User's Manual Addendum

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Trakker Antares® 24XX Terminal

Intermec

A UNOVA Company

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4 Updates to Hardware and Software

1

What's New

This chapter describes the purpose and contents of this addendum. It also summarizes the enhancements and features of the firmware version 6.13 release.

How to Use This Addendum

Read this addendum before you begin using your Trakker Antares terminal.

The hardware and software on Trakker Antares terminals have been updated substantially to improve efficiency and ease of use. These changes are not yet reflected in the user's manual, but they are described here in detail.

The information in this addendum applies to the Trakker Antares 2420, 2425, 2455, 2460, and 2461 terminals. For more information about the topics covered in this addendum, refer to your user's manual.

Manual	Part Number with Addendum
Trakker Antares 2420 and 2425 Hand-Held Terminal User's Manual	064024-007
Trakker Antares 2455 Vehicle-Mount Terminal User's Manual	067358-004
Trakker Antares 246X Stationary Terminal User's Manual	068575-003

This addendum contains the latest information about Trakker Antares terminals with firmware version 6.13. If there are any conflicts between the information in the Trakker Antares user's manual and this addendum, use the information in this addendum.

To learn about your Trakker Antares terminal, use this addendum in conjunction with other Trakker Antares documentation.

What You Will Find in This Addendum

This table summarizes the information in each chapter.

Chapter	Summary
1	Describes the purpose and contents of this addendum. It also summarizes the enhancements and features of the firmware version 6.13 release.
2	Contains information about configuring the Trakker Antares terminal to use the IEEE 802.11B High Rate (HR) radio. This chapter only applies to the T2425 and the T2455.
3	Explains how to run and use ROM-DOS on Trakker Antares terminals that are running firmware version 6.12 or higher.
4	Describes changes that have been made to Trakker Antares software and hardware that are not yet reflected in the user's manual.

If You Do Not Have Firmware Version 6.13

If you have an earlier version of firmware, you can download version 6.13 at no charge from the Intermec Web site at www.intermec.com. For help, contact your local Intermec service representative. If you are not going to upgrade to version 6.13, use your Trakker Antares user's manual and disregard this addendum.

Summary of New Features in Firmware Version 6.13

With firmware version 6.13, several significant changes were made to Trakker Antares hardware and software. These changes include:

- You can now use and configure the IEEE 802.11B High Rate (HR) radio option.
- You can use ROM-DOS to install and run DOS applications on your terminal.
- If you are using 21XX Universal Access Points, you can now roam across subnetworks.
- You can configure additional network parameters through the network.
- You can create a custom logo that appears on the terminal screen each time the terminal boots.
- The Euro symbol (€) is now supported.
- There are now additional 95XX emulation features.
- You can now store up to 128 files on each drive.
- You can use new diagnostics.
- You can now configure the new beep duration command to create the impression of a higher beep volume.
- For the UPC/EAN configuration command, you can set expanding zeros for UPC-E, and you can also set new supplementals options.

This information supplements the information provided in your Trakker Antares user's manual. Please keep this addendum with your user's manual.

2

Configuring the 802.11B HR Radio

This chapter contains information about configuring the Trakker Antares terminal to use the 802.11B HR radio.

Summary of Radio Frequency Features

To communicate through the 2.4 GHz radio frequency (RF) network, all Trakker Antares RF terminals (T2425 or T2455) must contain one of the following types of radios:

- WLI-F 2.4 GHz OpenAir frequency hopping spread spectrum
- 2.4 GHz IEEE 802.11B high rate direct sequence spread spectrum

The radio in each of the terminals must be the same type of radio in the access points. Depending on the type of radio, you must set certain parameters to the same configuration on both the terminal and the access points.

OpenAir Radio

To use OpenAir radios in your network, you must set the following parameters:

- RF Domain
- RF Security Identification

The values for each of these parameters must be the same on the terminals and the access points. Each access point is configured with a different channel/subchannel combination.

Note: On the 21XX Universal Access Points, the RF Domain parameter is called the LAN ID (Domain) parameter.

Note: The RF Security Identification parameter is an optional parameter. You only have to set this parameter on the terminal if it is already set on the access points.

802.11B HR Radio

To use 802.11B HR radios in your network, you must set the following parameter:

- Network name

The value for this parameter must be the same value on the terminals and the access points. You can also set this parameter to “ANY” on the terminal, allowing the terminal to communicate with any access point that has the same radio and is within range. This parameter is case-sensitive.

802.11B HR Radio Configuration Commands

This section describes the following configuration commands for the 802.11B HR radio:

- AP Density
- Maximum Sleep Duration
- Medium Reservation
- Network Name
- Power Management
- Receive All Multicast
- Reservation Threshold
- Station Name
- Transmit Rate
- Transmit Rate Fallback
- WEP Encryption
- WEP Key 1
- WEP Key 2
- WEP Key 3
- WEP Key 4
- WEP Transmit Key

For more information about configuring these commands for your access points, see you access point manual.

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 and stop codes.

AP Density

Purpose: Controls the roaming sensitivity of the radios. You can use this parameter to virtually reduce the range of the radio. When you increase the AP density, you do not reduce the absolute range of the radio, but the roaming algorithms are modified to allow significant overlap of the radio coverage. Increasing the AP density lets you create a higher performance radio network, but you will need significantly more access points to cover a given area.

Syntax: LG*data*

Acceptable values for *data* are:

1 Low density
2 Medium density
3 High density

Default: Low density

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Radio.

Scan: One of these bar codes:

Low AP Density

$+LG1

Medium AP Density

$+LG2

High AP Density

$+LG3

Maximum Sleep Duration

Purpose: Specifies the maximum amount of time the radio is allowed to sleep.

Note: Before you set the maximum sleep duration, you must enable the Power Management command.

Syntax: LI*data*

Acceptable values for *data* are from 0 to 65535 ms.

Default: 100

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Radio.

Scan: To set the default maximum sleep duration, scan this bar code:

Default Maximum Sleep Duration

$+LI100

Or: To set the maximum sleep duration:

1. Scan this bar code:

   Enter Accumulate Mode / Set Maximum Sleep Duration

   +/$+LI

2. Scan a numeric value for *data* from these bar codes:

   0

   1

   2

   3

   4

   5

Maximum Sleep Duration (continued)


6


7


8


9

3. Scan this bar code:

Exit Accumulate Mode


-/

Medium Reservation

Purpose: Determines if the terminal uses medium reservation. You should enable this parameter if your network has hidden stations. When you enable this parameter, you also need to set the Reservation Threshold command. You may want to disable this parameter to improve network response time if the terminal usually sends very small packets and the network does not have any hidden stations.

Syntax: LC*data*

Acceptable values for *data* are:

0 Disabled
1 Enabled

Default: Enabled

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Radio.

Scan: One of these bar codes:

Disable Medium Reservation

$+LC0

Enable Medium Reservation

$+LC1

Network Name

Purpose: Defines an RF network. To communicate, all access points and terminals in the network must have the same network name. If you set this parameter to "ANY," the terminal can associate with any access point, regardless of the access point network name. This parameter is case-sensitive.

You can roam between access points as long as all of the RF devices have the same network name. You can also create subnetworks in the same area by assigning different network names to terminals and access points.

Syntax: LA*data*

Acceptable values for *data* are up to 32 ASCII characters.

Default: INTERMEC (case-sensitive)

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Radio.

Note: To set this command using bar code labels, you must also use the bar code labels in Appendix B of your user's manual. To use these labels, you must configure the terminal to use Code 39 in Full ASCII mode. For help, see "Code 39" in the "Configuration Command Reference" chapter in your user's manual.

Scan: To set the default network name, scan this bar code:

Default Network Name

$+LAINTERMEC

Or: To set the network name to "ANY," scan this bar code label:

Set Network Name to ANY

$+LAANY

Or: To set the network name to an ASCII character string:

1. Scan this bar code:

   Enter Accumulate Mode / Set Network Name

   +/$+LA

Network Name (continued)

2. Scan a value for *data* from the "Full ASCII Bar Code Chart" in Appendix B of your user's manual. The network name can be from 1 to 32 characters.

3. Scan this bar code:

   Exit Accumulate Mode

   -/

Power Management

Purpose: Determines if power management is enabled for the radio. If you enable power management, the radio conserves power by sleeping between messages. Enabling power management decreases the performance of the RF network, but it increases the life of battery-powered devices.

Syntax: LH*data*

Acceptable values for *data* are:

0 Disabled
1 Enabled

Default: Enabled

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Radio.

Scan: One of these bar codes:

Disable Power Management

$+LH0

Enable Power Management

$+LH1

Receive All Multicast

Purpose: Determines if the terminal needs to receive all multicast messages. If you enable this parameter, the radio will stay awake to receive all multicast messages that are forwarded by the access point. If you disable this parameter, the radio sleeps more often and conserves battery power.

Note: Before you can set or clear the Receive All Multicast command, you must enable the Power Management command.

Syntax: LJ*data*

Acceptable values for *data* are:

0 Disabled
1 Enabled

Default: Enabled

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Radio.

Scan: One of these bar codes:

Disable Receive All Multicast

$+LJ0

Enable Receive All Multicast

$+LJ1

Reservation Threshold

Purpose: Specifies the maximum packet size that the terminal can send before it uses medium reservation. Packets that are greater than or equal to this packet size use the medium reservation mechanism to help prevent collisions with packets from other devices.

Note: Before you can set the reservation threshold, you must enable the Medium Reservation command.

Syntax: LD*data*

Acceptable values for *data* are from 0 to 2346.

Default: 500

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Radio.

Scan: To set the default reservation threshold, scan this bar code:

Default Reservation Threshold

$+LD500

Or: To set the reservation threshold:

1. Scan this bar code:

   Enter Accumulate Mode / Set Reservation Threshold

   +/$+LD

2. Scan a numeric value for *data* from these bar codes:

   0

   1

   2

   3

   4

   5

Reservation Threshold (continued)


6


7


8


9

3. Scan this bar code:

Exit Accumulate Mode


-/

Station Name

Purpose: Identifies the terminal to the network. For example, you might want to define station names so that you can identify terminals when using site survey tools.

Syntax: LB*data*

Acceptable values for *data* are up to 32 ASCII characters.

Default: TRAKKER 2400

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Radio.

Note: To set this command using bar code labels, you must also use the bar code labels in Appendix B of your user's manual. To use these labels, you must configure the terminal to use Code 39 in Full ASCII mode. For help, see "Code 39" in the "Configuration Command Reference" chapter in your user's manual.

Scan: To set the default station name, scan this bar code:

Default Station Name

$+LBTRAKKER 2400

Or: To set the station name to an ASCII character string:

1. Scan this bar code:

   Enter Accumulate Mode / Set Station Name

   +/$+LB

2. Scan a value for *data* from the "Full ASCII Bar Code Chart" in Appendix B of your user's manual. The station name can be from 1 to 32 characters.
3. Scan this bar code:

   Exit Accumulate Mode

   -/

Transmit Rate

Purpose: Sets the bit rate for data transmission. A slower transmit rate provides a better range. You should configure the terminals that are on the perimeter of the access point coverage area to the slower transmit rate. A faster transmit rate provides better throughput. You should configure most of the terminals to the faster transmit range.

Syntax: LE*data*

Acceptable values for *data* are:

0	Maximum available
1	1 Mbps (Low)
2	2 Mbps (Standard)
5	5.5 Mbps (Medium)
11	11 Mbps (High)

Default: Maximum available

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Radio.

Scan: One of these bar codes:

Set Transmit Rate to Maximum Available

$+LE0

Set Transmit Rate to 1 Mbps

$+LE1

Set Transmit Rate to 2 Mbps

$+LE2

Set Transmit Rate to 5.5 Mbps

$+LE5

Set Transmit Rate to 11 Mbps

$+LE11

Transmit Rate Fallback

Purpose: Determines if the terminal will try slower rates than the specified transmit rate. A packet might be undeliverable to a device at a given rate due to interference or range limitations. If you enable this command, the terminal will attempt to deliver the packet at a slower rate, which might have greater range or increased interference tolerance.

Syntax: LF*data*

Acceptable values for *data* are:

0 Disabled
1 Enabled

Default: Enabled

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Radio.

Scan: One of these bar codes:

Disable Transmit Rate Fallback

$+LF0

Enable Transmit Rate Fallback

$+LF1

WEP Encryption

Purpose: Determines if you want the terminal to use the Wired Equivalent Privacy (WEP) algorithm for data encryption of wireless communications. WEP protects the transmitted data using a 64-bit seed key and the RC4 encryption algorithm. However, when WEP is enabled, it only protects the data packet information. It does not protect the physical layer header, so other devices on the network can listen to the control data needed to manage the network.

Syntax: LK*data*

Acceptable values for *data* are:

0 Disabled
1 Enabled

Default: Disabled

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Radio.

Scan: One of these bar codes:

Disable WEP Encryption

$+LK0

Enable WEP Encryption

$+LK1

WEP Key 1, WEP Key 2, WEP Key 3, WEP Key 4

Purpose: Sets the values for the WEP default keys. The terminal can receive a WEP encryption that uses any of these four WEP keys. The WEP keys must appear in the same order on both the access point and the terminal. You enter five ASCII characters, printable or nonprintable, or five hex pairs for the key.

If you enter fewer than five ASCII characters or hex pairs, the key is not saved. If you enter more than five ASCII characters or hex pairs, the key is truncated. You may not enter a character with a value of \x00.

Note: Before you can set the WEP encryption keys, you must enable the WEP Encryption command on both the access points and the terminals.

Syntax:

LM*data*	WEP Key 1
LN*data*	WEP Key 2
LO*data*	WEP Key 3
LP*data*	WEP Key 4

Acceptable values for *data* are five ASCII characters or five hex pairs. If you use nonprintable ASCII characters using the TRAKKER Antares 2400 Menu System, you must enter:

`\xnn`

where *nn* is the hexadecimal value of the nonprintable character.

Default: WEP Key 1 is set to 80211.

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Radio.

Note: To set this command using bar code labels, you must also use the bar code labels in Appendix B of your user's manual. To use these labels, you must configure the terminal to use Code 39 in Full ASCII mode. For help, see "Code 39" in the "Configuration Command Reference" chapter in your user's manual.

Scan: To set the default for WEP key 1, scan this bar code:

Set WEP Key 1 to 80211

$+LM80211

WEP Key 1, WEP Key 2, WEP Key 3, WEP Key 4 (continued)

Or: To set a WEP key:

1. Scan this bar code:

   Enter Accumulate Mode

   +/

2. Scan one of these bar codes to set a WEP key:

   Set WEP Key 1

   $+LM

   Set WEP Key 2

   $+LN

   Set WEP Key 3

   $+LO

   Set WEP Key 4

   $+LP

3. Scan a value for *data* from the "Full ASCII Bar Code Chart" in Appendix B of your user's manual. The WEP key should be five ASCII characters.

4. Scan this bar code:

   Exit Accumulate Mode

   -/

WEP Transmit Key

Purpose: Determines which of the four WEP keys the terminal uses to transmit data. You can set this parameter to a value from 1 to 4. The default value is 1, which means the terminal uses WEP key 1. The access point and the terminal must use the same WEP transmit key.

Note: Before you can set the WEP transmit key, you must enable the WEP Encryption command on both the access points and the terminals.

Syntax: LL*data*

Acceptable values for *data* are any number from 1 to 4.

Default: 1

Menu System: From the Main Menu, choose Configuration Menu, then Communications Menu, and then Radio.

Scan: To set the default WEP transmit key, scan this bar code:

Default WEP Transmit Key

$+LL1

Or: To set the WEP transmit key:

1. Scan this bar code:

   Enter Accumulate Mode / Set WEP Transmit Key

   +/$+LL

2. Scan a numeric value for *data* from these bar codes:

   1

   2

   3

   4

3. Scan this bar code:

   Exit Accumulate Mode

   -/

3

DOS on the Trakker Antares Terminal

This chapter explains how to use ROM-DOS on Trakker Antares terminals that are running firmware version 6.12 or higher.

Overview

This chapter covers the following topics:

- Using DOS on the Trakker Antares terminal
- Customizing DOS drives and commands
- Limitations of ROM-DOS
- Troubleshooting
- DOS architecture on the Trakker Antares terminal

Using DOS on the Trakker Antares Terminal

Trakker Antares terminals can run ROM-DOS, which is compatible with DOS version 6.22. ROM-DOS provides application compatibility at the DOS level and interface compatibility at the BIOS level. You can develop and test DOS applications on your desktop PC and then easily install the applications on your terminals.

There are two types of applications you can run on the terminal:

- Native Trakker Antares application (.BIN executable binary format)
- DOS application (.EXE executable format)

DOS applications and native Trakker Antares applications are mutually exclusive. You can either run a DOS .EXE application or a native Trakker Antares .BIN application. To use DOS applications, the Trakker Antares terminal must be running firmware version 6.12 or higher. If you are using an earlier version of firmware, you must upgrade the firmware. For help, contact your local Intermec service representative.

Note: When DOS is running, label or bar code data is always entered into the keyboard buffer in Wedge mode.

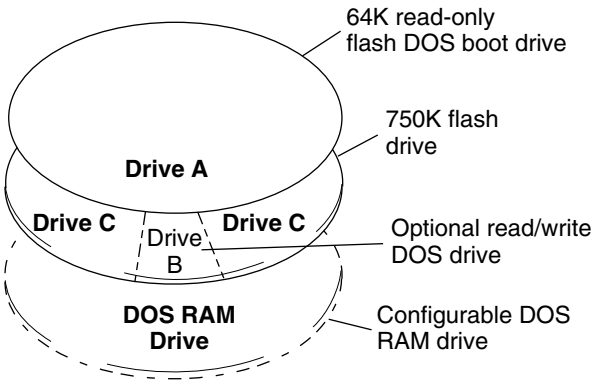
To run DOS applications on the terminal

1. Develop a DOS application.
2. Download the DOS application to the terminal.
3. Start DOS on the terminal.
4. Run the DOS application on the terminal and use ROM-DOS commands.

Each step is explained in this chapter. You will also learn how to customize the DOS drives and learn about the limitations of using ROM-DOS on the terminal.

Defining the Terminal's DOS Drives and Memory

The terminal comes with the files you need to run DOS and DOS .EXE applications on the terminal. On each DOS drive, filenames are customer defined using eight characters with a three-character extension. You cannot define any subdirectories.



24XXA100.eps

Drive A This drive is a 64K block of flash memory that is a read-only DOS boot drive. You can configure drive A, but you cannot write to it within an application. Drive A is created and initialized once you run the DOS.BIN application.

Drive B This drive is an optional read/write DOS drive that resides as a subdirectory on drive C. Drive B is limited by the space available on drive C. You can configure drive B by modifying the DRIVEB.IMG file that defines the ROM-DOS commands available on the terminal. For help, see "Customizing Drive B" later in this chapter.

Drive C This drive is a 2MB flash drive. You can use up to 750K of this flash drive to store up to 128 files, which includes drive B. DOS .EXE applications must be stored on drive C. You use standard ANSI C library interface definitions to access the information on this drive.

The following DOS files are installed originally on drive C.

File	Definition
DOS.BIN	This application reboots and runs ROM-DOS on a Trakker Antares terminal so that you can run DOS .EXE applications.
ROM-DOS.IMG	This file is the image file for ROM-DOS version 6.22.
DRIVEB.IMG	This image file contains the contents of DOS drive B. You cannot reference drive B from a Trakker Antares .BIN application file. If you delete this file, you lose drive B and the ROM-DOS commands that are defined for drive B.

Note: If you do not want to use DOS on the Trakker Antares terminal, you can save space by deleting DOS.BIN, ROM-DOS.IMG, and DRIVEB.IMG from drive C.

DOS RAM Drive This drive is a configurable DOS RAM drive. The contents of this drive are erased when you boot or reset the terminal. You use standard ANSI C functions to access the files on this drive. If you configure a DOS RAM drive, DOS assigns drive C to the RAM drive and reassigns the remaining Trakker Antares drives. For example, the Trakker Antares drive C becomes drive D. For help creating a DOS RAM drive, see "Configuring a DOS RAM Drive" later in this chapter. By default, the RAM drive is not configured and the memory is available for programmable (Malloc) memory.

There are two types of RAM drives that are mutually exclusive depending on whether you run native Trakker Antares .BIN applications or DOS .EXE applications. You use the standard RAM drive E for .BIN applications or you use a DOS RAM drive for DOS .EXE applications. Before you start using DOS on the terminal, you must disable the standard RAM drive. For help, see "RAM Drive Size" in the "Configuration Command Reference" chapter in the user's manual.

DOS .EXE applications are customer defined. You have 380K total RAM that you can use for DOS .EXE application execution space. You can also configure a DOS RAM drive. If the RAM drive is configured, your application execution space is reduced by the amount of the RAM drive. The remaining RAM is the Malloc/free memory pool.

Developing DOS Applications

You can create applications for the terminal using the Trakker Antares Programmer's Software Kit (PSK) or EZBuilder and Microsoft C/C++ functions.

To develop a DOS application

- On your PC, create the DOS .EXE application. Create the source code for your application by using an editor and then compile it.

Note: Intermec requires that you use the Trakker Antares PSK version 4.2 or higher to create DOS applications. To support DOS .EXE applications, some PSK library functions were moved from the IMT24LIB library to the LLIBCA library. The IMT24LIB library contains Intermec-specific functions. You can download the PSK from the Intermec Web site at www.intermec.com.

Downloading DOS Applications to the Terminal

Once you have developed your DOS .EXE application, you need to download the application from your PC to the terminal. DOS .EXE applications must be stored on drive C.

There are several ways to transfer files depending on the type of terminal. You can transfer the DOS .EXE applications and files by using serial or RF communications. For help, see Chapter 5 in the user's manual.

If you use terminal-and-stay-resident (TSR) programs in your DOS application, you also need to download and install the TSR files on the terminal. If your application uses a TSR on drive C, transfer the TSR to drive C along with the application. If your application uses a TSR on drive A, you need to recreate drive A to include the TSR. For help, see "Customizing Drive A" later in this chapter.

Starting DOS on the Terminal

Before you can run DOS applications on the Trakker Antares terminal, you need to start DOS. Once you have started DOS, you can switch between DOS and the TRAKKER Antares 2400 Menu System as needed.

You must run the file DOS.BIN to start DOS. There are two ways to start DOS:

- Use the Run Program reader command.
- Use the TRAKKER Antares 2400 Menu System.

The instructions in this section briefly explain both methods. For help using the TRAKKER Antares 2400 Menu System, see Chapter 3, "Configuring the Terminals" in the user's manual. For help using the Run Program reader command, see the "Reader Command Reference" chapter in the user's manual.

Note: If you run DOS on the terminal, you cannot use the standard RAM drive E for native Trakker Antares .BIN applications. Disable the RAM drive before you start DOS. For help, see "RAM Drive Size" in the "Configuration Command Reference" chapter in the user's manual.

To start DOS on the terminal

1. Press ⏻ to turn on the terminal.
2. Scan this full ASCII Code 39 bar code label:

   Run DOS.BIN

   //C:DOS.BIN

   Or:

   a. To access the TRAKKER Antares 2400 Menu System on T242X or T2455 terminals, press f ↵ 2 4 8 or scan the following bar code label:

      Test and Service Mode

      ..-.

Note: If you have a Trakker Antares 242X, you must use the Left Enter key when entering the key sequence to access the TRAKKER Antares 2400 Menu System.

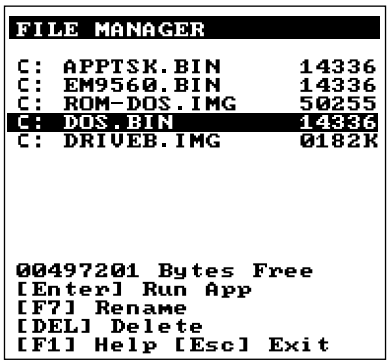
   The Main Menu appears.

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

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

24XXA054.eps

d. Press ↵ to select drive C. The File Manager screen appears listing all the files stored on drive C.



24XXA222.eps

Note: Drive C may contain additional applications, such as custom applications or terminal emulation applications.

e. Choose C:DOS.BIN and then press ↵.

f. Exit the menu system. If you made any configuration changes while you were working in the menu system, you will be prompted to store your changes in flash memory.

The terminal boots, resets all firmware, and starts DOS. You see the A: prompt on the terminal screen. If you turn the terminal off and then back on, the terminal either resumes exactly where it was when you turned it off, or the terminal boots and restarts DOS. Resume is controlled through the Resume Execution command.

Running DOS Applications and Using ROM-DOS Commands

Once you have loaded your files and applications, you can run your DOS applications. With some limitations, you can use DOS on the terminal as you do on a PC. You can create bar code labels for applications or commands that you use frequently.

DOS applications and Trakker Antares applications are mutually exclusive. You can either run a DOS .EXE application or you can run a native Trakker Antares .BIN application.

Note: You cannot run a DOS .EXE application from the TRAKKER Antares 2400 Menu System.

To run a DOS application

1. If necessary, change to the drive where the application is stored. At the DOS prompt, enter the drive letter followed by a colon (:) and then press ↵, or scan one of these full ASCII Code 39 bar code labels:

   A:

   A:<CR>

   B:

   B:<CR>

   C:

   C:<CR>

2. Enter the filename of the DOS application and then press ↵, or scan a bar code label that you have created for the application. For example, if the DOS application filename is SHIPPING.EXE, you can create this full ASCII bar code label:

   SHIPPING.EXE

   SHIPPING.EXE<CR>

Note: You can encode a <CR> (Enter) into the bar code label. If you do not include the <CR> in the bar code, you must press ↵ after you scan a bar code label for a drive, command, or a DOS application.

Using ROM-DOS Commands

With some limitations you can use ROM-DOS commands on the terminal as you do on a PC.

To use ROM-DOS commands

- From the DOS prompt on the terminal, type a ROM-DOS command and then press ↵ to execute the command. For example, you can list the files on drive C by entering this command:

  ```
  dir
  ```

  You can also scan a bar code label that you have created for the ROM-DOS command. For example, you can scan this full ASCII bar code label to use the DIR command:

  DIR command

  DIR<CR>

The next table lists the ROM-DOS commands and the level of support that is provided on the Trakker Antares terminal. There are internal and external ROM-DOS commands. Internal commands such as CLS and DIR are built into the main body of ROM-DOS and are implemented within COMMAND.COM. When you load DOS into memory, all internal commands are available. The external ROM-DOS commands are defined on drive B. For help using ROM-DOS commands, see a DOS manual.

Note: You must use the ROM-DOS commands that are provided on the Trakker Antares terminal. The ROM-DOS commands are also available from the Intermec Web site at www.intermec.com. DOS commands or ROM-DOS commands copied from another computer will not run on a Trakker Antares terminal.

ROM-DOS Command	Supported?	External ROM-DOS Command on Default Drive B	Notes
ATTRIB	Yes	Yes	You can only use ATTRIB on DOS drives.
CD	Yes		
CHKDSK	Limited		You can only use CHKDSK on DOS drives.
CHOICE	Yes	Yes	
CLS	Yes		
COPY	Yes		
DATE	Yes		
DEL	Yes		
DELTREE	Yes	Yes	You can only use DELTREE on DOS drives.
DIR	Yes		
DISKCOMP	Limited		You can only use DISKCOMP on DOS drives.
DUMP	Yes	Yes	You can only use DUMP on DOS drives.
ECHO	Yes		
ERASE	Yes		
EXIT	Yes		
FIND	Yes	Yes	
FOR	Yes		
GOTO	Yes		
IF	Yes		

ROM-DOS Commands in Alphabetical Order

ROM-DOS Command	Supported?	External ROM-DOS Command on Default Drive B	Notes
LOADHIGH	No		
MEM	Yes	Yes	
MIRROR	Limited		You can only use MIRROR on DOS drives.
MODE	Limited	Yes	The MODE command is limited by the lack of PC-compatible hardware on the Trakker Antares terminal.
MORE	Yes	Yes	
MOVE	Yes	Yes	
PAUSE	Yes		
PM	Yes	Yes	PM.COM is a Trakker Antares command that enables or disables the power management scheme used by the BIOS get keyboard key function and the BIOS check keyboard key function. For help using PM.COM, see the next section.
PROMPT	Yes		
REM	Yes		
REMDISK	No		
REMSERVER	No		
REN	Yes		
RSZ	No		
SET	Yes		
SHIFT	Yes		
SORT	Yes	Yes	
Standard console redirection commands	Yes		
SUBST	Yes	Yes	
SYS	Limited		You can only use SYS on DOS drives.

ROM-DOS Commands in Alphabetical Order

ROM-DOS Command	Supported?	External ROM-DOS Command on Default Drive B	Notes
TIME	Yes		
TREE	Yes	Yes	
TYPE	Yes		
VDISK	Yes	Yes	Use VDISK to create a DOS RAM drive.
VER	Yes		
VERSION.SYS	Yes	Yes	
XCOPY	Yes	Yes	

Using the PM.COM Command

PM.COM is a Trakker Antares command that enables or disables the power management scheme used by the BIOS get keyboard key function and the BIOS check keyboard key function. When you enable power management (PM.COM), the BIOS progressively increases the wait interval when requesting key input from the keyboard. You can run PM.COM from AUTOEXEC.BAT or at the DOS prompt.

The syntax for PM.COM is:

`PM data`

Acceptable values for *data* are:

0 Disables BIOS power management
1 Enables BIOS power management

Stopping DOS and Running a .BIN Application

You stop or exit DOS by running a native Trakker Antares .BIN application. Once you run a .BIN application other than DOS.BIN, the terminal stops or exits DOS. There are two ways to run an application:

- Use the Run Program reader command.
- Use the TRAKKER Antares 2400 Menu System.

For help using the TRAKKER Antares 2400 Menu System, see Chapter 3, "Configuring the Terminal" in the user's manual. For help using the Run Program reader command, see the "Reader Command Reference" chapter in the user's manual.

Customizing DOS Drives and Commands

You can customize DOS on your Trakker Antares terminal by

- changing AUTOEXEC.BAT or CONFIG.SYS and customizing drive A.
- adding or removing external ROM-DOS commands that are available on drive B.
- creating a DOS application or TSR for drive C.

Intermec recommends that you create all the files on your PC and then download the files to your terminal. The next section explains the DOS software tools that you need to customize drive A and B.

Trakker Antares DOS Software Tools

You need the following DOS software tools to create and download files to drives A and B.

Software Tool	Definition
MAKE_A.BAT	Creates a file named DRIVEA.BIN that contains the drive A image. The maximum size of drive A is 64K.
MAKE_B.BAT	Creates a DRIVEB.IMG file that contains the external ROM-DOS commands for drive B. You can copy the DRIVEB.IMG file from the PC to drive C on the terminal.
PUT_A.BAT	Downloads the drive A image file (DRIVEA.BIN) from a PC to the terminal. This tool actually replaces all files on drive A.

The DOS software tools, ROM-DOS commands for drive B, and drive A files are available from the Intermec Web site at www.intermec.com. (Choose Support, then Product Support, and then Downloads.) For additional help, contact your local Intermec service representative.

Note: The self-extracting executable file that you download from the Intermec Web site includes the DOS software tools and support files; ROM-DOS commands; and drive A files. LISTFILE.DRV, PROMERGE.EXE, and ROMDISK.EXE are support files that are required to use MAKE_A.BAT, MAKE_B.BAT, and PUT_A.BAT.

Customizing Drive A

Drive A is a 64K block of flash memory that is a read-only DOS drive. You can configure drive A, but you cannot write to it when you run an application.

Original Contents of Drive A

The next table describes the files that are factory installed on drive A.

File	Definition
ANTIFS.EXE	Provides an Installable File System (IFS) for the Trakker Antares proprietary file system so that DOS can recognize and use drives C, D, and G. Removing the ANTIFS.EXE file from drive A may result in no drive C.
AUTOEXEC.BAT	Loads programs and defines paths. When you run DOS.BIN to start DOS, the AUTOEXEC.BAT file runs automatically.
COMMAND.COM	Supports internal ROM-DOS commands. It is required for user interface and batch file processing. COMMAND.COM is the default DOS command that displays the DOS prompt.
COMMAND.HLP	Provides help for ROM-DOS commands. You can type `/?` after most ROM-DOS commands to get help or information about a command.
CONFIG.SYS	Loads device drivers. For limitations, see "Limitations of ROM-DOS" later in this chapter.

The default AUTOEXEC.BAT file contains these lines:

Command Line	Definition
`@echo off`	The AUTOEXEC.BAT commands are not displayed on the terminal as they are executed.
`antifs.exe`	Installs the Installable File System (IFS) for the Trakker Antares proprietary file system so that DOS can recognize and use drives C, D, and G.
`set dircmd=/p/a/o:gn`	Directs the DIR command to list all files; include hidden files (/a) by pages (/p); group directories first (/o:g); and sort by filename (n).
`set path=a:\;b:\;c:\`	Directs DOS to look for commands and programs in the root directories of drives A, B, and C.
`cls`	Clears the screen.
`ver`	Displays the ROM-DOS version.
`If exist c:\user.bat c:\user`	If a file named USER.BAT is on drive C, the terminal runs that batch file. You can create a USER.BAT file that includes changes to modify drive A rather than having to recreate and reload the drive A image.

The default CONFIG.SYS file contains one command line:

Command Line	Definition
`rem device=b:\vdisk.sys`	You can use the VDISK.SYS command to create a virtual ROM-DOS RAM drive. The command is remarked out in the CONFIG.SYS file so that there is no RAM drive. For help, see "Configuring a DOS RAM Drive" later in this chapter.

Changing DOS Files on Drive A

The contents of drive A cannot be changed directly. The default AUTOEXEC.BAT file checks for a USER.BAT file on drive C that you can use to execute startup commands or files without changing drive A. To change or add files on drive A, you use the DOS software tools MAKE_A.BAT and PUT_A.BAT.

To add a file to drive A or change AUTOEXEC.BAT or CONFIG.SYS

1. On the PC, create a new directory or folder named DOSTOOLS and copy the DOS tools MAKE_A.BAT and PUT_A.BAT into this directory.

   You can download the DOS software tools and a copy of the original drive A files from the Intermec Web site. For help, see "Trakker Antares DOS Software Tools" earlier in this chapter.

2. In the DOSTOOLS directory, create a subdirectory named DRIVEA that contains all the drive A files. For example, the directory may contain ANTIFS.EXE, AUTOEXEC.BAT, COMMAND.COM, COMMAND.HLP, and CONFIG.SYS.

   Note: Make sure to include ALL drive A files on the DRIVEA subdirectory. The contents of this subdirectory will replace the contents of drive A.

3. Edit one of the existing drive A files such as the AUTOEXEC.BAT or CONFIG.SYS file. You can also create a new batch file or TSR to add to drive A and put the file in the DRIVEA subdirectory.

4. From the DOSTOOLS directory, type this command:

   ```
   MAKE_A.BAT
   ```

   The batch file creates the image file named DRIVEA.BIN that contains all the files in the subdirectory DRIVEA.

5. Connect the PC to the terminal through a serial connection.

6. Access the Loader Waiting screen on your T242X or T2455. If you have a 246X continue with step 7.

   a. Press ⍜ to turn on the terminal.

b. To access the TRAKKER Antares 2400 Menu System on T242X or T2455 terminals, press f ↵ 2 4 8 or scan the following bar code label:

Test and Service Mode

..-.

Note: If you have a Trakker Antares 242X, you must use the Left Enter key when entering the key sequence to access the TRAKKER Antares 2400 Menu System.

The Main Menu appears.

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

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

e. Choose OK to continue. The next screen appears prompting you to continue upgrading the firmware. In this case, you are not actually upgrading all the firmware. You will only be replacing the files on drive A.

f. Choose Yes to continue and upgrade drive A. The terminal reboots and then displays the Loader Waiting screen.

7. On your PC, open an MS-DOS window and change to the DOSTOOLS directory.

8. On your PC, type this command:

```
PUT_A.BAT
```

The Loader screen appears on the PC.

9. Access the Loader Waiting screen on your 246X.

a. Press I to turn on the terminal.

b. Press I for 3 to 5 seconds until you see the right most LED flash and the 246X turns off.

c. Press I again. The 246X will run POST and check for Loader Waiting, synchronizing with your PC.

The DRIVEA.IMG file is transferred to the terminal and used to replace the contents of drive A. Once the batch file is complete and drive A is replaced, the terminal boots and displays the DOS prompt.

Note: When you use PUT_A.BAT, you are replacing all files on drive A.

Customizing Drive B

Drive B is an optional read/write DOS drive. It contains an image of the external ROM-DOS commands that are available by default on the Trakker Antares terminal. Drive B resides as a subdirectory on drive C and is limited by the space available on drive C.

As with drive A, the contents of drive B cannot be changed directly. To make configuration changes, you must use the DOS software tool MAKE_B.BAT.

To change drive B, you must recreate the file DRIVEB.IMG. When you do, you are *replacing* all files on drive B.

The following files are the default files installed originally on drive B.

ATTRIB.COM	MOVE.COM
CHOICE.COM	PM.COM
DELTREE.EXE	SORT.COM
DUMP.EXE	SUBST.EXE
FIND.COM	TREE.COM
MEM.EXE	VDISK.SYS
MODE.COM	VERSION.COM
MORE.COM	XCOPY.COM

VDISK.SYS and PM.COM are ROM-DOS commands that were created for the Trakker Antares terminal. For help with VDISK.SYS, see "Configuring a DOS RAM Drive" later in this chapter. For help with PM.COM, see "Using the PM.COM Command" earlier in this chapter. For information on other ROM-DOS commands, see a DOS manual.

Note: Make sure that you only use ROM-DOS commands provided by Intermec, because some of the ROM-DOS commands have been modified specifically for the Trakker Antares terminal. You can download the ROM-DOS commands from the Intermec Web site. For help, see "Trakker Antares DOS Software Tools" earlier in this chapter.

To change the contents of drive B

1. On the PC, create a new directory or folder named DOSTOOLS and copy the DOS tool MAKE_B.BAT into this directory.
2. In the DOSTOOLS directory, create a subdirectory named DRIVEB that contains all the files (including any external ROM-DOS commands) that you want to use on the terminal's drive B.

3. From the DOSTOOLS directory, type this command:

   ```
   MAKE_B.BAT
   ```

   The batch file creates the image file named DRIVEB.IMG that contains all the files in the subdirectory DRIVEB.

4. Transfer the DRIVEB.IMG file from the PC to drive C on the terminal. There are several ways to transfer files depending on the type of terminal. You can transfer files by using serial or RF communications. For help, see Chapter 5 in the user's manual.

Configuring a DOS RAM Drive

You have 380K total RAM that you can use for DOS .EXE application execution space. You can also configure a ROM-DOS RAM drive. If the RAM drive is configured, your application execution space is reduced by the amount of the RAM drive. The remaining RAM is the Malloc/free memory pool. The contents of this drive are erased when you boot or reset the terminal.

To configure a DOS RAM drive

1. On your PC, edit or create the CONFIG.SYS file.
2. Remove "rem" from the start of this line:

   ```
   rem device=b:\vdisk.sys
   ```

3. Add or set parameters for the DOS RAM drive using this syntax:

   ```
   device=vdisk [size [secs[dirs]]][/E]
   ```

   where:

   vdisk — VDISK is a device driver that partitions some of DOS memory as a RAM disk. Any data that is stored on the DOS RAM drive is lost when you reboot the Trakker Antares terminal. All data on the RAM drive is saved when you turn the terminal off and on (suspend and resume). The VDISK driver increases the resident size of DOS.

   size — Sets the size in bytes of the DOS RAM drive. The default size is 64K. The memory or size that you set is allocated from the DOS memory pool and it will decrease the amount of memory available for applications.

   secs — Sets the sector size in bytes. The default is 512 bytes per sector. You can set the sector size to: 128, 256, 512, or 1024. All other values are not valid and the sector size defaults to 512.

   dirs — Sets the number of root directory entries. The default is 64 directory entries. You can set the root directory entries to any number from 2 to 1024. If you enter an odd number, it is rounded up to the nearest multiple of 16 to fill the entire sector.

   /E — This parameter is not valid since the Trakker Antares terminal does not contain extended memory.

4. Copy the CONFIG.SYS file to the directory or folder that contains your DOS files for drive A.
5. Create a drive A image file to download to the terminal. For help, see "Customizing Drive A" earlier in this chapter.

Once you replace drive A and create the DOS RAM drive, DOS assigns drive C to the RAM drive and reassigns the remaining Trakker Antares drive letters. For example, the Trakker Antares drive C becomes drive D.

Limitations of ROM-DOS

The Trakker Antares terminal supports a limited set of DOS. Here are the limitations:

- Applications cannot interact directly with hardware nor memory locations such as timer ticks.
- **Ctrl-Alt-Del** is not supported. Use the Reset Firmware command or boot the terminal. For help, see "Booting and Resetting the Terminal" in Chapter 5 in the T242X and T2455 user's manuals or in Chapter 6 in the 246X user's manual.
- DOS batch file commands are all supported except LOADHIGH (no high memory is available).
- Some DOS processing commands are not supported because DOS=HIGH, DOS=UMB, DEVICEHIGH=*n*, and DOS switches are not supported.
- RAMDRIVE.SYS is not compatible with the Trakker Antares terminal. You can use VDISK.SYS as a replacement for this DOS driver. For help, see "Configuring a DOS RAM Drive" earlier in this chapter.

This table lists the BIOS interfaces that are supported and those that are not supported by ROM-DOS on the Trakker Antares terminal.

BIOS Interface	Supported?	Notes
INT 10H – Display Functions		
INT 10H function 0EH	Yes	
INT 10H functions 0H, 2H, 3H, 6H, 7H, 8H, 9H, 13H	Limited	These functions are limited by the lack of PC-compatible hardware on the Trakker Antares terminal.
INT 11H	Yes	
INT 12H	Yes	
INT 13	No	The Trakker Antares terminal contains flash memory rather than a disk drive.
INT 14H – Compatibility Functions		
INT 14H functions 01H–03H	Yes	

Limitations of ROM-DOS (continued)

BIOS Interface	Supported?	Notes
INT 14H functions 0H	Limited	This function is limited by the existing Trakker Antares system interface.
INT 15H function 4F	Yes	
INT 16H – Keypad Functions		
INT 16H functions 00H, 01H, 10H, 11H, 12H	Yes	
INT 17 – Time Functions		
INT 1AH functions 00H, 01H, 02H, 03H, 04H, 05H	Yes	
INT 1AH functions 06H, 07H	No	These functions are not supported due to the lack of PC-compatible hardware on the Trakker Antares terminal.

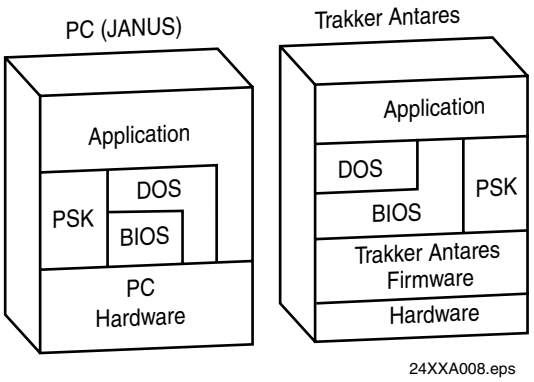
Troubleshooting

This table lists problems that may occur when you run DOS-based applications on the terminal.

Problem	Solution
There is not enough memory to load a program.	You need to free conventional memory.
You try to run a DOS application in the TRAKKER Antares 2400 Menu System and see this message: `Not a valid application.`	You tried to run a DOS .EXE application from the TRAKKER Antares 2400 Menu System. You can only run .BIN applications in the menu system. To run a DOS .EXE application, enter the filename at the DOS prompt. For help, see "Running DOS Applications and Using ROM-DOS Commands" earlier in this chapter.
A DOS command does not work.	For a list of commands, see "Using ROM-DOS Commands" earlier in this chapter.
The terminal does not boot after you modified the CONFIG.SYS file.	Correct the error in CONFIG.SYS and use the DOS software tools to recreate drive A with the corrected CONFIG.SYS file.

DOS Architecture on the Trakker Antares Terminal

The next diagram shows the Trakker Antares DOS architecture compared to the JANUS (PC) DOS architecture. Use the diagram to understand the limitations of DOS on the terminal.



4

Updates to Hardware and Software

This chapter describes changes that have been made to Trakker Antares hardware and software that are not yet reflected in the user's manual.

Overview

This chapter covers the following topics:

- Enhancements to terminal drives
- Handle accessory for the T242X hand-held terminal
- New information for networking
- Support for the Euro symbol
- New application support
- New diagnostics
- Configuration command updates
- Troubleshooting PSK and EZBuilder applications

Some of these updates and changes are specific to firmware version 6.13, and some also apply to earlier firmware releases.

The following information applies to any type of Trakker Antares terminal unless the description identifies a specific Trakker Antares model, such as the T2425.

Enhancements to Terminal Drives

The terminal comes with flash drive(s) and a configurable RAM drive. Depending on the terminal you have, you can also purchase optional drives. With version 6.13, you can now store up to 128 files on each drive.

Handle Accessory for the T242X Hand-Held Terminal

If you have a T242X hand-held terminal, you can use the handle accessory (Part No. 068393) to hold the terminal and scan labels. The following table lists the scan modules that are compatible with the handle accessory:

Scan Module	Part No.	Description
High Density	069226	This scan module is an integrated scanner that you can use to scan bar code labels that are too dense for a normal scan module.
High Visibility	069225	This scan module is an integrated scanner that you can use to scan bar code labels in brighter environments, such as in sunlight.
Long Range	069224	This scan module is an integrated scanner that you can use to scan bar code labels from up to 20 feet away depending on the bar code height and density.
Standard Range	069223	The standard range laser scan module is an integrated scanner that you can use to scan bar code labels from up to 30 inches away depending on the bar code height and density.

New Information for Networking

This section provides new information about operating terminals in a network.

Roaming Across Subnetworks

Access points act as bridges that provide communications between the wired network and the RF (UDP Plus or TCP/IP) networks.

With firmware version 6.13, if you are using 21XX Universal Access Points (UAPs), a terminal can roam across subnetworks. With earlier versions of firmware, a terminal can only communicate with the access points in the same subnetwork.

Configuring Through the Network

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

With firmware version 6.13 installed, you can modify most RF network parameters through the network, except for the following parameters:

- Acknowledgement Delay Lower Limit
- Acknowledgement Delay Upper Limit
- Controller Connect Check Receive Timer
- Controller Connect Check Send Timer
- DHCP
- Maximum Retries
- Network Activate
- TCP Maximum Retries
- TCP/IP Maximum Transmit Timeout

You can still modify these parameters as indicated in the "Configuration Command Reference" chapter in your user's manual.

Changes to Master Polling Protocol

Master Polling Mode D protocol requires the terminal to ask the downline serial device for data it may have (polling) and to request to send data to the serial device (selecting). Because polling is not automatic, your application must periodically poll for data.

With firmware v4.x and earlier, you can define the following serial port parameters:

- Baud rate
- Flow control

The Trakker Antares 242X user's manual indicates that you can also define these parameters with later versions of firmware. However, with firmware v5.x and later, you can only define the following serial port parameter for Master Polling protocol:

- Baud rate

Support for the Euro Symbol

Trakker Antares terminals use an English and Western European font set that supports languages such as French, German, Italian, Portuguese, and Spanish. With firmware version 6.13 and later, the Euro symbol (€) has been added to this font set.

The following table contains more information about the Euro symbol. The terminal keys and the decimal, scan code, and hexadecimal values are the same for all keypads and overlays.

Character	Terminal Keys	Decimal	Scan Code	Hexadecimal
€	⇧ .	213	5C	D5

Note: The Euro symbol (€) replaces the previous symbol at decimal value 213.

New Application Support

This section describes changes and enhancements that have been made to applications.

Creating a Custom Logo

You can create a custom logo that appears on the terminal screen each time the terminal boots. This custom logo replaces the Intermec Trakker Antares logo and is displayed on the screen until the boot sequence is complete.

To use a custom logo

1. On your PC, create a custom logo in BMP format.
2. Save the custom logo as USERINIT.BMP.
3. Download USERINIT.BMP from your PC to the terminal flash drive C using the serial port, DCS 30X, or a host application.

Using the PSK or EZBuilder to Develop Applications

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

Now you can download the latest version of the PSK at no charge from the Intermec Web site at www.intermec.com. This kit has a full set of programming tools to help you create applications for the terminal.

New Supported 95XX Emulation Features

The Trakker Antares 24XX terminals ship with the EM9560.BIN application. With this application, you can use the programmable terminal as a remote input/output terminal in which all prompts and commands are controlled by the host computer. With this application, the terminal is similar to a 95XX in Data Entry mode with no application running.

The following new 95XX features are supported by the EM9560.BIN application on the T24XX with firmware version 6.12 and higher:

- Buffered and transparent display modes are supported. The Display Setting configuration command (OD) is also supported.
- You can emulate Accumulate mode so that keypad data can be combined with scanned data.

Using Display Modes

With the EM9560.BIN application, you can use Buffered display mode and Transparent display mode. In Buffered mode, new data is placed on a new line, which keeps blocks of data separated. In Transparent mode, new data is placed at the current cursor position, which makes screen formatting by the host easier.

Run the EM9560.BIN application before you set the display mode emulation feature.

Syntax: DM*data*

Acceptable values for *data* are:

0 Buffered display mode
1 Transparent display mode

Default: Transparent display mode

Scan: One of these bar codes:

Buffered Display Mode

$+DM0

Transparent Display Mode

$+DM1

Other: To provide compatibility with the 95XX, you can also use this syntax:

OD*data*

where *data* is a 0 or 1.

Using Accumulate Mode

With the EM9560.BIN application, you can emulate Accumulate mode (Emulation mode) and combine keypad data with scanned data. Data that you accumulate appears on the bottom line of the terminal screen. You can edit this data using the reader commands for backspace and clear, or you can use the [→] key.

You scan a bar code to toggle between Emulation mode and native Trakker Antares mode. Run the EM9560.BIN application before you set the accumulate mode emulation feature.

Default: Native Trakker Antares mode

Note: To set this command using bar code labels, you must also use the bar code labels in Appendix B of your user's manual. To use these labels, you must configure the terminal to use Code 39 in Full ASCII mode. For help, see "Code 39" in the "Configuration Command Reference" chapter in your user's manual.

Scan: To toggle between Emulation mode and Native Trakker Antares mode, scan this bar code:

Toggle Emulation Mode / Native Trakker Antares Mode

ACCUMULATE

Or, to use Emulation mode:

1. Scan this bar code:

   Enter Accumulate Mode

   +/

2. Scan data from the "Full ASCII Bar Code Chart" in Appendix B in your user's manual, or type data using the keypad.
3. Scan this bar code:

   Exit Accumulate Mode

   -/

New Diagnostics

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

The next sections describe the following new diagnostics for the T242X and T2455 terminals:

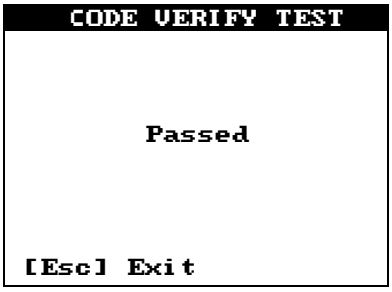
- Code Verify
- Font Test
- Keypad Table

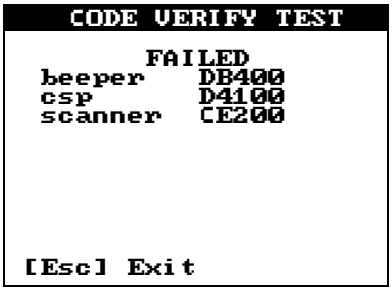
Code Verify

Purpose: A programmer or application developer can use this diagnostic to determine if the terminal's firmware has been overwritten.

Where Available: System Diagnostics menu

Sample Screen:





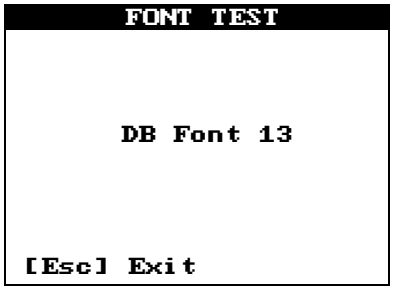
Definition: If this diagnostic passes, "Passed" appears on the screen. If this diagnostic fails, the name of the firmware driver that failed and its address appears on the screen. Note this information and contact your local Intermec service representative.

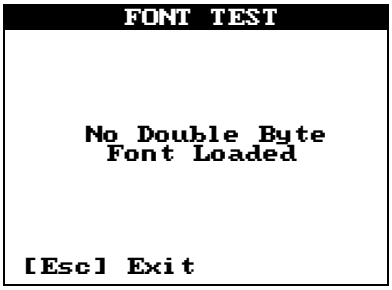
Font Test

Purpose: You can use this diagnostic to identify which double-byte font, if any, you have loaded on your terminal.

Where Available: Software Diagnostics menu

Sample Screen:





Definition: If you ordered the optional 4MB flash memory for your terminal, you can use the Trakker Antares Font Loader to download a double-byte font set to the terminal. See your local Intermec sales representative for information about ordering double-byte fonts.

Use this table to match the font number with the double-byte font that is loaded on your terminal.

Font Number	Double-Byte Font	File Name
1	Simplified Chinese, VT	24DBCSCT.fon
2	Japanese, 5250	24DBCSJL.fon
4	Korean, VT	24DBCSKT.fon
5	Korean, 5250	24DBCSKL.fon
8	Big 5 Chinese, VT	24DBCSTT.fon
9	Japanese, VT	24DBCSJT.fon
11	Big 5 Chinese, 5250	24DBCSTL.fon
13	Simplified Chinese, 5250	24DBCSCL.fon

Keypad Table

Purpose: Intermec service personnel use this diagnostic to identify the number of the keypad table that you have loaded on your terminal.

Where Available: Software Diagnostics menu

Sample Screen:

Definition: This table matches the hex code on the screen with a description of the keypad table that is loaded on your terminal.

Hex	Description	Hex	Description	Hex	Description
0x00	Terminal Emulation, T242X	0x0A	German QWERTY, T248X	0x14	Programmable/international, 55-key, 241X
0x01	Programmable, T242X	0x0B	Portuguese QWERTY, T248X	0x15	Terminal emulation, 55-key, 241X
0x02	English QWERTY (XT), T248X	0x0C	Terminal emulation with backspace key, T242X	0x16	Not used
0x03	5250 alphanumeric (XT), T248X	0x0D	Programmable with backspace key, T242X	0x17	Not used
0x04	3270 alphanumeric (XT), T248X	0x0E	English ABCD (AT), T2455	0x18	Programmable, 37-key, 241X
0x05	VT/ANSI alphanumeric (XT), T248X	0x0F	5250 alphanumeric (AT), T2455	0x19	Terminal emulation, 37-key, 241X
0x06	Function key with large numeric, 37-key, T248X	0x10	3270 alphanumeric (AT), T2455	0x1A	International, 37-key, 241X
0x07	French AZERTY, T248X	0x11	VT/ANSI alphanumeric (AT), T2455	0x1B	Programmable, function key with large numeric, 241X
0x08	Italian QWERTY, T248X	0x12	European (AT), T2455	0x1C	Terminal emulation, function key with large numeric, 241X
0x09	Spanish QWERTY, T248X	0x13	Compatible 1, VMT and LI (AT), 246X	0x1D	International, function key with large numeric, 241X

Configuration Command Updates

This section describes the following new and updated configuration commands:

- AP MAC Address
- Beep Duration
- Command Processing Update
- End of Message (EOM)
- Keypad Control
- Radio MAC Address
- UPC/EAN Update

AP MAC Address

Purpose: Returns the MAC address of the radio that is installed in the access point that the T2425 or T2455 is communicating with. You can only use this read-only command in an application to return the value (MAC address) to the application.

Syntax: RA

Default: None

Menu System: Not applicable

Scan: Not applicable

Beep Duration

Purpose: Sets the length of the terminal's audio signals. You can define a different duration for the high and the low beep tone. Use the beep duration with the beep volume to define beeps according to operator preference and work environment.

Syntax: BD*databeep*

Acceptable values for *data* are any number from 2 to 7999 ms.

Acceptable values for *beep* are:

H	High
L	Low

Default: 50 ms, high and low beep tones

Menu System: Not supported.

Scan: To set the default beep duration, scan this bar code:

Default Beep Duration

$+BD50HBD50L

Or: To set a beep duration:

1. Scan this bar code:

   Enter Accumulate Mode / Set Beep Duration

   +/$+BD

2. Scan a numeric value for *data* from these bar codes:

0

1

2

3

4

5

Beep Duration (continued)


6


7


8


9

3. Scan the beep tone for which you are setting the beep duration:

High


H

Low


L

4. Scan this bar code:

Exit Accumulate Mode


-/

Command Processing Update

The Trakker Antares 242X and 2455 user's manuals describe how to use command processing with accumulate mode to enable and disable the TRAKKER Antares 2400 Menu System. This section describes how to enable and disable the menu system without using accumulate mode.

Purpose: Command processing lets you disable or enable reader commands. For example, you can disable the Test and Service Mode reader command, to prevent access to the TRAKKER Antares 2400 Menu System using the keypad. If you disable this reader command, you can no longer access the TRAKKER Antares 2400 Menu System using the keypad.

Scan: To disable or enable the Menu System, scan one of these bar codes:

Disable Menu System

$+DC..-.0

Enable Menu System

$+DC..-.1

End of Message (EOM)

The Trakker Antares 242X user's manual provides information for the End of Message configuration command for the COM1 and COM4 ports. However, the manual does not provide information for the optional modem (COM3) on the T2420. This section provides complete information for all three ports.

Purpose: Attaches an EOM to the end of a data block to indicate the end of data transmission to and from a terminal. When EOM is disabled, the terminal communicates in Character mode. When EOM is enabled, the terminal communicates in Frame mode.

You must configure a value for EOM before you can set these other serial communications commands:

- Configuration Commands Via Serial Port
- Handshake
- LRC
- Start of Message (SOM)

EOM **cannot** equal the same value that is set for SOM. You **cannot** set EOM to any of these values:

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

Syntax: YZ*n.data*

where *n* is:

1 COM1 port
3 COM3 port
4 COM4 port

Acceptable values for *data* are one or two ASCII characters.

Default: \x03 (hexadecimal value for ETX)

Note: To set this command using bar code labels, you must also use the bar code labels in Appendix B of your user's manual. To use these labels, you must configure the terminal to use Code 39 in Full ASCII mode. For help, see "Code 39" in the "Configuration Command Reference" chapter in your user's manual.

Scan: To disable EOM, scan one of these bar codes:

Disable EOM for COM1

$+YZ1.

Disable EOM for COM3

$+YZ3.

Disable EOM for COM4

$+YZ4.

Or: To set EOM to one or two ASCII characters for one serial port:

1. Scan this bar code:

   Enter Accumulate Mode / Set EOM

   +/$+YZ

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

   COM1

   1.

   COM3

   3.

   COM4

   4.

3. Scan one or two bar codes for *data* from the "Full ASCII Bar Code Chart" in Appendix B of your user's manual.
4. Scan this bar code:

   Exit Accumulate Mode

   -/

5. Repeat Steps 1 through 4 to set the EOM for another serial port.

Note: For COM1 only. To provide compatibility with earlier Trakker Antares firmware versions, you can also use this syntax:

PF*data*

where *data* is one or two ASCII characters.

Keypad Control

Purpose: Enables or disables the keypad. When you disable the keypad, you cannot use the keypad to enter information into the terminal.

Syntax: KE*data*

Acceptable values for *data* are:

0 Disable keypad
1 Enable keypad

Default: Enabled

Menu System: Not supported.

Scan: One of these bar codes:

Disable Keypad

$+KE0

Enable Keypad

$+KE1

Radio MAC Address

Purpose: Returns the MAC address of the radio that is installed in the T2425 or T2455 terminal. You can use this read-only command in an application to return the value (MAC address) to the application.

Syntax: RI

Default: None

Menu System: Not applicable

Scan: Not applicable

UPC/EAN Update

This section lists additional options for the second and fourth digits in the UPC/EAN configuration command.

Purpose: This CE command enables or disables the decoding of Universal Product Code (UPC)/European Article Numbering (EAN) symbology.

To define the UPC/EAN symbology, you set up to seven digits. The second digit now has an added option for expanding zeroes in UPC-E, and the fourth digit now has additional options for supplementals.

The supplemental portion of a UPC or EAN label is a weak symbology and can be missed by the scanner for several reasons. In situations where supplementals are known to be present, reading just the main symbol can be prevented until a valid supplemental is found. When using a laser scanner, performance degradation is not noticeable.

The fifth, sixth, and seventh digits are optional. To set the sixth digit, you must set the fifth digit. To set the seventh digit, you must set all seven digits.

Syntax: CE*data*

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

First digit:	0	UPC-A/EAN-13 disabled
	1	UPC-A/EAN-13 enabled
	2	UPC-A only enabled
Second digit:	0	UPC-E disabled
	1	UPC-E enabled
	2	Expanded zeroes
Third digit:	0	EAN-8 disabled
	1	EAN-8 enabled
Fourth digit:	0	Supplementals not allowed
	1	Supplementals allowed
	2	Supplementals required
	3	Two-digit supplementals required
	4	Five-digit supplementals required
Fifth digit:	0	Discard check digit
	1	Transmit check digit
Sixth digit:	0	Discard number system digit
	1	Transmit number system digit
Seventh digit:	0	Discard the leading zero for UPC-A
	1	Retain the leading zero for UPC-A

UPC/EAN (continued)

Default: 1111111

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

Scan: To disable UPC/EAN, scan this bar code:

Disable UPC/EAN

$+CE0000000

Or: To enable UPC/EAN:

1. Scan this bar code:

   Enter Accumulate Mode / Enable UPC/EAN

   +/$+CE

2. Scan one of these bar codes to set the first digit:

   Disable UPC/EAN-13

   0

   Enable UPC/EAN-13

   1

   Enable UPC-A Only

   2

UPC/EAN (continued)

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

Disable UPC-E

0

Enable UPC-E

1

Expand Zeroes

2

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

Two-Digit Supplementals Required

3

Five-Digit Supplementals Required

4

6. (Optional) Scan one of these bar codes to set the fifth digit:

Discard Check Digit

0

Transmit Check Digit

1

UPC/EAN (continued)

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

-/

Troubleshooting PSK and EZBuilder Applications

When you run PSK or EZBuilder applications and there is no RAM drive configured, you may see one of these messages:

```
SCREEN ERROR: 30
Code: 9
Hit any key To exit!

SCREEN ERROR: 31
Code: 3
Hit any key To exit!
```

To solve this problem, you must set the RAM Drive Size configuration command. For details about configuring RAM Drive Size, see your user's manual.