode



./

Suspend/Resume Control

Purpose: Controls the operation of the **ⓘ** button (suspend/resume). You can enable or disable the **ⓘ** button. When the **ⓘ** button is disabled, you cannot turn off the terminal. By default, the **ⓘ** button is enabled so that you can turn the terminal on and off.

Syntax: *EFdata*

Acceptable values for *data* are:

0 Enabled

1 Disabled

Default: Enabled

Scan: One of these bar codes:

Enable **ⓘ** Button



\$+EF0

Disable **ⓘ** Button



\$+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: *NJdata*
 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

TCP Maximum Retries (continued)

3. Scan this bar code:

Exit Accumulate Mode



./

TCP/IP Maximum Transmit Timeout

Purpose: Defines the maximum timeout that TCP will allow between retries of a transmission in a TCP/IP direct connect network before it gives up. 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: NHdata

Acceptable values for data are:

- 0 No timeout
- 1-128 Transmit timeout in seconds

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 2461 terminal in your Ethernet 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 2461 must match the address that is set on the server or host computer.

Syntax: `NDn.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 Ethernet 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

Terminal IP Address (continued)

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



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: *DBdata*

Acceptable values for *data* are 12 digits corresponding to:

<i>yy</i>	00-99	Year
<i>mm</i>	01-12	Month of the year
<i>dd</i>	01-31	Day of the month
<i>hh</i>	00-23	Hour
<i>mm</i>	00-59	Minutes
<i>ss</i>	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: 960101000000

Scan: To set the time and date:

1. Scan this bar code:

Enter Accumulate Mode / Set Time and Date



+/\$+DB

2. Scan a numeric value for each digit from these bar codes:



0



1



2



3



4



5



6



7



8



9

Time and Date (continued)

3. Scan this bar code:

Exit Accumulate Mode



./

Time in Seconds

Purpose: If you enable the Append Time command, you can enable the Time in Seconds command to append the seconds to each bar code label that is scanned into the terminal. To append the time in hours and minutes, disable the Time in Seconds command.

Syntax: DAdata

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: YEn.data

where *n* is:

- 1 COM1 port
- 2 COM2 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 COM2



\$+YE2.4

Or: To set the timeout delay:

1. Scan this bar code:

Enter Accumulate Mode / Set Timeout Delay



+/\$+YE

Timeout Delay (continued)

2. Scan one of these bar codes to set the COM port:

COM1



1.

COM2



2.

3. Scan one of these bar codes for the timeout delay:

Timeout Delay 5 ms



0

Timeout Delay 100 ms



1

Timeout Delay 500 ms



2

Timeout Delay 2 sec



3

Timeout Delay 10 sec



4

Timeout Delay 20 sec



5

Timeout Delay 40 sec



6

Timeout Delay 60 sec



7

4. Scan this bar code:

Exit Accumulate Mode



_/

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 COM2, 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: *CEdata*

where *data* must be 4 to 7 digits selected from this list:

<i>First digit:</i>	0	UPC-A/EAN-13 disabled
	1	UPC-A/EAN-13 enabled
	2	UPC-A only enabled
<i>Second digit:</i>	0	UPC-E disabled
	1	UPC-E enabled
<i>Third digit:</i>	0	EAN-8 disabled
	1	EAN-8 enabled
<i>Fourth digit:</i>	0	Supplementals are not allowed
	1	Supplementals are allowed
	2	Supplementals are required
<i>Fifth digit:</i>	0	Discard check digit
	1	Transmit check digit
<i>Sixth digit:</i>	0	Discard number system digit
	1	Transmit number system digit
<i>Seventh digit:</i>	0	Discard the leading zero for UPC-A
	1	Retain the leading zero for UPC-A

Default: 1111111

<i>First digit:</i>	UPC-A/EAN-13 enabled
<i>Second digit:</i>	UPC-E enabled
<i>Third digit:</i>	EAN-8 enabled
<i>Fourth digit:</i>	Supplementals allowed
<i>Fifth digit:</i>	Transmit check digit
<i>Sixth digit:</i>	Transmit number system digit
<i>Seventh digit:</i>	Retain leading zero for UPC-A

UPC/EAN (continued)

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-A/EAN-13



0

Enable UPC-A/EAN-13



1

Enable UPC-A Only



2

3. Scan one of these bar codes to set the second digit:

Disable UPC-E



0

Enable UPC-E



1

4. Scan one of these bar codes to set the third digit:

Disable EAN-8



0

Enable EAN-8



1

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



_/



Specifications

This appendix lists the terminal's physical and environmental specifications, lists the default configuration, and provides a configuration command reference list in alphabetical order by command syntax.

Physical and Environmental Specifications

Terminal Dimensions

Length: 7.5 in (19.1 cm)
Height: 3.8 in (9.7 cm) with rubber feet
Width: 6.5 in (16.5 cm)
Weight: 28.0 oz (2461)
25.5 oz (2460)

Power Specifications

Operating (with power supply): 95 to 250 VAC, 50 to 60 Hz, 125 mA
Memory Backup: Rechargeable NiCd 700 mA battery pack

Electrical Specifications

Models: 2460 and 2461
Electrical rating: \approx 12V, 750 mA

Temperature and Environmental Specifications

Operating the terminal: +32°F to +122°F 0°C to +50°C
Storing the terminal: -4°F to +140°F -20°C to +60°C
Charging the backup battery: +32°F to +104°F 0°C to +40°C
Relative humidity: 0 to 90% non-condensing

Screen

- CGA-compatible LCD
- 2 lines by 16 characters

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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)

Wired Data Communications

- RS-232C serial port (COM1)
- RS-232C/422/485 serial port (COM2)
- Ethernet (10BaseT)
- Ethernet network protocol options: TCP/IP or UDP Plus
- XMODEM/YMODEM protocol for data transfer
- Protocols: Configurable Serial Protocol, Multi-Drop, Polling Mode D, Master Polling, Binary

Bar Code Symbolologies

- Codabar
- Code 11
- Code 16K
- Code 2 of 5
- Code 39
- Code 49
- Code 93
- Code 128
- Interleaved 2 of 5
- MSI
- Plessey
- UPC/EAN

Input Devices for the Scanner Connector

You can attach these input devices to the scanner connector:

- 126X, 127X, and 128X wands
- 1354 and 1355 badge scanners
- 1517, 1518, 1519, and 1545 laser scanners
- 1550A, 1551A, 1550C, and 1551C laser scanners
- 1550B laser scanner with software V1.9 or later
- 1551B laser scanner with software V1.1 or later
- 1552 cordless laser scanner with 9745 base station
- 1463 CCD scanner

Multi-Drop Cable for Crossbar Networks

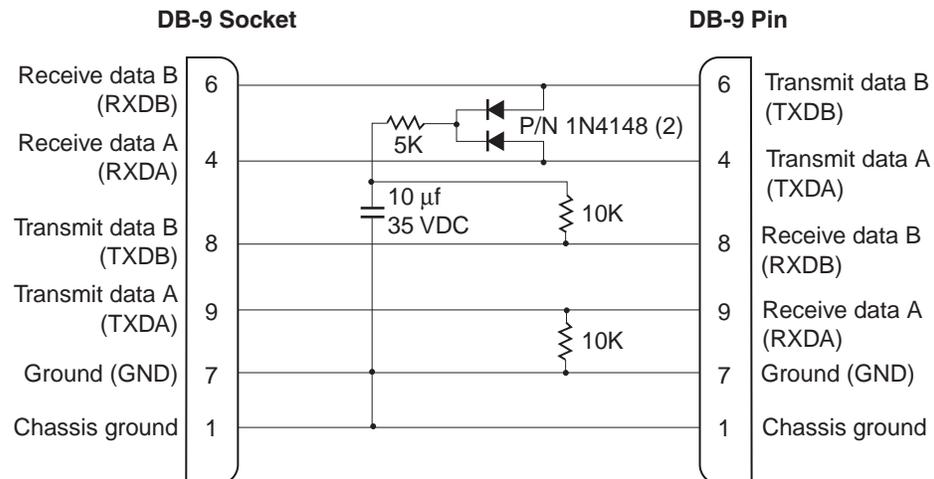
- 25-pin to 8-pin Multi-Drop cable, Part No. 047653

Pin Assignments

Use these pin assignments to make your own cables or troubleshoot problems.

Pin Assignments for the CrossBar Adapter

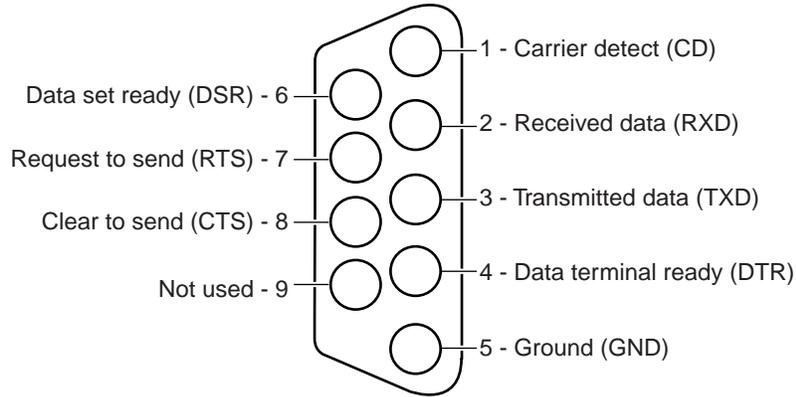
This illustration shows the pinout assignments for the TRAKKER Antares CrossBar adapter (Part No. 069447).



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Pin Assignments for COM1

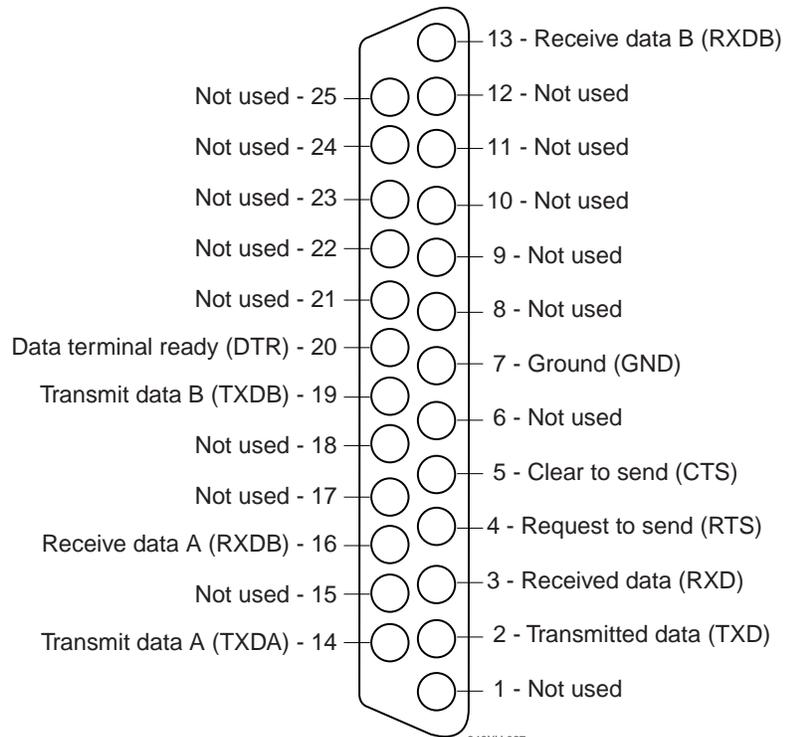
Use a PC/AT compatible 8-pin D-Sub connector for the RS-232 serial cable.



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Pin Assignments for COM2

Use a female, 25-pin, D-Sub connector for the RS-232/422/485 serial cable. The COM2 connector is compatible with the 9560 pin assignments. Your RS-422 or RS-485 cable can be up to 2000 feet in length.



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Compatibility With 95XX Communications Protocols

The 95XX terminals and the 246X terminals use very similar protocols. Use this table to convert communications protocols and set up the 246X to match your 95XX configuration.

95XX Protocol	246X Protocol
User-Defined	Configurable (See Note 1)
Point-to-Point	Configurable (See Note 1)
Polling Mode D	Polling Mode D
Multi-Drop	Multi-Drop (COM2 only)
User-Defined Multi-Drop	Multi-Drop (COM2 only) (See Notes 2 and 3)

Note 1: Configurable protocol is a subset of User-Defined protocol or Point-to-Point protocol. Configurable protocol does not support all of the features of User-Defined or Point-to-Point protocol. You may need to reconfigure your host to match the capability of the Configurable protocol on the 246X. For example, the default Point-to-Point protocol settings on the 95XX are compatible with the default settings for 246X Configurable protocol.

Note 2: You can define User-Defined Multi-Drop protocol on the 95XX to be compatible with standard Multi-Drop on the 246X.

Note 3: COM2 is only available on the 2460 terminal. It is not available on the 2461 terminal.

To connect the 246X to a 95XX network, you need to convert your application from IRL to the C programming language. You can use EZBuilder, Microsoft Visual C++, or an IRL to C converter to convert your IRL application. For help, see Chapter 5, “Programming the Terminal.”

Default Configuration

The next tables show the terminal's default configuration. If you need to restore the terminal to the default configuration, 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
Character Set	U.S. ASCII
Command Processing	All reader commands enabled
Decode Security	Moderate
Flash Memory Configuration	2MB drive D
Keypad Caps Lock	Caps lock off
Keypad Clicker	Enabled
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	960101000000
Time in Seconds	Disabled

Default Configuration for Ethernet Network Communications

Parameter	Default
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
Network Activate	Disabled
Network Port	23 (Telnet) for a TCP/IP network 5555 for a UDP Plus network
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
Multi-Drop Address	A
Parity	Even
Poll (Polling)	Disabled
RS-232 or RS-422/485 COM2 Interface	RS-232
Serial Port Protocol	Configurable
Start of Message (SOM)	\x02 (hexadecimal value for STX)
Stop Bits	1
Timeout Delay	10 seconds

Configuration Commands by Syntax

The next table lists all of the configuration commands that are available on the 246X terminals. The configuration commands are listed in alphabetic order by syntax.

Syntax	Command	For Help, See Page
<i>ADdata</i>	Preamble	8-65
<i>AEdata</i>	Postamble	8-64
<i>BVdata</i>	Beep Volume	8-11
<i>CAdata</i>	Interleaved 2 of 5 Code (I 2 of 5)	8-45
<i>CBdata</i>	Code 39	8-18
<i>CCdata</i>	Code 2 of 5 (2 of 5)	8-17
<i>CDdata</i>	Codabar	8-14
<i>CEdata</i>	UPC/EAN	8-91
<i>CFdata</i>	Code 93	8-23
<i>CGdata</i>	Code 11	8-15
<i>CHdata</i>	Code 128	8-24
<i>CIdata</i>	Plessey	8-61
<i>CJdata</i>	Code 49	8-22
<i>CKdata</i>	Code 49 Function Code 1	8-22
<i>CLdata</i>	Code 49 Function Code 2	8-22
<i>CMdata</i>	Code 49 Function Code 3	8-22
<i>CNdata</i>	MSI	8-55
<i>CPdata</i>	Code 16K	8-16
<i>CSdata</i>	Decode Security	8-33
<i>DAdata</i>	Time in Seconds	8-88
<i>DBdata</i>	Time and Date	8-87
<i>DCdata</i>	Command Processing	8-25
<i>DEdata</i>	Append Time	8-7
<i>DXdata</i>	Character Set	8-12
<i>EFdata</i>	Suspend/Resume Control	8-82
<i>ERdata</i>	Resume Execution	8-68
<i>EZdata</i>	Automatic Shutoff	8-7
<i>FFdata</i>	Flash Memory Configuration	8-39

Configuration Commands by Syntax (continued)

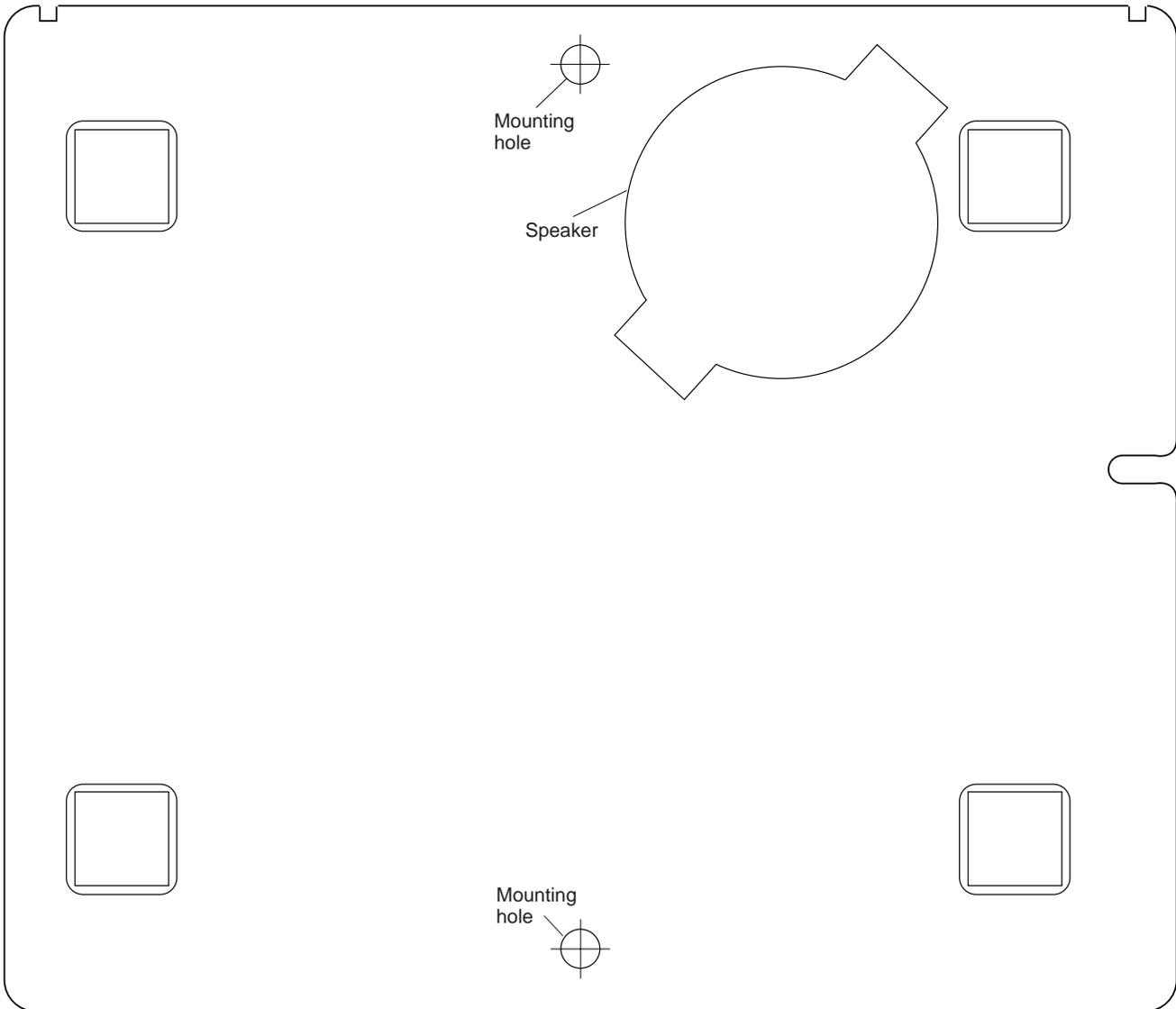
Syntax	Command	For Help, See Page
<i>FRdata</i>	RAM Drive Size	8-66
<i>HBdata</i>	Poll (Polling)	8-62
<i>IAdata</i>	Baud Rate	8-9
<i>IBdata</i>	Parity	8-60
<i>ICdata</i>	Stop Bits	8-79
<i>IEdata</i>	Timeout Delay	8-89
<i>IFdata</i>	LRC (Longitudinal Redundancy Check)	8-54
<i>IIdata</i>	Data Bits	8-32
<i>ILdata</i>	Flow Control	8-40
<i>ITdata</i>	Configuration Commands Via Serial Port	8-28
<i>KAdata</i>	Keypad Caps Lock	8-52
<i>KCdata</i>	Keypad Clicker	8-53
<i>NAdata</i>	Network Activate	8-57
<i>NCdata</i>	Controller IP Address (UDP Plus network)	8-30
<i>NCdata</i>	Host IP Address (TCP/IP network)	8-43
<i>NDdata</i>	Terminal IP Address	8-85
<i>NGdata</i>	Network Port	8-58
<i>NHdata</i>	TCP/IP Maximum Transmit Timeout	8-84
<i>NIdata</i>	Dynamic Host Configuration Protocol (DHCP)	8-36
<i>NJdata</i>	TCP Maximum Retries	8-83
<i>NSdata</i>	Subnet Mask	8-80
<i>NXdata</i>	Default Router	8-34
<i>PEdata</i>	Start of Message (SOM) (COM1 only)	8-78
<i>PFdata</i>	End of Message (EOM) (COM1 only)	8-37
<i>PGdata</i>	Handshake (COM1 only)	8-42
<i>SAdata</i>	Scanner Timeout	8-74
<i>SBdata</i>	Scanner Mode	8-71
<i>SCdata</i>	Scanner Trigger	8-75
<i>SDdata</i>	Scan Ahead	8-70
<i>SRdata</i>	Scanner Redundancy	8-72

Configuration Commands by Syntax (continued)

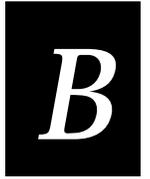
Syntax	Command	For Help, See Page
<i>SSdata</i>	Scanner Selection	8-73
<i>YAdata</i>	Baud Rate	8-9
<i>YBdata</i>	Parity	8-60
<i>YCdata</i>	Stop Bits	8-79
<i>YEdata</i>	Timeout Delay	8-89
<i>YFdata</i>	LRC (Longitudinal Redundancy Check)	8-54
<i>YIdata</i>	Data Bits	8-32
<i>YJdata</i>	Handshake (also known as AFF)	8-42
<i>YKdata</i>	RS-232 or RS 422/485 COM2 Interface	8-69
<i>YLdata</i>	Flow Control	8-40
<i>YNdata</i>	Multi-Drop Address	8-56
<i>YRdata</i>	Poll (Polling)	8-62
<i>YTdata</i>	Configuration Commands Via Serial Port	8-28
<i>YUdata</i>	Serial Port Protocol	8-76
<i>YYdata</i>	Start of Message (SOM)	8-78
<i>YZdata</i>	End of Message (EOM)	8-37

Mounting Template

Use this template to mount your 246X terminal to a horizontal or vertical surface.



246XU.019



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 246X stationary terminals.

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	?

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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 246X terminal to use Code 39 in Full ASCII mode.

Control Characters

NUL



%U

SOH



SA

STX



SB

ETX



SC

EOT



SD

ENQ



SE

ACK



SF

BEL



SG

BS



SH

HT



SI

LF



SJ

VT



SK

FF



SL

CR



SM

SO



SN

SI



SO

DLE



SP

DC1



SQ

DC2



SR

DC3



SS

DC4



ST

NAK



SU

SYN



SV

ETB



SW

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



Using the Default Applications



This appendix defines the APPTSK.BIN and EM9560.BIN applications that are shipped on the TRAKKER Antares terminals and explains how to use each application.

About the Applications Shipped on the Terminal

The TRAKKER Antares terminal ships loaded with these two applications loaded on drive C:

- APPTSK.BIN
- EM9560.BIN

This appendix explains how to use the APPTSK.BIN and EM9560.BIN applications on the terminal.

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 TRAKKER Antares 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 Ethernet) and parameter settings.
- Displays the time and date, which you can toggle on and off.
- Sends scanned or keyboard data out all serial or Ethernet ports.
- Buffers the keyboard data until you press Enter.
- Receives data from any serial or Ethernet 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 Ethernet port.
- Receives data through the Ethernet 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 95XX terminals.

Defining the Emulation Features of EM9560.BIN

The TRAKKER Antares terminal is a programmable terminal that runs C/C++ applications. With the EM9560.BIN application, you can use the TRAKKER Antares terminal as a remote input/output terminal in which all prompts and commands are controlled by the host computer. With this application, the TRAKKER Antares terminal is similar to a 95XX terminal in Data Entry mode with no application running.

Note: For the 95XX terminals, Data Entry mode with no application running is also referred to as an unprogrammed state or 95XX dumb terminal mode.

The EM9560.BIN application allows you to use the TRAKKER Antares terminal to emulate these specific 95XX features:

- An Enter key without any preceding data transmits an empty data packet.
- The TRAKKER Antares terminal 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 terminal, which was manufactured before the current standard was established. Other Code 128 configurations work as defined in Chapter 8, "Configuration Command Reference."
- 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.



- On the 246X terminal, you can select character sets by using the DX configuration command or the ANSI escape sequence (ESC[*dataw*). For help, see “Selecting Character Sets” later in this appendix.

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[<i>n</i> ; <i>v</i> H	Moves the cursor to the position specified by the <i>n</i> and <i>v</i> parameters where: <i>n</i> specifies the row or line number. <i>v</i> specifies the column number. If you enter zero or no parameter, <i>n</i> and <i>v</i> are set to one. If <i>n</i> or <i>v</i> 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 two 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 Configured Character Set	ESC[<i>x</i>	Returns the display to the character set that is defined in the default configuration.
Restore Cursor Position	ESC[<i>u</i>	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.

Using Display Control Codes (continued)

Command	Control Code	Description or Action
Save Cursor Position	ESC[<i>s</i>	Saves the current cursor position. Successive Save Cursor Position commands overwrite the previous position that was saved.
Select Character Set	ESC[<i>nw</i>	Defines the character set to be used where <i>n</i> identifies the character set. For help, see "Selecting Character Sets" later in this appendix.

Setting Preambles and Postambles

With the EM9560.BIN application, you can set Preamble A, Preamble B, and Postamble C on the TRAKKER Antares terminal and make the terminal compatible with the 95XX terminals. 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 *AAdata* or *+.data*
Preamble B *ABdata* or *++data*
Postamble C *ACdata* 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 Intermec 95XX terminals. Each command is described next. For help with the Code 39 configuration command (CB), see Chapter 8, "Configuration Command Reference."

Note: Use the CB configuration command unless your terminals need to be compatible with the 95XX terminals 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

.\$

Selecting Character Sets

On the 246X terminal, you can select the character set to display on the terminal screen. You can select the character set using either of these two commands:

- Character Set configuration command (DX)
- ANSI escape sequence (ESC[*dataw*])

The character set feature is backward compatible with the 95XX terminals and allows you to display a subset of characters from Western European languages, such as French, German, Italian, Portuguese, Spanish, and others. The Character Set command (DX) is supported through the terminal firmware, but the ANSI escape sequence is only supported through the EM9560.BIN application. See Chapter 8 for more information on using the Character Set command.

Purpose: Determines the language used to display characters. The default is U.S. ASCII.

Syntax: ESC[*dataw*]

Acceptable values for *data* are:

- | | |
|---|----------------|
| 0 | U.S. ASCII |
| 1 | French |
| 2 | German |
| 3 | United Kingdom |
| 4 | Danish |
| 5 | Swedish |
| 6 | Italian |
| 7 | Spanish |

Note: See the Character Set (DX) command in Chapter 8 for a complete table of the international characters.

Unsupported 95XX Features

These 95XX features are **not** supported by the EM9560.BIN application on the TRAKKER Antares terminal.

- Display Setting configuration command (OD) (buffered or transparent display).
- Command Override reader (data entry) command (DLE).
- Right Host Message reader command (HT).
- Preamble A Required configuration command (OA).
- Computer Response Required Mode (CRRM) configuration command (PB), Enter CRRM reader command (./), and Exit CRRM reader command (-).
- Resume IRL configuration command (XG).
- Separate transmit and receive EOM characters (PI and PJ). The configurable EOM (PF, YZ) is used for both transmit and receive EOM.
- Capacity reader command (%\$).
- Forward and Review reader commands (%+ and %/).
- Download Program command from the 9154 or 9161 controller. Use the Transmit File reader command. For help, see Chapter 7, "Reader Command Reference."

Running APPTSK.BIN and EM9560.BIN

To run APPTSK.BIN or EM9560.BIN on your terminal, use the Run Program reader command.

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

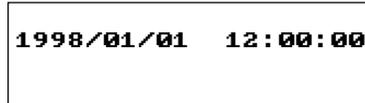


//C:EM9560.BIN



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



246XU.014

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 2461 terminal. Data from the input device is displayed on the terminal screen and transmitted out the network (Ethernet) port.

Example 3

Connect the 2460 to a serial port on the T2485 or T2486 terminal. Use the 2460 to collect data and upload the data from the 2460 to the T248X. Data is transmitted to the T248X and out the RF port to the connected network devices.

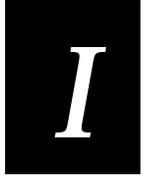
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Example 4

Connect the COM1 serial port to the COM2 serial port on the 2460. Use the 2460 terminal to configure itself by typing and entering configuration commands on the keypad or keyboard.

Example 5

Connect the serial port on the TRAKKER Antares 248X to the serial port on the TRAKKER Antares 246X terminal. Use the T248X to configure the 246X by typing and entering configuration commands on the T248X keypad.



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